dcTrack 9.2 User Guide

Sunbird

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Sharing Links to WidgetsdcTrack allows users to create links to widgets that can be shared with both dcTrack and non dcTrack users via internal portals, embedded in documents or included in email. The data reflected in the widgets is current within minutes of the time the link is clicked. Steps to create a shareable link Click Get Public Embeddable Link from the actions menu of the widget you wish to create a link toFrom the pop up window click Copy To Clipboard Click Close to close the windowThe URL may now be pasted from the Clipboard into documents, emails or internal platforms like SharePoint or Jira.Note: Widget images have a 10 minute cache period, so if it has been more than 10 minutes since the last time the link was accessed, the Widget image is refreshed with current data.For additional information please see the video atHow to Display Dashboard Widget Data 487
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What's New in dcTrack 9.2.0

This online help is a searchable source of information around the features and capabilities of Sunbird's dcTrack® DCIM operations software.

- Hierarchical floor maps
- Explicit Permissions in Visualization
- Editing Floor Maps
- Drag and Drop objects directly from the Item List and Floor Plan View
- Add Free-Standing Objects directly from Floor Maps
- Create ports on Data Panels without Structured Cabling
- Create Structured Cabling with existing ports
- Create Circuit with Data Panel without Structured Cabling
- Enhanced Password Configuration for Local Accounts
- Enhanced Authentication for Local Accounts
- MPO
- Announcement Banner
- Calculate Patch Cord Length
- Tooltip on Fields
- Passive Class Items Included in the Items list with their own Item Details page
- Enhanced Integration for Rack UPS
- Enhanced Integration for Rack Transfer Switch
- Capacity Search using Total Quantity
- Make proposed circuit and installed circuit more distinct
- Hide Widgets that are no longer used
- Bulk scanning for Loading Dock Receiving into Storage
- Enhanced ServiceNow Integration ***(Note: This feature is not available at this time and is pending ServiceNow certification and possibly another dcTrack software update.)***

Chapter 2:Help Quick Links

This section provides information on the dcTrack client and pages functions are performed.

Note: If you find a function that is not listed, please contact the Documentation team. See **Support and Help Resources**.

Download the Latest Sunbird Models Library file

From the Sunbird Support website at http://support.sunbirddcim.com.

A username and password are required to access the Sunbird Support portal at http://support.sunbirddcim.com.

If you do not have a username and password, contact Professional Services and Support from the Support website or via email (tech@sunbirddcim.com).

For details on performing a download, see **Item Models Library**.

Download Drawing File Templates and Stencils - dcTrack Customer Support Page

From the Sunbird Support website at http://support.sunbirddcim.com.

A username and password are required to access the Sunbird Support website at http://support.sunbirddcim.com.

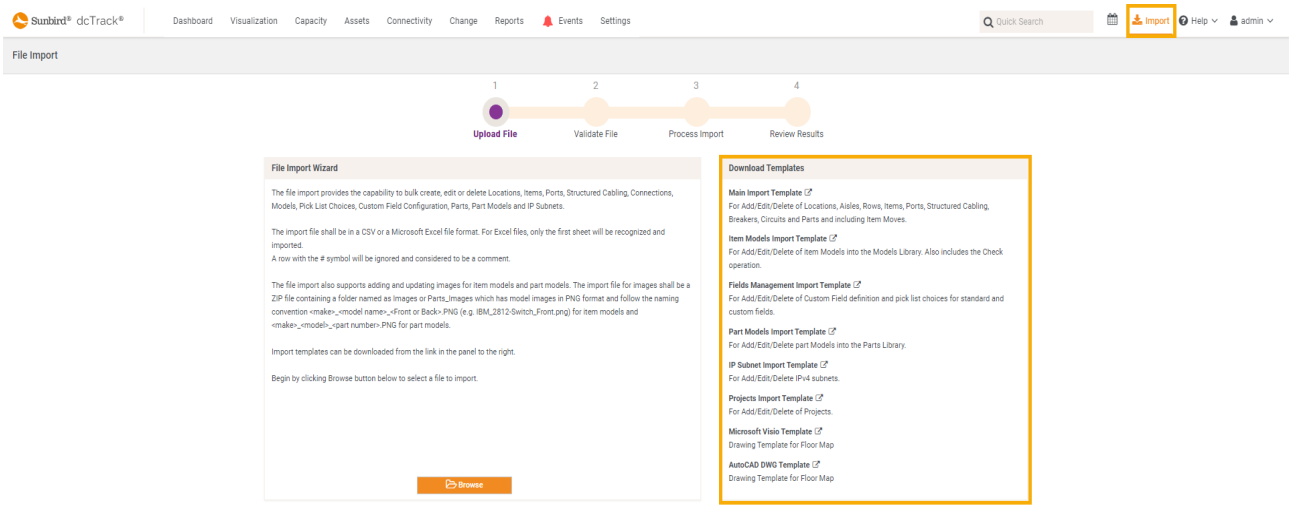
If you do not have a username and password, contact Professional Services and Support from the Support website or via email (tech@sunbirddcim.com).

Download File Import Templates

File Import templates are downloaded from the File Import Wizard.

To access the File Import Wizard in dcTrack, click the Import icon in the upper-right corner of the screen.

In the Download Templates panel on the right, click the name of the required import template to download it.



For information on specifying a save location, see **How to Specify a Default Save Location for Downloaded Files**.

Build Data and Power Circuits

New circuits are built in the Web Client.

Select Connectivity > New Data Circuit or Connectivity > New Power Circuit respectively, or click the Create New Circuit icon on the Circuits List page.

You can also import data circuits and power circuits once items they are connected to exist. You can also import Virtual Power Chain connections and power outlet circuits.

Building Power Circuits

Building Data Circuits

Delete an Item

Deleting an item is done in the Web Client from the Items List page or the item's page while it is in a Planned status (not purging items).

Move a Cabinet and Its Items

- Drag-and-Drop an Item to a New U Position in a Cabinet
- Change an Item's U Position in a Cabinet
- Drag-and-Drop a Blade to a New Slot in a Chassis
- Changing a Blade's Slot Position in a Blade Chassis
- Remove a Blade from a Chassis
- Move Item Requests for Cabinets
- Move Item Requests for Rackable, Device and Network Class Items

Move an Item

- Drag-and-Drop an Item to a New U Position in a Cabinet
- Change an Item's U Position in a Cabinet
- Drag-and-Drop a Blade to a New Slot in a Chassis
- Changing a Blade's Slot Position in a Blade Chassis
- Remove a Blade from a Chassis
- Move Item Requests for Cabinets
- Move Item Requests for Rackable, Device and Network Class Items

Move a Blade

- Drag-and-Drop a Blade to a New Slot in a Chassis
- Changing a Blade's Slot Position in a Blade Chassis
- Remove a Blade from a Chassis
- Move Item Requests for Blade Servers and Blades

View a Location's Floor Map and Objects

In the Web Client, on the Floor Maps page under the Visualization tab. See **Visualization Page** .

Put Items in Storage

- **Put Items in Storage - Decommission Item to Storage Request**

Archive Items

- **Archive Items - Decommission Item to Archive Request**

Purge Items from dcTrack

- **Purge Archived Items from dcTrack**

Get Power, Environmental and Capacity Readings

To quickly access readings:

- **Access Data Center Health Information and Cabinet-Level Health Information**
-
- **Cabinet Live Charts**
- **View Data Center Conditions Using Floor Map Reports**
- **Cabinet Inspector**
- **Retrieve Power and Sensor Readings**

Access Available Reports

- **View Data Center Conditions Using Floor Map Reports**
- **Cabinet Elevation Report** and
- **Cabinet Detail Report** and
- **Item Detail Report** and

You can also generate .CSV files of the following:

- **Export Data from the Items List or Circuits List to a .CSV File for Reporting, Auditing and Reimports**
- **Export Results from an Intelligent Capacity Search to a .CSV File for Auditing and Reporting**

- **Export Data to Import Templates for Reimporting**

Trace Data, Power and Port Paths

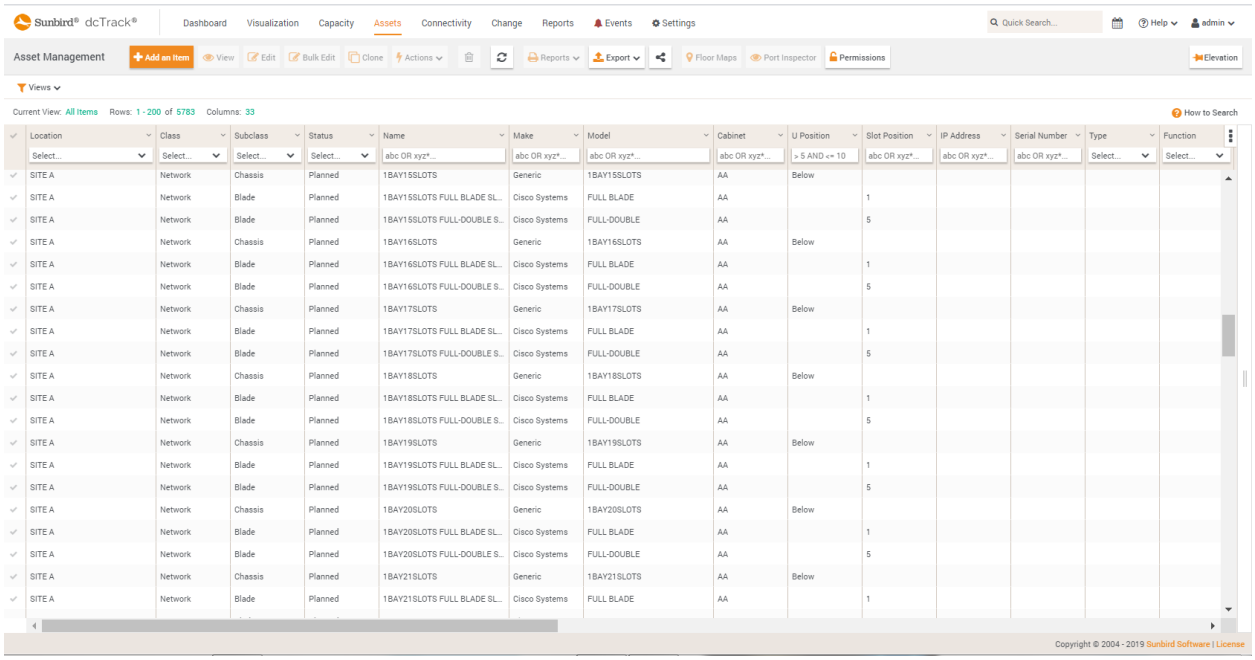
- Trace Data, Power and Port Paths

Trace a Data Circuits Path

- **Tracing Circuits from the Circuits List**
- **Trace a Data Port Circuit from the Data Port Tab (Web Client)**

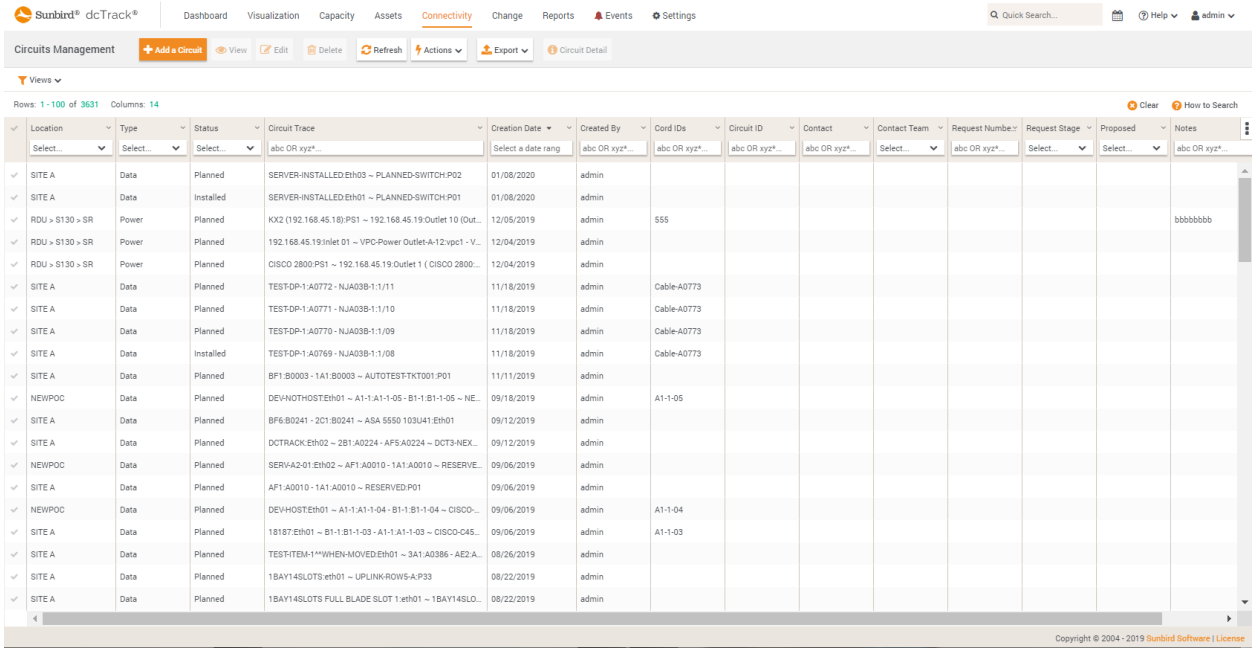
View a List of Data Center Items

In the Web Client under the Assets tab. Select Assets > Items List to view a list of items.



View a List of Circuits

In the Web Client, select Connectivity > Circuits List.



Bulk Rename Items

First export the items to an Item Export Template and then reimport the updated file using File Import in the Web Client. See **Use File Import to Bulk Rename Items**.

Enable Virtual Power Chains for a Data Center

Use File Import or enable Virtual Power Chain for each individual data center on the VPC Settings page in the Web Client by selecting Admin > dcTrack Settings.

See **Enable or Disable VPC for a Location** and Use File Import to add Locations and Items.

Bulk Update Item Information

By first exporting information from dcTrack, making updates, then reimporting it using File Import in the Web Client.

See **Export Data to Import Templates for Reimporting** and **Use File Import to Add, Edit Delete and Move**.

Bulk Update Rack IP Addresses

Using File Import in the Web Client. See **Use File Import to Bulk Add or Update Rack PDU IP Addresses**.

Change the Web Session Timeout

In the Web Client, navigate to Settings > dcTrack Settings > Appliance Administration.

Next, in the Security section, click Other Security Settings.

See **Change the Web Session Timeout for dcTrack**.

Manually Backup the dcTrack Database

In the Web Client, click Admin > Appliance Settings to open the Settings page in a new window or tab. See **Manually Back Up Your dcTrack Database**.

Configure Automatic Database Backups

By setting up your own scripts. See **Automated Database Backups**.

Verify Database Backups

In the Web Client, click Admin > Appliance Settings to open the Settings page in a new window or tab. See **Verify the dcTrack Database Backup Files**.

View a List of dcTrack Events

On the Events page in the Web Client by clicking on Events. See **Manage Application Events - Review, Export, Clear and Purge dcTrack, Power IQ and AMS Events**.

View dcTrack Audit Trails and Audit Logs

dcTrack provides an audit trail for the following objects:

- Items
- Item Models
- Projects
- Tickets
- Locations

The dcTrack Audit Log tracks user logins, failed logins, remote storage logs and so on are captured in the audit log. For additional information please see. See **Access Audit Logs** .

Chapter 2:dcTrack Basics

This section outlines basic functions such as logging in, changing passwords, updating user information and so on.

Terminology is also covered. Terms can be specific to dcTrack or industry standard terms that may be used in certain contexts in dcTrack.

High-level overviews of the dcTrack interface and how to navigate dcTrack are included as well.

Interface overviews references to interface elements on a page. The specific functions performed on each page are explained throughout help.

Navigation refers to the various ways you can access items and pages in dcTrack. Refer to Quick Links for information on what functions are performed where in dcTrack.

(Recommended) Obtain a dcTrack Support Website Username and Password

The dcTrack ISO file, as well as additional files, templates, help and so on, are obtained from

http://support.sunbirddcim.com.

A username and password provided by Sunbird are required to access the website.

Sunbird suggests obtaining your username and password as soon as possible.

Contact Professional Services and Support via the Support site for your username and password.

Allow Popups in Your Browser

Make sure your Browser allows popups. Popups are required when running Item Detail reports among other features.

Log In for the First Time (Non-System Administrators)

Note: The instructions here are specific to non-System Administrators.

To log in to dcTrack for the first time:

1. First, access dcTrack via a supported browser by entering the IP address or name assigned to your version of dcTrack and provided to you by your System Administrator.

   Answer yes to any security alerts and accept all certificates.

Note: As an end user, you do not need to add a dcTrack license file(s) the first time you log in. Contact your System Administrator if you are prompted to do so.

2. At the dcTrack Log In page, log in by entering the username and password provided to you by your System Administrator.
3. Click Log in.

Once you are logged in, the Web Client Dashboard opens.

Note: The widgets on the Dashboard show no data. This is because no items are added yet and/or configured for SNMP discovery, or integrated with Power IQ to get readings.

Single Signon using SAML

dcTrack provides SSO capability using SAML 2.0. Once enabled, dcTrack users configured through your Identity Provider (IdP), will be automatically authenticated through SAML. To implement SAML/SSO in your dcTrack environment, first complete the configuration settings required by your IdP to register the dcTrack application. Once complete, enable the SAML feature on dcTrack by supplying the appropriate information on the SAML configuration page. Please note, if you are currently using LDAP you must disable the LDAP feature prior to enabling SAML.

Note: Once converted to a SAML account, an account cannot be reverted back to a non-SAML account

Note: SAML accounts cannot be used to make API calls

To complete your SAML setup you will need to supply the following required information:

- **Issuer URL** – The unique identifier of the IdP formatted as a URL containing information about the IdP so dcTrack can validate that the SAML assertions it receives are issued from the correct IdP.
- **Login URL** – The URL for the IdP's login page. When SSO is enabled, dcTrack will redirect users to this login page when they choose to sign in using SSO.
- **SAML User Identifier** - – NameID format that will be included in the assertions from SAML to identify the user on dcTrack. Supported options include "Email Address" or "Persistent (Username)".
- **SAML Certificate** – The Certificate provided by the IdP, used to verify the signature provided by the IdP in the SAML response.

In addition to the required fields outlined above, the following optional information can be supplied:

- **Logout URL** – The URL for the IdP's logout page. If supplied, when a user is logged out of dcTrack, they will be redirected to the IdP's logout page and given the option of ending their SSO session. Users who end their SSO session completely will be redirected to the IdP's login page the next time they attempt to access dcTrack.
- **SSO Clickthrough Button Label** – Label displayed on the login page for the SSO login button.
- **Enable Automatic Group Provisioning** – When enabled, if the SAML assertion contains Group information, dcTrack will automatically create Groups that do not already exist in dcTrack. The User will then also be added to the specified Group. Please note, Groups that are automatically added to dcTrack will not automatically be assigned Roles. You must assign the appropriate Group Roles manually in dcTrack.

- **Enable Automatic User Provisioning** – When enabled, dcTrack will automatically create Users that do not already exist in dcTrack. Only users that are successfully authenticated by SAML and are a member of the group selected in the 'Registered SAML Group' will be added. Please note, Users that are automatically added to dcTrack will not automatically be assigned Roles. If, however, the User belongs to a Group, they will inherit the Group's Roles.
- **Group Attribute Name** – The attribute name contained in the SAML assertion that identifies Group names.
- **Registered SAML Group** – The SAML group on dcTrack that all new SAML users will be automatically added to

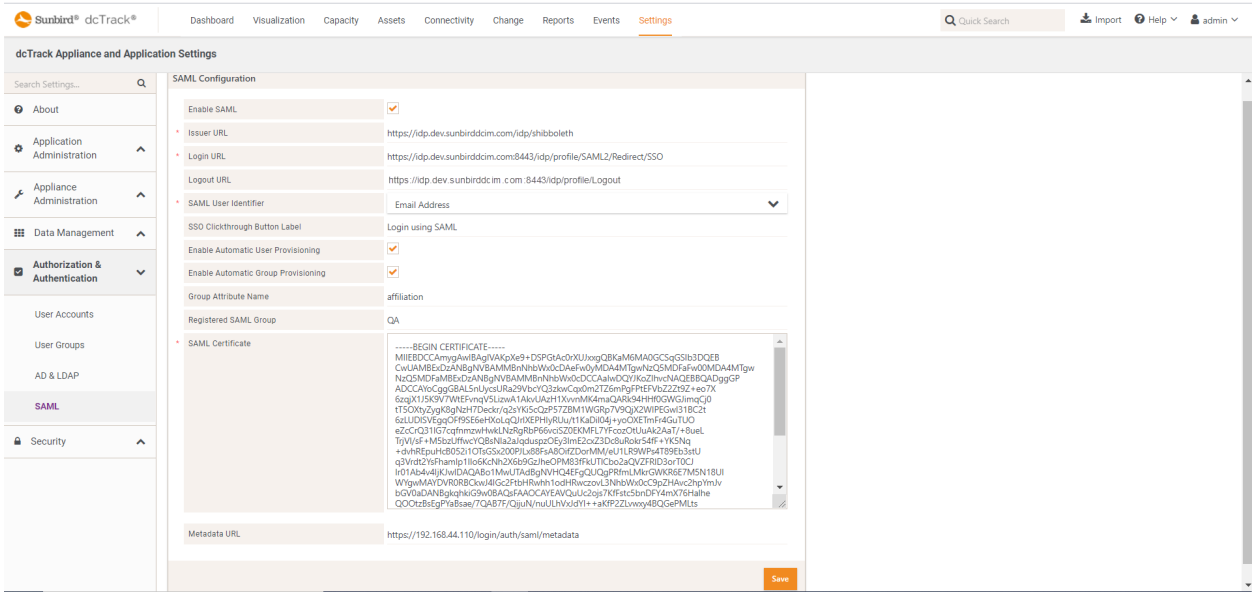
Metadata to configure the SAML server

dcTrack generates the metadata you need to configure the SAML server. To extract the metadata to configure your SAML serve:

1. Open the Metadata URL in a new Chrome or Edge browser.

2. Copy the page text to a new XML file on the SAML server. This text contains all the necessary details to integrate with dcTrack.

Note: **Do not** *use Firefox to extract the metadata, because Firefox does not parse and render the XML correctly, instead use Edge or Chrome to get the metadata.*

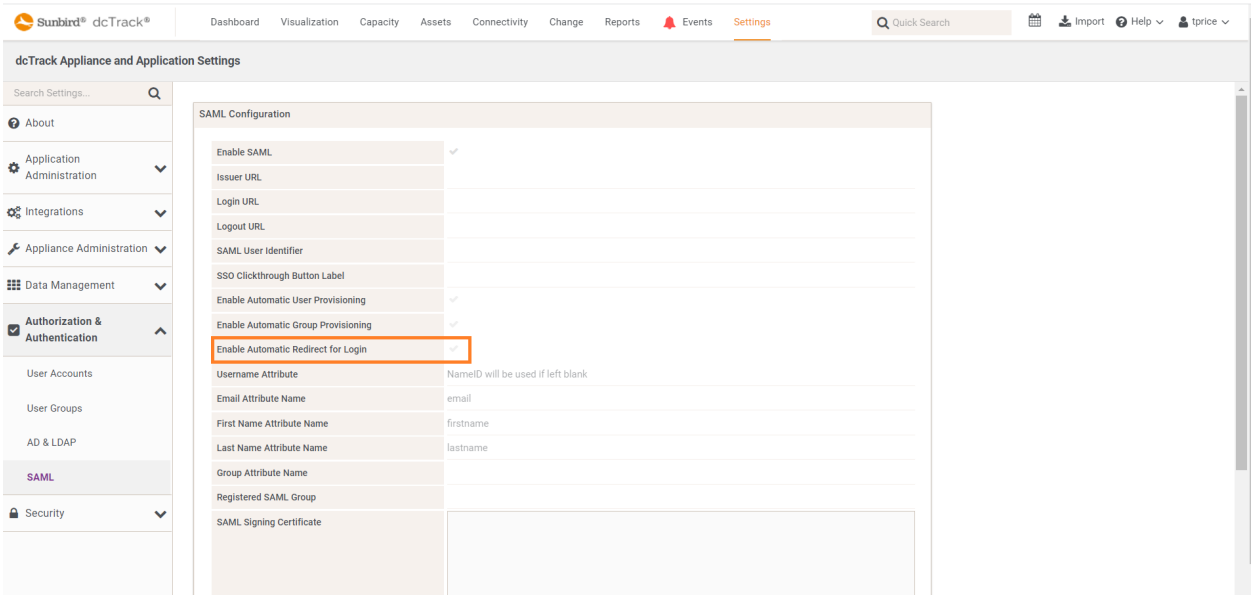


Enable SAML automatic redirection for Single Sign On

When dcTrack® is configured to use SAML as a source of authentication, it can be configured to completely bypass the normal login screen and redirect automatically to the identity provider (IDP). See the screen shot below. If the user is already authenticated with the IDP, this means that the user will be taken directly to dcTrack without having to explicitly login. If both dcTrack® and the container web application are provisioned to use the same SAML IDP, this

results in a single sign on experience. Note that if it is necessary to login using “local” username / password (e.g. to troubleshoot issues with the SAML setup), the automatic redirection can be prevented by going to the URL:

https:// <my-dctrack-ip-address>/login/login?saml=false



For additional information please see Procedure to add users to groups that were created by SAML.

Migrating from LDAP to SAML

Applicability

This application note applies to user’s wanting to migrate from either Active Directory (AD) or Lightweight Directory Access Protocol (LDAP) Authentication to Security Assertion Markup Language (SAML) authentication. In conjunction with the User’s Guide, it provides the steps necessary to migrate user from either Active LDAP\AD to SAML.

Before You Begin

Before starting this procedure, please be aware of the following:

- The procedure must be run using an account that that both authenticates locally with dcTrack and has the System Administrator role. For example, the default ‘admin’ account could be used.
- AD\LDAP support must be disabled before SAML can be enabled.
- Collect all of the required information to setup SAML within dcTrack before starting. Note that the setup in some Identity Providers may take time to propagate and become active.

- NameID identity information in dcTrack MUST match the value returned by the SAML assertion in order for the account to be migrated. The procedure below will provide ways to address mismatches.

Procedure

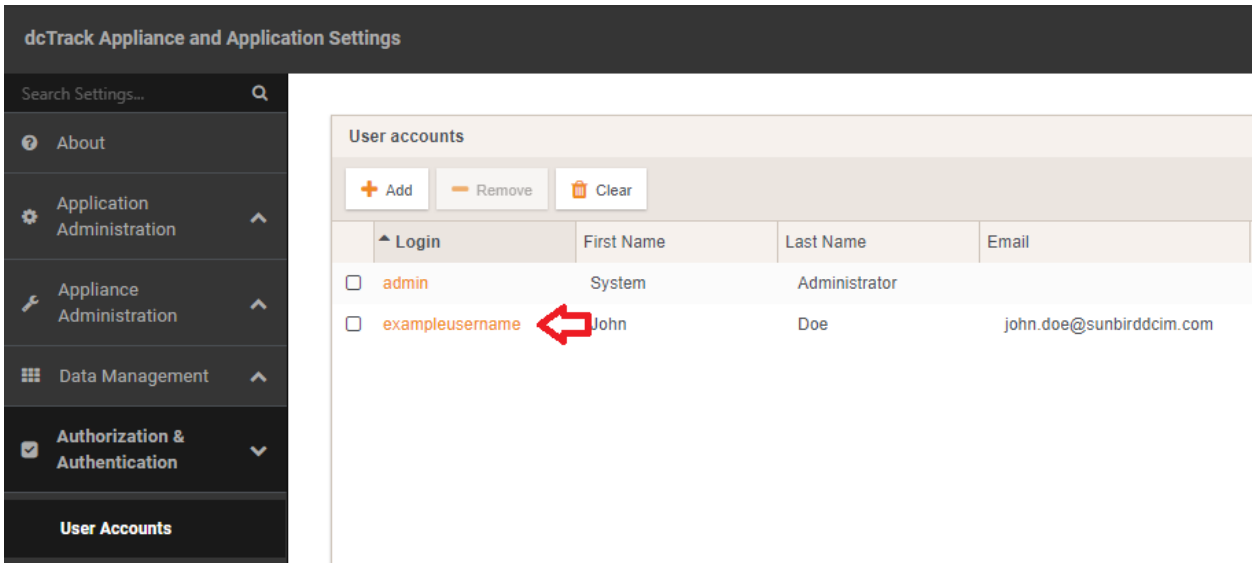
This procedure is broken up into a procedure to migrate user's and a secondary procedure to correct information as needed. User's should start with the Procedure to Migrate User's and only run the secondary procedure if directed to do so.

Procedure to Migrate User's

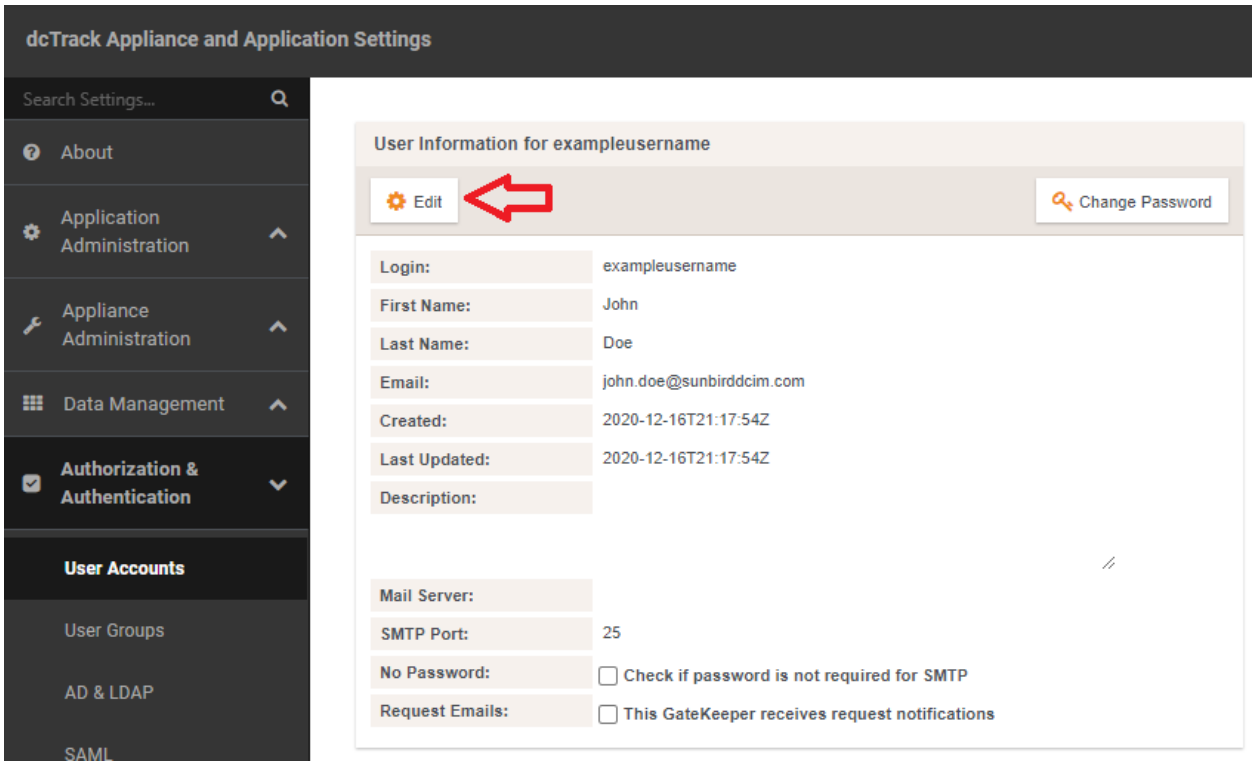
1. As a local (non-AD\LDAP user) user with the System Administrator role, login to dcTrack.
2. Disable AD\LDAP Authentication.
3. Configure SAML Authentication and confirm it's working. (Help link)
4. Ensure that Enable Automatic User Provisioning is enabled in the dcTrack SAML Configuration.
5. In the SAML assertion, the value returned in the NameID field must match the username or email address in dcTrack. The field that must match depends on what was selected for the SAML User Identifier in dcTrack. The options are:
    a. "Email Address": The email address in dcTrack must match the value returned in the NameID field
    b. "Persistent (Username)": The username in dcTrack must match the value returned in the NameID field
6. If you are able to see SAML information on the Identify Provider, for instance if you are a SAML System Administrator, you can confirm the values match. If the values don't match, use the *Procedure to correct a mismatched username or email address* below to fix the information in dcTrack.
7. If you can't see the SAML information, perform the following steps to detect mismatches and also migrate the users.
    a. Have a user login via SAML authentication. Note whether or not a new user account is created in dcTrack.
    b. If a new account is not created, the information matched an existing account and that user was migrated. No additional steps are needed.
    c. Otherwise:
        i. Record the Username\Email information from the newly created account (these are the values returned via SAML).
        ii. Delete the new account (duplicate username\emails aren't allowed)
        iii. Using the information from the new account, correct the Username\Email information in the pre-existing account using the Procedure to correct a mismatched username or email address below.
        iv. Have the user login again and confirm that another new account was not created. If one was, confirm the information and repeat step 7c.
        v. Repeat step 7 for each user.

Procedure to correct a mismatched username or email address

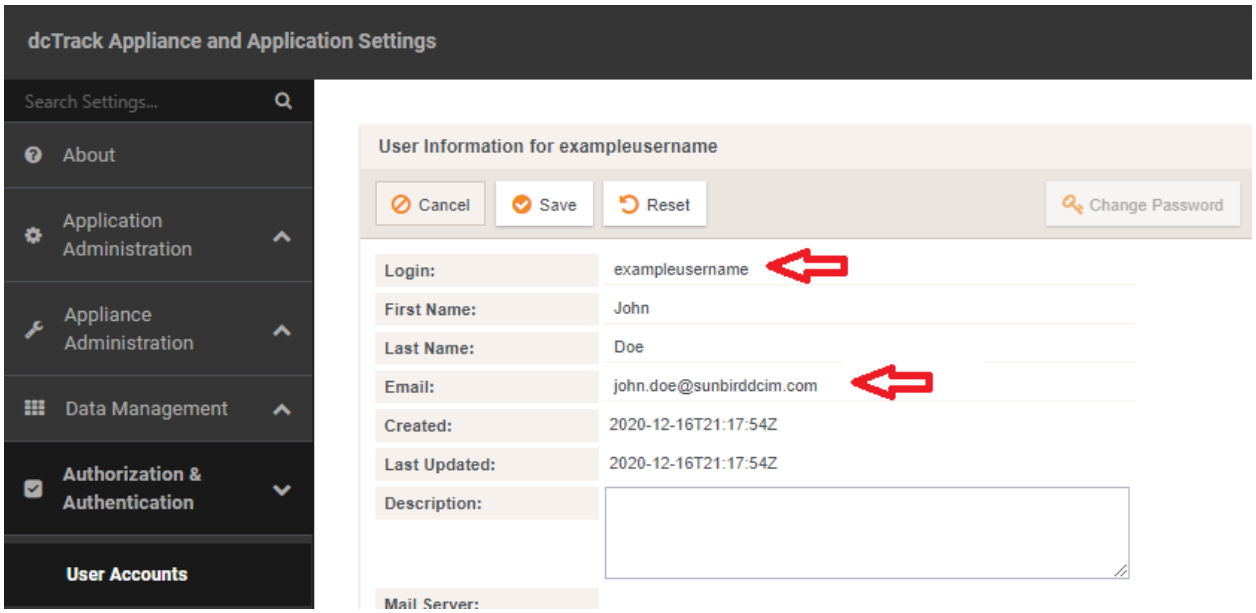
1. As a local (non-AD\LDAP user) user with the System Administrator role, login to dcTrack.
2. Navigate to the Settings tab.
3. Select Authorization & Authentication →User Accounts from the left-hand navigation.
4. Click on the user whose login or email information needs to updated



5. Select Edit



6. Update the information and select Save.



Procedure to add users to groups that were created by SAML

dcTrack's SAML implementation can currently only add users to groups that were created by SAML. Use the steps below to add existing LDAP Users to a SAML group.

1. Temporarily rename the LDAP group. For instance, append _ldap to it.
2. Have user log in.
3. Observe the creation of the new SAML group.
4. Give the new group the right permissions
5. Delete the old LDAP group.

Setting dcTrack Password Requirements

Users with the System Administrator role can set the password requirements for user passwords. These requirements will then be enforced whenever passwords are created or changed.

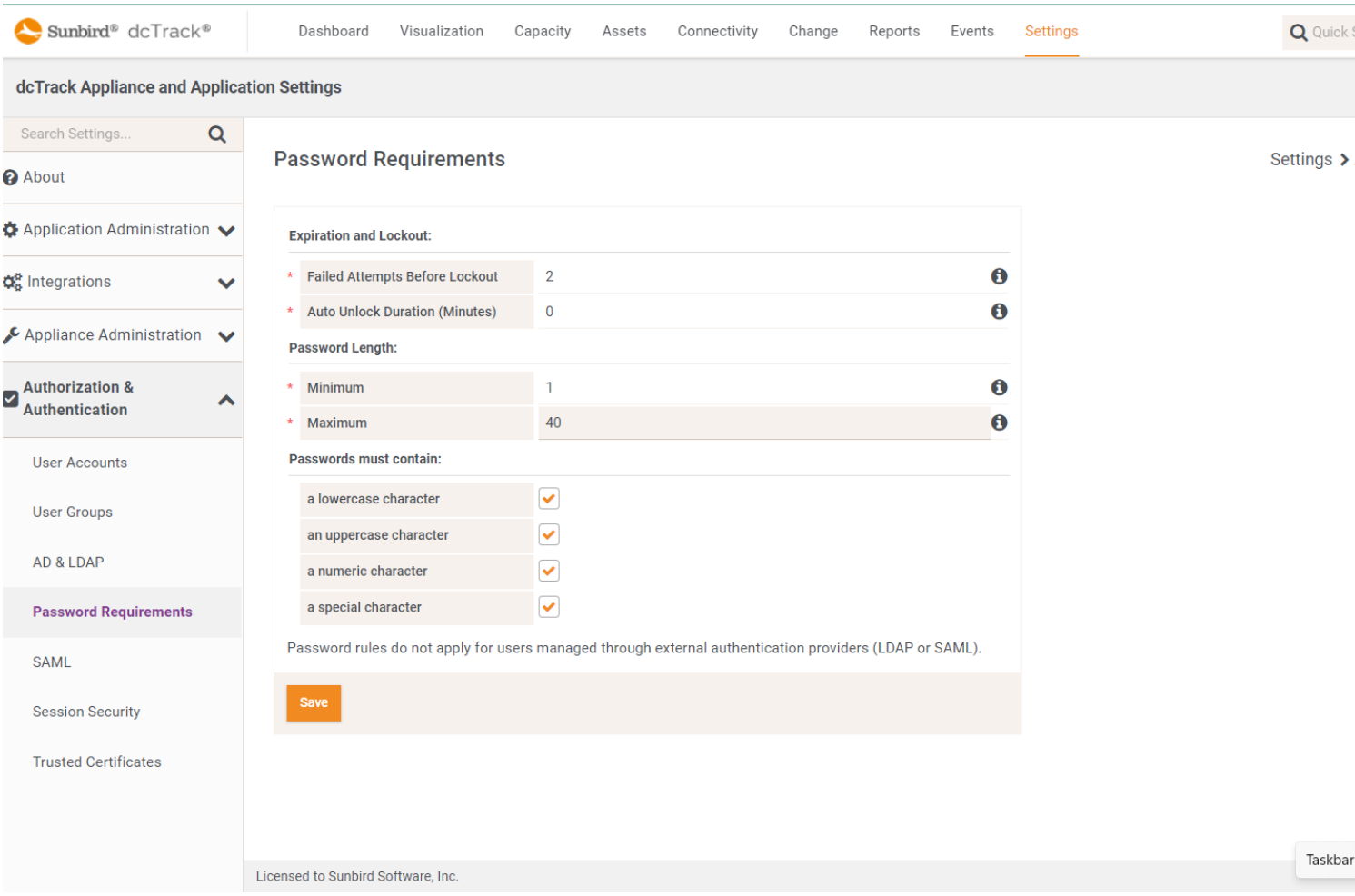
dcTrack supports the Password Requirements described below.

- Failed Attempts Before Lockout - This is the number of failed login attempts before the users account is locked out. If set to 0 there is no limit so bad attempts will never cause the user to be locked out. The maximum accepted value is 10.
- Auto Unlock Duration (Minutes) - The setting controls how long dcTrack should wait before automatically unlocking a users account. 0 means the account will never be automatically unlocked and can only be unlocked by the Admin. The maximum value is 999.
- Minimum - The minimum number of characters a password must contain. The minimum setting is 1.
- Maxmum - The maximum number of characters a password can contain. The maximum setting is 40
- Passwords must contain at least one number - Check this setting if you require passwords to contain at least one number.
- Passwords must contain at least one UPPERCASE letter - Check this setting if you require passwords to contain at least one upper case character.
- Passwords must contain at least one lower case letter - Check this setting if you require passwords to contain at least one lower case character.
- Passwords must contain at least one of these special characters ~!@#$%^&*()_+{}|:"<>?/.,';][=-`")

Additional requirements can also be set based

To change the default Password Requirements follow the steps below:

1. Navigate to Settings > dcTrack Settings > Authorization & Authentication > Password Requirements



2. Select the appropriate settings
3. Click Save.

Once the settings are saved, newly created or modified passwords will be required to adhere to the new requirements. Users whose current password does not adhere to the new rules will still be allowed to log into dcTrack.

Note: Password rules are not respected for LDAP users.

Changing User Passwords

Only Application administration refers to tasks performed exclusively by dcTrack System Administrators.

The tasks in this section are performed on the dcTrack server, or by users with System Administrative privileges in the dcTrack application.

dcTrack Administrators (System Administrators) are assigned to the dcTrack System Administrators user group by default in the "admin" role. This role has permission to do every action in dcTrack, no exceptions.

A System Administrator is responsible for installing and configuring dcTrack, including creating users and teams, LDAP user and user group management, importing items, maintaining lists and libraries, and so on.

In most cases, this user is separate from the Gatekeeper but in some cases may be the same user.

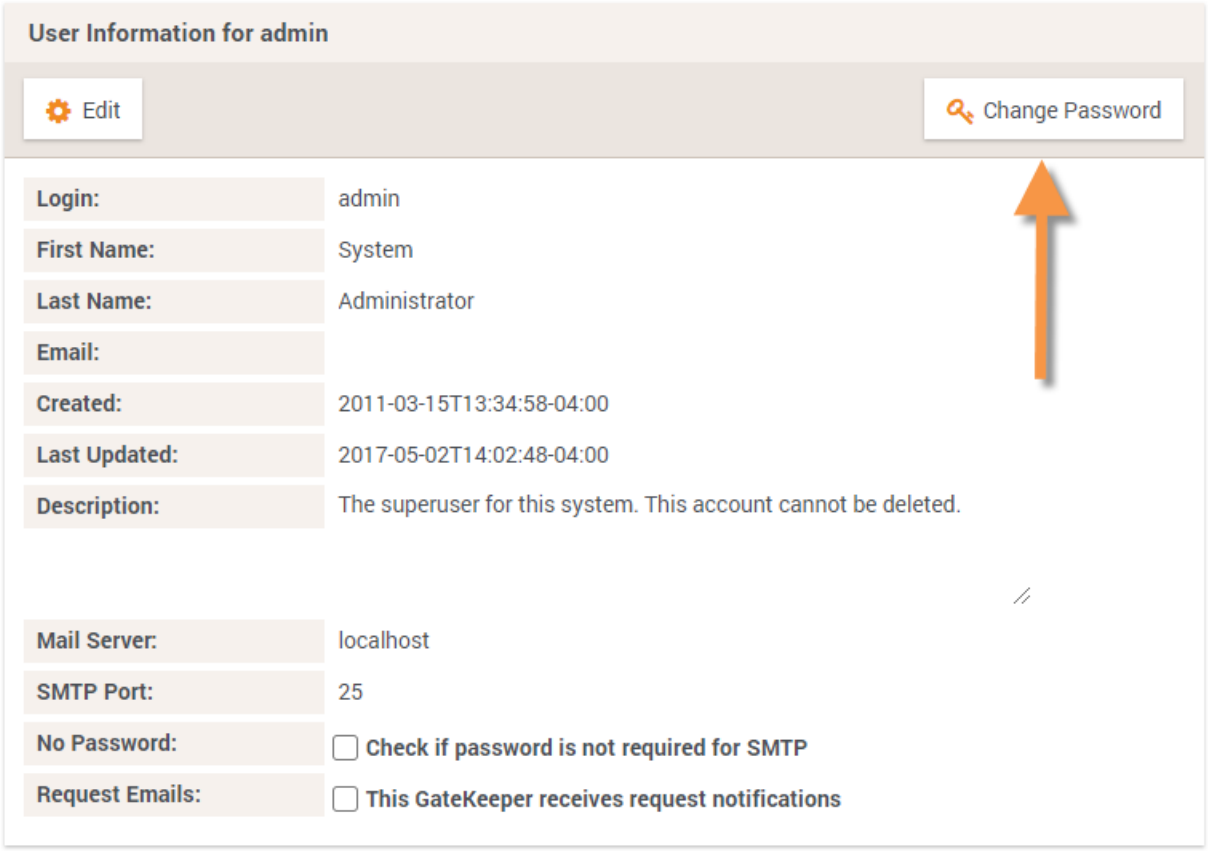
System Administrators can change the System Administrator password.

Change the default System Administrator password as soon as possible to prevent unauthorized System Administrator-level access to dcTrack.

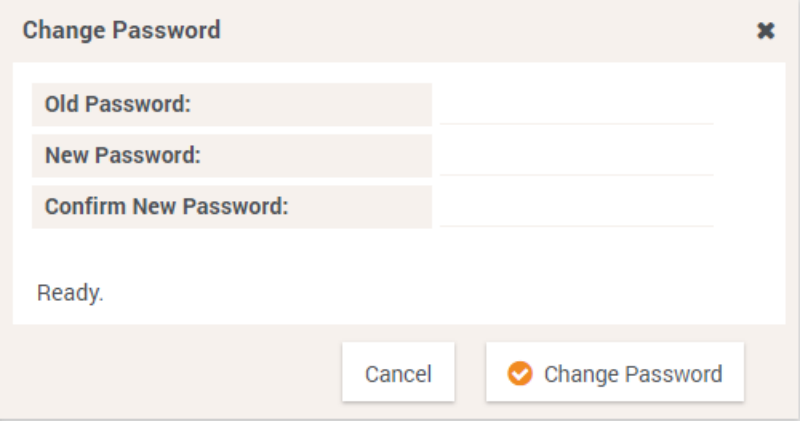
If you are a System Administrator and want to change your own password you may follow the steps below or see: Change Your End User Password

Steps for System Administrator to change other users password:

1. Navigate to Settings -> dcTrack Settings -> Authorization & Authentication -> User Accounts
2. Select the User Account whose password you want to change
3. Click Change Password.



2. The Change Password dialog displays. Enter your old and new passwords.



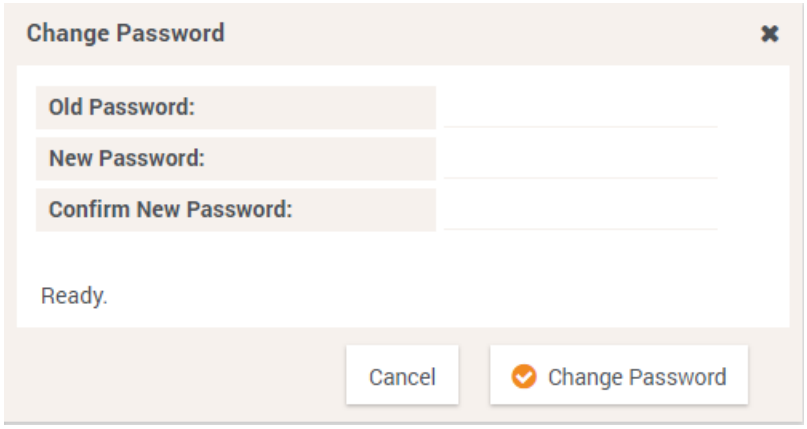
3. Click Change Password to save your changes.

Change Your End User Password

These steps apply to users with a role of Viewer, Operator, Gatekeeper or System Administrator. For specific Password Requirements see: Setting dcTrack Password Requirements

To change your password:

1. In the Web Client, click your username in the upper right corner of the main toolbar.
2. From the drop down, click Change Password to open the Change Password dialog.



3. Enter your old password, enter your new password, and reenter the new password to confirm it.
4. Click Change Password to change your password.

Use this password the next time you log in to dcTrack.

In addition to setting their own password, System Administrators may change any users password including other System Administrator's passwords. See **Changing User Passwords**.

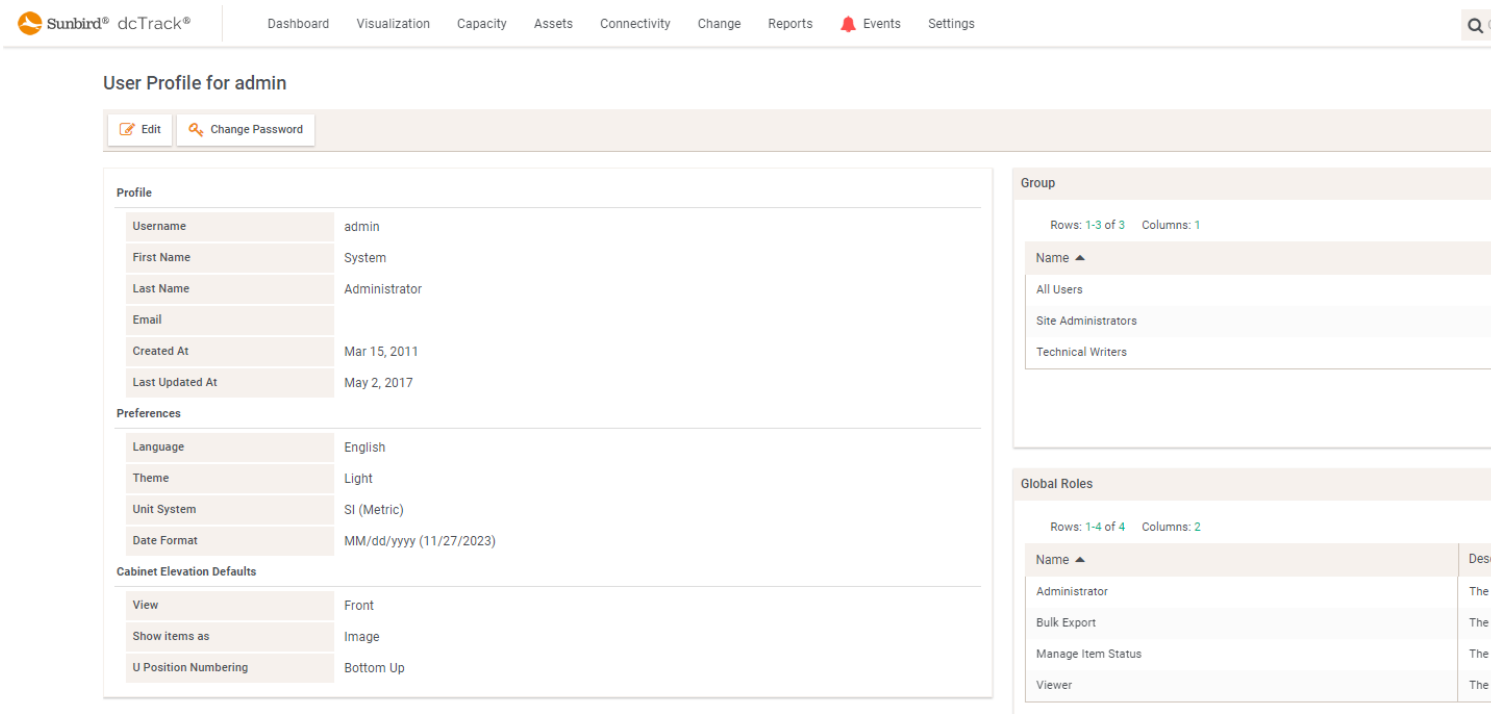
Edit Your User Information (Non-System Administrators)

These steps apply to users with a role of Viewer, Member, Manager and Gatekeeper who do not have System Administrator privileges to dcTrack. Users in these roles have different Admin menu options available in dcTrack.

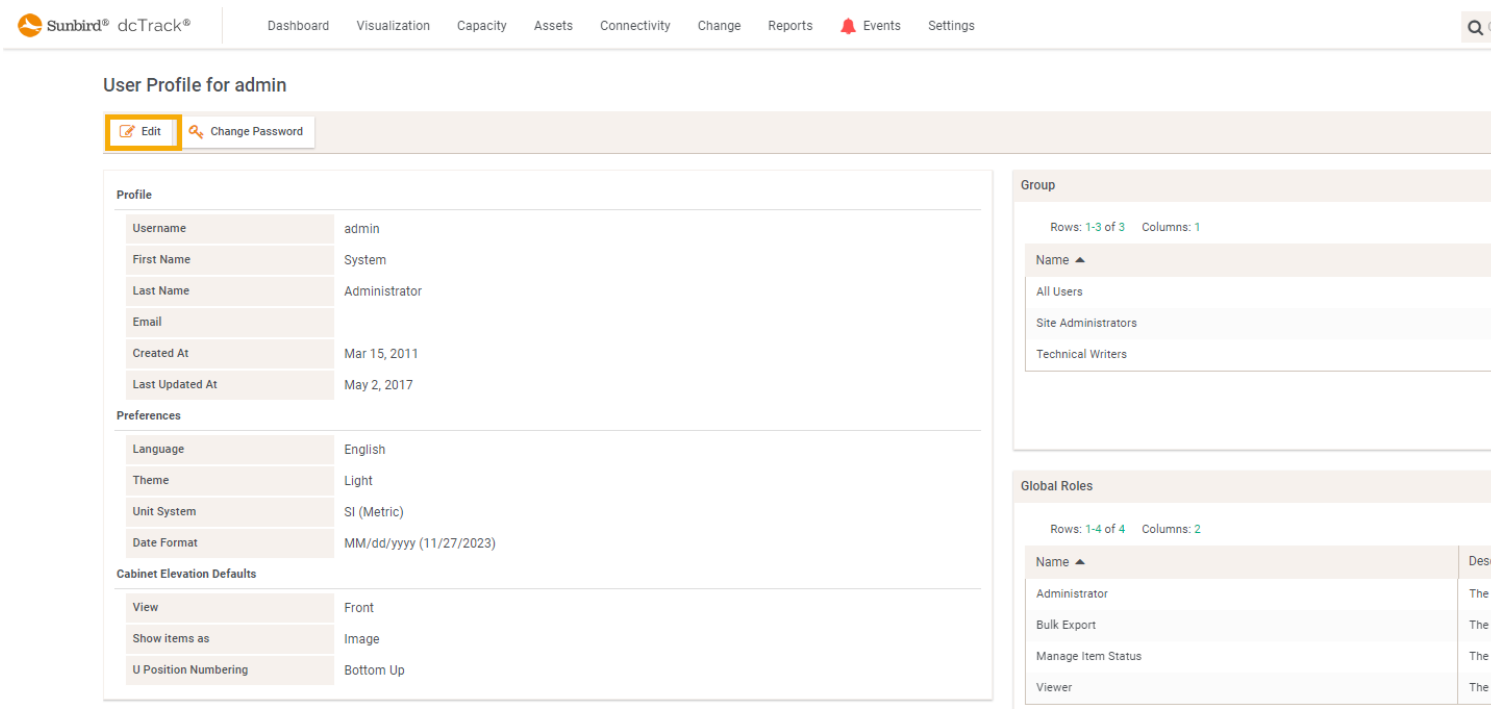
Note: For new users, the admin's account (username "admin") user preferences for Language, Theme, Unit System, Data Separator, Date Format and Cabinet Elevation preferences are used as the default preferences, however the Language used on the Login screen for new users is set from the setting on the Display & Locale page.

To edit your user information:

1. Click the user icon in the upper right corner of the page.



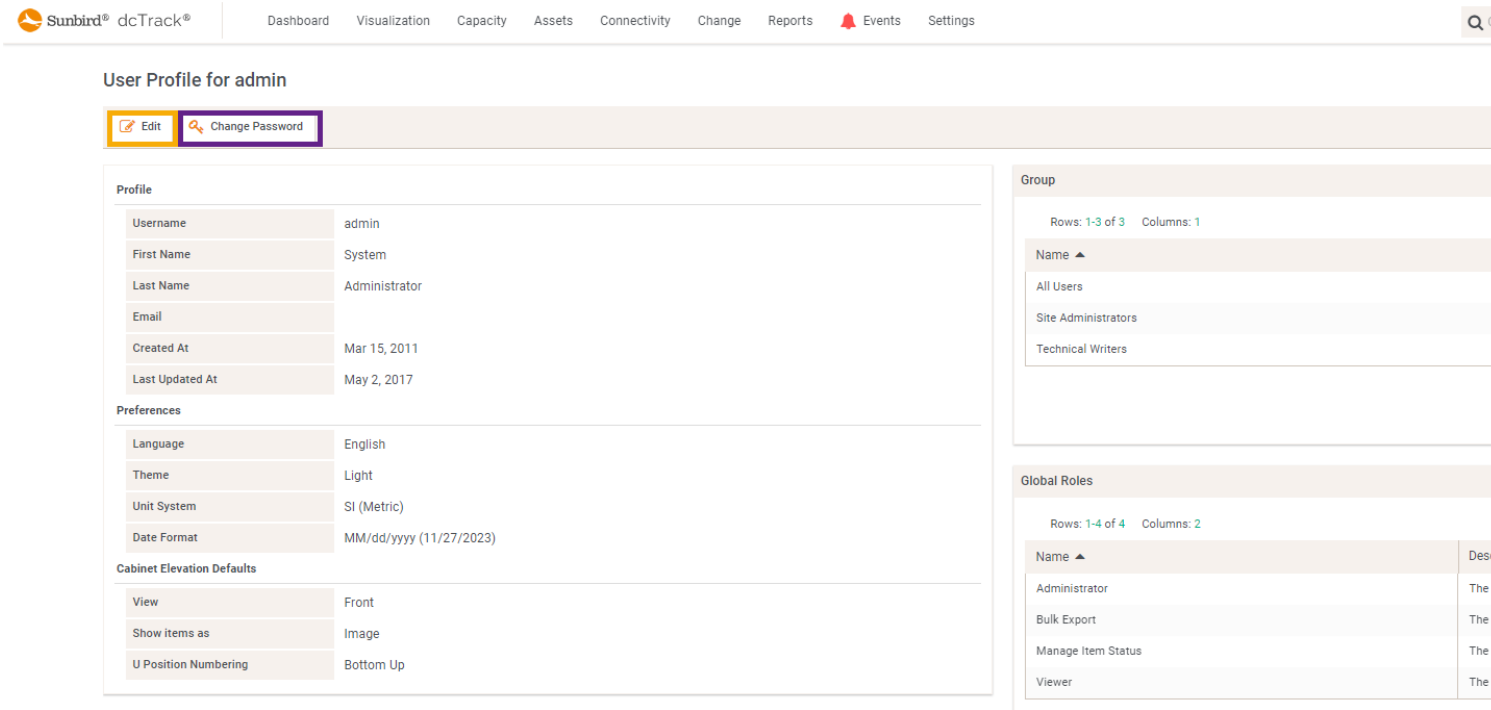
2. Select User Profile from the User Profile menu.
3. From this page click Edit to change your user details and preferences



3. Edit your information, then click Save.

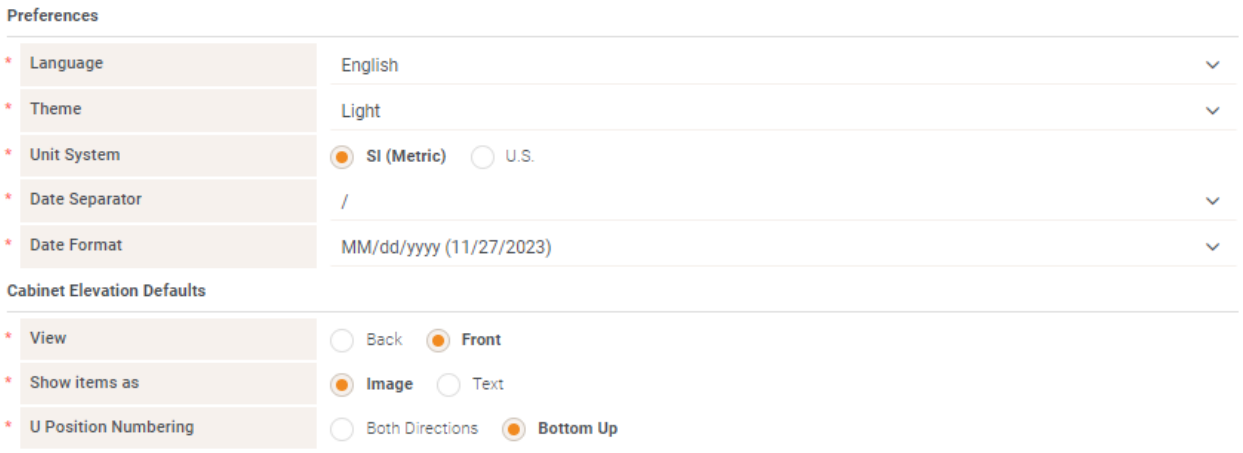
Edit your first and last name, and your email address as needed.

Information on the Groups and Global Roles panels is not editable by non-System Administrators.



4. Click Save on the User Information page, then click OK on the Success message.

Other User Preferences may be set from the Preferences Tab.



User Preferences include options for the following:

Option	Description
Language	As of version 7.0.0 dcTrack supports processing in 5 different languages. Supported languages include English, French, German, Japanese, Simplified Chinese and Turkish.
Theme	Light or Dark mode
Units System	Units may be displayed in either SI International (Metric) or U.S formats.
Date Separator	The delimiter used when displaying dates for the current user. Options are: • "-" • "/" • "."
Date Format	The format used when displaying dates for the current user. Options are: • MMDDYYYY • DDMMYYYY • YYYYMMDD
Cabinet Elevation Defaults	These settings control how Cabinet Elevations are displayed in dcTrack. Default values may be set for the following: • View - Controls which view of the Cabinet Elevation is initially displayed (Front or Back).

Option	Description

	• Show Items As - Controls whether Items should be initially displayed as Text or Image in the Cabinet Elevation.
	• U Position Numbering - Controls whether numbering is displayed from the Bottom Up only (Bottom Up), or the Bottom Up on the right side of the Cabinet and Top Down on the left (Both Directions). The Top Down numbers are for reference only, the UPosition specified when placing items should always reflect the Bottom Up number.
	• Identify Items With - Controls what is displayed for items in the Cabinet Elevation. The following options are supported:
	  • Make & Model
	  • Item Name
	  • Item Alias
	  • Serial Number
	  • Asset Tag
	  • eAsset Tag

Once you have selected your User Preferences, click the Save button to save your selections. Settings will take affect after the user logs out and back into dcTrack.

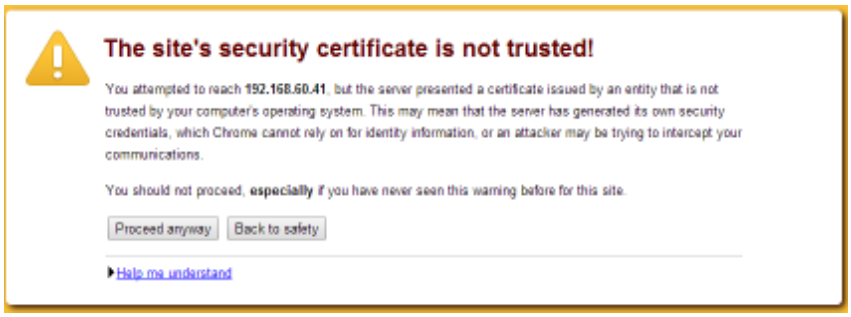
Log In and Log Off

dcTrack supports either Firefox, Safari, Edge or Chrome™.

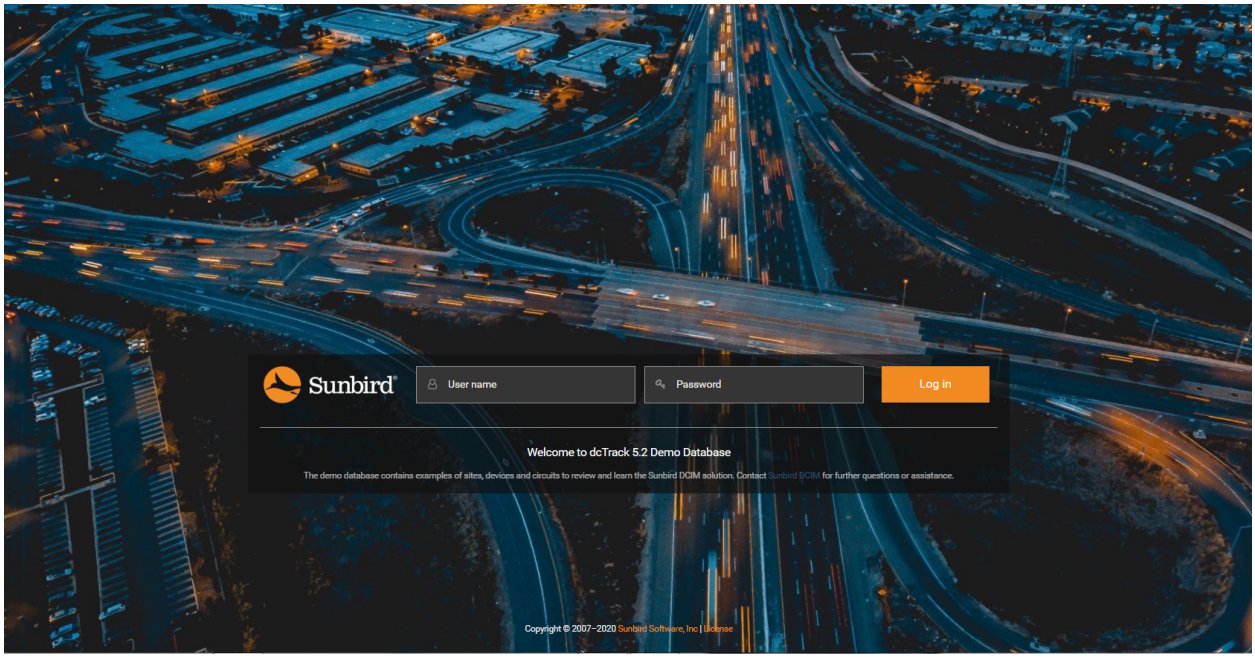
If this is the first time you are accessing dcTrack, additional steps are required.

See **Log In for the First Time (Non-System Administrators)**, depending on your role.

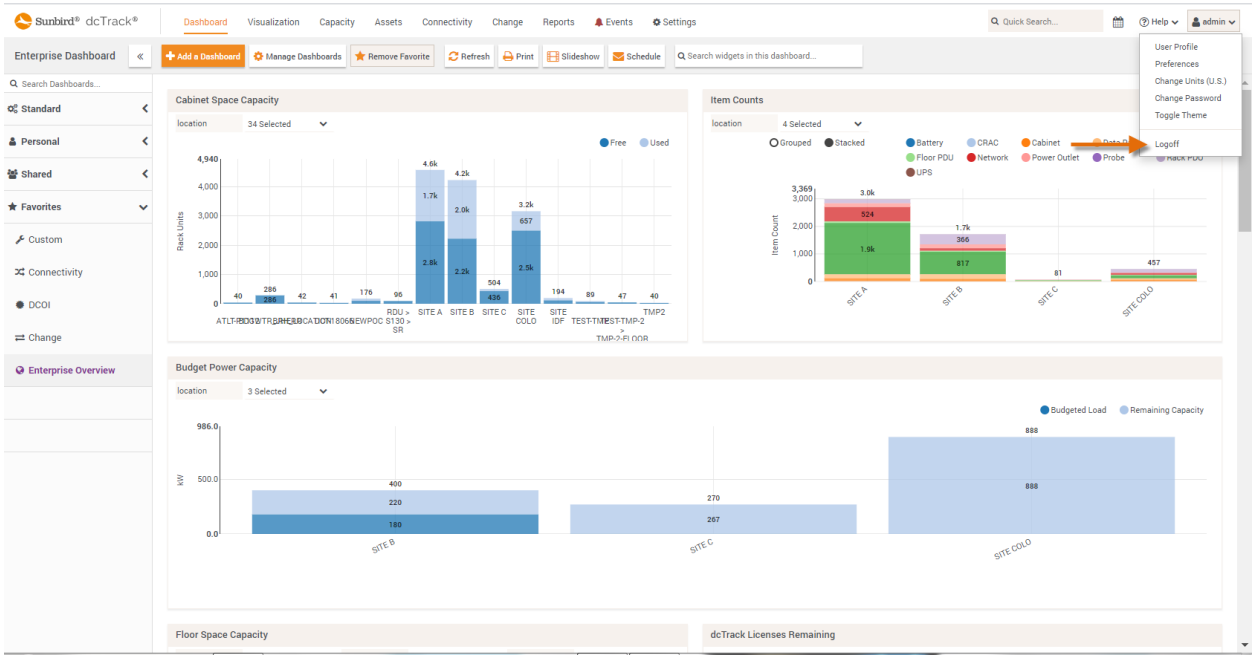
1. Connect to dcTrack via a web browser by entering the IP address or name assigned to dcTrack. The IP address is provided by your System Administrator or Gatekeeper - not Sunbird.
2. Answer yes to any security alerts and accept all certificates.



3. Enter your username and password on the dcTrack log in page and click Log In.



- Click the Logoff link at the top left of the Web Client.



dcTrack Hierarchy

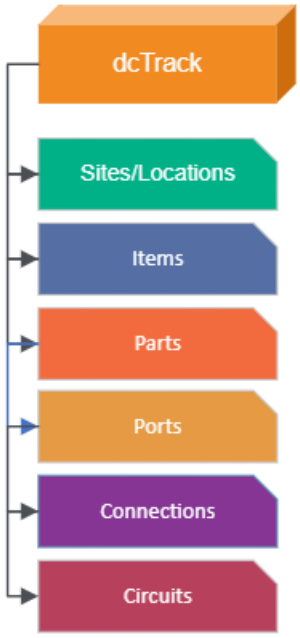
dcTrack uses a hierarchy to organize the data center assets it manages.

dcTrack refers to data center asset items as classes. Within item classes are subclasses of items.

For descriptions of each item class and subclass, as well as port types, connections, circuits and so on, see **dcTrack Terminology**.

dcTrack uses a hierarchy consistent with that of Power IQ. For information on the Power IQ enterprise data model/hierarchy, see **Power IQ Data Model**.

At a high level, the hierarchy consists of the following:



From the top of the hierarchy to the bottom, the dcTrack data model consists of:

- LOCATIONS (Sites): LOCATIONS can be a data center, a floor within a data center, a room within a data center, or a room within a floor within a data center. There can be multiple LOCATIONS in dcTrack.
    - LOCATIONS are the root of the asset management hierarchy.
    - LOCATIONS contain ITEMS.
    - AISLES and ROWS are considered SUB-LOCATIONS in dcTrack.
- ITEMS: Assets within the data center.
    - ITEMS belong to a LOCATION.
    - ITEMS include (in no specific hierarchical order):

- CABINET
- DEVICE
- NETWORK
- RACK PDU
- DATA PANEL
- FLOOR PDU
- UPS UNIT
- POWER OUTLET
- HVAC UNIT

- PROBES and SENSORS
- FACILITY ITEMS

- ITEMS are assigned MODELS
- MODELS have MANUFACTURERS such as Sunbird
- ITEMS have PORTS when applicable and based on the ITEM class.
  - For example, servers and switches may have data, power and sensor ports, but wire managers and shelves do not have any ports.
- All ITEMS are assigned a STATUS such as Planned, Installed, Archived and so on
- Depending on the CLASS, ITEMS can be assigned a SUBCLASS and MOUNTING TYPE.
  - For example, a STANDARD DEVICE ITEM is a SUBCLASS of a DEVICE CLASS ITEM.
- PORTS: PORTS include DATA, POWER, and SENSOR ports
- PORTS belong to ITEMS.
  - Depending on the PORT type, PORTS include PORT SUBCLASSES.
  - SUBCLASSES of DATA PORTS include:
    - LOGICAL PORTS
    - VIRTUAL PORTS
    - ACTIVE PORTS
    - PASSIVE PORTS
- SUBCLASSES of POWER PORTS include:
    - POWER SUPPLY PORTS
    - RACK PDU INPUT PORTS
    - RACK PDU OUTLET PORTS
    - POWER OUTLET PORTS
    - RECEPTACLE PORTS
    - BREAKER PANEL POLES
    - SENSOR/PROBE (ENVIRONMENTAL) PORTS
- CONNECTIONS: A CONNECTION can be made between two DATA PORTS or two POWER PORTS. SENSOR PORT CONNECTIONS are N/A. CONNECTIONS form CIRCUITS.
- CONNECTIONS belong to PORTS.
- CIRCUITS: A data port-to-data port CONNECTION forms a CIRCUIT or a power port-to-power port CONNECTION forms a CIRCUIT.
- CIRCUITS belong to CONNECTIONS.
- CIRCUITS have a status such as Planned and Installed for DATA CIRCUITS and POWER CIRCUITS or Powered-off for POWER CIRCUITS.

dcTrack Terminology

This section covers common terms and, in some cases, how they are related to each other.

Locations (Sites)

In previous versions of dcTrack, the Sites functionality was located in the Classic View and used a flat structure. In dcTrack 5.2 and above, Sites have been renamed to Locations and leverage a hierarchical structure.

Upon upgrading an existing system to dcTrack 5.2, previous Locations (Sites) will be designated as Data Centers. A Data Center is the top level in the hierarchy and can have Floors and Rooms as its children. Floors can have Rooms as children.

At a minimum, creating a location entails entering required basic information.

Once required information is entered, upload a drawing file of the data center in the Web Client, and Sync the file if objects were not imported during the upload.

See **Quick Reference - Build Your First Data Center Locations and Add Items and Connections**.

Items

In the dcTrack hierarchy, ITEMS belong to LOCATIONS.

Any data center asset being managed by dcTrack is called an item. All items are assigned a model and make.

While Item names are not required to be unique across the database, they must be unique within a Location.

Items are broken into classes :

- AC Distribution
- Battery
- Cabinet
- Data Panel
- Device
- Floor PDU
- HVAC
- Power Outlet
- Power Source
- Passive
- Probe
- Rack PDU
- UPS

Depending on the class, items may contain subclasses such as standard, rackable, chassis and so on.

Cabinet Class

A cabinet is the structure that contains other items such as devices, network equipment, data panels, rack PDUs and so on. Cabinets are also referred to as racks.

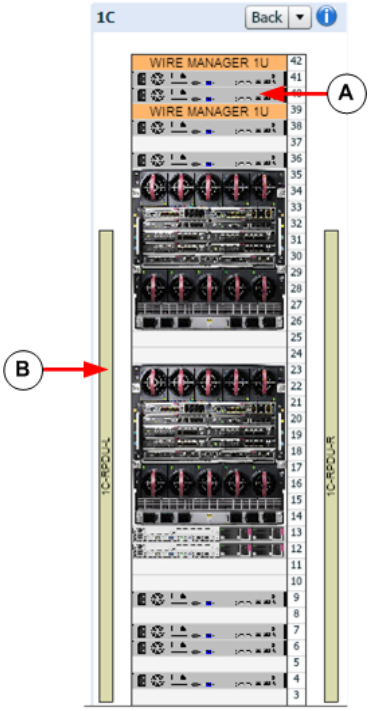
A cabinet can be an enclosed cabinet/rack or an open bay rack.

Cabinets and racks have mounting screw holes that are spaced apart according to an EIA industry standard. This spacing is known as a rack unit (RU), which represents a mounting height of 1.75".

Items can be mounted on the front or rear rails in a cabinet, or mounted on both the front and rear rails.

Items can be referred to as being mounted in, on, above and below a cabinet.

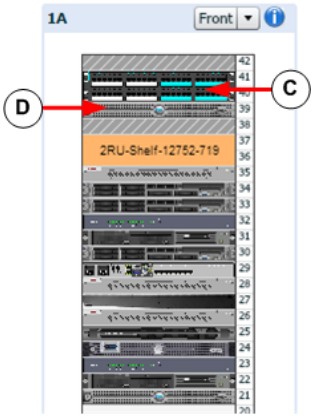
A	**Items mounted in cabinets are placed inside the cabinet and mounted on rails.**
B	When an item is mounted on a cabinet, such as a rack PDU, it can be mounted on the left or right side of a cabinet either on the front or back of the cabinet.



The orientation is the direction an item faces when it is mounted in a cabinet. In dcTrack, item orientation is either:

C	**"Item Rear Faces Cabinet Front" - the back of the device faces the same direction as the front of the cabinet, so that the back of the device is accessible from the front of the cabinet.**
D	"Item Front Faces Cabinet Front" - the front of the device faces the same direction as the front of the cabinet,

C	**"Item Rear Faces Cabinet Front" - the back of the device faces the same direction as the front of the cabinet, so that the back of the device is accessible from the front of the cabinet.**
	so that the front of the device is accessible from the front of the cabinet.



When an item is mounted below or above a cabinet, it is a standalone item such as a PDU, busway and so on. These items are not displayed in the Cabinet Elevations in dcTrack.

Cabinet Rails Offset

The distance between the front and back rails is determined by the Depth of the cabinet as specified in the Model:

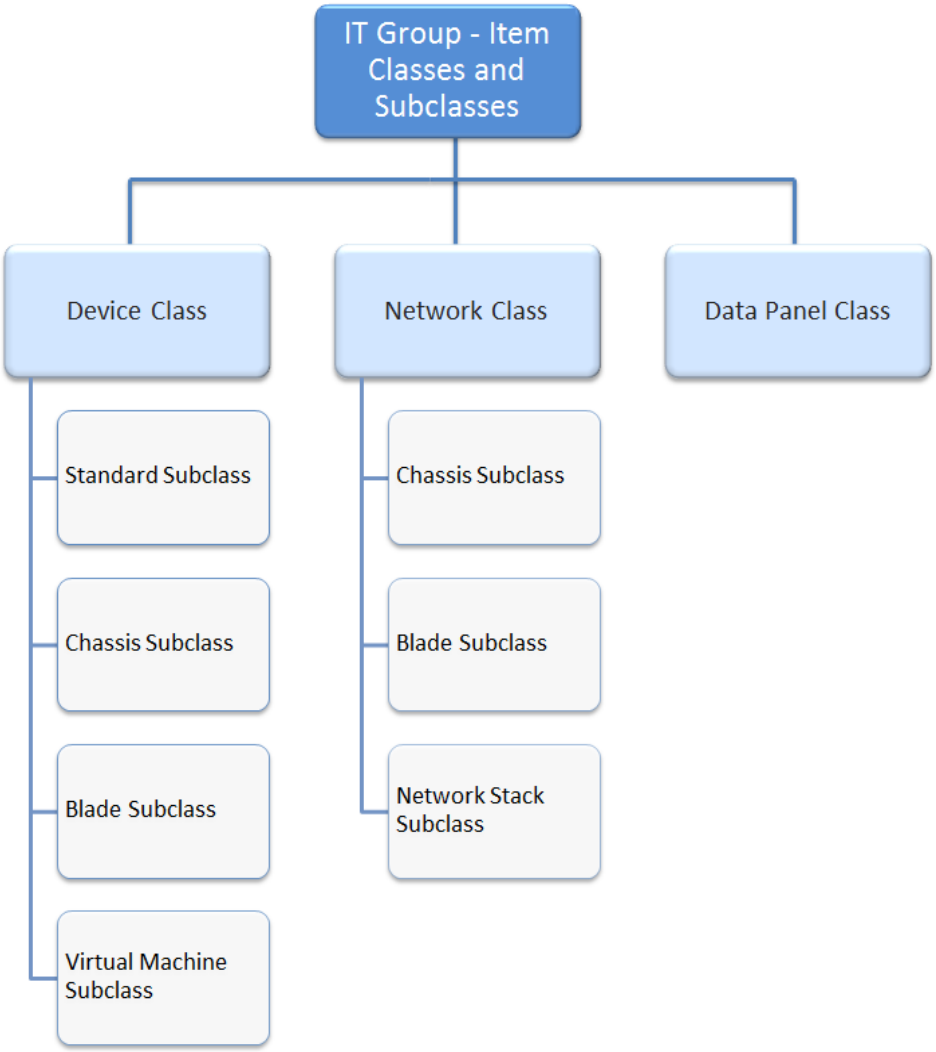
- The depth is the outside measurement (outside surface of back rail to outside surface of front rail).
- The offsets are always positive and they indicate how far into the cabinet the edge extends.

For example:

A cabinet whose depth is 935mm with a front offset of 10 and a rear offset of 10 would actually have an inside depth of 915mm. If placing items at the same RU (Front and Back) and their combined depth is greater than 915, the side view would appear to intersect.

IT Group

In dcTrack, IT items are combined into three(3) classes. Each item class may contain subclass items such as standard, rackable, chassis and so on.



IT Group Classes and Subclasses

- Device Class
- Network Class
- Data Panel Class

Device Class and Subclasses

A device item is any computer system and its peripherals that are placed into a cabinet in the data center. There are various device items in each subclass such as servers, disks, storage, tape drives, KVMs, etc. Devices contain the following subclasses:

- Standard Device Item Subclass: These include servers, KVM switches, and so on.
- Chassis Device Item Subclass: These include blade chassis that contain blade servers.
- Blade Device Item Subclass: Blade servers that are housed in blade chassis.
- Virtual Machine Device Item Subclass: Any standard, rackable device or standard, blade server can be or be converted to a virtual machine.

Network Class and Subclasses

A network item is any piece of network equipment that provides network connectivity to devices. For example, blades are network items.

Network equipment typically has many more ports than device items.

Multiple network items can be grouped into a network stack and given a logical name.

Network class items contain the following subclasses:

- Chassis Network Item Subclass
- Blade Network Item Subclass
- Network Stack Item Subclass - A grouping of network items. Identified in dcTrack by "NetworkStack".

Note: On the Items List, network stacks are identified as NetworkStack.

Data Panel Class

A data panel (communication panel) is used to terminate both ends of a grouping of a certain number of fixed structured data cables installed in the data center.

Typically, one end of the grouping of data cables resides in or near a device cabinet while the other end resides in or near a network cabinet.

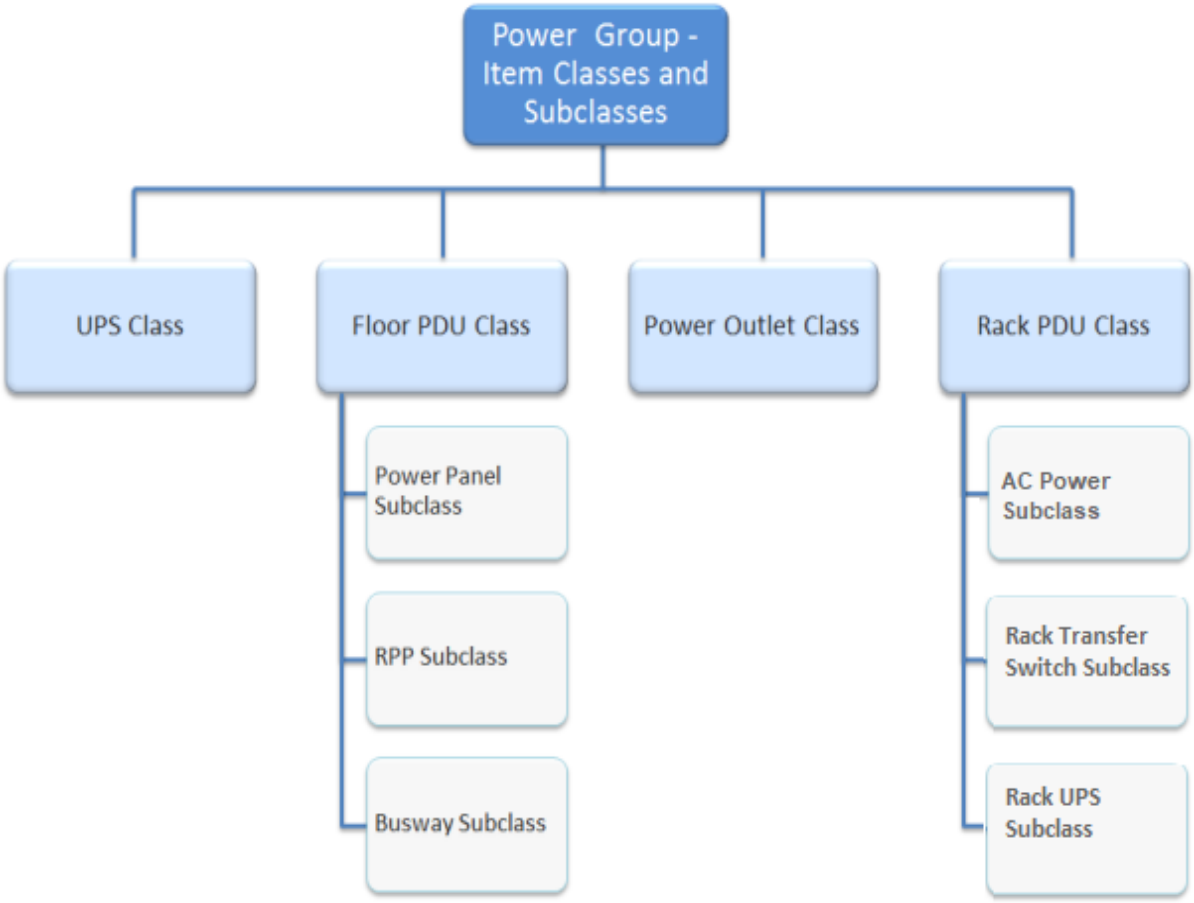
Data panels can take a variety of types and form factors such as Category 5e/6/6A RJ45 patch panels, 110-type punch down blocks, fiber patch panels, etc. Collectively, the comm panels, data cables, and patch cords are referred to as the structured cable plant.

Power Group

In dcTrack, power items are combined into groups called classes. Classes include:

- UPS Unit Class
- Floor PDU Class

- Power Outlet Class
- Rack PDU Class



UPS Unit Class

An UPS unit (Uninterruptable Power Supply) is an electrical system that provides continuous and uninterrupted power by switching very quickly to a local power source in the event the electrical utility feed is interrupted.

The local power source is composed of battery cells that are charged by the electrical utility feed during normal conditions.

The size and quantity of batteries determine the duration of the local power source.

Typically, a UPS feeds PDUs downstream in the power chain.

Floor PDU Class

A floor PDU (floor Power Distribution Unit) is an electrical system unit that typically houses a step down transformer and circuit breaker panel boards.

In some cases, the electrical panel boards are housed outside the floor PDU in remote power panel (RPP) cabinets distributed throughout the data center raised floor. A panel board contains circuit breaker positions called poles.

An alternate method of electrical distribution is an electrical busway system whereby the floor PDU main circuit breakers feed the busway instead of the internal panel boards or RPPs. In this system, the circuit breakers reside on the busway modules that house the power outlets. Typically, a floor PDU is fed by one or more UPS systems.

Note: Do not confuse a rack PDU item with a PDU item. Rack PDU items are essentially a power strip and PDU items are an electrical system unit that typically houses a step down transformer and circuit breaker panel boards.

Power Outlet Class

A power outlet is the housing unit that contains one or more electrical receptacles of varying types. The electrical receptacles are, in this case, ports.

Each power outlet is fed from a circuit breaker.

Rack PDU Class

A rack PDU item is a specialized power strip that is used to provide additional electrical receptacles for a particular electrical outlet.

The rack PDU can be mounted horizontally or vertically in or on the cabinet.

Some rack PDUs may be “metered” whereby they include an internal electronic measurement unit to measure the current draw at the receptacle or aggregate level of the rack PDU, and report this reading on an LED display internal to the rack PDU.

Other rack PDUs may be “intelligent." This means they can report the current draw as well as other electrical measurements at the receptacle level or at the aggregate level of the rack PDU via SNMP to an IP network device.

Additionally, some of the “intelligent” rack PDUs can have temperature and humidity probes.

PX2 devices that are managing asset sensors are added to dcTrack as a Rack PDU.

Note: dcTrack 7.1.0 introduced "AC Power" as a subclass for Rack PDUs. After migrating to 7.1.0 the subclass for all existing Rack PDU Items and Models will be automatically set to "AC Power".

HVAC Class

dcTrack 8.2.0 introduces a new class HVAC. This class have following subclasses.

- Cooling Unit
- Cooling Zone
- Heat Rejection

Note : After upgrading to 8.2.0 all existing CRAC items and models will be migrated to Class HVAC and Subclass Cooling Unit and CRAC Group will be called Cooling Zone.

Cooling Unit Class

A Cooling unit provides cold and, usually, pressurized air under the raised floor to cool the heat dissipative data center equipment.

Cooling Zone Class

Cooling Zone refer to an area in the data center where all the Cooling Equipments are placed. In dcTrack you can have one or more Cooling Units assigned to a Cooling Zone.

Heat Rejection Class

A Heat Rejection unit removes heat from one element and deposit into another. Some examples of Heat Rejection Units in data center are Chiller, Cooling Tower, Condenser.

Probe and Sensor

Sensor Class

Sensors monitor environmental conditions in the data center.

For the purpose of asset management, dcTrack includes asset management sensors (AMS) as sensor class items.

Asset management tags (AMT) are electronic IDs that are adhered to data center items so you can remotely track the item's location.

AMTs are plugged in to an Asset Management Sensor, and the AMS is then configured in either Raritan's PX2 or EMX.

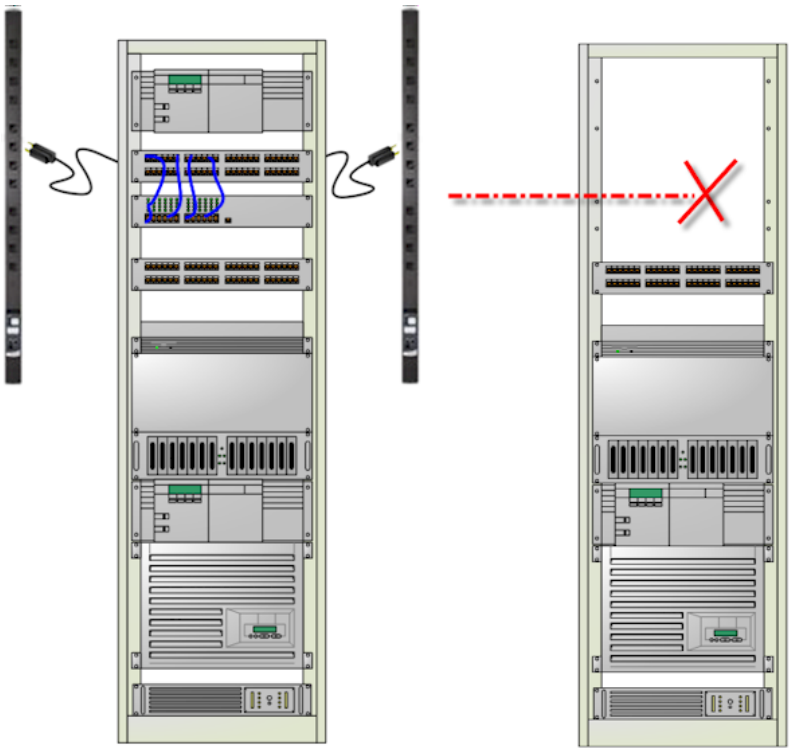
Probe Class

The Raritan EMX is added to dcTrack as a probe class item.

Lifecycles, Statuses, Action Requests, Change Control Workflow and Stages

In dcTrack, an item's lifecycle refers to the moment space is reserved for an item in a cabinet or the item is placed in a cabinet, to moment the item is decommissioned.

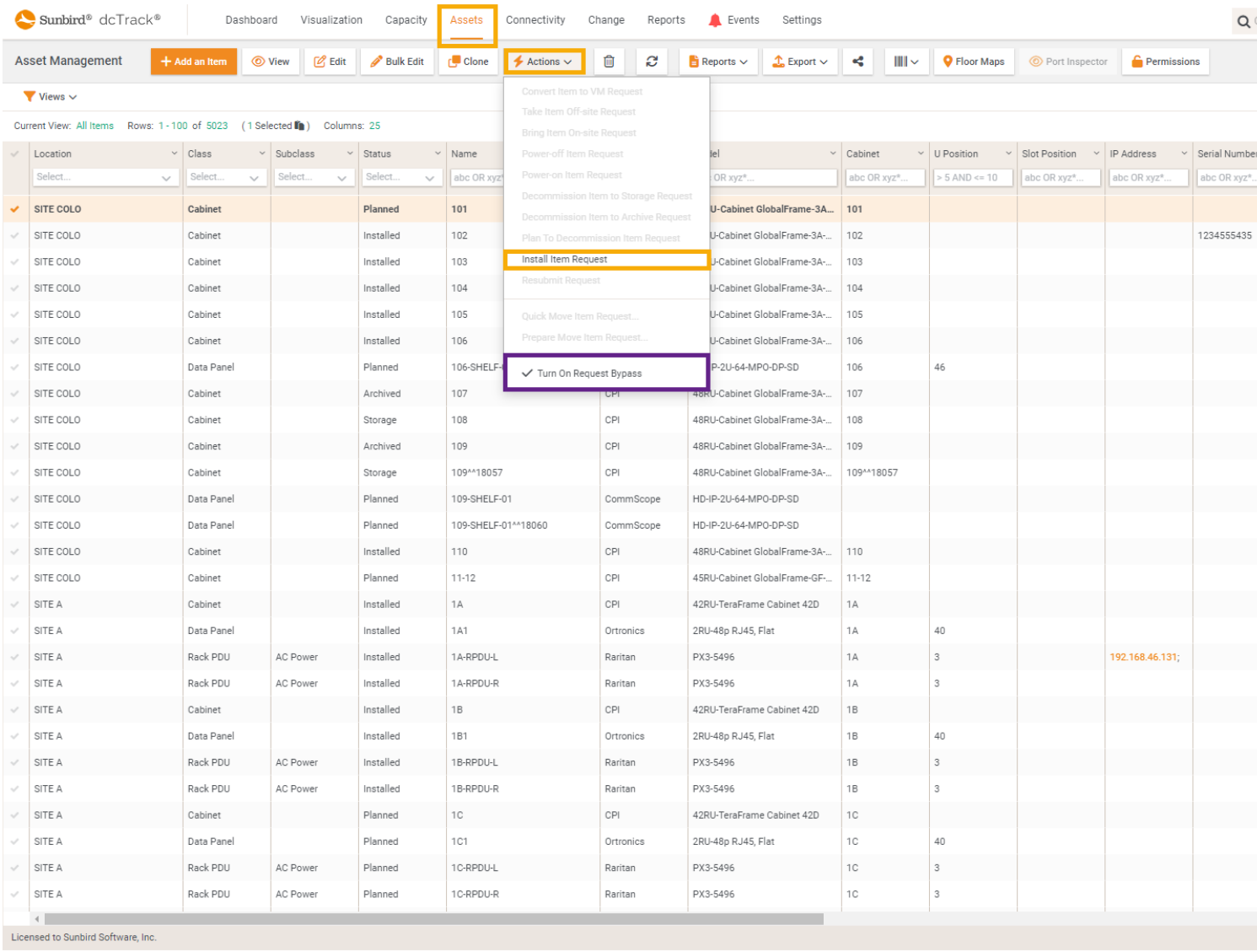
A circuit's lifecycle refers to the moment either the complete circuit is created and connected, or a Virtual Power Chain or partial circuit is created, to the moment the circuit is permanently deleted.



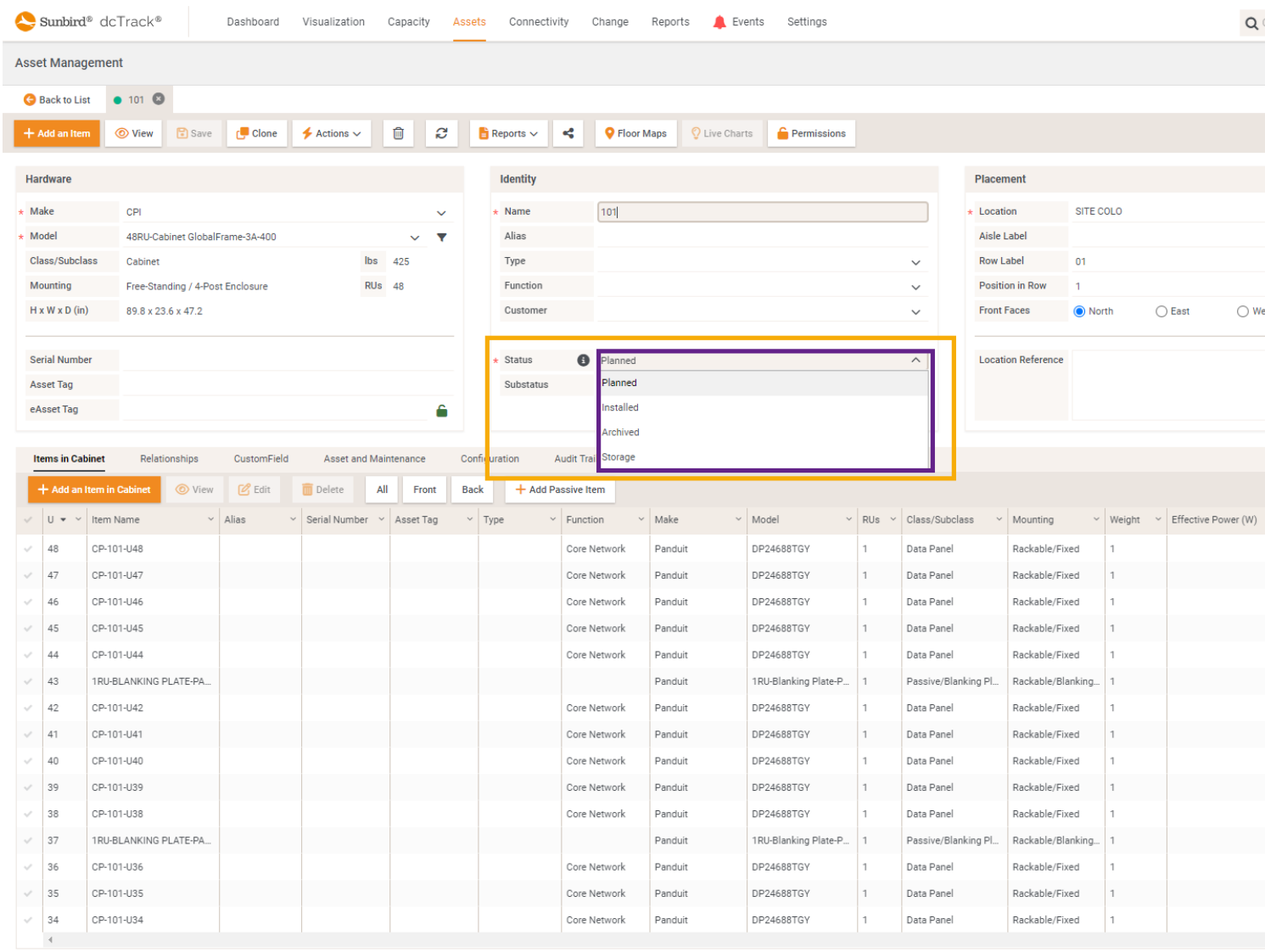
Requests, or action requests, are submitted in dcTrack when a physical action must be performed for an item or circuit in a data center.

For example, submitting an Install Item Request to install a new item, submitting a Decommission Item to Storage Request to decommission an item to storage, submitting a Connect Request to create a new power circuit, and so on.

Requests are applied in the Web Client by selecting the Actions menu for both items and circuits.



Alternatively, provided you have the appropriate permissions, you can change an item's status directly on the item's page by selecting from the Status drop-down menu.

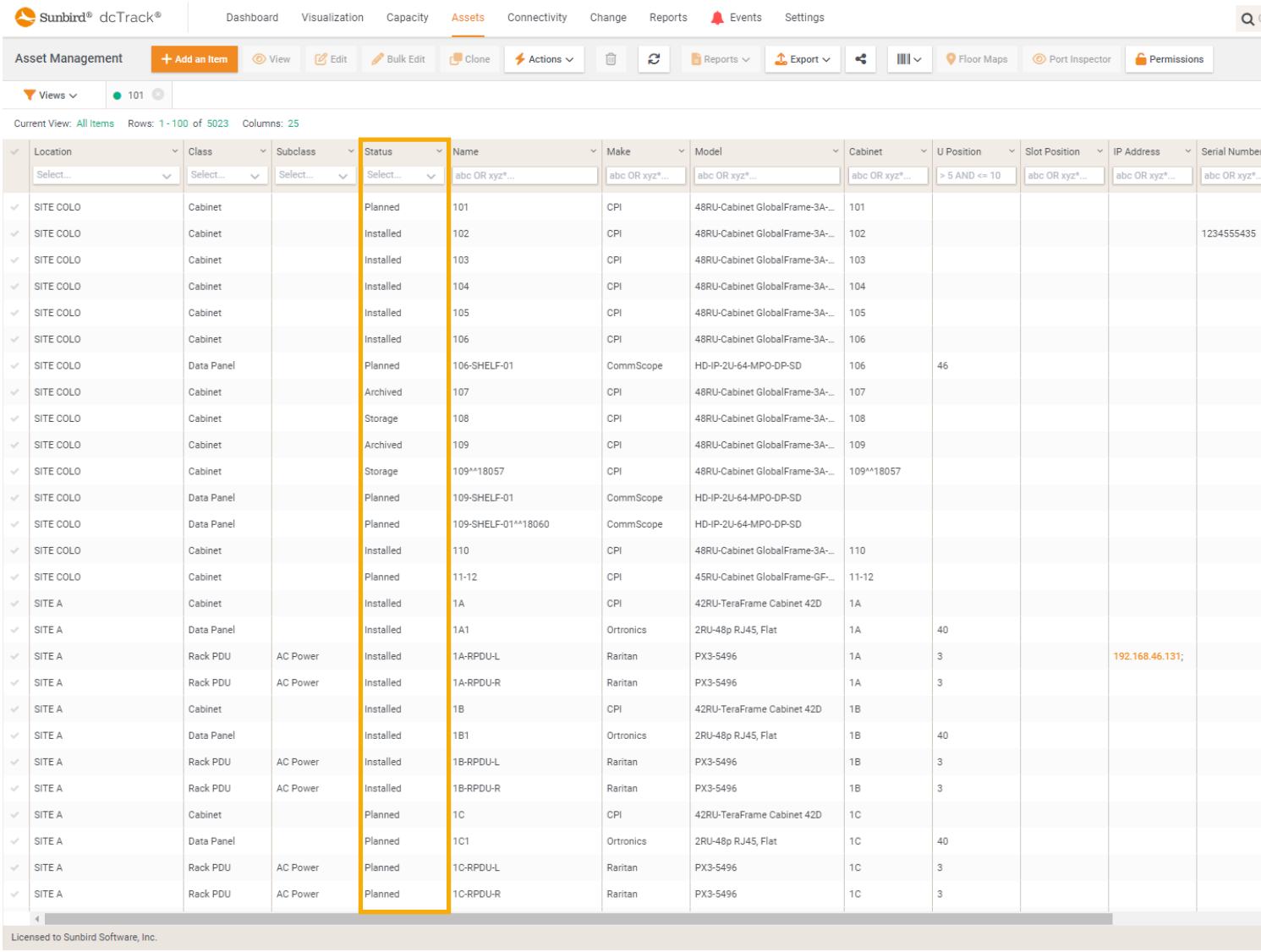


Statuses are applied to items and circuits based on an action request or lack of an action request.

For example, an item or circuit is in a Planned status when they are first created.

Circuits are in a Connected status once the work order to connect the circuit is marked Complete.

Items are in an Installed status once they are installed in the data center and their work order is marked Complete, or their status is changed manually from the <status>, and so on.



dcTrack uses a Change Control workflow to track items and connections in the data center throughout their lifecycle.

Even if you are working in Request Bypass, where dcTrack automatically process the request rather than requiring you to manually process it, the item or connection is still tracked.

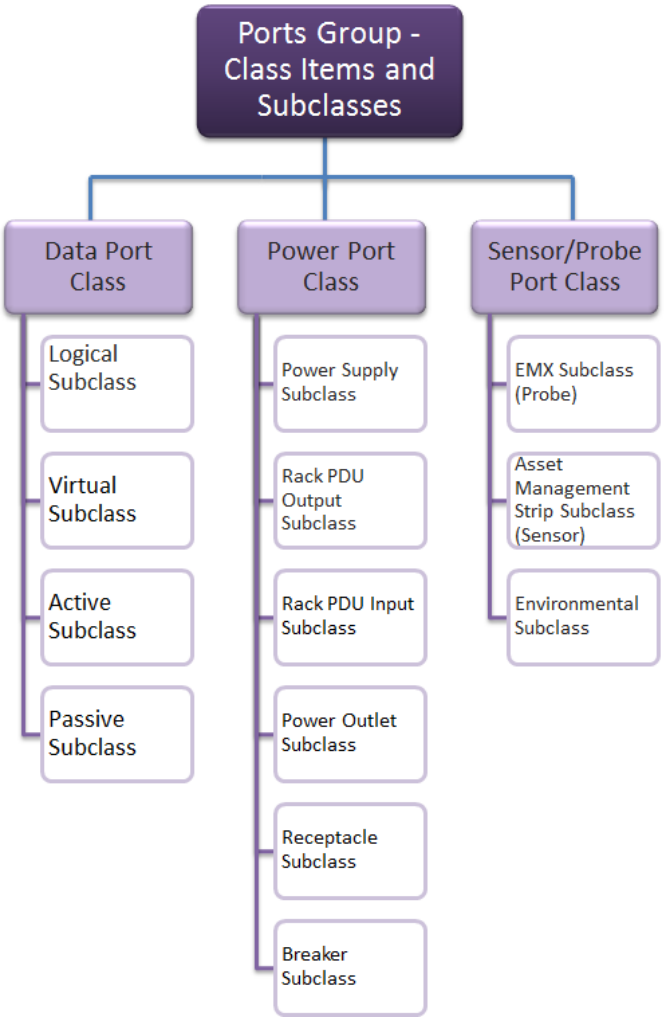
Stages refer to the current point in the Change Control workflow an item or connection is in after a request is submitted.

For example, when an item is in a Planned status, it is in the Request Issued stage of the workflow.

Once an item is installed, it is in the work order complete stage of the workflow.

Ports

PORTS belong to ITEMS in the dcTrack hierarchy.



An item can have many power, data or sensor ports depending on the item's class. For example, servers have both power ports and data ports, while passive items such as cabinet shelves and wire managers do not have power ports or data ports.

- Ports also have classes. The classes are types of ports -
- Data Ports
- Power Ports
- Sensor/Probe Ports

If an item has ports, they are already defined for it the Sunbird Models Library file. This means you do not need to manually create ports for an item. For example, all of the data ports and power ports for a server are included with the server.

You can create additional ports, delete existing ports, and edit ports if you have Edit privileges to an item.

Data ports and sensor ports are created in the Web Client.

Create power ports for Device, Network, and Probe class items in the Web Client.

Data and power port connections are created in the Web Client.

See **Manage Circuits and Power in Your Data Centers**.

Ports that are already connected cannot be deleted until they are disconnected.

Data Ports

DATA PORTS belong to ITEMS in the dcTrack hierarchy.

Any port on an item used for voice or data communications is a data port (also referred to as a comm port).

Data ports have subclasses. The subclasses assign the port certain attributes and behaviors.

A port is defined with a name, connector, communications protocol, transmission speed, address and comments.

Data ports are created and managed from the Data - Ports tab on an item's page in the Web Client.

Port Subclasses

Data ports contain the following subclasses:

- Physical Ports

Physical network ports connect cables to computers, routers, modems and other peripheral devices.

Several different types of physical ports are available such as Ethernet ports, serial ports, and so on.

  - Active Ports

Physical ports on an item such as data and power ports.

  - Passive Ports

Ports on data panels.

- Logical Ports

Logical ports apply only to blades

A logical port uses the internal communication paths on a blade chassis housing the blades.

For example, a device blade logical port-to-network blade logical port within the same chassis, a device blade logical port-to-its blade chassis.

- Virtual Ports

Any data port on a virtual machine.

Power Ports

POWER PORTS belong to ITEMS in the dcTrack hierarchy.

Any port on an item used to provide power to the item. Additionally, there are ports assigned as power ports due to an attribute or behavior.

Each receptacle in a power outlet and each inlet cord or outlet in a rack PDU is represented as a power port.

Create power ports for Device, Network, Rack PDU and Probe class items in the Web Client.

Types of Power Ports

Power ports include the following:

- Power Supply Ports

Each power supply on device or on network equipment is represented in dcTrack as a power supply port.

- Rack PDU Inlet Ports

Each inlet cord ports on a rack PDU is represented as a power port.

- Rack PDU Outlet Ports

Each outlet port in a rack PDU is represented as a power port.

- Power Outlet Ports

Each receptacle on a power outlet is represented as a power port.

- Receptacle Ports

Each receptacle port on an item is represented as a power port.

- Breaker Panel Poles

A PDU, RPP or electrical busway module contains panel boards. The maximum number of poles a panel can have is 96 for sites with the address in the United States. Sites defined in all other countries can have a maximum of 96 poles. Poles are either numbered sequentially in an odd/even layout, or using numbers and letters.

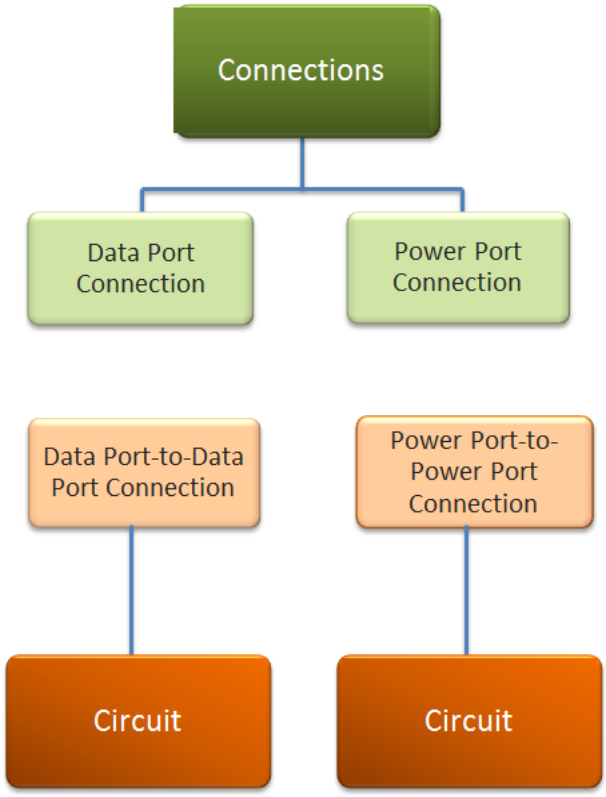
A panel is laid out such that odd poles are on the left and even poles are on the right.

There are 3 types of circuit breakers: 1-, 2-, or 3-pole breakers. As the name implies, a 2-pole breaker requires two pole positions and a 3-pole breaker requires three positions.

Connections and Circuits

CONNECTIONS belong to PORTS in the dcTrack hierarchy, and CIRCUITS belong to CONNECTIONS.

Data port-to-data port CONNECTIONS form a CIRCUIT, and power port-to-power port CONNECTIONS form a CIRCUIT.



Types of Connections

- Implicit Connection

Implicit connections are those representing structured cabling infrastructure. They are connections made by application for infrastructure components.

For example, a data panel port-to-data panel port, and a power outlet-to-circuit breaker are implicit connections.

- Explicit Connection

Explicit connections represent connections to other items. Explicit connections made by users.

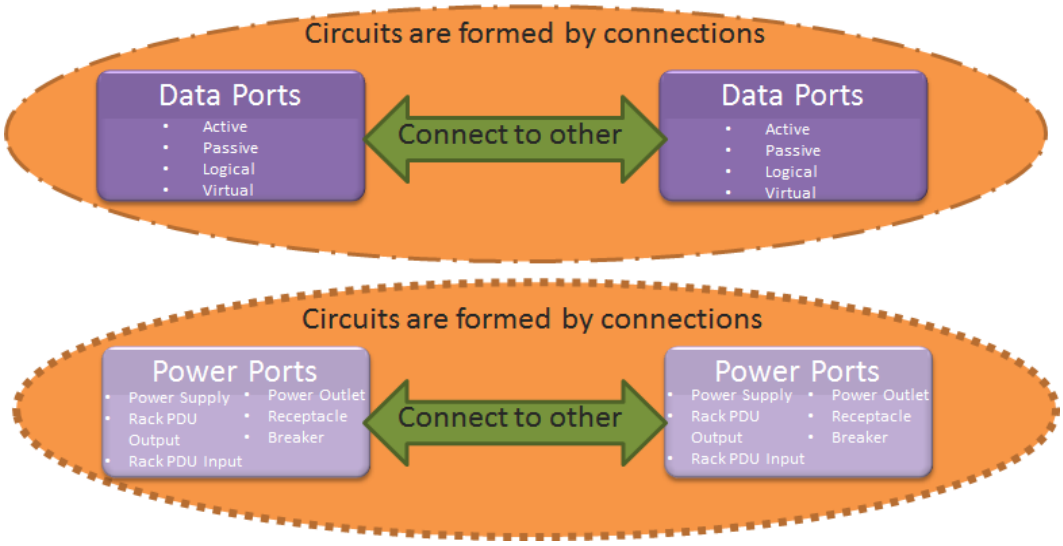
For example, a patch cord connecting a server to a data panel, a switch to a data panel, or data panel to data panel are explicit connections.

Connection Types

Power ports can be connected to other power ports, and data ports can be connected to other data ports.

Data port connections and power port connections form a circuit.

Sensor ports do not form connections; they are simply tracked from the sensor port on the item.



Data Panel/Patch Panel/Data Patch Panel

dcTrack refers to patch panels as 'data panels'.

Item Classes and Subclasses

dcTrack organizes and refers to data center assets as items.

Items are grouped into classes and there are subclasses of items to further identify and group them.

For example, a blade server that belongs to the Device Class is part of the Blade Device Item Subclass. This distinguishes the blade server from Standard Device Items, Chassis Device Items and Virtual Machine Device Items, which are all part of the Device Class.

DC Power Classes and Subclasses will appear only when the DC Power feature is enabled.

The following table summarizes the classes in dcTrack with examples of the types of items that fall within each class:

Class	Description	Subclasses
AC Distribution	Items that are connected to AC Power	AC Bay, Load Device, Other Device, Power Panel, Switch, Transformer, UPS Bank

Class	Description	Subclasses
Battery	Individual batteries that belong to a UPS unit or DC Power Plant.	
Cabinet	A cabinet can be an enclosed cabinet/rack or an open bay rack.	Container
Data Panel	Cabling patch panel of any cable type: copper or fiber	
Device	Any computing equipment, server, host, disk, host or kvm equipment	Blade Chassis, Blade Server, Standard, Virtual Machine
Floor PDU	Main unit that contain panels housing circuit breakers or feeding remote power panels (RPP)	Busway, Local, Remote
HVAC	Heating, Ventilating and Air Conditioning; the cooling and heat-rejecting units in the data center, include those in between cabinets called In-Row cooling units	Cooling Unit, Cooling Zone, Heat Rejection
Network	Any networking equipment such as switches, routers, firewalls, etc.	Blade, Chassis, NetworkStack
Passive	These include wire managers, blanking plates, cabinet shelves and so on.	Blanking Plate, Shelf, General
Power Outlet	It is a housing unit that contains one or more electrical receptacles of varying types.	Busway Outlet, Whip Outlet

Class	Description	Subclasses
Power Source	Any equipment that is main source of power for data center.	Fuel Tank, Generator, Utility Feed
Probe	Any equipment that concentrates many sensors and connect to the network.	
Rack PDU	A specializes strip that is used to provide additional electrical receptacles for a particular electrical outlet.	AC Power, Rack Transfer Switch, Rack UPS
UPS	An electrical system that provides continuous and uninterrupted power by switching very quickly to local power source in the event the electrical utility feed is interrupted.	
DC Power Classes		
DC Power System	Group of all the main components for DC Power system.	Plant, Plant Bay, Plant Panel, Rectifier
DC Distribution	Components that are used in Battery Distribution Fuse Bay (BDFB) or Battery Distribution Circuit Breaker Bay (BDCBB).	DC Bay, DC Panel
Rack PDU	A specializes strip that is used to provide additional electrical receptacles for a particular electrical outlet.	DC FAP, Rack Inverter, Rack Rectifier,

dcTrack Device Hardware

This is a physical appliance mounted in a data center cabinet is referred to as dcTrack device hardware.

dcTrack comes installed on the device.

You can use a dcTrack appliance instead of this dcTrack VMWare.

Appliance

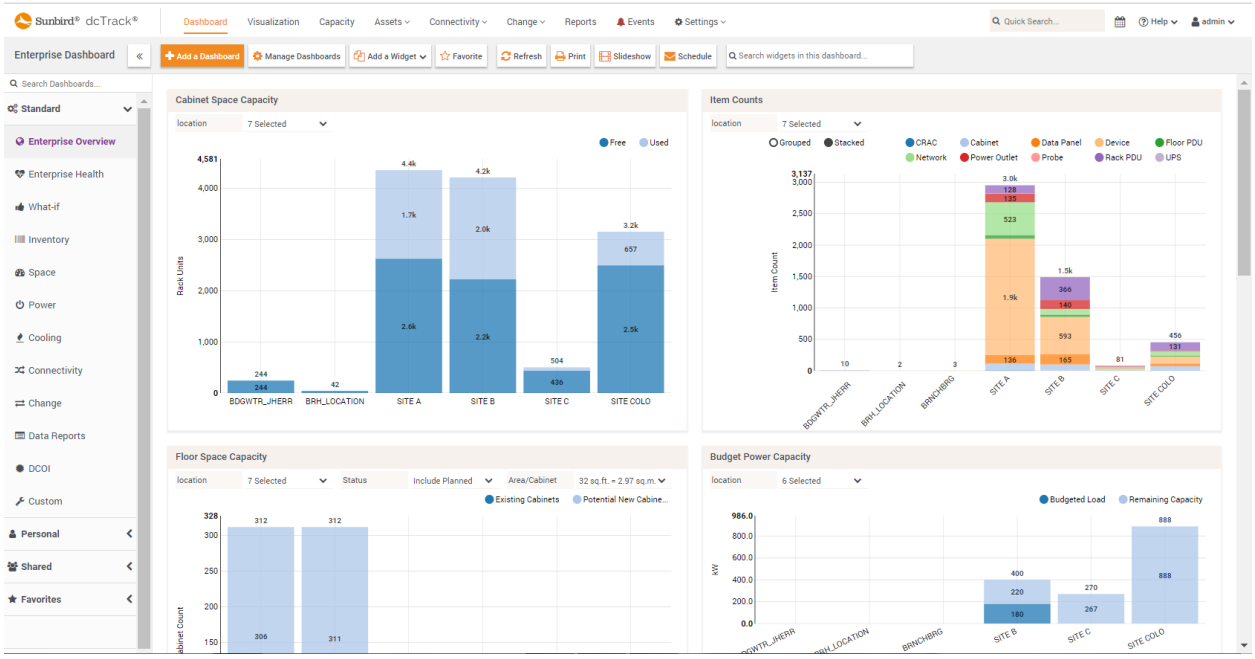
For the purposes of dcTrack, appliance refers to Power IQ® hardware devices installed in data center locations.

Appliance is also used when referring to dcTrack settings. For example, you access the Settings page by selecting Admin > Appliance Settings in the Web Client.

dcTrack Interfaces

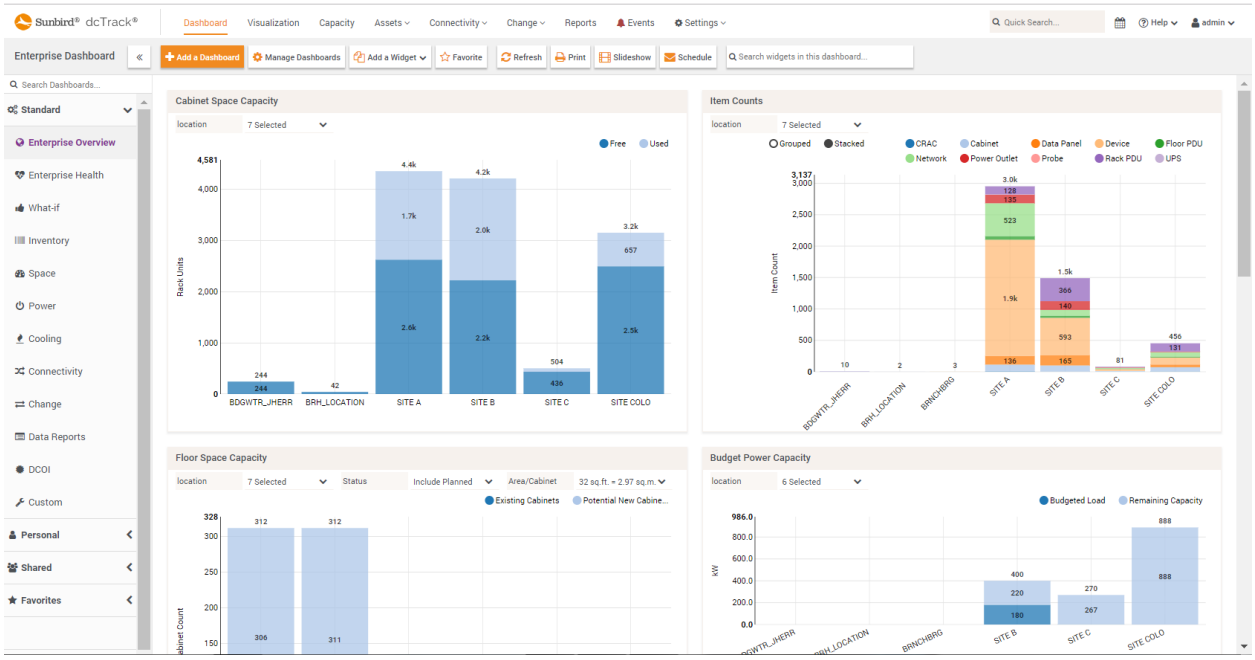
dcTrack uses two interfaces:

- A web-based interface called the Web Client (this is the client you log in to)



Web Client Interface

Following are descriptions of the highest-level Web Client interface elements.



Information Only Elements

Element	Description
Username	Username of the user currently logged into the system. Click to access User Settings.
Default Location drop-down	The Default Location drop-down at the top right of the dcTrack Web Client is for information purposes only. Selecting from the Default Location drop-down does not cause a change to the application. This is not the same as the Location drop-down, which allows you to change the location you are working in. The drop-down contains a list of all other locations in dcTrack. It displays your default location unless you make another selection. Your default location is configured by your System Administrator. See **Define a User's Default Site/Default Location**.
Units of measure	The units of measure applied to dcTrack - U.S. or S.I. (metric)

Tabs, Links, and Functions

Label	Element	Description
D	Web Client Function tabs	These tabs provide access to various functions available in dcTrack.

Label	Element	Description
		• Dashboard Tab - Web Client Dashboard Description • Visualization Tab - Floor Map Description • Capacity Tab - Intelligent Capacity Search Page Description • Assets Tab - Page Description • **Connectivity Management** • **Reports Tab - Page Description** • **Change Management** • **Events**
E	Location drop-down	The Location drop-down lists all locations you have access to in dcTrack. Location drop-downs that appear at the top left of a page allows you to switch to a different dcTrack location by selecting from the list. For example, on the Web Client Dashboard you can select a new location to view readings for, or on the Floor Map under Visualization you can select a new location to view a new data center floor map. Location drop-downs on pages such as a New Item page allow you to select a location for the new item and apply it.
F	Refresh icon	Use the Refresh button to get the most up-to-date information for the current location, meaning the location indicated in the Location drop-down. Note that in most cases you must click refresh to get the most current data available, such as power and sensor readings, Dashboard readings and so on.

Additional Elements

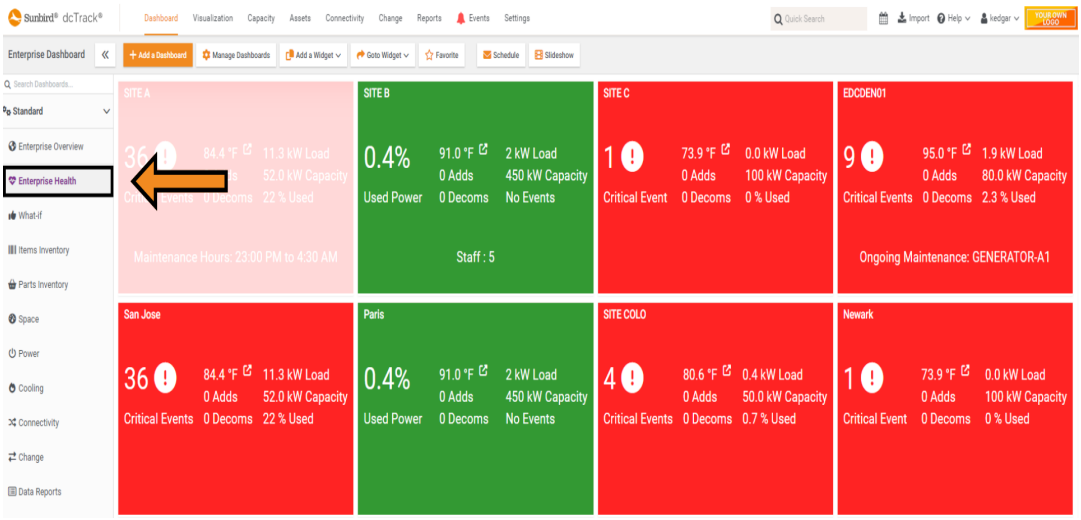
Element	Description
Log on or Log off link	Used to log on to and log off of the dcTrack Web Client.
Help link	Used to access dcTrack online help and API Guide.

Note: The privileges assigned to your role impact what you can access and view in dcTrack, so not all interface elements may be accessible to all users.

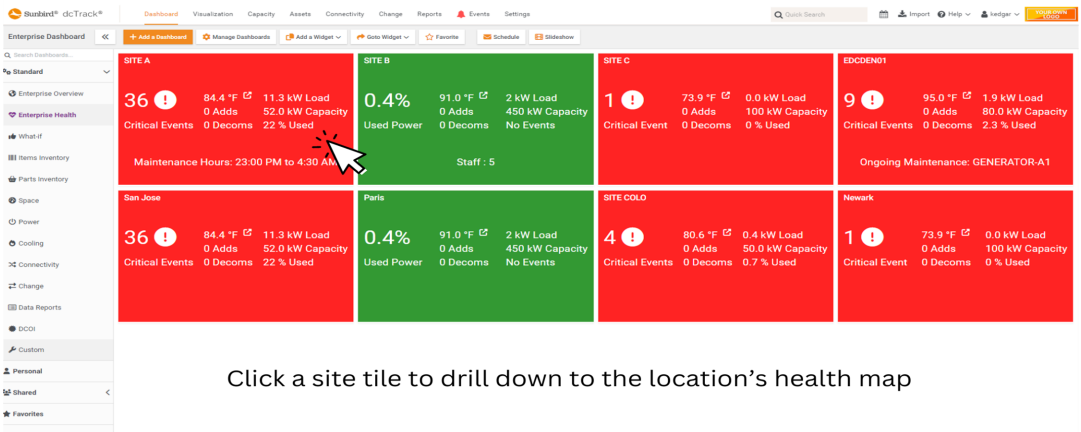
Access Data Center Health Information and Cabinet-Level Health Information

There are various views in dcTrack you can access to get information on your overall data center health and cabinet-level health. Note that you must be integrated with Power IQ to retrieve some of this information, floor maps must be synced with locations, and items must be configured to send readings.

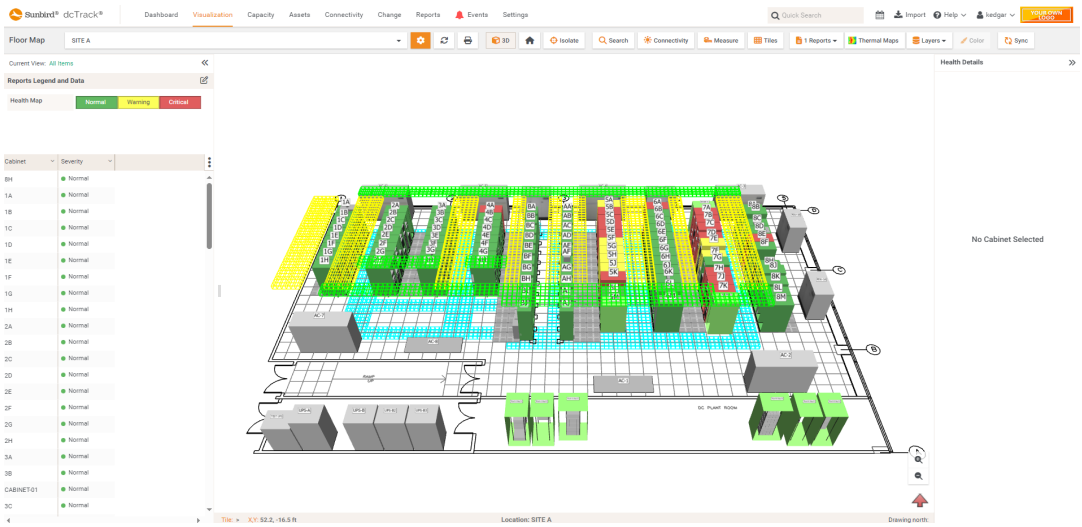
dcTrack provides an Enterprise Health Dashboard as a way to view the overall health of your data centers. To access the Enterprise Health Dashboard, go to the Dashboard tab and select the second dashboard page.



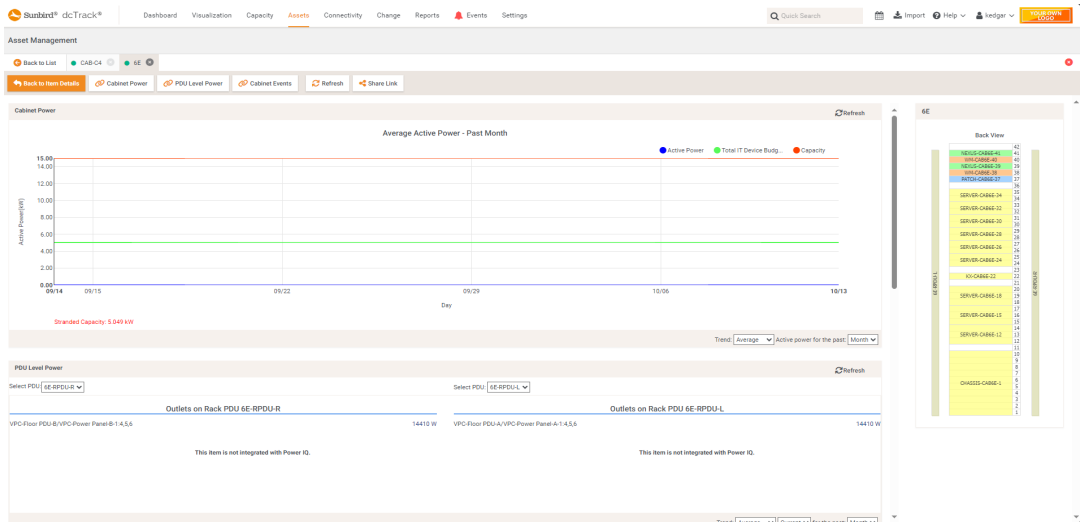
Drill down to a specific location's Health Map from the Enterprise Health Dashboard by clicking on a location tile. You can also apply the Health Map report view from a location's floor map. See and **View Data Center Conditions Using Floor Map Reports** respectively.



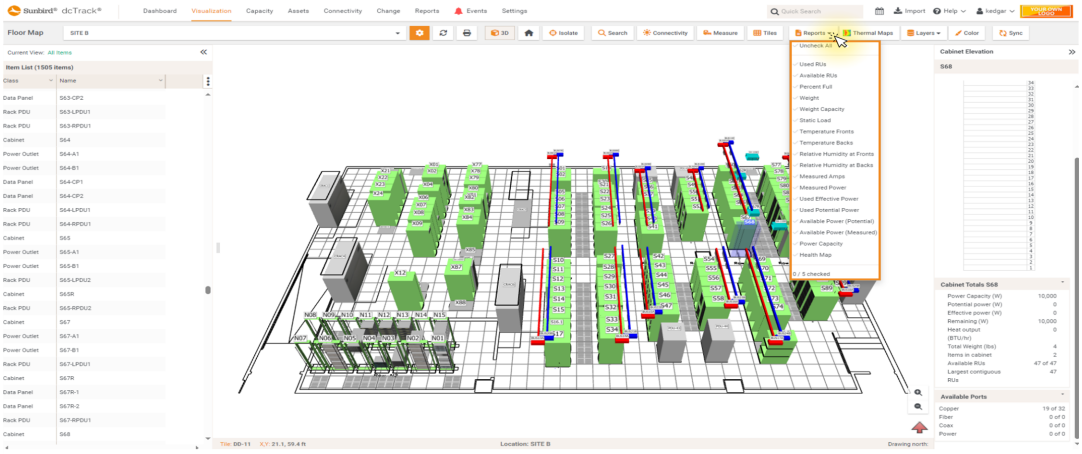
Click a site tile to drill down to the location's health map



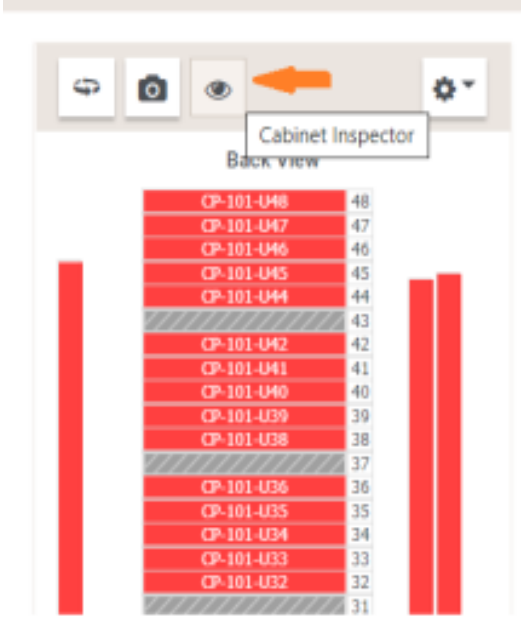
You can drill-down from a location's Health Map to the cabinet-level to view Cabinet Live Charts. You can also access these charts by opening cabinet pages from the Items List. Cabinet Live Charts provide several charts you can use to view power and event information. This information is a summary of the items in the cabinet. See **Cabinet Live Charts**



Floor map report views can be applied to a location's floor map. These views provide power, capacity and data center health information. See **View Data Center Conditions Using Floor Map Reports**.

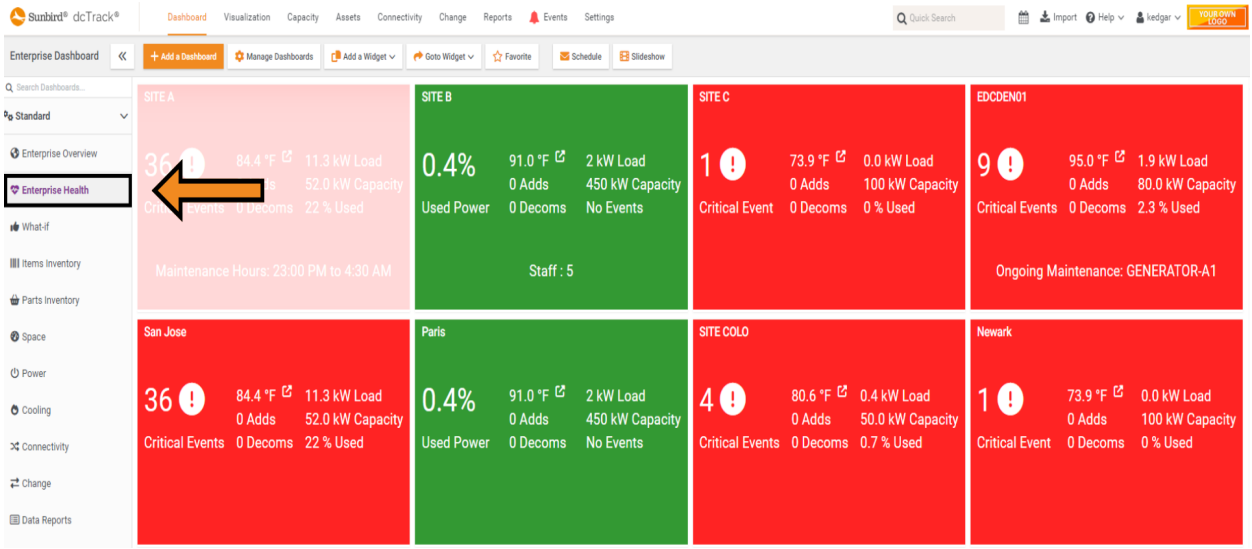


Cabinet Inspector provides capacity and power data for specific cabinets. Access Cabinet Inspector from a location's floor map. See **Cabinet Inspector**.



Web Client Enterprise Health Dashboard

dcTrack provides an Enterprise Health Dashboard as a way to view the overall health of your data centers. To access the Enterprise Health Dashboard, go to the Dashboard tab and select the second dashboard page.



In order to display information for each location, you must be integrated with Power IQ and you must have a floor map synced with the location in dcTrack.

In order to add tiles in the Enterprise Health dashboard, a Floor Map type widget for the site has to be created in the Power IQ dashboard first.

Visualization Page

The Visualization tab in the dcTrack Web Client contains the Floor Maps and Data Network Diagrams.

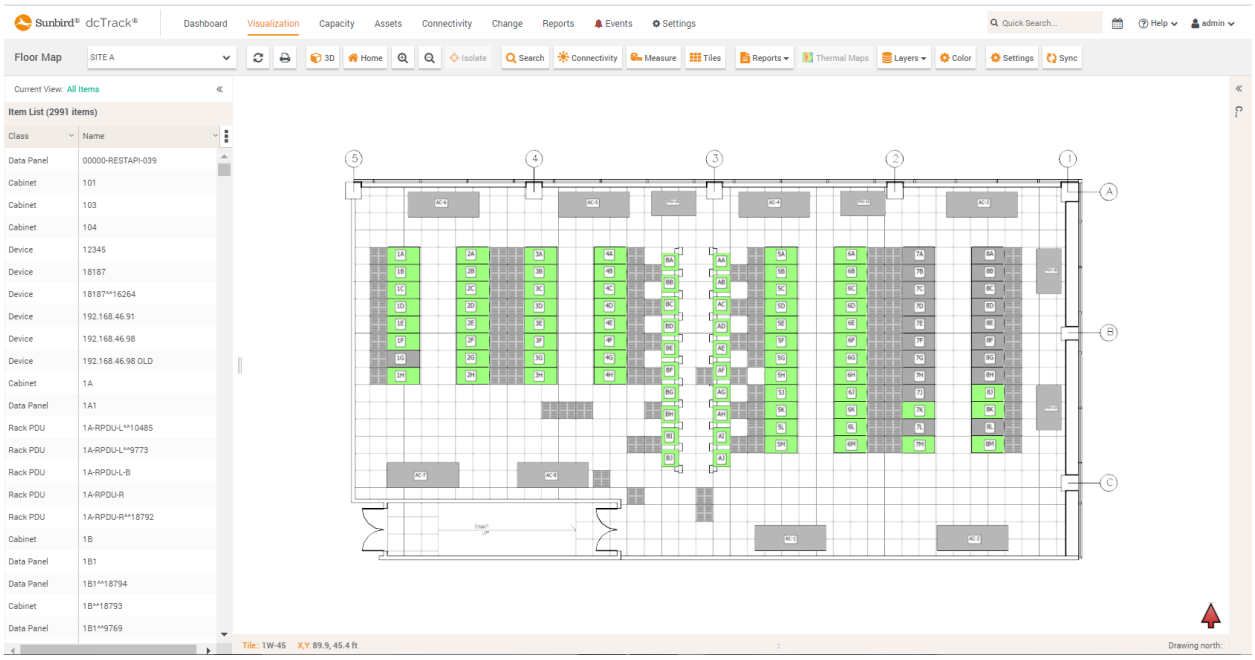
A floor map is rendered when you upload a .DWG drawing file for each of your data center locations in dcTrack. The objects on the floor map are then synced with items in dcTrack.

From here:

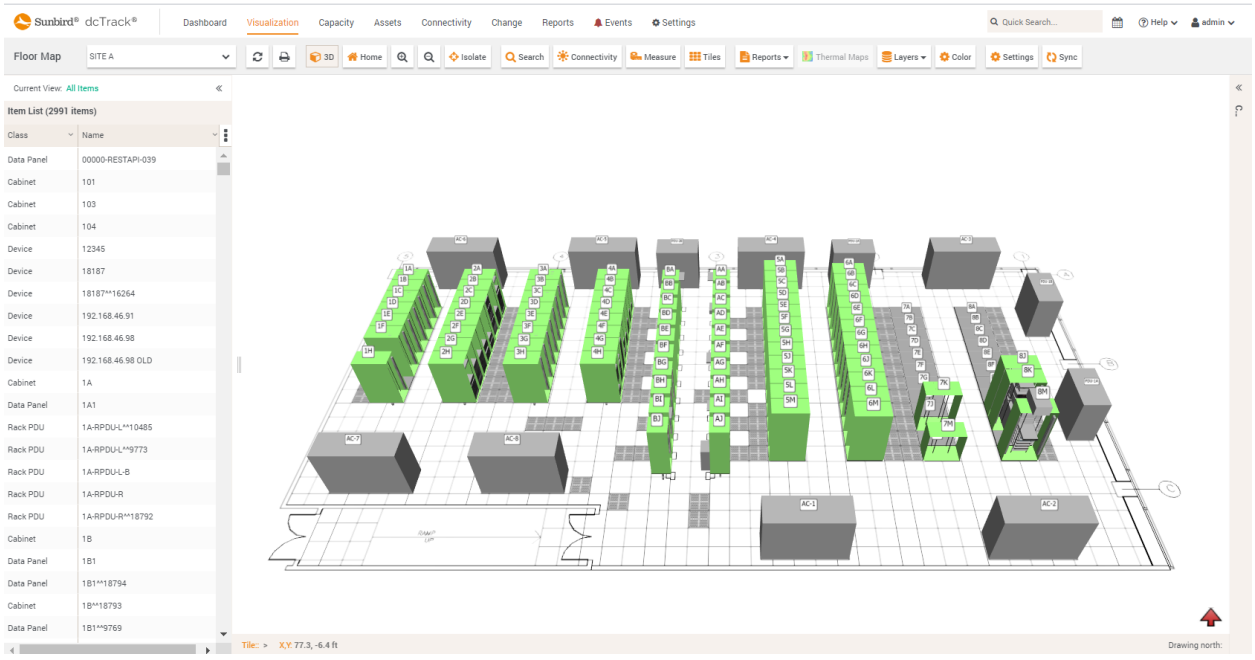
- **View Data Center Conditions Using Floor Map Reports**
- **Set Floor Map Report Thresholds**
- **Print a Filtered Floor Map Report**
- **Zoom In on a Report Section to Print It**
- **Download a Location's Existing Floor Map Drawing File**
- **Export the Floor Map Report Data List to a .CSV File**

Floor Maps can be viewed in two modes

Floor Map 2D Mode



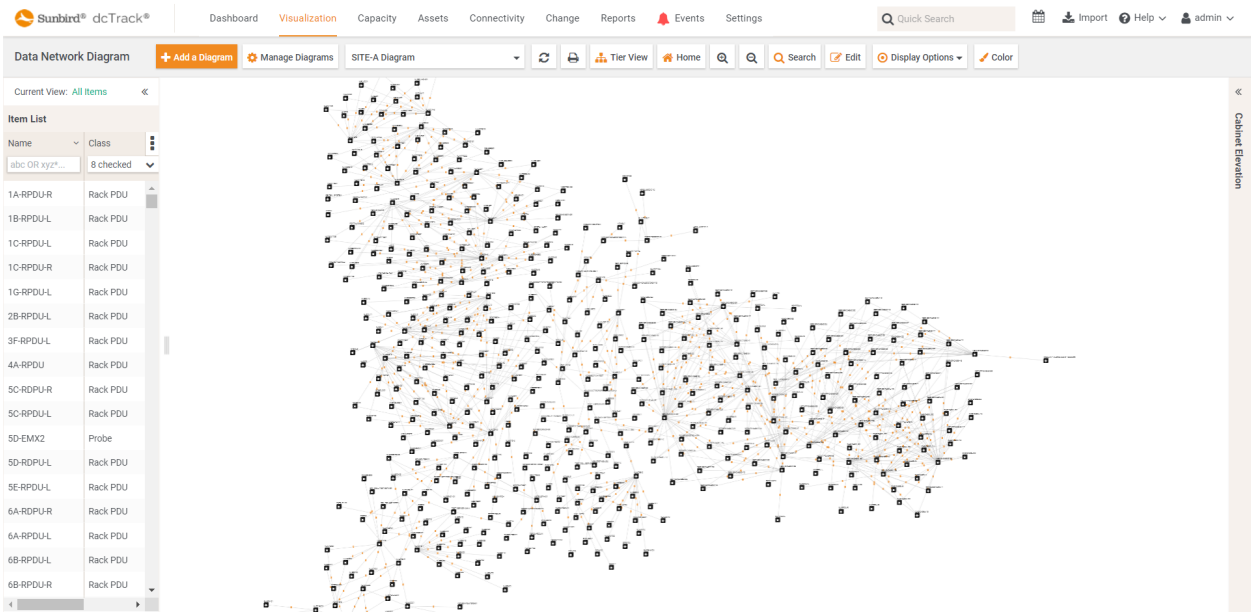
Floor Map 3D Mode



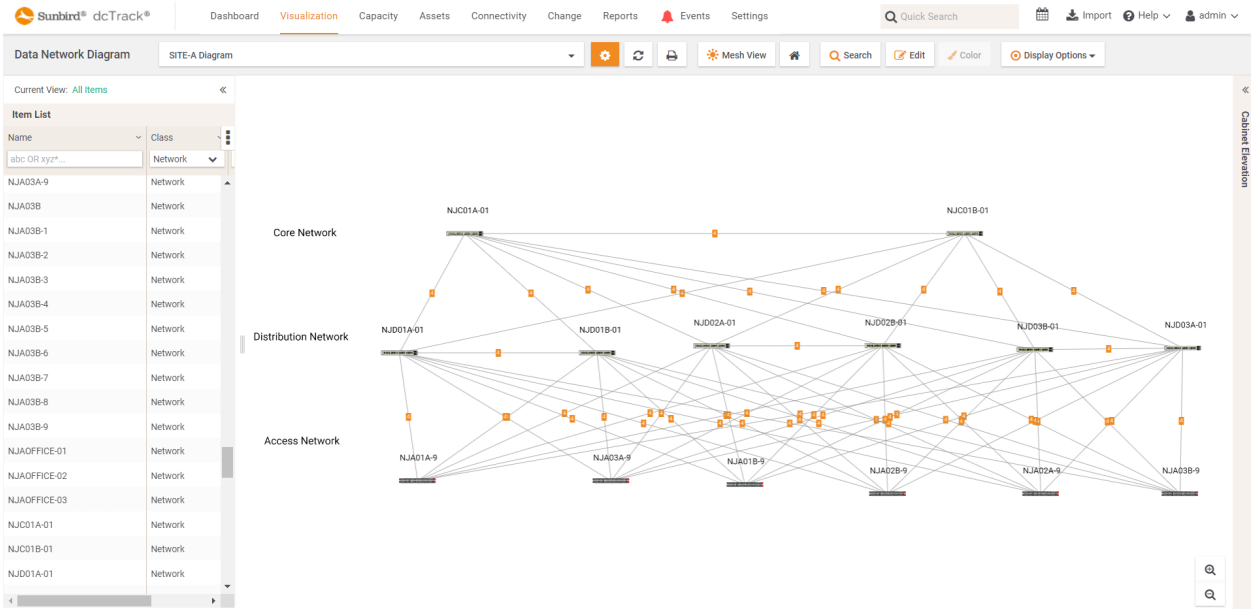
Data Network Diagram provides capability to visualize entire Data Network for a single location or across multiple locations.

Data Network Diagrams can be viewed in two formats.

Mesh View



Tier View

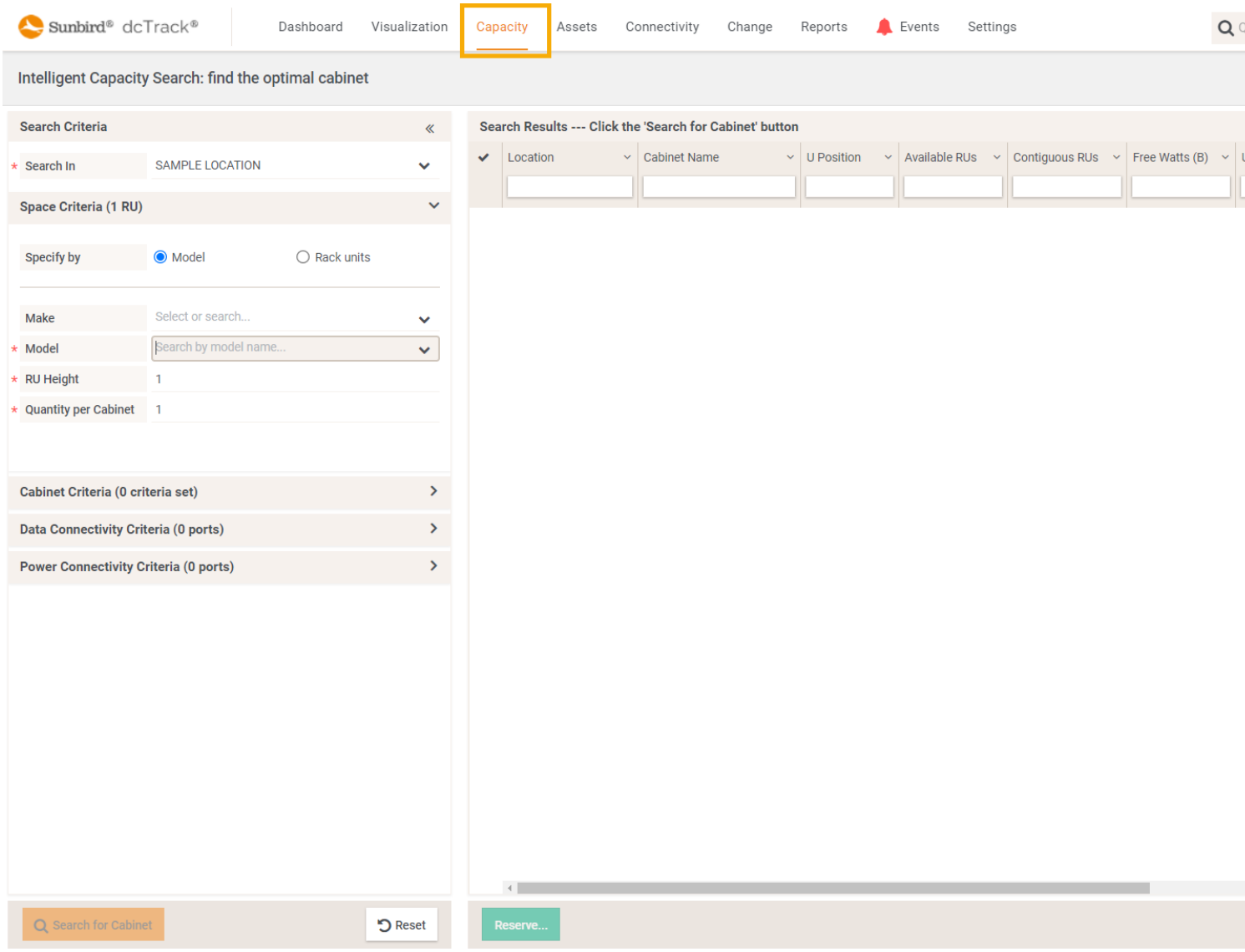


For details see Data Network Diagrams

Capacity Management

The Capacity tab provides access to:

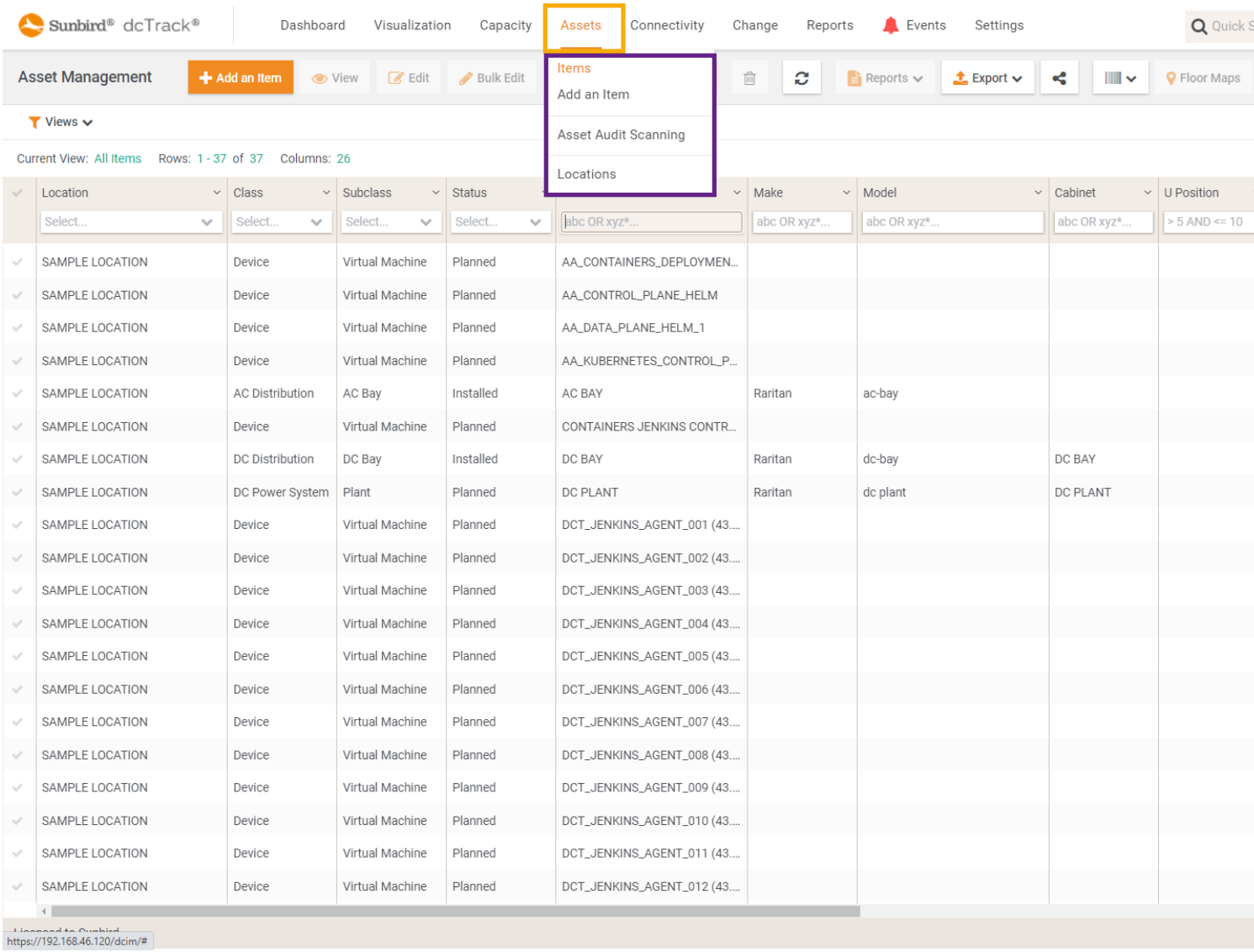
- **Use Intelligent Capacity Search to Locate or Qualify Cabinet Space for One or More Items**
- **Use Capacity Search to Locate a Destination Cabinet**



Assets Tab - View Items, Add New Items, and More

Users who are able to add and edit items manually do so from the Assets tab. This includes adding cabinets and items, editing information, submitting requests such Install Item Requests, Move Item Requests and so on, cloning

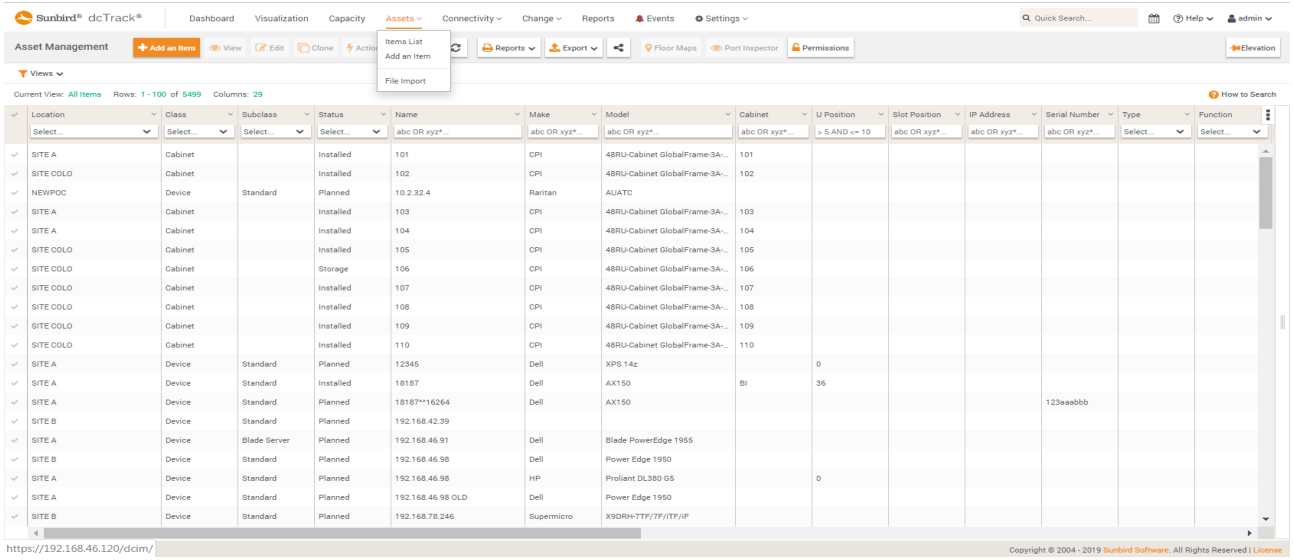
items, using the Export to CSV feature and more.



This page can also be customized using filters and through sorting. Once customized, you can save the page settings so it is your default view of the page.

- **Sort Data on a List Page in the Web Client** and Search and Filter Grids in dcTrack
- **Reorder Columns on List Pages**, **Show or Hide Columns on List Pages** and **Update the Rows per Page on List Pages**
- Exporting List Data to a .CSV File from the Web Client
- Manage Locations

- Add New Items Manually in the Web Client
- **Performing an Asset Audit**
- Creating New Items and Cabinets Using Cloning
- **Submit an Install Item Request**
- Search for a Specific Item in the Data Center - Quick Item Search
- Turn Request Bypass On or Off from the Web Client Actions Menu
- **Converting an Item to a Virtual Machine - Convert Item to VM Request**
- **Assigning IP Addresses to Data Ports and Port Teaming**
- **Creating and Managing Ports**
- Moving a Cabinet, Item or Blade - Drag-and-Drop, Move Item Requests and Update Positions
- **Moving Items Off Site and Back On Site - Take Item Off-site Request and Bring Item On-site Request**
- **Power Items On and Off - Power-on Item Request and Power-off Item Request**
- **Put Items in Storage - Decommission Item to Storage Request**
- **Archive Items - Decommission Item to Archive Request**

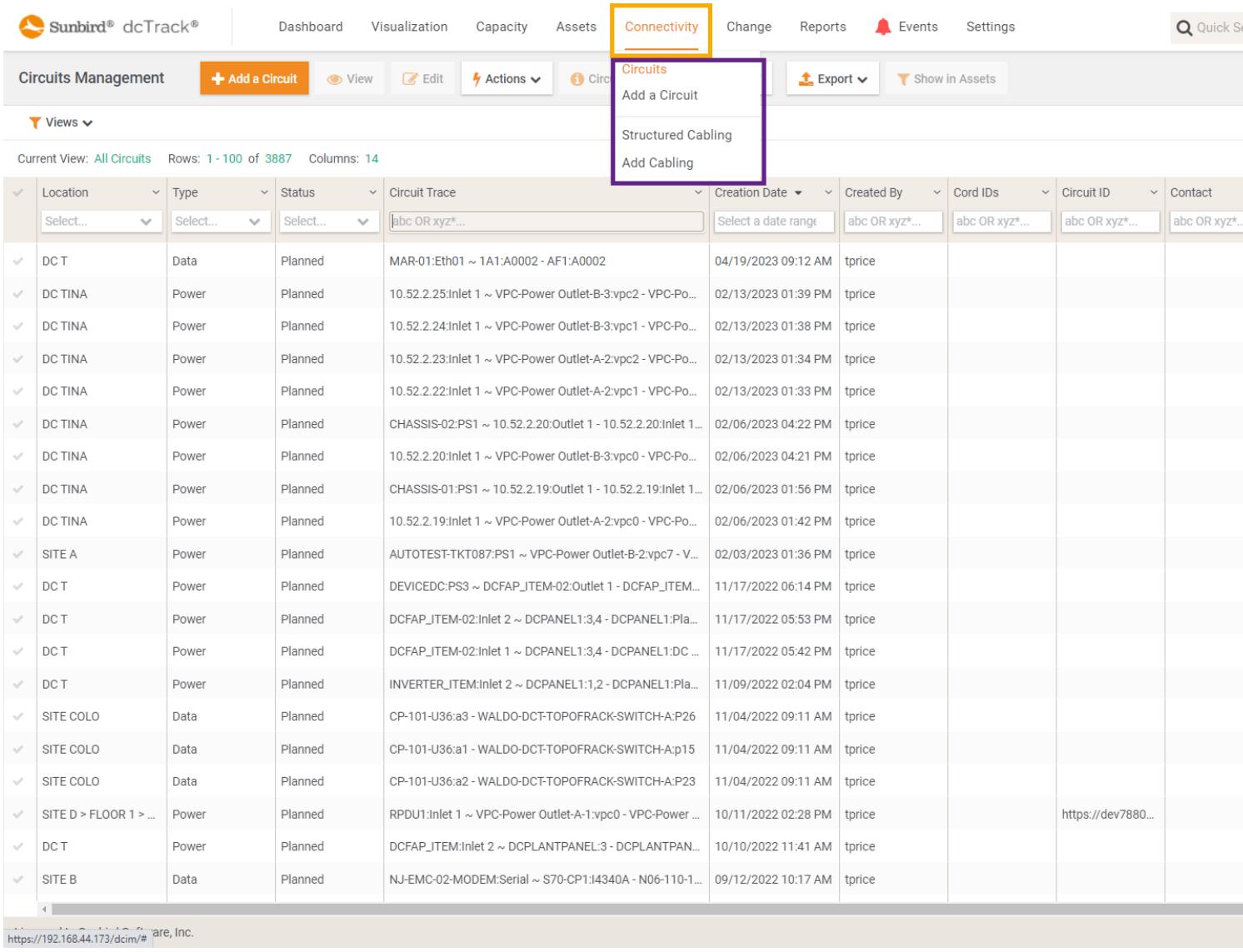


Connectivity Management

Depending on your role, the Connectivity tab enables you to:

- Customize your circuits list view
- Export list data to .CSV from the Circuits List

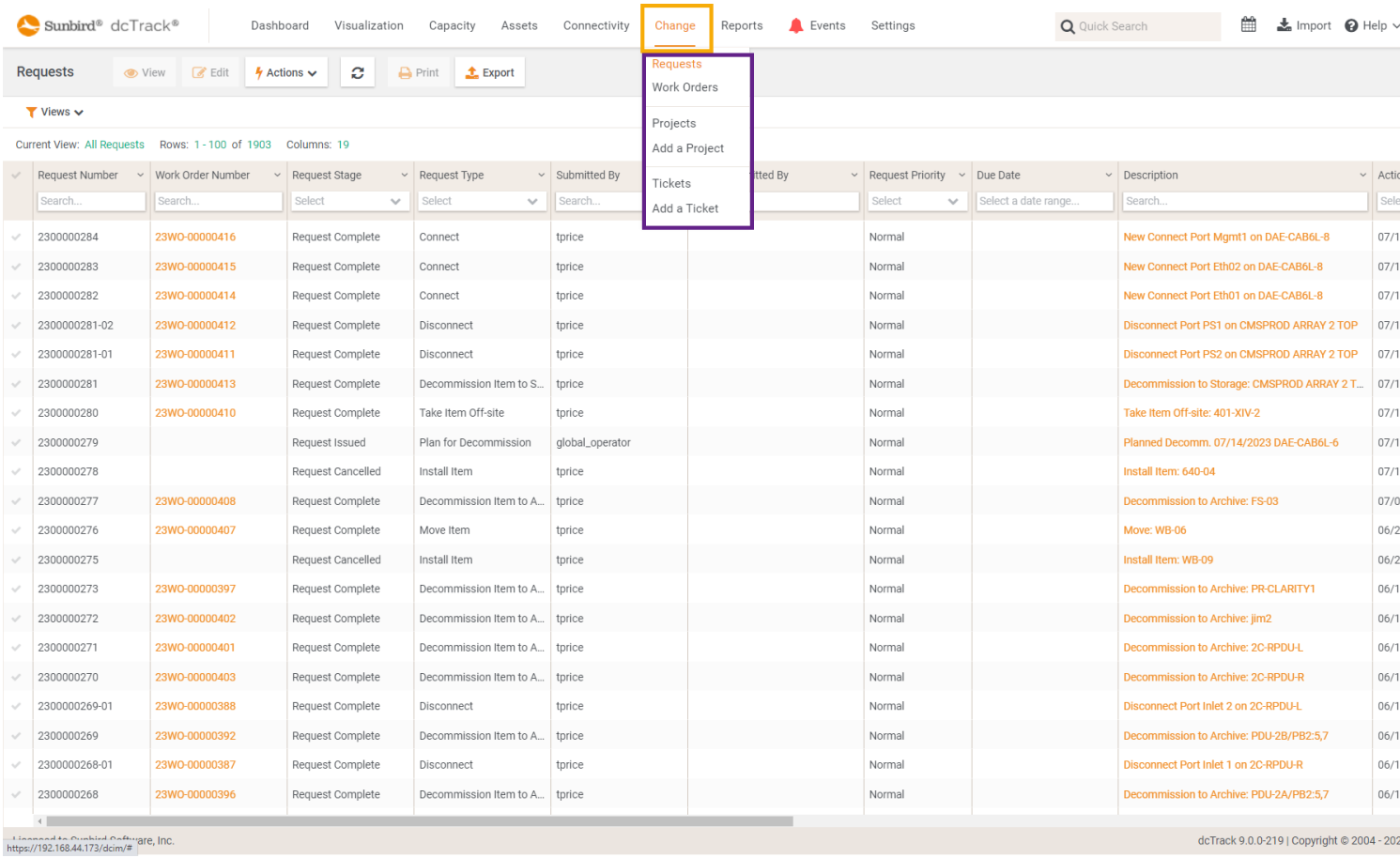
- **Build Data and Power Circuits**
- **Create Structured Cabling and Data Panel Ports**
- **Create Structured Cabling between Data Panel and Network (Port Mirroring)**
- Connect to a virtual power chain
- Switch circuits (connect and reconnect)
- Switch to and from virtual power chains (connect and disconnect)
- Tracie circuits from the web client circuits list
- View, edit, deleting and re-set circuits



Change Management

Depending on your role, the Change tab provides access to:

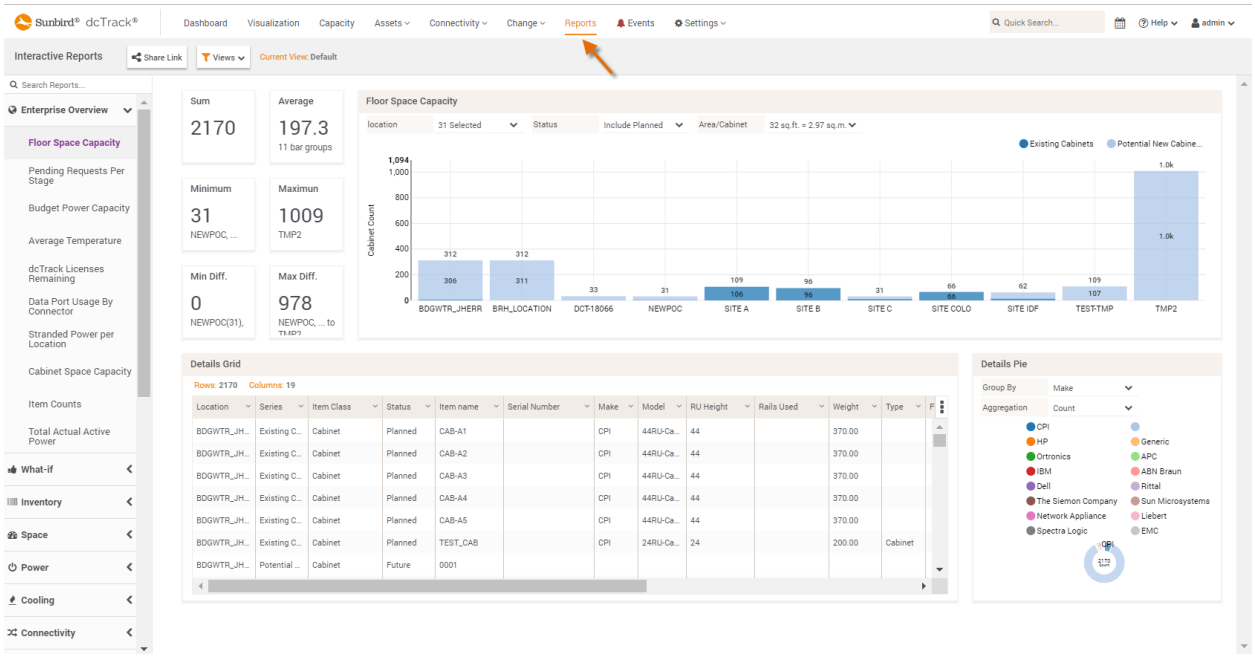
- **Requests and Work Orders**
- Manage Work Orders
- **Add and Manage Projects**
- **Add and Manage Tickets**



Reports Tab - Page Description

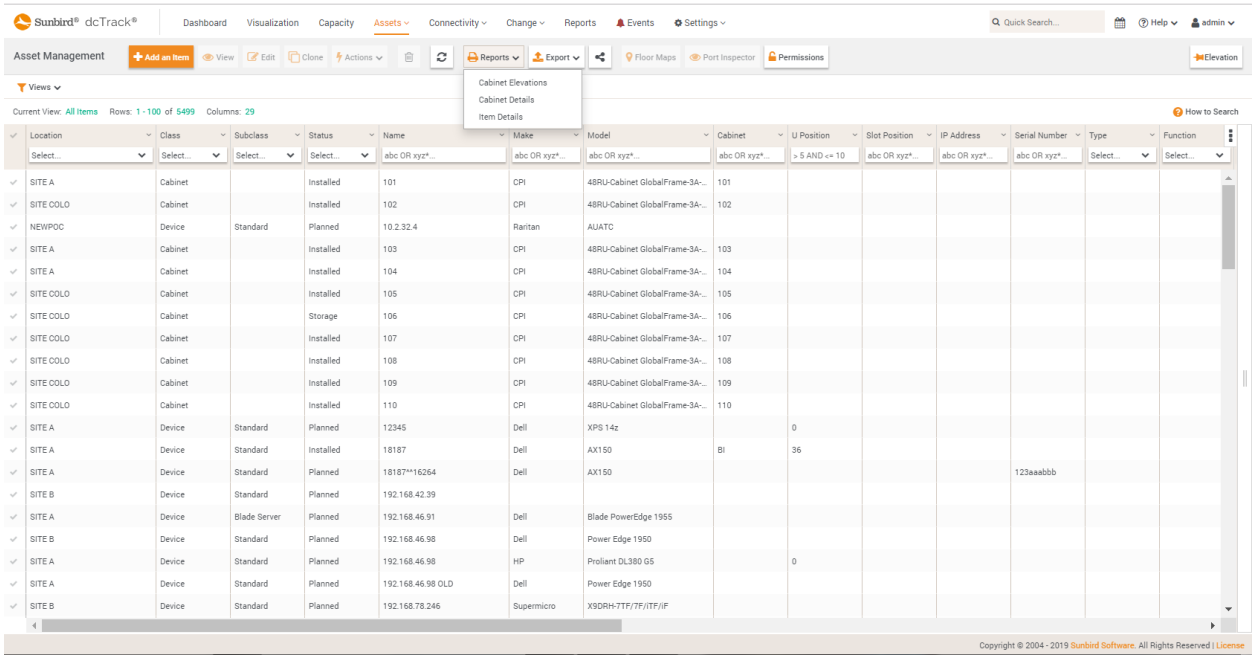
Use the reports to access interactive Reports where you can-

- **Run, View and Print Application Reports**
- **Save Application Report Settings/Views**



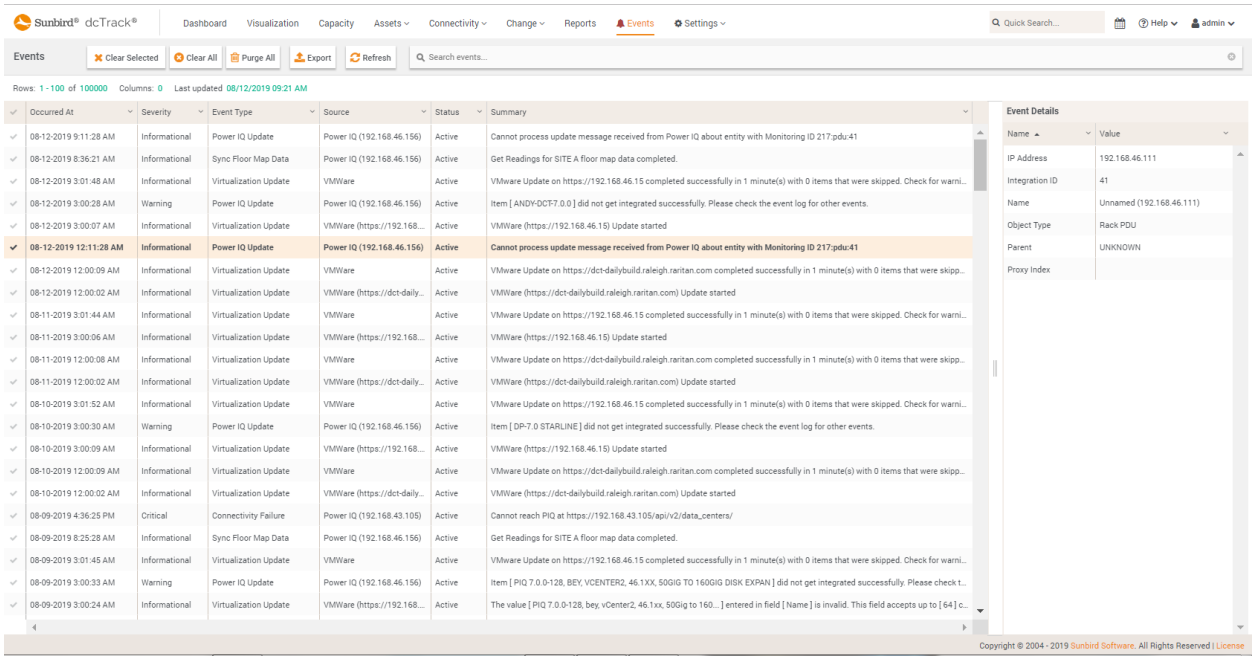
PDF reports are accessed from the Asset List or Asset Detail page

- **Cabinet Elevation Report**
  - **Cabinet Detail Report**
  - **Item Detail Report**

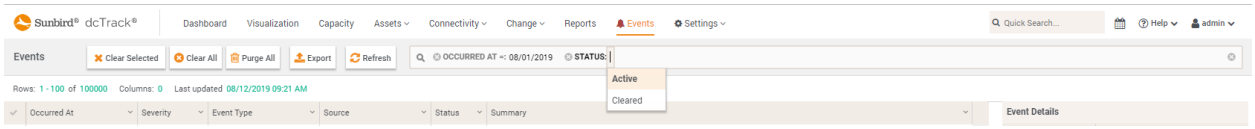


Events

Depending on your role, the Events tab provides access to Manage Application Events - Review, Export, Clear and Purge dcTrack, Power IQ and AMS Events



You are able to filter data based on the day an event occurred, the event type, status and so on.



For details on managing events, see **Manage Application Events - Review, Export, Clear and Purge dcTrack, Power IQ and AMS Events**.

Cabinet Elevations

Cabinet Elevations are graphical and text representations of cabinets and their contents.

Cabinet Elevations are found on various pages and dialogs in dcTrack.

The information that is displayed or the action that is invoked by double-clicking on an item in a Cabinet Elevation depends on the page you are currently viewing.

For example, if you open a cabinet's item page and double-click on an item in the Cabinet Elevation, dcTrack opens the item's page in a new tab.

However, if you are on the item's page and click on that item's image in the Cabinet Elevation, a menu containing options to view the Items ports view image (if one is available).

You can move items from one position to another in Cabinet Elevations and move blades from one slot to another slot. For details, see **Move an Item to Another Position within a Cabinet Elevation (Drag-and-Drop)** and **Move a Blade to Another Chassis from a Cabinet Elevation**.

You can also access Cabinet Inspector from a Cabinet Elevation when you are viewing a location's floor map or any Floor Map report on the Floor Maps page, with the exception of the Health Map report which displays Health Details instead of the Cabinet Elevation. For information on Health Details, see .

Cabinet Elevations Display

Rackable items include any items that are mounted in a cabinet such as servers, wire managers and so on.

Non-rackable/side-by-side items are mounted next to each other at the same U position in a cabinet or sit on the same shelf in a cabinet. For example, modems that are on a shelf in a cabinet.

The width of each item is divided equally between each of the non-rackable items.

The height of each side-by-side item is reflective of the actual height of the item in rack units.

Each non-rackable item is displayed from left to right according to the Order field value for each item.

Non-rackable items are placed in the front, while other non-rackable items occupy the back of the cabinet at the same U Position.

A text view of side-by-side items is available in the Cabinet Elevation view, but images are not available.

Zero U items are mounted on the cabinet.

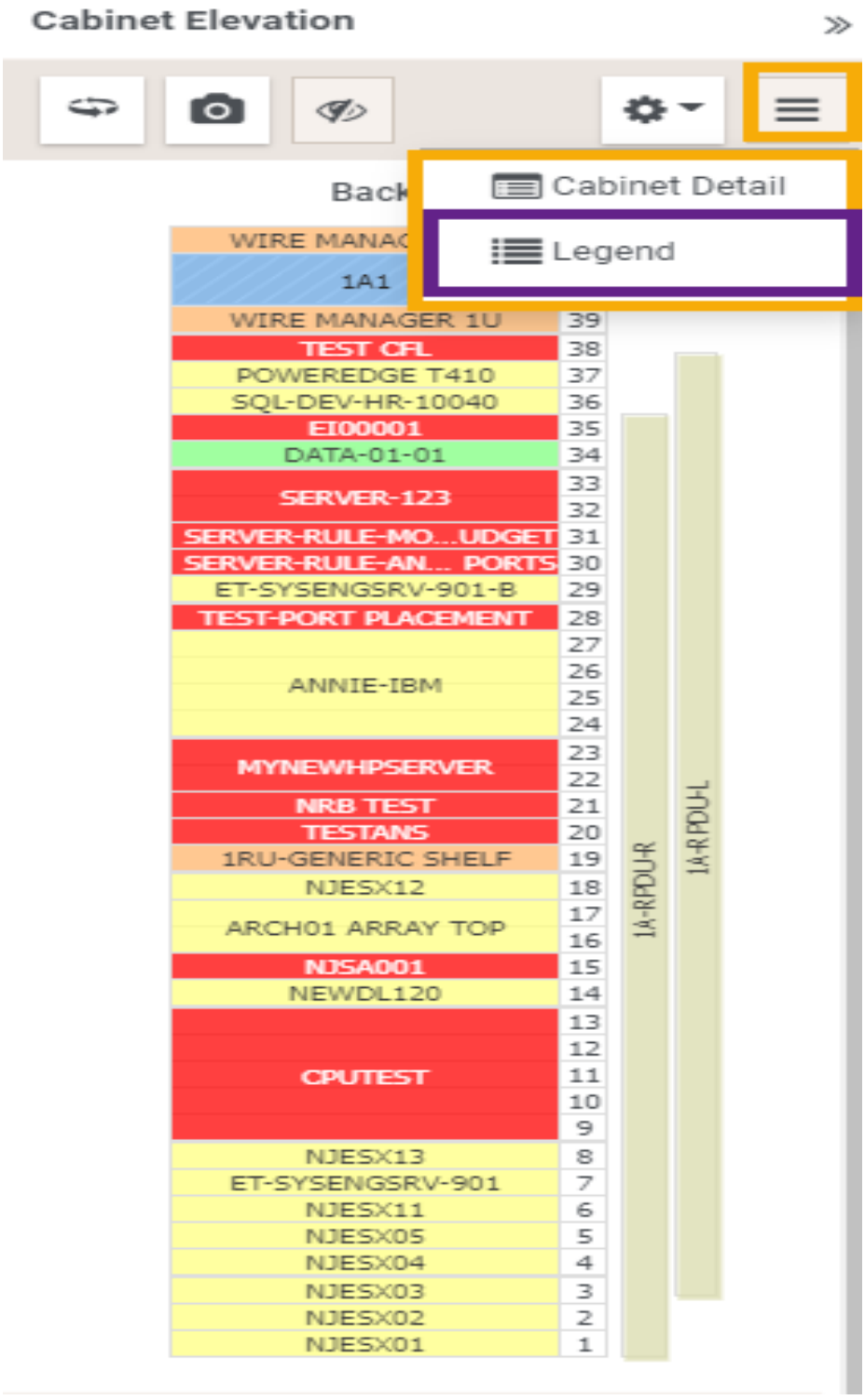
They are displayed to the right and/or left of the cabinet as shown from the 'Back' Cabinet Elevation view.

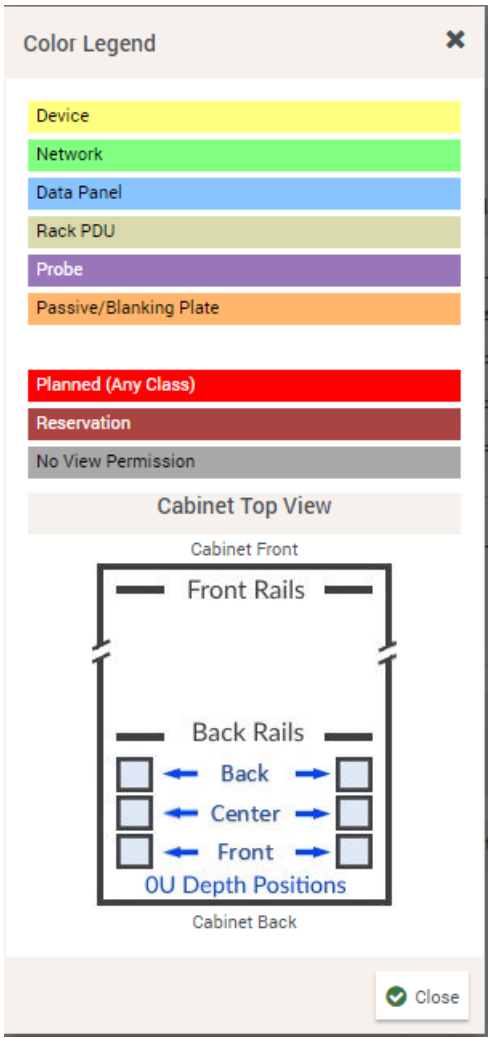
Cabinet Elevation Color Coding

The color of an item in a Cabinet Elevation is determined by the item's current status and its item subclass. For more information on item subclasses, see **dcTrack Hierarchy**.

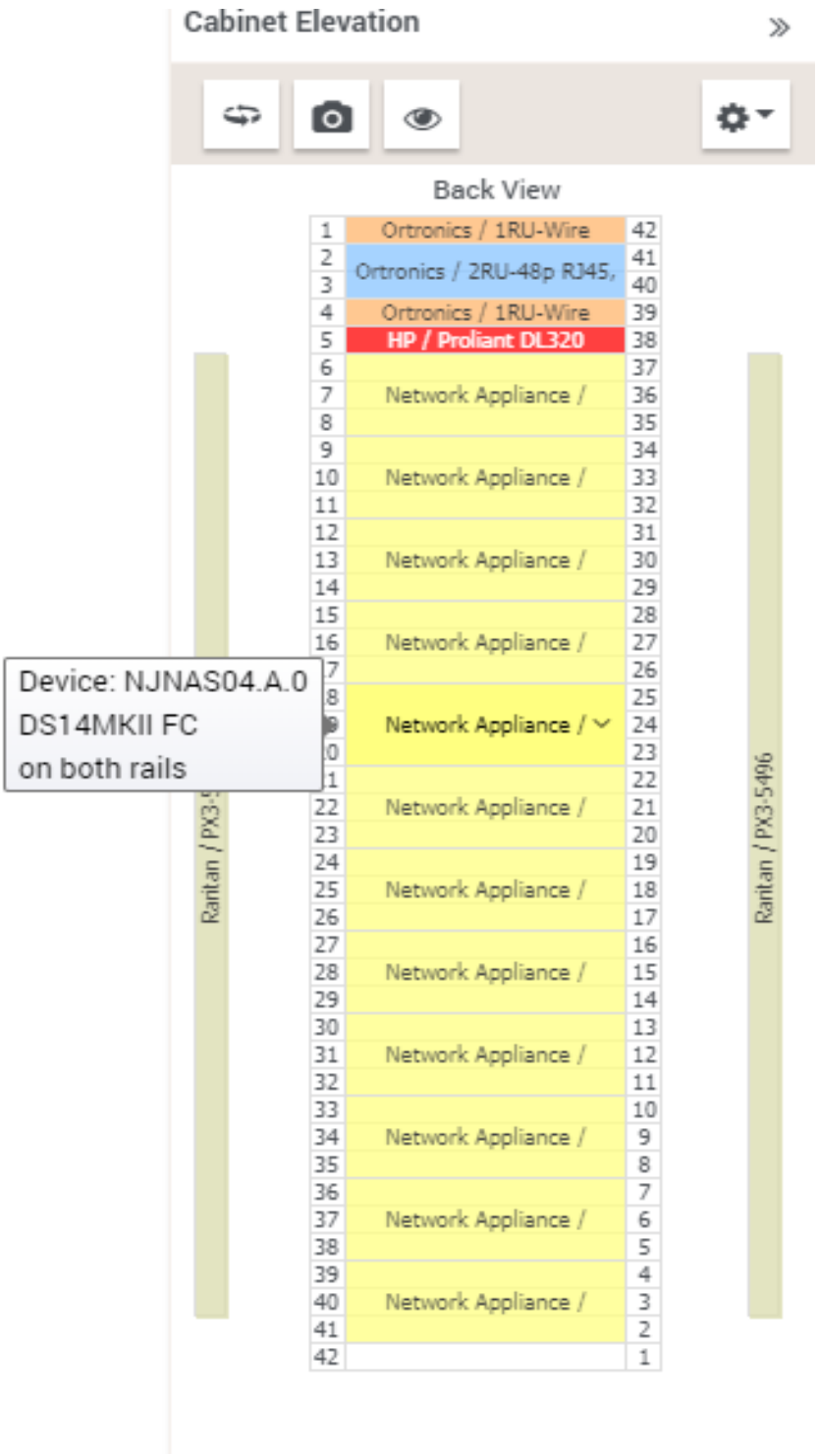
The same color coding is used in the Web Client Cabinet Elevations.

To access the Cabinet Legend, click the hamburger icon in the upper right of the Cabinet Elevation, then select the Legend option from the drop-down menu.

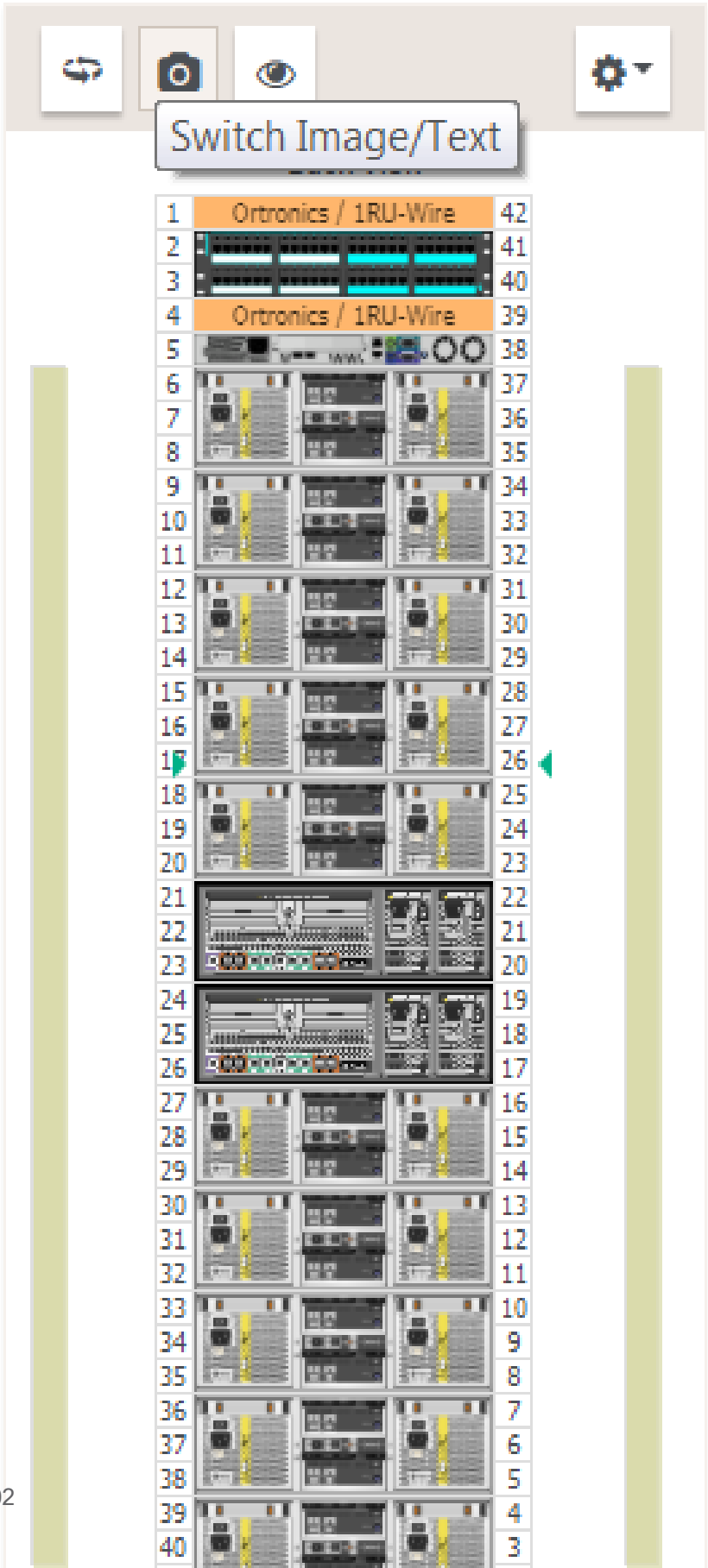

Cabinet Elevation
Cabinet Detail
Legend
Back
WIRE MANAG
1A1
WIRE MANAGER 1U 39
TEST CFL 38
POWEREDGE T410 37
SQL-DEV-HR-10040 36
EI00001 35
DATA-01-01 34
SERVER-123 33 32
SERVER-RULE-MO...UDGET 31
SERVER-RULE-AN... PORTS 30
ET-SYSENGSRV-901-B 29
TEST-PORT PLACEMENT 28
ANNIE-IBM 27 26 25 24
MYNEWHPSERVER 23 22
NRB TEST 21
TESTANS 20
1RU-GENERIC SHELF 19
NJESX12 18
ARCH01 ARRAY TOP 17 16
NJSA001 15
NEWDL120 14
CPUTEST 13 12 11 10 9
NJESX13 8
ET-SYSENGSRV-901 7
NJESX11 6
NJESX05 5
NJESX04 4
NJESX03 3
NJESX02 2
NJESX01 1
1A-RPDU-R
1A-RPDU-L



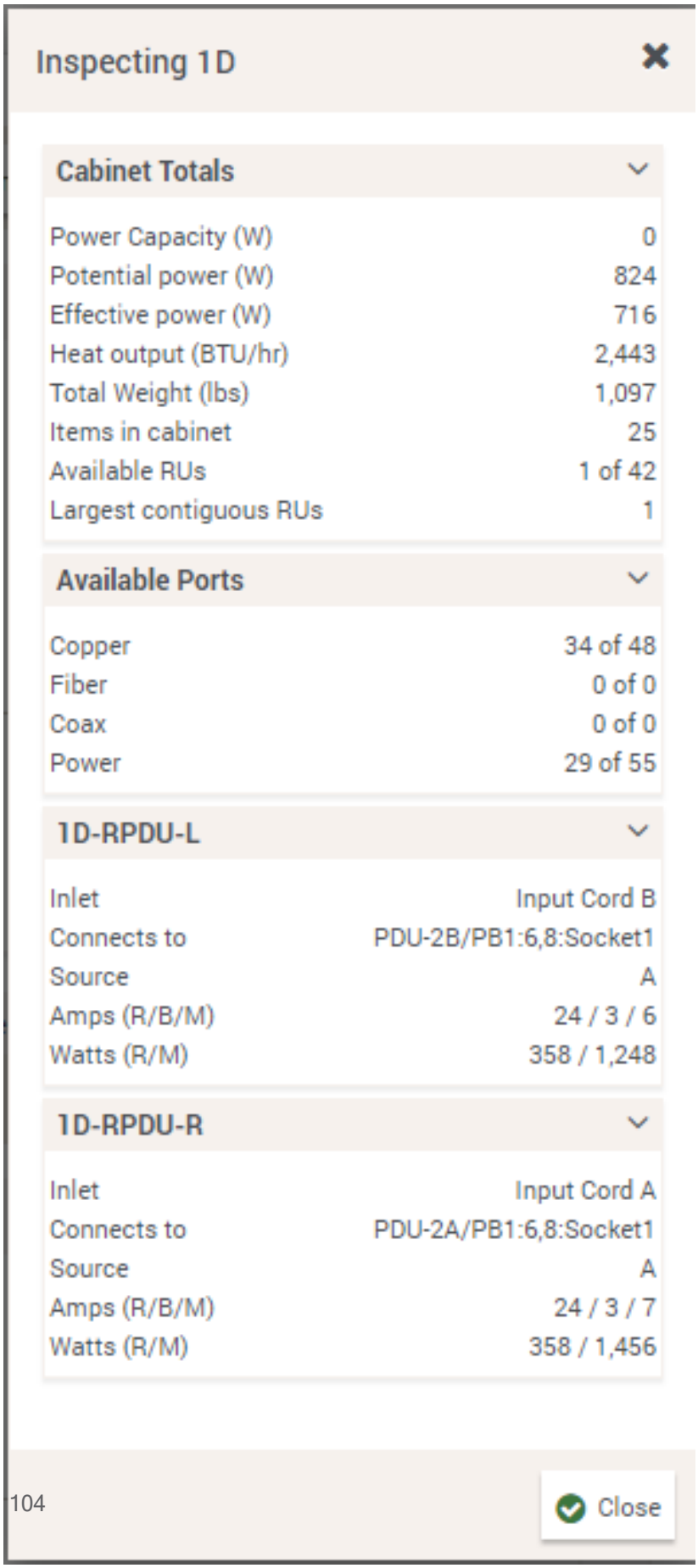
Hover your mouse over an item in the cabinet while in Image view to view information. While double clicking an Item in the cabinet will redirect you to the Item Detail page for that Item.



You may switch between Text view and Image view by clicking the camera icon in the tool bar and you can rotate the cabinet between front and rear view by clicking the rotate icon.


Switch Image/Text
1 Ortronics / 1RU-Wire 42
2 41
3 40
4 Ortronics / 1RU-Wire 39
5 38
6 37
7 36
8 35
9 34
10 33
11 32
12 31
13 30
14 29
15 28
16 27
17 26
18 25
19 24
20 23
21 22
22 21
23 20
24 19
25 18
26 17
27 16
28 15
29 14
30 13
31 12
32 11
33 10
34 9
35 8
36 7
37 6
38 5
39 4
40 3

Clicking the Cabinet Inspector icon displays specific Power, Port and Rack PDU information for the entire cabinet.

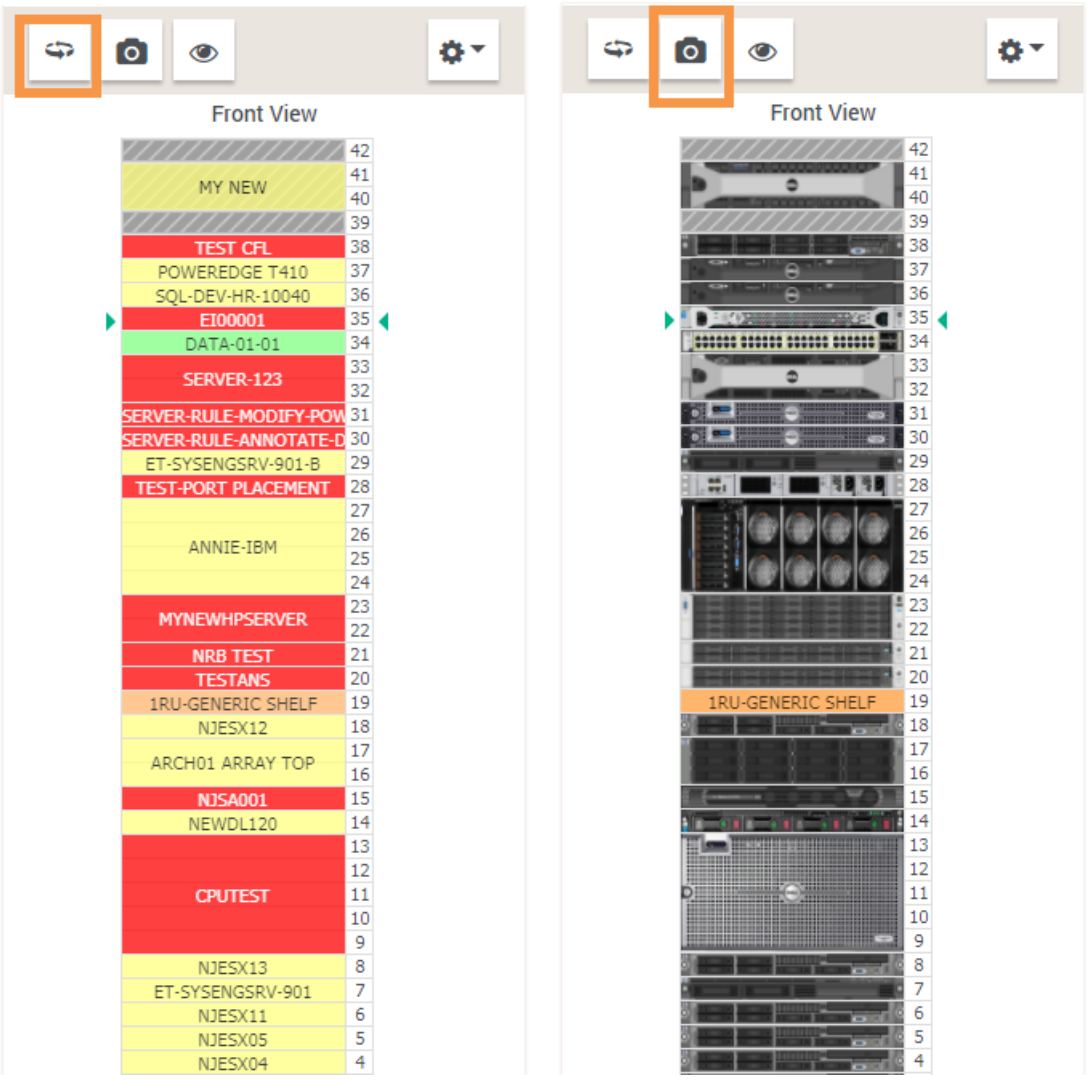

Inspecting 1D
Cabinet Totals
Power Capacity (W) 0
Potential power (W) 824
Effective power (W) 716
Heat output (BTU/hr) 2,443
Total Weight (lbs) 1,097
Items in cabinet 25
Available RUs 1 of 42
Largest contiguous RUs 1
Available Ports
Copper 34 of 48
Fiber 0 of 0
Coax 0 of 0
Power 29 of 55
1D-RPDU-L
Inlet Input Cord B
Connects to PDU-2B/PB1:6,8:Socket1
Source A
Amps (R/B/M) 24 / 3 / 6
Watts (R/M) 358 / 1,248
1D-RPDU-R
Inlet Input Cord A
Connects to PDU-2A/PB1:6,8:Socket1
Source A
Amps (R/B/M) 24 / 3 / 7
Watts (R/M) 358 / 1,456
Close

Cabinet Elevation Drop-Down Menu

The Cabinet Elevation drop-down menu is available on every page a Cabinet Elevation is available and the drop-down's contents are the same.

View the Front or Back of the Cabinet from a Cabinet Elevation

Use the rotate icon in the Cabinet Elevation to switch between the Front and Back view of the cabinet. You can also switch between images and text by clicking the camera icon.



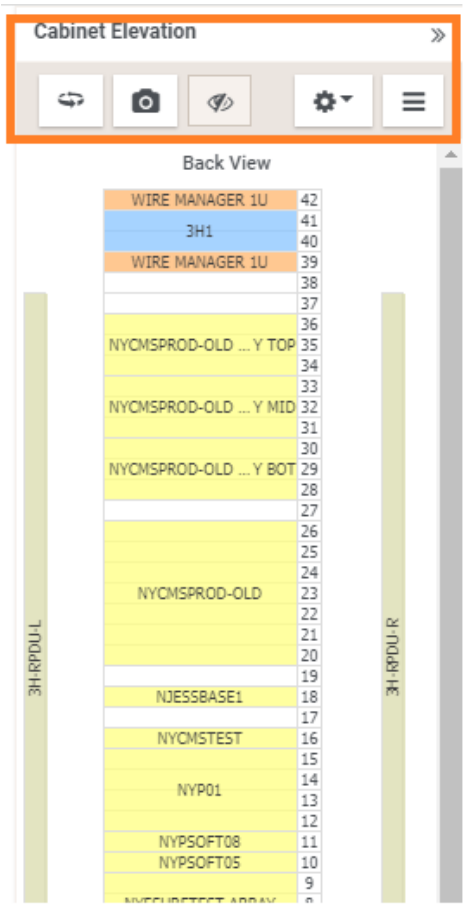
Note: Front and Back images can be viewed when the Items's "Rails Used" option is "Both". If "Rails Used" is either "Front" or "Back" you will be limited to that view only since the assumption is the reverse side is occupied by a different Item.

View Items in Text or Image View in a Cabinet Elevation

Use the camera icon in the Cabinet Elevation tool bar to switch between a Text or Image view of items in the cabinet. Text is the default view.

Images displayed in Cabinet Elevations are pulled from the Item Models Library.

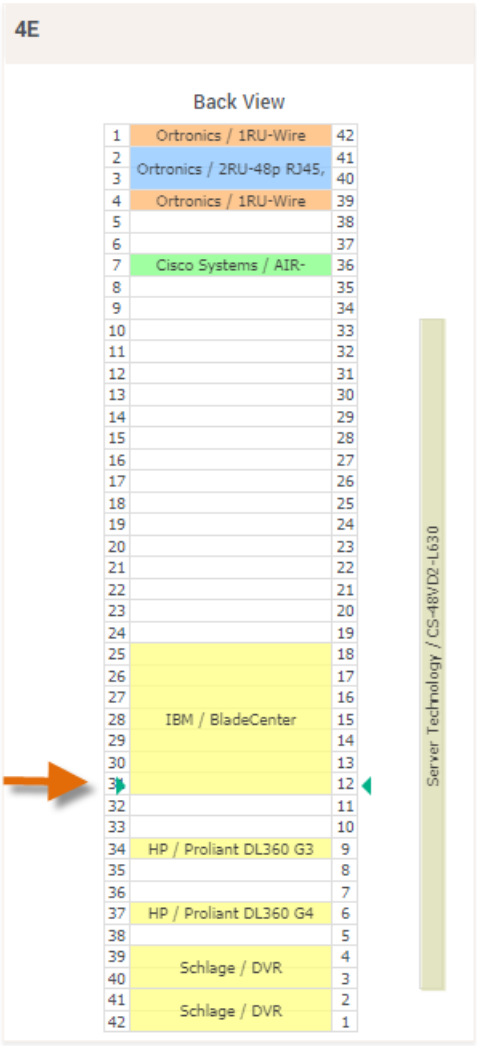
If an item's image is not available in the Item Models Library, a Text representation of the item is displayed instead.



Identifying an Item in a Cabinet Elevation

Once an item is added to dcTrack and saved, it is visible in Cabinet Elevations.

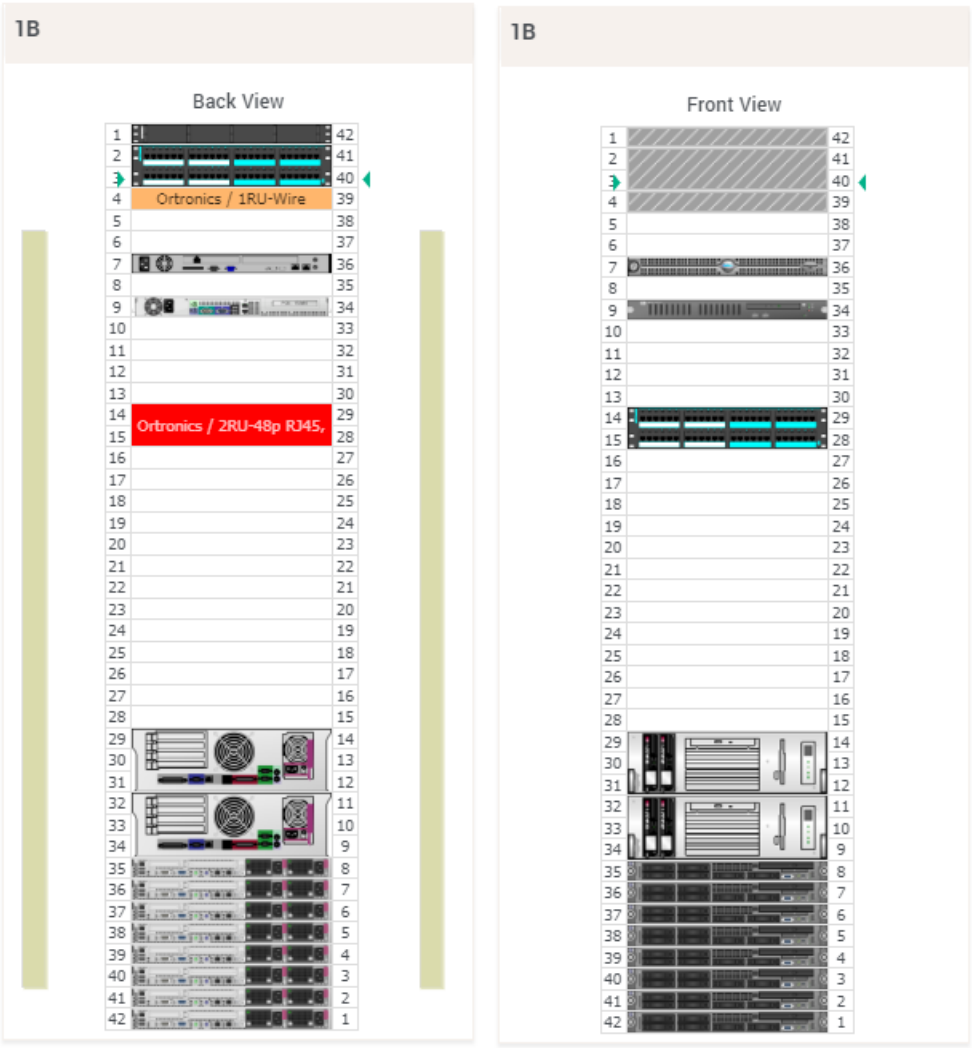
If an item's page is open or the item is selected from a list on a page with a Cabinet Elevation, arrows on the right and left sides of the item indicate its current or proposed U position in its cabinet.



If you do not see an item in the Cabinet Elevation, it may be positioned on the other side of the cabinet.

For example, if you open a Network Item's page but do not see it in the Back view of the Cabinet Elevation, it may be installed in the Front of the cabinet.

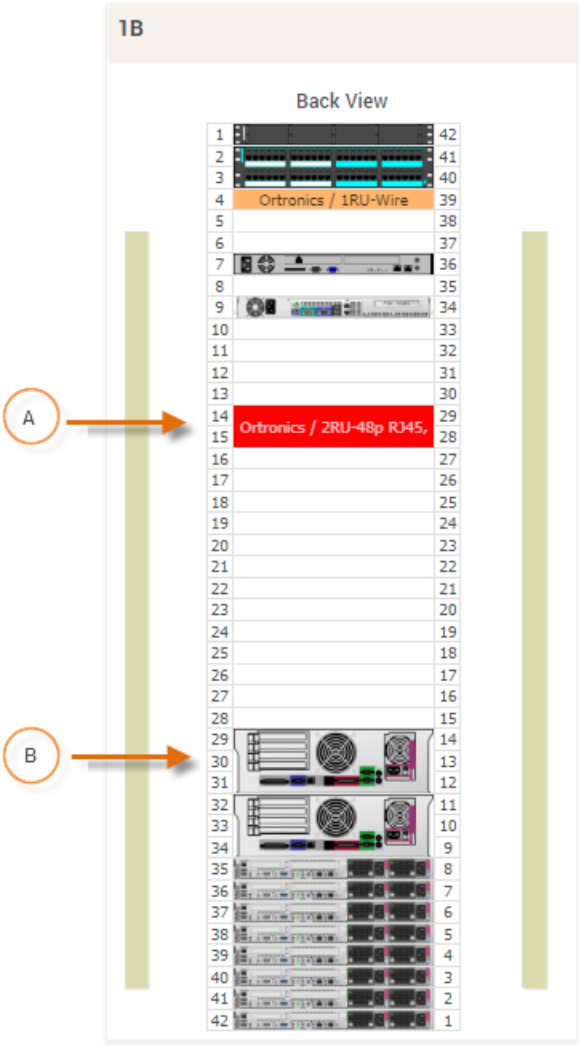
Use the Rotate Image Icon to view the reverse side.



See **View the Front or Back of the Cabinet from a Cabinet Elevation**.

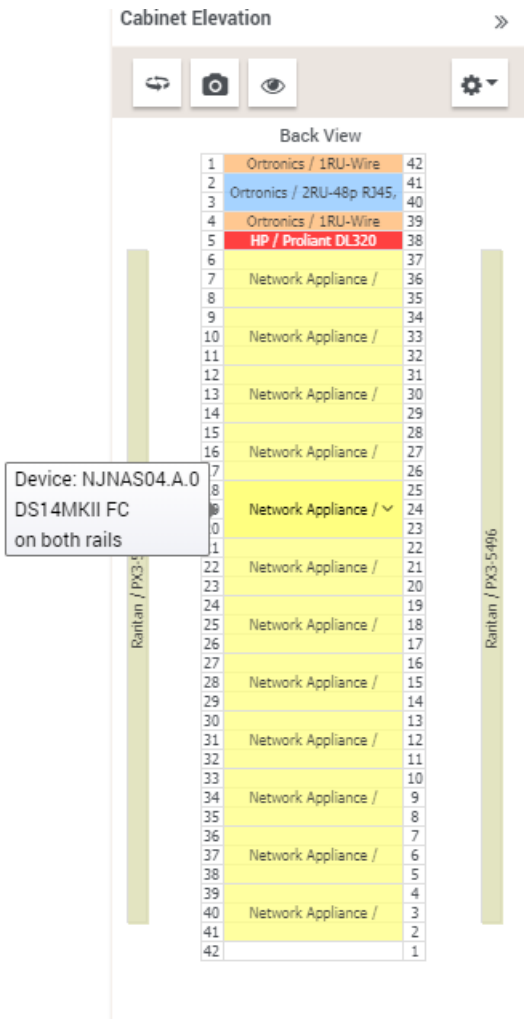
View Item Information in Cabinet Elevation

A	**In Text view, the item's status and name are displayed in text on the item. Color coding is used to indicate when the item is in a Planned status (red) or the item's subclass (once it is no longer in a Planned status). See Cabinet Elevation Color Coding.**
B	Image view does not provide color coding and text to provide information about the item.



While in Image view or Text view, hover your mouse over an item to view information in a pop up. Specifically, view the item's:

- Subclass
- Name
- Status
- Location in the cabinet

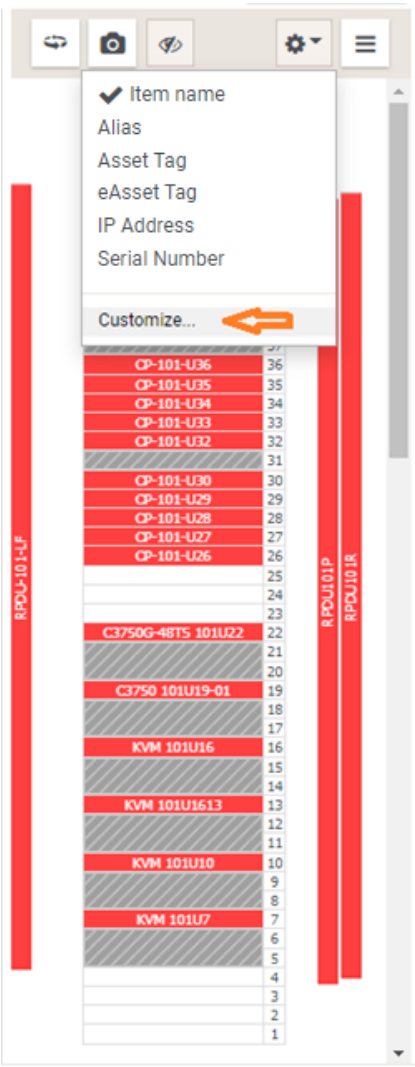


Cabinet Elevation Item Label Customization

Items fields displayed in the Cabinet Elevation can be customized. You need to have System Administrator role to select up to 10 fields including standard fields, custom fields and IP Address.

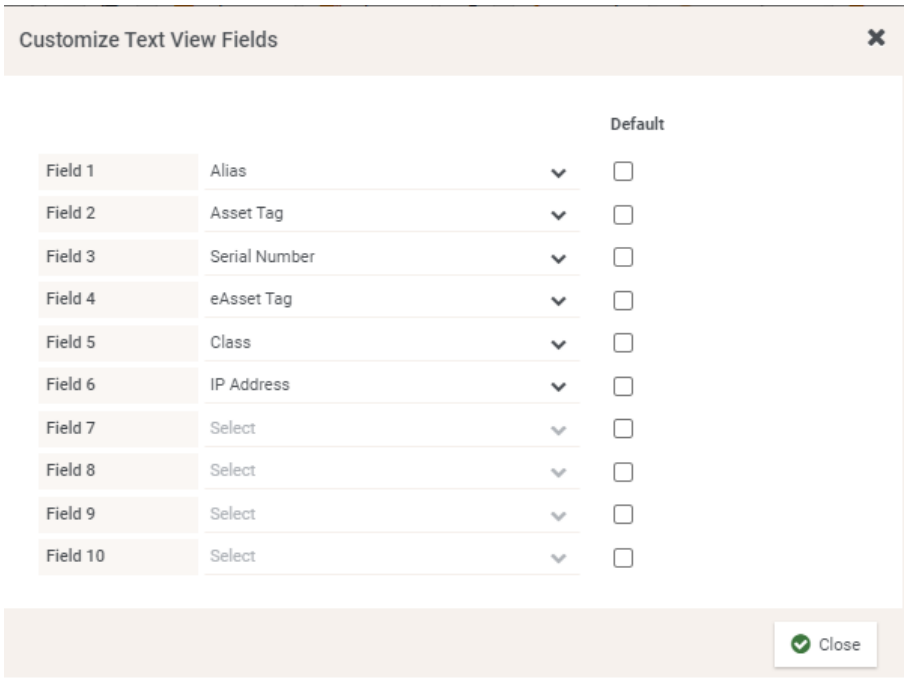
Steps to customize Item fields in Cabinet Elevation:

1. In the Cabinet Elevation click the gear icon.
2. Click Customize in the menu.



3. In Customize Text View Fields dialog, select the fields.

   Optionally you can also select one field as default field and that field will be displayed in the Cabinet Elevation for other dcTrack users.



4. Click close.

From these set of these fields, you can select one item field to display in the Cabinet Elevation. This setting is specific to the individual user and is persisted even after log out and log in.

Note: This setting to select a field to display in the Cabinet Elevation will replace existing User Preference setting "Identify Items with"

Default field set by the System Administrator will be used when a user does not have a preference selected. Once the user select another field, that field will be displayed in the Cabinet Elevation.

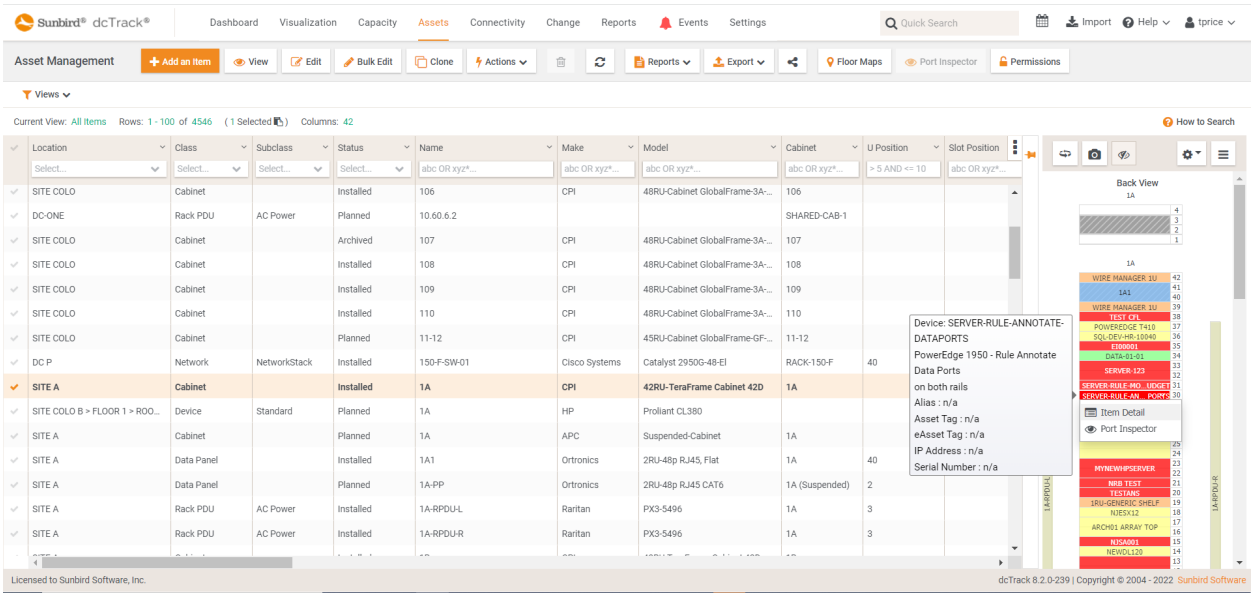
When a field is removed by the System Administrator from the Customize Text View dialog, that field will no longer display in the Cabinet Elevation for any user. If there are no default field set then Item Name field is displayed in Cabinet Elevation.

Note: Only the users with System Administrator role can see Customize options. Other users will see the list of fields selected by the System Administrator and can select one field to display in Cabinet Elevation.

Access an Item's Page from a Cabinet Elevation

Double-clicking on an item in the Cabinet Elevation opens its item page from any of these pages:

- Floor Map
- Intelligent Capacity Search
- A cabinet's item page
- From the Item's tab on a cabinet's item page
- A dialog with a Cabinet Elevation



Note: You can also access an item's page from the Items tab on a cabinet's item page. Double-click on an item in the list to select an item and then click the View icon.

Access a Detailed Item Image and Port Status from a Cabinet Elevation

After opening an item's page, double-click on the item in the Cabinet Elevation to open a dialog containing a close-up image of the item.

View the item's port labels and identify the item's port connection status from the item's image dialog.

Clicking a port status button lights the corresponding ports on the image. For example, click Connected to view connected ports, and all ports on the device that are connected glow green.

If not item exists for the item in the Item Models Library, this feature is not available for the item.

Double-click on any other item in the cabinet to access its item page a new tab. See **Access an Item's Page from a Cabinet Elevation**.

View Capacity, Port and Power Totals from a Cabinet Elevation

Use the Cabinet Inspector to quickly obtain cabinet item totals, available ports, and power data for the cabinet.

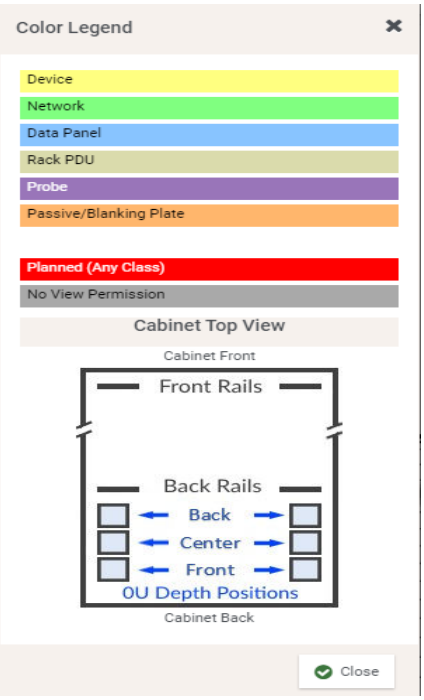
Cabinet Inspector is accessed from cabinet elevations on every page and dialog cabinet elevations are provided.

For details, see **Cabinet Inspector**.

Learn About Item Orientation and Depth Position on the Cabinet Elevation Legend

In addition to identifying the color-coded items in the Cabinet Elevation, the Cabinet Legend contains an illustration depicting the front and back of the cabinet, and the front and rear rails of the cabinet.

This is the top view of the cabinet, in other words the cabinet seen as if you were looking down at the cabinet from above.



This is a useful reference when creating an item and selecting position information. Specifically:

Term	Description
Rails Used	The rails used to mount a rackable item in the cabinet. Enter one of the following: • Front: The item is mounted only on the front rails of the cabinet. • Back: The item is mounted only on the rear rails of the cabinet. • Both: The item is mounted on both the front and rear rails of the cabinet.
Orientation	Applies to rackable items only. Either: • Item Front Faces Cabinet Front • Item Rear Faces the Cabinet Front
Cabinet Side	Applies to zero U items only. When items are mounted vertically on a cabinet, this indicates the side of the cabinet they are mounted on: • Left • Right
Depth Position	Applies to zero U items only. When items are mounted vertically on a cabinet, this indicates whether it they mounted on the cabinet's front, center, or back: • Front: Front is considered the position closest to the rear door of the cabinet. • Center: Center is considered the position between the front and back of the cabinet. • Back: Back is considered the position furthest from the rear of the cabinet door.

Move an Item to Another Position within a Cabinet Elevation (Drag-and-Drop)

You can move an item to another U position from the Cabinet Elevation using drag-and-drop. See **Drag-and-Drop an Item to a New U Position in a Cabinet**.

For the available U position, you will notice a green highlight.

For example, U positions 30 and 31 are free in a cabinet. You can drag-and-drop a 2 RU server from its current location of U position 28 to U position 30 and you will notice green highlight when you place it at U position 30. If you try to drop the item at U position 31 you will notice a red highlight, the item will move back to the original U position and cannot be dropped.

You can also move an item to another cabinet from a Cabinet Elevation. This feature is available in the Items List where you can select multiple cabinets and view the cabinet elevation for selected cabinets. See Drag-and-Drop an Item to a Different Cabinet.

You cannot move an entire cabinet using drag-and-drop. Instead, submit a Quick Move Item Request.

Move a Blade to Another Chassis from a Cabinet Elevation

Blade chassis that are contained in a cabinet are displayed in a Cabinet Elevation.

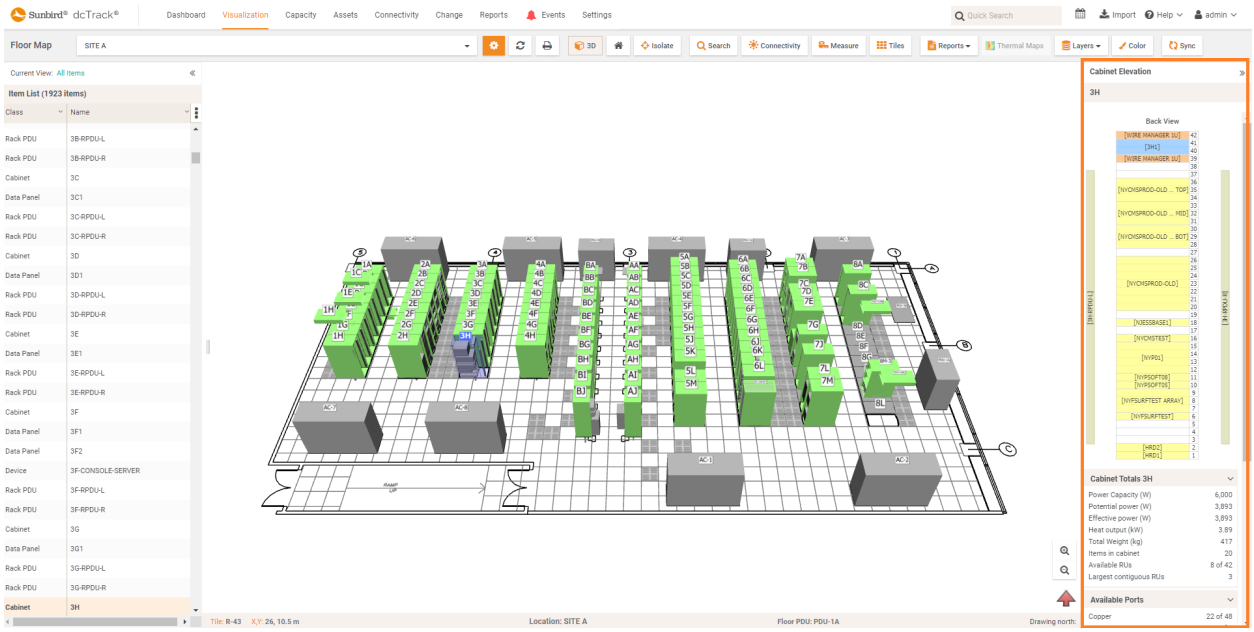
You cannot perform any kind of move for blades in the Cabinet Elevation. However, you can:

- **Drag-and-Drop a Blade to a New Slot in a Chassis**
- **Changing a Blade's Slot Position in a Blade Chassis**
- **Move Item Requests for Blade Servers and Blades**

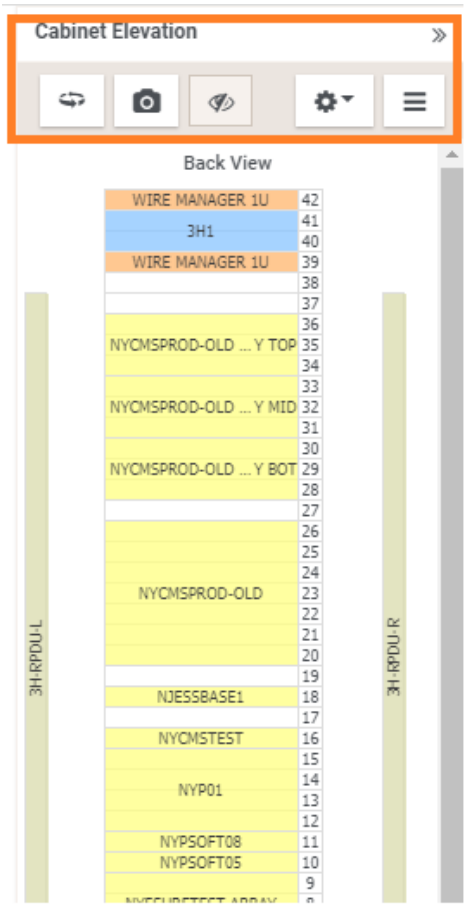
Cabinet Elevations

Cabinet Elevations are available on the floor map after you have synced cabinet objects by uploading a drawing file. Prior to syncing, the Cabinet Elevation is blank when it is expanded.

The Cabinet Elevation view is available to the right of the floor map. The cabinet's objects are available in the elevation view when the cabinet is populated with items such as servers, wire managers, switches and so on. Mouse over the text or image specific to a device to see more information.



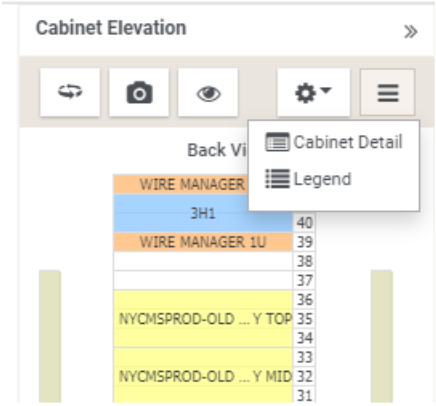
Mouse over the cabinet label header row at the top of the Cabinet Elevation view to display a menu of controls that you can use to view information in the Cabinet Elevation.



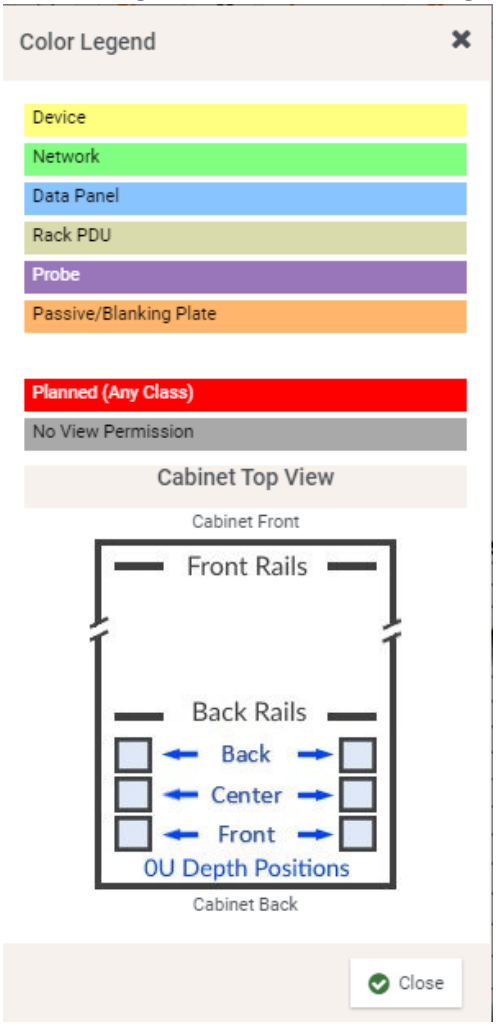
To interact with the Cabinet Elevation view:

1. Click the rotate icon to switch from the front to the back view of the cabinet. The front view displays by default.
2. Click the Camera icon to switch between text and images. Text displays by default. If viewing the images, text will display if no image is available for a specific device.
3. Cabinet Inspector is displayed by default. Click the Eye icon if you want to hide the Cabinet Inspector.

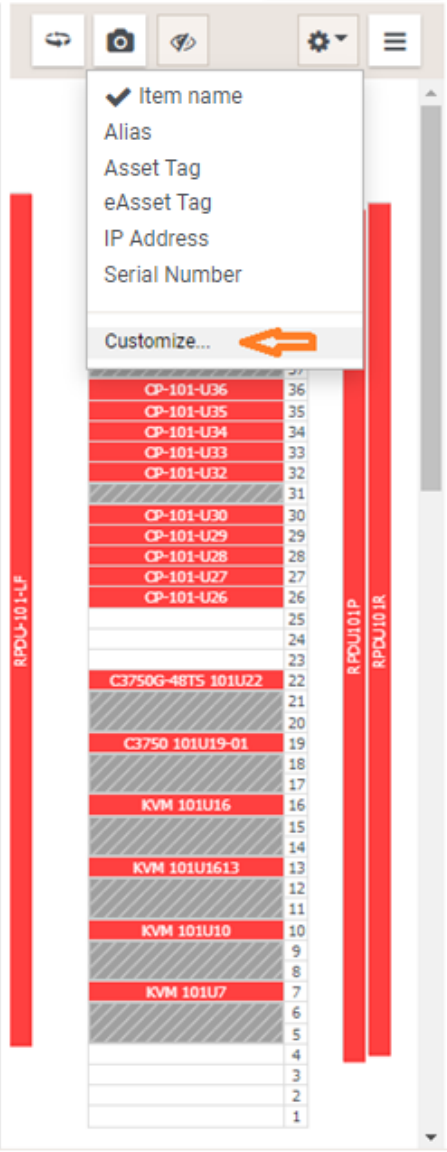
4. Click the Hamburger icon to display further options.



5. Click the Cabinet Details link to view the cabinet's Item Details page in the Assets tab.
6. Click the Legend link to view the color legend.



7. The Text View field link displays options for the text you see when you are viewing text versus images in the Cabinet Elevation. Item fields displayed here can be customized. See Cabinet Elevation Item Label Customization for more details.



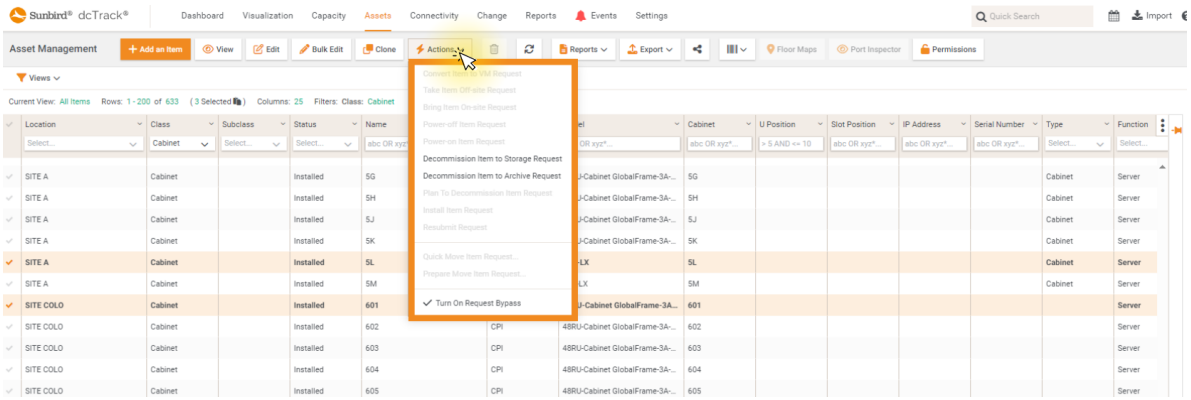
For example, if you select to view Serial Number, the Serial Number for each device will display in the Cabinet Elevation view.

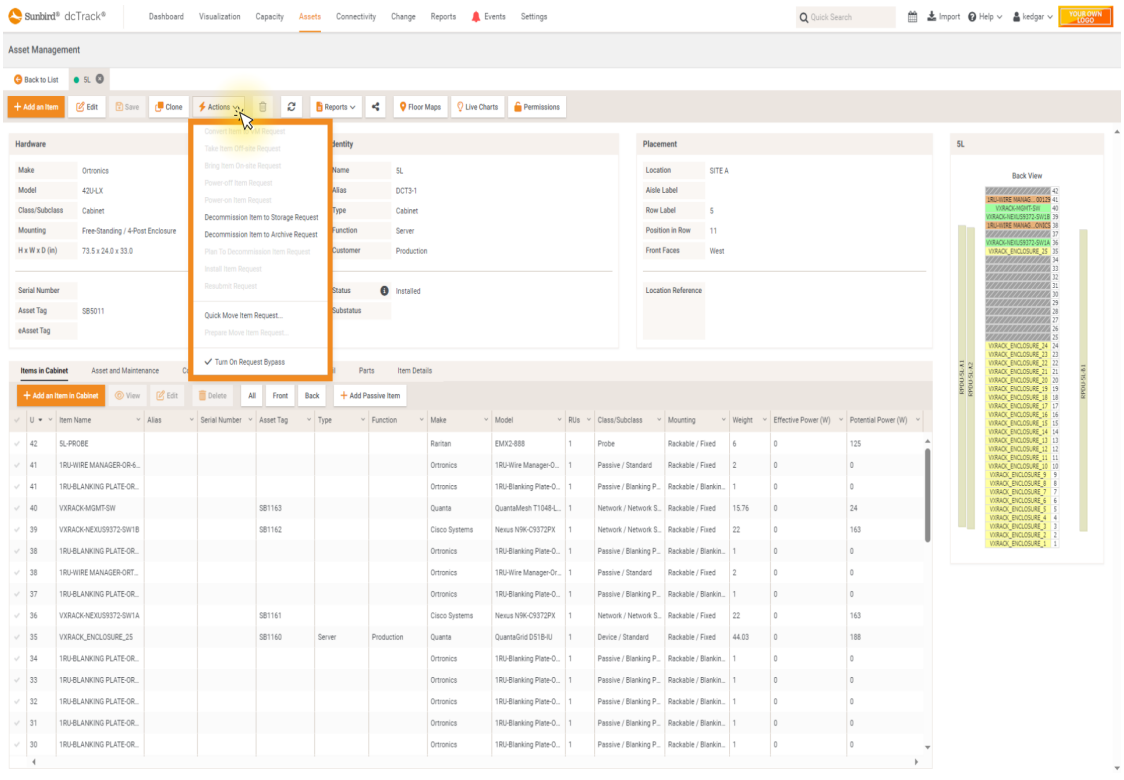
Submit an Item Request from the Items List

Item action requests are submitted in dcTrack when a physical action must be performed for an item in a data center, such as installing items by submitting an Install Item Request, decommissioning items to storage by submitting a Decommission Item to Storage Request, and so on.

You submit action requests for items from the Actions menu or, if you have permissions, immediately change an item's status directly on the item's page. For information on performing a status change on an item's page, see **Change an Item's Status from the Status Drop-Down**.

When submitting requests from the Actions menu, you can select multiple items from the Items List and submit a request for them at the same time. This applies to all requests except Quick Move Item Requests and Prepare Move Item Requests.

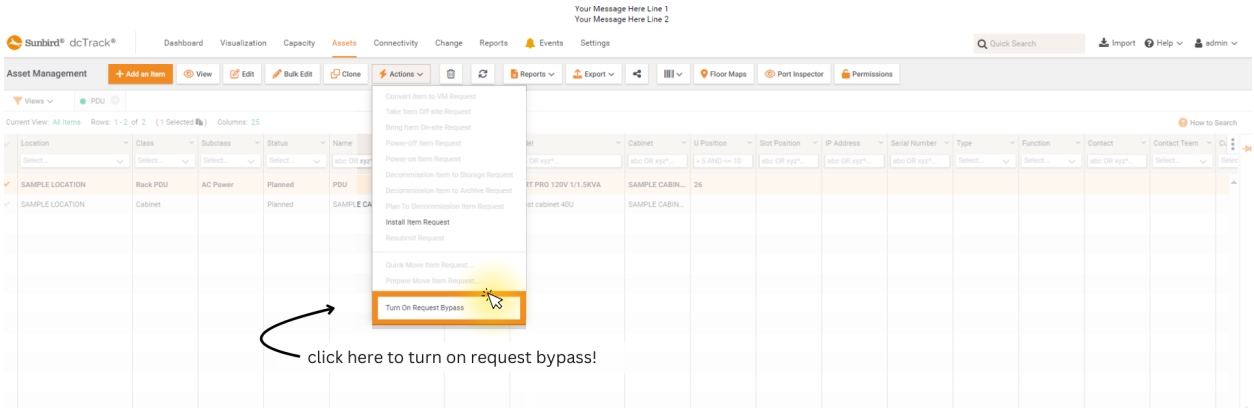




An item's status reflects the item action request submitted for it, or the lack of an action request if no action has been submitted for it.

When an item is created, Planned is its initial status; it remains in this status until an action is submitted for it.

Once an action request is submitted for the item:



- If you are working in Request Bypass, the request is processed automatically and either approved or rejected.
- The request is submitted for review if Request Bypass is disabled.

For information on the Change Control workflow process and Request Bypass, see **Request Bypass and Manual Change Control**.

For information on checking a request status, see **Requests and Work Orders**.

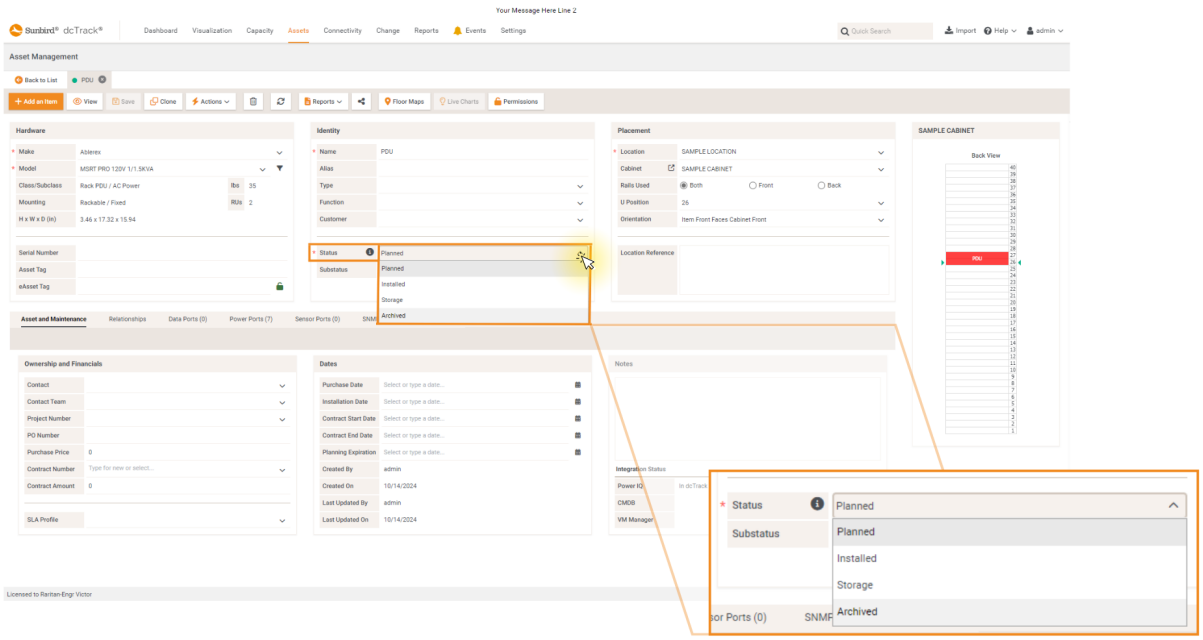
Change an Item's Status from the Status Drop-Down

Instead of using the Actions menu, an item's status can be changed directly on the item's page in the Web Client by selecting from the Status drop-down menu while the item is in Edit mode provided you have privileges to do so.

This function is useful if:

- You are adding a new item and want to place it into Storage until it is to be deployed
- If Gatekeepers need to make corrections to item statuses under certain conditions, such as:
  - An item has been in operation and is discovered during an audit. The Gatekeeper can enter the item into the system, provide the required data, and set the item's status directly to Installed.
  - An item was entered into dcTrack and is in the Planned status. Instead of deleting the item, the Gatekeeper wants to keep a record of the item for possible future reference. The Gatekeeper can set the item's status directly to Archived.

Later, the Gatekeeper decides that the item will be used, so they can set its status back to Planned.



When a status is selected from the Status drop-down menu, it is applied to the item immediately. The status change is not submitted to Change Control workflow or processed in Request Bypass, and a request is not issued.

For information on when to use the Status drop-down menu rather than submit an action request, see When to Change an Item's Status From the Status Drop-Down.

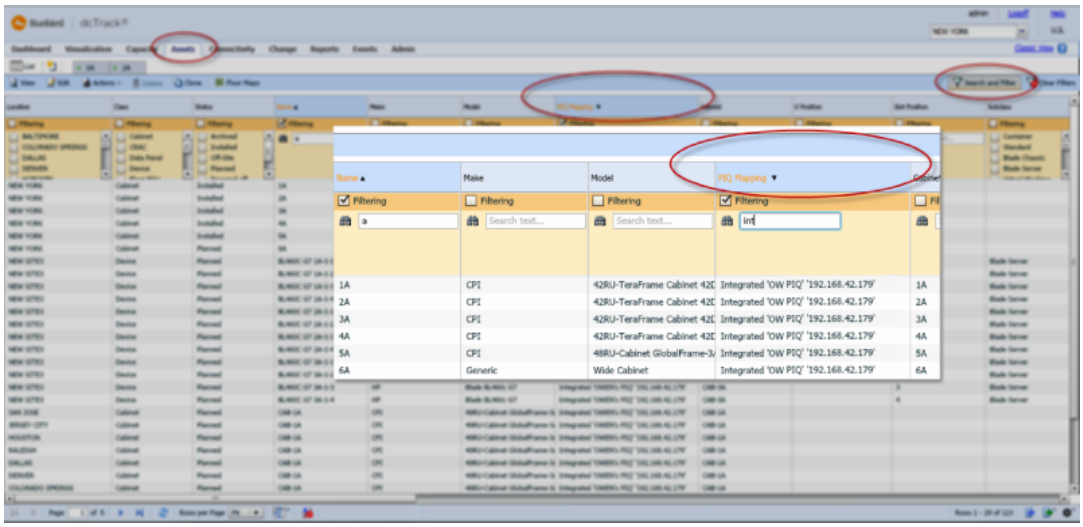
The statuses available for selection depend on your role as Gatekeeper, Manager or Member, as well as on the class of the item.

For more information, see **Item Action Request Types**.

Identify Items Integrated with Power IQ

If you are integrated with Power IQ and Power IQ Integration is enabled for the location, you can easily identify items that are mapped to Power IQ by sorting or filtering the PIQ Mapping column on the Items List.

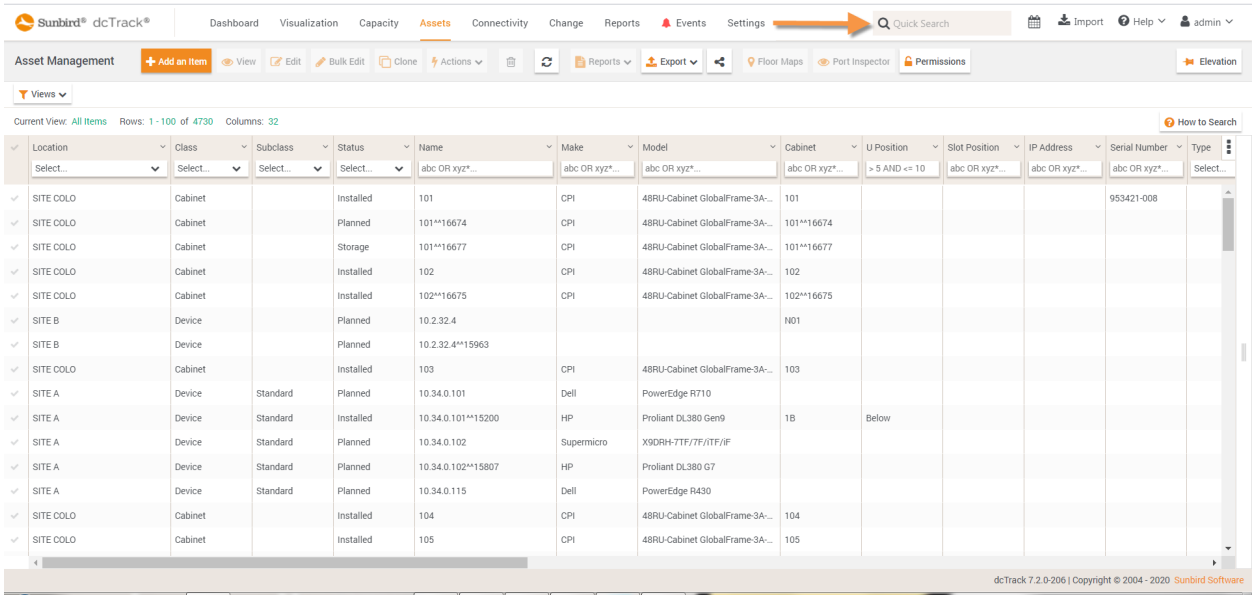
Note: Access a mapped cabinet's page by double-clicking on it and then click the Live Cabinet icon to view Cabinet Live Charts. For details on Cabinet Live Charts, see **Cabinet Live Charts** .


Name
Make
Model
PIQ Mapping
Filtering
Search text...
1A CPI 42RU-TeraFrame Cabinet 42U Integrated 'OW PIQ' '192.168.42.179' 1A
2A CPI 42RU-TeraFrame Cabinet 42U Integrated 'OW PIQ' '192.168.42.179' 2A
3A CPI 42RU-TeraFrame Cabinet 42U Integrated 'OW PIQ' '192.168.42.179' 3A
4A CPI 42RU-TeraFrame Cabinet 42U Integrated 'OW PIQ' '192.168.42.179' 4A
5A CPI 48RU-Cabinet GlobalFrame-3U Integrated 'OW PIQ' '192.168.42.179' 5A
6A Generic Wide Cabinet Integrated 'OW PIQ' '192.168.42.179' 6A

Using Quick Search to Find Items in the Web Client

The Quick Search feature in the Web Client enables users to search and gain access to asset details based on a broad range of criteria, including custom fields. Users simply enter the search criteria, select the desired assets from the results in the Items list, and click the assets to view their Item Details pages.

The Quick Search bar is available above the navigation menu in the Web Client user interface so users can search items regardless of the page they are currently viewing.



Initiating and Refining a Quick Search

To initiate a search, simply start typing your search criteria into the Quick Search bar. Press the Enter button on your keyboard to initiate your search after you have entered your criteria.

Your criteria will be evaluated against multiple fields, including custom fields, and will be marked with the Multi-Field key in the search bar. The Items list will populate with the results of your search.

You can copy and paste text from Item Details pages into the search bar for faster, more accurate search results.

Following your initial search, you can refine your results against any standard and custom field that is currently shown on the Items List. Simply return to the Quick Search bar and select the criteria by which you want to filter the search results.

The results of your search can be exported to CSV. You can also save your search criteria in the Items list by clicking the gear icon > Save Current List Settings in the bottom right corner of the Items list page.

The following wildcards are supported by Quick Search:

- *ABC: Ends in ABC
- ABC*: Starts with ABC
- *ABC*: Contains ABC
- ABC: Returns an exact match of ABC

Note: Multifield quick search does not support wildcards in date fields (e.g., 03//17).*

Fields Included in Multi-Field Search

Standard fields and their types included in the multi-field search are as follows:

Hardware

- Make
- Model
- Class
- Subclass
- Mounting
- Form factor
- Serial number
- Asset tag

Identity

- Item name
- Alias
- Type
- Function
- Customer

Placement

- Location
- Cabinet
- Chassis
- Location reference
- Status

Asset and Maintenance

- Project number
- PO number
- Contract number

Data Ports

- IP Address

Other

- Origin
- Power IQ Mapping
- Request Stage

Note: Quick Search and the default Search and Filter feature on the Items list are mutually exclusive, so they won't be used at the same time. If you are using Quick Search, the Search and Filter feature in the Items list will be disabled. However, you can still sort the columns by Ascending and Descending order. If you clear your criteria from the Quick Search field, the Search and Filter feature will be available.

Sharing a Link to Quick Search Results

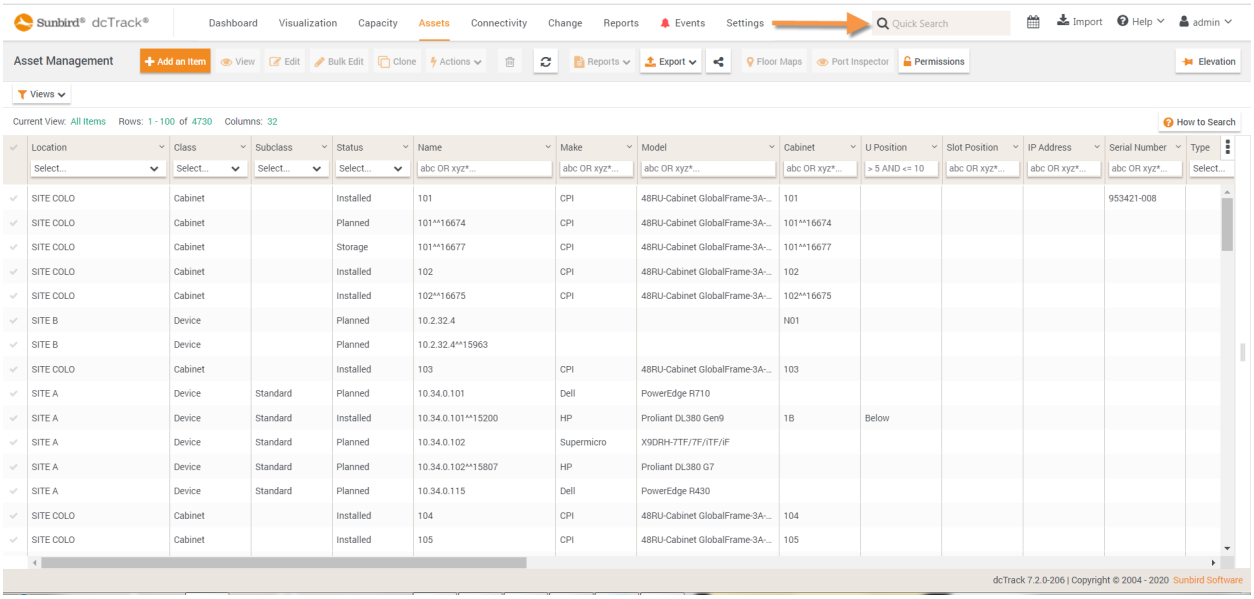
Being able to provide a dcTrack user with a link to search results can save time and simplify the process of sharing information, especially for organizations that have many novice users. With a shareable link, users can copy and paste the link into other applications and share it with their teams, without having to explain to those other users the exact search parameters. The link obscures any information that may otherwise be included in the URL that is not intended to be shared with all users.

Once a link has been shared with another user, that user will be able to access the same search results, which will be revised based on the user's permissions if necessary. For more information, see **Notes on Role-Based Access Control (RBAC) for Shareable Links to Quick Search Results**

Note: If a user who is not logged in clicks on a shared link, that user will need to login before being redirected to the appropriate search results.

To share a link to results for a Quick Search query:

1. To initiate a search, simply start typing your search criteria into the Quick Search bar. Press the Enter button on your keyboard to initiate your search after you have entered your criteria.



2. The Items list will populate with the results of your search.
3. To share the resluts, click the Share Link icon in the tool bar

4. In the Quick Link popup, click the Copy Link to Clipboard button to copy the link to your clipboard. Alternatively, click in the link field, highlight the entire URL and either right-click > Copy or use your keyboard shortcut to copy

the link.

4. Share the link with other users.

Note: Only the original search results will be provided via the shareable link, based on the user's permissions. The legacy Search and Filter feature, column reordering and selection, and sorting by ascending or descending order, are not supported.

Notes on Role-Based Access Control (RBAC) for Shareable Links to Quick Search Results

Shareable links respect granular permissions based on role-based access control (RBAC). The results shown for the shared link search results should be the same as the original results, with the following exceptions:

- If a user who receives the link does not have access to specific search terms, those terms will be removed from the shared search parameters. This will not alter the list of results, unless the user does not have permissions to view specific items or columns.
- If a user does not have permissions to view specific items or columns, those inaccessible items or columns will not be displayed in the shared link search results.
- If a user has the appropriate permission to view an item, the item will be displayed.
- If the item includes custom fields, those custom fields will be displayed only if the user has the appropriate permissions. Inaccessible custom fields will not be displayed.

Note: Links do not expire; however, the oldest links may be deleted to accommodate new links. Up to 10,000 links may be saved.

Sharing a Link to an Item Details Page

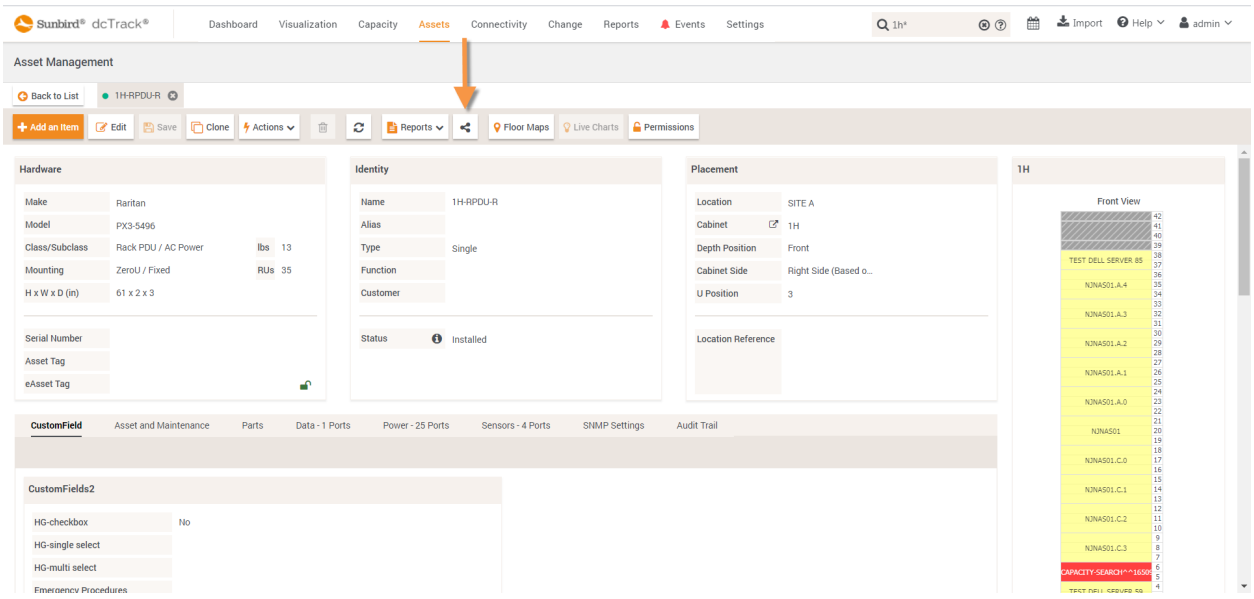
Being able to provide a dcTrack user with a link to a specific Item Details page can save time and simplify the process of sharing information. With a shareable link, users can copy and paste the link into other applications and share it with their team, without having to explain to other users how to navigate to the specific page. The link obscures any information that may otherwise be included in the URL that is not intended to be shared with all users.

Once a link has been shared with another user, that user will be able to access the same item, provided that the user has the appropriate permissions. For more information, see **Notes on Role-Based Access Control (RBAC) for Shareable Links to Item Detail Pages**.

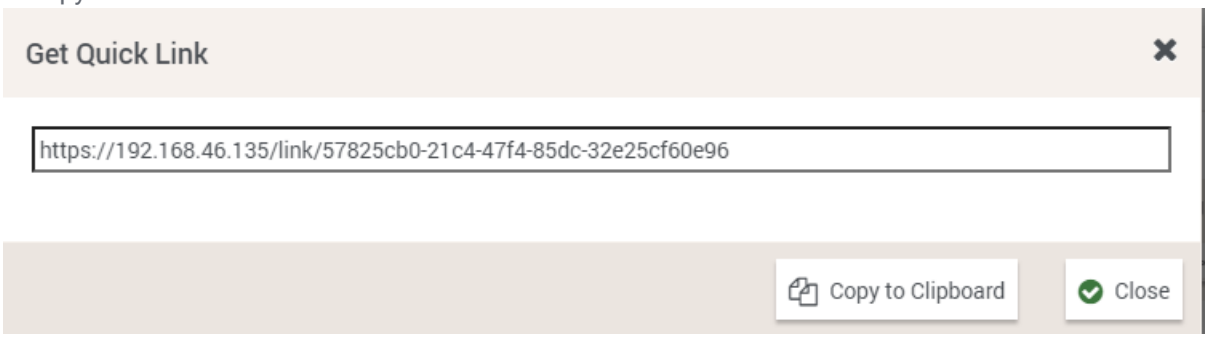
Note: If a user who is not logged in clicks on a shared link, that user will need to login before being redirected to the appropriate page.

To share a link to the Item Details page for an asset:

1. Navigate to the Item Details page that you want to share.
2. On the Item Details page, click the Share Link icon.



3. In the Get Quick Link popup, click the Copy Link to Clipboard button to copy the link to your clipboard. Alternatively, click in the link field, highlight the entire URL and either right-click > Copy or use your keyboard shortcut to copy the link.



Note: A new link will be generated each time the Copy to Clipboard button is selected.

4. Share the link with other users.

Note: The original item will be provided via the shareable link, with revisions based on the user's permissions.

Notes on Role-Based Access Control (RBAC) for Shareable Links to Item Detail Pages

Shareable links respect granular permissions based on role-based access control (RBAC):

- If a user has the appropriate permission to view an item and clicks the item's shared link, the item will be displayed.
- If a user does not have the appropriate permission to view an item and clicks the item's shared link, an error message indicating that the user does not have the appropriate permission will be displayed.
- If the item includes custom fields, those custom fields will be displayed only if the user has the appropriate permissions. Inaccessible custom fields will not be displayed.

Note: Links do not expire; however, the oldest links may be deleted to accommodate new links. Up to 10,000 links may be saved.

External Links to dcTrack Items

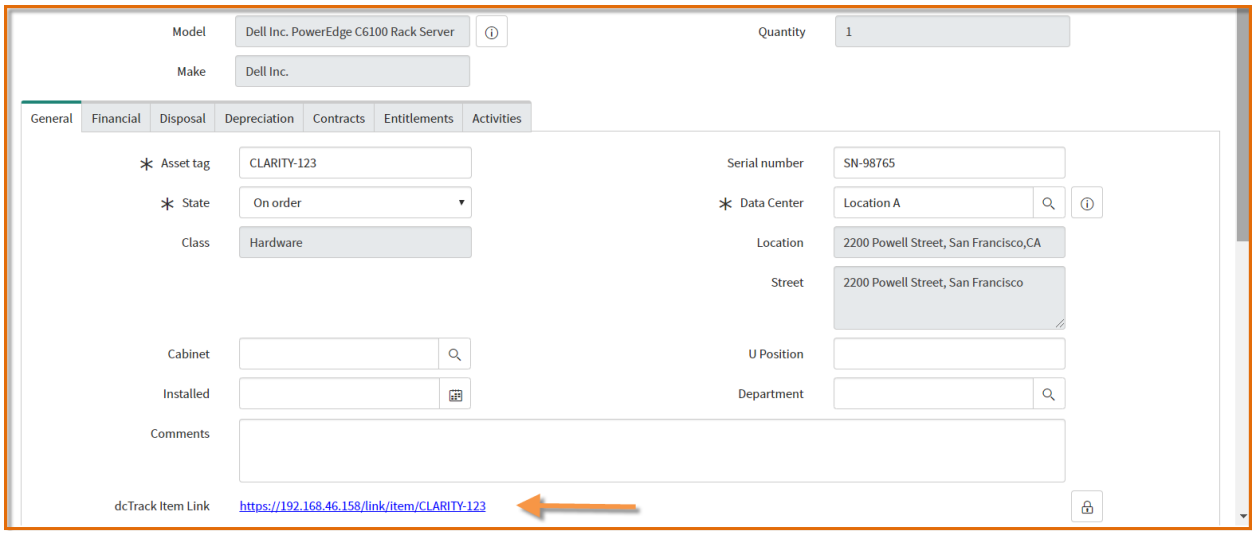
dcTrack provides a linking mechanism that allows users to access Items directly from the browser. These links can also be embedded in documents, copied to wiki pages, included in emails or used as field data in other applications.

Provided the user accessing the link is a valid dcTrack user and has the appropriate permissions within dcTrack to view the item, clicking the link will open a new tab in the current browser navigated directly to the Item Details page for that Item.

The format for creating these links is as follows:

https://<dcTrack IP Address>/link/search/items?field=XXX&value=YYY

For example, if you use a separate system to track Incident Tickets for assets in dcTrack, you might want to include a link to the dcTrack Item to allow users to view additional information about the item.



In the example above, clicking the dcTrack Item Link would open a browser window directing the user to the Item Detail page for the "CLARITY-123" Item.

Note: If the Item Name is unique within dcTrack, users are directed to the specific Item Detail Page for the Item. If the Item Name exists in multiple Locations on dcTrack, users are redirected to a filtered list of all applicable Items.

Note: The syntax from previous versions of dcTrack has been deprecated in favor of the current syntax illustrated below. The deprecated syntax is not supported in version 9.1.0 and above.

https://<dcTrack IP Address>/link/search/items?field=XXX&value=YYY

Examples:

https://<dcTrack IP Address>/link/search/items?field=tiName&value=1A - Item name containing the text 1A anywhere in the string

https://<dcTrack IP Address>/link/search/items?field=tiName&value="1A" - Exact match of Item Name 1A

https://<dcTrack IP Address>/link/search/items?field=cmbCabinet&value= 1A- Items whose Cabinet name contains 1A

https://<dcTrack IP Address>/link/search/items?field=tiClass&value=Probe - All Items in the Probe Class

https://<dcTrack IP Address>/link/search/items?field=tiSerialNumber&value=IS NOT EMPTY - Any Item whose Serial Number is not blank

https://<dcTrack IP Address>/link/search/items?field=cmbUPosition&value=5 - Any Item in U Position 5 of any Cabinet

https://<dcTrack IP Address>/link/search/items?field=tiCustomField_Country&value=Taiwan - Any Item with the value of Taiwan for the Custom Field "Country"

Chapter 3:dcTrack Administration

Application administration refers to tasks performed exclusively by dcTrack System Administrators.

The tasks in this section are performed on the dcTrack server, or by users with System Administrative privileges in the dcTrack application.

dcTrack System Administrators are assigned to the dcTrack System Administrators user group by default. This role has permissions to do every action in dcTrack.

A System Administrators is responsible for installing and configuring dcTrack, including creating users and teams, LDAP user and user group management, importing items, maintaining lists and libraries, and so on.

In most cases, this user is separate from the Gatekeeper but in some cases may be the same user.

Install/Reinstall/Upgrade dcTrack

Installing dcTrack for the first time refers to a clean installation of dcTrack.

This means:

- You are not upgrading to the latest version of dcTrack.
- You are not currently using dcTrack and are not integrating dcTrack with Power IQ.

See the dcTrack Quick Setup Guide for steps on installing dcTrack for the first time.

See **Reinstalling dcTrack** for high level steps to reinstall dcTrack.

Note: Upgrading to the newest version of dcTrack may require you to upgrade to a mre recent version first, depending on the

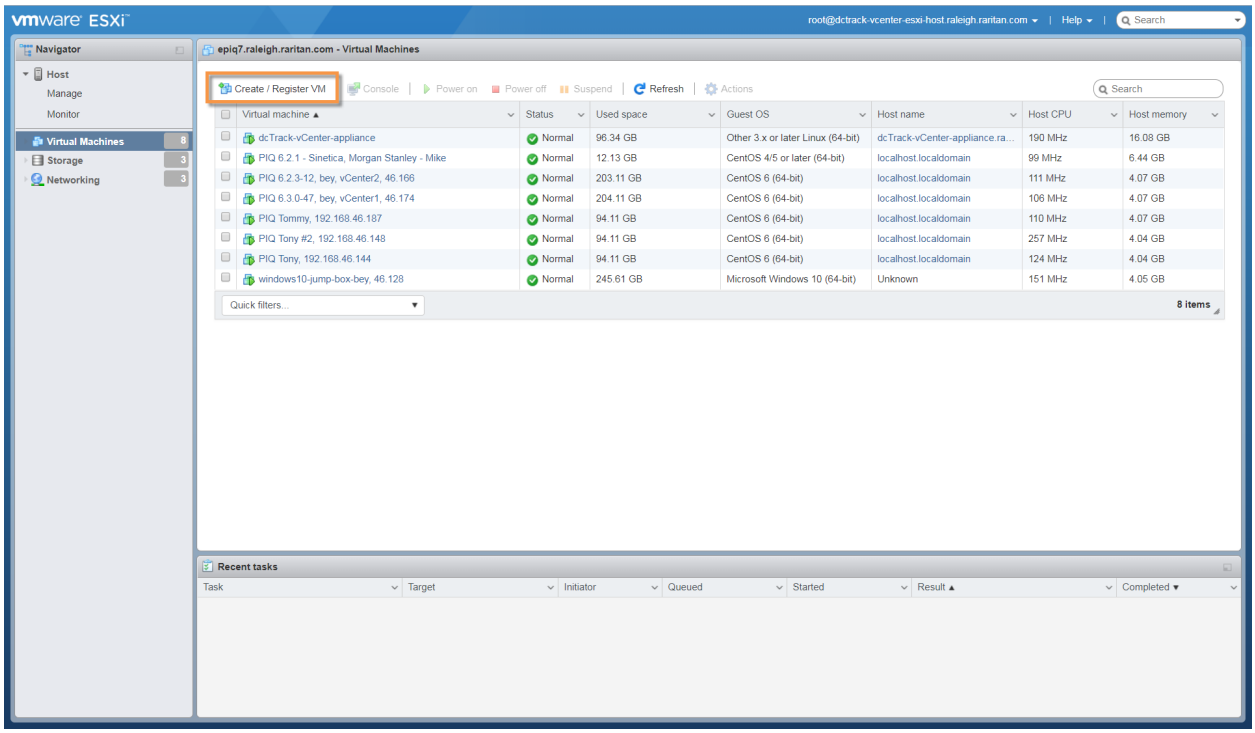
Create the dcTrack VMware Virtual Machine

See **Virtual Machine Requirements and Recommendations** for information on the number of virtual processors and the amount of memory allocated for the virtual machine.

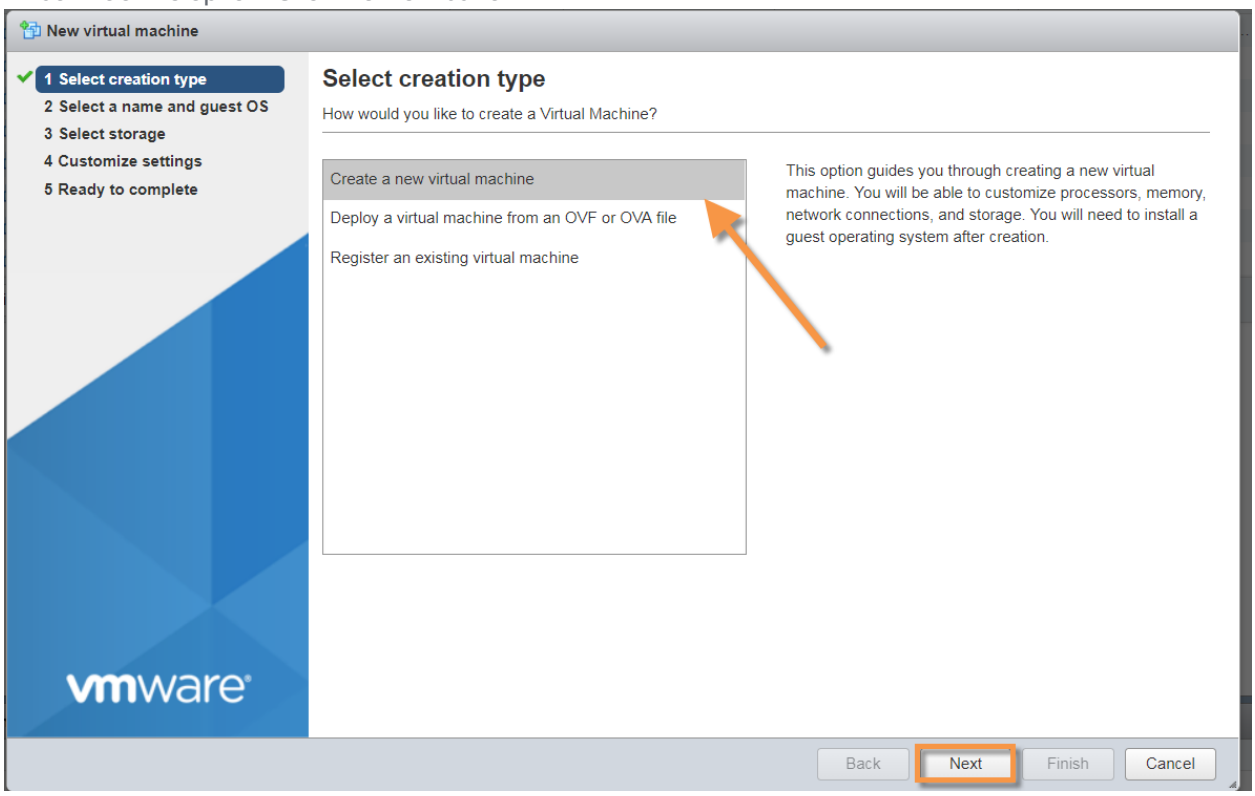
These instructions apply to both new installations and reinstallations of dcTrack.

Note: The following steps are provided as an example of a virtual machine installation; follow your installation preferences if they differ.

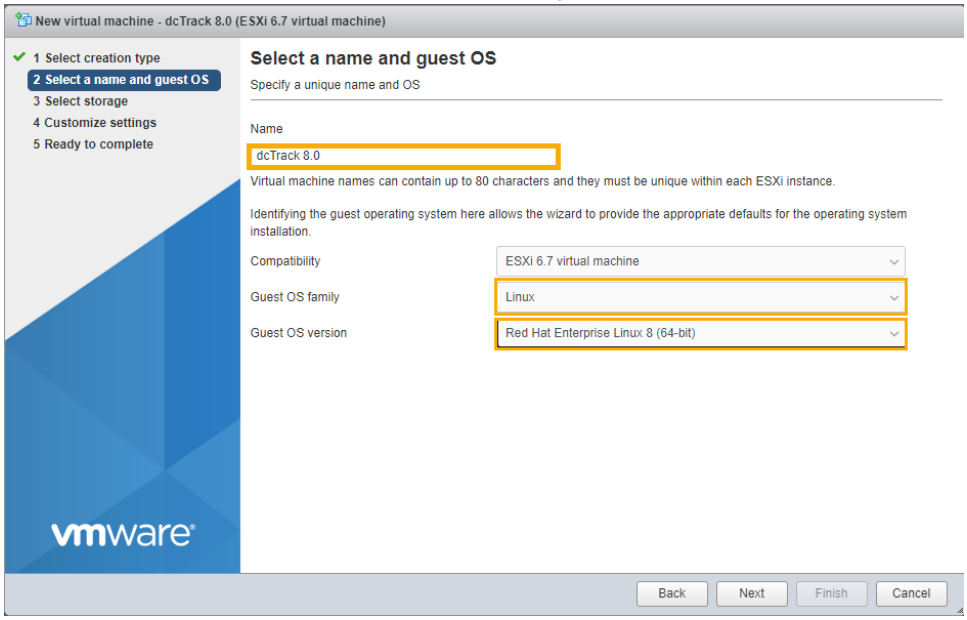
1. Connect to the VMware server using the VMware ESXi 6.5 web GUI.
2. Ensure you are logged in as a user that has permission to create, start, and stop virtual machines.
3. On the Virtual Machine page (check that Virtual Machines is selected in the left Navigator pane), click Create/Register VM.


vmware ESXi
root@dctrack-vcenter-esxi-host.raleigh.raritan.com | Help | Search
Navigator
Host
Manage
Monitor
Virtual Machines 8
Storage 3
Networking 3
epiq7.raleigh.raritan.com - Virtual Machines
Create / Register VM
Console
Power on
Power off
Suspend
Refresh
Actions
Search
Virtual machine
Status
Used space
Guest OS
Host name
Host CPU
Host memory
dcTrack-vCenter-appliance Normal 96.34 GB Other 3.x or later Linux (64-bit) dcTrack-vCenter-appliance.ra... 190 MHz 16.08 GB
PIQ 6.2.1 - Sinetica, Morgan Stanley - Mike Normal 12.13 GB CentOS 4/5 or later (64-bit) localhost.localdomain 99 MHz 6.44 GB
PIQ 6.2.3-12, bey, vCenter2, 46.166 Normal 203.11 GB CentOS 6 (64-bit) localhost.localdomain 111 MHz 4.07 GB
PIQ 6.3.0-47, bey, vCenter1, 46.174 Normal 204.11 GB CentOS 6 (64-bit) localhost.localdomain 106 MHz 4.07 GB
PIQ Tommy, 192.168.46.187 Normal 94.11 GB CentOS 6 (64-bit) localhost.localdomain 110 MHz 4.07 GB
PIQ Tony #2, 192.168.46.148 Normal 94.11 GB CentOS 6 (64-bit) localhost.localdomain 257 MHz 4.04 GB
PIQ Tony, 192.168.46.144 Normal 94.11 GB CentOS 6 (64-bit) localhost.localdomain 124 MHz 4.04 GB
windows10-jump-box-bey, 46.128 Normal 245.61 GB Microsoft Windows 10 (64-bit) Unknown 151 MHz 4.05 GB
Quick filters...
8 items
Recent tasks
Task
Target
Initiator
Queued
Started
Result
Completed

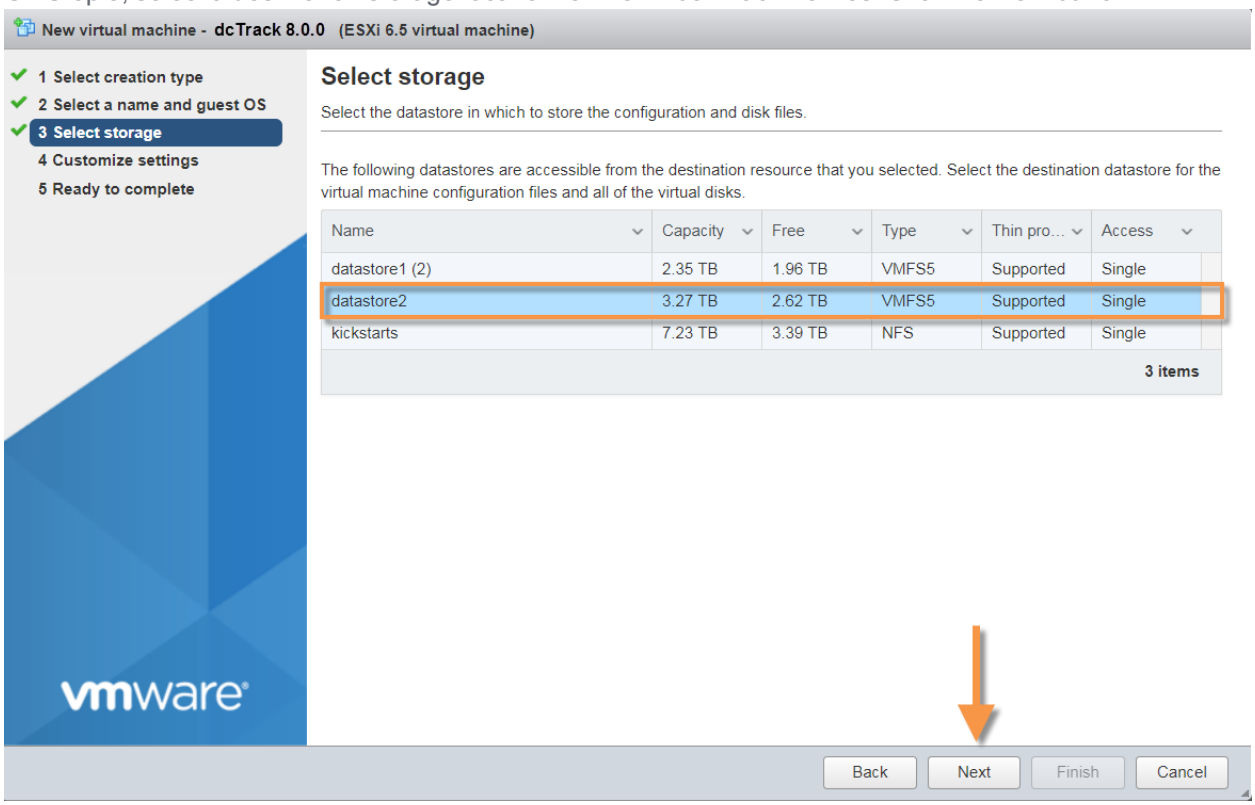
4. The New virtual machine wizard opens. In Step 1 of the New virtual machine wizard, Select the Create a new virtual machine option. Click the Next button.



5. On Step 2, type in the name of your virtual machine and select the Guest OS family and verions.
   a. For the Guest OS family, select Linux.
   b. For the Guest OS version, select Red Hat Enterprise Linux 8. Click the Next button.



6. On Step 3, select a destination storage location for the virtual machine files. Click the Next button.

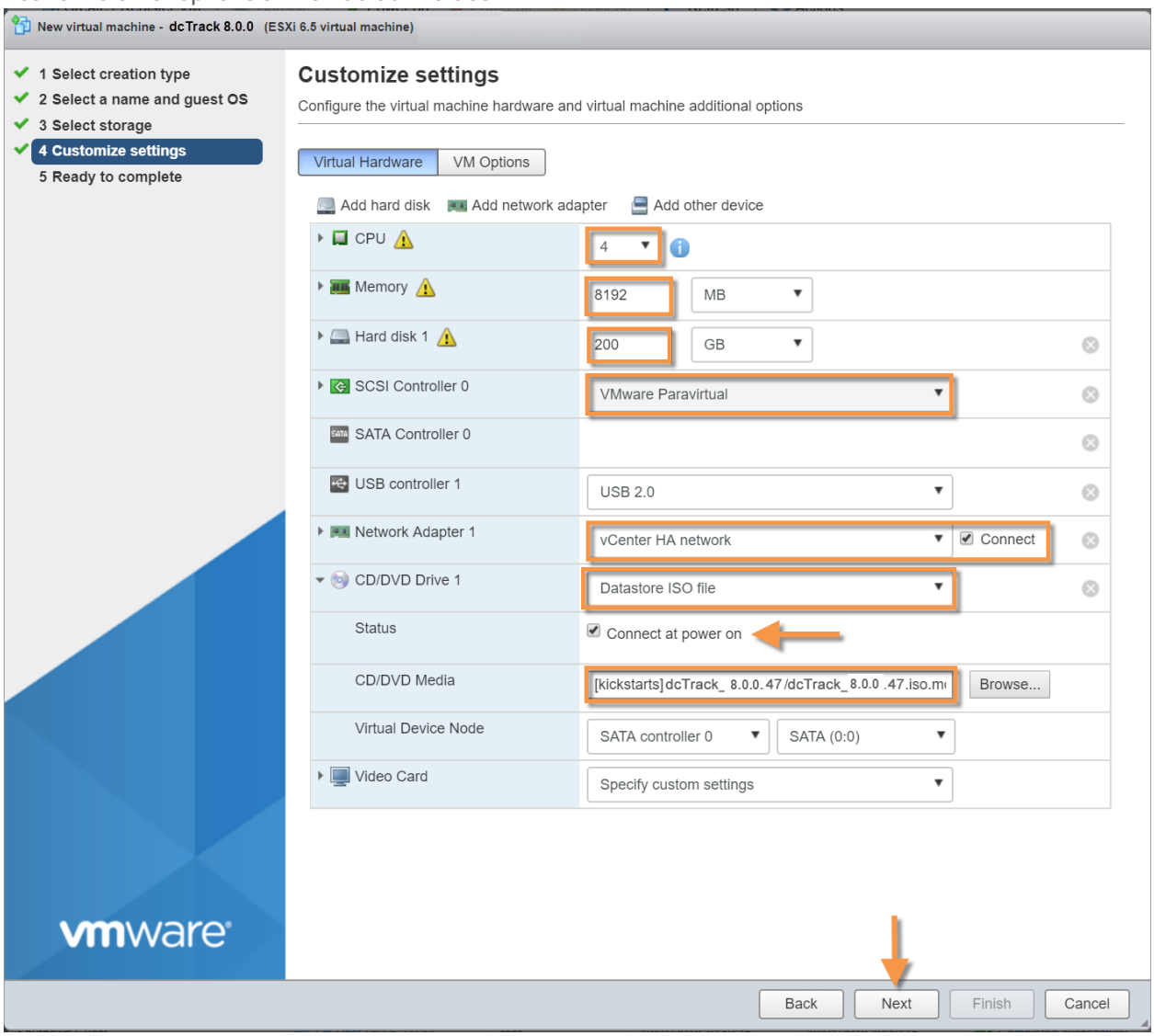


7. On Step 4, configure the VM hardware with the appropriate specifications based on the **Virtual Machine Requirements and Recommendations** for VMware and your network. In this example, the follow specifications are used:
    a. CPU: 4 (Note: Adjust the number of CPUs allocated for the virtual machine based on your minimum configuration or number of PDUs.)
    b. Memory: 8192 MB (Note: Adjust the amount of memory allocated for the virtual machine to at least the minimum required.)
    c. Hard disk: 200 GB (Note: 160 GB is the recommended minimum.)
        a. Expand the Hard Disk options by clicking the arrow to the left of the field.
        b. Under Disk Provisioning, select one of the following depending on your needs.
            i. Thin Provision to save storage space. For the thin disk, you provision as much datastore space as the disk would require based on the value that you enter for the disk size. However, the thin disk starts small and at first, uses only as much datastore space as the disk needs for its initial operations.
            ii. Thick Provisioned, Lazily Zeroed. Creates a virtual disk in a default thick format. Space required for the virtual disk is allocated when the virtual disk is created. Data remaining on the physical device is not erased during creation, but is zeroed out on demand at a later time on first write from the virtual machine.
            iii. Thick Provisioned, Eager Zeroed. A type of thick virtual disk that supports clustering features such as Fault Tolerance. Space required for the virtual disk is allocated at creation time. In contrast to the flat format, the data remaining on the physical device is zeroed

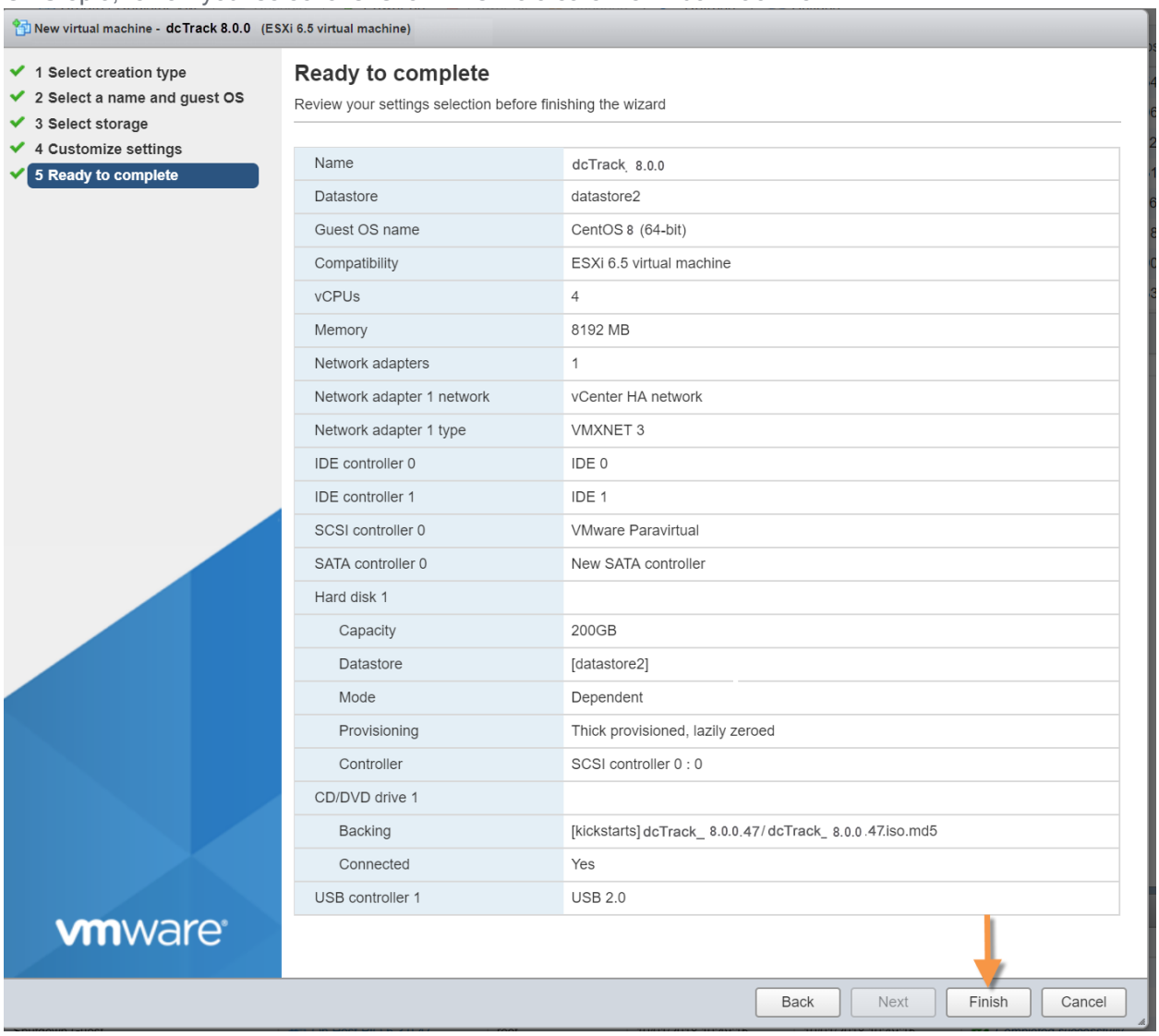
out when the virtual disk is created. It might take much longer to create disks in this format than to create other types of disks.

d. SCSI Controller: VMware Paravirtual
e. Network Adapter: Select an available network adapter based on your own configuration and access. Ensure that the Connect checkbox next to this field is checked.
f. CD/DVD Drive: Datastore ISO file (Note: Ensure that the Connect at power box next to this field is checked.)
g. CD/DVD Media: When you select Datastore ISO file in the previous field, you will be prompted to select an ISO image for the CDROM. Click the Browse button to select the dcTrack file for the CDROM.

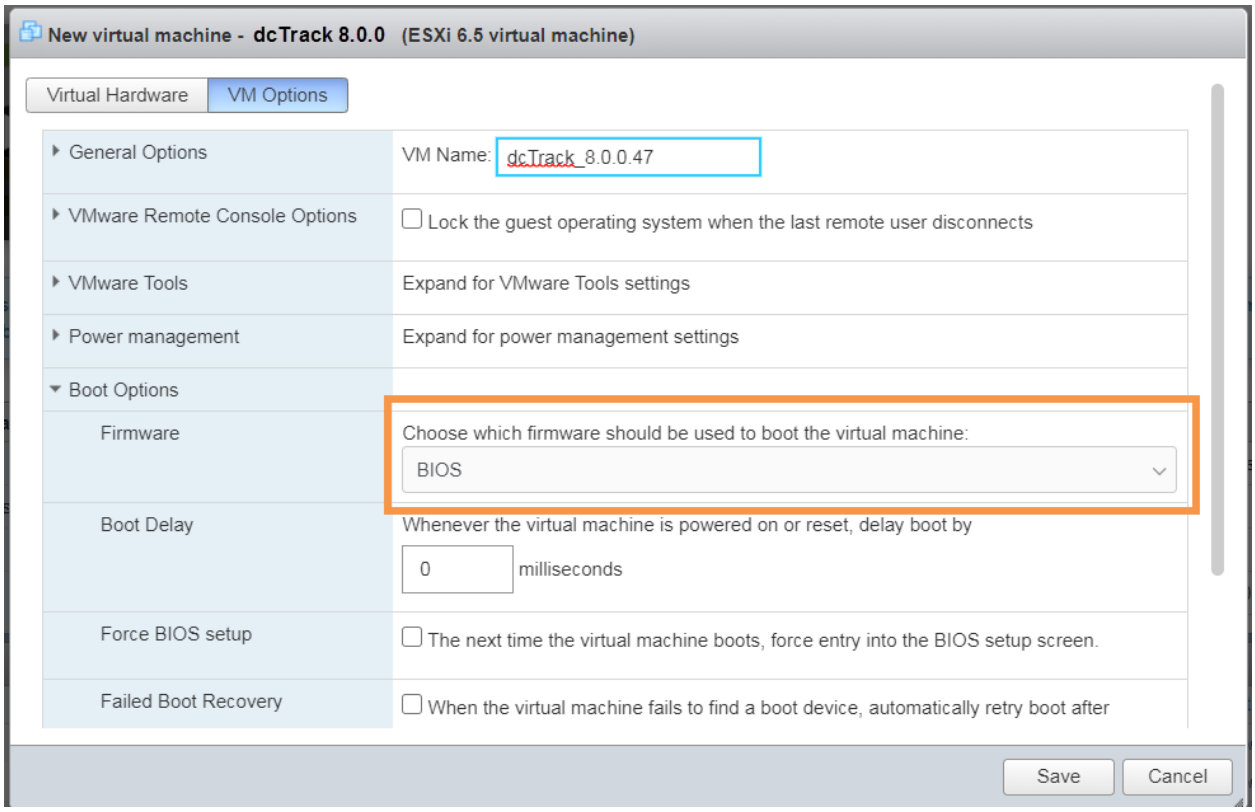
Leave the other options at their default values.



8. On Step 5, review your selections. Click Finish to create the virtual machine.



9. Verify the Firmware option is set to BIOS. This may be set to EFI by default, but you must change it to BIOS to ensure the VM can be booted successfully.



10. Power on your virtual machine.

Load/Install/Reinstall dcTrack on the Virtual Machine

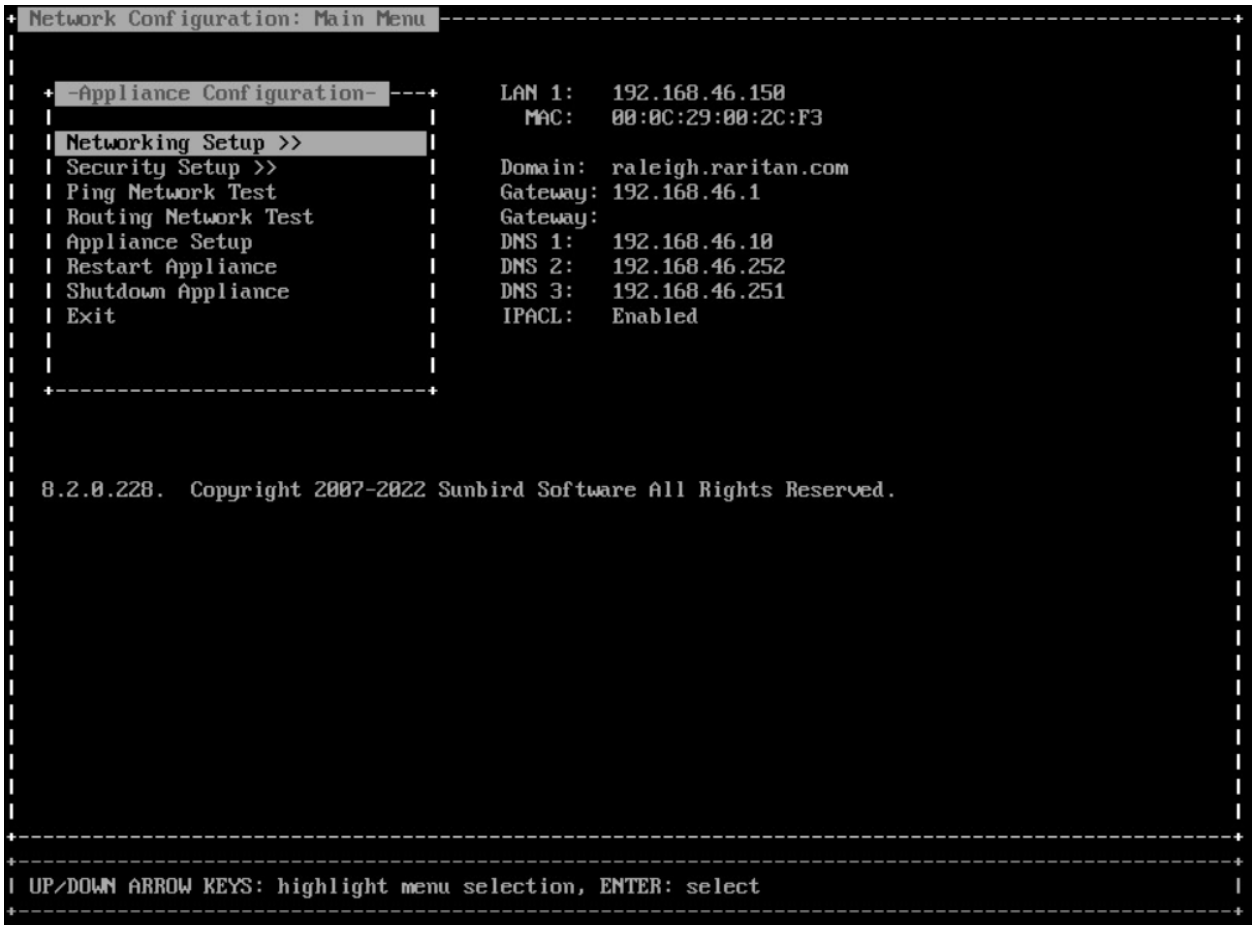
1. Connect to the VMware server using the VMware ESXi 6.5 web GUI.
2. Ensure you are logged in as a user that has permission to create, start, and stop virtual machines.
3. On the Virtual Machine page (check that Virtual Machines is selected in the left Navigator pane), right-click on the VM where you want to load/install/reinstall dcTrack and select the Edit Settings option.
4. In the Edit Settings pop up > Virtual Hardware tab > CD/DVD Drive 1, select Datastore ISO File from the drop-down.
5. Use the file browser dialog to select the dcTrack ISO file. If needed, you can download the file from the Sunbird Support Portal.
6. Under Status, check the Connect at power on checkbox to connect the device when the virtual machine powers on. Optional.
7. In the Virtual Device Node drop-down menu, select the node that the drive uses in the virtual machine.
8. Click the Save button to save your settings.
9. Power on the virtual machine.
10. Press Enter to begin installation.
11. When the installation completes, press Enter to reboot the dcTrack virtual machine.
12. The virtual machine reboots and displays a console prompt.
13. Next, Configure dcTrack Network Access.

Changing Host Name via the Console

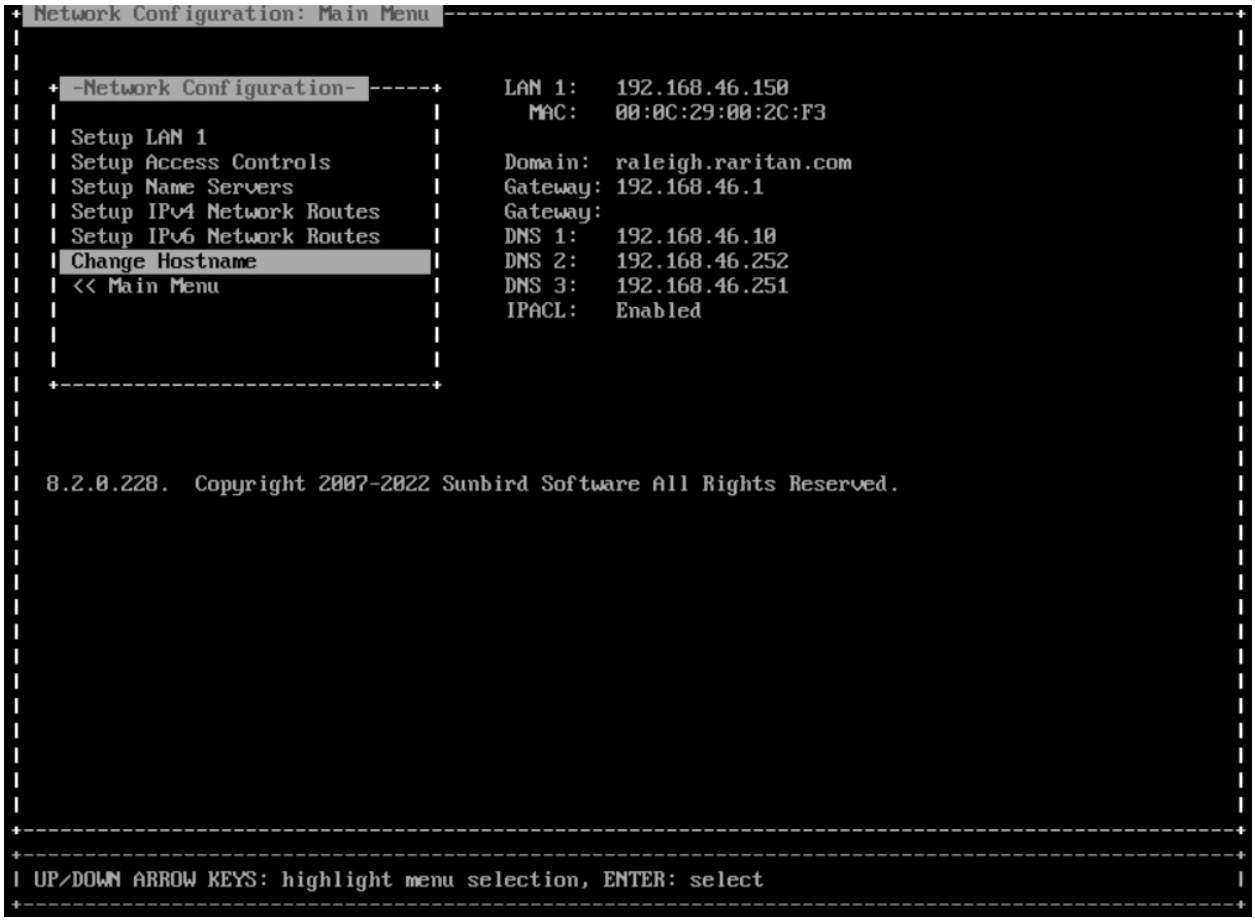
Note: Changing the Hostname through the Console does not modify the externally-facing hostname. The system hostname is only used internally within the Sunbird appliance and is not advertised outside of the appliance. The external hostname is controlled through an external DNS server. Sunbird strongly recommends leaving hostname as the default of "localhost.localdomain" to prevent operational issues.

To change the System Host Name for your dcTrack, perform the following steps:

1. Log into the dcTrack console with the "config" username
2. Select the first menu option "Networking Setup"



3. Select the "Change Hostname" option

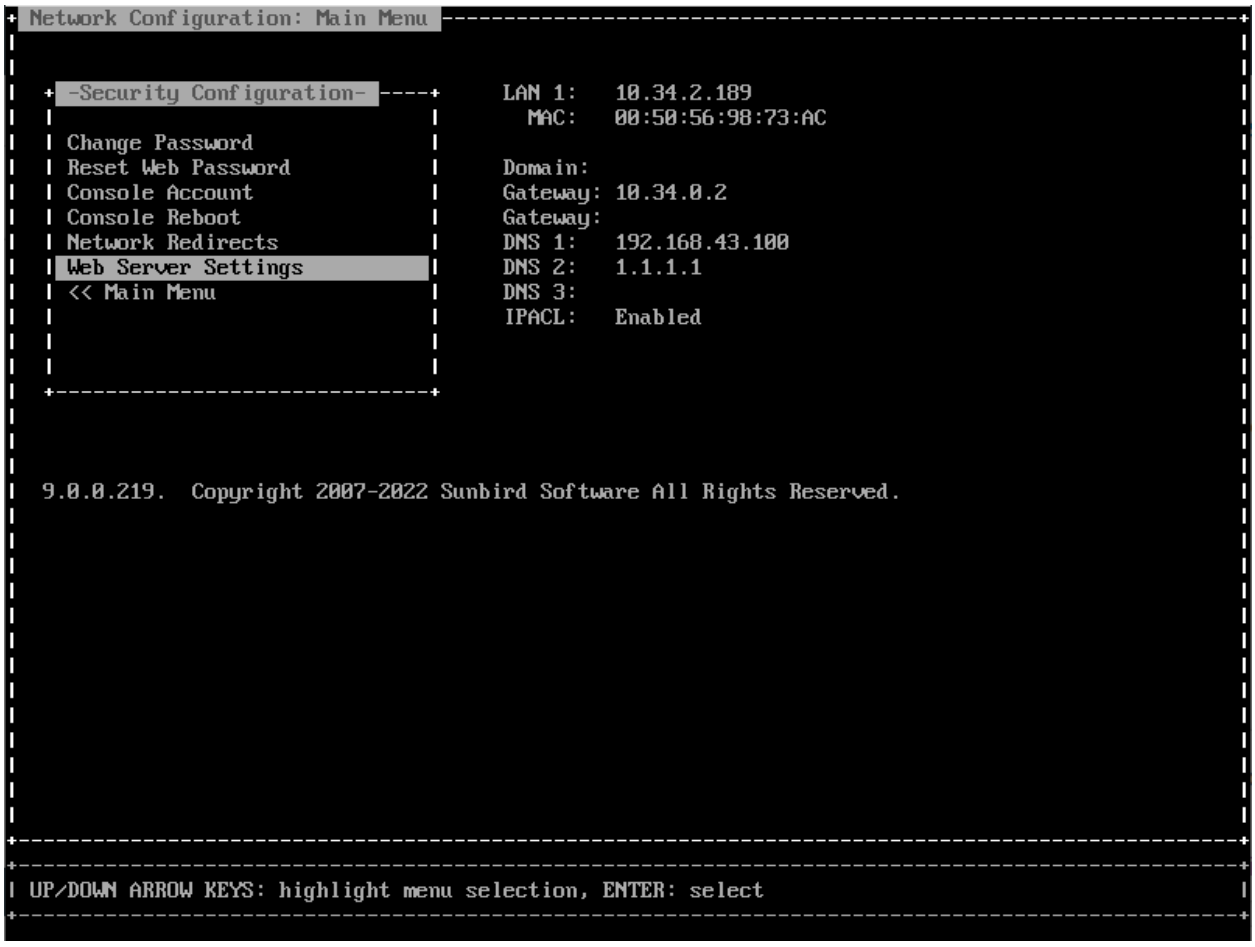


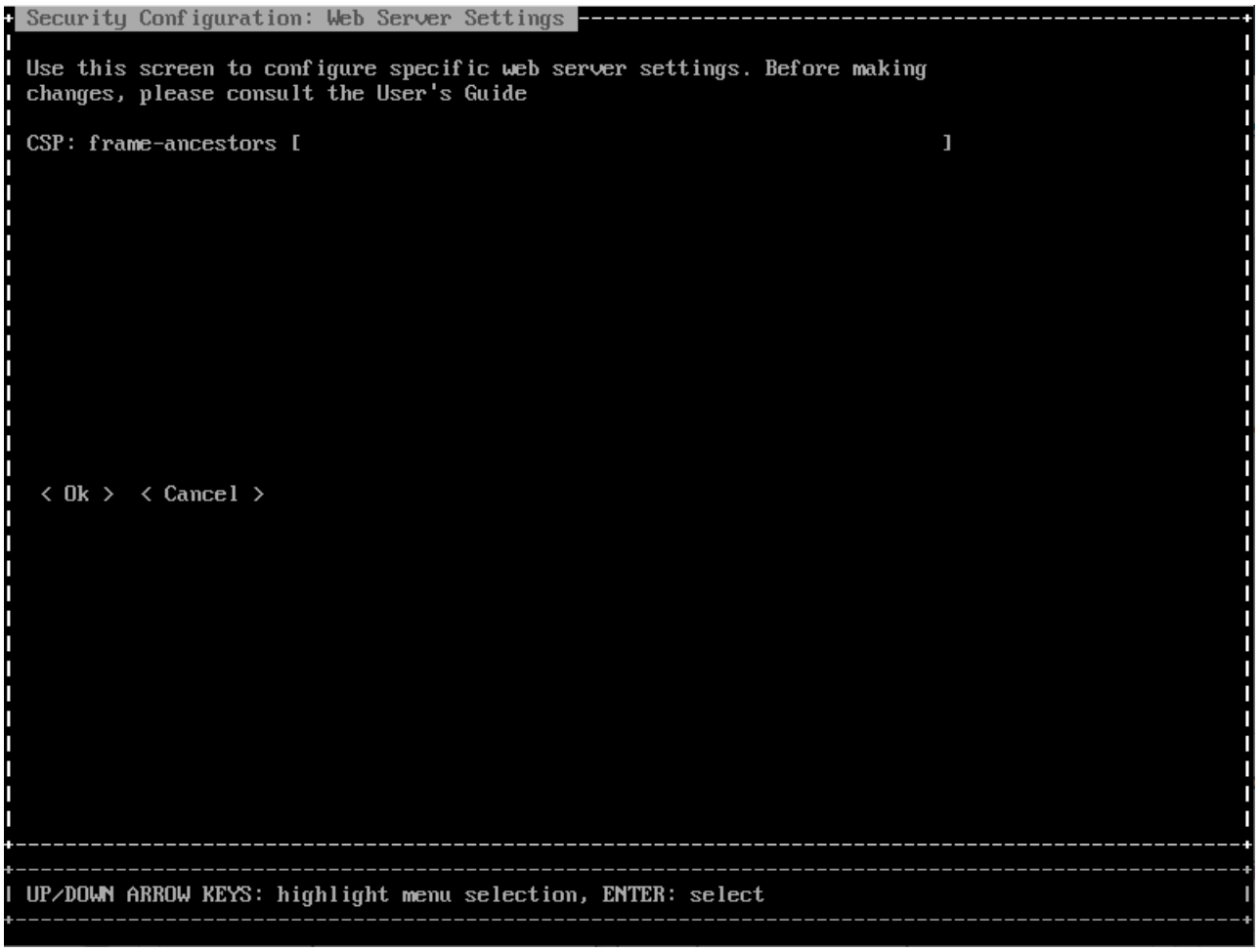
4. Enter the new Host Name and Accept.

Configure Allowed Hosts or Domains (Webserver Settings in the Console)

*Note: You should **not** configure any value in this screen unless directed to by Sunbird Support.*

The Webserver Settings screen enables an System Administrator to configure allowed hosts or domains. It is accessible via the console in the Security Configuration menu.


Network Configuration: Main Menu
-Security Configuration-
Change Password
Reset Web Password
Console Account
Console Reboot
Network Redirects
Web Server Settings
<< Main Menu
LAN 1: 10.34.2.189
MAC: 00:50:56:98:73:AC
Domain:
Gateway: 10.34.0.2
Gateway:
DNS 1: 192.168.43.100
DNS 2: 1.1.1.1
DNS 3:
IPACL: Enabled
9.0.0.219. Copyright 2007-2022 Sunbird Software All Rights Reserved.
UP/DOWN ARROW KEYS: highlight menu selection, ENTER: select



See Also Dynamic Content-Security-Policy.

Read This First - Who Needs to Upgrade and Who Needs to Reinstall

Depending on the current version of dcTrack you are using, you will either upgrade or reinstall dcTrack to move to the current Release.

Contact Sunbird Professional Services and Support at http://support.sunbirddcim.com with issues or questions.

dcTrack 6.x Users and prior

If you are running dcTrack version 6.x or prior please contact Sunbird Professional Services and Support at http://support.sunbirddcim.com for upgrade instructions.

dcTrack 7.2.1 and prior

If you are running dcTrack version 7.2.1 or prior, and you want to move to a release after 7.2.1, you must do a fence release to upgrade.

Upgrade dcTrack

Note: We recommend that you back up your dcTrack database manually and update your Models Library before upgrading dcTrack.

Important: Do not reboot your dcTrack server before the upgrade is complete or your database may be corrupted.

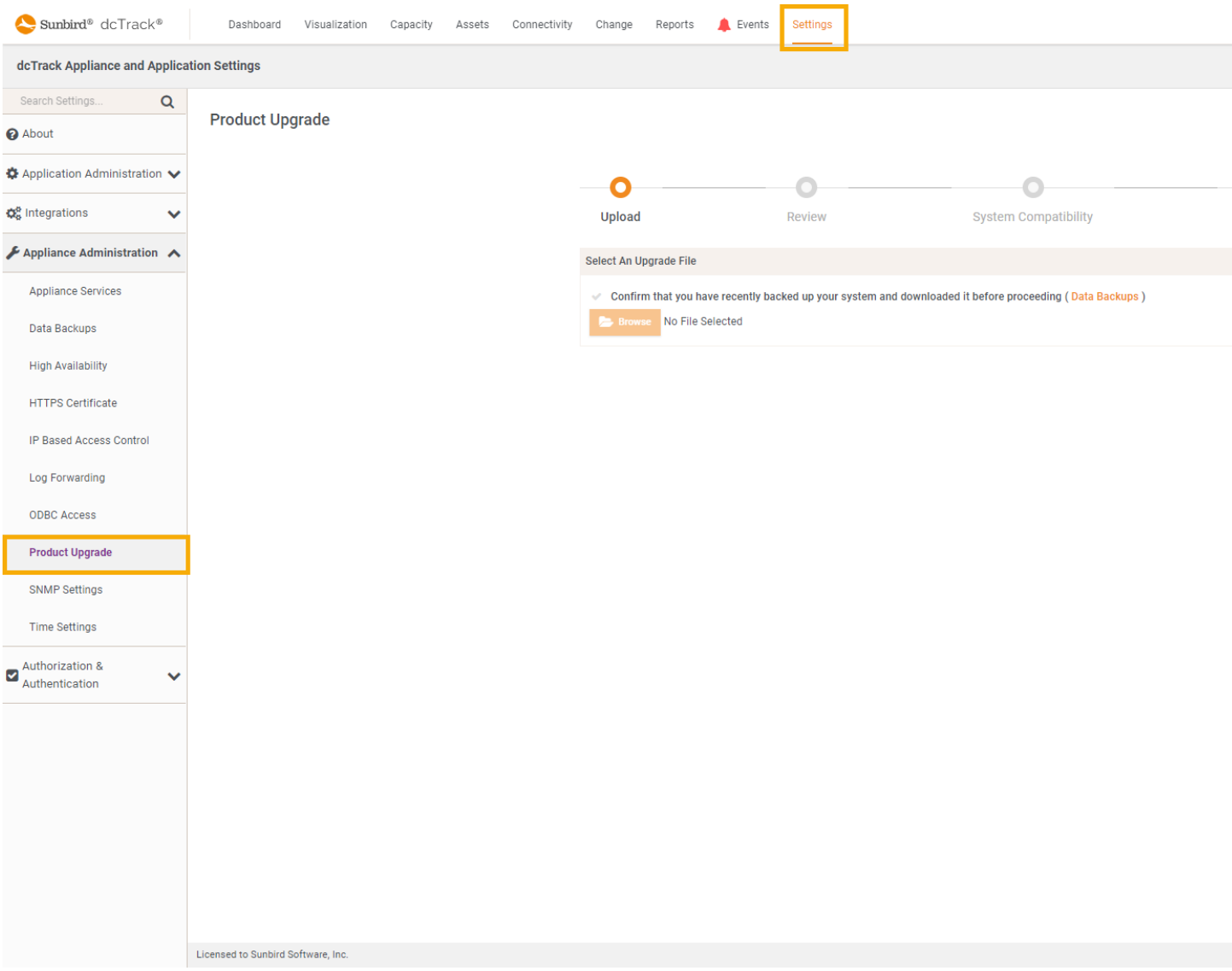
Note: Disable all integrations, including your Power IQ, VMware, Ticketing and CMDB integrations, in dcTrack before you begin your upgrade.

Recommended Steps Before Upgrading dcTrack

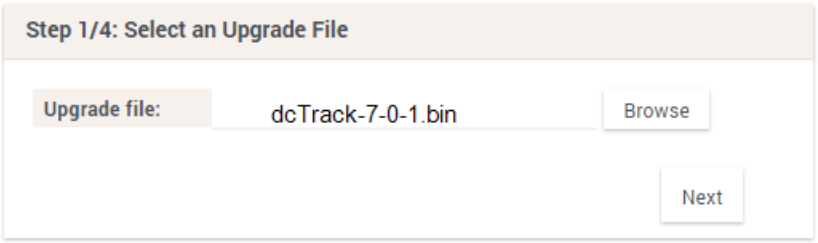
- **Manually Back Up Your dcTrack Database**
- **Update the Item Models Library**
- Download the dcTrack Upgrade BIN File
- **Change the Web Session Timeout for dcTrack**

To upgrade dcTrack:

1. Navigate to Settings > dcTrack Settings > Appliance Administration > Product Upgrade



2. Click Browse and select the upgrade file.



Note: The upload may take 90 minutes or more.

   The new firmware uploads to dcTrack, and a series of status bars and validations are displayed.

3. Click Check System Compatibility on the Release Notes dialog once the upgrade validation is complete.

   Contact Sunbird Professional Services and Support at http://support.sunbirddcim.com with any issues that are encountered.

4. Click Install on the System Check Status dialog once you receive a Success message.
5. A progress shows the upgrade progress, and the system reboots when the upgrade is complete.
6. On the Upgrade Success dialog, click OK.
7. Log out of dcTrack.
8. Reopen your browser and log back in to dcTrack to begin using the application.

Important: Clear your browser's cache entirely, including all temp files, cookies, favorites and so on to ensure all content is removed, then close the browser. See your browser help for steps on clearing your browser's cache.

Reinstalling dcTrack

Contact Sunbird Professional Services and Support at http://support.sunbirddcim.com with issues or questions.

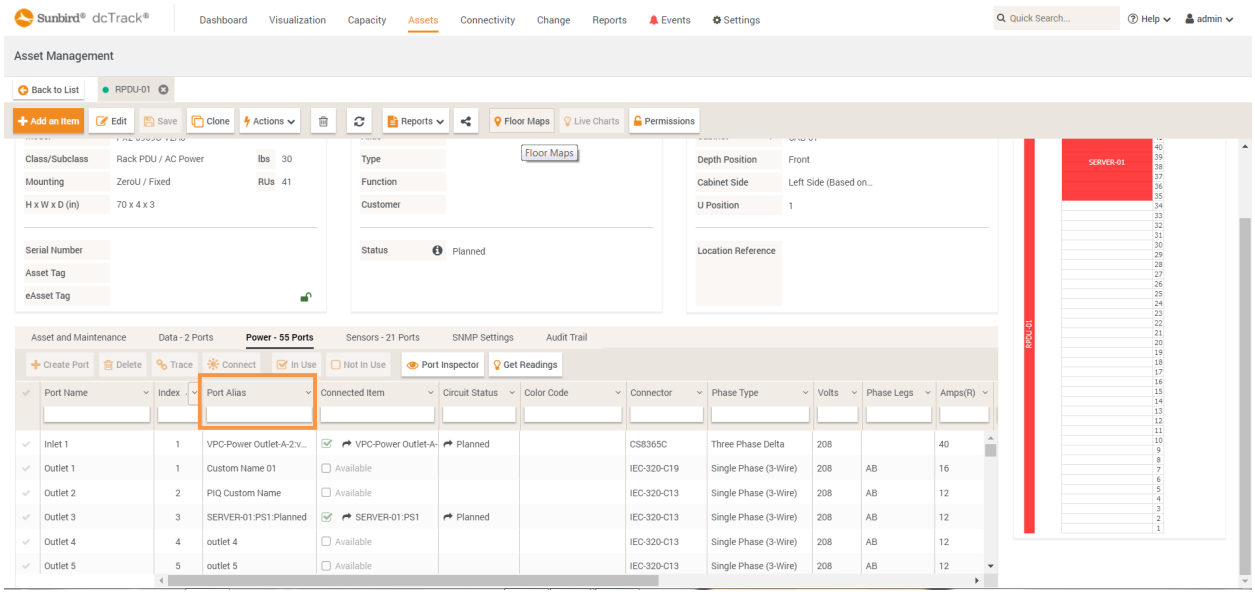
Note: It is recommended that you manually back up your dcTrack database before upgrading or reinstalling dcTrack (to create a database backup file that you will use to restore your dcTrack data).

Reinstall High-Level Steps

- Manually Back Up Your dcTrack Database
- Retrieve the ISO File
- Verify The Datastore and Upload the ISO File to the Datastore
- Create the dcTrack Virtual Machine
- Load/Install/Reinstall dcTrack on the Virtual Machine
- Configure Network Access
- Restore a dcTrack Database from a Backup File

Auto Update Rack PDU Inlet and Outlet Names

All Rack PDUPort Names on both Models and Items are renamed from their existing values of "Input" and "Output" to "Inlet" and "Outlet". This port renaming happens as part of the upgrade process. If you have previously modified the Port Name to a custom name, the custom name value will be saved in a new column "Port Alias" on the Rack PDU Power Port subtab of the Item Details page.



The Port Name column for all Rack PDUs will now be a read-only column that can no longer be modified. Any customized names should be set in the "Port Alias" column, and for integrated Rack PDUs, it is the "Port Alias" column that will be synchronized with Power IQ.

The Auto Update Rack PDU feature has also been enhanced to more clearly identify and control the Port Names of integrated Rack PDUs. When this feature is enabled the new "Port Alias" column will no longer be visible. This is because with this feature enabled you are indicating you would like dcTrack to control the Port Names that are synchronized with Power IQ.

Once enabled dcTrack will immediately set the Port Alias on dcTrack using the following format for all connected ports on integrated Rack PDUs and push this name to Power IQ.

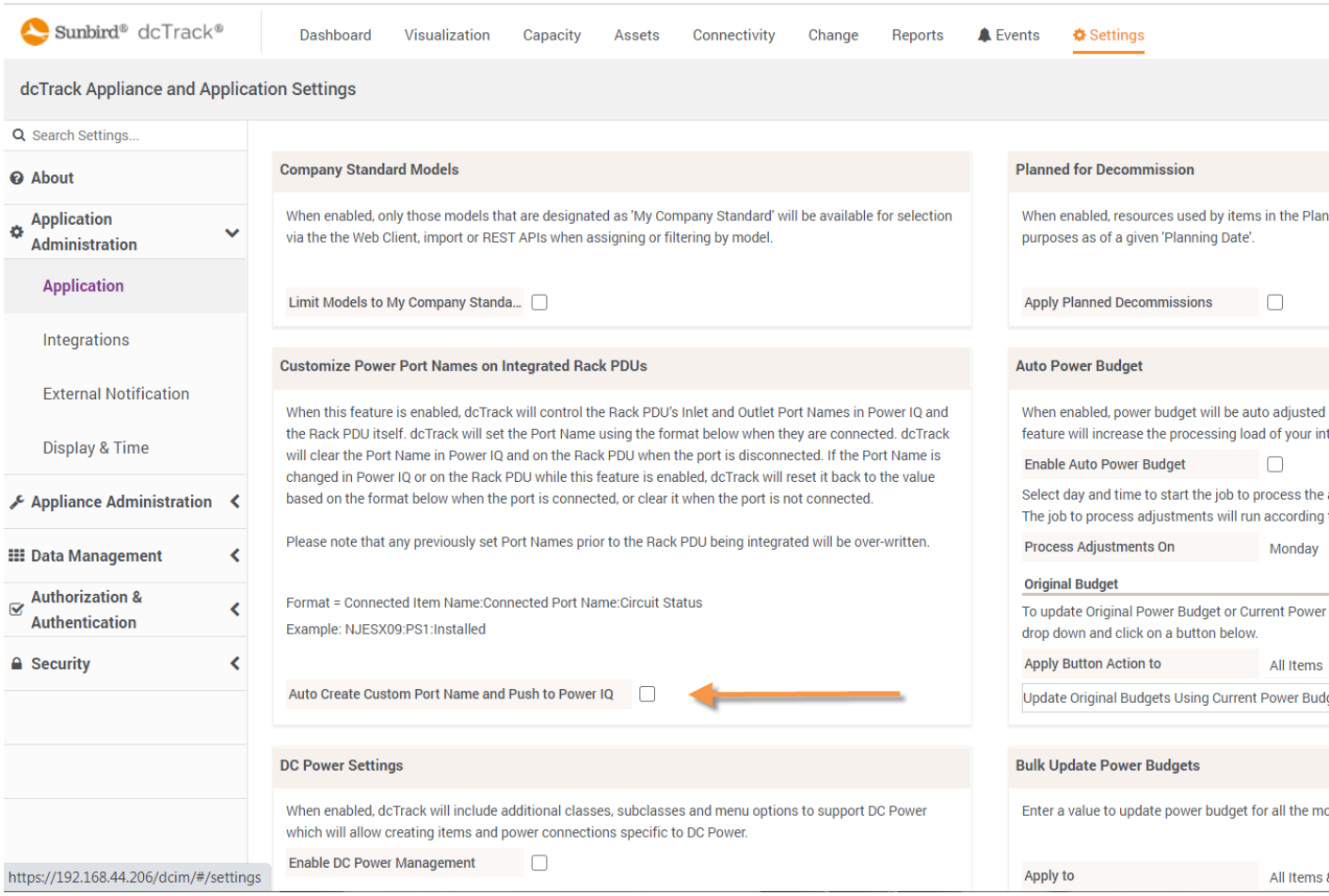
Format = Connected Item Name:Connected Port Name:Circuit Status

Example: NJESX09:PS1:Installed

As long as the feature remains enabled, dcTrack will use this same process as new port connections are made. dcTrack will also clear the Port Name in Power IQ and on the Rack PDU if the port is disconnected.

If the Port Name is manually changed in Power IQ or on the Rack PDU while this feature is enabled, dcTrack will reset it back to the value based on the format above when the port is connected, or clear it when the port is disconnected.

To enable this feature navigate to Settings > dcTrack Settings > Application Administration > Application and select the Customized Power Port Names on Integrated Rack PDUs feature.



When this feature is enabled, dcTrack will rename the Inlet and Outlet Port Aliases on dcTrack for all integrated Rack PDUs using the following format:

Format = Connected Item Name:Connected Port Name:Circuit Status

For example if Outlet 4 on an integrated Rack PDU is connected to a server named "NJESX09" on port 02 and the connection is still in a planned state, the Port Alias for Outlet 4 would be automatically renamed to:

NJESX09:PS2:Planned

As each Port Alias is modified, the new value is automatically pushed to Power IQ.

As long as this feature remains enabled, all future connections created for integrated Rack PDUs will also rename ports using this format, and automatically push new Port Alias to Power IQ.

Retrieve Your dcTrack License

System Administrators add license files the first time they log in to dcTrack.

If you have not already done so, retrieve your dcTrack license from Sunbird via the link provided in the Welcome email you received after registering dcTrack.

If you have not received a Welcome email or license file, contact Professional Services and Support from the http://support.sunbirddcim.com.

Your dcTrack license file is retrieved from the Sunbird website after you activate your registration.

To activate your registration, click the link in the "Thank you for registering" email from Sunbird and create your user account.

Once you create your account, look for a "Your Sunbird software license key is available" email containing a link to your license file download page.

Save the license file locally so you can access it when you need to add it the first time you log in to dcTrack.

Additional licenses can be added as needed once you are using dcTrack. See **Add a License**.

dcTrack Licenses

dcTrack is licensed based on the number of cabinets maintained by the application. The following table explains the various ways cabinet licenses are counted.

Cabinet Use Case	Licensing
Cabinet Height in Rack Units: 0 RU	Not counted against the license
Cabinet Height in Rack Units: 1 - 12 RU	Counted as 1/4 Cabinet
Cabinet Height in Rack Units: 13 - 24 RU	Counted as 1/2 Cabinet
Cabinet Height in Rack Units: 25 or greater RU	Counted as a full Cabinet
Cabinet Status: Archived	Not counted against the license
Cabinet in a Location with 4 or less cabinets	Counted as 1/2 Cabinet

Examples of 0RU Cabinet usage:

1. Master plan the cabinet layout in the entire data center. Utilizing 0RU Cabinets provides you with the total number of cabinets that can fit in your data center based on a realistic layout that does not affect your reporting of available Rack Units based on their Installed or Planned status. A Planned cabinet would represent would-be near term projects, versus a 0RU cabinet which would indicate where a cabinet could fit in a space, but there are no plans to add one there yet
2. 0RU Cabinets can also be used for floor space reservations. Because 100% of the cabinets in the Data Center could be placed and known to dcTrack, dcTrack would now be able to perform calculations and reporting on those cabinets answering questions like “Do I have space for 5 new contiguous cabinets?". Because dcTrack’s new calculation does not count 0RU Cabinets against your license, they can be used freely in your planning process.
3. 0RU cabinets are also useful for Storage rooms. The 0 RU cabinet serves as a representation of a palette with the equipment stacked on top of it. Create as many 0RU cabinets within these Storage Rooms as needed. Then assign the Items stored on each palette to a cabinet and select "Above" for the U Position.

Examples of a Location with 4 or fewer Cabinets:

1. IDF (Intermediate Distribution Frame) or a Telecommunications Closet are typically found in large buildings with multiple floors and are used to distribute structured cabling to a floor or a section of a floor such as an office. These rooms are typically small and contain a few cabinets, or open frame racks mostly full of patch panels and a new network switch. As noted in the table above, cabinets in locations with four or fewer cabinets use half a license. For example:
    a. A room with three cabinets uses 1.5 licenses
    b. A room with two cabinets uses one license
    c. A room with five cabinets uses five licenses (Note: Rooms with more than four cabinets do not get the discount)

You will notice the effects of these changes when viewing licensing information in dcTrack Settings or the dcTrack Licenses Remaining widget, as each could now display a fractional value.

Licensing Summary

Customer Name
Raritan-Engr Victor
Cabinet License Capacity
3100
Cabinet Licenses Available
3021.75

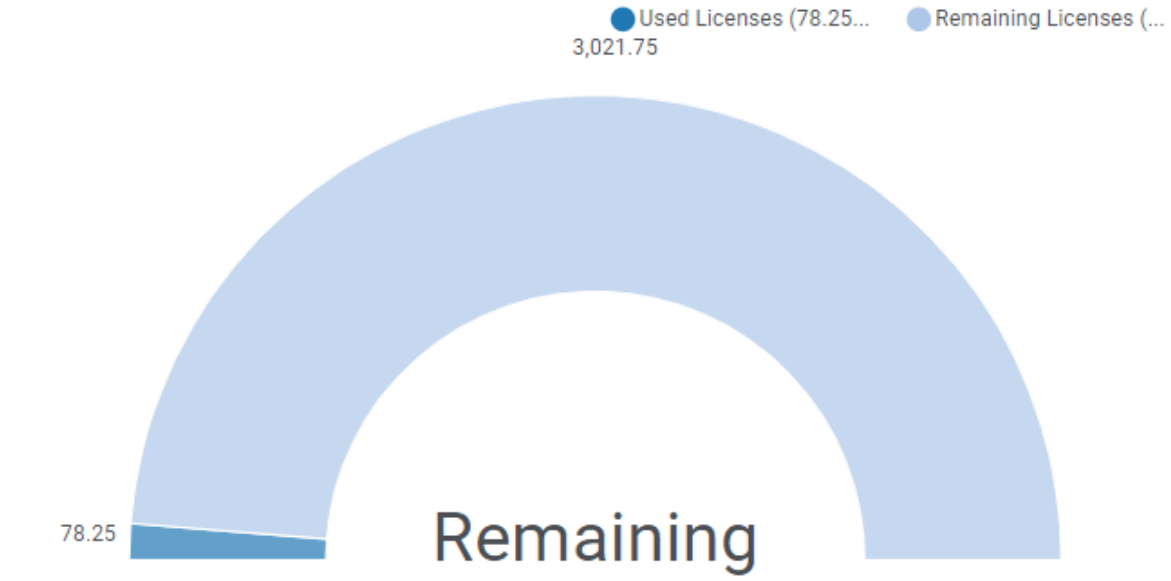
Licenses

Add | Remove

	Feature	Type	Count	Licensee
☐	dcTrack	Initial License	100	Raritan-Engr Victor
☐	dcTrack	Incremental Li...	3000	Raritan-Engr Victor

Page 1 of 1 Displaying Licenses 1 - 2 of 2

dcTrack Licenses Remaining



Note: Use your dcTrack license in order to make a disaster recovery backup of your database, if needed.

Add a License

If this is your first time logging in and you need to add a license file, see **Retrieve Your dcTrack License**

Licenses are added after they are bought and retrieved from Sunbird. They are then uploaded to dcTrack.

Once you add a license file and log in for the first time, follow the instructions in this topic to add or remove additional license files as needed.

Typically, System Administrators add and remove licenses.

1. If you have not already done so, get a dcTrack license file by contacting Customer Support.
2. Click Settings > Application Administration.
3. Click Product Licensing in the Application Administration section.
4. Click Add in the Licenses section.
5. Use the browse function to locate and add the license file.

Licenses are .LIC files.

Repeat this step to add incremental licenses.

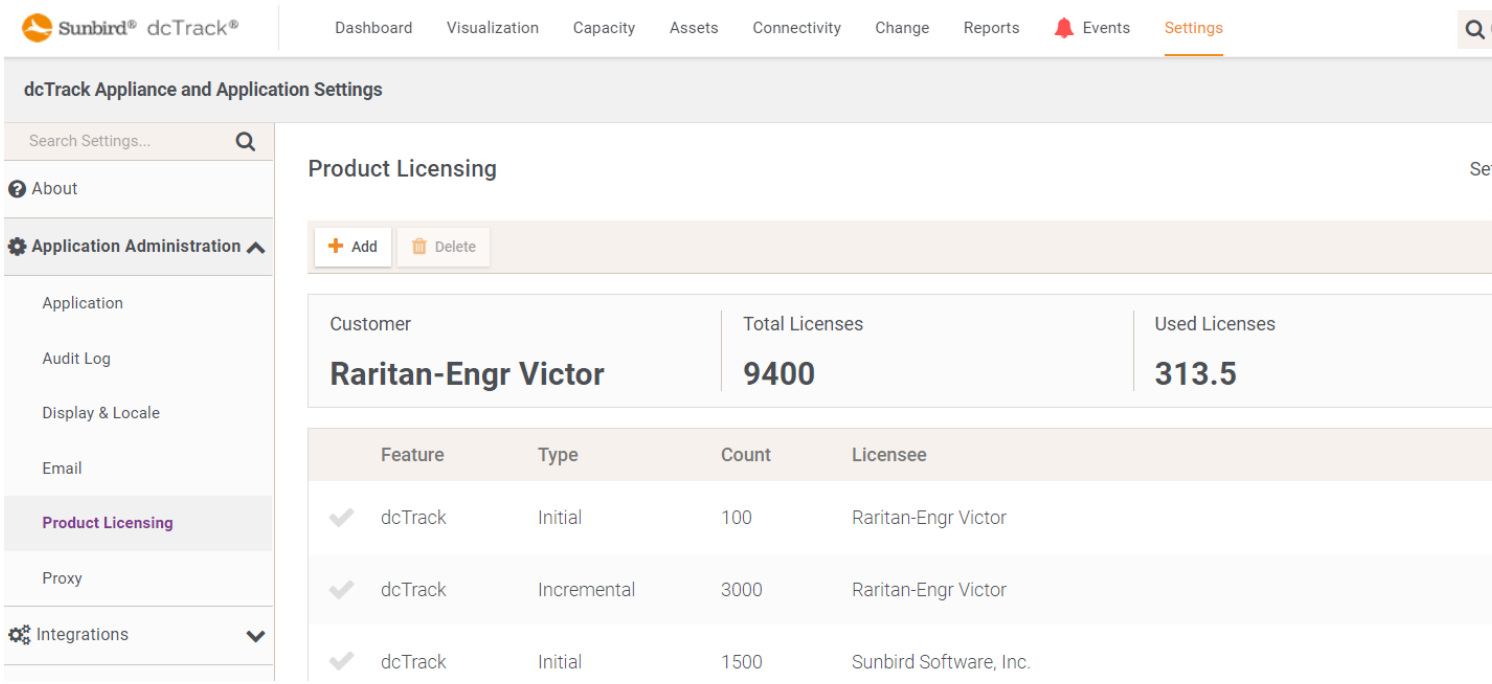
Note: If you see error messages AND you are unable to use dcTrack or add the total licensed number of cabinets, contact Sunbird Technical Support. There may be a problem with your license file.

View Licenses

The dcTrack Product Licensing page can be viewed by System Administrators. This page provides a licensing summary that encompases the following:

- Customer Name
- Total Licenses
- Used Licenses
- Available Licenses
- The count of Licensees as defined in the imported License file
- Expiration Date of each Licensees License

To view dcTrack License information, navigate to Settings > dcTrack Settings > Application Administration > Product Licensing



Exceeding Your License

Note that you cannot add cabinets once you have reached your dcTrack license limit. Specifically, you cannot save a new cabinet if it exceeds your license.

If you perform a cabinet import using File Import, dcTrack does not let you add cabinets beyond your license, and lets you know if this is the case.

Recovery System License

Your dcTrack license permits you to have a recovery system license at no extra charge. This is used when creating a backup file of dcTrack.

Changing User Passwords

Only Application administration refers to tasks performed exclusively by dcTrack System Administrators.

The tasks in this section are performed on the dcTrack server, or by users with System Administrative privileges in the dcTrack application.

dcTrack Administrators (System Administrators) are assigned to the dcTrack System Administrators user group by default in the "admin" role. This role has permission to do every action in dcTrack, no exceptions.

A System Administrator is responsible for installing and configuring dcTrack, including creating users and teams, LDAP user and user group management, importing items, maintaining lists and libraries, and so on.

In most cases, this user is separate from the Gatekeeper but in some cases may be the same user.

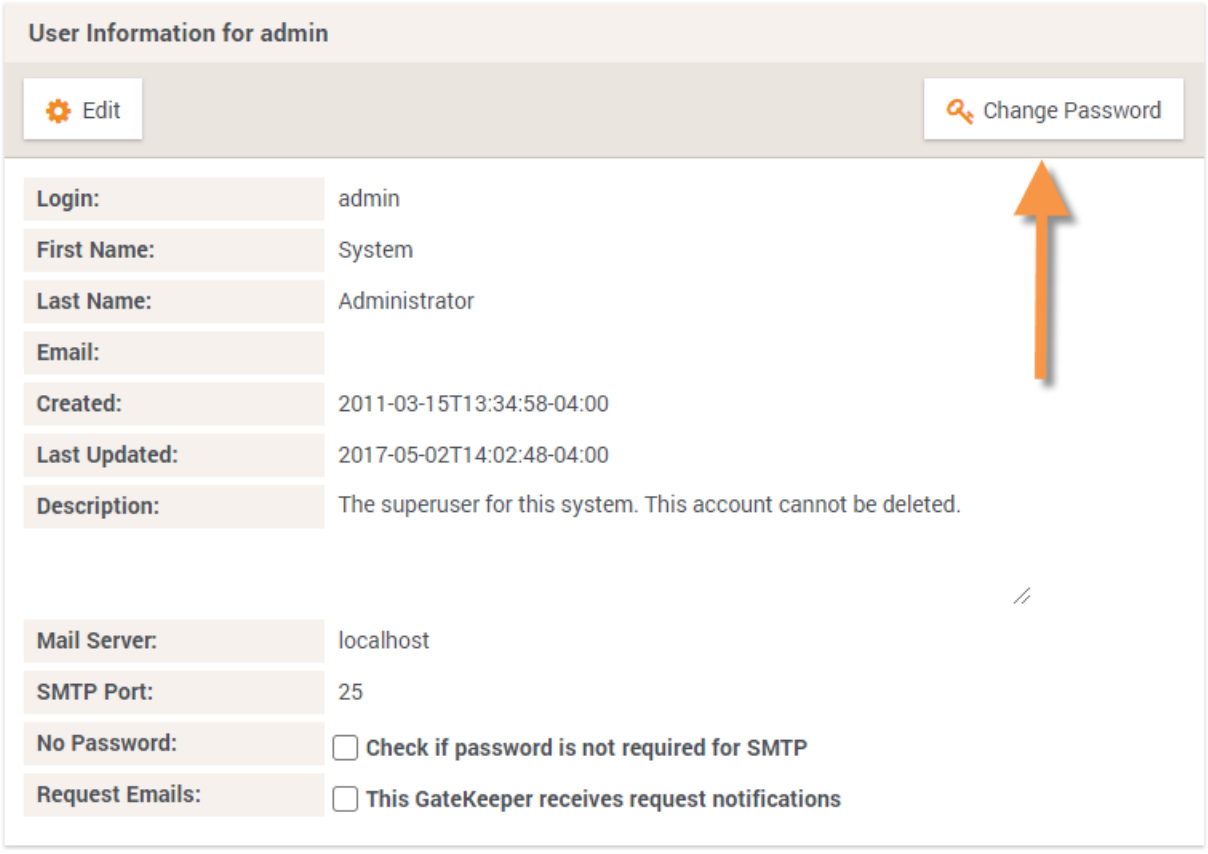
System Administrators can change the System Administrator password.

Change the default System Administrator password as soon as possible to prevent unauthorized System Administrator-level access to dcTrack.

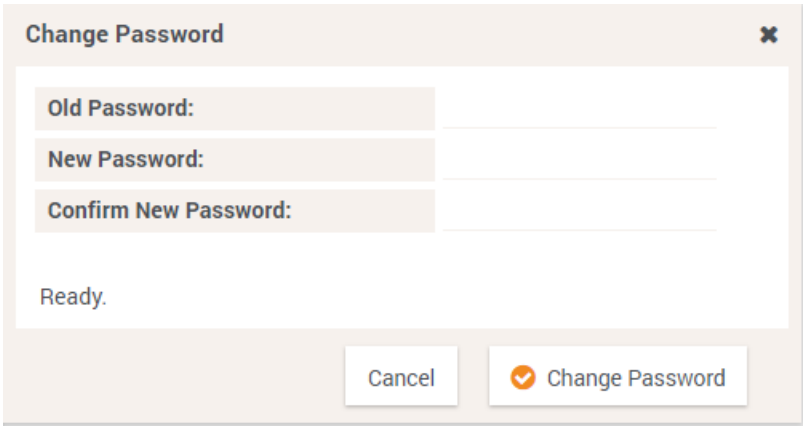
If you are a System Administrator and want to change your own password you may follow the steps below or see: Change Your End User Password

Steps for System Administrator to change other users password:

1. Navigate to Settings -> dcTrack Settings -> Authorization & Authentication -> User Accounts
2. Select the User Account whose password you want to change
3. Click Change Password.



2. The Change Password dialog displays. Enter your old and new passwords.



3. Click Change Password to save your changes.

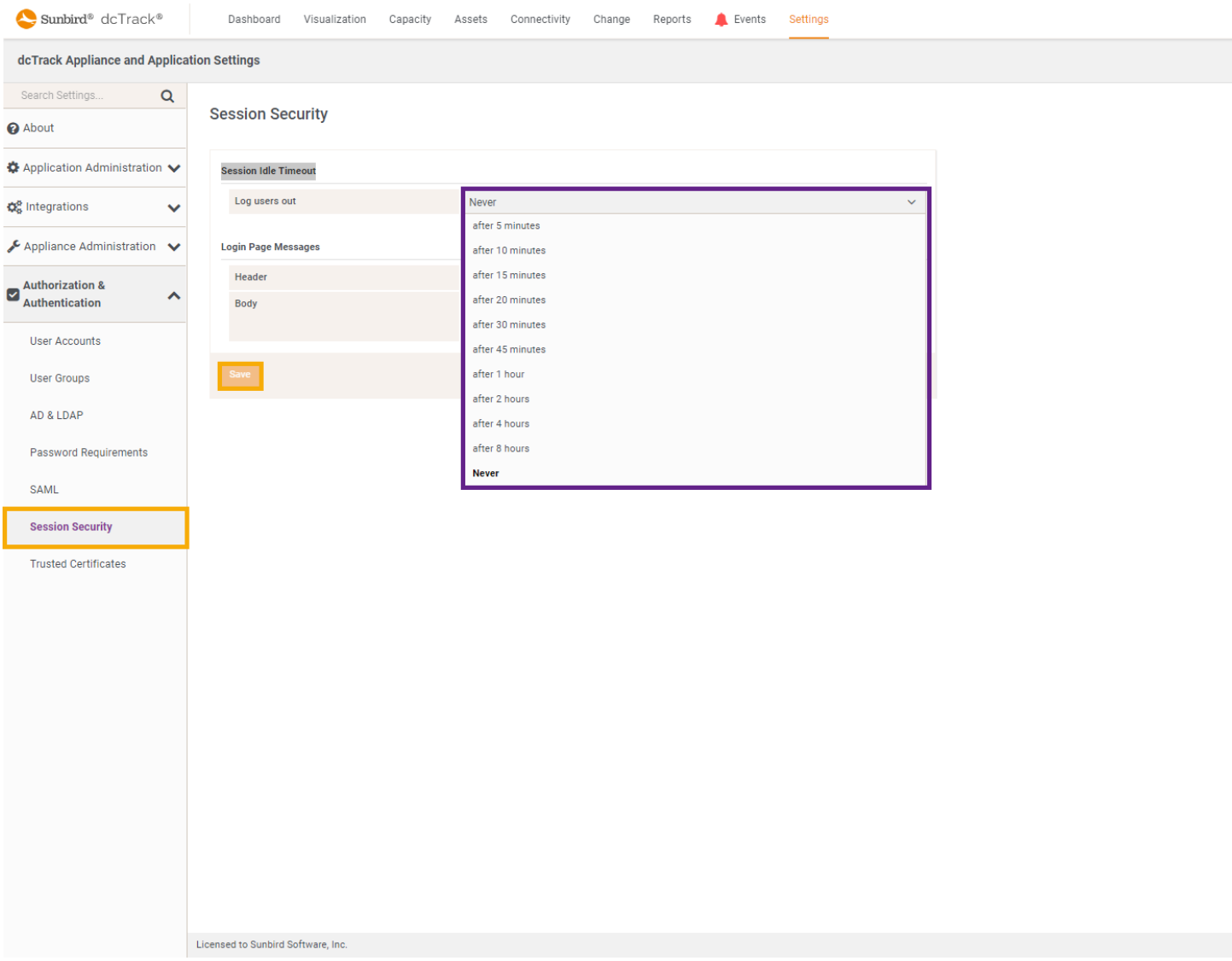
Change the Web Session Timeout for dcTrack

The web session timeout determines the length of time dcTrack remains idle before logging a user off.

1. Click Settings.
2. Click Authorization & Authentication

2. Click Session Security.
3. In the Security section, click Other Security Settings.

3. In the Log users out field, select an option from the "Log users out" drop-down:



4. Click Save Timeout.

A "User sessions will not time out" confirmation appears at the top of the page.

5. To apply the new session timeout, log out of dcTrack, then log back in.

Configure the System Clock Manually

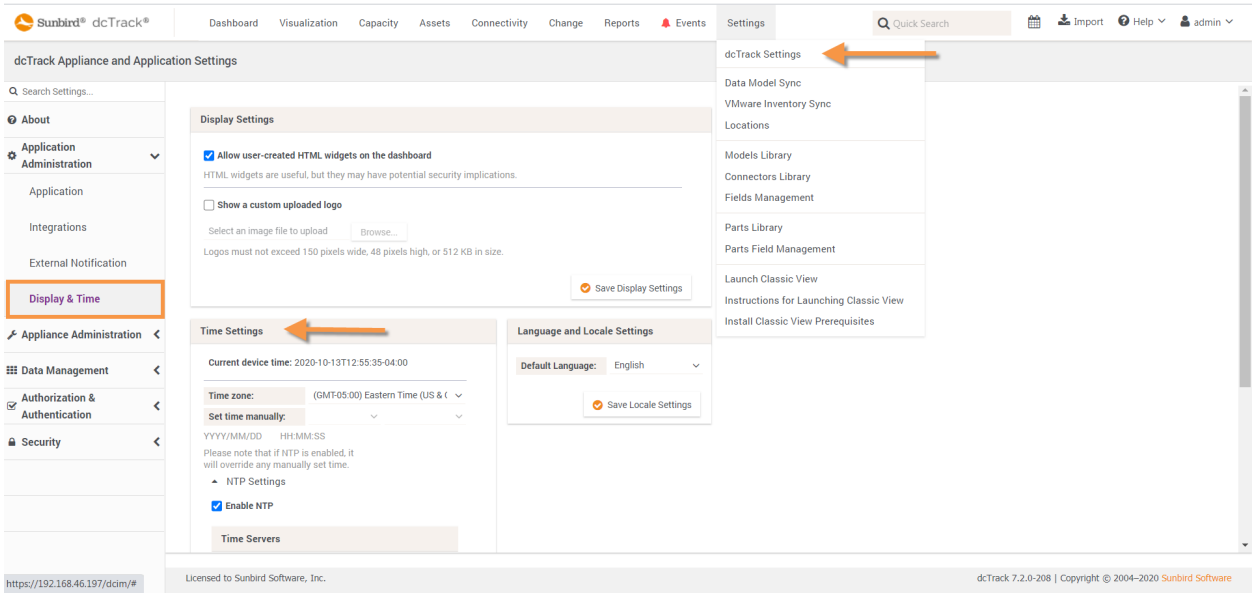
dcTrack uses the system clock to time-stamp events.

Set the system clock as soon as possible to keep an accurate record of events

Using an NTP server is recommended to keep the system clock synchronized.

Note: If your dcTrack is integrated with Power IQ, it is important that both dcTrack and Power IQ are setup to use NTP with the same NTP servers.

1. In the Web Client navigate to Settings > dcTrack Settings > Application Administration and click the Display & Time menu option.



Note: If the Time Zone and "Set time manually" fields are disabled, NTP may be enabled. Deselect the Enable NTP checkbox if you no longer want to use that options.

2. In the Time Settings section, select the Time Zone the dcTrack server resides in from the Time Zone drop-down list.

4. Select the date and time using the tools in the "Set time manually" fields. Select the date from the pop-up calendar. Select the 24-hour time from the drop-down list.

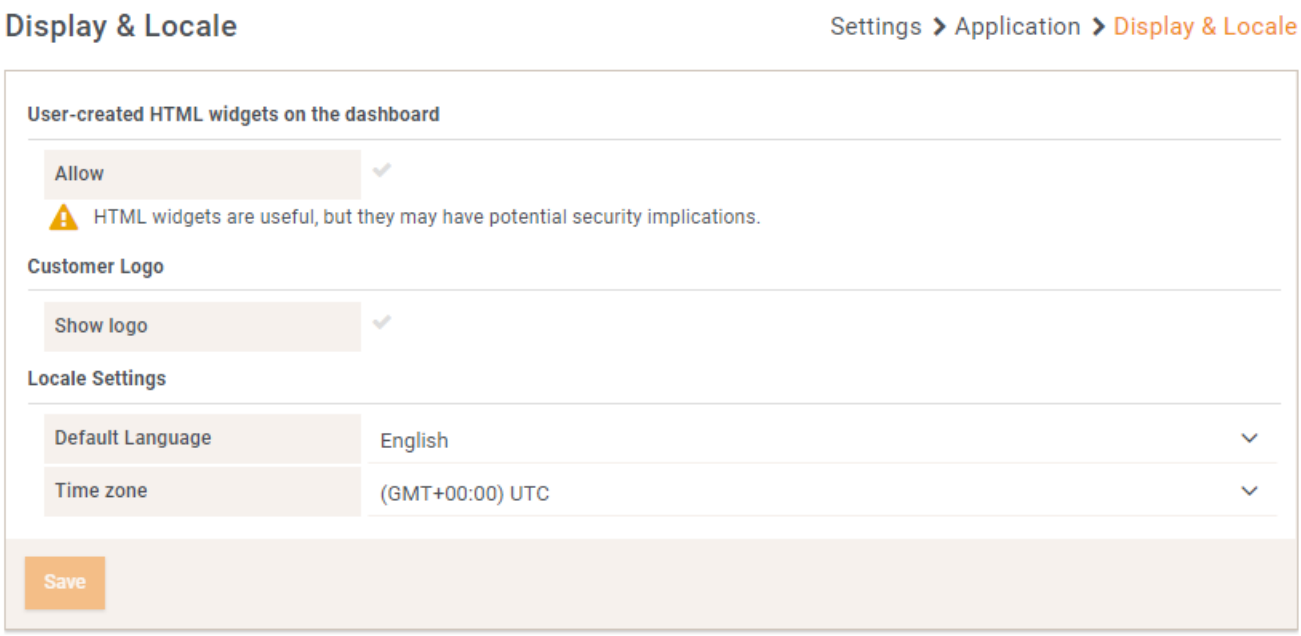
5. Click Save Time Settings.

Note: The Web Client displays the time and date of the local machine it is accessed from, not the system clock. However, database records created from Web Client events such as add item, delete item and so on are recorded in the database using the system clock time.

Configure Display Settings

Certain display settings can be managed by System Administrators. Admins can choose to display a Custom Logo in the dcTrack header and can also control whether users can view HTML widgets in Dashboards The Display & Local Settings are accessible in the Settings Tab Application Administration > Display & Local

Note: For new users, the admin's account (username "admin") user preferences for Language, Theme, Unit System, Data Separator, Date Format and Cabinet Elevation preferences are used as the default preferences, however the Language used on the Login screen for new users is set from the setting on the Display & Locale page.



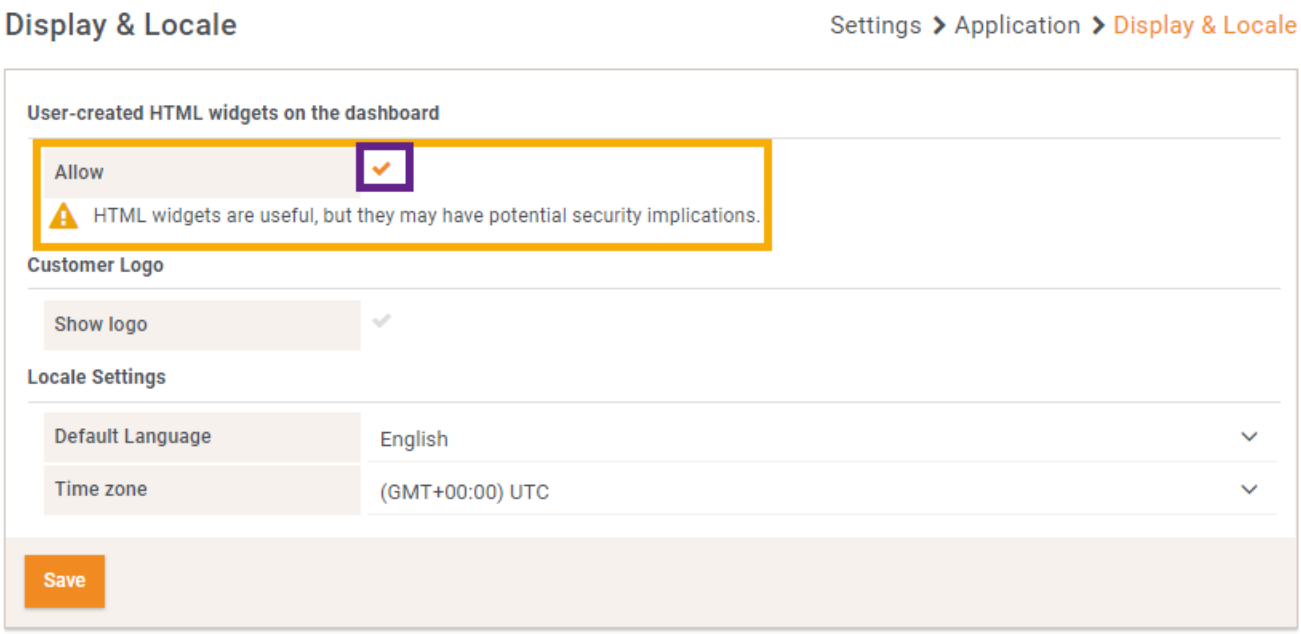
Allowing HTML Widgets

Allowing the system to display HTML widgets introduces the risk that an HTML widget may exploit web security vulnerabilities. For this reason, this capability is not enabled by default.

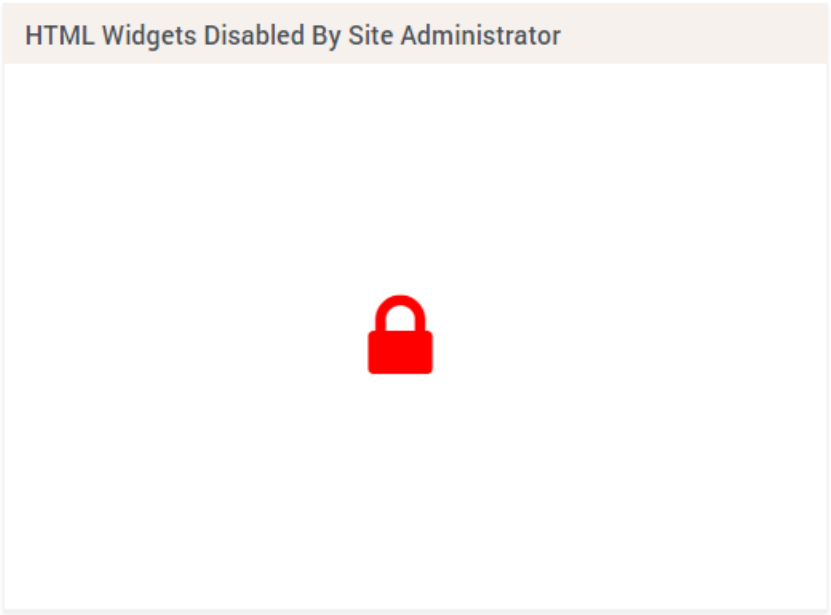
See Also Dynamic Content-Security-Policy.

Steps to allow users to view HTML Dashboard Widgets:

1. Navigate to Settings > dcTrack Settings > Application Administration > Display & Time
2. In the Display Settings panel, check the Allow user-created HTML widgets on the dashboard check box
3. Click the Save button



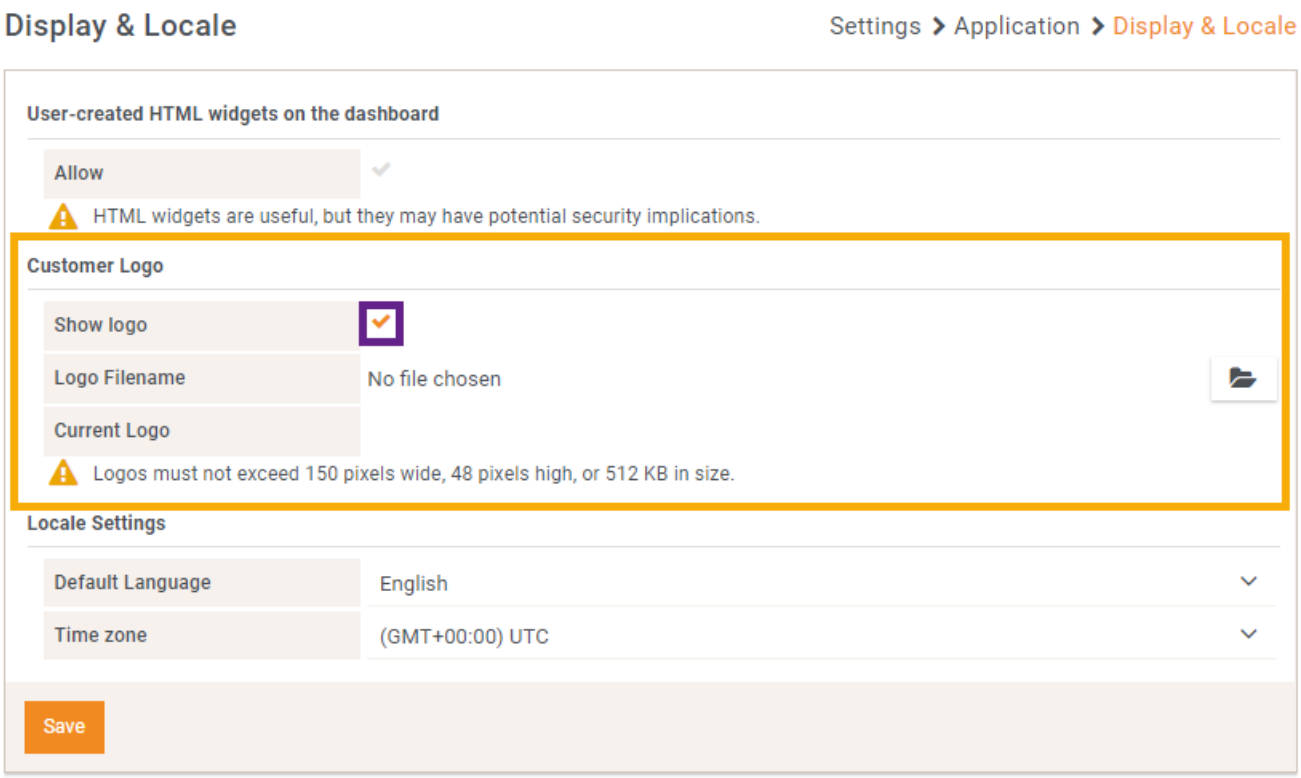
Once enabled users will be able to view HTML widgets on dashboards. If this feature is not enabled users will be presented with the locked widget display when attempting to view HTML widgets.



Define a Custom Logo

Steps to define a custom Logo in the dcTrack header:

1. Navigate to Settings > dcTrack Settings > Application Administration > Display & Time
2. Check the Show a custom uploaded logo check box
3. Use the browse button to navigate to the image file
4. Select the image
5. Click the Save button
6. Click the Save Display Settings button

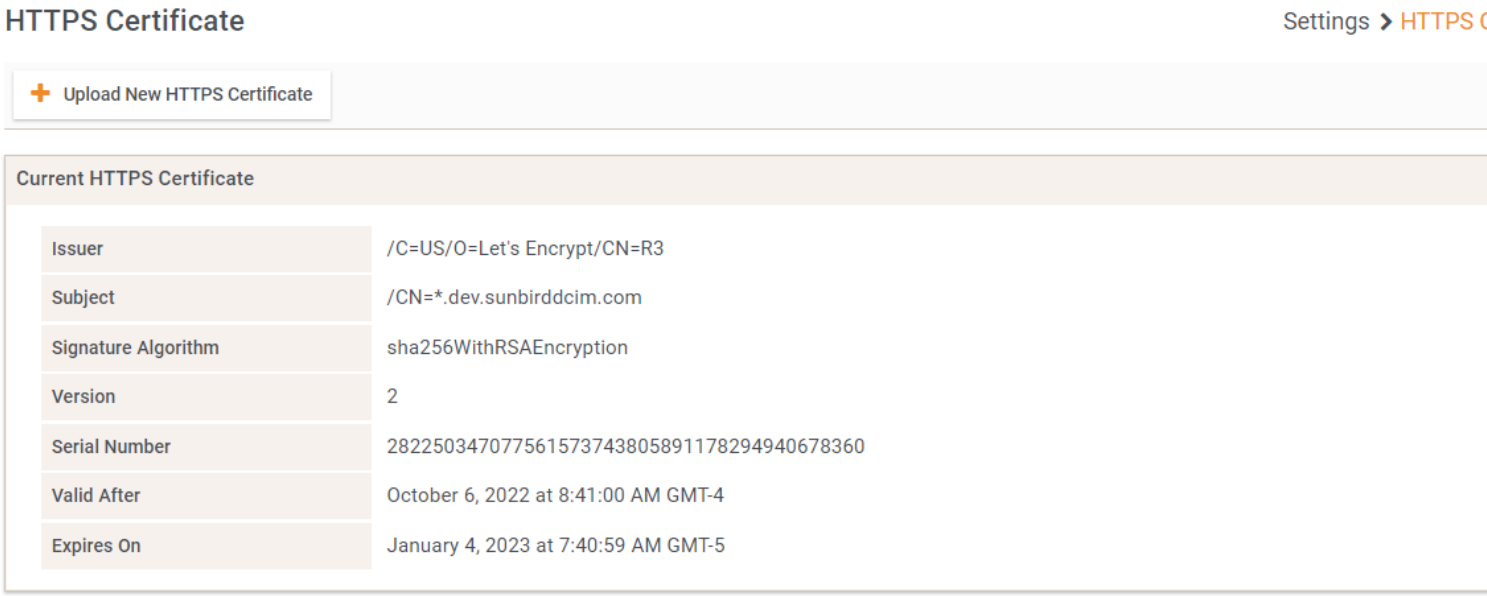


Note: Logos must not exceed 150 pixels wide, 48 pixels high, or 512 KB in size.

View or Install an HTTPS Certificate

A PEM file upload is required to replace the current certificate and private key. The PEM file needs to contain an RSA private key and an X.509 certificate.

To view the current HTTPS certificate or to upload a new certificate, navigate to Settings > Appliance Administration > HTTPS Certificate.



Note: dcTrack does not provide a Certificate Signing Request (CSR). OpenSSL or any other utility can be used to generate CSR. dcTrack does not use encrypted private keys. You must remove the password from the Private key before it can be used. To remove the encryption from the key, issue a command like: "openssl rsa -in server.key -out server2.key". Use "server2.key" when using openSSL utility.

It is not required to provide a root certificate of CA signing dcTrack certificate signing request (CSR).

Requirements for Certificates

After a review of the ciphers and key exchanges supported by dcTrack's web server, weak ciphers and those that didn't support Forward Secrecy were removed. The list of supported ciphers in dcTrack 9.1.0 is:

Protocol Cipher Suite Name (RFC) Key Exchange Strength

TLS1.3 TLS_AES_256_GCM_SHA384 x25519 256

TLS1.3 TLS_CHACHA20_POLY1305_SHA256 x25519 256

TLS1.3 TLS_AES_128_GCM_SHA256 x25519 256

TLS1.3 TLS_AES_128_CCM_SHA256 x25519 256

TLS1.2 TLS_ECDHE_RSA_WITH_AES_128_GCM_SHA256 x25519 256

TLS1.2 TLS_ECDHE_RSA_WITH_AES_256_GCM_SHA384 x25519 256

Step 1: Generate a Private Key

This example procedure is for generating a private key using OpenSSL on a Linux server.

1. This command creates an RSA key with Triple DES 2048 byte encryption.

openssl genrsa -des3 -out server.key 2048

2. Remember the key password from this command.
3. Generate a Certificate Signing Request. Be prepared to complete the following information:
   - private key password
   - two character country code
   - full state or province name
   - city name
   - company name
   - organizational unit or leave it blank
   - servers common name or fully qualified domain name
   - admin email address
   - other attributes can be left blank
4. Create the request.

openssl req -new -key server.key -out server.csr

5. Display the CSR request.

cat server.csr

6. Copy the CSR request and send it to the certificate authority to be signed. Make sure to copy everything between the first "-----" and the last "-----".
7. Submit CSR to certificate authority and receive signed X.509 certificate.
8. Modify the server key to remove the password

cp server.key server.key.secure

openssl rsa -in server.key.secure -out server.key

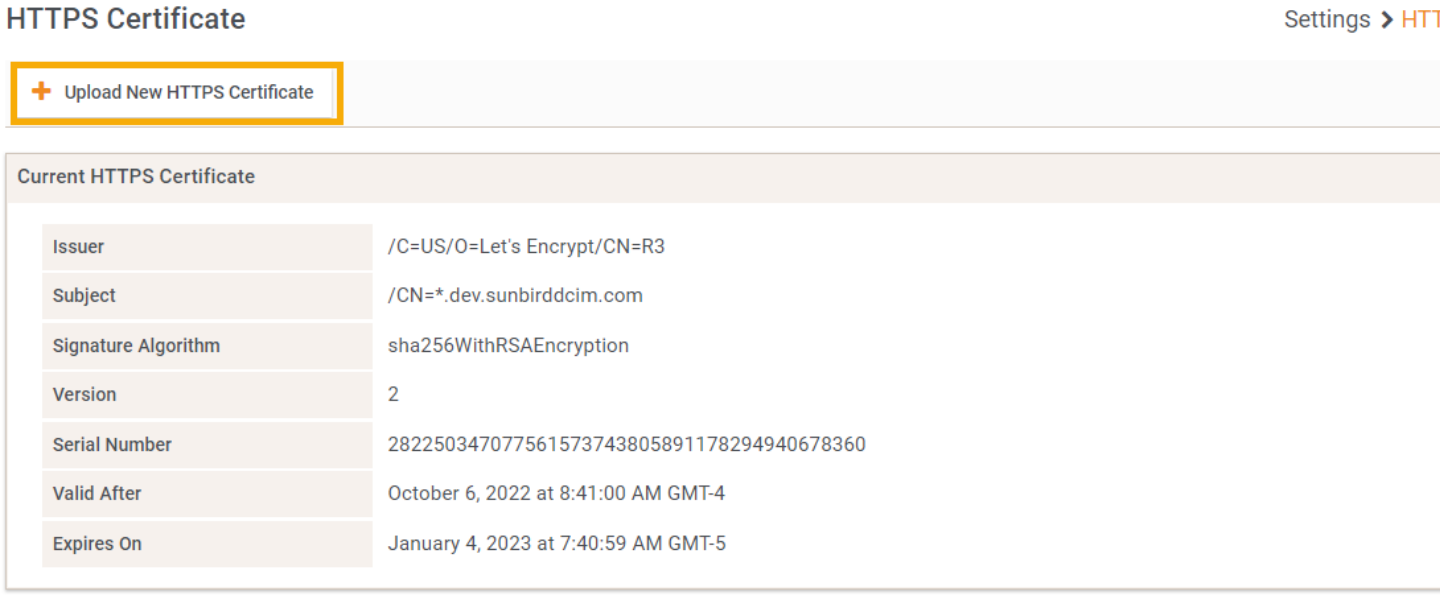
Note: The server.key file must be kept private and secure. If this key file is compromised, the certificate should be removed and then reissued.

9. Create PEM file.
   - The PEM file should contain both the RSA private key without password and the X.509 certificate.
   - Concatenate the unprotected private key to the signed X.509 certificate file from the top level certificate authority.
   - Use this file in the upload in Step 2.

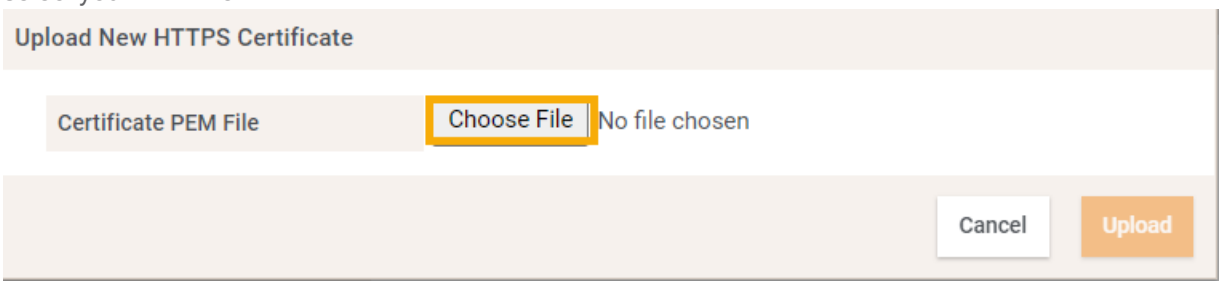
Step 2: Upload the PEM file to dcTrack

You may want to manually load the certificate in your browser first to prevent issues while everything loads and refreshes in dcTrack. If you see any issues, such as bad labels or a partially loaded UI, refresh your browser to resolve them.

1. In the Settings tab, click HTTPS Certificate in the Appliance Administration section. If uploaded, the current HTTPS certificate displays.
2. To replace the current certificate or to add a new certificate, click the Upload New HTTPS Certificate button. The Upload New HTTPS Certificate dialog displays.



3. In the Upload New HTTPS Certificate dialog, click the Choose File button to open the file selector dialog and select your PEM file.



3. Click the Upload button.

Restricting Web and Shell Access Based on IP Address

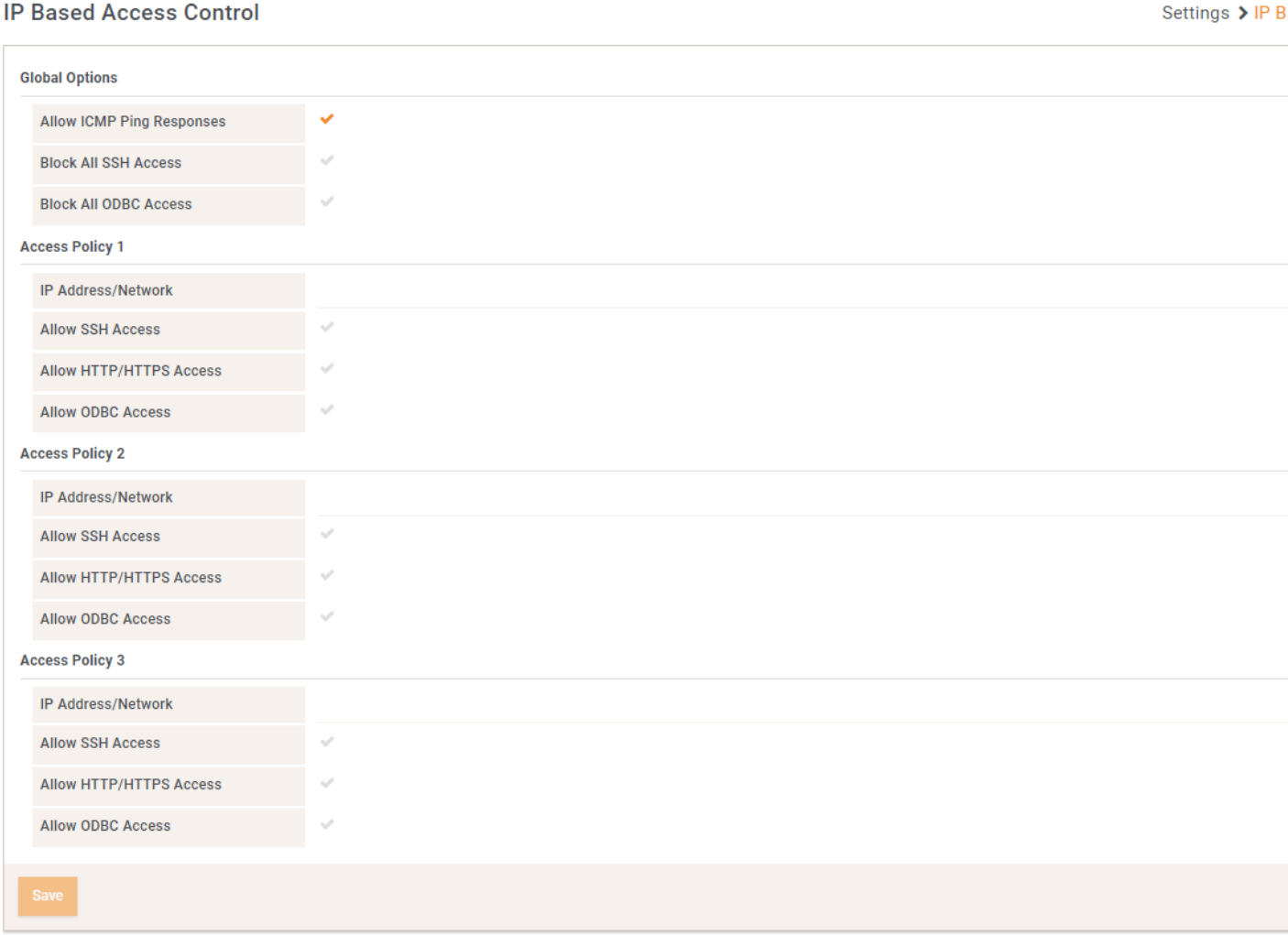
To increase security, dcTrack® can be configured to restrict web interface and SSH access by IP address.

When trusted hosts are specified, dcTrack blocks attempts to connect from addresses not specified.

When no hosts are specified, ports 22, 80, 443, 5432 are open to all hosts.

To restrict web and shell access:

1. In the Web Client, navigate to Settings > Appliance Administration > IP Based Access Control. The IP Based Access Control panel displays.



2. The global options will override any options that allow access to the SSH and ODBC service.
   a. Allow ICMP ping response
   b. Block all SSH access
   c. Block all ODBC access: See **Configuring ODBC Access to dcTrack**.
3. Identify the hosts to allow access to in the Access Policy fields.

   Note: You can enter an IP address, or a subnet using CIDR notation such as 192.168.45.0/24.

4. For each address, select how it is permitted to access dcTrack.

a. Select the Enable SSH to allow SSH access checkbox.
b. Select the Enable HTTP/HTTPS checkbox to enable access through the web interface

   Select Enable ODBC to allow third party access.

5. Click the Save button.

Configuring Proxy Connections to dcTrack

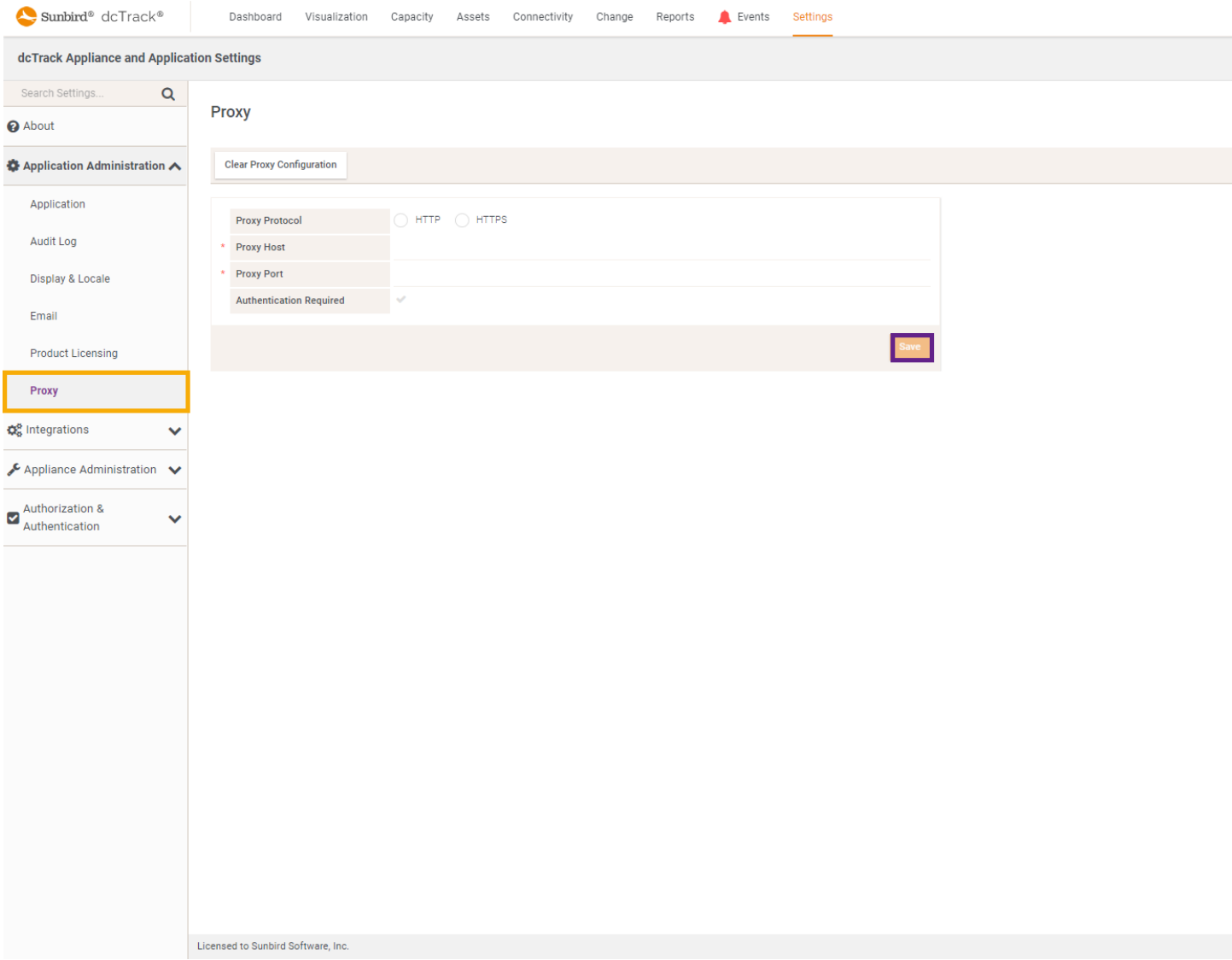
If network restrictions prevent some users from connecting directly to dcTrack, they may need access through a proxy server that is authorized to make the connection.

Check your firewall and security settings to ensure that communication between the proxy server and dcTrack is allowed.

To configure proxy connections to dcTrack:

1. In the Web Client, click Settings > Appliance Administration. The Settings page opens in a new browser window or tab.

2. Click Proxy in the Application Administration section.
3. Click Save to save your changes.



SMTP Server Settings

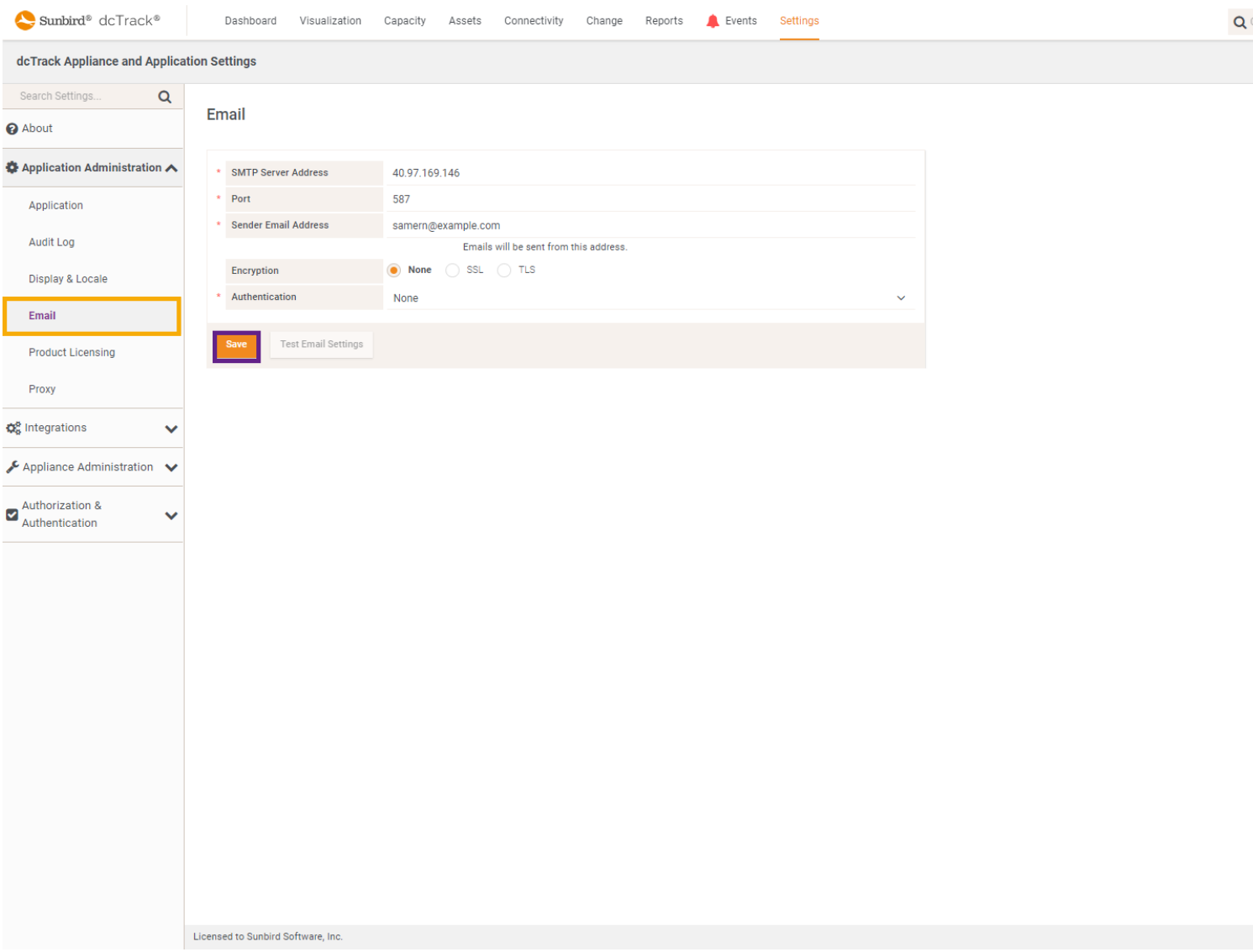
Configure the SMTP server settings to determine how email notifications are sent.

1. In the Settings tab, select dcTrack Settings > Appliance Administration >Email.
2. In the SMTP Server Settings panel, enter the basic settings for the SMTP server.
    - SMTP Server address: Enter the email server's domain name or IP address.
    - Port: The default port is 25. Change this number if you use a different port.
    - Sender email address: Enter the dcTrack's IP address or a designated email address.

- In the Authentication and Encryption Settings section, select the settings for your SMTP server.
- Authentication type: Select None or Password. If you select Password, enter the Username, Password, and Confirm password.

3. Select an Encryption method: None, SSL, TLS.
4. Click Send a Test Email to enter your email address and try sending an email message using the settings you configured. If you see a success message, click Save SMTP Settings.
5. If you see a failure message, edit your settings and try again. A password must be entered in the page to test the settings. Once saved, passwords do not display in the page for security.

**Note: dcTrack does not currently support SMTP through MFA/2FA. Office365 Users can utilize Microsoft Application Passwords to work around this case."*



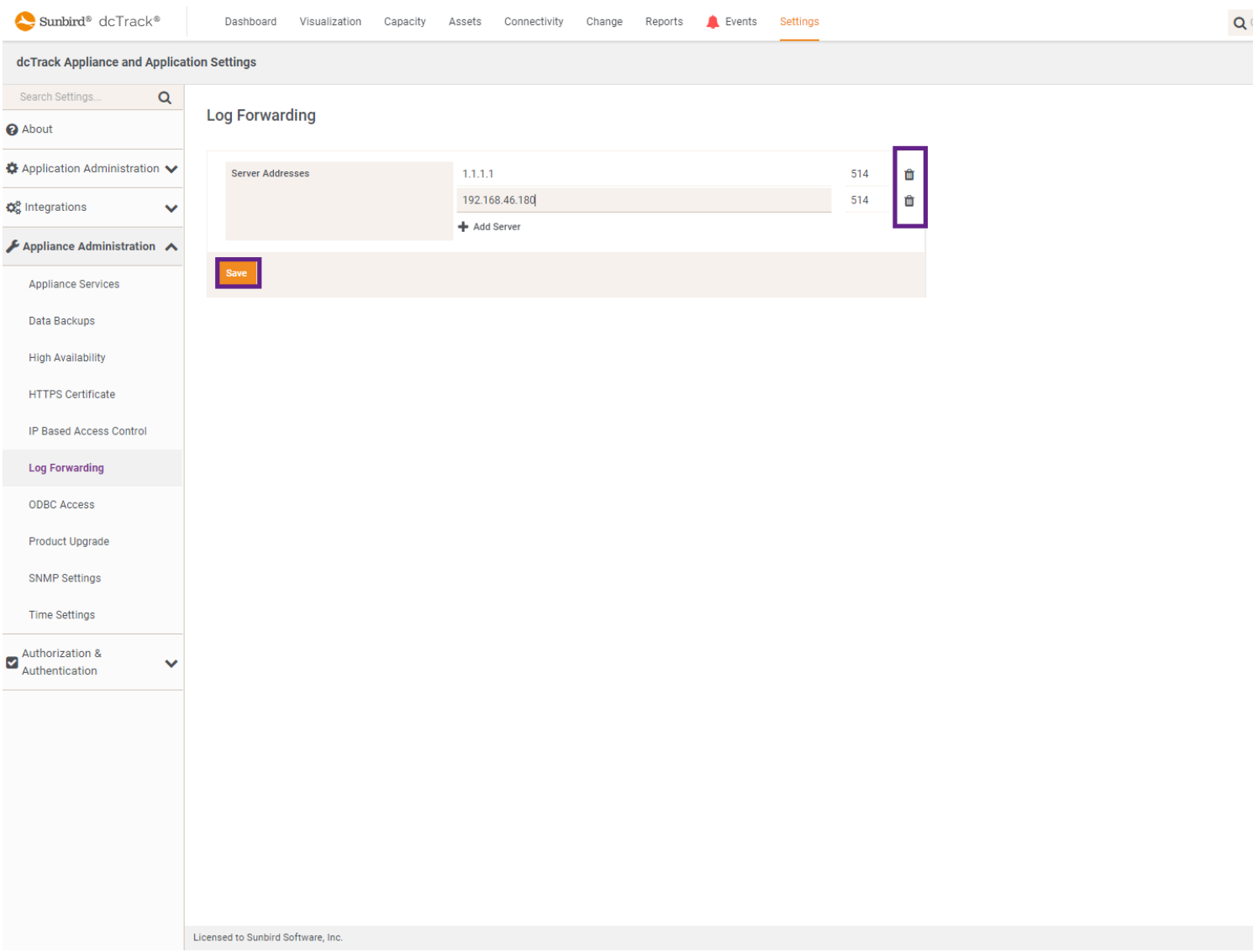
Configuring Logging through Syslog

External Syslog servers can be used to record events occurring on dcTrack. Using a Syslog provides a separate external log of events.

All servers listed under Current Syslog Destinations record events on dcTrack. Recorded events include new users, configuration changes, and failed login attempts.

To configure logging through Syslog:

1. Click Settings. The Settings page displays .
2. Click Application Administration .
3. Click Log Forwarding
4. In the Server Addresses panel, click Add Server, then type the IP address of a Syslog server in the IP or Host-name field. This must be in the form of a numeric address.
5. To stop a syslog server from recording events: Click the trash can icon next to the server you want to remove.
6. Click Save to save your changes.



Configure Remote Storage of Backup Files

We recommend that you configure a remote storage location for your system backup files to prevent data loss and to automatically store your back up archive files. All files that are not being actively written to are automatically stored on the configured server.

System configuration archives (system configuration backup files), including daily automatic backups and manually created backups, can be archived.

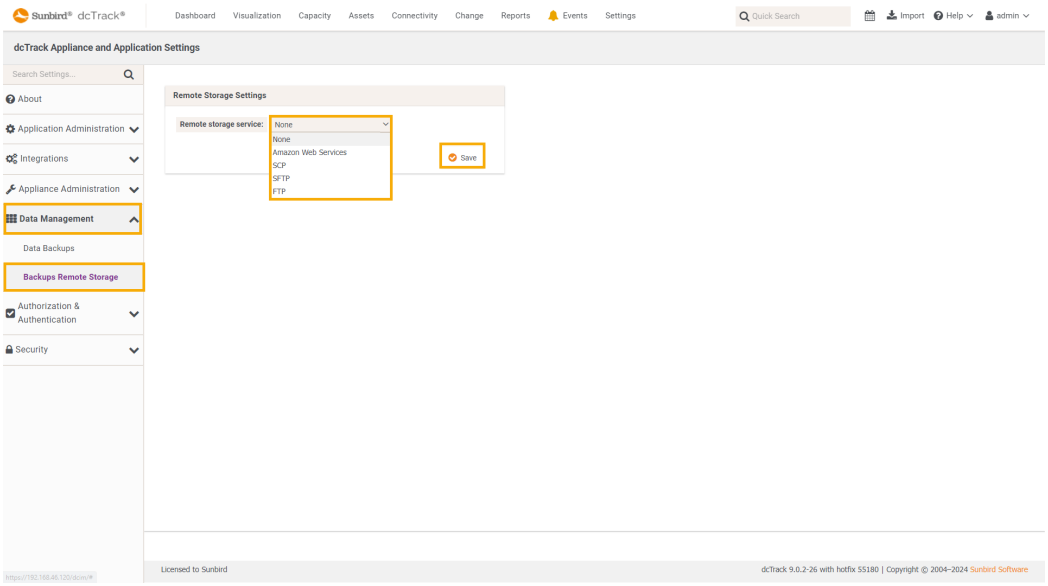
Before Using Remote Storage

- Ensure the server date and time is correct. If the date and time is not correct, dcTrack® may fail to send the backup files.
- If you are using Amazon's S3 account to store backup files, make sure dcTrack is configured with the DNS server, otherwise dcTrack cannot communicate with Amazon.

Procedure to Configure Remote Storage of Backup Files

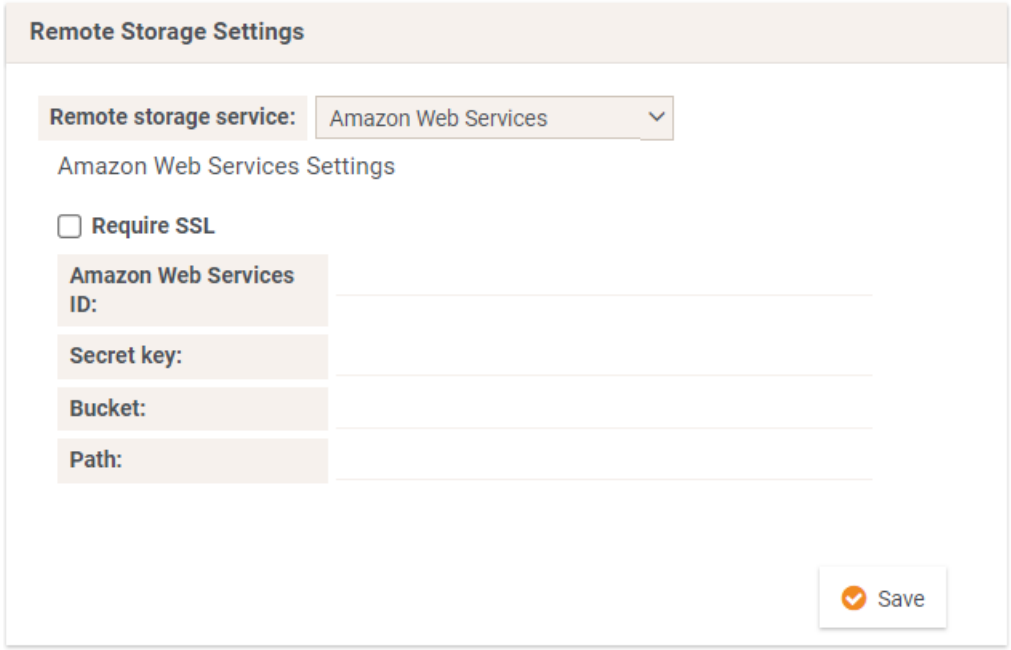
To configure remote storage of backup files:

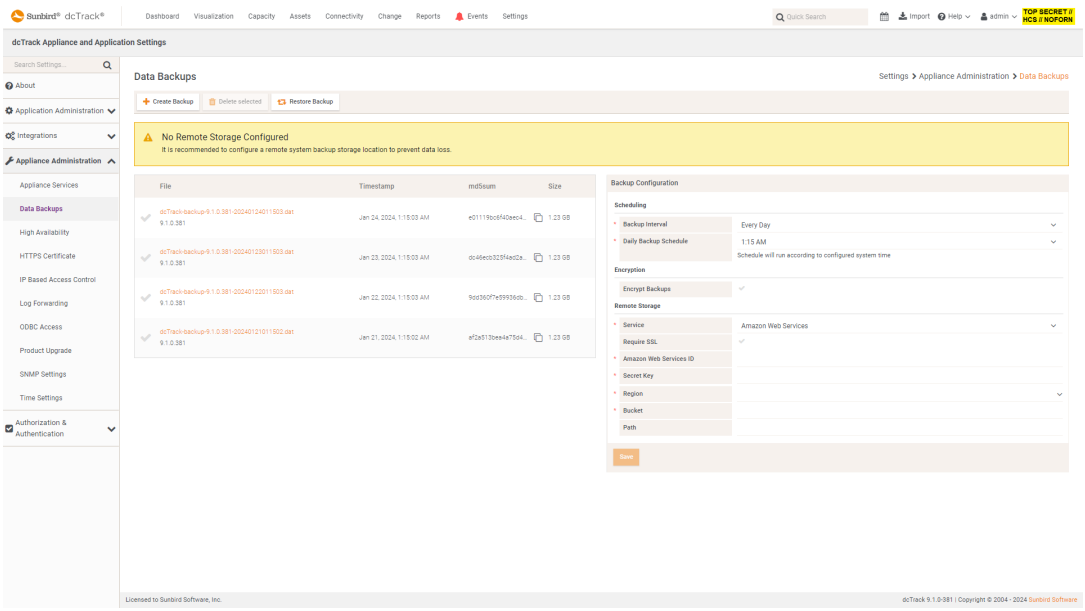
1. Navigate to Settings > dcTrack Settings > Appliance Administration> Data Management > Backups Remote Storage.



2. In the Remote Storage Configuration panel, select your remote storage service type from the drop-down. The panel updates with fields for additional information depending on your selected service
    - None: Stop automatic remote storage
    - Amazon Web Service

For AWS, you must provide the following information: Amazon Web Services ID, Secret key, Bucket and Path. You can also check the Require SSL checkbox to require SSL encryption.

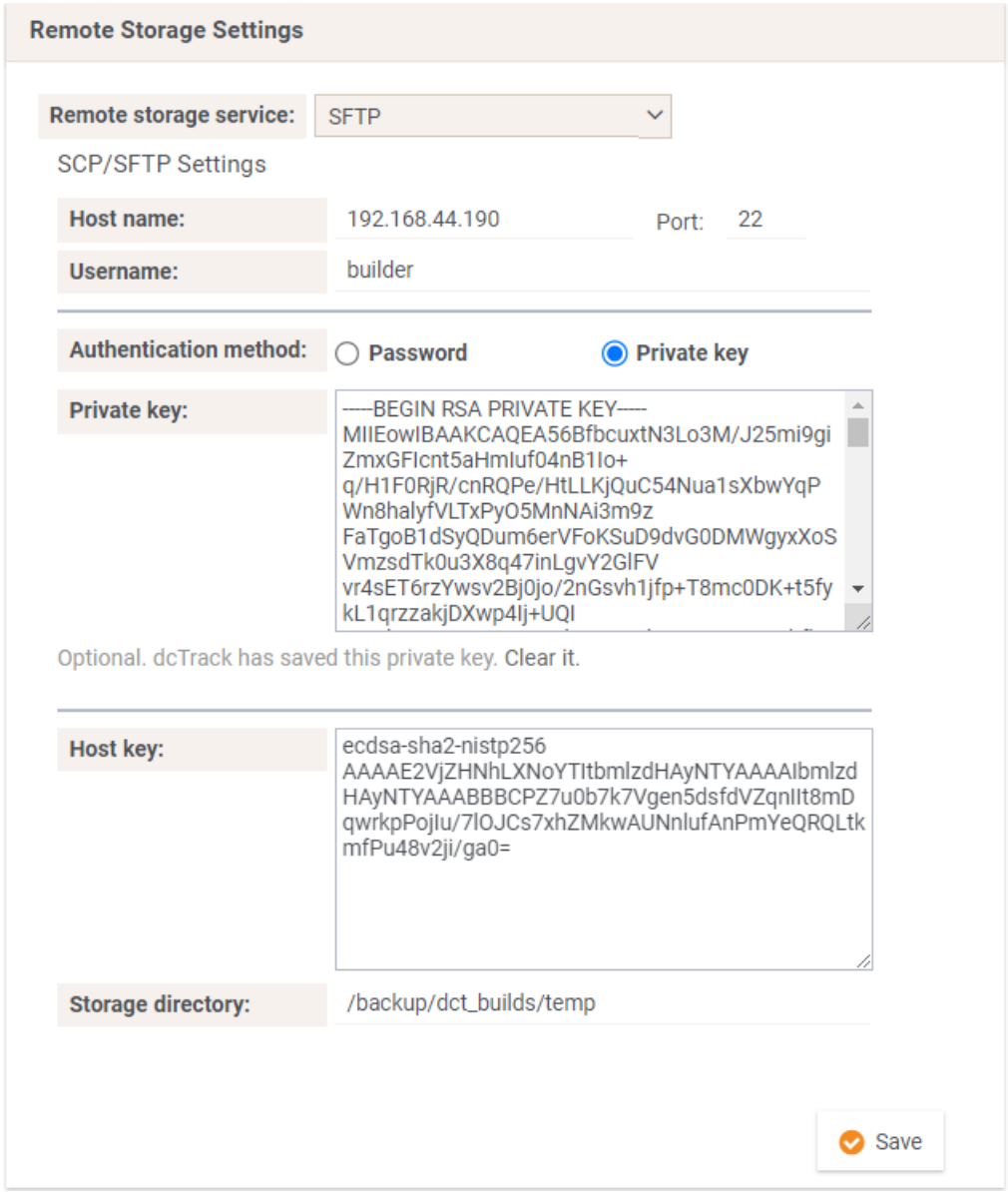




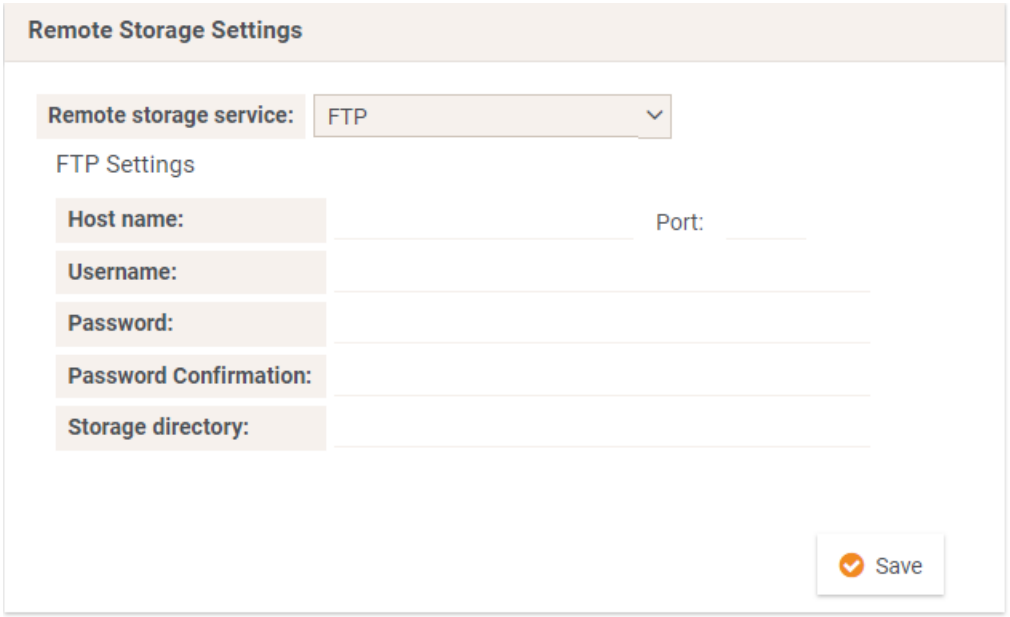
- SCP or SFTP

If you use SCP or SFTP you must have the remote servers public key. This allows dcTrack to connect to the remote server.

If you use user key authentication, then the private key is the user's private key. You need to create either an ed22519, DSA or RSA public and private key. Once you have a private key, you must also add the matching public key to the user's ~/.ssh/authorized_keys while adding the private key in the DcTrack's private key dialog box.



For FTP, simply provide the applicable Host Name, Port, Username, Password, Password Confirmation and Storage directory


Remote Storage Settings
Remote storage service:
FTP
FTP Settings
Host name:
Port:
Username:
Password:
Password Confirmation:
Storage directory:
Save

4. Complete the authentication and location information for your selected remote storage service.

5. Click Save.

The remote storage backup file does not immediately appear in the remote storage location since the file is scheduled to be transferred when the daily cron job runs.

Note: The remote storage settings page no longer displays the actual values for Private Key and Host Public. Instead, it shows the SHA-256 digest of the values.

Note: DSA certificates are deprecated in dcTrack 9.2.0. NIST has deprecated the use of DSA (Digital Signature Algorithm) because it is no longer considered secure. If you currently use a DSA certificate, dcTrack will continue to use it for securing HTTPS traffic. However, you can no longer upload these certificates via the web UI.

Recommended Number of Database Backups to Retain

Sunbird suggests you keep at least four (4) database backup copies at a time.

Note: Four backup files are kept in dcTrack by default.

Backup and Restore the dcTrack Database

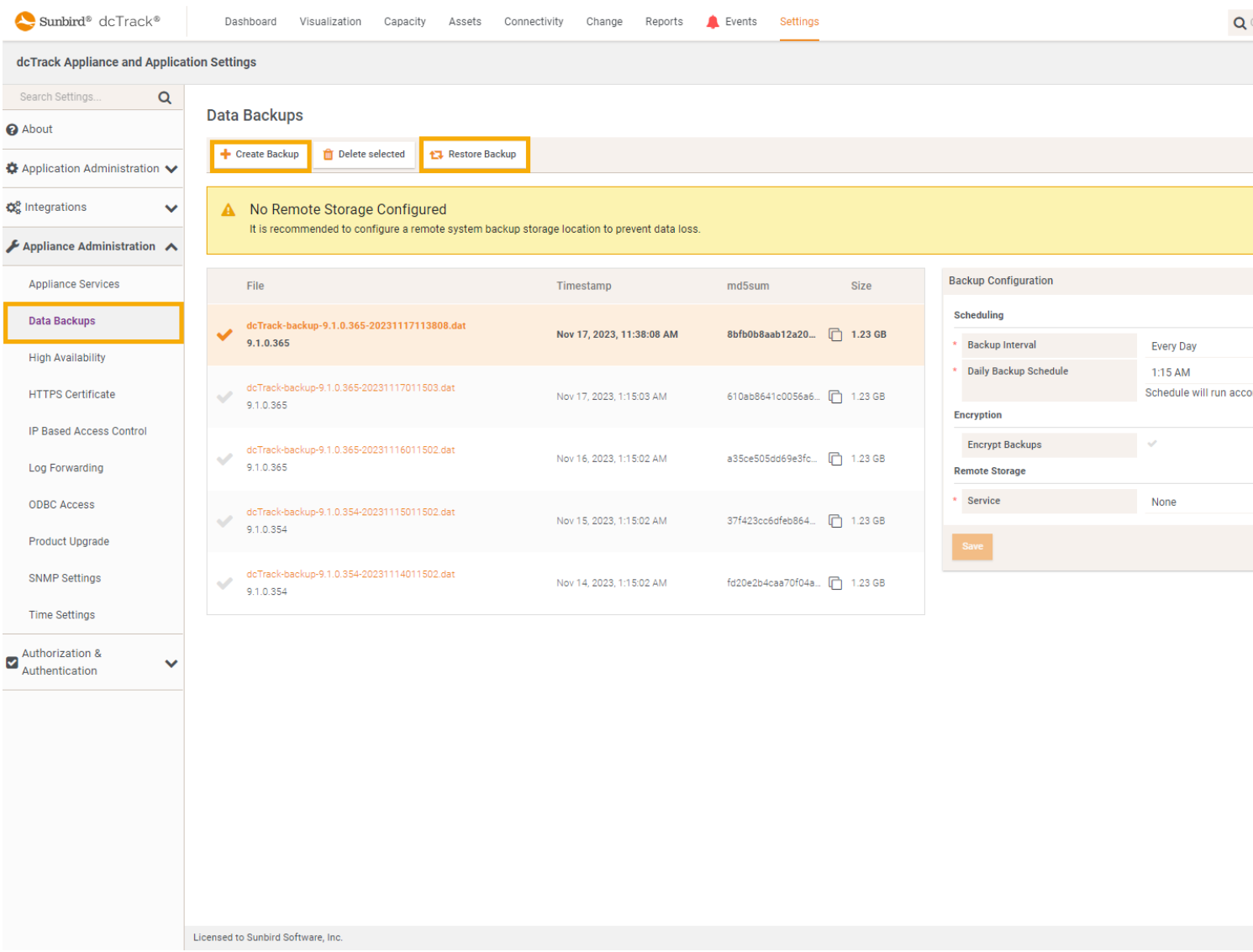
Backups of system data, users and configuration settings are automatically created every 24 hours.

Optionally, you can create a backup as needed by following the steps in this topic, or automating backups. See **Automated Database Backups**.

Use your dcTrack license in order to make a disaster recovery backup of your database, if needed.

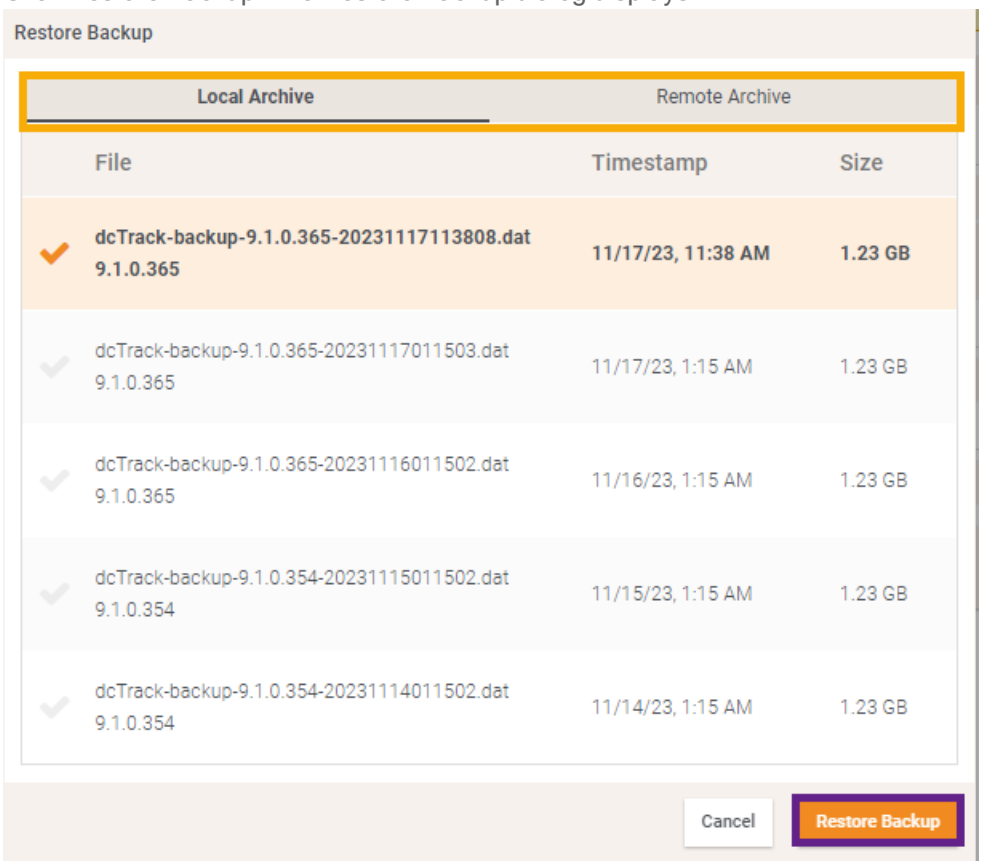
To back up or restore the dcTrack Database, navigate to Appliance Administration > Data Back Ups, where you can view and manage your backups.

To create a new back up, click Create Back up. The back up is generated and the backups list automatically updates. Local back ups are saved to your dcTrack system. dcTrack displays a Backup in progress status bar to show the status of a backup process.

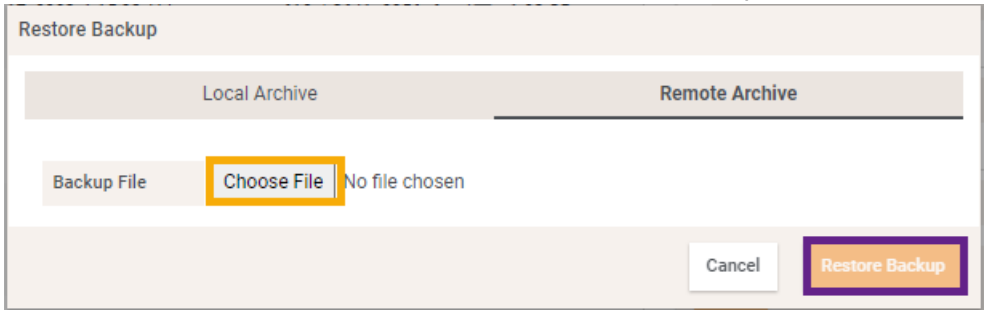


To restore a back up:

1. Click Restore Backup. The Restore Backup dialog displays



2. Select if you want to restore from a Local or Remote file.
3. If restoring from a Local file, select the file and then click Restore Backup
4. If restoring from a Remote file saved to your local machine, click Remote Archive.
5. Click Choose File to select the file and then click Restore Backup.



6. dcTrack displays a Restore in progress status bar to show the status of a restore process.

Minimize the Risk of Data Loss and System Downtime During Database Backup

When performing a dcTrack database backup, Sunbird suggests the following in order to minimize the risk of data loss and system downtime.

If you are running dcTrack from a virtual machine:

- Check with your virtual machine group to make sure your virtual instance is backed up.
- If the virtual machine is backed up, ask for the backup frequency and retention duration.

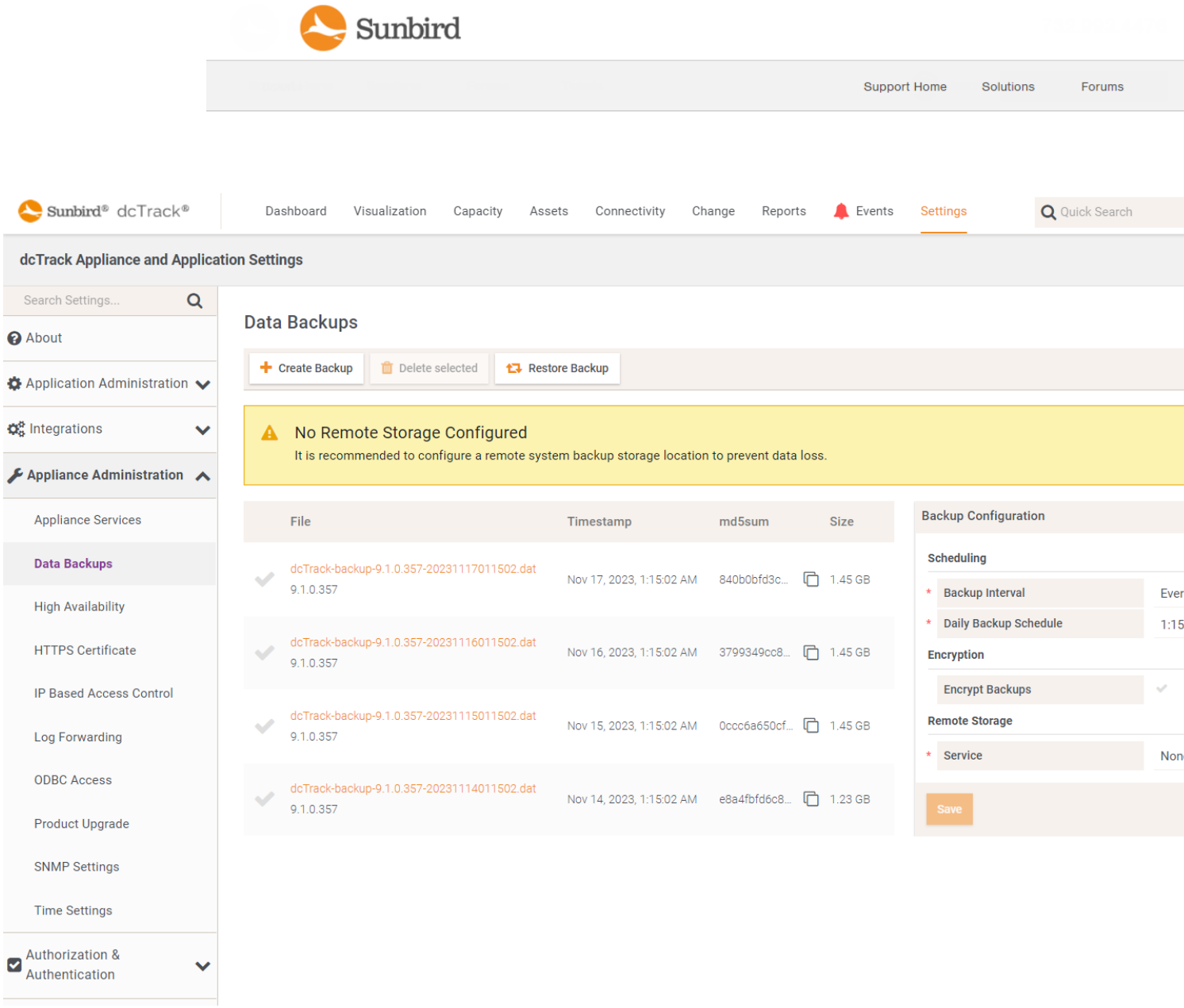
If you are running dcTrack on a hardware appliance or you do not want to rely on your virtual machine instance backup, Sunbird recommends:

- Set up your nightly back-ups so they are automatically moved to an FTP server, or manually move them to a local computer each day.
- Restore the back-ups to a recovery system on Monday, Wednesday and Friday each week. See **Restore a dcTrack Database from a Backup File**.
- Spot checking your standby system.

Note: Your dcTrack license permits you to have a recovery system at no extra charge.

Manually Back Up Your dcTrack Database

Backups of system data, users and configuration settings are automatically created every 24 hours or can be configured to run based on a user defined schedule (See Automated Database Backups). Optionally, you can create a backup as needed by following the steps in this topic.



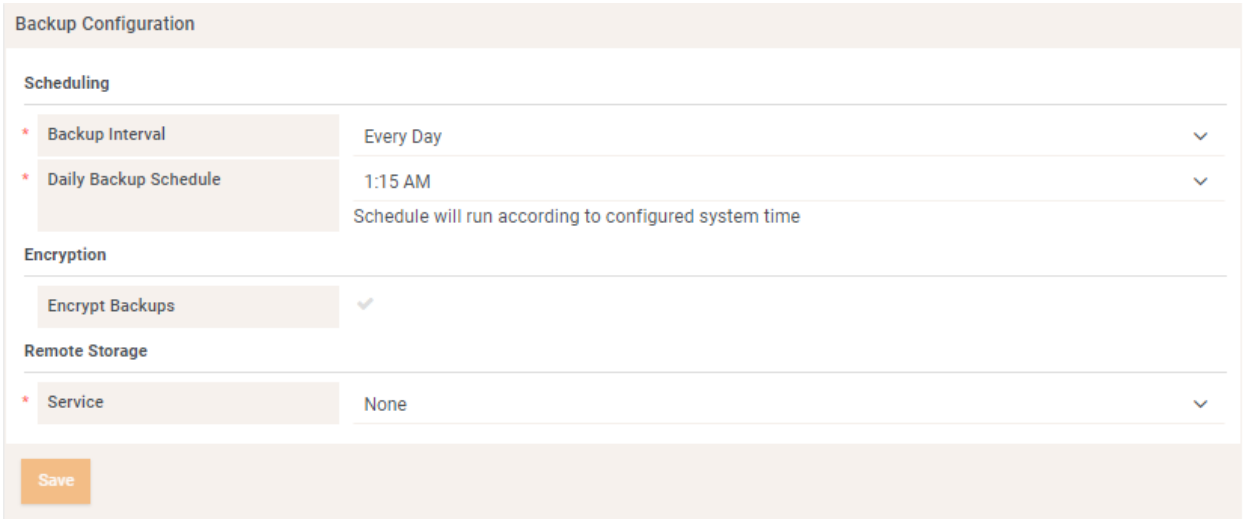
It is recommended that you manually back up your dcTrack database before upgrading or reinstalling dcTrack (to create a database backup file that you will use to restore your dcTrack data).

Use a dcTrack recovery license in order to make a disaster recovery backup of your database, if needed.

The Backup page contains a grid list of available archives with the following columns:

- File - Archive Filename (link to download archive file)
- Timestamp - Timestamp when the archive was generated
- md5sum - md5sum generated hash value. Click the folder icon to copy the hash value to your clip board
- Size - Size of the archive file

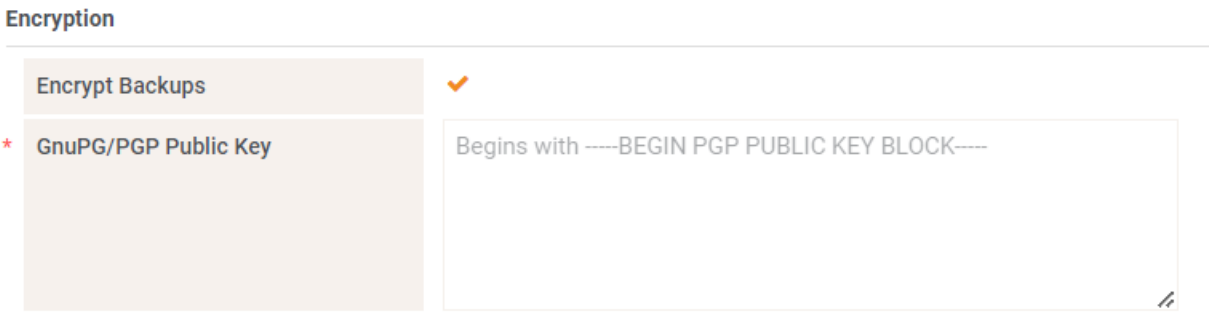
Backup Configuration

- Scheduling
  - Backup Interval - How often automatic backups should be run
    - Every Hour
    - Every 2 Hours
    - Every 4 Hours
    - Every 8 Hours
    - Every Day
  - Daily Backup Schedule - Time of day to begin the automatic backup
  - 

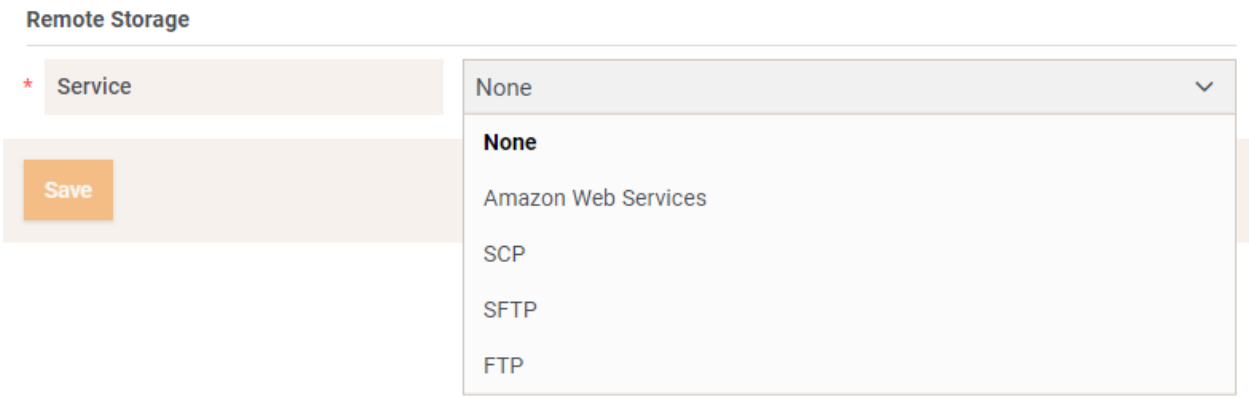
- Encryption

> *Note: dcTrack encrypts data backup files using a GnuPG/PGP public key that you generate. You can generate PGP Encryption Keys using free tools. Go to https://www.gnupg.org and look for a binary for your operating system on the Downloads page.*

- Encrypt Backup - Check if you want backups to be encrypted
  - If encrypting backups you are required to provide the GnuPG/PGP Public Key



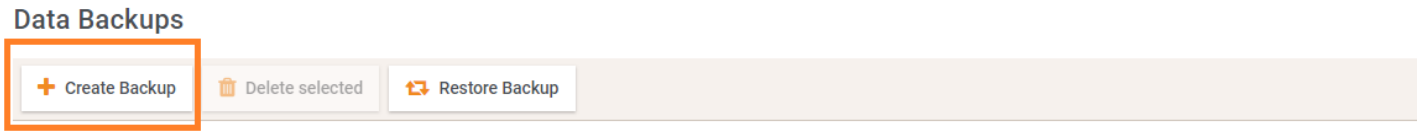
- Remote Storate
  - Service used for storing backups remotely.
  - Available Services include:
    - AWS
    - SCP
    - SFTP
    - FTP



  - You must supply the required configurations for each service type

To manually create a new Backup

1. Navigate to Settings > dcTrack Settings > Appliance Administration > Data Backups.
2. In the Backup Tool bar, click the Create button.



The file is created and added to the top of the list under Filename.

An MD5 file is also created along with the backup file for verification purposes.

Unless manually deleted, four days of backups are retained before they are deleted and no more than two backups are retained for any given day.

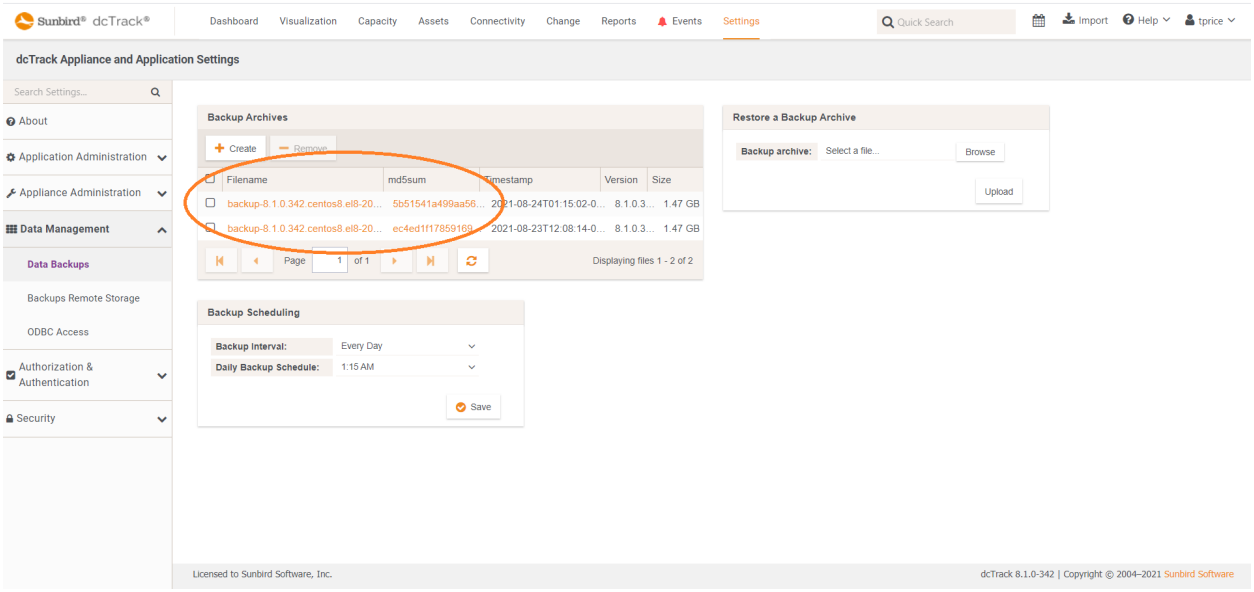
Verify the dcTrack Database Backup Files

After you create a backup database file, verify it is not corrupted.

dcTrack® 3.0.1 (and later) creates an MD5 file along with each dcTrack database backup file you create. Verify the integrity of the database backup file using the MD5.

To verify database files uses MD5:

1. In the Web Client navigate to , Settings > dcTrack Settings > Data Management > Data Backups
2. In the Backup Archives section, click on the link for the MD5 file you want to view or download. Save or open the file when prompted.

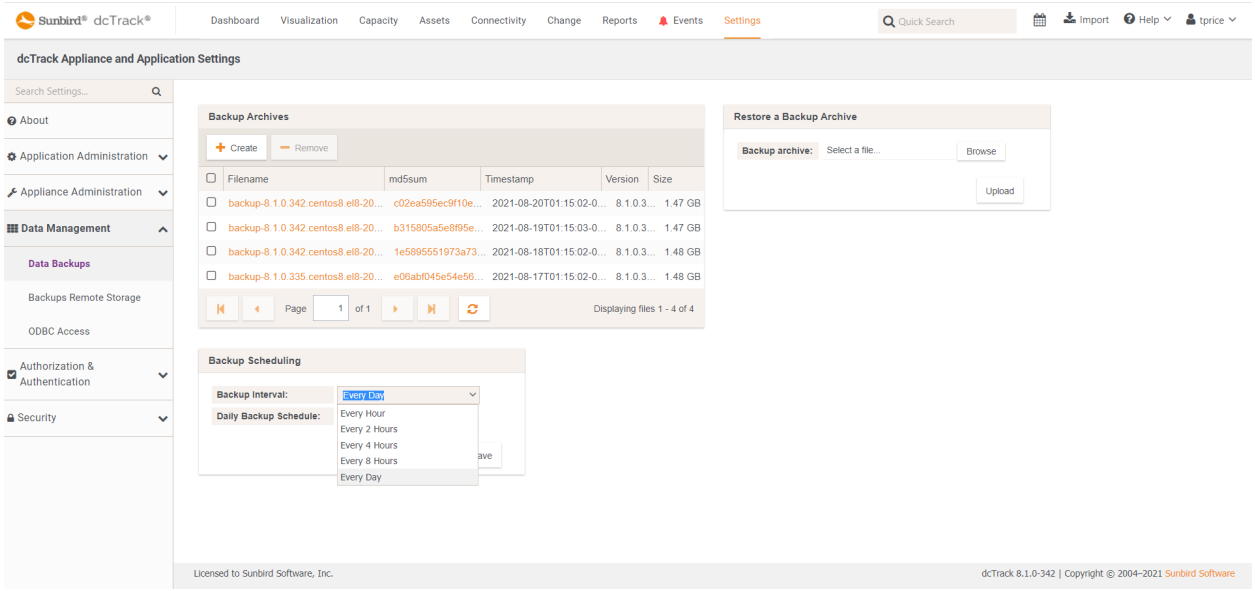


Automated Database Backups

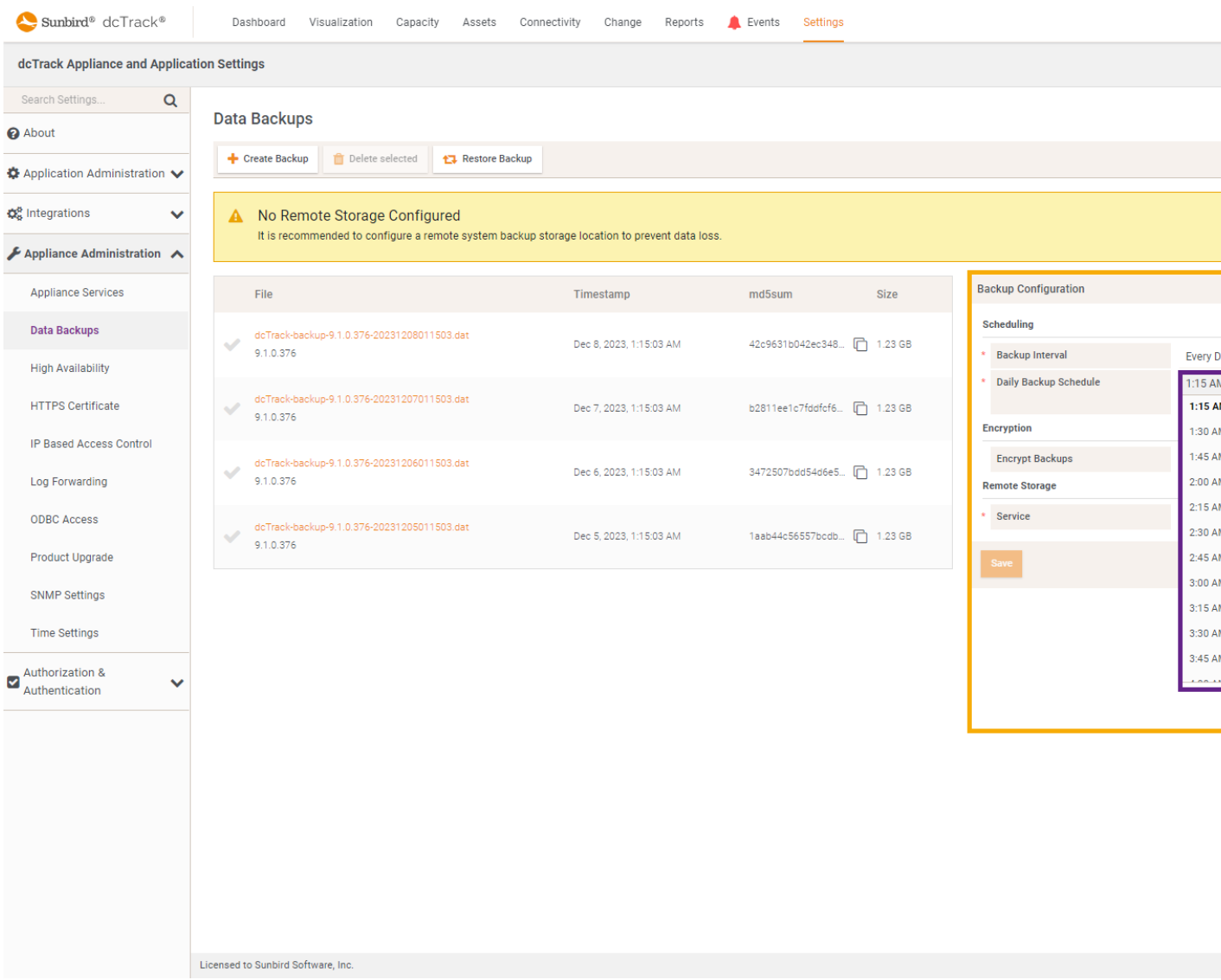
dcTrack provides the ability to schedule backups. Previously backups of system data, users and configuration settings were automatically scheduled and created every 24 hours. The backup feature now allows users to schedule backups to occur every hour, every 2 hours, every 4 hours, every 8 hours or every day.

Steps to schedule backups:

1. Navigate to Settings > Appliance Administration > Data Backups
2. In Backup Configuration Panel, select the desired interval



3. If the Backup Interval is "Every Day", select the desired time of day for backups to begin



4. Click Save to save your settings

Note: Backup intervals are based on Start Time, not End Time. For example if a backup is scheduled hourly and the backup begins at 1:00 and takes 15 minutes to run, the next backup will begin at 2:00 not 2:15. Additionally if a backup takes longer than the specified interval, the next backup is skipped. For example if the backup is scheduled hourly and begins at 1:00 and takes 75 minutes to run, the next backup will begin at 3:00.

Example of an Automated Database Backup Script

The script mechanism is independent of the share file system used.

Example using a Windows 7® machine:

1. Mount a CIFs share drive onto the Windows 7 machine using Windows Explorer®.
2. Open a Cygwin session on a Windows 7 machine.
3. Change directory to the mount share drive and directory
4. Execute:

curl -k --user [user name]:[password] https://[hostname]/admin/backups/latest >latest.dat

This downloads the latest .DAT (backup file) onto the share drive.

Restore a dcTrack Database from a Backup File

Note: This topic is specific to a general database restore.

For details on restoring your database after you reinstall dcTrack 4.0.0 when moving from a lower dcTrack version, see **Reinstalling dcTrack**.

Provided you created a backup file of your dcTrack database, you can use the file to restore your database.

Supported Backup File Versions

As a best practice, restore your database with a backup from the same version of dcTrack.

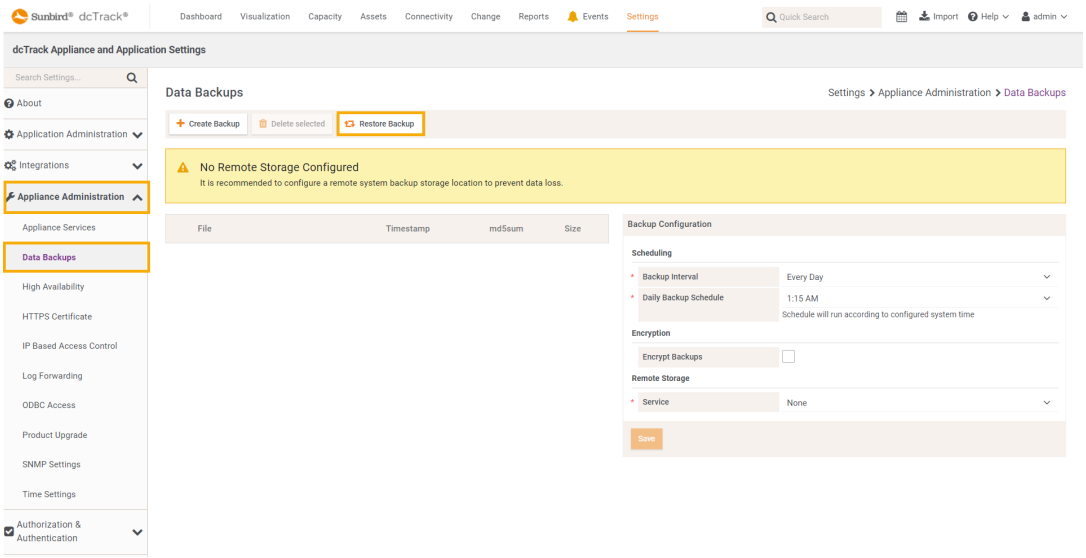
For example, restore a dcTrack 6.0.0 database with a dcTrack 6.0.0 backup file, restore a dcTrack 7.2.0 database with a dcTrack 7.2.0 backup file, and so on.

You can restore your database with a backup from an earlier version of dcTrack but the backup cannot be older dcTrack 3.1.0. Sunbird does not recommend doing this as standard practice.

Note: Since you cannot use a database backup file from dcTrack 3.0.1 and earlier, you must first upgrade to dcTrack 3.1.0 at a minimum. Follow the recommended upgrade process outlined in Upgrade Compatibility, and/or contact Sunbird Customer Support for assistance.

Note: Database versions prior to 7.0 can not be applied directly on dcTrack version 8.0.0. If you are running an earlier dcTrack version you must first upgrade to at least version 7.0 and then to 8.0.

1. In the Settings Tab, click Appliance Administration > Data Back ups
2. Click Restore Backup. The Restore Backup dialog box
3. In the Restore Backup dialog box, select your desired backup file.
4. Click Restore Backup



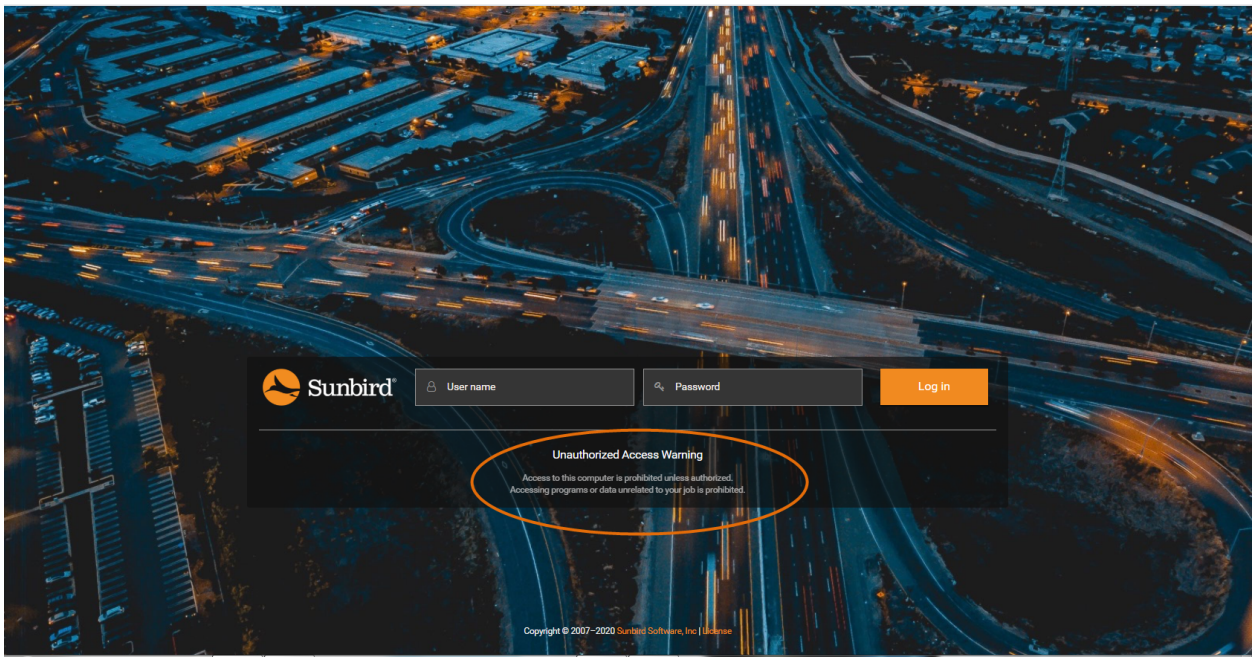
The amount of time it takes to restore your database depends on the size of your database.

Once the completed, dcTrack data and configuration settings are restored to the backup's configuration settings, and the server is rebooted.

5. Log out of dcTrack.
6. Important - Clear your browser's cache entirely, including all Temp files, cookies, favorites and so on, then close the browser. See your browser help for steps on clearing your browser's cache.
7. Reopen your browser and log back in to dcTrack to begin using the application.

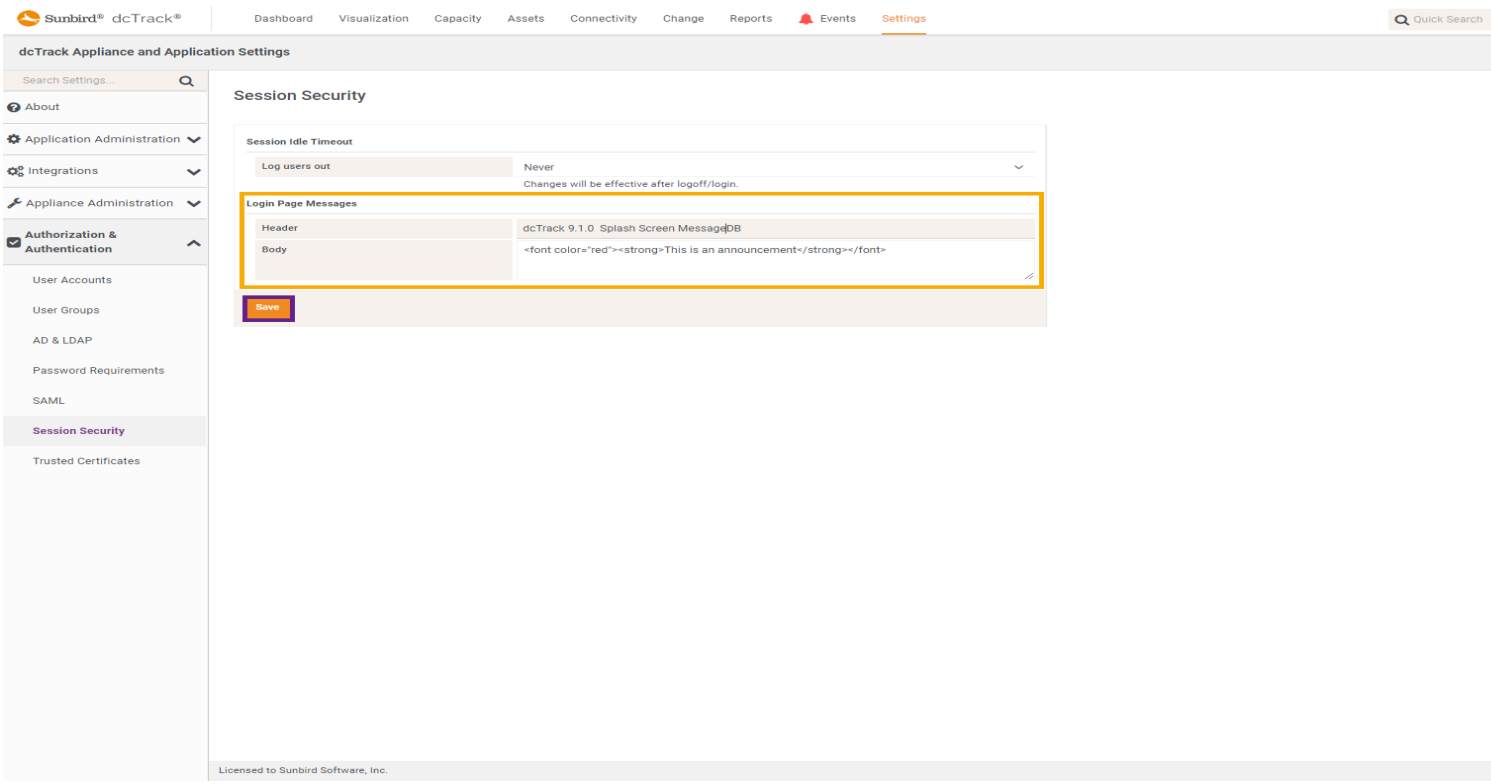
Change the Login Page/Splash Screen Message

You can change the default message that displays on the dcTrack login page, sometimes called the dcTrack splash screen, to a customized message.



To change the login page message:

1. Click Settings.
2. In the Login Page Message section. provide the Header and Body text.
3. You can use html tags for formatting.
    - Header: Text entered in this field displays on the login page in a bold font, as the heading to the message
    - Body: Text entered in this field displays in a normal font, as the main content of the message.
    - Allowed html tags: strong, em, a, font
    - Allowed html attributes: href, title, color
4. Click Save Message. Log out of dcTrack to return to the login page and view the message.



Import LDAP User Groups and Add Users Automatically

Important: This topic applies to users who are configuring remote LDAP authentication for the first time, meaning you are adding a new LDAP server and new users and/or user groups.

Note: dcTrack version 7.2.0 introduced support for One Time Passwords via LDAP. Prior releases required issuing 2 requests to authenticate a user, one to authenticate and one to gather the user's details. As a result the second request failed if the user was flagged with a One Time Password. In dcTrack 7.2.0 and beyond a single request is issued which will both authenticate the user as well as gathering the user's details.

However, you must take some additional steps to now move to remote LDAP authentication. For detai

About This Topic

This topic walks you through gathering server information, adding the LDAP server, configuring general server settings and sync settings in dcTrack, as well as searching for and adding users and/or user groups.

This topic also describes enabling and disabling LDAP in dcTrack, and how to delete an LDAP server.

An Active Directory server section and LDAP server section are provided since the information you need to gather and the steps vary slightly.

Overview

System Administrators can use LDAP and/or Active Directory (AD) in to automatically add and manage users and/or user groups in dcTrack. This is an alternative to local authentication, or manually adding and managing LDAP users. See **Local User Authentication** and **Manually Add and Manage Users and Groups via LDAP or Active Directory (Search)**, respectively.

Unlike manually adding LDAP users, you can add both users and user groups with this feature.

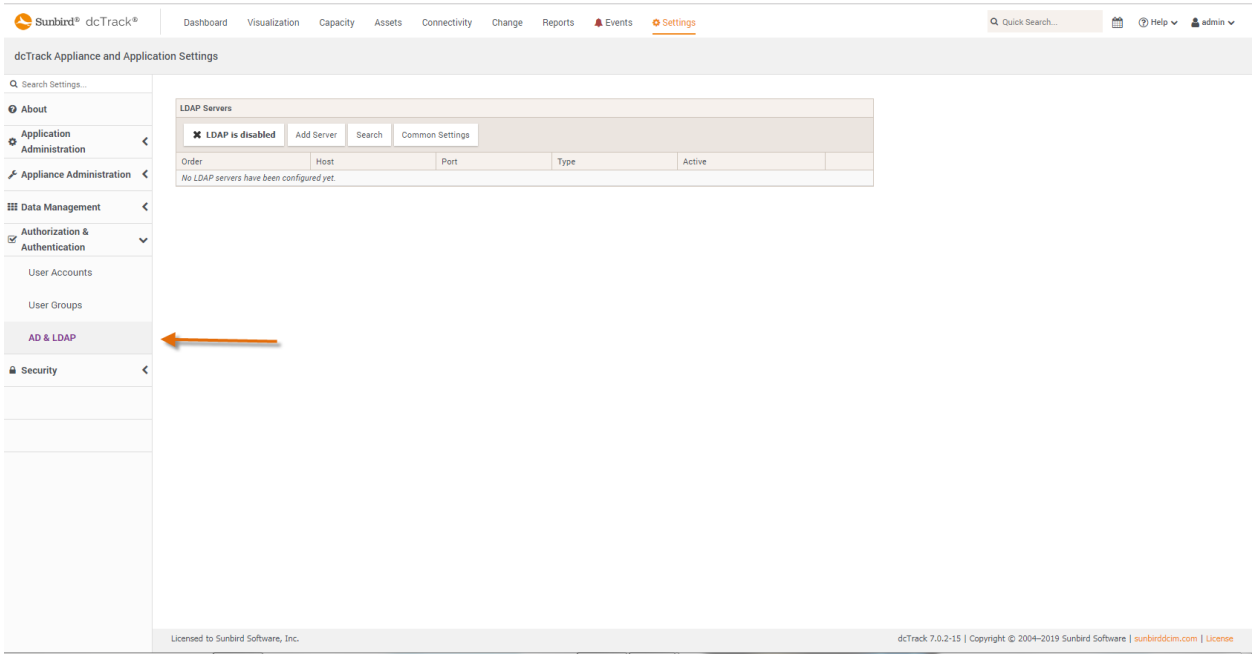
Additionally, changes to individual users and user groups on the remote LDAP server are automatically reflected in dcTrack. Syncs are performed at intervals you configure in dcTrack's Common Settings.

For example, if you change a user's email address on the LDAP server, once a sync occurs, the address is changed in dcTrack. Another example would be when you add a user to an LDAP user group. Once the user is added to the user group, the user is automatically added to dcTrack with the same permissions as the other members in the group.

Access LDAP Settings Page

All of the following actions are accessed from the LDAP Servers page. The LDAP Servers page is accessed from the Settings tab.

1. Navigate to Settings > dcTrack Settings > Authorization & Authentication > AD & LDAP to open the LDAP Servers page.



Gather Active Directory and LDAP Server Configuration Information

You need the information listed below in order to configure Active Directory and/or LDAP servers in dcTrack. You should gather this information before beginning the add server process in dcTrack.

Two worksheets are provided below: one to help you gather Active Directory information and another to help you gather the LDAP information. Use the worksheet that applies to your needs.

If you are not familiar with this information, ask your LDAP Administrator to help you gather it.

Microsoft® Active Directory Server Information

Server Domain (for Active Directory), or server hostname or IP address:							
Port encryption type:	☐	TLS	☐	SSL	☐	No Encryption	
Port - encrypted defaults to Port 636, no encryption defaults to Port 389, but the port can be changed.				Other (if applicable):			
The Bind type of the server:	☐	Standard Bind	☐	Configure Anonymous Bind			
The Base DN (this is where the search for users starts):							
Base DN Login Name Attribute:	☐	sAMAccountName (default)	☐	Other (if applicable):			
Search Filter (if applicable):							
Search scope object filters (if applicable, choose one):	☐	The Base DN and one level below the Base DN. ("One" is the option in GUI.)	☐	The Base DN and the entire subtree below. ("Subtree" is the option in the GUI)			
Search cre-	☐	No search credentials; user credentials provided	☐	Anonymous	☐	Admin cre-	

Microsoft® Active Directory Server Information

dentials (choose one):		at login are used					dentials
Admin DN and Admin pass-word, if search scope requires Admin cre-dentials.		Admin Credentials:			Admin Pass-word:		
Group search DN (if applicable):							
Group ID attribute, such as name (if applic-able):	☐	sAMAccountName (default)	☐	Other:			
Group member attribute (if applic-able):	☐	Member (default)	☐	Other:			
Group search fil-ter:	☐	(objectClass=group) (default)	☐	Other:			

LDAP Server Information

Server Hostname or IP Address:	

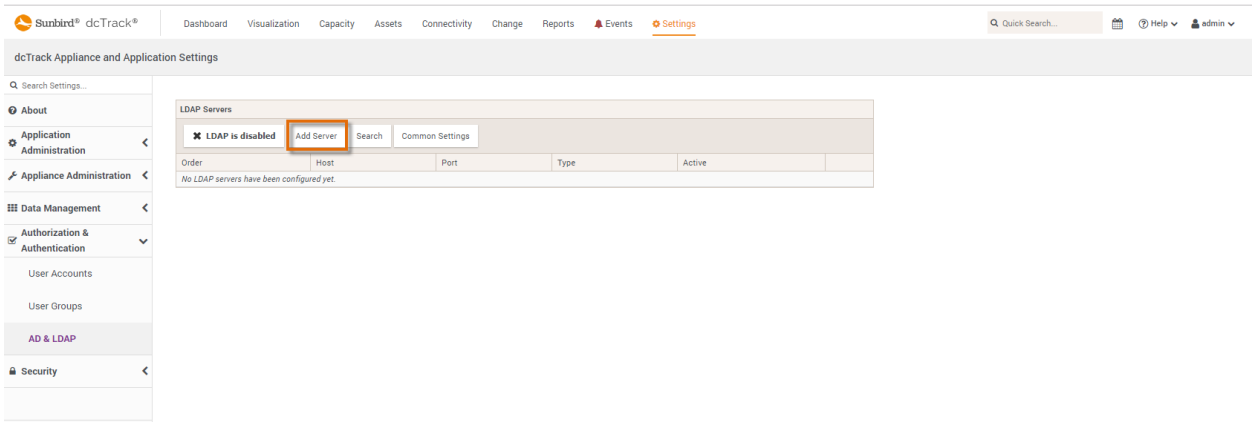
LDAP Server Information

Port Encryption Type:	☐	TLS	☐	SSL	☐	No Encryption	
Port - encrypted defaults to Port 636, no encryption defaults to Port 389, but the port can be changed.				Other (if applicable):			
The Bind Type of the server:	☐	Anonymous Bind	☐	Standard Bind			
The Bind Base DN (this is where the search for users starts):							
Login Name Attribute:	☐	uid (default)	☐	Other:			
Search Filter (if applicable):							
Search Scope (if applicable):	☐	The Base DN and one level below the Base DN. ("One" is the option in GUI.)	☐	The Base DN and the entire subtree below. ("Subtree" is the option in the GUI)			
Search Credentials (choose one):	☐	No search credentials; user credentials provided at login are used	☐	Anonymous	☐	Admin credentials	
Admin DN and Admin password, if search requires Admin cre-		Admin Credentials:			Admin Password:		

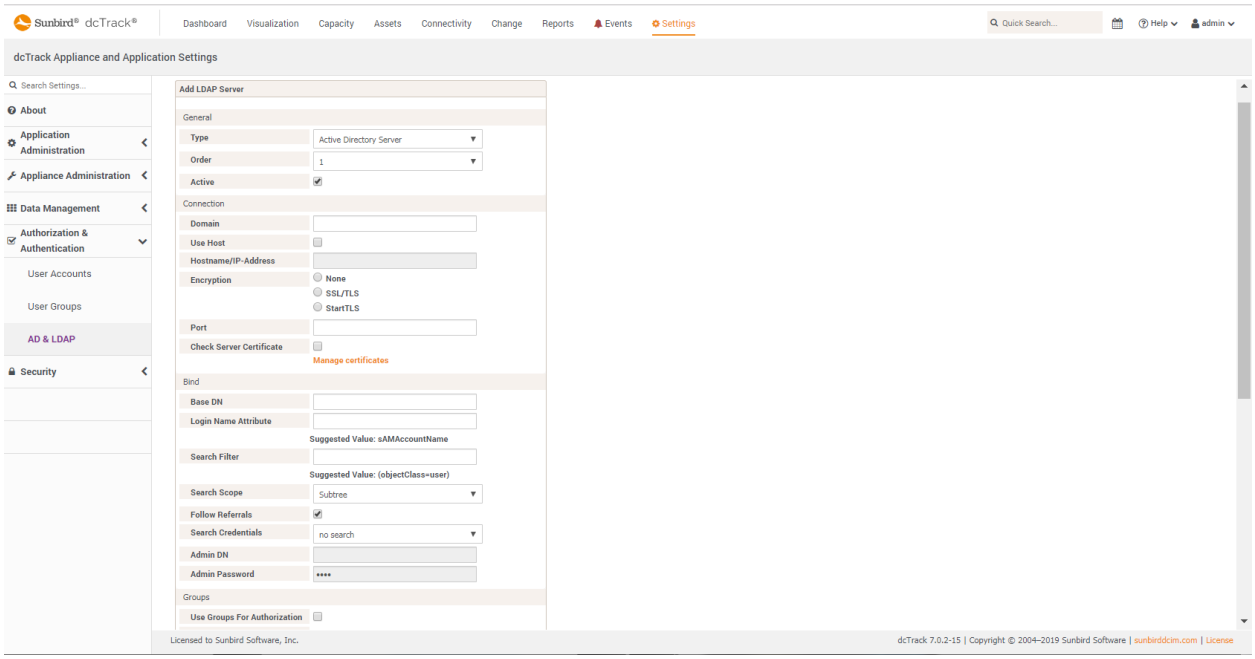
LDAP Server Information					
dentials:					
Group search DN (if applicable):					
Group ID attribute.	☐	gidNumber (default)		Other:	
Group member attribute (if applicable):	☐	memberUid (default)		Other:	
Group search filter:	☐	(objectClass=posixGroup) (default)		Other:	

Add a Remote Server

1. Click Add Server on the LDAP Servers page.



The Add LDAP Servers page opens.



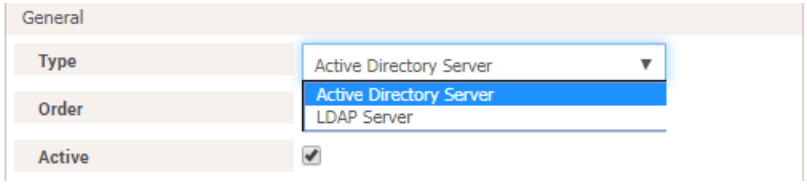
Complete the fields in each section that apply to your specific needs. Use the configuration information you gathered earlier to complete each section.

Note: Configuration settings vary slightly between Active Directory and LDAP.

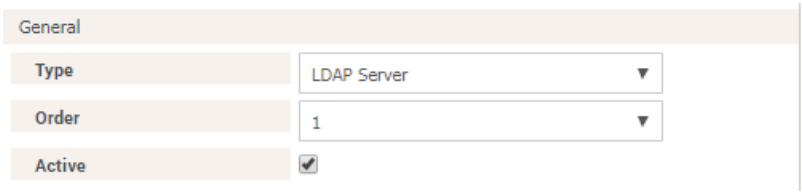
Active Directory Server Configuration in dcTrack

General Information

1. Select Active Directory Server as the server type.



2. Select the order in which the server will be listed in the LDAP Servers table. This dictates the order in which dcTrack communicates with the servers when multiple servers are configured.
3. Select the Active checkbox to enable the server, or leave it deselected and return to activate it at a later time. It must be active in order to be in use.



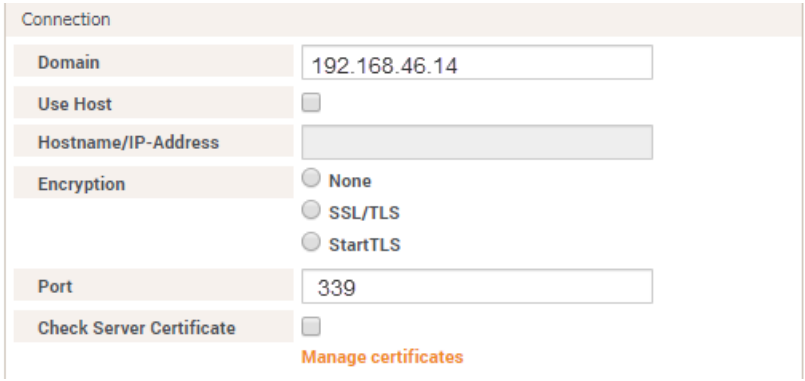
The information you enter in the remaining sections is specific to the server type you are configuring: either Active Directory or LDAP.

For this reason, Active Directory and LDAP settings are broken out into two sections on this page: Active Directory Server Configuration in dcTrack and LDAP Server Configuration in dcTrack

Scroll down the page to view LDAP setting instructions.

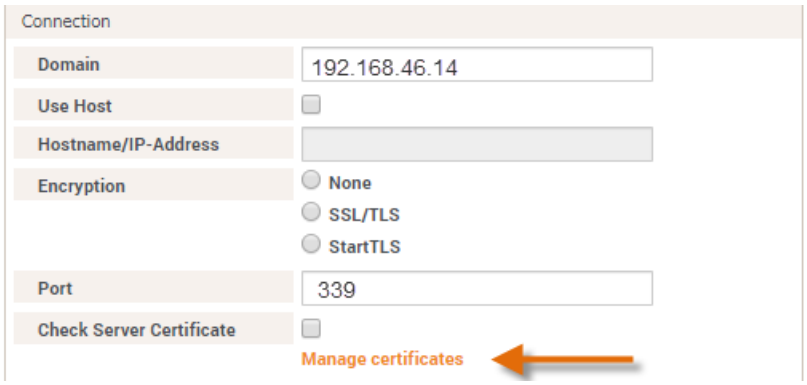
Connection Information

4. Domain - applies if Active Directory only. The domain name of the server.
5. Use Host - select if you want to use a specific hostname or IP Address to access the Active Directory server.
6. Hostname/IP Address - enter the Active Directory server's hostname or IP address if Use Host is selected.
7. Use TLS/SSL - select if using TLS/SSL encryption.
8. Port - the default is Port 389 if TLS/SSL encryption is not enabled, and Port 636 is the default if TLS/SSL encryption is enabled. The port number can be edited to a different value, if necessary.

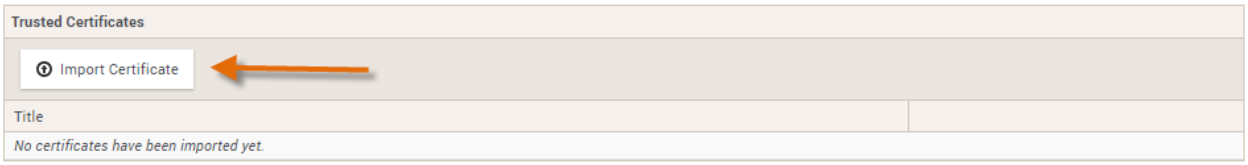


(Optional) Manage Certificates

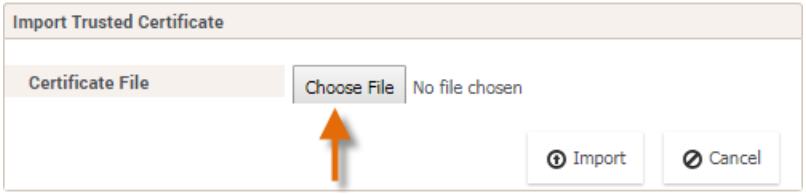
9. If you need to validate certificates, select Check Server Certificate.
10. Next, click the Manage Certificates link to open the Trusted Certificates page. The certificate needs to be PEM format to upload.



11. Click Import Certificate to open the Import Trusted Certificate page. The certificate needs to be PEM format to upload



12. Click on the "Choose File" text box to open your browser to locate the certificate, then click Import to import the certificate.



You can use the Back button in your browser to return to the Add LDAP Server page.

Bind Information

The information entered here identifies where searches are performed to locate users on the server.

13. Base DN - specify a Base DN (directory level/entry) under which the authentication search query will begin. dcTrack can do a recursive search downward from this Base DN..

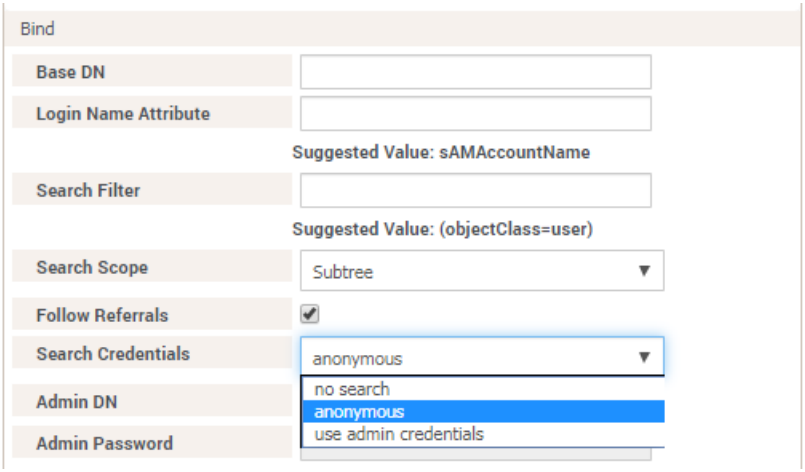
For example, depending on the scope of the search, if the Base DN is dc=sunbird,dc=com, the search query for the user entry will be made over the whole directory structure.

If the Base DN is cn=Administrators,cn=Users,dc=sunbird,dc=com, the search query will begin in the Administrators subdirectory (entry).

14. Login Name Attribute - the login name that corresponds to the server type. The default for Active Directory is sAMAccountName.

15. Search Filter - enter a user's attributes in this field if you want the search query to be restricted to only those entries that meet the criteria. The default for Active Directory is (objectClass=user).

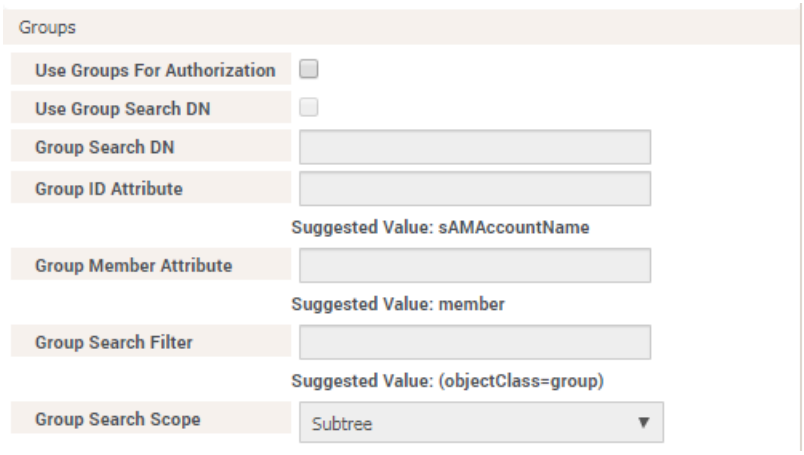
16. Search Scope - level of the server directory to look for users; either the Base DN and one level below the Base DN, or the Base DN and the entire subtree below.
17. Follow Referrals - select this option to allow the dcTrack LDAP client to follow referrals provided by the LDAP server if referral objects are encountered.
18. Search Credentials:
    - Leave "no search" to use the credentials provided by the user on log in.
    - Select "anonymous" if no credentials are required.



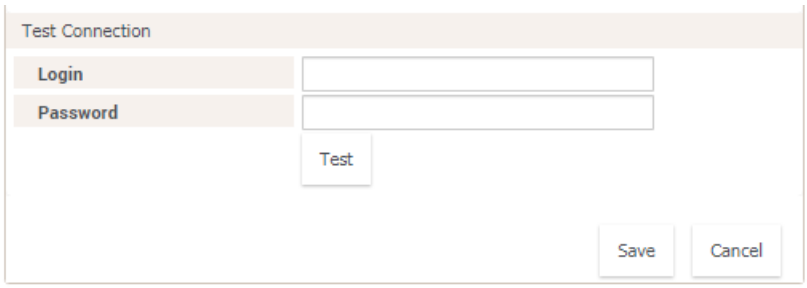
    - Select "use admin credentials" and enter the admin user credentials in the Admin DN and Admin Password fields. The admin credentials will be used for the service account when conducting searches.

Groups Information

19. User Groups for Authorization and Common Setting – 'Sync Group Members' will be used to enable the ability to automatically add and manage users from imported user groups.
20. Use Group Search DN - select to specify the group DN to search. Select this option if the group DN search is different than the search used for users.
21. Group Search DN - this is where the search for the user group will begin in the directory.
22. Group ID Attribute - the default for Active Directory is sAMAccountName.
23. Group Member Attribute - the default for Active Directory is member.
24. Group Search Filter - the default for Active Directory is (objectClass=group).
25. Group Search Scope - level of the server directory to look for groups; either the Base DN and one level below the Base DN, or the Base DN and the entire subtree.

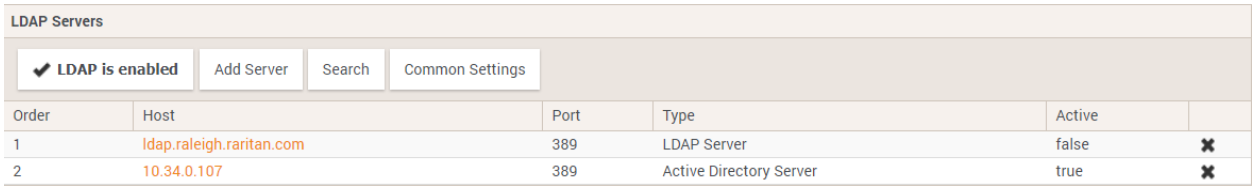


26. Optional Test Connection is to test with an account. If you have a known, valid test account to use to test the server setup, you can test from here without having to try to login with that account.



27. Click Save to save the settings and add the server.

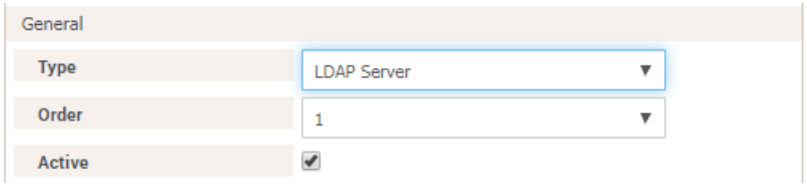
Once added, the server is listed on the Add LDAP Server page.



LDAP Server Configuration in dcTrack

General Information

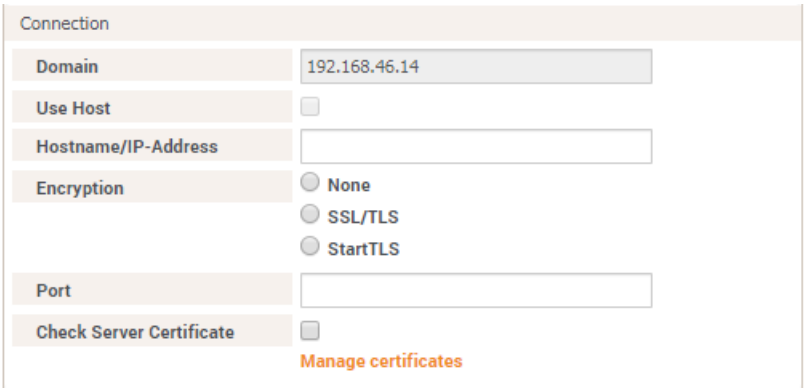
1. Select LDAP Server as the type.
2. Select the order in which the server will be listed on the LDAP Servers table. This dictates the order in which dcTrack communicates with the servers when multiple servers are configured.
3. Select the Active checkbox to enable the server, or leave it deselected and return to activate it at a later time. It must be active in order to be in use.



The following steps describe LDAP settings you configure. Scroll up to view Active Directory settings if you are configuring an Active Directory server.

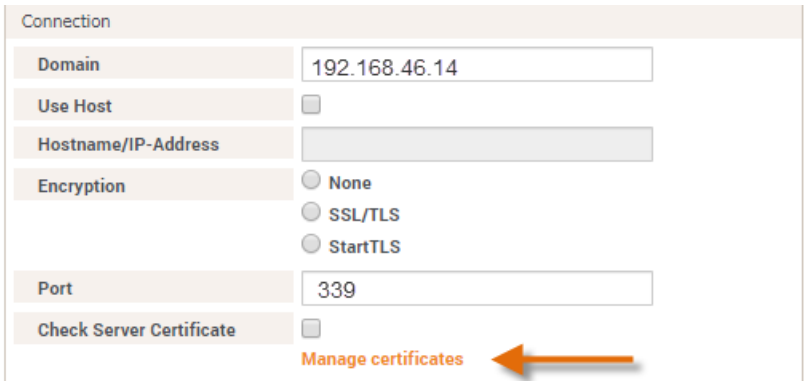
Connection Information

4. Domain - does not apply to LDAP.
5. Use Host - select to use a specific hostname or IP address to access the LDAP server.
6. Hostname/IP Address - enter the LDAP server's hostname or IP address when Use Host is selected.
7. Use TLS/SSL - select if using TLS/SSL encryption.
8. Port - the default is Port 389 if TLS/SSL encryption is not enabled, and Port 636 is the default if TLS/SSL encryption is enabled. The port number can be edited to a different value, if necessary.

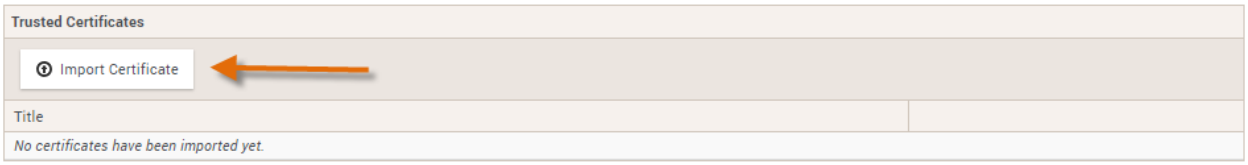


(Optional) Manage Certificates

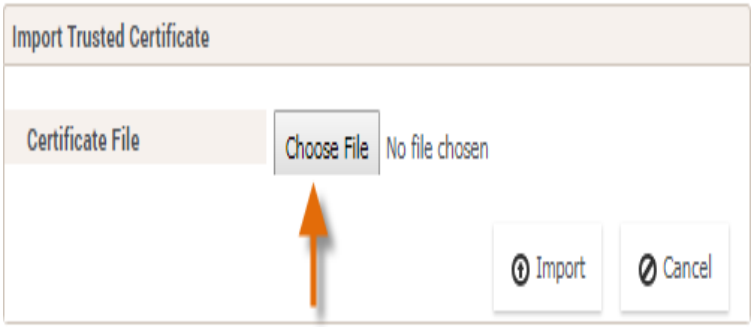
9. If you need to validate certificates, select Check Server Certificate.
10. Next, click Manage Certificates to open the Trusted Certificates page. The certificate needs to be PEM format to upload.



11. Click Import Certificate to open the Import Trusted Certificate page.



12. Click on the "Choose File" text box to open your browser to locate the certificate, then click Import to import the certificate.



You can use the Back button in your browser to return to the Add LDAP Server page.

Bind Information

The information entered here identifies where searches are performed to locate users on the server.

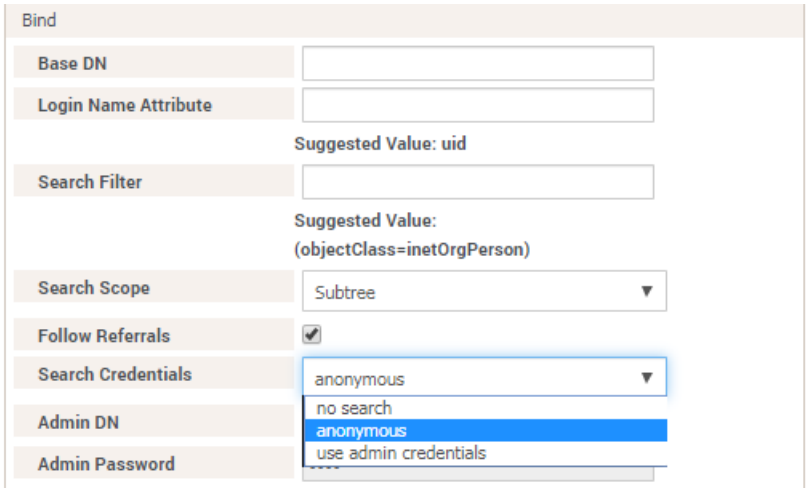
13. Base DN - specify a Base DN (directory level/entry) under which the authentication search query will begin. dcTrack can do a recursive search downward from this Base DN.

For example, depending on the scope of the search, if the Base DN is dc=sunbird,dc=com, the search query for the user entry will be made over the whole directory structure.

If the Base DN is cn=Administrators,cn=Users,dc=sunbird,dc=com, the search query will begin in the Administrators subdirectory (entry).

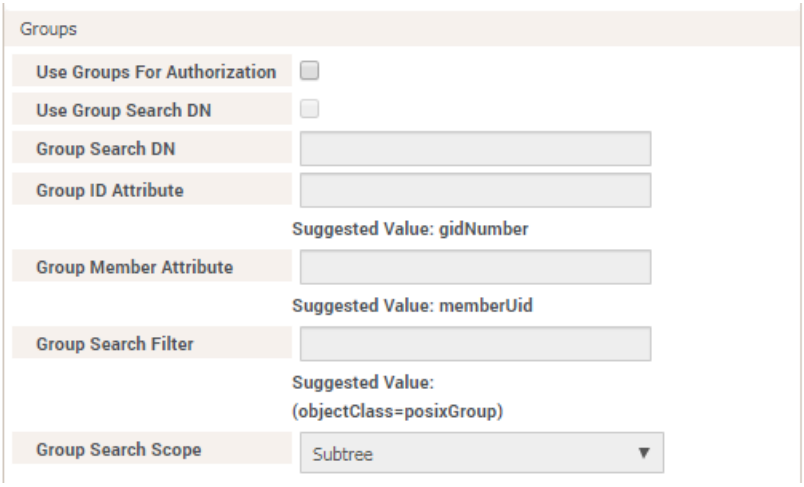
14. Login Name Attribute - login name that corresponds to the server type. The default is the user ID.

15. Search Filter - enter a user's attributes in this field so the search query will be restricted to only those entries that meet this criterion. The default is (objectClass=inetOrgPerson).
16. Search Scope - level of the server directory to look for users; either the Base DN and one level below the Base DN, or the Base DN and the entire subtree below.
17. Follow Referrals - select this option to allow the dcTrack LDAP client to follow referrals provided by the LDAP server if referral objects are encountered.
18. Search Credentials - leave "no search" selected if no search is required.
    - Select "anonymous" if no credentials are required.
    - Select "use admin credentials" and enter the Admin DN username and Admin Password. These credentials will be used for the service account when conducting searches.

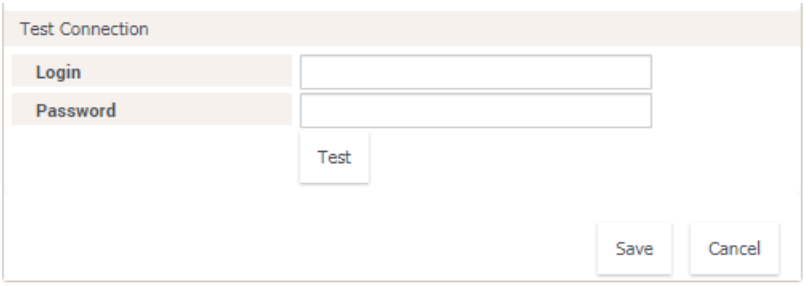


Groups Information

19. User Groups for Authorization and Common Setting – 'Sync Group Members' are used to enable automatically adding and managing users from imported user groups.
20. Use Group Search DN - select to specify the group DN to search. Select this option if the group DN search is different than the search used for users.
21. Group Search DN - this where the search for user groups will begin in the directory.
22. Group ID Attribute - the default is gidNumber.
23. Group Member Attribute - the default is memberUid.
24. Group Search Filter - the default is(objectClass=posixGroup).
25. Group Search Scope - level of the server directory to look for groups; either the Base DN and one level below the Base DN, or the Base DN and the entire subtree.

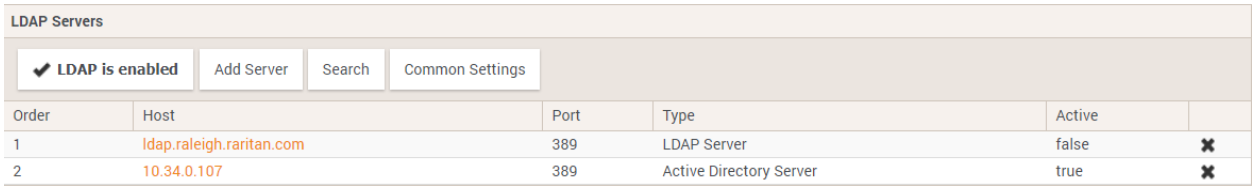


26. Optional Test Connection is to test with an account. If you have a known, valid test account to use to test the server setup, you can test from here without having to try to login with that account.



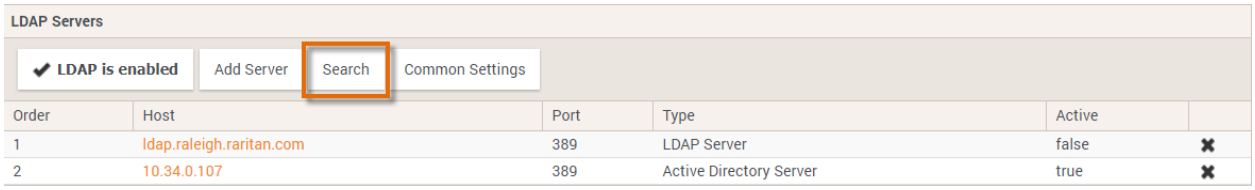
27. Click Save to save the settings and add the server.

Once added, the server is listed on the Add LDAP Server page.



Search for Remote Users and/or User Groups and Add Them to dcTrack

1. On the Add LDAP Server page, click Search.



The Search for LDAP Users and Groups page opens.

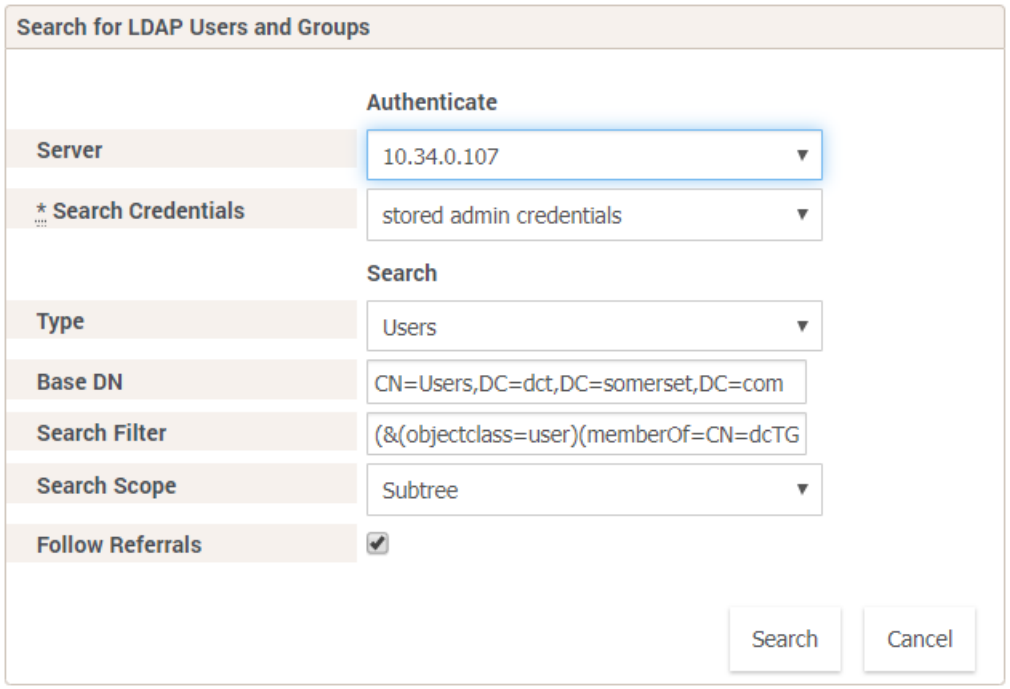
2. Select the server you want to search.

The remaining server information is completed based on the server you selected earlier, or you can edit the information by entering a new server to search.

3. Select the type of search - Users or Groups, depending on how the server is configured in dcTrack.
4. Select the Follow Referrals checkbox, if desired.
5. Search Scope is prepopulated based on the scope you defined when adding the server.

You can change the scope of the search, if desired.

This is the level of the server directory to look for users or groups. You can search just the Base DN by selecting "Base", search the Base DN and one level below the Base DN by selecting "One", or search the Base DN and the entire subtree by selecting "Subtree".

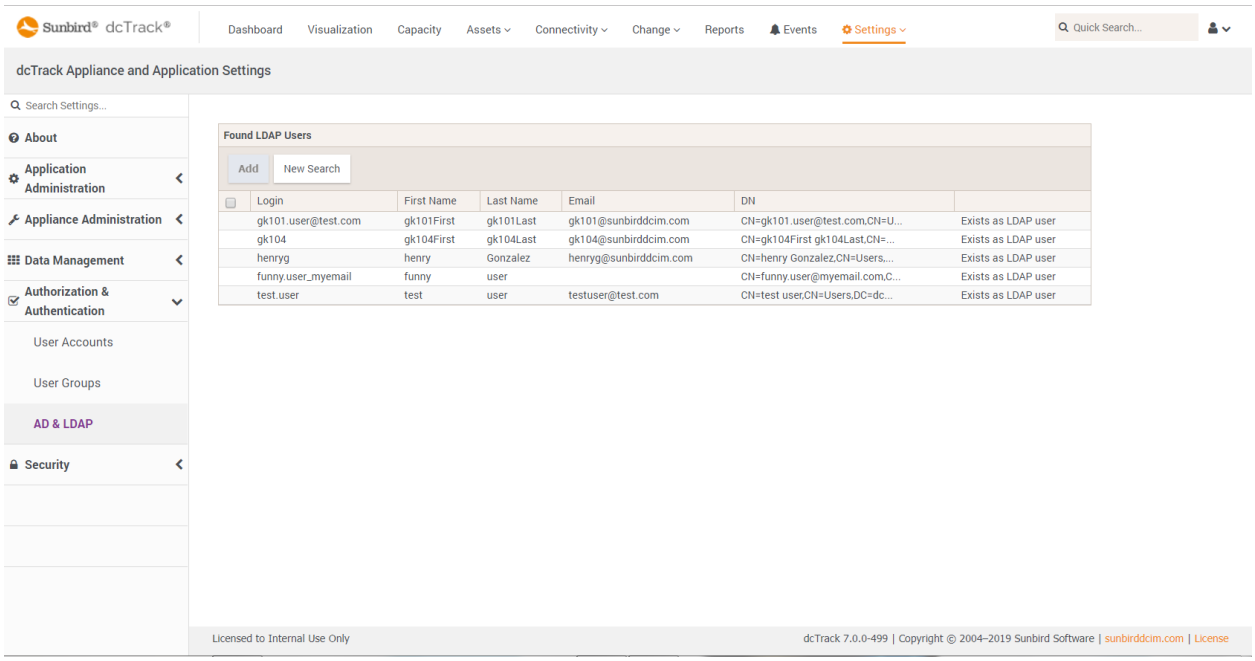


6. Click Search to locate users or user groups on the server.
7. A list of results is displayed once found. You can now add users and/or groups to dcTrack from those found.

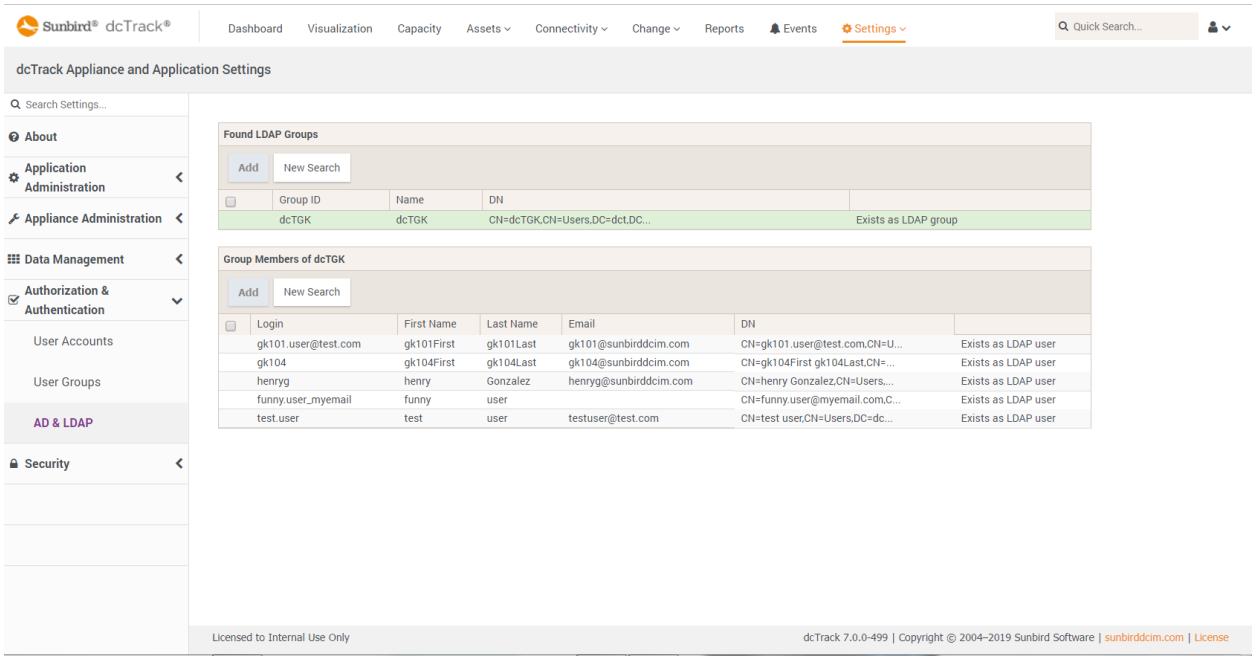
To add users or groups found in an LDAP search, select the checkbox next to each user and/or user group in the list, then click Add.

In order to search and add user groups, the 'Use Groups for Authorization' option must be enabled on the Server page.

When searching for and adding user groups, one or more groups can be selected at a time. The users will not be automatically added unless the Common Settings – 'Sync Group Members' is enabled.



When searching for and adding user groups, clicking on a user group causes the group members to be listed below the user group grid. One or more group members can be selected to be added.



Successfully added users/user groups are listed as "Exists as LDAP user" and the checkbox next to the name is removed.

Once added, individual users are granted distinct permissions and authenticated on a per user basis.

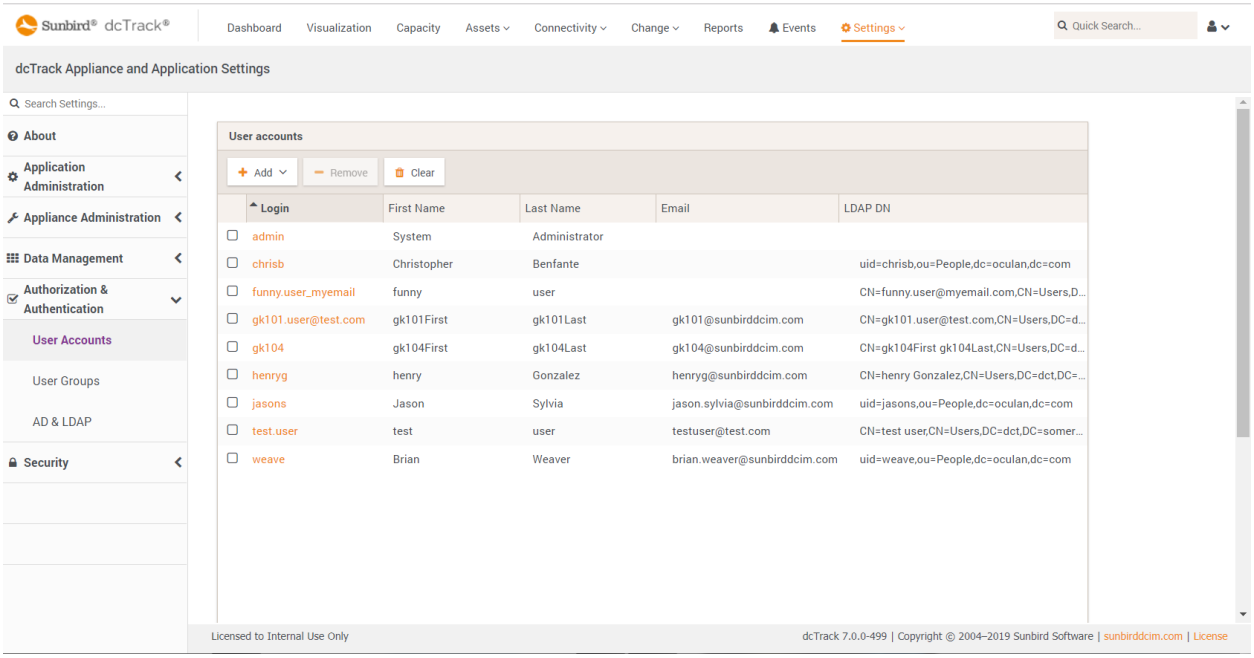
Users in user groups are granted common access to specific features or functionality.

Any changes you make to a user or user group on the server are reflected in dcTrack. For example, if you delete a user from a user group, they are no longer able to access the features they previously could in dcTrack.

Edit User Information and Configure dcTrack Login Credentials

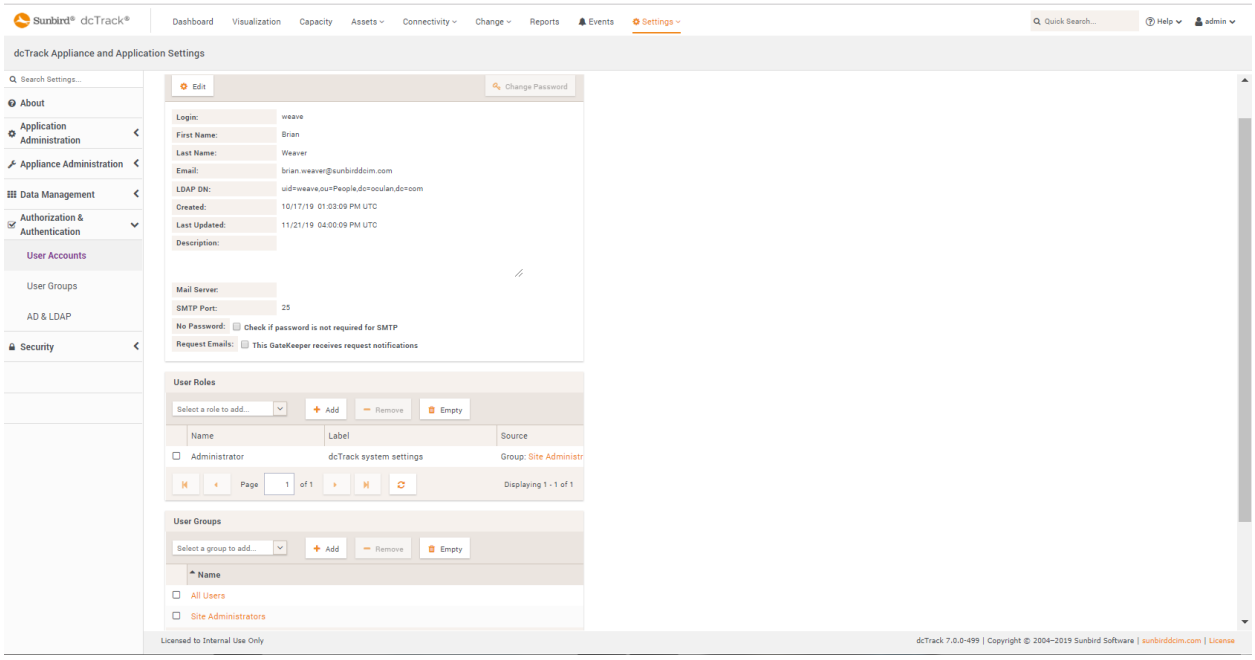
This information can be edited and configured now or at a later time.

8. To edit user information or login credentials, navigate to Settings > dcTrack Settings > Authorization & Authentication and select User Accounts.



You can easily identify users added via LDAP since the LDAP DN field is populated in their row.

9. Click on a user's name to open their User Information page.
10. Click Edit on the User Information page.
11. All editable fields are activated.



12. Login is required and must contain the username. 3 characters minimum. 40 characters maximum.

Important: If authentication is required by your email system, the dcTrack username must be the same as the user's email account username. If the usernames do not match, emails cannot be successfully sent from dcTrack.*

For example, if the username assigned to an email account is jqpublic, the dcTrack username must be jqpublic.

If authentication is not required by your system, usernames do not have to match.

13. Required Mail is required and must contain a correctly formatted email address.

Note: Account username refers to the username assigned to the email account; it does not refer to the name portion of the user's email address. Typically, the username and name portion of an email are the same, but this may not be the case.

Configure Common Server Settings

dcTrack allows you to configure common settings that control the number of users and/or user groups returned in a search. This feature also allows you to enable LDAP syncing. LDAP syncing controls the interval between when dcTrack and the LDAP server are synchronized.

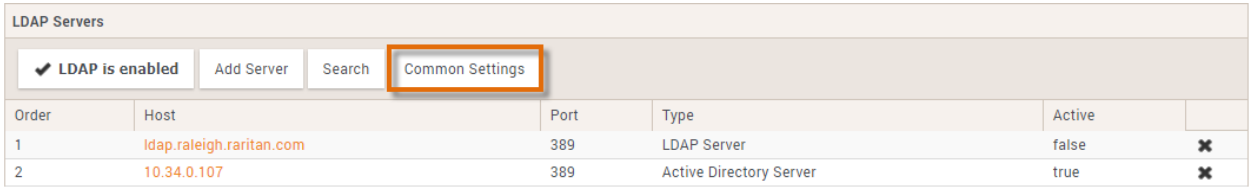
There are several times when group synchronization will occur. Note that in each of these scenarios both the "Sync Group Members" option found on the Common Settings page and the "Use Groups for Authorization" option found on the Settings page for each individual server must be enabled. If either of these options is not enabled, group synchronization will not occur.

Group Synchronization occurs:

- During periodic sync as determined by the Sync Interval defined in Common Settings
- When performing a manual sync by clicking the "Sync Now" button in Common Settings
- When a new user that does not exist in dcTrack but does exist in LDAP/AD logs into dcTrack for the first time

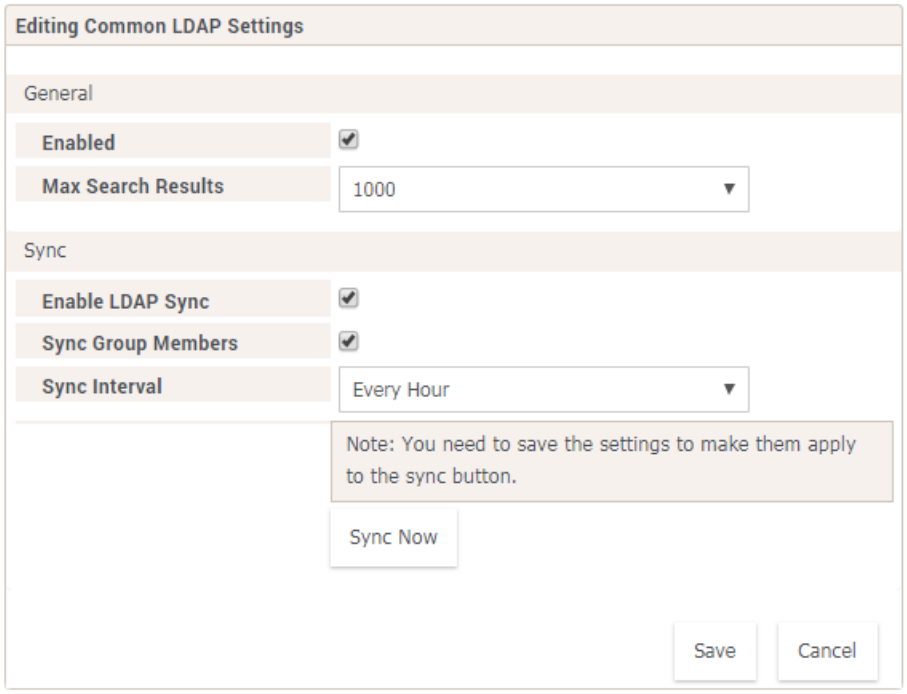
When an existing dcTrack user logs in, his groups are not automatically synchronized. Groups for existing users will be synchronized during the next manual or periodic sync. The user information for existing users (Name, Email) however is updated each time the user logs into dcTrack.

1. Click Common Settings on the Add LDAP Servers dialog opens.



The Editing Common LDAP Settings page opens.

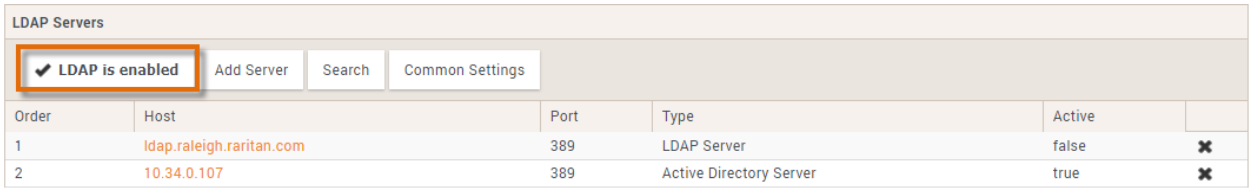
2. Select Enabled to enable the dcTrack LDAP client
3. Select the Max Search Results from the drop-down.
4. Select the Enable LDAP Sync checkbox to enable LDAP server syncing.
5. When "Sync Group Members" and "Use Groups for Authorization" are enabled, users will be added to dcTrack automatically or removed from dcTrack once the user groups are imported into dcTrack.
6. Select the Synch Interval from the drop-down. Updates will be made whenever a user logs in or the specified sync interval whichever comes first.
7. To sync immediately, click Save and then click Sync Now.
8. Click Save to save the settings. You can use the Back button in your browser to return to the Add LDAP Server page.



Enable or Disable LDAP in dcTrack

This enables or disables LDAP support in dcTrack. It does not enable or disable a specific LDAP server.

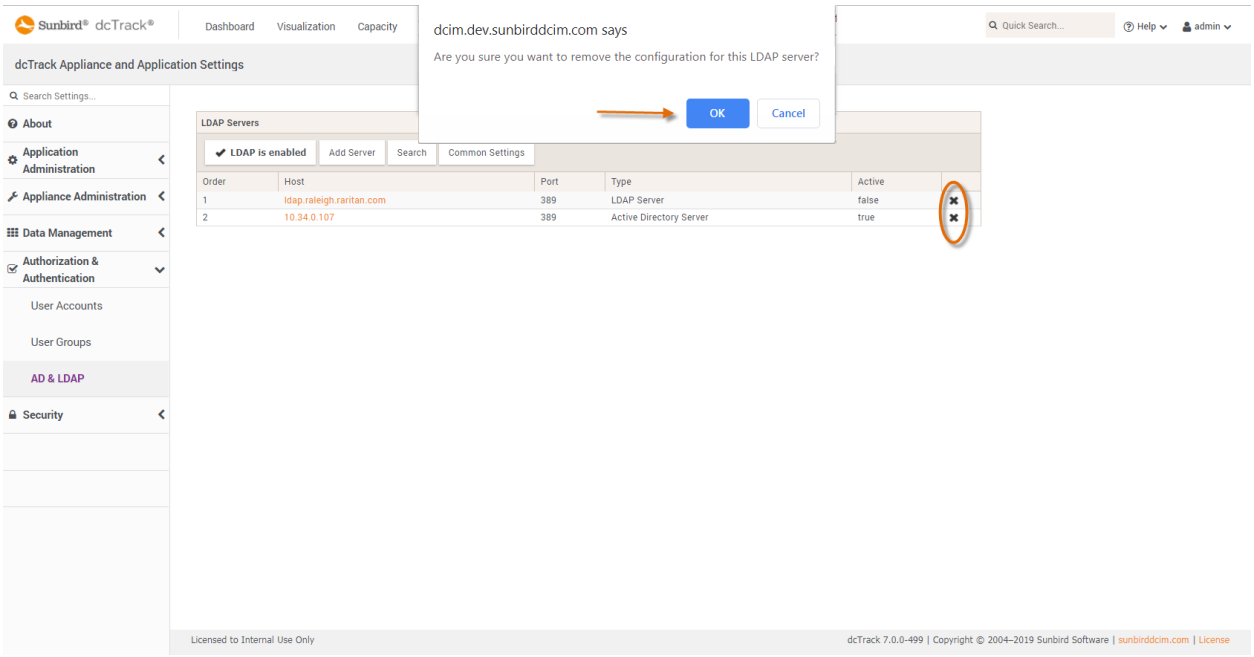
1. If LDAP is disabled, click the "LDAP is disabled" button to enable it.



2. Once enabled, the button changes to "LDAP is enabled". Click the button again to disable LDAP.

Delete an LDAP Server

1. Click the X link in the row of the LDAP server you want to delete.
2. Click OK when prompted to delete.



Configuring the LDAP Server Settings

The LDAP server settings enable dcTrack to connect to your LDAP server.

Note: dcTrack version 7.2.0 introduced support for One Time Passwords via LDAP. Prior releases required issuing 2 requests to authenticate a user, one to authenticate and one to gather the user's details. As a result the second request failed if the user was flagged with a One Time Password. In dcTrack 7.2.0 and beyond a single request is issued which will both authenticate the user as well as gathering the user's details.

Gather Active Directory and LDAP Server Configuration Information

You need the information listed below in order to configure Active Directory and/or LDAP servers in dcTrack. You should gather this information before beginning the add server process in dcTrack..

Two worksheets are provided below: one to help you gather Active Directory information and another to help you gather the LDAP information. Use the worksheet that applies to your needs.

If you are not familiar with this information, ask your LDAP Administrator to help you gather it.

Microsoft® Active Directory Server Information						
Server Domain (for Active Directory), or server hostname or IP address:						
Port		TLS		SSL		No Encryption

Microsoft® Active Directory Server Information

encryption type:								
Port - encrypted defaults to Port 636, no encryption defaults to Port 389, but the port can be changed.				Other (if applicable):				
The Bind type of the server:		Standard Bind		Configure Anonymous Bind				
The Base DN (this is where the search for users starts):								
Base DN Login Name Attribute:		sAMAccountName (default)		Other (if applicable):				
Search Filter (if applicable):								
Search scope object filters (if applicable, choose one):		The Base DN and one level below the Base DN. ("One" is the option in GUI.)		The Base DN and the entire subtree below. ("Subtree" is the option in the GUI)				
Search credentials (choose one):		No search credentials; user credentials provided at login are used		Anonymous				Admin credentials
Admin DN and Admin password, if search scope requires Admin		Admin Credentials:				Admin Password:		

Microsoft® Active Directory Server Information

cre-dentials.					
Group search DN (if applicable):					
Group ID attribute, such as name (if applic-able):		sAMAccountName (default)		Other:	
Group member attribute (if applic-able):		Member (default)		Other:	
Group search fil-ter:		(objectClass=group) (default)		Other:	

LDAP Server Information

Server Hostname or IP Address:							
Port Encryp-tion Type:		TLS		SSL		No Encryption	
Port - encrypted defaults to Port 636, no encryption defaults to Port 389, but the port can be changed.				Other (if applic-able):			
The Bind Type of the server:		Anonymous Bind		Standard Bind			
The Bind Base DN (this is where the search for users							

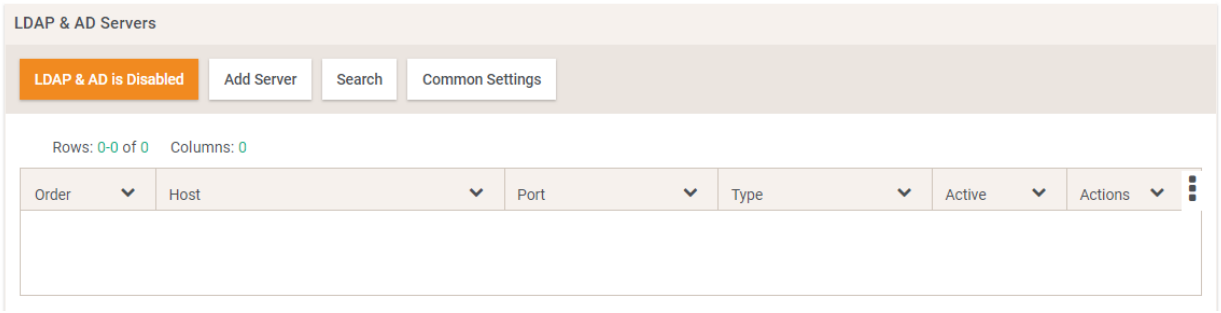
LDAP Server Information							
starts):							
Login Name Attribute:		uid (default)		Other:			
Search Filter (if applicable):							
Search Scope (if applicable):		The Base DN and one level below the Base DN. ("One" is the option in GUI.)		The Base DN and the entire subtree below. ("Subtree" is the option in the GUI)			
Search Credentials (choose one):		No search credentials; user credentials provided at login are used		Anonymous		Admin credentials	
Admin DN and Admin password, if search requires Admin credentials:		Admin Credentials:			Admin Password:		
Group search DN (if applicable):							
Group ID attribute.		gidNumber (default)		Other:			
Group member attribute (if applicable):		memberUid (default)		Other:			
Group search fil-		(objectClass=posixGroup) (default)		Other:			

LDAP Server Information

ter:					

Add a Remote Server

1. Click Add Server on the LDAP Servers page.



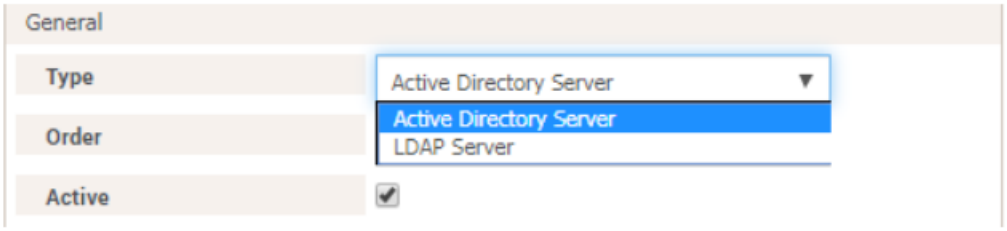
Complete the fields in each section that apply to your specific needs. Use the configuration information you gathered earlier to complete each section.

Note: Configuration settings vary slightly between Active Directory and LDAP.

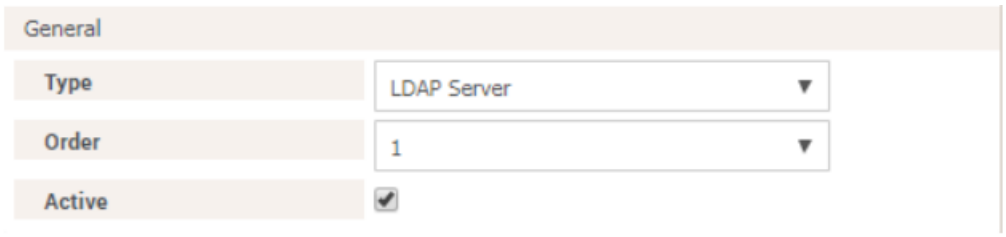
Active Directory Server Configuration in dcTrack

General Information

1. Select Active Directory Server as the server type.



2. Select the order in which the server will be listed in the LDAP Servers table. This dictates the order in which dcTrack communicates with the servers when multiple servers are configured.
3. Select the Active checkbox to enable the server, or leave it deselected and return to activate it at a later time. It must be active in order to be in use.



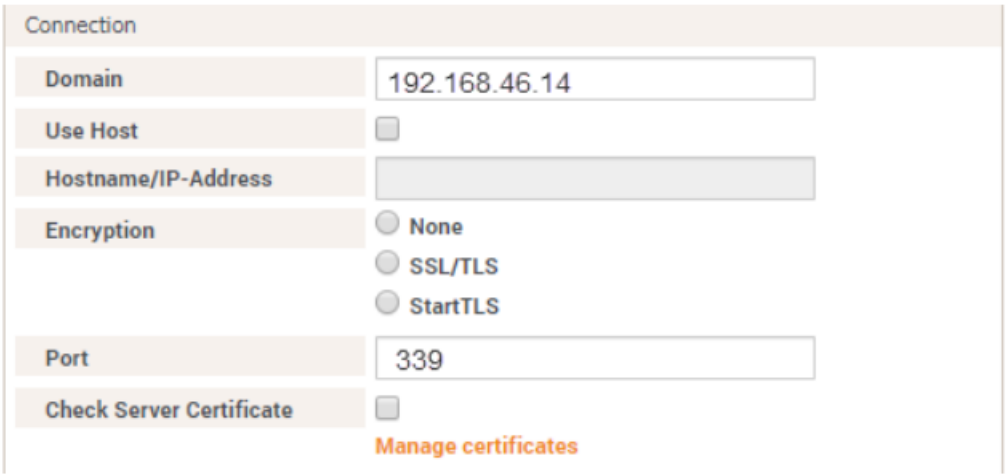
The information you enter in the remaining sections is specific to the server type you are configuring: either Active Directory or LDAP.

For this reason, Active Directory and LDAP settings are broken out into two sections on this page: Active Directory Server Configuration in dcTrack and LDAP Server Configuration in dcTrack

Scroll down the page to view LDAP setting instructions.

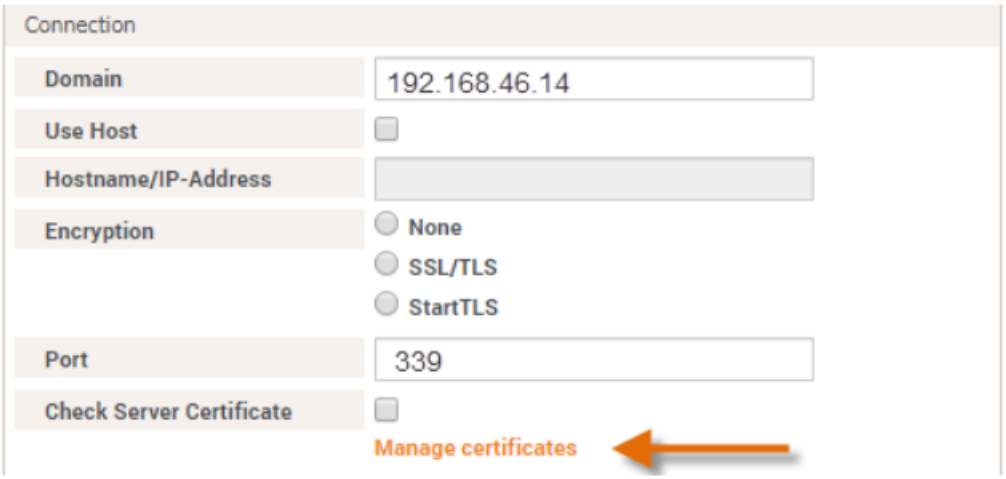
Connection Information

4. Domain - applies if Active Directory only. The domain name of the server.
5. Use Host - select if you want to use a specific hostname or IP Address to access the Active Directory server.
6. Hostname/IP Address - enter the Active Directory server's hostname or IP address if Use Host is selected.
7. Use TLS/SSL - select if using TLS/SSL encryption.
8. Port - the default is Port 389 if TLS/SSL encryption is not enabled, and Port 636 is the default if TLS/SSL encryption is enabled. The port number can be edited to a different value, if necessary.

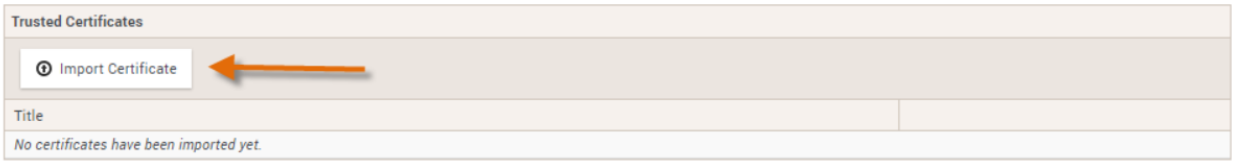


(Optional) Manage Certificates

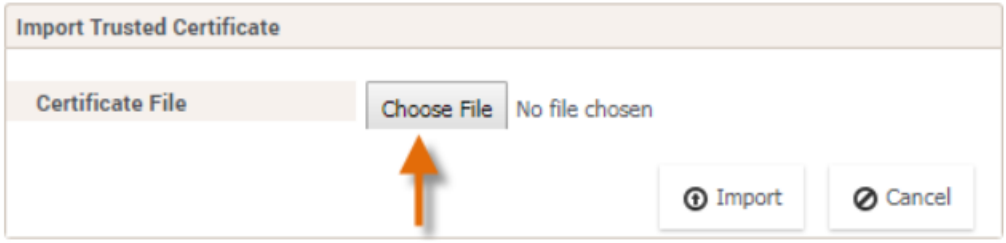
9. If you need to validate certificates, select Check Server Certificate.
10. Next, click the Manage Certificates link to open the Trusted Certificates page.



11. Click Import Certificate to open the Import Trusted Certificate page.



12. Click on the "Choose File" text box to open your browser to locate the certificate, then click Import to import the certificate.



You can use the Back button in your browser to return to the Add LDAP Server page.

Bind Information

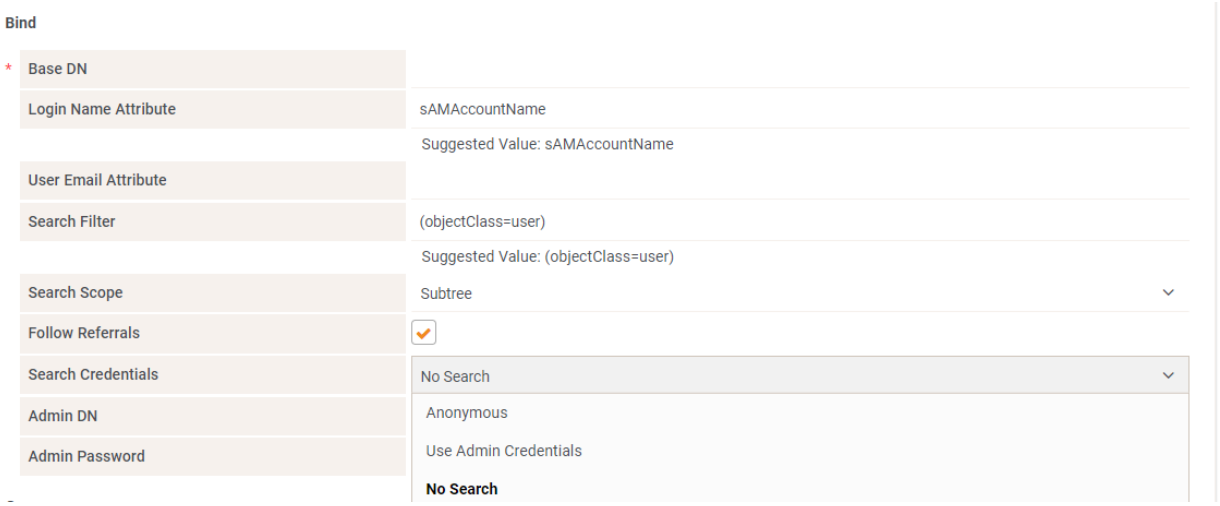
The information entered here identifies where searches are performed to locate users on the server.

13. Base DN - specify a Base DN (directory level/entry) under which the authentication search query will begin. dcTrack can do a recursive search downward from this Base DN..

For example, depending on the scope of the search, if the Base DN is dc=sunbird,dc=com, the search query for the user entry will be made over the whole directory structure.

If the Base DN is cn=Administrators,cn=Users,dc=sunbird,dc=com, the search query will begin in the Administrators subdirectory (entry).

14. Login Name Attribute - the login name that corresponds to the server type. The default for Active Directory is sAMAccountName.
15. User Email Attribute - a configurable custom mail property used when the default property "mail" is not used.
    - Note: If the admin specifies a value, that value will be used. If left blank, the servers default value will be used
        - LDAP servers default "mail"
        - AD servers default "mail" and then "userPrincipalName"
16. Search Filter - enter a user's attributes in this field if you want the search query to be restricted to only those entries that meet the criteria. The default for Active Directory is (objectClass=user).
17. Search Scope - level of the server directory to look for users; either the Base DN and one level below the Base DN, or the Base DN and the entire subtree below.
18. Follow Referrals - select this option to allow the dcTrack LDAP client to follow referrals provided by the LDAP server if referral objects are encountered.
19. Search Credentials:
    - Leave "no search" to use the credentials provided by the user on log in.
    - Select "anonymous" if no credentials are required.

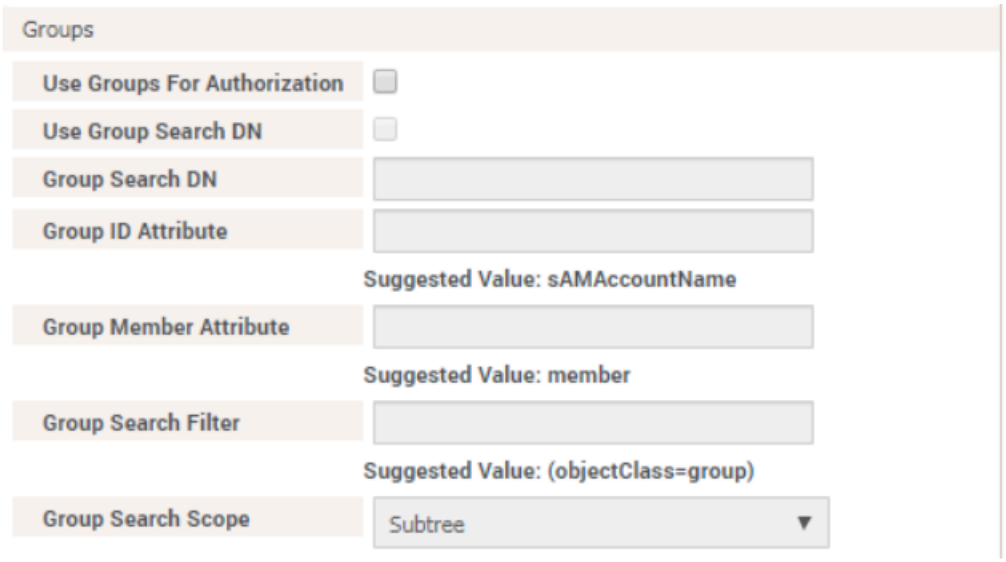


    - Select "use admin credentials" and enter the admin user credentials in the Admin DN and Admin Password fields. The admin credentials will be used for the service account when conducting searches.

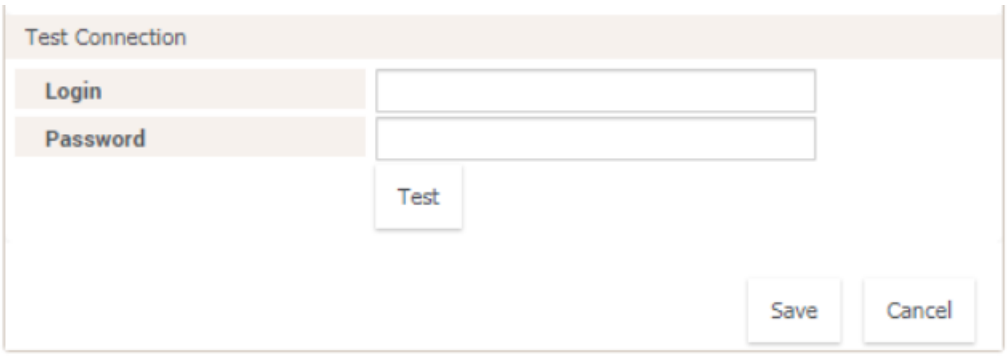
Groups Information

20. User Groups for Authorization and Common Setting – 'Sync Group Members' will be used to enable the ability to automatically add and manage users from imported user groups.
21. Use Group Search DN - select to specify the group DN to search. Select this option if the group DN search is different than the search used for users.
22. Group Search DN - this is where the search for the user group will begin in the directory.
23. Group ID Attribute - the default for Active Directory is sAMAccountName.
24. Group Member Attribute - the default for Active Directory is member.
25. Group Search Filter - the default for Active Directory is (objectClass=group).

26. Group Search Scope - level of the server directory to look for groups; either the Base DN and one level below the Base DN, or the Base DN and the entire subtree.

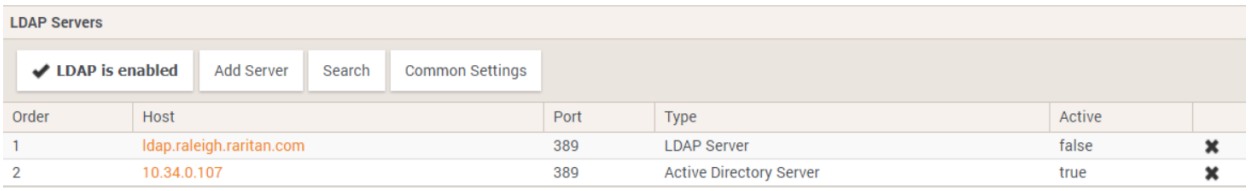


27. Optional Test Connection is to test with an account. If you have a known, valid test account to use to test the server setup, you can test from here without having to try to login with that account.



28. Click Save to save the settings and add the server.

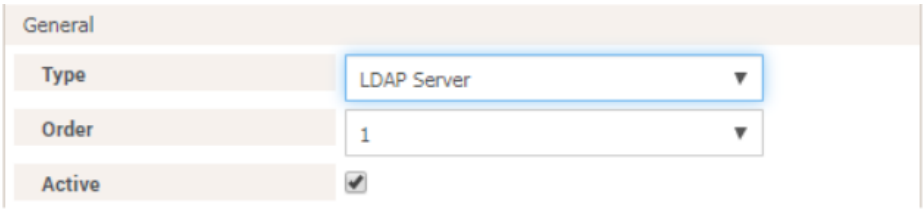
Once added, the server is listed on the Add LDAP Server page.



LDAP Server Configuration in dcTrack

General Information

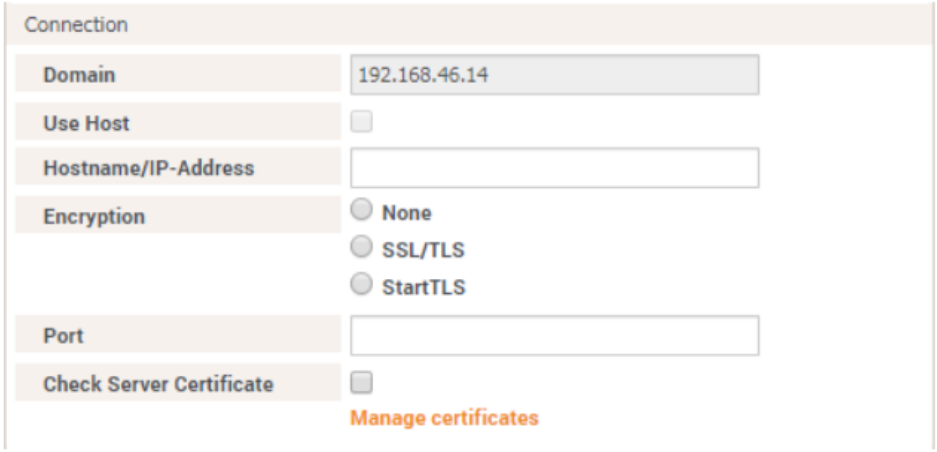
1. Select LDAP Server as the type.
2. Select the order in which the server will be listed on the LDAP Servers table. This dictates the order in which dcTrack communicates with the servers when multiple servers are configured.
3. Select the Active checkbox to enable the server, or leave it deselected and return to activate it at a later time. It must be active in order to be in use.



The following steps describe LDAP settings you configure. Scroll up to view Active Directory settings if you are configuring an Active Directory server.

Connection Information

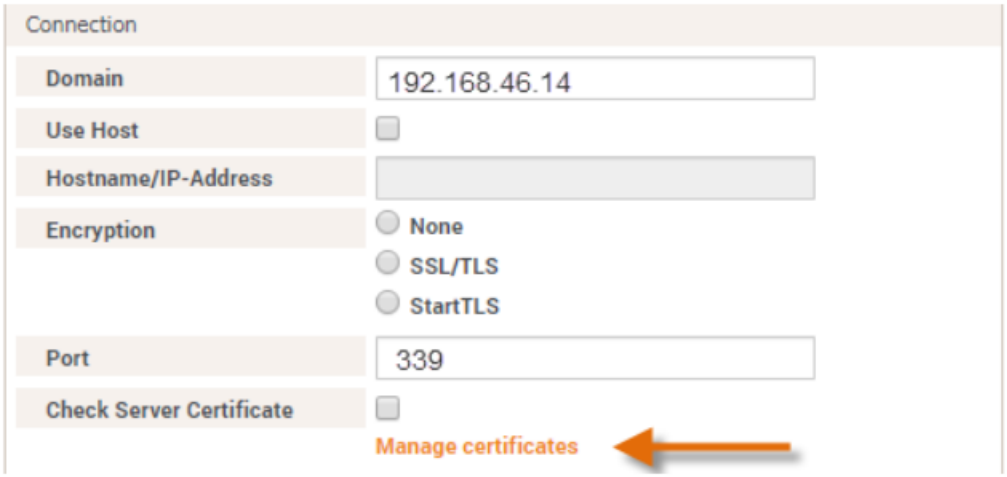
4. Domain - does not apply to LDAP.
5. Use Host - select to use a specific hostname or IP address to access the LDAP server.
6. Hostname/IP Address - enter the LDAP server's hostname or IP address when Use Host is selected.
7. Use TLS/SSL - select if using TLS/SSL encryption.
8. Port - the default is Port 389 if TLS/SSL encryption is not enabled, and Port 636 is the default if TLS/SSL encryption is enabled. The port number can be edited to a different value, if necessary.



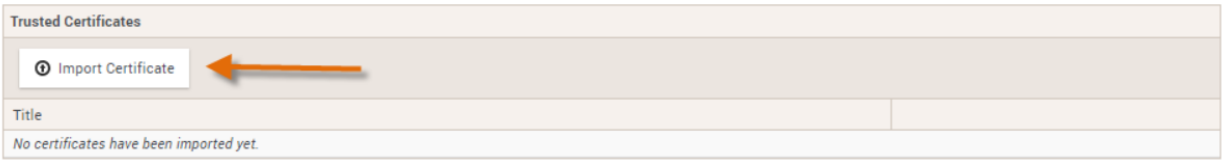
(Optional) Manage Certificates

9. If you need to validate certificates, select Check Server Certificate.

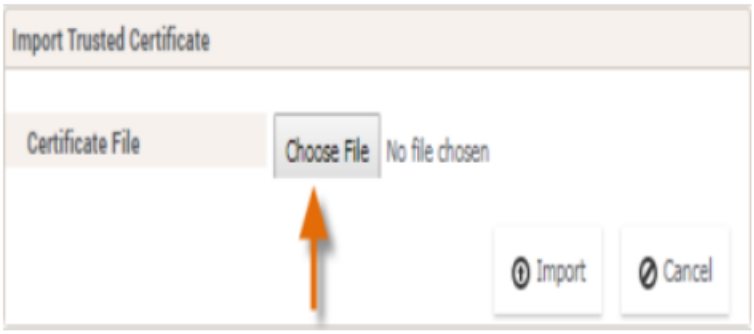
10. Next, click Manage Certificates to open the Trusted Certificates page.



11. Click Import Certificate to open the Import Trusted Certificate page.



12. Click on the "Choose File" text box to open your browser to locate the certificate, then click Import to import the certificate.



You can use the Back button in your browser to return to the Add LDAP Server page.

Bind Information

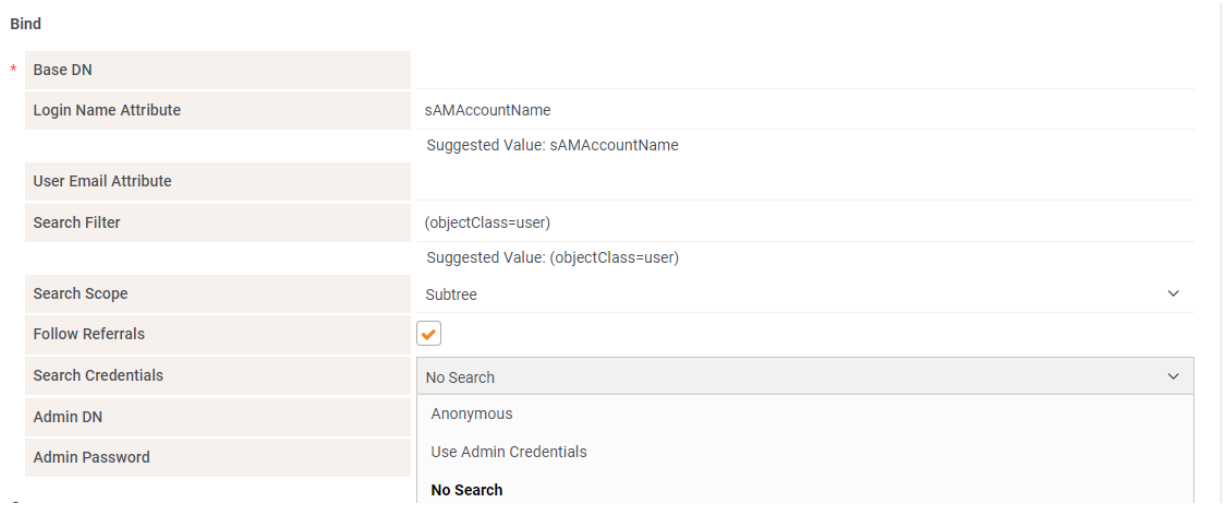
The information entered here identifies where searches are performed to locate users on the server.

13. Base DN - specify a Base DN (directory level/entry) under which the authentication search query will begin. dcTrack can do a recursive search downward from this Base DN.

For example, depending on the scope of the search, if the Base DN is dc=sunbird,dc=com, the search query for the user entry will be made over the whole directory structure.

If the Base DN is cn=Administrators,cn=Users,dc=sunbird,dc=com, the search query will begin in the Administrators subdirectory (entry).

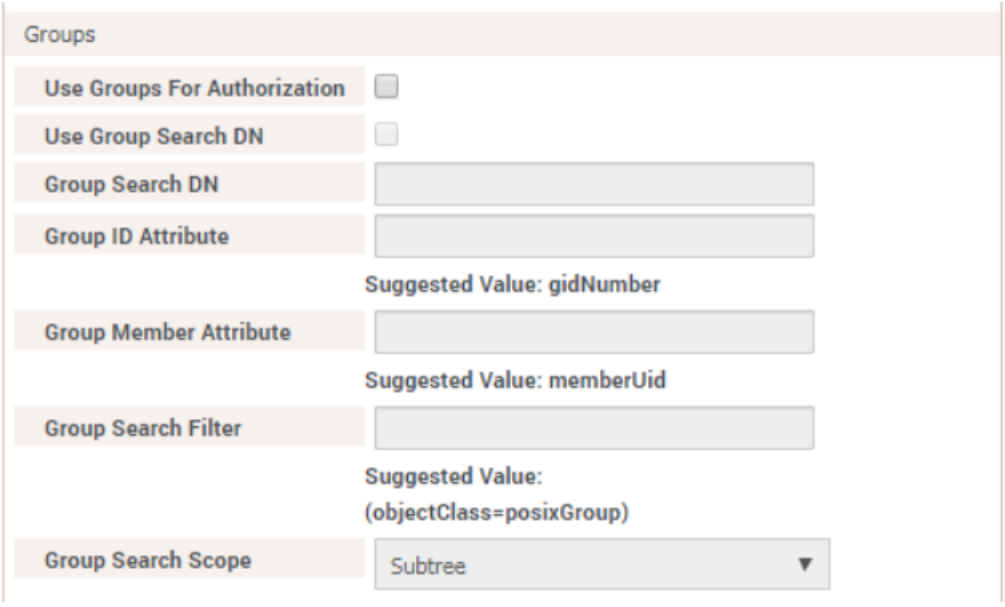
14. Login Name Attribute - login name that corresponds to the server type. The default is the user ID.
15. User Email Attrubute - a configurable custom mail property used when the default property "mail" is not used.
    - Note: If the admin specifies a value, that value will be used. If left blank, the servers default value will be used
        - LDAP servers default "mail"
        - AD servers default "mail" and then "userPrincipalName"
16. Search Filter - enter a user's attributes in this field so the search query will be restricted to only those entries that meet this criterion. The default is (objectClass=inetOrgPerson).
17. Search Scope - level of the server directory to look for users; either the Base DN and one level below the Base DN, or the Base DN and the entire subtree below.
18. Follow Referrals - select this option to allow the dcTrack LDAP client to follow referrals provided by the LDAP server if referral objects are encountered.
19. Search Credentials - leave "no search" selected if no search is required.
    - Select "anonymous" if no credentials are required.
    - Select "use admin credentials" and enter the Admin DN username and Admin Password. These credentials will be used for the service account when conducting searches.



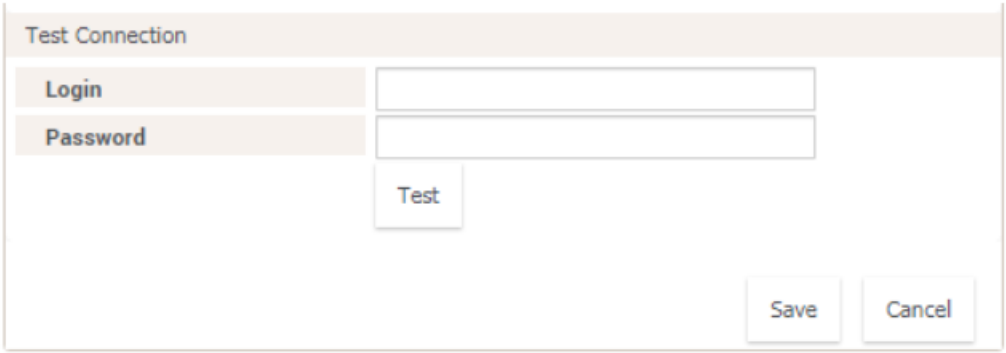
Groups Information

20. User Groups for Authorization and Common Setting – 'Sync Group Members' are used to enable automatically adding and managing users from imported user groups.
21. Use Group Search DN - select to specify the group DN to search. Select this option if the group DN search is different than the search used for users.
22. Group Search DN - this where the search for user groups will begin in the directory.
23. Group ID Attribute - the default is gidNumber.
24. Group Member Attribute - the default is memberUid.
25. Group Search Filter - the default is(objectClass=posixGroup).

26. Group Search Scope - level of the server directory to look for groups; either the Base DN and one level below the Base DN, or the Base DN and the entire subtree.

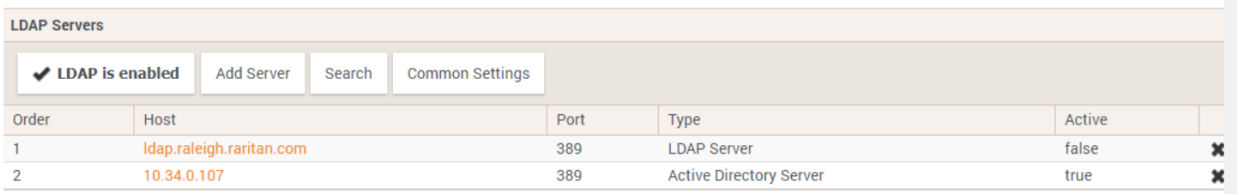


27. Optional Test Connection is to test with an account. If you have a known, valid test account to use to test the server setup, you can test from here without having to try to login with that account.



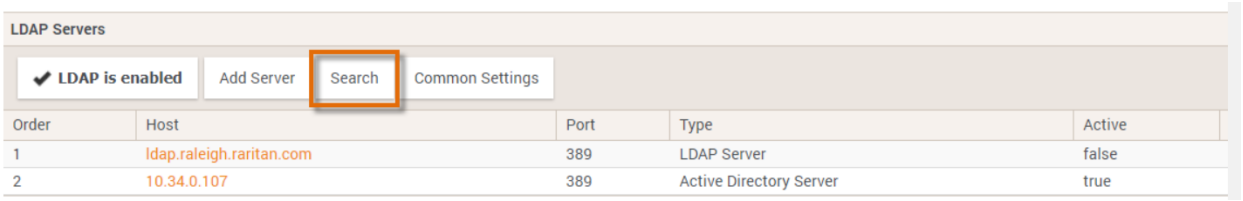
28. Click Save to save the settings and add the server.

Once added, the server is listed on the Add LDAP Server page.



Search for Remote Users and/or User Groups and Add Them to dcTrack

1. On the Add LDAP Server page, click Search.



The Search for LDAP Users and Groups page opens.

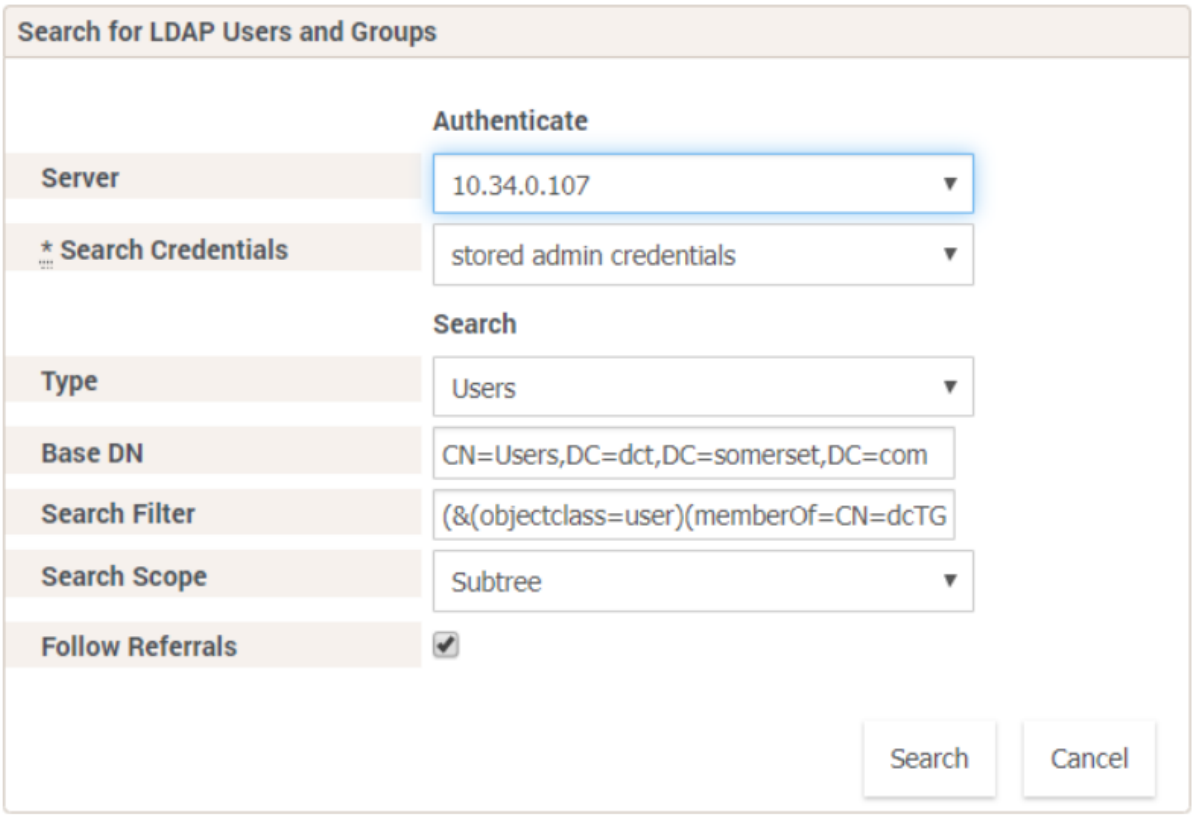
2. Select the server you want to search.

The remaining server information is completed based on the server you selected earlier, or you can edit the information by entering a new server to search.

3. Select the type of search - Users or Groups, depending on how the server is configured in dcTrack.
4. Select the Follow Referrals checkbox, if desired.
5. Search Scope is prepopulated based on the scope you defined when adding the server.

You can change the scope of the search, if desired.

This is the level of the server directory to look for users or groups. You can search just the Base DN by selecting "Base", search the Base DN and one level below the Base DN by selecting "One", or search the Base DN and the entire subtree by selecting "Subtree".

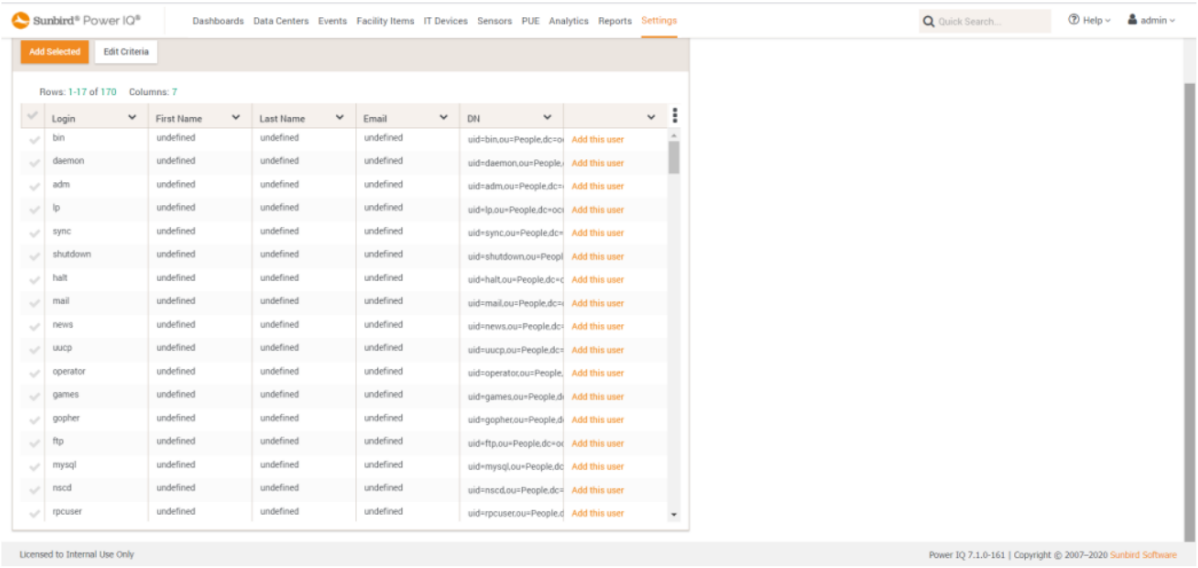


6. Click Search to locate users or user groups on the server.
7. A list of results is displayed once found. You can now add users and/or groups to dcTrack from those found.

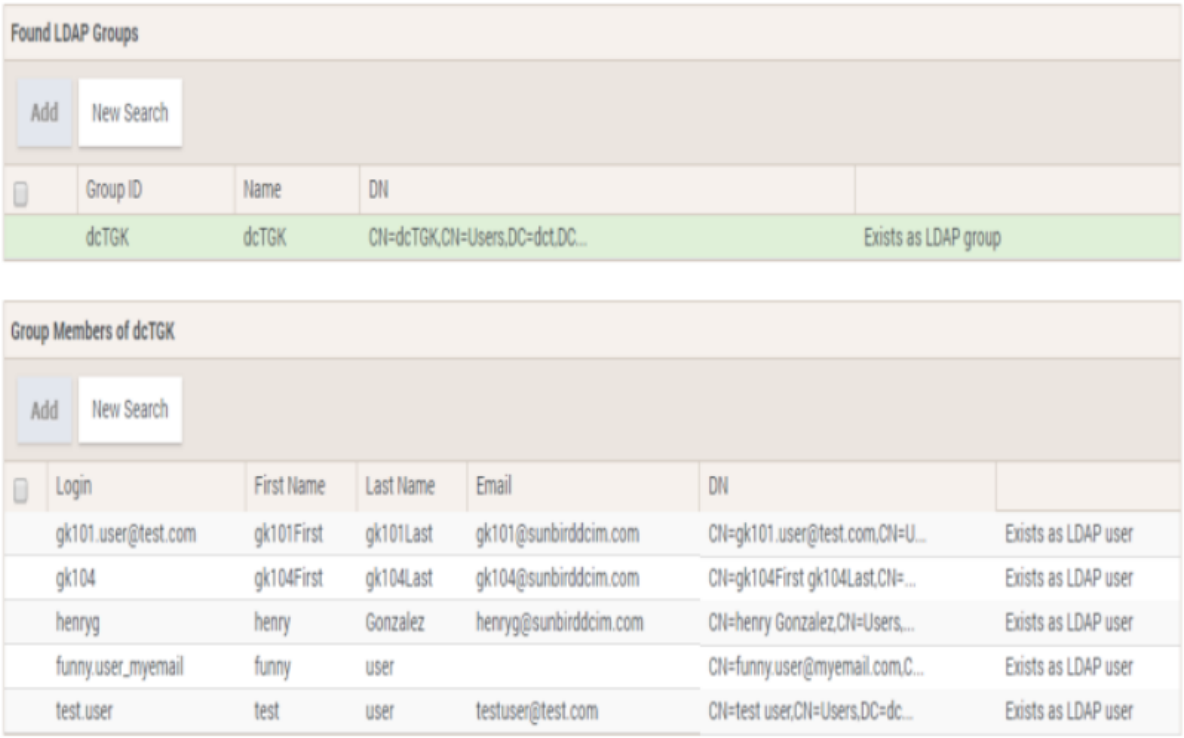
To add users or groups found in an LDAP search, select the checkbox next to each user and/or user group in the list, then click Add.

In order to search and add user groups, the 'Use Groups for Authorization' option must be enabled on the Server page.

When searching for and adding user groups, one or more groups can be selected at a time. The users will not be automatically added unless the Common Settings – 'Sync Group Members' is enabled.



When searching for and adding user groups, clicking on a user group causes the group members to be listed below the user group grid. One or more group members can be selected to be added.



Successfully added users/user groups are listed as "Exists as LDAP user" and the checkbox next to the name is removed.

Once added, individual users are granted distinct permissions and authenticated on a per user basis.

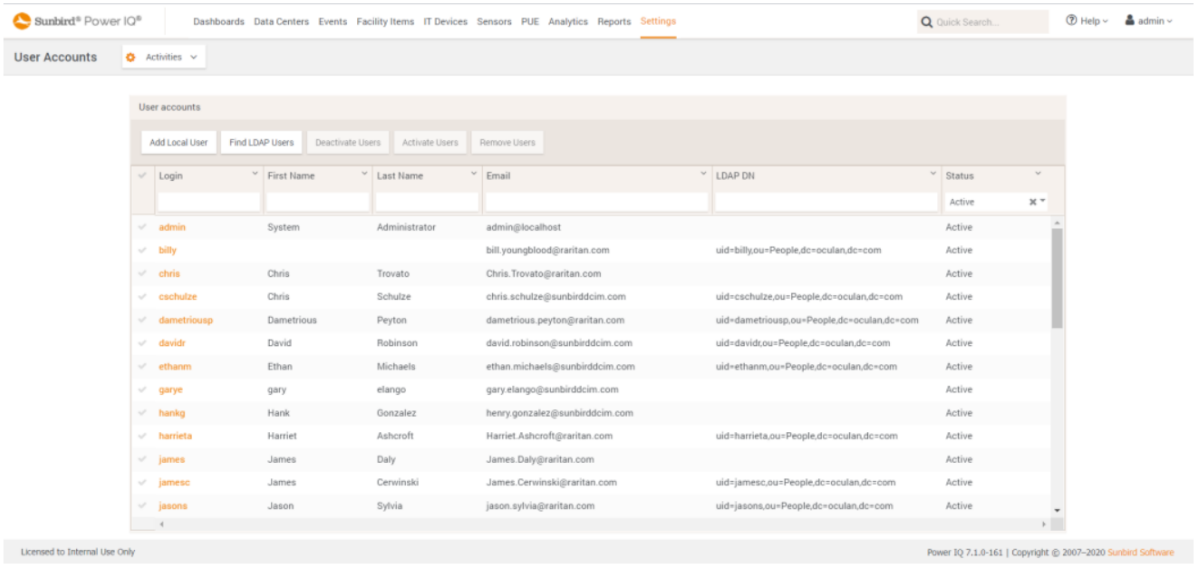
Users in user groups are granted common access to specific features or functionality.

Any changes you make to a user or user group on the server are reflected in dcTrack. For example, if you delete a user from a user group, they are no longer able to access the features they previously could in dcTrack.

Edit User Information and Configure dcTrack Login Credentials

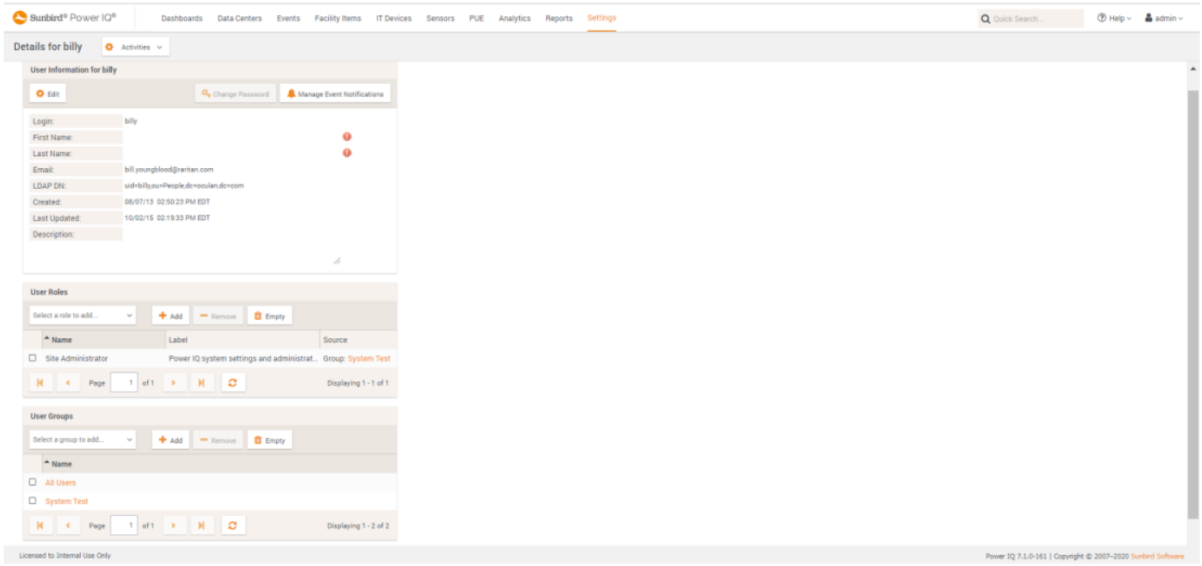
This information can be edited and configured now or at a later time.

8. To edit user information or login credentials, navigate to Settings > User Accounts.



You can easily identify users added via LDAP since the LDAP DN field is populated in their row.

9. Click on a user's name to open their User Information page.
10. Click Edit on the User Information page.
11. All editable fields are activated.



12. Login is required and must contain the username. 3 characters minimum. 40 characters maximum.

Important: If authentication is required by your email system, the dcTrack username must be the same as the user's email account username. If the usernames do not match, emails cannot be successfully sent from dcTrack.*

For example, if the username assigned to an email account is jqpublic, the dcTrack username must be jqpublic.

If authentication is not required by your system, usernames do not have to match.

13. Required Mail is required and must contain a correctly formatted email address.

Note: Account username refers to the username assigned to the email account; it does not refer to the name portion of the user's email address. Typically, the username and name portion of an email are the same, but this may not be the case.

Configure Common Server Settings

dcTrack allows you to configure common settings that control the number of users and/or user groups returned in a search. This feature also allows you to enable LDAP syncing. LDAP syncing controls the interval between when dcTrack and the LDAP server are synchronized.

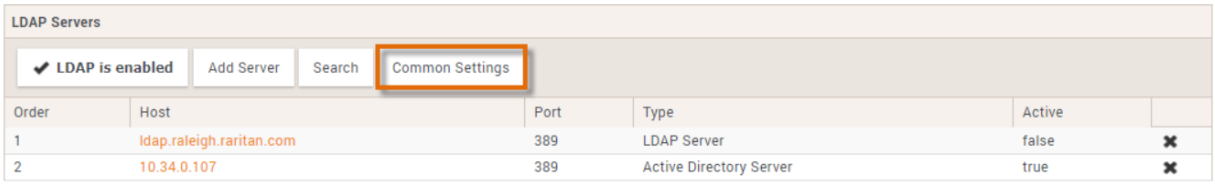
There are several times when group synchronization will occur. Note that in each of these scenarios both the "Sync Group Members" option found on the Common Settings page and the "Use Groups for Authorization" option found on the Settings page for each individual server must be enabled. If either of these options is not enabled, group synchronization will not occur.

Group Synchronization occurs:

- During periodic sync as determined by the Sync Interval defined in Common Settings
- When performing a manual sync by clicking the "Sync Now" button in Common Settings
- When a new user that does not exist in dcTrack but does exist in LDAP/AD logs into dcTrack for the first time

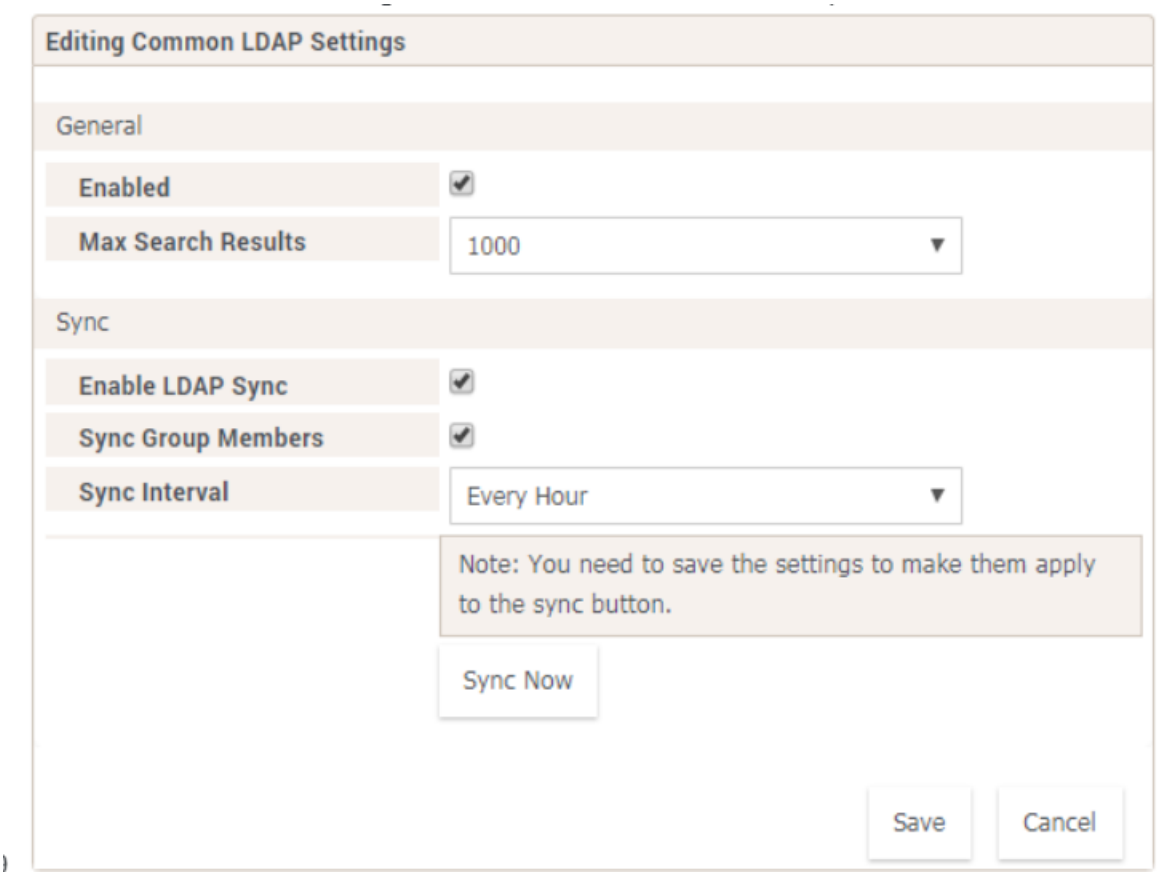
When an existing dcTrack user logs in, his groups are not automatically synchronized. Groups for existing users will be synchronized during the next manual or periodic sync. The user information for existing users (Name, Email) however is updated each time the user logs into dcTrack.

1. Click Common Settings on the Add LDAP Servers dialog opens.



The Editing Common LDAP Settings page opens.

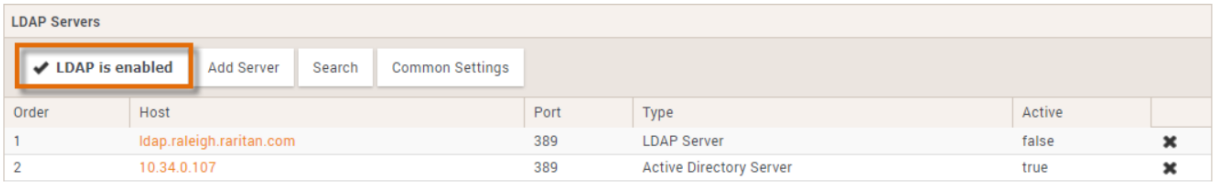
2. Select Enabled to enable the dcTrack LDAP client
3. Select the Max Search Results from the drop-down.
4. Select the Enable LDAP Sync checkbox to enable LDAP server syncing.
5. When "Sync Group Members" and "Use Groups for Authorization" are enabled, users will be added to dcTrack automatically or removed from dcTrack once the user groups are imported into dcTrack.
6. Select the Synch Interval from the drop-down. Updates will be made whenever a user logs in or the specified sync interval whichever comes first.
7. To sync immediately, click Save and then click Sync Now.
8. Click Save to save the settings. You can use the Back button in your browser to return to the Add LDAP Server page.



Enable or Disable LDAP in dcTrack

This enables or disables LDAP support in dcTrack. It does not enable or disable a specific LDAP server.

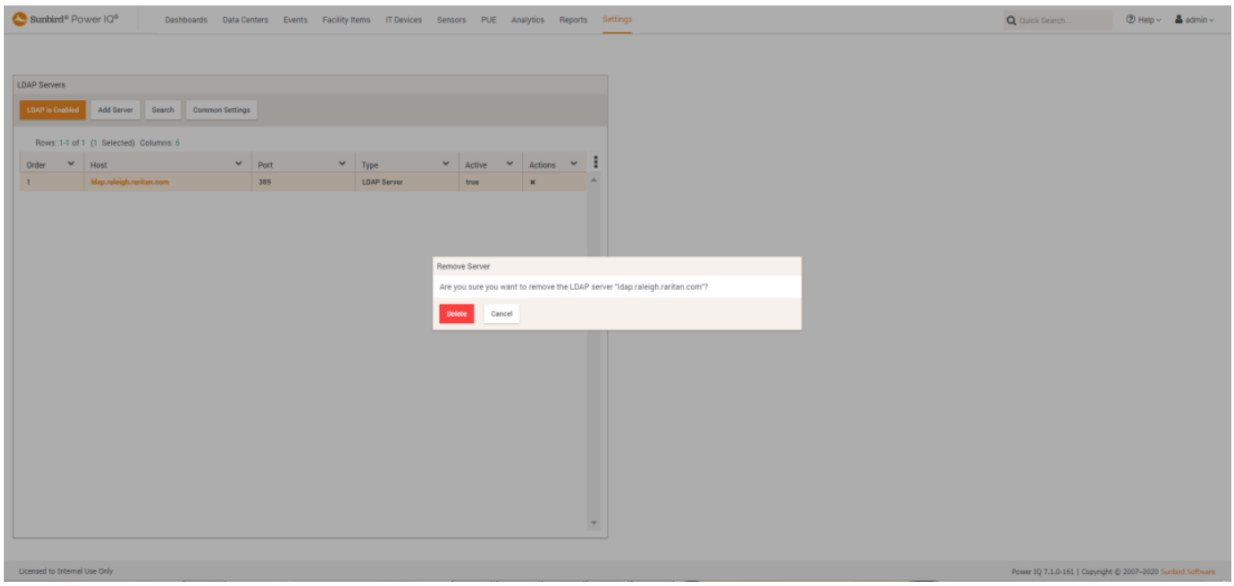
1. If LDAP is disabled, click the "LDAP is disabled" button to enable it.



2. Once enabled, the button changes to "LDAP is enabled". Click the button again to disable LDAP.

Delete an LDAP Server

1. Click the X link in the row of the LDAP server you want to delete.
2. Click OK when prompted to delete.



Manually Add and Manage Users and Groups via LDAP or Active Directory (Search)

Manually configure dcTrack to find users and groups on an LDAP server or an Active Directory (AD) server, and use LDAP for centralized authentication.

This feature as an alternative to local authentication. See **Local User Authentication**.

It is also the only option for remote authentication if you have not upgraded to dcTrack 5.0, which supports automatically adding and managing users and user groups via LDAP.

Note: dcTrack version 7.2.0 introduced support for One Time Passwords via LDAP. Prior releases required issuing 2 requests to authenticate a user, one to authenticate and one to gather the user's details. As a result the second request failed if the user was flagged with a One Time Password. In dcTrack 7.2.0 and beyond a single request is issued which will both authenticate the user as well as gathering the user's details.

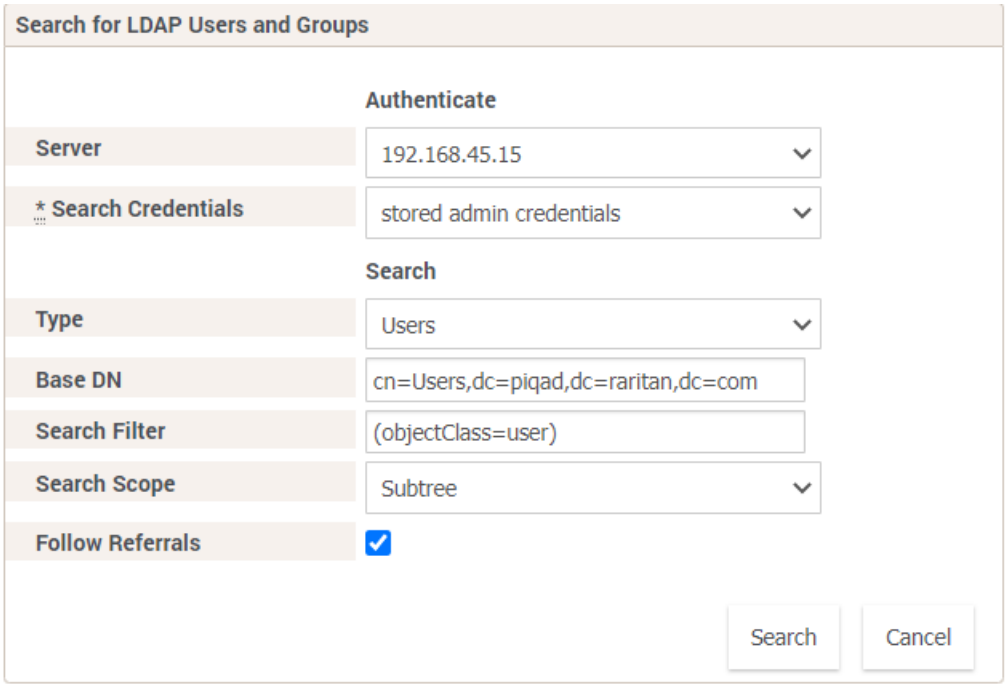
See **Import LDAP User Groups and Add Users Automatically**.

Find Users and Manually Add Them

Note: As of dcTrack verion 8.0.0, the "Find LDAP Users" option and the "Find LDAP Groups" option are no longer available from the "Add" button on their respective screens. To Search for LDAP Users or Groups, please use the "Search" button found on the LDAP Servers page.

1. Navigate to Settings > dcTrack Settings > Authorization & Authentication and click the "AD & LDAP" menu option

2. Click the "Search" button on the tool bar



3. Select the "Server" you want to search from the Server list box
4. Select the "Search Credentials" method you want the search to use. To use the credentials saved with the Server's configuration select the "stored admin credentials" option. If you select the "specify below" option you will be prompted for the "Bind DN" and "password"
5. Select the search "Type" (Users or Groups)
6. Specify a Base DN (directory level/entry) under which the authentication search query will be executed. dcTrack can do a recursive search downward from this Base DN.
7. Specify the "Search Filter" to limit the search to only those entries that meet this criterion. For example, (objectClass=user) or (objectClass=person) depending on how LDAP is configured.
8. Select the "Search Scope". Select Subtree to allow a recursive search starting at the Base DN.
9. Select the Follow Referrals checkbox to allow LDAP to follow referrals to complete a search if referral objects are encountered while dcTrack is searching the LDAP server.
10. Click "Search" to search the LDAP server. A list of users is displayed in the Results section. Search results include a limited number of records.

You can now add LDAP Users/Groups from the Results list.

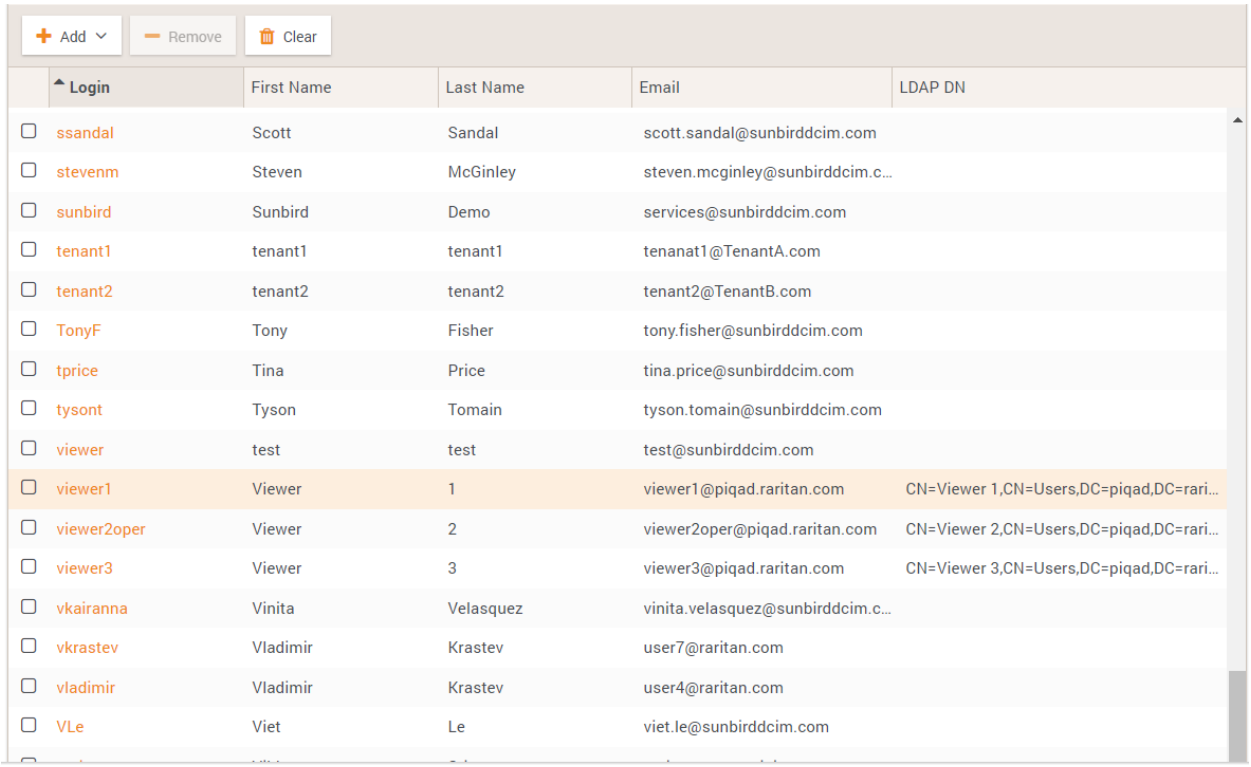
11. Select the checkboxes of the Users/Groups you want to add. If no checkbox is displayed, the users are already added to dcTrack. Once you have selected the Users/Groups, click the "Add" button in the tool bar. Optionally, you can click the "Add this User"/"Add this Group" button that appears in the far right column for each row.

Successfully added users no longer have a checkbox.

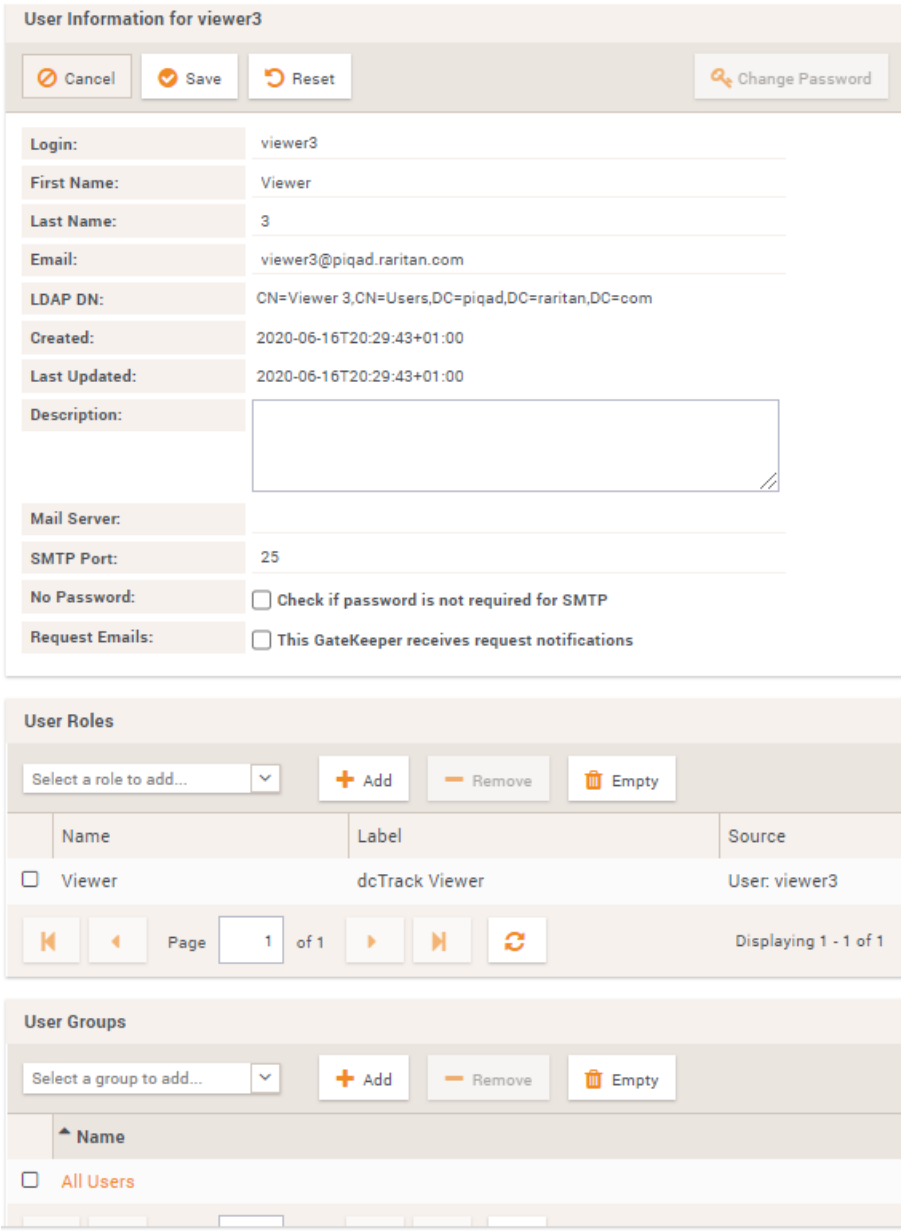
Edit User Information and Login Credentials

This information can be edited and configured now or at a later time.

12. To edit User or Group information, navigate to Settings > dcTrack Settings > Authorization & Authentication.
13. Click the appropriate "User Accounts" or "User Groups" menu otion.



14. Click on a user's name to open their User Information page.
15. Click Edit on the User Information page.
16. All editable fields are activated.



17. (Required) Login is required and must contain the username. 3 characters minimum. 40 characters maximum.

Note: If authentication is required by your email system, the dcTrack username must be the same as the user's email account username. If the usernames do not match, emails cannot be successfully sent from dcTrack.

Account username refers to the username assigned to the email account; it does not refer to the name portion of the user's email address. Typically, the username and name portion of an email are the same, but this may not be the case.

For example, if the username assigned to an email account is jqpublic, the dcTrack username must be jqpublic.

If authentication is not required by your system, user names do not have to match.

18. Click Save.

Check the Messages column to view errors for users who could not be added.

Local User Authentication

Authentication of Local Users is dependent upon your systems Password Requirements.

Failed Attempts

When a user logs into the application, their local user account is checked to ensure the password is correct and if the failed attempts option is activated, determining if the account has been locked due to too many failed attempts.

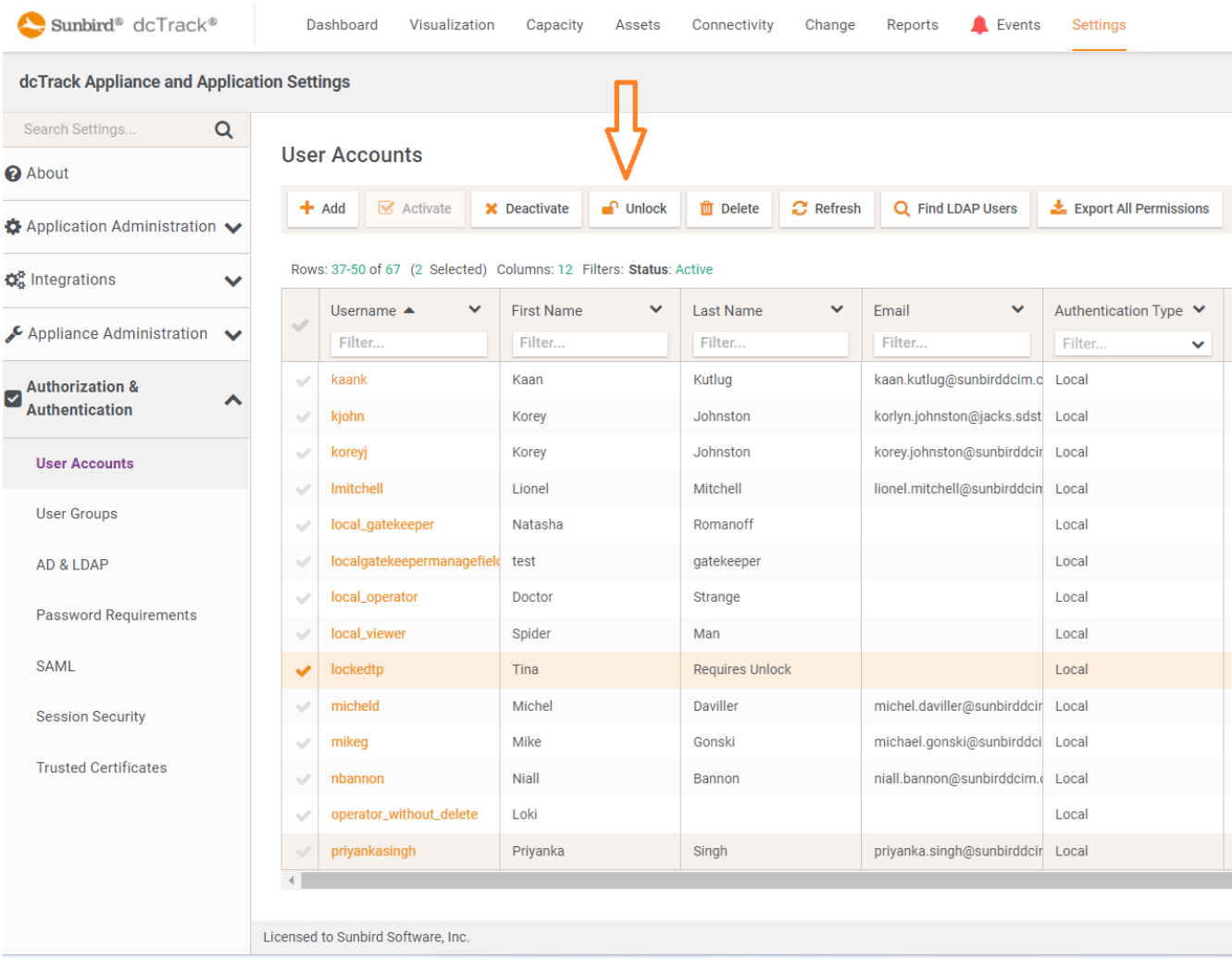
If the Failed Attempts password requirement is configured, each time a user logs into the application with an invalid password, the number of failed attempt is incremented. Once the number of failed attempts reaches the configured amount, the account is Locked. If the account is locked, the user will not be allowed to log in even if a valid password is entered.

Unlocking User Accounts

Depending on how the password requirement is configured, user accounts can be unlocked in one of two ways.

- Auto Unlock Duration. - If this option is configured, the user account will be automatically unlocked after the configured amount of time based on the time the account was locked.
- Manually unlocked by an Admin - If the number of failed attempts is configured and the Auto Unlock Duration is set to zero, accounts will never be unlocked automatically. In this case an Admin will have to unlock the account. This can be done from the Users List page. When an account is locked, the "Locked At" column will display the date and time the account was locked. To unlock the account, select the User from the list and

click the Unlock Button.



Note that authentication is required by your email system, the dcTrack username must be the same as the user's email account username. This may require you to contact your System Administrator in order to confirm the user authentication method and username.

For details on creating users and user groups, see **Manage dcTrack Users and Groups** .

Manage dcTrack Users and Groups

When you are initially building dcTrack and your first data center, you do not have to create all of your users and user groups at the same time.

User Groups

User groups are used to organize users within dcTrack. For example, you can create a group called dcTrack Viewer that will contain only users with Viewer-level permissions.

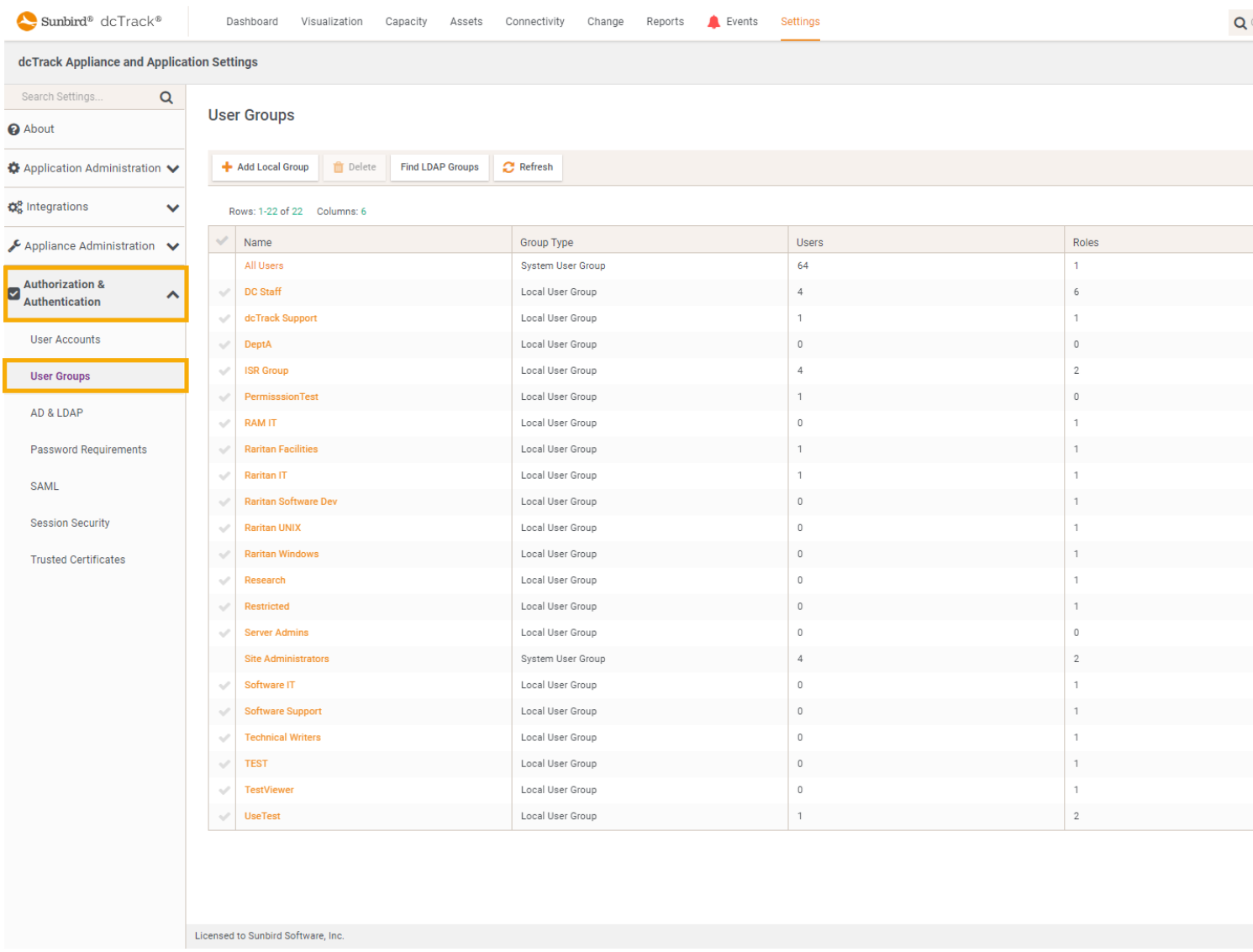
User groups are created and maintained by System Administrators or Gatekeepers in the Web Client.

Typically, user groups are created before users are created. This allows you to add users to a user group when you create their user account. However, you can create users before you create user groups, then assign the users to teams at a later time.

When you are first building your dcTrack, at a minimum, consider creating essential user groups and users, meaning those users who will help you build your data center in dcTrack, test it and manage it. This may include defining your Gatekeeper, users with Operator permissions to perform add and edit item tasks, and users with Viewer-level permission to verify access data and reports in dcTrack.

Note: If you are using LDAP for authentication, you have the option to import users and/or user groups. For more information, see Import LDAP User Groups and Add Users Automatically.

Site Admins access User Groups from the Settings tab, in the Authorization and Authentication section. This page lists all user groups in the system.



The User Groups list displays an actions bar with options as outlined in the following table. First select a user then complete the desired action.

Button	Description
Add Local Group	Click to add a new local user. See **Add User Groups to dcTrack**
Delete	Select a user group then click to delete the user group.
Find LDAP Group	Search for an LDAP GROUP.
Refresh	Click to refresh the user group list.

Group Details

To view the group details page, click the group name.

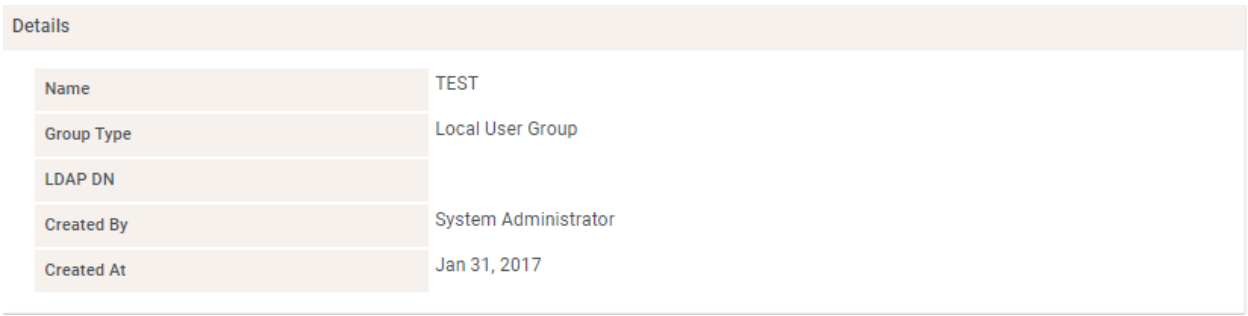
The Groups details page displays an actions bar with options as outlined in the following table. First select a user then complete the desired action.

Button	Description
Back to List	Click to return to the User Group List
Edit	Click to edit the group name. System Groups cannot be edited.
Delete	Click to delete the user group.

The group details page displays the following information:

Details

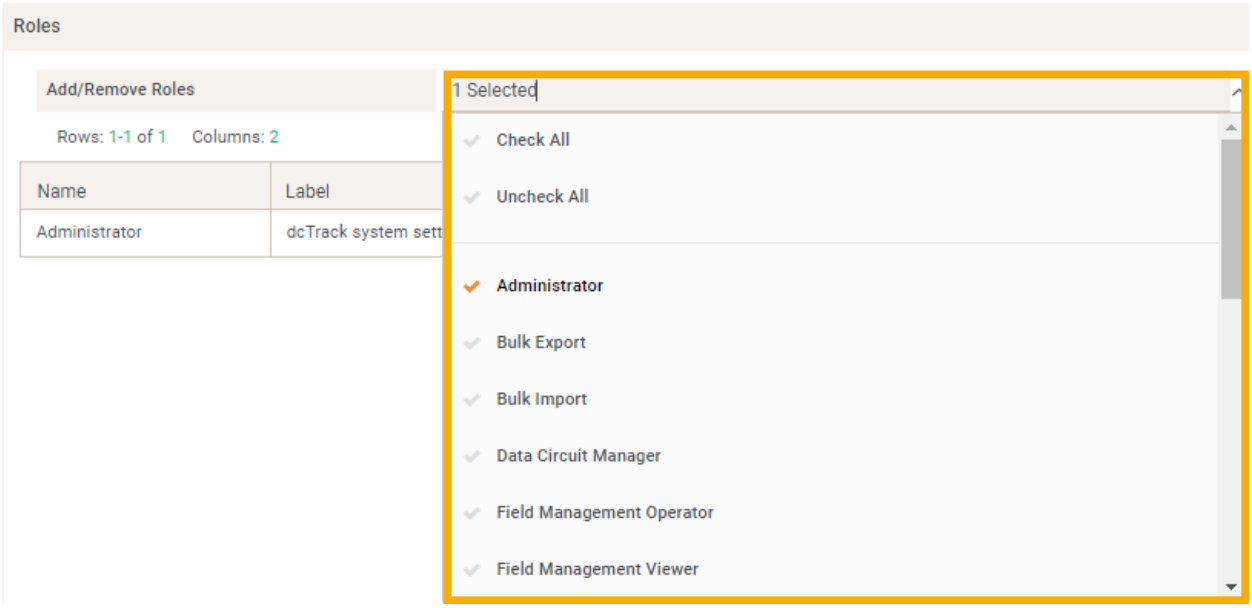
- Name
- Group Type
- LDAP DN
- Created By: User who created the group
- Created At: Create date and time



Roles

Site Administrate can manage the roles for a group.

On the group details page, click the Add/Remove dropdown to add or remove roles. Check a role to add it and uncheck a role to remove it.



User Accounts

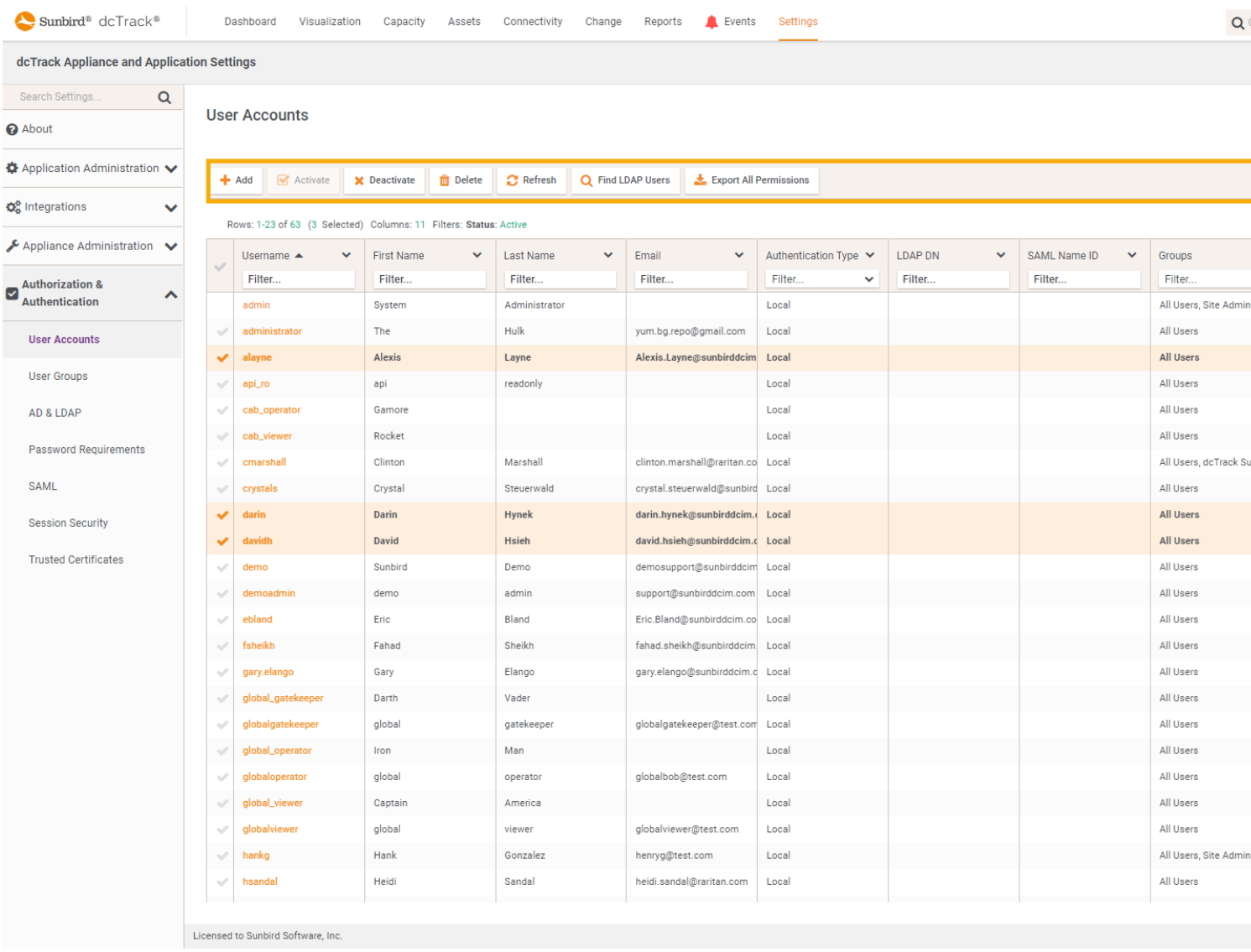
You can create as many users as needed.

dcTrack supports up to 80 (eighty) concurrent users, meaning up to 80 users can use the application at the same time.

The User Accounts List is accessible from the User Accounts tab in the Authorization and Authentication section of the Settings tab. It lists all dcTrack users and is the primary page for user management. As with other grids in dcTracj, you can search and filter the list using the filter fields in the header row.

The User Account List also displays the account Authentication Type (LDAP or Local) for each user.

To view a user's details, click their user name.



The User Accounts list displays an actions bar with options as outlined in the following table. First select a user then complete the desired action.

Button	Description
Add	Click to add a new local user. See **Add Local dcTrack Users**
Activate	Select a deactivated user, then click to reactivate the deactivated user.
Deactivate	Select an activate user, then click to deactivate the active user.

Button	Description
Delete	Click to delete a user
Refresh	Click to refresh the user account list
Find LDAP User	
Export All Permissions	Click to export permissions for all users in the system to a spreadshee. See Export a List of Users Permissions

Local Authentication or Remote Authentication

dcTrack supports both local authentication and remote authentication. Contact your System Administrator to determine if you are creating one or the other account exclusively, or both local and LDAP accounts.

Note that only System Administrators can create configure dcTrack for remote authentication and user management, or locate users via LDAP.

System Administrators can create, edit, and delete accounts for any dcTrack local user.

Viewers and Operators cannot create user accounts.

Note: As of dcTrack version 7.0.1 the User Name supplied when logging into dcTrack is no longer Case Sensitive. This applies to both Local and LDAP user accounts.

dcTrack User Roles and Privileges

This section describes the various roles and privileges that you can assign to users or user groups within dcTrack.

Privileges allow users to perform specific actions in dcTrack, such as the ability to add an item.

Actions are performed on objects, which include locations, items, and circuits.

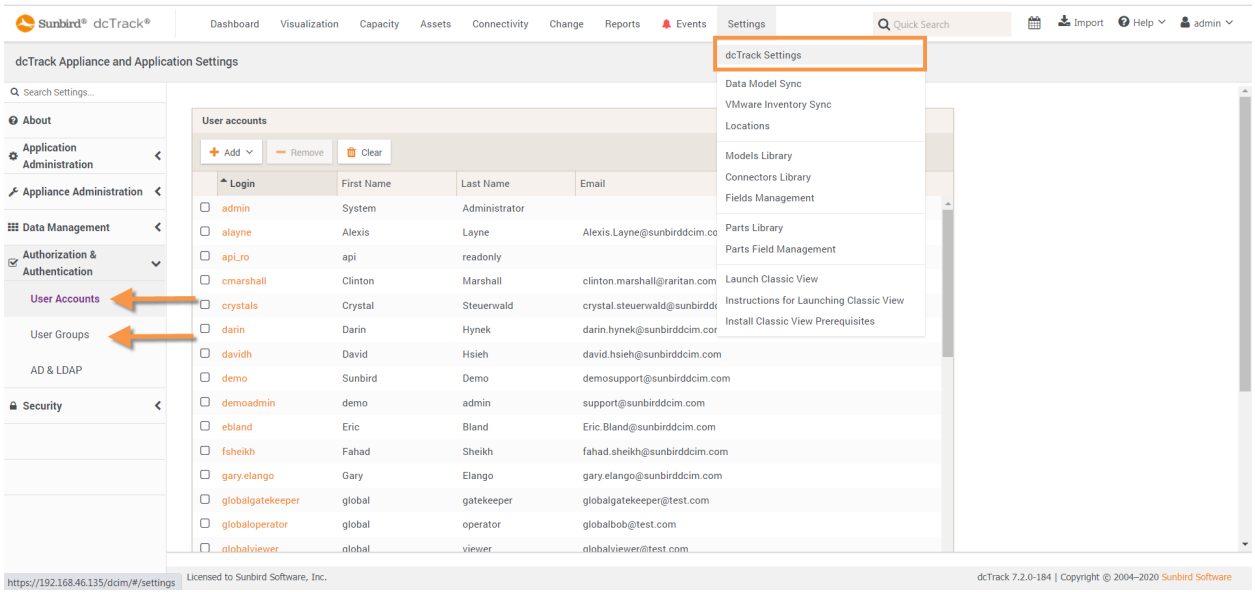
Roles are sets of privileges required to perform specific tasks. Roles in dcTrack include the following primary roles: System Administrator, Gatekeeper, Operator and Viewer. dcTrack also includes the following auxiliary roles: Bulk Import, Data Circuit Manager, Power Circuit Manager, Field Management Operator, Field Management Viewer, Library Operator, Library Viewer, Manage IP Address, Rack PDU Manager, Request Bypass, High Availability Service Role, Operator without Delete

There are also auxiliary functional roles that can be assigned in conjunction with another assigned role. Assigning permissions with an additional role allows more granular control over who can perform specific tasks and which objects are affected.

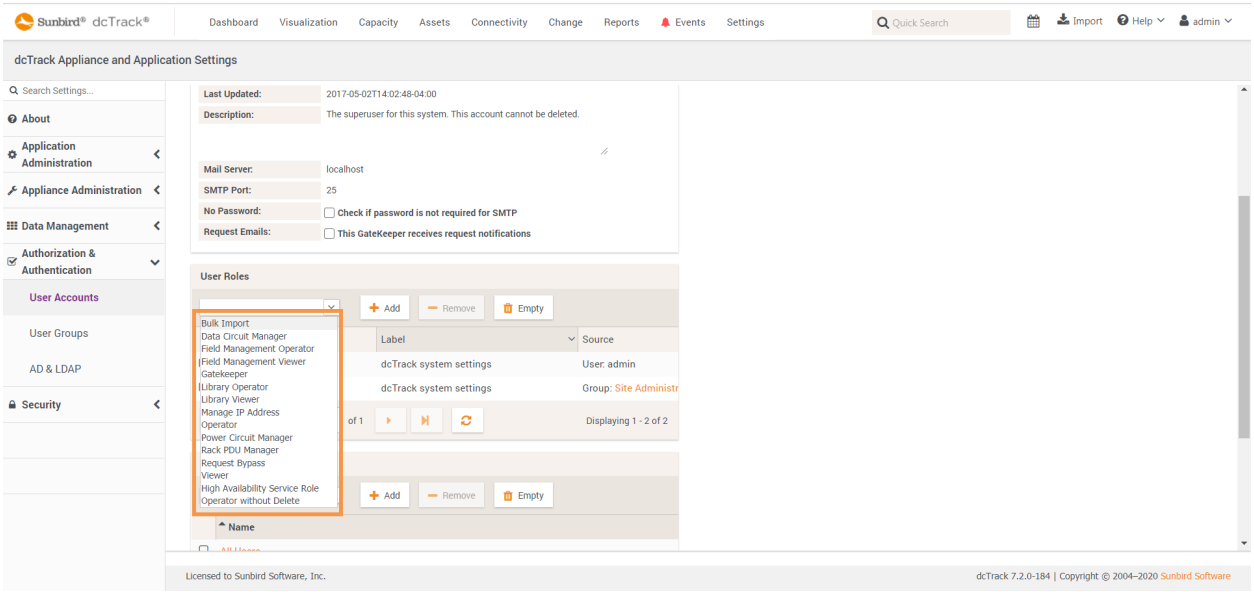
Roles are assigned globally from Settings > Authorization & Authentication > Users Accounts OR >User Groups.

Global and Local Levels of Permissions

You can assign any role to apply globally (at the enterprise level or appliance level), meaning access to perform specific actions will be granted for every object in dcTrack. Roles are assigned globally from the Settings tab > dcTrack Settings > Authorization and Authentication > Users Accounts OR >User Groups.



A list of roles is available from the dropdown in the User Roles section.



Some roles also can be assigned locally (at the object level or for specific locations, items, and/or circuits) for more granular permissions. Permissions can be assigned locally via the Permissions dialog on the appropriate Location Details or Item Details pages.

Permissions are applied and inherited following a parent-child (top-down) hierarchical structure. All permissions applied to the parent node are inherited by default for the children.

Note: In a few cases, roles may be assigned globally but the objects (locations, items, and circuits) affected are defined by locally assigned roles. For example, a user with globally assigned Bulk Import privileges is assigned permissions as an Operator in a single location. Therefore, that user is limited to Bulk Import within only the single location for which they are an Operator.

Roles in dcTrack

Roles are aggregated collections of individual privileges required to perform specific tasks. Roles in dcTrack include System Administrator, Gatekeeper, Operator, and Viewer.

The table below provides the roles, privileges, and assignments available in dcTrack.

Role	Allowed Privileges	Assigned Globally	Assigned Locally
System Administrator	Full privileges to all system resources and settings, including: • Manage Appliance Settings and dcTrack Settings	Yes	No

Role	Allowed Privileges	Assigned Globally	Assigned Locally
	• Add, edit and delete all data for locations, items, and circuits • Assign IP addresses • Manage events • Manage requests and work orders • View and print reports • Assign permissions of items and circuits over which I have control • Manage their own user settings • Delete Archived Items *Note The System Administrator role has been renamed System Administrator in dcTrack 9.2* *Note: The "Manage Item Status" Auxiliary role is automatically assigned to the "admin" user, but must be explicitly assigned to any other users with the System Administrator role".*		
Gatekeeper	Full privileges to all system resources and settings, excluding Appliance Settings and dcTrack Settings, and including: • Add, edit and delete all data for locations, items, and circuits • View IP addresses • Manage events • Manage requests and work orders • View and print reports • Assign permissions of items and circuits (based on local permissions) • Manage their own user settings Certain roles are not automatically assigned to Gatekeepers but can be assigned as Auxiliary Roles. These Roles include: • Manage Library (Library Operator) • Manage Lists (Field Management Operator) • Request Bypass	Yes	Yes (Location Level)
Operator	Full privileges to add, edit, and delete all information for items and circuits, including:	Yes	Yes (Location and Item Levels)

Role	Allowed Privileges	Assigned Globally	Assigned Locally
	• View IP addresses • Manage events • Submit requests and work orders • View and print reports • Manage their own user settings • View Locations List and Location Detail pages		
Viewer	Limited privileges and including: • View system resources • Manage own user settings • View Locations List and Location Detail pages	Yes	Yes (Location and Item Levels)

Auxiliary Functional Roles

dcTrack supports auxiliary functional roles, which can be assigned in conjunction with another assigned role. Assigning permissions with an additional role allows more granular control over who can perform specific tasks and which objects are affected.

Functional roles are provided by default to System Administrators, Gatekeepers, and Operators (when applicable).

Locally assigned functional roles can be added, edited, or deleted by System Administrators and Gatekeepers (when allowed based on location).

The available functional roles, privileges, and assignments are summarized in the table below.

Role	Privileges	Assigned Globally	Assigned Locally	Role is Sufficient for Login
Bulk Export	• Users can export items in bulk • Can be assigned globally, however the locations, items and circuits the export can be performed on are governed by pre-existing roles that can be defined locally or globally. For example Bulk Export + Operator defined locally on a location, allows Bulk Export of items and circuits contained therein but not in other locations (The Bulk Export priviledge is limited to	Yes	Yes	No

Role	Privileges	Assigned Globally	Assigned Locally	Role is Sufficient for Login
	bulk export only those models, locations, parts, items and circuits, custom fields (or any other object type that supports export) that they have view privileges for)). • Automatically assigned to the All Users group for backwards compatibility			
Bulk Import	• Add, edit, and delete items and/or circuits via Import • Manage only items and/or circuits that they have access to • Can be specifically assigned to users and user groups	Yes	Yes	No
Data Circuit Manager	• Add, edit, and delete data circuits • Manage only circuits that they have access to (assigned locally) • Can be specifically assigned to users and user groups	Yes	Yes	Yes
Field Management Operator	Replaces the Manage Lists role effective dcTrack version 7.2.0 • View Standard and Custom Fields Page • Add, edit, and delete Standard and Custom Fields • Can be specifically assigned to users and user groups	Yes	No	No
Field Management Viewer	• View Standard and Custom Fields Page • Can be specifically assigned to users and user groups	Yes	No	No
High Availability	• Role required by the service	Yes	No	Yes

Role	Privileges	Assigned Globally	Assigned Locally	Role is Sufficient for Login
Service Role	account user to be used for authentication when establishing communications with the High Availability secondary node.			
Library Operator	Replaces Manage Library role effective dcTrack version 7.2.0 • Access libraries • Update the Models Library and Parts Library • Add, edit, and delete models, connectors, and MIBs	Yes	No	No
Library Viewer	• Access libraries • View the Models Library and Parts Library	Yes	No	No
Manage Archived Items	• Ability to Edit or Delete Items in the Archived status.	Yes	No	No
Manage IP Address	• Access IP assignments • Add, edit, and delete IP addresses	Yes	Yes	No
Manage Item Status	• Perform most transitions without going through the normal dcTrack workflow	Yes	Yes	No
Manage Network Diagrams	• Create, edit and delete network diagrams. • Edit and reset node positions of network diagrams.	Yes	No	No
Manage Power SLD	• Ability to generate and modify Power Single Line Diagrams	Yes	No	No

Role	Privileges	Assigned Globally	Assigned Locally	Role is Sufficient for Login
Operator Without Delete	Full privileges to Add and Edit all information for Items and Circuits, including: • View IP addresses • Manage events • Submit requests and work orders • View and print reports • Manage their own user settings	Yes	Yes (Location and Item Levels)	Yes
Power Circuit Manager	• Add, edit, and delete power circuits • Manage only circuits that they have access to (assigned locally) • Can be specifically assigned to users and user groups	Yes	Yes (Location Level)	Yes
Rack PDU Manager	• Can access IP assignments and view IP addresses • Can access events • Can submit and cancel requests • Can complete work orders • Can access APIs and use REST and ticketing APIs • Can edit their own account settings • Can be specifically assigned to users and user groups • Can create/edit/delete items of class rack pdu	Yes	Yes (Location or Item Level)	Yes
Request Bypass	• View Request Bypass requests • Enable and disable Request Bypass requests. • Enabled by default for System Administrators.	Yes	No	No
Manage Floor Maps	When assigned globally all of the tabs in the floor map configuration dialog are accessible and the "Apply to all loc-	Yes	Yes	No

Role	Privileges	Assigned Globally	Assigned Locally	Role is Sufficient for Login
	ations" button is visible. When assigned locally the following tabs will be available: • Drawing File • Floor Plan - "Apply to all locations" button will be hidden • Cabinets - "Apply to all locations" button will be hidden • Layers • Connectivity - "Apply to all locations" button will be hidden • Reports Threshold - "Apply to all locations" button will be hidden Note: A user with just this role cannot access a floor map. To access a floor map the user must have either item or location level permissions.			

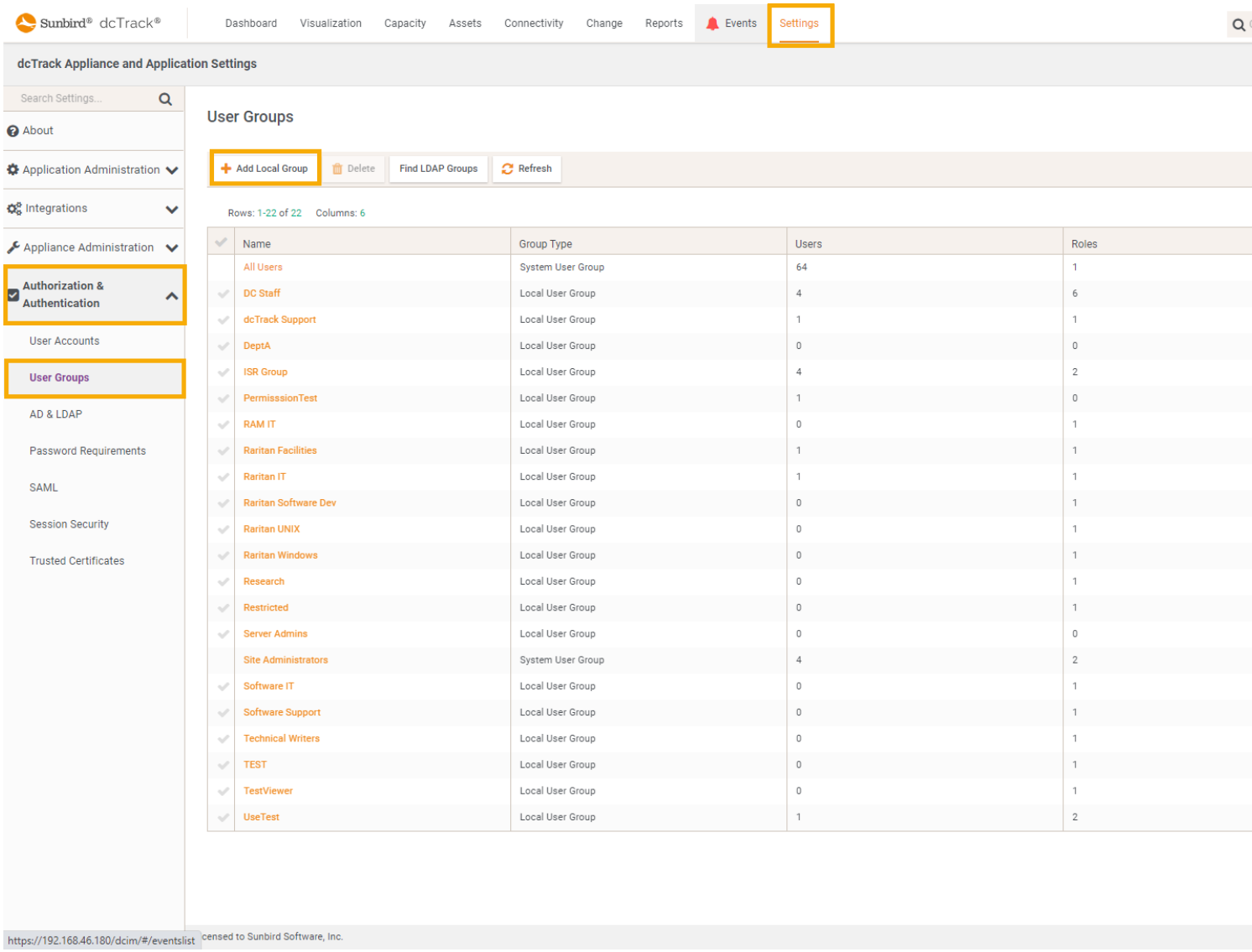
Note: Some roles may be assigned globally but the objects (locations, items, and circuits) affected are defined by locally assigned roles. For example, a user with the Operator role assigned for a specific location and the Bulk Import role can access the Bulk Import feature for that location but not for other locations.

Add User Groups to dcTrack

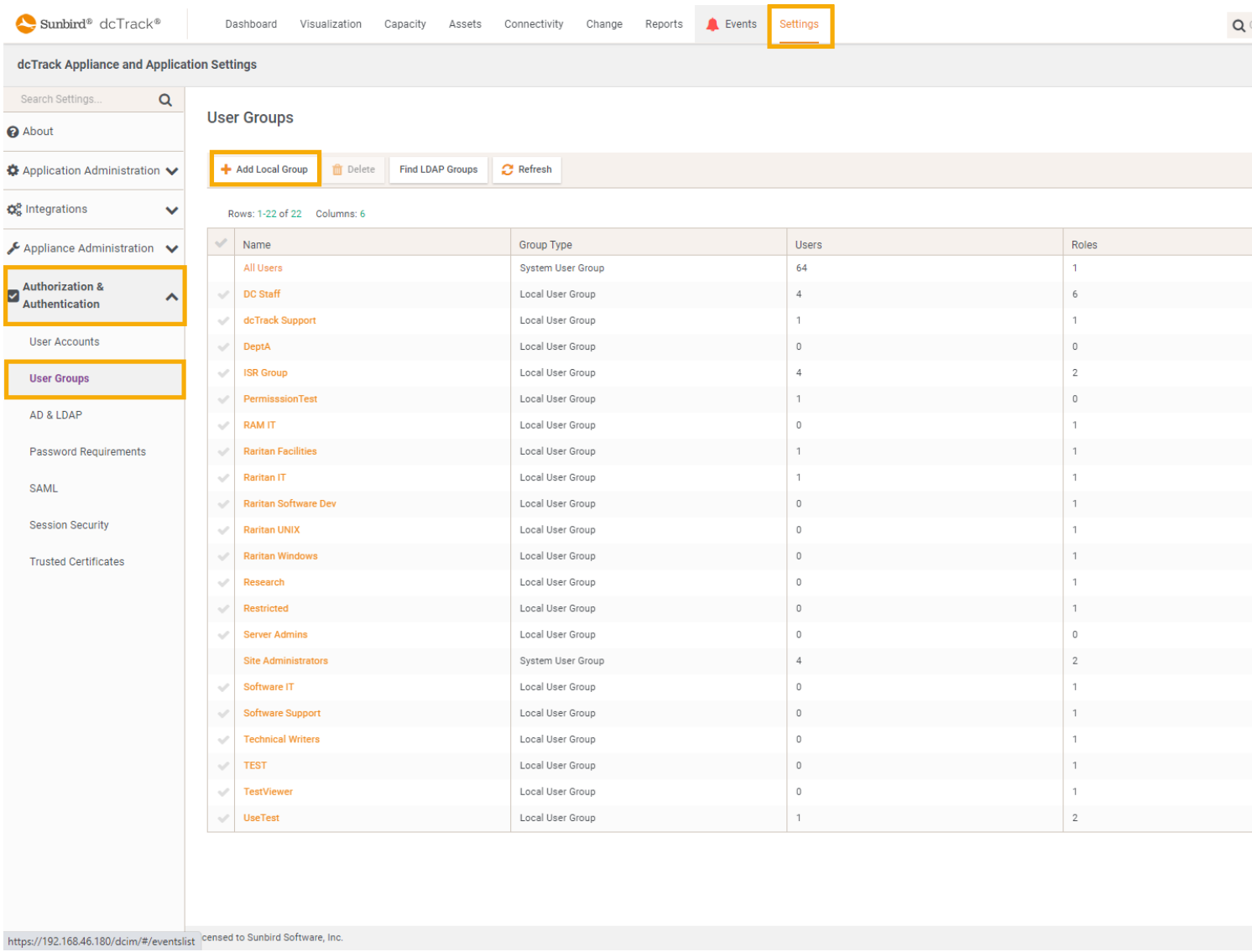
You can add as many user groups to dcTrack as your organization needs.

User groups are added from the dcTrack Settings menu, which is accessed from the Web Client.

1. To add a new group, navigate to Settings > dcTrack Settings > Authorization & Authentication and click on the User Groups menu option



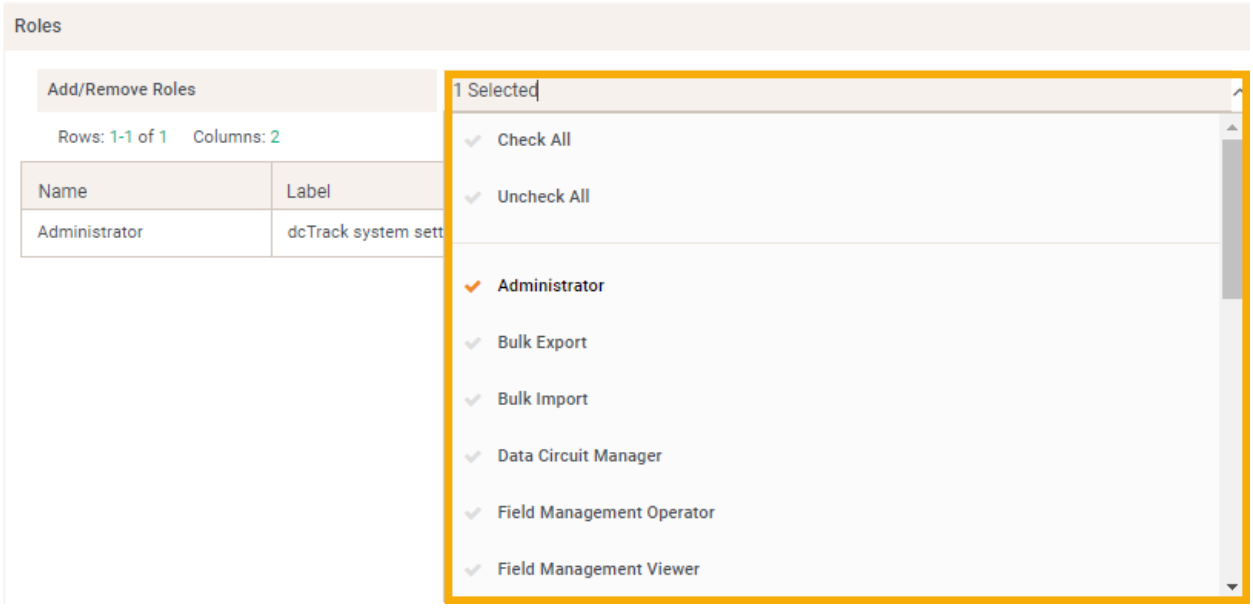
2. On the User Groups page, click Add.



4. Enter a name for the user group and click Add to create the group.

5. From the Group Roles panel on the group Details page, select one or more Roles associated with the Group. Each member of the group will inherit the Group's Roles. To add each Role, select the Role from the drop down list.

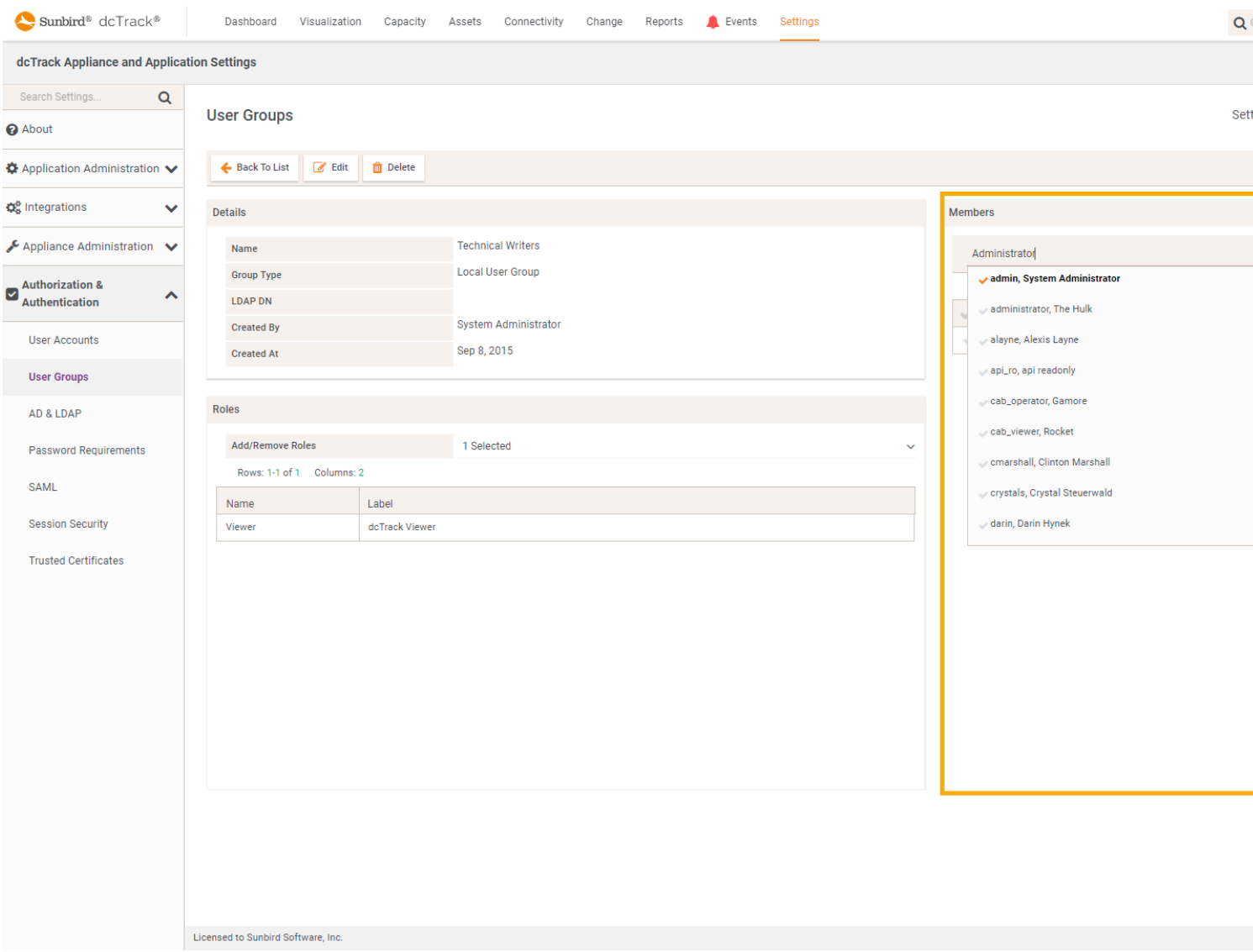
6. From the Group Members panel on the Group Information page, select the Users you want to add to the Group. To add each Menber, select the User from the drop down list and click the "Add" button.



Note: : The user group name character limit is 255 characters.

Remove Users from Groups

To remove individual Users from a Group, uncheck the user from the Members list on the Group details page..

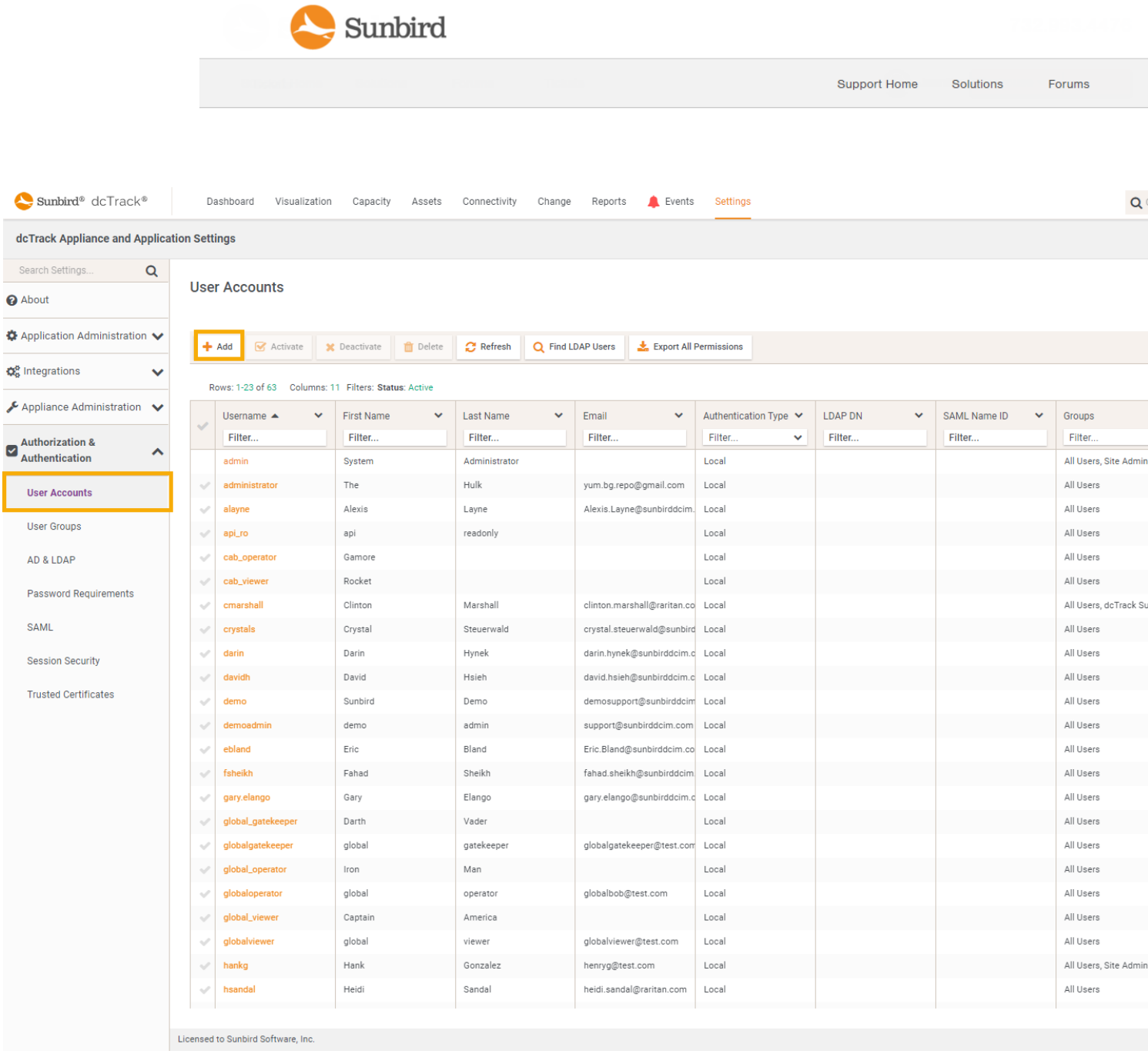


Add Local dcTrack Users

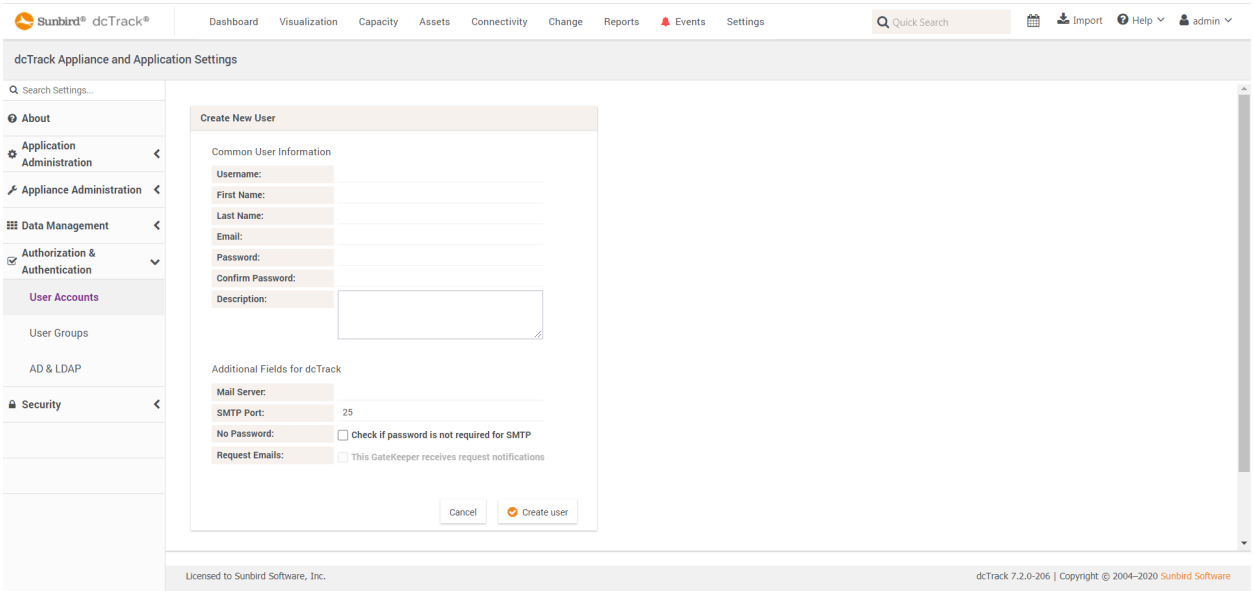
Local users are validated based on credentials you configured in dcTrack and provide to users.

User accounts are added from the dcTrack Settings tab.

1. From Settings > dcTrack Settings > Authorization & Authentication, click User Accounts. The User list page opens displaying a list of all the user accounts created for the system.



2. Choose Add > Add. A blank user information page opens.



3. Enter the following required fields:
   - Username - must be at least 3 characters, but no more than 255 characters
   - First Name
   - Last Name
   - Password
   - Confirm Password
4. You can optionally enter the following fields:
   - Email
   - Description
   - Mail Server
   - SMTP Port
   - No Password
   - Request Emails - Applicable only for user accounts with the Gatekeeper role

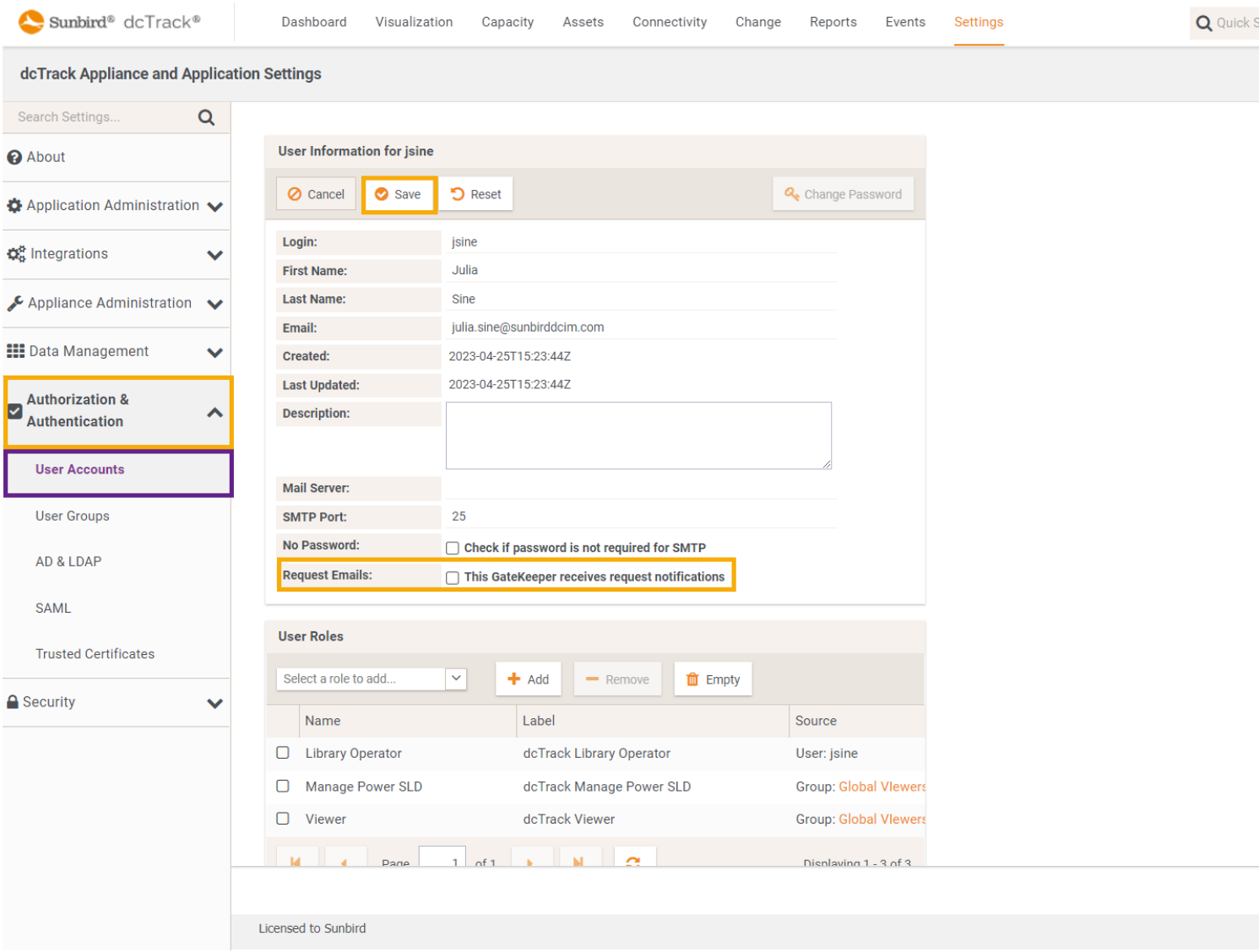
Note: As of dcTrack version 7.0.1 the User Name supplied when logging into dcTrack is no longer Case Sensitive. This applies to both Local and LDAP user accounts.

Enable Request Email Notifications for Gatekeepers

In order for a user with the role of Gatekeeper to automatically receive a notification each time an action request is submitted for an item or circuit, the " " checkbox must be enabled on their User page in dcTrack on the Settings page.

To enable request email notifications for Gatekeepers:

1. In the Settings tab, click Authentication & Authorization
2. Click User Accounts.
3. Select the Gatekeeper user to open the user's user infornation panel to edit their information or add the user as a Gatekeeper if you have not already done so. See Add a User.
4. Click Edit
5. Select the "This GateKeeper receives request notifications" checkbox on the "User Information for" panel.
5. Click Save.


Sunbird® dcTrack®
Dashboard Visualization Capacity Assets Connectivity Change Reports Events Settings
dcTrack Appliance and Application Settings
Search Settings...
About
Application Administration
Integrations
Appliance Administration
Data Management
Authorization & Authentication
User Accounts
User Groups
AD & LDAP
SAML
Trusted Certificates
Security
User Information for jsine
Cancel Save Reset Change Password
Login: jsine
First Name: Julia
Last Name: Sine
Email: julia.sine@sunbirddcim.com
Created: 2023-04-25T15:23:44Z
Last Updated: 2023-04-25T15:23:44Z
Description:
Mail Server:
SMTP Port: 25
No Password: Check if password is not required for SMTP
Request Emails: This GateKeeper receives request notifications
User Roles
Select a role to add... Add Remove Empty
Name Label Source
Library Operator dcTrack Library Operator User: jsine
Manage Power SLD dcTrack Manage Power SLD Group: Global Viewers
Viewer dcTrack Viewer Group: Global Viewers
Page 1 of 1
Displaying 1 - 3 of 3
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Manage a User's Edit Access to Items

A user's ability to edit an item is based on whether or not the user's role has Edit privileges.

For example: Viewers cannot edit any items. System Administrators can edit all items.

In dcTrack 5.2 and later, System Admin and Admin Team have been relabeled to Contact and Contact Team respectively. These fields are for informational purposes only and do not affect ownership permissions.

Note: The item's workflow status also can limit the ability to edit it. Items with an Approved request cannot be edited; the item's Work Order must be marked Complete to edit the item.

For more information, see Assign User Permissions Locally for Locations, Items, and Circuits.

Assign User Permissions Locally for Locations, Items, and Circuits

Some roles can be assigned locally (at the object level for specific locations, items, and/or circuits) for more granular permissions. Permissions can be assigned locally by assigning roles via the Permissions dialog on the appropriate Location Details or Items Details pages or on the Locations list or Items list. You also can assign Permissions on Grid Report widgets to control the view of data from ODBC views.

Locally assigned roles can be added or deleted by System Administrators and Gatekeepers (when allowed based on location). For example, users with the role of Viewer can only view items; they cannot make changes to items. System Administrators can edit all items.

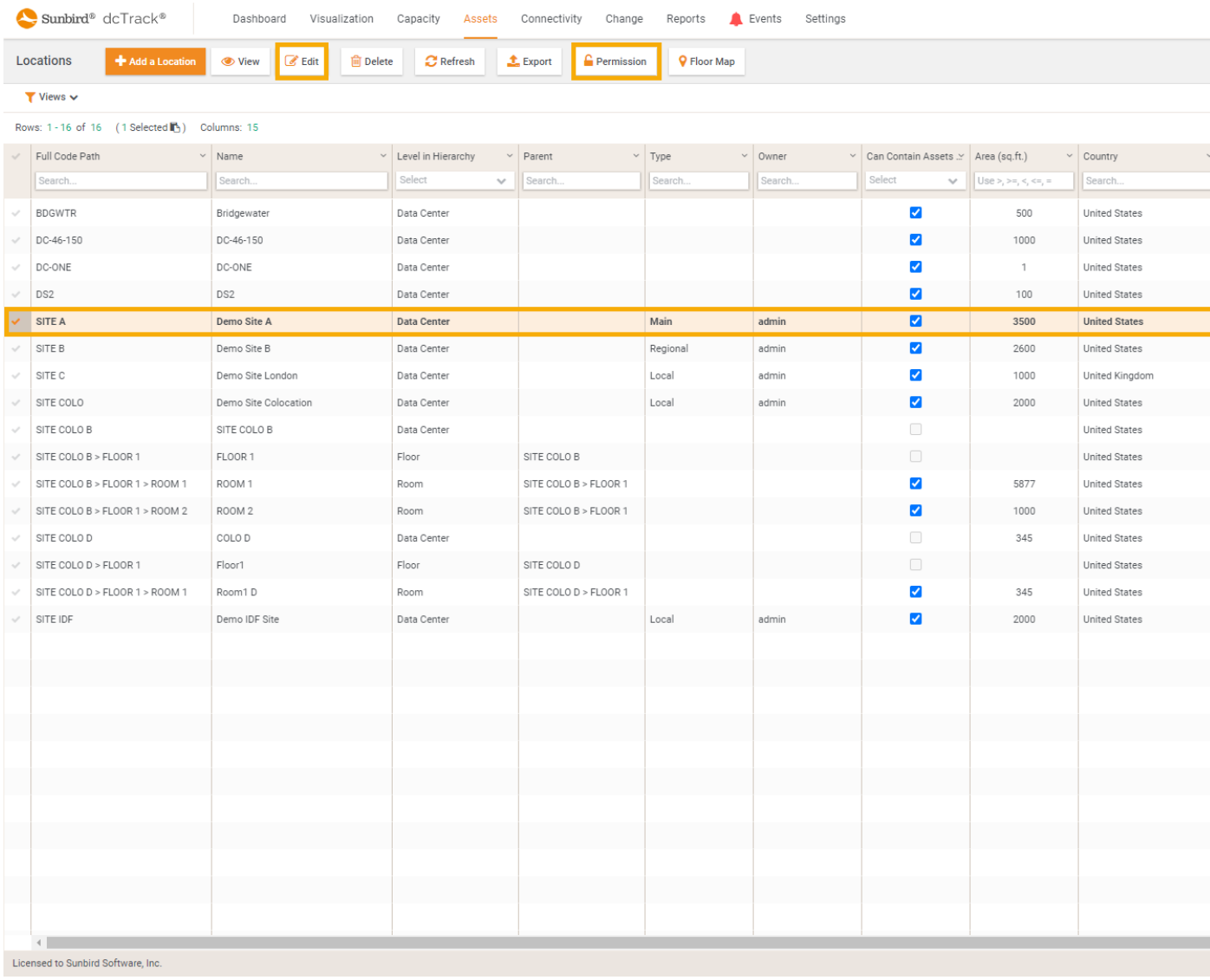
Note: The System Admin and Admin Team labels used in earlier versions of dcTrack have been relabeled to Contact and Contact Team respectively. These fields are for informational purposes only and do not affect ownership privileges. You can continue to use System Admin and Admin Team or Contact and Contact Team in File Import, but do not use both.

For descriptions of roles, see **dcTrack User Roles and Privileges**.

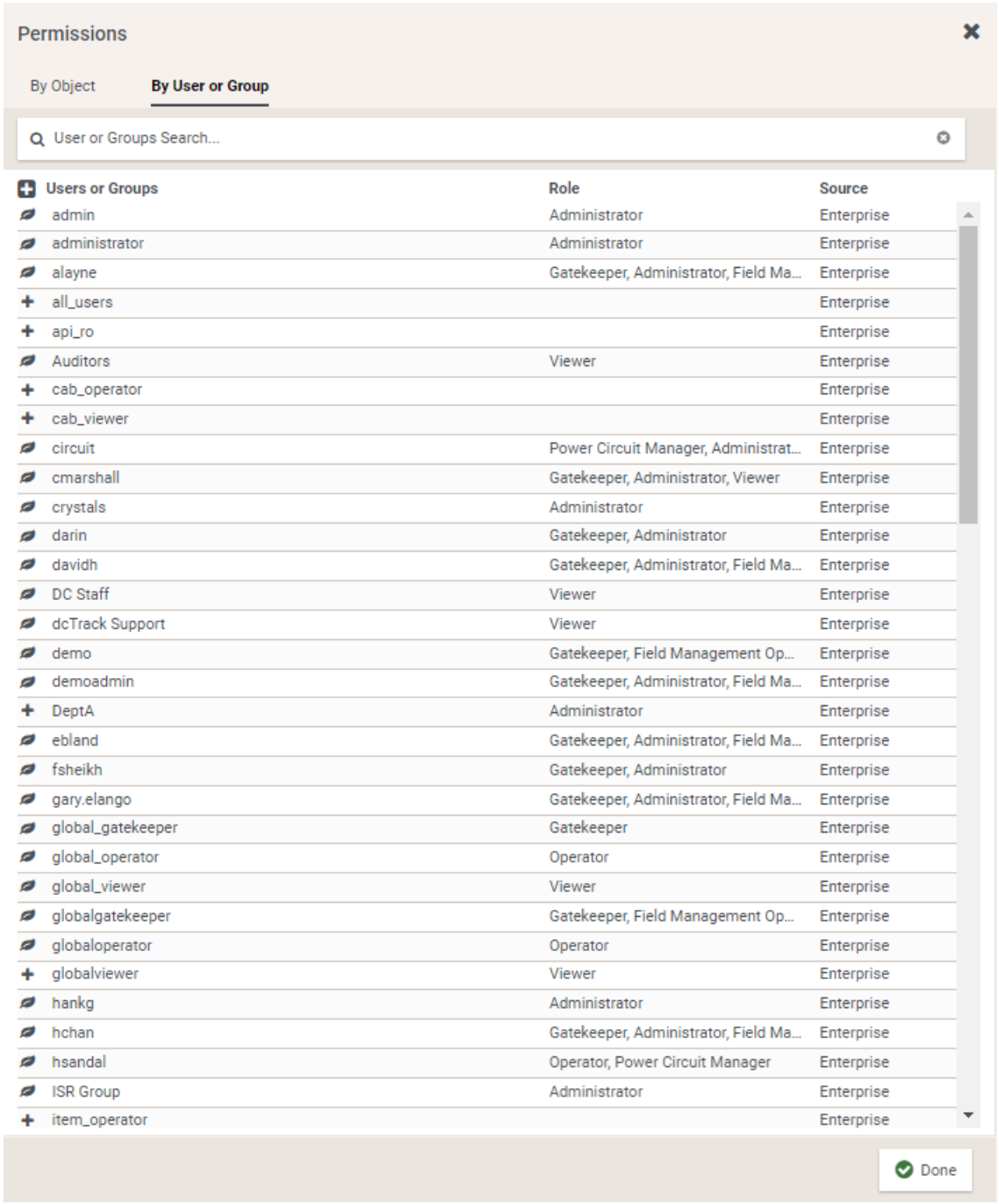
To add permissions for Locations and Items:

1. On the Locations or Items lists under Assets, select the location or Item whose permissions you want to edit.
    - You can also set permissions from the Item Detail or Location Detail pages

2. Click the Permissions button to open the Permissions dialog.



3. The Permissions Dialog opens and displays a grid of users and user groups, roles, and sources of the permissions. Only adding or deleting permissions is allowed.



4. To add permissions, click Add. You can then select the user or user group and appropriate role, then click Add Permission.
5. To delete permissions, select the appropriate row for the permission and click the Delete button. You can select multiple rows to delete multiple permissions.

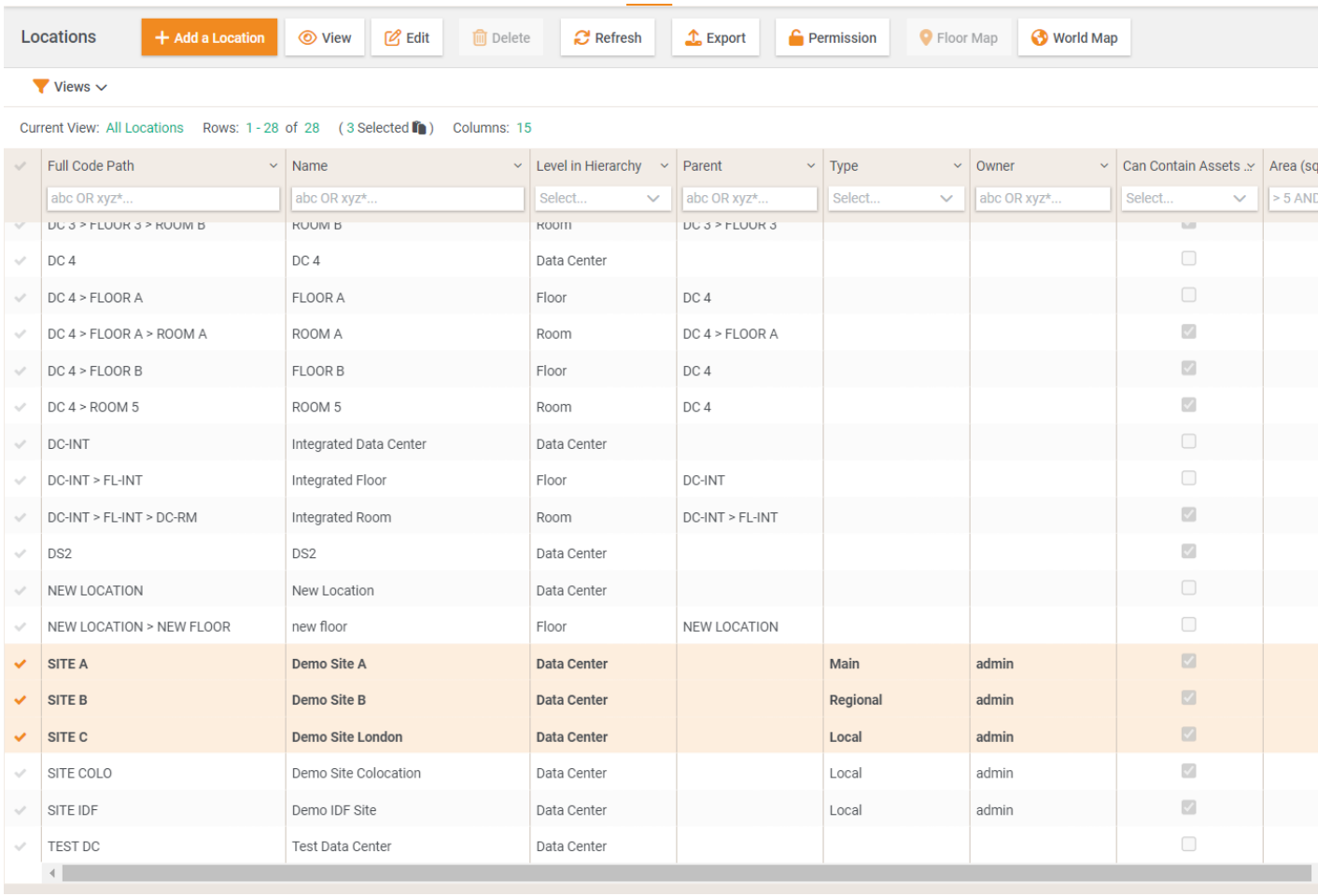
6. To cancel and close the dialog box, click Cancel.

Note: Permissions cannot be edited. To change a permission, delete the existing permission and then add the new permission.

Assigning Permissions in Bulk

Permissions for Items, Locations and Circuits can also be managed in bulk via the Items or Locations Lists. To manage explicit permissions for multiple objects:

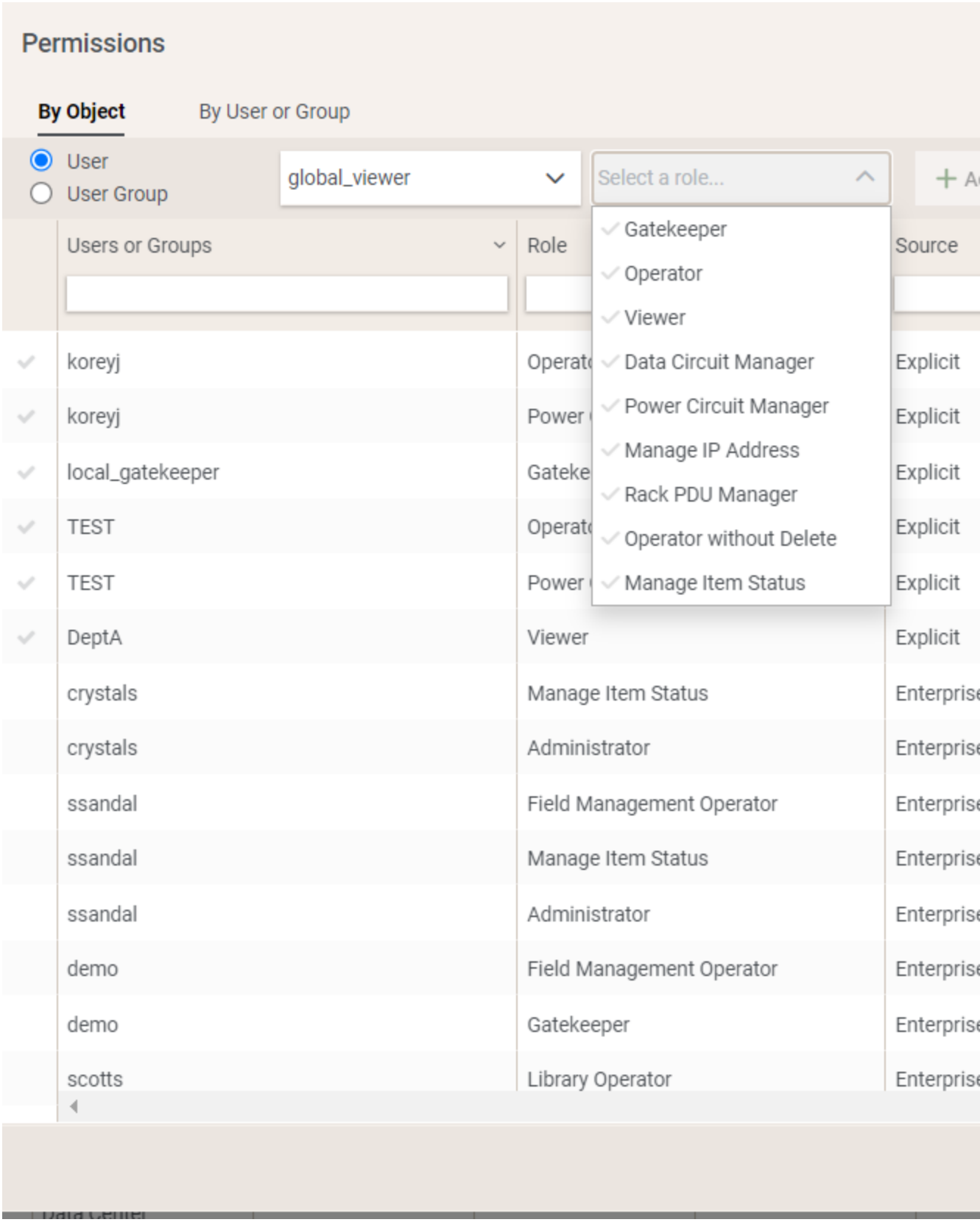
1. Select the objects from the List



Full Code Path	Name	Level in Hierarchy	Parent	Type	Owner	Can Contain Assets
DC 4	DC 4	Data Center				
DC 4 > FLOOR A	FLOOR A	Floor	DC 4			
DC 4 > FLOOR A > ROOM A	ROOM A	Room	DC 4 > FLOOR A			
DC 4 > FLOOR B	FLOOR B	Floor	DC 4			
DC 4 > ROOM 5	ROOM 5	Room	DC 4			
DC-INT	Integrated Data Center	Data Center				
DC-INT > FL-INT	Integrated Floor	Floor	DC-INT			
DC-INT > FL-INT > DC-RM	Integrated Room	Room	DC-INT > FL-INT			
DS2	DS2	Data Center				
NEW LOCATION	New Location	Data Center				
NEW LOCATION > NEW FLOOR	new floor	Floor	NEW LOCATION			
SITE A	**Demo Site A**	**Data Center**		**Main**	**admin**	
SITE B	**Demo Site B**	**Data Center**		**Regional**	**admin**	
SITE C	**Demo Site London**	**Data Center**		**Local**	**admin**	
SITE COLO	Demo Site Colocation	Data Center		Local	admin	
SITE IDF	Demo IDF Site	Data Center		Local	admin	
TEST DC	Test Data Center	Data Center				

2. Click the permissions button from the list tool bar to open the Permissions dialog box
3. Click the Add button to open the Add permission fields

4. Select the User/Group and Role you want to grant for the selected objects.


Permissions
By Object
By User or Group
User
User Group
global_viewer
Select a role...
Gatekeeper
Operator
Viewer
Data Circuit Manager
Power Circuit Manager
Manage IP Address
Rack PDU Manager
Operator without Delete
Manage Item Status
Users or Groups
Role
Source
koreyj
Explicit
koreyj
Explicit
local_gatekeeper
Explicit
TEST
Explicit
TEST
Explicit
DeptA
Viewer
Explicit
crystals
Manage Item Status
crystals
Administrator
ssandal
Field Management Operator
ssandal
Manage Item Status
ssandal
Administrator
demo
Field Management Operator
demo
Gatekeeper
scotts
Library Operator

5. Click the Add Permission button to add the Role to the selected User/Group

- To Delete permissions, select the row(s) of the Users/Groups whose permissions you are deleting and click the Delete button. You will be prompted with a warning you are deleting permissions. To cancel the delete click the Cancel button, to delete the selected permissions click OK.

5. Click the Done button to close the dialog box

- You can assign roles to multiple Users/Groups or multiple roles for a single User/Group by selecting the User-/Group and Role from the drop downs prior to clicking the Done Button.

Define a User's Default Site/Default Location

A user's default location (site) is the location that is automatically selected each time the user logs in to dcTrack. The system default location is defined by the System Administrator.

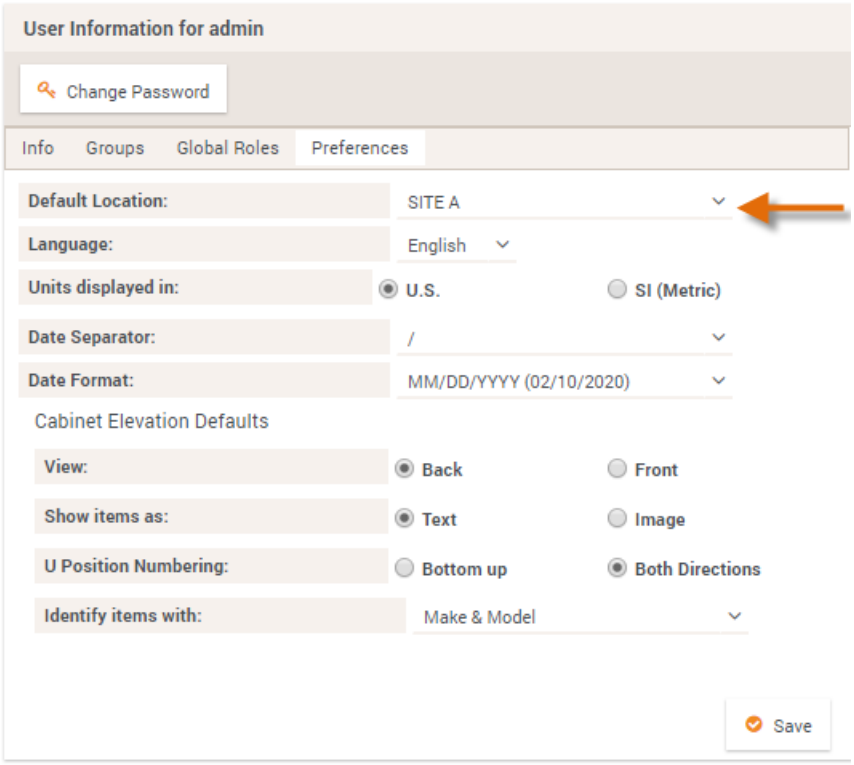
If a default location is not defined for a user, the system location is automatically selected each time the user logs in.

Each time a user logs in to dcTrack, the default location is displayed in the:

- Default Location drop-down: All of the locations the user has access to are listed in this drop-down. Making a selection from the Default Location drop-down has no impact on the application.
- Location drop-down: All of the locations the user has access to are listed in this drop-down. Users can change the location they are working by selecting another location from the Location drop-down.

Users can define their own default locations in the User Settings panel:

1. To access the User Settings panel, click your username in the upper right corner or click Settings > User Settings.
2. On the Preferences tab, use the dropdown to select your default location.



3. Click the Save button.

Define a User's Default Unit of Measure

Units of measure can be either US or SI (metric) measurements. U.S. settings are the default.

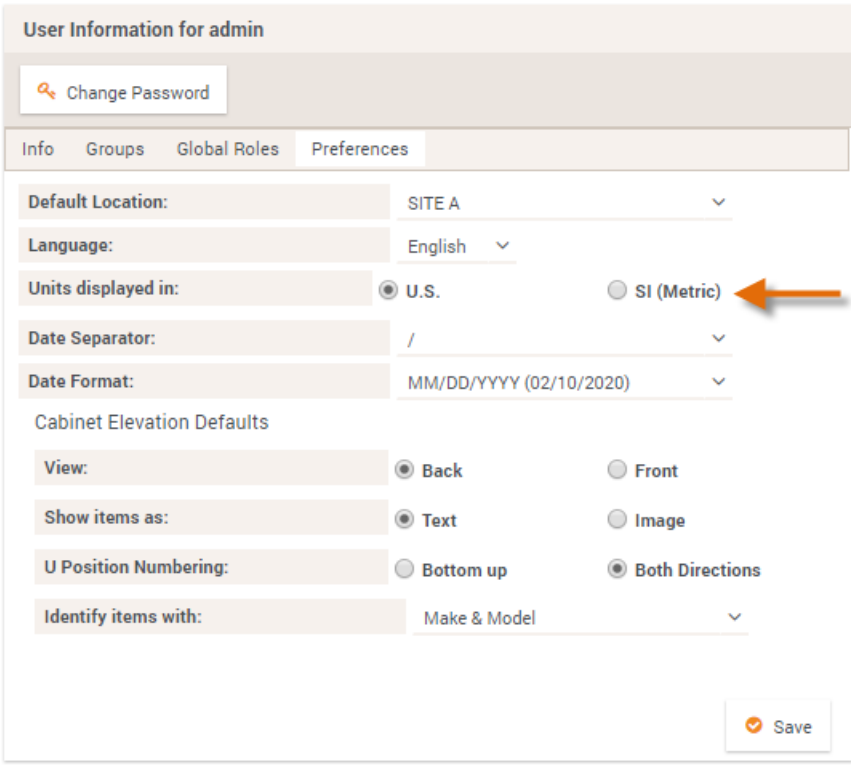
Measurement settings are applied on a per user basis.

The selected measurement units apply to all measurements captured in the dcTrack Web Client such as cabinet height, item weight, and so on.

Users can define their own default units in the User Settings panel:

1. To access the User Settings panel, click your username in the upper right corner or click Settings > User Settings.

2. On the Preferences tab, use the radio buttons to select your units.



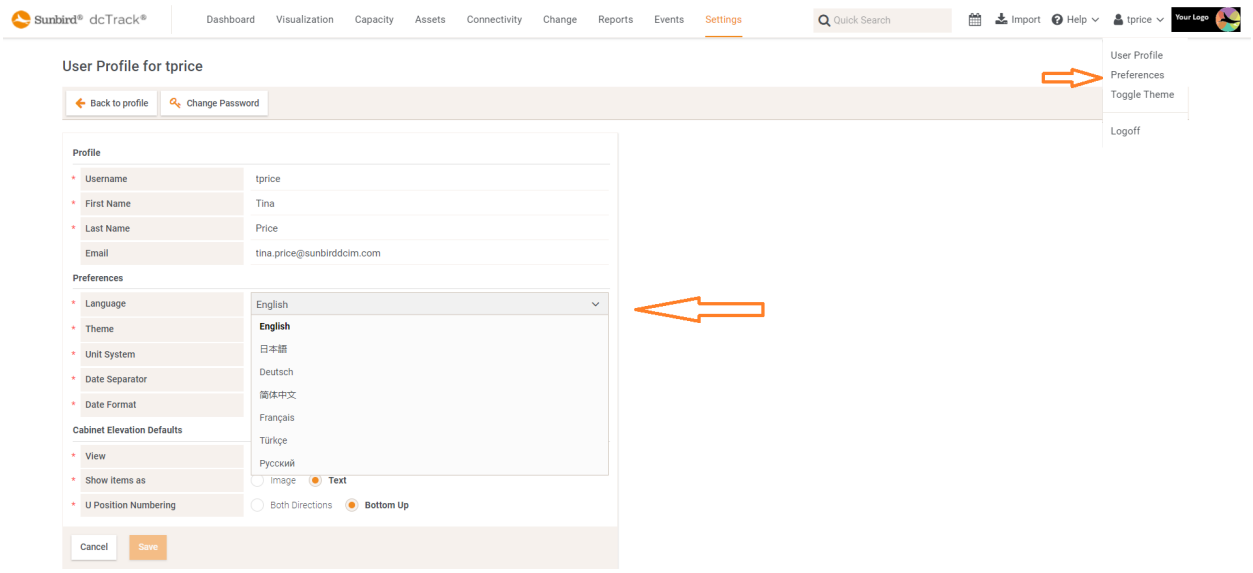
3. Click the Save button.

Define a Users Default Language

The dcTrack Internationalization feature provides the ability to define a language setting on a per user basis allowing users to better utilize the dcTrack application in their native language. In addition to English, dcTrack supports French, German, Japanese, Simplified Chinese and Turkish. The language selection applies to all Menu Items, Field Labels, Messages and Prompts for that user.

To set your language preference:

1. Click your username located in the upper right corner of the main menu.
2. Click on the Preferences option
3. Select the desired language from the Language selection drop down list
4. Click the Save button to save your selection



Language preferences will take effect after logging off and back into dcTrack,

Define a User's Default Date Format

Dates in dcTrack can be formatted to conform to the ISO Standard Date format as well as several other localized formats.

Date Format settings are applied on a per user basis, so each user can select their preferred format without affecting how dates are displayed for other users.

The selected Date Format applies to all dates visible in the Web Client as well as dates exported in files.

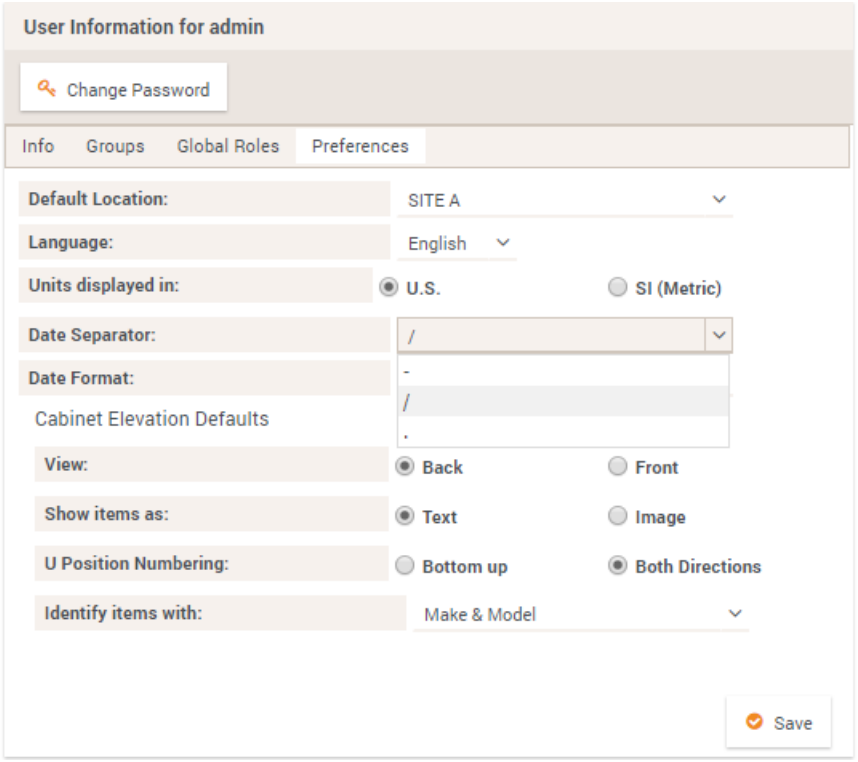
The only exceptions are for dates appearing under the dcTrack Settings menu. Most of these dates are formatted using the ISO Standard Date format.

Users can define their own Date format.

1. To access the User Settings panel, click your username in the upper right corner or click Settings > User Settings.

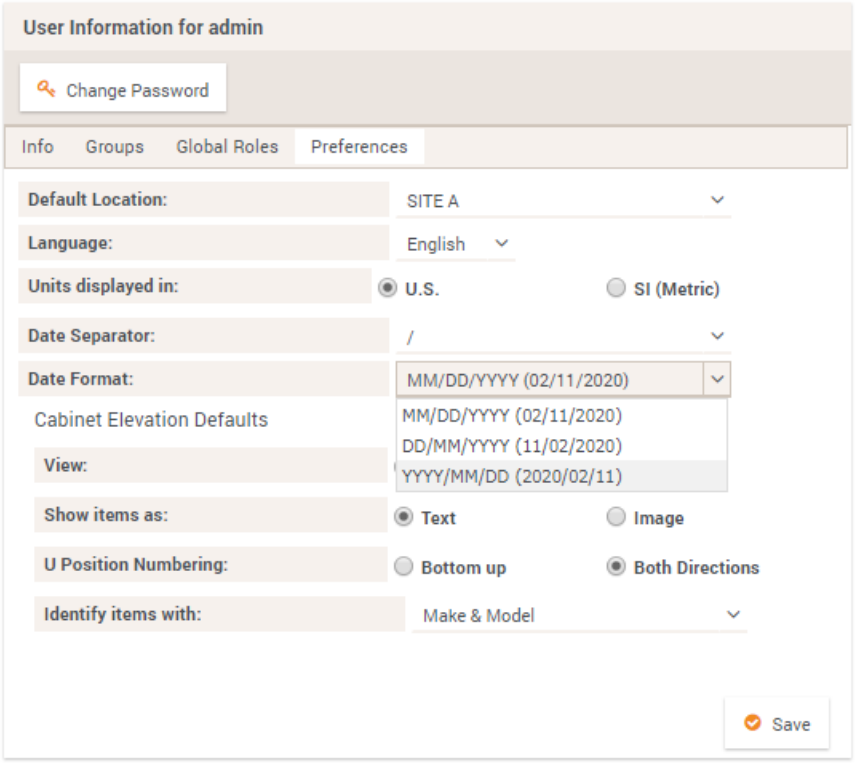
2. On the Preferences tab, use the dropdown to select your preferred Date Separator. Valid options are:

- "-"
- "/"
- "."



3. After selecting the Separator, select your preferred format. The current date formatted with the selected Separator is displayed in the list box for each available format. Valid Options are:

- MMDDYYYY
- DDMMYYYY
- YYYYMMDD



4. Click the Save button.

Note: The admin account's user preferences for Language, Theme, Unit System, Data Separator, Date Format and all Cabinet Elevation preferences are used as the default preferences for all new users.

Edit Users - Local and LDAP

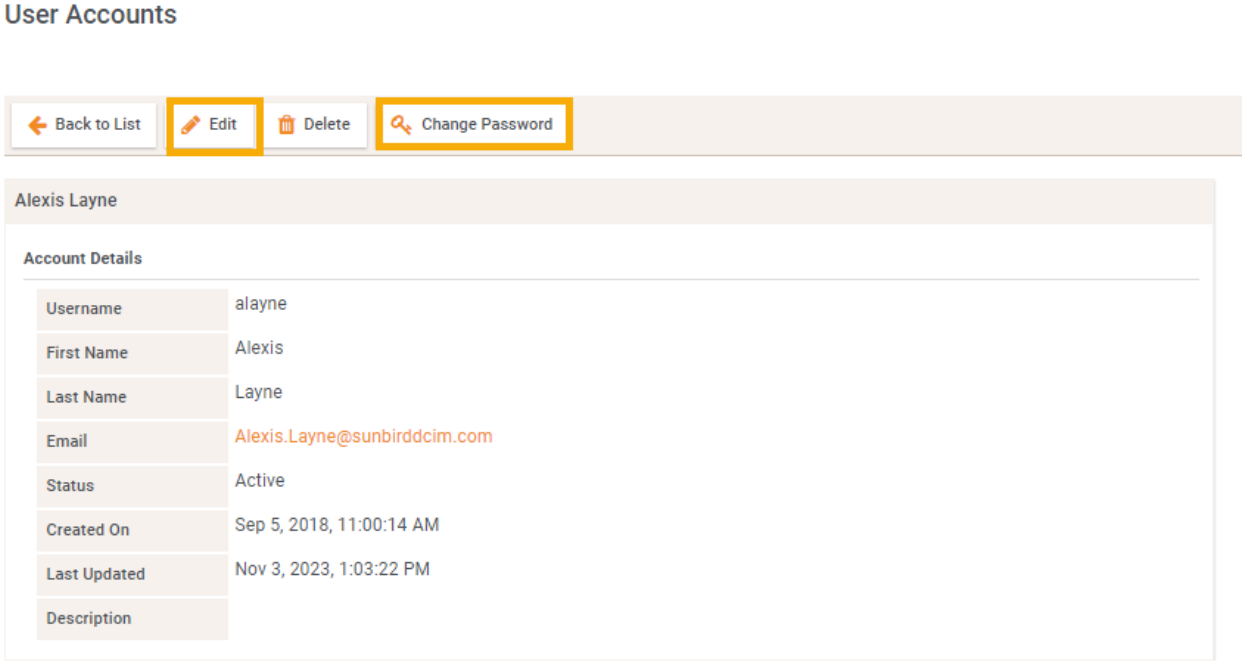
You can view and edit all users, including local and LDAP, in the User Accounts page.

Edited information is saved only to dcTrack, not to your LDAP server.

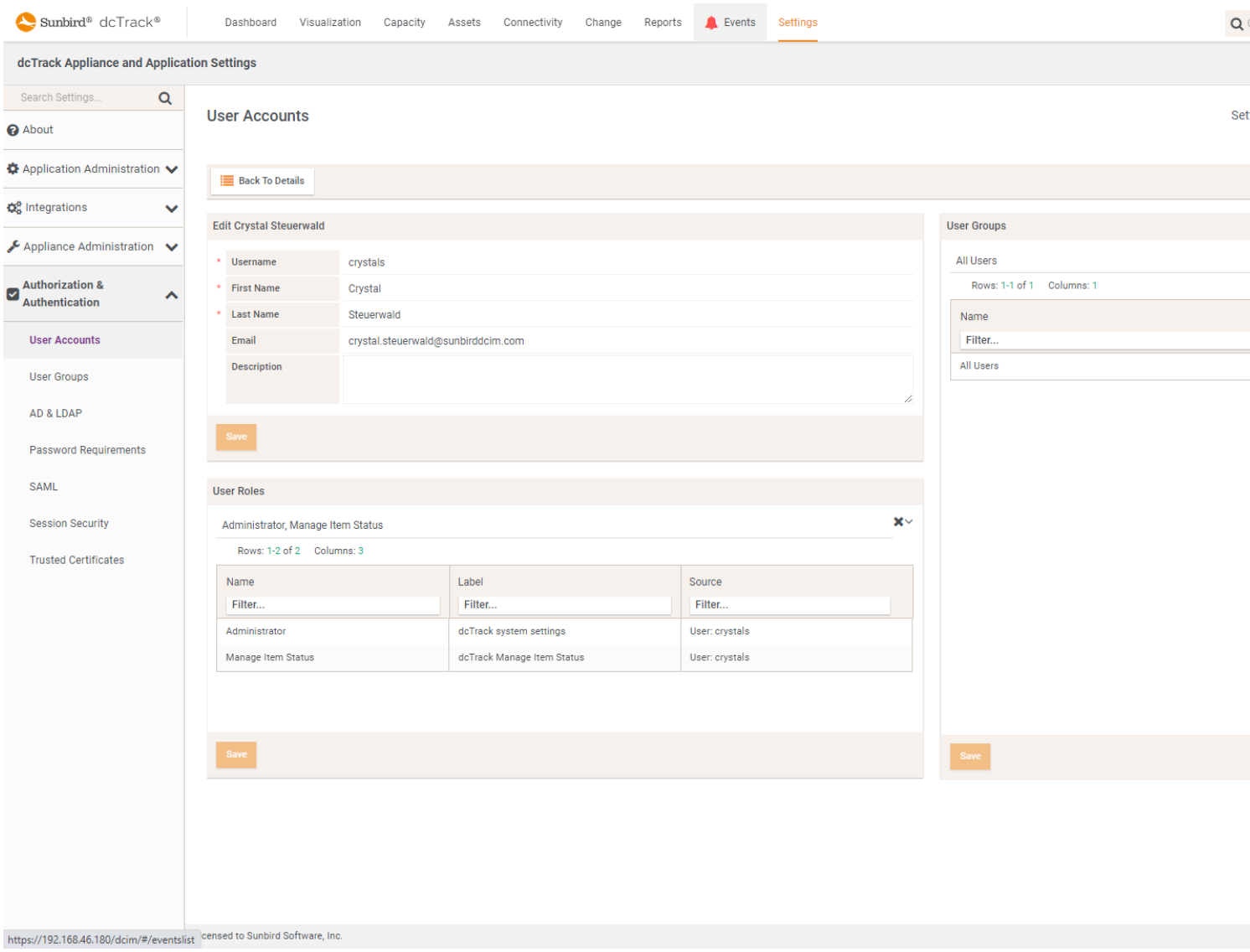
For information on editing user permissions, see Assigning Roles for User Permissions.

1. In the Settings tab, click User Accounts.
2. Click the orange Login for the user you want to edit.
3. To change a user's password, click Change Password.
3. Click Edit and edit the information as needed.
    - Login: 3 characters minimum. 40 characters maximum.
    - First Name: 1 character minimum.
    - Last Name: 1 character minimum.
    - Email: Must contain a correctly formatted email address.
    - Description: Optional

Note: The User Name supplied when logging into dcTrack is not Case Sensitive. This applies to both Local and LDAP user accounts.



To edit the user's roles and groups, click Edit on the user's details page


Sunbird® dcTrack®
Dashboard
Visualization
Capacity
Assets
Connectivity
Change
Reports
Events
Settings
dcTrack Appliance and Application Settings
Search Settings...
About
Application Administration
Integrations
Appliance Administration
Authorization & Authentication
User Accounts
User Groups
AD & LDAP
Password Requirements
SAML
Session Security
Trusted Certificates
User Accounts
Back To Details
Edit Crystal Steuerwald
Username
crystals
First Name
Crystal
Last Name
Steuerwald
Email
crystal.steuerwald@sunbirddcim.com
Description
Save
User Roles
Administrator, Manage Item Status
Rows: 1-2 of 2 Columns: 3
Name
Label
Source
Filter...
Administrator
dcTrack system settings
User: crystals
Manage Item Status
dcTrack Manage Item Status
User: crystals
Save
User Groups
All Users
Rows: 1-1 of 1 Columns: 1
Name
Filter...
All Users
Save
https://192.168.46.180/dcim/#/eventslist
censed to Sunbird Software, Inc.

Delete Users - Local and LDAP

You can delete users that no longer need access to dcTrack. Both local and LDAP users can be deleted. When a user is deleted, all data, roles, and public shared reports that may be used by other users, are deleted. Only one user can be deleted at a time.

To delete users:

1. In the Settings tab, click User Accounts.
2. Select the checkbox for the user you want to delete.
3. Click Delete. A confirmation message appears. Click Delete User to confirm.

Configuring ODBC Access to dcTrack

dcTrack provides you with the ability to access ODBC views of dcTrack data that are contained in the dcTrack database such as requests, work orders, items, ports, circuits, custom fields and so on.

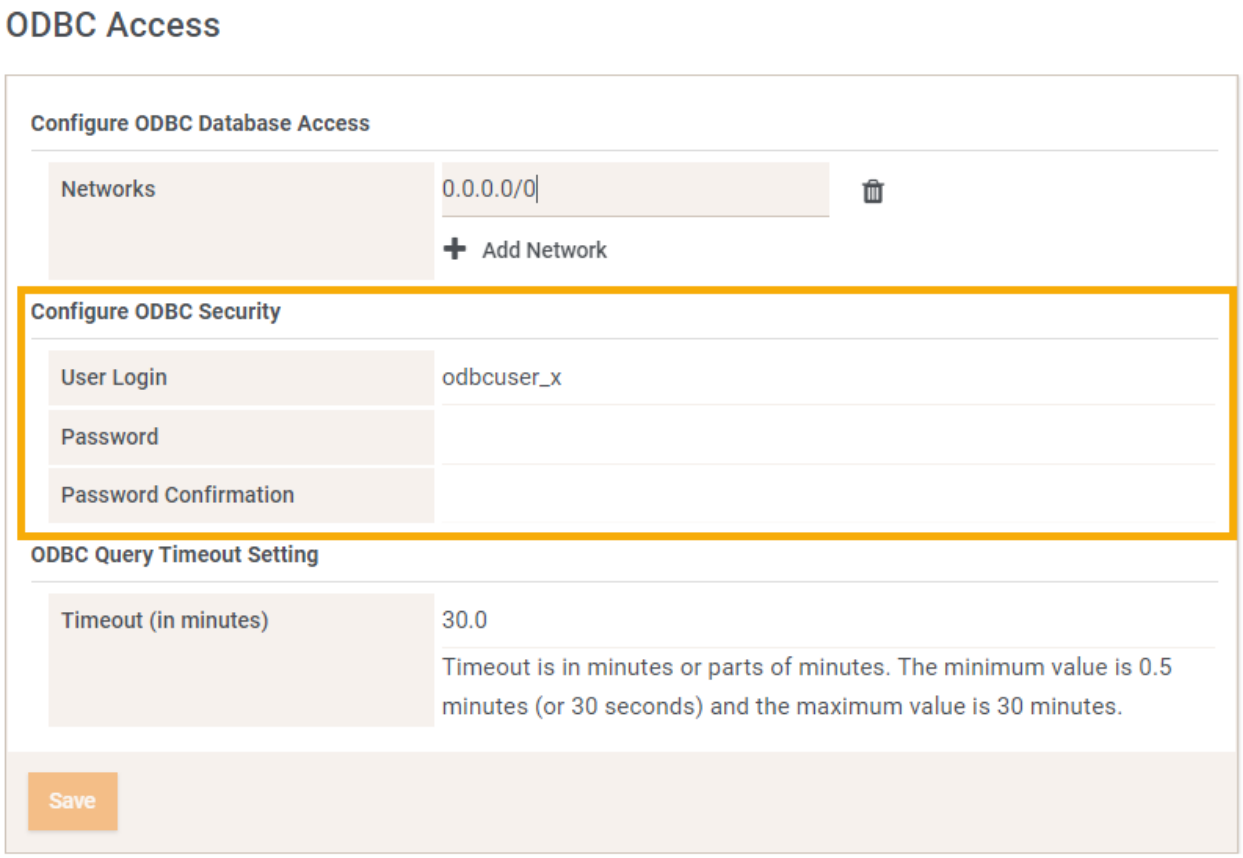
This allows you to then create custom reports using ODBC compliant applications such as Crystal Reports® or Microsoft Access®.

See dcTrack ODBC View Tables and Sample Queries in the dcTrack REST API and the Web Client API Guide which can also be downloaded from the Sunbird Support website at http://support.sunbirddcim.com.

Note: Views that are specific to Power IQ are blank. All dcTrack ODBC views begin with 'dc'. All other views are specific to Power IQ and do not contain any data.

To enable ODBC access to dcTrack:

1. In the Web Client, click Settings > Appliance Administration > ODBC Access. The ODBC Access page displays.
2. Click the Add Network icon then click the 0.0.0.0/0 addresses to type the ODBC network address with the mask in CIDR format
   - CIDR format example: 192.168.43.0/24 instead of 192.168.43.0 and 255.255.255.0.
   - Use the network mask value to specify a single address or a range of addresses.
   - Repeat to add new addresses as needed.
   - Use the default value 0.0.0.0/0 to allow access from all IP addresses.
   - To remove a network, click the trashcan icon next to it
3. In the Configure ODBC Security section, type the User Login and password intended for ODBC authentication.



4. In the configure ODBC Security section, provide the following information:
   - User Login
   - Password
   - Password Confirmation
5. In the Timeout field, specify the number of minutes that should elapse before an ODBC query times out.
6. Click the Save button when all authorized addresses have been added. The dcTrack database restarts.
7. After the restart, ODBC compliant applications are allowed to access the database from the authorized IP addresses.

Note: If you are using a Microsoft Windows® 64-bit operating system, you must install the PostgreSQL 64-bit driver in order to access the database from Microsoft Office® 2007 or later applications.

Configuring ODBC User Credentials

Factory default user credentials for ODBC access in dcTrack are:

- Username: odbcuser

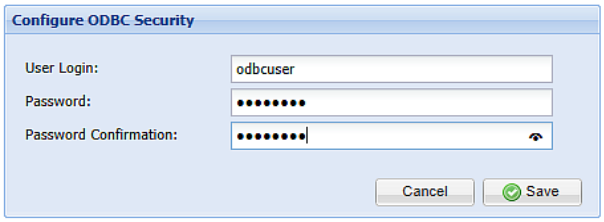
- Password: sunbird

The ODBC user credentials can be customized as needed. After ODBC user credentials are modified, you must also change the user credentials entered in the ODBC Client and driver.

To change the ODBC user credentials:

1. In the Web Client, click Settings > Appliance Administration > ODBC Access. The ODBC Access page displays
2. In the Configure ODBC Security section, type the User Login and password intended for ODBC authentication.
3. In the Configure ODBC Security section, type the user name and password intended for ODBC authentication.

Note: ODBC users are not the same as dcTrack users, but rather a database user defined in Postgres



Note: For restrictions that apply to the ODBC user credentials, see **Restrictions of ODBC User Credentials**.

4. Click Save.

Restrictions of ODBC User Credentials

The ODBC username is NOT subject to the restrictions applied to a dcTrack user name.

Certain restrictions apply to the ODBC user name and password.

ODBC username:

- Support 1 to 63 characters long
- Consist of alphanumeric characters and/or underscores only, including 0 to 9, a to z, and _
- No number used for the first character
- No uppercase characters
- No support for multi-byte characters
- Do not use names such as public, postgres, raritan, sunbird, odbc and floormaps

ODBC password:

- The password must follow the requirements selected in Settings > Password Requirements. See Configuring Password Requirements.

Note: ODBC users are not the same as dcTrack users, but rather a database user defined in Postgres

ODBC Client Configuration

Note: The PC you use to access the dcTrack ODBC views is referred to here as the ODBC client.

1. ODBC Client must install and configure a suitable PostgreSQL driver. PostgreSQL drivers are available at http://www.postgresql.org/ftp/odbc/versions/msi/.
2. ODBC Client must configure dcTrack as a ODBC Data Source with the following credentials:
   a. Database Name: raritan
   b. User ID: odbcuser
   c. Password: raritan
   d. Port Number: 5432
   e. Server: dcTrack IP Address

For a description of the ODBC views, see ODBC Views in the dcTrack REST API and External Ticketing Web Services API Online Help or PDF version of the help available on the dcTrack Support page.

Timezone Configuration for ODBC Data

ODBC tables use the dcTrack® system time setting, which is EST/EDT. This setting is converted to your selected timezone when you are using the dcTrack web interface, but this conversion is not applied to ODBC connections.

The time data available via the ODBC connection can be changed on a per session basis. By using a specific SQL statement to adjust the client session, you can run reports and view information in the desired timezone.

This link contains documentation on setting the timezone for the database using an SQL statement. Use the "SET SESSION ...." syntax, because dcTrack ODBC users do not have super user privileges.

http://www.postgresql.org/docs/manuals/

Advanced Reporting with Database and Reporting Programs

Create advanced reports and charts with reporting programs such as SQL report writer, Crystal Reports®, and Microsoft Access®. Follow these instructions to use Microsoft Access.

ODBC Access must be enabled. See **Configuring ODBC Access to dcTrack**.

You must install a PostgreSQL driver first. See Install and Configure a PostgreSQL Driver.

Models Library Port Clean Up (after upgrading from 2.x.x) - Purge Ports

When you upgrade to dcTrack 3.0.0 (and later), port information is added to the models in the Item Models Library.

If you made changes to port information for models in the Item Models Library prior to upgrading to dcTrack 3.0.0, ports on those models may be duplicated.

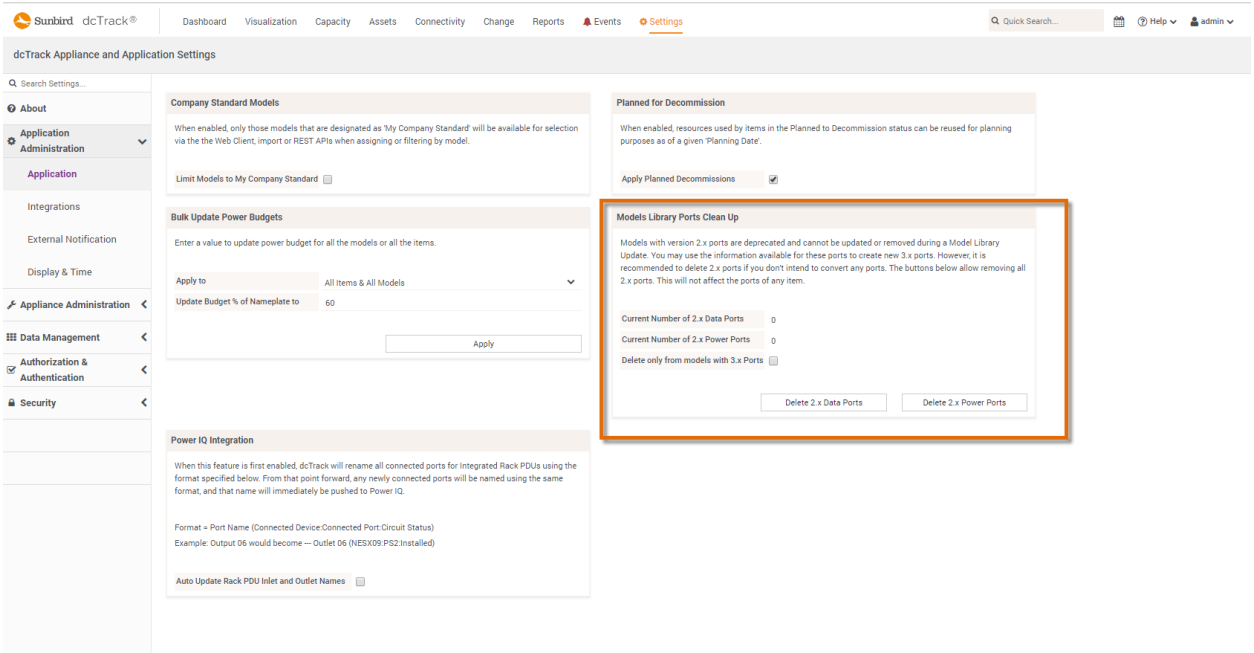
For example, if you added a port to a server model in the dcTrack 2.6.1 Item Models Library, after you upgrade to 3.0.0, there may be two of the same port on the model.

To fix this, use the Item Models Library Port Clean Up feature to purge any added or modified 2.x data ports and power ports from models in the Item Models Library.

Purging ports does not impact data center items you have added to dcTrack; only additional or modified ports on models in the Item Models Library are impacted.

To purge 2.x ports from models in the Item Models Library:

1. Navigate to Settings > dcTrack Settings > Application Administration, then click on the Application tab.
2. In the Models Library Ports Clean Up section of the page, select the Delete only from Models with 3.x Ports option to limit the purge to just those models that have been updated to include version 3 and up ports.
3. click Delete Data Ports or Delete Power Ports to delete the 2.x ports from models in the Model's library.



How to Secure a Sunbird Appliance

Change the ‘config’ user’s password via the console

A Sunbird appliance ships with a console user account that has a preconfigured password. By default, this account is disabled such that no one can log in, even if they know the password. When the user provides access, this account is used by Sunbird’s support team to troubleshoot issues.

The ‘config’ user is the only user that can unlock this account. This password for the ‘config’ user is configurable through the console.

The ‘config’ user can also reset the password for the administrative account on A Sunbird appliance’s web application.

CAUTION: Do not lose the password for the ‘config’ user. If the console account is locked and you lose this password, there is nothing Sunbird can do to help you recover from an error other than performing a clean install and restoring from a backup.

Consider using IP Access Control

Through IP Access Control (settable in the console or via the Settings tab on the web interface), you can disable SSH access, ODBC access, and whether the appliance will respond ICMP pings. Alternately, you can limit access to certain IP address ranges

Change the password for the administrative account on the appliance

By default, the username for the administrative user account is ‘admin’. This username can also be changed.

Change the ‘odbcuser’ password

If you enable ODBC access to the appliance, be sure to change the password for the odbcuser account. Also consider limiting access to known good IP addresses. By default, ODBC access is disabled.

Monitor the Audit Log

All SSH and UI access attempts are logged to the audit log. Monitoring this can help you identify unauthorized access attempts

Use an external System Log server

A Sunbird appliance can be configured to send audit log messages to an external system log server. Sending these to an external system helps to maintain an audit log and allows for searching\alerting on certain events.

Install a valid HTTPS Certificate

A Sunbird appliance ships with a default unsigned certificate. Installing a certificate that’s signed by a trusted certificate authority will allow clients to establish trust in the server.

Use encrypted backups and leverage the appliance’s automated remote backup feature

A Sunbird appliance allows you to create encrypted backup and provides a feature to automatically push the daily backups to a separate system. Refer to the user's guide on how to set these features up.

Keep the appliance up to date

Sunbird provides regular maintenance and feature releases that include security updates. We frequently update the OS, database, and other components to keep the appliance secure.

Note: Sunbird performs penetration testing at the application and network level on every release.

Review your default password security settings to make sure they fit your needs and adjust as needed.

dcTrack allows you to define specific password security requirements, including an Account Lockout feature.

For information on Password security settings see Setting dcTrack Password Requirements

Report security issues to Sunbird support

Sunbird takes security seriously. Please report any security issues to our support team such that we can address them.

Dynamic Content-Security-Policy

In order to improve the security of the solution, the appliance will provide a Content-Security-Policy (CSP) response header to all web requests.

The content and complexity of the response headers will vary based on several factors:

1. There will always be a CSP directive to control the allowed frame-ancestors to prevent click-jacking. See: https://owasp.org/www-community/attacks/Clickjacking. The default secure value is:

   "frame-ancestors 'self'".

   If the web server settings are changed in the console (See: Web Server Settings In the Console) then additional servers/domains can be included in this response.
2. If HTML widgets are allowed, no other CSP directives are included in the response (See: Configure Display Settings).
3. The CSP directive for connect-src depends on the settings provided for the geocoding server and the tile server used for the World Map feature. For example, if the values are the default values of https://-nominatim.openstreetmap.org and https://tile.sunbirddcim.com respectively,then the CSP directive will be:

connect-src 'self' nominatim.openstreetmap.org tile.sunbirddcim.com

This value for the geocoding server may be left blank for higher security but then the "Resolve Address" feature of the world map will not function and the users must manually enter the longitude and latitude of their data centers.

4. The CSP directive for img-src depends on the settings provided for the tile server for the World Map feature. For example, if the value is the default value of **https://tile.sunbirddcim.com** then the CSP directive will be:

   img-src 'self' tile.sunbirddcim.com data:

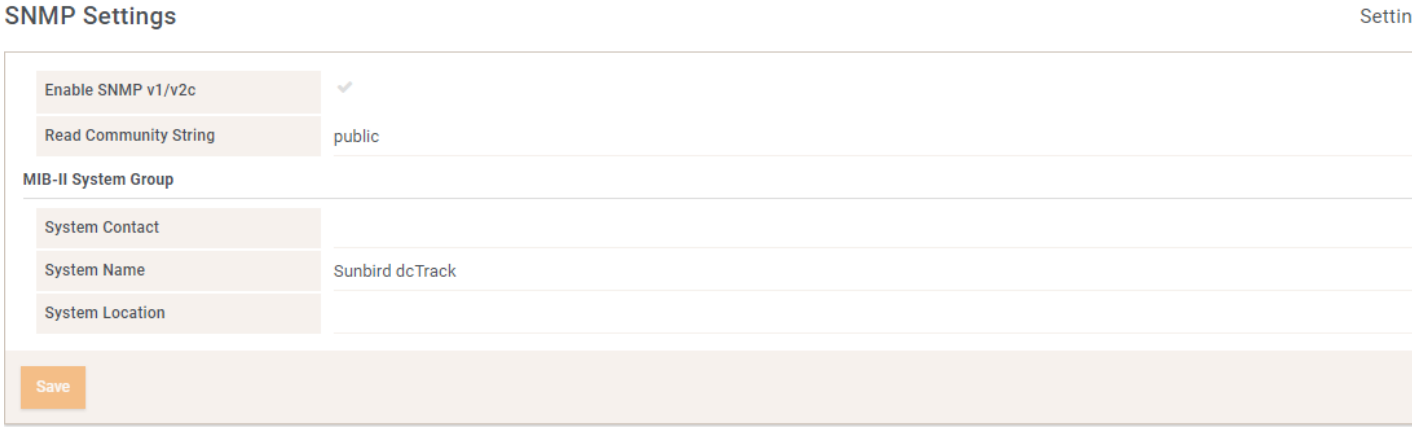
   This value for the tile server may be left blank for higher security but then the entire world map feature will not function.

   At this time, the CSP header requires a full appliance restart in order to reflect any changed selections for items 2, 3, and 4 above. In a future release, it will be possible to have the changes to CSP show up without a full restart.

Configuring the SNMP Agent for Server Performance Monitoring

Use SNMP to retrieve dcTrack system health information, such as application up time, IP routing, system contacts and so on.

1. In the Web Client, navigate to Settings >dcTrack Settings > Appliance Administration > SNMP Settings. The SNMP Settings panel displays.



2. In the MIB-II section, in tthe Read Community String field, enter the community string used to access the SNMP network. Required.
3. Enter the system contact, system name and system location if needed.
4. Click the Save button. A confirmation message is displayed.

You can now use any third-party SNMP manager, such as an SNMP MIB Browser, to access the system health via MIB-II.

MIB-II Host Resources Performance Metrics

The following table summarizes performance indicators from the MIB-II and Host Resources MIB that are exposed by the SNMP agent:

Category	Object Name
System Information (e.g., sysUpTime, Number of users, Number of system processes)	hrSystem
Device Information (e.g., Device types, Processors, NICs)	hrDevice: hrDeviceTable
CPU Utilization/Processor Load	hrDevice: hrProcessorTable
Network and Partition Table Information	hrDevice: hrNetworkTable, hrPartitionTable
Memory and Disk Usage	hrStorage
Running processes	hrSWRun, hwSWRunPerf
Installed software	hrSWInstalledTable

Accessing dcTrack Auditing

User log-in and log-out activity is captured in the audit log. See **Access Audit Logs**

Audit trails capturing item creation, deletion and update activity are accessed from the Audit Trail sub tab on each Item's Item Detail page

Access Audit Logs

User logins, failed logins, remote storage logs and so on are captured in the audit log.

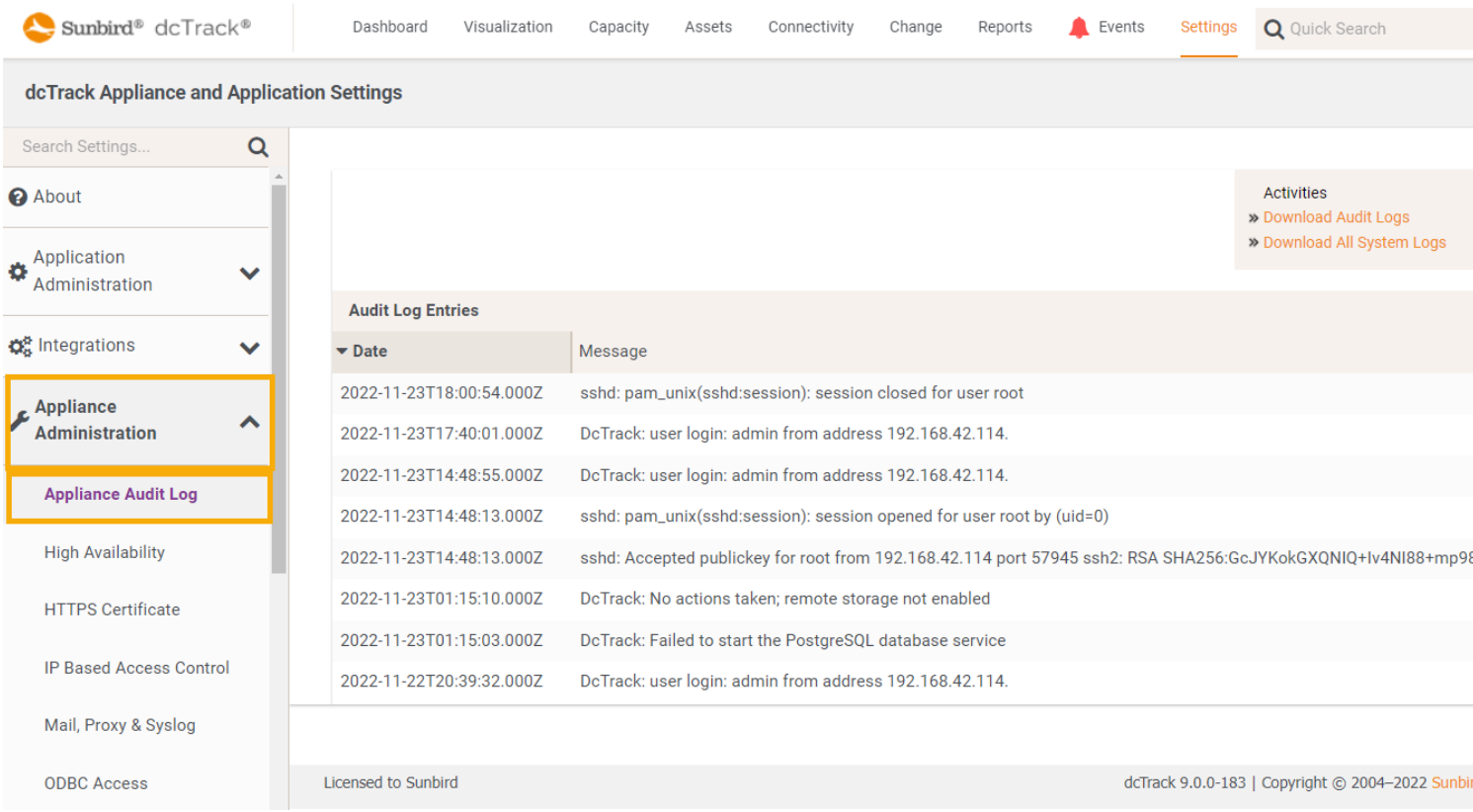
dcTrack audit logs can be viewed in a browser, or exported to a file for viewing or storage.

Note: Audit logs are automatically deleted from the system after three calendar months. If you need to maintain a complete audit trail, export logs regularly and store the files outside dcTrack.

To access audit logs:

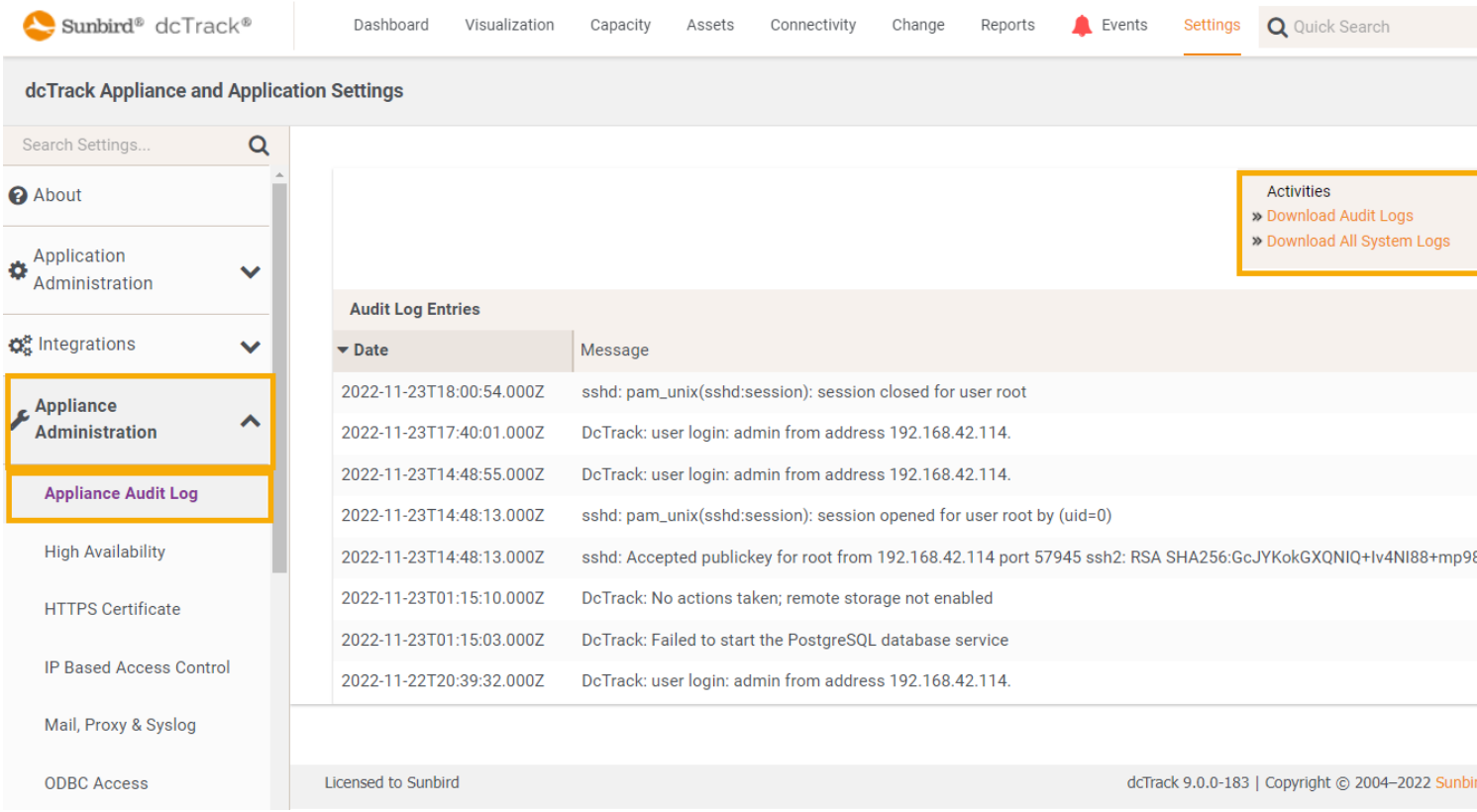
1. Navigate to Settings > dcTrack Settings > Appliance Administration > Appliance Audit Log

2. The audit log displays.



To download audit logs to a text file:

1. Click Download Audit Logs or Download All System Logs in the Activities section on the right side of the page.
2. Save the audit log to the location of your choice. All audit log entries are exported to a text file. For information on specifying a save location, see **How to Specify a Default Save Location for Downloaded Files**.



View an Item's Audit Trail

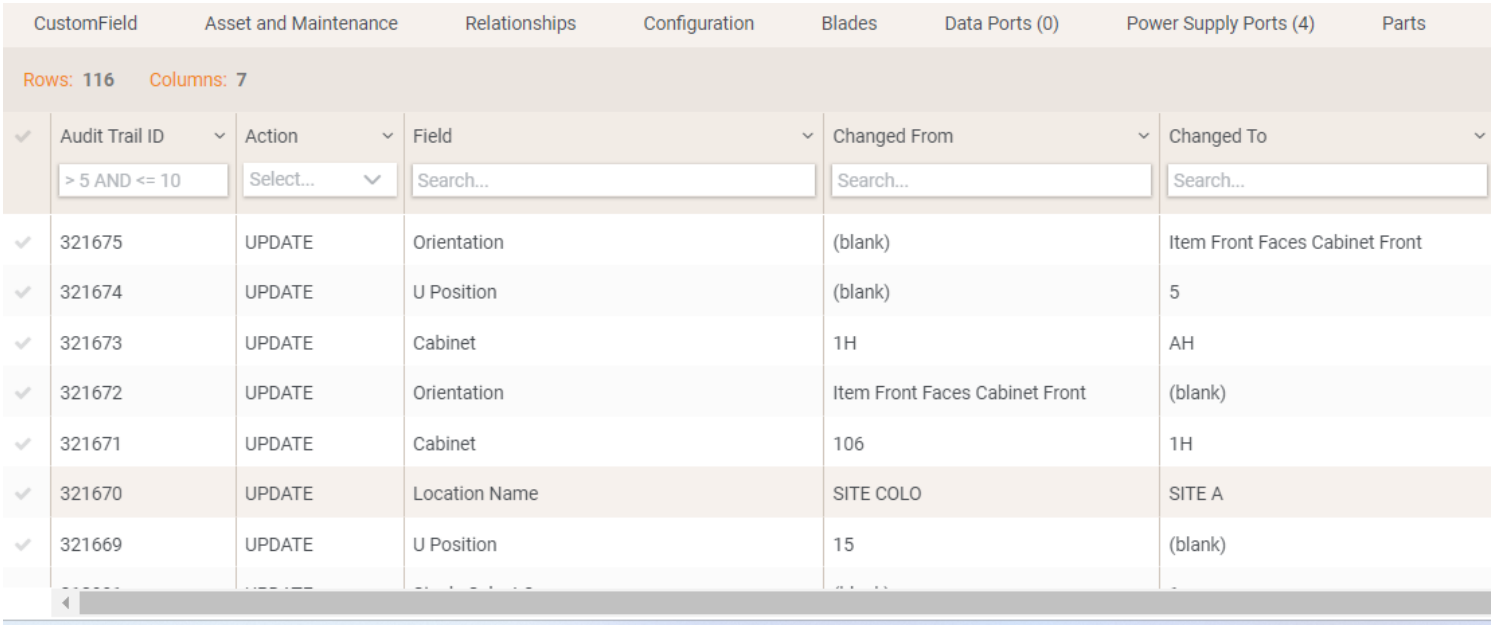
Any changes to an item's information are tracked in the Audit Trail log. This includes Inserts, Updates and Deletes. Each Item's Audit Trail log is accessible from the Item's Audit Trail sub tab on the Item Detail page and can be exported in either CSV or PDF format.

The Audit Trail grid contains the following columns:

- Asset Audit ID - System generated unique identifier for the Audit record
- Action - Insert, Update, Delete
- Field - The name of the field that was changed
- Changed From - The value in the field before the update (for Inserts this value will always be blank)
- Changed To - The value in the field after the update
- Changed By - The full name of the user that performed the update

  Note: In the item audit trail, changes made in dcTrack as part of an internal system process are indicated in the Changed By column as changed by the "System Process" user.

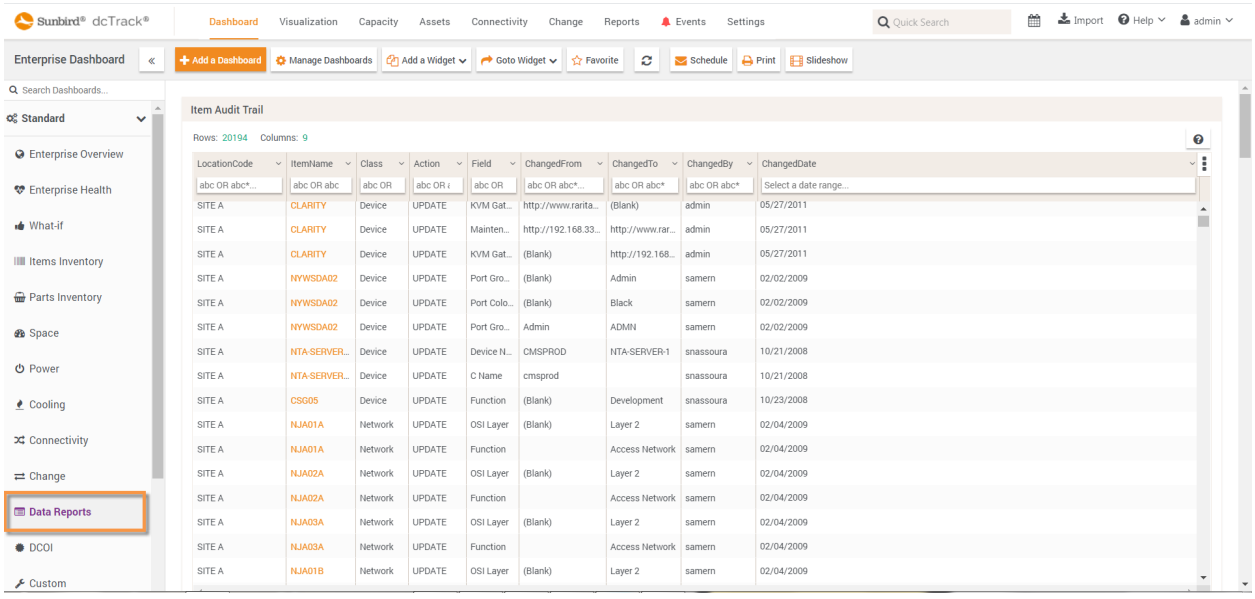
- Changed Date - The date and Time the update was performed



You can sort and filter the audit trail grid as needed.

View the Item's Audit Trail Across the Database

To view the Audit Trail log for Items across the database, use the Item Audit Trail sql grid widget accessible from the Data Reports dashboard. This widget lists Audit Trail records for the entire database, but can be sorted and filtered to report only the records you are interested in viewing.



You can also design your own custom sql grid widgets to create frequently used views of the Audit data. For additional information about creating Sql Grid Widgets see Custom Sql Grid Widgets.

Enable or Disable the Console Accounts for Support

dcTrack has a "sunbird" user account in place for Sunbird use when supporting the product. You may be asked to access the console as the "config" user to enable this account during the support process. You cannot change the password for this account. When disabled, there is no external access to the system using this account.

New installations of dcTrack have this account disabled by default. Upgrading will not change the enable/disable status of this account.

Locations Management

Note: As of dcTrack version 9.0.0, the Locations feature has been moved to Assets > Locations

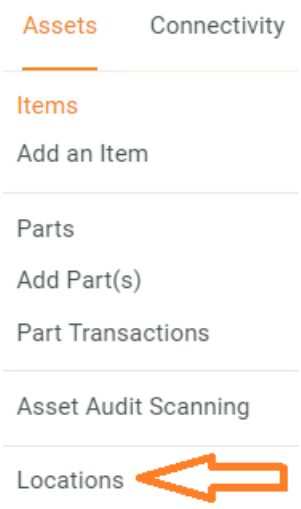
System Administrators and Gatekeepers are able to add, edit, and delete Locations. Users with the Operator or Viewer roles will not be able to view or manage Locations. For more information, see **Adding, Editing, and Deleting Locations**.

The Locations page is accessible by clicking Assets > Locations in the dcTrack header. For a summary of the Locations page and supported actions, see **Viewing Locations**.

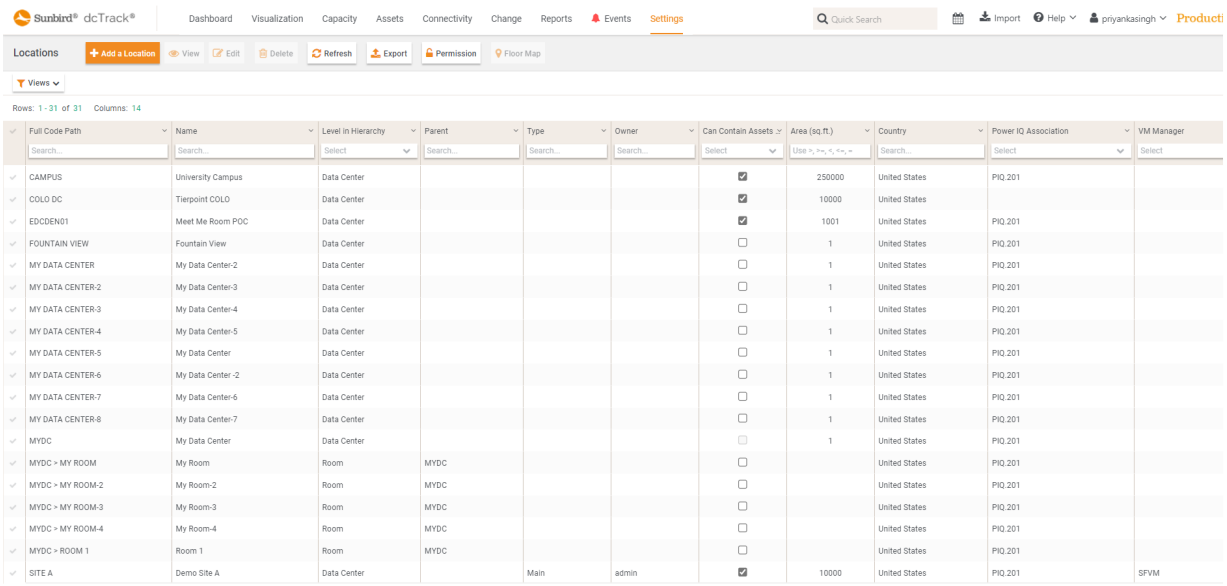
For better data analysis and readability on the Locations List page, you can select columns to show or hide. You also can pin columns to the right or left of the grid. For more information, see **Showing/Hiding and Pinning Columns on the Locations List** .

Viewing Locations

The Locations List or grid page is accessible by clicking Assets > Locations in the dcTrack Header.



The Locations page appears.



The Locations List page is organized in a grid layout, with one row dedicated to each location and location attributes in the column.

The following attributes are listed in the columns and can be edited from the Locations List for each Location:

- Full Code Path: The full path of the Location based on your data center hierarchy. For example, this is a concatenation of the data center code, the floor code and the room code. The full code path will be included in location selection pick lists throughout the application.
- Name: The user-specified name of the Location.
- Level in Hierarchy: The level of the Location based on your data center hierarchy (Data Center, Floor, or Room).
- Parent: The parent node of the Location based on your data center hierarchy.
- Type : The type of Location.
- Owner : The contact details of the user who owns this Location.
- Can Contain Assets: Designates a location that can contain assets. This is limited to leaf nodes in the location hierarchy. Locations with child locations will not be designated as Can Contain Assets.
- Area: The area of the Location. This is required for locations that will contain assets.
- Country: The country of the Location.
- Power IQ Association: The Power IQ instance associated with the Location.
- VM Manager : The VM Manager associated with the location.
- Enable AC Virtual Power Chain: Indicates if the Virtual Power Chain for the Location is enabled or disabled for AC Power
- Enable DC Virtual Power Chain: Indicates if the Virtual Power Chain for the Location is enabled or disabled for DC Power
- System Default Location: Designates the default location for dcTrack
- Notes : Additional Notes about the Location.

To view the details page for a specific Location, double-click on the Location in the grid or select the Location and click the View button and icon. The Location details page will open in View mode in a new tab. To return to the Locations List page, click the Locations icon and button (List) in the upper-left corner.

You also can add, edit, or delete Locations. For more information, see Adding, Editing, and Deleting Locations.

To see the most up-to-date information, refresh the Locations List page by clicking the Refresh icon and button.

Locations can be exported to CSV by clicking the Export Locations List button and icon ( ) in the bottom right corner. The CSV File will automatically be downloaded.

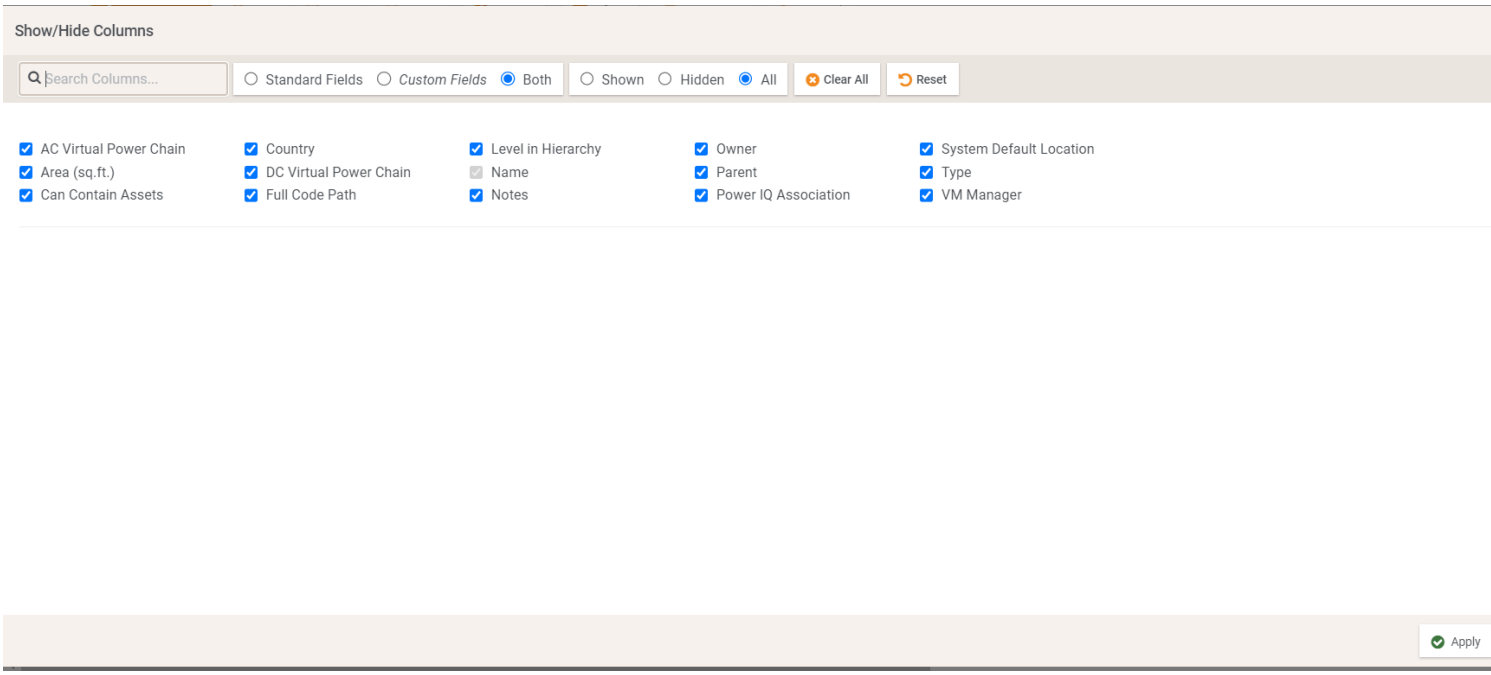
You can save your custom Locations List view or revert to the default view by clicking the List Settings icon and button ( ) in the bottom right corner and selecting the desired option.

Showing/Hiding and Pinning Columns on the Locations List

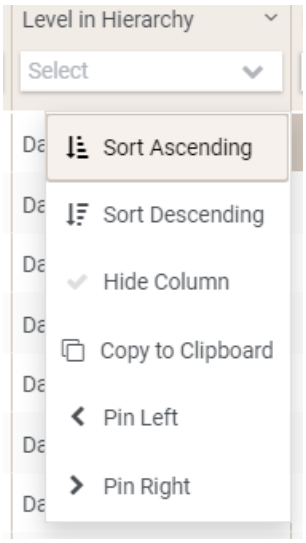
For better data analysis and readability on the Locations List page, you can select columns to show or hide. You also can pin columns to the right or left of the grid.

To show or hide columns on the Locations List page, click the Show/Hide Columns icon and button ( ) on the far right of the grid.

Select or deselect the columns that you want to show or hide.



To pin a column, click the downward arrow in the header for the column and select the Pin Left or Pin Right option from the dropdown.



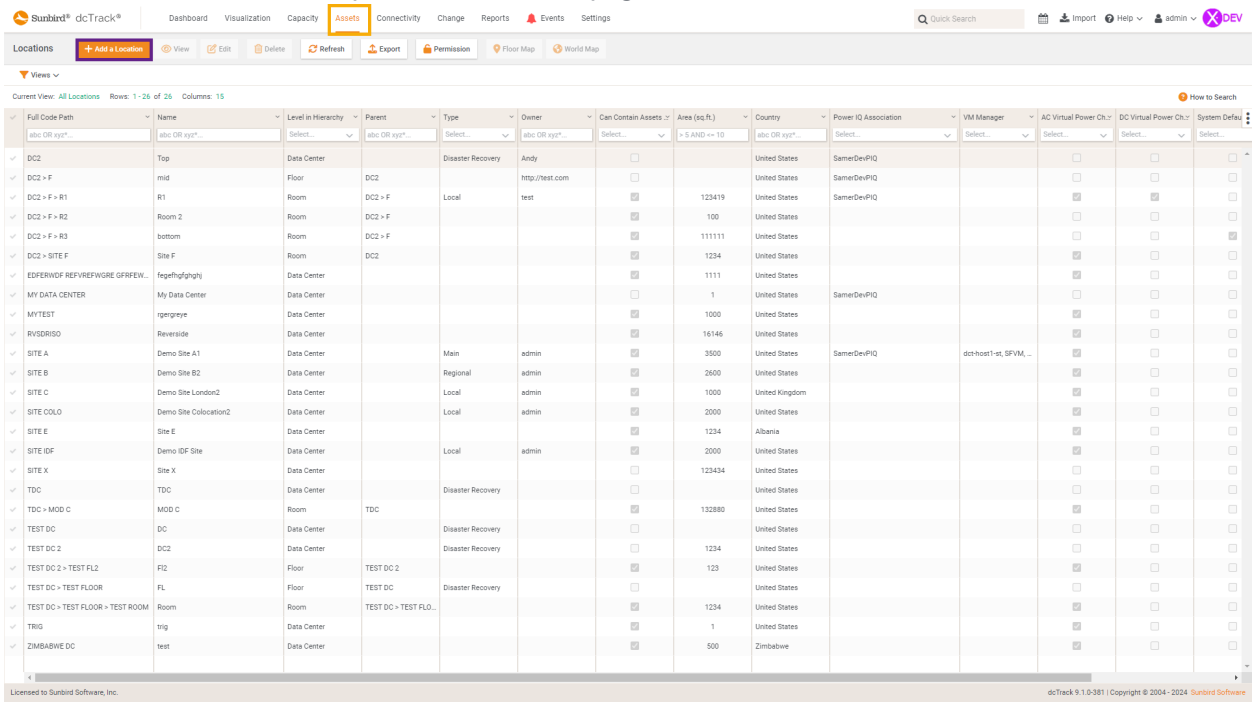
To unpin a column, click the downward arrow in the header for the column and select the Unpin option from the drop-down.

Adding, Editing, and Deleting Locations

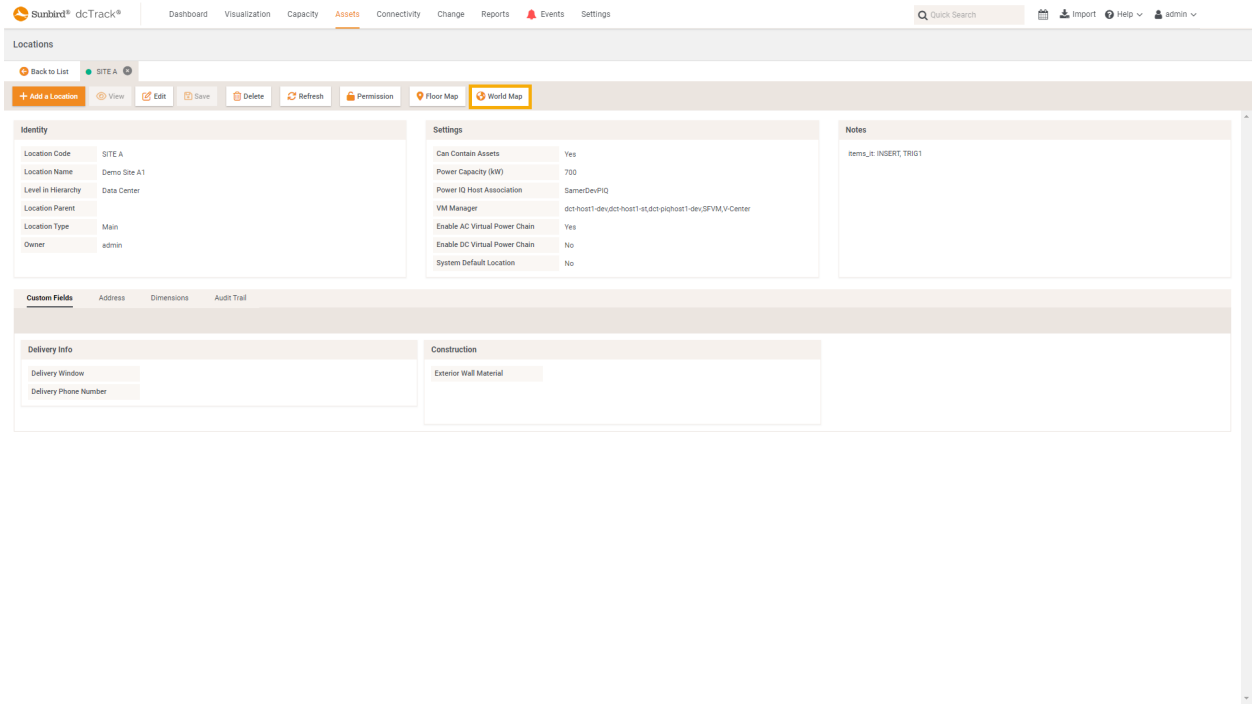
System Administrators and Gatekeepers can add, edit, or delete Locations from the Locations List page.

Adding a Location

1. Navigate to Assets > Locations
2. Click Add Location button to open a New Location page in edit mode.



3. Fields with an asterisk (*) are required.



4. The Location Details page includes the following panels: Identity, Settings, Address and Dimensions.
5. Edit the Identity attributes.
    a. Location Code: Required. A user-defined label used to identify the Location in the code path. For a data center, the Location Code must be unique within dcTrack. For a floor or room, the Location Code must be unique within its parent. Maximum of 255 characters.
    b. Location Name: Required. A user-defined name that can be longer and more descriptive than the Location Code. The Location Name must be unique within dcTrack.
    c. Level in Hierarchy: Required. You can select the Location from the following options: Data Center, Floor, or Room. The default Level in Hierarchy is Data Center.
    d. Location Parent: You can select the parent of the Location from a list of codes for available parents. This is disabled when the Level in Hierarchy is designated Data Center. Floors can have Data Centers are parents. Rooms can have Floors or Data Centers as parents.
    e. Location Type: You can designate the Location from the following options: Main, Regional, Local or Disaster Recovery.
    f. Can Contain Assets: You can select or deselect the checkbox to designate the Location as one that can or cannot contain assets. Locations with child locations cannot contain assets. Enabled by default.
6. Edit the Settings attributes
    a. Power Capacity (kw): Optional. Maximum Power Capacity for the Location.
    b. Power IQ Host Association: Optional. If the Location is integrated with Power IQ, select the associated Power IQ instance from the drop down list of integrated Power IQs. This will enable this location to be synchronized with the selected Power IQ.

c. VM Manager: - Optional. If the Location is associated with one or more VM Managers, select the VM Managers from the drop down list of integrated VM Managers. This will enable dcTrack to be synchronized with the virtualization environment.
d. Enable AC Virtual Power Chain: Optional. The Virtual Power Chain (VPC) is an automatically created power chain available for each Location you create. The 'Enable AC Virtual Power Chain' checkbox allows enabling the use of AC VPC in this Location. The VPC includes A and B redundant power chains, each consisting of a UPS, UPS Bank, Floor PDU, Power Panels and Power Outlets. The VPC has infinite capacity and supports all possible voltages. The VPC is intended to allow you to create a power circuit without having to first create the actual components of the power chain in your location. A real power chain and VPC may co-exist in a location and power circuits can be moved from one to the other.
e. Enable DC Virtual Power Chain: Optional. The Virtual Power Chain (VPC) is an automatically created power chain available for each Location you create. The 'Enable DC Virtual Power Chain' checkbox allows enabling the use of DC VPC in this Location. The VPC includes A and B redundant power chains, each consisting of a UPS, UPS Bank, Floor PDU, Power Panels and Power Outlets. The VPC has infinite capacity and supports all possible voltages. The VPC is intended to allow you to create a power circuit without having to first create the actual components of the power chain in your location. A real power chain and VPC may co-exist in a location and power circuits can be moved from one to the other.
f. System Default Location: This field allows you to set a default Location that will be automatically selected in Location Lists when the user does not have a default Location specified in their User Preferences.

7. Edit the Address attributes. Note: This panel is displayed only if the Level in Hierarchy is designated as Data Center. Floors and Rooms inherit these attributes from their parent data centers.

a. Country: Required. You can select the country of your data center from a dropdown. The default country is the United States.
b. Street
c. Street (Line 2)
d. State or Province: If the Country selected is the United States, you can select the State from a dropdown.
e. Postal Code

5. Edit the Dimensions attributes. Must be entered as numeric values.

Note: The units of measurements for each attribute is determined by your Settings. To change the units your measurements are displayed in, click your username in the upper-right corner to access User Settings > Preferences and select your preferred Units displayed in option.

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a. Location Area
b. Outer Dimension Length
c. Outer Dimension Width
d. Raised Floor Height
e. Finished Floor to Ceiling Height
f. Finished Ceiling to Slab Ceiling (Plenum) Height

6. Click the Save icon and button to save your changes.

To navigate to the floor map for a Location click the Floor Map button in the tool bar

To navigate to the world map focused on the location, click the World Map button in the tool bar

Editing a Location

1. On the Locations List page, select the Location that you want to edit.
2. Click the Edit icon and button. The Location Details page will open in Edit mode.
3. Make your desired edits. The Save icon and button will be enabled.
4. Click the Save icon and button to save your changes.
5. Click the Locations List icon to return to the Locations List page. The page will display your changes.

Deleting a Location

To delete a Location on the Locations List page, select the Location that you want to delete and click the Delete icon and button. You will be asked to confirm the deletion.

When deleting Locations from the Locations List page, you may only delete a single Location at a time. If multiple Locations are selected the Delete button will be disabled even if all Locations qualify for deletion.

You can also delete a Location from the Location Details page by clicking the Delete icon and button on that page.

Note: You can only delete a Location if it does not contain items or if all of its items are in the Planned state.

Searching, Filtering, and Sorting Locations

For easier data analysis, you can search and filter Locations from the Locations List page.

1. Click in the search bar on the Locations List page to display a dropdown of available search attributes.
2. Select the attribute you want to search or filter by.
3. Enter or select the desired criteria.

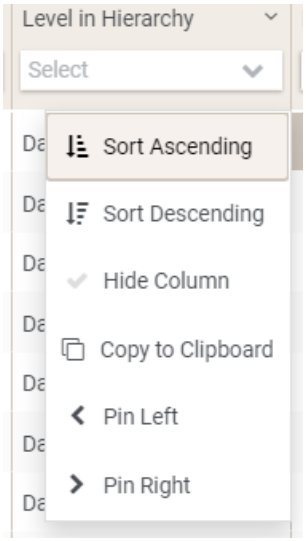
The Location Lists page will refresh automatically based on your selections; you do not have to click the Refresh icon and button.

You can search and filter by multiple criteria.

Any of the Location attributes on the Locations List page can be used for sorting and filtering:

- Code: Enter all or part of the location code to search for the location(s) matching the search text.
- Name: Enter all or part of the location name to search for the location(s) matching the search text.
- Level: Select Data Center, Floor, or Room from a list to search for the location(s) matching the search criteria.
- Parent: Enter all or part of the parent location code to search for the location(s) matching the search text.
- Can Contain Assets: Select YES or No to search for the location(s) matching the search criteria.
- Location Area: Provide a value =, <, > for area to search for the location(s) matching the search criteria.
- Country: Enter all or part of the country name to search for the location(s) matching the search criteria.
- Power IQ Association: Select a Power IQ association from a list to search for the location(s) matching the search criteria.
- Virtual Power Chain: Select YES or No to search for the location(s) matching the search criteria.
- System Default Location: Select YES or No to search for the location(s) matching the search criteria.

Sort by ascending or descending values in a column by clicking the column header or by clicking the downward arrow in the column header and selecting the desired option from the dropdown.



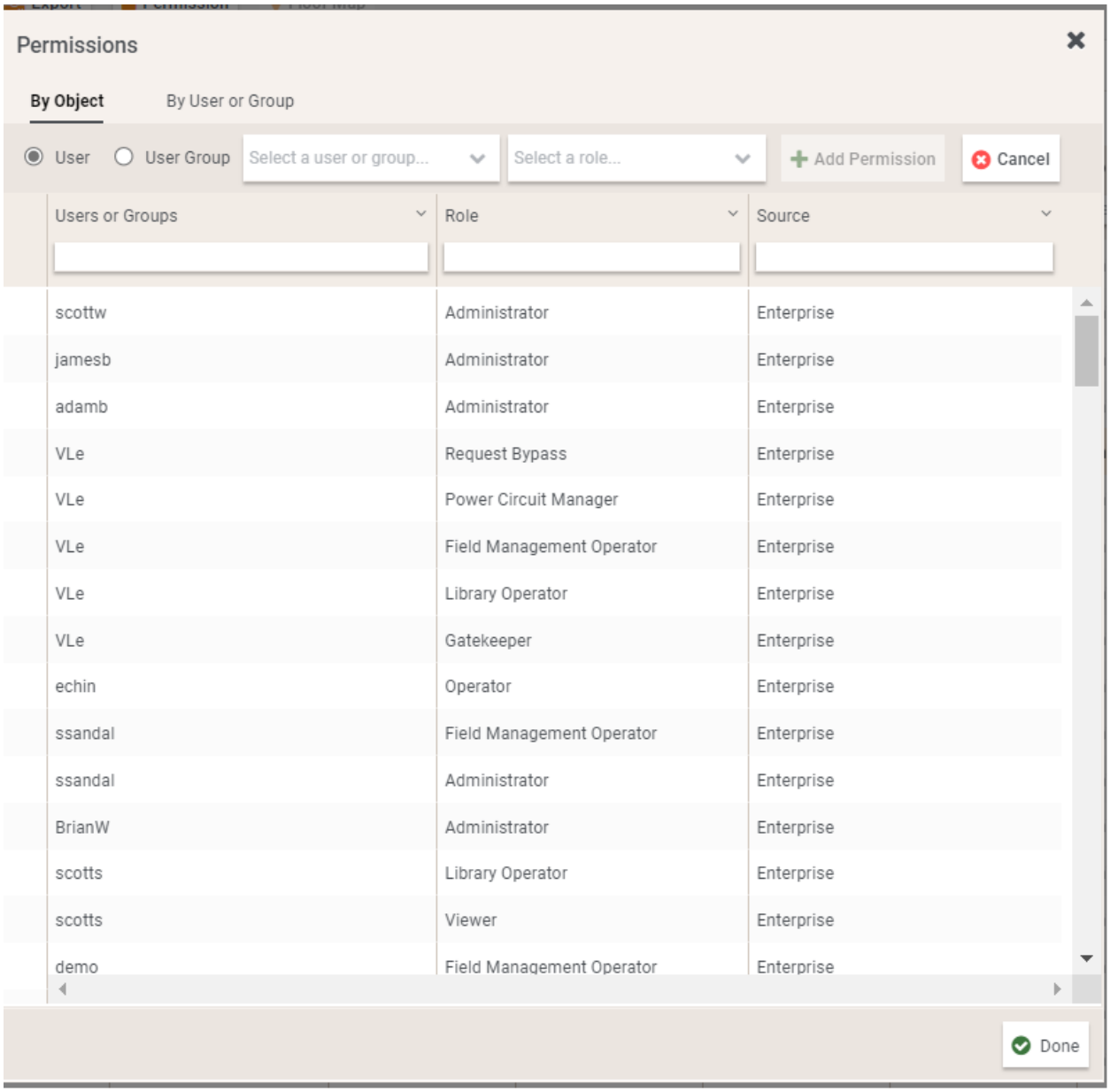
Adding and Deleting Permissions for Locations

On the Locations List page and the Location Details pages for individual Locations, System Administrators or Gatekeepers (with appropriate access) will see the Permission icon and button (Permission) in the menu.

Clicking this button opens the Permission dialog, where permissions can be added to users and user groups for the selected location.

For more information, see Assign User Permissions Locally for Locations, Items, and Circuits.

1. Select the Locations that you want to assign permissions for.
2. On the Location List page or on the Location Detail page in Edit mode, click the Permission button.
3. The Permissions Dialog opens and displays a grid of users and user groups, roles, and sources of the permissions. Only adding or deleting permissions is allowed.



4. To add permissions, click the Add button. You can then select the user or user group and appropriate role, then click the Add button.
5. To delete permissions, select the appropriate row for the permission and click the Delete button. You can select multiple rows to delete multiple permissions.
6. To cancel and close the dialog box, click the Cancel button.

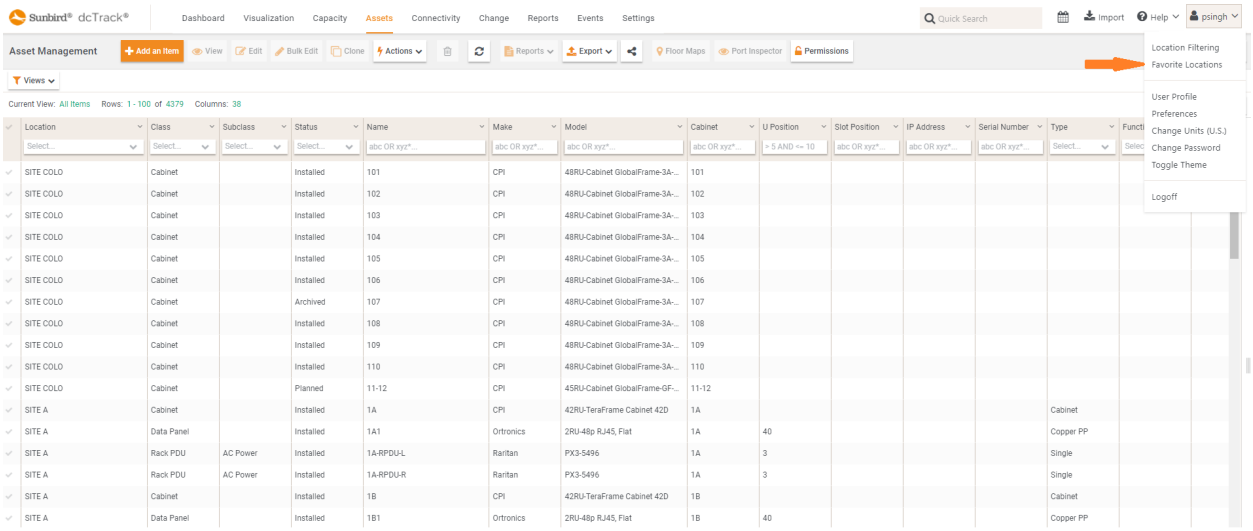
Note: Permissions cannot be edited. To change a permission, delete the existing permission and then add the new permission.

Manage Favorite Locations

dcTrack 8.1.0 allows the users to manage favorite locations. Users can select one or more location and mark it their favorite. Only the leaf node locations that contain assets can be marked as favorite location.

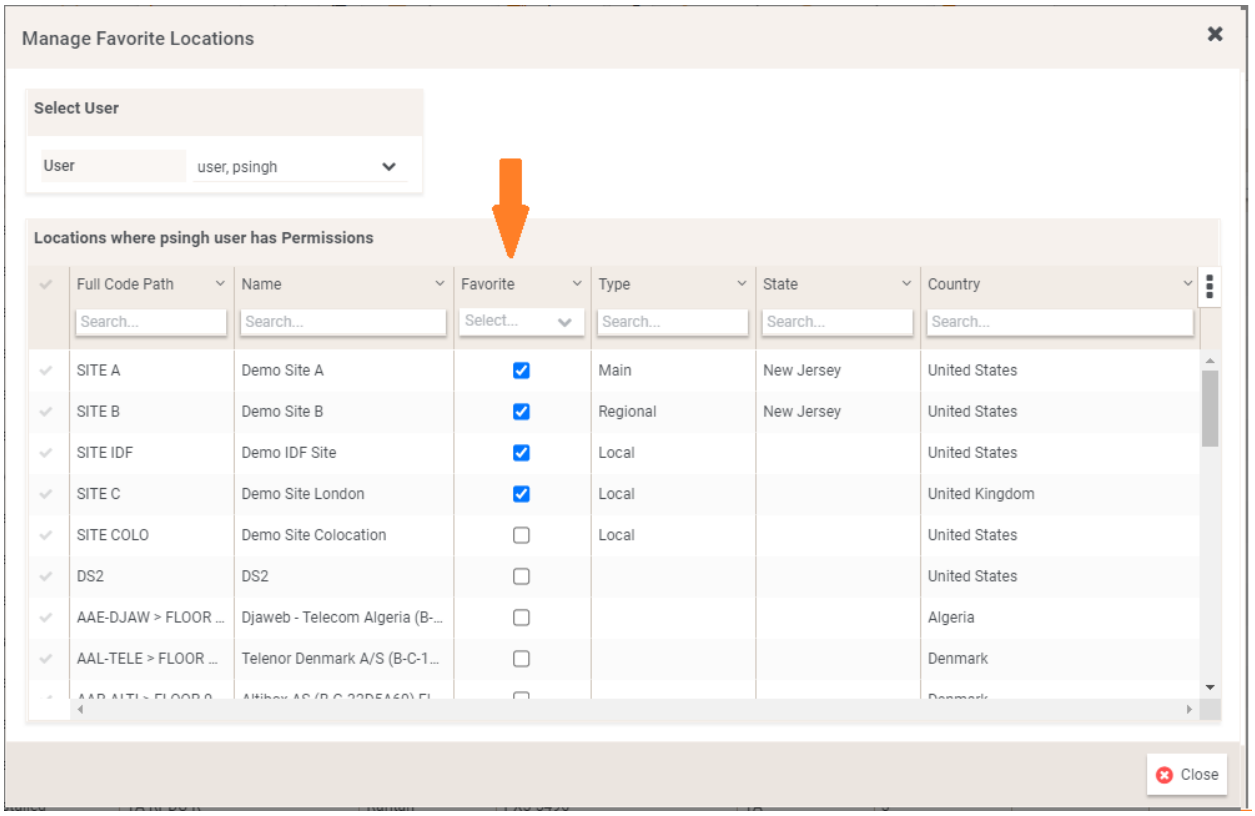
Steps to manage favorite locations :

1. In the Web Client click user name at top right and select the option Manage Favorite Location



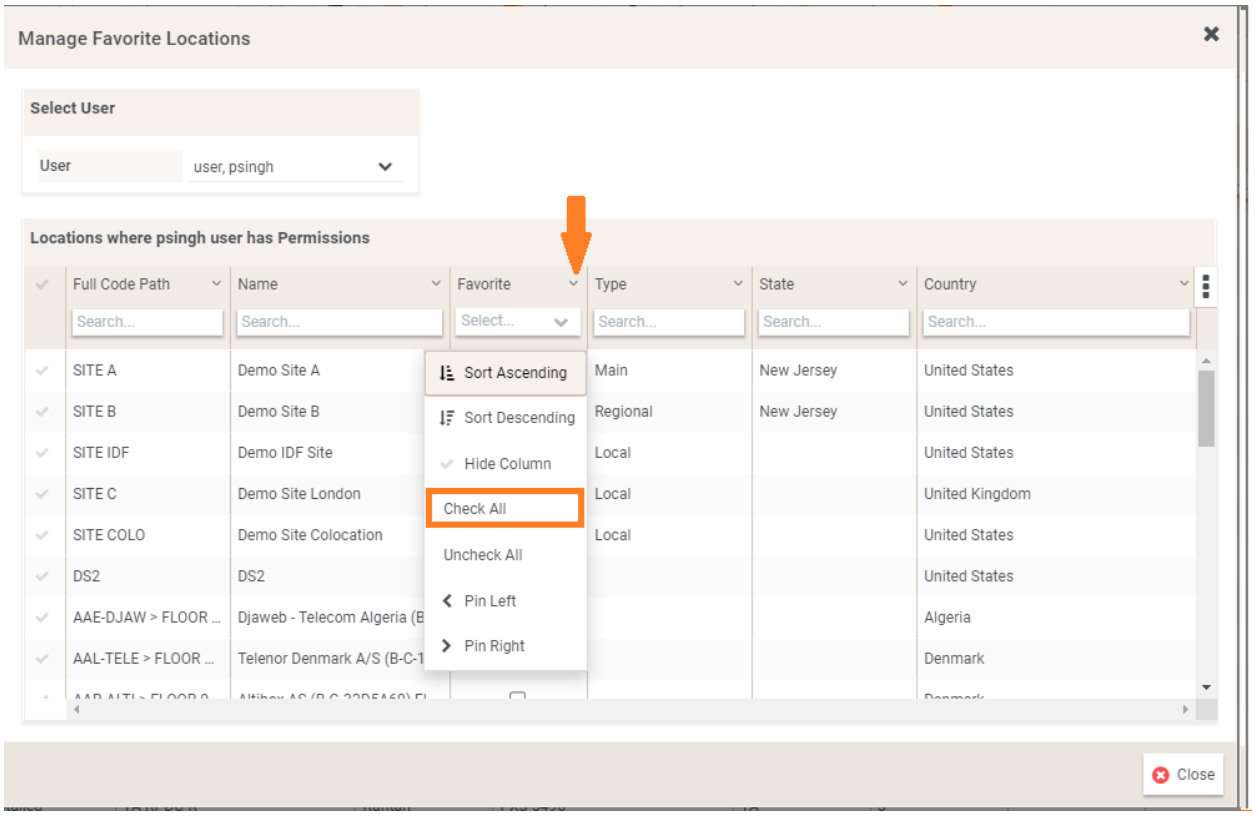
2. In the Manage Favorite Location Dialog, you will see the list of locations that you have permission.

3. Check the locations in the Favorite column that you want to make your favorite locations



Note: The users who have System Administrator role will have an option to select the user and mark favorite locations for other users. The users who do not have System Administrator role can only select favorite location for themselves and not for other users.

3. To mark favorite locations in bulk, click the arrow in the Favorite column and select the option Check All.



4. Click Close.

All the columns support filtering and sorting. The list also have Show/Hide feature(click three dot), so that you can select only the columns that you want to see in this list.

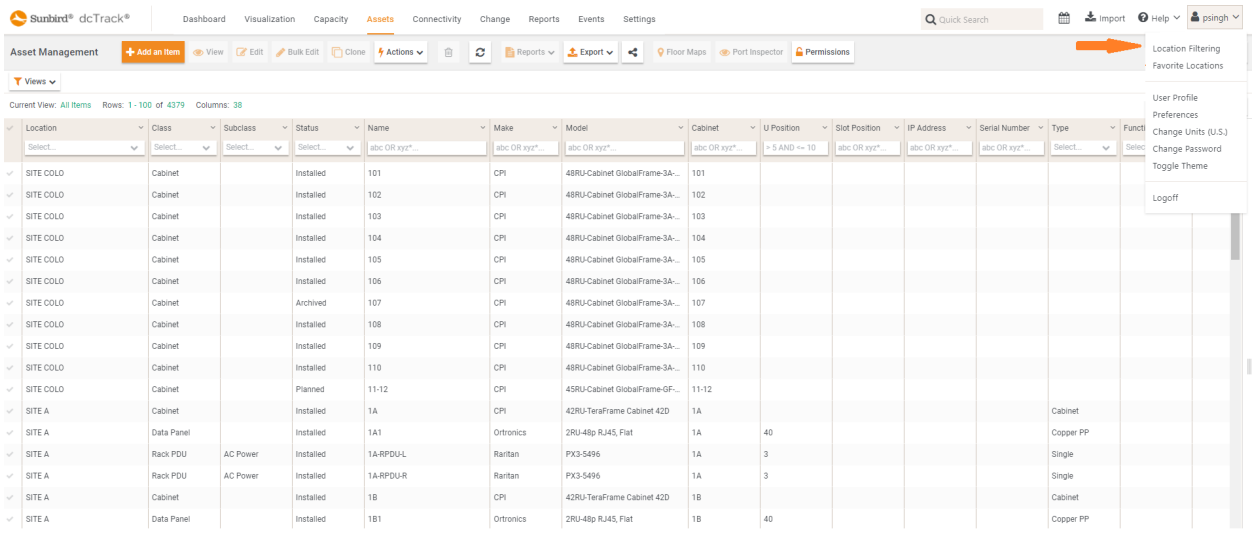
The locations that are checked in the Favorite column for the selected user become the favorite locations for that user.

Location Filtering

dcTrack users can manage the Location drop downs across dcTrack application. Location Filtering option allows each user to select the locations they would see in the Location field drop down.

Steps for Location Filtering :

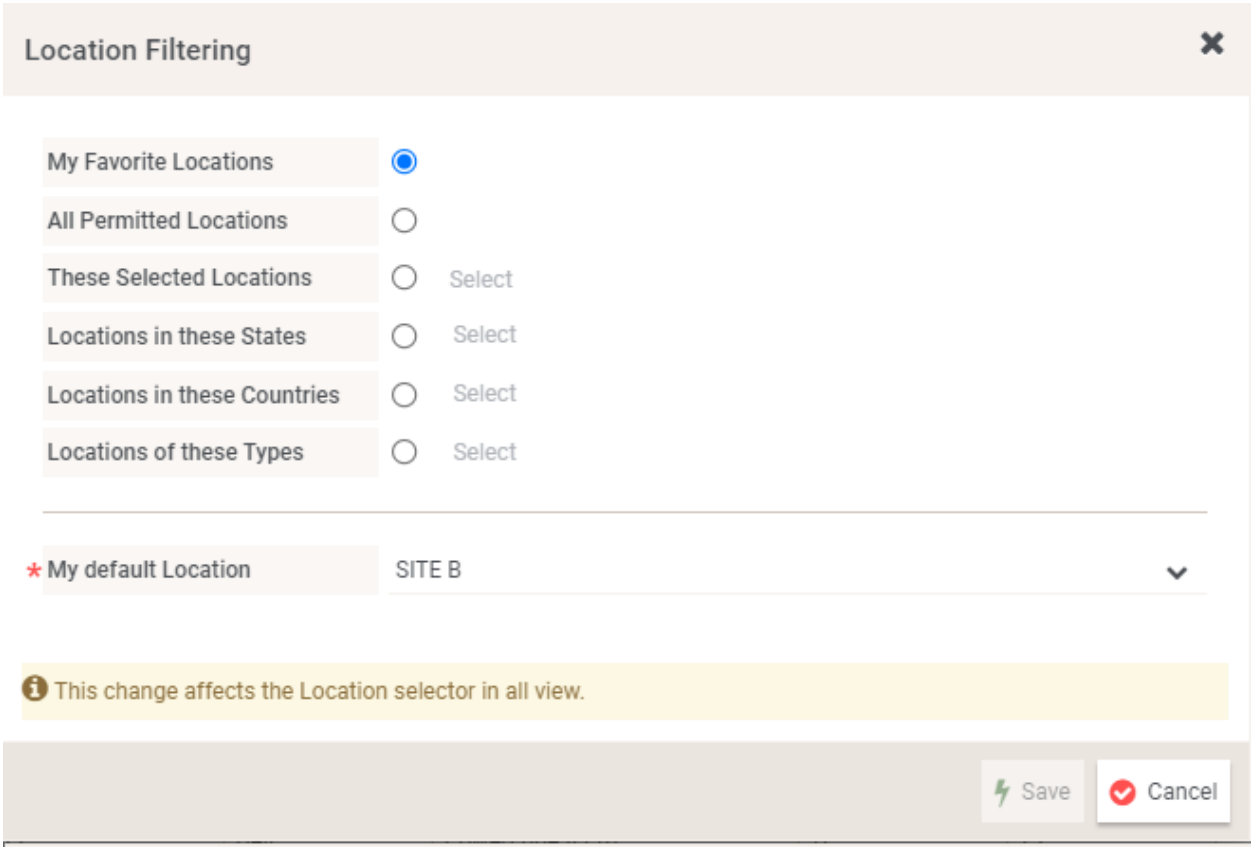
1. Click user name at the top right and select the option Location Filtering.



2. In the Location Filtering Dialog, you can select the locations that you want to see in the Location drop down. Following options are available for selection.

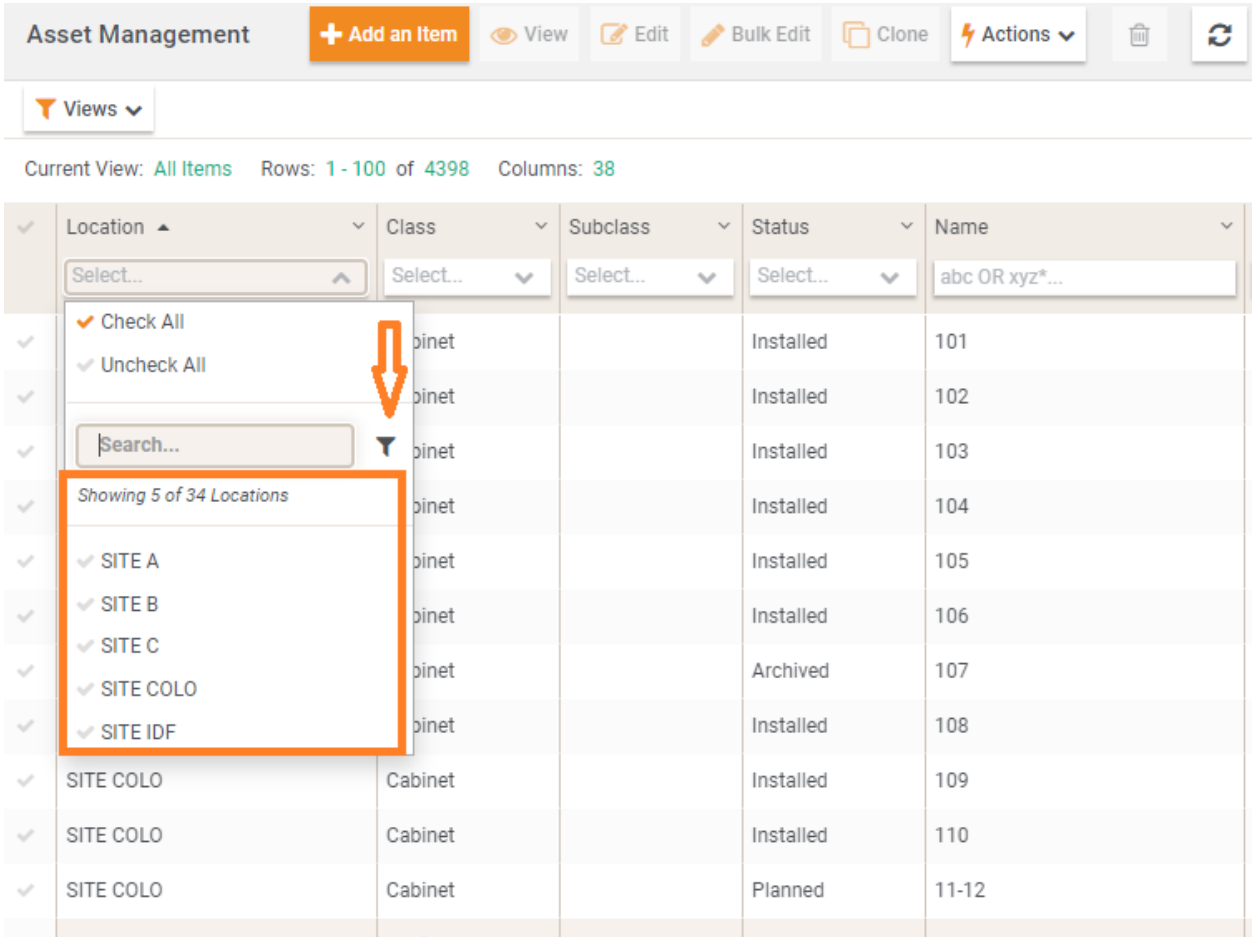
- My Favorite Locations - Selecting this option will include all the locations that you have marked favorite.
- All Permitted Locations - Selecting this option will include all the location that you have permission.
- These Selected Locations - This option lets you select the locations from the drop down. You can select one or more locations. All the locations that you have permission will show in the drop down.
- Locations in these States - With this option allows you can select the locations based on the State. The drop down will include the states for all the locations that you have permission.
- Locations in these Countries - With this option you can select the locations based on the Country. The drop down will include all the countries for all the locations that you have permission.
- Locations of these Types - With this option you can select the locations based on location type. The drop down will include the location types.

3. After you select the option for Location Filtering, you can select your default location. The drop down options for this field will depend on the selection made above for Location Filtering. For example, if you select locations for State NJ, default location drop down will only show the locations in state NJ.



4. Click Save.

The selection made here will immediately affect Location drop down across dcTrack .For example, if you are in Asset List screen and click Location column drop down, the list of locations you will see in the drop down will be the same set of locations you selected in Location Filtering dialogue.



Location Filtering dialogue can be launched from anywhere in dcTrack where you see the Location Field except following screens

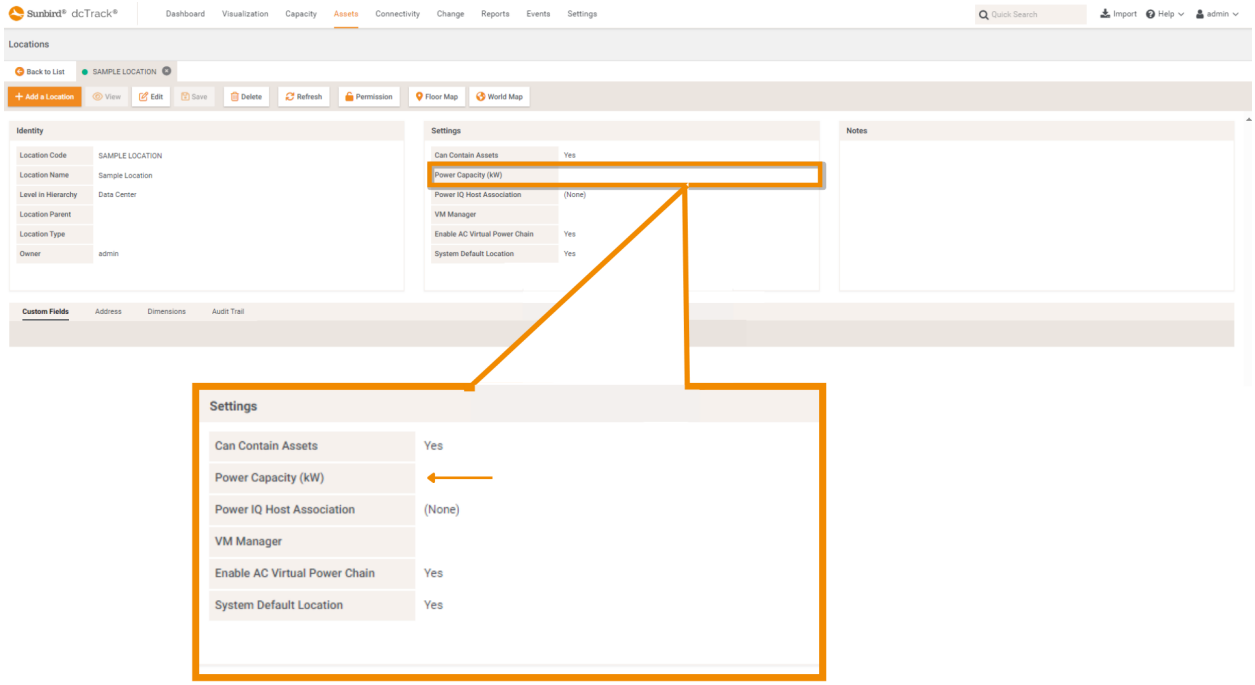
- Assets -> Locations screen
- Data Model Sync
- VMware Inventory Sync

Note: When you are in dcTrack Settings screen, Location Filtering option will not show when you click the user name.

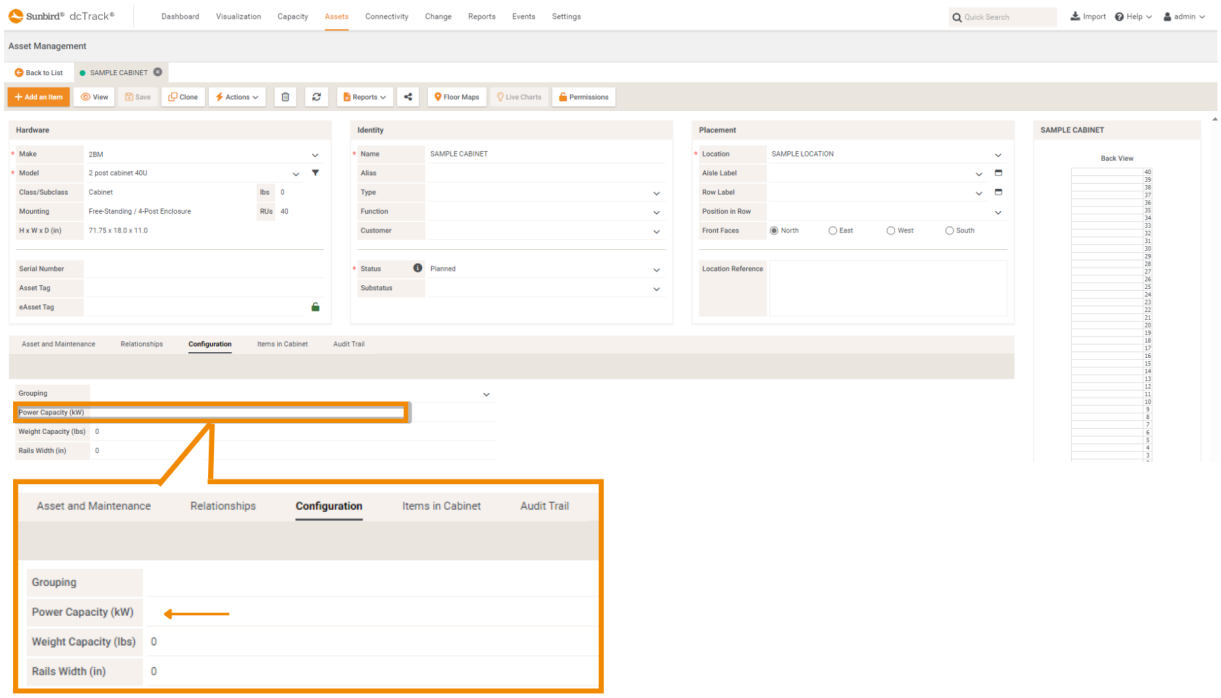
Adding Power Capacity to Locations, Cabinets, and Sub-Locations

dcTrack 6.0.0 introduces the ability for users with the appropriate permissions to add, edit, and delete the power capacity value for locations, cabinets, and sub-locations to help them better track and plan capacity.

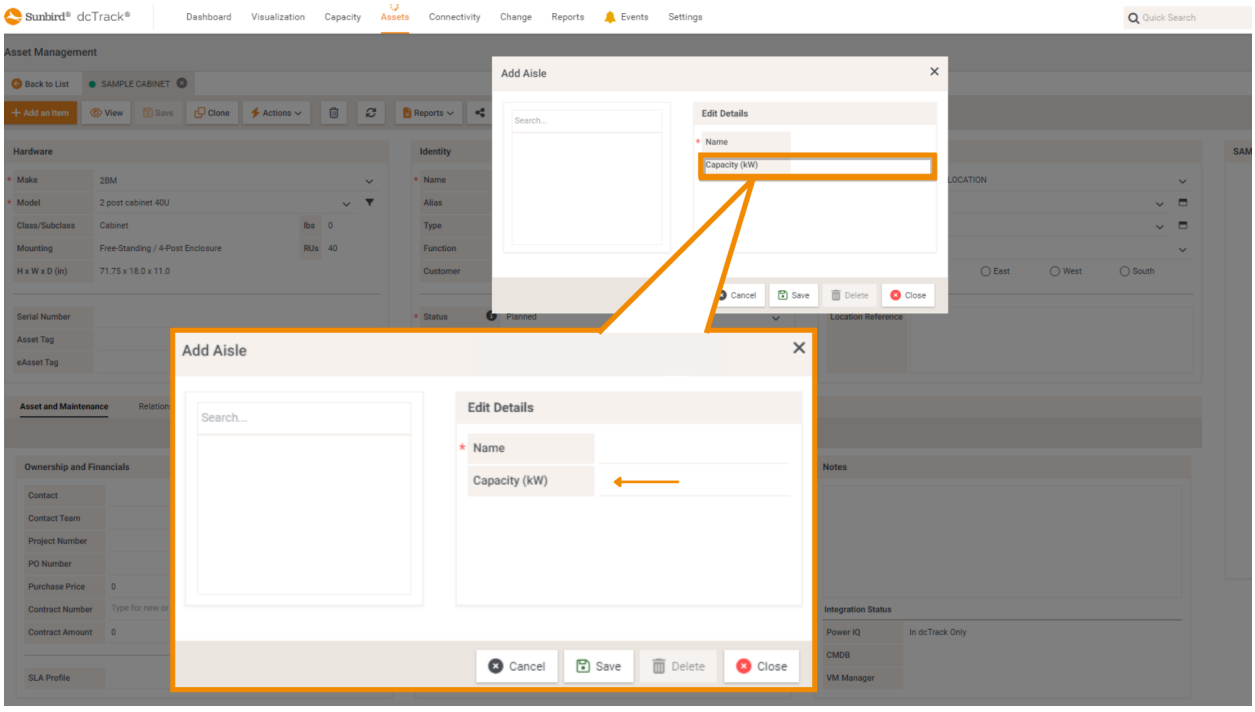
For locations, users with Edit permissions on the location can manage the power capacity value in the Settings tab of the Location Details page.



For cabinets, users with Edit permissions on the cabinet can manage the power capacity value in the Configuration tab on the Item Details page.



For aisles and rows, users with Edit permissions on the item can manage the power capacity value in the respective Add or Edit dialogs for aisles and rows, accessible through the Placement (Cabinet) panel on the Item Details page.

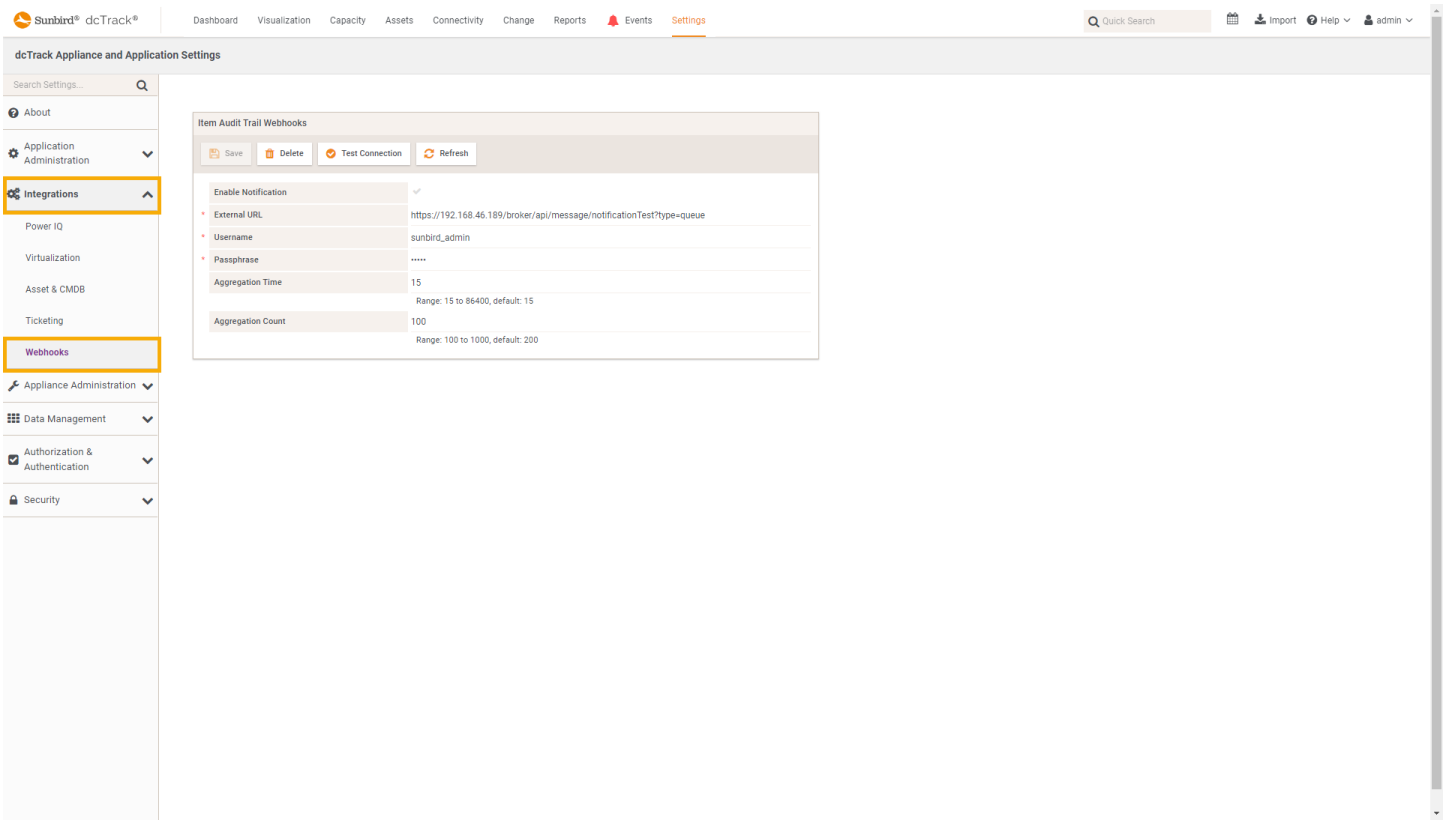


Note: Power Capacity is synchronized on objects integrated with Power IQ.

Configure Webhook Settings

dcTrack 5.3.0 introduces REST API Version 2 support for Webhooks. A REST API client in dcTrack will push notifications to the service specified to receive the notifications. The notifications provide summaries of the changes that have resulted in an auditable event in dcTrack. These include changes to item details, port details, item status, and port connection status.

The REST API client is configured from Settings > dcTrack Settings > Integrations > Webhooks as shown inthe screenshot below.



The table below summarizes available settings. All values are required except “aggregationTime” and “aggregationCount.”

If not defined, these parameters will be set to the default values. You only need to provide values for the parameters you want to update.

Setting	Description
Enable Notification	Used to enable notifications to the specified service. “Enabled” refers to whether the notification is enabled and has a value of true or false.
External URL	The URL of the service where notifications will be sent. Requires the use of https.

Setting	Description
	"urlString" has a maximum length of 255 characters.
Aggregation Time	The time period to aggregate auditable event notifications before sending out a notification. "aggregationTime" is an integer measured in seconds, ranging from 15 to 86400 seconds, with a default of 15 seconds.
Aggregation Count	The number of auditable events to aggregate before sending out a notification. The lesser of time period or count will be used to determine if a notification is to be sent. "aggregationCount" is an integer in seconds, ranging from 100 to 1000 seconds, with a default of 200 seconds.
Username	The username to be used by the REST API client for notifications. "userName" has a maximum length of 255 characters.
Passphrase	The passphrase to be used by the REST API client for notifications. "passPhrase" has a maximum length of 40 characters.

Once all of the required fields have been supplied, use the Test Connection button to verify your configuration.

You can use also the following APIs to retrieve or modify the Webhooks configuration or to delete the Webhook.

Request	Description
Retrieve the Notification Configuration	Retrieve the current Webhook configuration information.
Modify the Notification Configuration	Update the Webhook configuration information. You can update the Webhook configuration with payload when the service is turned down. You only need to provide values for the parameters you want to update. Returns updated Webhook configuration information. You can use also the following new APIs to retrieve or modify the Webhook configuration or to delete the configuration.
Clear the Notification	Deletes the Webhook configuration.

Note: To view a Webhook JSON payload example, see Webhook JSON Example in the dcTrack API Guide.

High Availability

High Availability is a dcTrack feature that enables virtually 100% uptime by detecting lost connectivity situations and automatically or manually switching to a secondary system to avoid loss of service. The High Availability feature can help you minimize downtime due to outages, support redundancy as part of disaster recovery configurations, provide scalability, and eliminate single points of failure for large and geographically dispersed deployments.

When a node is inactive (e.g. in the standby, isolated or incomplete state), users will not be able to log into the full dcTrack application. Instead, they will be presented with the High Availability Standby Application (HASA) that can only be used to review the cluster status and to restore an inactive node to service such that the full dcTrack application will be accessible. Only users with a local (non-LDAP/SAML) account that has System Administrator privileges can log into this application.

Note: A local (non-LDAP) System Administrator account is required to login to the system when it's in the standby or inactive states.

The High Availability feature can be configured through the High Availability settings page in dcTrack in the Settings tab > Appliance Settings > High Availability.

dcTrack supports a number of services that facilitate integration with Power IQ and third-party systems. As part of the High Availability feature, these services can be disabled or enabled (restored) as a group to avoid complications of having two active dcTrack systems due to either automatic or manual failover.

allHow High Availability Works

A High Availability cluster consists of one primary node and one secondary node, each with a dcTrack system that has been configured to support automatic or manual failover. When configured, data from the primary node will actively be replicated to the secondary node to provide a hot standby system in the event of an issue with the primary node.

When a node is inactive (e.g. in the standby, isolated or incomplete state), users will not be able to log into the full dcTrack application. Instead, they will be presented with a High Availability Standby Application (HASA) than can only be used to review the cluster status and to restore an inactive to service such that the full dcTrack application will be accessible. Only users with a local (non-LDAP) account that has System Administrator privileges can log into this application.

The High Availability feature on dcTrack supports two types of failover:

- Pessimistic automatic failover: When automatic failover is enabled, if the primary dcTrack detects lost connectivity, it automatically will assume that the secondary dcTrack is active and will go offline. The primary will maintain its data and can be re-enabled by users with the System Administrator role. When the secondary dcTrack detects lost connectivity, it will automatically assume that the primary dcTrack has failed and will become active.
- Manual failover. A user can manually initiate a failover from the primary dcTrack to force a failover to the secondary dcTrack. They can either disable integration services or leave them active as part of this action. Note that a manual failover can only be initialed when the cluster is operational.

aImportant Considerations When Setting Up High Availability

1. High Availability requires two dcTrack installations.
2. Ensure that your environment meets the prerequisites. For more information, see **High Availability Prerequisites**.
3. When you initially set up a High Availability cluster, data on the designated secondary node is deleted and the data from the designated primary is replicated to the secondary.
4. When setting the Heartbeat Interval and Heartbeat retries values, be sure to take the following into account:
    - You don't want too low of a value that could cause nuisance failovers or for the cluster to transition to a not operational state during restarts or short-term network issues.
    - You don't want to high of a value such that you lose operation of the system for too long of a period of time in the event of an issue on the primary.
        - Note that if the primary is down:
            - For Auto Failover: The failover won't occur until after the internal/retry period expires.
            - For Manual Failover: You can't make the secondary operational until the interval and retry period elapses and the secondary declares lost connectivity and moves to the cluster to the Not Operational state.
            - See **Lost Connectivity (Heartbeat Intervals and Retries)** for more information on these values.
5. Once a failover occurs, you will need to rebuild the cluster. You can rebuild it from either node but be sure to choose the one that has the data you wish to preserve.
6. It is recommended to configure an email notification in the event that a node declares lost connectivity. For more information, see Lost Connectivity Email Notifications.
7. When managing the nodes, you want to avoid a scenario where both nodes become active. Issues that could arise from this are:
    - This could create integration issues between dcTrack and other systems. The High Availability feature does provide a capability to disable the integration services on dcTrack.
    - Users could make changes on the wrong system.
8. Inactive nodes will not redirect to the active node. Consider using the appropriate networking equipment to ensure that users are directed to the correct node.
9. Ensure that you have at least one local (non-LDAP) user account with System Administrator privileges configured on the Primary node. A local System Administrator account is required to manage an inactive node. User accounts on primary are replicated to the secondary and can be used when the secondary is in standby mode.
10. Leverage dcTrack's Remote Backup feature to ensure you have an extra recovery mechanism.
11. Be sure to read the High Availability help section in its entirety.

High Availability Prerequisites

The following are required for correct High Availability cluster operation:

- The primary and secondary nodes must have the same number of CPUs.
- Minimum of 1 GigE network path between High Availability cluster nodes
- Firewalls cannot terminate idle or active SSH connections between HA cluster nodes
- Two dcTrack installations are required (one for the primary and one for the secondary).
- Both dcTrack installations must have the same memory configuration.
- Cluster nodes must be at the same dcTrack software version
- At least one user who has a local non-LDAP account with System Administrator access or above to both the primary and secondary dcTrack nodes
- SSH tunnel must be allowed between High Availability cluster nodes
- In addition to the standard ports required to run dcTrack, the High Availability feature requires port 22 be open for SSH. For additional details on dcTrack's VM Requirements see Virtual Machine Requirements and Recommendations.
- On the all-in-one system or split node system that will become the Secondary, ensure you know the login for a Local account that has System Administrator privileges on the node. An example would be the ‘admin’ account. This account is needed to login to the ‘new' application node once the split setup is completed.
- Make a back-up from the live all-in-one box (Note: When converting a server from an all-in-one server to a database server or an application server, remember to make the back-up first to avoid losing data during the conversion process).

User Roles and Permissions

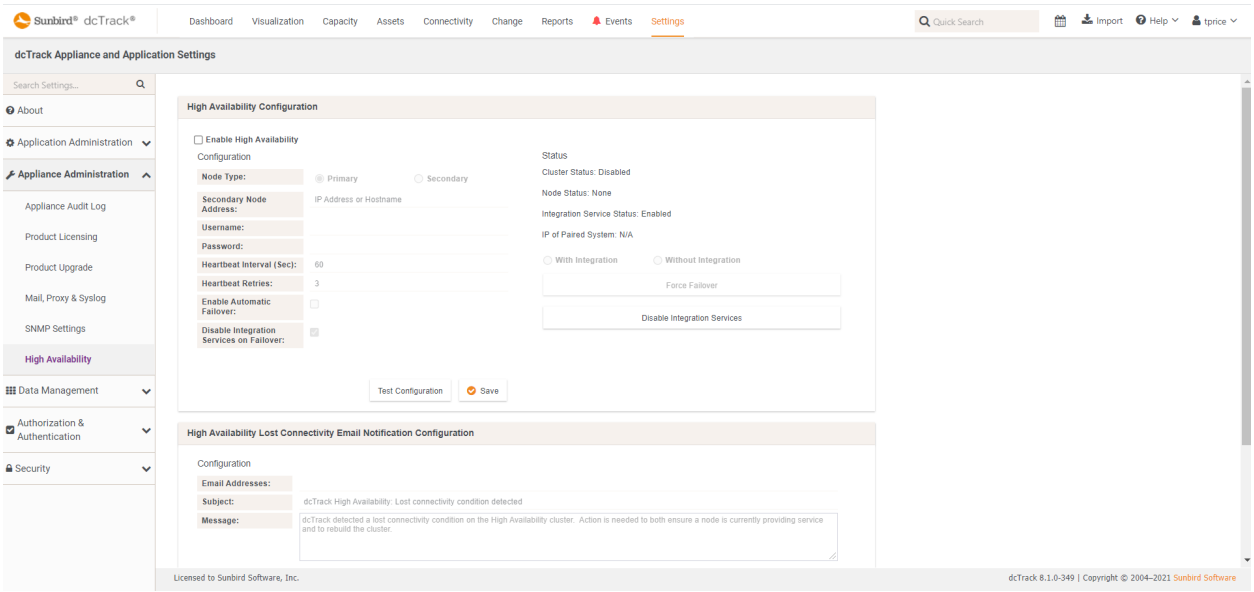
Only users with the System Administrator role can enable High Availability on dcTrack and configure each dcTrack as either the primary or secondary node.

Manual failover can only be initiated by a user with the System Administrator role.

All other users can access both the primary and secondary dcTracks based on their existing permissions.

Accessing High Availability Settings in dcTrack

The High Availability feature can be configured through the High Availability settings page in dcTrack in the Settings tab > Appliance Settings > High Availability.



The High Availability Configuration page provides the ability to:

- Enable or disable High Availability
- Designate the role of the dcTrack as either primary or secondary
- Define the IP Address or hostname for the secondary node (primary dcTrack only)
- Define the service account username and password to be used for authentication when establishing communications with the secondary dcTrack (primary only). This account must have System Administrator privileges on the secondary node.
- Set the heartbeat interval and retries used to determine availability of the other dcTrack (set on primary but synced to secondary). These values are used to detect lost connectivity.
- Test the connectivity to and service accessibility of secondary node (primary only). This confirms that the secondary node is reachable, the service account is correct, that the node is configured as a secondary, and that both nodes are at the same software version.
- Enable automatic failover of the cluster when failover conditions are met (set on primary but synced to secondary)
- Force a manual failover from either the primary or secondary dcTrack
- Enable or disable integration services as a group
- Setup and email notification for when a node declares lost connectivity

Creating and Enabling the High Availability Cluster in dcTrack

A High Availability cluster consists of one primary node and one secondary node, each with a dcTrack system that has been configured to support automatic or manual failover.

Users with the System Administrator role can create and enable a High Availability cluster through the dcTrack GUI by configuring the secondary and primary dcTracks and then beginning the process to initialize the creation of the cluster.

The high-level steps to setup a High Availability Cluster in dcTrack are:

1. On the secondary node, Enable High Availability and configure it as a secondary dcTrack node.
2. On the primary node, Enable High Availability and configure it as primary dcTrack node. In this step, you will provide the address of the secondary node as well as the credentials to an account with System Administrator privileges on that node.

In the dcTrack GUI, the Enable High Availability checkbox under the Settings tab > Appliance Settings > High Availability must be checked to use the High Availability feature. Checking the Enable High Availability checkbox in the secondary dcTrack will enable the High Availability feature and unlock the ability to configure the secondary dcTrack as the secondary. Checking the Enable High Availability checkbox in the primary dcTrack will enable the High Availability feature, unlock the ability to configure the primary dcTrack, email notifications, and integration settings, and begin the initialization process for creating the cluster.

Before starting the initialization process, the primary dcTrack will confirm the following prerequisites:

- The secondary dcTrack is accessible to the primary dcTrack
- The credentials to the secondary are valid
- The secondary dcTrack has been configured as secondary
- The secondary dcTrack is in the Pending Initialization state
- The secondary dcTrack is the same version as the primary dcTrack

If any of these checks fail, an error message will be displayed. If this occurs, you can correct the issue and re-attempt the setup.

Configuring the Secondary dcTrack

To leverage the High Availability feature, you must have secondary and primary dcTracks configured. The secondary dcTrack must be configured first and will be pending initialization until the primary dcTrack is configured and enabled. Enabling High Availability on the primary dcTrack will begin the initialization process to create and enable the High Availability cluster.

When pending initialization, the secondary dcTrack will operate as a normal dcTrack, until a primary dcTrack initiates the synchronization process with it.

To configure a dcTrack system as the secondary node:

1. In the GUI of the secondary dcTrack, in the Settings tab > Appliance Settings > High Availability, ensure that the Enable High Availability checkbox is checked to ensure that High Availability is enabled. Once High Availability is enabled, the bottom of the panel will be unlocked.
2. Under High Availability Configuration > Node Type, select the Secondary radio button.
3. Click the Save button.

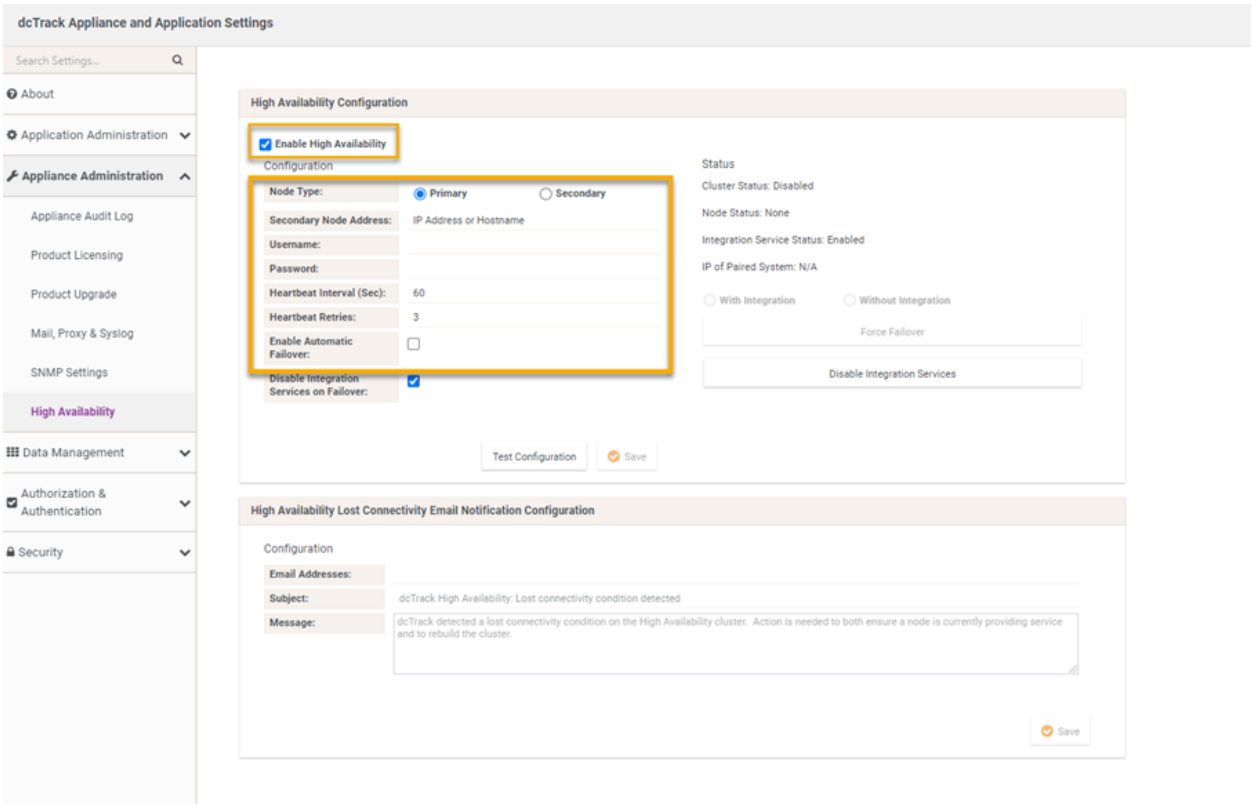
Successfully saving a secondary dcTrack's High Availability configuration will be logged in the audit log, and a message indicating the successful configuration change will be displayed on the High Availability settings page.

Note: At this point, both the Cluster Status and Node Status will display as Pending Initialization because the primary dcTrack has not yet initialized synchronization with the secondary dcTrack.

Note: In the secondary dcTrack, the Force Failover option, Disable Integration Services option, Test Configuration option, and other configuration options will not be available. These are only configured on the the primary node.

Configuring the Primary dcTrack

The High Availability cluster is created and enabled when the High Availability feature is enabled on the primary dcTrack. A user with the System Administrator role is able to configure High Availability on the primary dcTrack and to initiate the synchronization process with a secondary dcTrack.



To configure a dcTrack system as the primary node:

1. 1. In the Primary dcTrack's Settings tab > Appliance Settings > High Availability, ensure that the Enable High Availability checkbox is checked to ensure that High Availability is enabled.
    a. Note: Checking the "Enable High Availability" checkbox in the Primary dcTrack will unlock the ability to configure the Primary dcTrack, email notifications, and integration settings, and begin the initialization process for creating the cluster.
2. Under High Availability Configuration > Node Type field, select the Primary radio button.
3. Under Configuration, in the IP Address/Hostname field, enter the IP address or hostname of the Secondary dcTrack.
4. Note: Valid IPv4 and IPv6 address are accepted.
5. In the Username field, enter the username that the Primary dcTrack should use when initially communicating with the Secondary dcTrack.

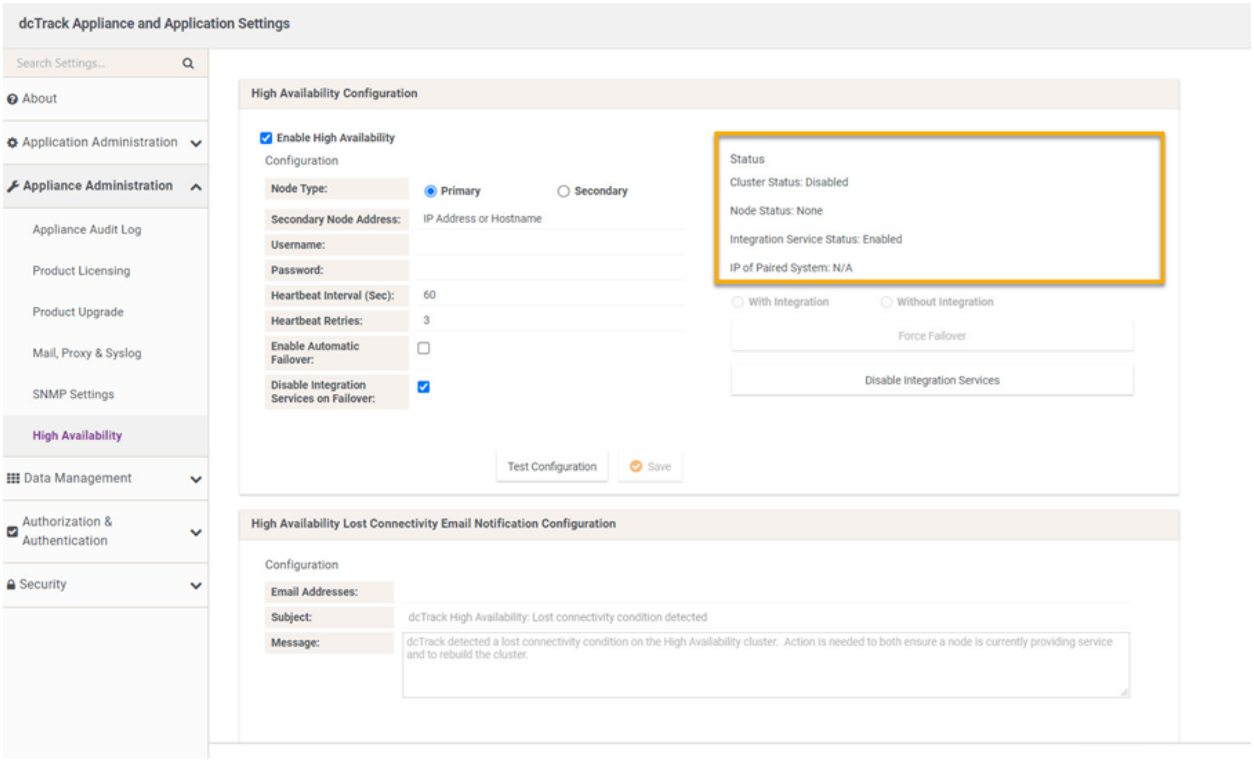
6. In the Password field, enter the password that the Primary dcTrack should use when initially communicating with the Secondary dcTrack.
7. Note: The username and password must be for a user with local, not LDAP, permissions for the System Administrator role. The username and password will not be displayed after you reload the page.
8. In the Heartbeat Interval (Sec) field, enter the desired heartbeat interval in seconds. A range from 10-600 seconds is supported. The default interval is 60 seconds. See Lost Connectivity (Heartbeat Intervals and Retries) for more information.
9. In the Heartbeat Retries field, enter the desired number of heartbeat retry attempts. A range from 1-10 is supported. The default number is 3. See Lost Connectivity (Heartbeat Intervals and Retries) for more information.
10. Check the Enable Automatic Failover checkbox if desired to enable automatic failover. By default, automatic failover is disabled. Optional.
11. Check the Disable Integration Services on Failover box to disable integration services on the Secondary node after an automatic failover occurs. By default, this option is enabled. Optional.
12. Click the Test Configuration button to confirm that all prerequisites have been met. If the prerequisites are met, this will enable the Save button such that you can setup the cluster
13. Click the Save button to save the configuration. This will initiate the process to create the cluster.
14. Before starting the initialization process, the Primary dcTrack will confirm the following prerequisites. If any of these checks fail, an error message will be displayed. If this occurs, you can correct the issue and re-attempt the setup
    a. The Secondary dcTrack is accessible to the Primary dcTrack
    b. The credentials to the Secondary are valid
    c. The Secondary dcTrack has been configured as Secondary
    d. The Secondary dcTrack is in the Pending Initialization state
    e. The Secondary dcTrack is the same version as the Primary dcTrack

Successfully saving a primary dcTrack's High Availability configuration will be logged in the audit log, and a message indicating the successful configuration change will be displayed on the High Availability settings page.

Status Fields

The right panel of the High Availability settings page displays the current status for the following:

- Node Status: Displays the status of the current dcTrack node
- Cluster Status: Displays the status of the current cluster
- Integration Service Status: Displays whether integration services have been enabled or disabled specifically for High Availability through the High Availability UI. This status displays Enabled by default and after services have been restored.
- IP of Paired System: Displays the IP address of the secondary node. Note that this setting is only valid when the High Availability feature is enabled. Otherwise, the default value is N/A.



Note: To update the information displayed, click on High Availability in the left-hand navigation menu.

For more information on statuses, see **Cluster and Node States** .

Testing Connectivity

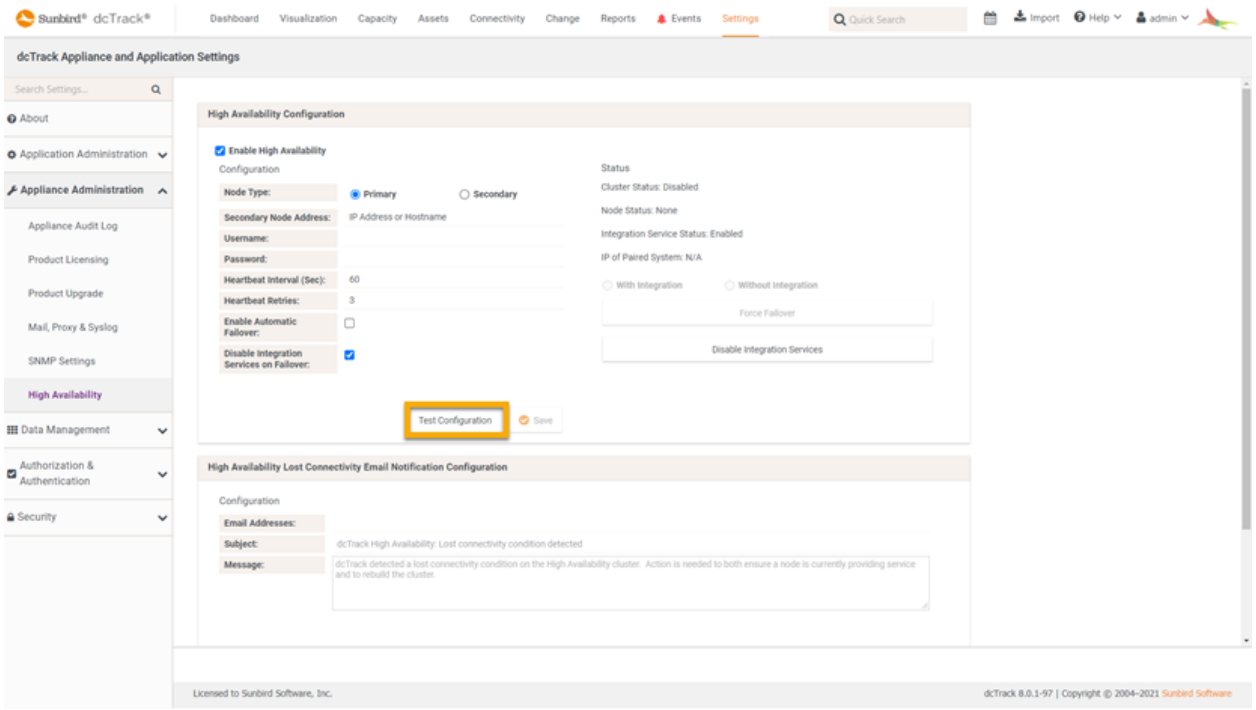
Testing connectivity confirms access from the primary to the secondary dcTrack and ensures that High Availability prerequisites are met.

Note: The ability to test connectivity is available only in the primary dcTrack.

To test connectivity:

1. In the primary dcTrack's Settings tab > Appliance Settings > High Availability, ensure that the Enable High Availability checkbox is checked, that the node type is set to Primary, and that the appropriate information is entered for the secondary node..
2. Ensure that the secondary dcTrack is configured.

3. Click the Test Configuration button.



The following prerequisites are confirmed when the user click the Test Configuration button:

- The secondary dcTrack is accessible to the primary dcTrack
- The credentials to the secondary are validThe secondary dcTrack has been configured as secondary
- The secondary dcTrack is in the Pending Initialization state
- The secondary dcTrack is the same version as the primary dcTrack

If the connectivity test is successful, a dialog box indicating success will be displayed. If the connectivity test is unsuccessful, a dialog box indicating an error related to one of the points above will be displayed.

Note: The connectivity test is not dependent on the heartbeat interval and retries.

Enabling and Disabling Integration Services as a Group

dcTrack supports a number of services that facilitate integration with Power IQ and third-party systems. As part of the High Availability feature, these services can be disabled or enabled (restored) as a group to avoid complications of having two active dcTrack systems due to either automatic or manual failover.

Integration services that can be enabled or disabled as a group include:

- Power IQ Integrations
- VMware Connectors
- IT Service Management (ITSM)
- CMDB
- Push Notifications
- Remedy Connector

- Remote Storage of Database Backups
- Email Notifications

Note: System log destinations are not affected by the enabling or disabling of integration services as a group.

Integration services can be disabled or restored as a group through the High Availability settings page. Any active integration services that are disabled by this feature will be logged internally and can be restored later if desired. The current setting for any service that was already disabled/inactive at the time the services were disabled will remain unchanged. If integration services are disabled or restored on a primary dcTrack while the High Availability cluster is active, the settings change will be replicated to the secondary dcTrack.

When the user chooses the option to Restore Integration Services, only the services that were previously active will be restored.

CAUTION: The integration service state as shown on the High Availability Configuration screen does not reflect the state of the actual services. Instead, it reflects whether or not they were disabled/restored through the High Availability feature. If you disable the services through High Availability, and then go to the services themselves and re-enable them, the Integration Services status will still show that they had been Disabled through High Availability.

When an automatic failover occurs, the integration services on the secondary dcTrack will be disabled if the user selected the appropriate option on the High Availability settings page. Otherwise, they will remain unchanged.

The table below outlines the actions to be completed following a manual failover with integration services enabled:

Manual Failover Option	Integration Services Currently Enabled	Integration Services Currently Disabled
Failover with Integration	Remain Unchanged	Are Restored
Failover without Integration	Are Disabled	Remain Unchanged

The table below outlines the actions to be completed once a dcTrack system is restored to service:

Restore to Service Option	Integration Services Currently Enabled	Integration Services Currently Disabled
Restore with Integration	Remain Unchanged	Are Restored
Restore without Integration	Are Disabled	Remain Unchanged

Disabling Integration Services on Automatic Failover

Users with the System Administrator role can select or deselect to disable integration services on the secondary dcTrack following an automatic failover. This setting is configured on the Primary using the Disable Integration

Services on Failover checkbox and can only be set when first building the cluster. .

If option is selected, then on automatic failover the secondary shall disabled integration services as per Enabling and Disabling Integration Services as a Group

If option is unselected, then on automatic failover the secondary shall not change the status of the integration services

This setting is selected by default.

Note: When a node is active, users can manually select to disable/restore services at any time. When using auto-failover, it's recommended to select the option to disable them on failover to prevent any issues that might arise from an active:active scenario. After an System Administrator assess the situation, they can manually restore (enable) the services on the secondary system.

Forcing Manual Failover with or without Integration Services

Users with the System Administrator role can manually force a failover to the secondary dcTrack and either disable integration services ('Without Integration' option) or leave them unchanged (With Integration option) on that dcTrack as part of this action.

Note: This option is only accessible from a primary dcTrack when the HA Cluster is Operational and the Primary is in the Active state. To enable the Force Failover button, the user must first select an option for failover with or without integration services in the High Availability settings page. Once an option is selected, the Force Failover button in the High Availability settings page will be updated accordingly.

To manually force a failover with or without integration services:

1. In a primary dcTrack's High Availability settings page, above the Force Failover button, select With Integration radio button if you want integration services enabled. Select the Without Integration radio button if you want integration services disabled. The Force Failover button will be updated accordingly.
2. Click the Force Failover button. A confirmation dialog box will display.
3. In the confirmation dialog box, click the OK button to initiate the failover. Click the Cancel button to close the dialog box without initiating failover.

Once the failover has been initiated, a message directing users to manually log in to the secondary dcTrack will display. The manual failover will also be captured in the system audit log.

Disabling/Restoring Integration Services

Users with the System Administrator role can disable or restore integration services on an active primary or secondary dcTrack to avoid complications from two active dcTracks using the same services. This option can be changed using the Disable/Restore Integration Services button in the High Availability settings page.

Note: The Disable/Restore Integration Services button is only available when an active dcTrack system is running.

The button will display different text based on the status of integration services as set in the High Availability settings page. If integration services are currently enabled, the button will display text to disable integration services. If integration services are currently disabled, the button will display text to restore integration services.

To disable integration services:

1. Click the Disable Integration Services button. A confirmation dialog box will display.
2. In the confirmation dialog box, click the OK button to confirm that you want to disable integration services. Click the Cancel button to close the dialog box without disabling integration services.

To restore integration services:

1. Click the Restore Integration Services button. A confirmation dialog box will display.
2. In the confirmation dialog box, click the OK button to confirm that you want to restore integration services. Click the Cancel button to close the dialog box without restoring integration services.

Note: Attempts to disable and restore integration services will be logged in the system audit log.

Automatic Failover

dcTrack supports pessimistic automatic failover, which requires a High Availability cluster with a node for a primary dcTrack application and a node for a secondary dcTrack application. With this configuration, dcTrack can identify a failover situation and act accordingly to support high availability, or virtually 100% uptime.

When automatic failover is enabled and the primary dcTrack detects a lost connectivity condition, it will automatically assume that the secondary dcTrack is active and will go offline. It will maintain its data and can be re-enabled by users with the System Administrator role. When the secondary dcTrack detects lost connectivity condition, it will automatically assume that the primary dcTrack has failed and will become active.

Users with the System Administrator role can enable automatic failover from the High Availability settings page on the primary dcTrack. Integration services can be enabled or disabled following an automatic failover on the High Availability settings page as well. Both of these settings can only be applied when initially setting up the cluster.

To enable automatic failover:

1. In the primary dcTrack's Settings tab > Appliance Settings > High Availability, ensure that the Enable High Availability checkbox is checked to ensure that High Availability is enabled.
2. Under High Availability Configuration > Node Type field, select the Primary radio button.
3. Under Configuration, in the IP Address/Hostname field, enter the IP address or hostname of the secondary dcTrack.
   Note: Valid IPv4 and IPv6 address are accepted.
4. In the Username field, enter the username that the primary dcTrack should use when initially communicating with the secondary dcTrack.
5. In the Password field, enter the password that the primary dcTrack should use when initially communicating with the secondary dcTrack.
   Note: The username and password must be for a user with local, not LDAP, permissions for the System Administrator role. The username and password will not be displayed after you reload the page.
6. Check the Enable Automatic Failover checkbox to enable automatic failover. By default, automatic failover is disabled.
7. Check/uncheck the Disable Integration Services on Failover checkbox to select/deselect to disable integration services on the secondary node after an automatic failover occurs. By default, this option is enabled.
8. Click the Save button to save the configuration.

The table below summarizes the state transitions for the primary dcTrack following automatic failover:

	Primary dcTrack			Secondary dcTrack		
	Cluster Status	Node Status	Active Application	Cluster Status	Node Status	Active Application
States prior to automatic failover	Operational	Active	dcTrack	N/A	N/A	N/A
States following successful automatic failover	Failover	Isolated	High Availability Standby Application	N/A	N/A	N/A

The table below summarizes the state transitions for the secondary dcTrack following automatic failover:

	Primary dcTrack			Secondary dcTrack		
	Cluster Status	Node Status	Active Application	Cluster Status	Node Status	Active Application
States prior to automatic failover	N/A	N/A	N/A	Operational	Standby	High Availability Standby Application
States following successful automatic failover	N/A	N/A	N/A	Failover	Active	dcTrack

Manual Failover When the High Availability Cluster Is Operational

Users with the System Administrator role can manually initiate failover from the primary dcTrack to force the failover functionality in the secondary dcTrack. They can either disable integration services or leave them active/restore them on that dcTrack as part of this action.

To manually force a failover with or without integration services:

1. In a primary dcTrack's High Availability settings page, above the Force Failover button, select the With Integration radio button if you want integration services enabled. Select the Without Integration radio button if you

want integration services disabled. The Force Failover button will be updated accordingly.
2. Click the Force Failover button. A confirmation dialog box will display.
3. In the confirmation dialog box, click the OK button to initiate the failover. Click the Cancel button to close the dialog box without initiating failover.

Once the failover has been initiated, a message directing users to manually log in to the secondary dcTrack will display. The manual failover will also be captured in the system audit log.

If the primary dcTrack successfully notifies the secondary dcTrack to fail over, then the primary dcTrack will switch to the Failover state, and the active application will transition from dcTrack to the High Availability Standby Application. The secondary dcTrack will switch to the Failover state and will switch the active application from dcTrack to the High Availability Standby Application.

If the failover is unsuccessful, the primary dcTrack will abort the failover and remain in the Operational state. The secondary dcTrack will remain offline until a failover is manually initiated.

Once the secondary dcTrack is active, it will include all the synchronized data up to the point where the cluster status switched to not operational.

The table below summarizes the state transitions following a manual failover:

	Primary dcTrack			Secondary dcTrack		
	Cluster Status	Node Status	Active Application	Cluster Status	Node Status	Active Application
States prior to manual failover	Operational	Active	dcTrack	Operational	Standby	High Availability Standby Application
States following successful manual failover	Failover	Isolated	High Availability Standby Application	Failover	Active	dcTrack

Restoring the Primary dcTrack to Service

Following a failover, users with the System Administrator role can restore the primary dcTrack to service and can enable/disable integration services as part of the restoration process.

When the primary dcTrack is in the Isolated state, it can be restored using the Restore to Service button in the High Availability Standby Application on the primary node.

To restore the primary dcTrack to service using the High Availability Standby Application on the primary node:

1. In the High Availability Standby Application, select the With Integration radio button if you want integration services enabled. Select the Without Integration radio button if you want integration services disabled. The Restore to Service button will be updated accordingly.

2. Click the Restore to Service button.
3. Click the Save button. A confirmation dialog popup box will display.
4. In the confirmation dialog popup box, click the OK button to confirm the action.

The primary node will transition to the None state and switch the active application from the High Availability Standby Application to dcTrack. This will also disable the High Availability feature on the primary dcTrack.

Restoring the Secondary dcTrack to Service

Users with the System Administrator role can manually restore the secondary dcTrack to service in the event of issue on the primary dcTrack or if there is a network outage that disrupts communication between the two systems. This option is only available when the cluster status as shown on the secondary dcTrack is not operational. If the cluster is operational, the user will have to wait until the loss of connectivity condition is declared.

For manual failover, once a loss of connectivity event occurs, the secondary in this case can only be restored to service through the High Availability Standby Application on the secondary node.

Once the secondary dcTrack is active, it will include all the synchronized data up to the point where the cluster status switched to not operational.

Note: This action is not dependent on the actual status of the primary dcTrack.

To restore the secondary dcTrack to service using the High Availability Standby Application when the cluster status on the secondary dcTrack is not operational:

1. In the High Availability Standby Application, select the With Integration radio button if you want integration services enabled. Select the Without Integration radio button if you want integration services disabled. The Restore to Service button will be updated accordingly.
2. Click the Restore to Service button.
3. Click the Save button. A confirmation dialog popup box will display.
4. In the confirmation dialog popup box, click the OK button to confirm the action.

The node will transition to the None state and switch the active application from the High Availability Standby Application to dcTrack. The High Availability feature will be disabled on the node.

Note: If the secondary dcTrack's Node Status is Incomplete, the data may not be intact for the dcTrack system to be started. In this case, you may need to reinstall dcTrack.

Disabling a Cluster

Users with the System Administrator role may need to disable a cluster in order to complete specific actions, such as rebuilding a cluster when it is no longer operations, performing maintenance, upgrades, and database restores, or to use a secondary dcTrack as an up-to-date copy of a system for testing, sandbox, or development purposes.

A cluster can be disabled through either the High Availability settings page of an active dcTrack system or through the High Availability Standby Application (HASA).

There are two main scenarios where a cluster may be disabled:

- Cluster status is operational: When the cluster is operational, the primary and secondary dcTracks have connectivity, and the cluster can be disabled through the primary dcTrack's UI.

- Cluster status is not operational (any of initializing, synchronizing, not operational, or failover): When the cluster status is initializing, synchronizing, not operational, or failover, the primary and secondary dcTracks are not communicating, and you will need to make changes to each node to disable the cluster.

Note: If the secondary dcTrack's Node Status is Incomplete, the data may not be intact for the dcTrack system to be started. In this case, you may need to reinstall dcTrack.

Disabling a Cluster When Its Status Is Operational

When a cluster is operational, it can only be disabled through the primary dcTrack through the High Availability settings page. Users with the System Administrator role can disable the cluster.

To disable the cluster:

1. In the primary dcTrack's High Availability settings page, uncheck the Enable High Availability checkbox.
2. Click the Save button. A confirmation dialog popup box will display.
3. In the confirmation dialog popup box, click the OK button to confirm the action.

Once the High Availability feature is disabled and this setting is saved, the secondary dcTrack will become active and disable the cluster and integration services on the secondary dcTrack. The database and file system components will be left on the secondary dcTrack. The cluster will be disabled on the primary dcTrack, but the integration service settings will remain unchanged. Integration services can be enabled or disabled on either the primary or secondary dcTrack.

Both the primary and secondary dcTracks will retain their initial Node Type setting as displayed on the High Availability settings page. The systems are not clustered, so the Paired Node IP Address value will display as N/A.

The table below shows the status changes once the cluster has been disabled:

	Primary dcTrack			Secondary dcTrack		
	Cluster Status	Node Status	Active Application	Cluster Status	Node Status	Active Application
States prior to disabling cluster	Operational	Active	dcTrack	Operational	Standby	High Availability Standby Application
States after cluster is disabled through the primary dcTrack	Disabled	N/A	dcTrack	Disabled	N/A	dcTrack

Disabling a Cluster When Its Status Is Initializing, Synchronizing, Not Operational, or Failover

When a cluster is in the initializing, synchronizing, not operational, or failover status, the cluster will need to be disabled on each system because they are no longer communicating or not yet in sync. Users with the System Administrator role can disable the cluster.

Note: Sunbird recommends that the user who is disabling the cluster start with the dcTrack system that is active.

To disable a cluster on a dcTrack node where the full dcTrack application is active, use the High Availability Settings page:

1. In dcTrack's High Availability Configuration page, uncheck the Enable High Availability checkbox.
2. Click the Save button. A confirmation dialog popup box will display.
3. In the confirmation dialog popup box, click the OK button to confirm the action.

The node status will change Disabled. The integration service settings will remain unchanged but can be modified either before or after the cluster is disabled through the High Availability Configuration page.

To disable a cluster on a dcTrack node where the the High Availability Standby Application is active

1. In the High Availability Standby Application, select the With Integration radio button if you want integration services enabled. Select the Without Integration radio button if you want integration services disabled. The Restore to Service button will be updated accordingly.
2. Click the Restore to Service button.
3. Click the Save button. A confirmation dialog popup box will display.
4. In the confirmation dialog popup box, click the OK button to confirm the action.

The node status will change to Disabled. The dcTrack application will be active. The selected integration settings option will be applied but can be modified after the cluster is disabled through the High Availability Configuration page.

Once the cluster is disabled, for both the primary and secondary dcTracks, the node status will be None, and the paired node IP address will display as N/A. The database and file system components will remain the same.

Note: If the secondary dcTrack's Node Status is Incomplete, the data may not be intact for the dcTrack system to be started. In this case, you may need to reinstall dcTrack.

Rebuilding a Cluster

System Administrators may need to rebuild a cluster following a failover, maintenance, testing, or other instances where the High Availability cluster needs to be disabled.

To rebuild a High Availability Cluster:

1. Restore both the primary and secondary nodes to service. For more information, see Restoring the Primary dcTrack to Service and Restoring the Secondary dcTrack to Service.
2. Determine which node you want to be the primary and which node should be the secondary based on which node has the data you want to retain. You can rebuild the cluster from either node but be sure to choose the

one that has the data you wish to preserve. Remember that the data from the designated primary is replicated to the secondary.
3. Configure the secondary dcTrack. For more information, see Configuring the Secondary dcTrack.
4. Configure the primary dcTrack. For more information, see Configuring the Primary dcTrack.

For assistance with rebuilding a cluster, contact Sunbird's Technical Support team.

Using the High Availability Standby Application (HASA)

When a node is inactive (e.g. in the standby, isolated or incomplete state), user's will not be able to log into the full dcTrack application. Instead, they will be presented with a High Availability Standby Application (HASA) than can only be used to review the cluster status and to restore an inactive to service such that the full dcTrack application will be accessible. Only users with a local (non-LDAP) account that has System Administrator privileges can log into this application.

Viewing the High Availability Standby Application

When a user accesses a dcTrack system or node, the user will either see the normal dcTrack application or the High Availability Standby Application.

The user will see the normal dcTrack application when:

- The dcTrack system was never part of a cluster
- The dcTrack system is an active node in a cluster
- The dcTrack system is configured to be a secondary node, but the primary has yet to initiate a connection with the secondary node.
- High Availability is disabled on that node

The user will see the High Availability Standby application when:

- The node status is inactive (in the Isolated, Standby, or Incomplete states)

The High Availability Standby Application can be used to:

- Check cluster status
- Restore a secondary node to service
- Restore a primary node to service following a failover

Note: The High Availability Standby Application will show a message on the login page indicating that the accessed node is part of a dcTrack failover cluster but is not currently the active node.

Lost Connectivity (Heartbeat Intervals and Retries)

When High Availability is enabled, data will sync automatically from the primary dcTrack to the secondary dcTrack, as long as the primary and secondary dcTracks have connectivity, and the High Availability cluster is operational.

Both the primary and secondary dcTracks will independently check for connectivity to each other using a heartbeat or ping. If the initial attempt is unsuccessful, the heartbeat will be retried for a user-configurable number of times, with each retry attempted followed by a specific time interval that must elapse before the heartbeat is retried. If the

connectivity outage lasts longer than the initial attempt followed by the heartbeat retries, then the node will declare lost connectivity.

- For the primary dcTrack, the default number of heartbeats following the initial attempt is three heartbeats. The default retry interval is 60 seconds. Therefore, the initial default attempt is followed by three heartbeats spaced at 60 seconds between each heartbeat.
- For the secondary dcTrack, the default number of heartbeats following the initial attempt is one more than that of the primary dcTrack. This additional retry is included to avoid race conditions. Therefore, the initial default attempt is followed by three heartbeats spaced at 60 seconds between each heartbeat plus one additional heartbeat.

Note: If either the primary or secondary dcTrack is rebooted, the High Availability cluster will continue to be operational, as long as connectivity is reestablished and no data was lost or corrupted during the reboot.

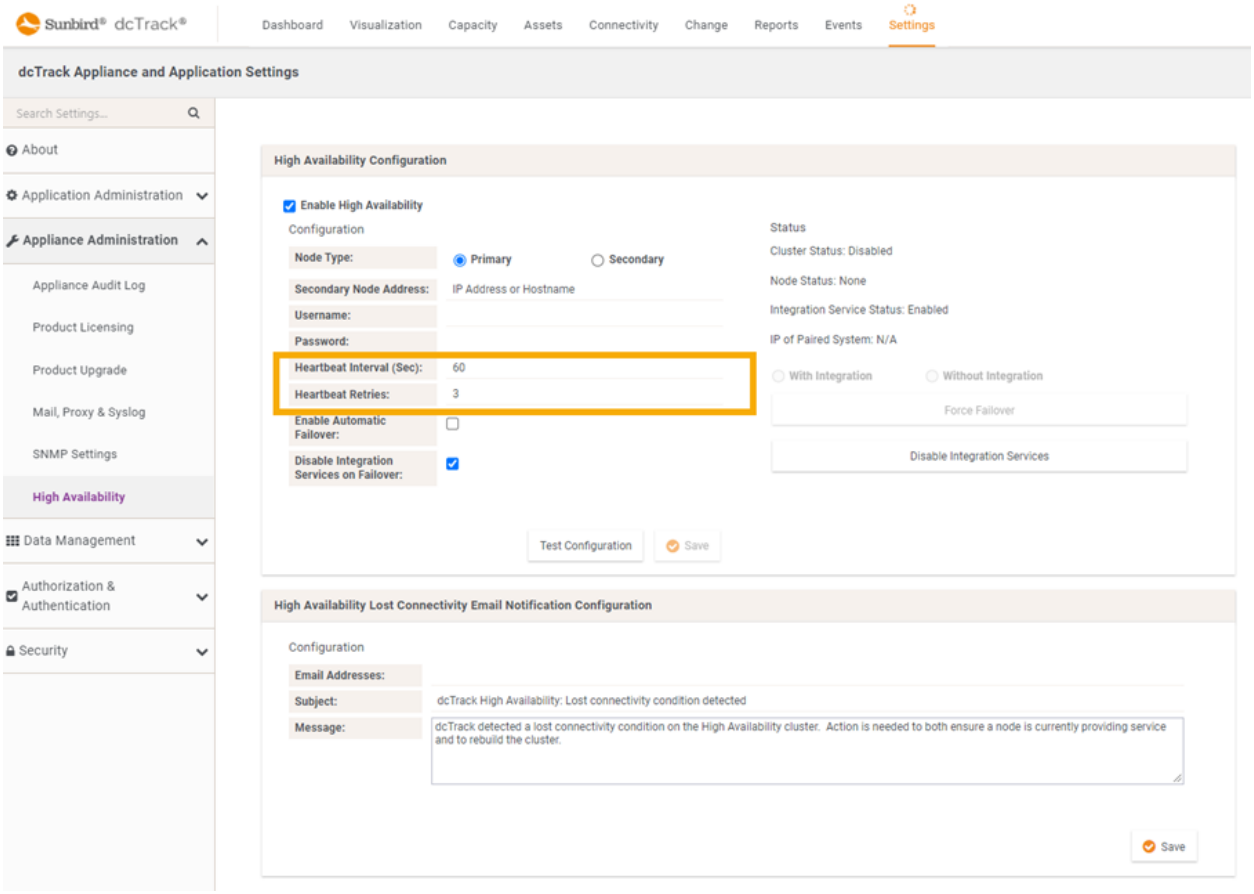
Note: When the node is no longer operational, it won't respond to heartbeat attempts.

Configuring the Heartbeat/Retry Interval

To configure the primary heartbeat and retry interval:

1. In the primary dcTrack, in the Settings tab > Appliance Settings > High Availability, check the Enable High Availability checkbox to ensure that High Availability is enabled.
2. In the Heartbeat Interval (sec) field, enter the desired length of the interval in seconds. The range is from 10-600 seconds. The default is 60 seconds.
3. In the heartbeat Retries field, enter the desired number of retries. The range is from 1-10 retries. The default is three retries. Note that the number entered is in addition to the initial retry and that the secondary dcTrack will add one additional retry to the number entered in this field.

4. Click the Save button.



When setting the Heartbeat Interval and Heartbeat retries values, be sure to take the following into account:

1. You don't want to low of a value that could cause nuisance failovers or for the cluster to transition to a not operational state during restarts or short-term network issues.
2. You don't want to high of a value such that you lose operation of the system for too long of a period of time in the event of an issue on the primary.
    - Note that if the primary is down:
        - For Auto Failover: The failover won't occur until after the internal/retry period expires.
        - For Manual Failover: You can't make the secondary operational until the interval and retry period elapses and the secondary declares lost connectivity and moves to the cluster to the Not Operational state.

State Changes Following Lost Connectivity

If lost connectivity is declared, and automatic failover is enabled:

- If the primary dcTrack detects lost connectivity, it will assume that the secondary dcTrack has become active, and the primary dcTrack will switch to the failover state and go offline. At this point, a user with the System Administrator role can restore it if necessary.
- If the secondary dcTrack detects lost connectivity, it will assume that the primary dcTrack has gone offline, and the secondary dcTrack will become active. The active application will switch from dcTrack to the High Availability Standby Application.

If lost connectivity is declared, and automatic failover is disabled, the primary and secondary dcTracks will transition as noted in the table below:

	Primary dcTrack			Secondary dcTrack		
	Cluster Status	dcTrack Status	Active Application	Cluster Status	dcTrack Status	Active Application
States prior to lost connectivity	Operational	Active	dcTrack	Operational	Standby	High Availability Standby Application
States after lost connectivity declared	Not operational	Active	dcTrack	Not operational	Standby	High Availability Standby Application

Note: If either the primary or secondary dcTrack is offline, it will not transition until it is back online.

Lost Connectivity Email Notifications

When connectivity is lost to either the primary, secondary, or both the primary and secondary dcTracks, email notifications will be sent to the email addresses specified in the High Availability settings page for the primary dcTrack.

Note: SMTP settings must be configured to send email notifications. For more information, see **SMTP Server Settings**.

To configure lost connectivity email notifications:

1. In the primary dcTrack, in the Settings tab > Appliance Settings > High Availability, check the Enable High Availability checkbox to ensure that High Availability is enabled.
2. In the High Availability Lost Connectivity Email Notification Configuration panel, in the Email Addresses field, enter the email addresses that you would like to receive notifications. Multiple email addresses can be separated by a semicolon.
3. Edit the subject and message if desired. Optional.
4. Click the Save button.

Note: Lost connectivity email notification settings can only be configured on the primary dcTrack. These settings will be synced to and used by the secondary dcTrack in case lost connectivity is detected.

Note: If both the primary and secondary dcTracks detect lost connectivity, each dcTrack will send a separate email notification.

Cluster and Node States

The following tables list descriptions for primary and secondary clusters configured for High Availability.

Primary Cluster States

Cluster Status	Description	Node Status	Active Application
Disabled	The High Availability cluster must be built to provide HA functionality. There is no High Availability functionality in this state. The node is acting as an independent dcTrack.	None	dcTrack
Initializing	The High Availability cluster is enabled and is in the process of establishing inter-node communications.	Initializing	dcTrack
Sync in Progress	The High Availability cluster is enabled on both nodes. Node communications have been successfully established. Bulk sync of the secondary node's database and file systems is in progress.	Synching	dcTrack
Operational	The bulk sync of the secondary's database and files system has been completed. The secondary is now provided asynchronous incremental updates on an as-needed basis to maintain near real-time synchronization.	Active	dcTrack
Not Operational	Internode communications has been lost. The specified time period encompassing total heartbeat retries and timeouts has expired. The High Availability cluster is not available for failover. The Users with the System Administrator role and above need to disable and re-build the High Availability cluster in order to restart the process from the beginning. A notification is provided to designated recipients informing them that internode communications has been lost.	Active	dcTrack

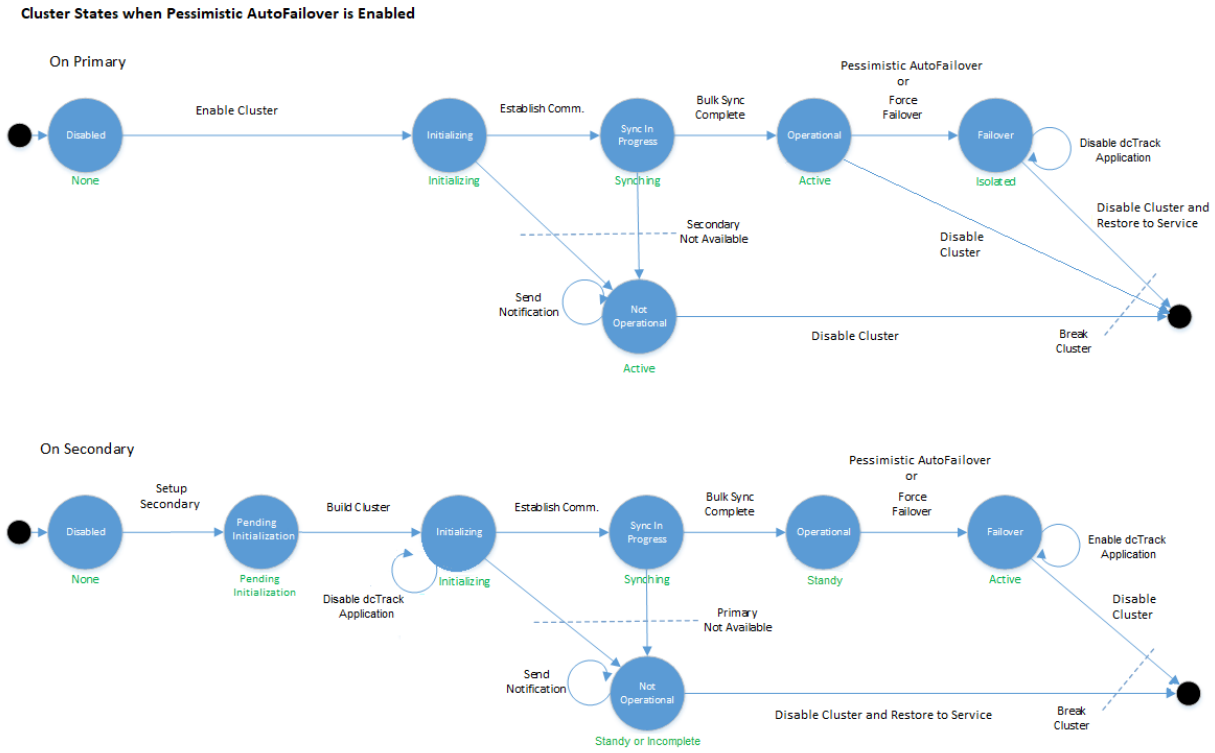
Cluster Status	Description	Node Status	Active Application
Failover	The Users with the System Administrator role and above has performed a manual failover or a pessimistic auto-failover has occurred. The dcTrack application is no longer available on the primary node. The High Availability cluster is not available for failover. The users with the System Administrator role and above will have to break and re-build the High Availability cluster in order to restart the process from the beginning.	Isolated	High Availability Standby Application

Secondary Cluster States

Cluster Status	Description	Node Status	Active Application
Disabled	The High Availability cluster must be built to provide HA functionality. There is no High Availability functionality in this state. The node is acting as an independent dcTrack.	None	dcTrack
Pending Initialization	The secondary node is configured to be a Secondary node in this state, but a primary not has not yet initiated the connection. The secondary node is acting as an independent dcTrack.	Pending Initialization	dcTrack
Initializing	The High Availability cluster is enabled and is in the process of establishing inter-node communications. The dcTrack application is no longer available on the secondary node.	Initializing	dcTrack
Sync in Progress	The High Availability cluster is enabled on both nodes. Node communications has been successfully established. Bulk sync of the secondary node's database and file systems is in progress.	Syncing	High Availability Standby Application

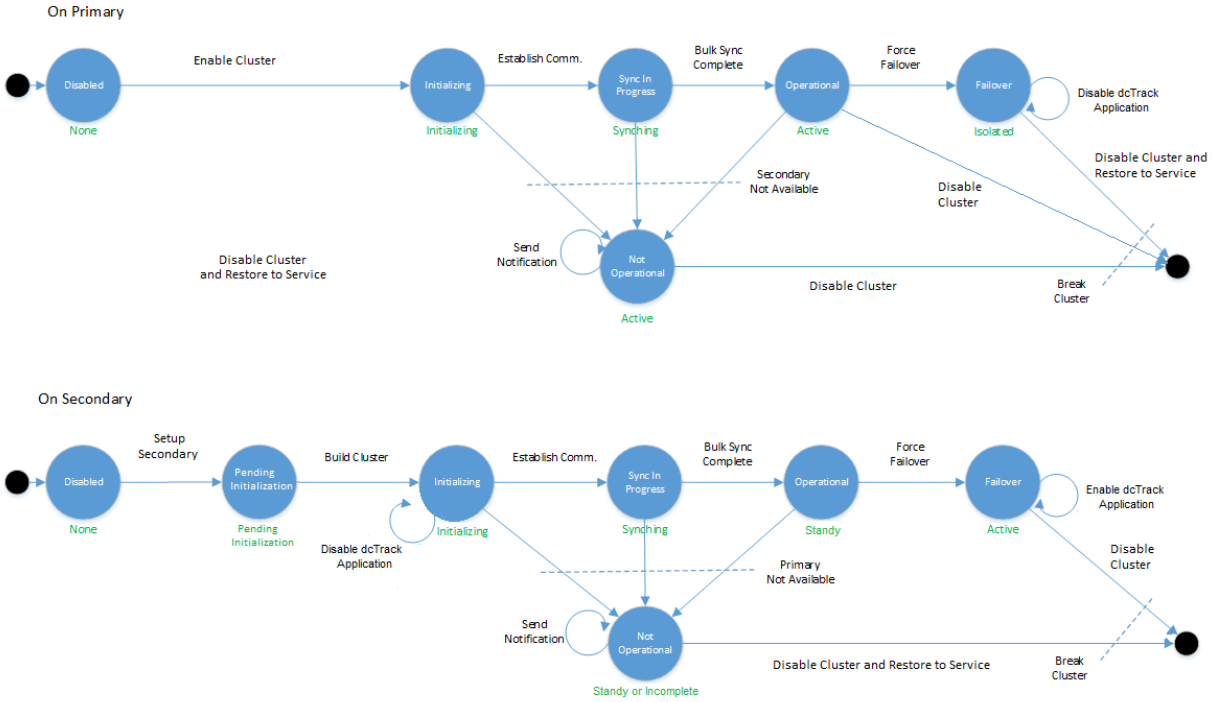
Cluster Status	Description	Node Status	Active Application
Operational	The bulk sync of the secondary's database and files system has been completed. The secondary is now provided asynchronous incremental updates on an as-needed basis to maintain near real time synchronization.	Standby	High Availability Standby Application
Not Operational	Internode communications have been lost while the secondary node was Initializing or Synching. The specified time period encompassing total heartbeat retries and timeouts has expired. The HA cluster is not available for failover. The users with the System Administrator role and above will have to break and re-build the HA cluster in order to restart the process from the beginning. A notification is provided to designated recipients informing them that internode communications has been lost.	Incomplete	High Availability Standby Application or dcTrack
Not Operational	Internode communications have been lost while the secondary node was on Standby. The specified time period encompassing total heartbeat retries and timeouts has expired. The High Availability Cluster data is not being replicated. Users with the System Administrator role and above will have to break and re-build the High Availability cluster in order to restart the process from the beginning. A notification is provided to designated recipients informing them that internode communications has been lost.	Standby	High Availability Standby Application
Failover	The users with the System Administrator role and above has performed a manual failover or a pessimistic auto-failover has occurred The dcTrack application is now available on the secondary node. The High Availability cluster is not available for failover. Users with the System Administrator role and above will have to break and re-build the High Availability cluster in order to restart the process from the beginning.	Active	dcTrack

Each cluster and node transitions through various states, depending on whether automatic is enabled or disabled. The diagram below shows the primary and secondary dcTrack state transitions when automatic failover is enabled:



The diagram below shows the primary and secondary dcTrack state transitions when automatic failover is disabled:

Cluster States When Auto-Failover is Disabled



Status changes for the High Availability cluster and the primary and secondary dcTracks will be logged in dcTrack's events log when High Availability is enabled.

Synchronized Data Between the Primary and Secondary dcTracks

When High Availability is enabled, data is replicated from the primary dcTrack to the secondary dcTrack as part of the High Availability synchronization process and is kept synchronized while the cluster is operational.

The following data will be synchronized:

- The full contents of the database on dcTrack
- The full contents of the Models Library
- The Remedy Connector
- The Syslog Destinations as set through Settings > dcTrack Settings > Appliance Administration > Mail, Proxy, & Syslog
- The NTP Servers as set through Settings > dcTrack Settings > Application Administration > Display & Time
- The SSL certificate

The following data will not be synchronized:

- The audit log (each system maintains an independent log)
- Database backups

- The network configuration, including firewall settings, as applied through the console
- Security Configuration changes applied through the console
- Any PDF reports that the user generated
- Imported CSV files
- System logs

Note: When a synchronization process is initiated, all existing data on the secondary dcTrack shall be lost. The process can start with either an empty dcTrack database or with one with data.

Upgrading or Restoring the Database for dcTrack Releases with High Availability

dcTrack 6.3 and above include the High Availability feature. When upgrading or restoring your dcTrack instance to dcTrack 6.3 or above from dcTrack 6.1.1 or earlier, the following default settings will be applied:

- The High Availability cluster will be disabled
- Automatic failover will be disabled
- Automatic resumption of integration services will be disabled
- The heartbeat internal for the primary and secondary dcTracks will be set to 60 seconds
- The number of retries for the primary dcTrack will be set to three retries
- The number of retries for the secondary dcTrack will be sent to four retries

When upgrading dcTrack 6.3 to newer releases, the High Availability feature will retain its existing settings.

Upgrading and Restoring Databases to Nodes in a Cluster

The HA cluster must be disabled in order to either restore a database or to upgrade dcTrack. The system does not allow upgrades or restores to be performed while the High Availability Feature is enabled.

To perform a software upgrade:

1. Disable the High Availability cluster. See Disabling a Cluster for more information.
2. Upgrade the secondary dcTrack.
3. Upgrade the primary dcTrack once the secondary has successfully been upgraded.
4. Rebuild the High Availability cluster. See Rebuilding a Cluster for more information.

To perform a database restore:

1. Disable the High Availability cluster. See Disabling a Cluster for more information.
2. Restore the database to the primary dcTrack.
3. Rebuild the High Availability cluster. See Rebuilding a Cluster for more information.

The primary dcTrack is the system of record. Once the primary dcTrack is operational and available, it will automatically sync its data to the secondary dcTrack.

GUI Themes

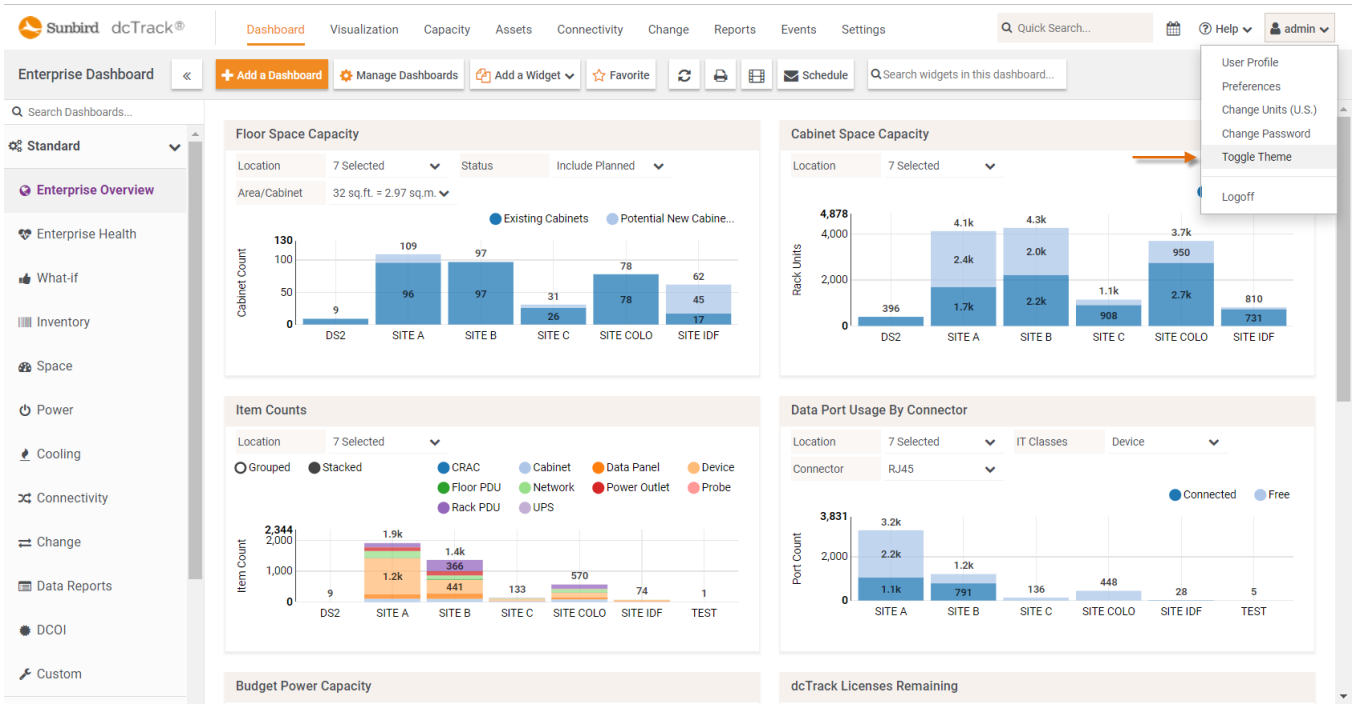
dcTrack version 7.0.0 has a new look and feel! dcTrack's new GUI style not only gives it a more modern appearance but has been designed to more elegantly highlight information and logical actions. This design is intended to make

selections more intuitive for the novice user, while eliminating unnecessary key strokes for advanced users allowing them to quickly navigate through the application.

The dcTrack application can be viewed in one of two modes, Light Theme and Dark Theme. Both modes are designed to highlight logical next step buttons, icons and menu items, as well as provide greater feature access from the tool bar eliminating extra clicks.

Steps to toggle between Light Mode and Dark Mode:

1. Click the User Menu in the dcTrack header tool bar
2. Select the Toggle Theme option from the menu



The GUI will immediately toggle between Modes.

How to Set User Preferences Such as Language and Dark Mode

Increase Your Existing Disk Space

The Disk Extender is a feature that allows dcTrack to automatically detect when the existing disk space in your hypervisor system has been increased.

If your dcTrack system is running out of space, simply follow the steps below to increase your existing disk space:

1. Power down your Power IQ/dcTrack system.
2. Go into your hypervisor system and increase the size of the existing disk.

3. Power your Power IQ/dcTrack system back on. On boot your system will detect the additional capacity and extend the partitions to leverage it.

Note: The disk extender only detects increases to existing storage. It will not detect a new disk.

Configure Open Ports

The following tables provide the open ports requirements for dcTrack

dcTrack General Server Requirements

Protocol	Protocol	Power IQ\dcTrack Port	Client Port	Purpose
TCP	HTTP	Destination Port: 80	Source Port: Any	Web UI Redirect to Port 443 (Optional)
TCP	HTTPS	Destination Port: 443	Source Port: Any	Web UI
TCP	SSH	Destination Port: 22	Source Port: Any	Secure Shell Access (Technical Support, Optional)
TCP	ODBC	Destination Port: 5432	Source Port: Any	ODBC Access to Power IQ Database (Optional)
UDP	SNMP	Destination Port: 161	Source Port: Any	SNMP Monitoring (Optional, disabled by default)

Additional Feature-Specific Requirements

Protocol	Protocol	Power IQ\dcTrack Port	Service Port	Feature-Specific Purpose
TCP	HTTPS	Source: Any	Destination: 443	dcTrack/Power IQ Integration, External API integration, HTTPS Event Notifcations (Power IQ Only), High Availability (dcTrack only)

Protocol	Protocol	Power IQ\d-cTrack Port	Service Port	Feature-Specific Purpose
TCP	SSH	Source: Any	Destination: 22	High Availability (dcTrack only)
TCP	LDAP \ AD	Source: Any	Destination: Selectable	LDAP/Active Directory Support Encrypted defaults to Port 636, no encryption defaults to Port 389
TCP	Syslog	Source: Any	Destination: 514	System Log Forwarding
TCP	Backup (SSH/SFTP)	Source: Any	Destination: Selectable	Remote Storage via SSH/SFTP, nominally on port 22
TCP	Backup (FTP)	Source: Any	Destination: Selectable	Remote Storage via FTP, nominally on port 21
TCP	Backup (AWS)	Source: Any	Destination: 443	Remote Storage on Amazon S3, port 443
UDP	NTP	Source: Any	Destination: 123	Time Synchronization
TCP	SMTP Email	Source: Any	Destination: Selectable	SMTP Email Notifications. Default is 25. Other common ports include 587 (STARTTLS) and 465 (Implicit TLS).

Settings

The Settings Tab in dcTrack only displays for System System Administrators. This section covers the settings available to System System Administrators The following table summarizes the dcTrack Appliance and Application Settings menu options and their descriptions

For information on how to change your individual user preferences, see **Edit Your User Information (Non-System Administrators)**.

Title	Description
About	• About Information, Appliance Version, Total Licenses Used Licenses, Available Licenses
Application Administration	• Application Settings: Company Standard Models, Planned for Decommission, Customize Power Port Names on Integrated Rack PDUs, Auto Power Budget, Parts Management, DC Power Settings, Bulk Update Power Budgets, Models Library Ports Clean Up • Audit Log • Display & Locale: Display Settings, Locale Settings • Email Settings • Product Licensing: Add a license, See Feature, Type of License, Count, Total Licenses Used Licenses, Available Licenses • Proxy
Integrations	• Power IQ • Virtualizations • Asset & CMDB • Ticketing systems • Webhooks • World map
Appliance Admin-istration	• Appliance Services • Data Backups • High Availability • HTTPS Certificate • IP Based Access Control • Log Forwarding • ODBC Access • Product Upgrade • SNMP Settings • Time Settings
Authorization & Authentication	• User Accounts: Add, delete, assign roles and groups. • User Groups: Add, delete, assign roles and group members • AD & LDAP: Active Directory or LDAP configuration for users and groups. • Password Requirements

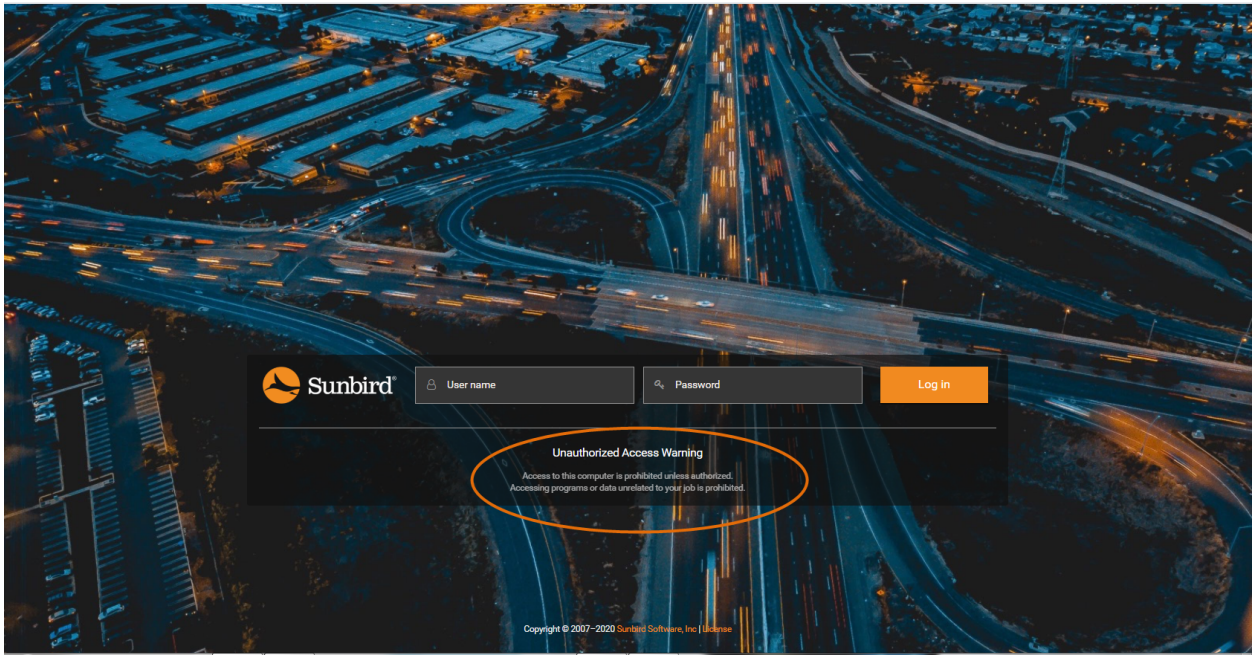
Title	Description
	• SAML: SAML configuration • Session Security • Trusted Certificates: Manage Certificates of servers that are trustworthy.

Note: All forms in the Settings tab display an "Unsaved Changes" warning message if you make changes and attempt to navigate away from the form without saving your changes. You will have the option to either discard your changes or return to the form.

Note: The Settings tab is searchable from the search box at the top of the left navigation menu.

Change the Login Page/Splash Screen Message

You can change the default message that displays on the dcTrack login page, sometimes called the dcTrack splash screen, to a customized message.

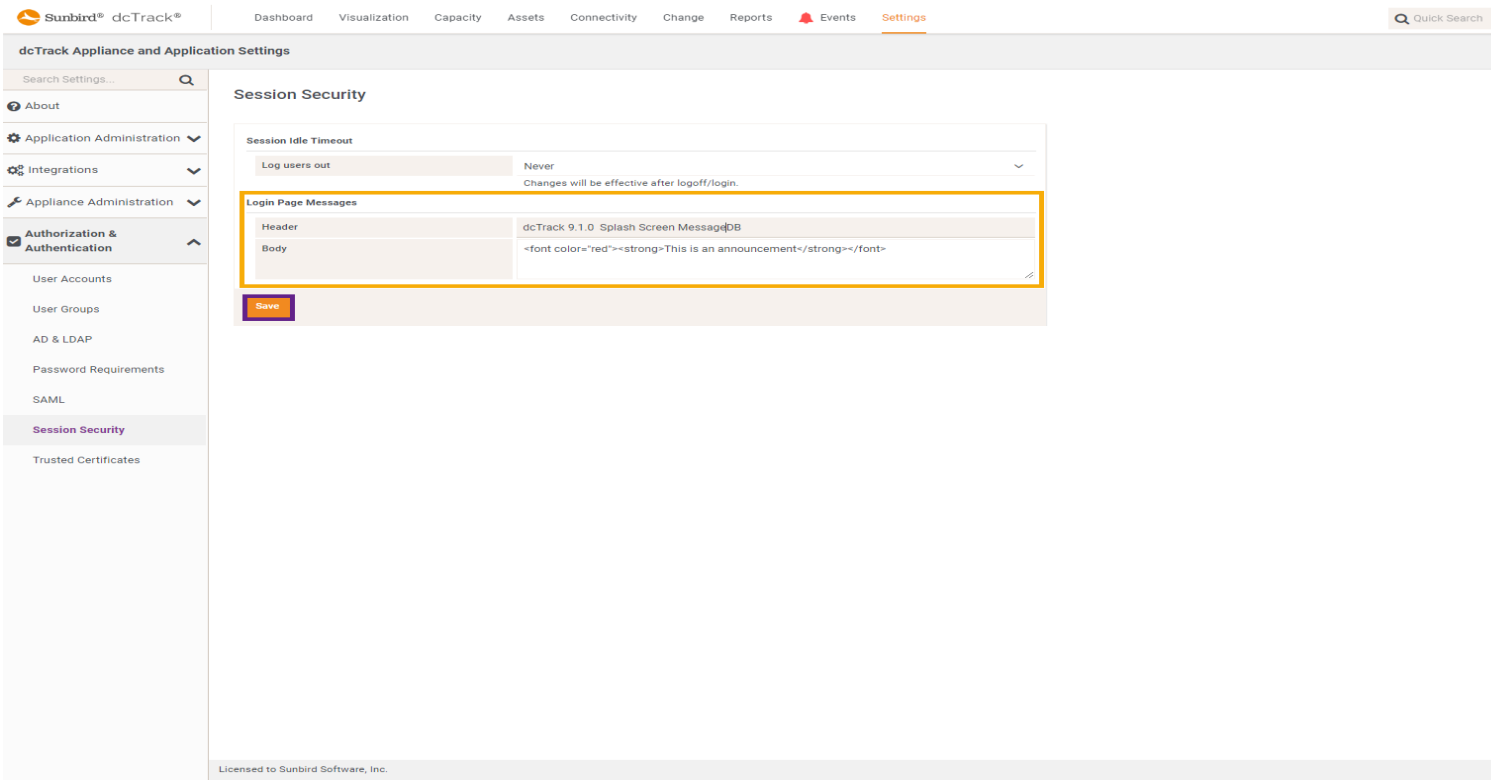


To change the login page message:

1. Click Settings.
2. In the Login Page Message section. provide the Header and Body text.
3. You can use html tags for formatting.
    - Header: Text entered in this field displays on the login page in a bold font, as the heading to the message

- Body: Text entered in this field displays in a normal font, as the main content of the message.
- Allowed html tags: strong, em, a, font
- Allowed html attributes: href, title, color

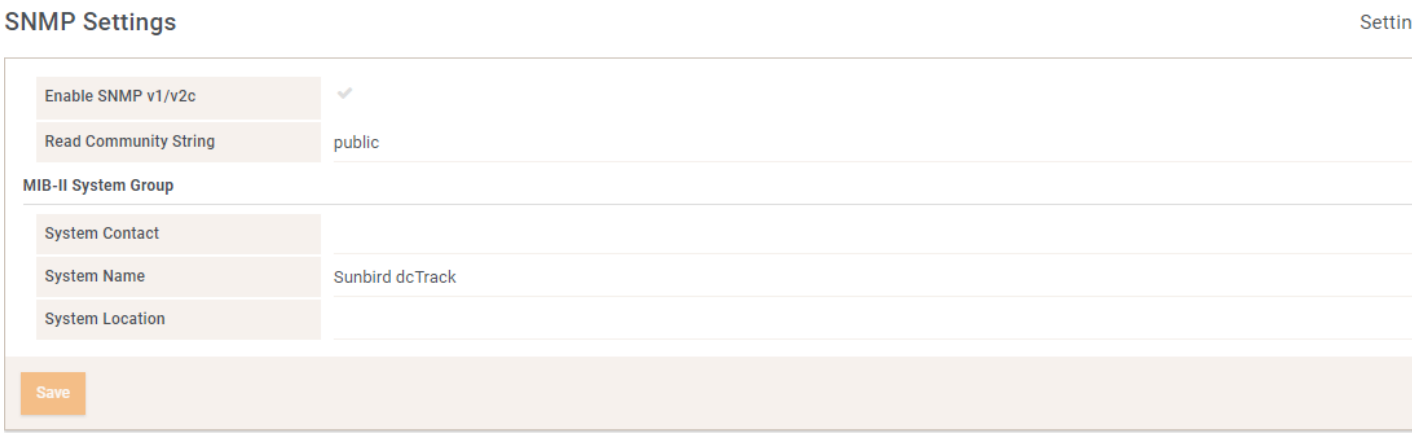
4. Click Save Message. Log out of dcTrack to return to the login page and view the message.



Configuring the SNMP Agent for Server Performance Monitoring

Use SNMP to retrieve dcTrack system health information, such as application up time, IP routing, system contacts and so on.

1. In the Web Client, navigate to Settings >dcTrack Settings > Appliance Administration > SNMP Settings. The SNMP Settings panel displays.



2. In the MIB-II section, in tthe Read Community String field, enter the community string used to access the SNMP network. Required.
3. Enter the system contact, system name and system location if needed.
4. Click the Save button. A confirmation message is displayed.

You can now use any third-party SNMP manager, such as an SNMP MIB Browser, to access the system health via MIB-II.

MIB-II Host Resources Performance Metrics

The following table summarizes performance indicators from the MIB-II and Host Resources MIB that are exposed by the SNMP agent:

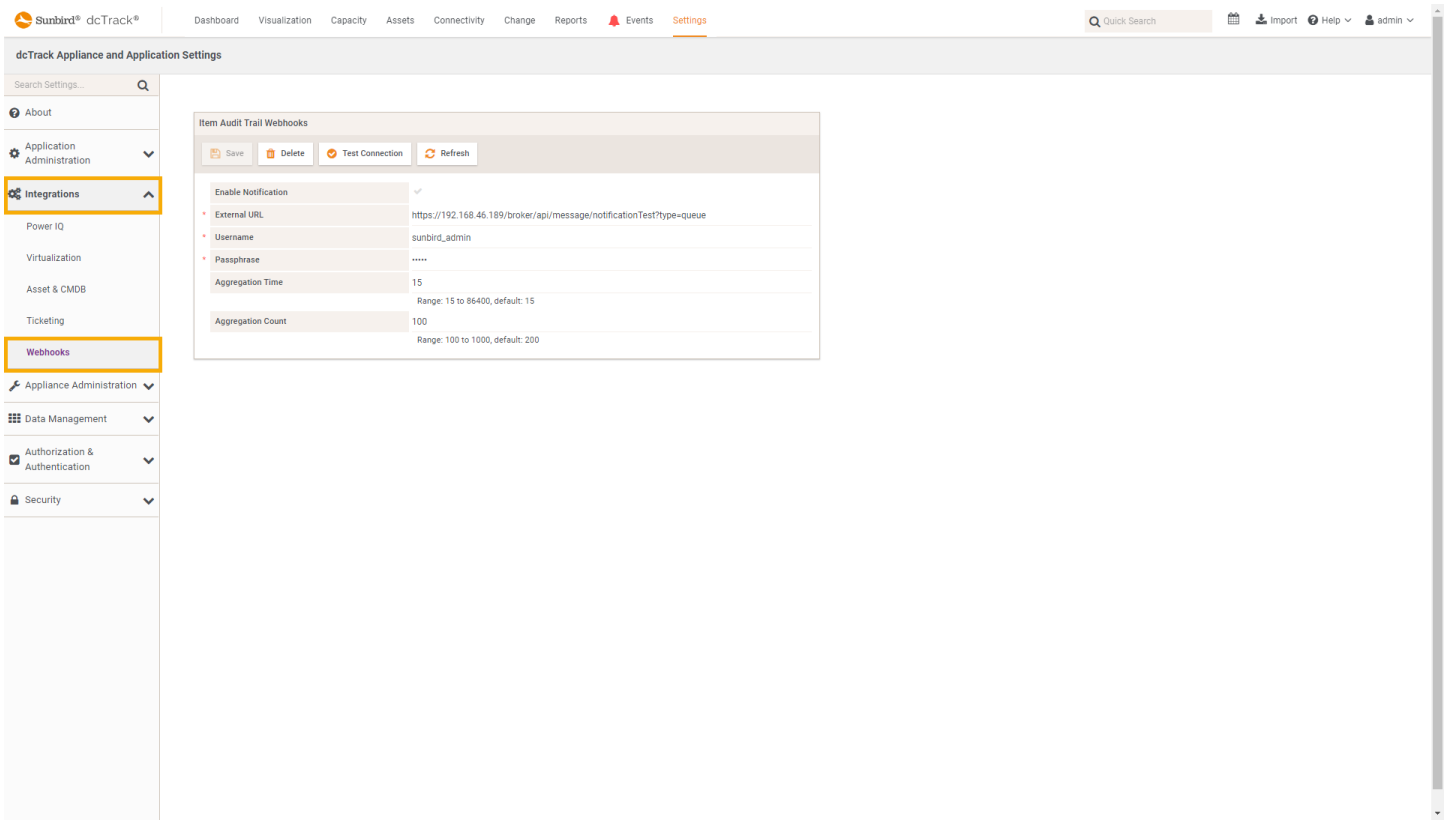
Category	Object Name
System Information (e.g., sysUpTime, Number of users, Number of system processes)	hrSystem
Device Information (e.g., Device types, Processors, NICs)	hrDevice: hrDeviceTable
CPU Utilization/Processor Load	hrDevice: hrProcessorTable
Network and Partition Table Information	hrDevice: hrNetworkTable, hrPartitionTable
Memory and Disk Usage	hrStorage
Running processes	hrSWRun, hwSWRunPerf

Category	Object Name
Installed software	hrSWInstalledTable

Configure Webhook Settings

dcTrack 5.3.0 introduces REST API Version 2 support for Webhooks. A REST API client in dcTrack will push notifications to the service specified to receive the notifications. The notifications provide summaries of the changes that have resulted in an auditable event in dcTrack. These include changes to item details, port details, item status, and port connection status.

The REST API client is configured from Settings > dcTrack Settings > Integrations > Webhooks as shown inthe screenshot below.



The table below summarizes available settings. All values are required except “aggregationTime” and “aggregationCount.”

If not defined, these parameters will be set to the default values. You only need to provide values for the parameters you want to update.

Setting	Description
Enable Notification	Used to enable notifications to the specified service. “Enabled” refers to whether the notification is enabled and has a value of true or false.
External URL	The URL of the service where notifications will be sent. Requires the use of https. “urlString” has a maximum length of 255 characters.
Aggregation Time	The time period to aggregate auditable event notifications before sending out a notification. “aggregationTime” is an integer measured in seconds, ranging from 15 to 86400 seconds, with a default of 15 seconds.
Aggregation Count	The number of auditable events to aggregate before sending out a notification. The lesser of time period or count will be used to determine if a notification is to be sent. “aggregationCount” is an integer in seconds, ranging from 100 to 1000 seconds, with a default of 200 seconds.
Username	The username to be used by the REST API client for notifications. “userName” has a maximum length of 255 characters.
Passphrase	The passphrase to be used by the REST API client for notifications. “passPhrase” has a maximum length of 40 characters.

Once all of the required fields have been supplied, use the Test Connection button to verify your configuration.

You can use also the following APIs to retrieve or modify the Webhooks configuration or to delete the Webhook.

Request	Description
Retrieve the Notification Configuration	Retrieve the current Webhook configuration information.
Modify the Notification Configuration	Update the Webhook configuration information. You can update the Webhook configuration with payload when the service is turned down. You only need to provide values for the parameters you want to update. Returns updated Webhook configuration information. You can use also the following new APIs to retrieve or modify the Webhook configuration or to delete the configuration.

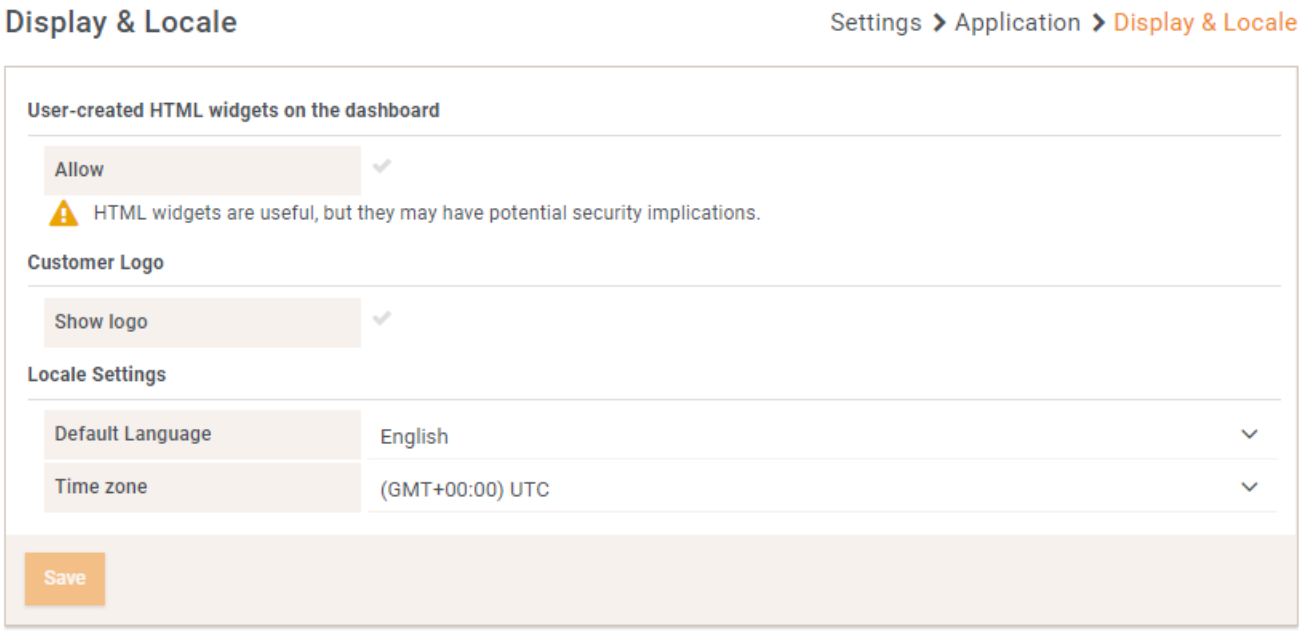
Request	Description
Clear the Notification	Deletes the Webhook configuration.

Note: To view a Webhook JSON payload example, see Webhook JSON Example in the dcTrack API Guide.

Configure Display Settings

Certain display settings can be managed by System Administrators. Admins can choose to display a Custom Logo in the dcTrack header and can also control whether users can view HTML widgets in Dashboards The Display & Local Settings are accessible in the Settings Tab Application Administration > Display & Local

Note: For new users, the admin's account (username "admin") user preferences for Language, Theme, Unit System, Data Separator, Date Format and Cabinet Elevation preferences are used as the default preferences, however the Language used on the Login screen for new users is set from the setting on the Display & Locale page.



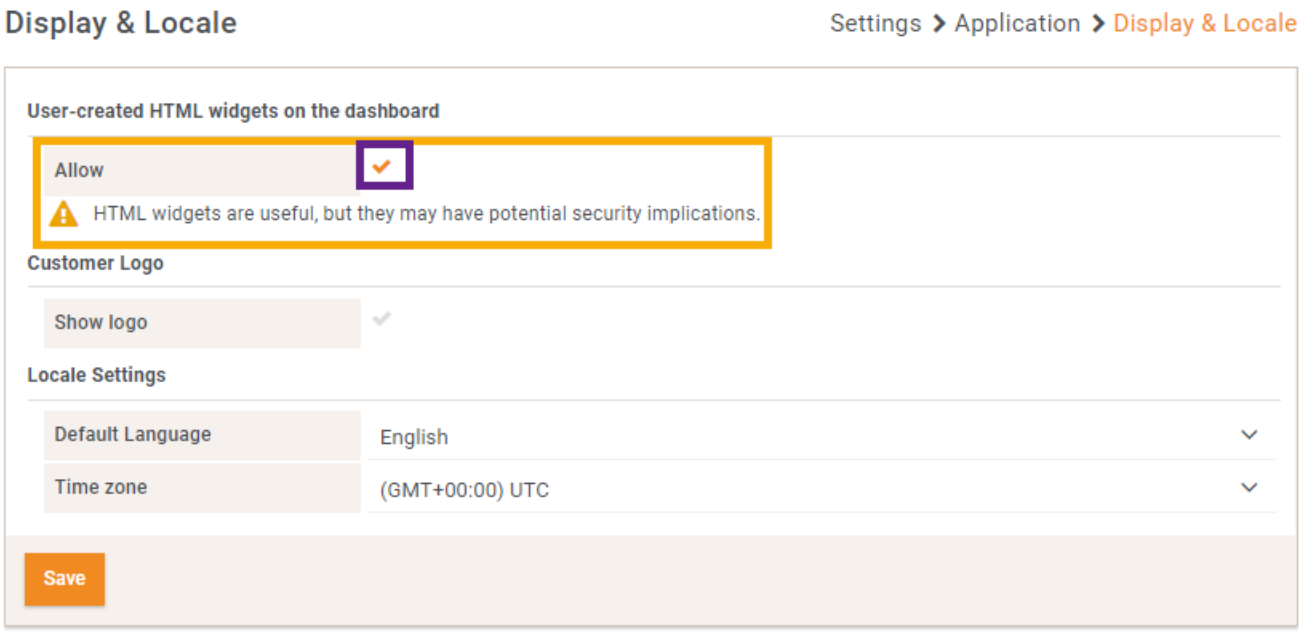
Allowing HTML Widgets

Allowing the system to display HTML widgets introduces the risk that an HTML widget may exploit web security vulnerabilities. For this reason, this capability is not enabled by default.

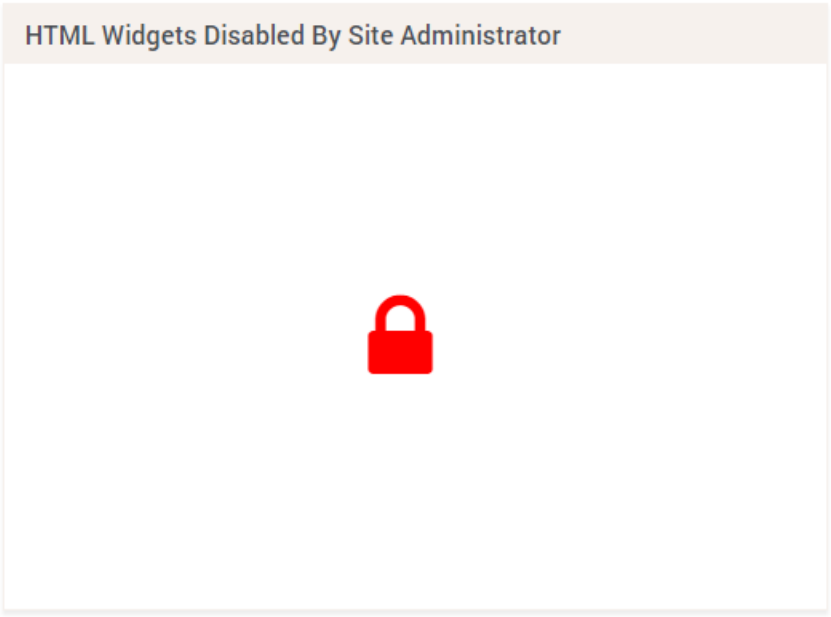
See Also Dynamic Content-Security-Policy.

Steps to allow users to view HTML Dashboard Widgets:

1. Navigate to Settings > dcTrack Settings > Application Administration > Display & Time
2. In the Display Settings panel, check the Allow user-created HTML widgets on the dashboard check box
3. Click the Save button



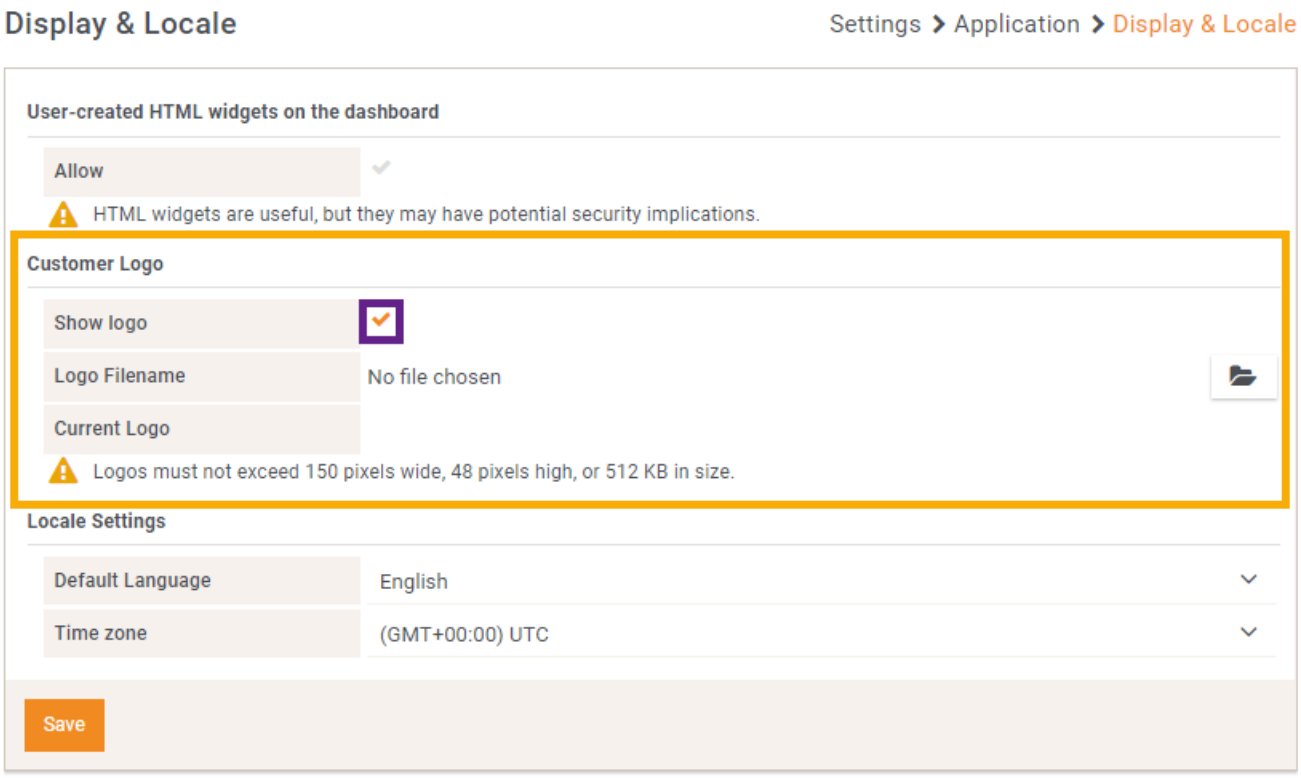
Once enabled users will be able to view HTML widgets on dashboards. If this feature is not enabled users will be presented with the locked widget display when attempting to view HTML widgets.



Define a Custom Logo

Steps to define a custom Logo in the dcTrack header:

1. Navigate to Settings > dcTrack Settings > Application Administration > Display & Time
2. Check the Show a custom uploaded logo check box
3. Use the browse button to navigate to the image file
4. Select the image
5. Click the Save button
6. Click the Save Display Settings button

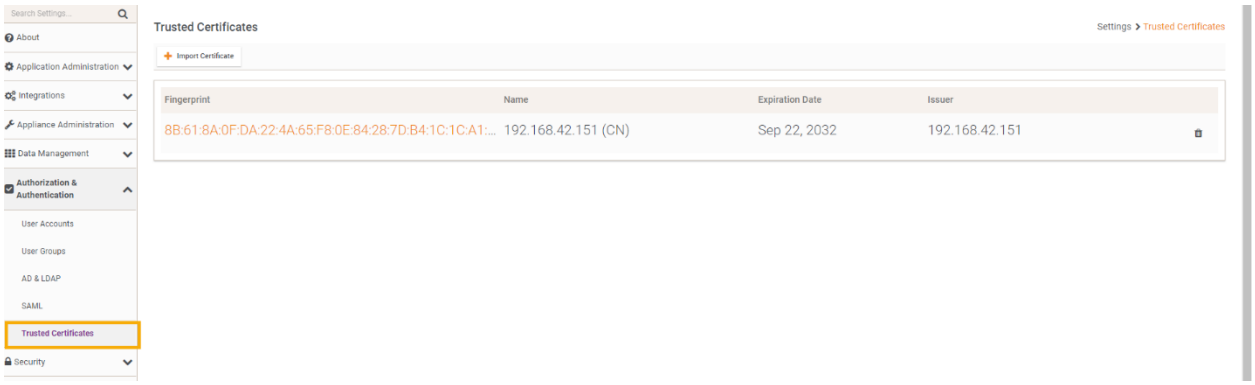


Note: Logos must not exceed 150 pixels wide, 48 pixels high, or 512 KB in size.

Configure Trusted Certificates

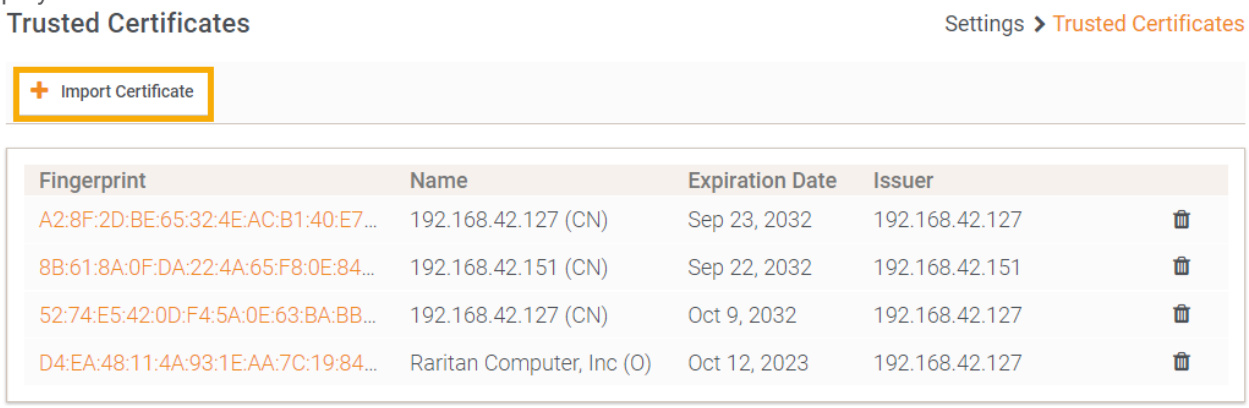
The Trusted Certificates tab under the Settings > Authorization & Authentication sidebar menu displays a panel listing the available trusted certificates. The fingerprint of each certificate is a hyperlink that leads to the certificate's Certificate Details Panel when clicked. Users who have the System Administrator role can view and interact with the

Trusted Certificates table to add or remove a trusted certificate.

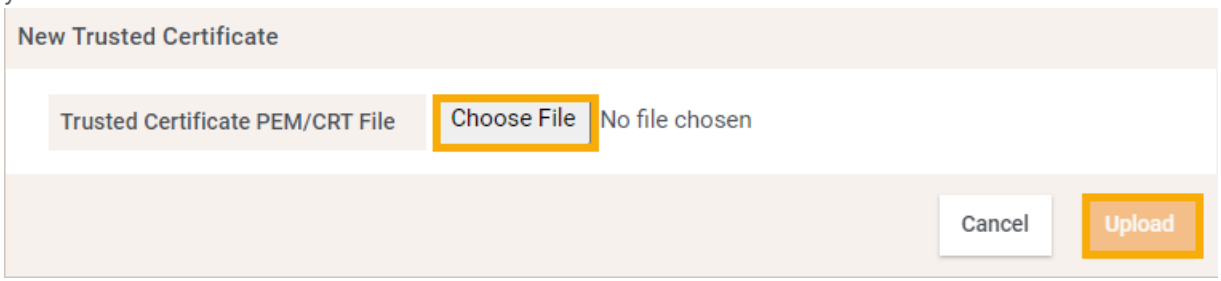


Add a Trusted Certificate

1. Click the Import Certificate button in the Trusted Certificates panel. The New Trusted Certificate Panel displays



2. Click the Choose File button in the New Trusted Certificate Panel to open the file selector dialog and select your trusted certificate file.



3. Click the Upload button to add the certificate
   Note: The trusted certificate file will be validated to ensure that the certificate file is not empty, does not

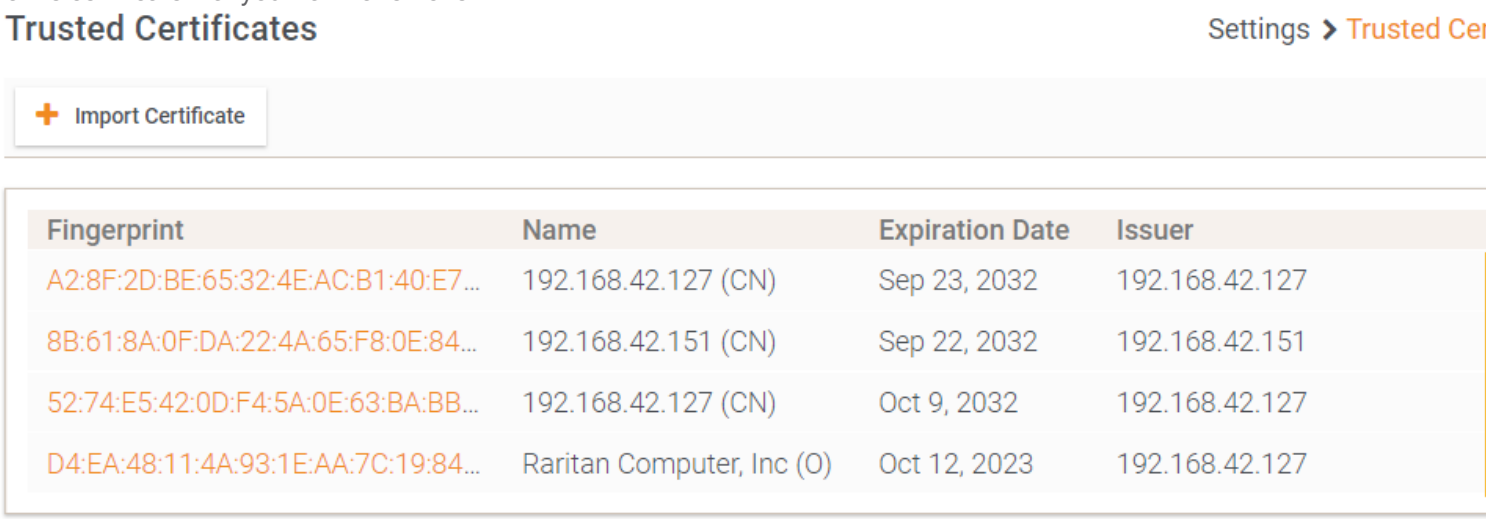
exceed the maximum file upload size and does not encounter any errors when attempting to parse the certificate.

4. Upon successful import, the new trusted certificate displays in the Trusted Certificates panel.

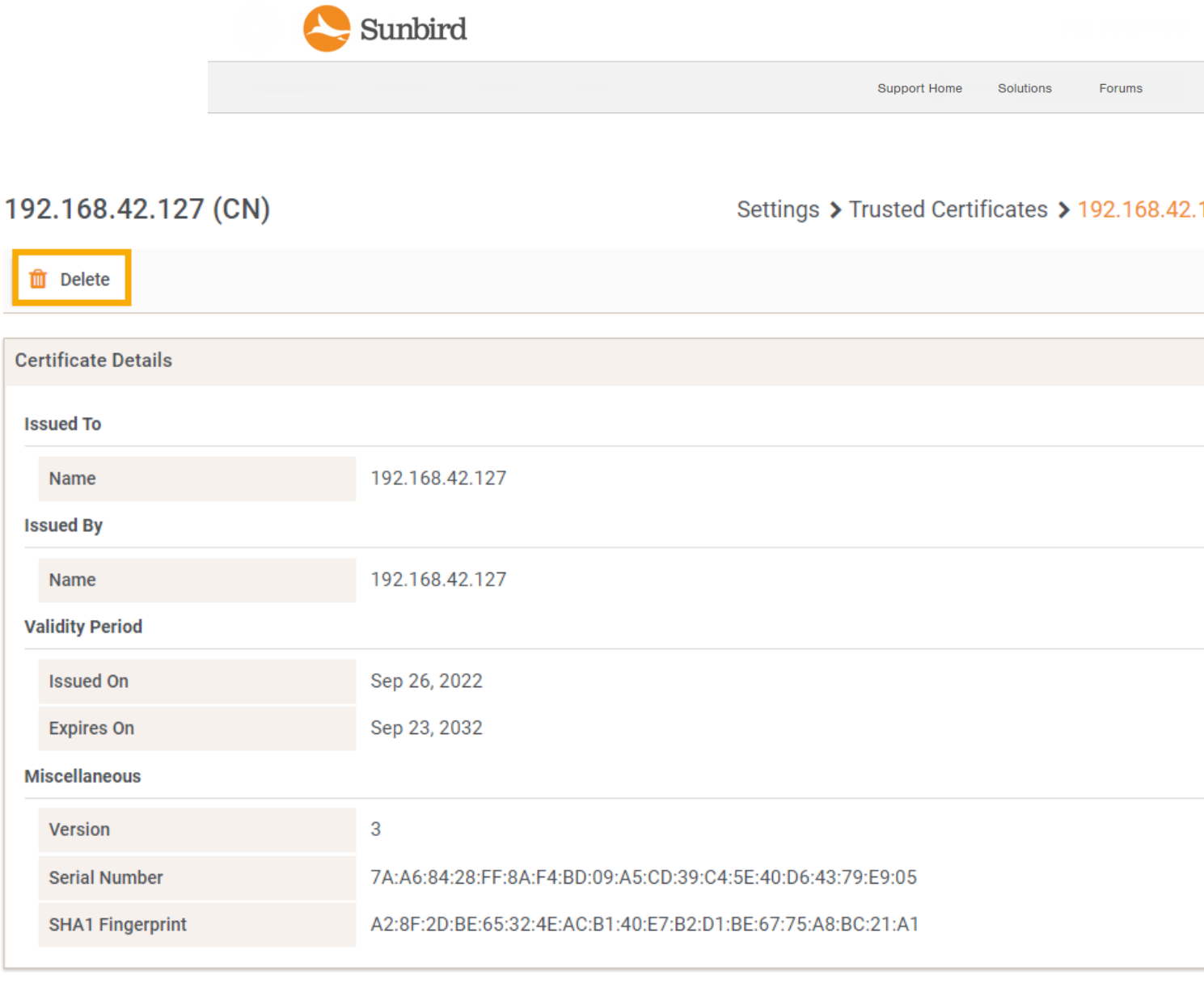
Remove a Trusted Certificate

System Administrators can remove a trusted certificate from either the Trusted Certificates panel or the Certificate Details panel.

To remove a trusted certificate from the Trusted Certificates panel, click the Trashcan/Remove Certificate icon next to the certificate that you want to remove.

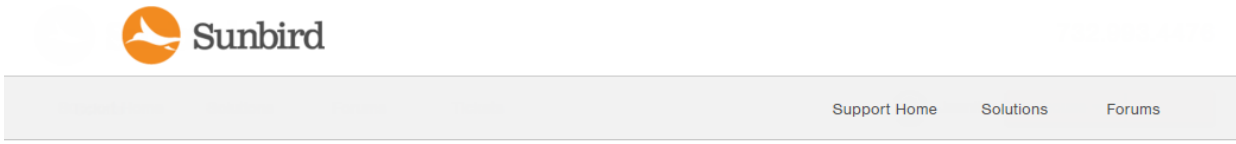


To remove a trusted certificate from the Certificate Details panel, click the Delete button



Certificate Details Panel

The Certificate Details panel provides additional information about the trusted certificate. To view a certificate's Details panel, click the certificate's fingerprint link in the Trusted Certificates panel



192.168.42.127 (CN)

Settings > Trusted Certificates > 192.168.42.1

Delete

Certificate Details

Issued To	
Name	192.168.42.127
Issued By	
Name	192.168.42.127
Validity Period	
Issued On	Sep 26, 2022
Expires On	Sep 23, 2032
Miscellaneous	
Version	3
Serial Number	7A:A6:84:28:FF:8A:F4:BD:09:A5:CD:39:C4:5E:40:D6:43:79:E9:05
SHA1 Fingerprint	A2:8F:2D:BE:65:32:4E:AC:B1:40:E7:B2:D1:BE:67:75:A8:BC:21:A1

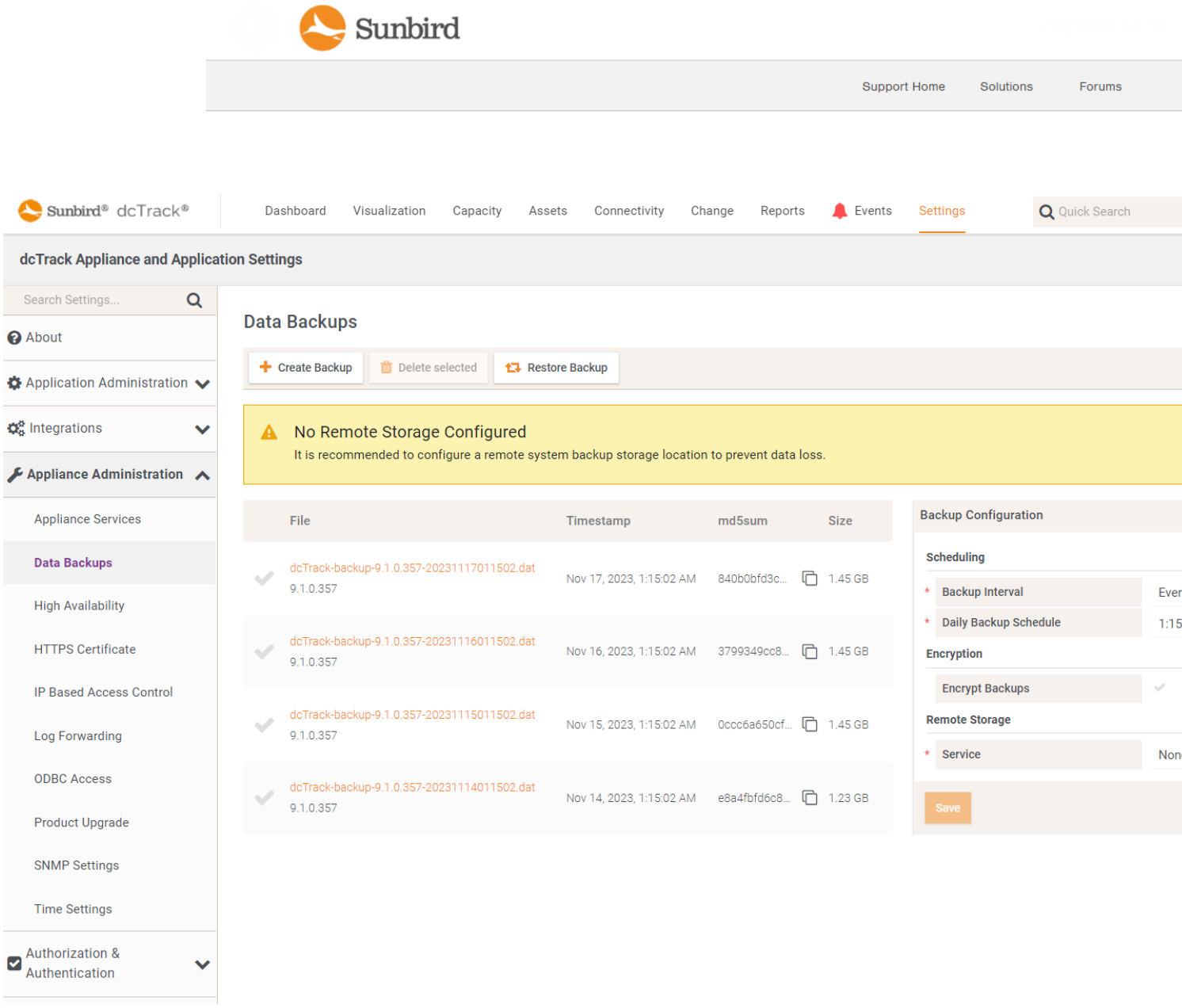
The following table summarizes the information displayed in the Certificate Details panel:

Heading	Description
Issued To	Displays one or more of the following fields (varies by certificate contents): • Country • Domain Component • Locality • Name • Organization • Organization Unit • Postal Code • State or Province

Heading	Description
Issued by	Displays one or more of the following fields (varies by certificate contents): • Country • Domain Component • Locality • Name • Organization • Organization Unit • Postal Code • State or Province
Validity Period	Data for the following fields: • Issued On: Date the certificate was issued. • Expires On: Date the certificate expires.
Miscellaneous	Data for the following fields: • Version • Serial Number • SHA1 Fingerprint

Manually Back Up Your dcTrack Database

Backups of system data, users and configuration settings are automatically created every 24 hours or can be configured to run based on a user defined schedule (See Automated Database Backups). Optionally, you can create a backup as needed by following the steps in this topic.



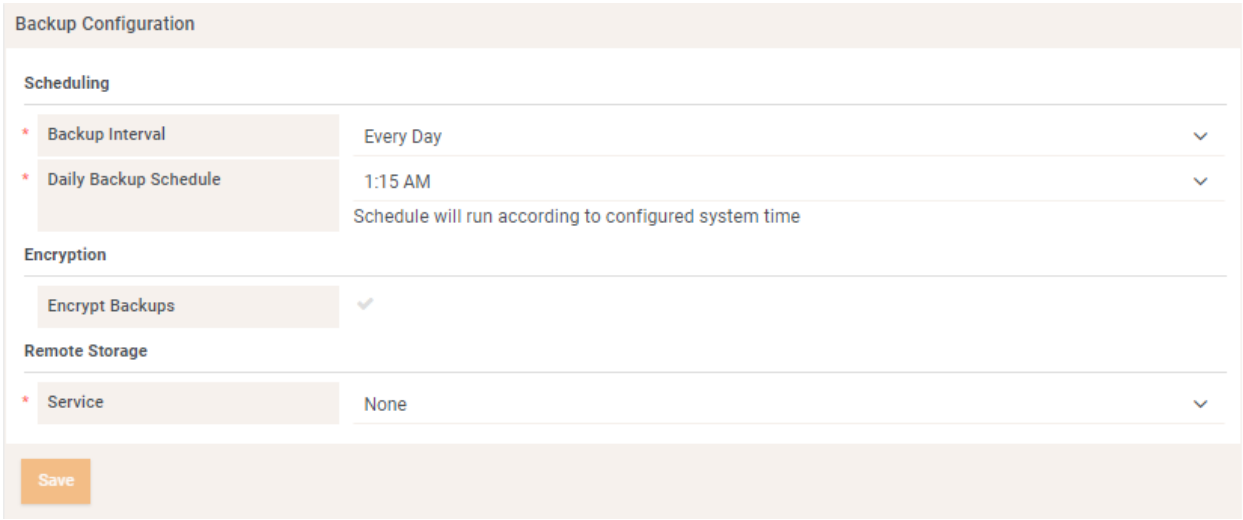
It is recommended that you manually back up your dcTrack database before upgrading or reinstalling dcTrack (to create a database backup file that you will use to restore your dcTrack data).

Use a dcTrack recovery license in order to make a disaster recovery backup of your database, if needed.

The Backup page contains a grid list of available archives with the following columns:

- File - Archive Filename (link to download archive file)
- Timestamp - Timestamp when the archive was generated
- md5sum - md5sum generated hash value. Click the folder icon to copy the hash value to your clip board
- Size - Size of the archive file

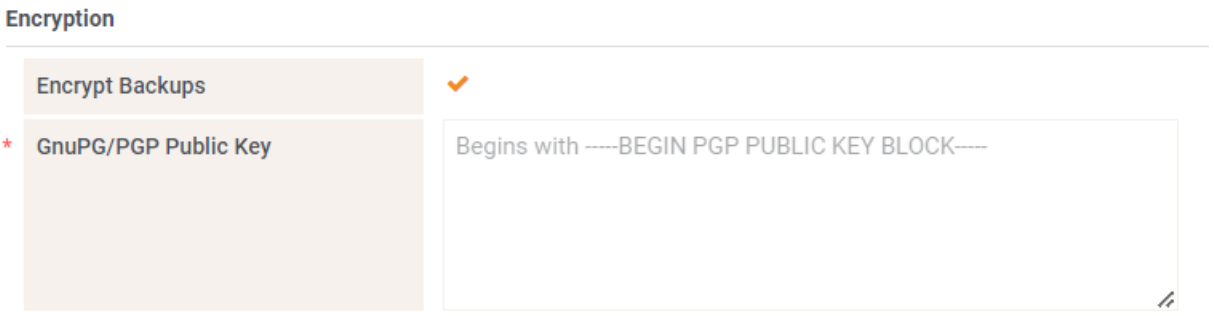
Backup Configuration

- Scheduling
  - Backup Interval - How often automatic backups should be run
    - Every Hour
    - Every 2 Hours
    - Every 4 Hours
    - Every 8 Hours
    - Every Day
  - Daily Backup Schedule - Time of day to begin the automatic backup
  - 

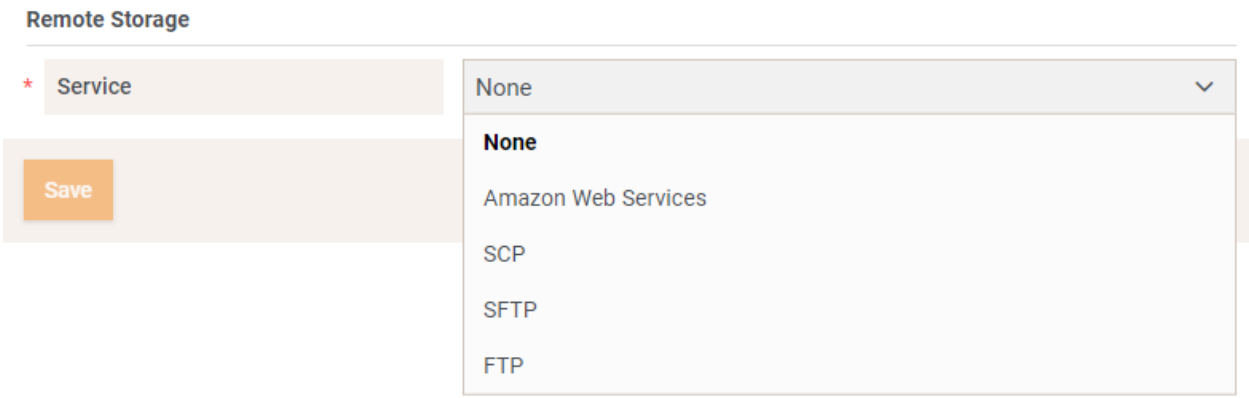
- Encryption

> *Note: dcTrack encrypts data backup files using a GnuPG/PGP public key that you generate. You can generate PGP Encryption Keys using free tools. Go to https://www.gnupg.org and look for a binary for your operating system on the Downloads page.*

- Encrypt Backup - Check if you want backups to be encrypted
  - If encrypting backups you are required to provide the GnuPG/PGP Public Key



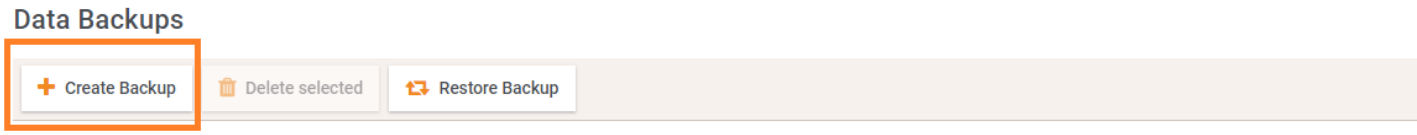
- Remote Storate
  - Service used for storing backups remotely.
  - Available Services include:
    - AWS
    - SCP
    - SFTP
    - FTP



  - You must supply the required configurations for each service type

To manually create a new Backup

1. Navigate to Settings > dcTrack Settings > Appliance Administration > Data Backups.
2. In the Backup Tool bar, click the Create button.



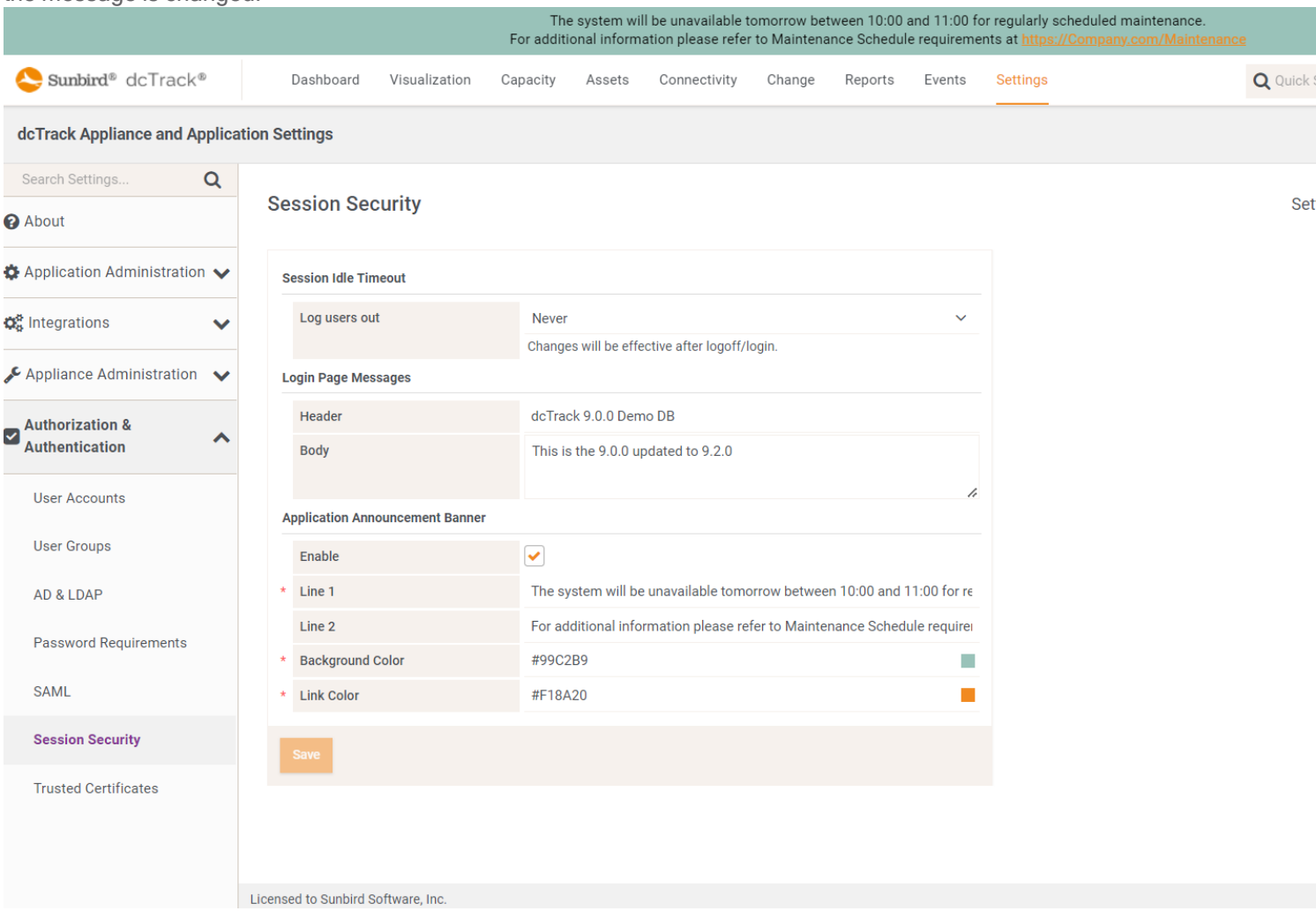
The file is created and added to the top of the list under Filename.

An MD5 file is also created along with the backup file for verification purposes.

Unless manually deleted, four days of backups are retained before they are deleted and no more than two backups are retained for any given day.

Announcement Banner

dcTrack allows System Administrators to create an Announcement Banner that is displayed directly above the dcTrack menu bar. Once the announcement is set up, it will remain displayed until the setting is either disabled or the message is changed.



The message can be up to 2 lines of text and the font and background color can be configured by the user.

Steps to configure dcTrack Announceent Banner:

1. Navigate to dcTrack Settings > Authorization and Authentication > Session Security
2. Under the Application Announcement Banner section provide the following information:
    1. Click the Enable check box. This will enable the other fields for entry.
    2. Supply the text you wish to display in both line 1 and line 2.

- Note: If the entered text exceeds the screen length, hovering over the message will display the text as a tool tip

3. Specify the hex value to be used for the Background color. The associated color will display in the adjacent box.
4. Specify the hex value to be used when displaying embedded links in the message. Users can click embedded links at any time to navigate to the specified site.
   - Note: Initally the values will default to Green as the backgound and orange for links. These colors will clearly display in both dcTrack light and dark modes but can be changed to any color you choose. Font color will automatically adjust to either black or white depending on the background color to ensure text is easily clearly.
5. Click the Save button to save your selections.
   - Note: The header will be immediately updated upon clicking the Save button for the admin. For users that are currently logged in, the banner will be refreshed after 5 minutes. The banner is immediately displayed when new users log in.

Chapter 4:Quick Reference - Build Your First Data Center Locations and Add Items and Connections

Watch a video on how to use the import feature. https://youtu.be/8R-UsdiumcM

Overview

Once dcTrack is installed, follow the steps outlined in this section to build your first data centers in dcTrack and add items and connections to them.

There are pre-steps to perform before you build your first data centers.

The pre-steps include upgrading your Item Models Library and adding items to dcTrack Lists, to name just two. It is important to complete these steps so all models and menu options are available to you during File Import.

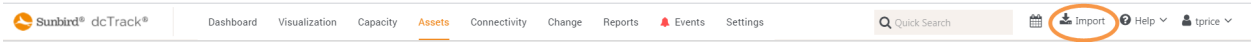
Ensure you do not miss a step by following the checklist provided in **Checklist - Build Your First dcTrack Data Centers, and Add Your First Items, Connections and Users**.

dcTrack File Import is the recommended method to build one or more data centers since it eliminates many manual steps. This includes automatically enabling Virtual Power Chains for each location individually, creating connections within the cabinet such as from the server to the top of rack network, connections to a switch, connections from power supply to rack PDU, the ability sync one or more Power IQs, and so more.

It also helps organize your data since you can add all of your location, item and connection information to the File Import. The template can be used as your Primary import file. You can then create individual files for import by saving the Primary file under different names and including only the items for import.

Note: You can still manually add data center locations, although it is not the recommended method. See **Use File Import to Add, Edit Delete and Move**.

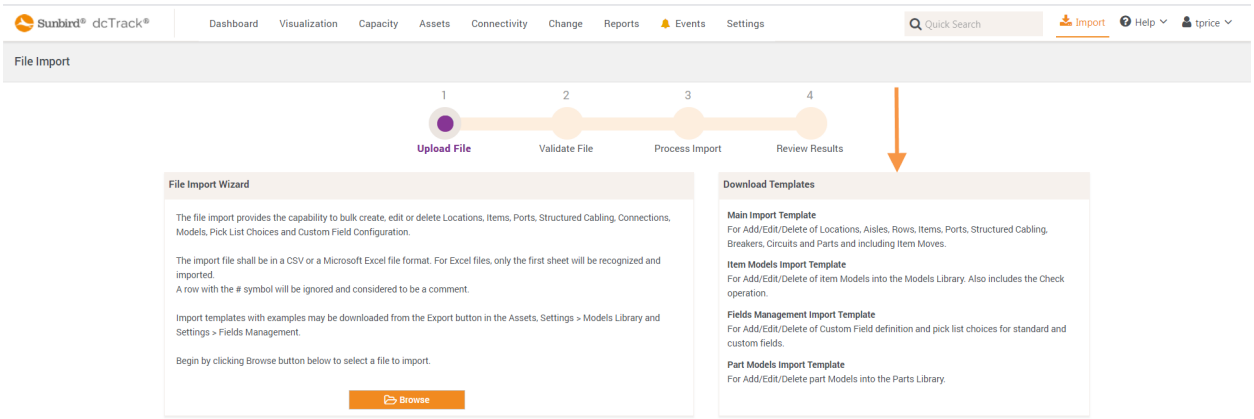
Begin a File Import by clicking the Import button in the dcTrack main tool bar



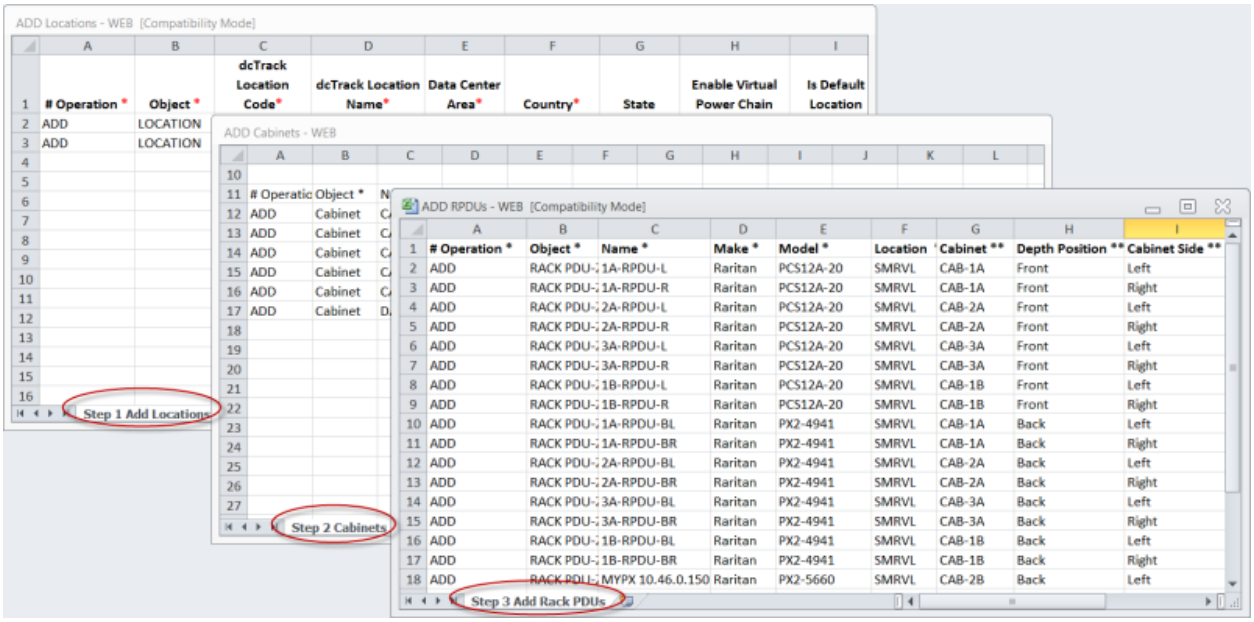
High-Level Steps to Perform a File Import

At a high-level, you will:

1. Download the File Import template from the Import Page.



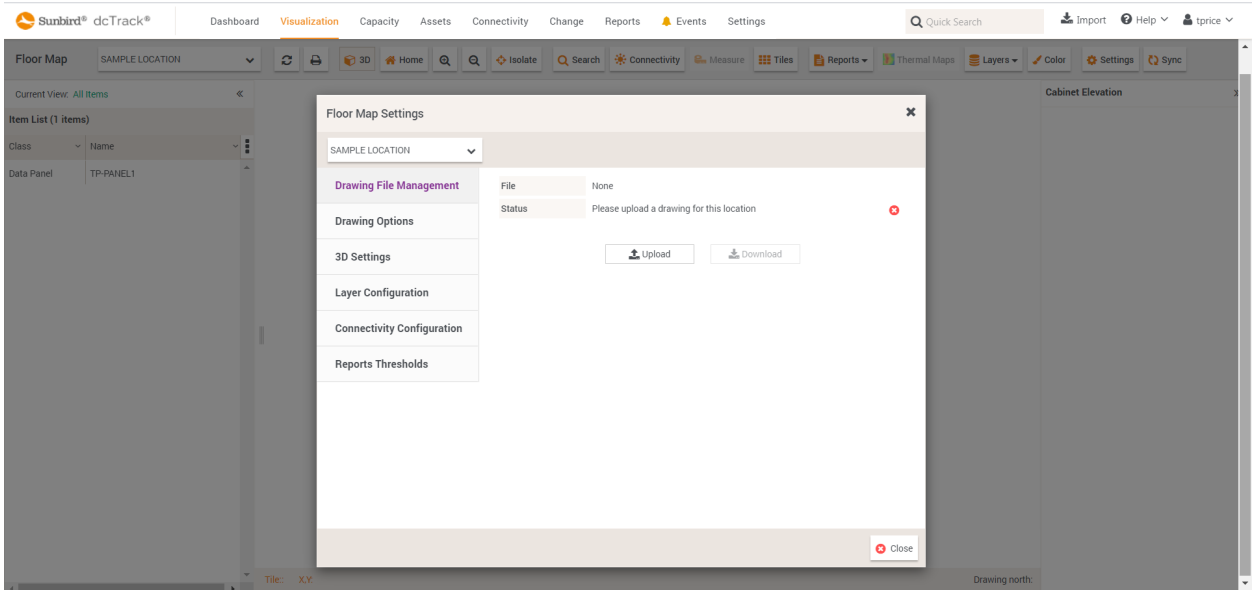
2. Populate the template with your data. Save a primary file and create individual Import Templates by saving copies.



3. Individually import Locations, Cabinets, Rack PDUs, Devices, Data Connections and Power Connections.

Note: dcTrack checks to ensure you do not exceed your cabinet licenses. Cabinets that exceed the license limit are not imported and dcTrack informs you of this.

4. Use File Import in the Web Client and follow the steps provided in the File Import dialog.
5. Upload your data center drawing files via the Visualization page in the Web Client so the file objects sync with the items you imported into dcTrack.



6. Use the Sync button on the Visualization tool bat to sync items that did sync during the drawing file upload, if needed.

Checklist - Build Your First dcTrack Data Centers, and Add Your First Items, Connections and Users

Note: This checklist provides up to four columns to track tasks for up to four data centers. This is not a restriction on the number of data centers you can add at once using File Import - you can import as many data centers as needed at the same time. If you have more than four data centers to import, make copies of the checklist.

Download the Import Template **The template is downloaded from the Web Client. Click the Assets tab to open the Items List, then click the Export icon in the lower right corner of the page. Select "Download Import Template" from the menu when it opens.**				☐
Collect and Clean Your Existing Data This is data you will import into dcTrack to populate your data centers. Gather any files you have that contain cabinets, items and so on. This may include spreadsheets, databases and so on.	☐	☐	☐	☐
Locate or Create the Data Center Drawing Files Files must be in .DWG format.	☐	☐	☐	☐
(Optional) Locate Data Center Image Files	☐	☐	☐	☐
Next, ensure you have completed the following dcTrack configuration steps before beginning the File Import. Detailed information on performing these steps is included in this section.				
Update the Item Models Library This is a system-level function that applies to all data center locations. In the Web Client, select Settings > Models Library > Actions >Update Models Library.				☐
Update Fields This is a system-level function you perform and it applies to all data center locations. In the Web UI, select Settings > Fields Management> Pick List Choices from the Explorer Menu to access Lists.				☐
(Optional) Automatically Add and Manage Users/User Groups via LDAP or Active Directory and/or **Manage dcTrack Users and Groups** You can add local user groups now or at a later time, if needed. This is a system-level task you configure in the Web Client. You do not have to create all users at this point; users can be added at any time. dcTrack supports – ▪ Local Authentication ▪ Remote Authentication				☐
Import Locations In the Web Client, select Assets > File Import. See .	☐	☐	☐	☐
Import Cabinets	☐	☐	☐	☐

Download the Import Template **The template is downloaded from the Web Client. Click the Assets tab to open the Items List, then click the Export icon in the lower right corner of the page. Select "Download Import Template" from the menu when it opens.**				☐
Use File Import to add all cabinets to all data centers at once, or add them to one data center at a time. See .				
Import Rack PDUs Use File Import to add all rack PDUs to all data centers at once, or add them to one data center at a time. See .	☐	☐	☐	☐
Import Device Items Use File Import to add all devices of every type to all data centers at once, or add them to one data center at a time. See .	☐	☐	☐	☐
Upload and Sync Drawing Files Each location needs its own drawing file. See .	☐	☐	☐	☐
Add and Configure Power Infrastructure Items - Cooling Units, UPS Units and Floor PDUs See **Add and Configure Power Infrastructure Items - Cooling Units, UPS Units and Floor PDUs** Before circuits can be imported, these items must be added and configured.	☐	☐	☐	☐
This step can be performed now or at a later time, but it is recommended you perform the step now. You can import structured cabling in bulk using File Import.	☐	☐	☐	☐
Use File Import to Create Power and Data Connections Once all power related items such as rack PDUs, floor PDUs, UPS units and so on are added, use File Import to add all power connections. Add connections to all data centers at once, or add them to	☐	☐	☐	☐

Download the Import Template **The template is downloaded from the Web Client. Click the Assets tab to open the Items List, then click the Export icon in the lower right corner of the page. Select "Download Import Template" from the menu when it opens.**				☐
one data center at a time.				
Use File Import to Import Virtual Power Chain Connections If needed, import Virtual Power Chain connections for locations that have VPC enabled. VPC can be enabled during the Location import.	☐	☐	☐	☐
Test and Verify Test the application and verify the data for completeness and accuracy by using dcTrack on a trial basis and incorporating dcTrack into your standard data center management processes.				☐

Once you've performed these steps, you can go on to enable or configure other dcTrack features, such as:

- **Configure dcTrack to Use Standard Models**
- **Defining Required Fields for Your dcTrack**
- **Enable or Disable Request Bypass (Change Control Workflow Options)**
- **Integrate with One or Multiple Power IQs**

Update the Item Models Library

Before adding data centers, items and locations for the first time, update the Item Models Library. This helps ensure you are work with the most current models available.

What To Do if a Model is Not in Your Item Models Library

Note that you can do one of the following to request a model/make be added to the Sunbird Models Library file contact:

- **Add a Model to the Models Library** (provided you have privileges to do so).

- Contact Sunbird Professional Services and Support to request a model be added to the library and included in the next Sunbird Models Library file releases

Item Models Library Updates Wizard

Updates are performed using the Library Update Wizard that walks you through each step of the process.

Note: Customers currently on dcTrack 2.6.1 (or earlier) are advised to update to the latest available Sunbird Models Library file before upgrading to dcTrack 5.1.0.

Update the Models Library (High-Level Steps)

1. If you have not already done so, download the most recent Sunbird Models Library file and save it locally.
2. In the Models Library, select Actions > Update Models Library to access the Library Update Wizard.
3. On the first step (welcome screen), click Start a New Update Session to start the wizard. The results of the previous update will be displayed if available.
4. On the second step, click Browse to locate the Sunbird Models Library file you saved locally.

   The file upload takes place in two stages: uploading and then processing/staging. Once this step has completed, the following message is displayed: "Models Library Staging is successful without any errors or warnings. You may now proceed to next step." Click the green arrow to the right of the steps to proceed.
5. Map information.

   Each step displays the items that do not exactly match the database objects. Users will be able to add non-matching items to the database or can select objects from a list of potential matches.

   Items that match exactly will be automatically updated in the database. These items are not displayed.

   If there is information in the Sunbird Models Library file that is not in your Item Models Library, it is automatically copied to your library once the wizard completes.

   - Step 3 maps Data Connectors.
   - Step 4 maps Power Connectors.
   - Step 5 maps Protocols.
   - Step 6 maps Data Rates.
   - Step 7 maps Breakers and Fuses.
   - Step 8 maps Makes.
   - Step 9 maps Models.

   Certain rows in the grid may be flagged with a Warning or Error icons. Hovering the mouse over the icon reveals the issue that you may be able to correct by changing the Best Match selection, or for certain errors, you must choose the Skip action and resolve the problem in your system.
6. In Step 9, you will be able to generate a spreadsheet of Classis and Blade Items affected by the update (if any) and a spreadsheet of Actions on Models in the Update. Click the Export button to view these options.
7. On Step 10, click Begin Library Update to begin the library update.

   New models are added and existing model information is updated once Begin Update is selected.

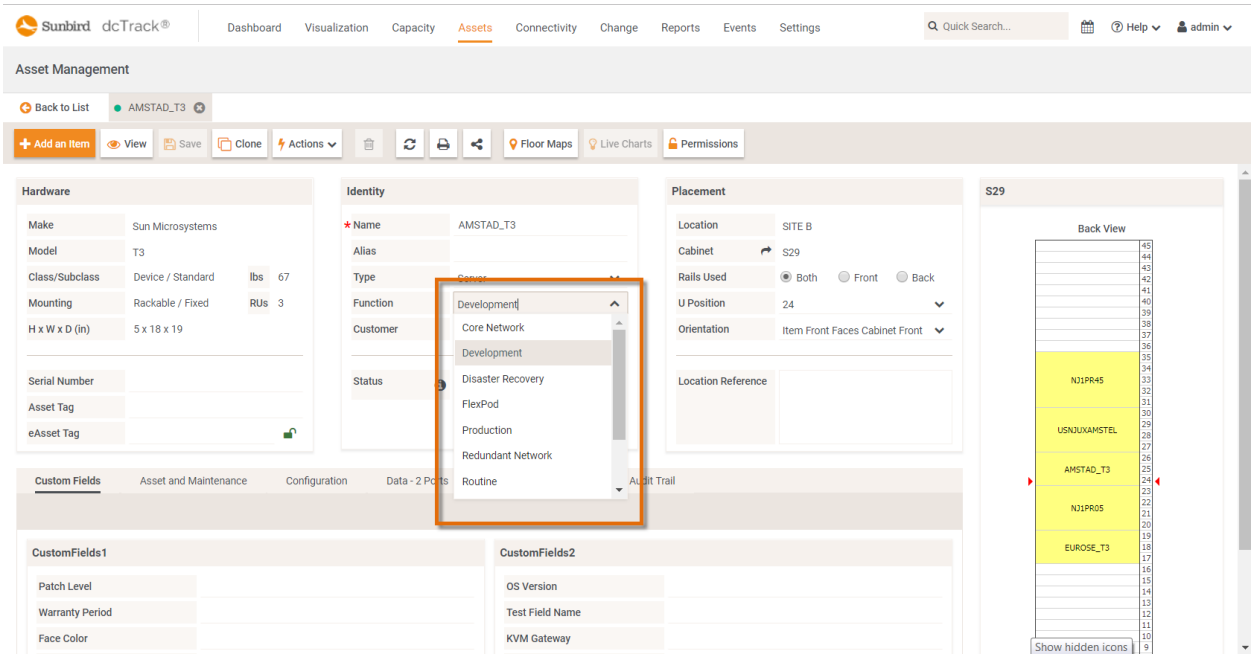
As the process is underway, monitor the progress using the progress bar. No additional input is required, and the update can be left to run unattended.

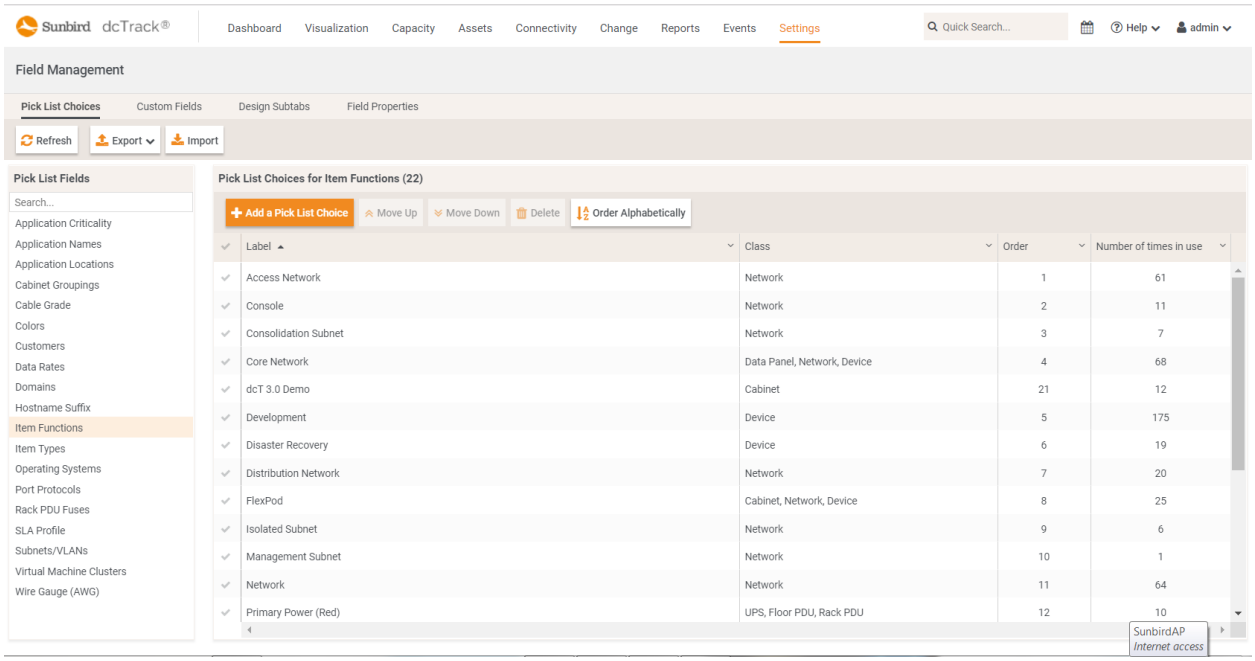
8. Once the update is complete, the results will be displayed in the Results and Progress box.

Update Fields

Note: Customize Standard and Custom Fields before you create your first data center locations and add items and connections for the first time. Add attributes to fields so they are available when you perform an import. This is important because dcTrack does not add items to fields during the import. Trying to import information that is not on a field causes errors during the import, and you must manually fix them before that data is added.

The elements contained in Standard and Custom Fields are used to populate drop-downs and menus in dcTrack. For example, the Function drop-down on New Item page is populated by the Item Function drop-down.





Standard Fields include default attributes that can be configured as needed so they fulfill your specific requirements. For example, you can add new customers to the Customers Standard Field list contents. Standard Fields are used across the dcTrack application.

Custom Fields can be used to capture information specific to your data center needs that are not included in dcTrack by default. Item Custom fields appear in the Custom Fields sub-tab on the Item Details page in the Web Client and Circuit Custom Fields appear on the Circuit Detail page.

For information on managing Standard and Custom Fields, see Adding, Editing, and Deleting Standard and Custom Fields in the Online Help or User Guide.

Import LDAP User Groups and Add Users Automatically

Important: This topic applies to users who are configuring remote LDAP authentication for the first time, meaning you are adding a new LDAP server and new users and/or user groups.

Note: dcTrack version 7.2.0 introduced support for One Time Passwords via LDAP. Prior releases required issuing 2 requests to authenticate a user, one to authenticate and one to gather the user's details. As a result the second request failed if the user was flagged with a One Time Password. In dcTrack 7.2.0 and beyond a single request is issued which will both authenticate the user as well as gathering the user's details.

However, you must take some additional steps to now move to remote LDAP authentication. For detai

About This Topic

This topic walks you through gathering server information, adding the LDAP server, configuring general server settings and sync settings in dcTrack, as well as searching for and adding users and/or user groups.

This topic also describes enabling and disabling LDAP in dcTrack, and how to delete an LDAP server.

An Active Directory server section and LDAP server section are provided since the information you need to gather and the steps vary slightly.

Overview

System Administrators can use LDAP and/or Active Directory (AD) in to automatically add and manage users and/or user groups in dcTrack. This is an alternative to local authentication, or manually adding and managing LDAP users. See **Local User Authentication** and **Manually Add and Manage Users and Groups via LDAP or Active Directory (Search)**, respectively.

Unlike manually adding LDAP users, you can add both users and user groups with this feature.

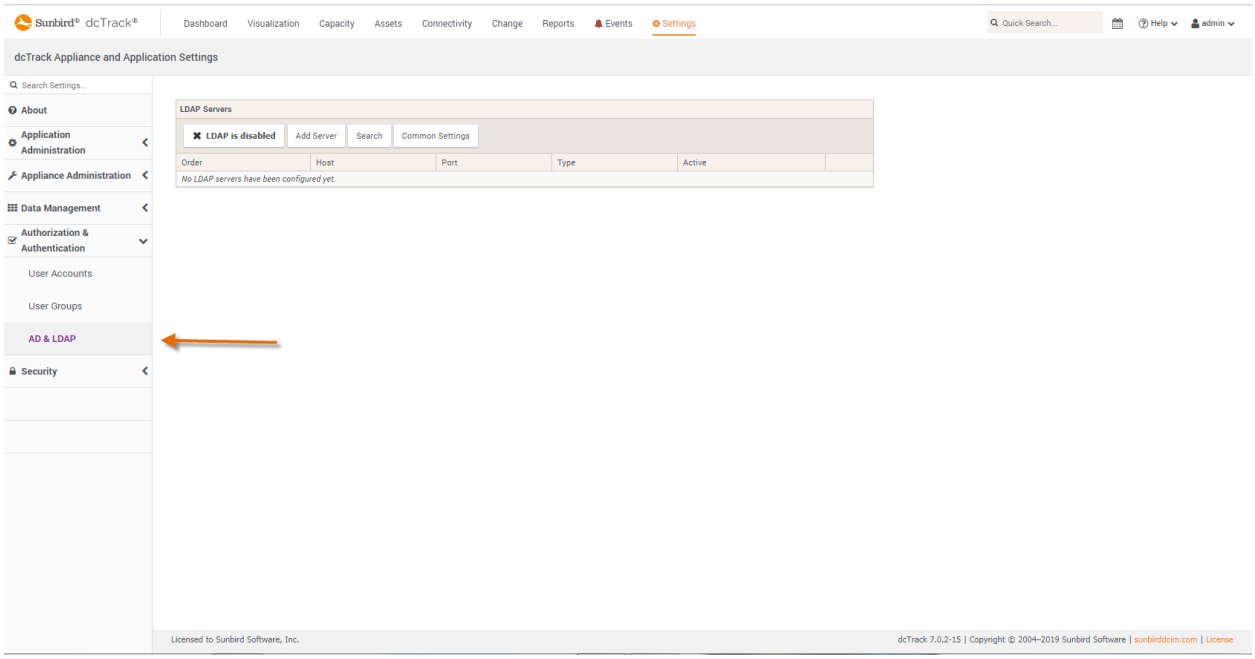
Additionally, changes to individual users and user groups on the remote LDAP server are automatically reflected in dcTrack. Syncs are performed at intervals you configure in dcTrack's Common Settings.

For example, if you change a user's email address on the LDAP server, once a sync occurs, the address is changed in dcTrack. Another example would be when you add a user to an LDAP user group. Once the user is added to the user group, the user is automatically added to dcTrack with the same permissions as the other members in the group.

Access LDAP Settings Page

All of the following actions are accessed from the LDAP Servers page. The LDAP Servers page is accessed from the Settings tab.

1. Navigate to Settings > dcTrack Settings > Authorization & Authentication > AD & LDAP to open the LDAP Servers page.



Gather Active Directory and LDAP Server Configuration Information

You need the information listed below in order to configure Active Directory and/or LDAP servers in dcTrack. You should gather this information before beginning the add server process in dcTrack.

Two worksheets are provided below: one to help you gather Active Directory information and another to help you gather the LDAP information. Use the worksheet that applies to your needs.

If you are not familiar with this information, ask your LDAP Administrator to help you gather it.

Microsoft® Active Directory Server Information						
Server Domain (for Active Directory), or server hostname or IP address:						
Port encryption type:	☐	TLS	☐	SSL	☐	No Encryption
Port - encrypted defaults to Port 636, no encryption defaults to Port 389, but the port can be changed.			Other (if applicable):			
The Bind type of the	☐	Standard Bind	☐	Configure Anonymous Bind		

Microsoft® Active Directory Server Information

server:						
The Base DN (this is where the search for users starts):						
Base DN Login Name Attrib-ute:	☐	sAMAccountName (default)	☐	Other (if applic-able):		
Search Filter (if applicable):						
Search scope object fil-ters (if applic-able, choose one):	☐	The Base DN and one level below the Base DN. ("One" is the option in GUI.)	☐	The Base DN and the entire subtree below. ("Subtree" is the option in the GUI)		
Search cre-dentials (choose one):	☐	No search credentials; user credentials provided at login are used	☐	Anonymous	☐	Admin cre-dentials
Admin DN and Admin pass-word, if search scope requires Admin cre-dentials.		Admin Credentials:		Admin Pass-word:		
Group search DN (if applicable):						

Microsoft® Active Directory Server Information

Group ID attribute, such as name (if applic-able):	☐	sAMAccountName (default)	☐	Other:		
Group member attribute (if applic-able):	☐	Member (default)	☐	Other:		
Group search fil-ter:	☐	(objectClass=group) (default)	☐	Other:		

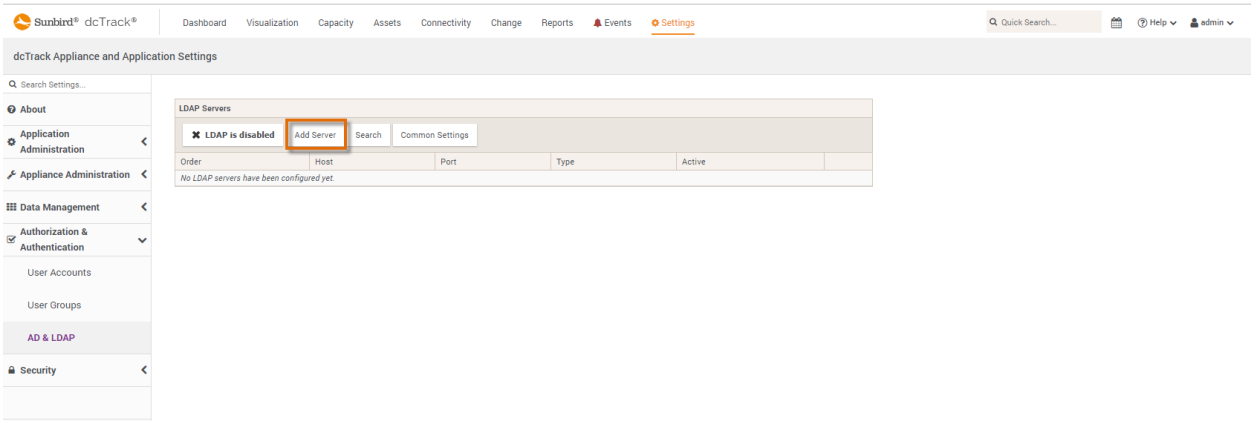
LDAP Server Information

Server Hostname or IP Address:						
Port Encryp-tion Type:	☐	TLS	☐	SSL	☐	No Encryption
Port - encrypted defaults to Port 636, no encryption defaults to Port 389, but the port can be changed.				Other (if applic-able):		
The Bind Type of the server:	☐	Anonymous Bind	☐	Standard Bind		
The Bind Base DN (this is where the search for users starts):						
Login Name Attribute:	☐	uid (default)	☐	Othe-r:		

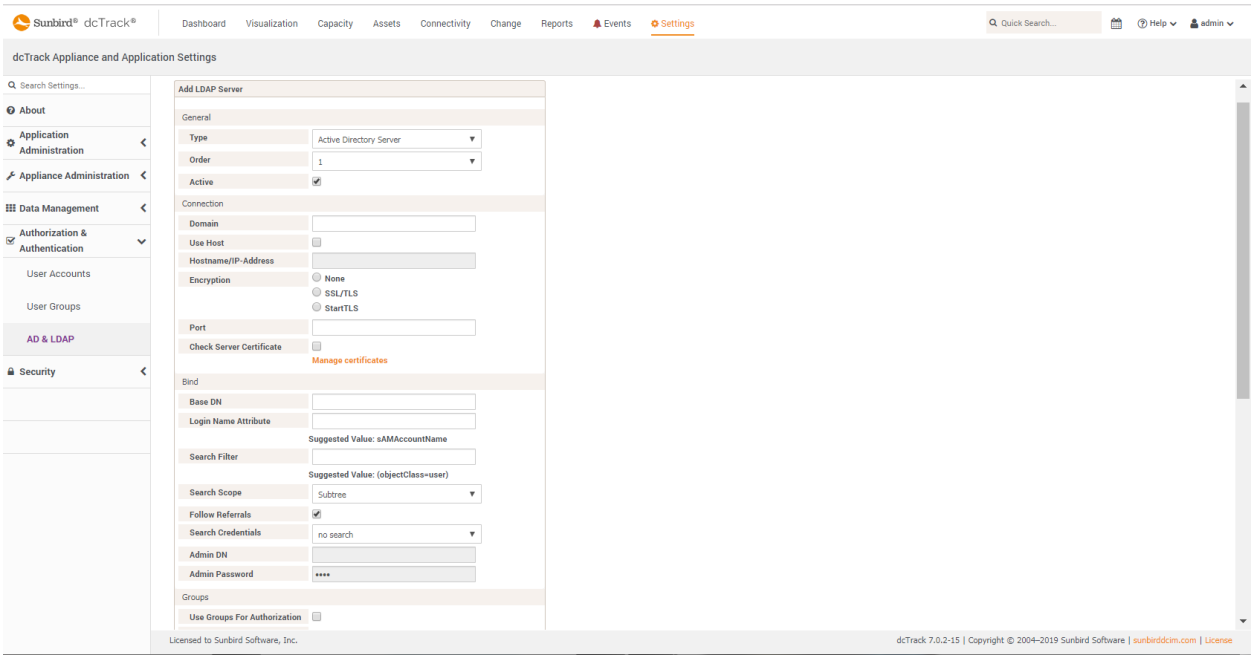
LDAP Server Information							
Search Filter (if applicable):							
Search Scope (if applicable):	☐	The Base DN and one level below the Base DN. ("One" is the option in GUI.)	☐	The Base DN and the entire subtree below. ("Subtree" is the option in the GUI)			
Search Credentials (choose one):	☐	No search credentials; user credentials provided at login are used	☐	Anonymous	☐	Admin credentials	
Admin DN and Admin password, if search requires Admin credentials:		Admin Credentials:			Admin Password:		
Group search DN (if applicable):							
Group ID attribute.	☐	gidNumber (default)		Other:			
Group member attribute (if applicable):	☐	memberUid (default)		Other:			
Group search filter:	☐	(objectClass=posixGroup) (default)		Other:			

Add a Remote Server

1. Click Add Server on the LDAP Servers page.



The Add LDAP Servers page opens.



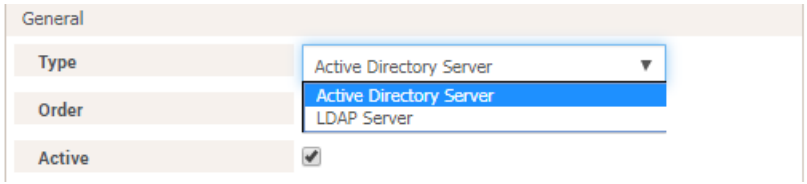
Complete the fields in each section that apply to your specific needs. Use the configuration information you gathered earlier to complete each section.

Note: Configuration settings vary slightly between Active Directory and LDAP.

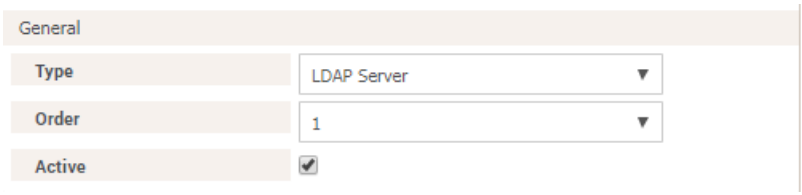
Active Directory Server Configuration in dcTrack

General Information

1. Select Active Directory Server as the server type.



2. Select the order in which the server will be listed in the LDAP Servers table. This dictates the order in which dcTrack communicates with the servers when multiple servers are configured.
3. Select the Active checkbox to enable the server, or leave it deselected and return to activate it at a later time. It must be active in order to be in use.



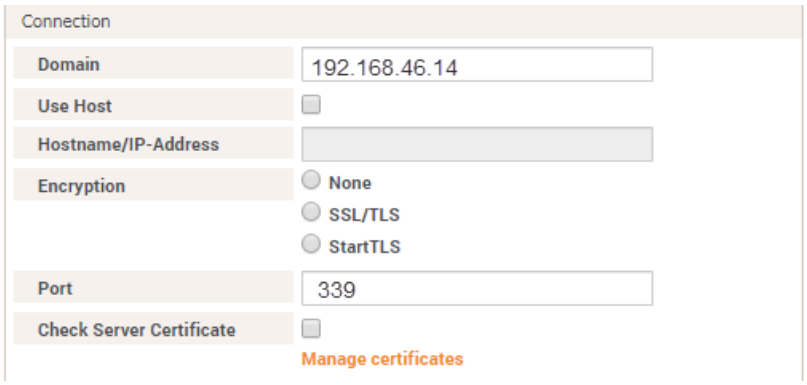
The information you enter in the remaining sections is specific to the server type you are configuring: either Active Directory or LDAP.

For this reason, Active Directory and LDAP settings are broken out into two sections on this page: Active Directory Server Configuration in dcTrack and LDAP Server Configuration in dcTrack

Scroll down the page to view LDAP setting instructions.

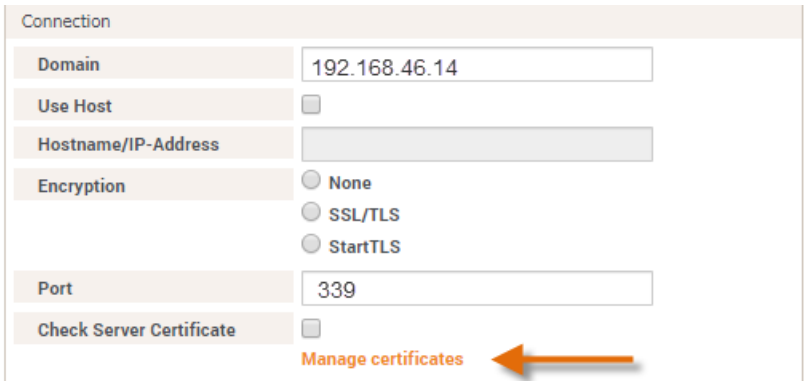
Connection Information

4. Domain - applies if Active Directory only. The domain name of the server.
5. Use Host - select if you want to use a specific hostname or IP Address to access the Active Directory server.
6. Hostname/IP Address - enter the Active Directory server's hostname or IP address if Use Host is selected.
7. Use TLS/SSL - select if using TLS/SSL encryption.
8. Port - the default is Port 389 if TLS/SSL encryption is not enabled, and Port 636 is the default if TLS/SSL encryption is enabled. The port number can be edited to a different value, if necessary.

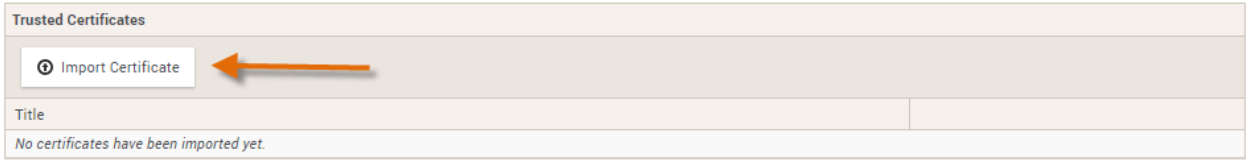


(Optional) Manage Certificates

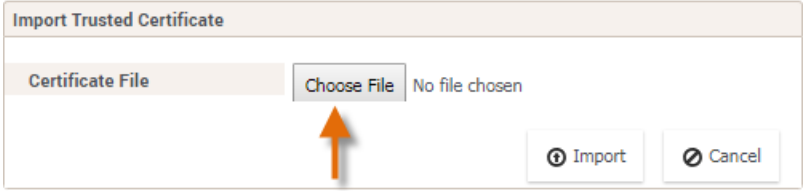
9. If you need to validate certificates, select Check Server Certificate.
10. Next, click the Manage Certificates link to open the Trusted Certificates page. The certificate needs to be PEM format to upload.



11. Click Import Certificate to open the Import Trusted Certificate page. The certificate needs to be PEM format to upload



12. Click on the "Choose File" text box to open your browser to locate the certificate, then click Import to import the certificate.



You can use the Back button in your browser to return to the Add LDAP Server page.

Bind Information

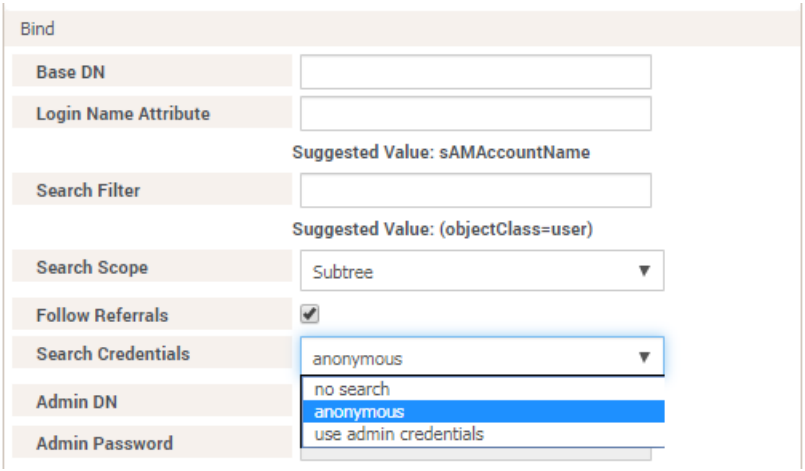
The information entered here identifies where searches are performed to locate users on the server.

13. Base DN - specify a Base DN (directory level/entry) under which the authentication search query will begin. dcTrack can do a recursive search downward from this Base DN..

For example, depending on the scope of the search, if the Base DN is dc=sunbird,dc=com, the search query for the user entry will be made over the whole directory structure.

If the Base DN is cn=Administrators,cn=Users,dc=sunbird,dc=com, the search query will begin in the Administrators subdirectory (entry).

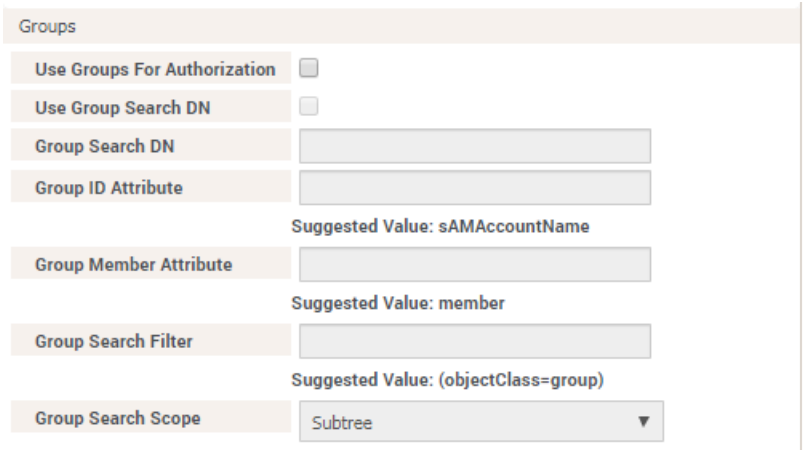
14. Login Name Attribute - the login name that corresponds to the server type. The default for Active Directory is sAMAccountName.
15. Search Filter - enter a user's attributes in this field if you want the search query to be restricted to only those entries that meet the criteria. The default for Active Directory is (objectClass=user).
16. Search Scope - level of the server directory to look for users; either the Base DN and one level below the Base DN, or the Base DN and the entire subtree below.
17. Follow Referrals - select this option to allow the dcTrack LDAP client to follow referrals provided by the LDAP server if referral objects are encountered.
18. Search Credentials:
    - Leave "no search" to use the credentials provided by the user on log in.
    - Select "anonymous" if no credentials are required.



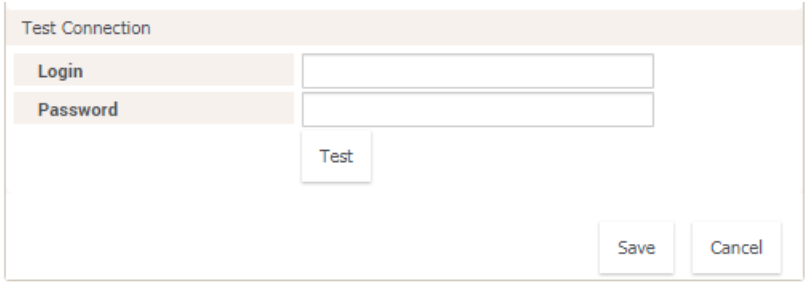
    - Select "use admin credentials" and enter the admin user credentials in the Admin DN and Admin Password fields. The admin credentials will be used for the service account when conducting searches.

Groups Information

19. User Groups for Authorization and Common Setting – 'Sync Group Members' will be used to enable the ability to automatically add and manage users from imported user groups.
20. Use Group Search DN - select to specify the group DN to search. Select this option if the group DN search is different than the search used for users.
21. Group Search DN - this is where the search for the user group will begin in the directory.
22. Group ID Attribute - the default for Active Directory is sAMAccountName.
23. Group Member Attribute - the default for Active Directory is member.
24. Group Search Filter - the default for Active Directory is (objectClass=group).
25. Group Search Scope - level of the server directory to look for groups; either the Base DN and one level below the Base DN, or the Base DN and the entire subtree.

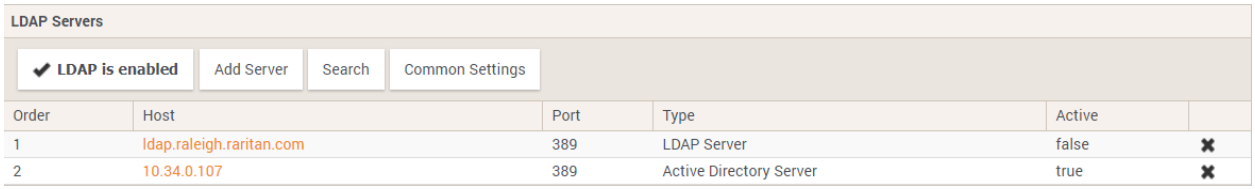


26. Optional Test Connection is to test with an account. If you have a known, valid test account to use to test the server setup, you can test from here without having to try to login with that account.



27. Click Save to save the settings and add the server.

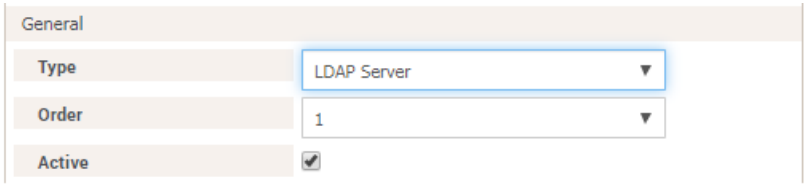
Once added, the server is listed on the Add LDAP Server page.



LDAP Server Configuration in dcTrack

General Information

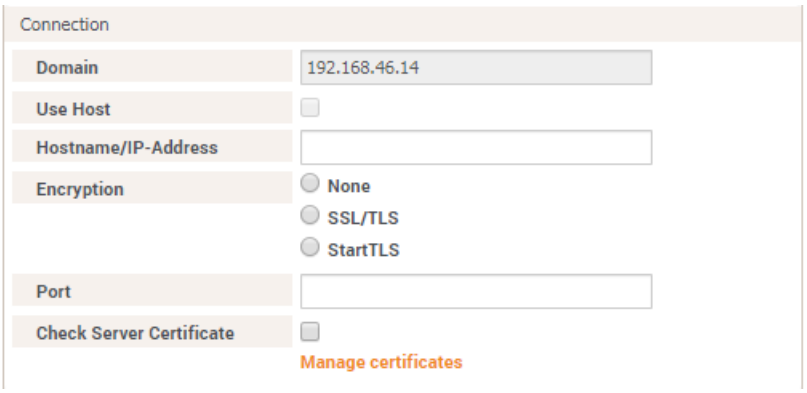
1. Select LDAP Server as the type.
2. Select the order in which the server will be listed on the LDAP Servers table. This dictates the order in which dcTrack communicates with the servers when multiple servers are configured.
3. Select the Active checkbox to enable the server, or leave it deselected and return to activate it at a later time. It must be active in order to be in use.



The following steps describe LDAP settings you configure. Scroll up to view Active Directory settings if you are configuring an Active Directory server.

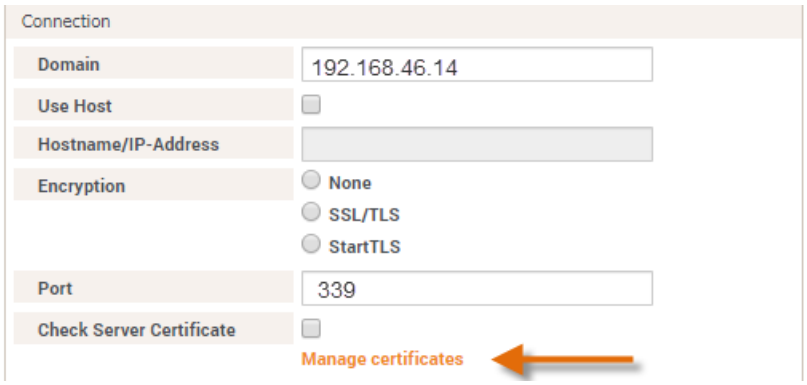
Connection Information

4. Domain - does not apply to LDAP.
5. Use Host - select to use a specific hostname or IP address to access the LDAP server.
6. Hostname/IP Address - enter the LDAP server's hostname or IP address when Use Host is selected.
7. Use TLS/SSL - select if using TLS/SSL encryption.
8. Port - the default is Port 389 if TLS/SSL encryption is not enabled, and Port 636 is the default if TLS/SSL encryption is enabled. The port number can be edited to a different value, if necessary.

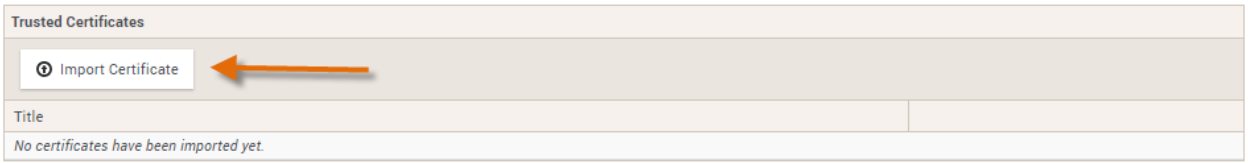


(Optional) Manage Certificates

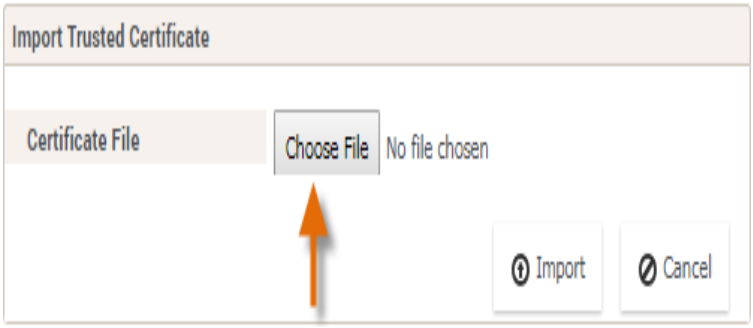
9. If you need to validate certificates, select Check Server Certificate.
10. Next, click Manage Certificates to open the Trusted Certificates page. The certificate needs to be PEM format to upload.



11. Click Import Certificate to open the Import Trusted Certificate page.



12. Click on the "Choose File" text box to open your browser to locate the certificate, then click Import to import the certificate.



You can use the Back button in your browser to return to the Add LDAP Server page.

Bind Information

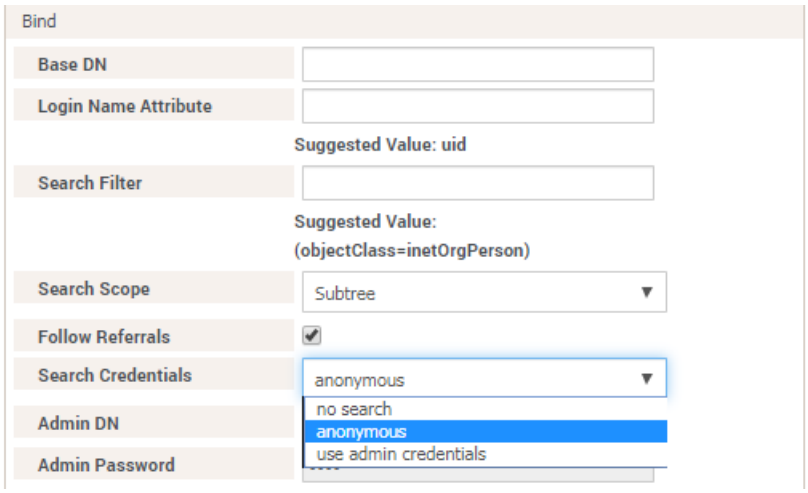
The information entered here identifies where searches are performed to locate users on the server.

13. Base DN - specify a Base DN (directory level/entry) under which the authentication search query will begin. dcTrack can do a recursive search downward from this Base DN.

For example, depending on the scope of the search, if the Base DN is dc=sunbird,dc=com, the search query for the user entry will be made over the whole directory structure.

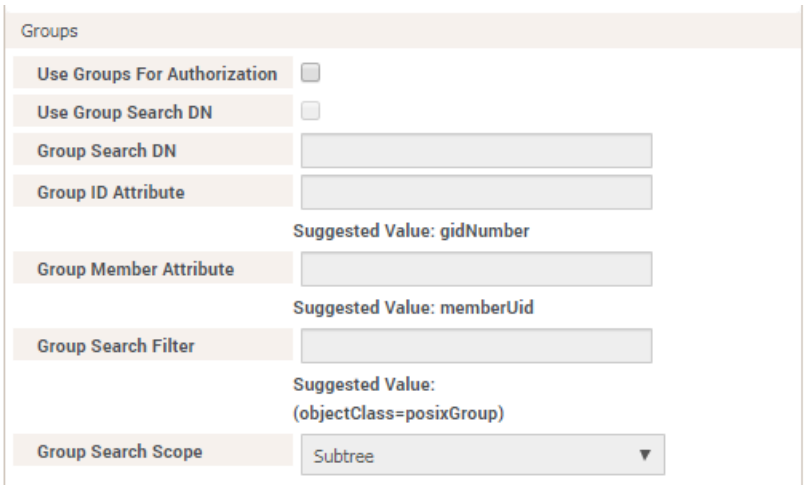
If the Base DN is cn=Administrators,cn=Users,dc=sunbird,dc=com, the search query will begin in the Administrators subdirectory (entry).

14. Login Name Attribute - login name that corresponds to the server type. The default is the user ID.
15. Search Filter - enter a user's attributes in this field so the search query will be restricted to only those entries that meet this criterion. The default is (objectClass=inetOrgPerson).
16. Search Scope - level of the server directory to look for users; either the Base DN and one level below the Base DN, or the Base DN and the entire subtree below.
17. Follow Referrals - select this option to allow the dcTrack LDAP client to follow referrals provided by the LDAP server if referral objects are encountered.
18. Search Credentials - leave "no search" selected if no search is required.
    - Select "anonymous" if no credentials are required.
    - Select "use admin credentials" and enter the Admin DN username and Admin Password. These credentials will be used for the service account when conducting searches.

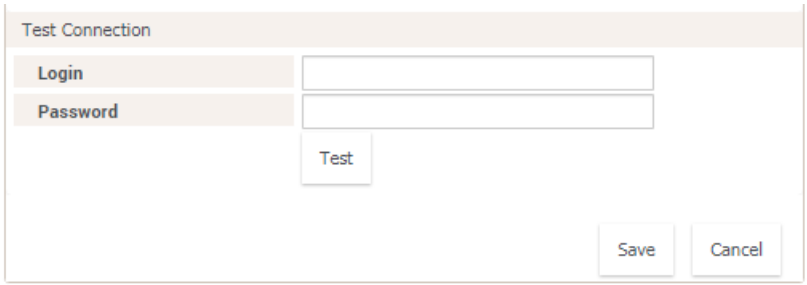


Groups Information

19. User Groups for Authorization and Common Setting - 'Sync Group Members' are used to enable automatically adding and managing users from imported user groups.
20. Use Group Search DN - select to specify the group DN to search. Select this option if the group DN search is different than the search used for users.
21. Group Search DN - this where the search for user groups will begin in the directory.
22. Group ID Attribute - the default is gidNumber.
23. Group Member Attribute - the default is memberUid.
24. Group Search Filter - the default is(objectClass=posixGroup).
25. Group Search Scope - level of the server directory to look for groups; either the Base DN and one level below the Base DN, or the Base DN and the entire subtree.

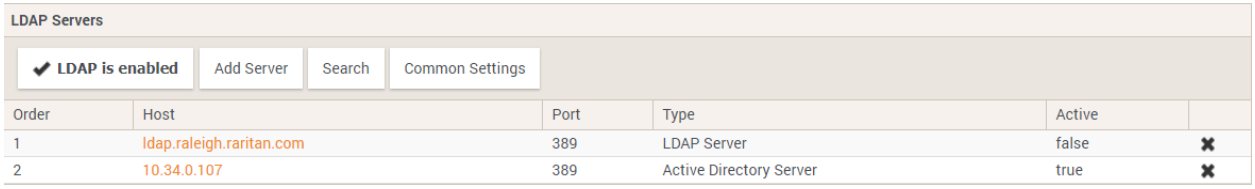


26. Optional Test Connection is to test with an account. If you have a known, valid test account to use to test the server setup, you can test from here without having to try to login with that account.



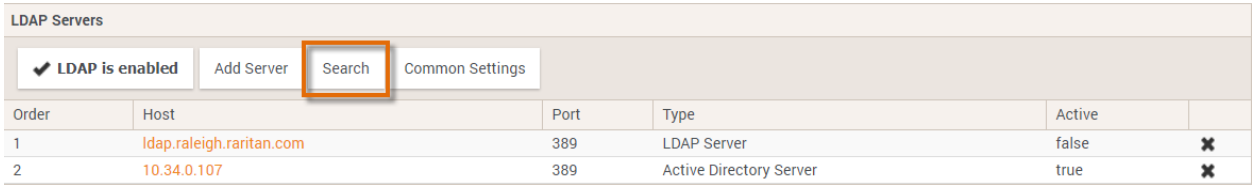
27. Click Save to save the settings and add the server.

Once added, the server is listed on the Add LDAP Server page.



Search for Remote Users and/or User Groups and Add Them to dcTrack

1. On the Add LDAP Server page, click Search.



The Search for LDAP Users and Groups page opens.

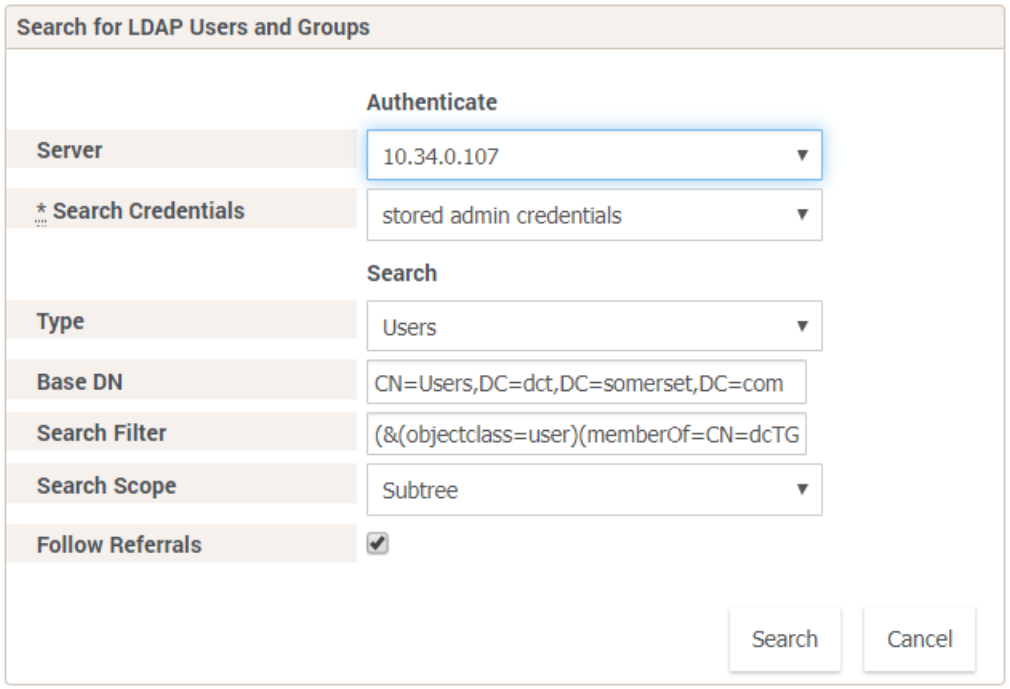
2. Select the server you want to search.

The remaining server information is completed based on the server you selected earlier, or you can edit the information by entering a new server to search.

3. Select the type of search - Users or Groups, depending on how the server is configured in dcTrack.
4. Select the Follow Referrals checkbox, if desired.
5. Search Scope is prepopulated based on the scope you defined when adding the server.

You can change the scope of the search, if desired.

This is the level of the server directory to look for users or groups. You can search just the Base DN by selecting "Base", search the Base DN and one level below the Base DN by selecting "One", or search the Base DN and the entire subtree by selecting "Subtree".

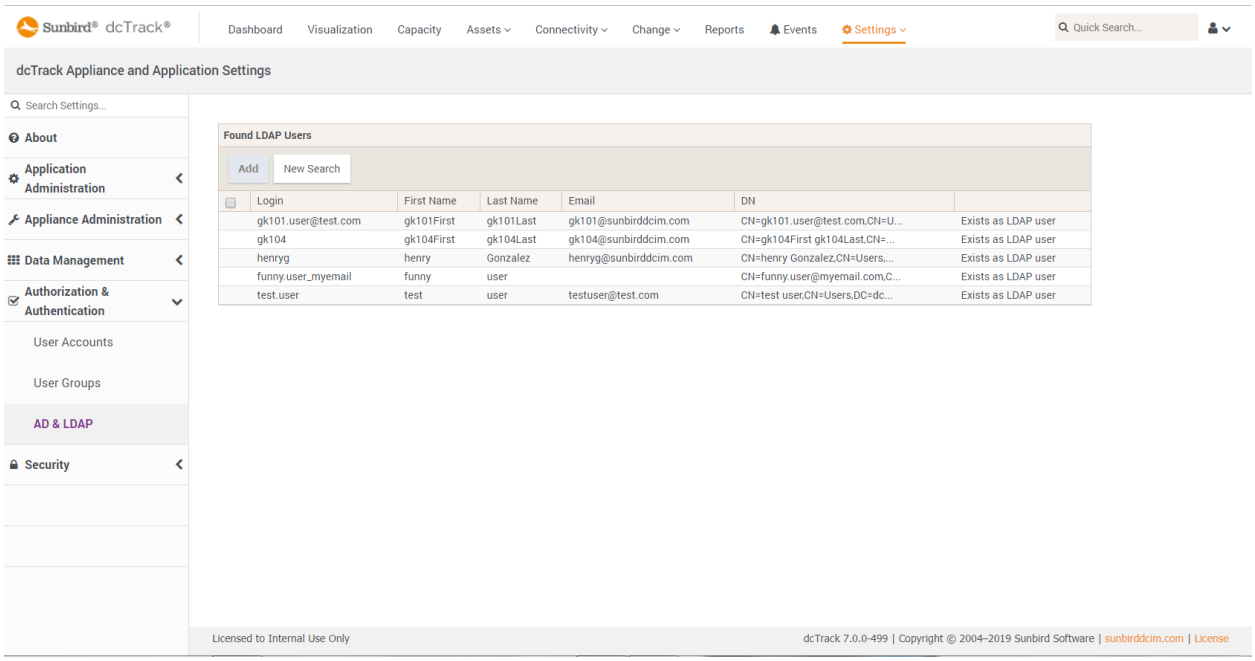


6. Click Search to locate users or user groups on the server.
7. A list of results is displayed once found. You can now add users and/or groups to dcTrack from those found.

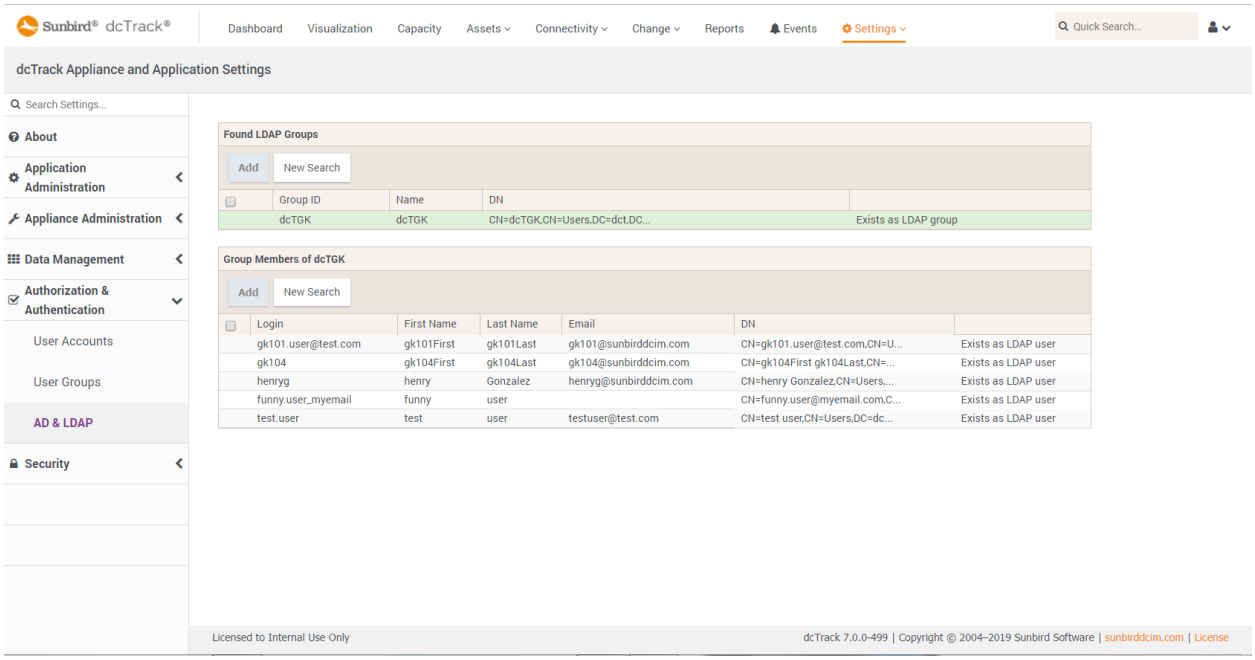
To add users or groups found in an LDAP search, select the checkbox next to each user and/or user group in the list, then click Add.

In order to search and add user groups, the 'Use Groups for Authorization' option must be enabled on the Server page.

When searching for and adding user groups, one or more groups can be selected at a time. The users will not be automatically added unless the Common Settings – 'Sync Group Members' is enabled.



When searching for and adding user groups, clicking on a user group causes the group members to be listed below the user group grid. One or more group members can be selected to be added.



Successfully added users/user groups are listed as "Exists as LDAP user" and the checkbox next to the name is removed.

Once added, individual users are granted distinct permissions and authenticated on a per user basis.

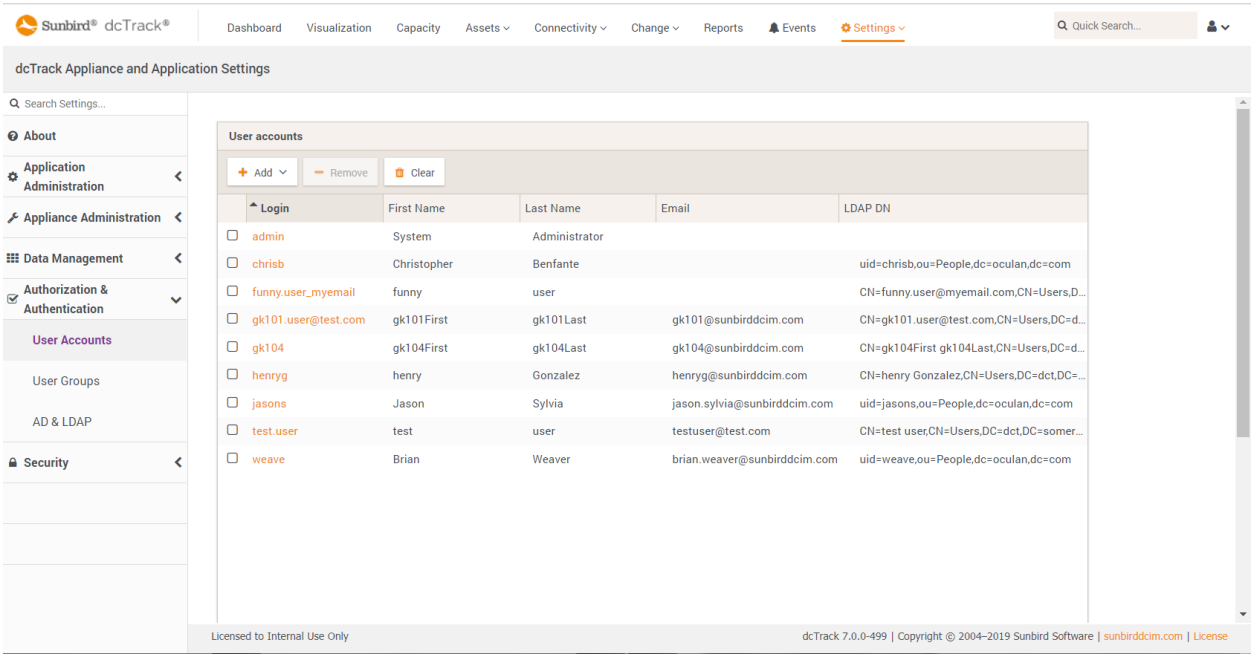
Users in user groups are granted common access to specific features or functionality.

Any changes you make to a user or user group on the server are reflected in dcTrack. For example, if you delete a user from a user group, they are no longer able to access the features they previously could in dcTrack.

Edit User Information and Configure dcTrack Login Credentials

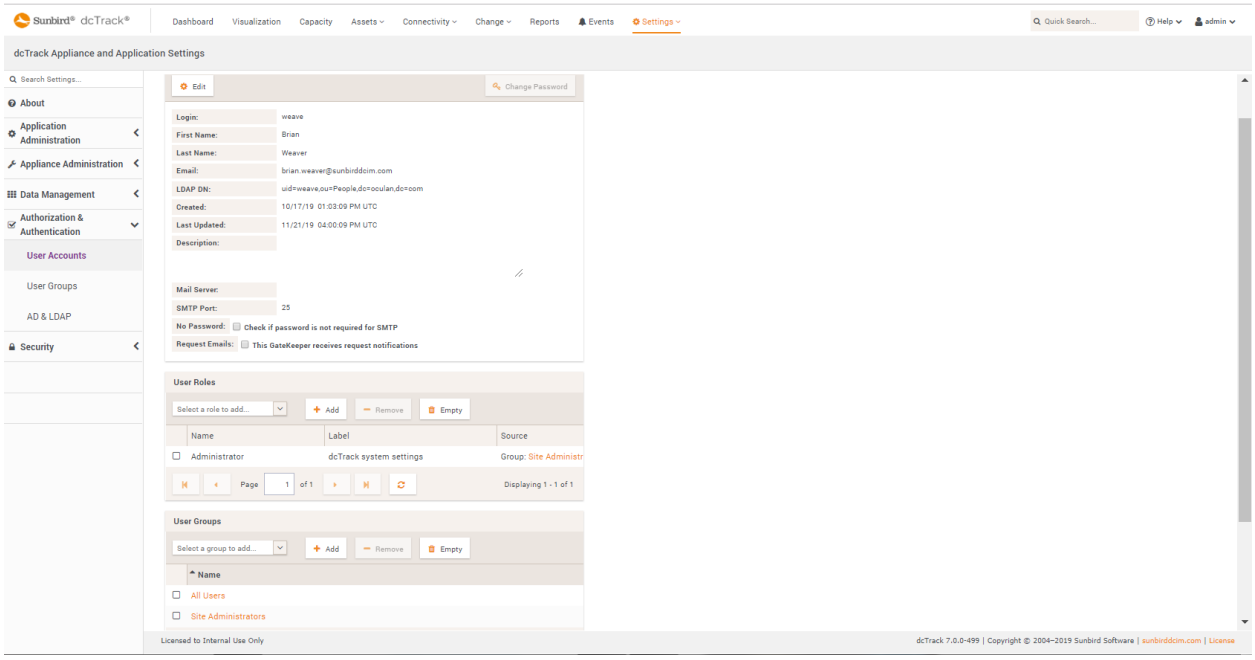
This information can be edited and configured now or at a later time.

8. To edit user information or login credentials, navigate to Settings > dcTrack Settings > Authorization & Authentication and select User Accounts.



You can easily identify users added via LDAP since the LDAP DN field is populated in their row.

9. Click on a user's name to open their User Information page.
10. Click Edit on the User Information page.
11. All editable fields are activated.



12. Login is required and must contain the username. 3 characters minimum. 40 characters maximum.

Important: If authentication is required by your email system, the dcTrack username must be the same as the user's email account username. If the usernames do not match, emails cannot be successfully sent from dcTrack.*

For example, if the username assigned to an email account is jqpublic, the dcTrack username must be jqpublic.

If authentication is not required by your system, usernames do not have to match.

13. Required Mail is required and must contain a correctly formatted email address.

Note: Account username refers to the username assigned to the email account; it does not refer to the name portion of the user's email address. Typically, the username and name portion of an email are the same, but this may not be the case.

Configure Common Server Settings

dcTrack allows you to configure common settings that control the number of users and/or user groups returned in a search. This feature also allows you to enable LDAP syncing. LDAP syncing controls the interval between when dcTrack and the LDAP server are synchronized.

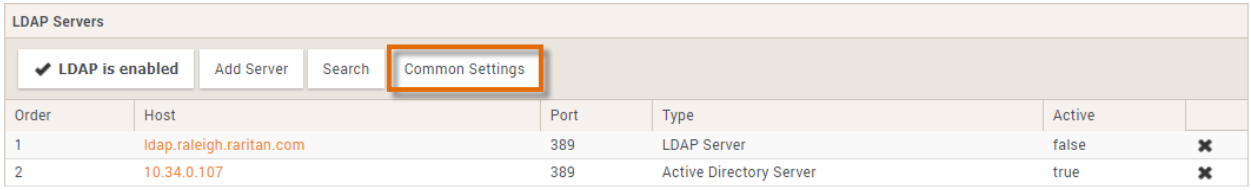
There are several times when group synchronization will occur. Note that in each of these scenarios both the "Sync Group Members" option found on the Common Settings page and the "Use Groups for Authorization" option found on the Settings page for each individual server must be enabled. If either of these options is not enabled, group synchronization will not occur.

Group Synchronization occurs:

- During periodic sync as determined by the Sync Interval defined in Common Settings
- When performing a manual sync by clicking the "Sync Now" button in Common Settings
- When a new user that does not exist in dcTrack but does exist in LDAP/AD logs into dcTrack for the first time

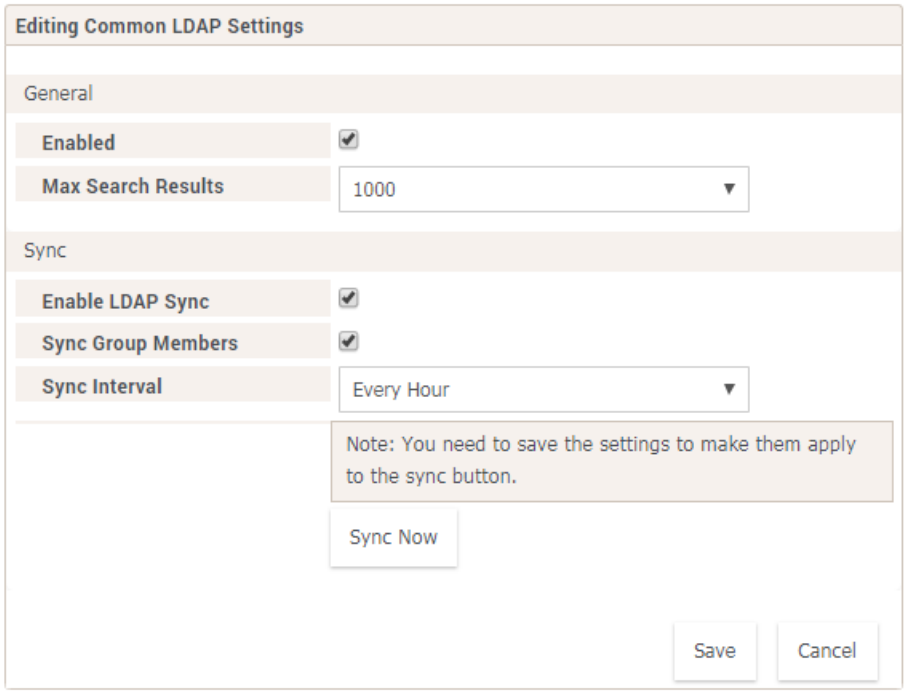
When an existing dcTrack user logs in, his groups are not automatically synchronized. Groups for existing users will be synchronized during the next manual or periodic sync. The user information for existing users (Name, Email) however is updated each time the user logs into dcTrack.

1. Click Common Settings on the Add LDAP Servers dialog opens.



The Editing Common LDAP Settings page opens.

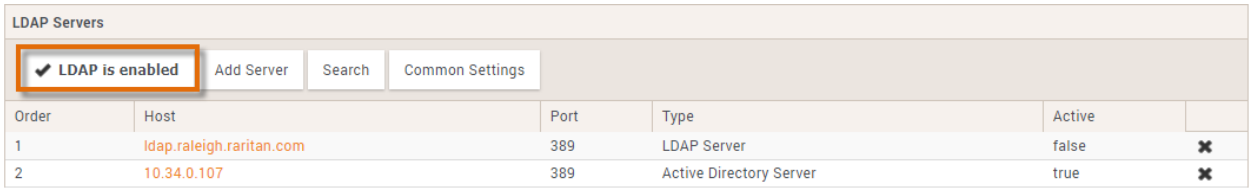
2. Select Enabled to enable the dcTrack LDAP client
3. Select the Max Search Results from the drop-down.
4. Select the Enable LDAP Sync checkbox to enable LDAP server syncing.
5. When "Sync Group Members" and "Use Groups for Authorization" are enabled, users will be added to dcTrack automatically or removed from dcTrack once the user groups are imported into dcTrack.
6. Select the Synch Interval from the drop-down. Updates will be made whenever a user logs in or the specified sync interval whichever comes first.
7. To sync immediately, click Save and then click Sync Now.
8. Click Save to save the settings. You can use the Back button in your browser to return to the Add LDAP Server page.



Enable or Disable LDAP in dcTrack

This enables or disables LDAP support in dcTrack. It does not enable or disable a specific LDAP server.

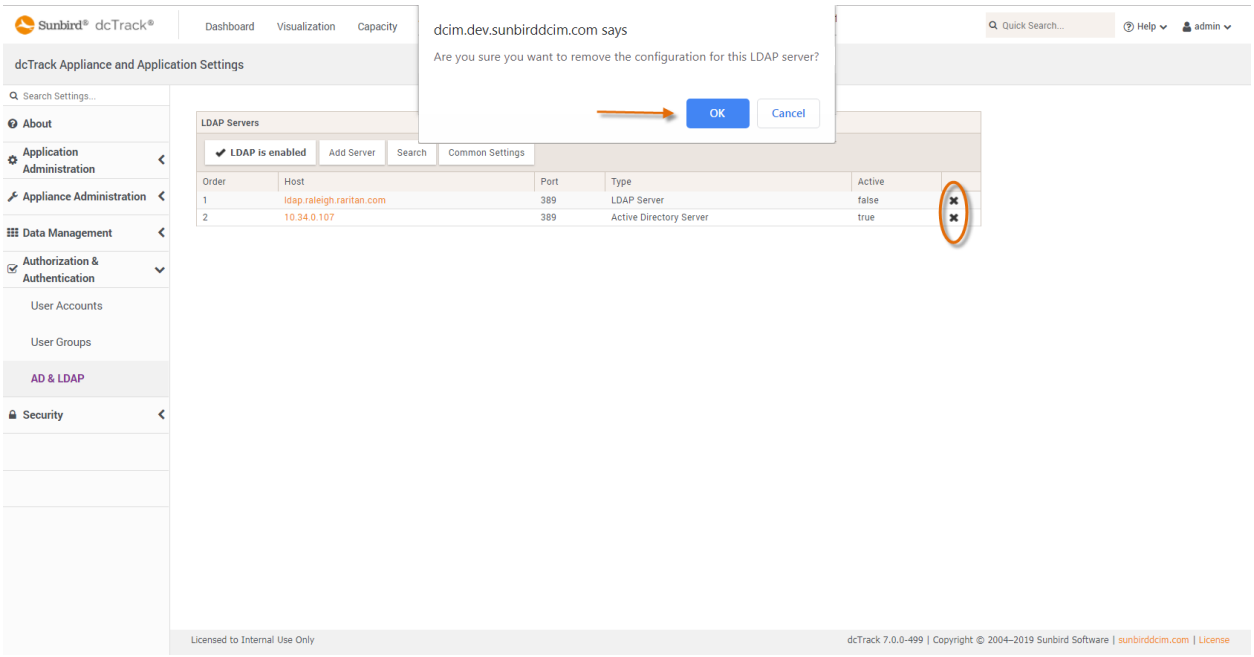
1. If LDAP is disabled, click the "LDAP is disabled" button to enable it.



2. Once enabled, the button changes to "LDAP is enabled". Click the button again to disable LDAP.

Delete an LDAP Server

1. Click the X link in the row of the LDAP server you want to delete.
2. Click OK when prompted to delete.

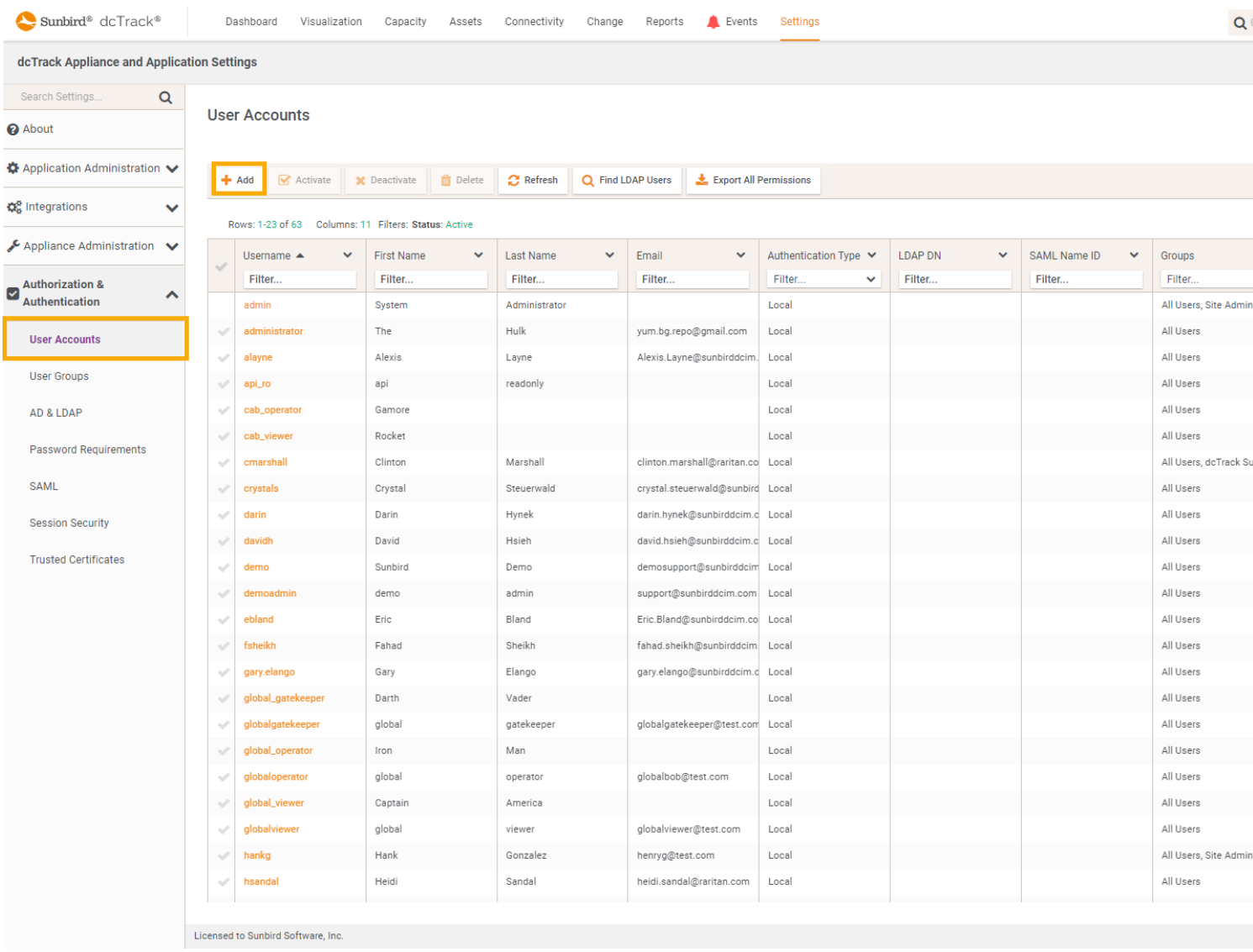


Add Local dcTrack Users

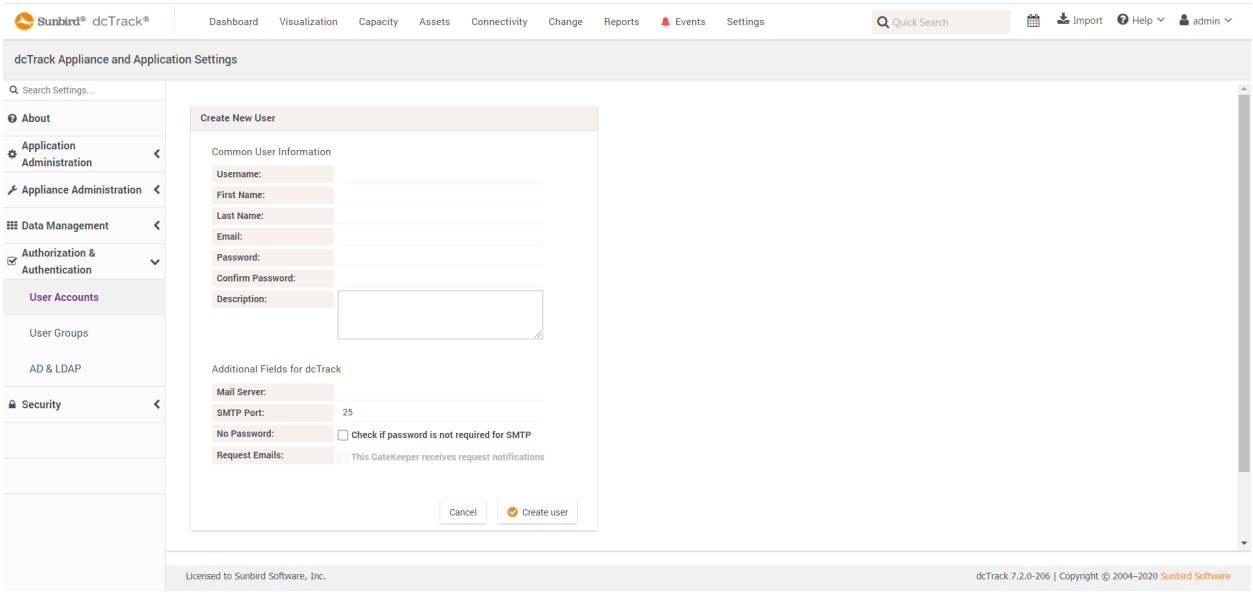
Local users are validated based on credentials you configured in dcTrack and provide to users.

User accounts are added from the dcTrack Settings tab.

1. From Settings > dcTrack Settings > Authorization & Authentication, click User Accounts. The User list page opens displaying a list of all the user accounts created for the system.



2. Choose Add > Add. A blank user information page opens.



3. Enter the following required fields:
   - Username - must be at least 3 characters, but no more than 255 characters
   - First Name
   - Last Name
   - Password
   - Confirm Password
4. You can optionally enter the following fields:
   - Email
   - Description
   - Mail Server
   - SMTP Port
   - No Password
   - Request Emails - Applicable only for user accounts with the Gatekeeper role

Note: As of dcTrack version 7.0.1 the User Name supplied when logging into dcTrack is no longer Case Sensitive. This applies to both Local and LDAP user accounts.

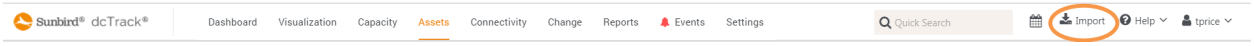
Use File Import to Add Locations and Items

Perform a File Import

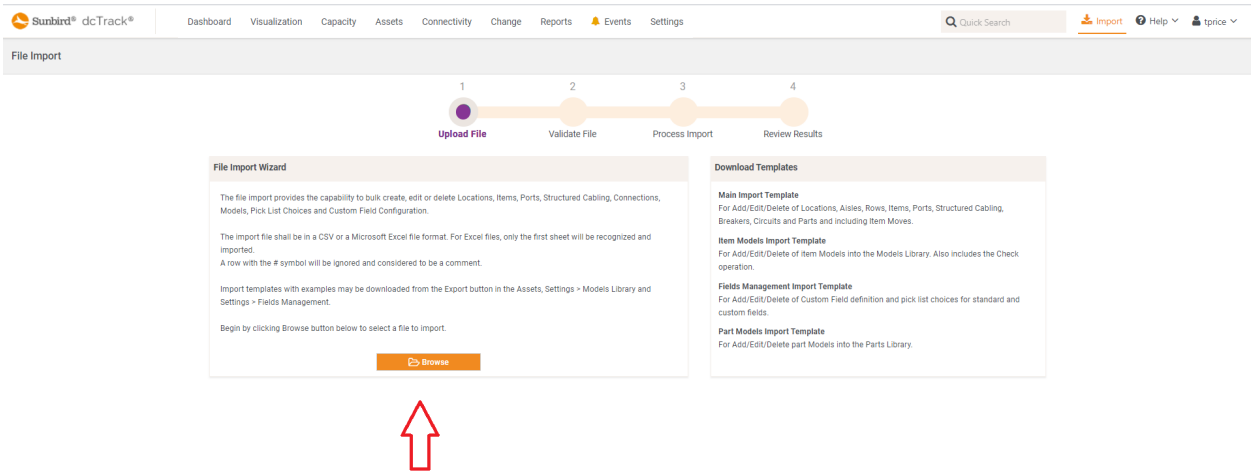
The following steps cover importing locations, verifying locations were imported, importing items and connections, verifying items and connections were imported, and uploading and syncing drawing files with locations.

1. Import locations first if you have not already done so. Once locations exist in dcTrack, import items and connections.

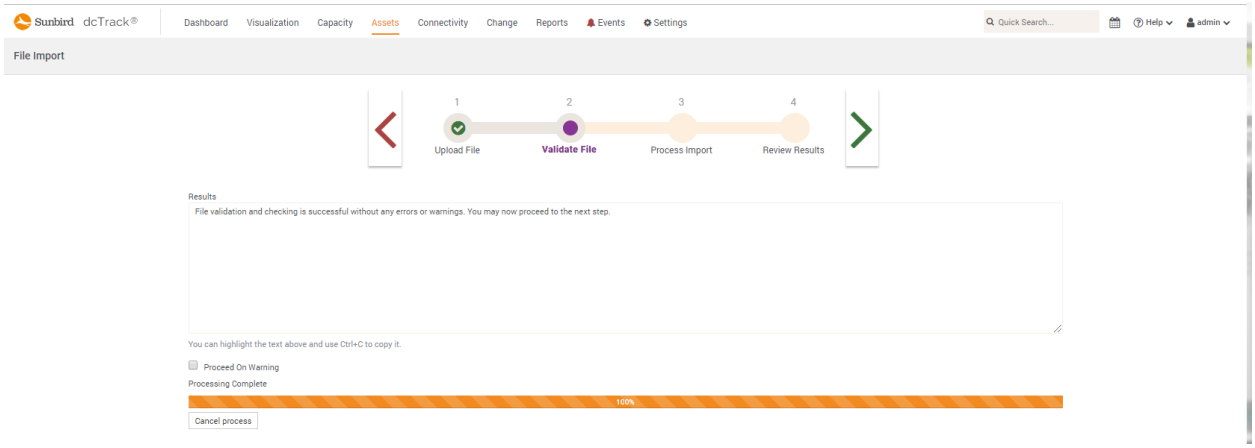
2. Begin a File Import by clicking the Import button in the dcTrack main tool bar



3. Once you select the File Import option, the File Import dialog opens. Use Browse to locate the import file.

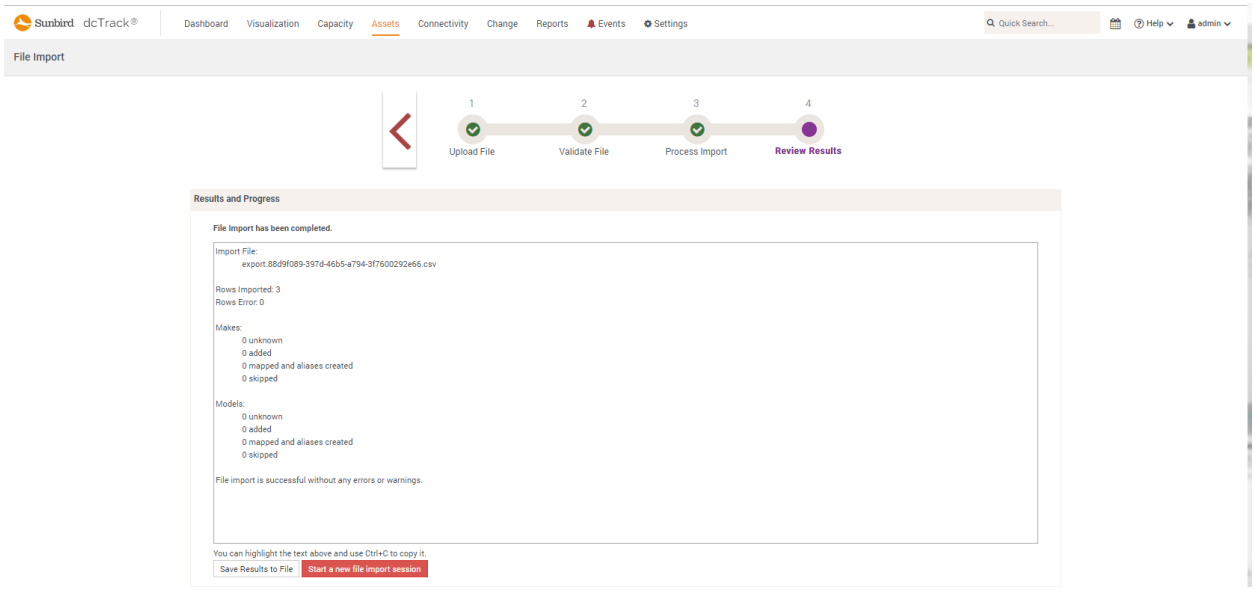


As soon as you select the import file, the file is validated by dcTrack to ensure it is formatted correctly. All errors encountered during file validation must be corrected before proceeding to 'Process Import'.



4. If no validation errors are found or once corrected, click the green arrow on the right of the process bar to continue to the Process Import step.

Warning or errors are displayed, if found.

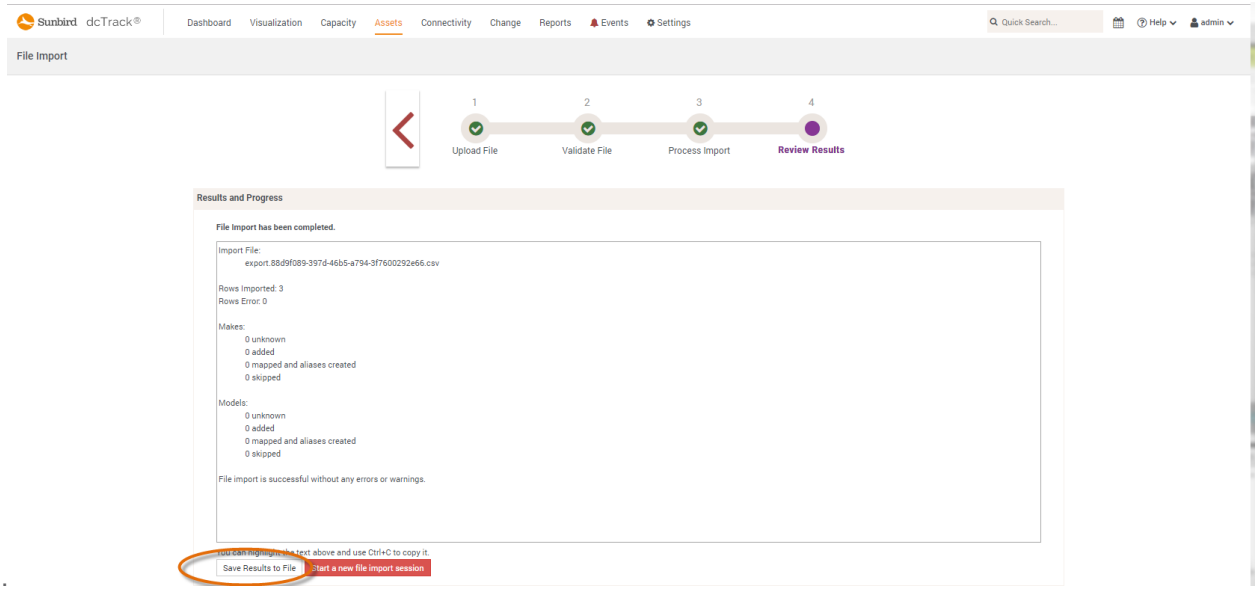


As dcTrack imports your data, a progress bar is displayed at the bottom of the window.

5. Once the import is complete, you can go on to view the newly added locations, begin another import session, or select any option from the top menu bar to move to another activity.

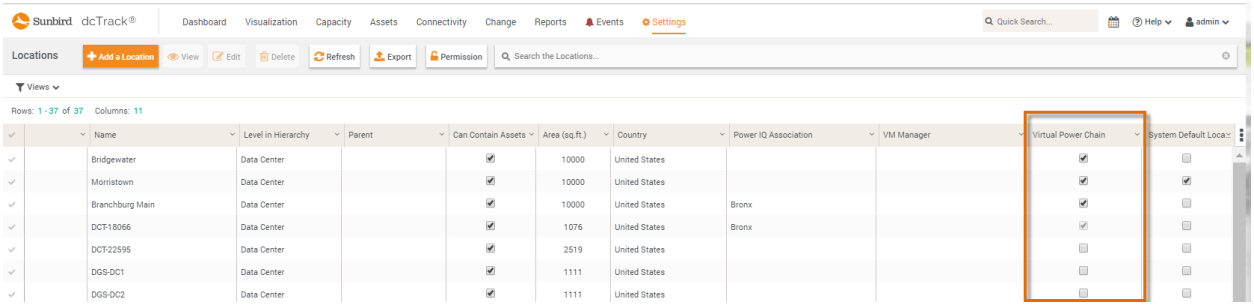
Any errors encountered during import are listed in the Results section of the File Import dialog, and all valid data are imported.

Select "Save Results to File" to create a file containing only invalid data. You can then fix the issues and import the data again



6. Locations appear in the Default Location drop-down, Location drop-down, on the Items List under Assets and so on.
7. If you entered TRUE for "Enable Virtual Power Chain", ensure VPC is enabled by selecting Assets > Locations in the Web Client.
8. The VPC checkbox is selected for locations that are VPC enabled.

If VPC is not enabled for a location, you can enable it from this page.



9. If needed, integrate dcTrack with one or more Power IQs. Navigate to Settings > dcTrack Settings > Application Administration and open the Power IQ Integration Settings tab. You can then use File Import to sync integrated Power IQs. See **Use File Import to Sync Integrated dcTrack and Power IQ**.

10. Next, import cabinets and items if you have not already done so.
11. You can perform this step now or at a later time, but note that cabinets and items must exist in the data center in order to sync drawing files. Otherwise, you must map or import them after syncing.
12. Use File Import and follow the same steps that are outlined above.

No readings are displayed in the widgets on the Web Client Dashboard until:

- Items that can send SNMP readings are added and configured to send them, and/or you are integrated with Power IQ.
- Items sending readings are powered on.

This is also true on item pages once items are added.

14. Import power and data connections once items are imported.
15. You can perform this step now or at a later time.
16. Use File Import and follow the same steps that are outlined above.
17. To view newly added items or connections, click Refresh on the Items List or Circuits List page.

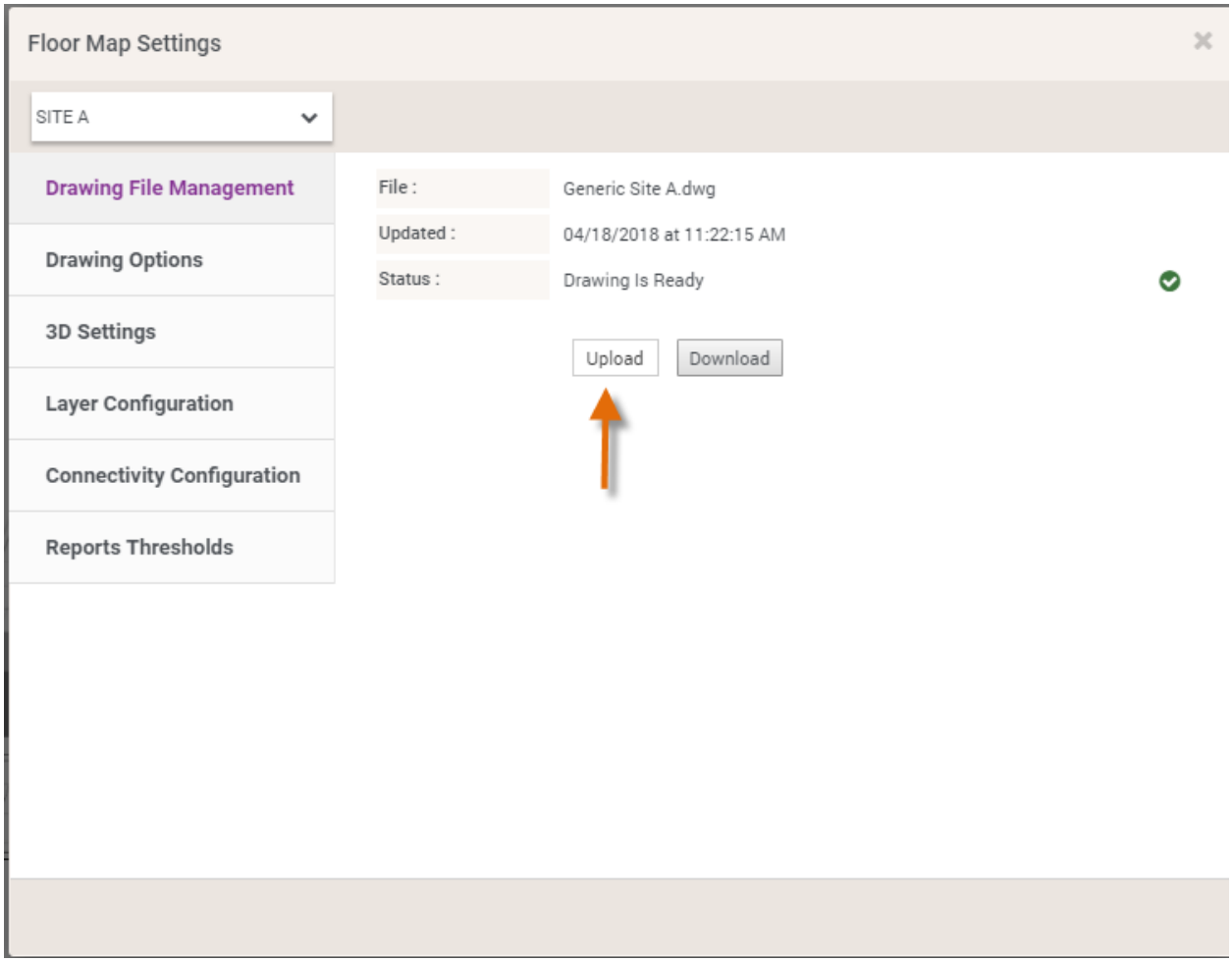
Note: For items, filter the list by Origin = Import. You can also filter by Location so only imported items for the specified location are displayed.

18. Next, upload each location's drawing file, if applicable.

This is done in the Web Client using the Upload feature on the Floor Maps page.

Upload each data center's drawing file separately.

19. Click on the Visualization tab to open the Floor Maps page.
20. From the Location drop-down, select the location you want to upload the drawing file to.
21. Click Settings if the Upload icon is not displayed already.
22. Click Upload, then use browse to locate and select the .DWG file.



The upload time may vary depending on file size and network speed.

Once the file has uploaded, a processing message is displayed while dcTrack processes and syncs the file.

dcTrack syncs the objects in the drawing file with existing dcTrack items of the same name.

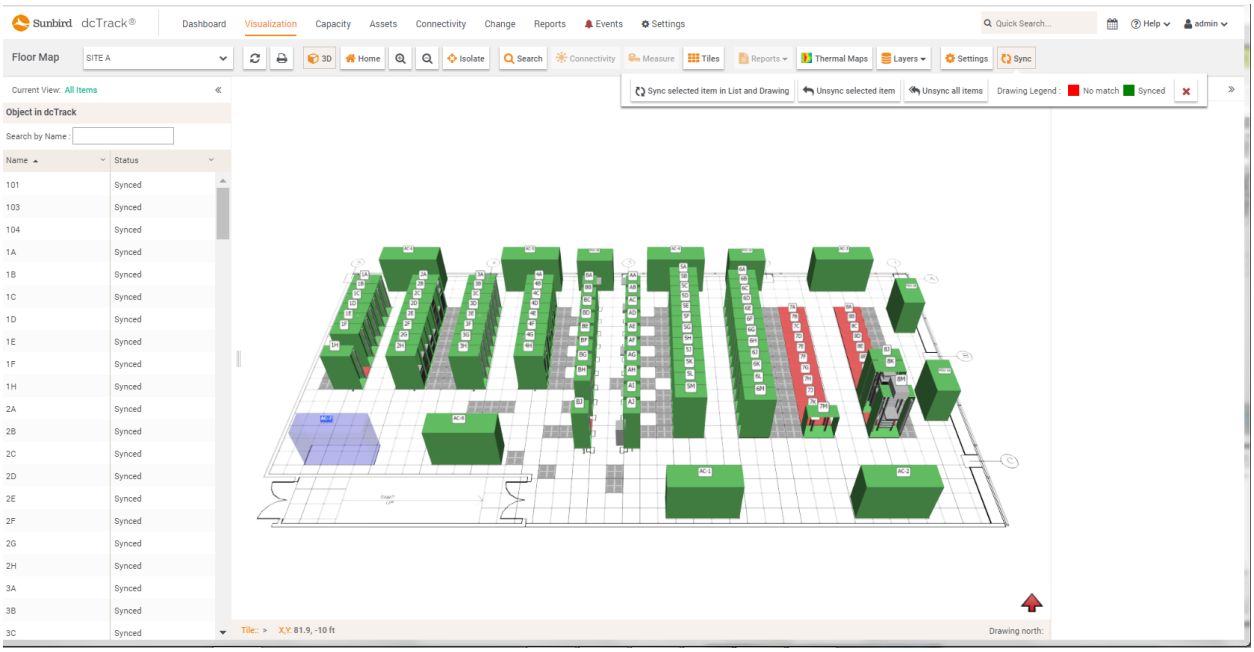
Processing typically takes a few seconds, and does not require you to stay on the Floor Maps page.

A message indicates when the file is being rendered. Click OK to close it or allow it to close on its own.

A successful upload is indicated by the floor map appearing and a green checkmark icon at the top of the page.

The floor map loads, and all synced cabinets are listed in the Items List on the left.

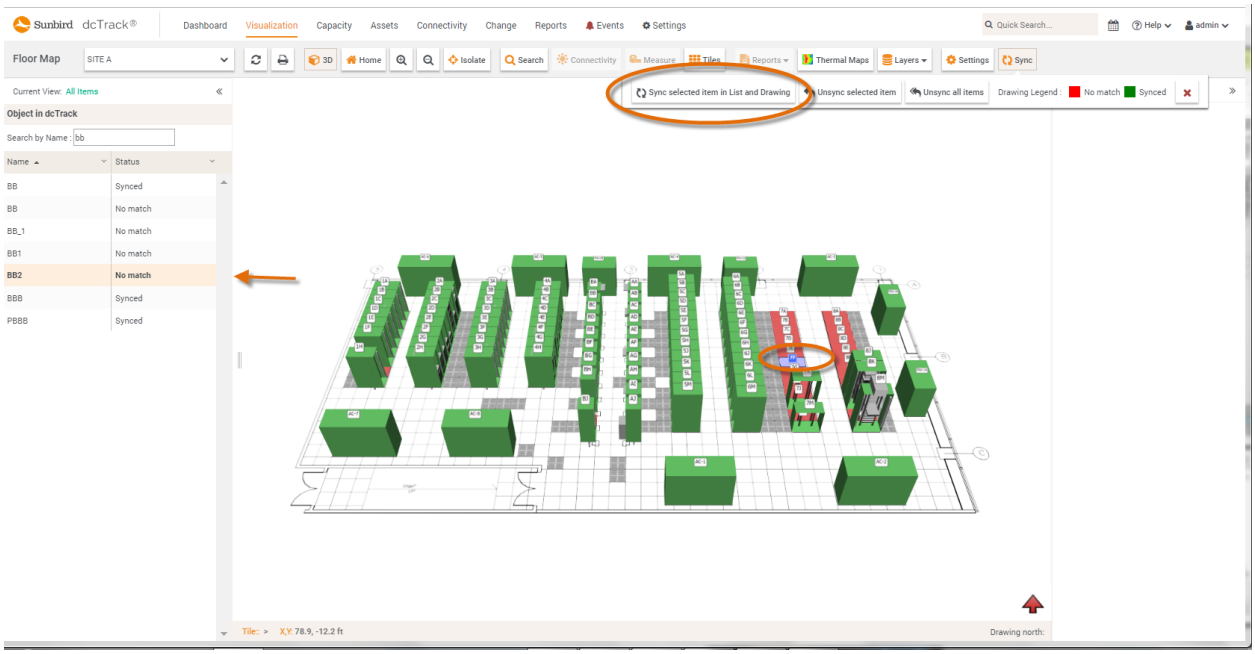
23. Cabinets and items that are not synced during the drawing file upload must be synced using the Sync Button on the Floormap tool bar.



Items that are not sync'd will have a status value of "No Match" in the Item List

To sync objects:

24. Click the Sync button on the tool bar
25. Select the unmatched item from the item list
26. Click on the corresponding match in the Floor Map
27. Click the Sync Selected Item in List and Drawing button



Add and Configure Power Infrastructure Items - Cooling Units, UPS Units and Floor PDUs

If Cooling units, UPS units, and floor PDUs exist on your floor map drawing file, they are added to dcTrack when you upload and sync the file with a site/location.

Infrastructure items can be added in bulk as individual items. However, since each item is part of a power chain, they are typically created at the same time.

The items are created and configured in the Web Client Specifically:

- Each Cooling unit must be added to a Cooling Zone.
- Each UPS unit must be added to a UPS bank
- Either a busway or power panel must be configured for each floor PDU
- Create the power outlet connections

Note: Power outlet circuiting can be imported rather than manually created. See Import Power Outlet Circuiting.

This topic walks your through each step to create your infrastructure power chain. You can find each step in individual topics as well.

Add Cooling Units and Add them to Cooling Zone

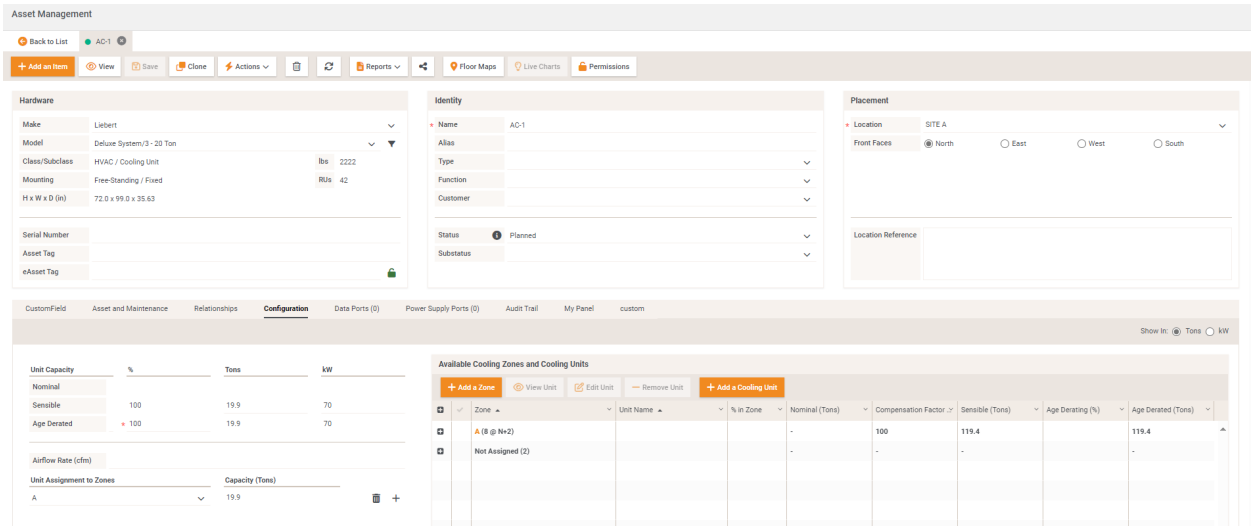
Steps to Add Cooling Units:

1. Click Assets > New Item or click on the New Item icon on the Items List under Assets.
2. Select the Cooling unit make and model.
3. Assign a name to the Cooling unit.
4. Select a location for the Cooling unit, if different from the one already selected in the Location drop-down.
5. Enter following fields for Cooling Unit specifications.
   - Sensible Capacity (Tons)
   - Sensible Capacity (kW)
   - Age Derated (Required)
   - Airflow Rate (cfm)

   You can enter the value for Capacity (Tons) or Sensible Capacity (kw), dcTrack calculates the value for other using this formula Sensible Capacity (Tons) * 12,000 * 0.0002930711 = Sensible Capacity (kW).

Age Derated field can be used to further reduce the Cooling Unit Capacity to the Cooling Unit's age. Age Derated value should be between 0.1 and 100.

Note : If the model selected have these values then items will inherit the model's value. Nominal Capacity values are the Nameplate value for the model.



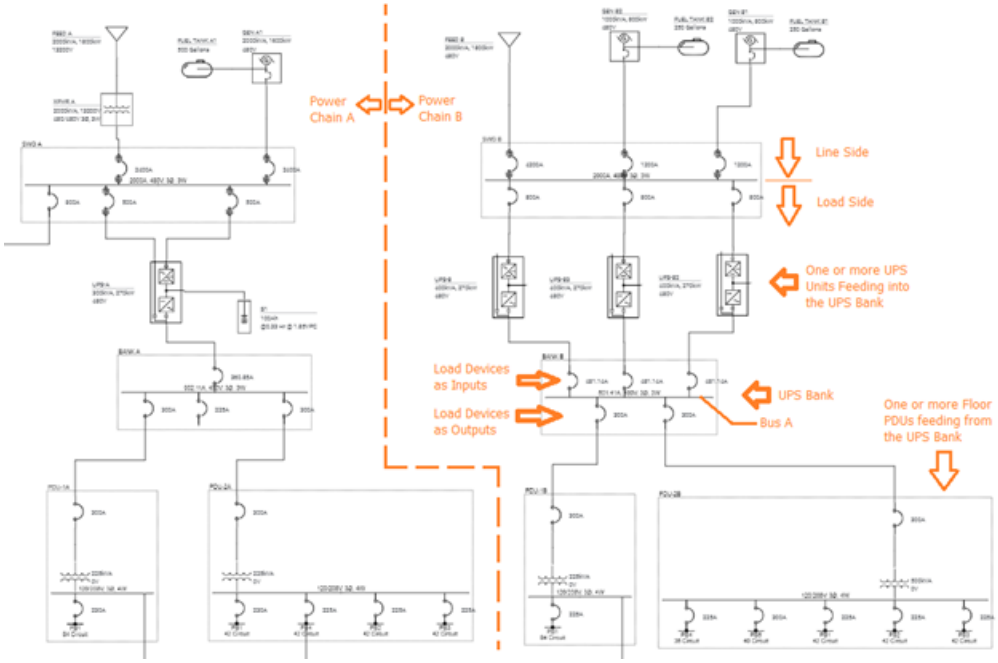
6. Next, go to configuration sub tab and add the Cooling unit to a Cooling Zone.
7. You must add the Cooling unit to a Cooling Zone before you can mark the unit as Installed.

8. To assign a Cooling unit to a Cooling Zone, select a Cooling Zone from the Unit Assignment to Zones and click Save.
9. If the Cooling Zone does not exist, create one and assign the Cooling unit to it. Cooling Zones are created in the Available Cooling Zones section of the page.
10. Click Add a Zone.
11. Enter Cooling Zone name.
12. Click Save in the toolbar.

You can also assign multiple Cooling Zones to a Cooling Unit. See here Cooling Zone.htm

To create the UPS, UPS Bank and Floor PDU power chain, follow the below steps:

1. Create UPS Units
2. Create a UPS Bank
3. Create UPS Bank Load Devices
4. Connect UPS Bank Load Devices to UPS Units
5. Create Floor PDUs
6. Connect Floor PDUs to UPS Bank Load Devices



Note: The configuration settings for the UPS and Power Panel can also be set via File Import

Add UPS Units

One or more UPS Units can be aggregated using the UPS Bank which in turn feeds one or more Floor PDUs. Each power chain in your data center may have one or more UPS Units.

1. In the Assets tab > Item List, click the Add an Item button. A new Item page will open in a new dcTrack tab.
2. In the New Item page, select the UPS Unit's make and model.
3. Assign a name to the UPS Unit.
4. Select a location for the UPS Unit, if different from the one already selected in the Location dropdown.
5. In the Configuration sub-tab enter the following information:
    a. Rating (kVA)
    b. Rating (kW)
    c. Rating (Vac)
    d. Output Wiring
6. Save the UPS item.
7. Repeat for any additional UPS Unit items.

Add UPS Banks

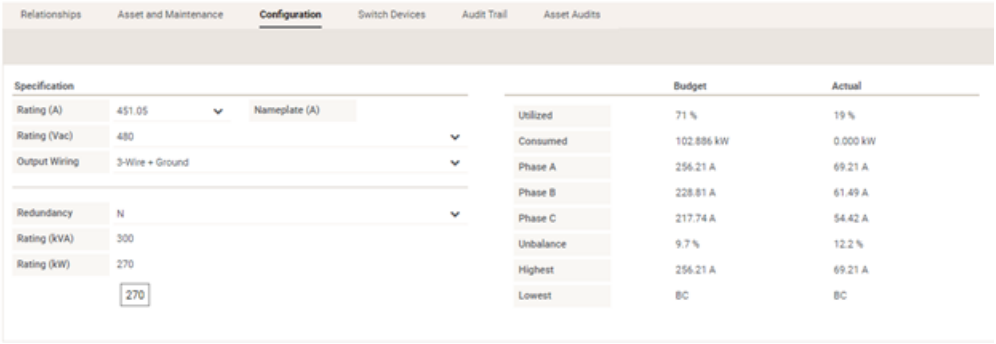
You will need a UPS Bank for each power chain in your data center. Typically, data centers have 2 redundant power chains. A UPS Bank is technically a Switchgear which in dcTrack is represented using the Class/Subclass AC Distribution/Switch. Therefore, an AC Distribution/UPS Bank and AC Distribution/Switch electrically and functionally are the same, but in dcTrack the UPS Bank is a special case of a switch since it is the switchgear that feeds from the UPS Units and distributes out to the Floor PDUs.

1. In the Assets tab > Item List, click the Add an Item button. A new Item page will open in a new dcTrack tab.
2. In the New Item page, select the UPS Bank's make and model. You may use the Generic UPS Bank model.
3. Assign a name to the UPS Bank.
4. Select a location for the UPS Bank, if different from the one already selected in the Location dropdown.

5. In the Configuration sub-tab enter the following information:
    a. Rating (A)
    b. Rating (Vac) - This should also match the Voltage of the UPS Units.
    c. Output Wiring

    Note: The above 3 values are the specification of the Busbar that is inside the UPS Bank switchgear.

    d. Redundancy – this depends on the number of UPS Units that you will connected to the bank in Step 13 below. You will want to update this value after connecting all the UPS units to this bank.
    e. Rating (kVA) and Rating (kW) are read-only. They are automatically calculated based on the number of UPS Units that you will connect to the Bank in step 8 below and the Redundancy setting.



6. Save the UPS Bank item.
7. Repeat for any additional UPS Bank items.
8. In the Switch Devices sub-tab of the UPS Bank, click the Create Switch Devices button and choose Load Device. You will repeat this step for as many UPS Units and Floor PDUs there are connecting from and to this UPS Bank. A load device is the large breakers that are installed in the UPS Bank.
    a. Select the Make and Model for the Load Device.
    b. Give the Load Device a name. This name must be unique within the UPS Bank item only.
    c. Give the Load Device an optional number for easier reference within this UPS Bank.
    d. The Connector Type is inherited from the Model of the Load Device. If this remains blank, it is because the Load Device Model does not have the Connector Type set. You may want to create multiple Load Device models for each Connector Type you want to use. Each Connector Type displays it own symbol in the Single Line Diagram.
    e. Rating (Vac) is read-only and is inherited from the UPS Bank itself, which was selected in the Configuration sub-tab.
    f. Phase is read-only and is inherited from the UPS Bank itself. (It will show Three Phase Delta if the Bank's Output Wiring is 3-Wire + Ground, or Three Phase Wye if the Bank's Output Wiring is 4-Wire + Ground.
    g. Rating (A) must be equal to or less than the Rating (A) of the UPS Bank.

h. Derate 80%. Uncheck this box if the Load Device breaker is 100% rated.

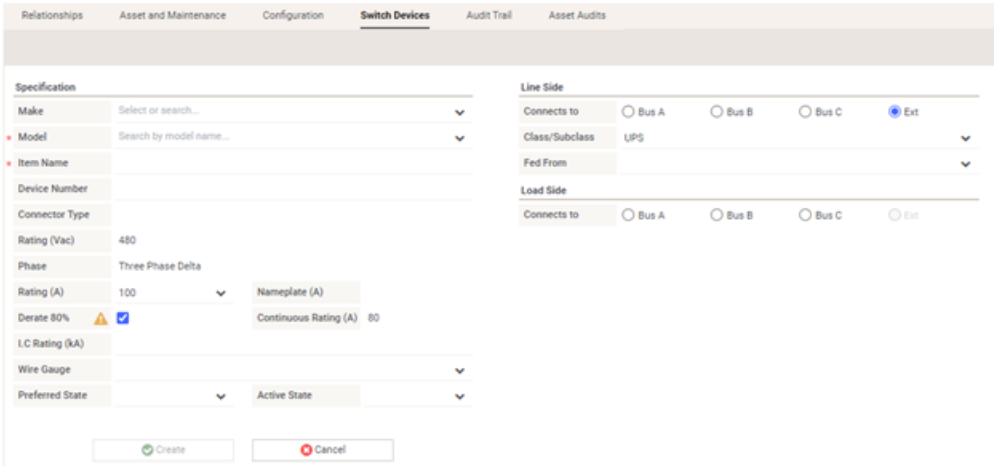
i. The remaining fields are optional.

j. When the Rating (A) was filled in, you will notice a form appears to the right. This specifies how this Load Device connects internally within the UPS Bank switchgear.

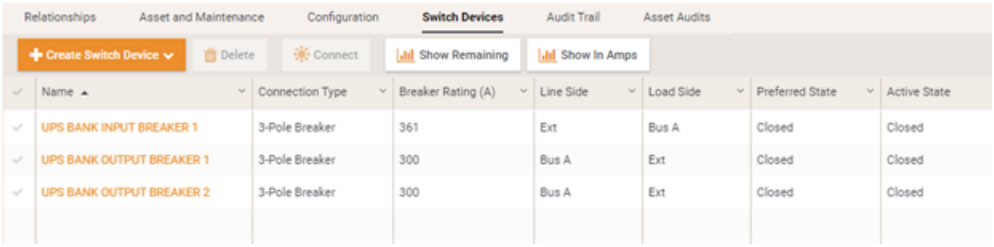
1. For a Load Device that feeds from the UPS Units select the following:
    1. Line Side:
        a. Connects to: Ext
        b. Fed From: Select the UPS Unit's Output.
    2. Load Side:
        a. Connects to: Bus A.
2. For a Load Device that feeds to the Floor PDUs, select the following:
    1. Line Side:
        a. Connects to: Bus A
    2. Load Side:
        1. Connects to: Ext.

Note: Bus B and Bus C are optional and would only be used when the Switchgear has more then one bus. When multiple buses exist, a Load Device would connect them together. These 3 bus notations should not be confused with the 3 poles of a Three Phase circuit.

k. Click Create



l. Create all other Load Devices and select the appropriate selections at step j based on what this load device will connect to.

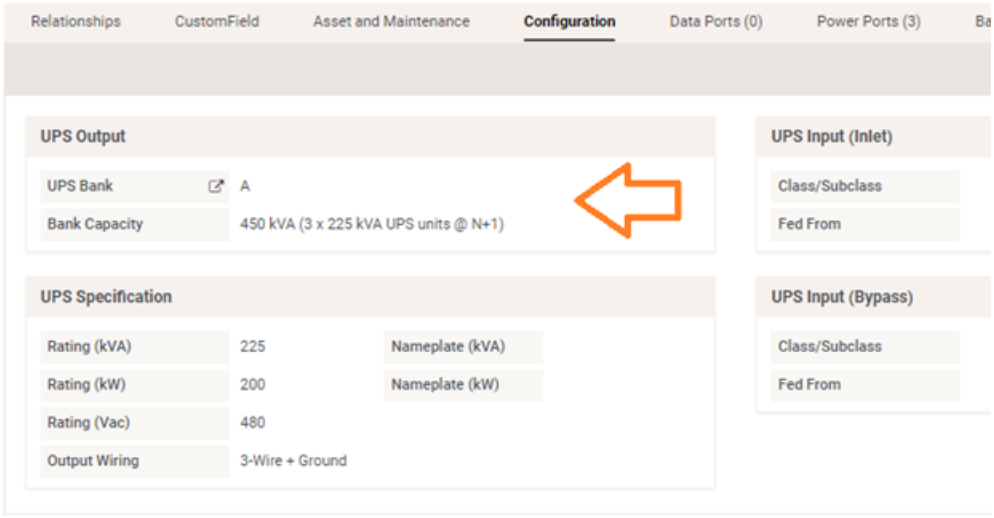


m. Save the UPS Bank Item.

n. At this point, you should have a UPS Bank connected to the UPS Unit(s). If you go back to the UPS item (s) (Refresh it, if it was already open)

and in the Configuration sub-tab, the UPS Output section should display the Bank name that this UPS Unit is part of and the total capacity of the

UPS Bank. If this total is higher than expected, you may need to adjust the Bank's Redundancy field.



Add Floor PDU

1. In the Assets tab > Item List, click the Add an Item button. A new Item page will open in a new dcTrack tab.
2. In the New Item page, select the floor PDU's make and model.
3. Assign a name to the floor PDU.
4. Select a location for the floor PDU, if different from the one already selected in the Location dropdown.
5. In the Configuration sub-tab enter the following information:

a. Rating (kVA)

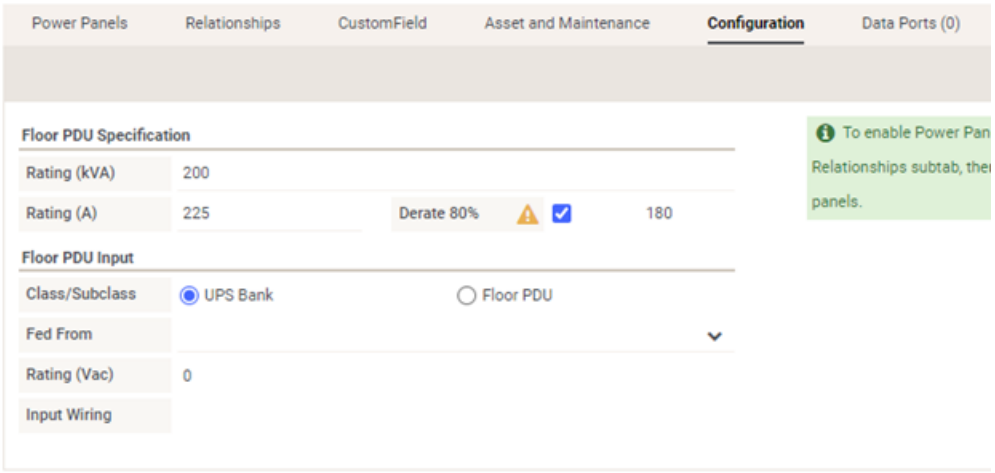
b. Rating (A) – Should be a number that is close to the result of this formula: Rating (kVA) * 1000 / (Rating (Vac) * SQRT(3) * NEC Derating), where the Rating (Vac) is the voltage of the item feeding the Floor PDU and the NEC Derating is 80% for Data Centers in the United States.

c. Class/Subclass: Select UPS Bank option

d. Fed From: Select the UPS Bank Load Device feeding this Floor PDU.

   If you do not have a UPS Bank created, you can also select VPC UPS Bank from the drop-down. AC VPC must be enabled for the location in order to view VPC UPS banks in the drop-down. See Enable or Disable VPC for a Location.

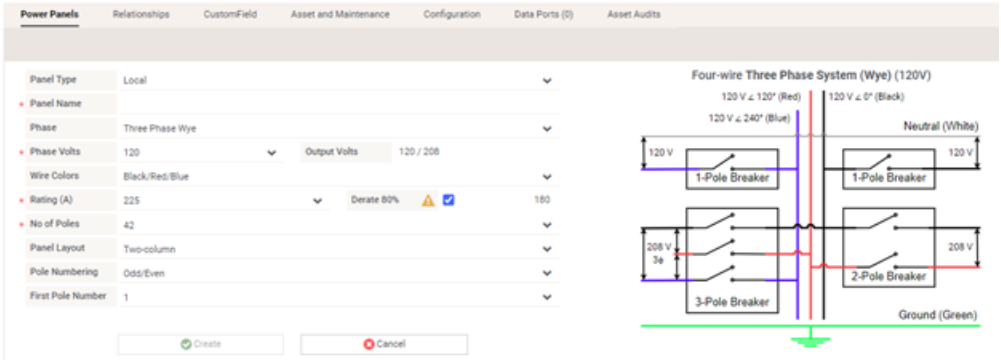
e. The Rating (Vac) and Input Wiring will be automatically filled in based on the Fed From selection.



f. Save the Floor PDU item.

g. Repeat these steps for each additional Floor PDU.

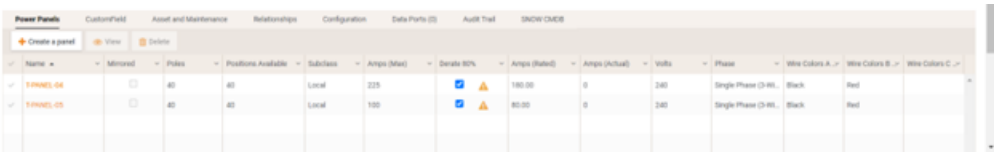
h. In the Power Panels sub-tab of each Floor PDU, create one or more power panels that are either internal to the Floor PDU (Local), remotely placed panels or RPPs (Remote), or busway systems feeding from the Floor PDU (Busway). Click Create a panel and fill in all the required fields to create each panel accordingly to the panel specifications. Note that the panel name needs to be unique only within the Floor PDU.



i. Click Create button

j. Repeat for each additional panel for this Floor PDU.

k. From the list of power panels in this sub-tab, you can click each panel name to open that panel and begin adding breakers within the panel which would also include creating the Power Outlet items that are fed from each of the breakers.



Add the Circuit Breakers via File Import

1. Back on the Power Panels sub-tab, click on the desired power panel to view its Item Details page.
2. In the Power - [x] Poles, [y] Breakers sub-tab, click the Bulk Edit button to edit the breakers. Alternatively, in the Assets tab > Items List, click the Export button and select either of the following options:
    a. Download Import Template to download the import template as a CSV file.
    b. Export into an Import Template > Branch Circuit Breakers to download an import template populated with the panel and busway breakers as a CSV file.
3. Open your CSV file.
4. Follow the instructions in the CSV file to add breakers.
5. In the Assets tab > File Import page, import the edited CSV file to create the breakers. This will also create the outlets and connect the breakers to those outlets.

Power Outlet Circuiting Prerequisites

At this point, if you are planning on using File Import to create power outlet circuiting, note the following pre-requisites.

- Each floor PDU and its busways must be created in dcTrack before you can import power outlet circuiting.
- Each floor PDU's power panel and the power panel's poles and breakers must be created in dcTrack before you can import power outlet circuiting.

Important: At this point, if you are planning on using File Import to create power outlet circuiting, note the following prerequisites -

- Busway Power Outlet Prerequisites
  - Each Floor PDU and its busways must be created in dcTrack before you can import power outlet circuiting.
  - The power outlets that were created cannot contain any ports, poles or breakers in dcTrack.
- Power Panel Outlet Prerequisites
  - Each floor PDU's power panel the power panel's poles and breakers must be created in dcTrack before you can import power outlet circuiting.
  - The power outlets that were created cannot contain any ports in dcTrack.

You can now do one of the following based on your needs:

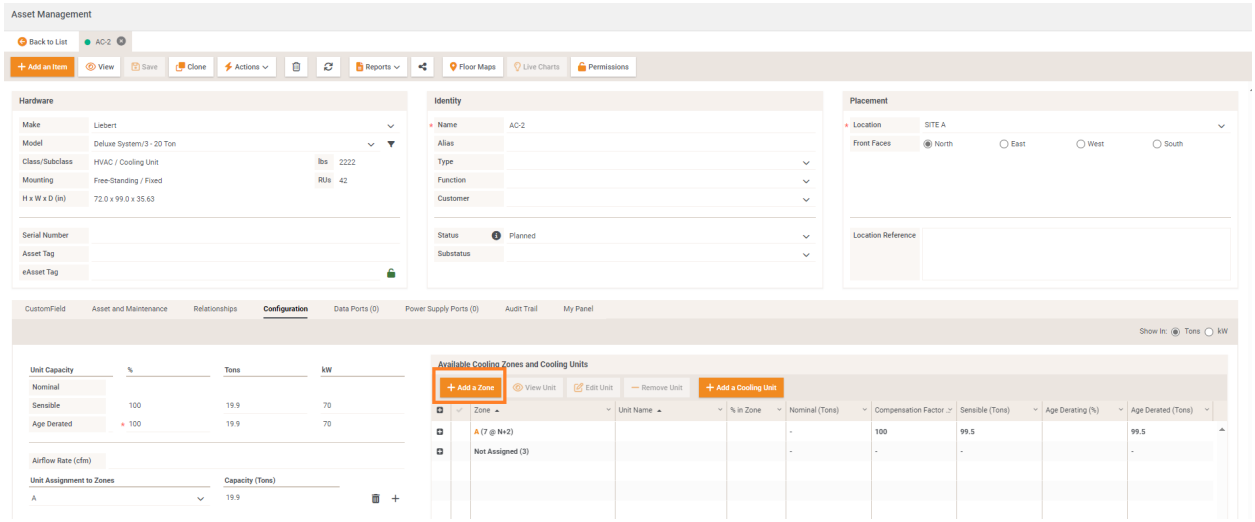
- **Manually Configure a Floor PDU for Power Outlet Circuiting Imports**
- **Manually Configure a UPS Unit and Floor PDUs with Busways**

Cooling Zone

The Cooling Zone items previously called CRAC groups will have its own item details page. Cooling Zone items are now also listed in the Asset List.

Steps to create Cooling Zone:

1. In a Cooling Unit Item details page go to Configuration subtab.
2. Click Add a Zone in Available Cooling Zone.



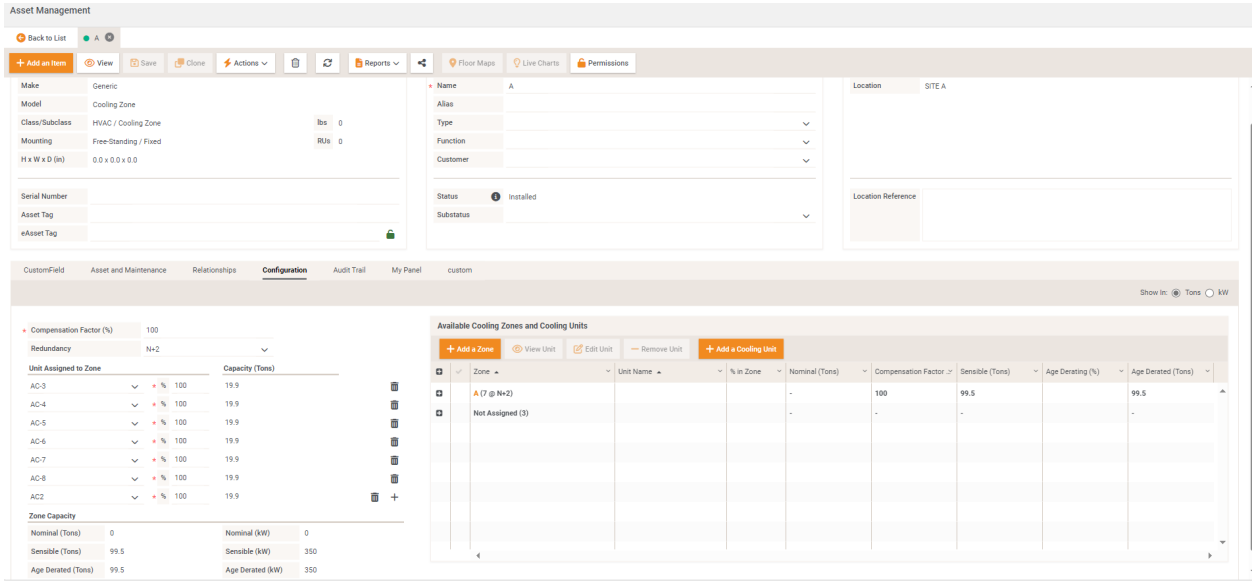
3. Enter Zone Name
4. Click Create.

You can also create Cooling Zone by following the same steps as mentioned above in Cooling Zone item details.

Location of a Cooling Zone is the Data Center location of the Cooling Units assigned to it.

Note: Cooling Zone can have Cooling Units assigned with different capacities. Cooling Units that are in a floor or room level can be assigned to any Cooling Zone in that Data Center Location.

To View or Edit Cooling Zone items in item details page click View or Edit button in Available Cooling Zone. You can also open Cooling Zone item details page from the Item List.



Configuration Sub tab of the Cooling Zone have following fields which are editable.

1. Compensation Factor - Accepts numeric values 1-200. Default is 100. This field is used to increase or reduce the overall calculated capacity of a Cooling Zone. For example, if the Compensation Factor is set 90 then Sensible Capacity (Tons) and Sensible Capacity (kW) will be 90% of the calculated value for the Cooling Zone.
2. Redundancy - This field is used to set the Redundancy for the Cooling Zone. The drop down options will depend on the number of Cooling Units assigned to the Cooling Zone.

Following fields are read-only and display Cooling Zone Capacity.

1. Nominal (Tons) - Sum of Nominal (Tons) for all units in the Cooling Zone minus spare Cooling Units.
2. Nominal (kW) - Sum of Nominal (kW) for all units in the Cooling Zone minus spare Cooling Units.

   Spare Units in the Cooling Zone are the largest X Cooling units in the Zone, where X is the number after + in the Redundancy value.
3. Sensible (Tons) - Sum of [Sensible (Tons) of each Cooling Unit in the Cooling Zone * Cooling Unit's Percent in Cooling Zone] * Compensation Factor (%) of Cooling Zone.
4. Sensible (kW) - Sum of [Sensible (kW) of each Cooling Unit in the Cooling Zone * Cooling Unit's Percent in Cooling Zone] * Compensation Factor (%) of Cooling Zone.
5. Age Derated (Tons) - Sum of [Sensible (Tons) of each Cooling Unit in the Cooling Zone * Cooling Unit's Percent in Cooling Zone * Age Derating (%)] * Compensation Factor (%) of Cooling Zone.
6. Age Derate (kW) - Sum of [Sensible (kW) of each Cooling Unit in the Cooling Zone * Cooling Unit's Percent in Cooling Zone * Age Derating (%)] * Compensation Factor (%) of Cooling Zone.

You can edit Cooling Zone standard and custom fields. However you can not edit Make, Model and Location field of a Cooling Zone.

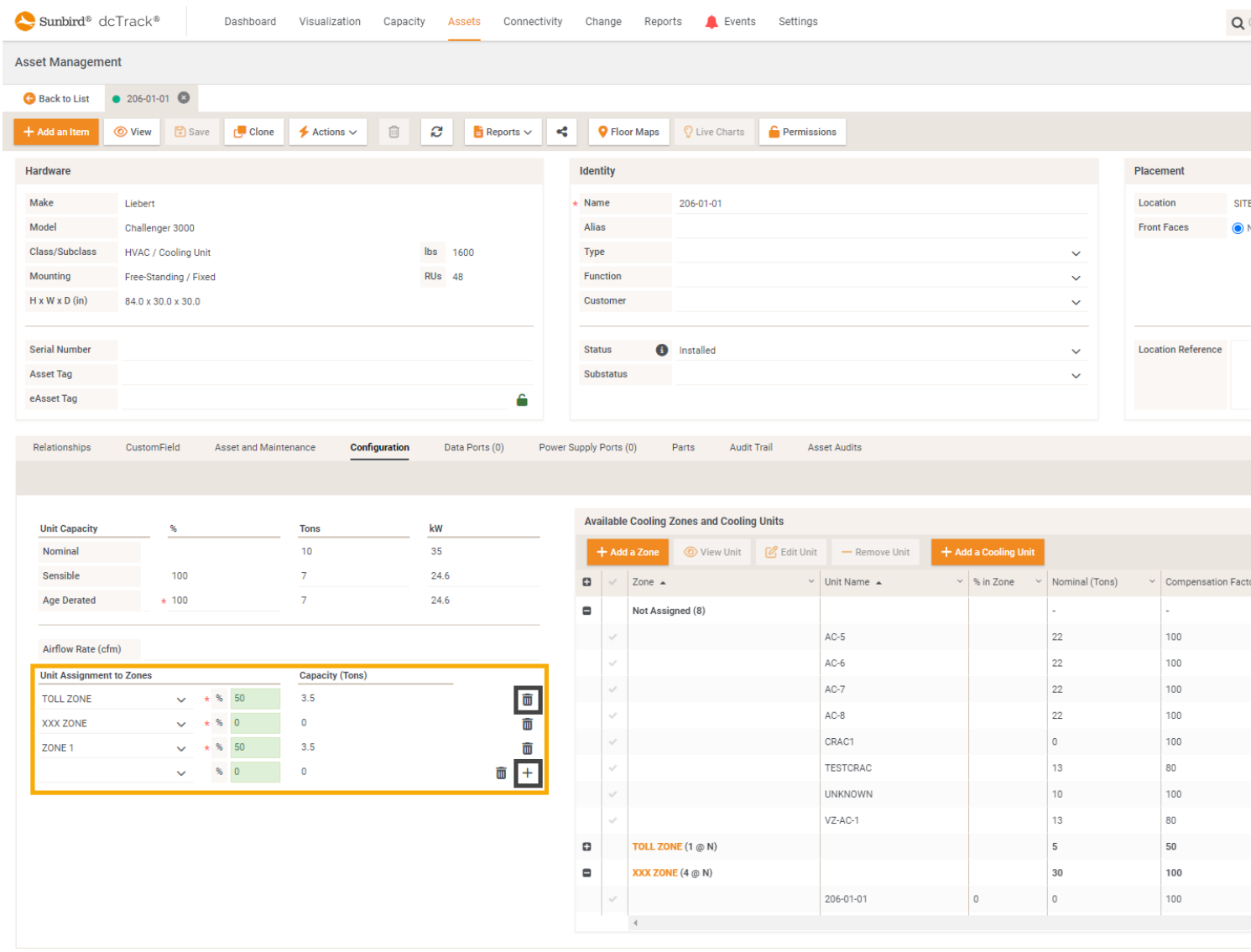
Once you have created the Cooling Zone, you can assign Cooling Units to this Cooling Zone. To assign a Cooling Unit to a Cooling Zone, select the Cooling Unit in the Unit Assignment to Zone and save the item.

Assign One Cooling Unit to Multiple Cooling Zones

To assign one cooling unit to multiple cooling zones in the GUI:

1. On the cooling unit's item detail's page, click Edit to enter edit mode.
2. In the Configuration subtab, in the Unit Assigned to Zones list, click the plus icon to add a zone.
3. Click the trashcan icon to remove a zone.
4. The zone percentages must add up to less than 100%. If greater, the Save button is disabled.
5. All percentage fields are highlighted in green when they add up to 100%.
6. If you add a new cooling zone row , but do not select the cooling zone, you can save the item, but if you close and return to the item, the added and unassigned cooling zone row will not be retained, because it was never assigned to a zone.
7. You can add up to 6 zone assignments for one cooling unit.

   Audit Trail will have a record of Cooling Zone assignment and the percent in zone for each Cooling Zone.



To assign one cooling unit to multiple cooling zones via CSV import:

If you uses the ADD operation with the COOLING UNIT object and included the Cooling Zone column with a value, this will assign the new unit to the specified zone at 100%.

The ASSIGN operation can also be used with the COOLING UNIT object, but requires the following columns:

- Name
- Location

- Cooling Zone
- Percent in Zone

The assignment percentage is set to the value specified in Percent in Zone. If this assignment brings the total for this Cooling unit over 100. An import error is returned for this row: "Assignment causes Percent In Zone for this unit to exceed 100% for all assigned zones"

Delete Cooling Zone

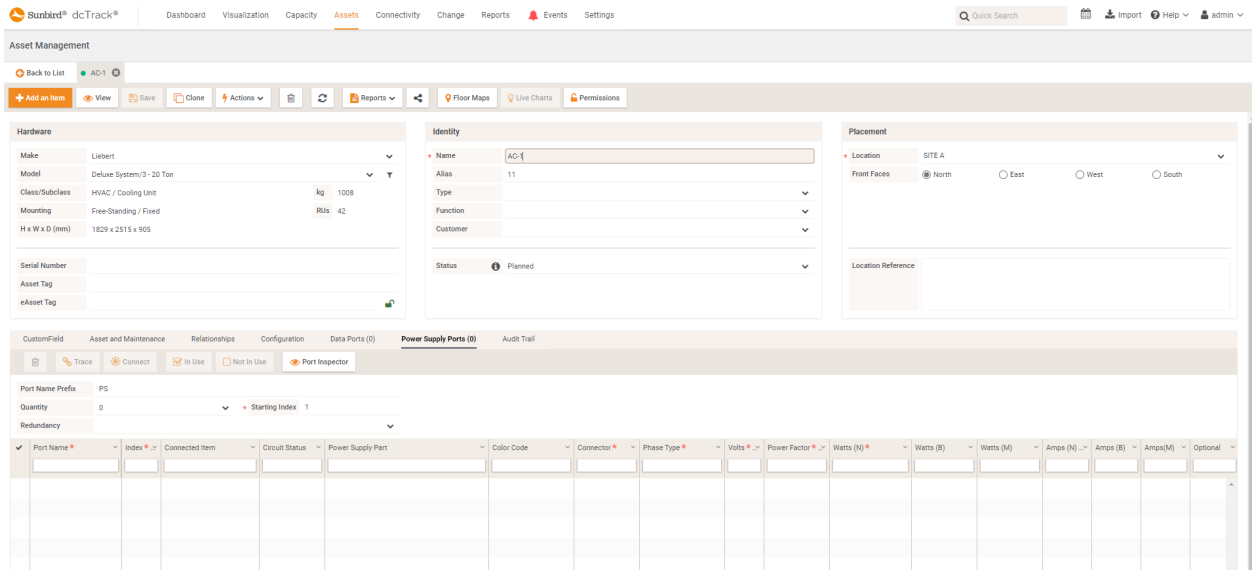
1. Select the Cooling Zone item from Asset list and click the Delete icon. You can also delete the Cooling Zone from its item details page.
2. Before deleting a Cooling Zone, make sure all the Cooling Units are unassigned from the Cooling Zone.

Power Supply Ports on Cooling Units

dcTrack version 7.1.0 introduced support for Power Supplies on Cooling Units. Both the Models Library and Item Details page contain a Power Supply sub tab for setting and updating Power Supply Ports.

Steps to manage Power Supply Ports for Cooling Unit Models or Items:

1. Navigate to the Detail Page of either the Model or Item
2. Click on the Power Supply Subtab
3. The Port Name Prefix is defaulted to "PS" but can be changed
4. Enter the Quantity of Ports you want to create. (You may create up to 98 Ports)



5. Upon entering the Quantity, the requested number of Ports are created in the grid
6. Enter the Redundancy

7. Supply the required Connector, Phase Type, Volts, Power Factor, Watts(N), and Watts(B)
8. Supply any additional optional field data
9. Click the Save button to save the data

After creating the Power Supply Ports, the Cooling Unit can be connected to either a Rack PDU or Power Outlet.

Manually Configure a Floor PDU for Power Outlet Circuiting Imports

Create the items in the power chain that the busway or power panel will connect to.

*Note: When creating certain items, there is information that must be entered in order to connect one item to another item in the power chain. However, these fields may not be indicated as *required in the dcTrack interface. This is because they are 'technically' not required to create the item in the dcTrack database. For example, in order to complete the busway, you must enter the floor PDU's specification information even though those are not required fields to create the floor PDU.*

If a field is required to complete the busway creation process, it is identified in the steps that follow as "Required".

Create your power chain and busway:

1. Click Assets.
2. Click the New Item icon.
3. Select the Make and Model of the UPS unit.
4. Enter a name for the UPS unit.
5. Select the Location of the UPS unit (if different from the default).
6. Enter the UPS unit's specification information.
7. Select/Add the UPS bank on the Configuration sub tab based on the specifications
8. Enter additional information if needed, then click Save. The item's tab turns green.
9. In the Web Client, click the New Item icon.
10. Select the Make and Model for the floor PDU.
11. Enter a name for the floor PDU.
12. Verify the floor PDU location.
13. Enter the floor PDU specifications. Required
14. Enter the floor PDU input information. Required
15. Important: At this point, if you are planning on using the File Import to create power outlet circuiting, review the prerequisites for adding a busway or power panel.
16. Each floor PDU's power panel the power panel's poles and breakers are created in dcTrack.
17. The power outlets are created and do not contain any ports in dcTrack

18. Busway Power Outlets -
19. Each Floor PDU and its busways are created in dcTrack
20. The power outlets are created and do not contain any ports, poles or breakers in dcTrack.

Manually Configure a UPS Unit and Floor PDUs with Busways

Note: These steps DO NOT involve configuring floor PDUs for use with imported power outlet circuiting function. See **Manually Configure a Floor PDU for Power Outlet Circuiting Imports**.

Prior to adding and configuring a busway or power panel, create the items in the power chain it connects to.

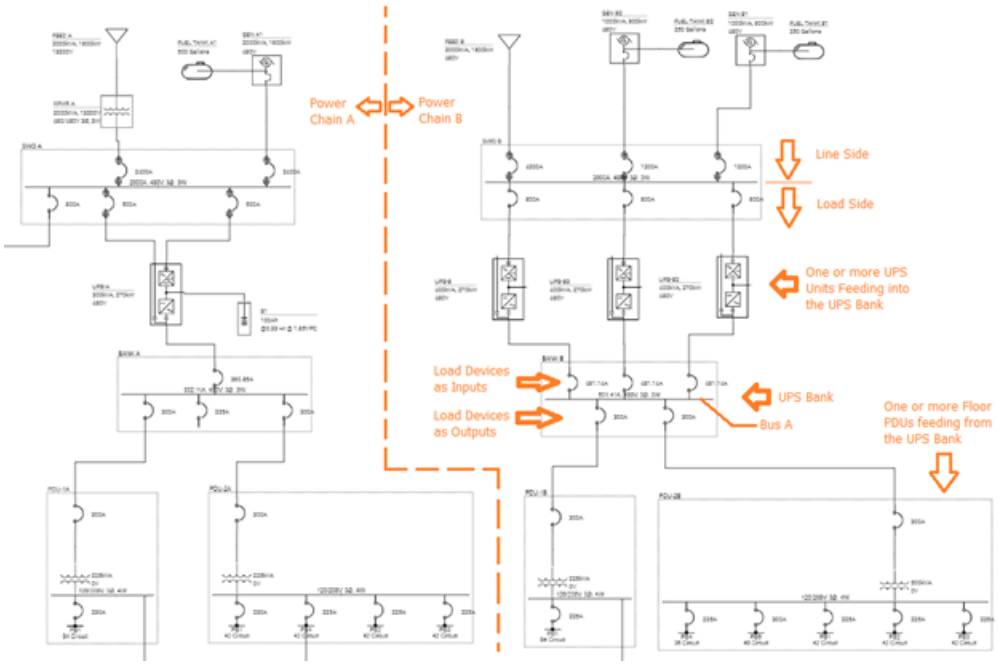
*Note: When creating certain items, there is information that must be entered in order to connect the item to another item in the power chain. However, these fields may not be indicated as *required in the dcTrack interface. This is because they are 'technically' not required to create the item in the dcTrack database. For example, in order to complete the busway, you must enter the floor PDU's specification information even though those are not required fields to create the floor PDU.*

If a field is required to complete the busway creation process, it is identified in the steps that follow as "Required".

Add a Floor PDU, Select a UPS Bank, and Create a Power Panel

To create the UPS, UPS Bank and Floor PDU power chain, follow the below steps:

1. Create UPS Units
2. Create a UPS Bank
3. Create UPS Bank Load Devices
4. Connect UPS Bank Load Devices to UPS Units
5. Create Floor PDUs
6. Connect Floor PDUs to UPS Bank Load Devices



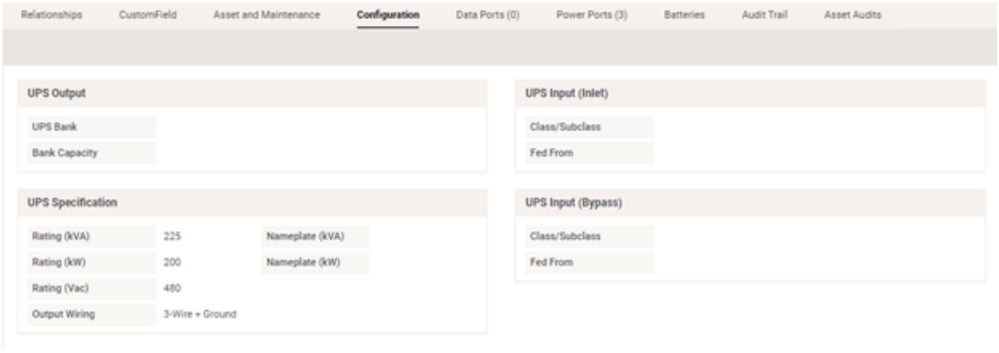
Note: The configuration settings for the UPS and Power Panel can also be set via File Import

Add UPS Units

One or more UPS Units can be aggregated using the UPS Bank which in turn feeds one or more Floor PDUs. Each power chain in your data center may have one or more UPS Units.

1. In the Assets tab > Item List, click the Add an Item button. A new Item page will open in a new dcTrack tab.
2. In the New Item page, select the UPS Unit's make and model.
3. Assign a name to the UPS Unit.
4. Select a location for the UPS Unit, if different from the one already selected in the Location dropdown.
5. In the Configuration sub-tab enter the following information:
    a. Rating (kVA)
    b. Rating (kW)
    c. Rating (Vac)
    d. Output Wiring
6. Save the UPS item.

7. Repeat for any additional UPS Unit items.



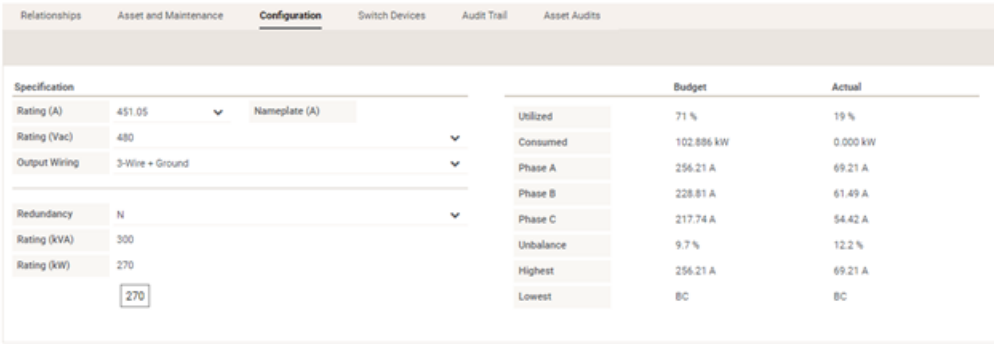
Add UPS Banks

You will need a UPS Bank for each power chain in your data center. Typically, data centers have 2 redundant power chains. A UPS Bank is technically a Switchgear which in dcTrack is represented using the Class/Subclass AC Distribution/Switch. Therefore, an AC Distribution/UPS Bank and AC Distribution/Switch electrically and functionally are the same, but in dcTrack the UPS Bank is a special case of a switch since it is the switchgear that feeds from the UPS Units and distributes out to the Floor PDUs.

1. In the Assets tab > Item List, click the Add an Item button. A new Item page will open in a new dcTrack tab.
2. In the New Item page, select the UPS Bank's make and model. You may use the Generic UPS Bank model.
3. Assign a name to the UPS Bank.
4. Select a location for the UPS Bank, if different from the one already selected in the Location dropdown.
5. In the Configuration sub-tab enter the following information:
    a. Rating (A)
    b. Rating (Vac) - This should also match the Voltage of the UPS Units.
    c. Output Wiring

    Note: The above 3 values are the specification of the Busbar that is inside the UPS Bank switchgear.

    d. Redundancy – this depends on the number of UPS Units that you will connected to the bank in Step 13 below. You will want to update this value after connecting all the UPS units to this bank.
    e. Rating (kVA) and Rating (kW) are read-only. They are automatically calculated based on the number of UPS Units that you will connect to the Bank in step 8 below and the Redundancy setting.

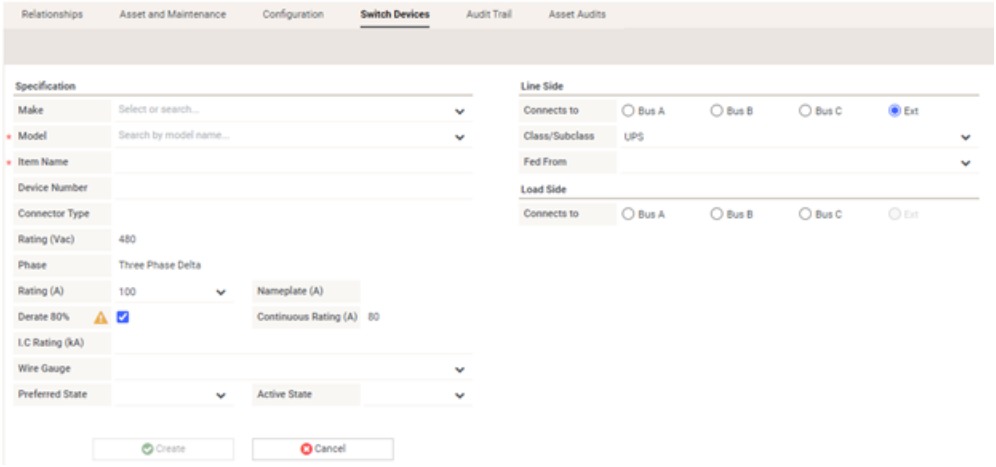


6. Save the UPS Bank item.
7. Repeat for any additional UPS Bank items.
8. In the Switch Devices sub-tab of the UPS Bank, click the Create Switch Devices button and choose Load Device. You will repeat this step for as many UPS Units and Floor PDUs there are connecting from and to this UPS Bank. A load device is the large breakers that are installed in the UPS Bank.
    a. Select the Make and Model for the Load Device.
    b. Give the Load Device a name. This name must be unique within the UPS Bank item only.
    c. Give the Load Device an optional number for easier reference within this UPS Bank.
    d. The Connector Type is inherited from the Model of the Load Device. If this remains blank, it is because the Load Device Model does not have the Connector Type set. You may want to create multiple Load Device models for each Connector Type you want to use. Each Connector Type displays it own symbol in the Single Line Diagram.
    e. Rating (Vac) is read-only and is inherited from the UPS Bank itself, which was selected in the Configuration sub-tab.
    f. Phase is read-only and is inherited from the UPS Bank itself. (It will show Three Phase Delta if the Bank's Output Wiring is 3-Wire + Ground, or Three Phase Wye if the Bank's Output Wiring is 4-Wire + Ground.
    g. Rating (A) must be equal to or less than the Rating (A) of the UPS Bank.
    h. Derate 80%. Uncheck this box if the Load Device breaker is 100% rated.
    i. The remaining fields are optional.
    j. When the Rating (A) was filled in, you will notice a form appears to the right. This specifies how this Load Device connects internally within the UPS Bank switchgear.
        1. For a Load Device that feeds from the UPS Units select the following:
            1. Line Side:
                a. Connects to: Ext
                b. Fed From: Select the UPS Unit's Output.

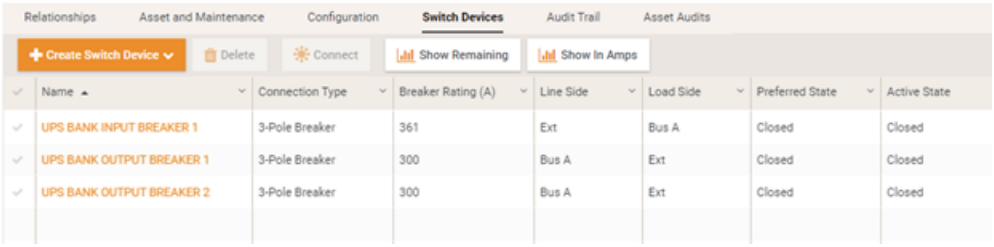
2. Load Side:
    a. Connects to: Bus A.
2. For a Load Device that feeds to the Floor PDUs, select the following:
    1. Line Side:
        a. Connects to: Bus A
    2. Load Side:
        1. Connects to: Ext.

Note: Bus B and Bus C are optional and would only be used when the Switchgear has more then one bus. When multiple buses exist, a Load Device would connect them together. These 3 bus notations should not be confused with the 3 poles of a Three Phase circuit.

k. Click Create



l. Create all other Load Devices and select the appropriate selections at step j based on what this load device will connect to.

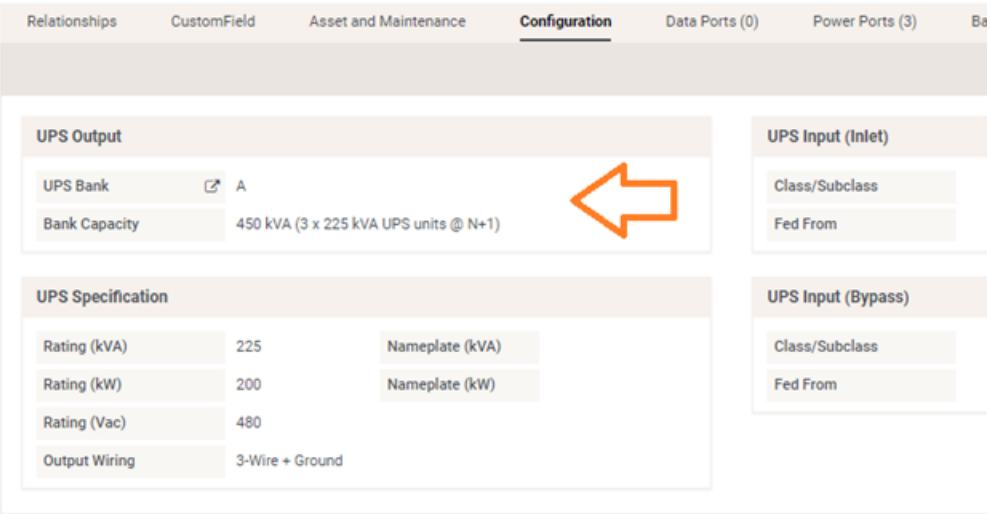


m. Save the UPS Bank Item.

n. At this point, you should have a UPS Bank connected to the UPS Unit(s). If you go back to the UPS item (s) (Refresh it, if it was already open)

and in the Configuration sub-tab, the UPS Output section should display the Bank name that this UPS Unit is part of and the total capacity of the

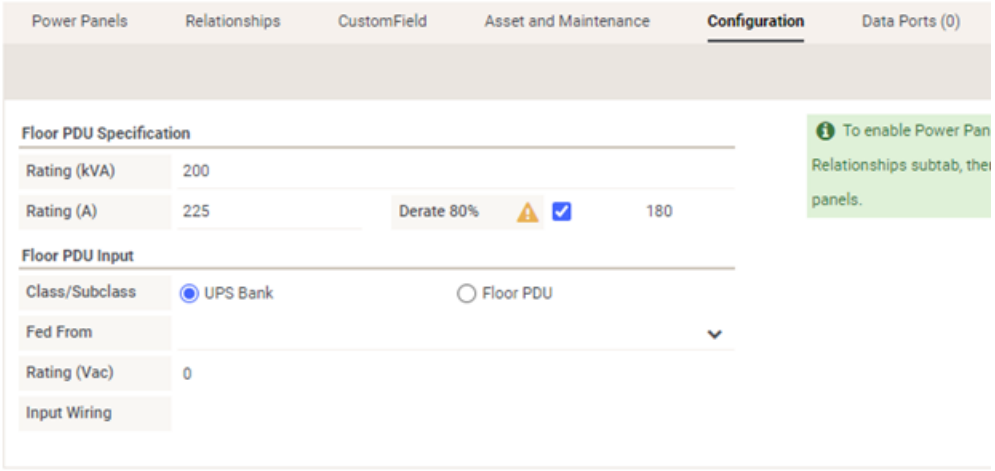
UPS Bank. If this total is higher than expected, you may need to adjust the Bank's Redundancy field.



Add Floor PDU

1. In the Assets tab > Item List, click the Add an Item button. A new Item page will open in a new dcTrack tab.
2. In the New Item page, select the floor PDU's make and model.
3. Assign a name to the floor PDU.
4. Select a location for the floor PDU, if different from the one already selected in the Location dropdown.
5. In the Configuration sub-tab enter the following information:
    a. Rating (kVA)
    b. Rating (A) – Should be a number that is close to the result of this formula: Rating (kVA) * 1000 / (Rating (Vac) * SQRT(3) * NEC Derating), where the Rating (Vac) is the voltage of the item feeding the Floor PDU and the NEC Derating is 80% for Data Centers in the United States.
    c. Class/Subclass: Select UPS Bank option
    d. Fed From: Select the UPS Bank Load Device feeding this Floor PDU.

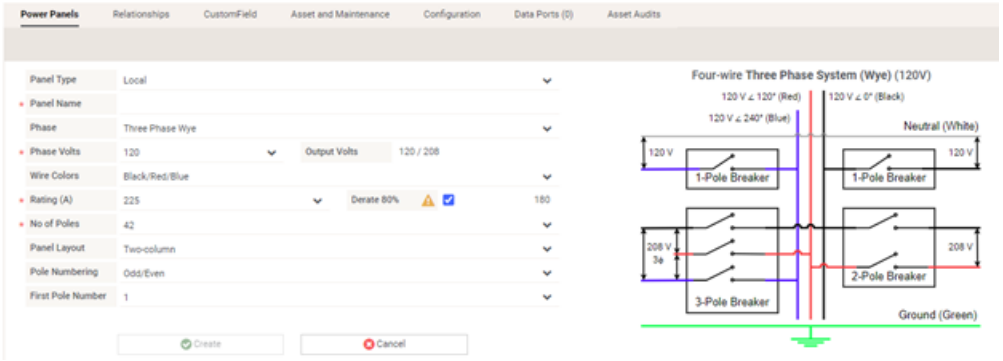
    If you do not have a UPS Bank created, you can also select VPC UPS Bank from the drop-down. AC VPC must be enabled for the location in order to view VPC UPS banks in the drop-down. See Enable or Disable VPC for a Location.
    e. The Rating (Vac) and Input Wiring will be automatically filled in based on the Fed From selection.



f. Save the Floor PDU item.

g. Repeat these steps for each additional Floor PDU.

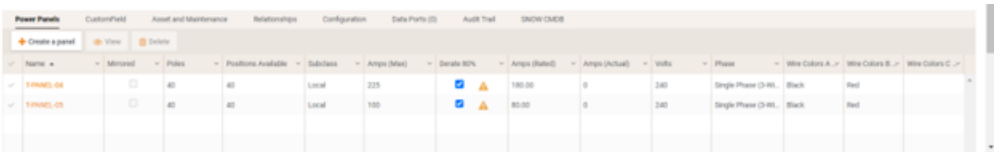
h. In the Power Panels sub-tab of each Floor PDU, create one or more power panels that are either internal to the Floor PDU (Local), remotely placed panels or RPPs (Remote), or busway systems feeding from the Floor PDU (Busway). Click Create a panel and fill in all the required fields to create each panel accordingly to the panel specifications. Note that the panel name needs to be unique only within the Floor PDU.



i. Click Create button

j. Repeat for each additional panel for this Floor PDU.

k. From the list of power panels in this sub-tab, you can click each panel name to open that panel and begin adding breakers within the panel which would also include creating the Power Outlet items that are fed from each of the breakers.



Add the Circuit Breakers via File Import

1. Back on the Power Panels sub-tab, click on the desired power panel to view its Item Details page.
2. In the Power – [x] Poles, [y] Breakers sub-tab, click the Bulk Edit button to edit the breakers. Alternatively, in the Assets tab > Items List, click the Export button and select either of the following options:
    a. Download Import Template to download the import template as a CSV file.
    b. Export into an Import Template > Branch Circuit Breakers to download an import template populated with the panel and busway breakers as a CSV file.
3. Open your CSV file.
4. Follow the instructions in the CSV file to add breakers.
5. In the Assets tab > File Import page, import the edited CSV file to create the breakers. This will also create the outlets and connect the breakers to those outlets.

Power Outlet Circuiting Prerequisites

At this point, if you are planning on using File Import to create power outlet circuiting, note the following pre-requisites.

- Each floor PDU and its busways must be created in dcTrack before you can import power outlet circuiting.
- Each floor PDU's power panel and the power panel's poles and breakers must be created in dcTrack before you can import power outlet circuiting.

Create Your Busway

Creating your busway can be completely entirely in the Web Client. The steps that follow tell you when to do so.

1. In the Web Client, click the New Item icon.
2. Enter the busway Make and Model.
3. Select a Busway subclass model. Required
4. Enter a name for the outlet in the Item Name field.
5. Update the location and any additional information, if needed.
6. Click Save.
7. In the Web Client, click the New Item icon.
8. Enter the power outlet information. Required
9. Select a cabinet and position for the outlet. Required
10. Click Save on the outlet's page.
11. In the Web Client, click Clone on the outlet's item page.
12. Enter the number of cloned outlets for the busway you are creating - do not create ports for another busway.

13. In the Clone dialog, clone only the following:
    a. Child items
    b. Parent-child associations
    c. Power ports
    d. Custom fields (if applicable)
14. Click Clone.

Data Panel Port Connection Rules

When creating a data panel port:

- The data port can connect to another data port on the same data panel.
- The far end of the connection can be in another site
- A data port connection can go directly to an existing network item within the same or a different site.

Use File Import to Create Power and Data Connections

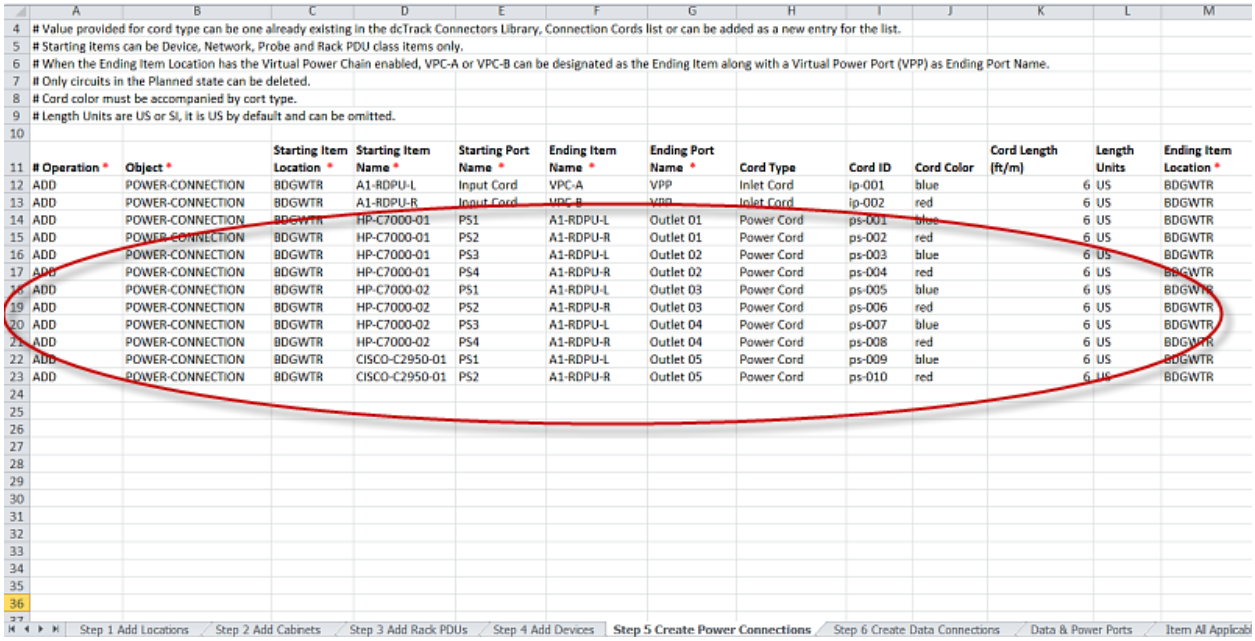
Prerequisites

Before you can import data and power connections into dcTrack, the items used in the connections must exist. So, import your rack PDUs, devices and so on. Add or configure ports on devices if needed. Note that you can manually add your items instead of importing them.

You must also create your power infrastructure in dcTrack. This means adding Cooling units and then adding the Cooling Units to Cooling Zones, adding UPS units and adding UPS units to UPS banks, and creating your floor PDUs, breakers, poles, busways and so on. See **Add and Configure Power Infrastructure Items - Cooling Units, UPS Units and Floor PDUs**.

Power Connections

Use the Create Power Connections worksheet in the Import Template to create power connections and import them into dcTrack.



	A	B	C	D	E	F	G	H	I	J	K	L	M
4	# Value provided for cord type can be one already existing in the dcTrack Connectors Library, Connection Cords list or can be added as a new entry for the list.												
5	# Starting items can be Device, Network, Probe and Rack PDU class items only.												
6	# When the Ending Item Location has the Virtual Power Chain enabled, VPC-A or VPC-B can be designated as the Ending Item along with a Virtual Power Port (VPP) as Ending Port Name.												
7	# Only circuits in the Planned state can be deleted.												
8	# Cord color must be accompanied by cort type.												
9	# Length Units are US or SI, it is US by default and can be omitted.												
10													
11	# Operation *	Object *	Starting Item Location *	Starting Item Name *	Starting Port Name *	Ending Item Name *	Ending Port Name *	Cord Type	Cord ID	Cord Color	Cord Length (ft/m)	Length Units	Ending Item Location *
12	ADD	POWER-CONNECTION	BDGWTR	A1-RDPU-L	Input Cord	VPC-A	VPP	Inlet Cord	ip-001	blue	6	US	BDGWTR
13	ADD	POWER-CONNECTION	BDGWTR	A1-RDPU-R	Input Cord	VPC-B	VPP	Inlet Cord	ip-002	red	6	US	BDGWTR
14	ADD	POWER-CONNECTION	BDGWTR	HP-C7000-01	PS1	A1-RDPU-L	Outlet 01	Power Cord	ps-001	blue	6	US	BDGWTR
15	ADD	POWER-CONNECTION	BDGWTR	HP-C7000-01	PS2	A1-RDPU-R	Outlet 01	Power Cord	ps-002	red	6	US	BDGWTR
16	ADD	POWER-CONNECTION	BDGWTR	HP-C7000-01	PS3	A1-RDPU-L	Outlet 02	Power Cord	ps-003	blue	6	US	BDGWTR
17	ADD	POWER-CONNECTION	BDGWTR	HP-C7000-01	PS4	A1-RDPU-R	Outlet 02	Power Cord	ps-004	red	6	US	BDGWTR
18	ADD	POWER-CONNECTION	BDGWTR	HP-C7000-02	PS1	A1-RDPU-L	Outlet 03	Power Cord	ps-005	blue	6	US	BDGWTR
19	ADD	POWER-CONNECTION	BDGWTR	HP-C7000-02	PS2	A1-RDPU-R	Outlet 03	Power Cord	ps-006	red	6	US	BDGWTR
20	ADD	POWER-CONNECTION	BDGWTR	HP-C7000-02	PS3	A1-RDPU-L	Outlet 04	Power Cord	ps-007	blue	6	US	BDGWTR
21	ADD	POWER-CONNECTION	BDGWTR	HP-C7000-02	PS4	A1-RDPU-R	Outlet 04	Power Cord	ps-008	red	6	US	BDGWTR
22	ADD	POWER-CONNECTION	BDGWTR	CISCO-C2950-01	PS1	A1-RDPU-L	Outlet 05	Power Cord	ps-009	blue	6	US	BDGWTR
23	ADD	POWER-CONNECTION	BDGWTR	CISCO-C2950-01	PS2	A1-RDPU-R	Outlet 05	Power Cord	ps-010	red	6	US	BDGWTR
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Step 1 Add Locations | Step 2 Add Cabinets | Step 3 Add Rack PDUs | Step 4 Add Devices | **Step 5 Create Power Connections** | Step 6 Create Data Connections | Data & Power Ports | Item All Applicabl

The connections between all of the items in a power chain form a complete circuit.

'Power connections' refers a connection between a starting item, such as a server or switch, and an ending item that is either a rack PDU or outlet.

It is important to designate the item's power supply port as the starting point, and the power outlet's input power port or rack PDU's input power port, as the ending item.

Once connected, these form the first half of a power circuit.

The remaining portion of the circuit is the upstream power connection to the power source, which consist of the floor PDU, power panel or busway, and UPS unit.

These connections already exist in dcTrack. They are created when you create your structured cabling.

Note: You can use the File Import to import power outlet circuiting. This eliminates having to manually create circuits from power outlets to either busways or power panels on existing floor PDUs.

Alternatively, you can connect items to virtual power chains if you are not ready to create 'normal' power circuits.

Connect items to virtual power chains manually, or import virtual power chain connections in bulk using the File Import.

Performing the Import

You cannot use a single file that includes a variety of hop quantities for each circuit. Make one file for all circuits that use no cabling hops, one file for those that have only one hop, one file for those with 2 hops and one file for those with 3 hops.

For a list of the requirements and/or prerequisites, as well as recommendations and examples of spreadsheets, see the worksheets in the templates.

Importing power connections follows the same basic steps using the File Import as other imports.

(Optional) Verify the circuits are imported by looking them up. Use the search and filter options on the Circuits List in the Web Client.

You can submit Connect Requests for one or more circuits now or at a later time. Submit a request in the Web Client from the Actions menu on the Circuits List.

See **Submit Circuit Requests from the Actions Menu**.

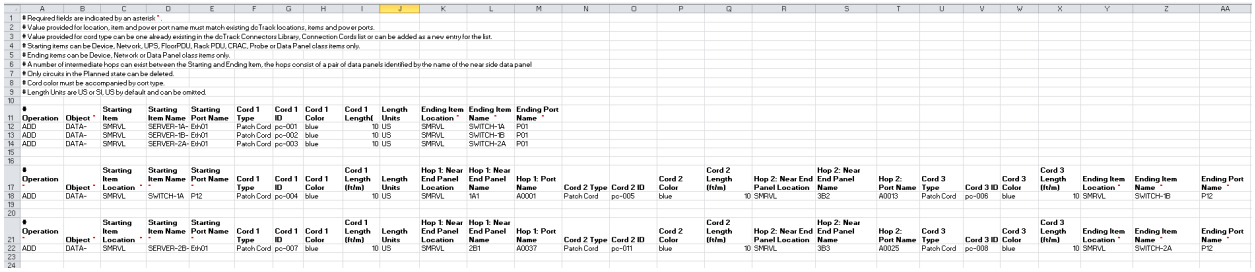
Data Connections

Prerequisites

Your structured cabling layout must already exist in dcTrack before importing connections.

Import Template

Use the Create Data Connections worksheet in the Import Template to create data connections and import them into dcTrack.



	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z	AA
1	# Required fields are indicated by an asterisk *.																										
2	# Value provided for location, item and power port name must match existing dcTrack locations, items and power ports.																										
3	# Value provided for cord type can be one already existing in the dcTrack Connectors Library, Connection Cords list or can be added as a new entry for the list.																										
4	# Starting items can be Device, Network, UPS, FloorPDU, Rack PDU, CRAC, Probe or Data Panel class items only.																										
5	# Ending items can be Device, Network or Data Panel class items only.																										
6	# A number of intermediate hops can exist between the Starting and Ending Item, the hops consist of a pair of data panels identified by the name of the near side data panel																										
7	# Only circuits in the Planned state can be deleted.																										
8	# Cord color must be accompanied by cord type.																										
9	# Length Units are US or SI. US by default and can be omitted.																										
10																											
11	# Operation	Object *	Starting Item	Starting Item Name	Starting Port Name	Cord 1 Type	Cord 1 ID	Cord 1 Color	Cord 1 Length(	Length Units	Ending Item Location *	Ending Item Name *	Ending Port Name *														
12	ADD	DATA-	SMRVL	SERVER-1A-	Eth01	Patch Cord	pc-001	blue	10	US	SMRVL	SWITCH-1A	P01														
13	ADD	DATA-	SMRVL	SERVER-1B-	Eth01	Patch Cord	pc-002	blue	10	US	SMRVL	SWITCH-1B	P01														
14	ADD	DATA-	SMRVL	SERVER-2A-	Eth01	Patch Cord	pc-003	blue	10	US	SMRVL	SWITCH-2A	P01														
15																											
16																											
17	# Operation *	Object *	Starting Item Location *	Starting Item Name *	Starting Port Name *	Cord 1 Type *	Cord 1 ID *	Cord 1 Color *	Cord 1 Length (ft/m) *	Length Units *	Hop 1: Near End Panel Location *	Hop 1: Near End Panel Name *	Hop 1: Port Name *	Cord 2 Type *	Cord 2 ID *	Cord 2 Color *	Cord 2 Length (ft/m) *	Hop 2: Near End Panel Location *	Hop 2: Near End Panel Name *	Hop 2: Port Name *	Cord 3 Type *	Cord 3 ID *	Cord 3 Color *	Cord 3 Length (ft/m) *	Ending Item Location *	Ending Item Name *	Ending Port Name *
18	ADD	DATA-	SMRVL	SWITCH-1A	P12	Patch Cord	pc-004	blue	10	US	SMRVL	1A1	A0001	Patch Cord	pc-005	blue	10	SMRVL	3B2	A0013	Patch Cord	pc-006	blue	10	SMRVL	SWITCH-1B	P12
19																											
20																											
21	# Operation *	Object *	Starting Item Location *	Starting Item Name *	Starting Port Name *	Cord 1 Type *	Cord 1 ID *	Cord 1 Color *	Cord 1 Length (ft/m) *	Length Units *	Hop 1: Near End Panel Location *	Hop 1: Near End Panel Name *	Hop 1: Port Name *	Cord 2 Type *	Cord 2 ID *	Cord 2 Color *	Cord 2 Length (ft/m) *	Hop 2: Near End Panel Location *	Hop 2: Near End Panel Name *	Hop 2: Port Name *	Cord 3 Type *	Cord 3 ID *	Cord 3 Color *	Cord 3 Length (ft/m) *	Ending Item Location *	Ending Item Name *	Ending Port Name *
22	ADD	DATA-	SMRVL	SERVER-2B-	Eth01	Patch Cord	pc-007	blue	10	US	SMRVL	2B1	A0037	Patch Cord	pc-011	blue	10	SMRVL	3B3	A0025	Patch Cord	pc-008	blue	10	SMRVL	SWITCH-2A	P12
23																											
24																											

Data circuits can consist of up to eight end points:

- 1 end point at the beginning of the circuit ~ 1 end point at the end of the circuit with up to 3 hops in between, each consisting of 2 end points.

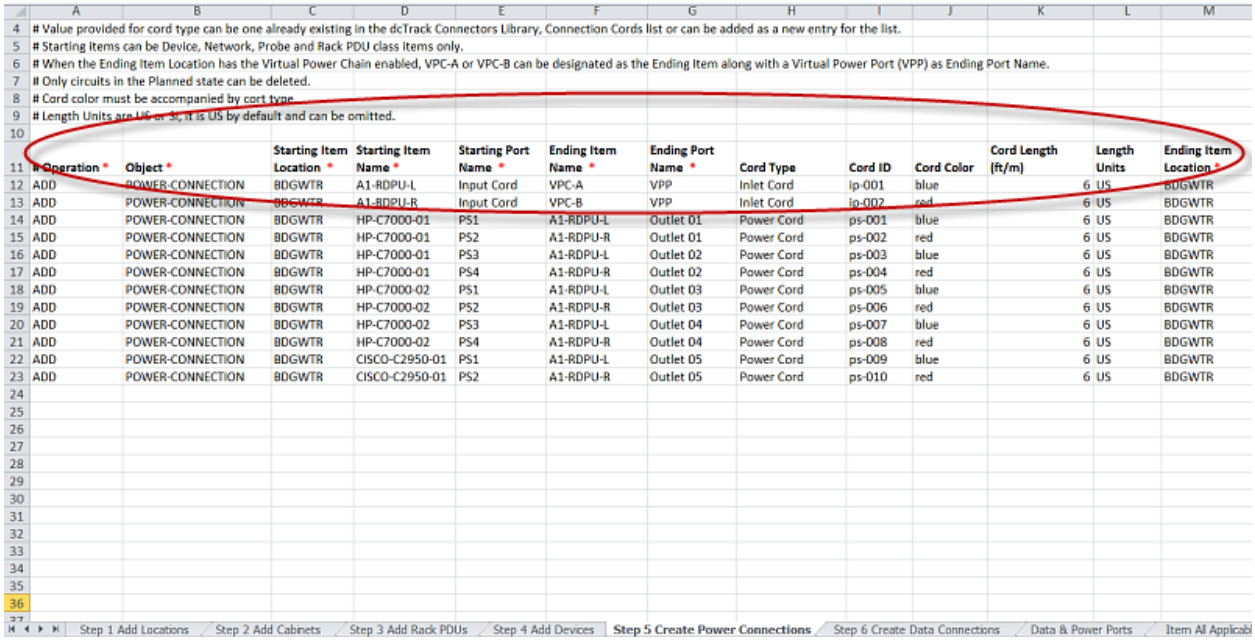
A spreadsheet file cannot include circuits that have a different number of hops. So, create individual import files for:

- Circuits with no cabling hops
- Circuits with 1 hop
- Circuits with 2 hops
- Circuits with 3 hops

Use File Import to Import Virtual Power Chain Connections

Watch a video on how to use import. https://youtu.be/8R-UsdiumcM

This topic outlines how to create a file that will import Virtual Power Chain connections. For detailed steps on using the File Import feature, see **Use File Import to Add, Edit Delete and Move**.



	A	B	C	D	E	F	G	H	I	J	K	L	M
4	# Value provided for cord type can be one already existing in the dcTrack Connectors Library, Connection Cords list or can be added as a new entry for the list.												
5	# Starting items can be Device, Network, Probe and Rack PDU class items only.												
6	# When the Ending Item Location has the Virtual Power Chain enabled, VPC-A or VPC-B can be designated as the Ending Item along with a Virtual Power Port (VPP) as Ending Port Name.												
7	# Only circuits in the Planned state can be deleted.												
8	# Cord color must be accompanied by cord type.												
9	# Length Units are US or S, it is US by default and can be omitted.												
10													
11	# Operation *	Object *	Starting Item Location *	Starting Item Name *	Starting Port Name *	Ending Item Name *	Ending Port Name *	Cord Type	Cord ID	Cord Color	Cord Length (ft/m)	Length Units	Ending Item Location *
12	ADD	POWER-CONNECTION	BDGWTR	A1-RDPU-L	Input Cord	VPC-A	VPP	Inlet Cord	ip-001	blue	6	US	BDGWTR
13	ADD	POWER-CONNECTION	BDGWTR	A1-RDPU-R	Input Cord	VPC-B	VPP	Inlet Cord	ip-002	red	6	US	BDGWTR
14	ADD	POWER-CONNECTION	BDGWTR	HP-C7000-01	PS1	A1-RDPU-L	Outlet 01	Power Cord	ps-001	blue	6	US	BDGWTR
15	ADD	POWER-CONNECTION	BDGWTR	HP-C7000-01	PS2	A1-RDPU-R	Outlet 01	Power Cord	ps-002	red	6	US	BDGWTR
16	ADD	POWER-CONNECTION	BDGWTR	HP-C7000-01	PS3	A1-RDPU-L	Outlet 02	Power Cord	ps-003	blue	6	US	BDGWTR
17	ADD	POWER-CONNECTION	BDGWTR	HP-C7000-01	PS4	A1-RDPU-R	Outlet 02	Power Cord	ps-004	red	6	US	BDGWTR
18	ADD	POWER-CONNECTION	BDGWTR	HP-C7000-02	PS1	A1-RDPU-L	Outlet 03	Power Cord	ps-005	blue	6	US	BDGWTR
19	ADD	POWER-CONNECTION	BDGWTR	HP-C7000-02	PS2	A1-RDPU-R	Outlet 03	Power Cord	ps-006	red	6	US	BDGWTR
20	ADD	POWER-CONNECTION	BDGWTR	HP-C7000-02	PS3	A1-RDPU-L	Outlet 04	Power Cord	ps-007	blue	6	US	BDGWTR
21	ADD	POWER-CONNECTION	BDGWTR	HP-C7000-02	PS4	A1-RDPU-R	Outlet 04	Power Cord	ps-008	red	6	US	BDGWTR
22	ADD	POWER-CONNECTION	BDGWTR	CISCO-C2950-01	PS1	A1-RDPU-L	Outlet 05	Power Cord	ps-009	blue	6	US	BDGWTR
23	ADD	POWER-CONNECTION	BDGWTR	CISCO-C2950-01	PS2	A1-RDPU-R	Outlet 05	Power Cord	ps-010	red	6	US	BDGWTR
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Step 1 Add Locations | Step 2 Add Cabinets | Step 3 Add Rack PDUs | Step 4 Add Devices | **Step 5 Create Power Connections** | Step 6 Create Data Connections | Data & Power Ports | Item All Applicab

System Administrators and Gatekeepers can also add VPCs manually in the Web Client. For details on File Import, see **Manually Create Virtual Power Chain Connections**.

The Virtual Power Chains created from the spreadsheet are made up of connections between existing dcTrack items and virtual items in the Virtual Power Chain.

Therefore, the items that will be connected to the Virtual Power Chain connections must exist in dcTrack. Using File Import to add the items or add them manually. See **Use File Import to Add, Edit Delete and Move** and **Add and Edit Items**.

Virtual Power Chain must be enabled for the location(s). You can enable VPC when adding locations manually or when importing locations using File Import by setting the Enable Virtual Power Chain field to TRUE in the Import Template. See **Enable or Disable VPC for a Location** and **Use File Import to Add, Edit Delete and Move**, respectively.

Note that you do not need to create the items that make up the Virtual Power Chain; these Virtual Power Chain items exist by default.

Chapter 4:Dashboards and Widgets

Dashboards can be accessed via the Dashboard tab in the main navigational menu of the dcTrack Web Client.

Dashboards are divided into the following categories, with a corresponding folder accessible from the left panel of the Dashboard tab:

- Standard: Each standard dashboard page represents one category of common Key Performance Indicators (KPIs). The pre-configured widgets on each dashboard page align with the metrics most relevant to that

specific category.
- Personal: These dashboard pages are created, edited, and deleted by each user from a combination of standard, SQL, HTML, and custom widgets.
- Shared: Users can share a dashboard they have created to make the dashboard public. Shared dashboards are read-only for all other users.
- Favorites: Each user has their own folder of favorite dashboards. These can be any standard, personal, or shared public dashboard; however, these dashboards are read-only for all users.

Widgets are the building blocks of your dashboard and are prepopulated on dashboard pages. Each widget displays data on a specific KPI or metric, with some widgets having additional dropdown selectors to filter the data for additional granularity.

In addition to preconfigured widgets, customizable widgets also are available. These include chart widgets, SQL grid widgets, and HTML widgets.

Dashboard and Widget Permissions

A user with the System Administrator role or a globally defined Gatekeeper or Operator role can do the following:

- View all dashboard pages
- Move and resize widgets
- Add, edit, or delete any widgets, including custom widgets but excluding default chart widgets

Only a user with System Administrator role can upload widgets

A user with the System Administrator or a globally defined Gatekeeper role also can set the permissions for SQL grid widgets.

All other users can view all standard dashboard pages; however, they may not have permissions to view the data for a specific widget. In this case, the widget will display a message indicating that the user does not have permissions to view the data.

Personal Dashboards

Can only be viewed by the user who created them.

Shared Dashboards

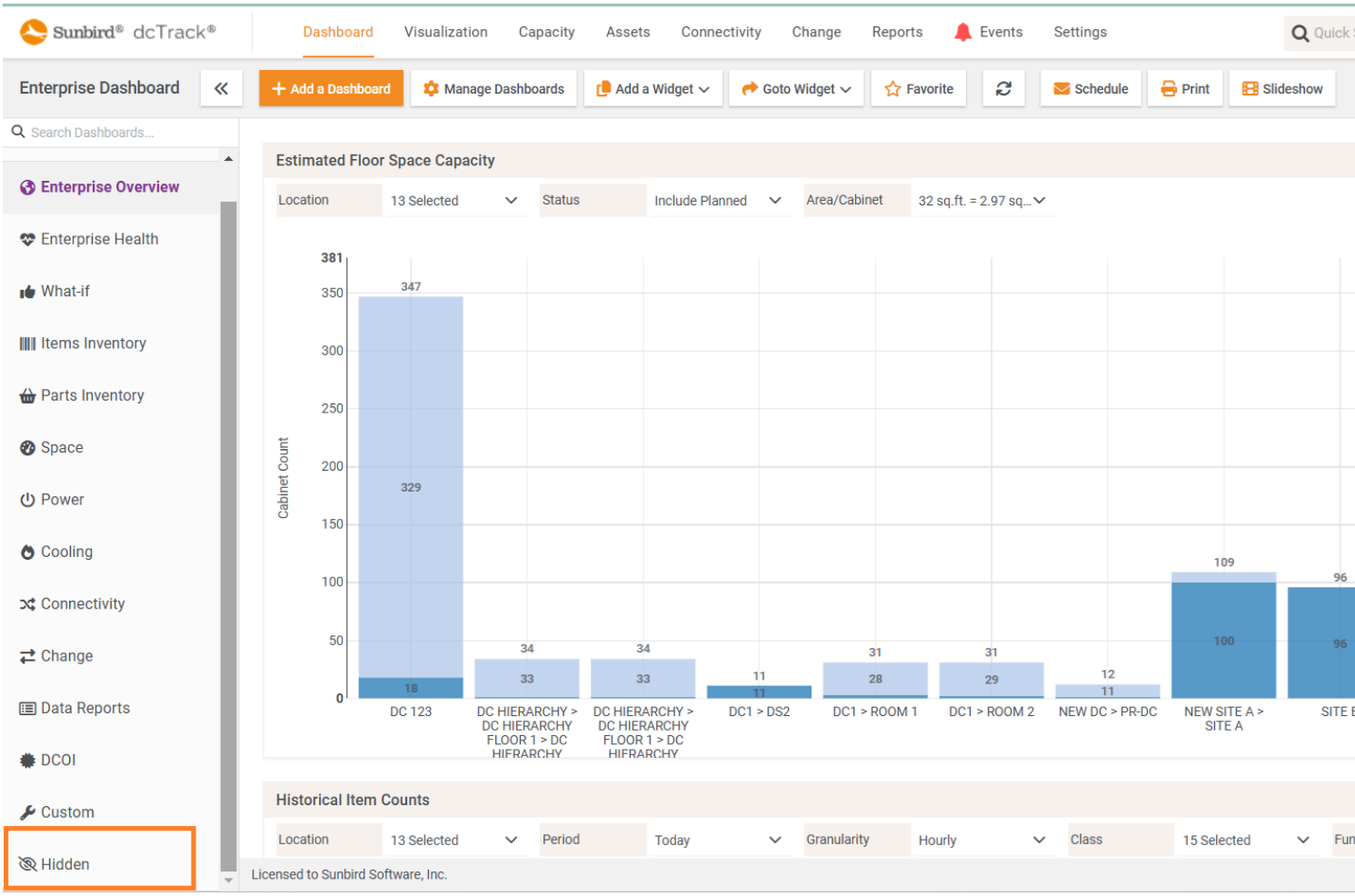
Can be viewed by all other users, with the exception of data that they do not have permission to view. Other users cannot edit shared dashboards.

Favorited dashboards

Can be any standard, personal, or shared public dashboard and are read-only to all users.

Hidden Dashboards

When logged with a System Administrator or Gatekeeper role a new Standard folder dashboard will appear as the last dashboard called "Hidden".



Users with sufficient permissions can move widgets in and out of this dashboard like they do for any other dashboard.

When logged in as a user that doesn't have sufficient permissions, any dashboard marked as hidden will not be shown in the UI.

When any dashboard page in any folder is empty (i.e. does not have any widgets, because they have been moved out of that page), that dashboard will not be displayed.

Users with sufficient permissions will continue to see empty dashboards so that they are able to move widget back into them

For any user, when a folder has no dashboards, that folder would not be displayed.

Example:

The user has not favorited any dashboards, therefore, the Favorite folder will not be displayed.

However, if the user does favorite a dashboard, the Favorite folder will appear and will contain the dashboard that was favorited.

Note: Dashboards contain no data when no items have been added to dcTrack or when dcTrack has not been configured.

Dashboard Pages

The left navigational menu of the Dashboard tab provides one-click access to each dashboard page. The menu can be collapsed to provide additional on-screen space or can be expanded to display the labels and icons for each page. Each dashboard page represents one category of common Key Performance Indicators (KPIs). The pre-configured widgets on each dashboard page align with the metrics most relevant to that specific category.

Excluding the Enterprise Overview, Enterprise Health, and custom dashboard pages, each dashboard page has a location selector dropdown that allows you to define the location that you want data for.

All of the widgets on a dashboard page that support a Location filter will reflect changes in this selector. Location filtering applies to the Data Center, Floor, or Room hierarchy levels that contain assets. When a widget that supports location filtering is moved to a page without a Location selector in the toolbar, the widget will display its own location selector. When a widget that does not support a location filter is moved to a page with a location selector in the toolbar, this widget will not reflect changes in the location selector.

The table below summaries the available dashboard pages:

Icon	Name	Description	User Can Specify Location
	Enterprise Overview	Dashboard with widgets that display data on all data centers in your enterprise	No
	Enterprise Health	Dashboard with tile widgets that display color-coded warning and critical health event data for locations in your enterprise	No
	What-If	Dashboards with widgets that display the impact of changes on a project and sub-location basis	No
	Inventory	Dashboard with widgets that display data on the assets for a specific location	Yes
	Space	Dashboard with widgets that display space capacity data for a specific location	Yes
	Power	Dashboard with widgets that display power capacity data for a specific location	Yes

Icon	Name	Description	User Can Specify Location
	Cooling	Dashboard with widgets that display environmental data, including temperature and humidity, for a specific location	Yes
	Connectivity	Dashboard with widgets that display data on the connections for a specific location	Yes
	Change	Dashboard with widgets that display data on the moves, adds, and changes for a specific location	Yes
	Data Reports	Dashboard with widgets that display data in tabular form	Yes
	DCOI	Dashboard with widgets designed to measure compliance with the Data Center Optimization Initiative (DCOI) mandate	No
	Custom	Dashboard with custom SQL or HTML widgets	No

Note: If you navigate away from the Dashboard tab, it will load the previous dashboard page upon your return.

For additional information please see the videos at

Dashboards in 6 Minutes

Default Widgets by Standard Dashboard Page

The following tables provide the titles, chart types, and captions (descriptions) for the default widgets available by standard dashboard page category.

Enterprise Overview

Title	Chart Type	Caption (Description)
Average Temperature	Line with focus chart	Shows the average temperature of all sensors within each location at the selected position.

Title	Chart Type	Caption (Description)
Budget Power Capacity	Multi-bar chart	Shows, for each location, the total for the budgeted power from all power supplies factoring in the power supply redundancy and which are connected. Total capacity is calculated based on the ratings and quantity of the UPS units and the redundancy of the UPS Bank.
Cabinet Space Capacity	Multi-bar chart	Shows the capacity for space inside the cabinets in each location based on the number of rack units. When an item is mounted to either or both front and back rails, that rack unit is considered used.
Data Port Usage By Connector	Multi-bar chart	Shows the number of connected and free (not connected) ports in each location for the selected connector and item class.
dcTrack Licenses Remaining	Pie chart	Shows the number of licenses used and remaining. Used Licenses = number of cabinets excluding archived cabinets. The percentage reflects the remaining license capacity.
Floor Space Capacity	Multi-bar chart	Shows the actual number of installed cabinets vs. an estimated number of additional cabinets that can be placed in each location, based on the area of the Location and the selected rule of thumb Area/Cabinet. The area per cabinet allows for the footprint of the cabinet, aisle space in front and behind the cabinet, aisles perpendicular to rows and space for electrical and mechanical items. Filtered by Cabinet Status.
Item Counts	Multi-bar chart	Shows the number of items in each location grouped or stacked down by class. Excludes items in the Archived and Storage status.
Requests Per Current Stage	Multi-bar chart	Shows the number of requests by the current request stage in each location.
Stranded Power Per Location	Multi-bar chart	Shows the Budgeted, Actual and Stranded Power for each Location. The Budgeted bar is the sum of all power consuming items' effective power. The Actual bar is the sum all items in a location using the average over the past hour at raw granularity. The Stranded bar is the difference between the Budgeted and Actual bars.
Total Actual Active Power	Line with focus chart	Shows the sum of actual active power in watts for each location. The sum is derived from the Rack level readings for the selected period, granularity and statistic.

What-If

In order for a project to appear in the What-If: Rack Units Space Capacity and What-if: Power Budget Capacity charts, the items associated with the project must meet the following criteria:

- Items must have the Project Number assigned.
- Items must be in the Planned status.
- The items' subclass must be one that is rack mounted. (Blade and zero-U items are not included.)
- The items must be assigned to a cabinet and U-position.
- The items must be in the selected locations. (Projects associated with items in a different location than the selected one will not appear.)

Title	Chart Type	Caption (Description)
What-If: Rack Units Space Capacity	Multi-bar chart	Shows the number of Rack Units in each sub-location (Cabinet, Row, or Aisle) that fall in 3 categories. Occupied Now are rack units in use from items not in Planned status. Open are rack units available for new items. Used by -Project Number- are the rack units that would be occupied once the items tagged with the project number and are in the planned status become installed. One or more Project Numbers can be included in the analysis by multi-selecting from the Projects parameter.
What-if: Power Budget Capacity	Multi-bar chart	Shows the total budget power in Watts in each sub-location (Cabinet, Row, or Aisle) that fall in 3 categories. Consumed Now is power consumed by items not in Planned status. Free is power available for new items based on the sub-location's Power Capacity field. Used by -Project Number- is the power that would be consumed once the items tagged with the project number and are in the planned status become installed. One or more Project Numbers can be included in the analysis by multi-selecting from the Projects parameter.

Inventory

Title	Chart Type	Caption (Description)
Counts By Item Attributes	Multi-bar chart	Shows the count of all items in one or more classes and grouped by the selected key item field. The items are filtered by Location.
Counts By Model Attributes	Discrete bar chart	Shows the count of all items in one or more classes and grouped by the selected key model field. The items are filtered by Location.
Hosts and VMs Per Cluster	Multi-bar chart	Show the number of Virtual Machines and Physical Hosts that belong to each VM Cluster filtered by Location. Excludes Archived Devices.
Hosts per Application	Discrete bar chart	Shows the number of devices (hosts) that run each application filtered by Location and Application Criticality. All applications can be shown or the ones running on the most or least number of hosts.

Title	Chart Type	Caption (Description)
Hosts per Operating System	Discrete bar chart	Shows the number of devices (hosts) that run each operating system filtered by Location and IT Class. All Operating Systems can be shown or the ones running on the most or least number of hosts. Includes Virtual Machines. Excludes Archived Items.
Item Age in Months	Horizontal multi-bar chart	Shows the number of items of a certain age rounded down to nearest month based on the selected date. Items less then 30 days old will show as 00:00:00. The items included are filtered by Location and Class. Negative dates indicate months away from a future date.
Item Cost By Key Item Fields	Multi-bar chart	Shows the total purchase price for all items in one or more classes and grouped by the selected key item field. The items are filtered by Location.
Items By Class	Pie chart	Shows how many items in each class there are for a Location where each slice of the pie is for a class. Excludes Archived items.
Items By Status	Pie chart	Shows how many items of one or more classes there are in each status for a Location where each slice of the pie is for a Status.
Physical vs. Virtual	Pie chart	Shows the Device class split between Virtual Machines vs. Physical Systems (i.e. Standard and Blade Servers subclass) filtered by Location. Excludes Archived Devices.

Space

Title	Chart Type	Caption (Description)
Cabinet Space Remaining	Pie chart	Shows the number of used vs. unused Rack Units filtered by Location, Cabinet Status and Item Status. The percentage reflects the remaining cabinet space capacity or open rack units.
Cabinet Utilization	Multi-bar chart	Shows the number of cabinets for each of the selected Cabinet Item key field and divided into 5 groups of cabinet fill percentages: Empty, up to quarter full, quarter to half full, half to 3/4 full and 3/4 to 100% full. Filtered by Location.
Chassis Slot Usage	Multi-bar chart	Shows the number of occupied, free and total number of slots in all chassis and grouped by front vs back slots, filtered by Location and Class of Chassis.
Floor Space Remaining	Pie chart	Shows the actual number of installed cabinets vs. an estimated number of additional

Title	Chart Type	Caption (Description)
		cabinets that can be placed, based on the area of the selected Location and the selected rule of thumb Area/Cabinet. The area per cabinet allows for the footprint of the cabinet, aisle space in front and behind the cabinet, aisles perpendicular to rows and space for electrical and mechanical items. Filtered by Location and Cabinet Status. The percentage reflects the remaining floor space capacity.
Rack Units Capacity Trend	Line with focus chart	Shows the historical number of used Rack Unit vs the total number of Rack Units for each day filtered by Location.
Rack Units Fragmentation	Discrete bar chart	Shows the number of items that can be installed in the selected location if all the items had an RU height as indicated by the bar label along the x-axis.
Rack Units Usage By Rail	Discrete bar chart	Shows the number of Rack Units (RU) occupied (used) vs the total number of rack units (RU Capacity). Used Back indicates number of RUs where the back rail is occupied by an item mounted to the both rails or only to the back rail. Similarly for the Used Front rails. Both Rails used counts number of RUs by items mounted to both rails.

Power

Title	Chart Type	Caption (Description)
Actual Active Power Per Cabinet	Line with focus chart	Shows a line for each cabinet denoting the active power in Watts for the selected location. The sum is derived from the Rack PDU level readings for the selected period, granularity and statistic.
Actual Power By Customer's Cabinets	Line with focus chart	Shows the active power in Watts within the selected location for the selected customer. The sum is derived from the Rack PDU level readings from all cabinets assigned to the selected customer. The chart can show one line that is the sum of all cabinets, or one line for each cabinet.
Actual Power By Customer's IT Devices	Line with focus chart	Shows the active power in Watts within the selected location for the selected customer. The sum is derived from the IT Device level readings from all IT Devices assigned to the selected customer. The chart can show one line that is the sum of all IT Devices, or one line for each IT Device.
Actual Power Per Customer's Cabin-	Line with focus chart	Shows the active power in Watts within the selected location, as one line per customer. The sum is Rack PDU level readings from all cabinets assigned to the selected customer.

Title	Chart Type	Caption (Description)
ets		
Budget Power Capacity Remaining	Pie chart	Shows the total for the budgeted power from all power supplies factoring in the power supply redundancy and which are connected. Total capacity is calculated based on the ratings and quantity of the UPS units and the redundancy of the UPS Bank.
Location's Total Power, Month-to-Month (Daily)	Line with focus chart	Shows the sum of the active power in Watts for the selected location where one line is for the current month and the other is for the previous month aligned on the day of the month. The sum is derived from the Rack PDU level readings for using daily granularity and the selected statistic.
Total Actual Active Power	Line with focus chart	Shows the sum of the active power in Watts for the selected location. The sum is derived from the Rack PDU level readings for the selected period, granularity and statistic.
Stranded Power per Sub-Location	Multi-bar chart	Shows the Budgeted, Actual and Stranded Power for each sub-location (Aisle, Row or Cabinet) in the selected location. The Budgeted bar is the sum of all power consuming items' effective power within the sub-location. The Actual bar is the sum all items in a sub-location using the average over the past hour at raw granularity. The Stranded bar is the difference between the Budgeted and Actual bars.
Stranded Power per Model Instance (Sum of Instances)	Multi-bar chart	Shows the Budgeted, Actual and Stranded Power for each item or grouped by Model or by Model and Budget. When grouped by model, each bar represents all the items (or instances) of the same model. When grouped by model and budget, each bar represents all items (or instances) of the same model and with the same budget or effective power. The items included are for the selected location and Make and Model. Multiple Makes and Models can be selected. The Actual bar gathers all the readings for the selected time period at the selected granularity, statistic and summary, for example Past Month readings using Maximum Daily data, takes the maximum value for each day for the past month, and using the summary setting reduces all the readings to a single value for that item. This chart is for Sum of Instances so the single values for all items/instances within a group are summed and presented in the Actual bar. The Stranded bar is the difference between the Budgeted and Actual bars.
Stranded Power per Model Instance (Max	Multi-bar chart	Shows the Budgeted, Actual and Stranded Power for each item or grouped by Model or by Model and Budget. When grouped by model, each bar represents all the items (or instances) of the same model. When grouped by model and budget, each bar represents all items (or instances) of the same model and with the same budget or effective power.

Title	Chart Type	Caption (Description)
of Instances)		The items included are for the selected location and Make and Model. Multiple Makes and Models can be selected. The Actual bar gathers all the readings for the selected time period at the selected granularity, statistic and summary, for example Past Month readings using Maximum Daily data, takes the maximum value for each day for the past month, and using the summary setting reduces all the readings to a single value for that item. This chart is for Max of Instances so the highest of all the single values for all items/instances within a group is used and presented in the Actual bar. The Stranded bar is the difference between the Budgeted and Actual bars.
Stranded Power per Model Instance (Average of Instances)	Multi-bar chart	Shows the Budgeted, Actual and Stranded Power for each item or grouped by Model or by Model and Budget. When grouped by model, each bar represents all the items (or instances) of the same model. When grouped by model and budget, each bar represents all items (or instances) of the same model and with the same budget or effective power. The items included are for the selected location and Make and Model. Multiple Makes and Models can be selected. The Actual bar gathers all the readings for the selected time period at the selected granularity, statistic and summary, for example Past Month readings using Maximum Daily data, takes the maximum value for each day for the past month, and using the summary setting reduces all the readings to a single value for that item. This chart is for Average of Instances so the average of all the single values for all items/instances within a group is used and presented in the Actual bar. The Stranded bar is the difference between the Budgeted and Actual bars.

Cooling

Title	Chart Type	Caption (Description)
Cooling Capacity	Gauge	Shows the cooling capacity remaining in Cooling Tons or kW vs. the present heat budget load from the equipment plus an additional 1 Cooling Ton required per 500 sq. feet (or 3.5 kW per 50 sq. meters) of space.
Humidity Sensors By Customer of Cabinet	Line with focus chart	Shows the relative humidity trend line for each sensor in the selected location and in the selected sensor position for cabinets assigned to the selected customer. User can select whether to include the cabinet name in the sensor name if the sensors are not named uniquely across cabinets.

Title	Chart Type	Caption (Description)
Humidity Sensors Trend	Line with focus chart	Shows the relative humidity trend line for each sensor in the selected location and in the selected sensor position. User can select whether to include the cabinet name in the sensor name if the sensors are not named uniquely across cabinets.
Latest Humidity Per Cabinet	Discrete bar chart	Shows the min, max or average relative humidity in each cabinet for the selected sensor positions. The bars in the chart can be for all cabinets in the location having at least one sensor, or limited to the cabinets with the highest or lowest values.
Latest Humidity Per Cabinet with Delta H	Multi-bar chart	Shows a bar for each relative humidity sensor in the selected location grouped or stacked by cabinet, plus a bar for each cabinet for Delta H which is the difference between the two selected sensors.
Latest Temperature Per Cabinet	Discrete bar chart	Shows the min, max or average temperature in each cabinet for the selected sensor positions. The bars in the chart can be for all cabinets in the location having at least one sensor, or limited to the cabinets with the highest or lowest values. Temperature unit will be according to the user's unit preferences.
Latest Temperature Per Cabinet with Delta T	Multi-bar chart	Shows a bar for each temperature sensor in the selected location grouped or stacked by cabinet, plus a bar for each cabinet for Delta T which is the difference between the two selected sensors. Temperature unit will be according to the user's unit preferences.
Sensors Per Type	Pie chart	Shows the quantity of sensors of each sensor type within the selected location.
Temperature Sensors By Customer's Cabinets	Line with focus chart	Shows the temperature trend line for each sensor in the selected location and in the selected sensor position for cabinets assigned to the selected customer. User can select whether to include the cabinet name in the sensor name if the sensors are not named uniquely across cabinets. Temperature unit will be according to the temperature unit setting in Power IQ.
Temperature Sensors Trend	Line with focus chart	Shows the temperature trend line for each sensor in the selected location and in the selected sensor position. User can select whether to include the cabinet name in the sensor name if the sensors are not named uniquely across cabinets. Temperature unit will be according to the temperature unit setting in Power IQ.

Connectivity

Title	Chart Type	Caption (Description)
Cabinets with Most Free Data Ports	Discrete bar chart	Shows the number of free data ports per cabinet for the selected item class, connector type and location. All cabinets can be shown or can be limited by the highest or lowest number of free ports per cabinet.
Cabinets with Most Free Power Ports	Discrete bar chart	Shows the number of free [power ports per cabinet for the selected item class, connector type and location. All cabinets can be shown or can be limited by the highest or lowest number of free ports per cabinet.
Data Circuits Added per Week	Historical bar chart	Shows the number of data circuits added per week in the selected location in a historical time line.
Data Port Usage By Connector	Pie chart	Shows the number of connected and free (not connected) ports for the selected connector type within the selected location filtered by item class. The percentage reflects the remaining capacity or free ports.
Data Ports Capacity Trend	Line with focus chart	Shows the data port capacity in a historical time line for the selected class, connector and location. The Data Port Capacity line is the total number of ports installed whereas the Data Port Usage line is the number of ports that are connected. The difference between the two lines is the number of free ports at any snapshot in time.
Data Ports Usage Per Connector	Multi-bar chart	Shows the number of connected and free (not connected) ports for each connector type currently in use within the selected location filtered by item class.
Data Ports Usage Per Port Properties	Multi-bar chart	Shows the number of connected and free (not connected) ports for the selected data port property within the selected location and filtered by item class.
Items Per Connected Power Supplies	Horizontal multi-bar chart	Shows the number of items (bar length) per the number of installed power supplies and the connectivity for each for the selected location.
Power Circuits Added per Week	Historical bar chart	Shows the number of power circuits added per week in the selected location in a historical time line.
Power Ports	Line with	Shows the power port capacity in a historical time line for the selected class, con-

Title	Chart Type	Caption (Description)
Capacity Trend	focus chart	nector and location. The Power Port Capacity line is the total number of ports installed whereas the Power Port Usage line is the number of ports that are connected. The difference between the two lines is the number of free ports at any snapshot in time.
Power Ports Usage Per Port Properties	Multi-bar chart	Shows the number of connected and free (not connected) ports for the selected power port property within the selected location and filtered by item class.

Change

Title	Chart Type	Caption (Description)
Completed Requests By Type and Criteria	Discrete bar chart	Shows the number of completed requests by Request Type and Item attribute within the selected period and location.
Completed Requests Per Location and Type	Multi-bar chart	Shows the number of completed requests per location grouped or stacked by Request Type.
Completed Requests Per User and Type	Multi-bar chart	Shows the number of completed requests per user grouped or stacked by Request Type for the selected location.
Completed Requests Timeline - All Types	Historical bar chart	Shows the number of completed requests per day of all Request Types for the selected location and past period.
Completed Requests Timeline By Type	Historical bar chart	Shows the number of completed requests per day for the selected Request Type, location and past period.
Item Detail Changes	Discrete bar chart	Shows the number of Item Detail changes as tracked by the Item Audit Trail within the selected location and time period and the selected criteria.

Title	Chart Type	Caption (Description)
Request Stage Transition Metrics	Multi-bar chart	Shows the min, max and average number of hours for the duration between request stage transitions. 'Overall' measures the time from Request Issued to Request Complete. 'To Approval' measures the time from the Request Issued to Request Approved. 'To WO Assigned' measures the time from Request Approved to Work Order Issued. 'To WO Completed' measures the time from the Work Order Issued to Work Order Completed.
Requests Per Requester and Type	Multi-bar chart	Shows the number of Requests Issued for each Request Type grouped or stacked by the user the initiated the request.
Requests Per Stage and Type	Multi-bar chart	Shows the number of requests in each stage of the request process grouped or stacked by the Request Types.

DCOI

Title	Chart Type	Caption (Description)
Energy Metering	Bullet chart	(%) Percent of total gross floor area (GFA) in an agency's tiered data center inventory located in tiered data centers that have power metering. Total GFA of Energy Metered Data Centers / Total GFA of All Tiered Data Centers. Target 100%
Facility Utilization	Pie chart	(%) Portion of total gross floor area in tiered data centers that is actively utilized for racks that contain IT equipment. Total Active Rack Count * 30 sq. ft. / Total Gross Floor Area. Target >= 80%
Power Usage Effectiveness (PUE)	Gauge	(Ratio) Proportion of total data center energy used by IT equipment. Total Energy Used / Total IT Equipment Energy Used. Target <= 1.5 (<= 1.4 for new data centers)
Server Utilization & Automated Monitoring	Pie chart	(%) Percent of time busy(measured as 1 - percent of time spent idle), measured directly by continuous, automated monitoring software, discounted by the fraction of data centers fully equipped with automated monitoring. Average Server Utilization * Percent of Physical Servers Equipped with Automated Monitoring . Target >= 65%

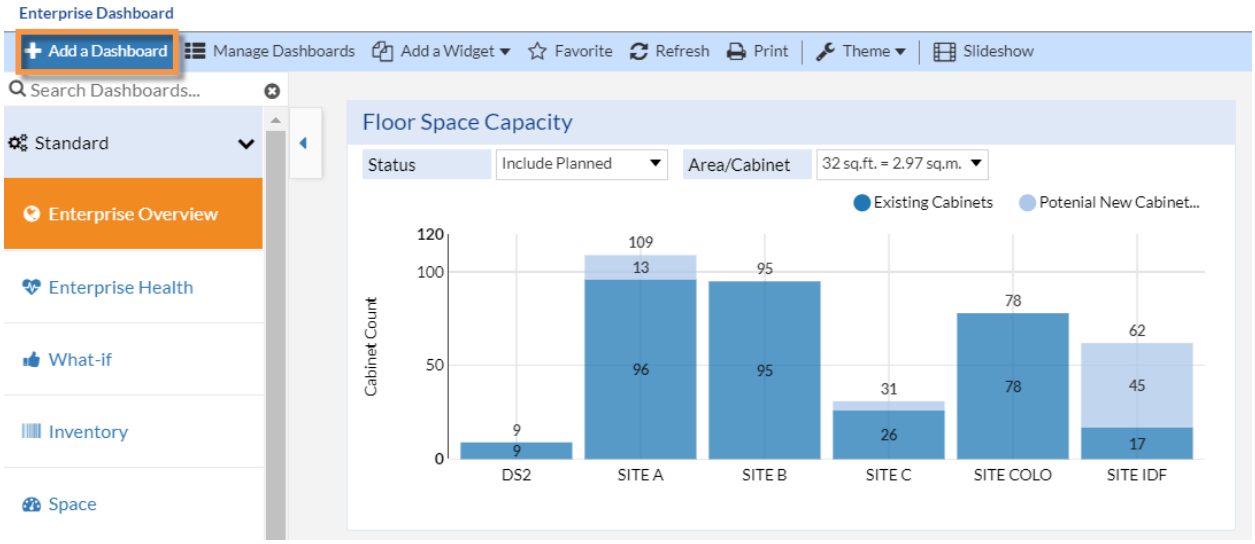
Title	Chart Type	Caption (Description)
Virtualization	Gauge	(Ratio) Ratio of operating systems (OS) to physical servers. Total Server Count + Total Virtual OS / Total Physical Servers. Target >= 4

Adding, Editing, and Deleting a Dashboard Page

Users can create, edit, and delete dashboard pages. Newly created dashboards are added to the Personal dashboard folder.

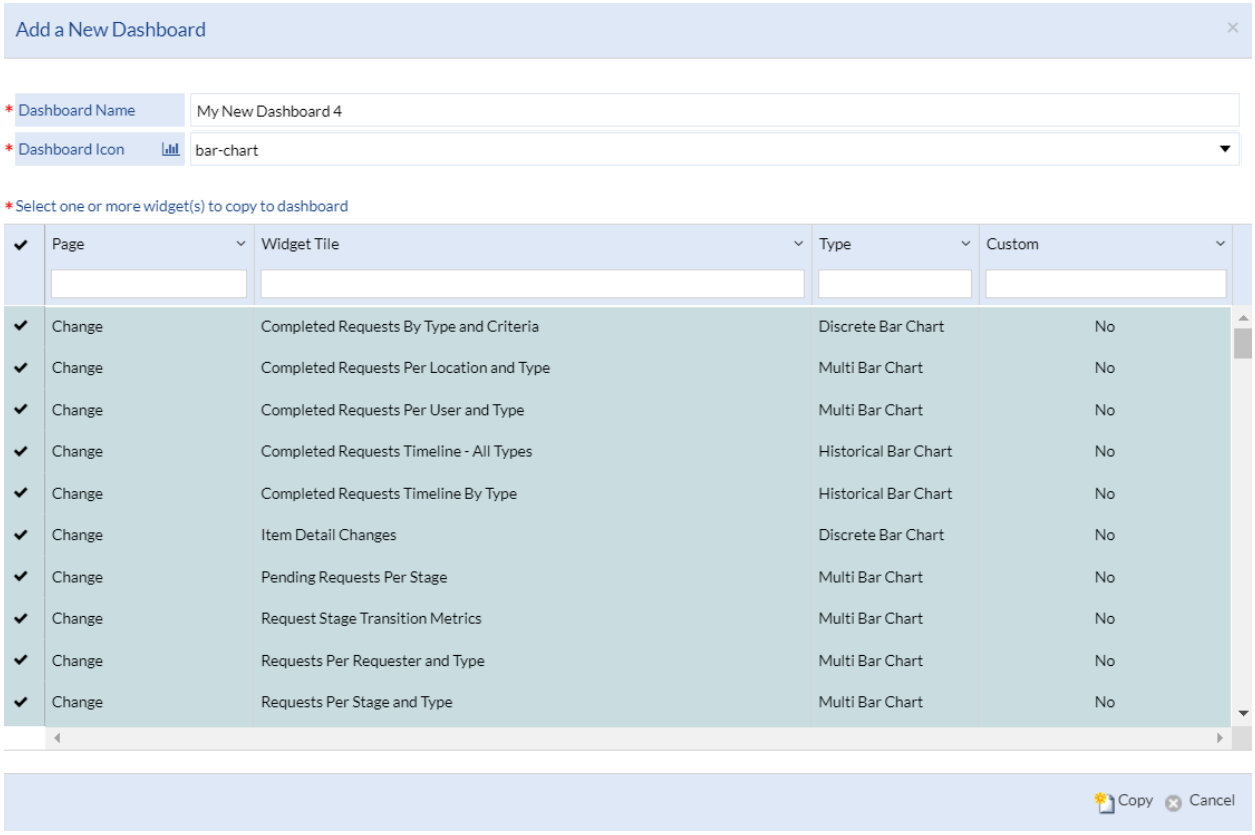
Adding a New Dashboard Page

1. In the Dashboard tab, click the Add a Dashboard button. The Add a New Dashboard popup displays.



2. In the Add a New Dashboard popup, provide the following information:
   a. Dashboard Name: The name of the dashboard. Required.
   b. Dashboard Icon: This is the icon that will display next to the dashboard name in the Dashboard sidebar. Required.
3. In the widget grid, select the widgets that you want to add to your dashboard.

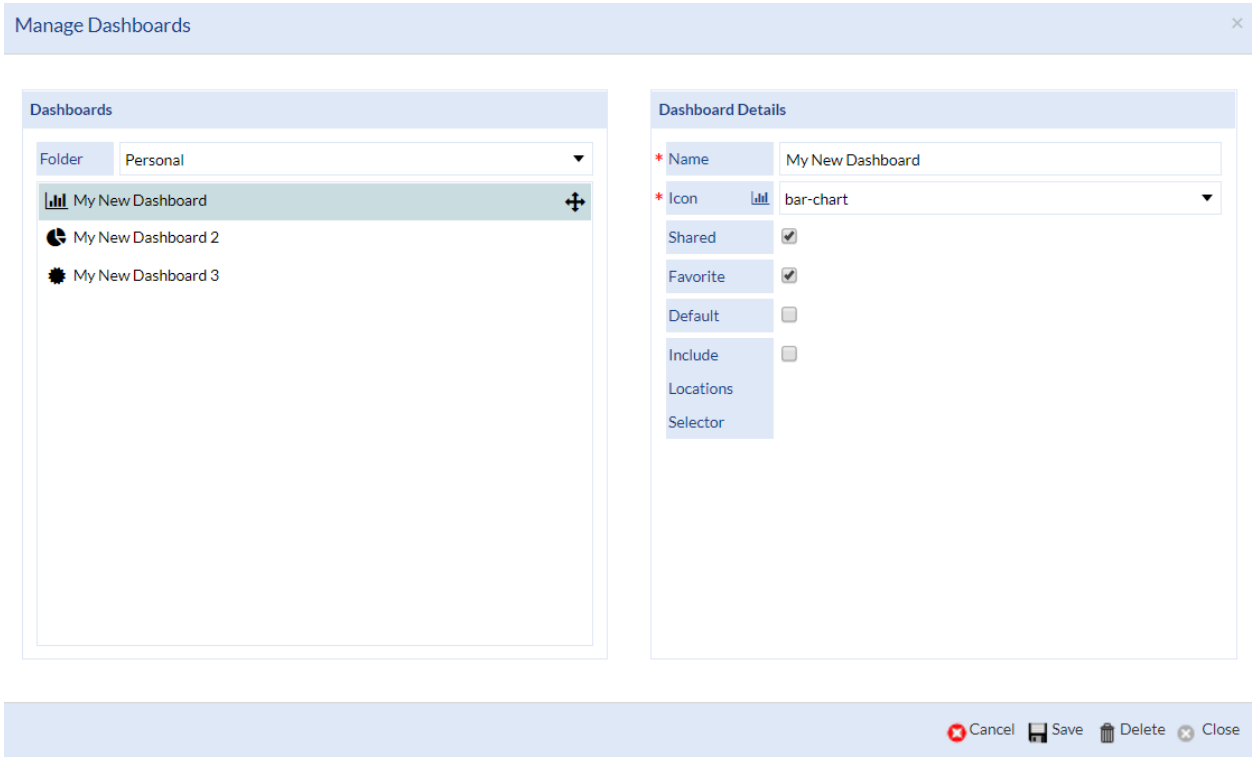
4. Click the Copy icon to create your dashboard.



Editing a Dashboard Page

1. In the Dashboard tab, click the Manage Dashboards icon. The Manage Dashboards popup box will display.
2. In the left Dashboards panel, select the Dashboard that you want to edit. Once selected, the Dashboard Details panel on the right of the pop up will populate with the selected dashboard's details.
3. In the Dashboard Details panel, make your desired edits.

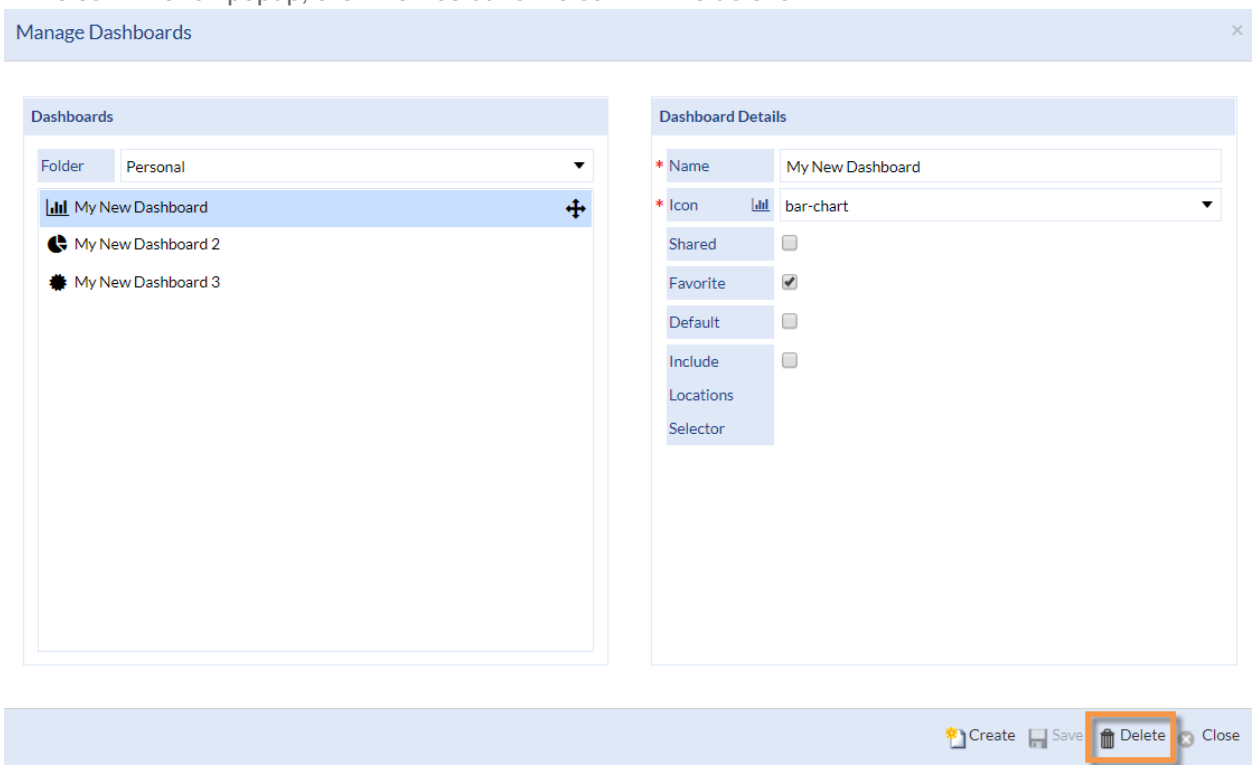
4. Click the Save button to save your changes.



Deleting a Dashboard Page

1. In the Dashboard tab, click the Manage Dashboards icon. The Manage Dashboards popup box will display.
2. In the left Dashboards panel, select the Dashboard that you want to delete.
3. Click the Delete icon. A confirmation popup will display.

4. In the confirmation popup, click the Yes button to confirm the deletion.



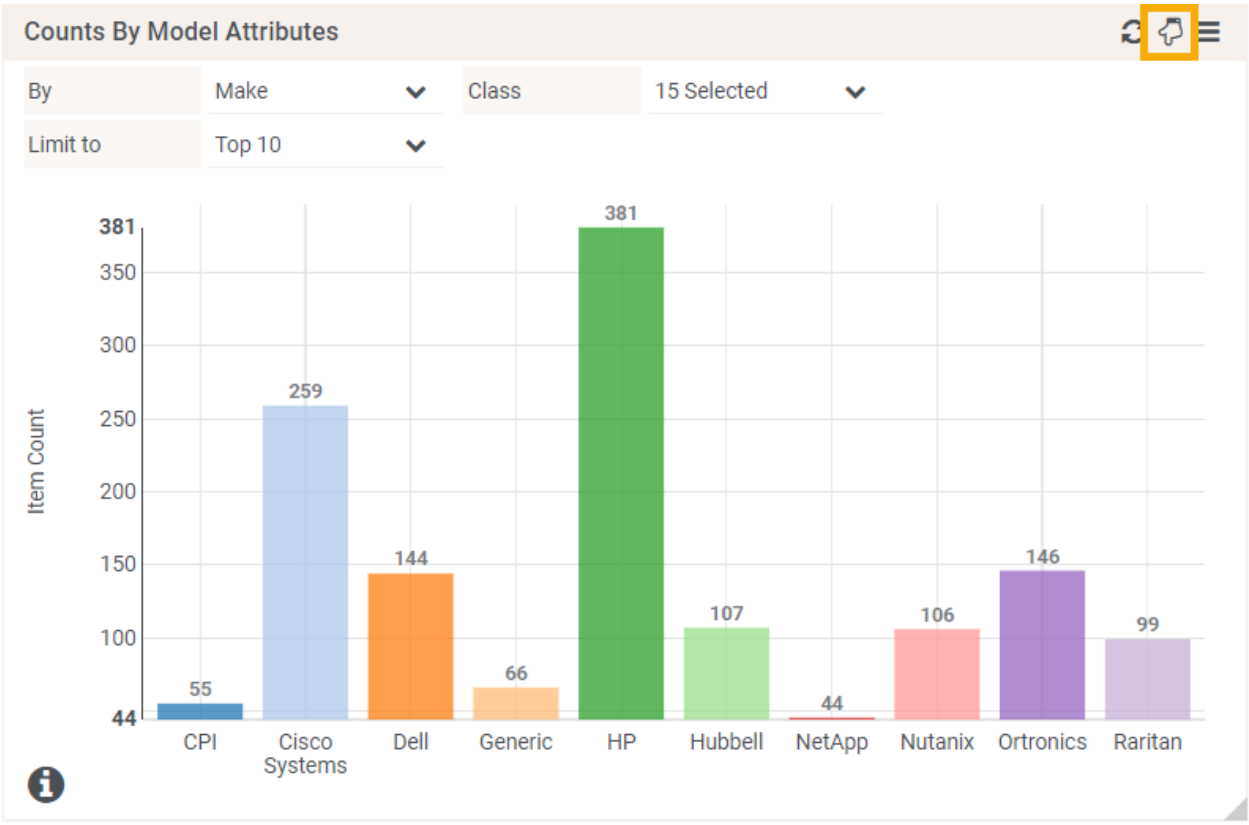
For additional and updated information please see the video at

How to Create and Manage Personal Dashboards

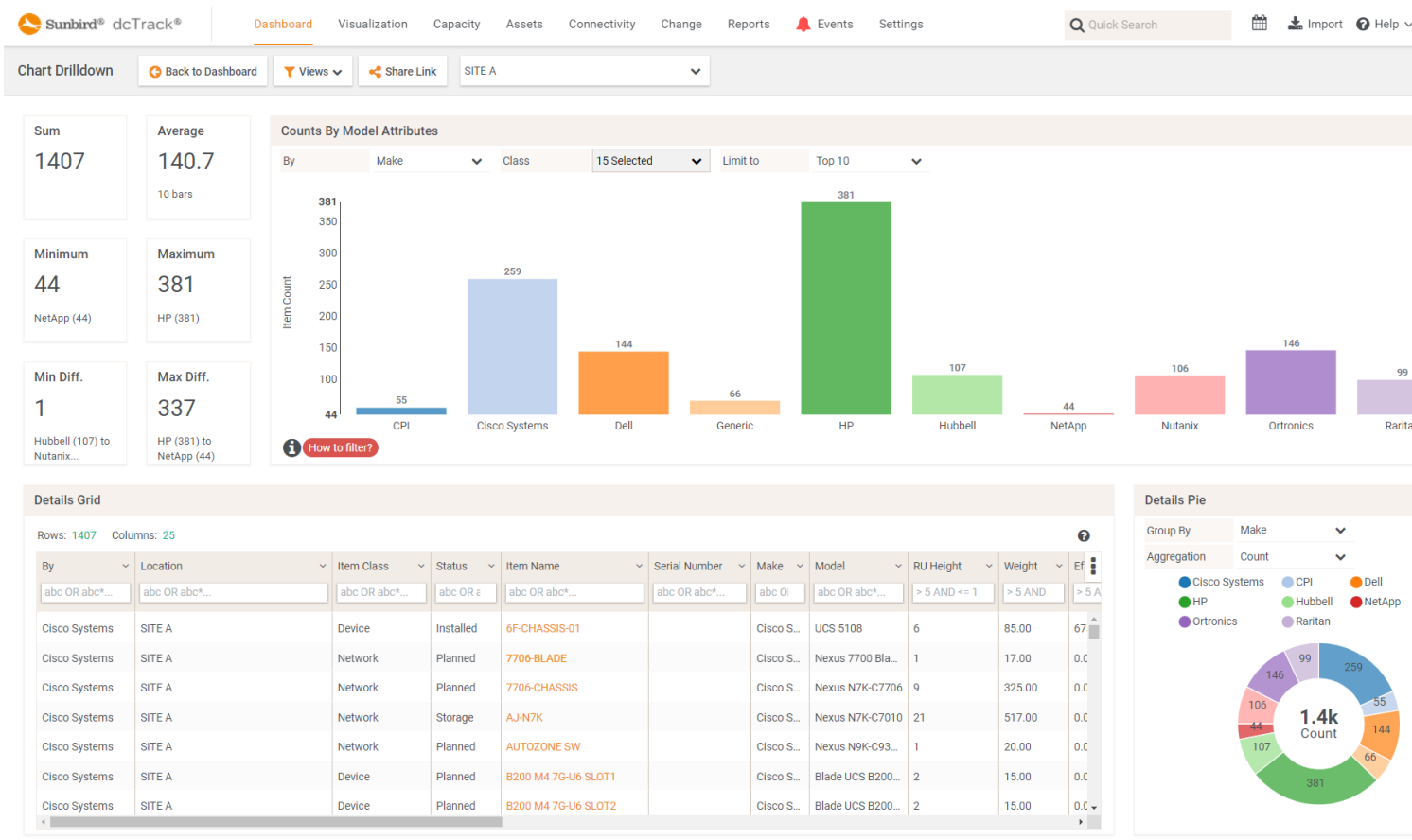
Drill Down to Chart Details

With any standard widget, you can drill down to the raw data that drives the chart. This feature is useful if you want to view, search or export the raw data for just a single chart in a tabular format.

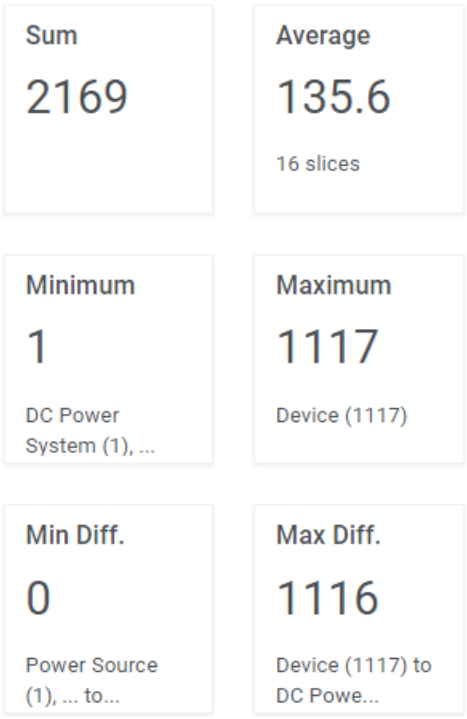
To access the drill-down view of a specific chart, click the drilldown icon on the chart.



The drill-down view provides a summary of the data, the original graphical chart, and the raw data in a widget similar to the SQL grid widget with a donut chart, so you can sort and filter the data as needed. You can also export the data to CSV or PDF.



The six squares in the top left corner provide a summary of the salient metrics for the chart. The Sum, Average, Minimum and Maximum, and Minimum Difference and Maximum Difference are shown for Bar Charts, while the Trend, Average, Minimum, Maximum, Minimum Change and Maximum Change are shown for a Line Chart.



Hover over the Average, Maximum, or Minimum value boxes in the drilldown view of any dashboard widget to display a red line indicating the respective value on the chart for faster analysis.

For Multi-bar and multi-line charts, the summary is calculated on the sum of the bars within a group or the sum of all lines.

Next to the summary is the original chart. Note that you can still filter the data in the chart.

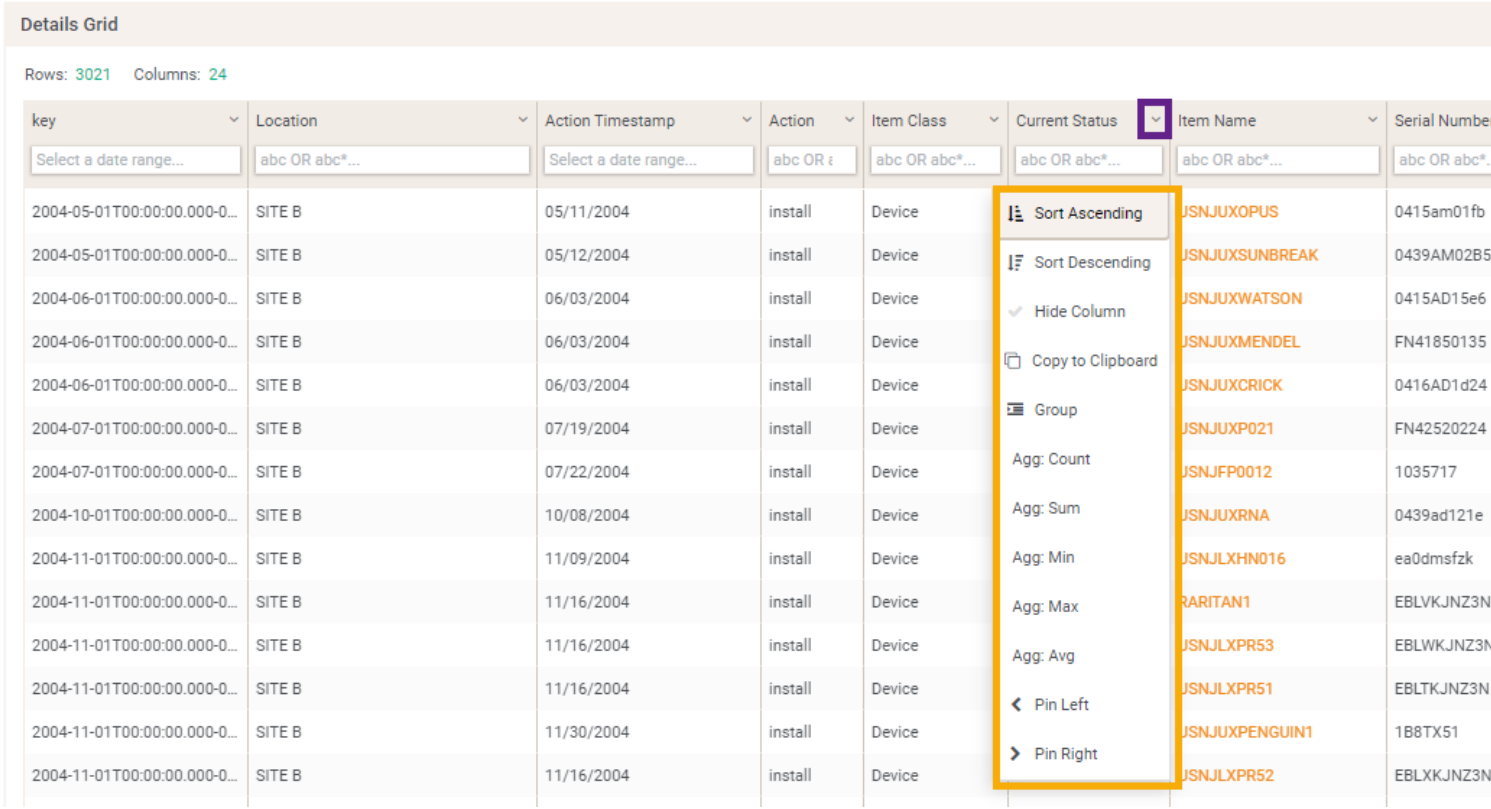
At the bottom in the Details Grid widget, you'll find the raw data. Click the Filters icon on the right to filter the data and to show and hide columns.

Details Grid Widget

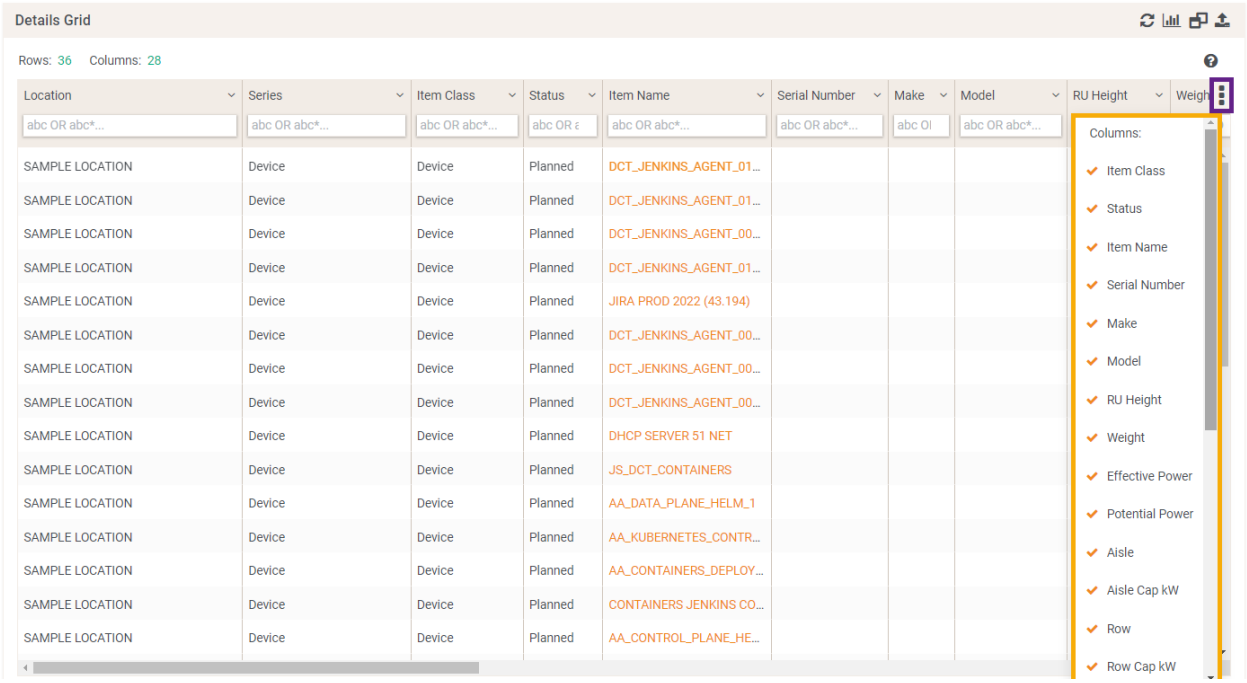
The Details grid widget supports the following functions for each column by clicking the downward chevron next to each column's title:

- Sort Ascending/Descending
- Hide Column
- Copy to clipboard
- Group by the column, and then you can use the aggregate function on another column.

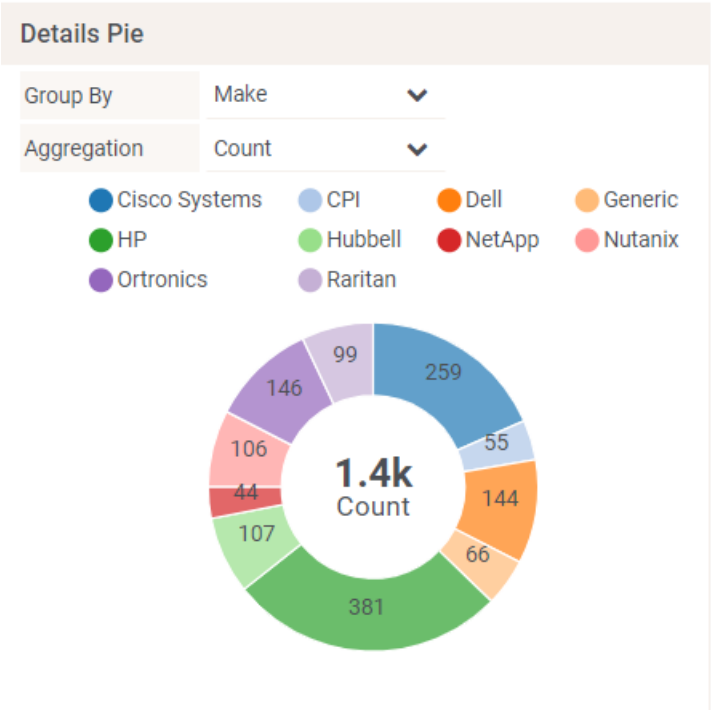
- Aggregate functions to do a count or find the minimum or maximum value and to calculate the sum or average, select the Agg: Remove option to clear the aggregate function
- Pin to the left or right



The three-dots configuration icon enables you to configure the grid by hiding/showing columns.



The drill-down view of every dashboard widget includes a doughnut chart of the data displayed in the Details Grid. This data can be grouped by make, class, status, and other attributes. It can also be aggregated by Average, Count, Maximum, Minimum, and Sum.



To export the data to CSV or PDF, click the Export icon in the upper right corner of the Details grid widget and select the appropriate option.

The PDF report will be produced according to the current view of the grid with filtering, sorting, and grouping.

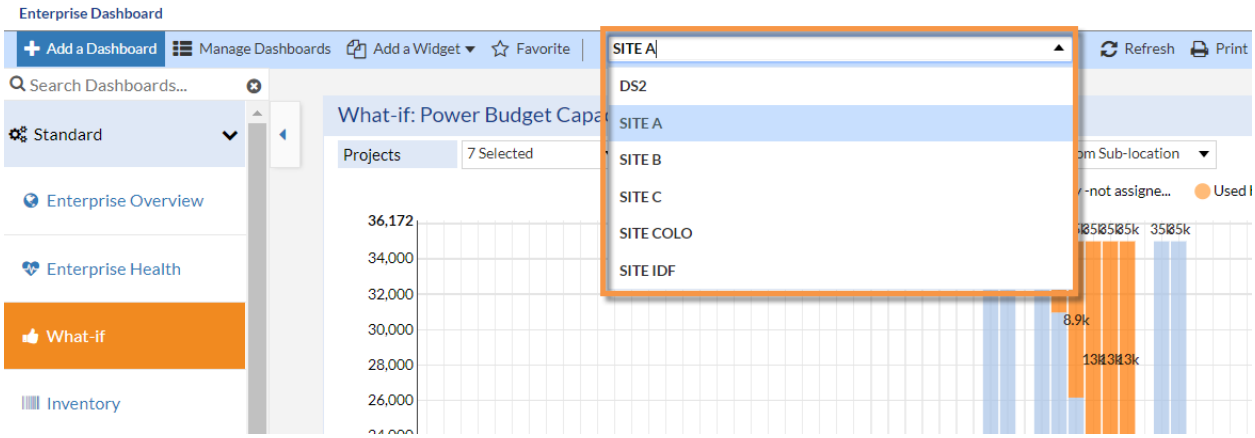
To share the drill down view of the widget, click the Share Link icon, and then copy and paste the shareable link into the application of your choice.

To return to the dashboard, click the Back to Dashboard button.

Note: On Stranded Power widgets on the Power Dashboard, you may notice that the drilldown view shows only one bar for stranded power and that the widget reverts back to the default sub-location parameter selection. This is by design to ensure that the data is accurate and useful, without meaninglessly aggregating the data. As stranded power is the main focus of the widget, the chart drilldown view focuses on just that.

Setting the Location for Your Dashboard Data

Excluding the Enterprise Overview, Enterprise Health, and custom dashboard pages, each Standard dashboard page has a location selector dropdown that allows you to define the location that you want data for.

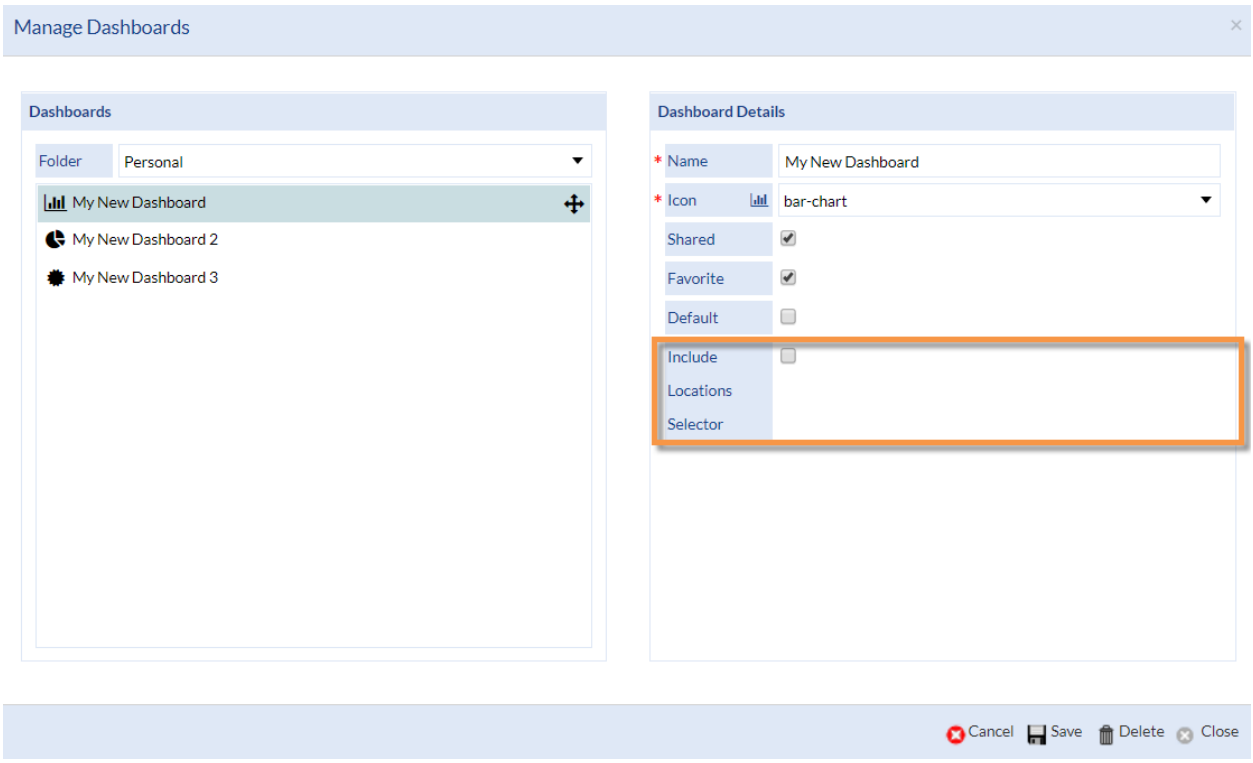


When you select a new location, the widgets will refresh automatically with the data for the location you have selected.

If there is no data for a widget for the new location, the widget will display an error.

Adding a Location Selector to a Personal Dashboard

To add a location selector to a Personal dashboard, check the Includes Location Selector checkbox under the Dashboard Details panel in the Manage Dashboards popup.

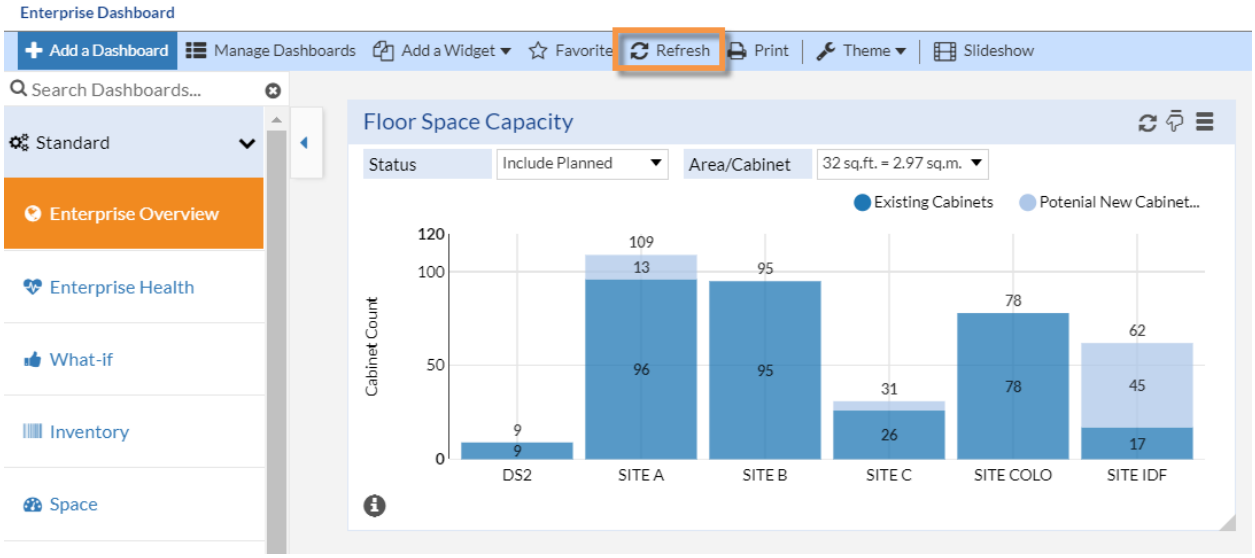


Note: You will only be able to select the locations and to see the data that you have the appropriate permissions for.

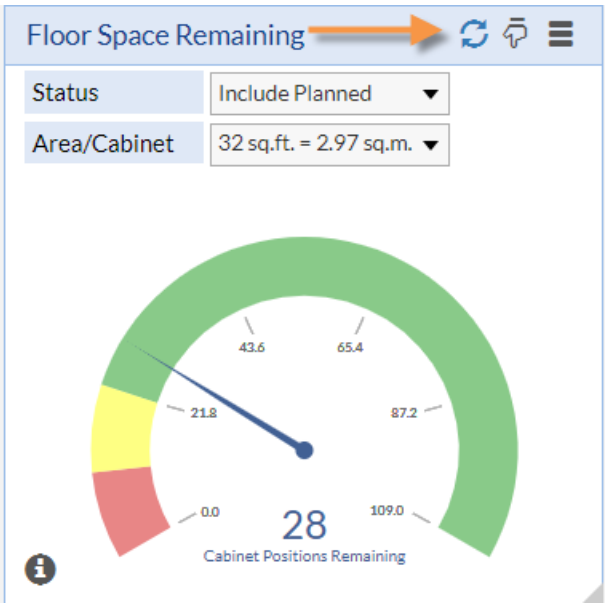
Refreshing Dashboard and Widget Data

You can refresh either the entire dashboard page or a specific widget to update and see the latest data.

To refresh the entire dashboard page, click the Refresh icon in the toolbar.



To refresh an individual widget, click the Refresh icon in the upper-right corner of the widget.

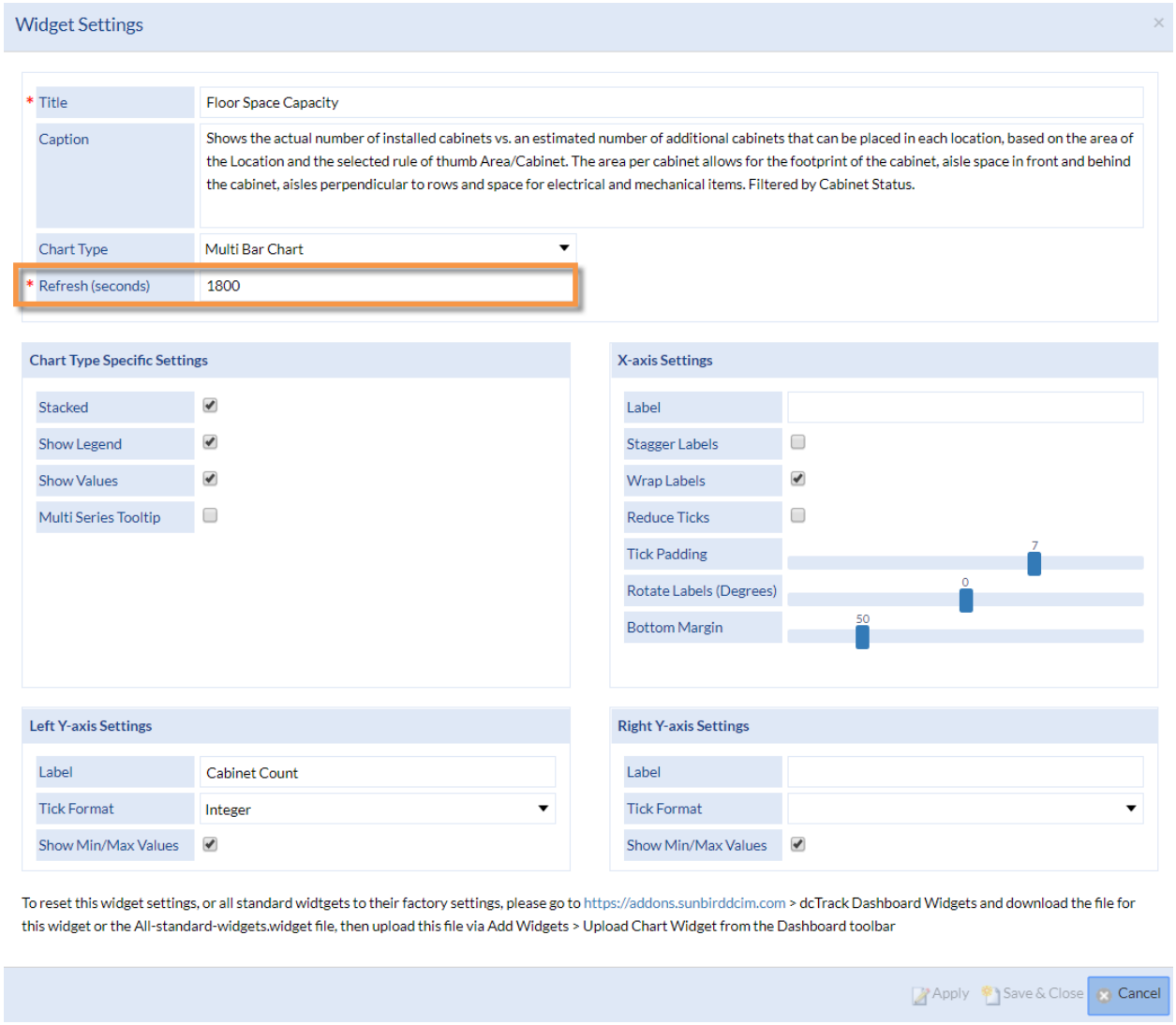


Note: This icon is normally hidden until hovering over any part of the widget.

You can also set the Refresh time for the widget through the Widget Settings.

1. Click the Widget Settings (hamburger) icon in the upper right corner of the widget.
2. Select the Widget Settings option. The Widget Settings pop up box will display.

3. In the Widget Settings pop up, type in the desired Refresh duration in seconds. The minimum number of seconds is 300.



4. Click the Save and Close icon to save your changes and return to the dashboard.

Reordering, Resizing, and Maximizing Dashboard Widgets

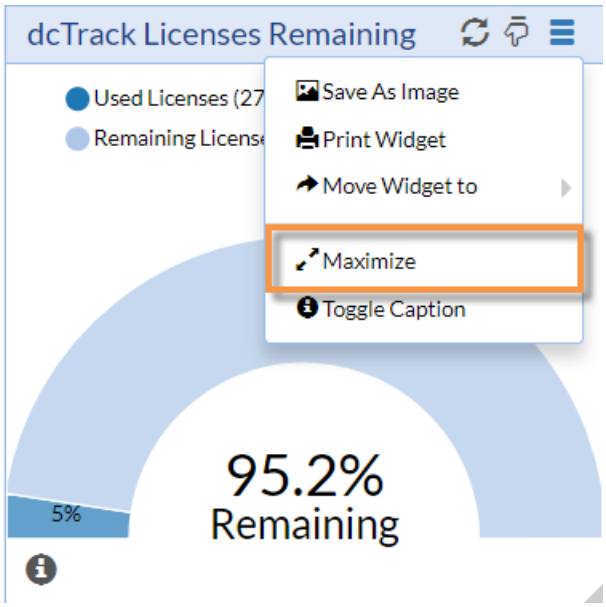
The widgets on each dashboard page can be reordered and resized for more effective data analysis and to give you more control over how you use the space on each dashboard.

While resizing a widget, a green shadow indicates the new placement or size of the widget that will result when the mouse button is released.

To move or reorder a widget, hover your cursor over the widget's title area, then click and drag the widget to the desired area of your current dashboard page.

To resize a widget, hover your cursor over any edge or corner then drag the widget to your desired size. The widget layout is designed so that no blank space is allowed above a widget, but it is allowed to the left or to the right of a widget.

You can also zoom on a widget by temporarily maximizing it. To maximize a widget, either double-click the title area or click the Actions menu for the widget and selecting Maximize. To restore the widget to its original size, double-click the title area again or click the Actions menu and select Restore. This action is not saved and is allowed for all users regardless of their roles.



Other widgets on the dashboard will shift and resize to accommodate the new size or location. While a widget is maximized, it is not possible to move or resize other widgets.

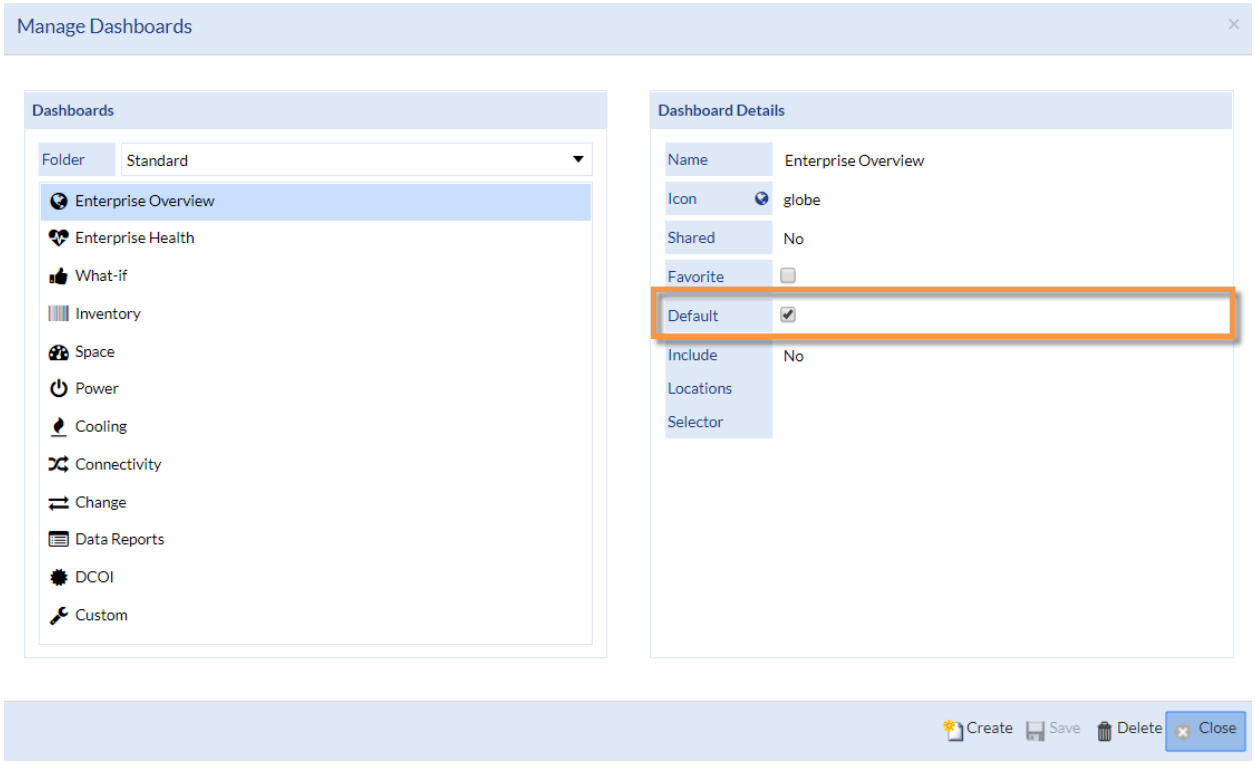
Setting a Default Dashboard Page

You can set a dashboard page to open by default when you access the Dashboard tab.

To make the dashboard page your default:

1. In the Dashboard tab, click the Manage Dashboards icon.
2. In the Manage Dashboards dialog pop up, in the left Dashboards panel, select the dashboard that you want to make your default. Once selected, the Dashboard Details panel on the right of the pop up will populate with the selected dashboard's details.

3. In the Dashboard Details panel, check the checkbox next to the Default field to make the dashboard your default.



4. Click the Save icon to save your changes.

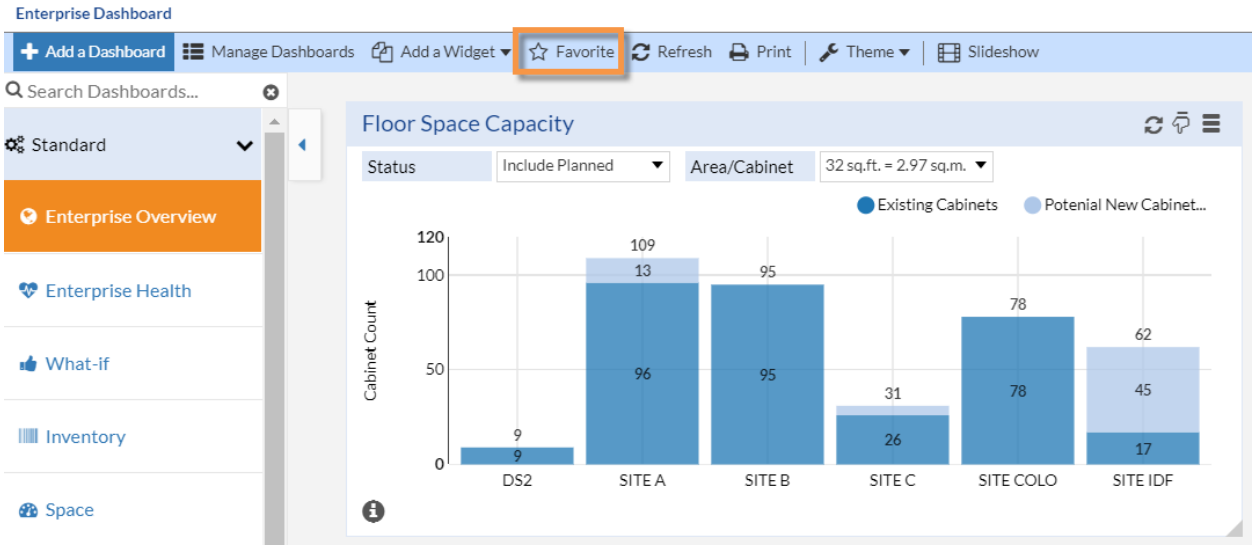
Setting a Dashboard Page as a Favorite

You can set any dashboard page as a favorite to add it to your Favorites folder in the Dashboard side panel.

To share/unshare a dashboard page:

1. In the Dashboard tab, navigate to the dashboard you want to favorite.
2. Click the Favorite icon in the Dashboard toolbar. When the dashboard is shared, the Favorite icon text will change to Remove Favorite.

3. Click the Remove Favorite icon to remove the dashboard from your Favorites folder.

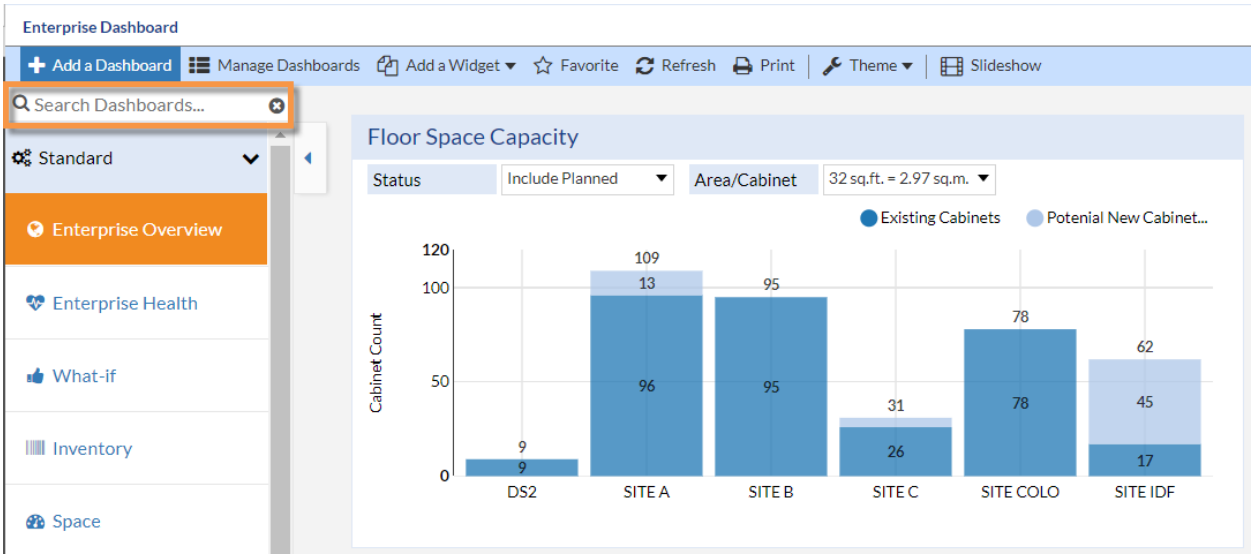


Personal dashboard pages in the Favorites folder will have the owner's (creator's) username appended to the page name in parentheses.

Note: Since Favorite dashboards accessed from the Favorite folder are read only, to edit a Favorite dashboard that you created, you need to select it within your Personal folder.

Searching for a Dashboard Page

You can search for a dashboard page by typing its name in the search box at the top of the Dashboard tab side panel.



Simply type in a few letters from the dashboard page name into the search box, and any page containing those letters in order will be displayed in the side panel. All dashboards that do not match and any folders with no matching dashboards will be hidden.

To cancel the search, delete the text in the search box or click the Cancel (X) icon in the search box.

Reordering Dashboard Pages

You can modify the order in which dashboard pages are listed in the Personal and Favorite folders. The order is specific to each user and will not affect how other users see the same dashboard pages.

The order can be changed in Personal and Favorite folders that contain more than one dashboard.

To modify the order of your dashboard pages within a Personal or Favorites folder:

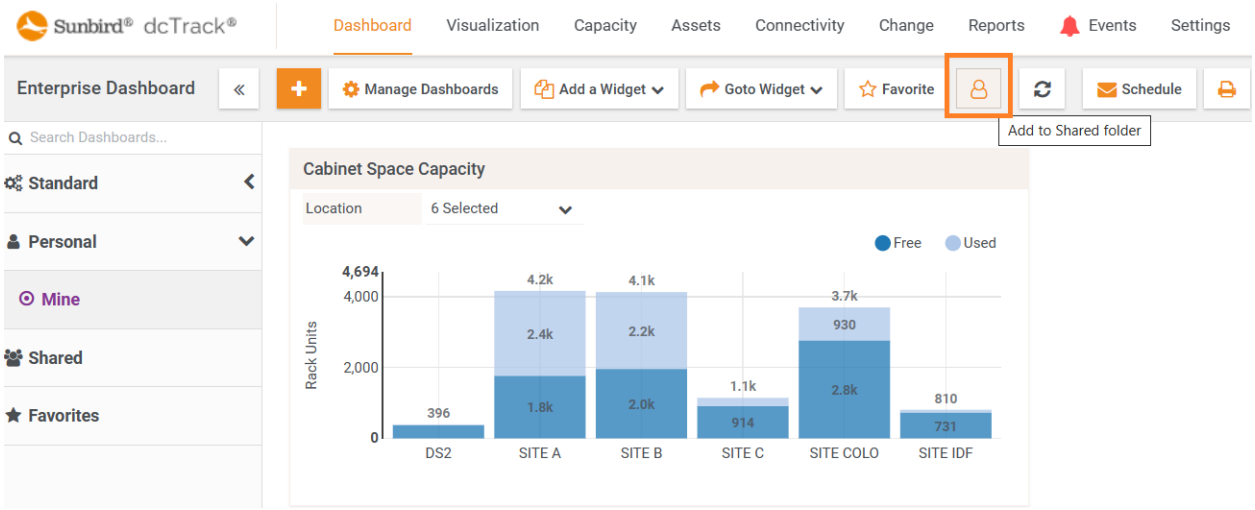
1. In the Dashboard tab, click the Manage Dashboards icon.
2. In the Manage Dashboards dialog pop up, in the left Dashboards panel, select the Folder whose order you want to edit.
3. In the left Dashboards panel, drag and drop the dashboards to change their order.
4. Click the Save button to save your changes.

Sharing a Dashboard Page

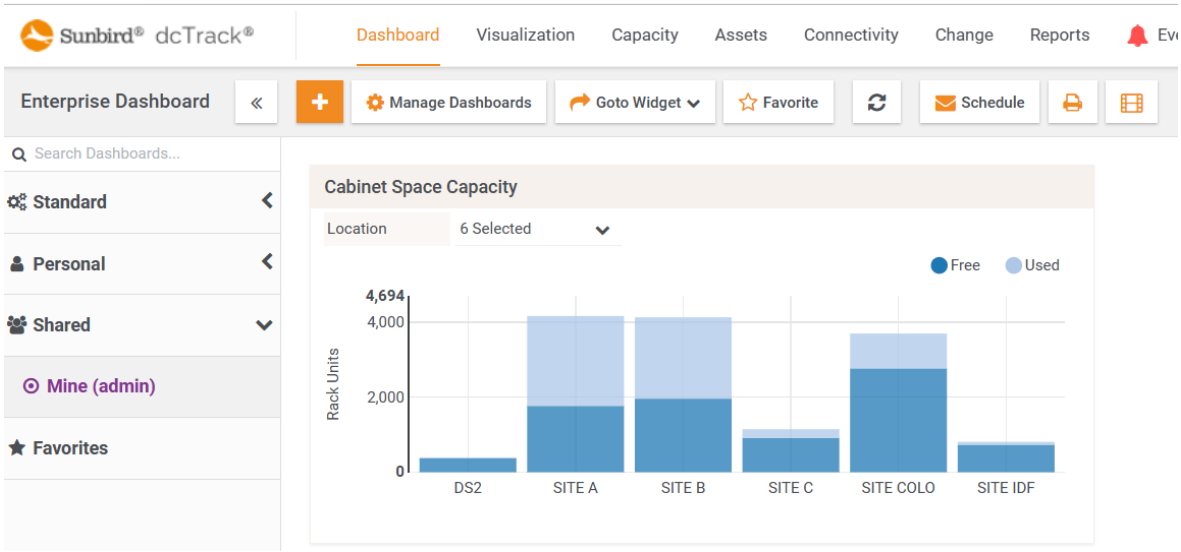
You can share a Personal dashboard to make it publicly viewable and read only by other users.

To share a dashboard page:

1. In the Dashboard tab, navigate to the dashboard you want to share.
2. Click the icon with the tool tip Add to Shared Folder in the Dashboard toolbar. Your personal dashboard page is added to Shared folder.



Dashboard pages in the Shared folder will have the owner's (creator's) username appended to the page name in parentheses.



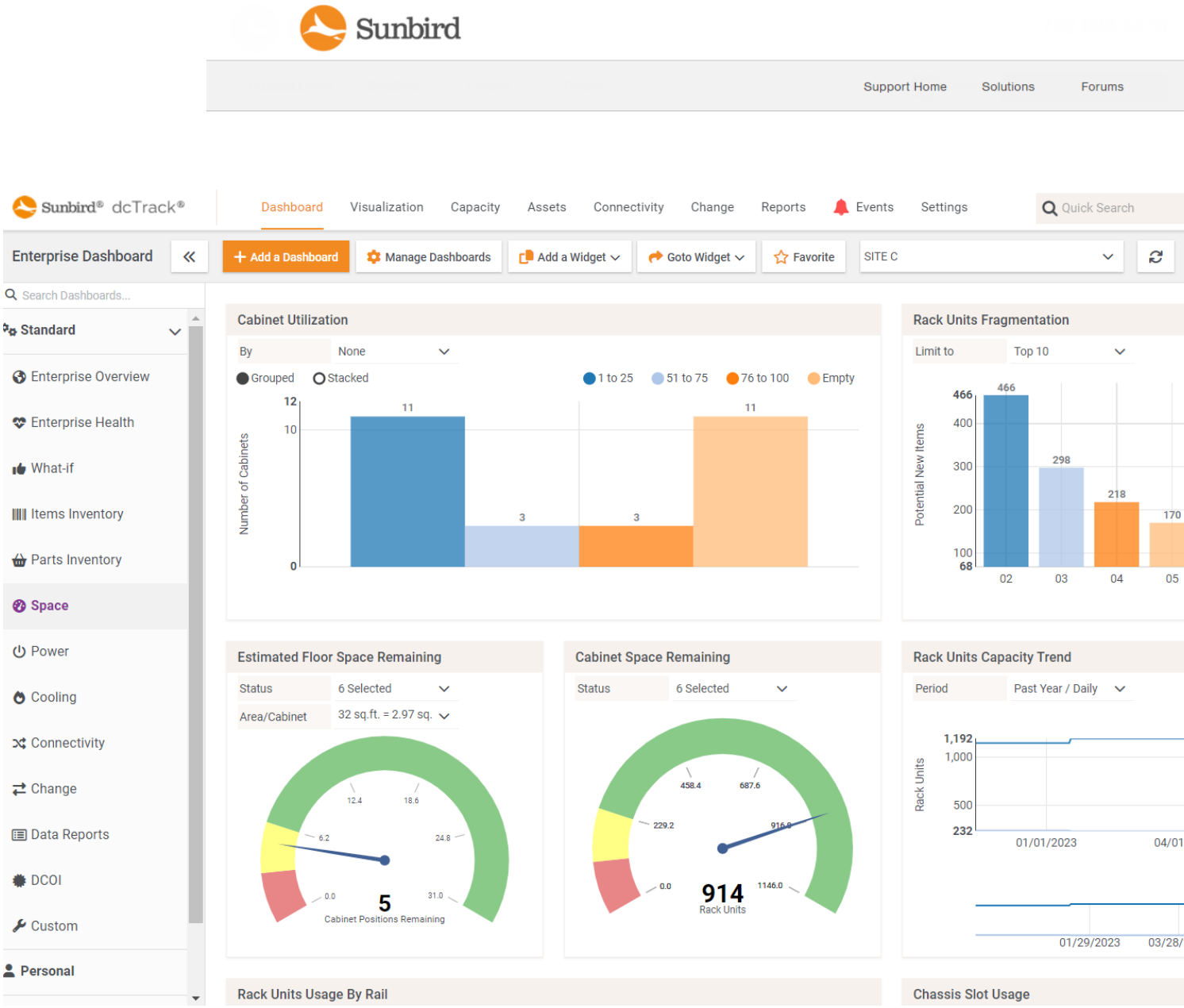
To remove from shared folder click the same icon and it will remove your personal dashboard page from the Shared folder. You need to be in Personal folder to remove your dashboard page from the Shared folder.

Note: Since Shared dashboards accessed from the Shared folder are read only, to edit a Shared dashboard that you created, you need to select it within your Personal folder.

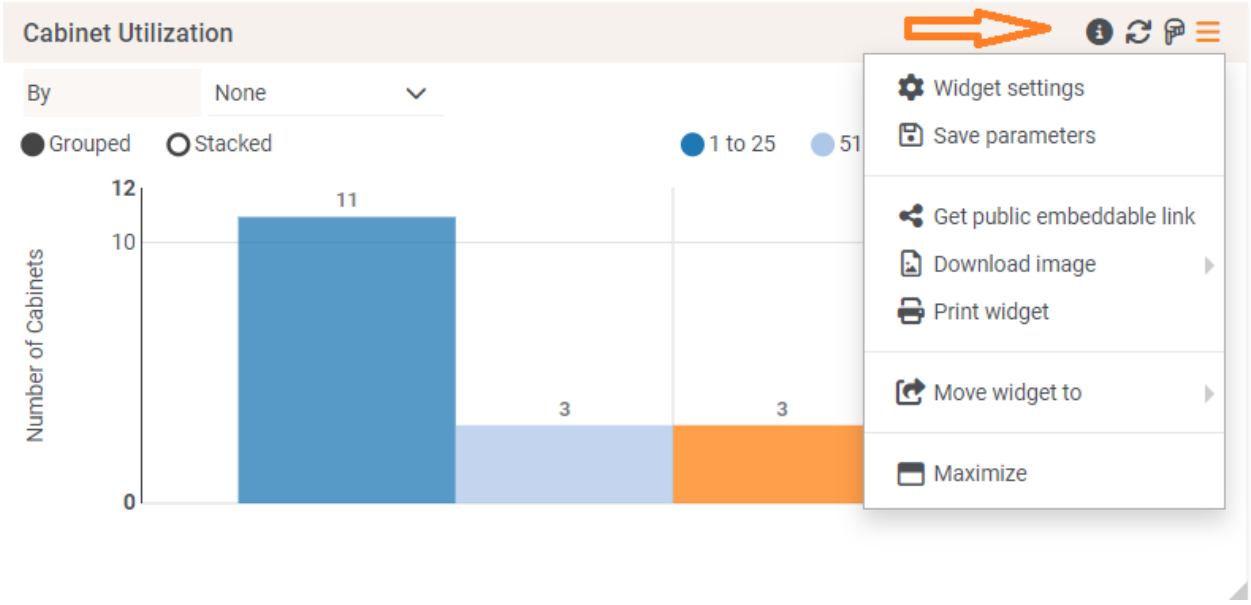
Printing Dashboard Pages, Widgets and Detail

Whether printing a Dashboard page, an individual Widget or the detail behind a Widget, you can choose to use a customized logo in the header of the report. To assign a customized logo navigate to Settings > dcTrack Settings > Application Administration > Display & Local and upload the image you want to use. For more information on assigning a custom logo please refer to Configure Display Settings.

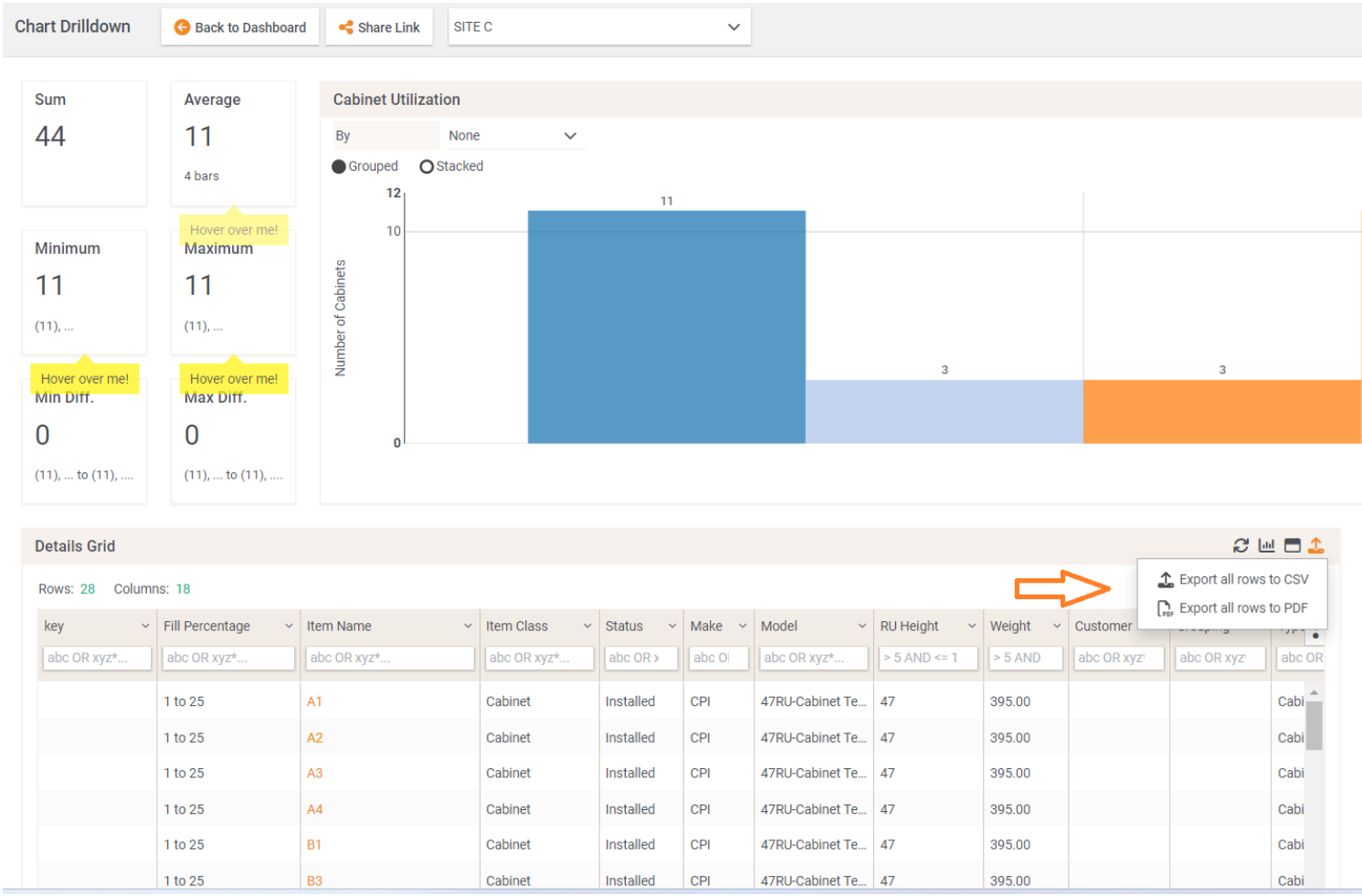
To print a Dashboard page click the Print button in the Dashboard tool bar while the page is displayed.



To print an individual Widget, click the hamburger icon of the widget and select print from the menu.



To print the detail of a widget drill down into the widget and click the download icon and select your print option from the menu.



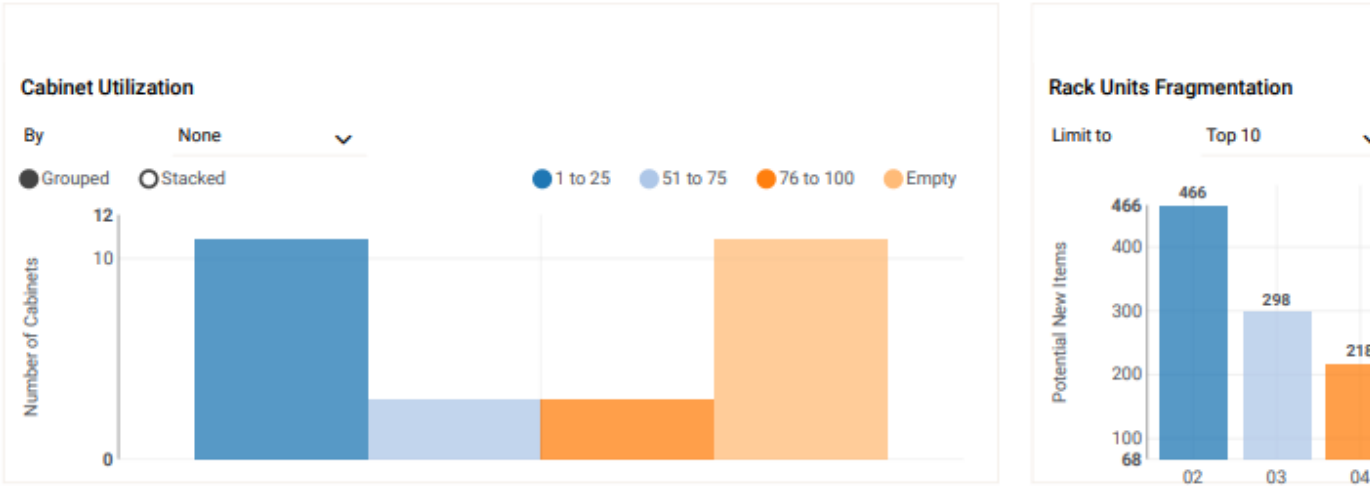
Your logo will appear in the upper right corner of each report.

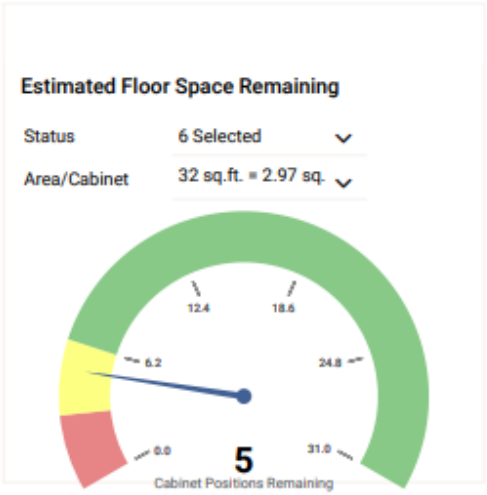
Ex. Printing a Dashboard Page

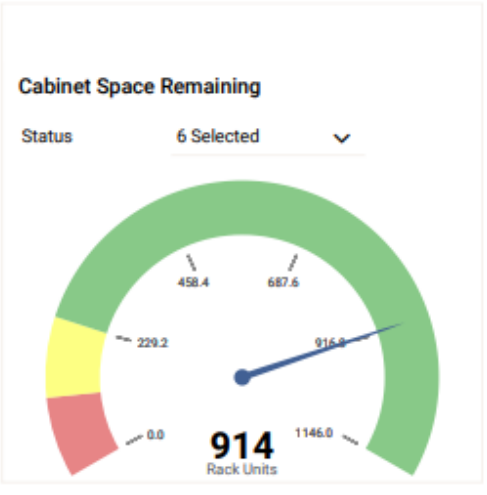
11/15/23, 3:01 PM

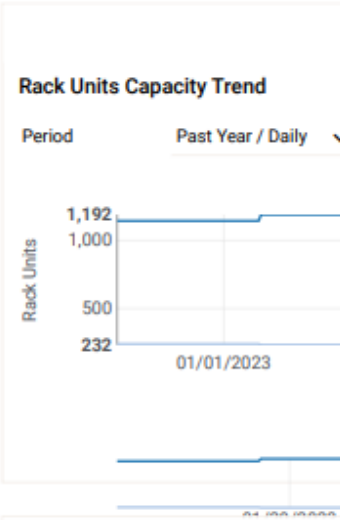
dcTrack® — Operations — Space Dashboard

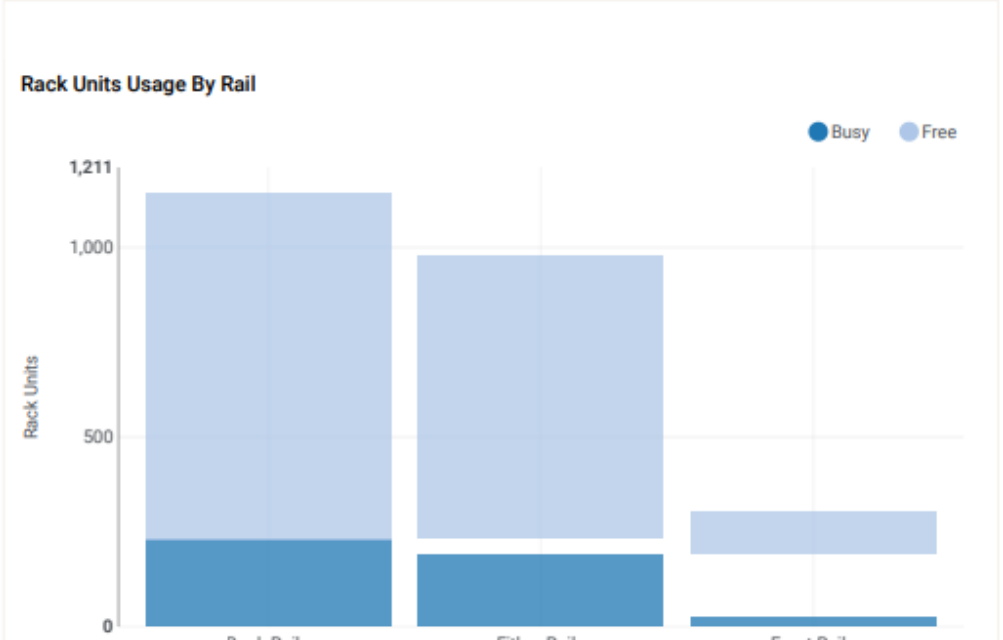
Sunbird® dcTrack®

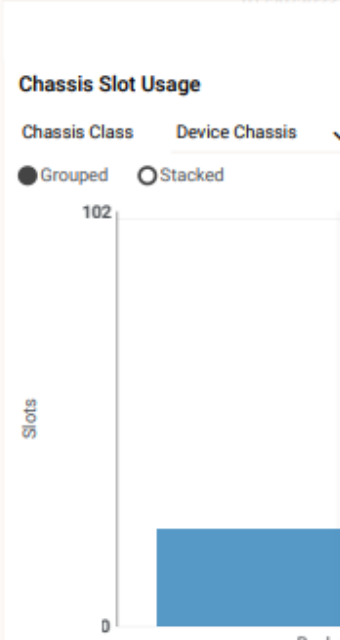








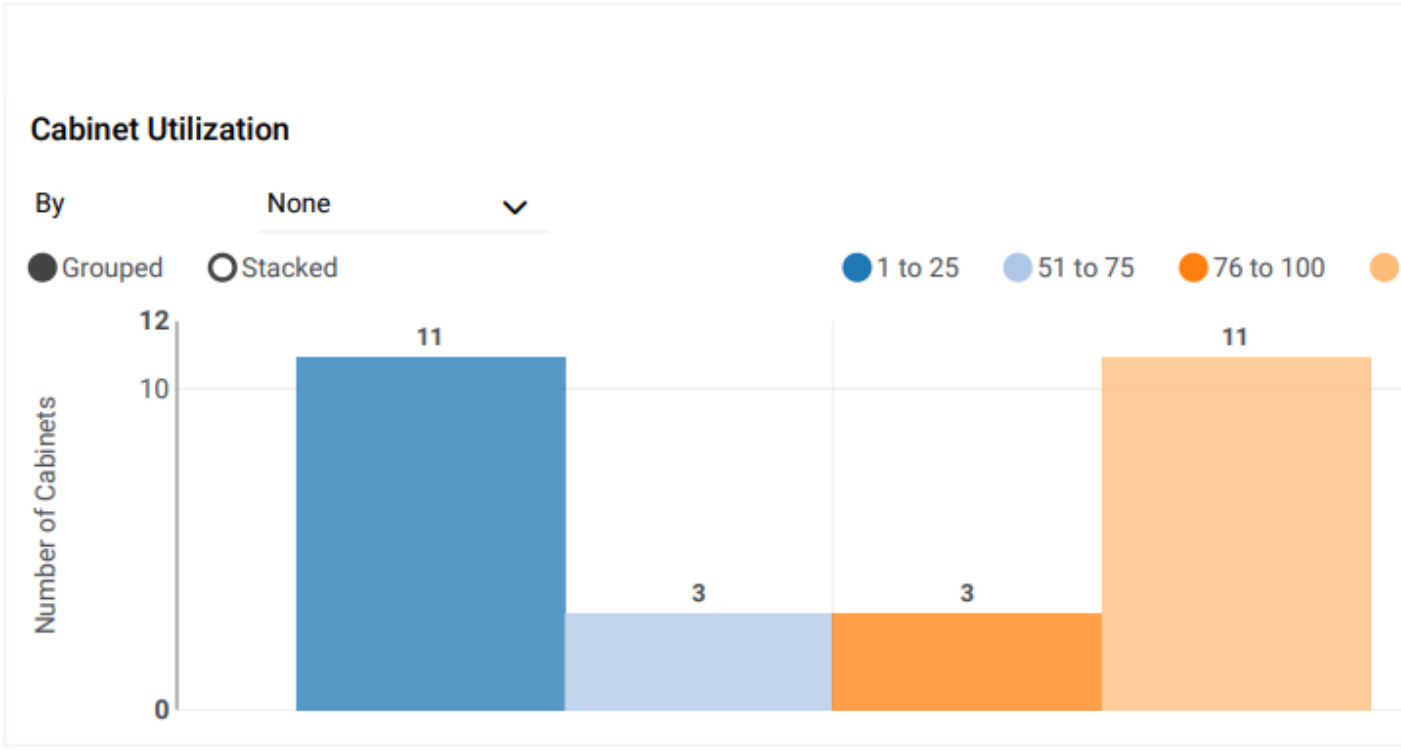




Ex. Print an Individual Widget

11/15/23, 3:04 PM dcTrack® — Operations — Dashboard Widget

Sunbird® dcTrack®



Ex. Print an Widget Detail

Sunbird® dcTrack®

Cabinet Utilization

Number of Rows: 28, Selected Rows: 0,

key	Fill Percentage	Item Name	Item Class	Status	Make	Model	RU Height	Weight	Customer	Grouping	Type	Function	Proj Num
	1 to 25	A1	Cabinet	Installed	CPI	47RU-Cabinet TeraFrame-FH1A	47	395.00			Cabinet		
	1 to 25	A2	Cabinet	Installed	CPI	47RU-Cabinet TeraFrame-FH1A	47	395.00			Cabinet		
	1 to 25	A3	Cabinet	Installed	CPI	47RU-Cabinet TeraFrame-FH1A	47	395.00			Cabinet		
	1 to 25	A4	Cabinet	Installed	CPI	47RU-Cabinet TeraFrame-FH1A	47	395.00			Cabinet		
	1 to 25	B1	Cabinet	Installed	CPI	47RU-Cabinet TeraFrame-FH1A	47	395.00			Cabinet		
	1 to 25	B3	Cabinet	Installed	CPI	47RU-Cabinet TeraFrame-FH1A	47	395.00			Cabinet		
	1 to 25	C3	Cabinet	Installed	APC	42RU-Rack AR3350	42	390.00					
	1 to 25	C4	Cabinet	Installed	APC	42RU-Rack AR3350	42	390.00					
	1 to 25	D4	Cabinet	Installed	APC	42RU-Rack AR3350	42	390.00					
	1 to 25	N2	Cabinet	Install	Ortro	45RU-	45	0.00					

Note: Some users may experience difficulty with widgets printing over page breaks when printing a dashboard. To avoid this issue, adjust your dashboard layout to a 3x3 grid (so your widgets are three rows tall and you can fit three stacked widgets per page), and then print your dashboard in landscape orientation. To figure out how to make a widget three rows tall, resize your widget to the smallest height then drag your mouse to expand it one row taller. Another way to adjust the layout is to resize your browser to a width of about 1300 pixels.

For additional information please see the video at

How to Print Dashboards and Project to Slide Show

Adding a New Widget

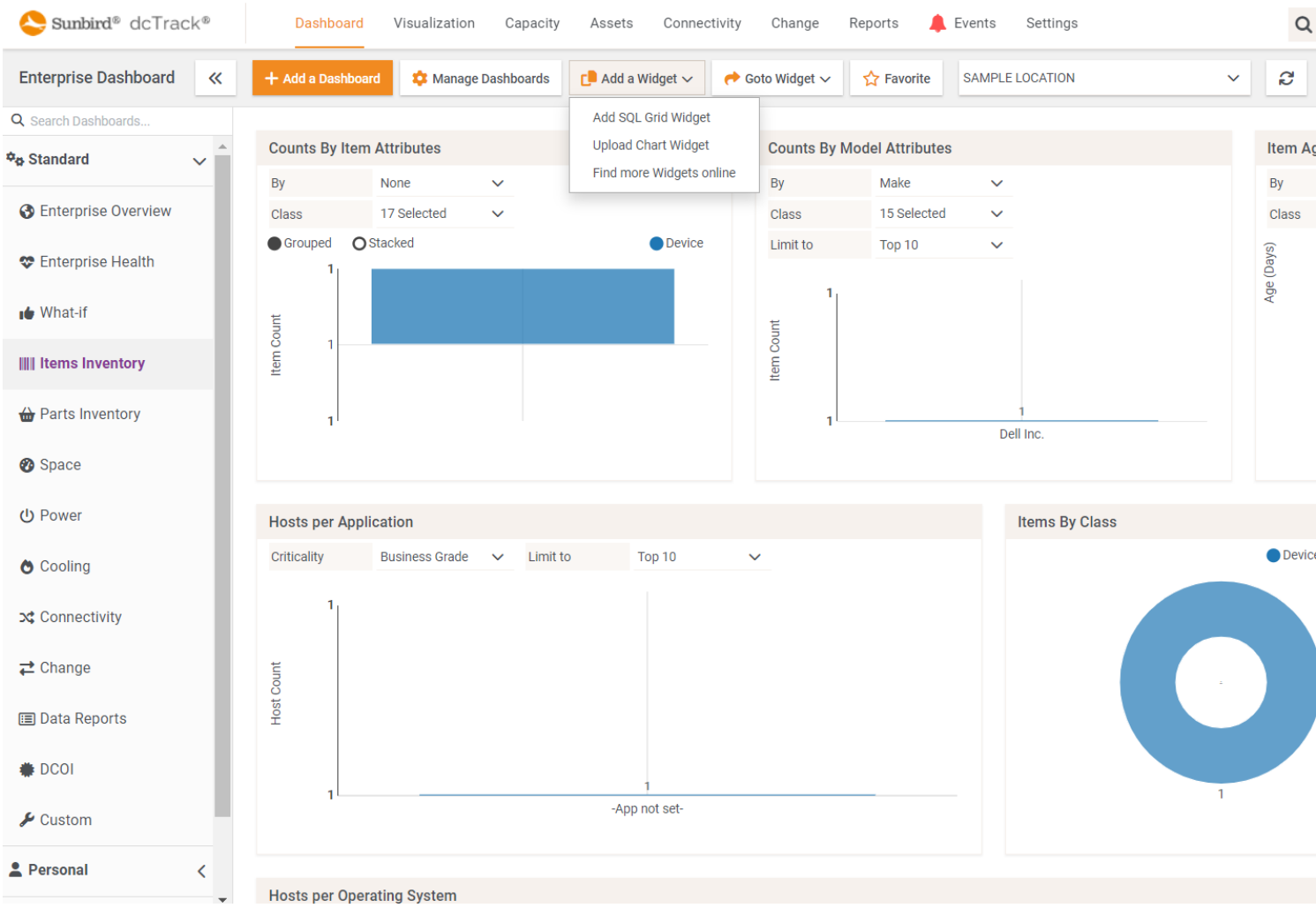
You are able to add three types of new widgets through the Dashboard toolbar to Standard or Personal dashboard pages: SQL widgets, Health Tile widgets, and Chart widgets. For more information on these widget types, see **Custom Widgets**.

Adding a Widget to a Standard or Personal Dashboard

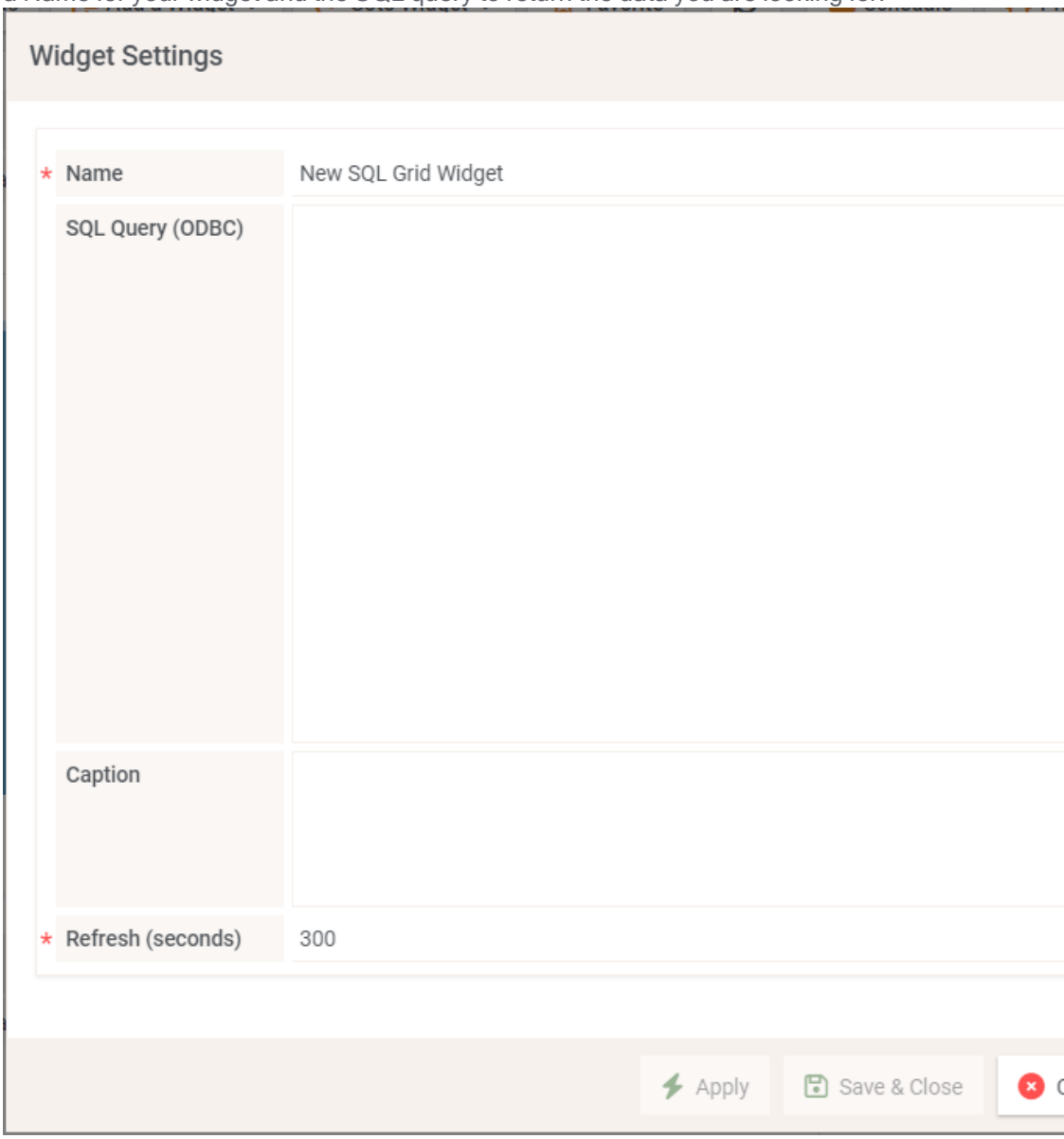
When adding new widgets, dcTrack allows you to add a SQL or Health Tile widgets directly to both Standard and Personal Dashboards. Chart widgets however, can only be uploaded to Standard Dashboards. To place a widget on a Personal Dashboard, you must copy the widget from an existing Standard Dashboard. For example, if you want to upload a new widget to add to your personal Dashboard, first you would download the widget to a Standard Dashboard and then copy it to your Personal Dashboard.

To add a new SQL, or Chart Widget to a Standard dashboard:

1. Navigate to the Standard dashboard page where you want to add the widget.
2. Click the Add a Widget icon in the Dashboard tab menu.

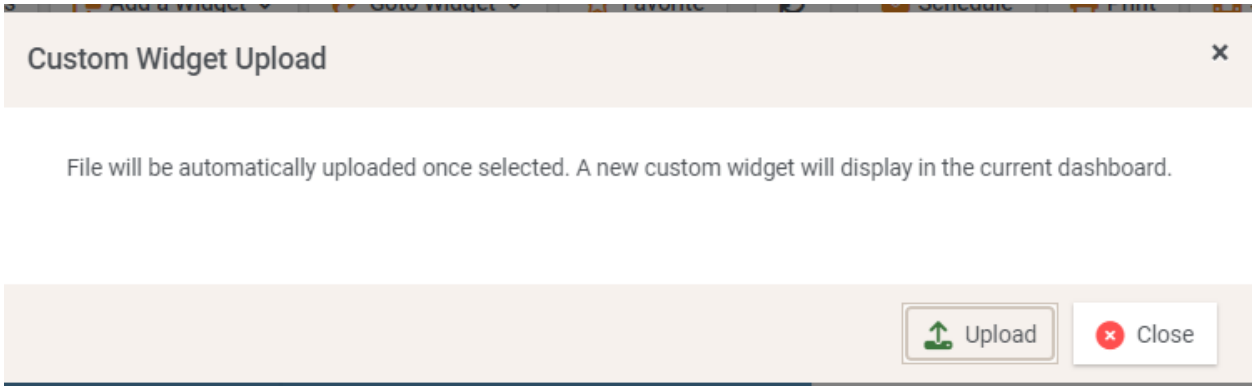

Sunbird® dcTrack®
Dashboard
Visualization
Capacity
Assets
Connectivity
Change
Reports
Events
Settings
Enterprise Dashboard
+ Add a Dashboard
Manage Dashboards
Add a Widget
Goto Widget
Favorite
SAMPLE LOCATION
Add SQL Grid Widget
Upload Chart Widget
Find more Widgets online
Search Dashboards...
Standard
Enterprise Overview
Enterprise Health
What-if
Items Inventory
Parts Inventory
Space
Power
Cooling
Connectivity
Change
Data Reports
DCOI
Custom
Personal
Counts By Item Attributes
By None
Class 17 Selected
Grouped
Stacked
Device
Item Count
Counts By Model Attributes
By Make
Class 15 Selected
Limit to Top 10
Item Count
Dell Inc.
Item Ag
By
Class
Age (Days)
Hosts per Application
Criticality Business Grade
Limit to Top 10
Host Count
-App not set-
Items By Class
Devic
Hosts per Operating System

3. Select the desired widget type from the Add a Widget dropdown.
    a. If you are adding a SQL Grid Widget, select SQL Grid from the dropdown
        - Provide a Name for your widget and the SQL query to return the data you are looking for.



    b. To upload a new Chart widget, select the Upload Chart Widget option. From the dialog box, navigate to the directory where your widget resides, select it and click upload.

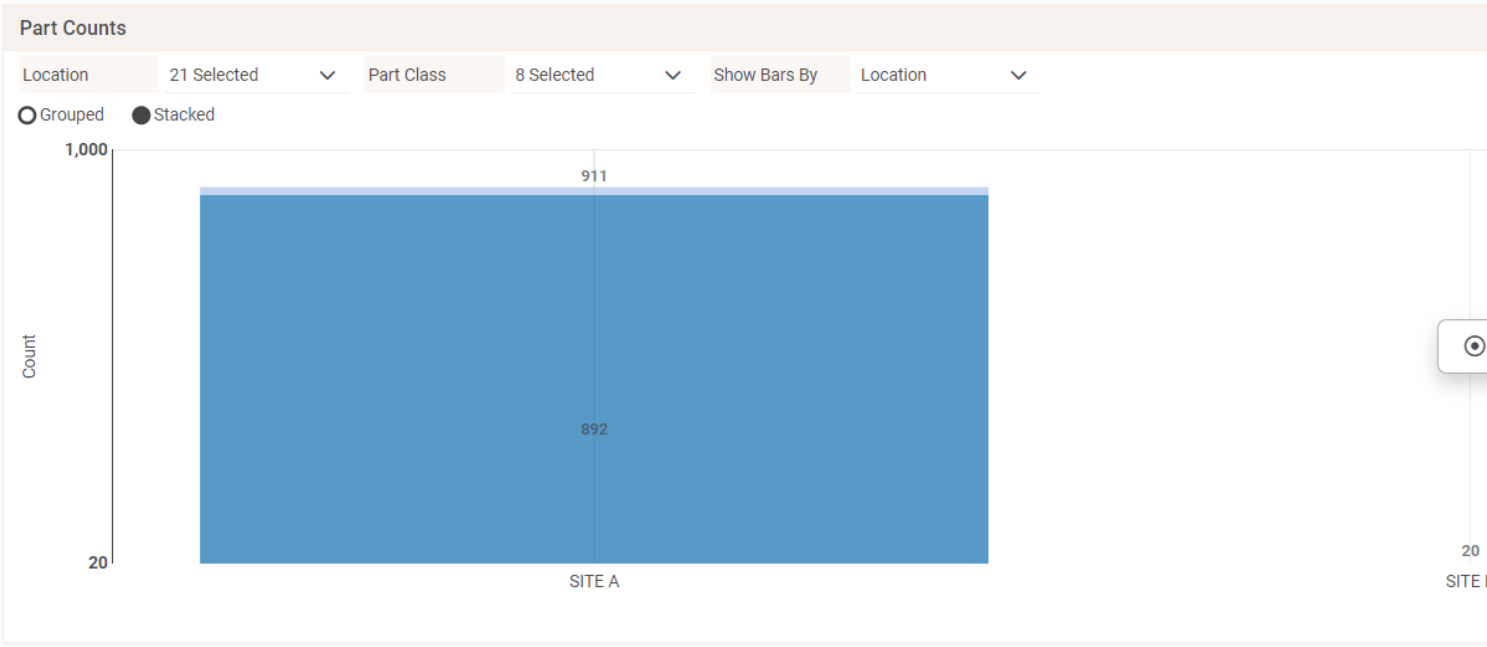
c.



Adding a Widget From a Standard Dashboard Page via Copying

You can also copy a widget from a Standard dashboard page to a Personal Dashboard page.

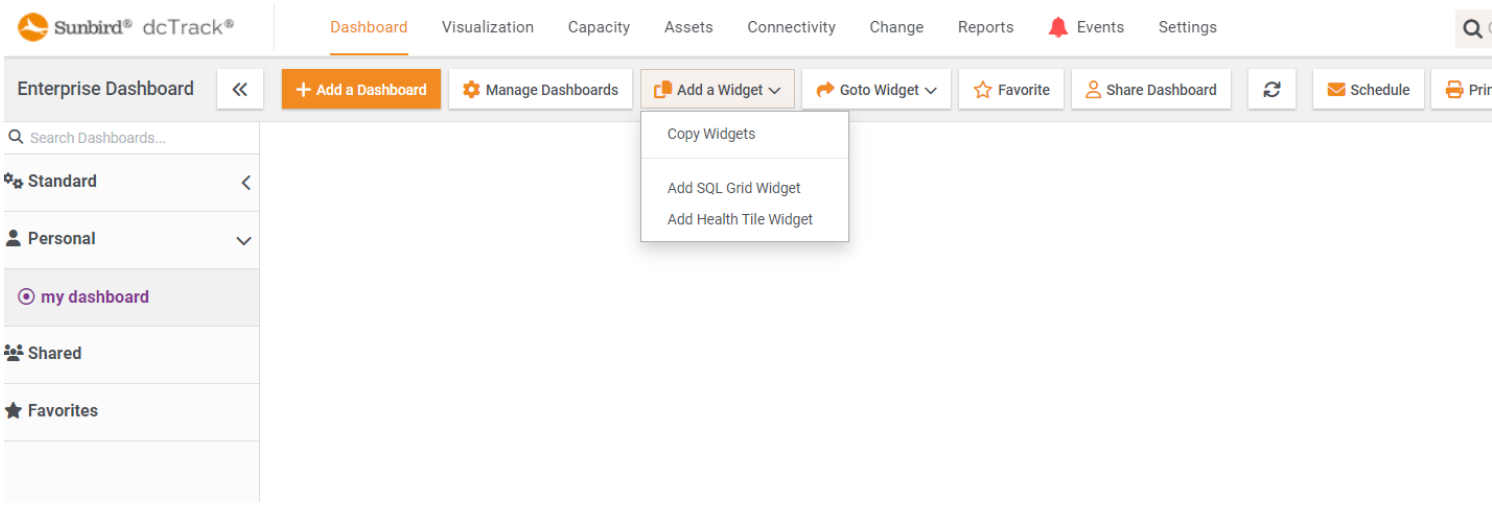
1. Navigate to the Widget you wish to copy and click the Actions icon in the top right corner of the widget (three horizontal lines)



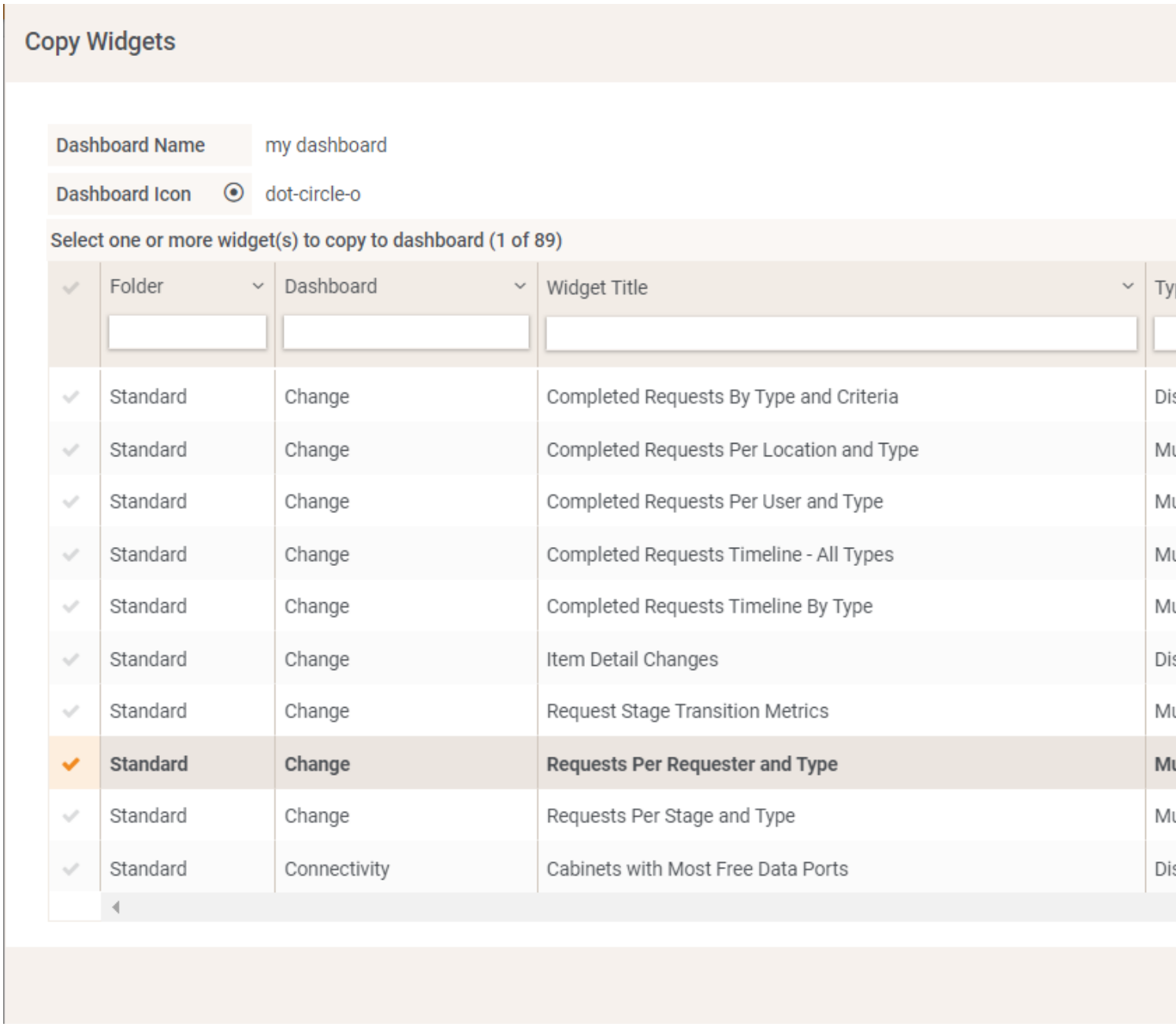
2. Select the Copy option from the menu and provide the number of copies you would like and the Personal Dashboard you wish to copy to
3. Your selected widget will be added to your Personal Dashboard

You can also choose to copy Widgets directly from your Personal Dashboard.

1. Navigate to the Personal Dashboard you wish to copy to
2. Select the Copy Widgets option from the drop down menu



3. Select the Widgets you wish to copy from the dialog and click Copy



4. Your selected Widgets will be copied to your Dashboard

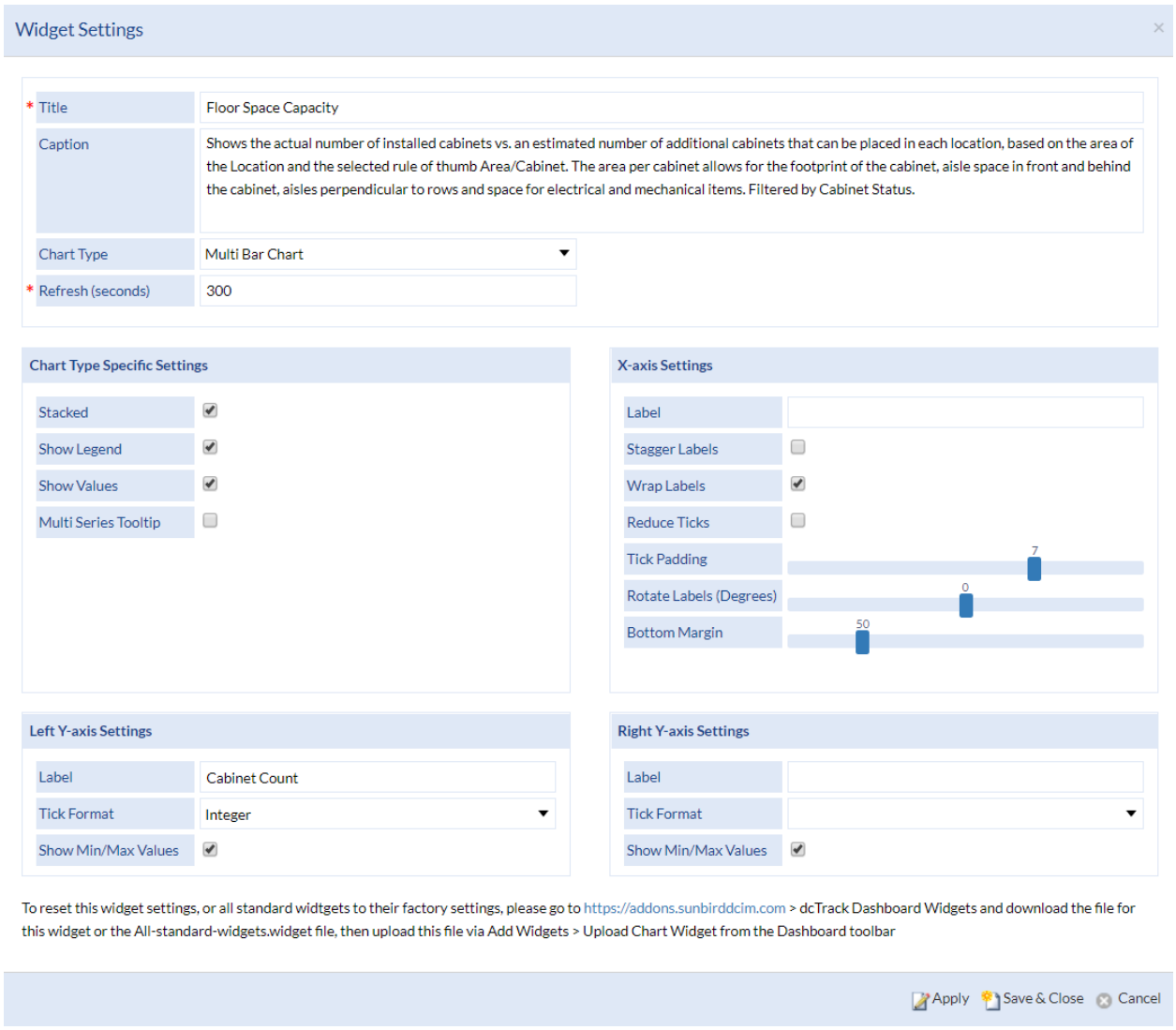
Configuring Widget Settings

You can edit the settings of each widget by through the Actions menu > Widget Settings popup.

1. Click the Actions menu > Widget Settings for the widget you want to edit.
2. In the Widget Settings popup, make your desired changes.
3. Click the Save button to save your changes.

Editable widget settings include the following:

- Title
- Caption
- Chart type
- Refresh rate (seconds)
- Chart type specific settings
- X-axis settings
- Left Y-axis settings
- Right Y-axis settings



Widget Settings for SQL Grid and HTML Widgets

Additionally, each SQL Grid, and HTML widget can be configured or edited by clicking the Actions icon and selecting Widget settings.

For SQL Grid and HTML widgets, you can edit the widget title and the code, and then click the Save button to save your changes. Additionally, the SQL Grid widget allows for the setting of a Refresh Interval. Enter a number of seconds for the widget to automatically refresh. Enter 0 to disable automatic refresh. You will still be able to click the widget's refresh button to manually refresh it.

After confirmation, the widget will refresh.

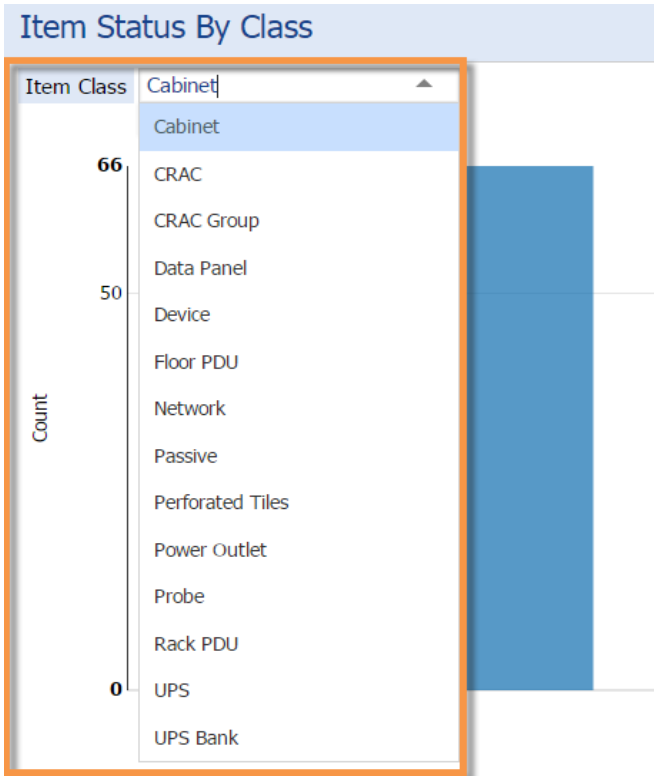
For additional information please see the video at

How to Customize Dashboard Widgets

Filtering Widget Data

Some of the widgets include additional dropdown sub-menus (parameters) that allow you to filter the data or to provide additional granularity.

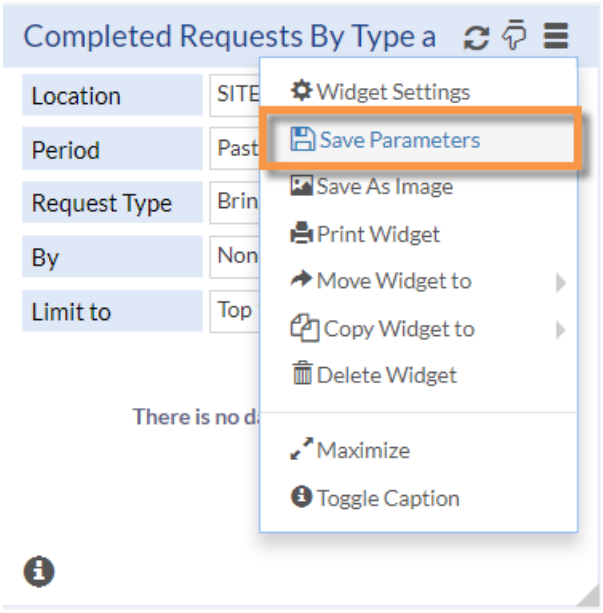
Click the dropdown in a specific widget to select the parameter value.



These parameter values may be defined by default in dcTrack or customized to your organization.

When a parameter is changed, the widget will automatically update with the data for the new parameter value.

To save a particular parameter value as the default selection, click the Actions menu > Save Parameters in the widget.



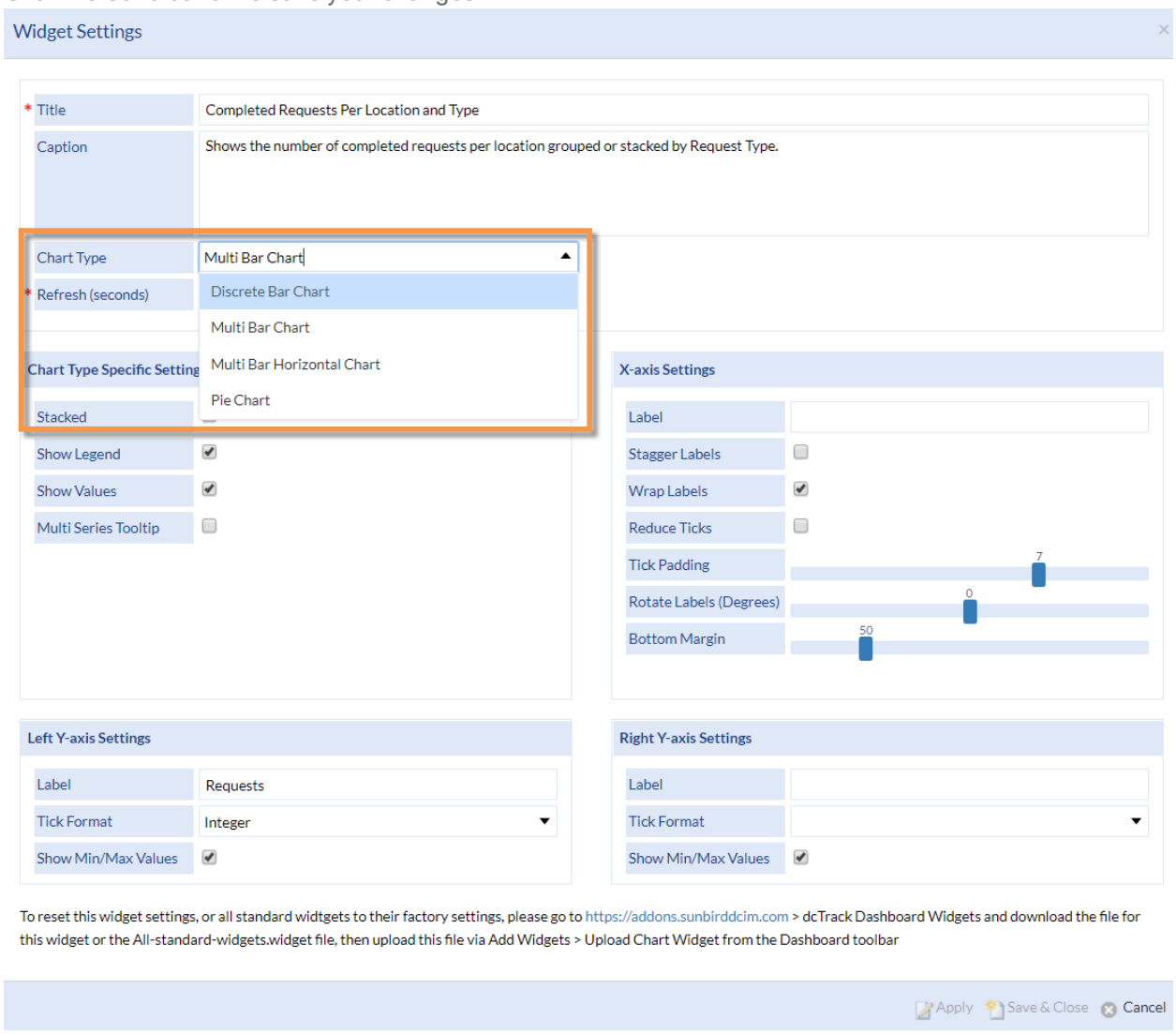
Modifying a Widget's Chart Type

You can modify chart type for any chart or gauge widget through the Widget Settings.

To modify the chart type:

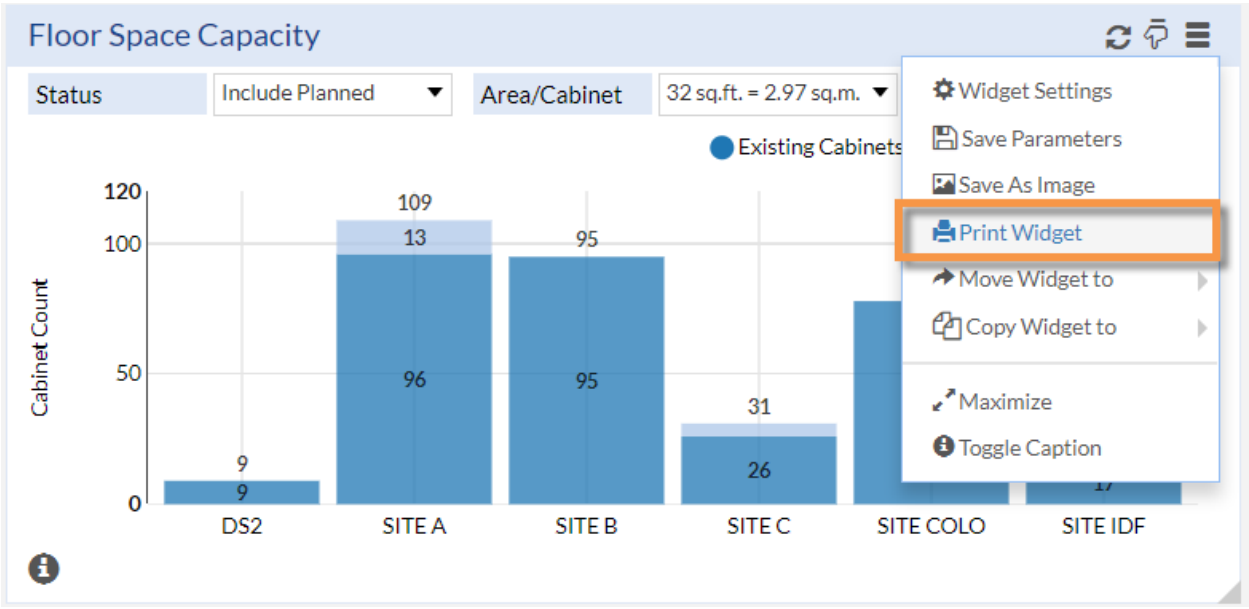
1. In the Dashboard tab, click the Actions menu > Widget Settings for the widget whose chart type you want to edit. The Widget Settings popup will display.
2. In the Widget Settings popup, in the Chart Type field, select the desired chart.

3. Click the Save button to save your changes.



Printing a Widget

To print a widget, click the Actions menu for the widget and select Print Widget. The print dialog will open, with the preview displaying a printer-friendly version of the widget.



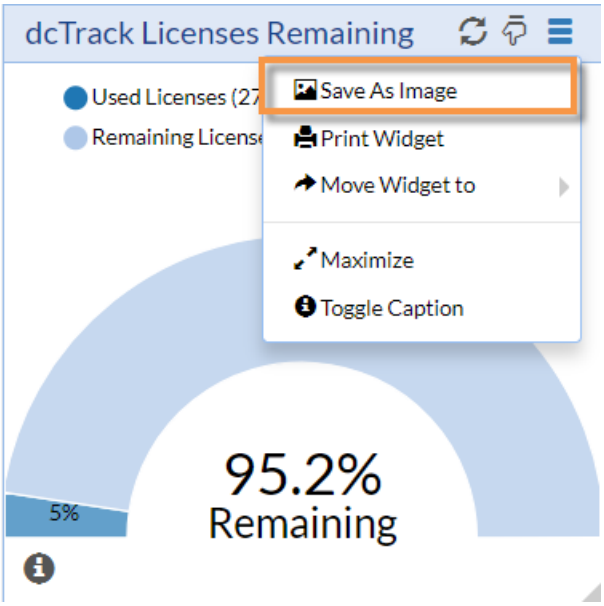
Note: The widget can also be printed or saved to PDF using this method.

Saving a Widget as an Image File

Widgets can be saved as images for use in presentations or other content outside of dcTrack.

To save a widget as an image, click the Actions menu for the widget and select Save As Image.

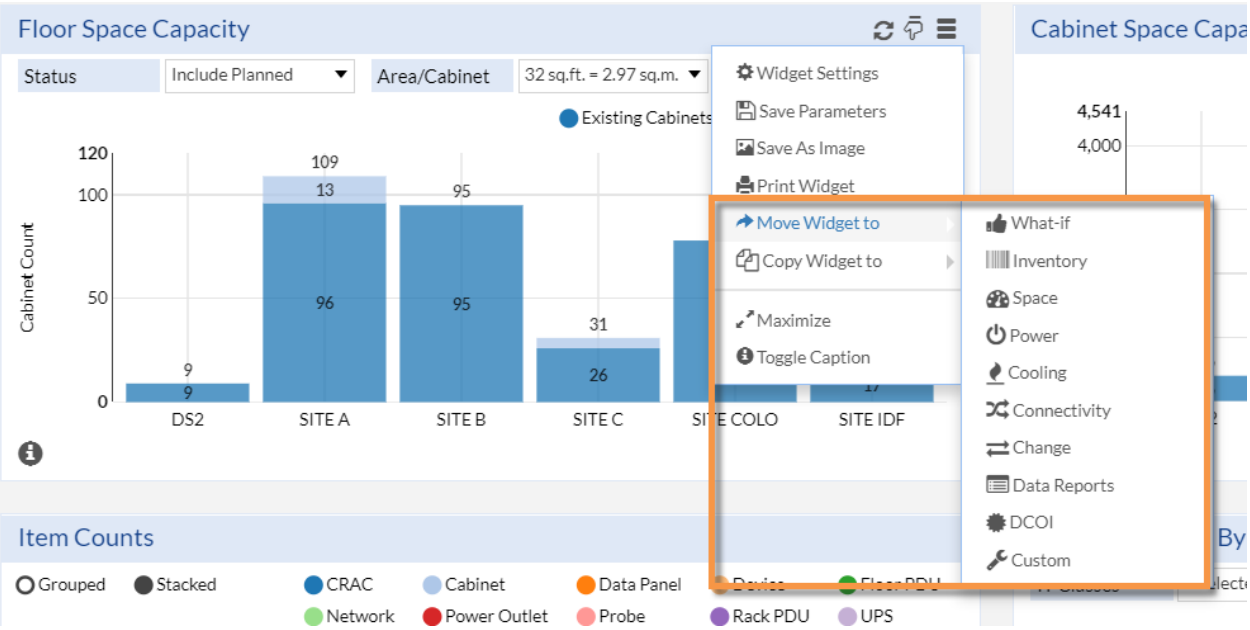
Note: The resulting image does not include the widget's title. However, you can name the image file the same name as the widget.



Note: Saving a widget as an image file is not supported by Internet Explorer. To save the widget as an image file successfully, please use another supported browser, such as Google Chrome.

Moving a Widget to Another Dashboard

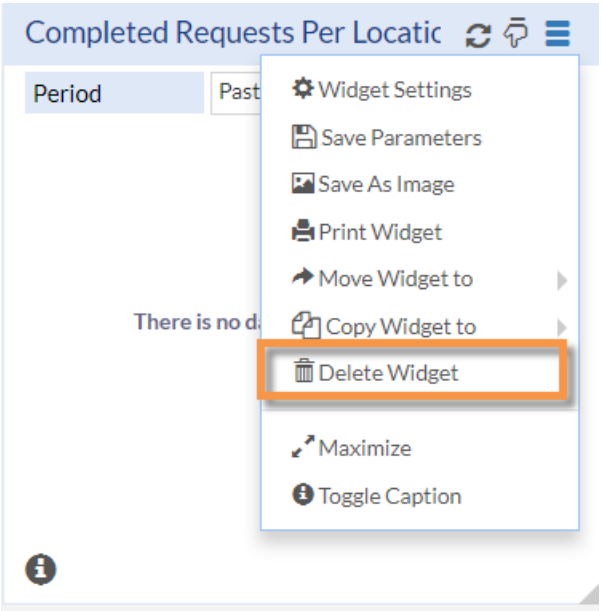
Widgets on Standard and Personal dashboards can be moved to other Dashboards within the same folder by clicking the Actions ico, selecting the Move Widget to option from the dropdown, and specifying which dashboard page to move the widget to from the list.



After the dashboard is selected, the widget will be moved to the last position on the new dashboard.

Deleting a Widget

Custom, SQL, and HTML widgets as well as all widgets on Personal dashboards can be deleted by clicking the Actions icon and selecting Delete Widget from the dropdown.



You will be asked to confirm the deletion.

After confirmation, the dashboard page will refresh with the widget deleted.

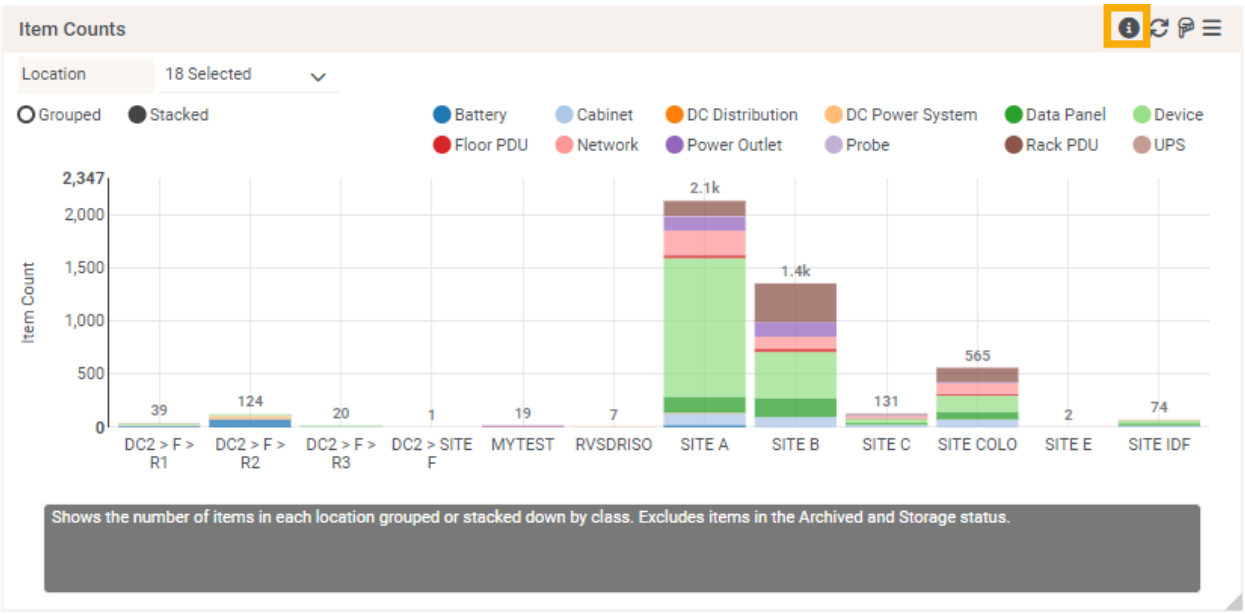
Note: Only custom widgets can be deleted.

Toggling the Widget Caption

Each widget includes a caption or description explaining the presentation of the data in the chart.

To display the caption, click, the information icon in the upper right corner of the widget. The caption displays at the bottom of the widget..

To hide the caption, click anywhere on the caption or click, the information icon in the upper right corner of the widget.

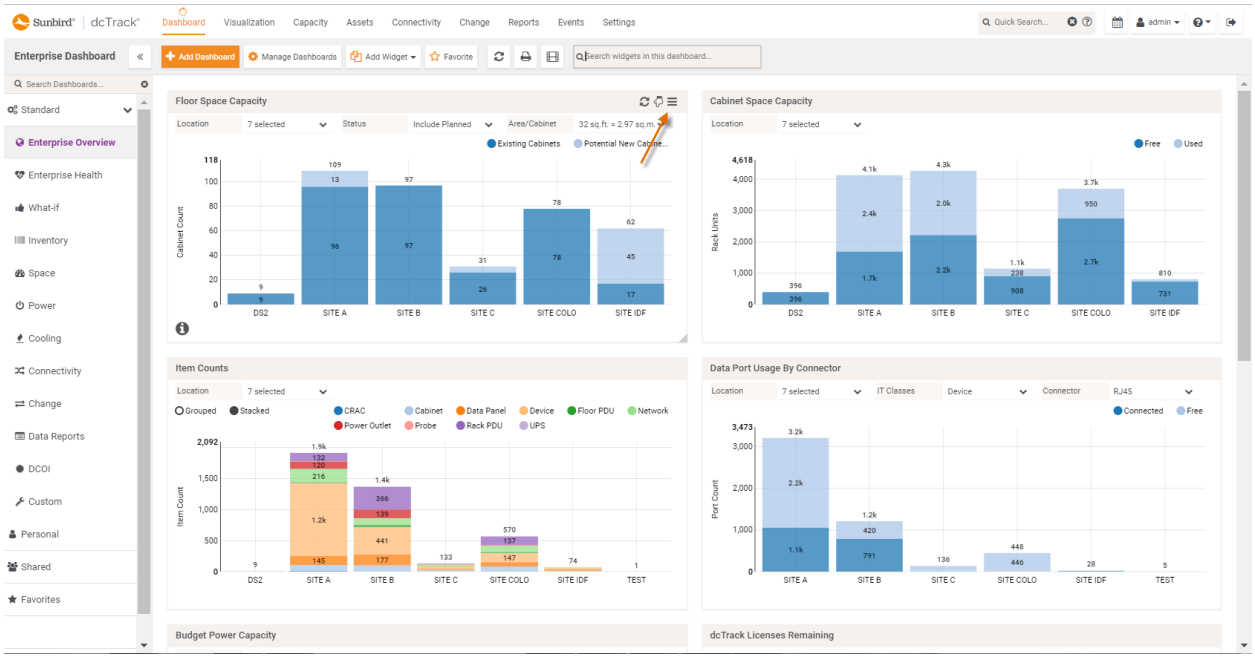


Copy Widgets

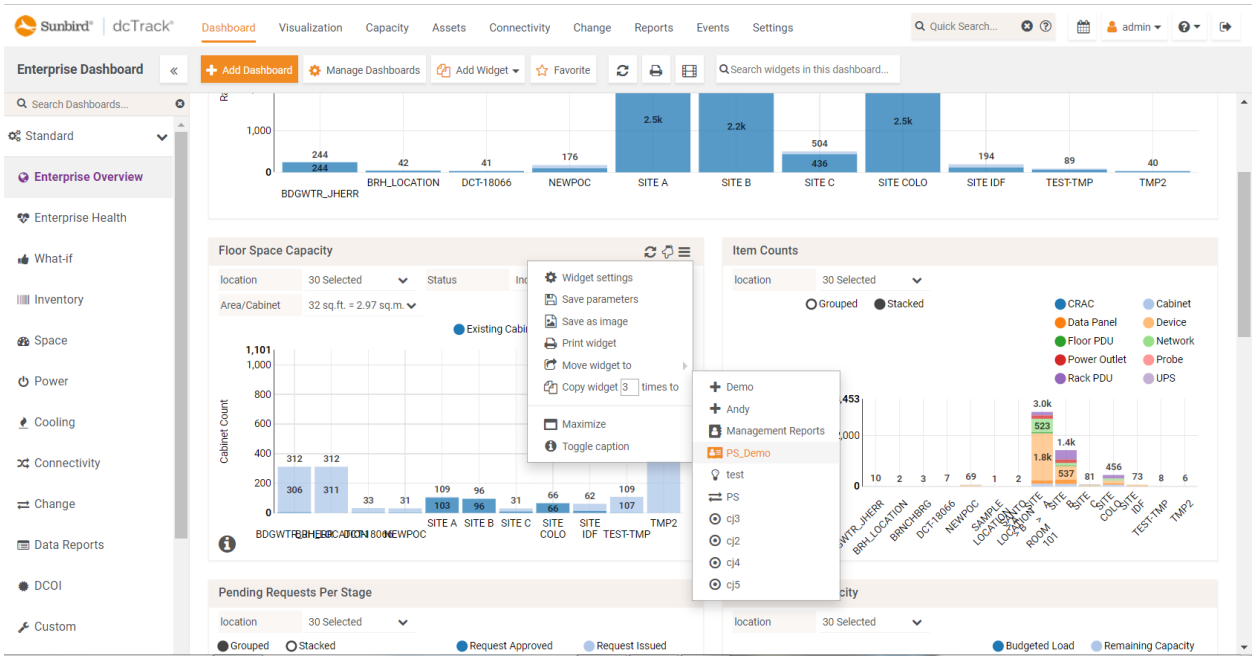
dcTrack allows you to copy existing widgets to any existing Personal Dashboard page. Widgets can be copied multiple times in a single step.

Steps to Copy a Widget:

1. Click the Actions Icon on the Widget toolbar



2. Enter the number of times you wish to copy the Widget
3. Select the Dashboard Page you want to copy the Widget to



The copied Widget(s) are appended to the bottom of the selected Dashboard page.

Custom Widgets

In addition to the default widgets in dcTrack, three types of custom widgets provide users with the capability to address KPIs not covered by the existing widgets. Custom widgets include the following:

- SQL Grid Widget
- HTML Widget
- Chart Widget

Custom widgets can be added to dashboard pages by clicking New Widget in the Dashboard tab menu and selecting the desired widget.

Users with a globally defined Operator role or above can create, configure, and delete custom widgets.

Custom widgets are not limited to the Custom dashboard page; they can be placed on any dashboard page excluding the Enterprise Health dashboard page.

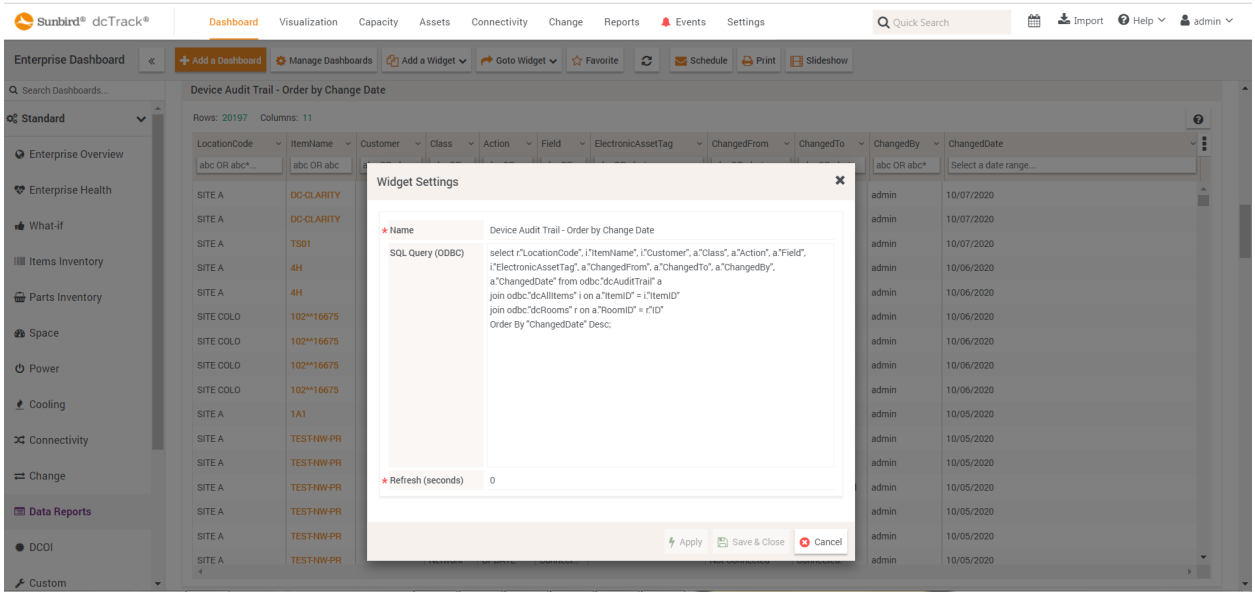
SQL Grid Widget

The SQL grid widgets allows you to use SQL commands to query dcTrack's ODBC tables and displays the results in a data grid.

The data in SQL grid widgets can be exported to CSV and PDF files by selecting the respective options from the Actions menu.

1. In the Dashboard tab, on any dashboard page except the Enterprise Health dashboard, click Add a Widget > SQL Grid Widget. The SQL Grid Widget Settings popup displays.
2. Configure the SQL grid widget.

    a. In the Name field, enter your desired title. By default, the title is “New Sql Grid Widget.”
    b. In the SQL Query (ODBC) box, enter your SQL statement.
    c. In the Refresh field, enter your desired refresh duration in seconds. By default, this value is set to 300.

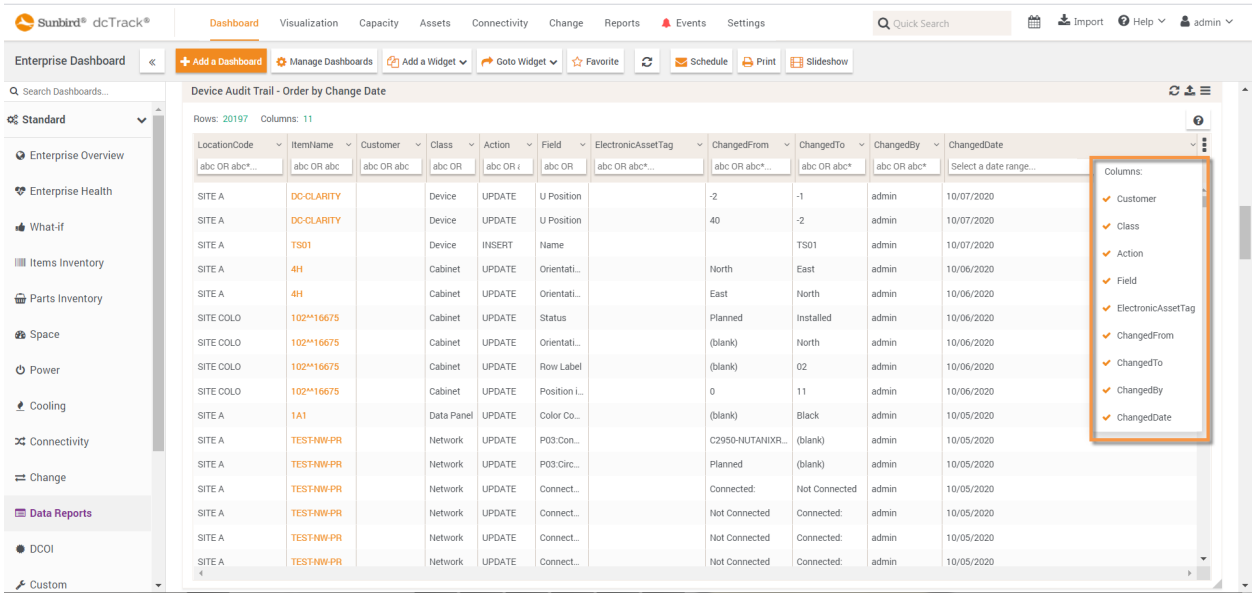


3. Click the Save button to save your changes. The widget will be automatically updated with the data.

Note: All fields are required.

To edit your SQL query, widget title, or refresh rate, click the Actions button and select Widget Settings. The SQL Grid Widget Settings popup displays.

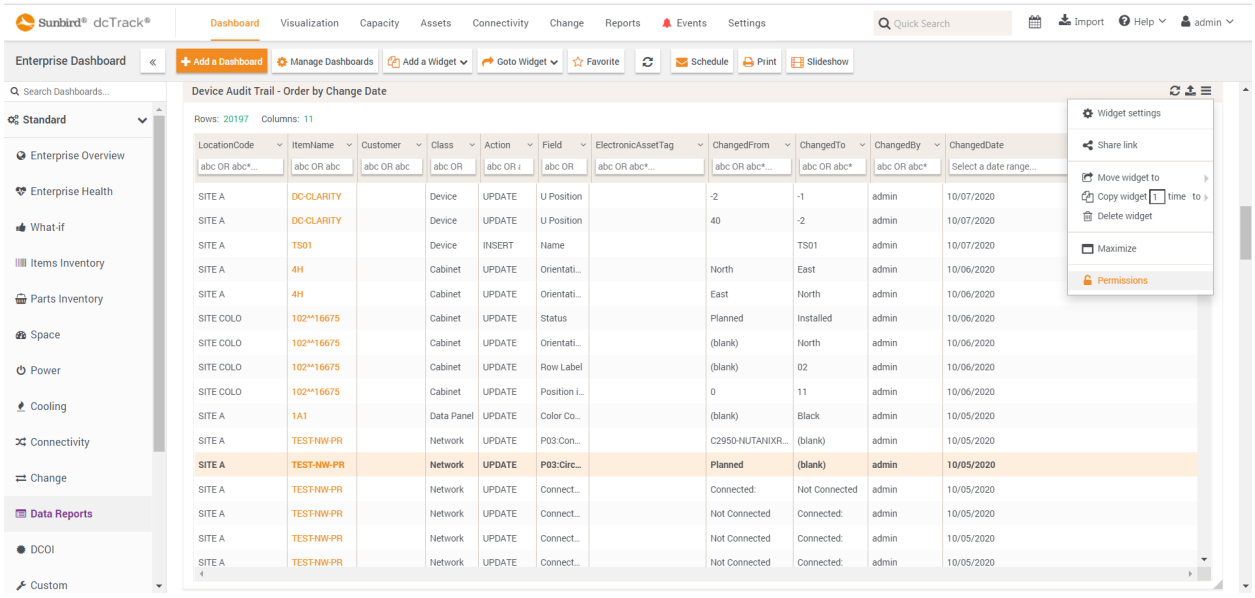
You can hide/display specific columns in each SQL grid widget by clicking the Show/Hide icon and selecting/deselecting the columns you want to hide/display.



For guidance on creating SQL queries, please refer to the API Guide, which can be downloaded from the Help menu in the upper right corner of the Web Client.

Assigning Permissions for SQL Grid Widgets

System Administrators and global Gatekeepers can add or remove permissions for grid widgets via the Actions menu > Permissions button. Only the Viewer role can be assigned to a user or user group.



Hyperlinks

When columns with the following names are added to a SQL Grid widget, that column becomes a link in the Widget and the underscore id columns are hidden.

- 'item name' or 'itemname' becomes a link and takes user to item list with a search executed for that item name. If item_id is also included, it will go directly to the item details.
- 'firstnodeitem' or 'first node item' with "circuit_id" and "CircuitType" included in the query links to the circuit trace.
    - Note: "CircuitType" must be either "Data" or "Power" (ex. 'Power' as "CircuitType")
- 'floormap' or 'floor map' with "location_id" included in the query links to the Floor Map.
- 'project number' or 'projectnumber' or 'project' with "project_id" included in the query links to Project Details
- 'part number' or 'partnumber' or 'part' with "part_id" included in the query links to Part Details.
- 'request number' or 'requestnumber' or 'request' with "request_id" included in the query links to Request Detail.
- 'workorder number' or 'workordernumber' or 'workorder' with "workorder_id" included in the query links to Workorder Details.
- 'widgettitle' or 'widget title' or 'title' with "widget_ref" included in the query links to that widget in whichever dashboard it's in.

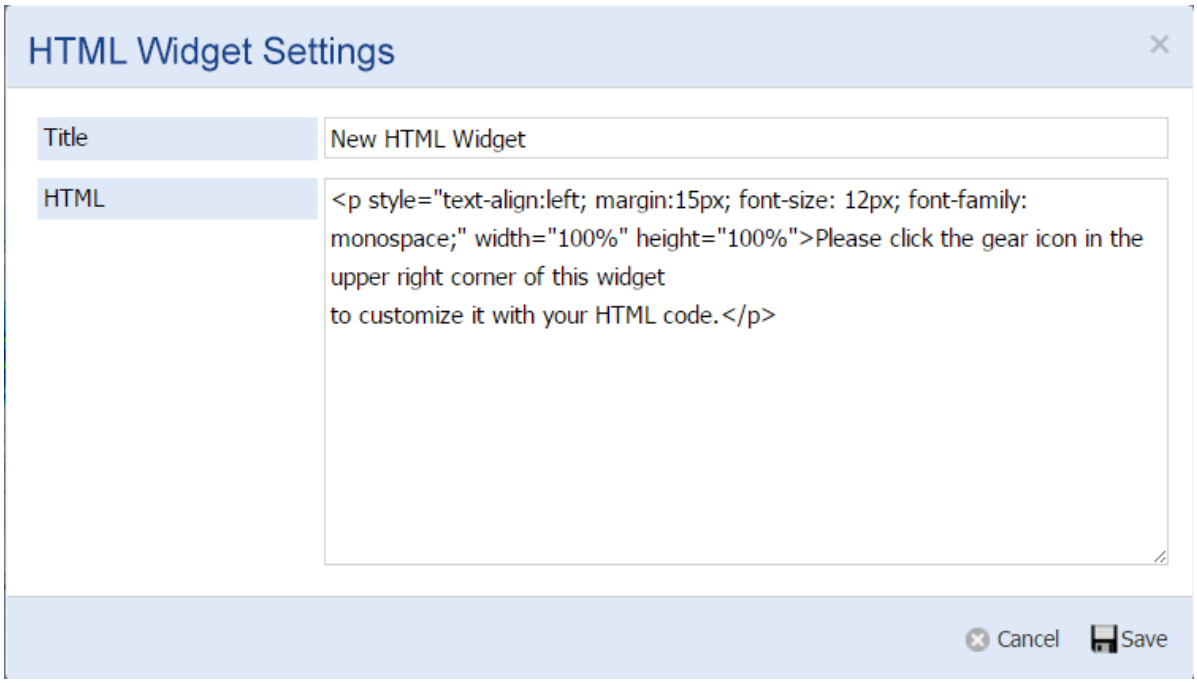
Note, column names are case insensitive.

For assistance with writing queries to use the SQL grid widget, please contact Sunbird Technical Support.

HTML Widget

The HTML widget is a custom widget that allows you display data visualizations using your own HTML code or by embedding information or widget from a 3rd-party system. Use this widget to add weather tools, maps, or other visualizations.

1. In the Dashboard tab, on any dashboard page except the Enterprise Health dashboard, click New Widget > HTML Widget. A new widget is added to the dashboard page. The HTML Widget Settings popup displays.
2. Configure the HTML widget.
    a. In the Title field, enter your desired title. By default, the title is “New HTML Widget.”
    b. In the HTML box, enter your HTML code.
3. Click the Save button to save your changes. The widget will be automatically updated with the data.



Note: All fields are required.

To edit your HTML code, click the Actions icon and button and select Widget Settings. The HTML Widget Settings popup displays.

HTML Widget Limitations

When using the HTML widget, keep in mind the following limitations:

- dcTrack uses the HTTPS secure protocol to load the web client application. Inherent to this protocol, browsers do not allow loading content from another domain using the unsecured HTTP protocol. Therefore, you will not be able to embed content using the HTML widget unless it loads using HTTPS.
- If you are embedding content that requires login credentials, you will first have to login to this page either within the widget if presented with the login dialog or independently from another tab in the same browser.
- Certain content when embedded may redirect the browser to an embedded URL and navigate you away from dcTrack.

Custom Chart Widgets

Custom chart widgets are available for users who want specific metrics that are not covered by the available default widgets. Any existing chart type can be used to create a custom chart widget.

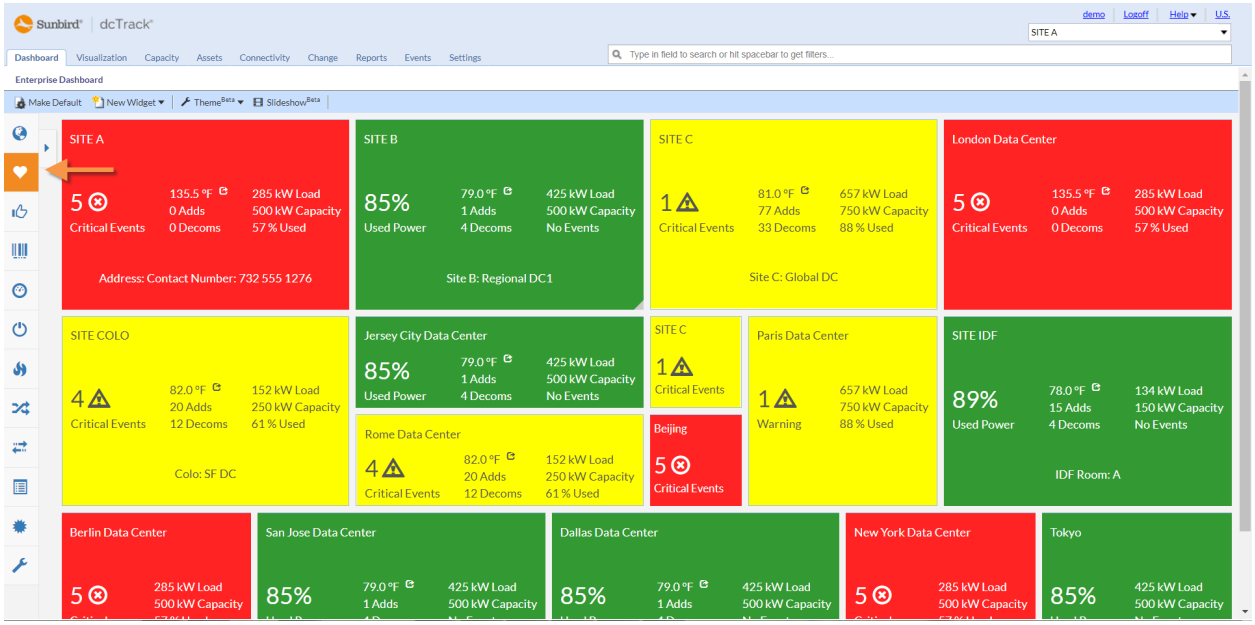
If you would like a custom chart widget created, simply contact a Technical Support Specialist via the Sunbird support portal (**https://support.sunbirddcim.com**), and the widget file will be created and sent to you.

You can add the chart widget file to dcTrack by clicking New Widget > Chart Widget and uploading the file to your system.

Once you upload the file, the widget will be added to the dashboard page and can be configured as needed.

Enterprise Health Dashboard

dcTrack provides an Enterprise Health Dashboard as a way to view the overall health of your data centers. To access the Enterprise Health Dashboard, go to the Dashboard tab and select the second dashboard page.



In order to display information for each location, you must be integrated with Power IQ and optionally have a floor map synced with the location in dcTrack.

Note: Since you are integrated with Power IQ, you do not need to separately add a drawing file to the floor map widget in Power IQ; you maintain the floor map along with all other data in dcTrack once you are integrated.

The Enterprise Health Dashboard is configurable, so you can select the locations you want to display, choose a custom title and add an additional static piece of information, as well as adjust the size and position of each tile. There is no limit to the number of tiles that can be added.

Tiles can be created for each data center, floor, or room location you have access to. They contain the measured total active power readings for the location and its children. The tiles pull data every 30 seconds. When new data arrives, the tiles visibly refresh by sliding in on the screen. If none of the tile's data has changed, only the tile's title will slide across.

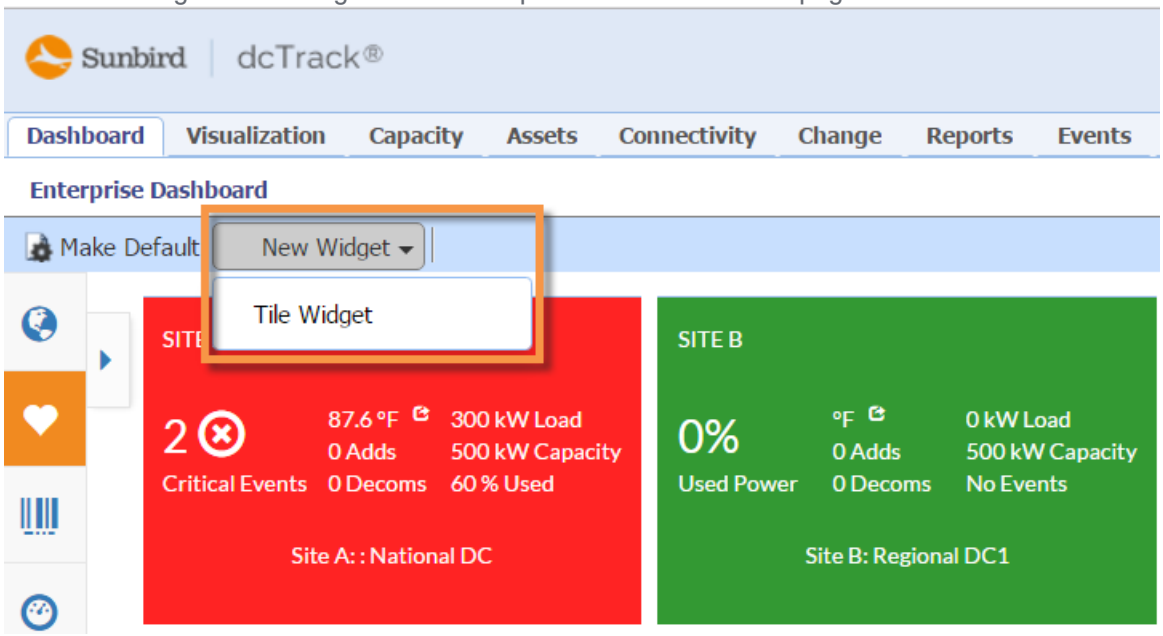
The tiles are color-coded so you can easily identify the data center's overall health:

- GREEN: Normal. No warning or critical events.
- YELLOW: Warning. Warning level events reported. A triangle with an exclamation mark is displayed next to the number of events.
- RED: Critical. Critical level events reported. A circle with an X is displayed next to the number of events.
- GRAY: No Data. Object is not synced or you do not have permission to view it.

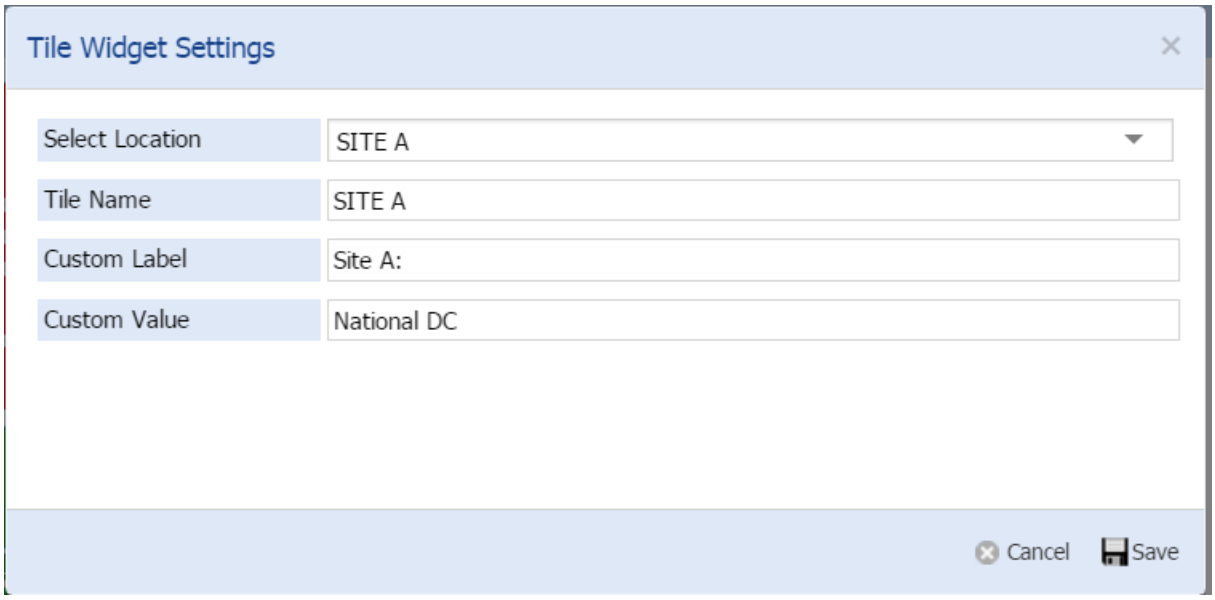
Add a New Tile Widget

To add a tile:

1. Click New Widget > Tile Widget on the Enterprise Health dashboard page.



A tile widget is created, and the Tile Widget Settings dialog appears.



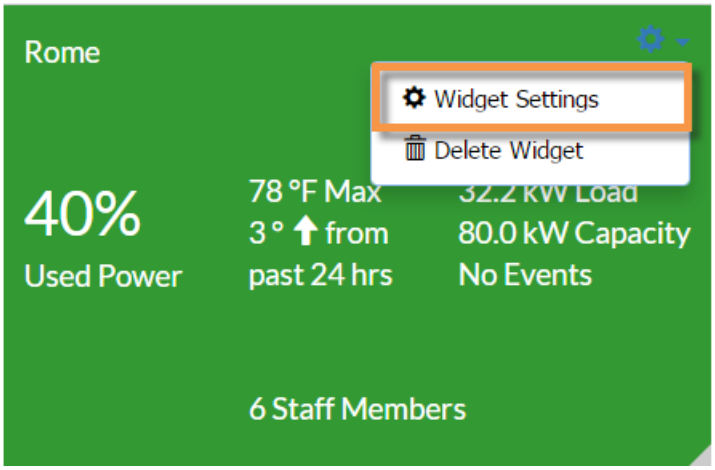
2. Select Location: Select the data center location you want to add from the dropdown.
3. Tile Name: Enter a name for the tile. The default is the location name.
4. Custom Label: This is for your own use. Enter a label for the value you enter in the next Custom Value field. (For example: “Staff”
5. Custom Value: Enter text or number. Example, 6 to indicate the number of staff working at this location.
6. Click Save to save your changes.

Back on the Enterprise Health dashboard page, the tile widget will refresh with the data for the location.

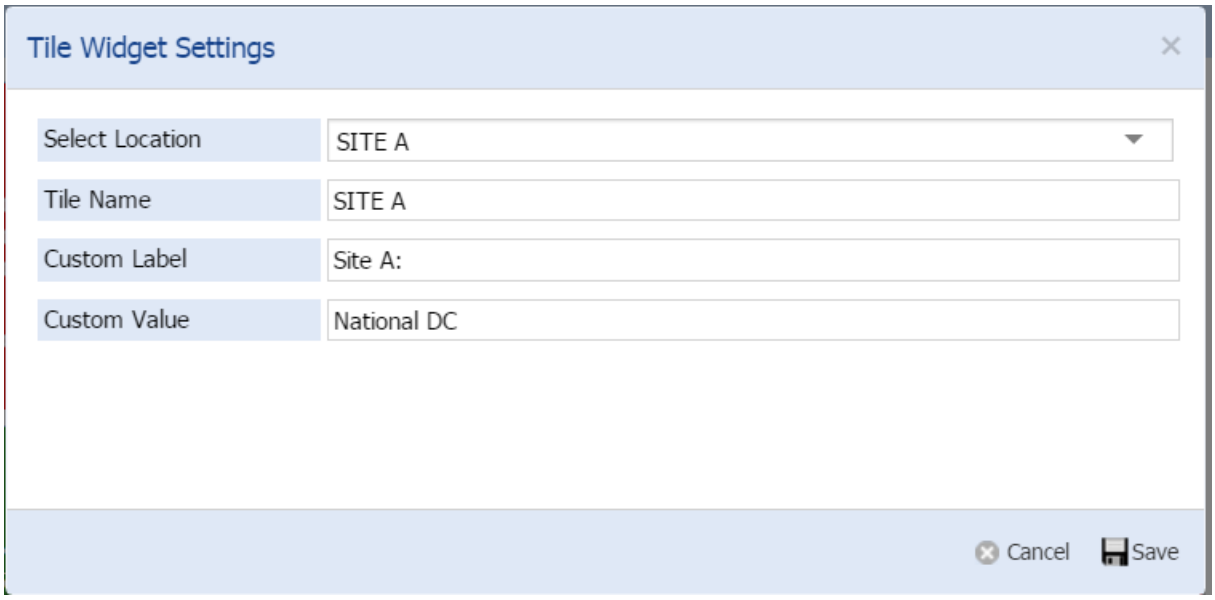
Edit Existing Tiles

You can change the location that appears in a tile or edit a tile name.

1. Click on the Gear icon in the corner of a widget.
2. Click the Widget Settings icon.



3. In Select Location, select your desired location from the dropdown.
4. In Tile Name, enter the name for the tile Widget.
5. Enter the Custom Label (optional).
6. Enter the Custom Value (optional).



5. Click the Save button and icon to save your changes.

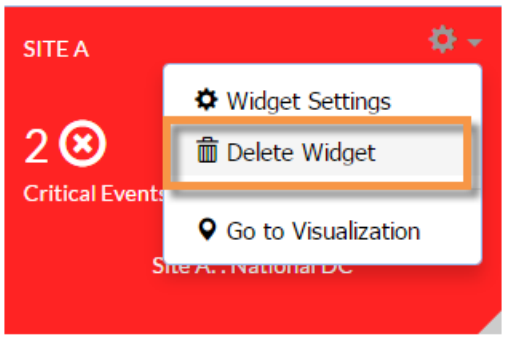
Change Tile Positions and Sizes

Change the position of a tile on the Enterprise Health page by positioning your cursor over the name/title area of the tile and dragging the tile to a new location on the page.

Increase or decrease the size of the tile by positioning your cursor over any edge or corner of the tile and resizing the tile to fit your needs.

Remove a Location Tile

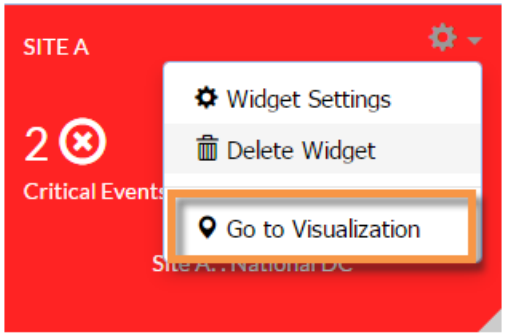
Remove a tile from the page by selecting the Actions menu > Delete Widget. You will be asked to confirm the deletion.



View a Location's Health Floor Map

From the Enterprise Health dashboard page, you can drill down to a location's specific Health Floor Map to view the location's health in more detail.

Click the location's tile to open a location's Health Floor Map from the Enterprise Health dashboard page or click the Actions menu > Go to Visualization.



The Health Floor Map for that location opens in a Floor Map view.

Objects are color-coded based on event severity. If a warning or critical event has occurred and is still active, the cabinet is shown at a warning or critical level.

A legend in the Report section at the top of the map describes the meaning of each color code.

- GREEN: Normal. No warning or critical events.
- YELLOW: Warning. Warning level events reported.
- RED: Critical. Critical level events reported.
- GRAY: No Data. Object is not synced or you do not have permission to view it.

You can also click on the Visualization tab in the Web Client to open a location's Floor Maps page, then select "Health Map" from the Report drop-down.

The Health Floor Map is specific to the location that is currently selected in the Location dropdown in the upper left of the Floor Maps page. Switch to another location by selecting from the Location drop-down.

Switch to another report view of the location by selecting a different report, such as "Budgeted Power per Cabinet," from the Reports dropdown.

Schedule and Email Reports

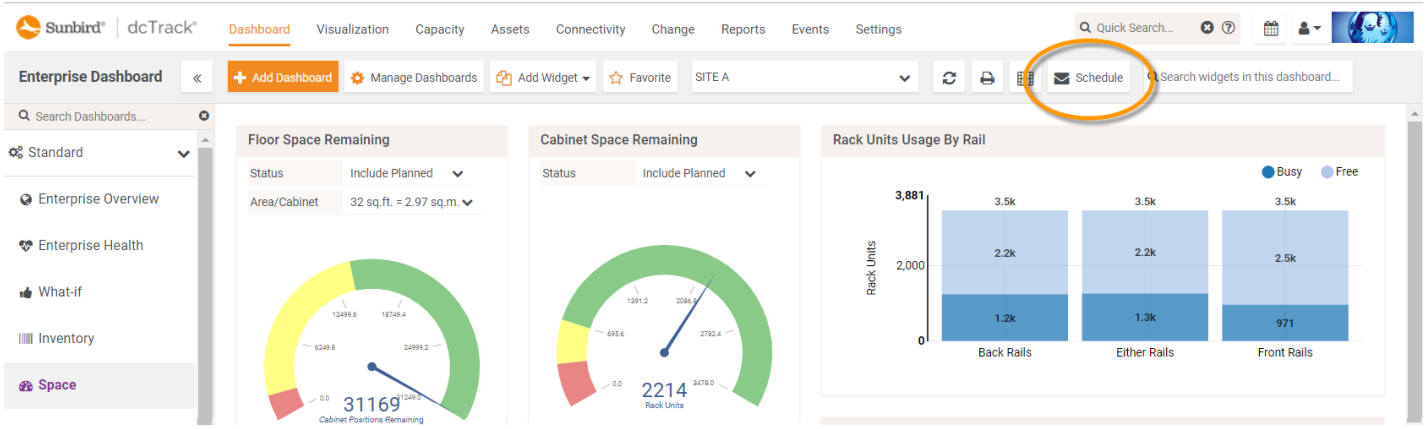
dcTrack allows you to create a report that can be emailed immediately or scheduled to generate automatically and emailed on a set frequency.

Note: dcTrack supports scheduling SQL Grid Widgets in addition to HTML and Chart Widgets.

Note: Admin users cannot see all scheduled reports in the system.

Note: If a user is deleted (not deactivated), dcTrack reassigned scheduled reports to the admin account.

To schedule or email a report, click the Schedule icon on the Dashboard toolbar

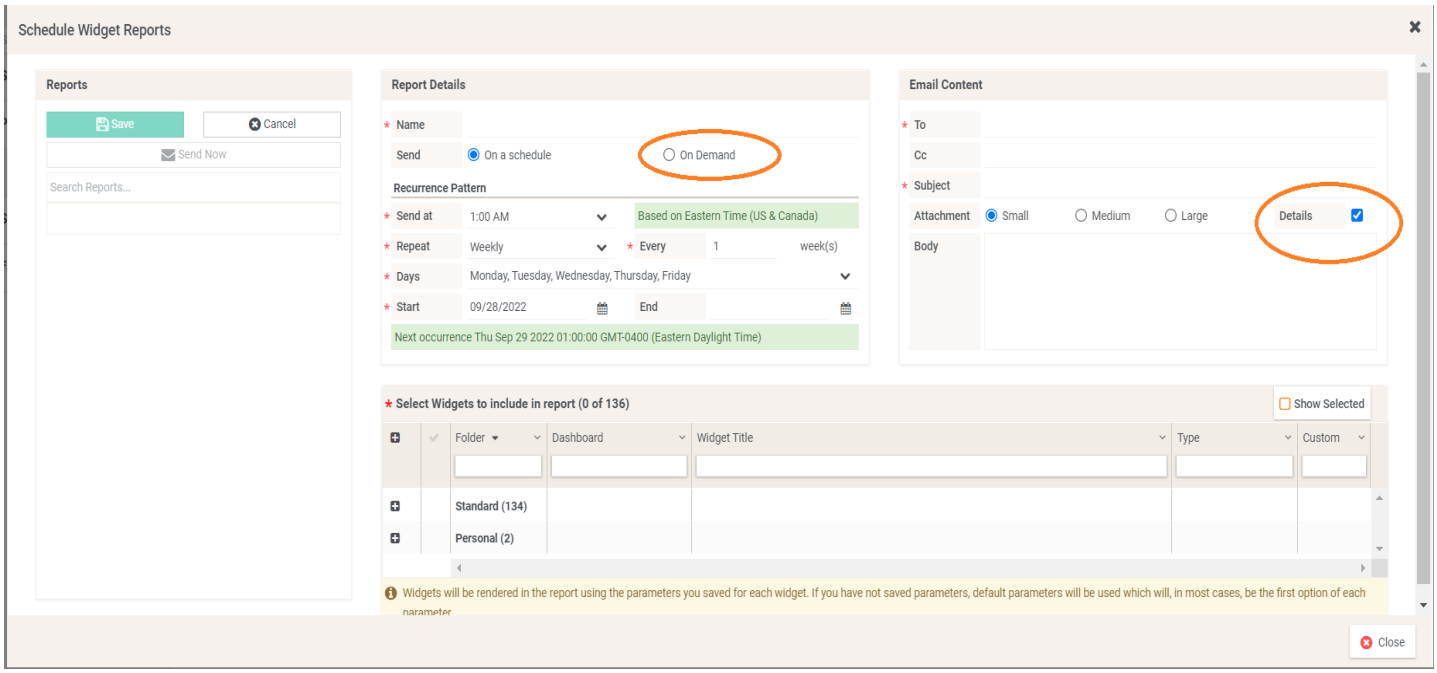


On Demand reports can be created allowing users to access a pre-configured report and send it on an ad hoc basis without having to reselect the widgets each time.

Note: Sending widgets via email may be limited by your SMTP server.

Steps to create an On Demand report:

1. From the Schedule Report page click the Create button
    - Note: If no reports exist it is assumed you are creating a new report so the Create button is not displayed.
2. Assign a Report Name to this report. (Required)
3. Select the"Send" action ("On a Schedule" or "On Demand") (Required)

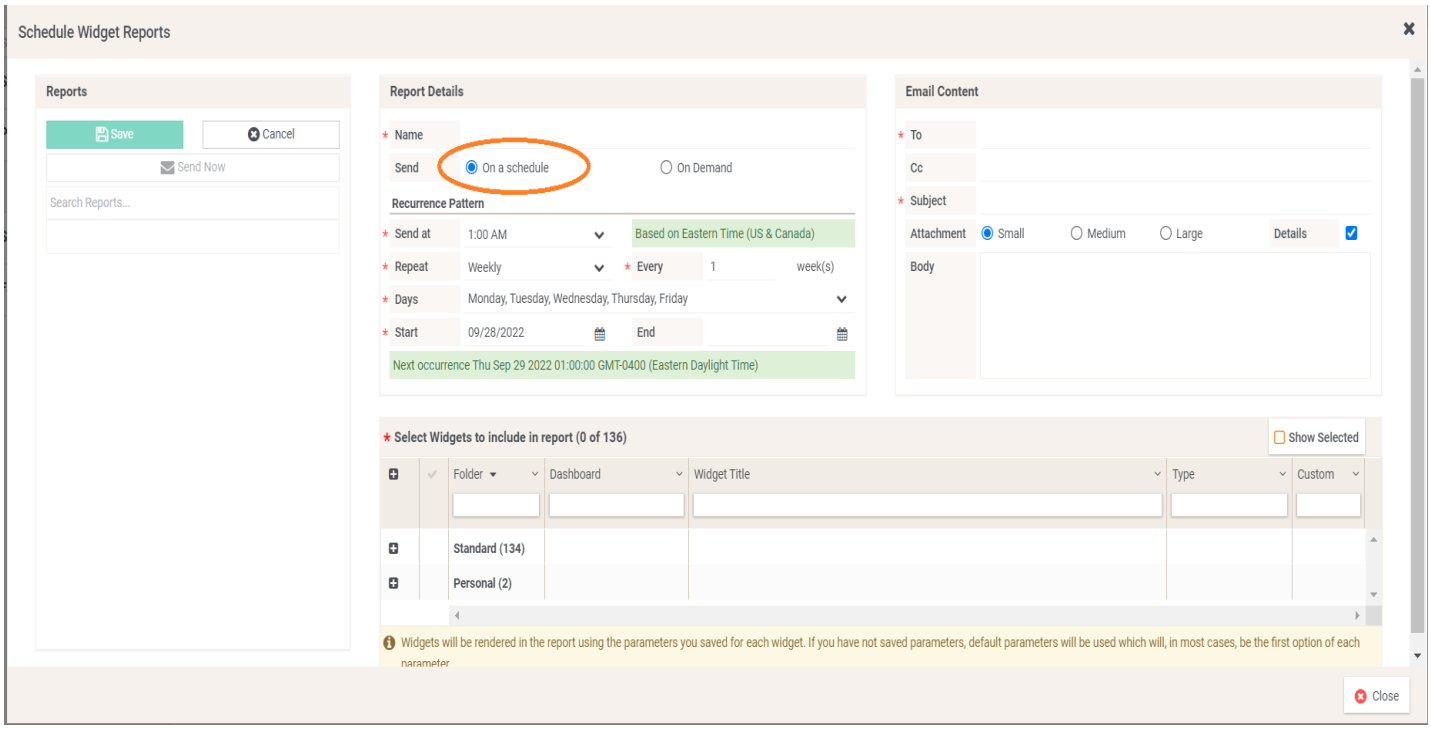


4. Specify the Email information
    - To - Any valid email address. Recipient does not have to be a dcTrack user (Required)
    - Cc - Any valid email address. Recipient does not have to be a dcTrack user
    - Subject - Email topic as described by the user (Required)
    - Attachment - Image size for the attached widgets (hovering over the Attachment label will display the resolution for each size)
        - Small - 1024 X 576
        - Medium - 1280 X 720
        - Large - 1920 X 1080
    - Body - Email body as supplied by the user
5. If you are scheduling a Chart Widget and want to include the detailed data in the email as a .csv attachment, check the "Detail" check box
6. Select the Widgets you wish to include in the report
    - To select all reports click the Select All icon in the header
7. Click the Save button to save the Report settings
8. You can also optionally click the Send Now button to immediately send the email

You can also select a existing report to email by selecting the report and clicking the Send Now button.

Steps to create and schedule a report:

1. From the Schedule Report page click the Create button
2. Assign a Report Name (Required)
3. Select the"Send" action you want to perform ("On a Schedule" or "Now") (Required)
4. To schedule a report that will generate automatically based on a frequency select "On a Schedule"



4. Select the time you wish the report to be generated
    - Note each time the report is generated the widgets will reflect the data as it existed at that time
5. Select the frequency you want the report to be generated and emailed
    - Daily, Weekly, Monthly
6. Select the rate by which to adjust the frequency
    - For example to generate the report every two weeks, specify a frequency of "Weekly" and a rate of "2". The rate can be a value between 1 and 1000.
7. For Weekly frequencies, specify the day of the week to generate the report (Sunday - Saturday). For Monthly frequencies, specify the day of the month to generate the report (1st - 31st).
8. Specify the first date to generate the report.
9. If the first date to generate the report does not follow the frequency rules specified, the report will be generated on the next date that follows the frequency rules. For example if the frequency is Weekly on Monday but the start date specified is 06/26/2019 which is a Wednesday. The first report will be generated on 7/01/2019 which is the first Monday following the start date.
10. Specify the last date the report is to be generated. If this date is not specified, the report will continue to generate based on the specified frequency until an End date is added to the report or the report is deleted.
11. Specify the Email information
    - To - Any valid email address. Recipient does not have to be a dcTrack user (Required)
    - Cc - Any valid email address. Recipient does not have to be a dcTrack user
    - Subject - Email topic as described by the user (Required)
    - Attachment - Image size for the attached widgets

- Body - Email body as supplied by the user

12. If you are scheduling a Chart Widget and want to include the detailed data in the email as a .csv attachment, check the "Detail" check box
13. Select the Widgets you wish to include in the report
14. Click the Save button to save the report.
15. You can also optionally click the Send Now button to immediately send the email

Existing reports can be edited by selecting the report from the report list, making the necessary changes and clicking the Save button.

Reports can also be Cloned. Cloning is useful when creating a report that closely, but not exactly resembles another report.

Steps to Clone a report:

1. Select the Report you wish to Clone
2. All of the field values from the original report are retained except for the Report Name field which is cleared.
3. Supply a new Report Name and modify any fields that should be changed.
4. Click the Save Button

Note: The widgets in the attachment files reflect the data as it existed when the image was created

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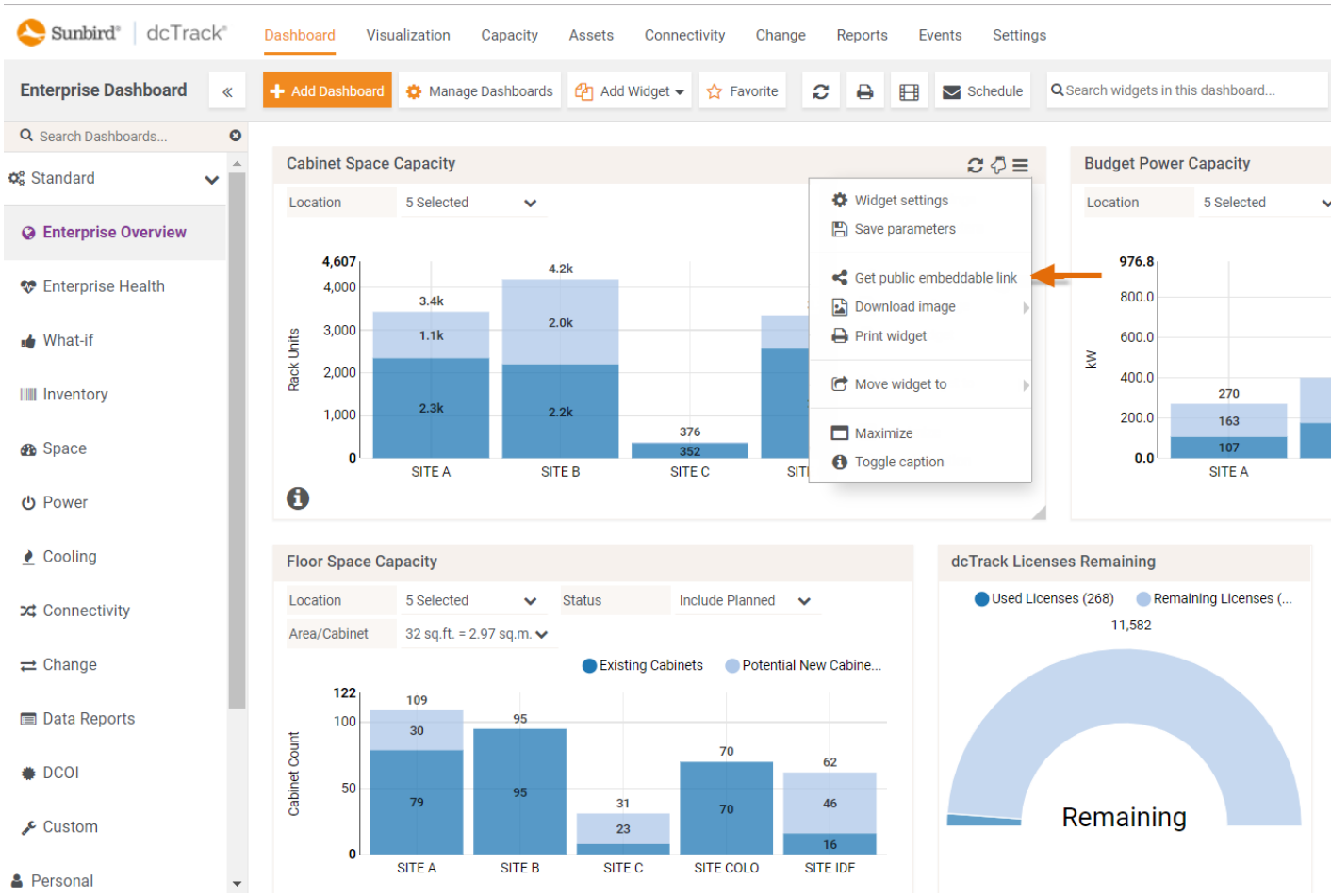
Sharing Links to Widgets

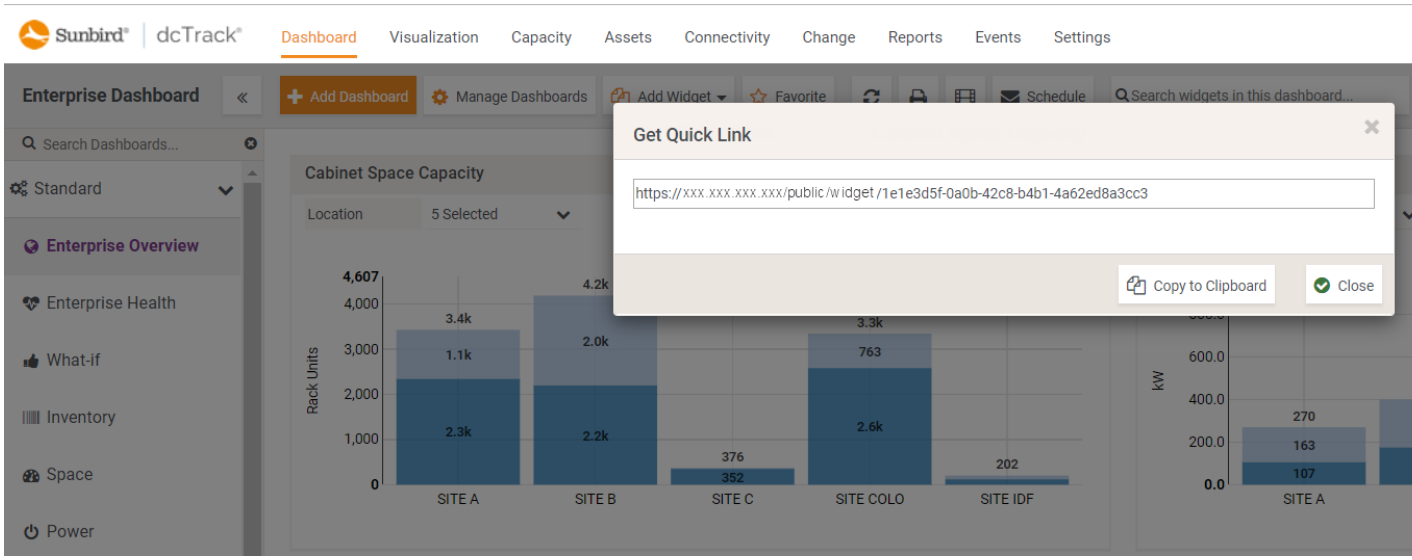
dcTrack allows users to create links to widgets that can be shared with both dcTrack and non dcTrack users via internal portals, embedded in documents or included in email. The data reflected in the widgets is current within minutes of the time the link is clicked.

Steps to create a shareable link

1. Click Get Public Embeddable Link from the actions menu of the widget you wish to create a link to



2. From the pop up window click Copy To Clipboard



3. Click Close to close the window

The URL may now be pasted from the Clipboard into documents, emails or internal platforms like SharePoint or Jira.

Note: Widget images have a 10 minute cache period, so if it has been more than 10 minutes since the last time the link was accessed, the Widget image is refreshed with current data.

For additional information please see the video at

How to Display Dashboard Widget Data

Readings Are Not Displaying on the Web Client Dashboard

The widgets on the Web Client Dashboard show no external data when no items have been added to dcTrack® or configured to get readings.

When no information is available on the Web Client Dashboard, the widgets display a message indicating that no data is available.

Chapter 4: Visualization

This section contains information on the features and reports available in the Visualization tab in the Web Client.

The Visualization tab in the dcTrack Web Client contains the Floor Maps and Data Network Diagrams.

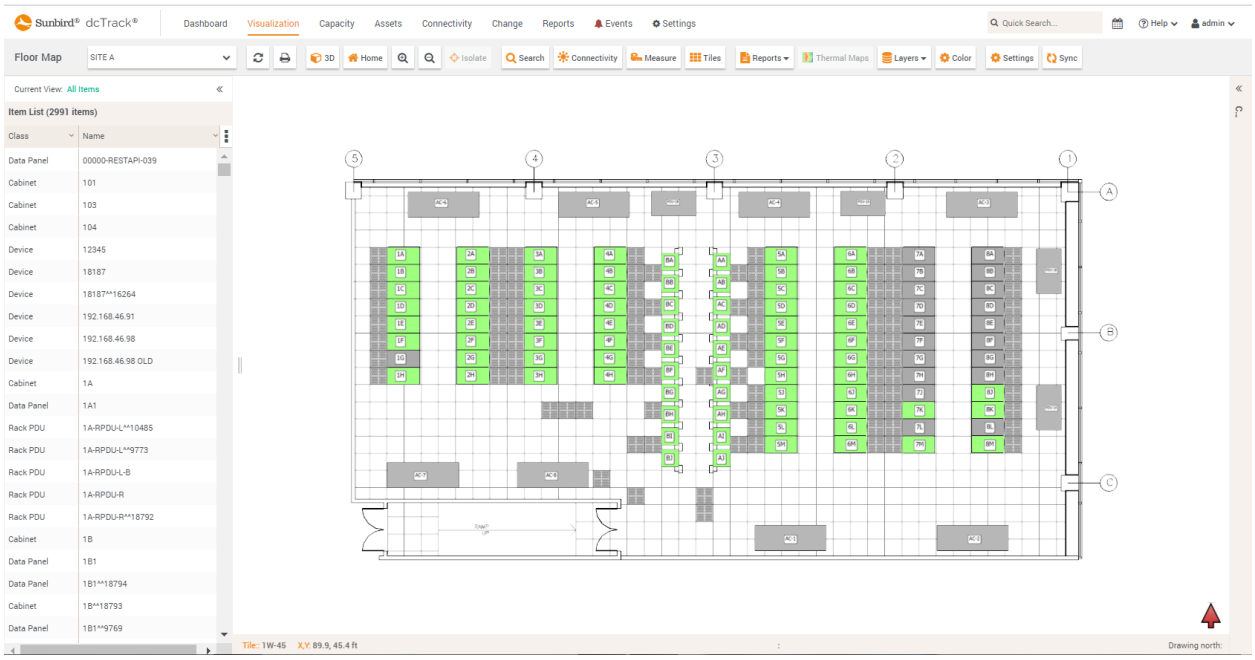
A floor map is rendered when you upload a .DWG drawing file for each of your data center locations in dcTrack. The objects on the floor map are then synced with items in dcTrack.

From here:

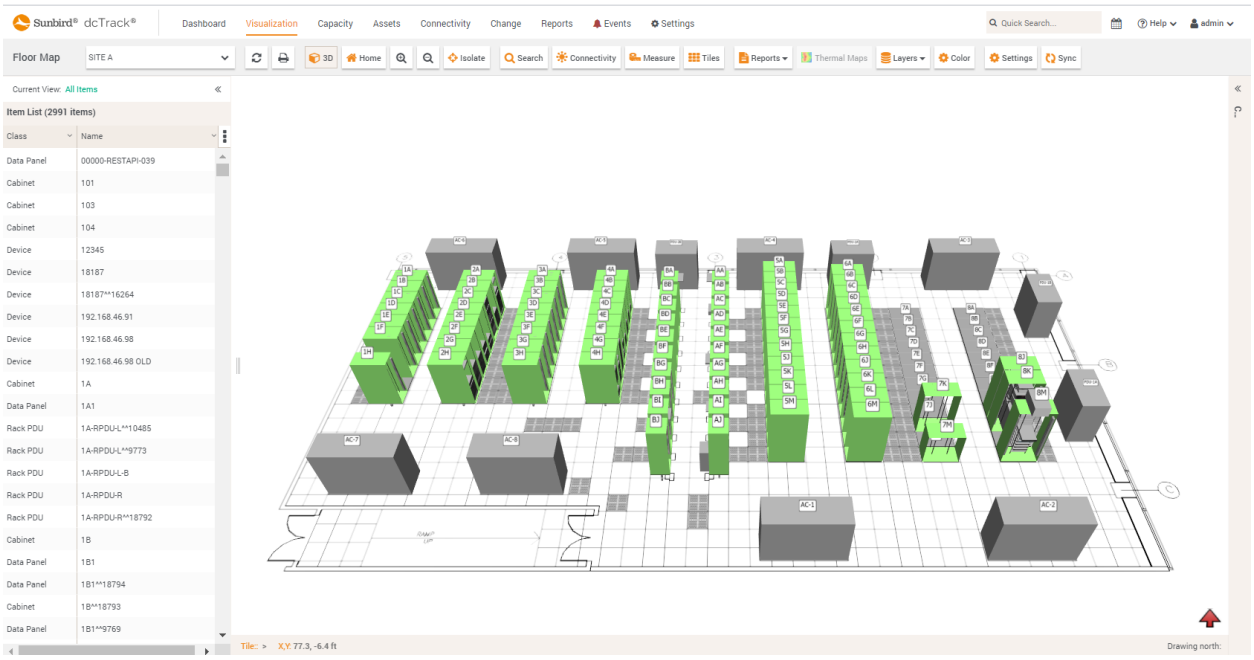
- **View Data Center Conditions Using Floor Map Reports**
- **Set Floor Map Report Thresholds**
- **Print a Filtered Floor Map Report**
- **Zoom In on a Report Section to Print It**
- **Download a Location's Existing Floor Map Drawing File**
- **Export the Floor Map Report Data List to a .CSV File**

Floor Maps can be viewed in two modes

Floor Map 2D Mode



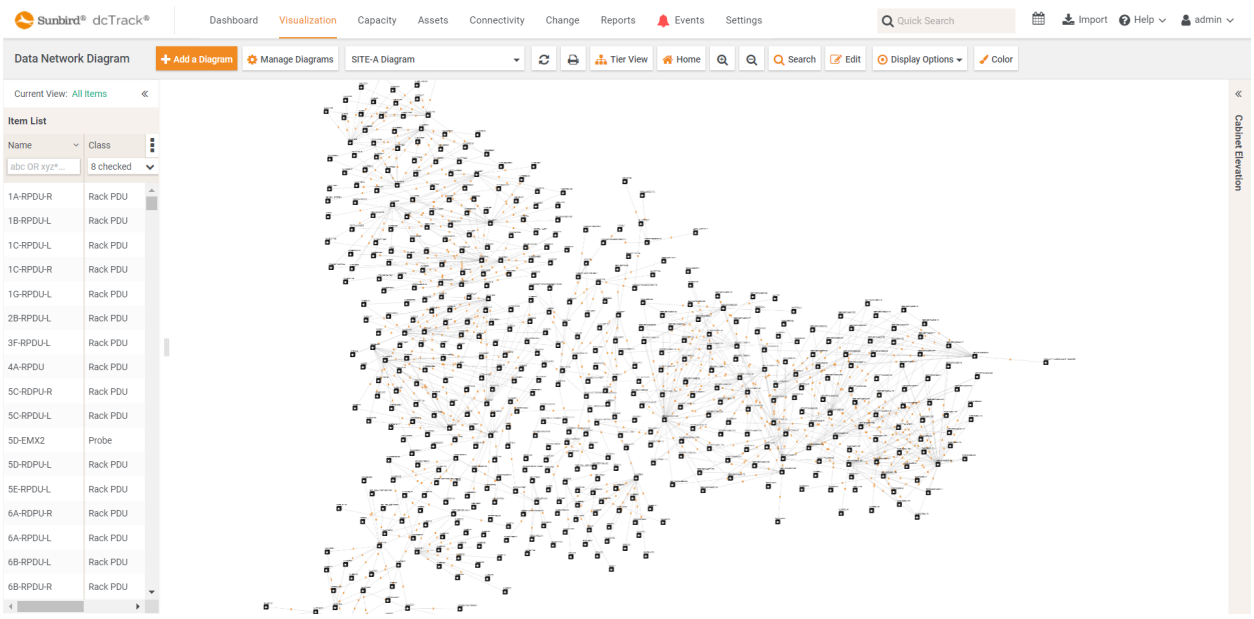
Floor Map 3D Mode



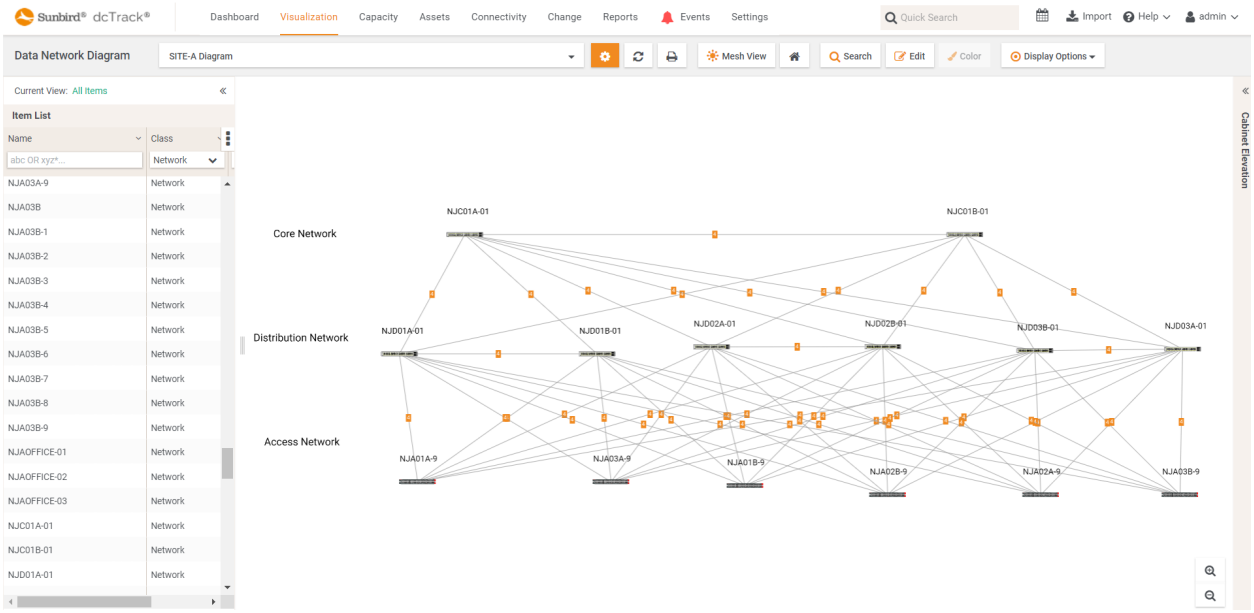
Data Network Diagram provides capability to visualize entire Data Network for a single location or across multiple locations.

Data Network Diagrams can be viewed in two formats.

Mesh View



Tier View



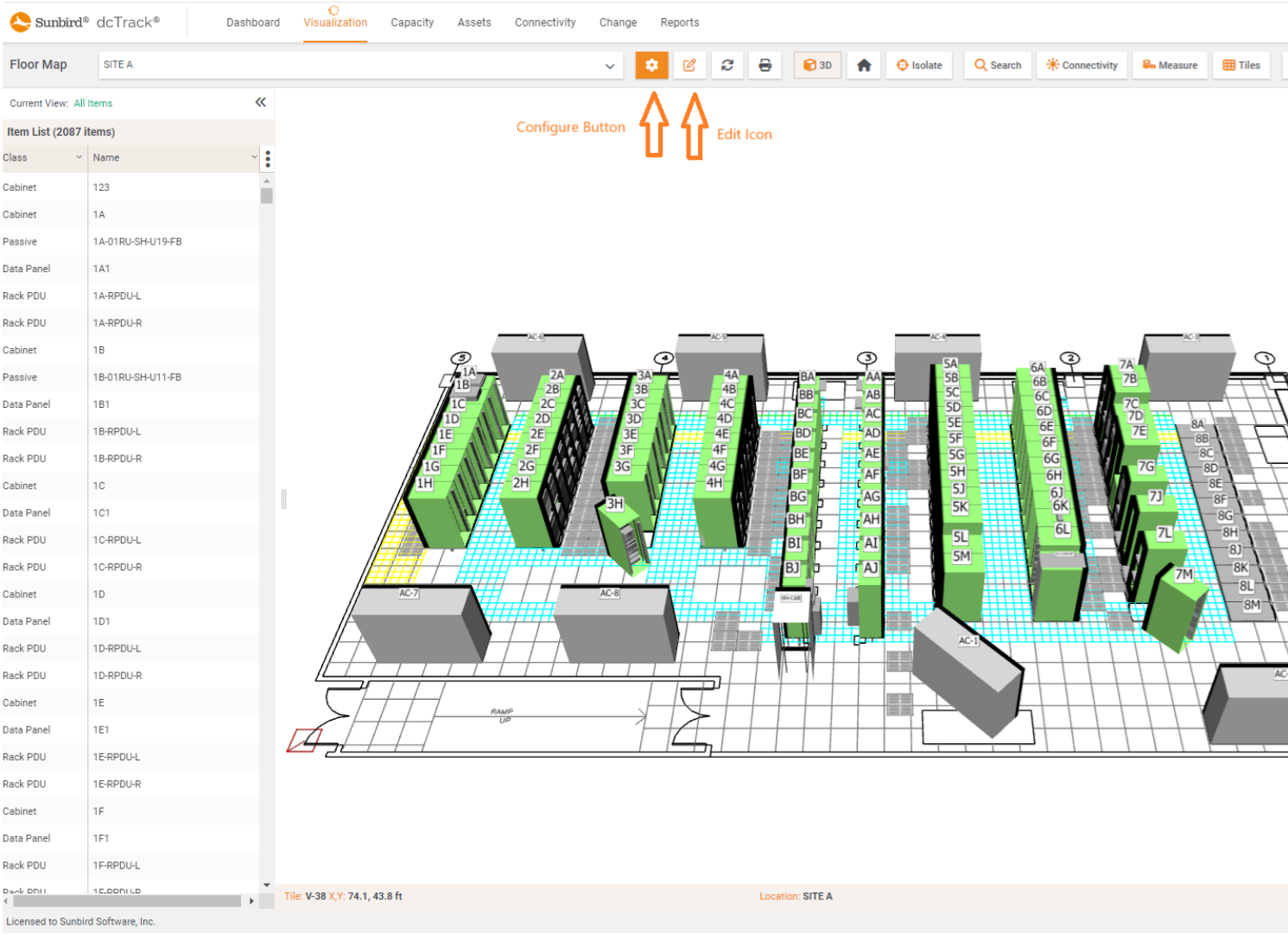
For details see Data Network Diagrams

Floor Map

This section contains information on the features and reports available in the Floor Map.

Visualization Toolbar

The Floor Map Toolbar is designed to make it faster and easier for you to access all of the Floor Map features.

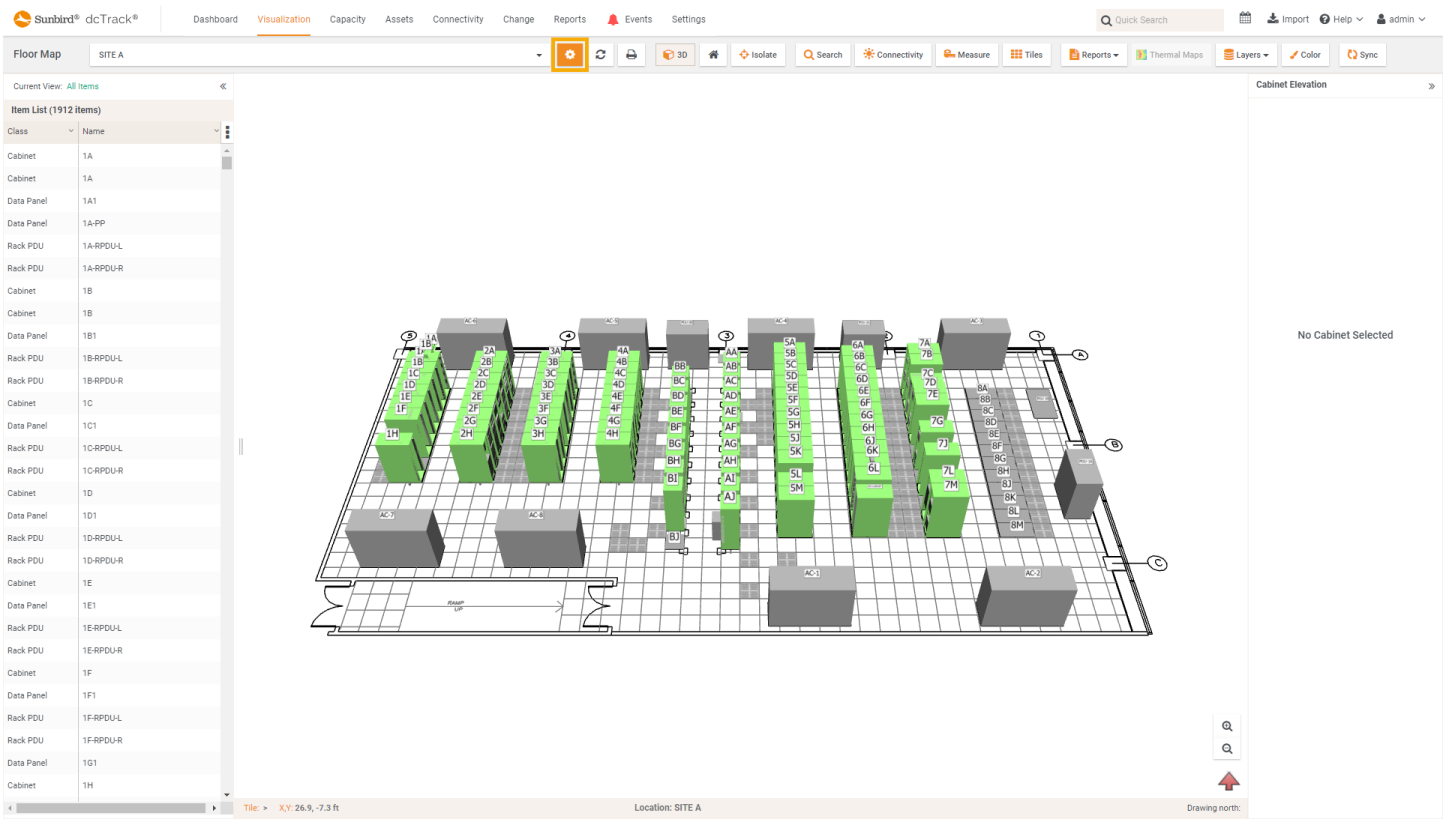


Icon	Summary
Location List	This list will contain all of the eligible Locations that the user has permissions for.
Configuration Icon	This button will open up the Configuration window where you can upload/download your drawings as well as other features. For specific information on configuring your Floor Maps please see the Floor Map Configuration section of this guide.
Edit Icon	This button will open up the floor map drawing for editing. For specific information on editing Floor Maps, please see the Editing Floor Maps section of this guide.
Refresh	Refreshes the floor map

Icon	Summary
Print Report	Print a floor map report
3D	Toggles between 2D and 3D mode. 3D mode is enabled by default.
Home	Returns to the home view. Also clears the Isolate feature.
Drill Down icon	If the selected a location thatcontains multiple rooms, clicking this button allows you to select one of the rooms which will then bring that room into focus. If you are already focused on a room the drill down icon displays in reverse and once clicked you will return to the parent drawing which contains all rooms for that location.
Isolate	Isolates user-selected cabinet(s)
Search	Searches for items on the floor map based on user-defined criteria
Connectivity	Enables the display of a selected item's power and data connections
Measure	Enables the measurement of cord lengths on the floor map
Tiles	Enables the configuration of perforated tiles on the floor map
Reports	Correlates data from multiple user-selected reports on the floor map
Thermal Map	Enables the thermal and pressure map time-lapse video on the floor map
Layers	Enables displaying or hiding layers in the .dwg file on the floor map
Color	Configure options for the floor map features

Floor Map Configuration

Click the Configuration icon on the Visualization toolbar to access the floor map configuration pop-up. In this pop-up, you'll be able to configure options for floor map features. Note that these Configuration options can only be applied to all locations.



Tab	Summary
Drawing File Management	Upload and download floor map files
Drawing Options	Set orientation of North indicator and specify floor map units, cabinet position, and grid labeling
3D Settings	Set Cabinet Contents to Always or Auto and specify additional item tool tip fields
Layer Configuration	Specify which layers to display by default and indicate the layer type (None, Cable Tray, or Grid Marker)
Connectivity Configuration	Assign the default cable colors for patch cords, structured cabling, and distributed cabling
Reports Thresholds	Set the thresholds for each floor map report

Manually Upload and Sync a Drawing File

When you create a location in dcTrack, you can upload a drawing file of the data center. Each object on the drawing file is then synced with items in dcTrack.

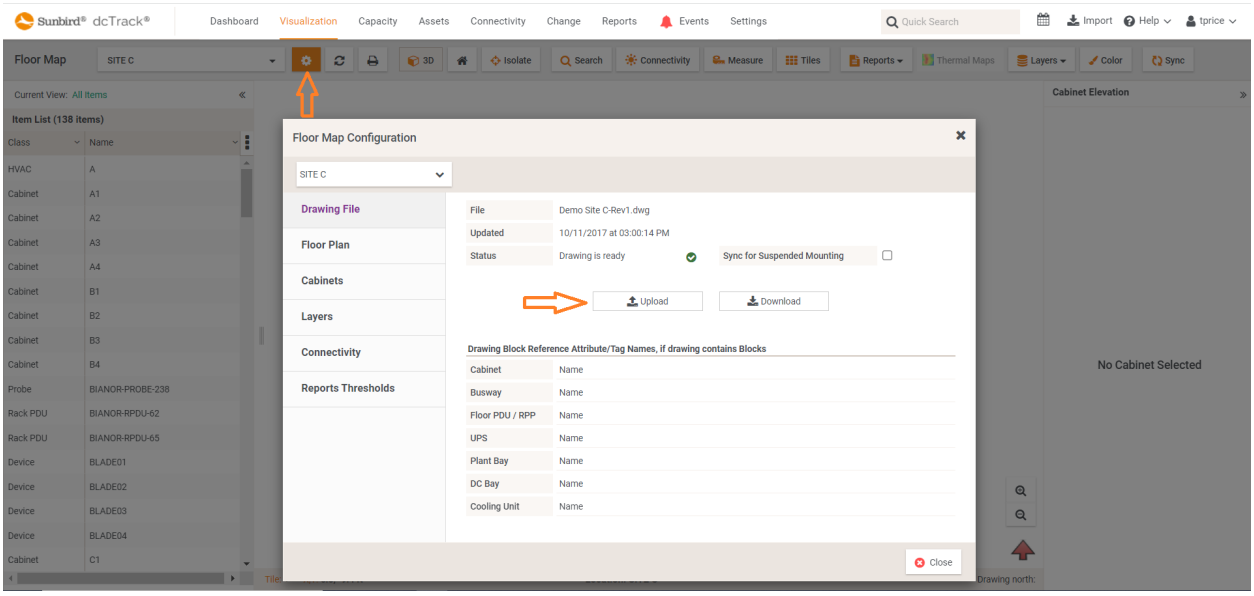
Drawing files can be uploaded when the data center is initially created or at a later time. See **Use File Import to Add, Edit Delete and Move**.

Note that Floor Map functions are not available until a drawing file is uploaded and synced with items in a location. Once synced, you can use the Floor Map to:

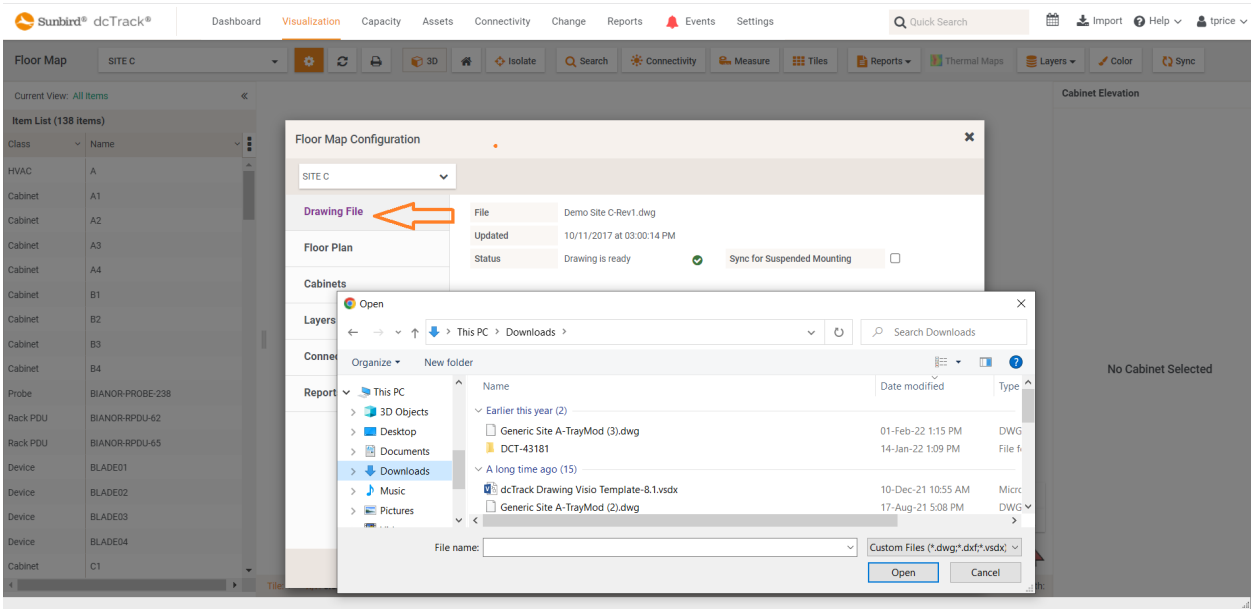
- Monitor temperature and cabinet capacity in your data center using various Floor Map Reports.
- Monitor the overall health of the data center using the Health Map report.
- Download the Floor Map file, make changes to it, and upload the file so the changes are reflected in dcTrack.
- Locate objects that are not synced with items in dcTrack.
- Select cabinets on either the Floor Map or Items List to view their Cabinet Elevation.
- Access an item's page by double-clicking on an item in the Items List or on the Floor Map
- Accessing a Cabinet Inspector by selecting an item on the Floor Map or Items List, then clicking the Information icon on the Cabinet Elevation selecting Cabinet Inspector from the drop-down menu.

The processes for uploading and re-uploading a drawing file are the same:

1. Click the Visualization tab to open the Floor Maps page.
2. In the Floor Map toolbar, click the Configuration icon. The Floor Map Configuration pop-up displays.



4. In the Upload drawing dialog, use the Browse dialog to locate and select the .dwg, .dxf or .vsdx file.



5. In the Upload Drawing dialog, click the Upload button.

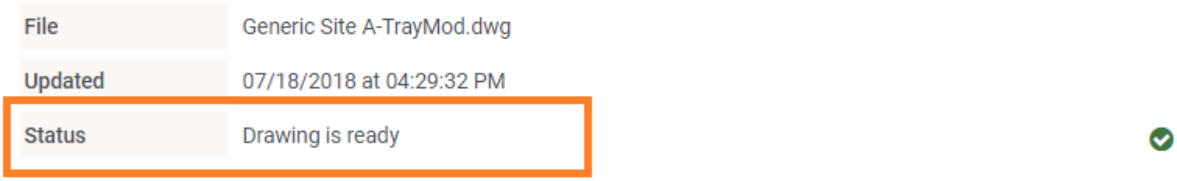
The upload time may vary depending on file size and network speed.

dcTrack syncs the objects in the drawing file with existing dcTrack items of the same name.

Processing typically takes a few seconds and does not require you to stay on the Floor Maps page.

6. A popup will display a Drawing File Upload Success message when the upload is complete. Click the OK button to close the popup.

A successful upload is indicated by the floor map appearing and a green checkmark icon next to the Status Field in the Drawing File Management tab. The Status field will update to display a Drawing Is Ready message.



7. Click the Close Button in the lower right corner to close out of the Configuration popup. The floor map loads, and all synced cabinets are listed in the Items List on the left.

Note: If the processing failed, a red icon with an X is displayed and the No File Available message is displayed on the page.

Syncing Items with a Drawing File

Cabinets and items that are not synced during the drawing file upload can be synced using the Sync function in the Floor Map menu bar.

When Sync mode is enabled, all other modes will be canceled and the drawing is set to the Home view. The cabinets are colored red or green based their status as synced or not.

- Green: Objects in the drawing that are not synced with the database
- Red: Objects in the drawing that are not synced with the database

Note: Objects in the database that are not synced with the drawing will display a "No match" status in the Items List in the left panel.

Available sync options vary based on which item, if any, you have selected.

Select your items and the click the desired Sync icon to complete the operation. Sync operations include the following:

Sync Operation	Enabled	Outcome	Notes
Sync Selected Item in List and Drawing	When the user selects a "No match" item from the list and an object in the drawing that is not synced	Sync selected items	Typically, this would mean that these two items don't have the same names, which is why they were not autosynced.
Unsync Selected Item	When a Synced item is selected	Unsync the item from the object in the drawing	The selection of the synced item can be made in the list or the drawing because if either is clicked, the other is selected, since they are already in sync.
Unsync All Items	Always enabled and does not require any item to be selected	Unsyncs all items	This will unsync all objects in the database and the drawing. You will have to re-sync all objects manually or re-upload your drawing.

Note: To sync Suspended Cabinets to objects in drawing, make sure to select the option Sync for Suspended Mounting.

Download a Location's Existing Floor Map Drawing File

Once a data center's original drawing file is uploaded to dcTrack, that file is considering your primary drawing file. Drawing files are uploaded when you manually add a data center location or create locations in bulk using File Import. See **Manually Upload and Sync a Drawing File** and .

An existing, primary floor map drawing file can be downloaded from the Web Client, and the file saved locally.

You can then makes changes to the drawing file and re-upload it to dcTrack.

Since the file is the primary drawing file, once dcTrack renders the drawing, the changes are reflected on the Floor Map pages in both the Web Client.

Note that changes are not made in real-time since you must download the file, make changes, and upload it.

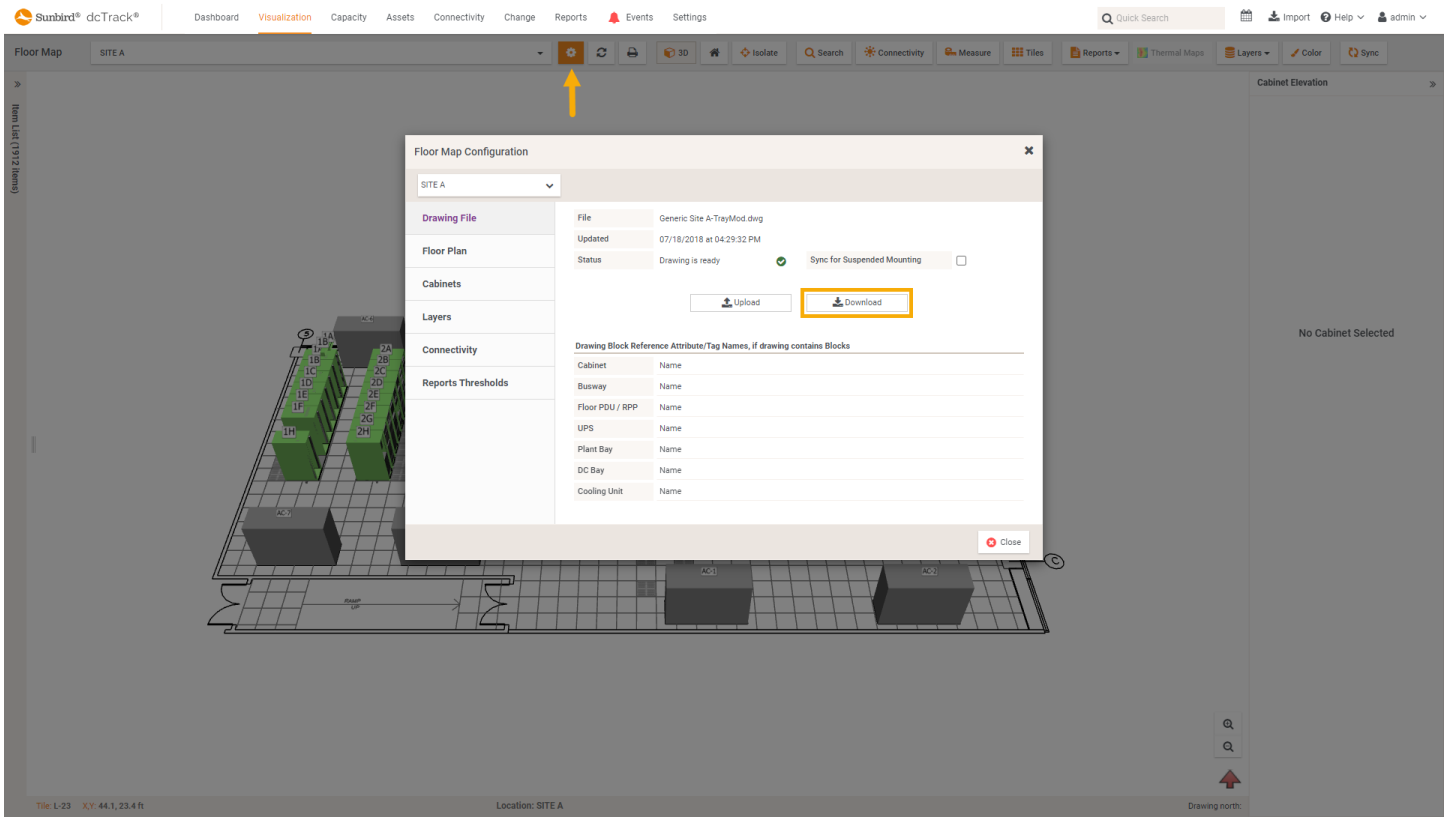
Downloading an existing drawing file is also useful if, for example, you want to use it to create a copy to use as a template for a new data center location drawing.

It is also useful to download and retain a copy or as a backup.

Note that downloaded files are copies of the original files until they are uploaded again.

To download a floor map drawing file:

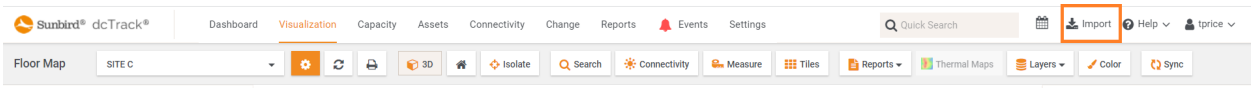
1. Click the Visualization tab to open the Floor Maps page.
2. In the Floor Map toolbar, click the Configuration icon. The Floor Map Configuration pop-up displays.
3. In the Floor Map Configuration pop-up, in the Drawing File Management tab, click the Download button.



Optional Steps Before Downloading

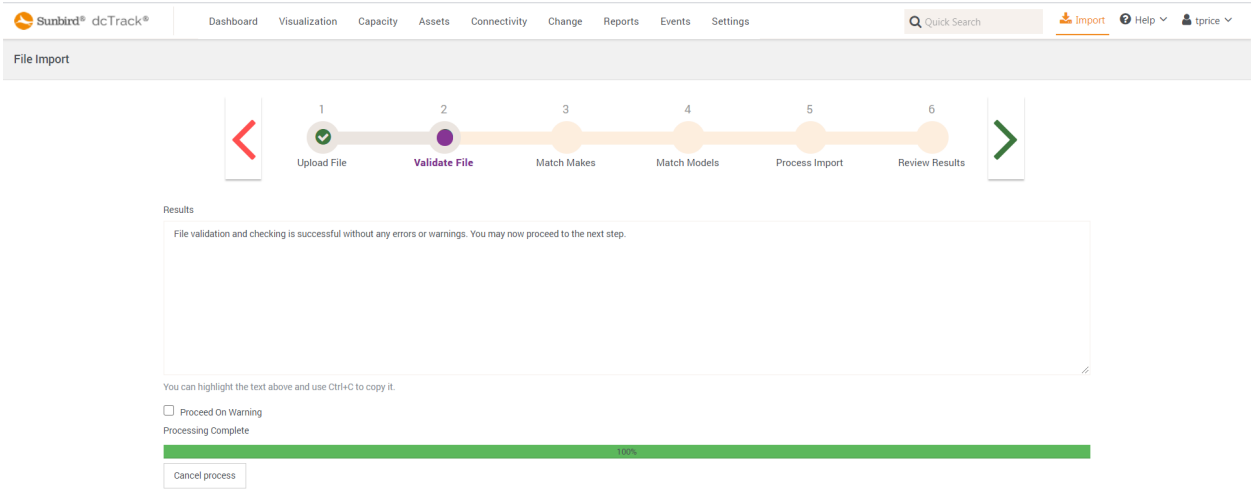
The following steps cover importing locations, verifying locations were imported, importing items and connections, verifying items and connections were imported, and uploading and syncing drawing files with locations.

1. Import locations first if you have not already done so. Once locations exist in dcTrack, import items and connections.
2. Begin a File Import by clicking the Import button in the main dcTrack tool bar.

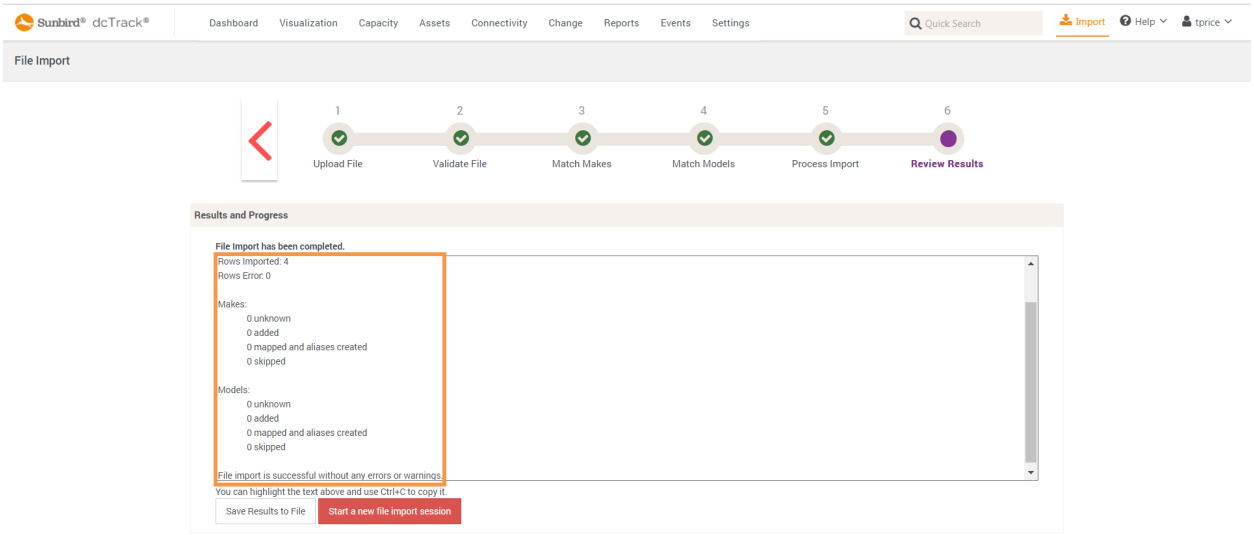


3. Use the Browse button to locate the import file.

As soon as you select the import file, the file is validated by dcTrack to ensure it is formatted correctly. All errors encountered during file validation must be corrected before proceeding to advancing. Use the arrow at the top of the page to advance to the next step or to return to a previous step.

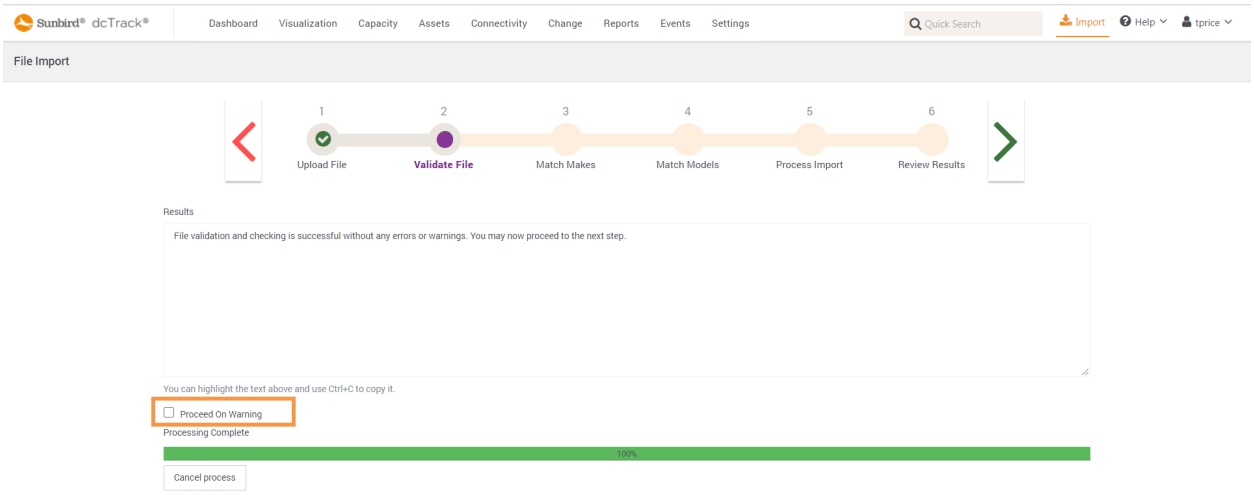


Warning or errors are displayed, if found.



If there are no issues with the import file format, a success message is displayed.

4. (Optional) Select Proceed on Warning, if desired.
5. Click Begin Import.



As dcTrack imports your data, a progress bar is displayed.

Once the import is complete, you can go on to view the newly added locations, otherwise all valid import operations are completed.

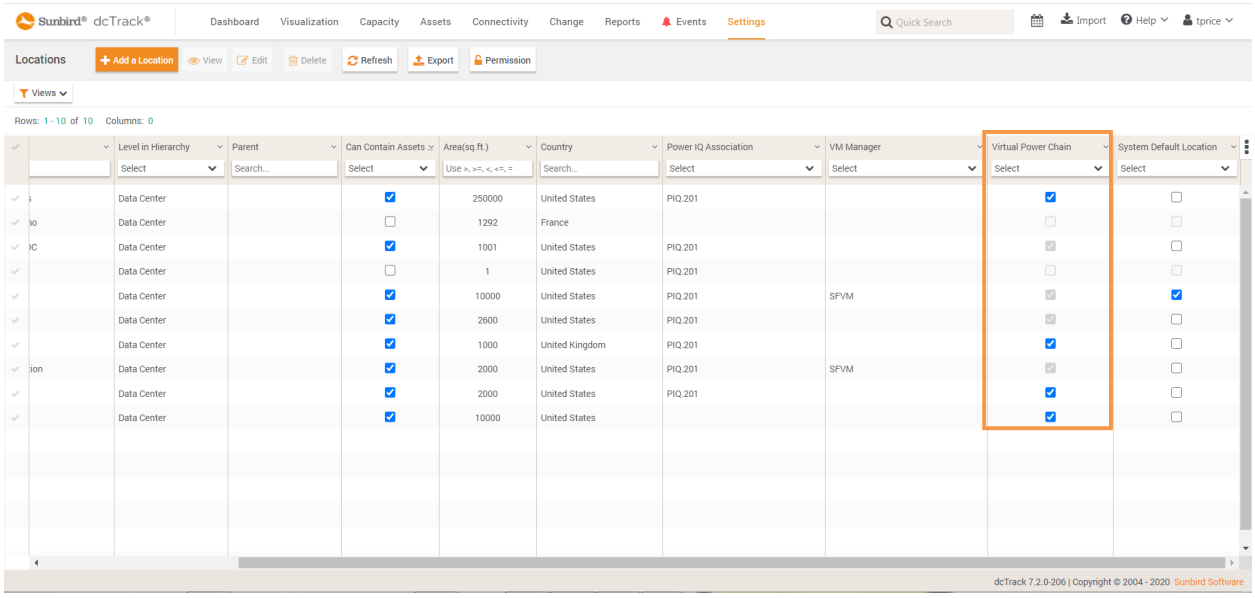
Any errors encountered during import are listed in the Results section of the File Import dialog, and all valid data are imported.

Select "Save Results to File" to create a file containing only invalid data. You can then fix the issues and import the data.

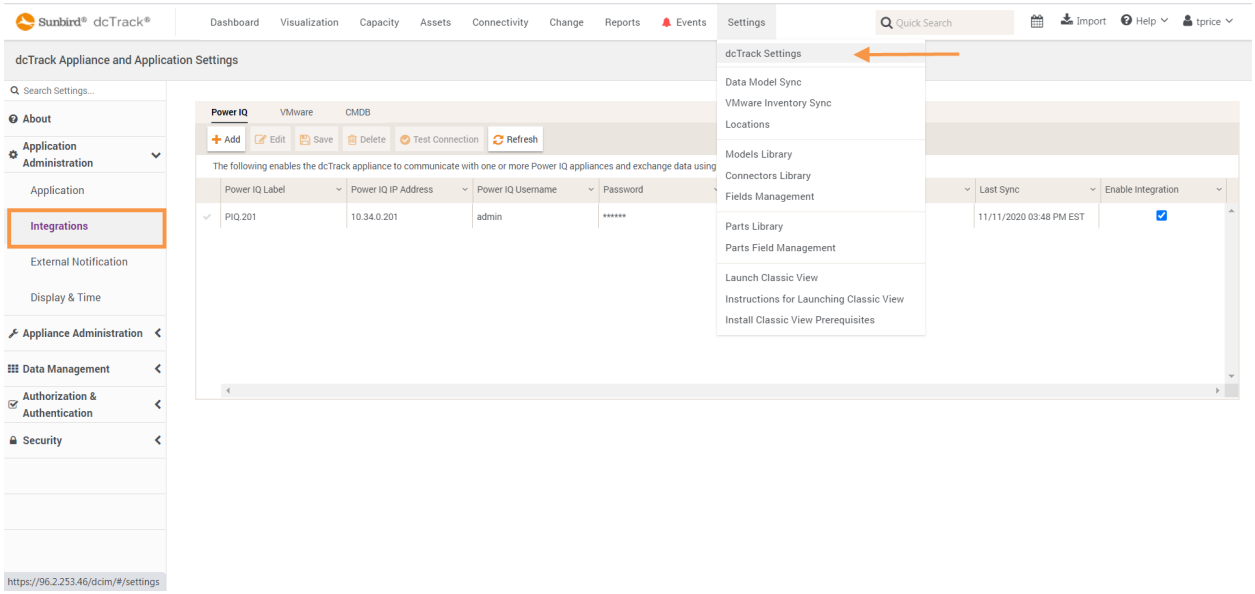
6. To view the new locations in the Web Client, navigate to Assets > Locations. You may need to refresh the grid to see your newly added Locations.
7. Locations appear in the Default Location drop-down, Location drop-down, on the Items List under Assets and so on.

11. The VPC checkbox is selected for locations that are VPC enabled.

If VPC is not enabled for a location, you can enable it from this page.



12. If needed, integrate dcTrack with one or more Power IQs. Navigate to Settings > dcTrack Settings > Application Administration > Integrations to open the Power IQ Integration Settings page. You can then use File Import to sync integrated Power IQs. See **Use File Import to Sync Integrated dcTrack and Power IQ**.



13. Next, import cabinets and items if you have not already done so.
14. You can perform this step now or at a later time, but note that cabinets and items must exist in the data center in order to sync drawing files. Otherwise, you must map or import them after syncing.
15. Use File Import and follow the same steps that are outlined above.

No readings are displayed in the widgets on the Web Client until:

- Items that can send SNMP readings are added and configured to send them, and/or you are integrated with Power IQ.
- Items sending readings are powered on.

This is also true on item pages once items are added.

16. Import power and data connections once items are imported.
17. You can perform this step now or at a later time.
18. Use File Import and follow the same steps that are outlined above.
19. To view newly added items or connections, click Refresh on the Items List or Circuits List page.

Tip: For items, filter the list by Origin = Import. You can also filter by Location so only imported items for the specified location are displayed.

20. Next, upload each location's drawing file, if applicable.

This is done in the Web Client using the Upload feature on the Floor Maps page.

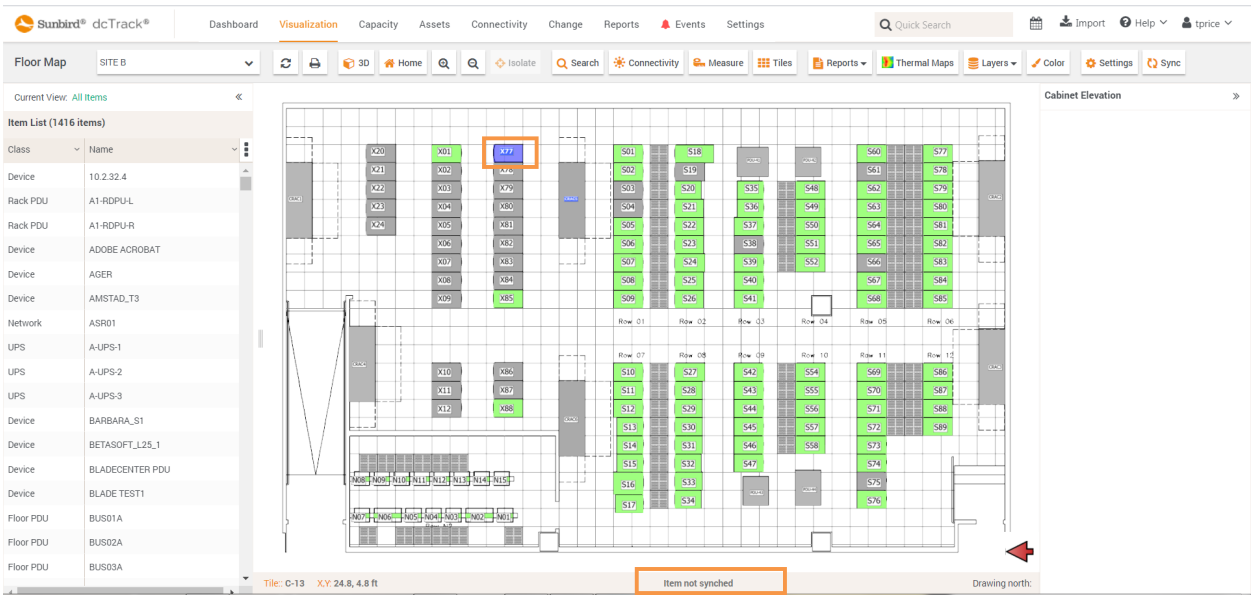
Upload each data center's drawing file separately.

21. Click on the Visualization tab to open the Floor Maps page.
22. From the Location drop-down, select the location you want to upload the drawing file to.
23. Click Settings if the Upload icon is not displayed already.
24. Click Upload, then use browse to locate and select the .DWG file.
25. In the Upload Drawing dialog, click Upload.

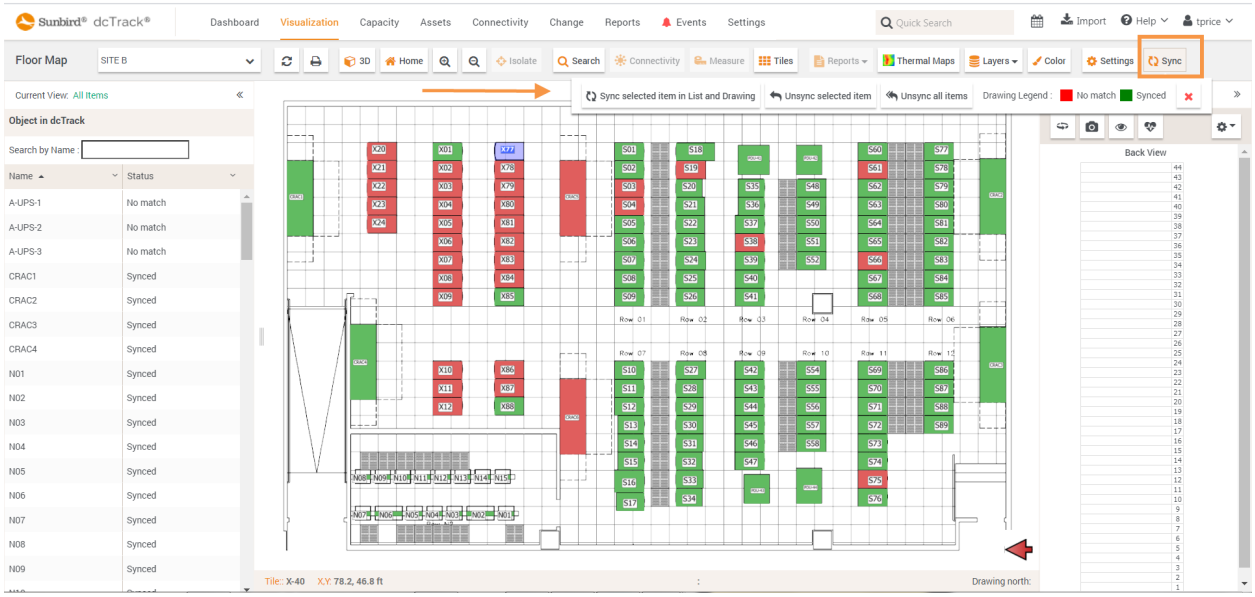
To quickly locate items that were not synced, do the following -

26. In the Web Client, click on the Visualization tab. The Floor Maps page loads.
27. Select your location from the Location drop-down in the left panel if it is not displayed by default.
28. Select a report from the Reports drop-down (it does not matter which report you choose). Note that Settings must be disabled to view the Reports drop-down, Click on the Settings button to disable it.

Gray objects on the floor map indicate they are not synced.



29. To sync unsynced objects, navigate to the Visualization page and Click the appropriate Sync option
30. If necessary, manually sync objects that did not synch.
31. To manually link the drawing file objects with existing items in dcTrack, do the following -
    - 'Items found in dcTrack' box - select the dcTrack item you want to link the drawing file object to
    - 'Objects found in AutoCAD Drawing' box - select the drawing file object you want to link to the dcTrack item you just selected
    - Click 'Link dcTrack Item with AutoCAD Object'.



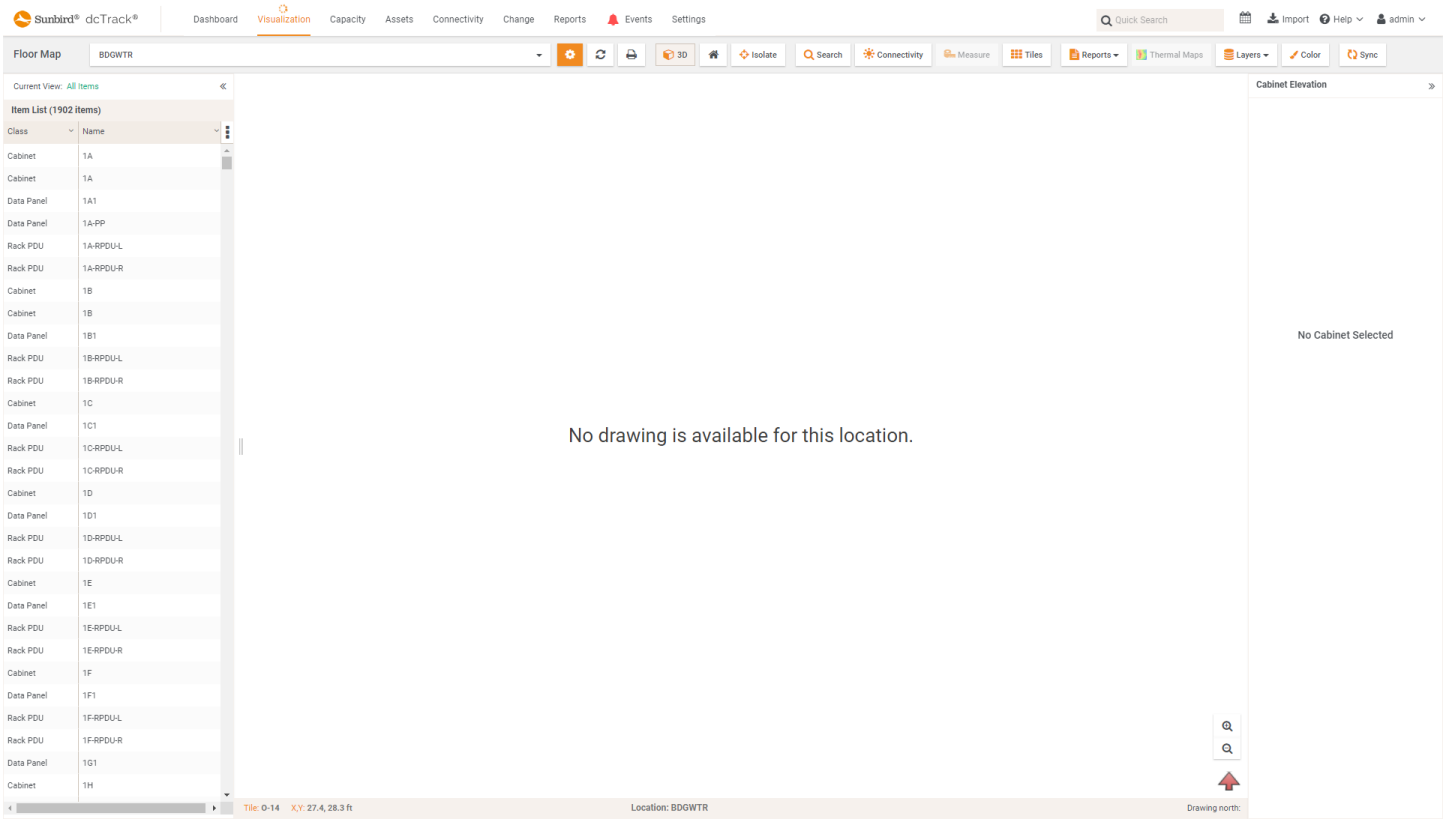
- If objects in the drawing file were not linked to existing dcTrack items, import them into dcTrack.

For more information on drawing file template requirements and recommendations, see **Creating Floor Map Drawing Files - Templates and Requirements**.

No Drawing File Is Available on the Floor Map

In the dcTrack Web Client, if you open the Floor Maps page under the Visualization tab and a message indicates no drawing file is available, that means a drawing file has not yet been uploaded for the location.

A drawing file is uploaded to dcTrack for each location and is required in order to render the floor map.



View Data Center Conditions Using Floor Map Reports

Floor maps are available in the Web Client under the Visualization tab.

Use floor map reports to review environment, sensor, power and capacity data at the cabinet level.

Data are displayed graphically on the floor map using color coding, and in list format in the Data List.

Filter, sort, print and export data from the floor map reports as needed.

Floor map reports are viewed directly on the Floor Map page under the Visualization tab in the Web Client.

For information on creating floor map drawing files, see **Creating Floor Map Drawing Files - Templates and Requirements**.

Set Floor Map Report Thresholds

You can use the auto report thresholds defined in dcTrack for each report or customize each report's thresholds. The thresholds for each report vary based on the report.

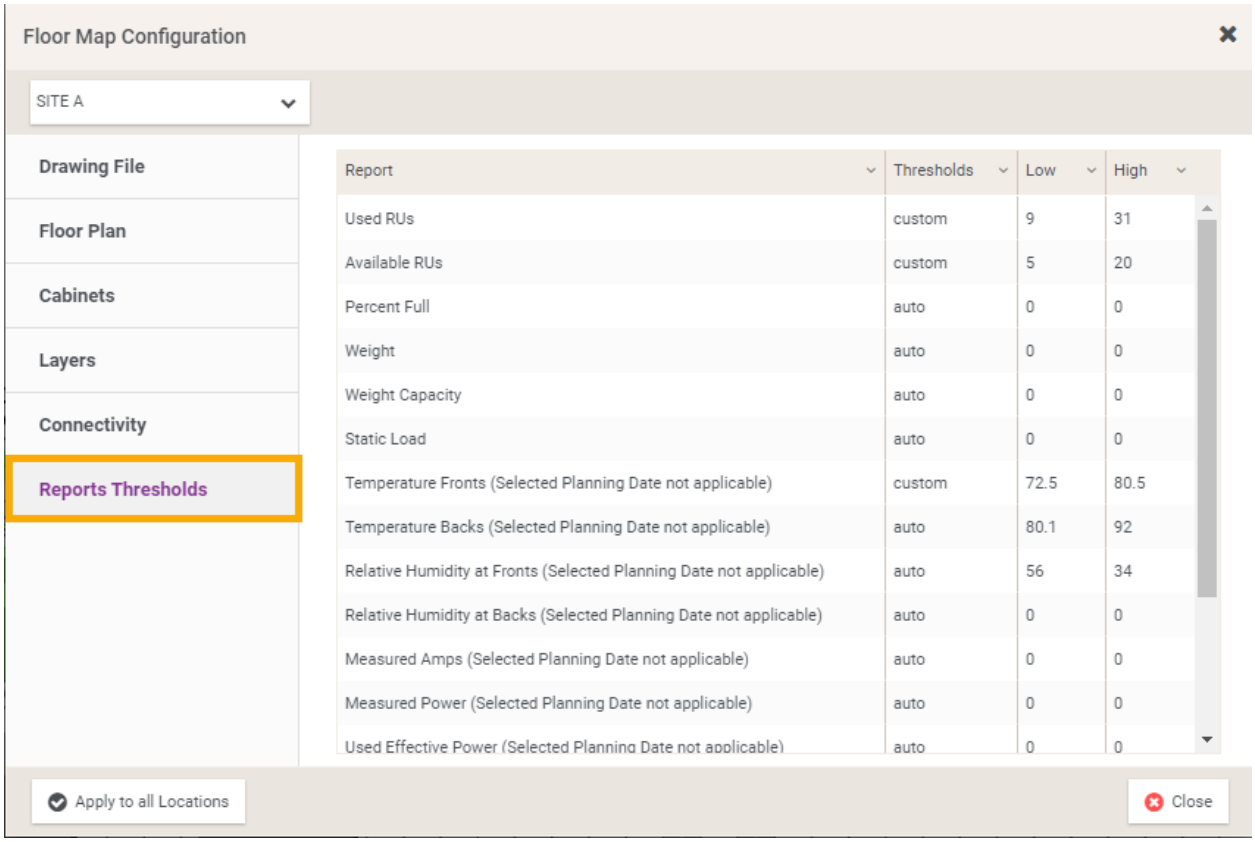
Note: Use caution when considering changing a report's threshold.

Reports are generated on a per user basis and apply to the current dcTrack session. Each user must generate their own reports to retrieve up-to-date data.

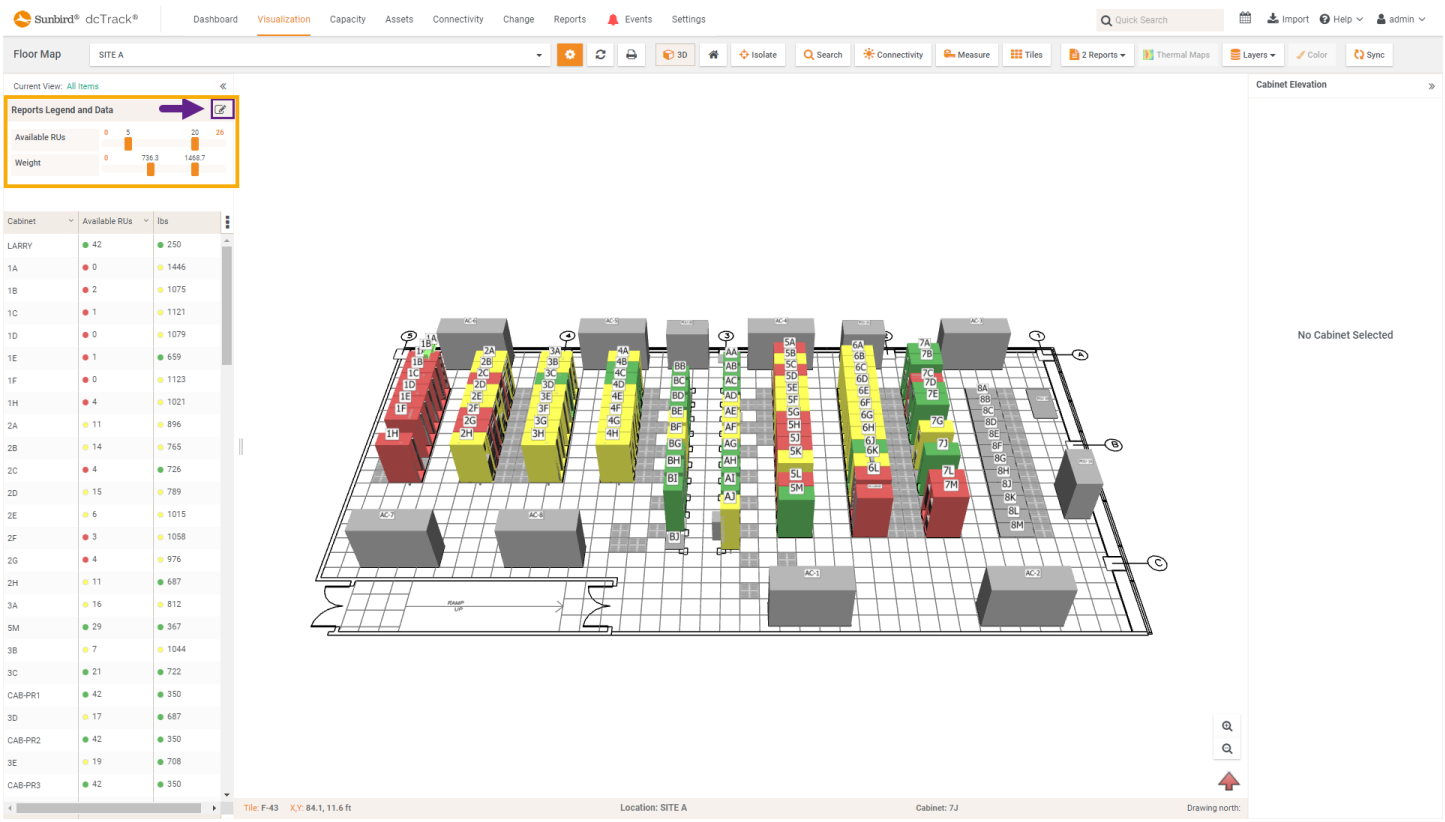
However, if any changes are made to report thresholds in dcTrack, they are applied at the application level. This means all dcTrack users are impacted.

The thresholds depend on your needs, and what each report allows (see the individual topics in Floor Map Reports (Web Client).

Floor map report thresholds can be changed on the Floor Map Settings pop-up, accessible by clicking the Configure icon on the Floor Map toolbar.



Alternatively, you can click the Edit Threshold icon in the Reports Legend and Data section when you have selected one or more floor map reports. You can also click in each colored field to change the respective threshold.



To edit floor map report thresholds:

1. Select Visualization in the Web Client to open the Floor Maps page.
2. Check the Location dropdown to ensure you are working in the location you want to generate floor maps for.
3. In the Floor Map toolbar, click the Configure icon to open the Floor Map Configuration popup. Alternatively, you can click the Edit Threshold icon in the Reports Legend and Data section when you have selected one or more floor map reports.
4. Click the Reports Thresholds tab to view a table of reports and their threshold settings, as well as the low and high threshold settings. Clicking the Edit Threshold icon will automatically open the Reports Thresholds tab.
5. For the Thresholds field, use the report's default threshold settings by leaving "auto" selected or click the Threshold drop-down and select "custom" to enable the Low and High fields.
6. To set custom thresholds, ensure that the custom option is selected for the Thresholds, and then click in the associated Low and High fields to type in your custom thresholds. When you have a report selected on the floor map, you can also click in each colored threshold field to type in the threshold.

Note: If a value outside the accepted low or high range is entered, a field error is indicated and the field resets to 0 when you leave it.

7. Click the Apply to All Locations icon to apply the threshold updates to the reports.

8. Click the X in the upper right corner of the Floor Map Settings popup to exit. The new thresholds are applied immediately.

How to Read a Floor Map Report

After generating a cabinet floor map report, the report data are displayed in graphical and list format.

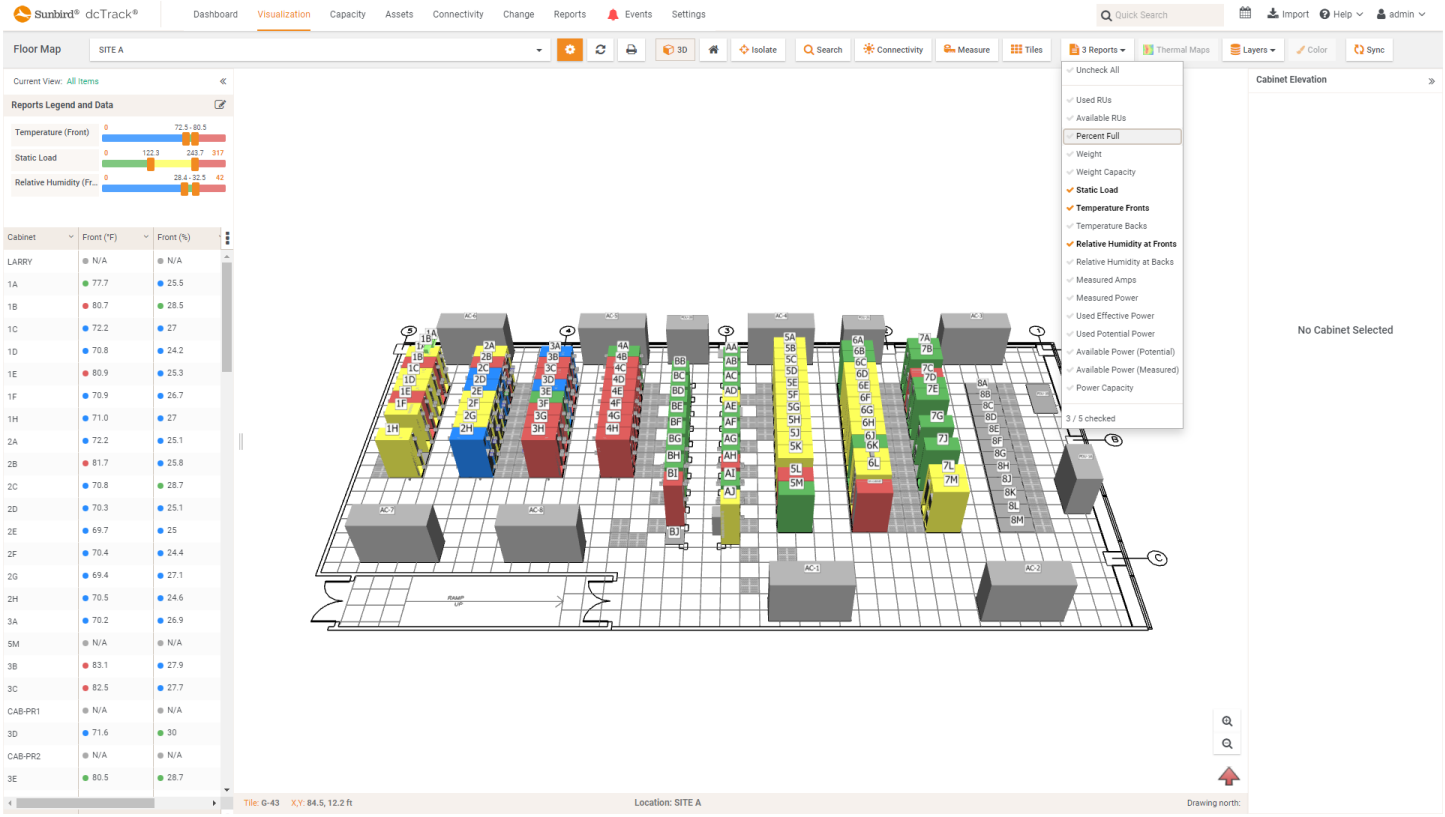
You can select up to five reports to enable on the floor map to make it easier for you to select the right location for your items based on common capacity constraints, such as space, power, and cooling.

To select a report, click the Reports icon and click each of the reports that you'd like to view. The floor map will automatically update as each report is selected. The number of floor map reports selected with be displayed at the bottom of the list.

The Reports Legend and Data panel to the left of the floor map will display the results for each cabinet.

The color of the cabinet on the floor map indicates the data range the cabinet falls into based on the data ranges defined for the report.

- Red cabinets = high end of the data range
- Blue cabinets = low end of the data range for temperature
- Yellow cabinets = medium of the data range
- Green cabinets = low or acceptable end of the data range
- Gray cabinets = no report data available



Note: Not all reports can be used with a Planning Date. For those reports, "Selected Planning Date not applicable" will display in parentheses next to the title of each report.

Thresholds can be edited by clicking the Edit Threshold icon in the Reports Legend and Data panel, or by accessing the Reports Thresholds tab under the Floor Map Settings section.

The actual cabinet color displayed when correlating data across multiple reports will vary based on the thresholds and priority of the conditions illustrated by the colors (Red, Yellow, Blue, Green). The following chart can be helpful in interpreting reports that leverage different color coding (red/yellow/green or red/green/blue):

R/Y/G Report	R/G/B Report	Actual Cabinet Color
Green	Red	Red
Green	Green	Green
Green	Blue	Blue
Yellow	Red	Red

R/Y/G Report	R/G/B Report	Actual Cabinet Color
Yellow	Green	Yellow
Yellow	Blue	Yellow
Red	Red	Red
Red	Green	Red
Red	Blue	Red

Note: Cabinets that are gray are not linked to items in dcTrack and should be synced.

Note: Report color coding is only applied while you are viewing a report. Default floor map colors are restored once you switch back to the standard floor map view.

Note: For more information on thresholds and customizing them, see Set Floor Map Report Thresholds.

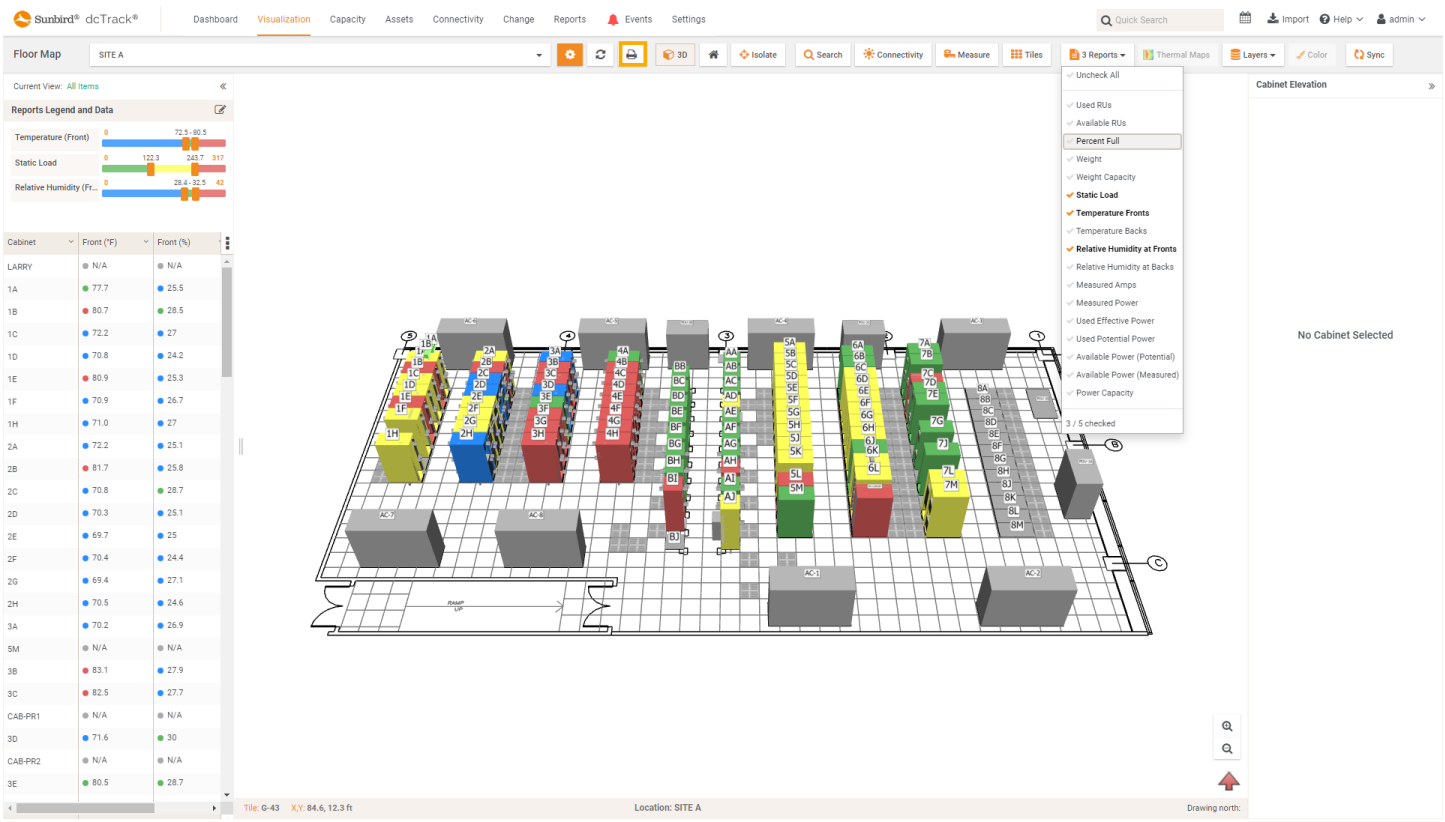
Printing a Floor Map Report from the Web Client

To print a floor map report from the Web Client, click the Print icon on the Floor Map menu bar.

You can print a copy of a floor map using any standard or network printer.

You can also print to PDF, XPS, or any other print driver.

When you print a floor map report, both the floor map and Report Data List are included.



Print a Filtered Floor Map Report

If you applied filters to the report, such as filtering to include only cabinets belonging to a specific customer or item type, the printed report contains only the filtered data in both the Report Data List and floor map.

1. Select the report.
2. Apply the filter.
3. Select Print and print the report. Only the filtered data are included in the report.

Zoom In on a Report Section to Print It

If you zoom into a specific section of the floor map report, such as zooming in on a specific grouping of cabinets, only the data for the items in focus are included in the floor map and Report Legend and Data when you print the report.

1. Select the report.
2. Use the Zoom icon on the Floor Map menu or your mouse to select and zoom in on an area of the floor map.
3. Select Print and print the report.

Only the area you zoomed in on and the data for that area are included in the report.

Export the Floor Map Report Data List to a .CSV File

In addition to printing floor map reports that include both the Floor Map and Data List, you can export the report data from the Report Data List and save it to a .CSV file.

1. Select the report, apply a filter and/or zoom into a specific report section (if needed).
2. Click the "Export to CSV" icon at the bottom of the Report Data List once the report data loads.
3. After the report downloads, open the report and save it locally.

The .CSV file contains the data listed in the Report Data List for the selected report.

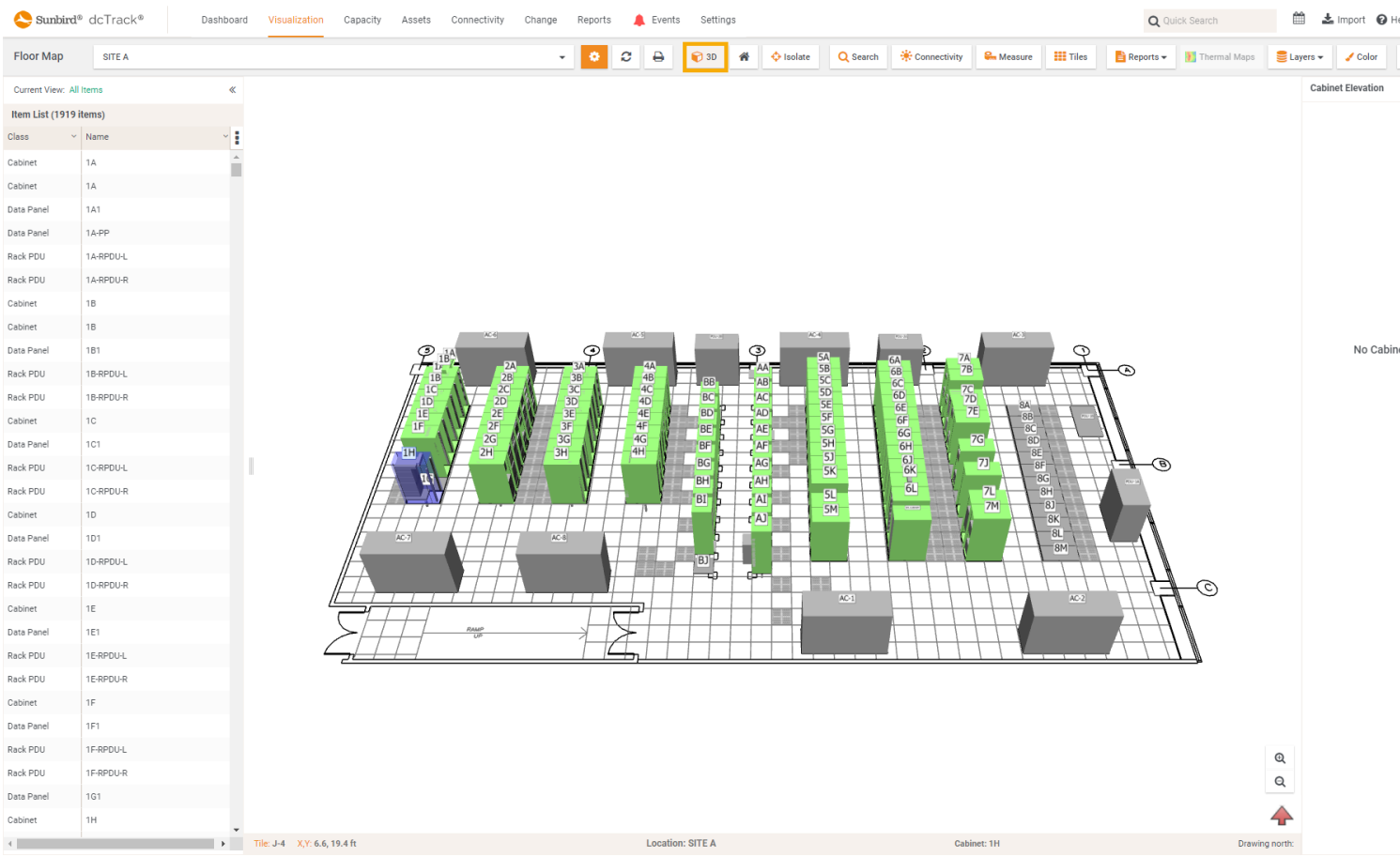
For information on specifying a save location, see **How to Specify a Default Save Location for Downloaded Files**.

Web Client Floor Map Reports

The table below lists the capacity and environmental reports and their descriptions available in the Web Client on the Visualization tab.

Reports are available in 2D and 3D. To toggle between 2D and 3D reports, click the 3D icon in the visualization tool-bar.

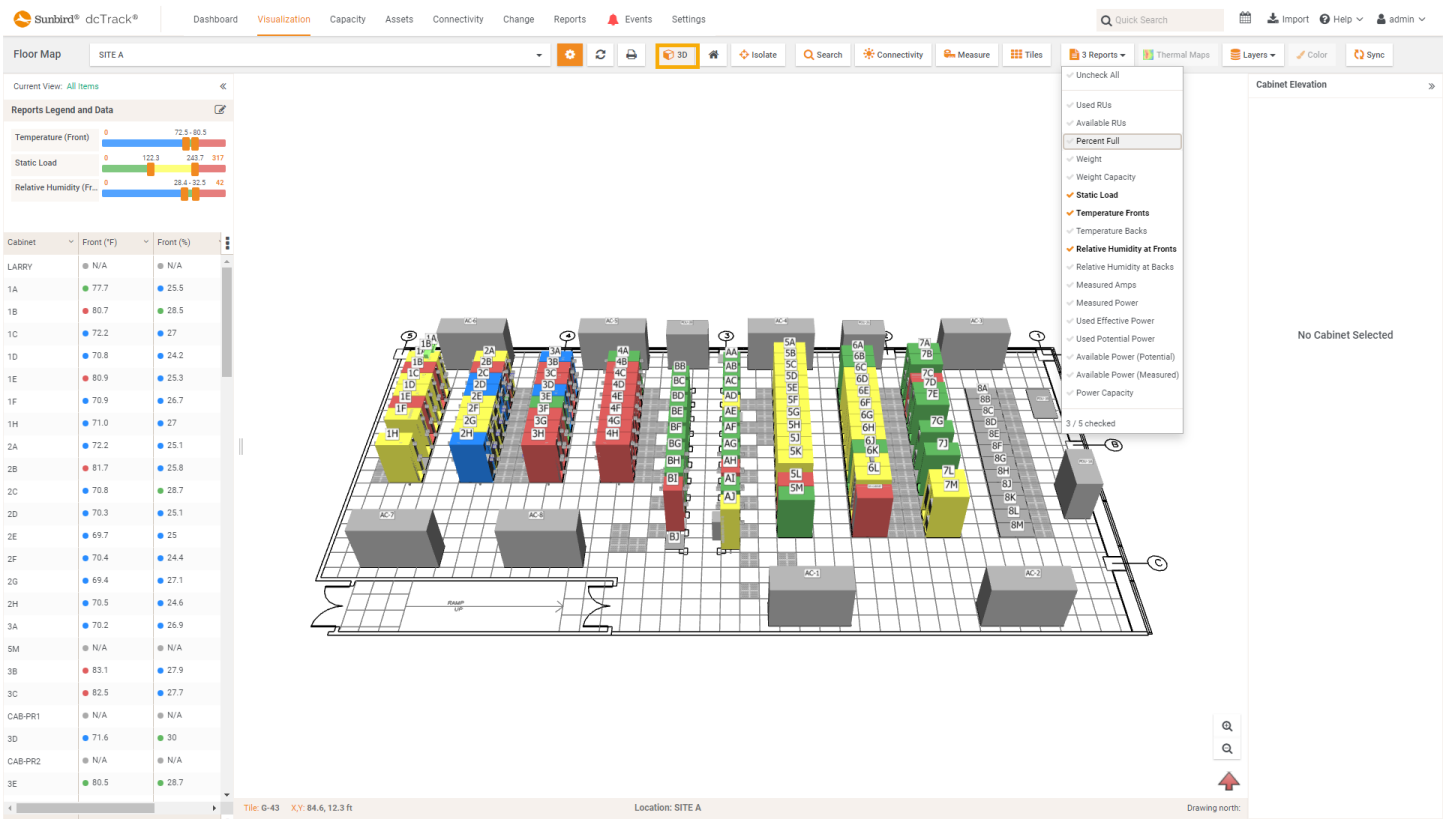
For more information on 3D floor maps, see **Using the 3D Visualizer (Web Client)**.



Floor map reports use both color coding and text to display data. Your default units of measure are used for the report data. For information on changing the default unit of measure, see **Define a User's Default Unit of Measure**.

Custom thresholds can be applied to the reports. Thresholds range from 0 - 999, up to one decimal (for example, 80.6). To apply custom thresholds, select a report and click the Edit Thresholds button on the Report panel.

Data can be filtered by Customer, Function, Grouping, and Type. For more information on accessing, filtering, generating and printing/saving floor map reports, see **View Data Center Conditions Using Floor Map Reports**.



Report Name	Description
Used RUs	Displays the total number of used rack units (front and back) out of the total number of rack units in the cabinet.
Available RUs	Displays total number of available rack units (front and back) out of the total number of rack units in the cabinet.
Percent Full	Displays the percent full per cabinet (either front or back rails occupied).
Weight	Displays the total weight of all of the items in the cabinet plus the cabinet weight.
Weight Capacity	Displays the weight capacity per cabinet (based on the Load Capacity value set in the Configuration sub-tab of the cabinet's item detail page).

Report Name	Description
	Note: Capacity values for each cabinet must be set for the report to display the correct percentages. If no capacity value is set, the Percent column in the Report Data list will display a “No capacity set” message.
Static Load	Displays the weight per cabinet divided by the cabinet footprint area.
Temperature Backs	Displays the temperature sensors at the rear of a cabinet. Note: Readings from temperature sensors that are physically not “in” the cabinet are not included in this report.
Temperature Fronts	Displays the temperature sensors at the cabinet front.
Relative Humidity atFronts	Displays the relative humidity sensors at the cabinet front.
Relative Humidity atBacks	Displays the relative humidity sensors at the cabinet back.
Measured Amps	Displays the actual Amps across all input cords for all rack PDUs in a cabinet.
Measured Power	Displays the measured power of each cabinet in kW from the Rack PDU Inlets in each cabinet as retrieved from Power IQ the last time the Rack PDU was synced.
Used Effective Power	Displays the sum of budgeted power in kW for each cabinet based on the items in the cabinet. Budgeted kW for each item is defined when creating power supplies for items.
Used Potential Power	Displays the potential power (the maximum effective power) in a cabinet.
Available Power (Potential)	Reports Cabinet Capacity (Power Capacity (kW) less the sum of the Potential Power for all the Items contained in the Cabinet. Low numbers are displayed in red and

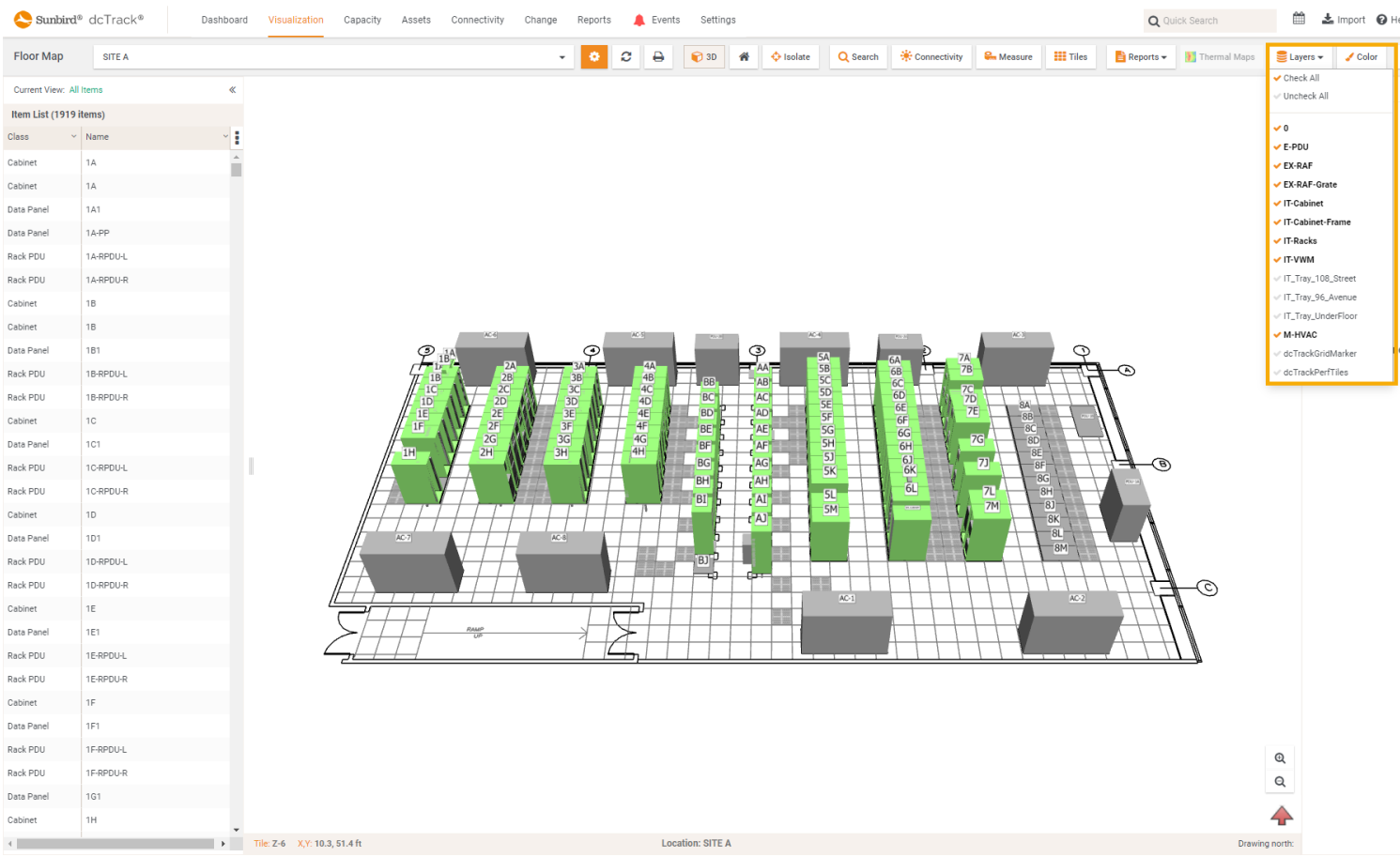
Report Name	Description
	high numbers are displayed in green. This report supports Items “Planned for Decommission” based on the date selected in the dcTrack Header.
Available Power (Measured)	Displays remaining capacity by subtracting the Cabinet's power capacity from the measured power of each Cabinet in kW. The measured data is from the Rack PDU Inlets in each Cabinet as retrieved from Power IQ from the last time the Rack PDU was synced.
Power Capacity	Reports each Cabinet’s “Power Capacity (kW)” field. Low numbers are displayed in red and high numbers are displayed in green.
Health Map	Color codes floor items with yellow and red when there are warning or critical level events, respectively, associated with the floor item. Note: This report is only visible when the location in dcTrack is integrated with Power IQ.

Define What You View on the Floor Map - Turn AutoCAD Layers On/Off

The Layers feature in dcTrack enables users to show or hide the layers in their floor map drawing files to make better use of your AutoCAD or Visio drawings.

To enable Layers, click the Layers drop-down in the Visualization tool bar. From here, you can select or deselect the layers you want to show or hide. To set the layers displayed by default, go to the Layer Configuration tab in the Floor Map Configuration pop-up, accessible by clicking the Configuration icon in the Visualization menu bar.

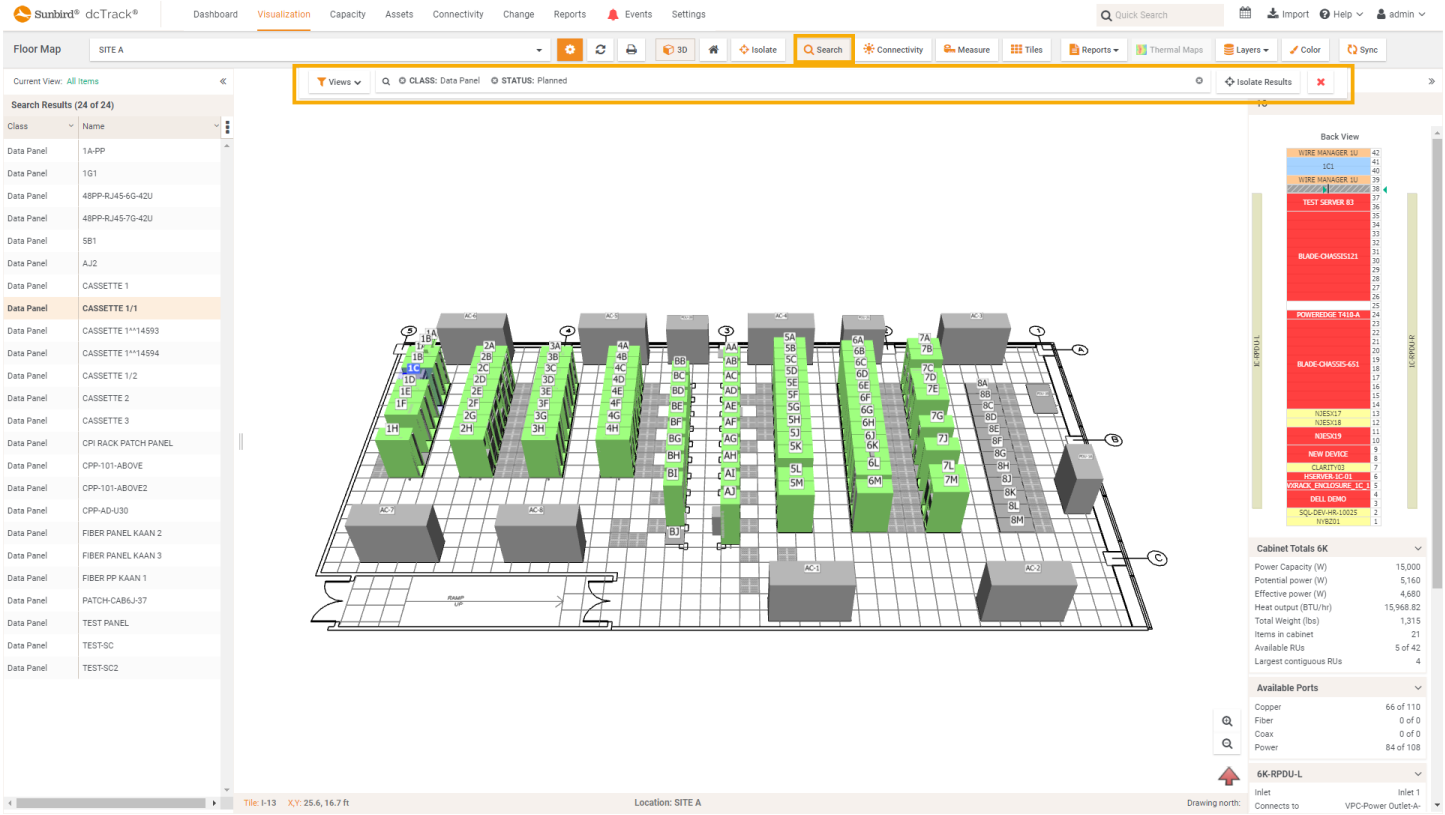
Cable trays are layers so they are shown or hidden using the Layers drop-down. However, when they are designated as Cable Trays in the Layer Configuration tab, they are drawn at a specified elevation that is less than or greater than 0 and therefore are not considered part of the background image.



Locate an Item on the Floor Map and Items List

Multi-field search is available on the floor map, enabling you to quickly locate items in your data center.

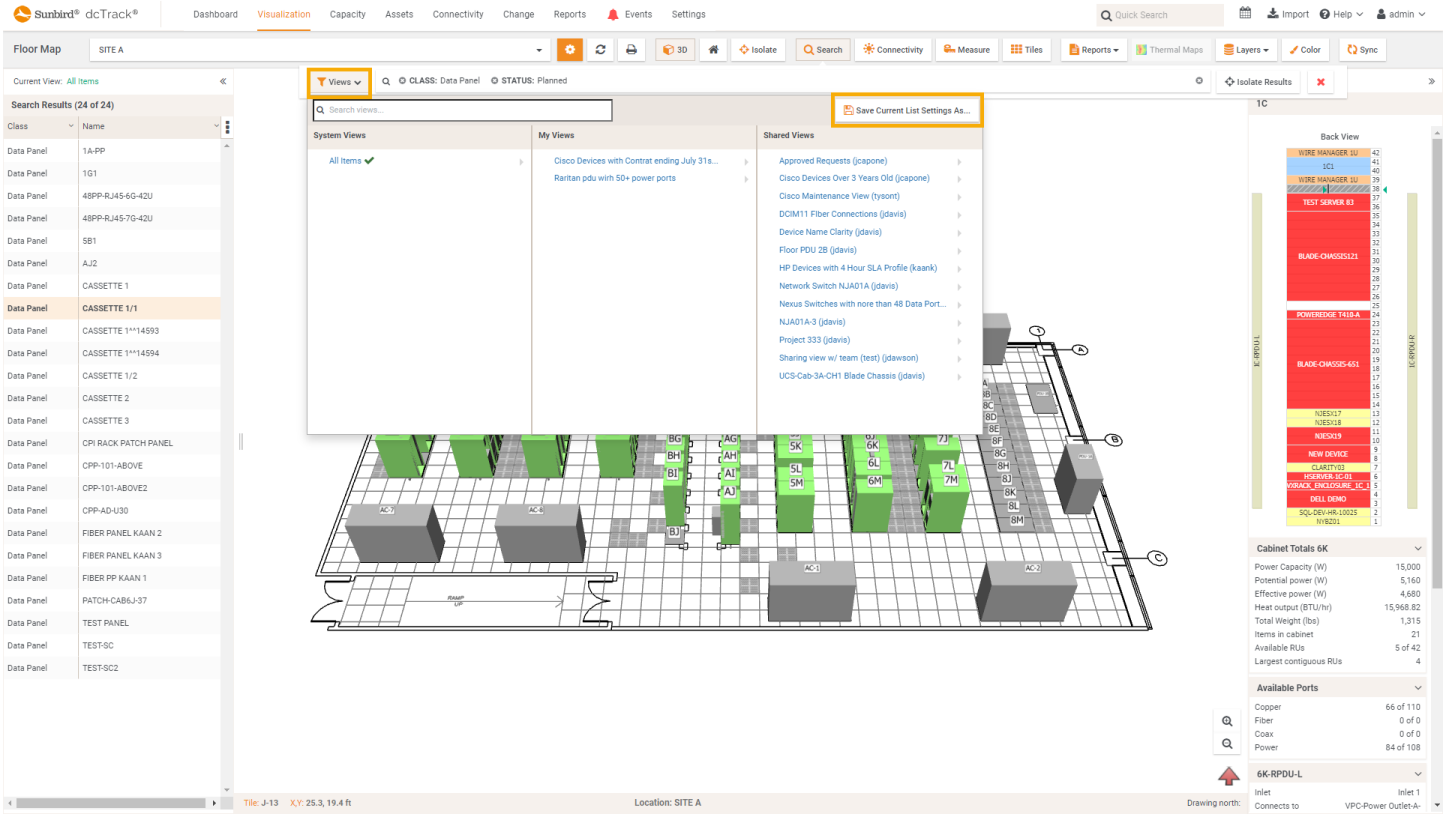
To search on the floor map, simply click the Search icon to enable search mode, and type your criteria into the search box. Hit the Enter button to isolate the search results. The floor map will automatically isolate the items that match your criteria.



The search results will be displayed in the Items List in the panel to the left of the floor map. Clicking on a result in the Items List will highlight the corresponding cabinet in blue on the floor map.

To clear your search, click the red X in the search bar.

To save your results as a view, click the Views dropdown in the Search bar and click the Save Current List Settings As... icon. You will be able to name your view and save it. It will then appear in the Views menu under My Views. Multiple list views are available for each user.



Simultaneous Search and Color Highlighting

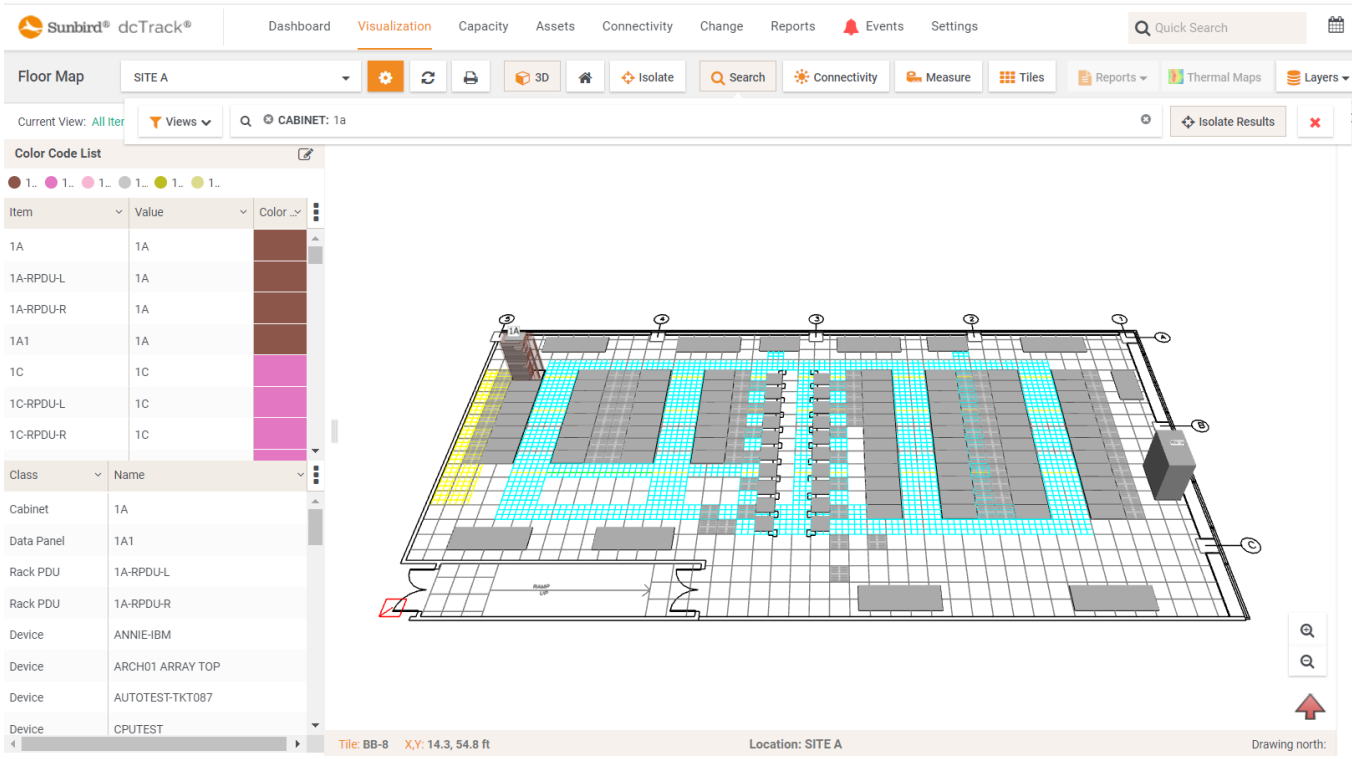
dcTrack version 9.0.0 introduced the ability to search in conjunction with Color coding. The display of the results of the search depends on when the color coding is applied.

Color Code is Active and applied First

If the color code feature is activated first and then a search is initiated the following will occur:

- The left panel is divided into thirds. At the very top is the color legend, below that is the color list, below that is the Item search results
- 3D view removes all cabinets where neither the cabinet nor the Items in the cabinet match the search result
- If the search matches on cabinets contents but not the cabinet itself, the cabinet displays with the light green standard color and is transparent
- If the search matches the cabinet itself, the cabinet will display in whatever color it is assigned in color coding
- If none of a cabinet's contents match the search, the cabinet remains solid.

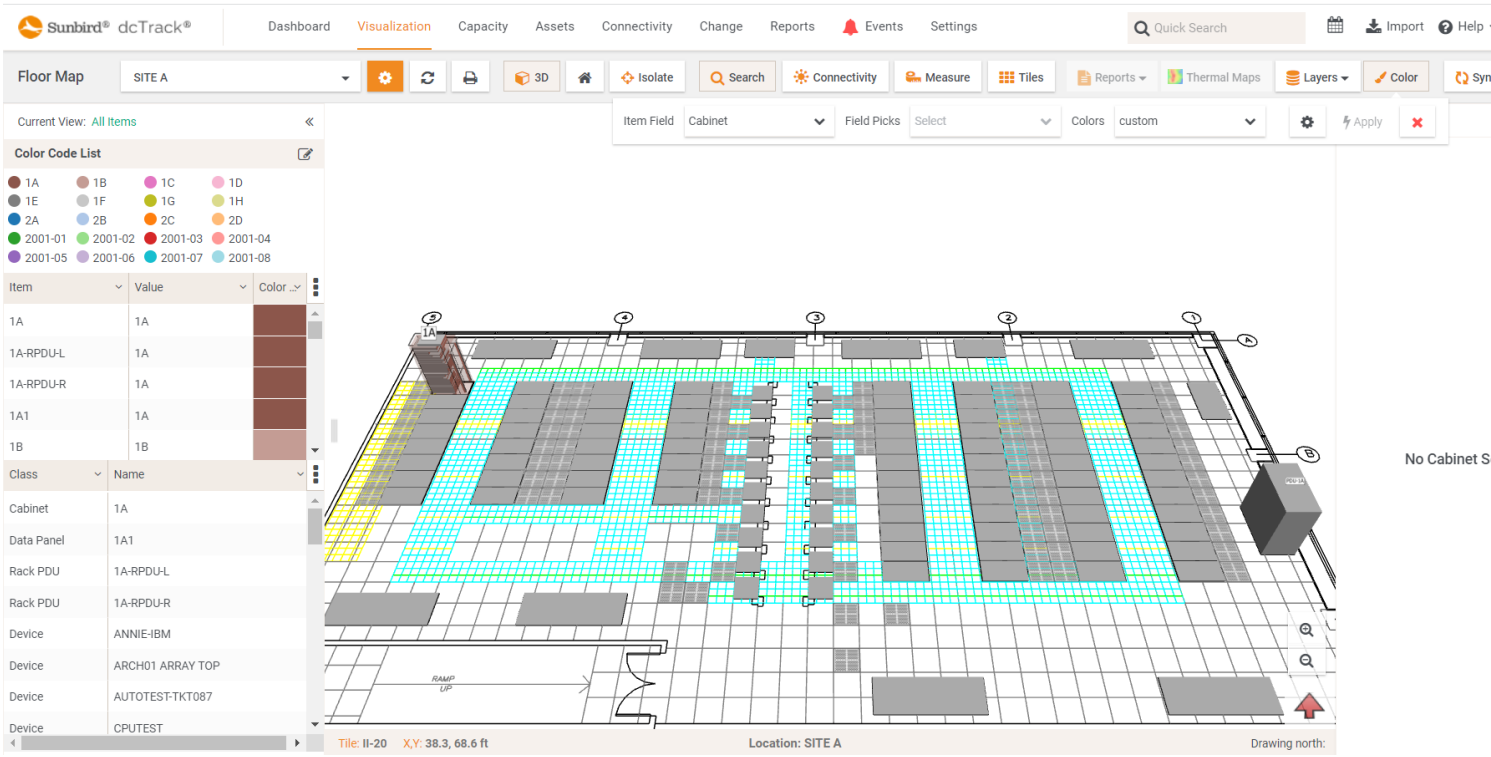
- if some cabinet contents match the search, then the cabinet becomes transperant.



Search is Active before Color Code is Applied

If the search feature is activated first and then the color code feature is activated the following will occur:

- The left panel is divided into thirds. At the very top is the color legend, below that is the color list, below that is the Item search results
- Non-matching cabinets with non-matching contents are hidden
- If the cabinet itself is a match, it retains its original color.



callColor Coding Floor Maps Using Field Values

System Administrators and Global Gatekeepers can choose to highlight Items on Floor Maps by assigning colors based on Standard or Custom Field Values. For example, users can highlight and quickly see all of the Items for a single Project or multiple Projects.

Prior to dcTrack version 9.0.0 colors were assigned automatically and could not be changed. dcTrack version 9.0.0 introduced the ability to customize colors allowing users to select which colors are assigned to each value.

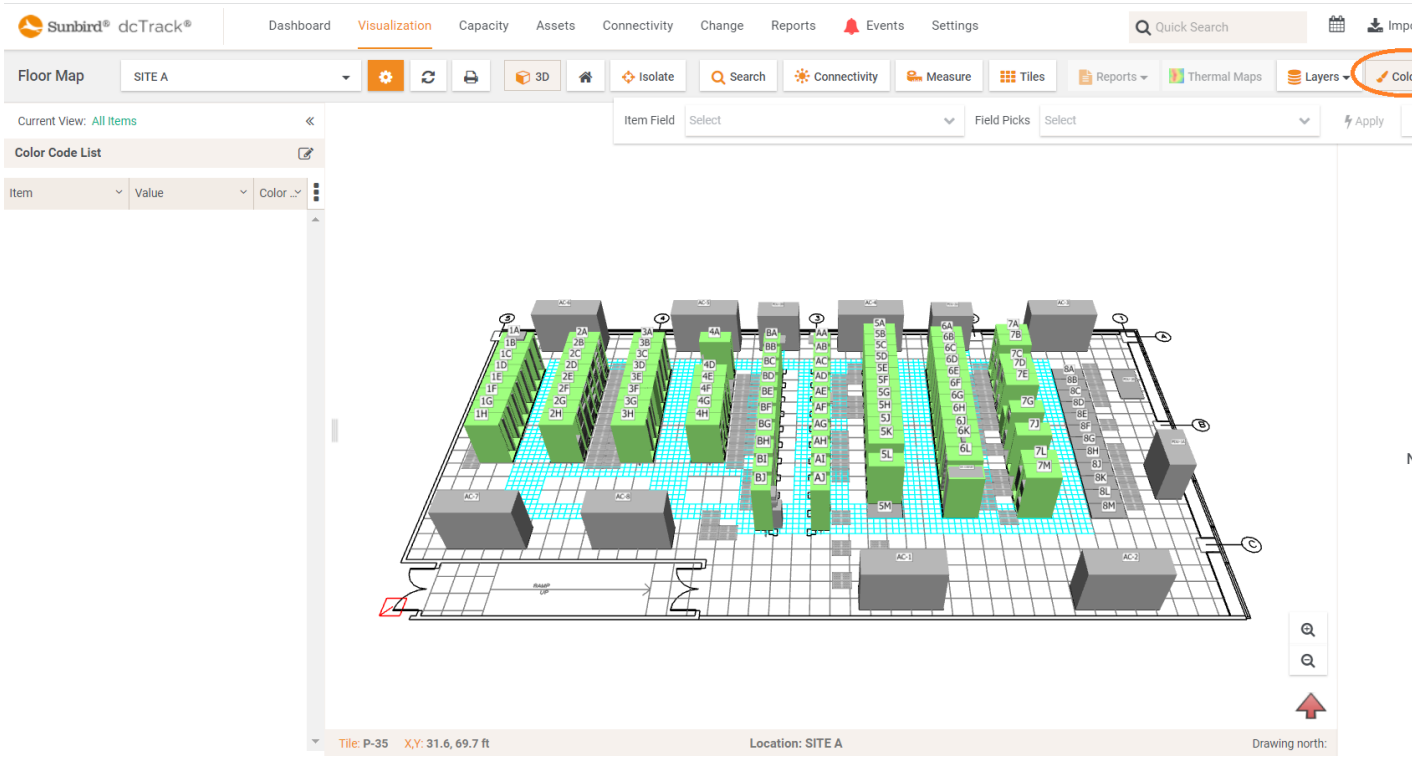
Color Coding is available in both 2D and 3D Modes.

Note: dcTrack will assign up to 20 unique colors to the Floor Map. For this reason selections are limited to 20 Items.

Steps to Color Code a Floor Map:

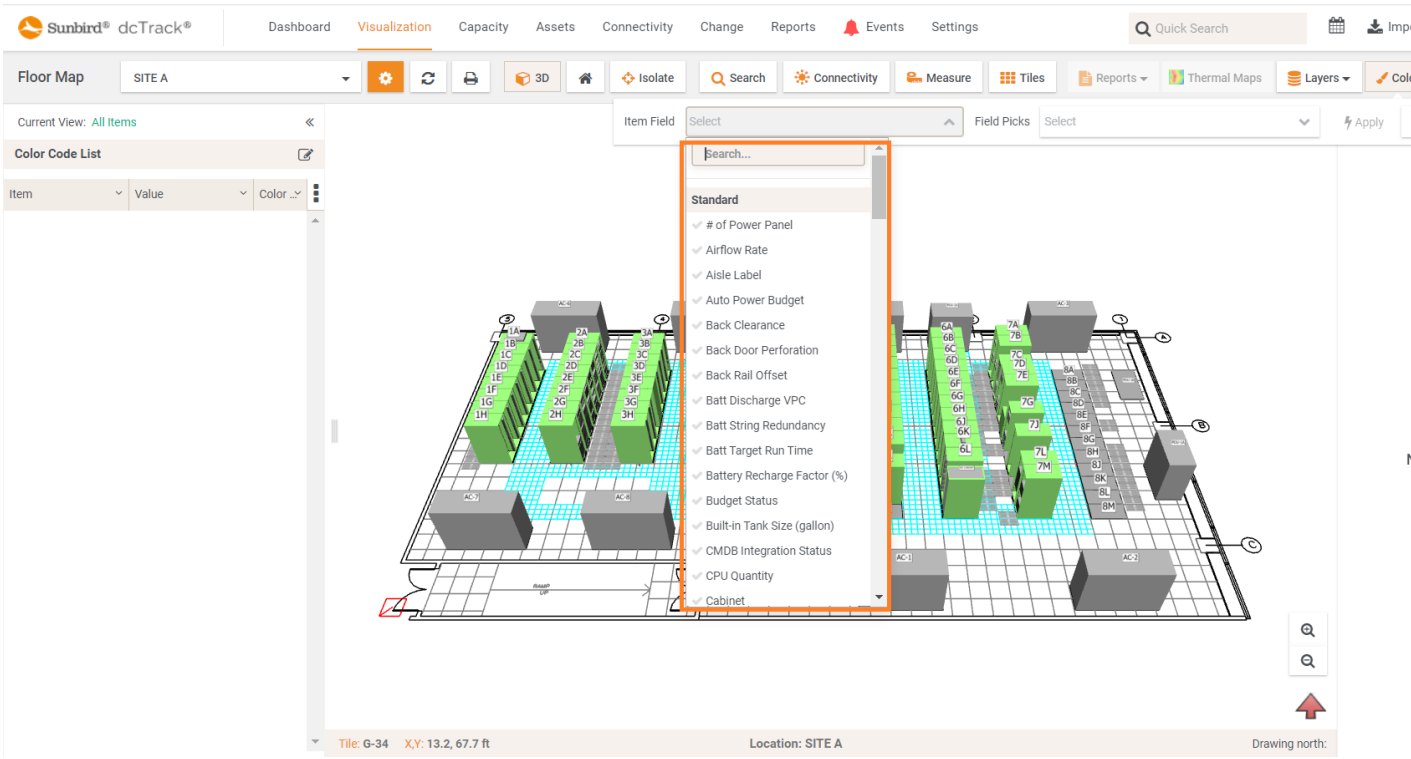
1. Navigate to the Visualization > Floor Maps
2. Select the Location whose Floor Map you want to see

3. Click the Color button on the Visualization Tool Bar

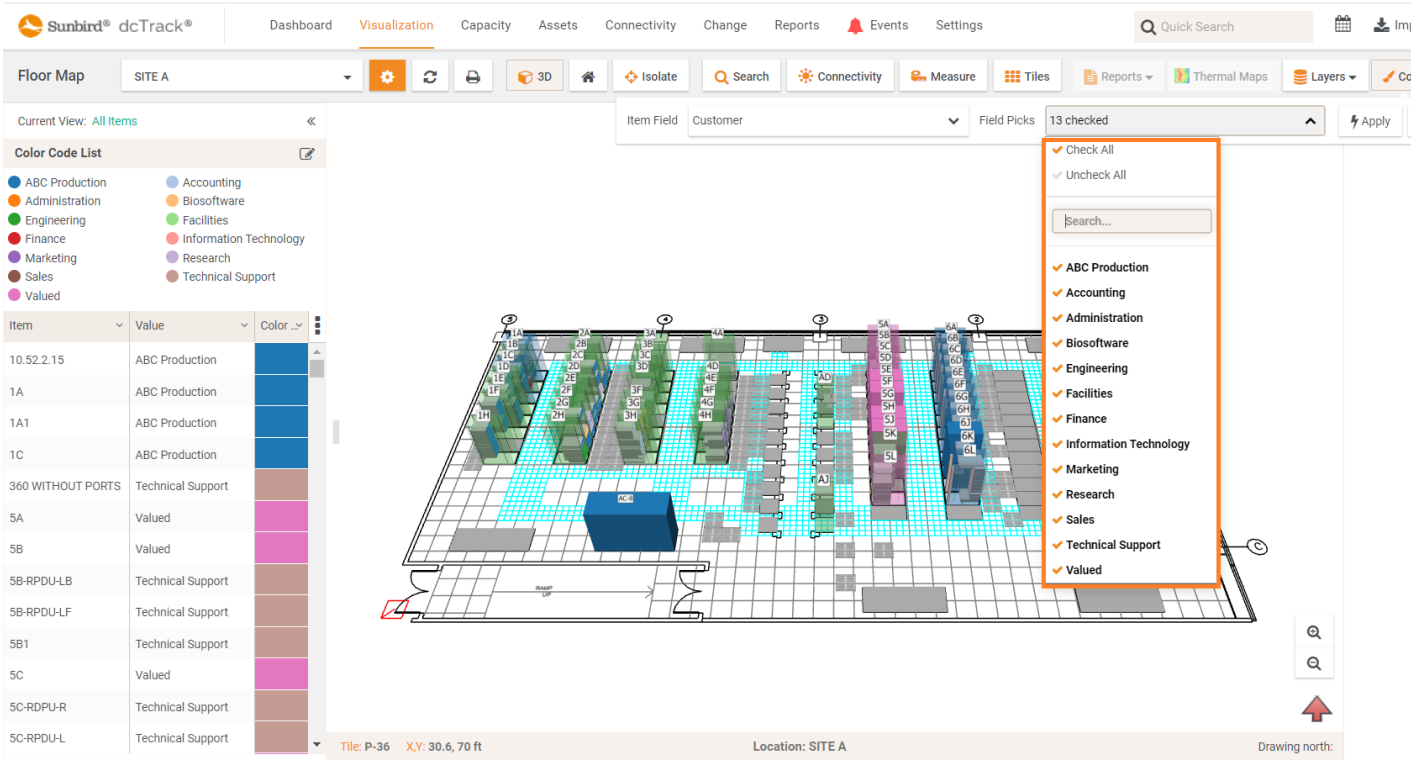


4. A sub Tool Bar is displayed with a drop down list for selecting the Field you want to filter on

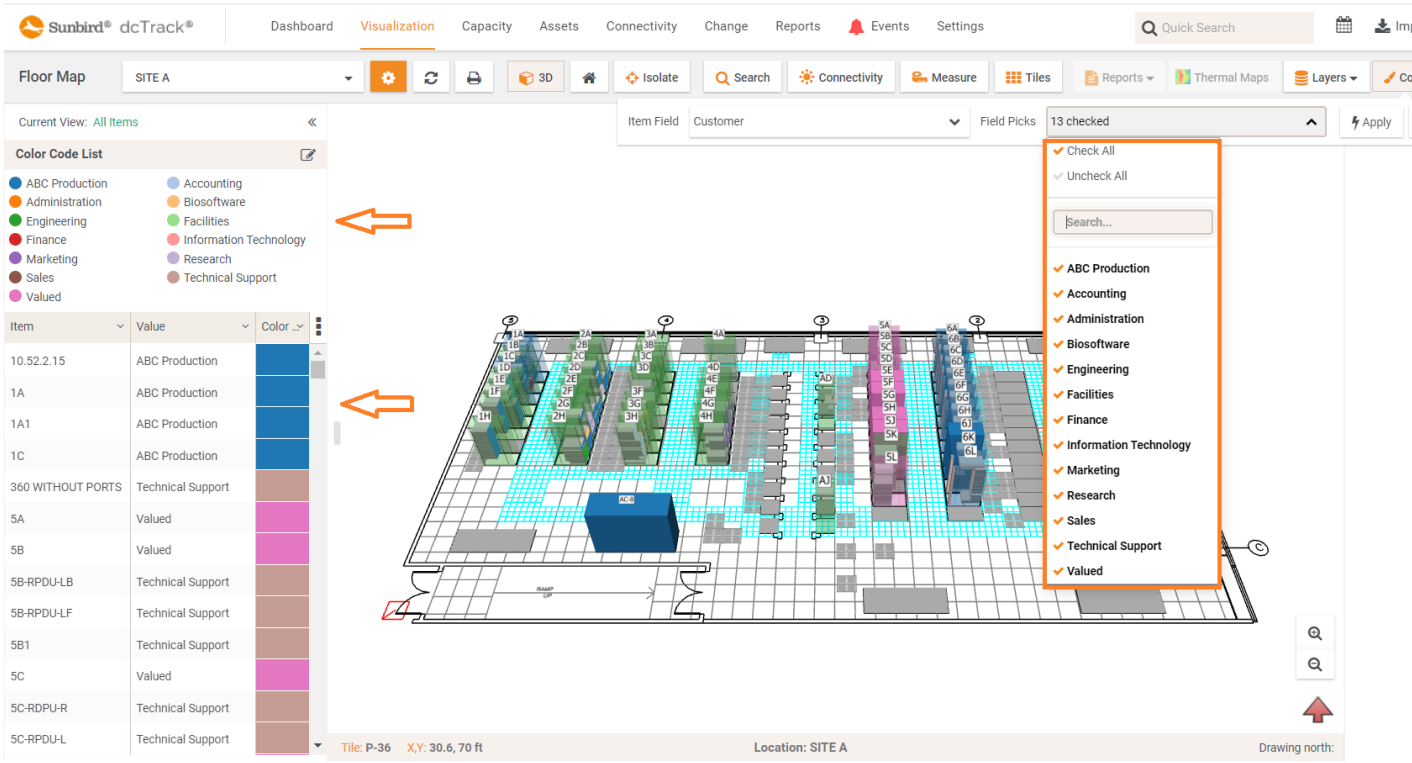
Note: Available fields include most Standard and Custom fields with the exception of Text and Text area fields and fields that are unique for each Item (i.e. Item Name).


Sunbird® dcTrack®
Dashboard
Visualization
Capacity
Assets
Connectivity
Change
Reports
Events
Settings
Quick Search
Floor Map
SITE A
3D
Isolate
Search
Connectivity
Measure
Tiles
Reports
Thermal Maps
Layers
Current View: All Items
Color Code List
Item
Value
Color ...
Item Field
Select
Field Picks
Select
Apply
Search...
Standard
# of Power Panel
Airflow Rate
Aisle Label
Auto Power Budget
Back Clearance
Back Door Perforation
Back Rail Offset
Batt Discharge VPC
Batt String Redundancy
Batt Target Run Time
Battery Recharge Factor (%)
Budget Status
Built-in Tank Size (gallon)
CMDB Integration Status
CPU Quantity
Cabinet
Tile: G-34
X,Y: 13.2, 67.7 ft
Location: SITE A
Drawing north:

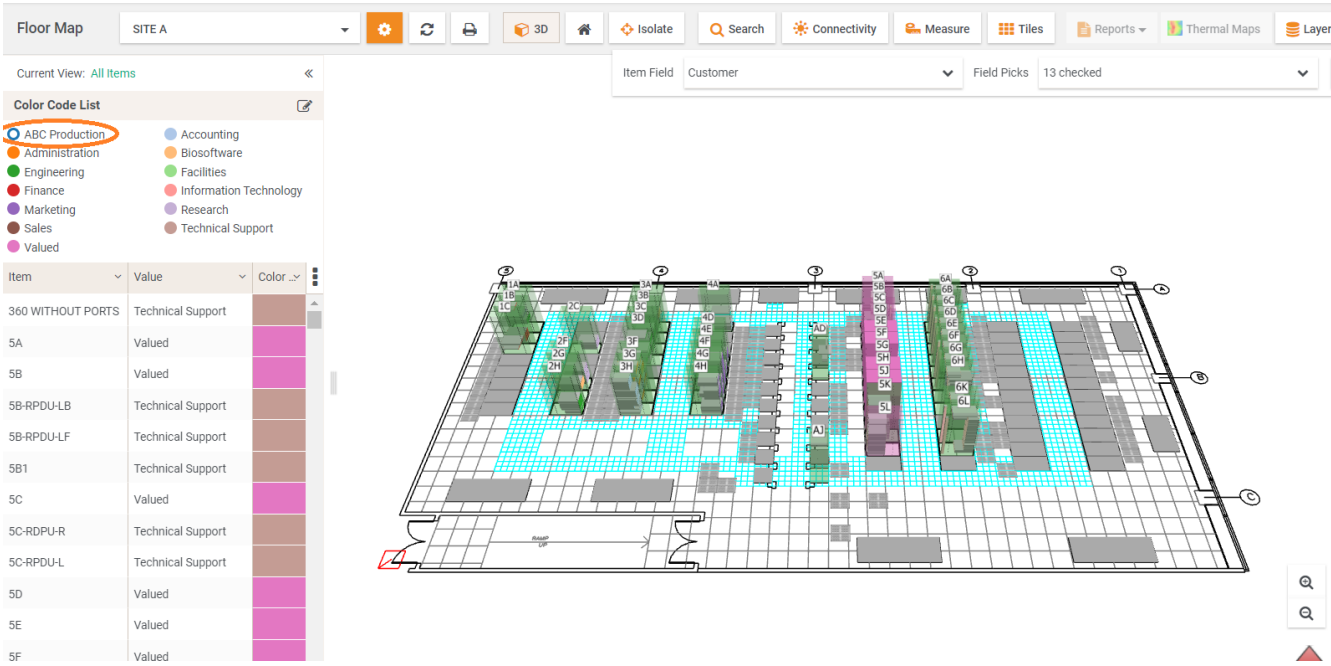
5. Once the Field is selected the second drop down list is populated with all of the values applicable to that field.



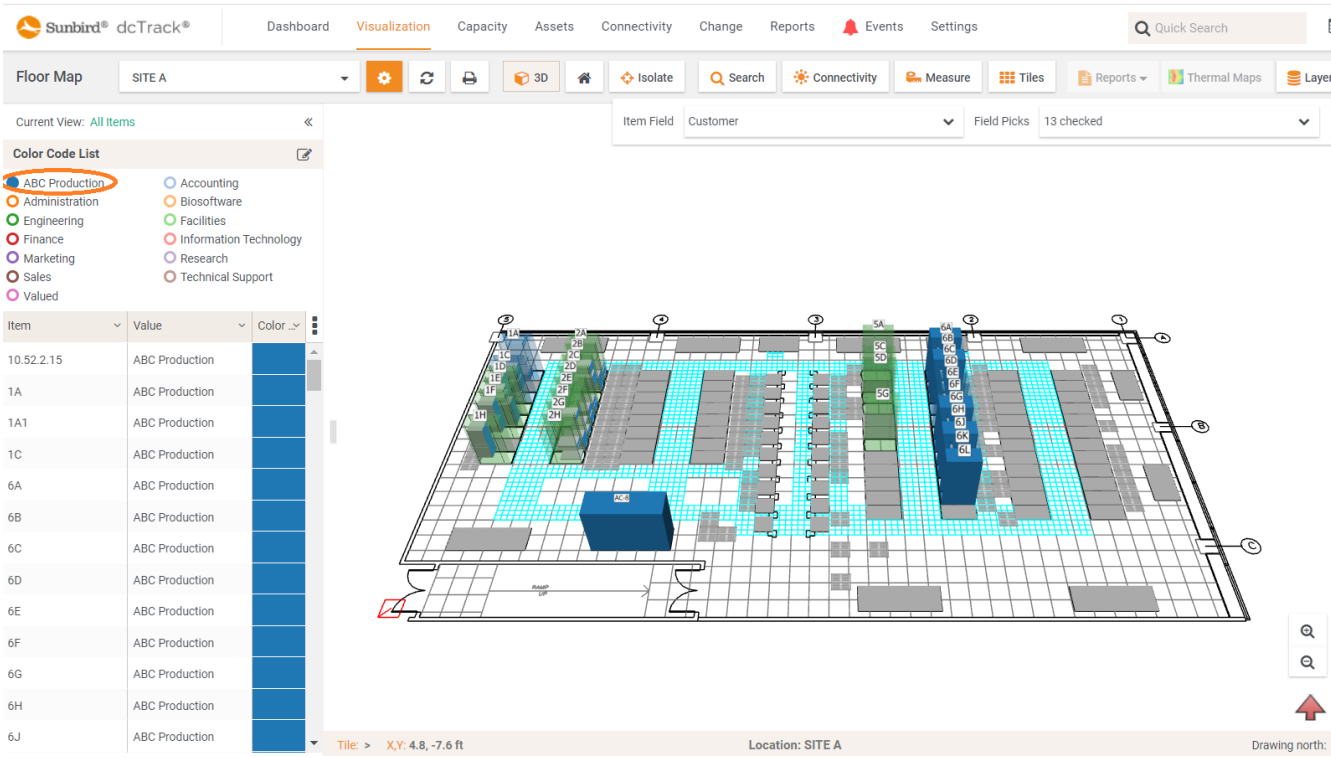
6. The list will have all values selected, however you can deselect values to suit your needs
7. The left Side panel will display the Color Code List with an Item list below. The Item list includes all items that have a value set for the selected field. The floor map will also display with the colors applied.
8. Initially dcTrack custom colors are applied



9. The list as well as the floor map can be filtered by clicking the colors in the color box.
    a. Click once to filter out the selected color. The color inside the clicked circle will be cleared while all other circles remain solid. The Items associated with the selected color will be removed from the Item List and the floor map. You may click as many colors as you like to remove those colors as well.



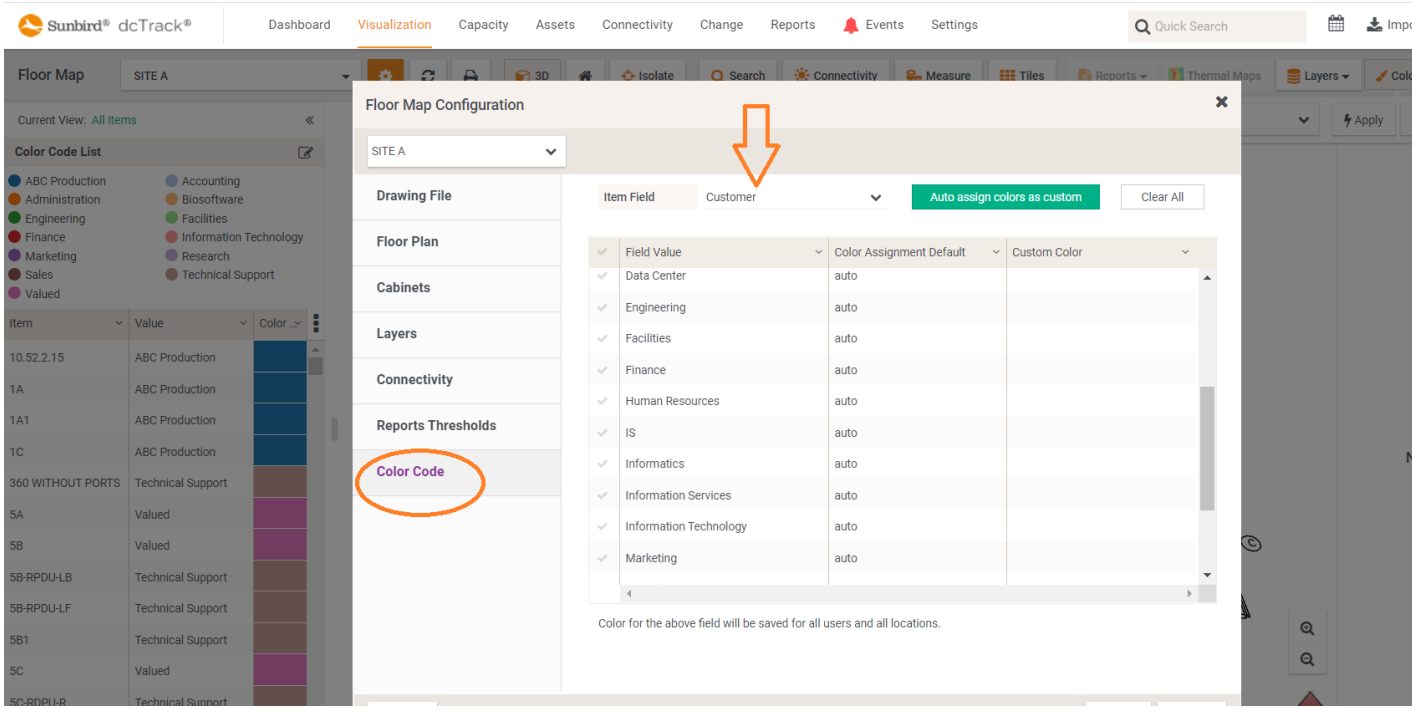
b. Double click to filter out all colors except the selected color. The color inside the clicked circle will remain solid while the circle for all other colors will be cleared. The Item list and the floor map will filter out all Items for every color except the selected color. You may click as many other colors as you like to add them back in.



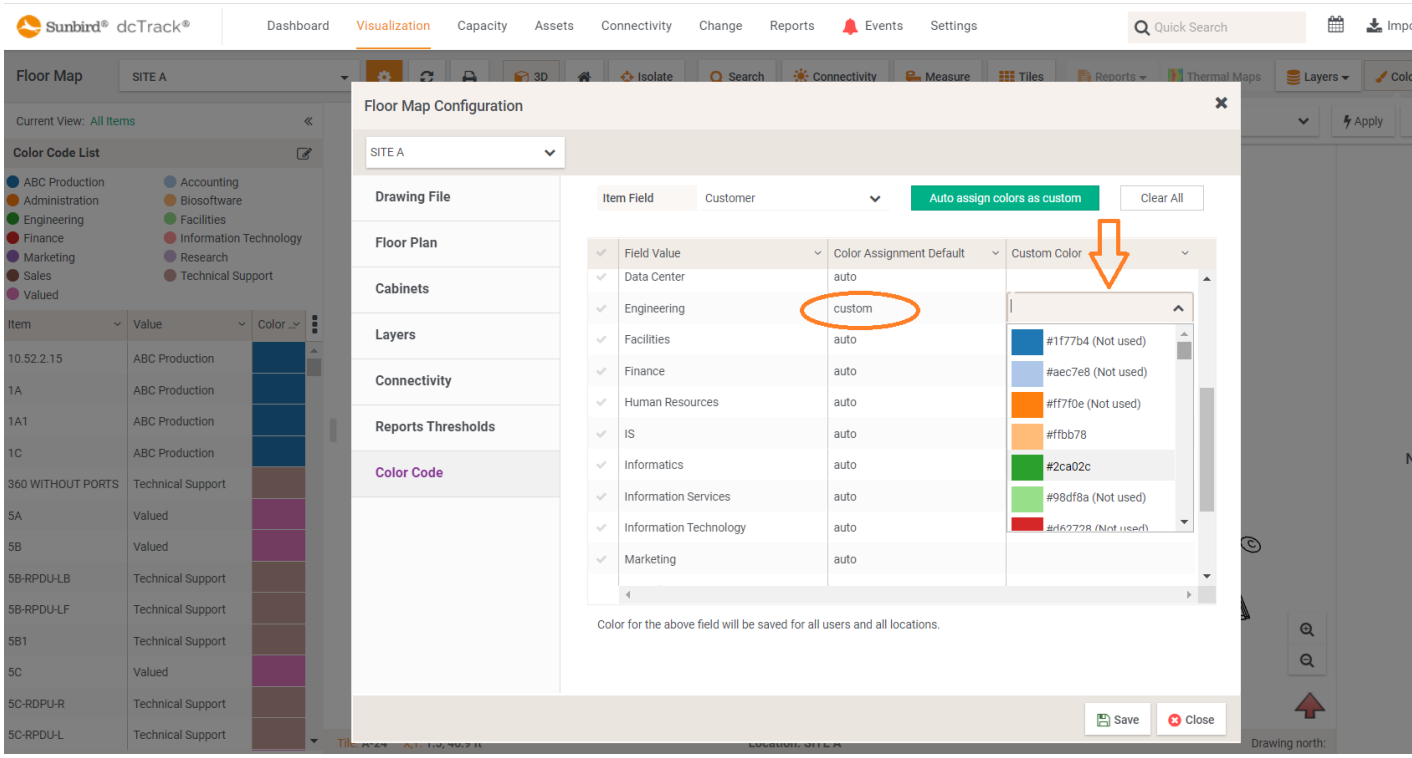
c. Click again to restore the color list to its original state

10. To set Custom colors, click the edit icon in the Color Code List

11. This will open a dialog box with the Color menu open and the selected field pre-populated. The selected field can be changed to set color values for a different field.

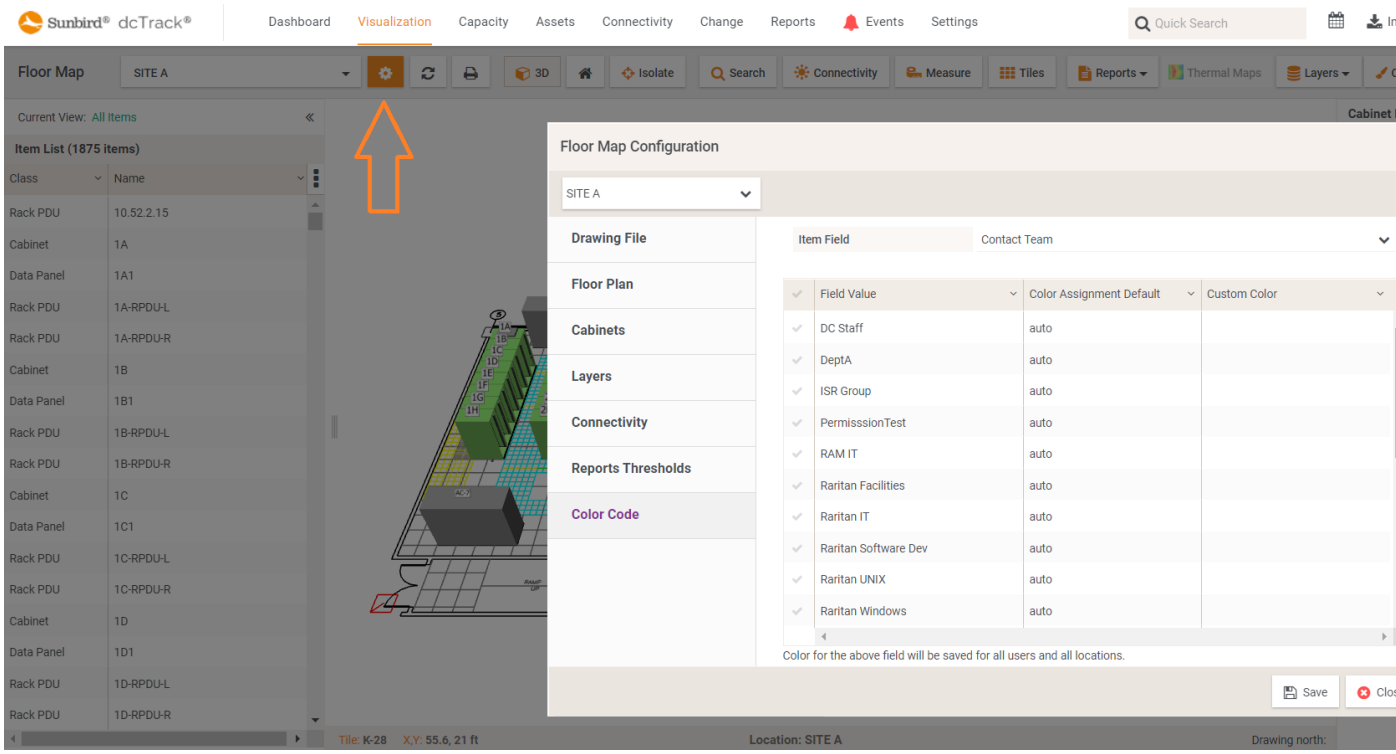


12. Initally all color assignments will be set to "auto" and the Custom Color column will be empty
13. To set a custom color to a field value, select it from the custom color drop down. This will display the color in the custom color field and change the assignment from "auto" to "custom". If a custom color has not been assigned to a value it will appear in the list with the notation "(Not used)" next to the color. You can only apply a color to one value. If you attempt to assign the same color to a second value, the color will be removed from the first value and the Color Assignment Default for that value will be set back to "auto".



14. Clicking "Clear All" will remove all custom assignments and mark the color as "Not used".
15. To revert a custom color assignment, change its assignment from "custom" to "auto". This will revert the color back to the default color assigned by dcTrack. The custom color will remain selected in the Custom Color field and will still appear in the color drop down list as if it was assigned. Reserving the color in this way allows you to quickly flip back and forth between custom and default colors without having to reassign from the list. Since it will still appear in the list without the "Not Used" notation, users will know not to use this color for a different assignment.
16. Click the Save button to apply all assignments
17. Click the "Auto Assign Colors as Custom" button to freeze color assignments. This will revert all colors to the dcTrack default colors, but will mark the color as "custom". This prevents inserting a new value from changing all of the colors after the new field. For example.
    a. Value AAA is assigned the color Red
    b. Value CCC is assigned the color Blue
    c. Value DDD is assigned the color Green
    d. Inserting a value of BBB will not affect the color assignments of CCC or DDD.
18. Custom colors are applied to the floor map drawing objects that have custom colors set, while the other objects are set using dcTrack's default colors. The Item List Panel is also displayed using the same color scheme as the floor map.
19. Click the ✖ icon on the color tool bar to clear the filter and return the Floor Map to its original state.

You can also assign Colors by clicking the Config icon on the Floor Map tool bar and clicking on the "Color" tab on the left side menu.



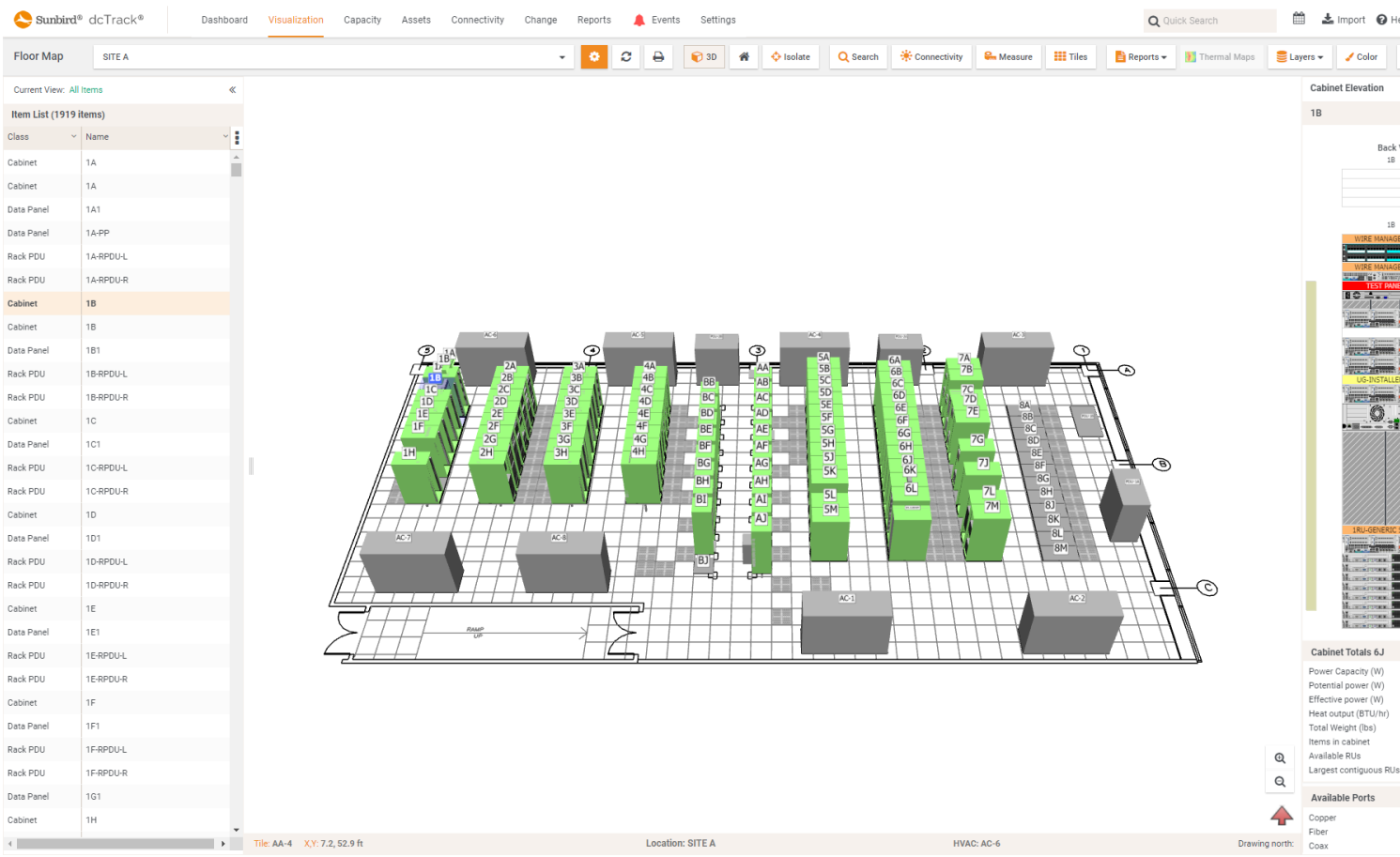
Contents of the Floor Maps Items List

All of the items added to the currently selected location are listed in the Items List on the Floor Maps page whether they are linked to floor map objects or not.

The various features available on the Floor Maps page apply to only those items in the Items List that are linked to objects in the floor map, however.

View a Cabinet Elevation from the Floor Map

Clicking on a cabinet on a floor map opens its Cabinet Elevation view in the Cabinet Elevation pane to the right of the floor map.



View Power and Data Port Connections on the Floor Map

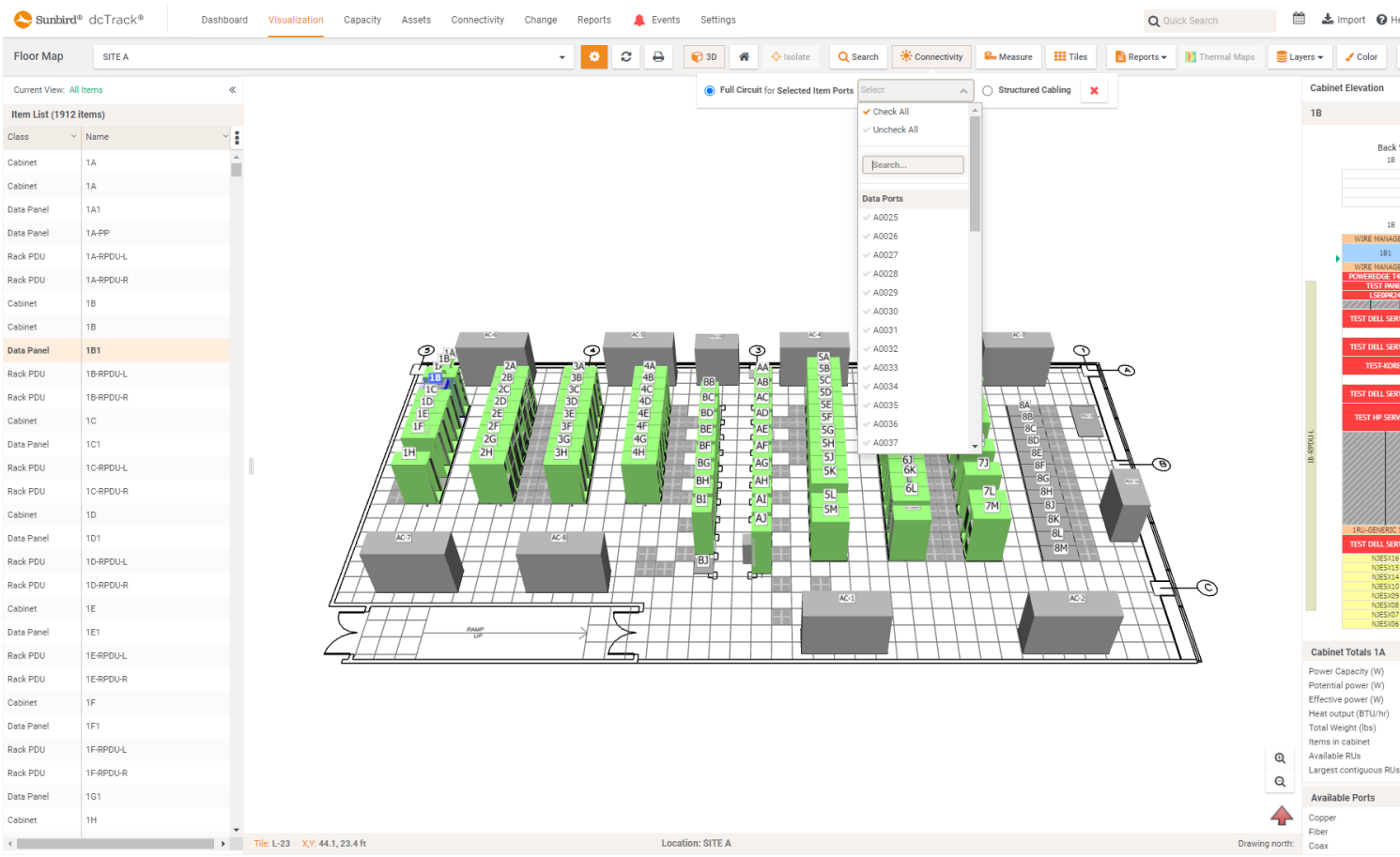
Cable connectivity can be visualized relative to other items on the floor map. This feature can be helpful if you want to determine what applications are supported by specific items and how they may be impacted by maintenance.

Click the Connectivity icon on the Visualization toolbar to enable Connectivity mode.

From the Items List or the Floor Map, select the item that you want to view connectivity for.

Note: You can also enable Connectivity mode following an item search on the floor map.

In the Connectivity menu, from the Selected Item Ports dropdown, select your desired ports from the lists of power and data ports. The ports shown will vary based on the type of item you select. Power and data ports can be selected simultaneously.



Two radio button options are available for displaying connectivity: Full Circuit or Endpoints Only.

The Full Circuit option will display the full circuit for the selected ports. Patch cords are depicted as arc lines, while the structured or power distribution cabling are displayed as straight lines. All circuit nodes are included. The End-points Only option will only consider the endpoint nodes of a circuit and display only those items. It will display straight lines between the selected item and all other items of all circuits, skipping all items that may be in the middle of the circuit.

Note: If the selected item is a Data Panel or a Rack PDU and the Endpoint Only option is selected, then the second radio button option switches to either Structured Cabling (straight lines that represent the structure cabling for data panels as lines between data panel pairs) or Distribution Cabling (for rack PDUs as lines between a rack PDU and the floor PDU that it is fed from.

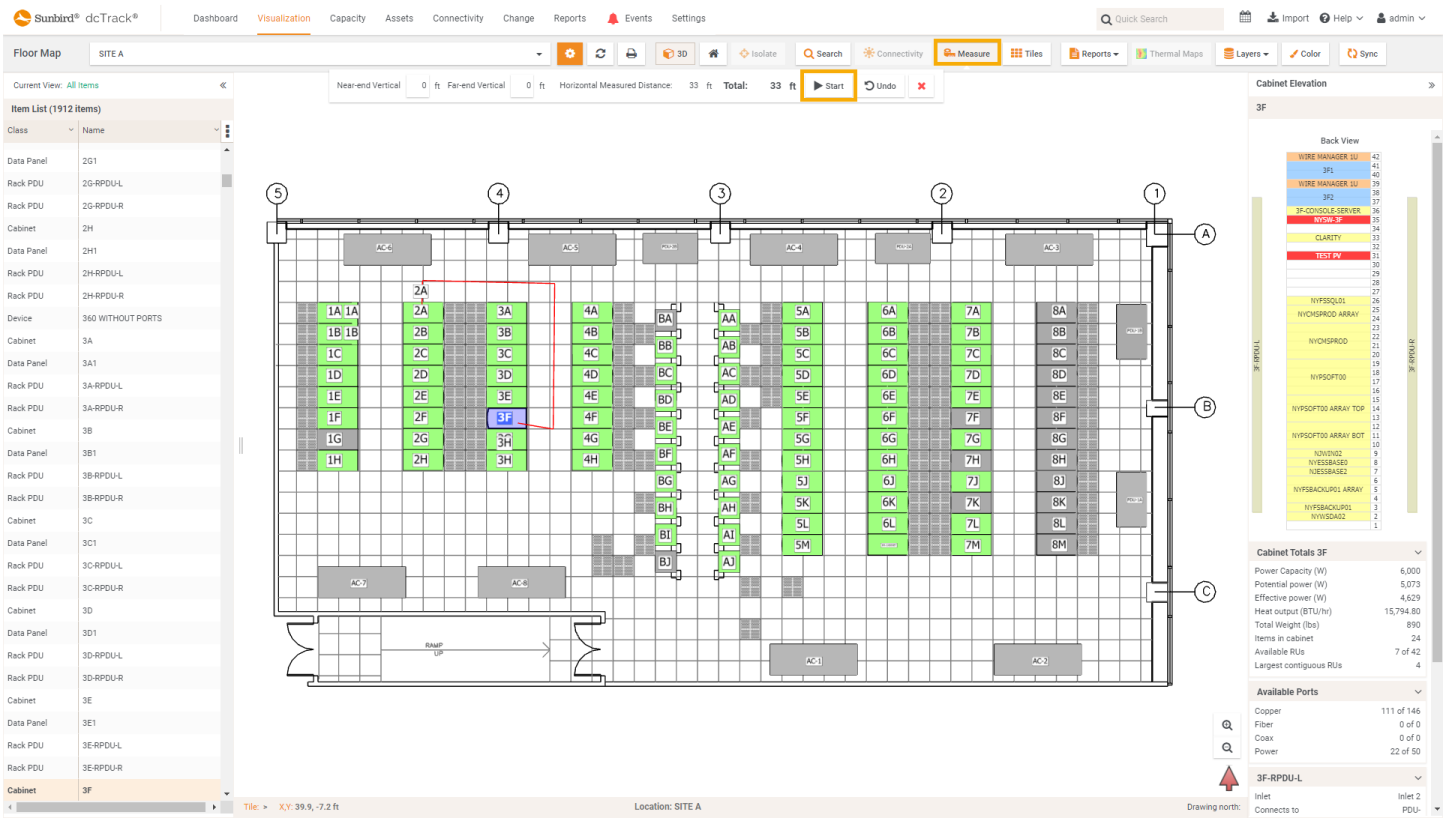
Measure Cable Lengths on the Floor Map

The floor map in dcTrack 6.1 has been enhanced support for cable distance measurements and tracing so you no longer need to walk your data center floor with a tape measure.

To enable measure mode, click the Measure icon in the Visualization toolbar. On the floor map, you can immediately start to draw your cable distances by clicking and dragging your mouse on the floor map. The total distance will update automatically.

dcTrack also enables you to account for vertical distance. Simply type in the near- and far-end vertical distances to their respective fields in the Measure menu.

To stop your current measurement, press the Stop button on the Measure menu. To start a new measurement, click the Start button and begin drawing on the floor map.

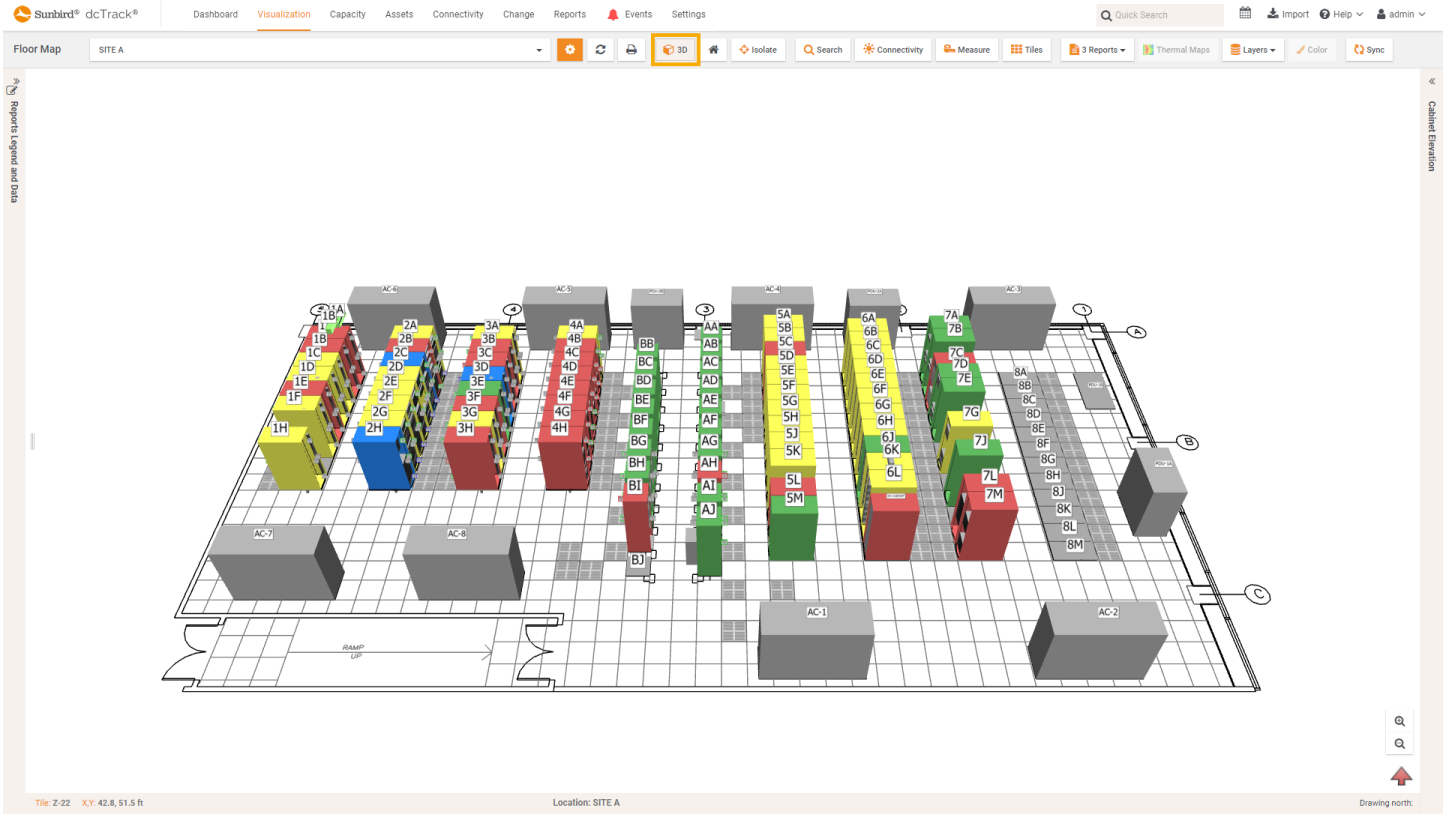


Using the 3D Visualizer (Web Client)

The 3D Visualizer feature allows users to view 3D visualizations of floor maps in the Web Client.

View 3D Visualizations

To view visualizations in 3D, go to the Visualization tab and click the 3D icon in the Floor Map toolbar. Users can toggle between 2D and 3D seamlessly by clicking this icon. The default view is in 3D.



With 3D enabled, the camera can be rotated to change the user's view of the floor map.

Note: If there are any scaling issues observed, ensure that the Floor Map Drawing Units are correctly set. This can be done by clicking the Configuration icon in the Floor Map toolbar > Floor Map Configuration> Floor Plan and changing the Drawing Units appropriately.

Orbit, Zoom, and Pan Floor Maps

The following camera options are available for 2D and 3D floor maps:

- **Orbit/Rotate**: Hold the left mouse button and drag up, down, left, or right to orbit or rotate the view of the floor map. (Note: Orbit/Rotate is disabled for 2D floor maps.)
- **Zoom**: Use the mouse wheel or click the minus and plus icons in the Floor Map toolbar to zoom in or zoom out.
- **Pan**: Hold the right mouse button and drag up, down, left, or right to pan.

Home View - Floor Maps

The Home View provides a view of the entire floor map and is the first view that users see on the Visualization tab in both 2D and 3D modes.

To return to the Home View, click the Home icon on the Floor Map toolbar or press the ESC button.

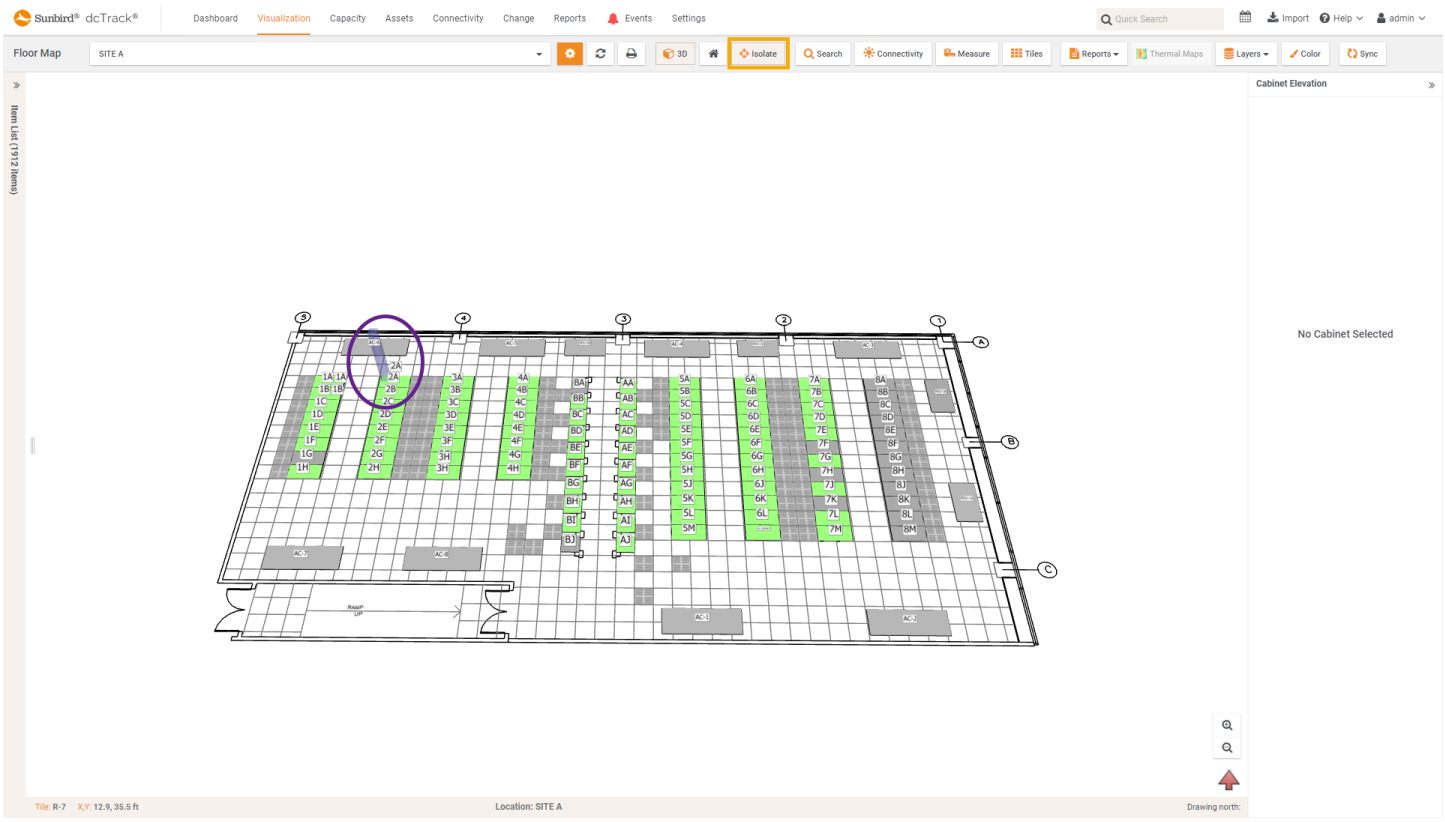
Isolate Cabinets – 3D Floor Maps

Users can Isolate cabinets in 3D for a detailed view of the cabinets and their contents in a specific area.

Enable Isolate Mode

To enable Isolate mode, click the Isolate icon on the zoom panel or hold down the shift key. The 3D objects on the floor map will flatten to make selection easier and more precise.

Once enabled, a column will appear on the floor. This is the selection cursor. Hold down the left mouse button to increase the rage of the selected area the cursor bigger and select floor objects. When selected, floor objects that are enclosed within the cursor will rise up. The contents of these selected floor objects will display.



Clicking on an object selects that object and highlights it in the item list on the left. If the Cabinet Elevation view on the right is expanded, a selected item in the cabinet will be identified with two red triangles. For more information on viewing the items in a cabinet, see View the Items in a Cabinet from a Cabinet's Item Page. For more information on Cabinet Elevation Views, see **Cabinet Elevations** .

Note: Double-clicking on an item in the cabinet will display its Item Detail page.

Clear Isolated Cabinets

To clear the Isolated cabinets, click the Home icon on the Floor Map toolbar or press the ESC key.

Contents Selector – 3D Floor Maps

The Contents Selector is a radio button option that allows users to choose whether to hide or show the contents of cabinets in the 3D floor maps. The Contents Selector is located under Configuration > Cabinets from the Visualization toolbar.

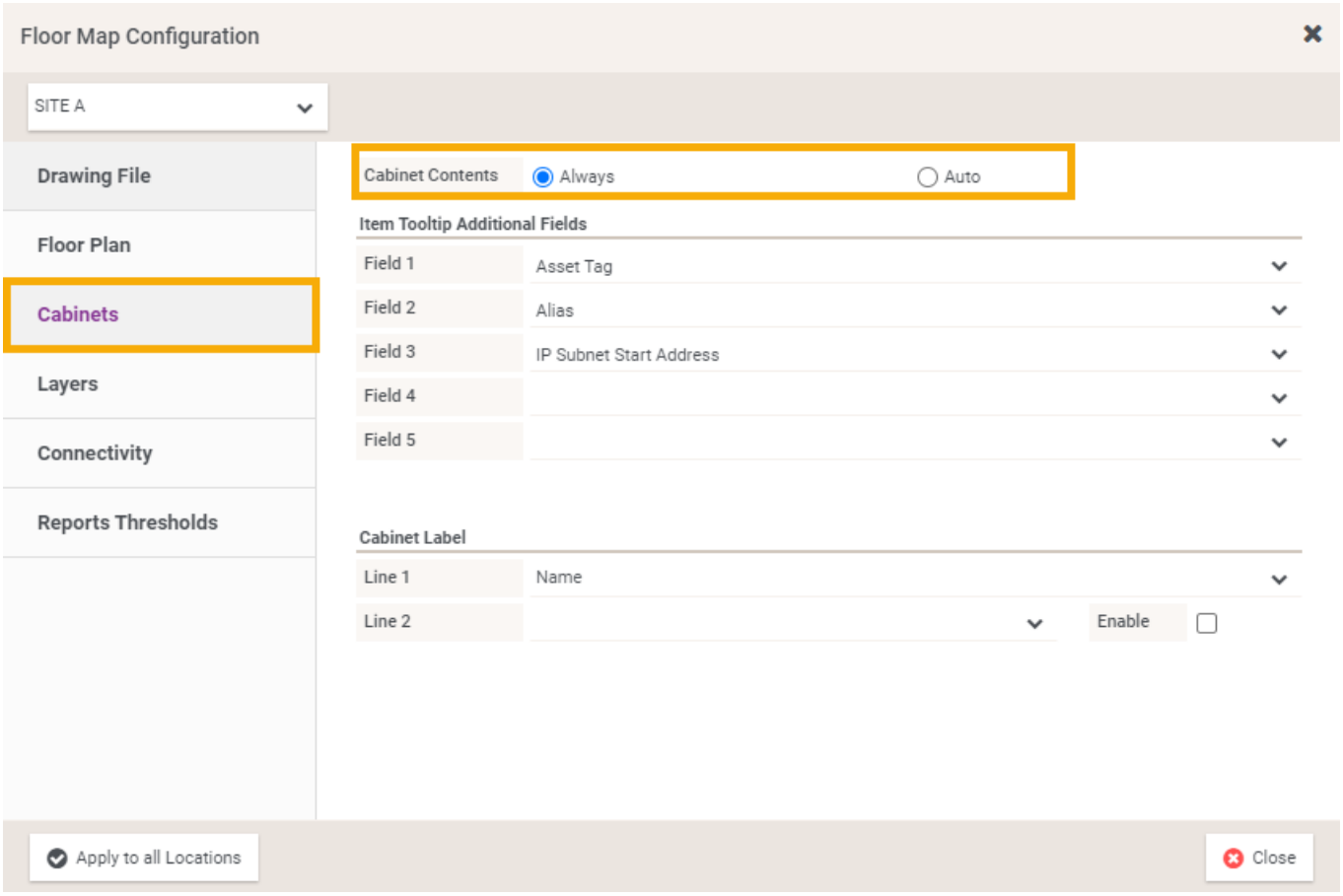
When the Contents Selector is toggled to Always, the contents will always be displayed, and when the user views the overall floor map, the cabinets will appear as if the doors are open.

When the Contents Selector is toggled to Auto, the cabinet contents will be hidden when the user views the overall floor map, and the cabinets will appear as if the doors are closed. However, when cabinets are selected in Isolate mode, those cabinets will automatically display their contents.

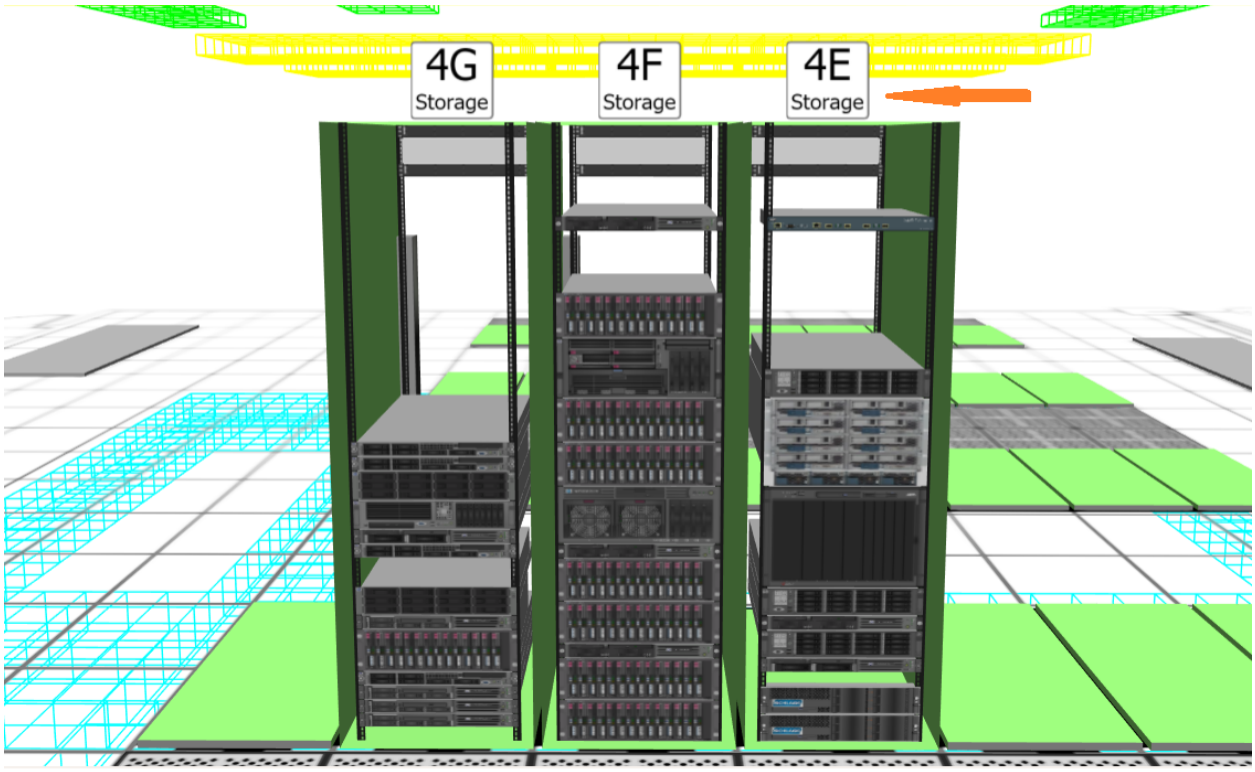
Note: Selecting Auto rather than Always is recommended for large data centers to improve the performance of the 3D visualizations.

You can also select two Cabinet item fields to display as the cabinet label to provide additional information.

1. Select the cabinet item field in Line 1 drop down in the Cabinet Label section.
2. Select the second cabinet item field in Line 2 drop down. Once you select the field in Line 2 drop down the Enable checkbox is checked. The second field will only be displayed in the floor map if Enable checkbox is checked.
3. To apply this setting to all the locations, click on Apply to all Locations. Otherwise just close this dialog and the changes will apply to only the selected location.



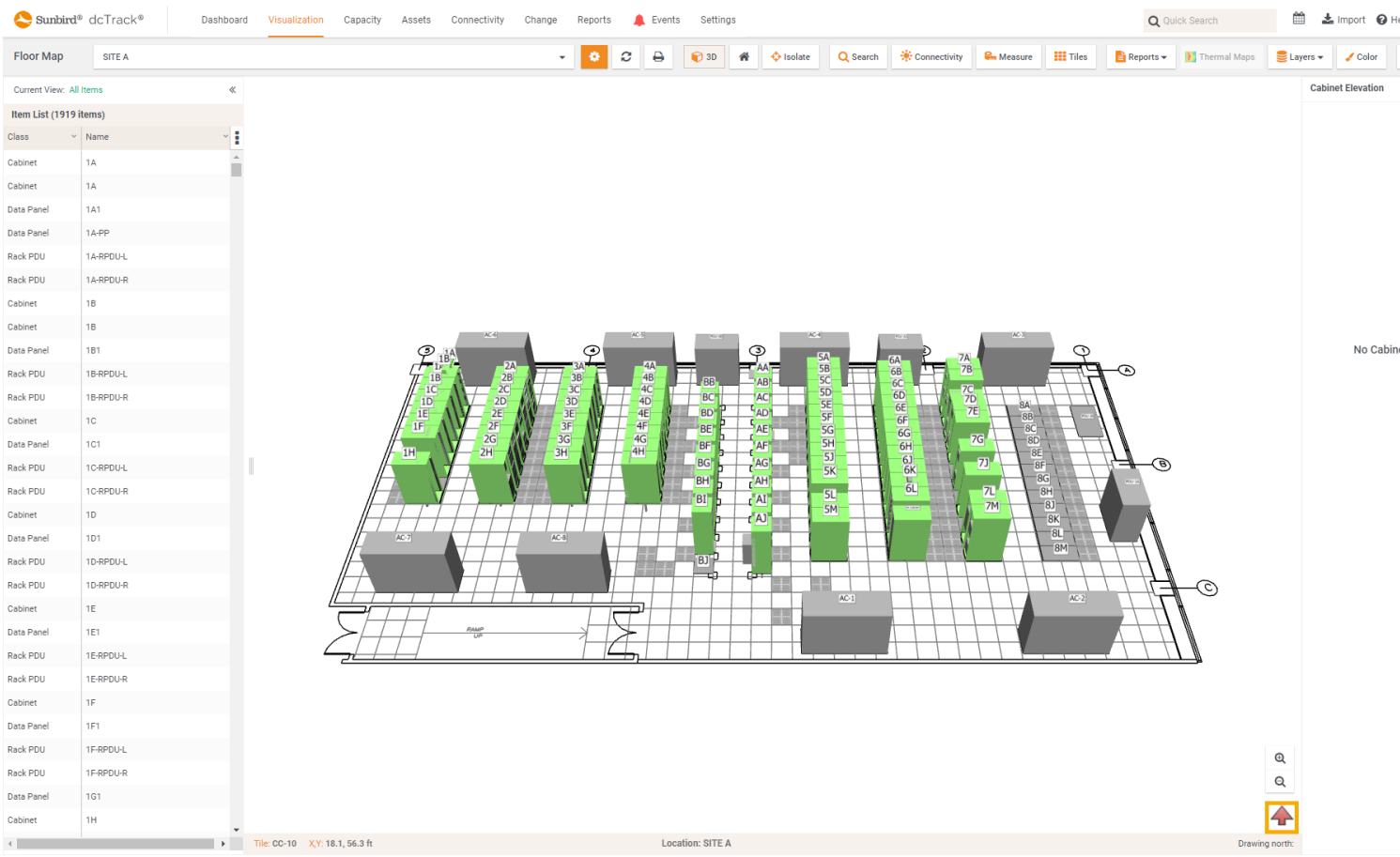
Isolate the cabinet to view the content inside the Cabinet. You will notice the two fields that you selected in the settings appear at the top of the cabinet.



North Indicator - 3D Floor Maps

In both 2D and 3D modes, north is indicated by a red arrow in the bottom right corner of the screen. In 3D mode, the north indicator will change as the user rotates the floor map.

The north arrow is useful to you correctly orient a cabinet. If you see a cabinet facing the cabinet next to it, rather than facing the aisle, then the Cabinet Facing field for this cabinet needs to be changed with respect to the north arrow of the drawing. You can double-click the cabinet from the Items list on the left to open the Item Details page and edit this field.



Configuring Perforated Floor Tiles

dcTrack provides the ability to indicate on floor maps where your perforated tiles are located.

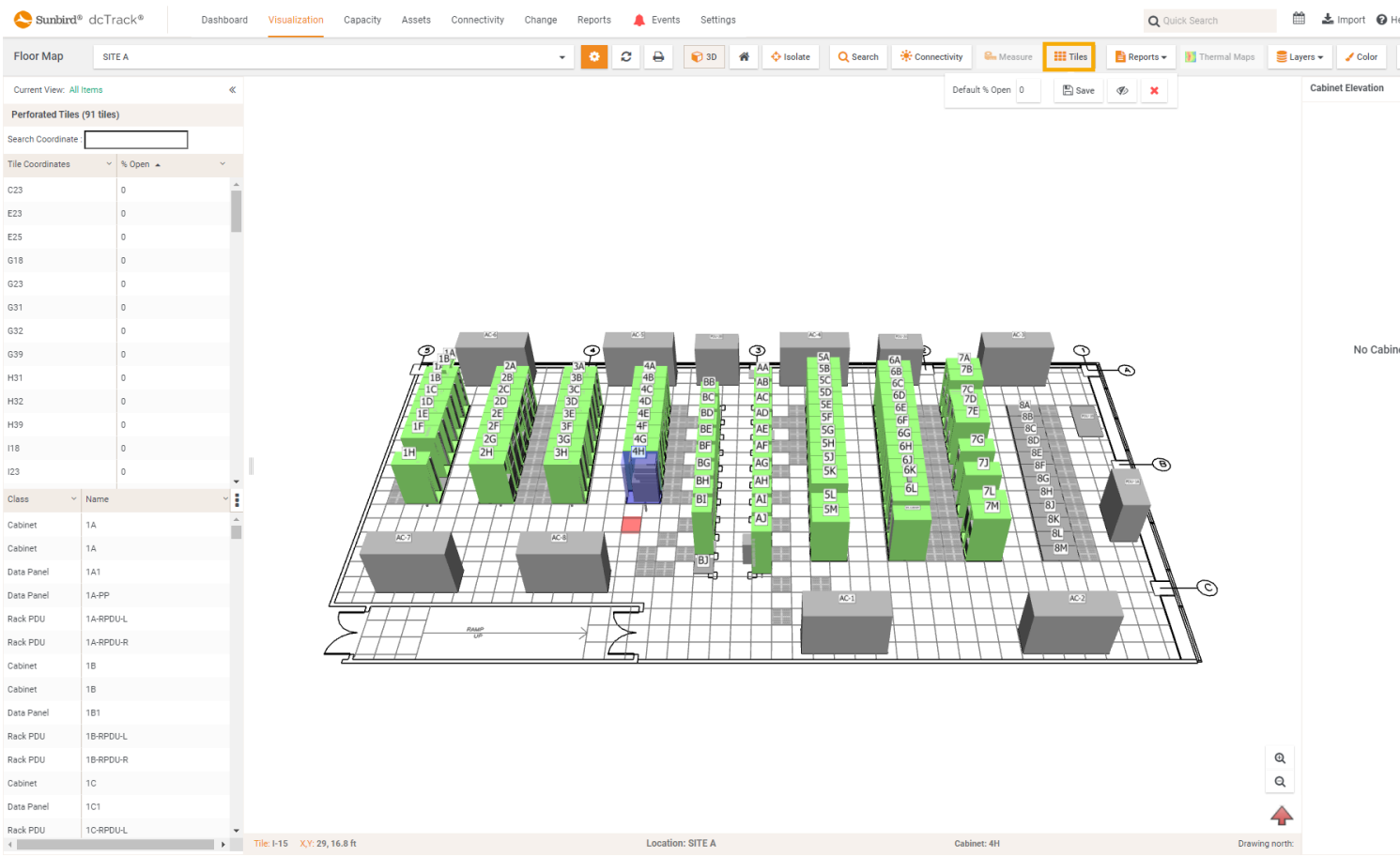
Users can place tiles and set the percentage open for each tile. They also can set a default percentage open for placed tiles. Placed tiles display in gray on the floor map.

Tiles are tracked as assets, so users can export the data using an SQL Grid Widget and make use of it in computational fluid dynamics (CDF) applications and other systems.

To place perforated tiles, select the Tiles icon on the floor map toolbar, then simply click on each tile that you want to set as perforated.

To remove a perforated tile, click on it to turn it back to a normal closed tile.

In this mode, you can also click a tile from the Items List on the left, and the corresponding tile will be highlighted in the floor map view.



Sorting and Filtering Tiles

In Edit Perforated Tiles mode, the Items List displays all tiles by their coordinates and percentage open. You can sort tiles by their tile coordinate (by either letter or number included) or their percentage open (in ascending or descending order).

To select a tile and view its coordinates, simply click on it in the floor map. The tile coordinate and X,Y coordinates are displayed at the bottom of the screen for easy reference.

Set Default Percentage Open

The Default % Open field specifies the default percentage open of newly placed tiles as an integer. The default is 0 percent. To set the default percentage open, type your desired default percentage open into the field.

Once you have set the default percentage open, simply click a tile to apply the default to that tile.

1. Specify the default percentage open.
2. Click a tile to set its default percentage open to the default you have specified.
3. Click the Save button to save your changes.
4. Click the red X to cancel your changes.

Note: You can change the default percentage open at any time; however, the default values of previously placed tiles will not be affected.

3D Visualization Performance Troubleshooting

Performance issues such as lag or choppy visuals may indicate a decrease in frame rate in 3D mode. For the 3D floor maps, around 30 FPS is sufficient. The maximum possible is 60 FPS. As you interact with the floor maps, you may experience slight drops in frame rate.

Users can view their frame rate by toggling the Frames Per Second (FPS) monitor when in 3D mode.

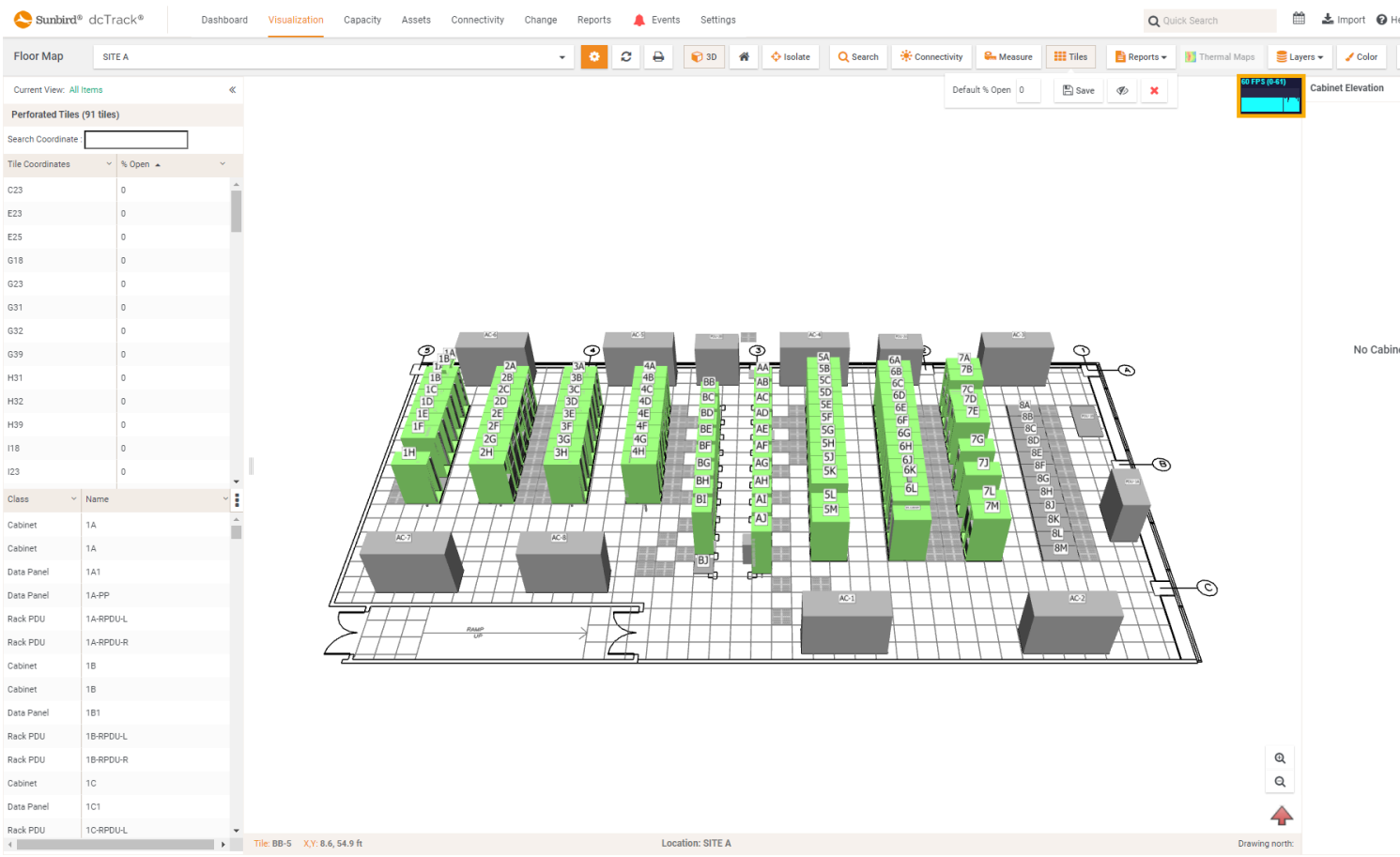
Factors affecting the performance of 3D visualizations include:

- **Hardware limitations and the amount of available RAM on the computer running the browser.** With many other applications running on the computer, the 3D performance may degrade even if the computer has more memory than recommended. For the best 3D experience, users should ensure that their hardware meets the minimum requirements to run dcTrack.
- **The number of 3D objects.** A very large data center with many items in the cabinets will perform slower than a small data center or a data center that has fewer items per cabinet. To alleviate this issue in large data centers, you may toggle the Contents Selector on the visualization toolbar to Auto rather than Always.

Toggle the Frames Per Second (FPS) Monitor

To toggle the FSP monitor, press Ctrl+M at any time in 3D mode.

The monitor will appear on the upper right side of the screen.



Enabling/Disabling the Thermal and Pressure Map Overlays and Time-Lapse Video

dcTrack provides a thermal map layer and pressure map layer that can be overlaid on the floor map in the Visualizations tab. Integration with Power IQ is required to use the thermal and pressure map overlays and time-lapse video.

dcTrack uses readings from the environmental sensors deployed in your data center to create the thermal map. The sensor readings are used in a standard algorithm for interpolating the data away from each sensor and using all sensors surrounding each sensor. Therefore, the more sensors deployed in your data center, the more accurate the interpolation will be.

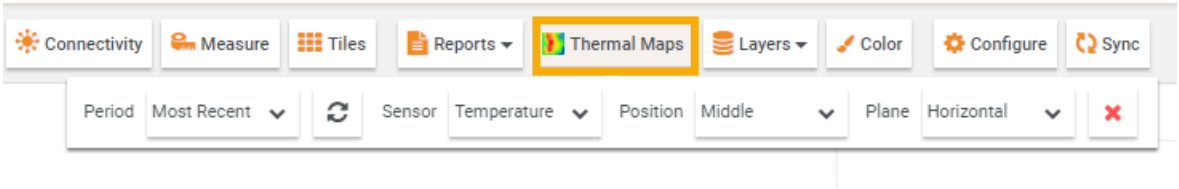
Reports and other functions of the Visualization tab are not affected by the thermal and pressure map overlays, so any of the visualization reports selectable in the Reports dropdown can be run simultaneously with the overlays.

A time-lapse video displays thermal or pressure map images in a continuous loop to show the change in temperature over time. The sensor readings needed to create the time-lapse video are retrieved from Power IQ. The

time-lapse video can be created with the smallest time interval between each map image equal to the Power IQ polling rate.

1. In the Visualization tab, click the Thermap Map icon to display the Thermal Map submenu.

2. The controls to configure the time-lapse video will display at the bottom of the floor map.



Note: If dcTrack is not integrated with Power IQ, you will see the following message in a tooltip: "There is no data to render a thermal map. Verify sensor configuration and Power IQ integration." In this case, you will not be able to toggle the thermal map overlay.

4. Period: Select from the dropdown the period of time for which you want to view the thermal map sensor readings. Options include: Most Recent, Past Hour, Past Week, Past Month, Past Year, and Last Year. Most recent is selected by default.
5. Type: Temperature or Pressure. Temperature is selected by default.
6. Position: Top, Middle, or Bottom. For example, selecting Middle uses readings from only the middle sensor on each rack. Sensor Position is selectable only for Temperature sensors. If Pressure is selected, Sensor Position will not be selectable.
7. Plane: Both, Horizontal, or Vertical. Map Type is selectable only for Temperature sensors. If Pressure is selected, Map Type will not be selectable.
8. Period: Most Recent, Past Hour, Past Week, Past Month, Past Year, and Last Year. For example, selecting Last Year will start the thermal time-lapse video with readings from last year.
9. The map will update immediately based on your selections. Controls will display along the bottom of the map to pause and play the time-lapse video. Click Exit to exit the popup and return to the map.

6. Refresh: Click the Update button and icon to refresh the thermal map overlay and display the most recent readings. A tooltip on the Update button will provide the date and time for the current readings.
7. To disable the map and return to the standard 3D mode, click the Thermal Map icon again.

Note: Clicking the X button on the video play toolbar also returns the thermal map to the Most Recent readings display.

Creating Floor Map Drawing Files - Templates and Requirements

A drawing file is a high-level, graphical rendering of a data center floor layout.

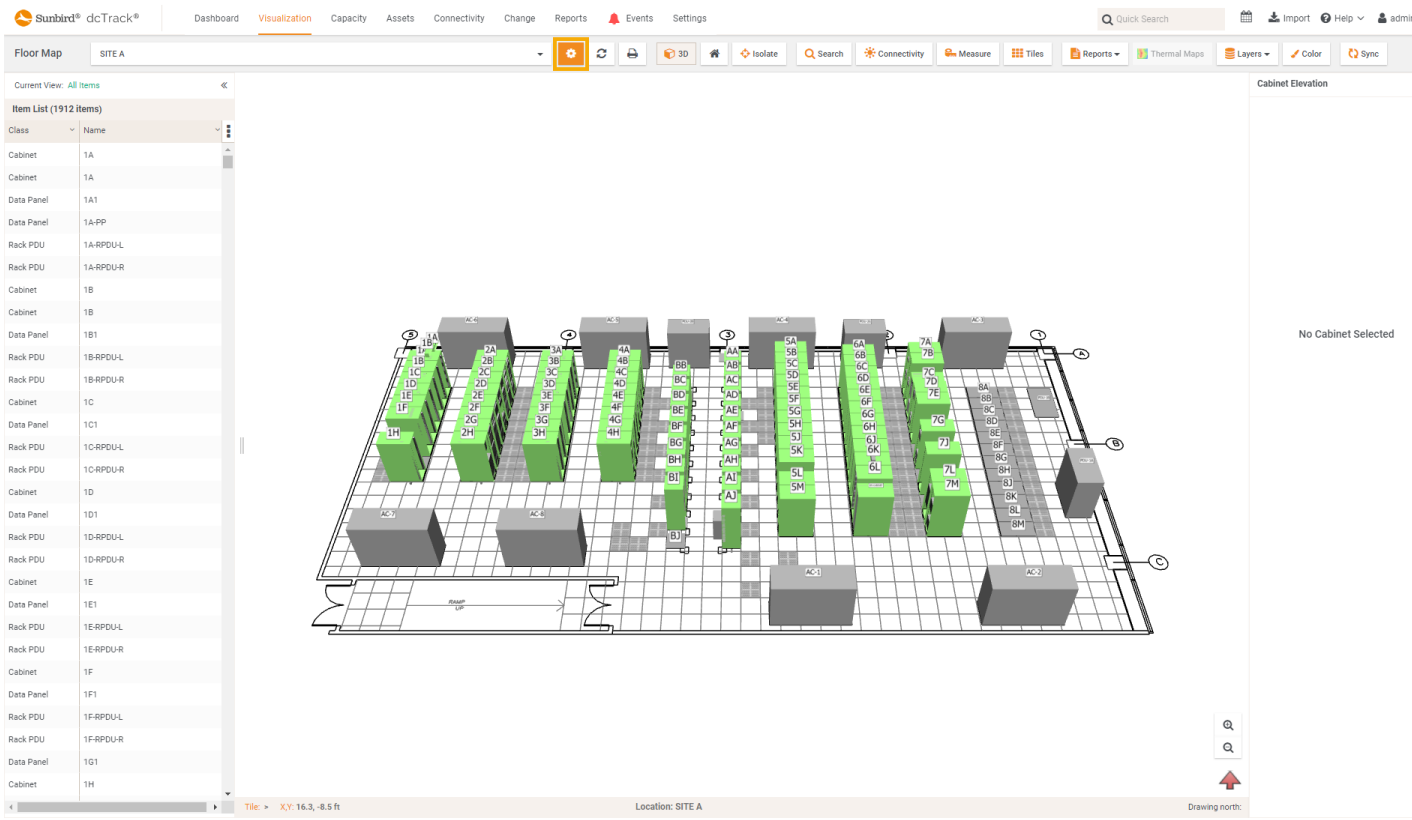
Cabinets, floor PDUs, UPS units, and Cooling units that exist on the data center floor are depicted in the drawing file as objects.

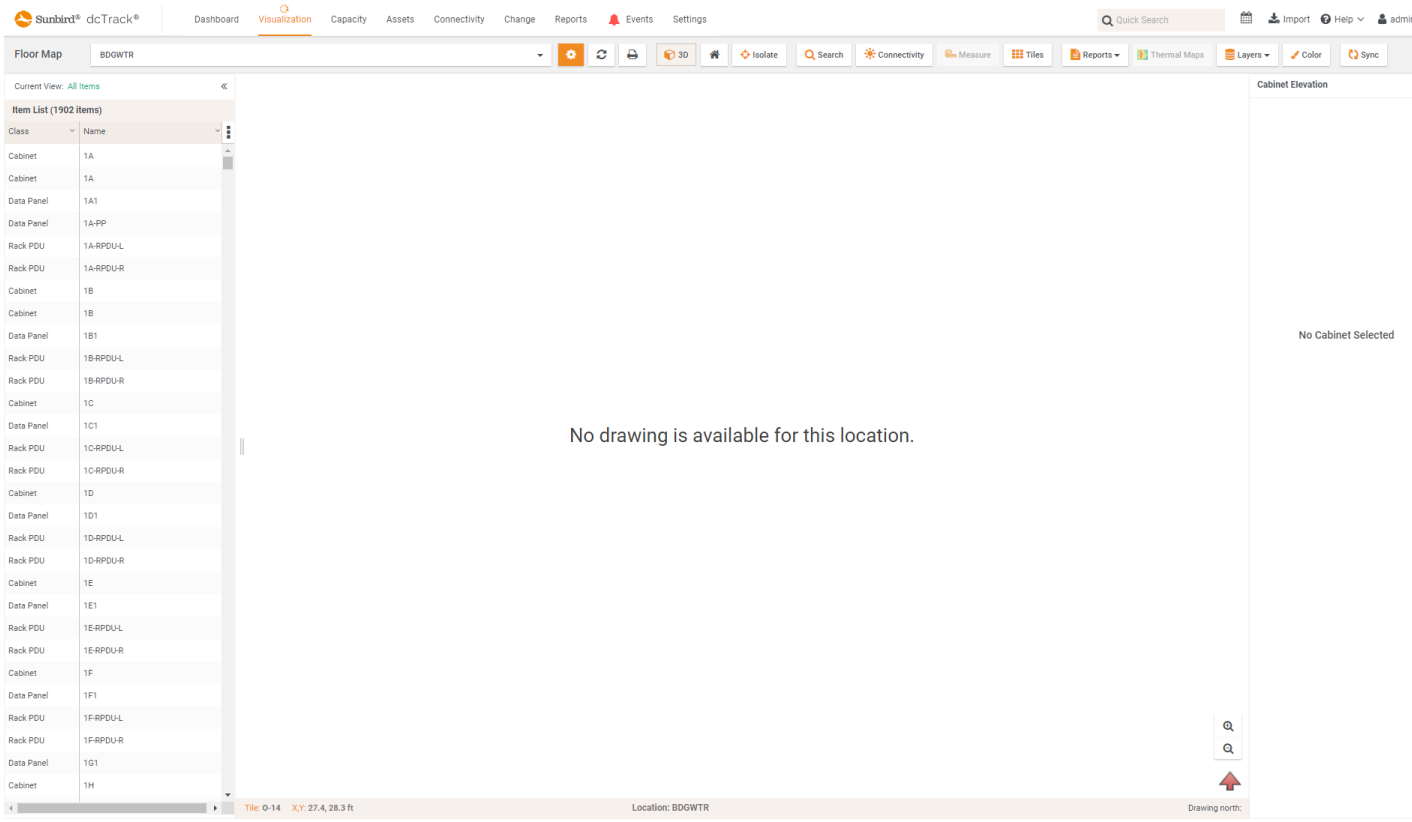
Optionally, the drawing can include the data center floor's structured cabling and raised floor tiles.

A drawing file is uploaded to dcTrack for each location.

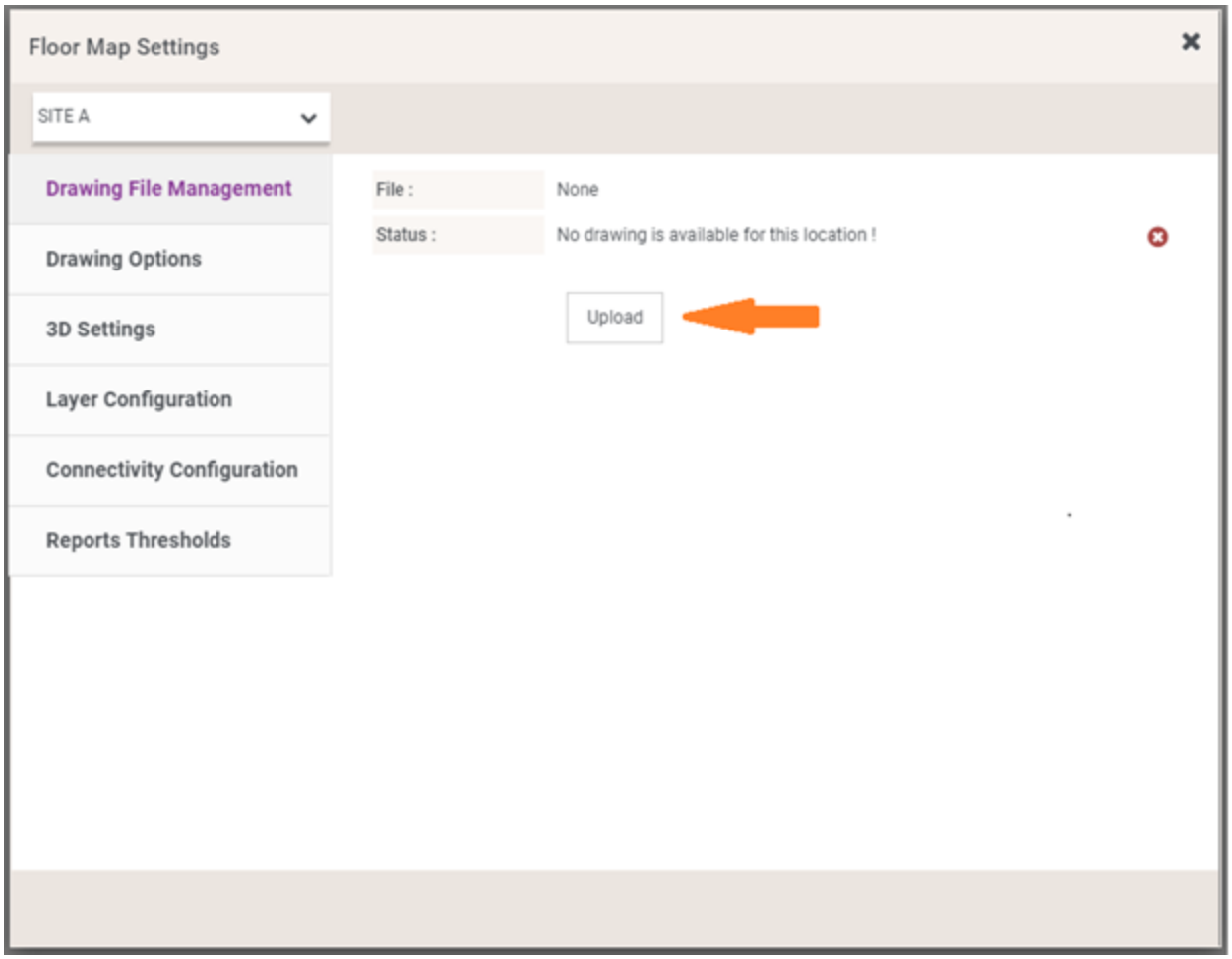
Steps to upload a drawing file:

1. Click the Configuration Icon on the Visualization toolbar.





2. In Floor Map Settings dialog check the location selected. The location selected here will be same as the location selected in Floor Map view.
3. Click the Upload button in Drawing File Management Tab.



4. Select the drawing file saved in your PC.
5. Repeat the same steps to upload the drawing file for each location.

Note: Before a drawing file is uploaded, messages in the Web Client floor maps indicate no drawing file exists for the location.

During the upload process, dcTrack automatically links drawing file objects with existing dcTrack items that have the same name. For example, a PDU object named PDU-1 is linked to a PDU-1 item in dcTrack.

Any objects that are not linked during the upload because they have no matching items are imported into dcTrack using the File Import, or added manually.

Once the drawing file is uploaded, the floor map is rendered on the Floor Maps page under the Visualization tab in the Web Client.

Terminology - Objects vs. Shapes

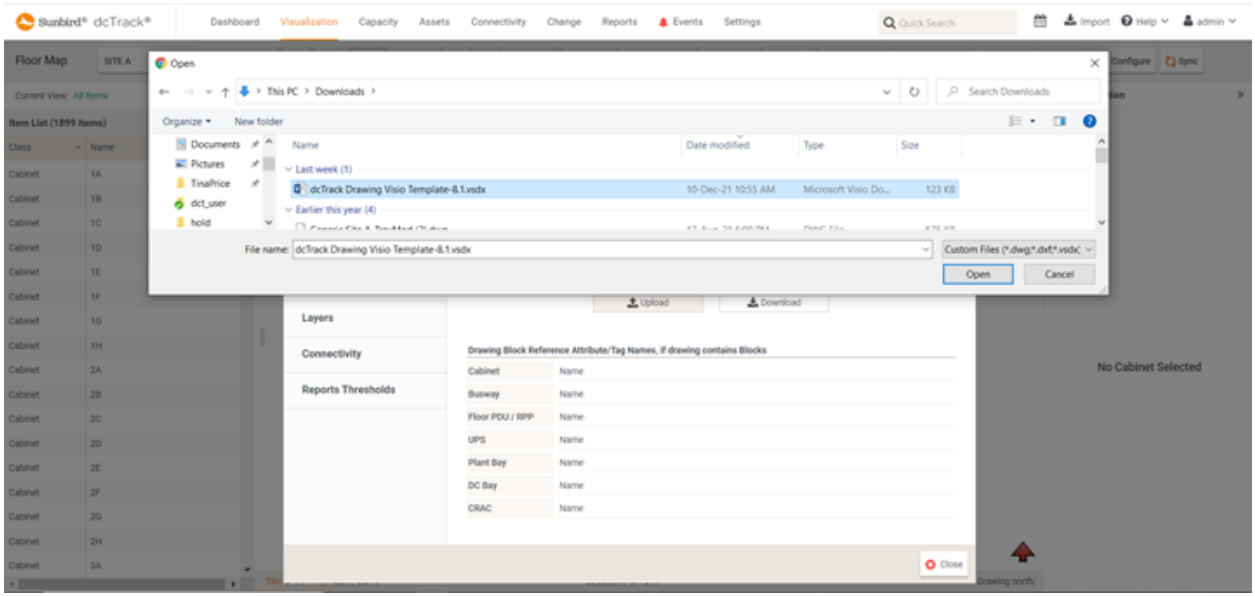
When discussing drawing files, 'objects' refers to graphical representations of cabinets, floor PDUs, UPS units and Cooling units in an AutoCAD drawing file.

'Shapes' is used when referring to these same items in a Microsoft Visio drawing file.

Supported Drawing File Software and File Format

dcTrack supports either AutoCAD® or Microsoft Visio®.

dcTrack 8.1.1 introduced support for uploading Visio 2013 or later drawing files (.vsdx) directly to dcTrack. When browsing for drawing files, in addition to the existing support for .dwg and .dxf files, users can now opt to select Visio (.vsdx) files. When downloading drawing files, dcTrack will always download the last file uploaded to the appliance in the same format it was previously uploaded.



Use Your Existing Drawing Files

Use your existing .DWG drawing files so long as they are created using a supported version of Microsoft Visio® or AutoCAD®. See **Supported Drawing File Software and File Format**.

Using your own drawing files may require additional validating to ensure the files meets minimum requirements so it can be successfully uploaded, rendered and synced in dcTrack.

The Sunbird designed Visio stencil can be used with your Visio files.

Sunbird Drawing File Templates

Sunbird provides generic Microsoft Visio and AutoCAD drawing files to use as templates, or as examples to follow when creating your own Visio or AutoCAD drawing files.

Templates are downloaded from the Sunbird dcTrack Support Website.

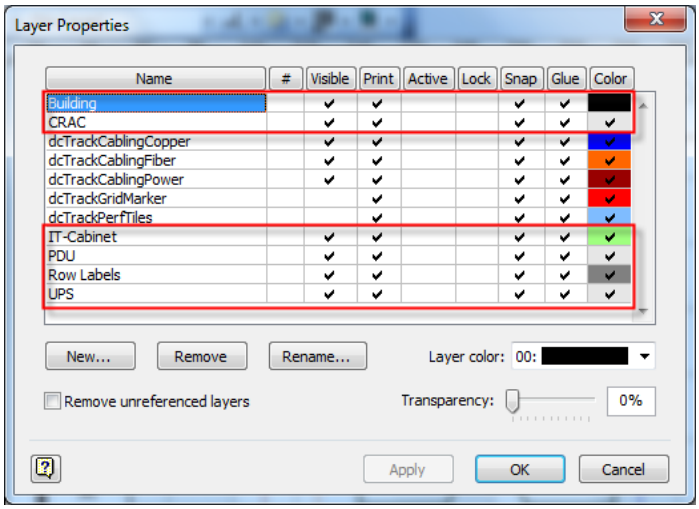
Microsoft Visio Drawing File Default Layers

Sunbird's Microsoft Visio drawing file template provides predefined layers for optional and required drawing shapes and elements.

This includes:

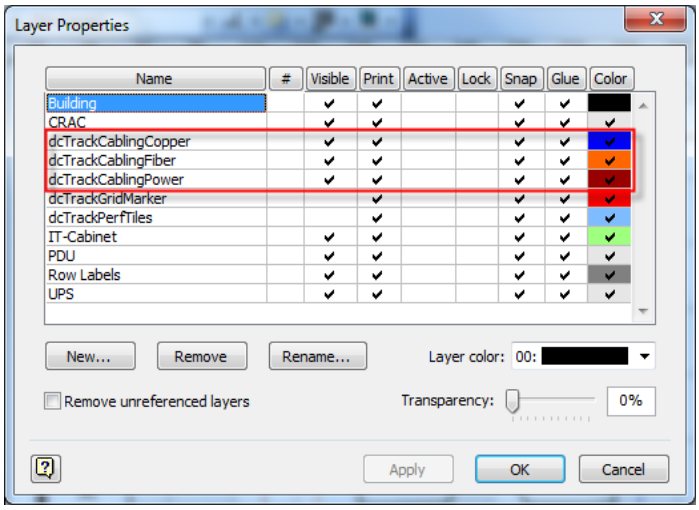
- Individual layers for buildings, row labels, cabinet shapes, floor PDU shapes, UPS shapes and Cooling Unit shapes.

Layers are provided, but you are not required to create them for each of these elements and shapes in a drawing a file.

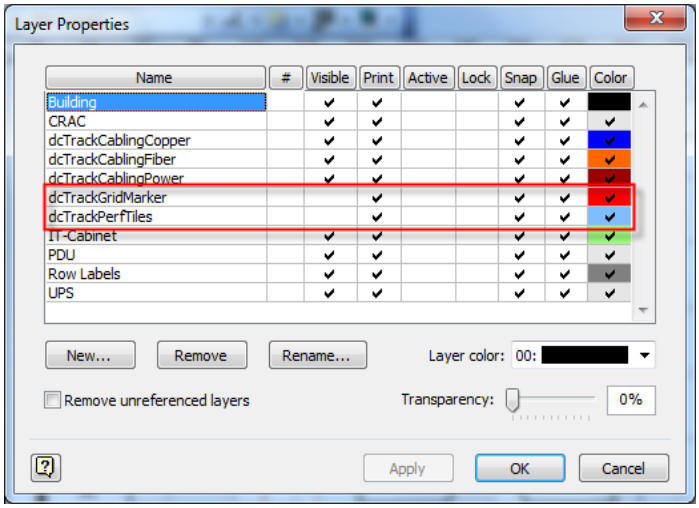


- Individual layers for each type of cable when drawing cable routes

Cable routes are optional drawing file elements, but if they are used layers are required.



- Individual layers for perforated tiles and grid markers



Perforated floor tiles and grid markers are optional drawing file elements, but if they are used layers are required. See **Raised Floor Tiles (Optional) - Drawing Requirements**

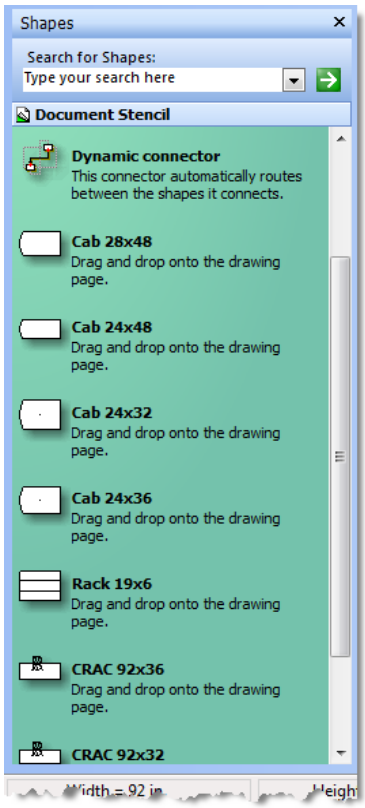
Microsoft Visio dcTrack Stencil

Sunbird provides a Microsoft Visio stencil containing the shapes and connectors used to create shapes in a dcTrack data center drawing file.

If needed, download the stencil as a standalone file from the Sunbird Support website.

Use the stencil in the Sunbird template, or your own Visio drawing file.

Add the stencil to your Visio My Shapes folder so it is available as needed. See **Add the dcTrack Stencil to Microsoft Visio**

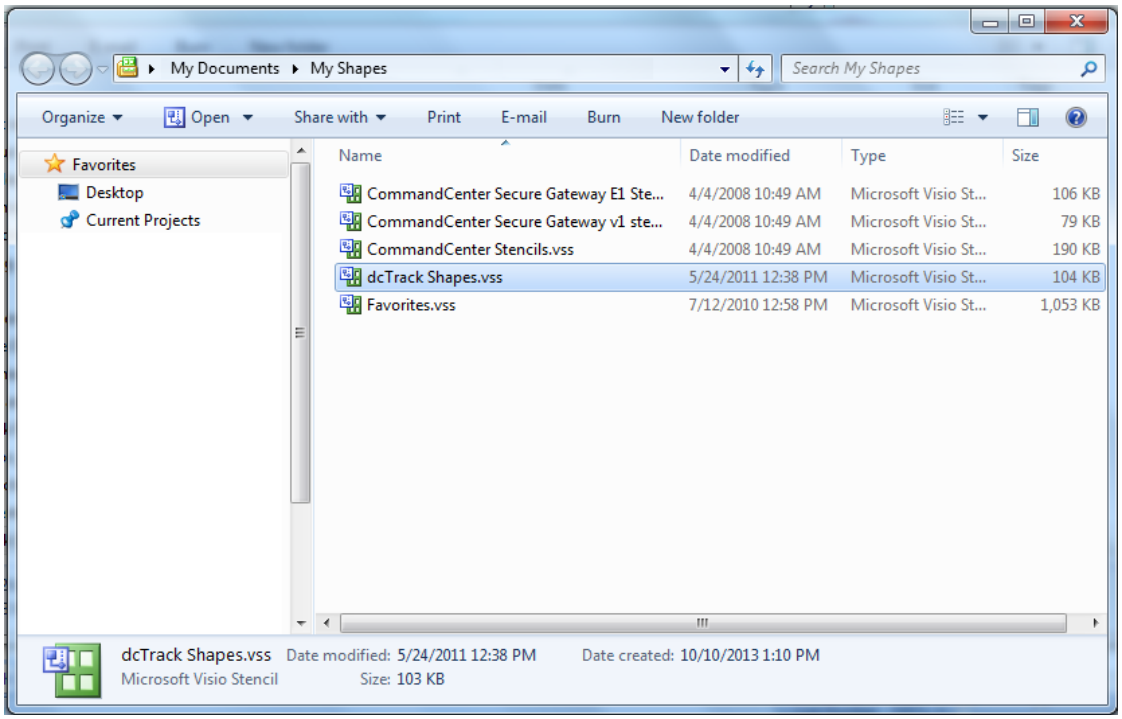


Add the dcTrack Stencil to Microsoft Visio

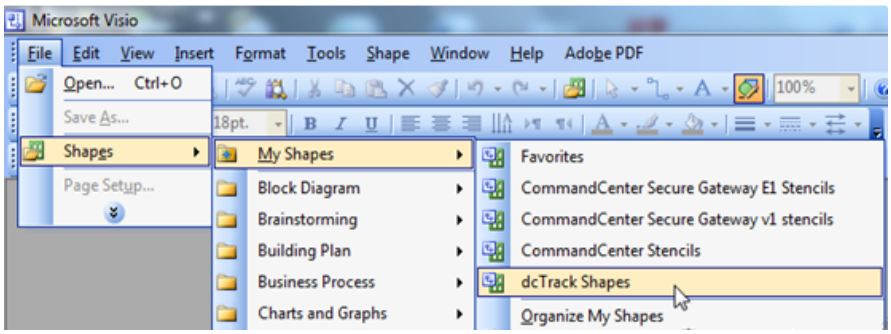
After you download the dcTrack Microsoft Visio drawing file stencil, you can add it to Visio so it is available whenever you need it.

Note: These steps are specific to Visio 2003.

1. Download the Sunbird dcTrack Visio stencil and save it to your local machine if you have not already done so. See **Download the Microsoft Visio dcTrack Stencil**
2. Open the folder you saved the stencil to.
3. Open Visio, then click File > My Shapes > Organize My Shapes. The My Shapes folder on your computer opens.
4. Copy the dcTrack shapes stencil from the folder, then paste it into the My Shapes folder.



5. Close the My Shapes folder.
6. In Visio, click File > My Shapes. The dcTrack stencil is listed. Select the stencil to use it in a drawing file.



Download a dcTrack Drawing File Template

A username and password are required to access the Sunbird Support website at http://support.sunbirddcim.com.

If you do not have a username and password, contact Professional Services and Support from the Support website or via email (tech@sunbirddcim.com).

Download the Microsoft Visio dcTrack Stencil

A username and password are required to access the Sunbird Support website at http://support.sunbirddcim.com.

If you do not have a username and password, contact Professional Services and Support from the Support website or via email (tech@sunbirddcim.com).

The Microsoft Visio stencils are in the same zip file as the drawing files.

For information on adding the stencil to Visio, see **Add the dcTrack Stencil to Microsoft Visio**.

Drawing File Best Practice

As a best practice, Sunbird recommends a single working copy of your data center drawing be used throughout your organization.

Microsoft Visio Drawing File Requirements

The following Microsoft Visio drawing file requirements must be met to successfully save the file in AutoCAD file format (.DWG), and visualize the floor map properly in the dcTrack Web Client once the drawing file is uploaded.

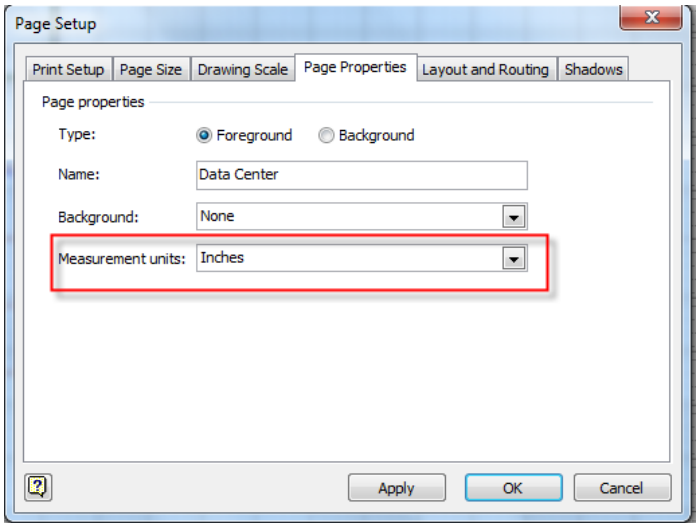
The file must be converted to a .DWG file to upload it to dcTrack.

Shapes in Visio represent objects on a floor map in dcTrack.

Shape Measurement Requirements - Visio Files

When using US units for Microsoft Visio drawing files, the Measurement Units setting must be set to Inches, not Feet and Inches.

1. Select File > Page Setup.
2. Select the Page Properties tab.
3. Select Inches from the "Measurement units" drop-down.



Shape Outline Requirements - Visio Files

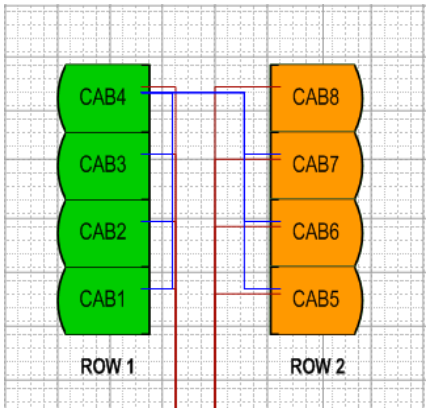
- A shape's border must be closed
- Unless a shape is on a layer, the border outline can be black or any other color of your choosing.

For more information on border color when working with layers, see **Shape Border Layer Requirements - Visio Files**

Shape Fill Requirements - Visio Files

Each shape created in a Microsoft Visio file must use a solid fill color, but the fill color cannot be 01:White.

Aside from the colors used by the objects on the floor map generated from the drawing file, the shape's fill color does not impact dcTrack.



Shape Name Requirements - Visio Files

When creating shape names note that:

- Item names cannot be duplicated within a dcTrack location, so each shape's name must be unique in the drawing file that is uploaded and synched with the location.

Duplicate names do not cause errors, but the shapes are not linked during the synch AutoCAD® process.

- Shape names cannot contain the characters ' \ ? &
- The shape name cannot be the same name as an item in an Archived Status

Give each shape a unique ID using the Text tool, or entering it directly into the shape. Add Text to a Visio Shape.

Shape Border Layer Naming Requirements - Visio Files

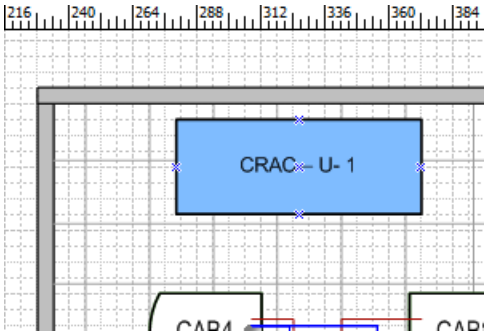
- Do not begin Microsoft Visio® layer names with the word "dcTrack" unless you are directed to do so.
- Microsoft Visio® layer names cannot contain spaces. Use underscores or dashes to separate words if needed. For example, Layer1, Layer-1, or Layer_1

Shape Border Layer Requirements - Visio Files

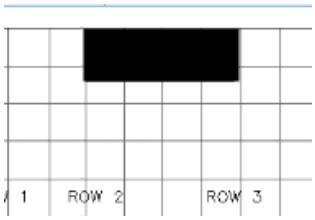
When using layers in a Microsoft Visio drawing file, a shape on a layer cannot have a black border.

If it does, when the file is converted from a .VSD file to a .DWG AutoCAD file and then uploaded to dcTrack, the shape's fill is changed to black even if another fill color is applied to it.

For example, you create a rectangle with a black border and blue fill on a layer in a Visio file to represent a Cooling unit object on the floor map.



When the file is converted to a .DWG and then uploaded to dcTrack, when the Cooling unit object appears on the floor map in dcTrack its fill is black, not blue.



Avoid this by setting the shape's fill, border and layer to the same color - see Set a Shape's Border, Fill and Visio Layer to the Same Color.

Note: In Microsoft Visio drawing file, objects can be assigned to multiple layers. When the object is assigned to multiple layer dcTrack pick the first assigned layer and additional layers are ignored.

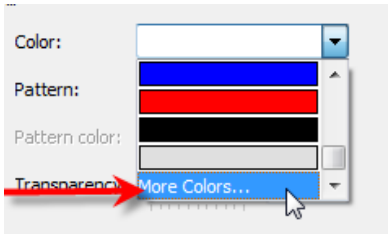
Create a Custom Color for Visio Shapes

dcTrack uses AutoCAD's® color 81 for its cabinets.

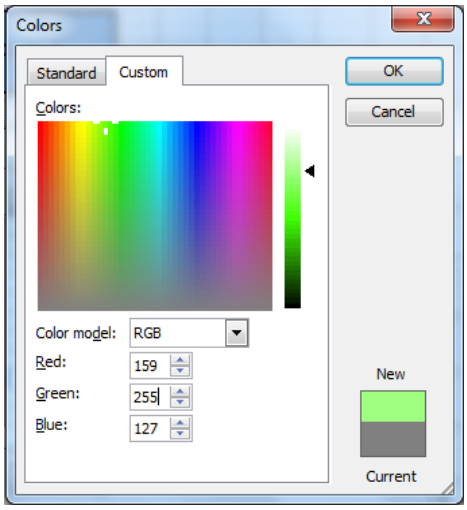
The example here demonstrates creating the RGB custom color custom in Microsoft Visio that matches the AutoCAD cabinet color. The steps apply to creating any custom color, however.

Apply custom colors to shape borders, fills, layers and so on.

1. Access the dialog to change the color for a shape's fill, border, layer and so on.
2. Click on More Colors... from the "Color:" drop-down in the dialog.



3. The Colors dialog opens. Select the Custom tab, and enter the following RGB colors:
   - Red = 159
   - Green = 255
   - Blue = 127



4. Click OK to create the custom color and apply it.

AutoCAD Drawing File Requirements

Following are dcTrack's minimum, AutoCAD drawing file requirements.

Object Outlines - AutoCAD Files

An object's outline must be closed

Object Name Requirements - AutoCAD Files

When creating object names note that item names cannot be duplicated within a dcTrack location, so each object's name must be unique in the drawing file that is uploaded and synched with the location.

Duplicate names do not cause errors, but the objects are not linked during the synch AutoCAD® process.

- Object names cannot contain the characters ' \ ? &
- The object name cannot be the same name as an item in an Archived Status

Drawing File Layer Requirements - AutoCAD Files

- Do not begin AutoCAD® layer names with the word "dcTrack" unless you are directed to do so.

AutoCAD Drawing Object File Recommendations

When using AutoCAD to create your floor map drawings, follow these recommendations.

Cabinet Object Recommendations - AutoCAD Drawing Files

- Cabinet Object - Color: dcTrack uses AutoCAD's® color 81 for its cabinets
- Cabinet Object - Command: Draw cabinet outlines on separate layers in the drawing file to make future modifications and global changes easier.
- Cabinet Object - Layers: Draw cabinet outlines on separate layers in the drawing file to make future modifications and global changes easier.

Object Outline Recommendations - AutoCAD Drawing Files

- Object Outline - Command: Create objects using a polyline
- Object Outline - Layer: Create the object outline on a different layer than the hatch
- Object Outline - Color: Set the color of the object outline by layer

Object Hatch Recommendations - AutoCAD Drawing Files

- Object Hatch - Layer: Draw solid hatches on separate layers in the drawing file so it is easier to make future modifications and global changes.

Create the hatch on a different layer than the object outline

- Object Hatch - Pattern: Use a solid pattern for the hatch within an outline.
- Object Hatch - Color: Set the color of the hatch by layer
- Sunbird recommends using the following colors for hatch layers:
  - Color 81 for a cabinet Solid Hatch
  - Color 254 for all Facility Items like UPS, Floor PDU, HVAC, Plant Bay and DC Bay

Object Label and Text Recommendations - AutoCAD Drawing Files

Names must be unique within each drawing file for each location. For more information, see **Object Name Requirements - AutoCAD Files**.

- Object Labels - Layers: Draw object labels on separate layers in the drawing file so it is easier to make future modifications and global changes.
- Object Labels - Text Formatting: Object labels should use Arial Bold set to 9 inch height. The text height assumes the AutoCAD drawing is drawn on a 1:1 scale.
- Use Multiline Text for object labels, and make sure they are contained within the object outline.

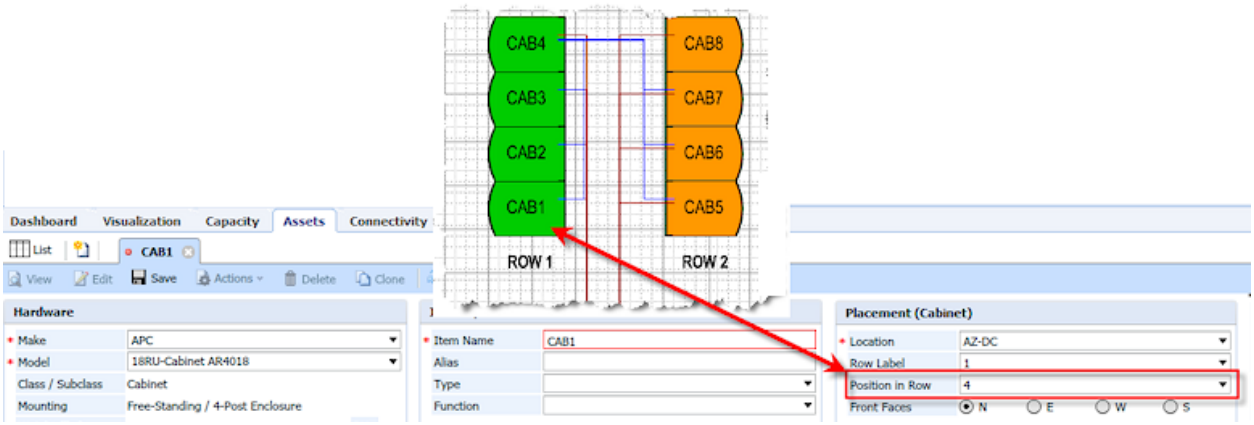
Create either a Standard Text label or Multiline Text label to identify each data center row represented in the drawing file.

- Cabinet Labels - Position in Row: Since dcTrack does not pull cabinet row position information from drawing files during the sync AutoCAD drawing file process, the cabinet label can contain any number.

This means numbers that appear in cabinet labels can be part of the cabinet name, or used to represent the cabinet's position in the data center row.

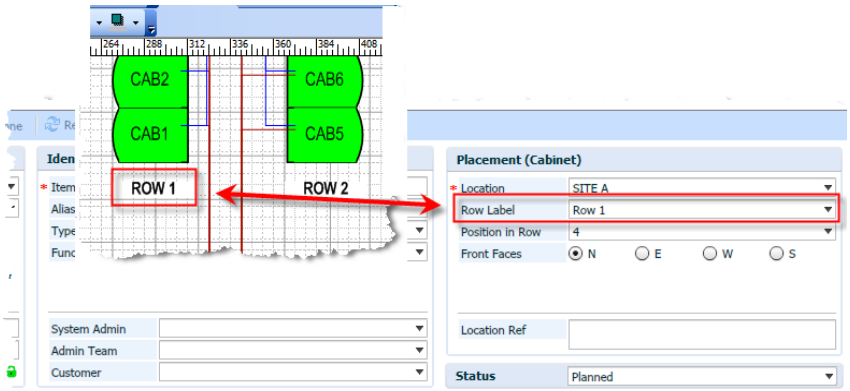
Once cabinets are added to dcTrack by syncing a drawing file, their row position can be assigned manually. Row positions are assigned on a cabinet's item page in the Web Client.

For example, a cabinet labeled "CAB1" in a drawing is can be assigned to position 4 of a row on its item page by selecting from the Position in Row drop-down.



- Row Labels - Row Label Drop-Down: The row label in the drawing file should match a selection available in the Row Label drop-down on the Create New Item page in the dcTrack Web Client.

Select the row when creating a new cabinet for the data center location represented by the drawing file.



Raised Floor Tiles (Optional) - Drawing Requirements

Create the Grid Marker to Create the Tiles

In your drawing file, create a layer called dcTrackGridMarker.

Draw the Grid Marker to Create the Tiles

Draw a grid marker on a layer called dcTrackGridMarker.

The figure shown here is an example of a grid marker starting at a location where the A1 tile doesn't exist.

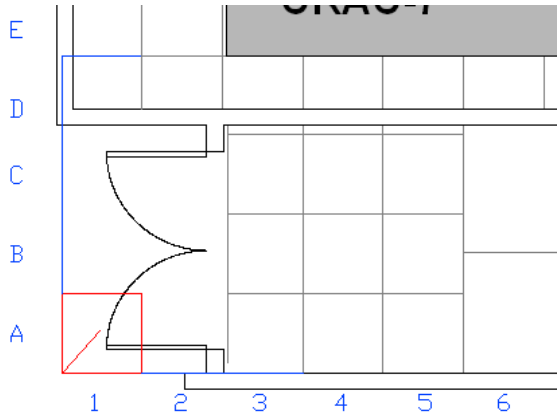
Note: The blue lines are temporary. They were drawn to represent the location of the A1 tile exactly.

Also note the corner and direction of the inside line.

- Draw the grid marker using the Rectangle command in AutoCAD or the Rectangle shape in Microsoft Visio.
- When you draw the rectangle, match the original A1 tile coordinate exactly.

The figure below shows an example of a grid marker at the A1 tile.

Note: This example represents a full tile, but you may need to create a marker where a half tile or no tile exists.



- Inside this square, use the Line command or Line tool to draw a Line from the exact corner of the square to the approximate center. Do not use the Pline command to draw this line.

Draw the line to the corner that represents the 0,0 coordinate. In other words, the line starts at the corner and extends in the direction the numbers and letters increase.

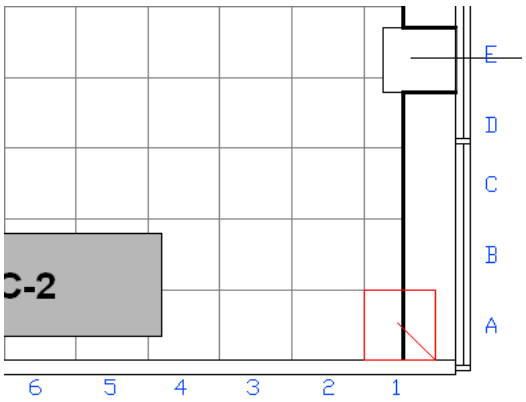
- Do not draw any other objects on this layer.

Draw a Marker Where Half a Tile Exists

The figure below shows an example of a grid marker at the A1 tile but it is not a full tile.

To create tile, the marker must have the dimensions of a full tile.

Note the corner and direction of the line inside.



Draw a Marker Where No Tile Exists

If the A1 tile doesn't exist because of the geometry of the room's walls, create temporary lines to extend the raised floor grid to where the A1 tile would be, then draw the square marker there.

Delete the temporary lines once you are done drawing the marker.

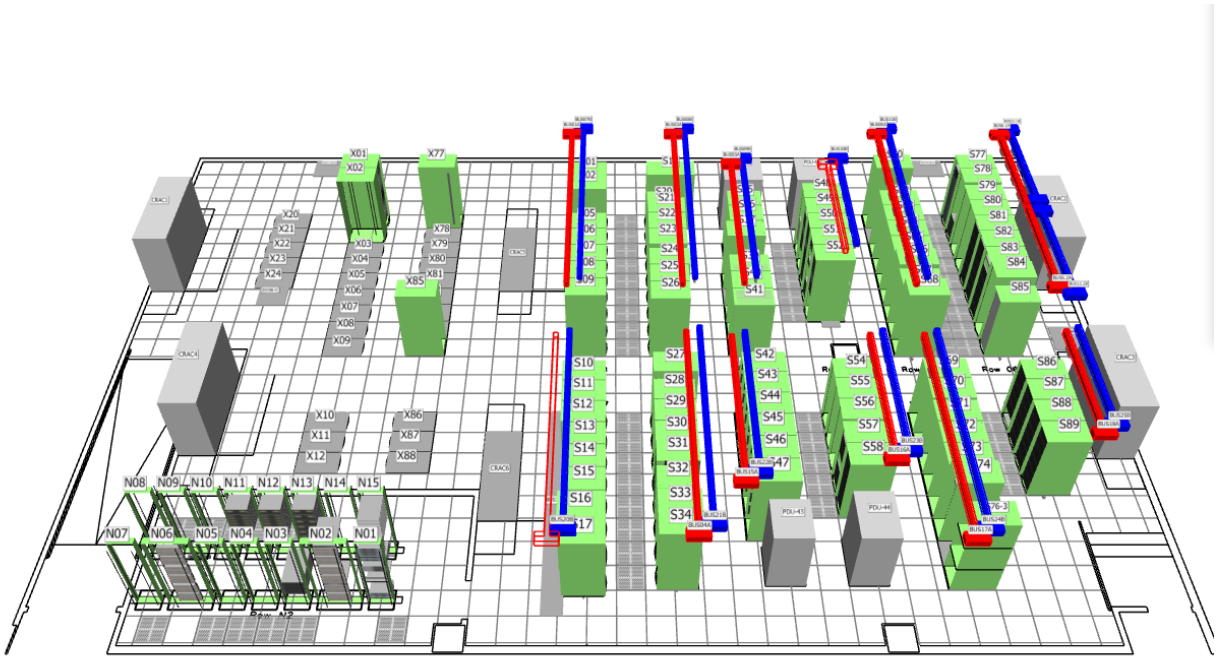
Busway Visualization

dcTrack 8.1 allow you to visualize Busway objects in floormap. You can also visualize the tap boxes that are placed inside the Busway.

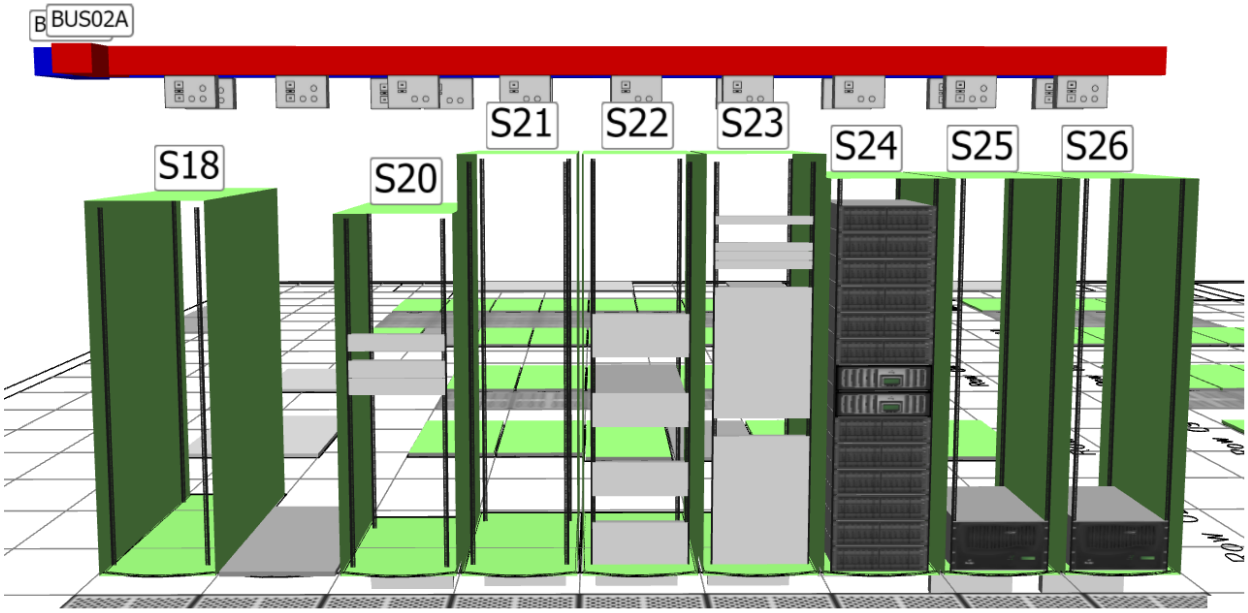
To visualize Busway objects follow the steps below.

1. Download your existing floor map drawing file and update it to include busway objects in a separate layer.
2. Make sure you give busway objects the same name as your busway items in dcTrack.
3. Upload the updated drawing file.
4. In the Visualization toolbar, click on Configure and go to Layers.
5. Select the layer type Busway for the layer where your busway objects are drawn in the diagram.
6. Set elevation for this layer.
7. Close the Configure dialogue and do a refresh.

Busway objects will show in the floor map.



To visualize the Tap Boxes, isolate Busway objects. You can do this either by isolating one or more cabinets in the row where Busway is placed or isolating the entire row.



You can also view all the Tap Boxes associated with the Busway when isolated. Hover over each Tap Box to get a tool tip that shows name, class, make, model and status.

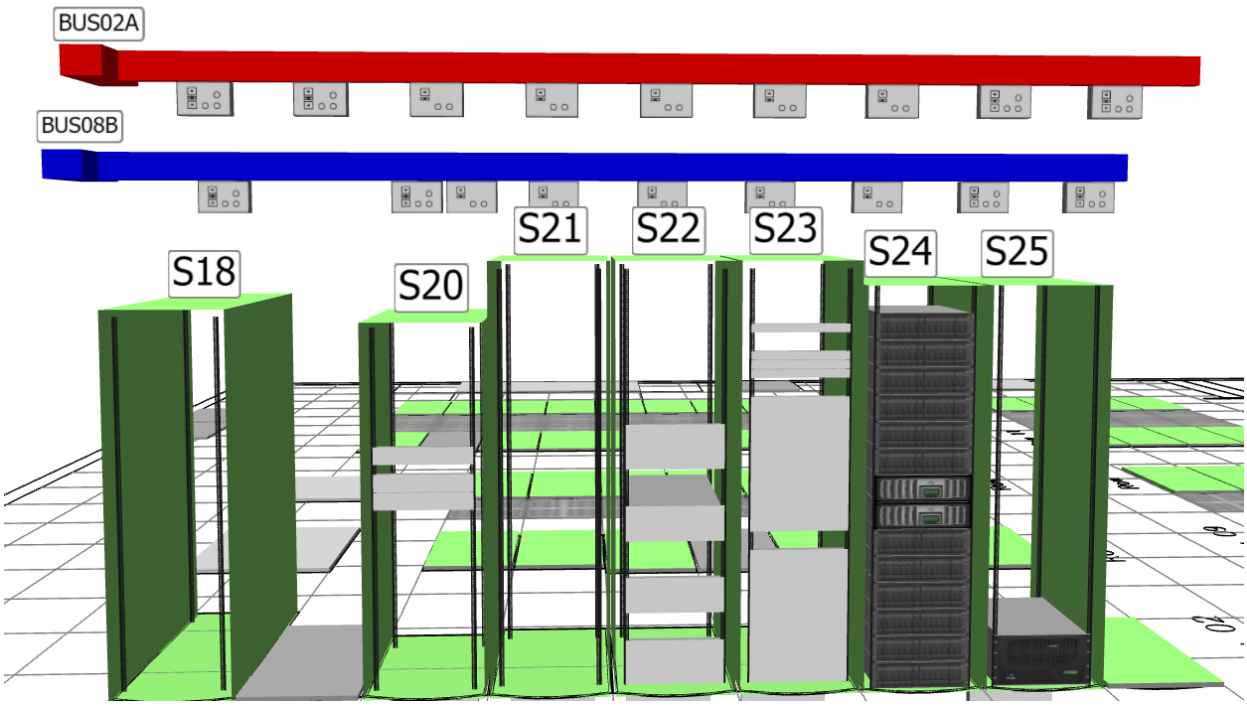
You can navigate to Busway item details page when you double click the Busway object in the floor map. You can also navigate to the Tap Box (Busway Outlet) item details page when you click the Tapbox in the floor map.

The elevation of each Busway object in the floor map can also be set individually. This elevation can be set to a number different from the elevation set for the Busway layer.

Steps to set elevation of each Busway Object :

1. In Busway Item details page enter the number for Placement field Elevation AFF(in).
2. This field is used to capture the elevation of the Busway item above the finished floor in inches.
3. Save the item.
4. Go back to Visualization and do a Refresh.
5. Isolate the Busway with updated Elevation.

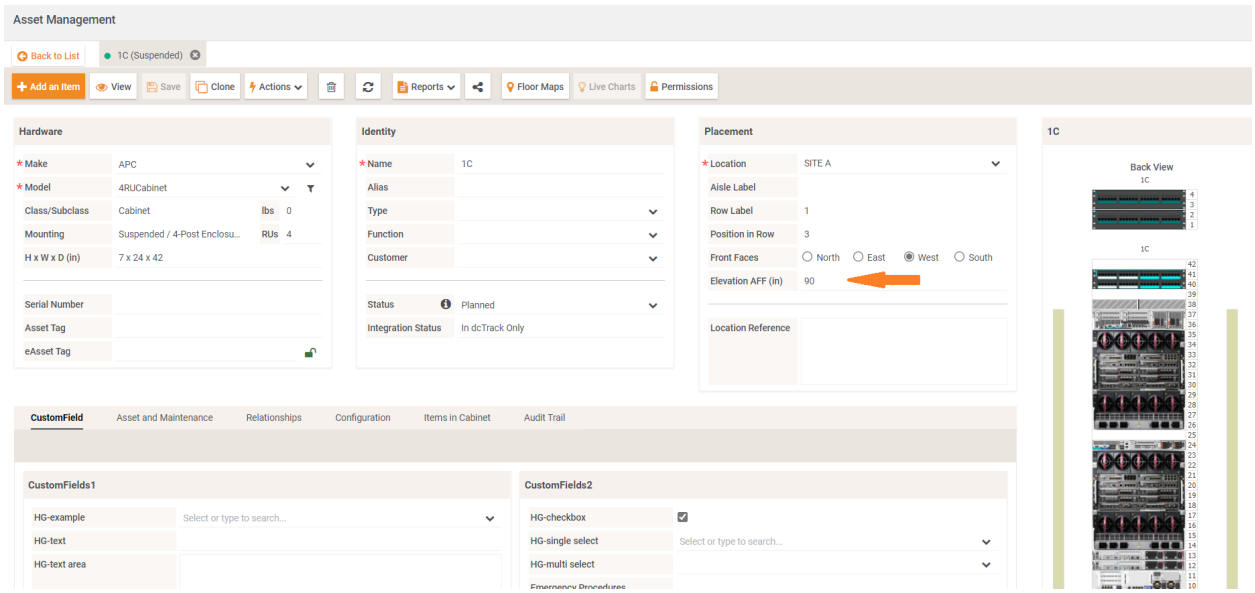
Note : Elevation set for the Busway Object over-ride the Elevation set for the Busway Layer.

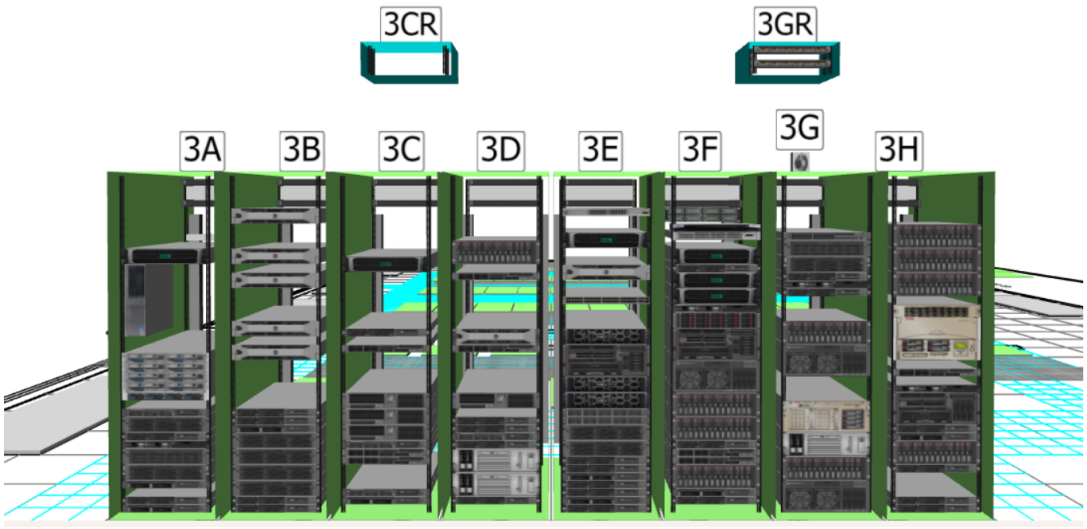


Suspended Cabinet Visualization

dcTrack allows you to visualize the cabinets with suspended mounting in floor map.

Cabinets with suspended mounting can be rendered in floor map without adding them in the drawing file. The position and the height of the suspended cabinets can be set using the item field Elevation (AFF). This field accepts both positive and negative value. You can enter a positive value for the cabinets that are placed above the floor and negative value for cabinets that are placed below the floor.





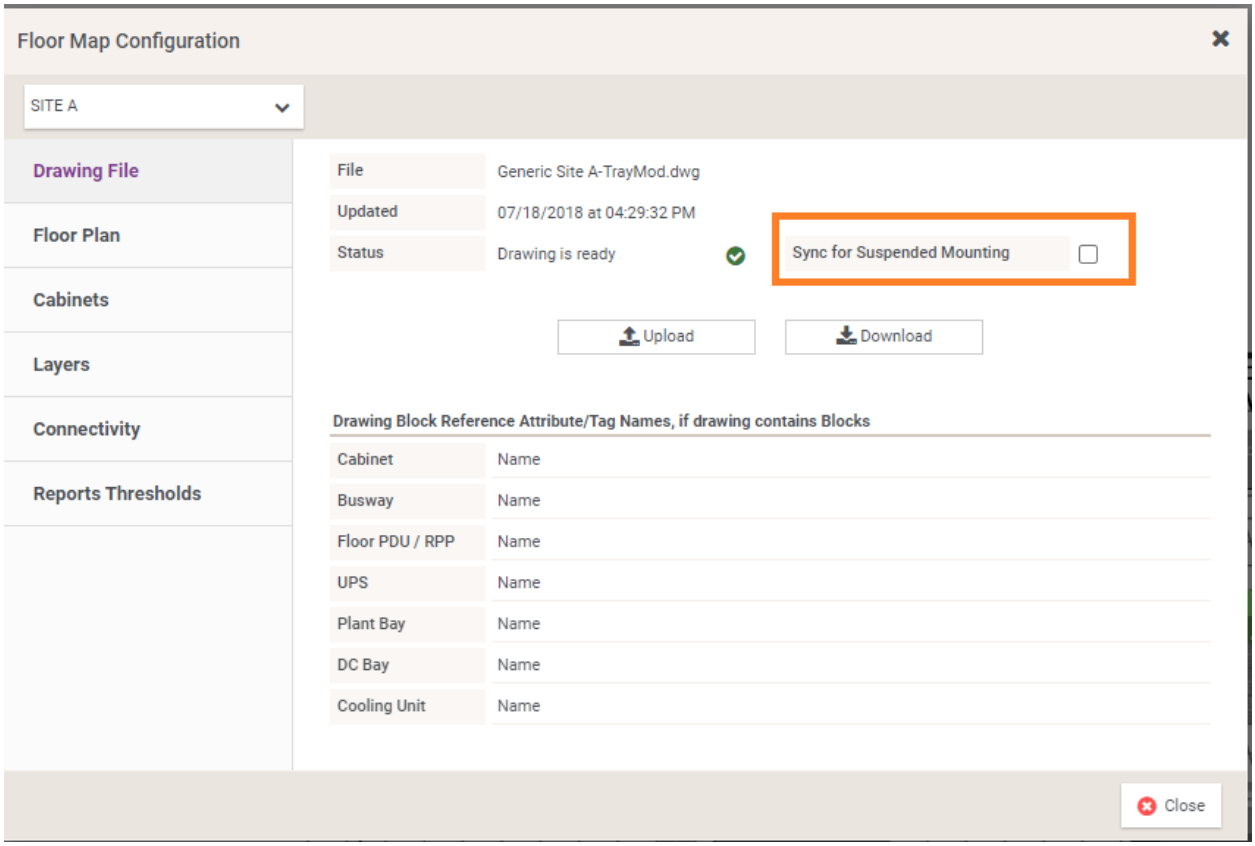
Note : When there are no free-standing cabinet in a row, suspended cabinet in that row are not rendered. However you can follow the steps below to visualize these suspended cabinets in the floor map.

To view suspended cabinets go to Visualization > Floor Map. All suspended cabinets are rendered automatically on the floor map.

1. Download your existing floor map drawing file and update it to include suspended cabinets in a separate layer. Suspended cabinets can be drawn in the diagram same way as cabinets are drawn.
2. Make sure you give your suspended cabinets the same name as your suspended cabinets created in dcTrack.
3. Upload the updated drawing file.
4. In the Visualization toolbar, click on Configure and go to Layers.
5. Select the layer type Suspended for the layer where your suspended cabinets are drawn in the diagram.
6. Set elevation for this layer.
7. Close the Configure dialogue and do a refresh.

Suspended cabinets display in the floor map. You can also isolate the suspended cabinets to view the items in the suspended cabinets.

To sync Suspended Cabinet items to the object in the drawing make sure the check box Sync for Suspended Mounting is checked. When this option is checked Suspended Cabinets will be included in the sync precess just like Free-Standing Cabinets.



Compartment Cabinets can also be visualized in 3D.

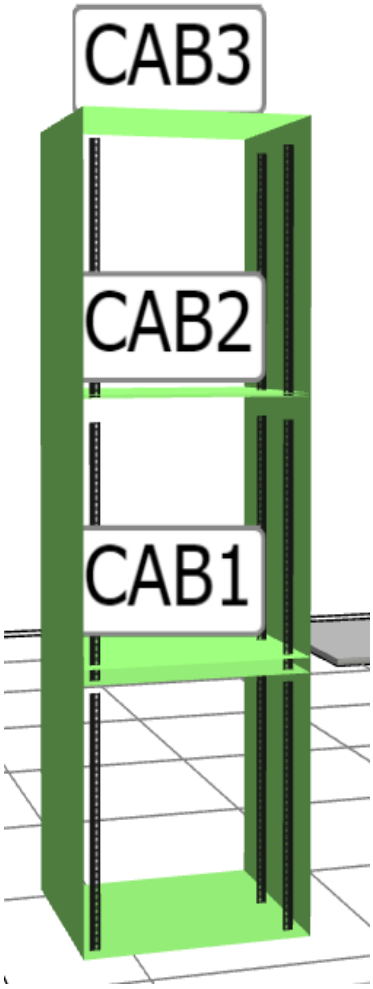
Steps

1. Create the Suspended Cabinets and place at same row and position in row.
2. Enter the value for Elevation AFF for each cabinet. The value for this field should depend on the order of the cabinets placed.

   For example if there are three Cabinets CAB1, CAB2 and CAB3 and the height of cabinet model is 24 inch then value for this field for these cabinets should be

   a. CAB1 -> 1
   b. CAB2 -> 24
   c. CAB3 -> 48

Go to the Floor Map and you can see the cabinets in 3D as screen shot below.



callColor Coding Floor Maps Using Field Values

System Administrators and Global Gatekeepers can choose to highlight Items on Floor Maps by assigning colors based on Standard or Custom Field Values. For example, users can highlight and quickly see all of the Items for a single Project or multiple Projects.

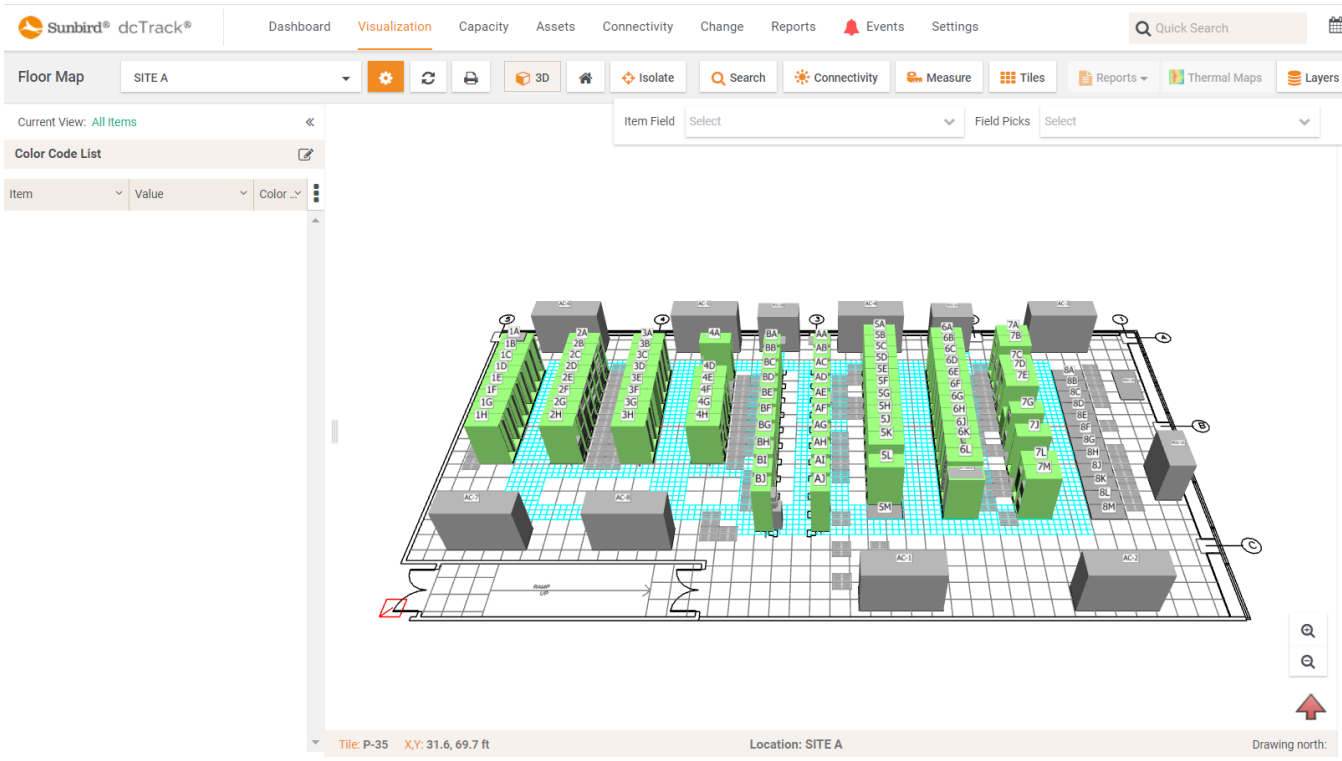
Prior to dcTrack version 9.0.0 colors were assigned automatically and could not be changed. dcTrack version 9.0.0 introduced the ability to customize colors allowing users to select which colors are assigned to each value.

Color Coding is available in both 2D and 3D Modes.

Note: dcTrack will assign up to 20 unique colors to the Floor Map. For this reason selections are limited to 20 Items.

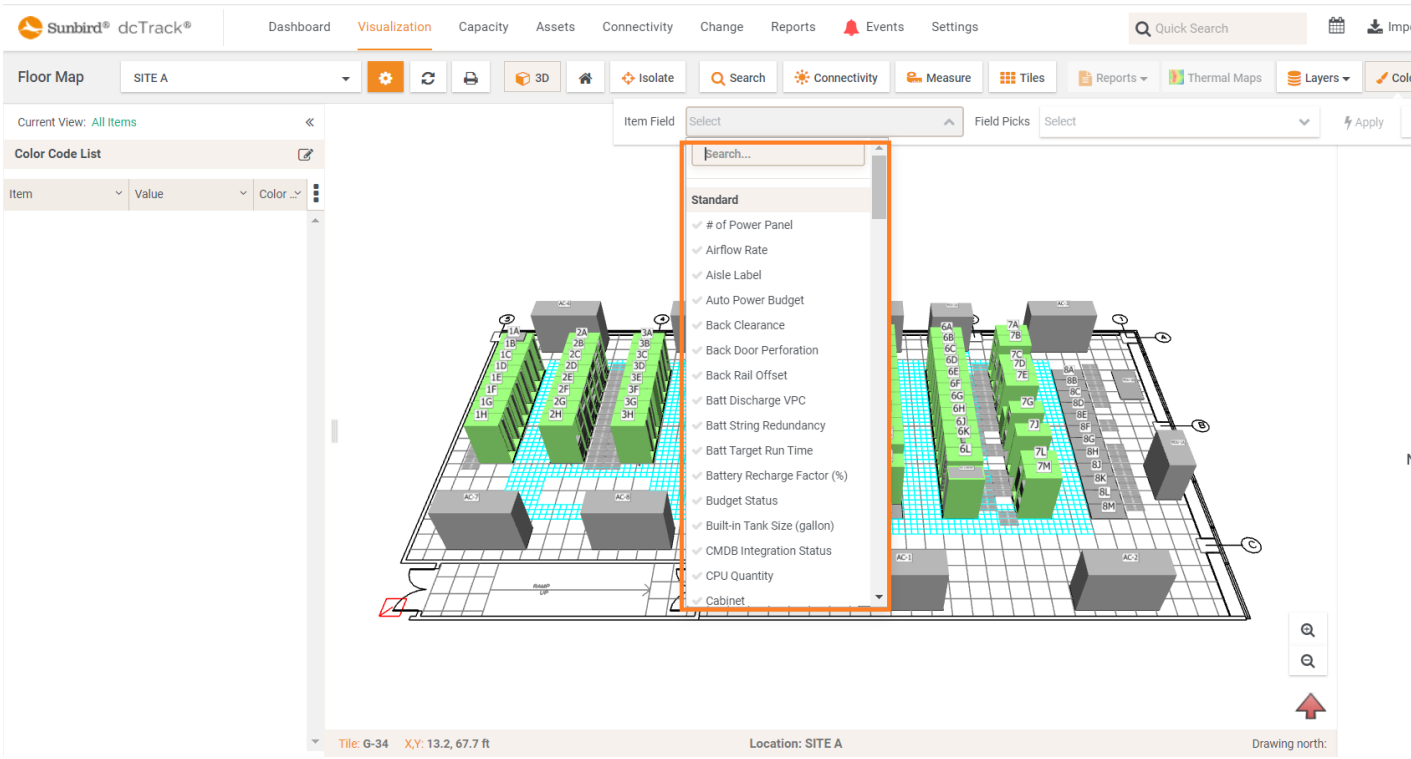
Steps to Color Code a Floor Map:

1. Navigate to the Visualization > Floor Maps
2. Select the Location whose Floor Map you want to see
3. Click the Color button on the Visualization Tool Bar

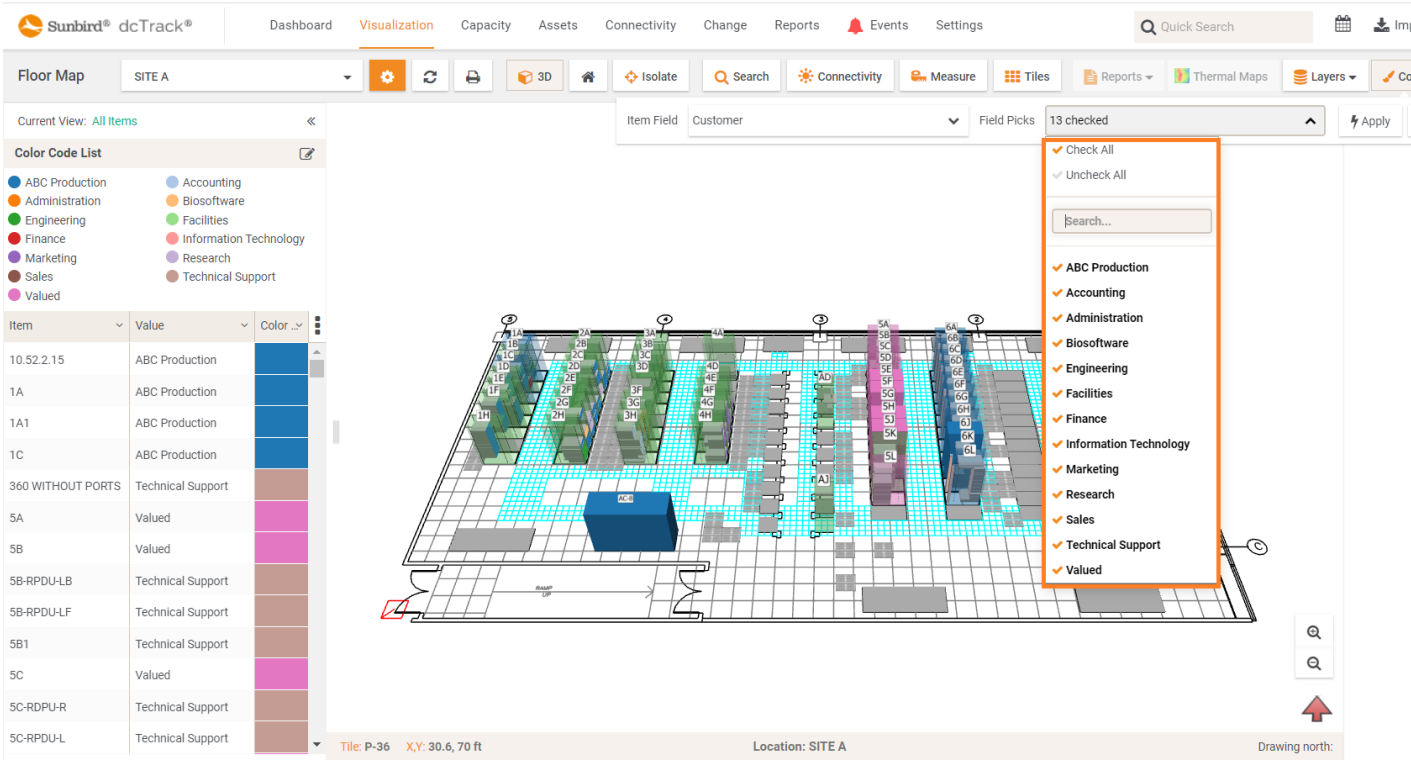


4. A sub Tool Bar is displayed with a drop down list for selecting the Field you want to filter on

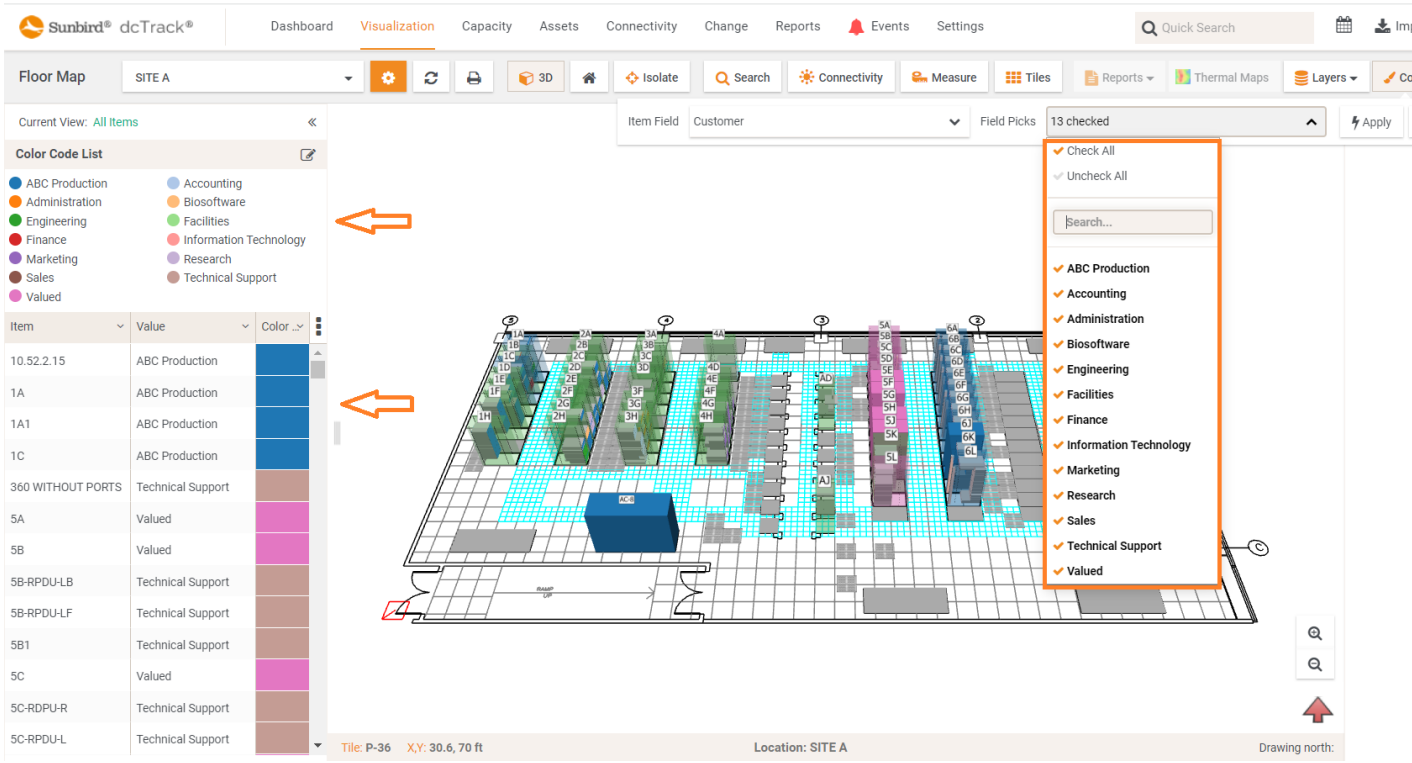
Note: Available fields include most Standard and Custom fields with the exception of Text and Text area fields and fields that are unique for each Item (i.e. Item Name).


Sunbird® dcTrack®
Dashboard
Visualization
Capacity
Assets
Connectivity
Change
Reports
Events
Settings
Quick Search
Floor Map
SITE A
3D
Isolate
Search
Connectivity
Measure
Tiles
Reports
Thermal Maps
Layers
Current View: All Items
Color Code List
Item
Value
Color ...
Item Field
Select
Field Picks
Select
Apply
Search...
Standard
# of Power Panel
Airflow Rate
Aisle Label
Auto Power Budget
Back Clearance
Back Door Perforation
Back Rail Offset
Batt Discharge VPC
Batt String Redundancy
Batt Target Run Time
Battery Recharge Factor (%)
Budget Status
Built-in Tank Size (gallon)
CMDB Integration Status
CPU Quantity
Cabinet
Tile: G-34
X,Y: 13.2, 67.7 ft
Location: SITE A
Drawing north:

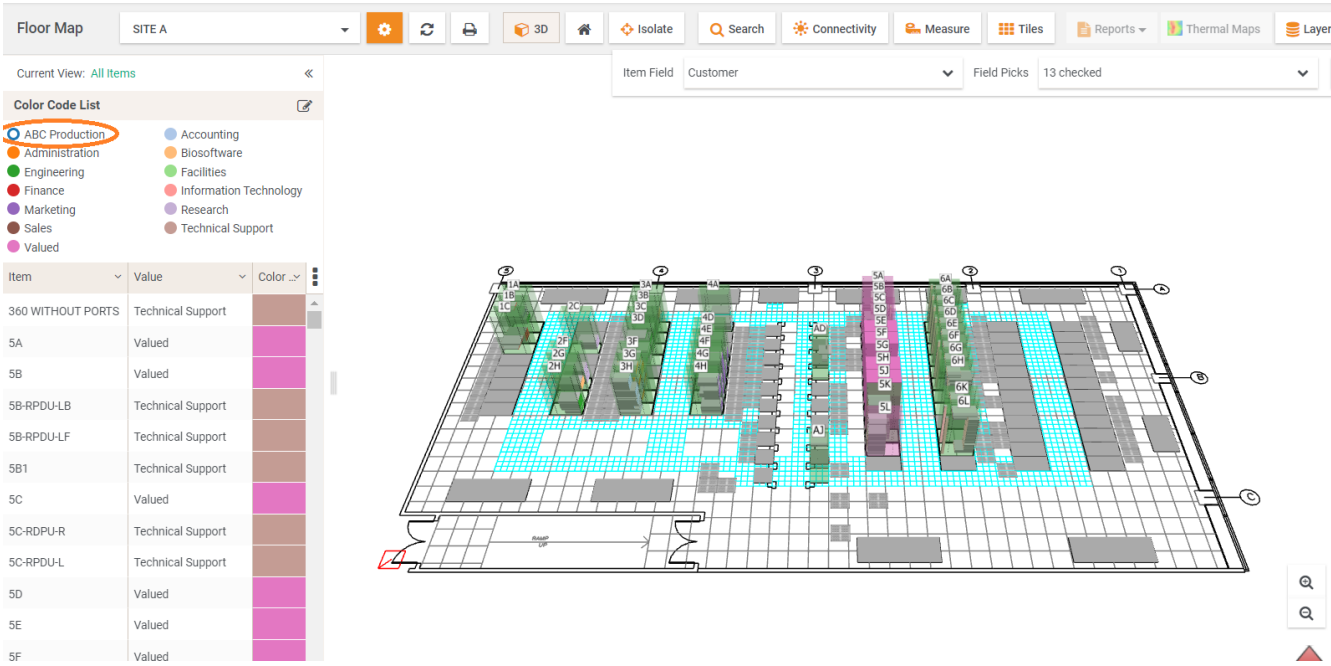
5. Once the Field is selected the second drop down list is populated with all of the values applicable to that field.



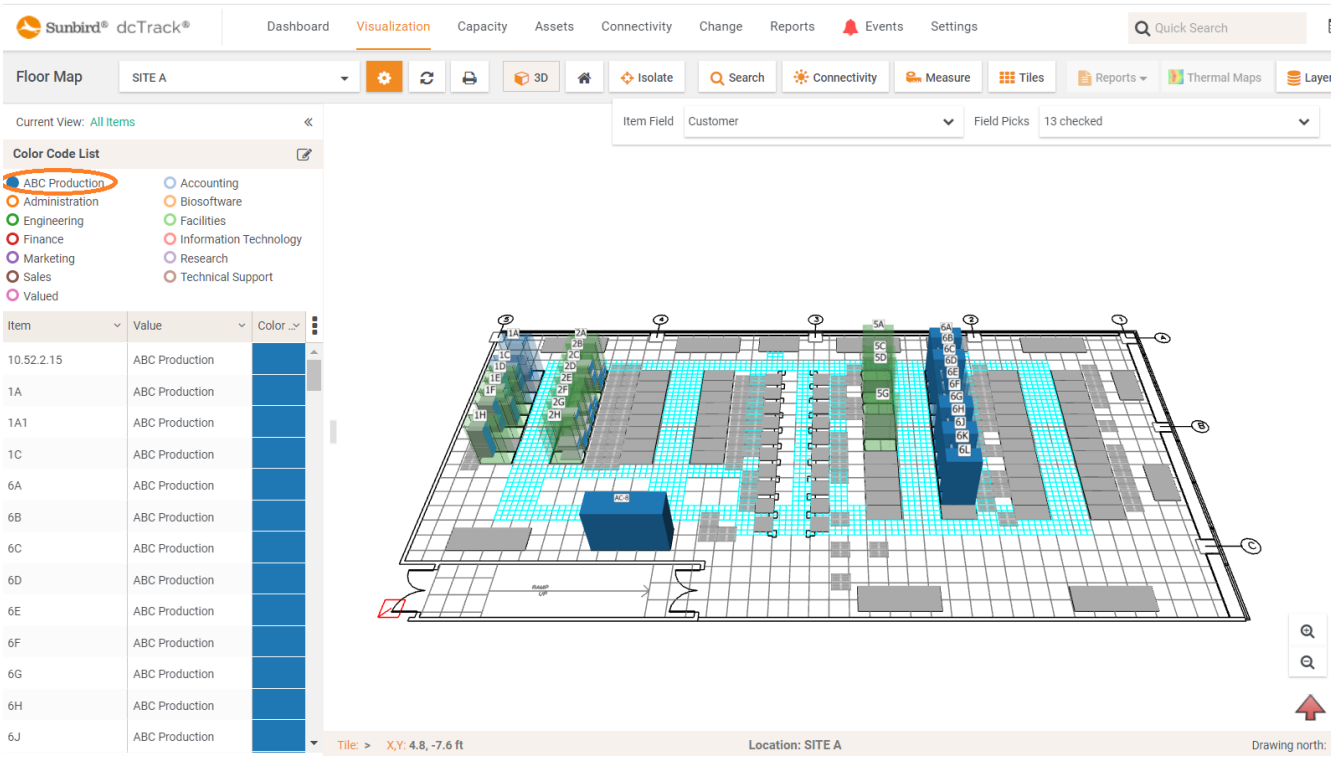
6. The list will have all values selected, however you can deselect values to suit your needs
7. The left Side panel will display the Color Code List with an Item list below. The Item list includes all items that have a value set for the selected field. The floor map will also display with the colors applied.
8. Initially dcTrack custom colors are applied



9. The list as well as the floor map can be filtered by clicking the colors in the color box.
    a. Click once to filter out the selected color. The color inside the clicked circle will be cleared while all other circles remain solid. The Items associated with the selected color will be removed from the Item List and the floor map. You may click as many colors as you like to remove those colors as well.



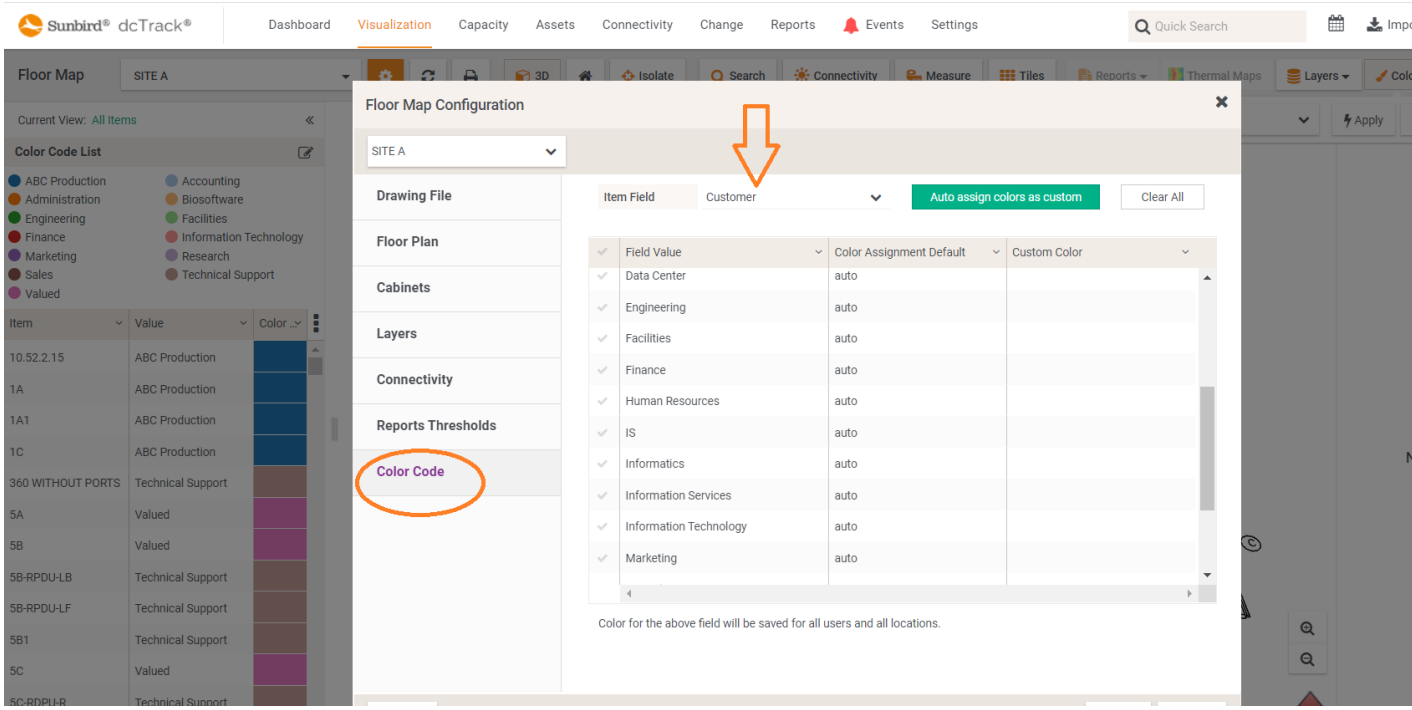
b. Double click to filter out all colors except the selected color. The color inside the clicked circle will remain solid while the circle for all other colors will be cleared. The Item list and the floor map will filter out all Items for every color except the selected color. You may click as many other colors as you like to add them back in.



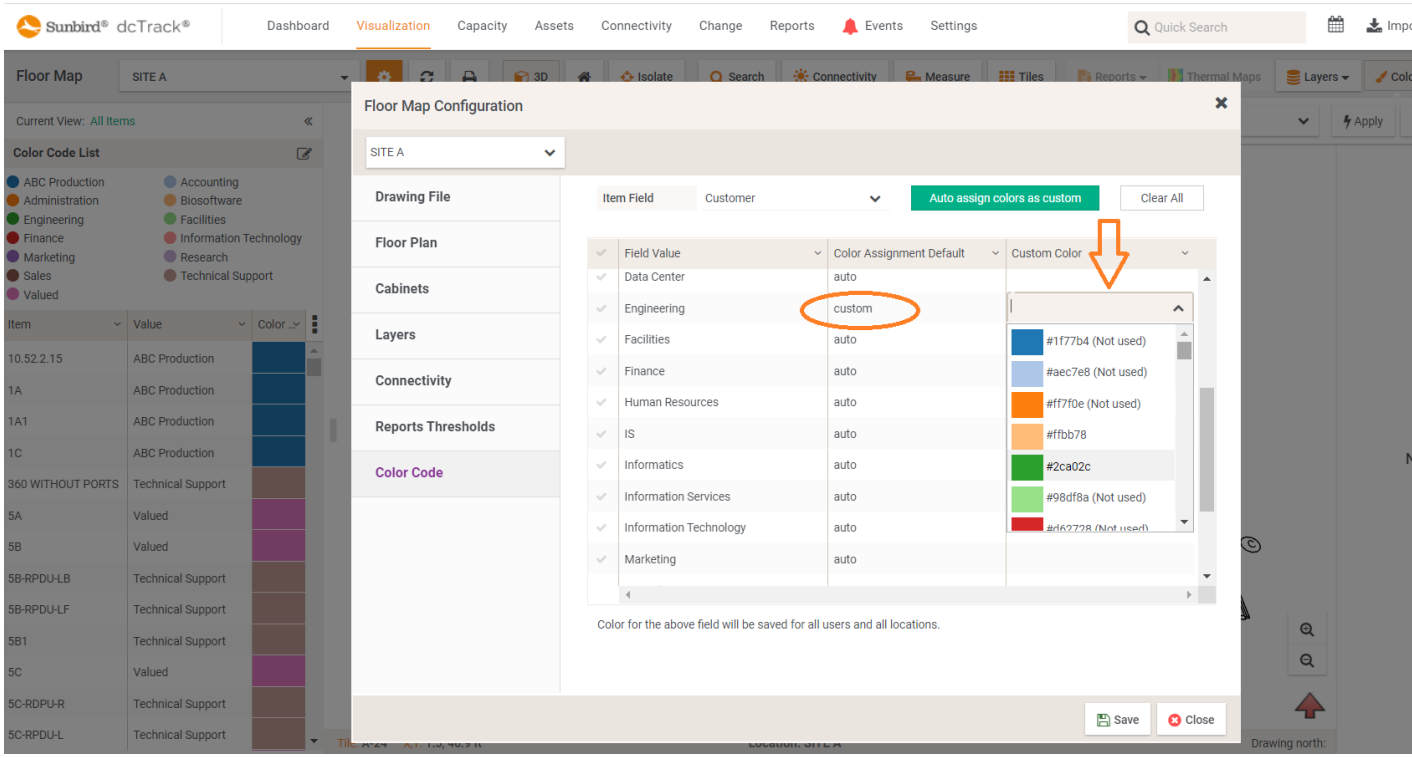
c. Click again to restore the color list to its original state

10. To set Custom colors, click the edit icon in the Color Code List

11. This will open a dialog box with the Color menu open and the selected field pre-populated. The selected field can be changed to set color values for a different field.

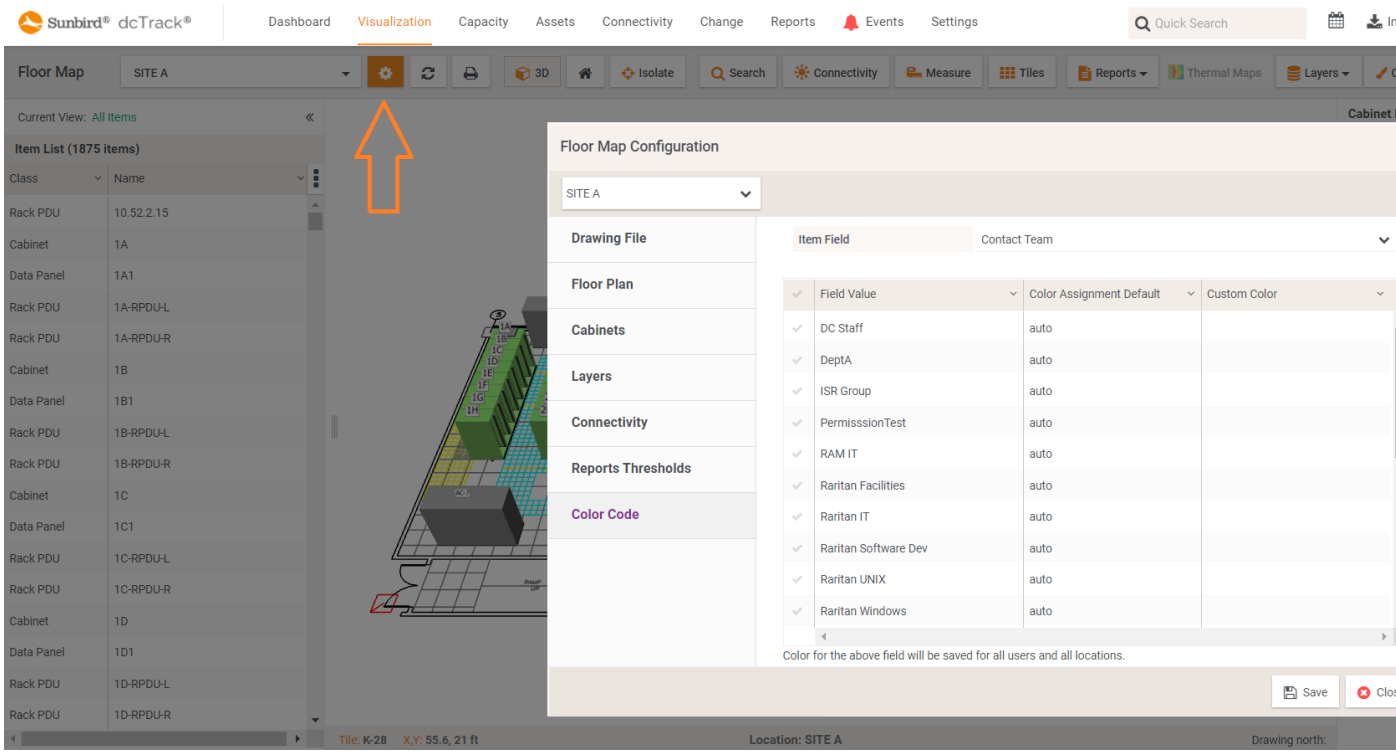


12. Initally all color assignments will be set to "auto" and the Custom Color column will be empty
13. To set a custom color to a field value, select it from the custom color drop down. This will display the color in the custom color field and change the assignment from "auto" to "custom". If a custom color has not been assigned to a value it will appear in the list with the notation "(Not used)" next to the color. You can only apply a color to one value. If you attempt to assign the same color to a second value, the color will be removed from the first value and the Color Assignment Default for that value will be set back to "auto".



14. Clicking "Clear All" will remove all custom assignments and mark the color as "Not used".
15. To revert a custom color assignment, change its assignment from "custom" to "auto". This will revert the color back to the default color assigned by dcTrack. The custom color will remain selected in the Custom Color field and will still appear in the color drop down list as if it was assigned. Reserving the color in this way allows you to quickly flip back and forth between custom and default colors without having to reassign from the list. Since it will still appear in the list without the "Not Used" notation, users will know not to use this color for a different assignment.
16. Click the Save button to apply all assignments
17. Click the "Auto Assign Colors as Custom" button to freeze color assignments. This will revert all colors to the dcTrack default colors, but will mark the color as "custom". This prevents inserting a new value from changing all of the colors after the new field. For example.
    a. Value AAA is assigned the color Red
    b. Value CCC is assigned the color Blue
    c. Value DDD is assigned the color Green
    d. Inserting a value of BBB will not affect the color assignments of CCC or DDD.
18. Custom colors are applied to the floor map drawing objects that have custom colors set, while the other objects are set using dcTrack's default colors. The Item List Panel is also displayed using the same color scheme as the floor map.
19. Click the ✖ icon on the color tool bar to clear the filter and return the Floor Map to its original state.

You can also assign Colors by clicking the Config icon on the Floor Map tool bar and clicking on the "Color" tab on the left side menu.



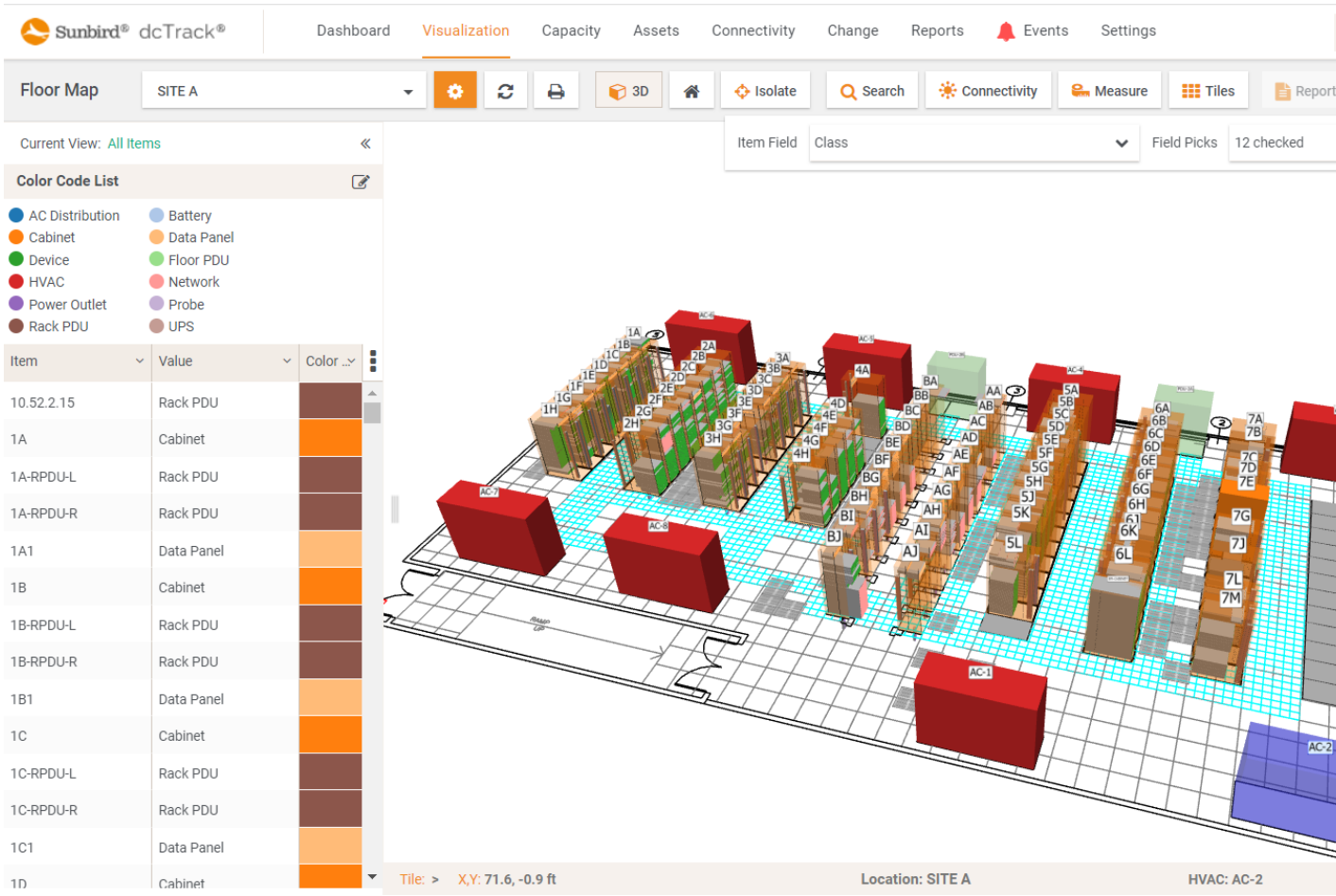
Searching Floor Maps with color

With dcTrack version 9.0.0 and beyond, the Floor Map search feature has been enhanced to allow users to apply Color Coding in conjunction with the Search. When searching with color, the results of the search are still isolated, however the search results display in the color assigned by the Color Feature. The rules for applying colors with search are as follows:

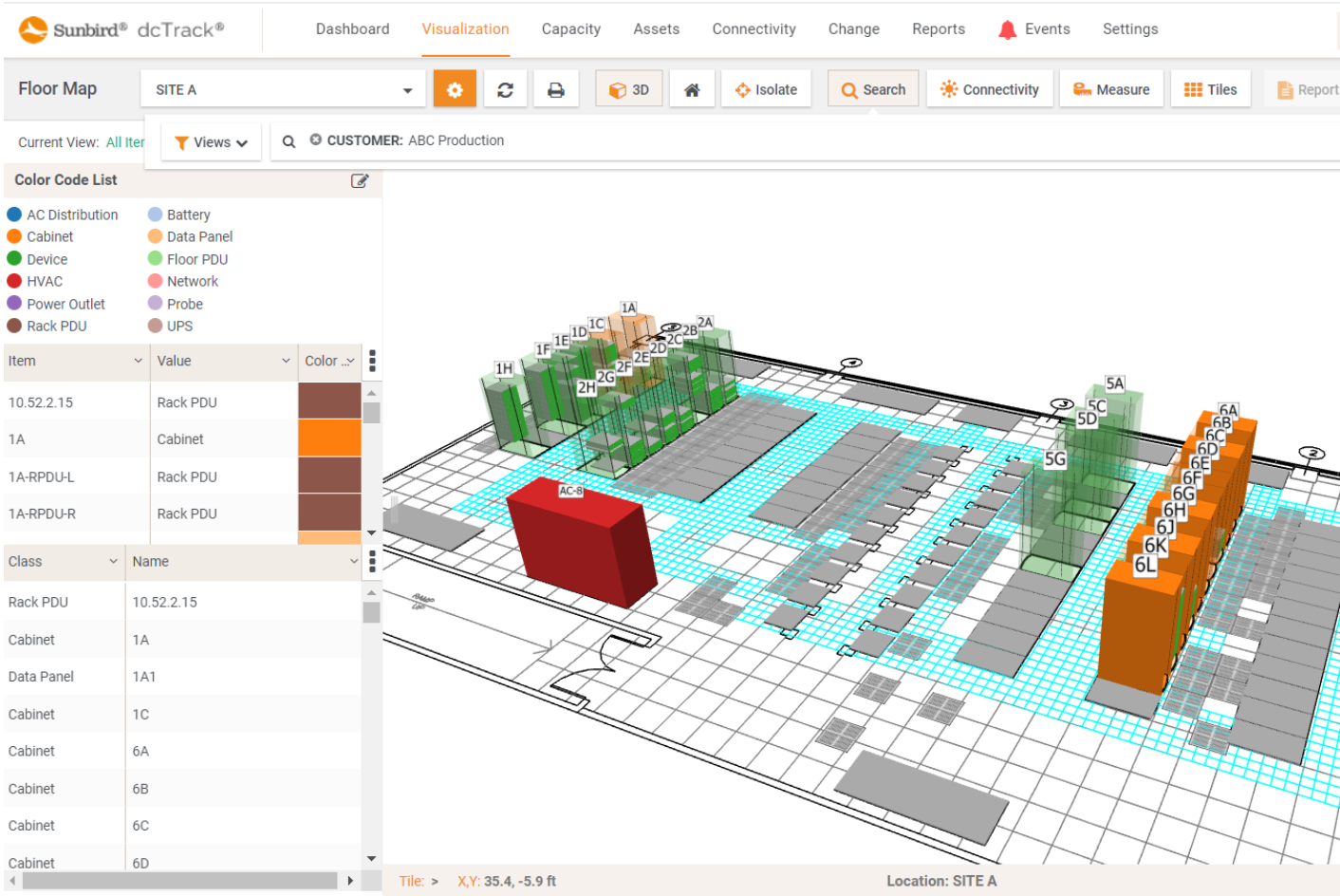
- When the search matches on a cabinet's contents but not the cabinet itself, the cabinet will display in a transparent light green color.
- When the search matches the cabinet itself, but none of the contents match, the cabinet displays in the solid color assigned by the color feature.
- When search matches the cabinet and also some of the contents, then the cabinet is displayed in the transparent color assigned by the color feature and the qualifying contents display in their assigned color.

Example:

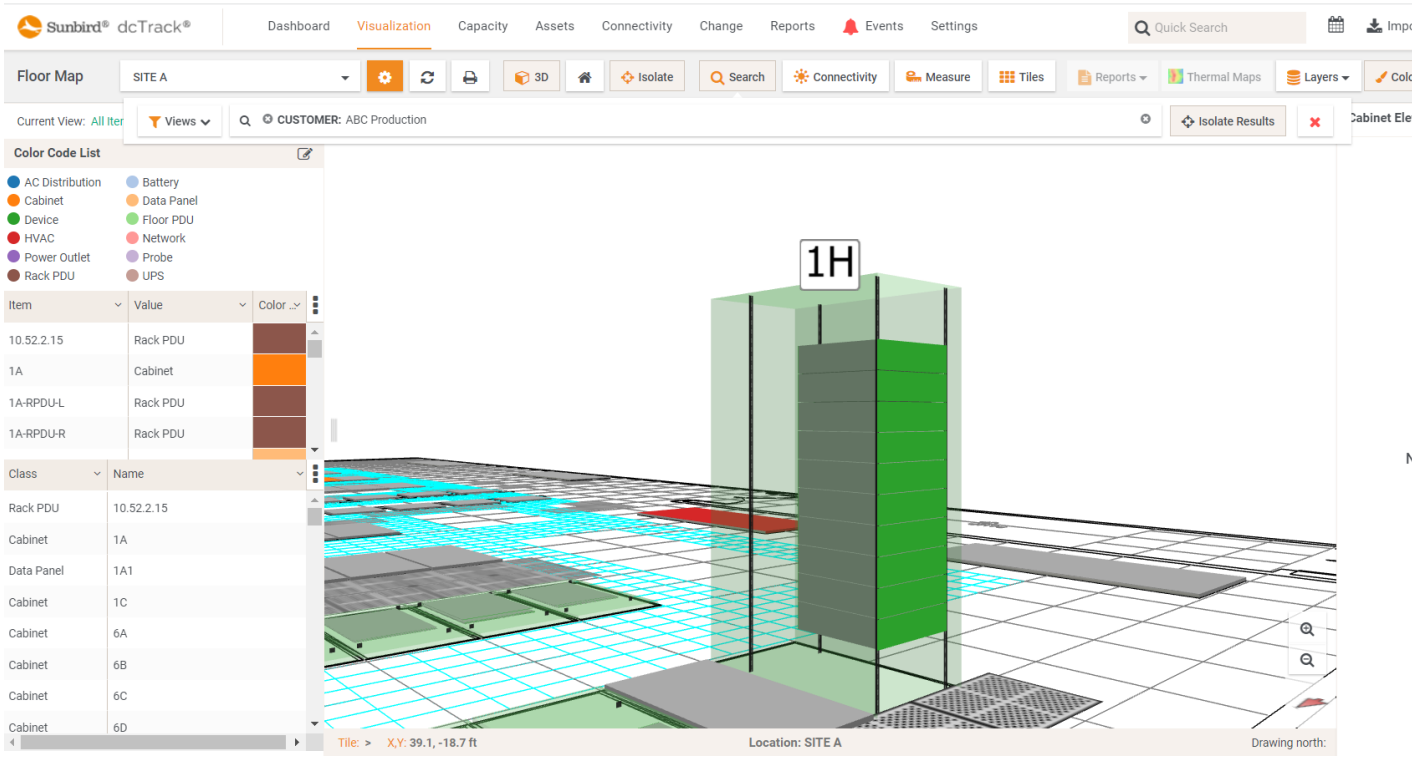
- Colors are applied based on Class



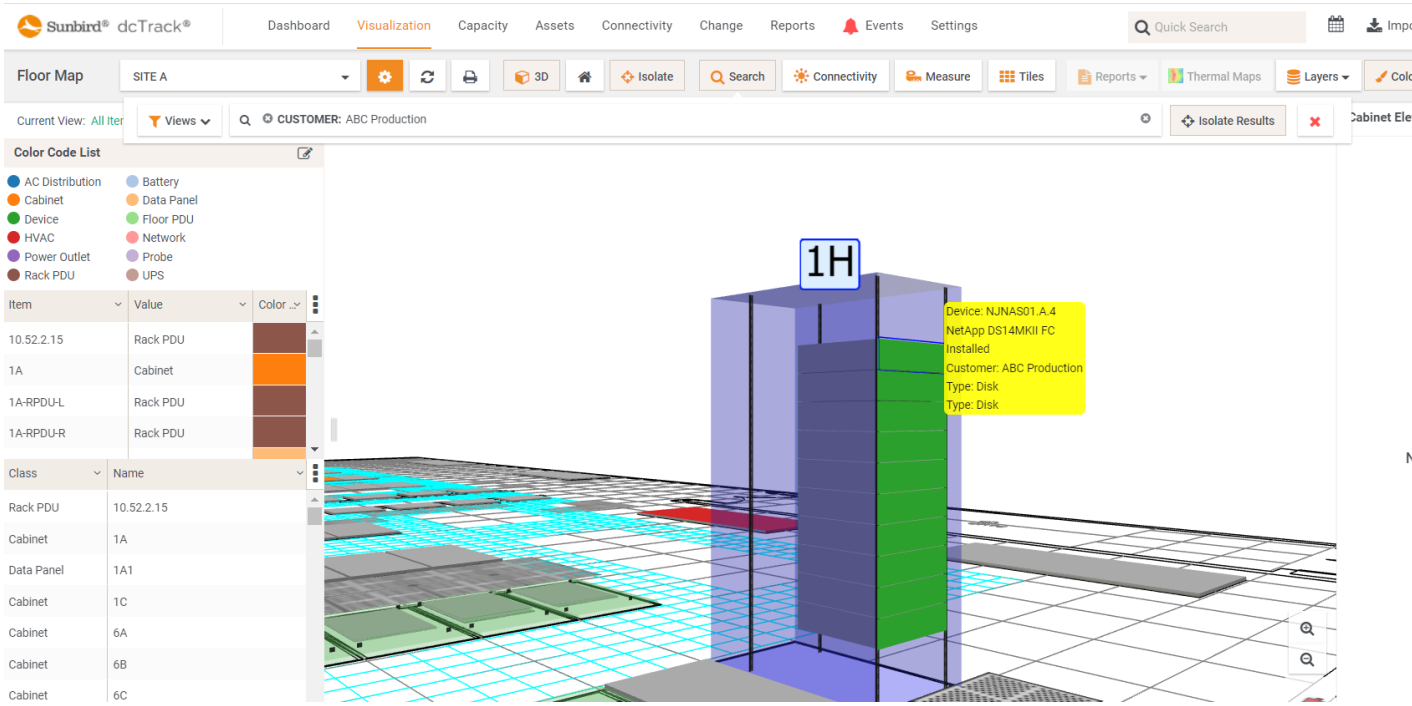
- Search on Customer = "ABC Production" - When neither Cabinet or Contents match the search the cabinet is grayed out and collapsed



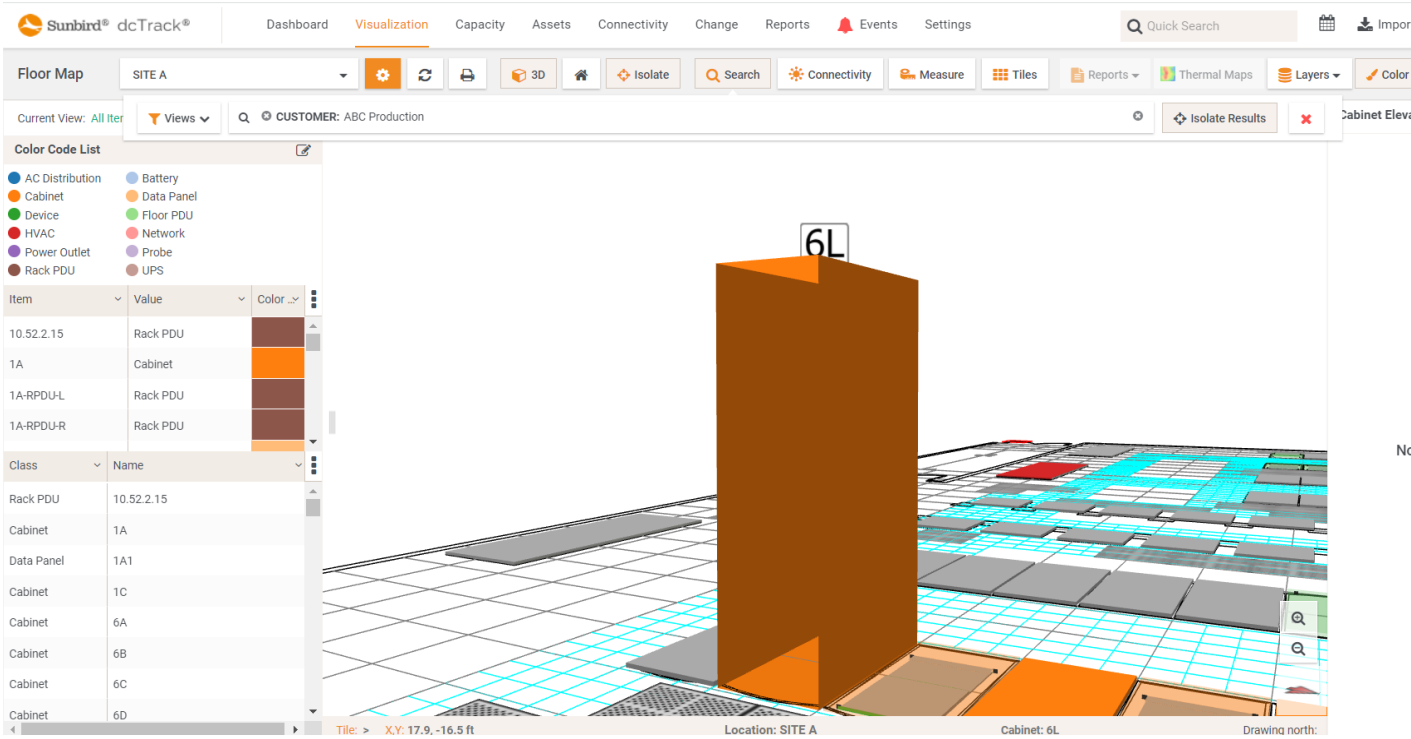
- Isolate match on Contents but not the Cabinet itself
  - Cabinet is transparent Light Green.



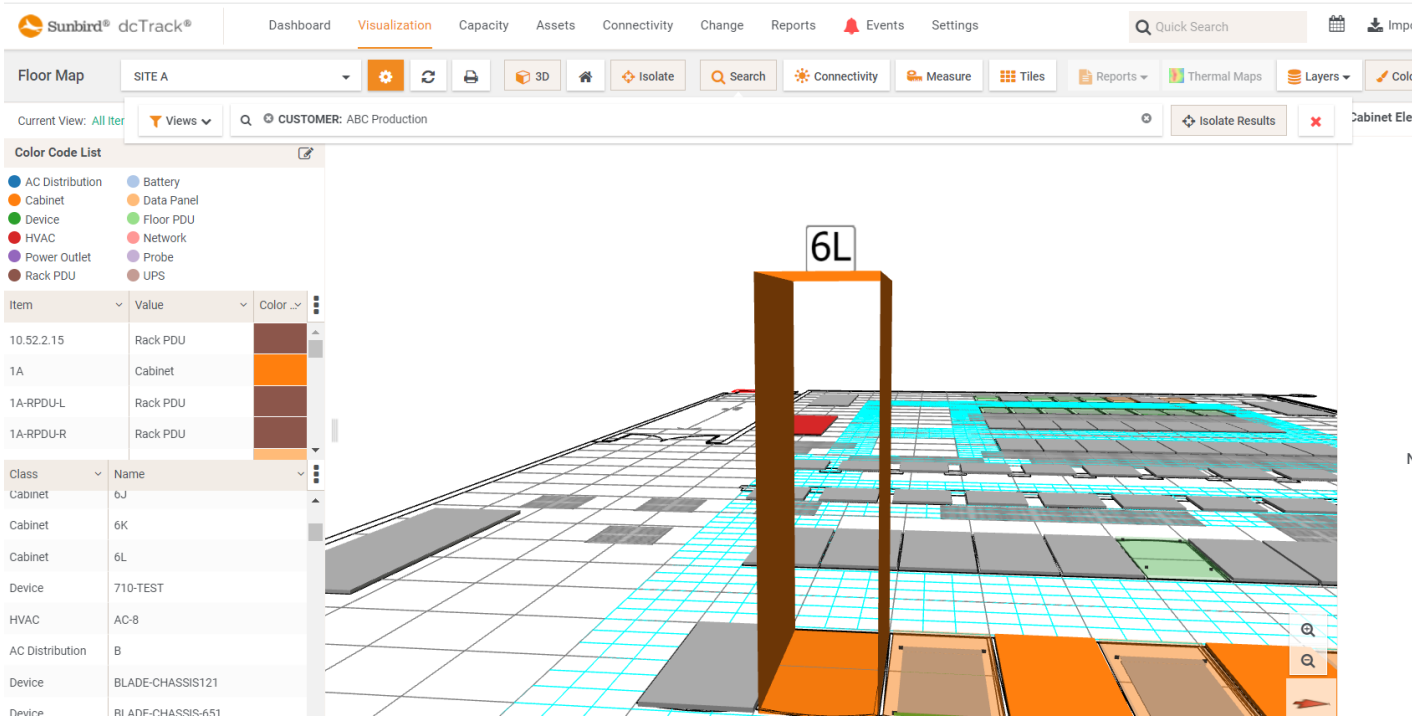
- Contents are assigned actual color (Device-Green)



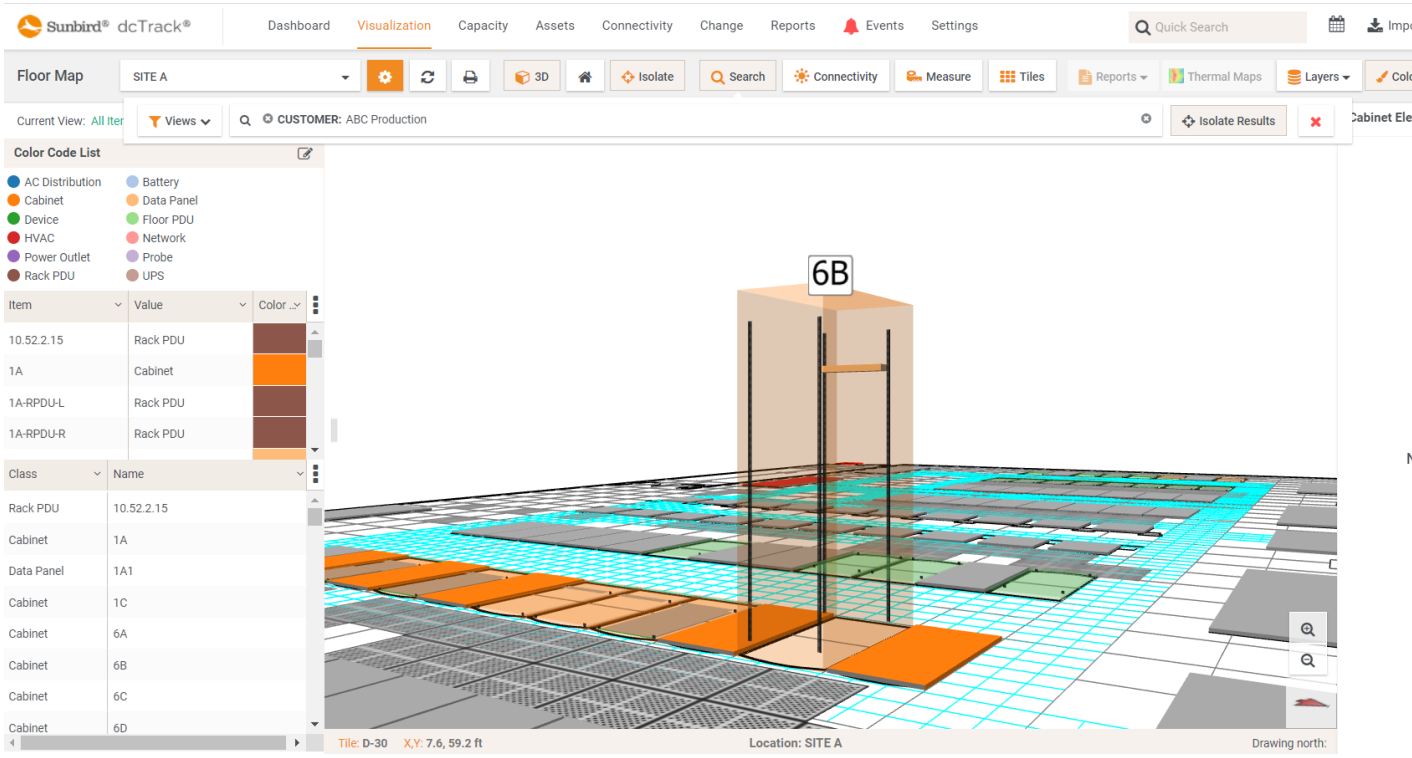
- Isolate match on Cabinet but not the Contents
    - Cabinet is solid assigned color (Orange).



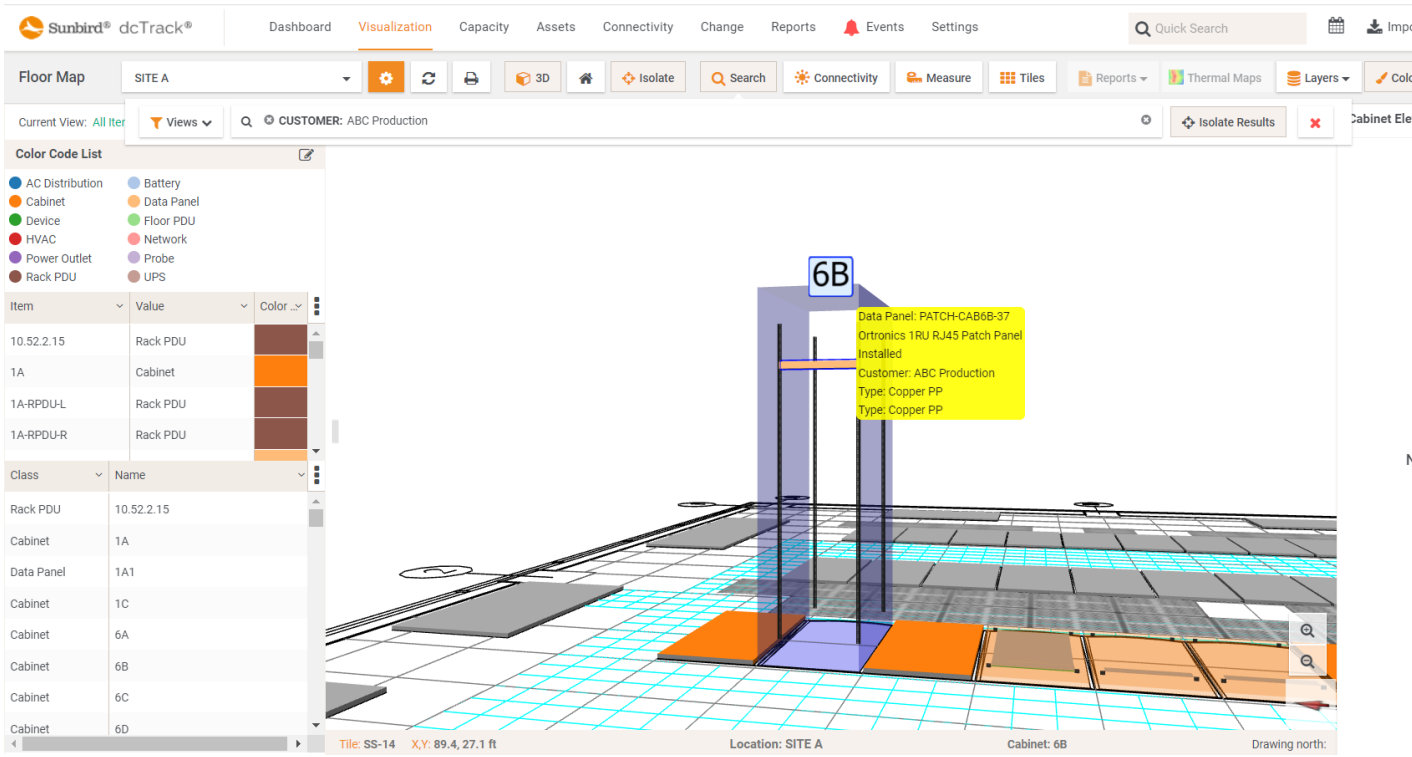
    - Empty Cabinet because nothing qualified



- Isolate match on Cabinet and Contents
  - Cabinet is transparent assigned color (Orange).



- Qualifying Contents are assigned color (Data Panel -Peach)



Data Network Diagrams

dcTrack 8.2 allows you to visualize entire data network in a location or across locations.

Network Diagrams have two type of View.

- Mesh View - This view displays all connected items excluding patch panels.
- Tier View - This view displays all connected network items.

Please refer to the topics below for complete details about this feature and the steps involved in configuring network diagrams.

Network Diagram Toolbar

Create and Manage Network Diagram

Configure Network Tier

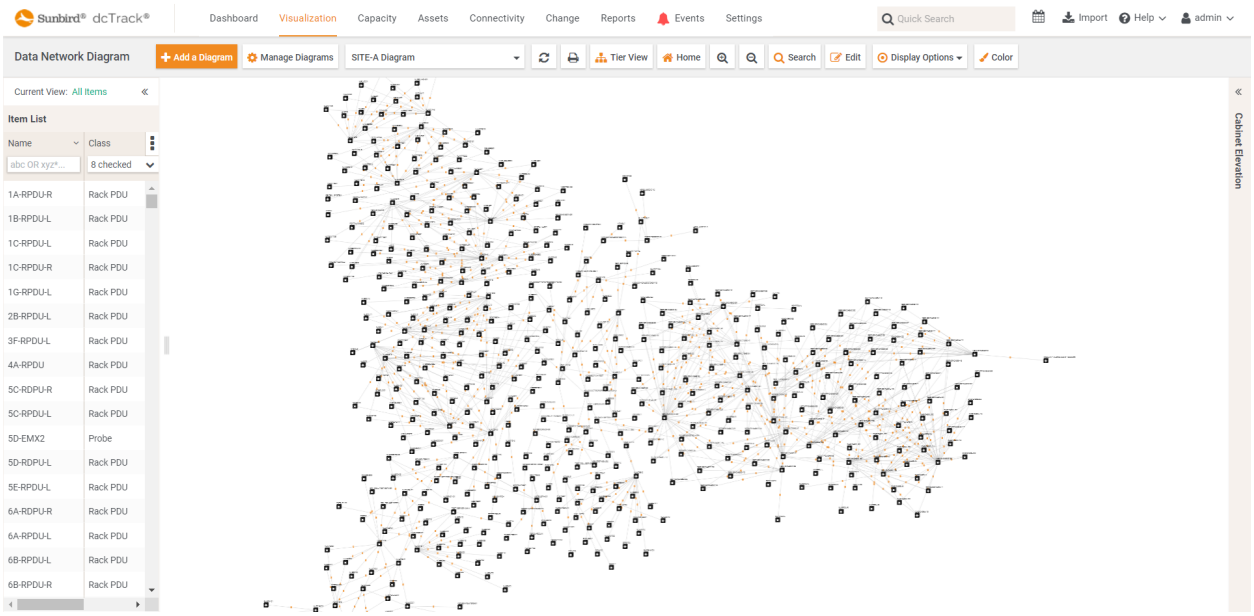
Configure Node Display

Node Interactions

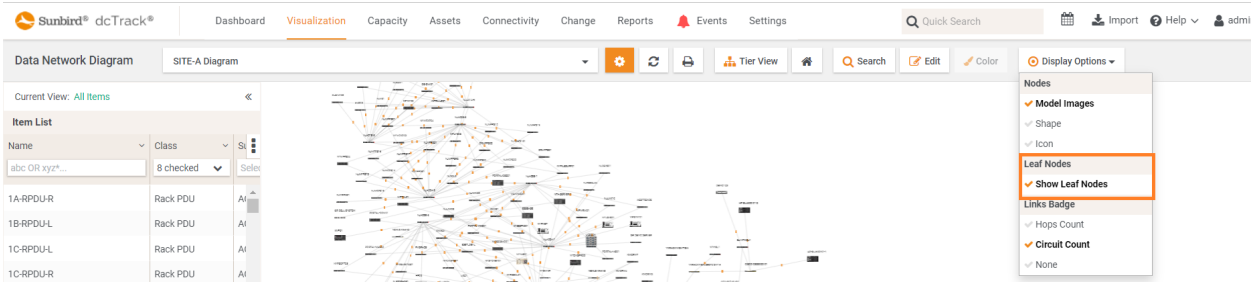
Edit and Reset Network Diagram

Mesh View

The Network Diagrams can be viewed in Mesh View Format. This view displays all the connected items excluding Patch Panels.

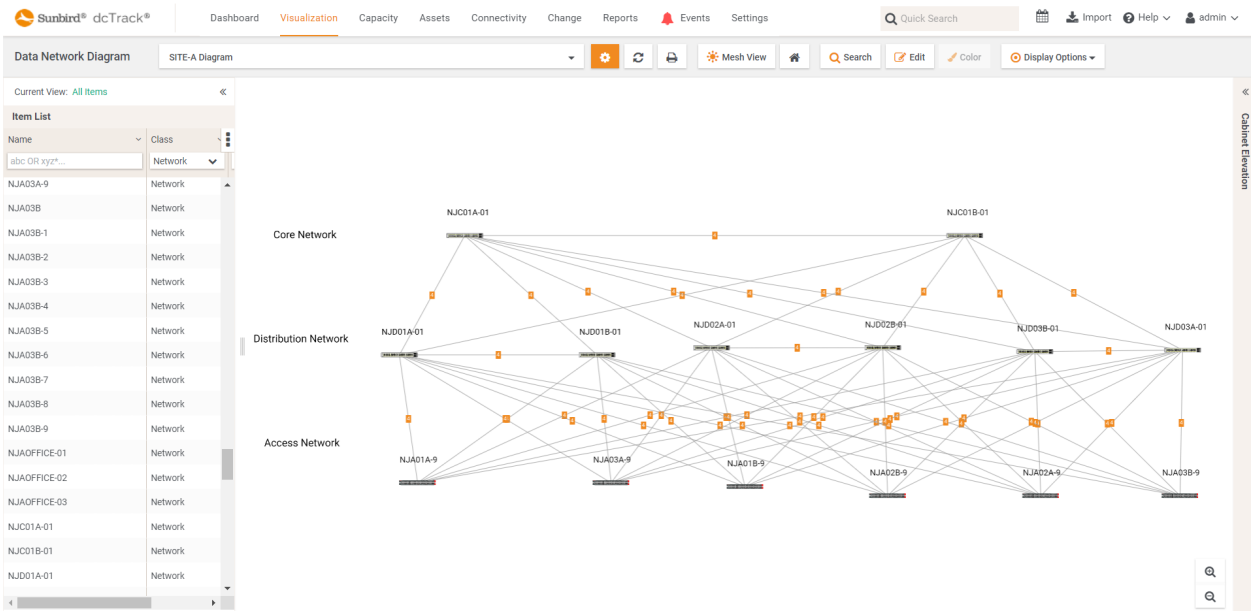


To view only the leaf nodes in the Mesh View, click Display Options and uncheck Show Leaf Nodes.



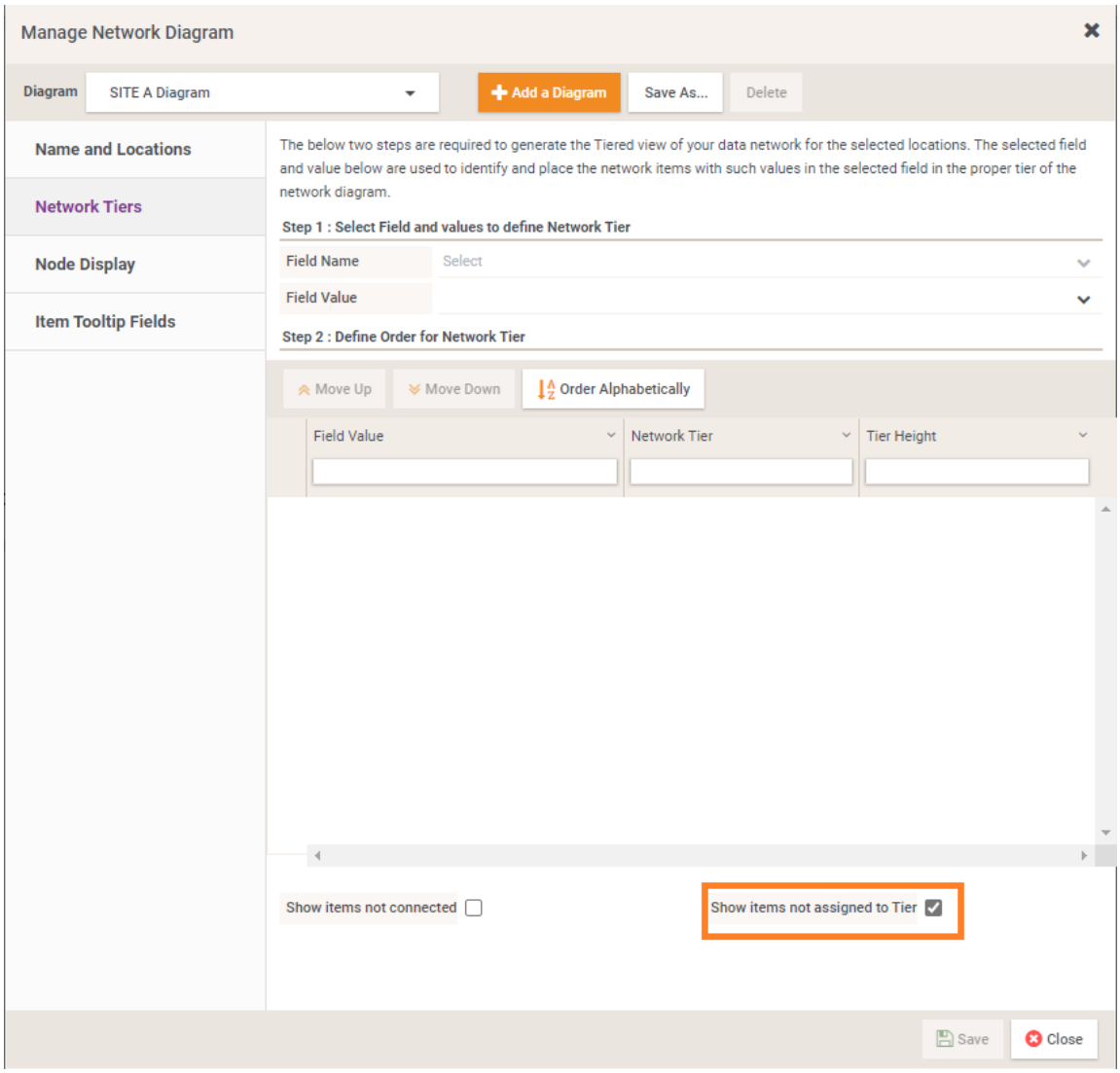
Tier View

The Network Diagrams can be viewed in Tier View Format. This view displays all the connected network items



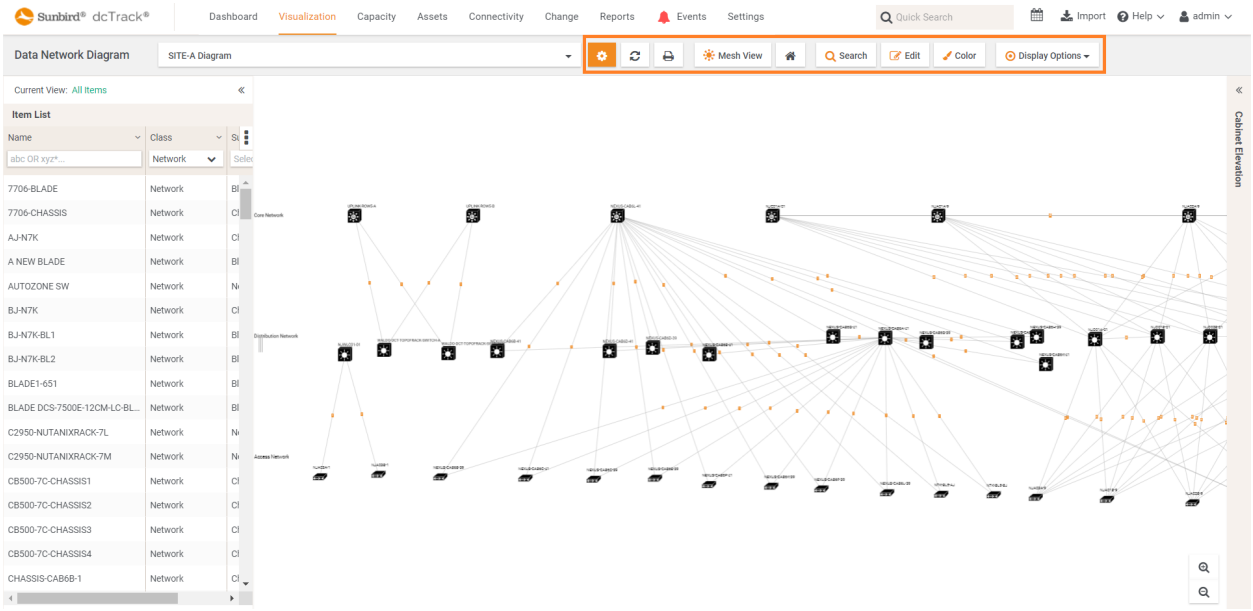
You need to Configure Network Tiers to display this view properly. See Configure Network Tier for more details.

If the Network Tiers are not configured all your connected network items will show in Not assigned Tier. To include the items not assigned to a Tier in the drawing, make sure the option Show items not assigned to Tier is checked in Manage Network dialog.



Network Diagram Toolbar

The toolbar in the Data Network Diagram gives you the options to configure and manage the diagrams.



Refer to the table below for more details.

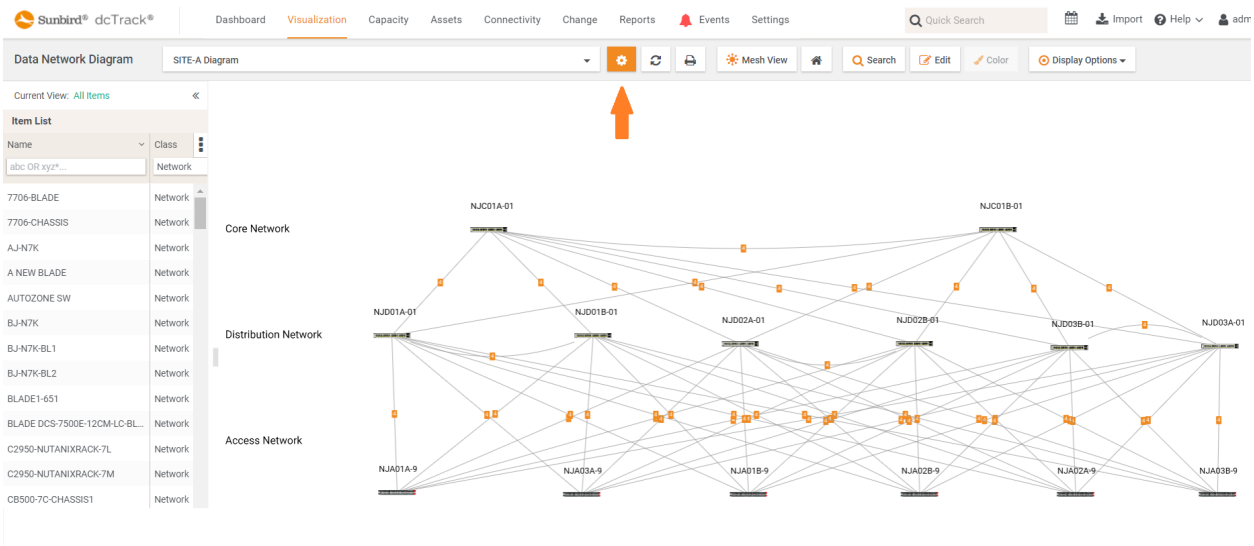
Icon	Summary
Manage Diagrams	Opens a dialog to create and manage diagrams.
Refresh	Refreshes the diagram.
Print	Prints the diagram
Mesh View	Changes the view of the diagram to Mesh View.
Tier View	Changes the view of the diagram to Tier View.
Home	Returns to home view.
Search	Searches for item in the diagram based on user-defined criteria.
Edit	Edits the diagram and saves the updated diagram. Also provides options to undo, redo or reset the diagram to original position.
Color	Highlights the item in diagram based on Standard or Custom Field values.
Display Options	Configure options for node display, links badge.

Create and Manage Network Diagram

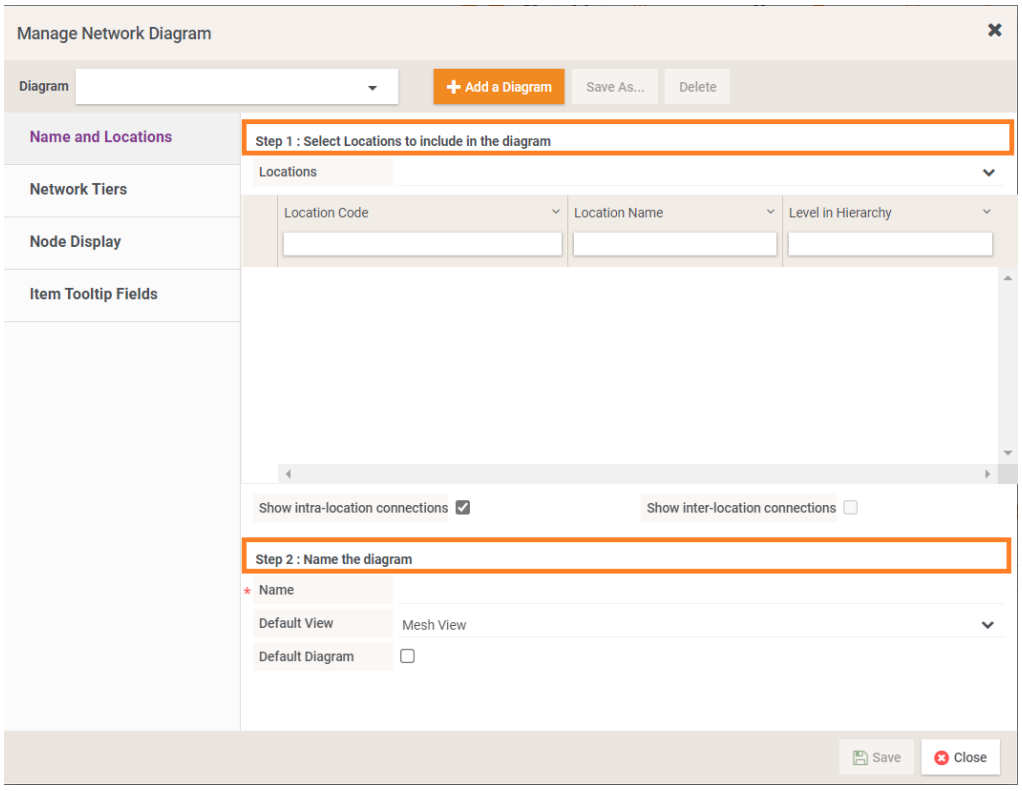
To create and manage Network Diagrams you must have user role "Manage Network Diagrams".

Steps to create a diagram

1. Click Gear Icon in Data Network Diagram Toolbar.



2. In the Manage Network Diagram dialog -> Name and Locations, click Add a Diagram.



3. Select Locations from the drop down. You can select one ore more locations.
4. Select the option Show intra-location connections if the diagram is only connections within the location. If you are creating diagram for more than one location you can select Show inter-location connections which will show the connections across the locations. Show Inter-location connections option will be disabled if the diagram has only one location.
5. Enter name for the diagram.
6. Select default view for the diagram.
7. Check Default Diagram check box if you want to make this diagram as default diagram, otherwise leave it unchecked.
8. Save the diagram.

The newly created diagram will be added to the diagram selector drop down.

You can also create a diagram from an existing diagram when by clicking Save As and entering a name for the new diagram.

Note: For each data center location a System Diagram will be created with default configuration. System diagrams can not be deleted. Name and Locations for a System Diagram can not be modified.

Steps to edit diagram:

1. Click Gear Icon in Data Network Diagram Toolbar.
2. In the Manage Network Diagram dialog -> Name and Locations, select the diagram you want to edit. By default the diagram settings of the diagram opened in Data Network Diagram screen are loaded.
3. Edit the diagram information.
4. Save the diagram.

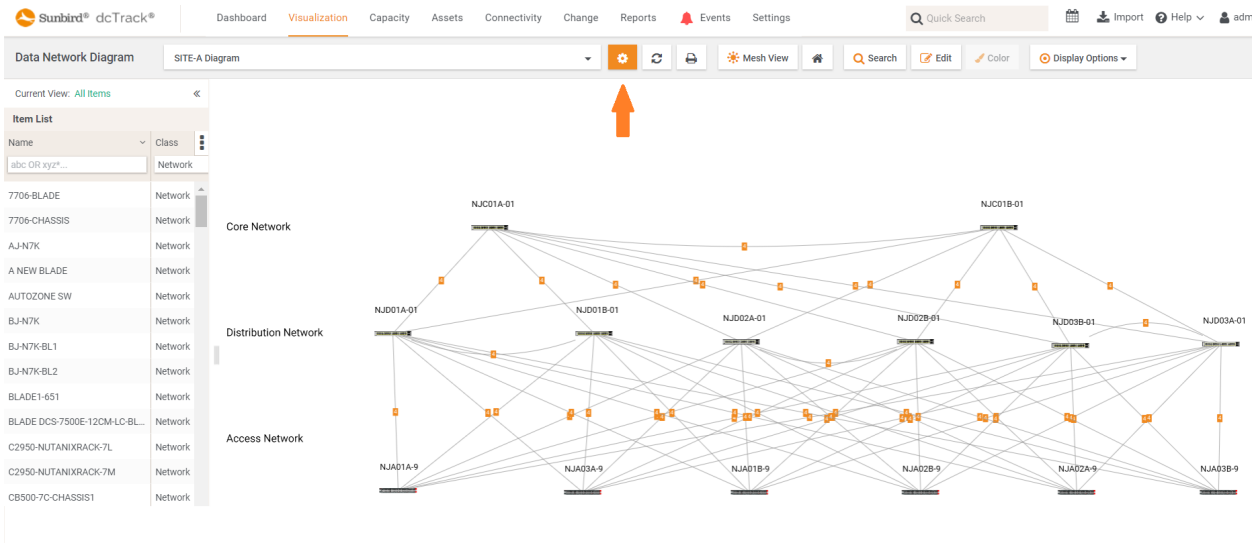
To delete a diagram, select the diagram you want to delete from the diagram selector at the top of the dialog and click Delete.

Configure Network Tier

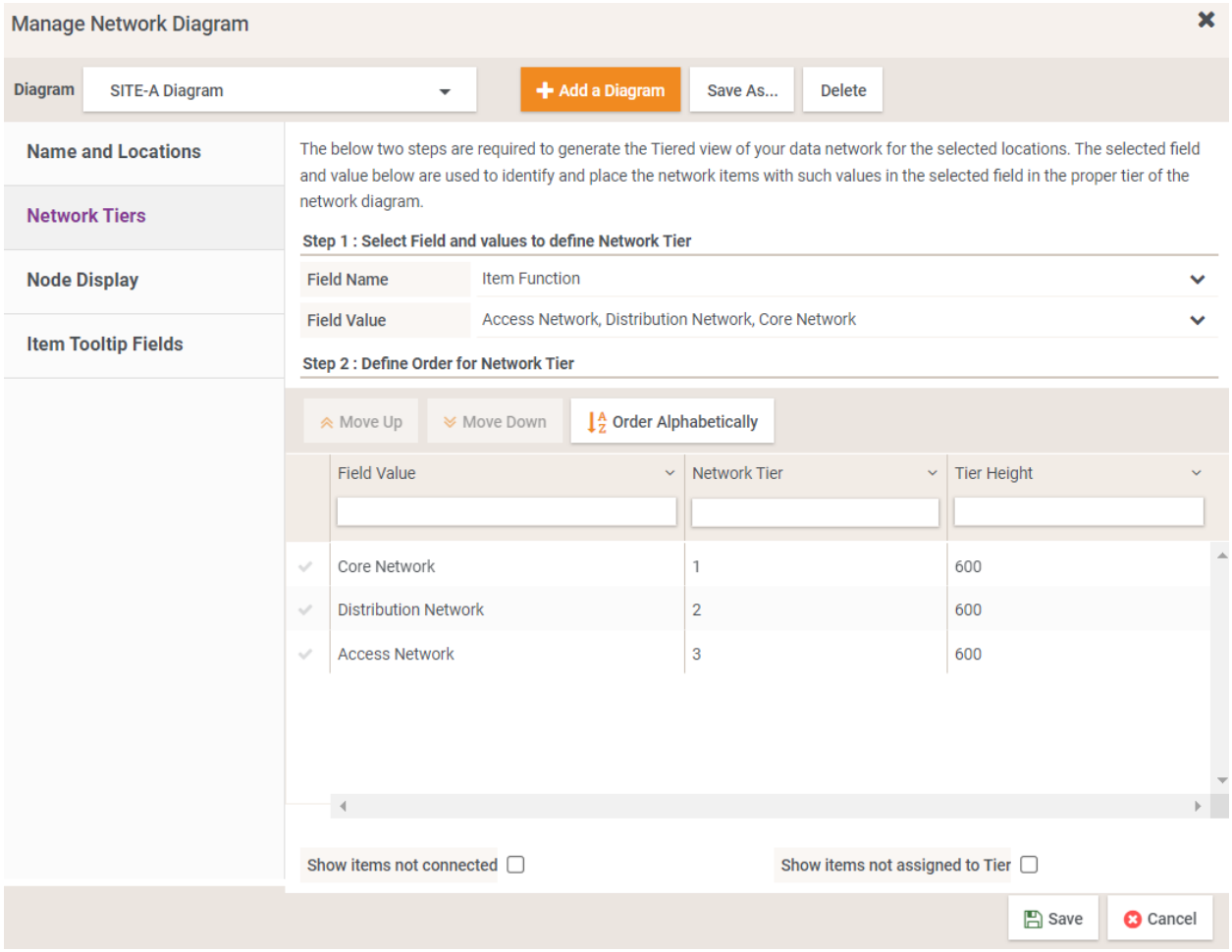
Network Diagrams can be displayed in a Tier View. In this view each node in the diagram is assigned to a Tier.

Steps to configure Network Tier.

1. Navigate to Visualization -> Data Network Diagram. Click Gear Icon in Data Network Diagram Toolbar.



2. In the Manage Network Diagram dialog -> Network Tiers, select Field Name.



3. Select Field Values.
4. Define Order for Network Tier. All the field values are assigned to Network Tier based on their order where first one will show at the top followed by the second and so on. You can change the order alphabetically or by selecting a field value and moving it up or down by clicking Move Up or Move Down. You can assign more than one Field Value to same Network Tier.
5. Optionally select the option Show Items not connected if you want to include items that are not connected in your diagram. If you want to include items not assigned to Tier in your diagram select the option Show Items not assigned to Tier.
6. Save.

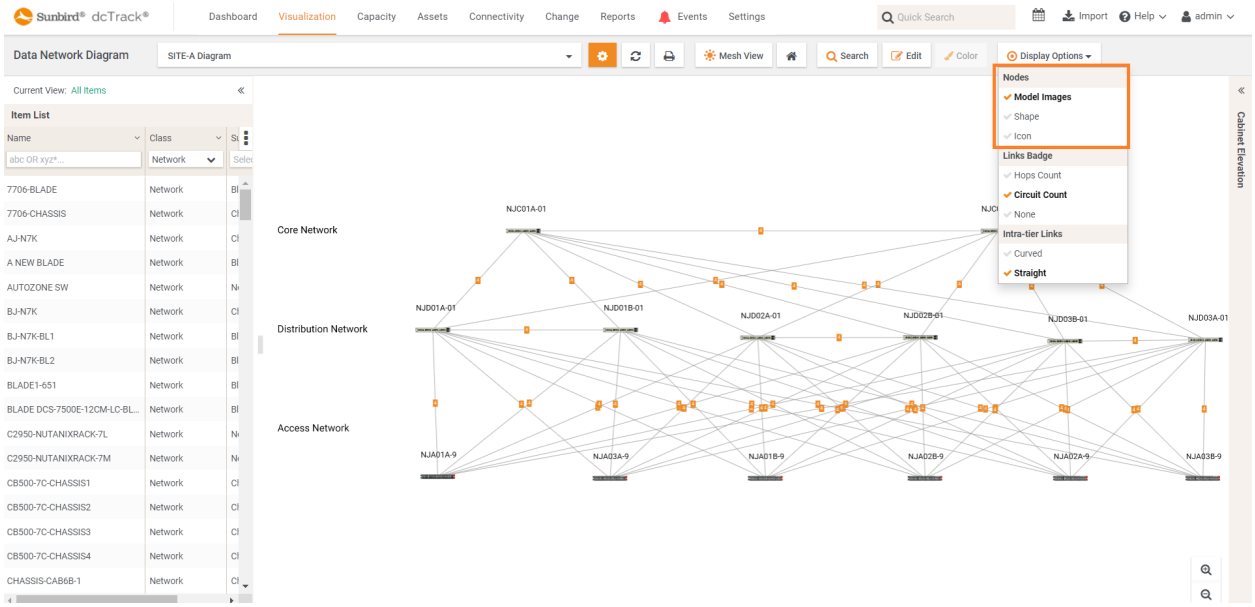
Network Tier configuration will be saved for the diagram selected in the diagram selector.

Note: If you have not done Tier Configuration for your diagram, all the connected network nodes will show in Not-Assigned Tier.

Configure Node Display

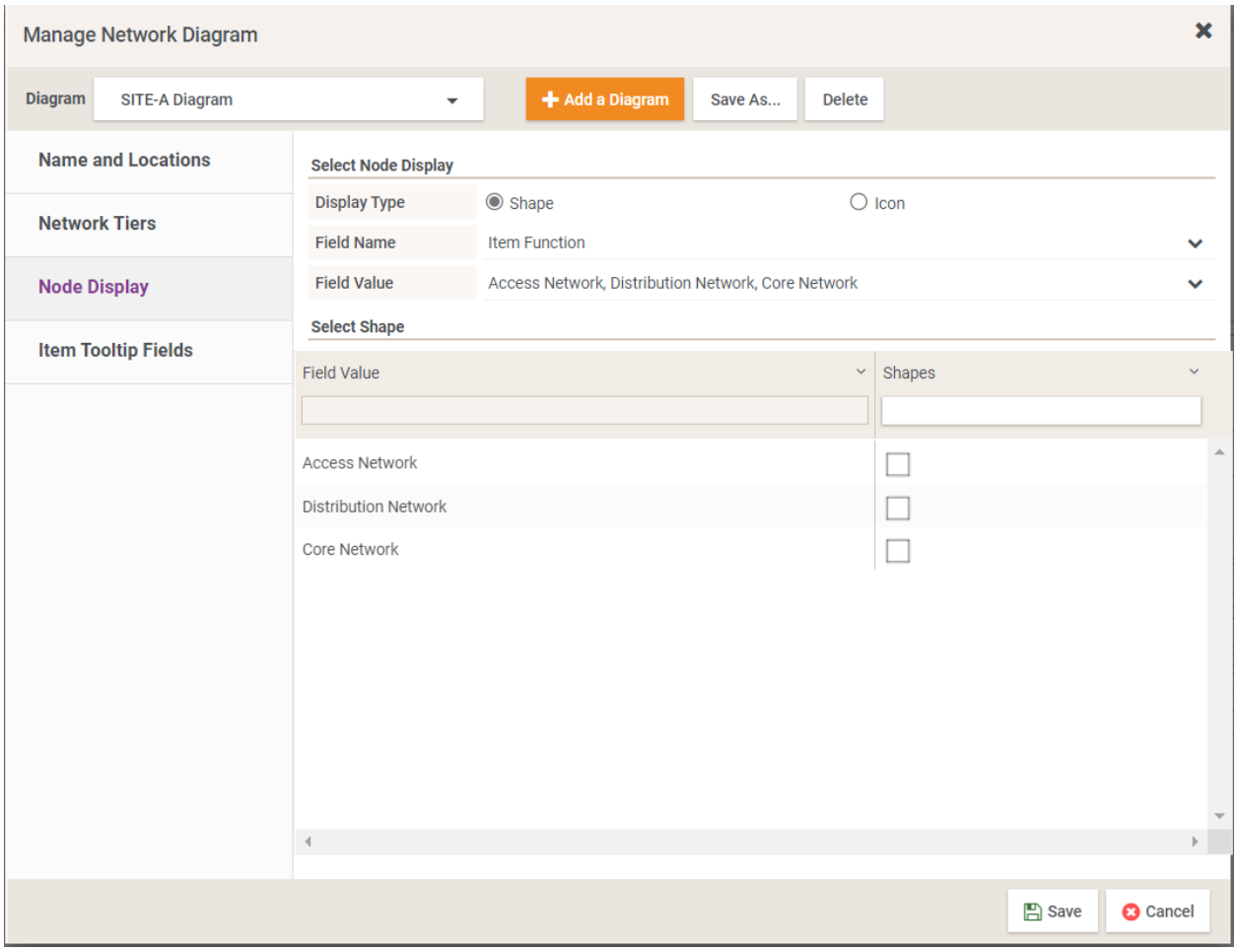
Node Display in a network diagram can be changed to Model Images, Shape and Icon.

To change Node Display click Display Options in Network Diagram toolbar and select an option from the menu.



Model's image for each node comes from the model's library. However Shape and Icon for the nodes can be configured based on item fields.

1. Navigate to Visualization -> Data Network Diagrams.
2. Click Gear Icon in Data Network Diagram Toolbar.
3. In the Manage Network Diagram dialog -> Node Display, select display type.



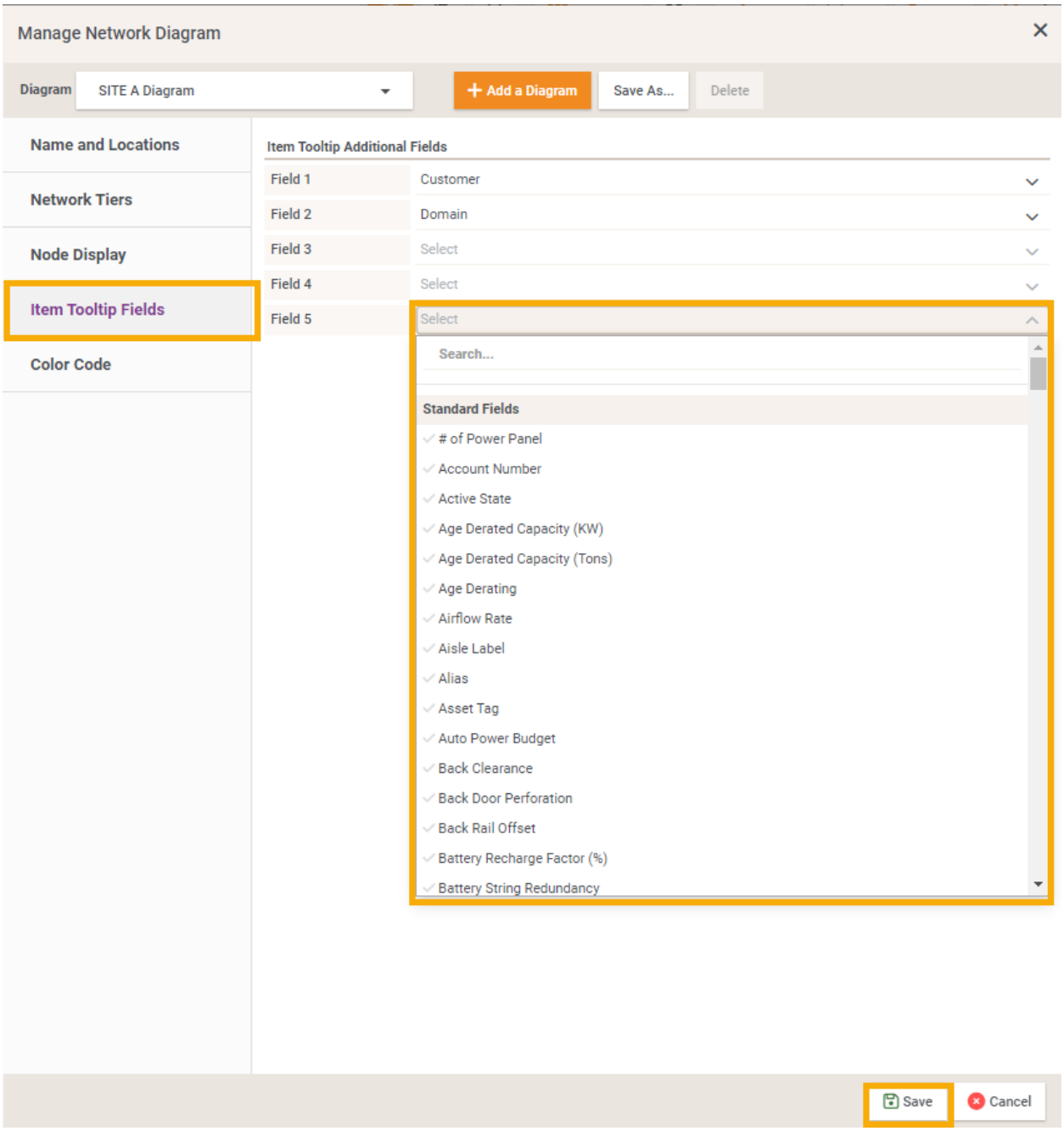
4. Select Field Name from the drop down.
5. Select Field Values.
6. For each Field Value select Shape.
7. Click Save.

When display type is Icon follow the same steps as mentioned above and select Icons in step 5 for each field value.

Note: When selecting Field Name, make sure the items in your database have field value entered for the selected field.

To edit the fields displayed in the tooltip:

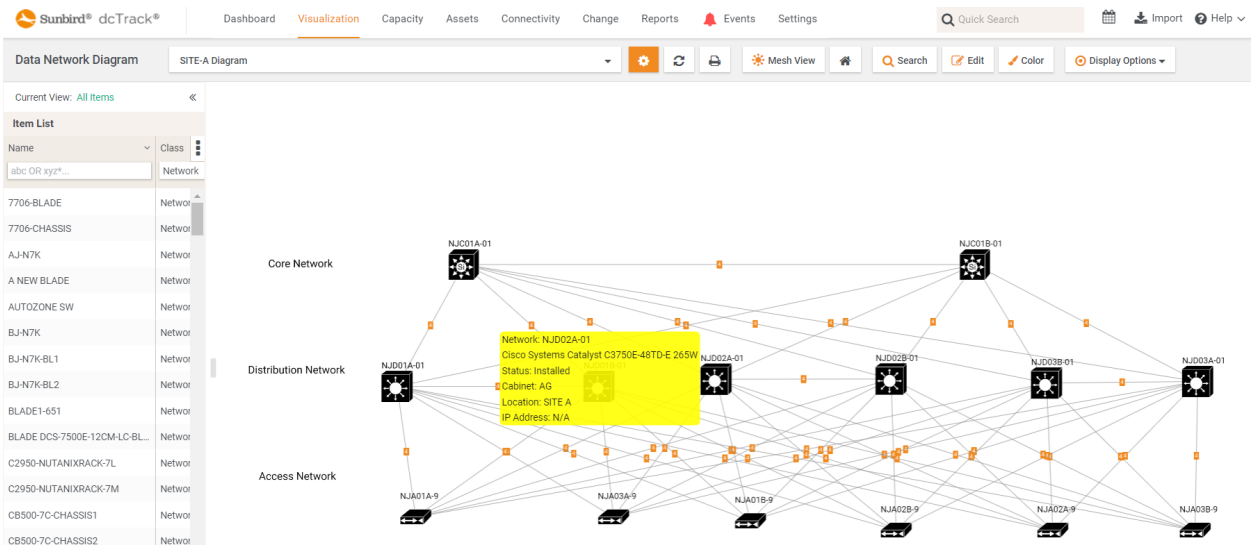
1. In the Manage Network Diagrams dialog, select Item Tooltip Fields.
2. Select your desired fields from the drop-down lists. You can configure up to five fields.
3. Click Save.



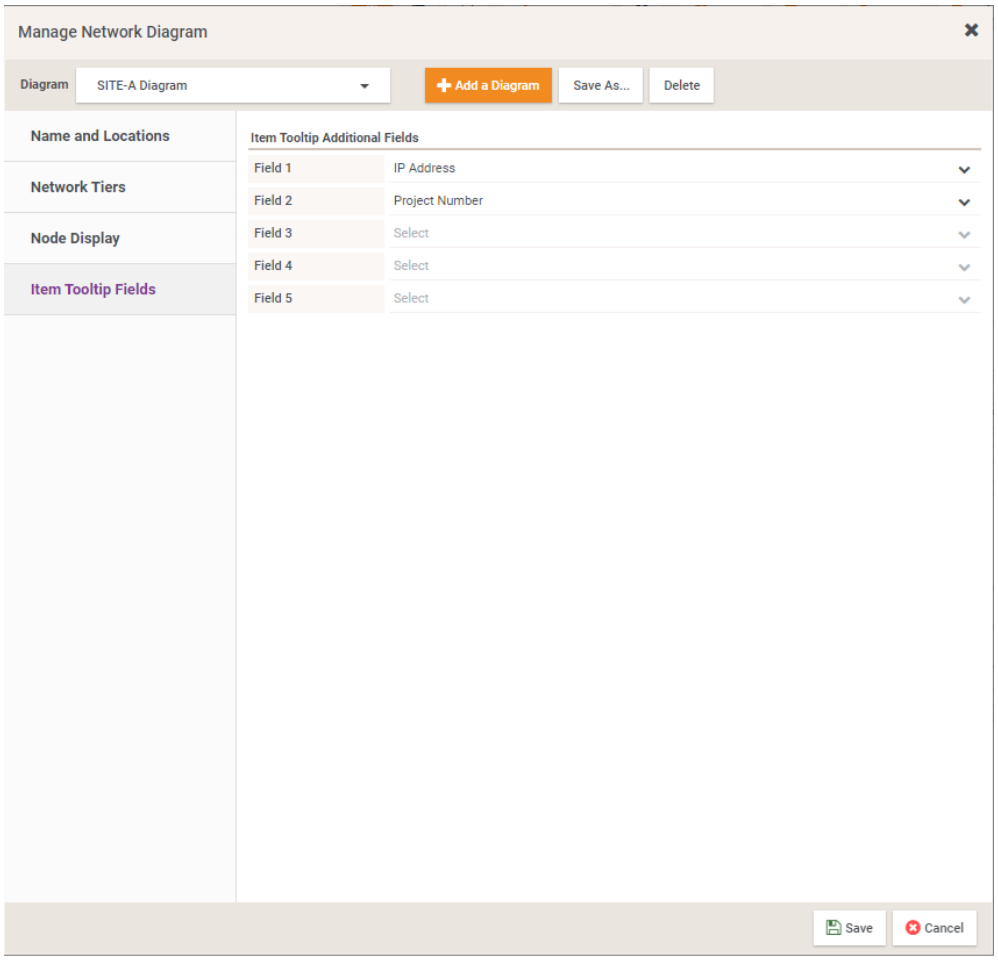
Note: The Domain name displayed is based on Item configuration, not the IP Address assignment.

Node Interactions

In the Network Diagram the details of a Node are displayed in a tool tip when hovering over the node.

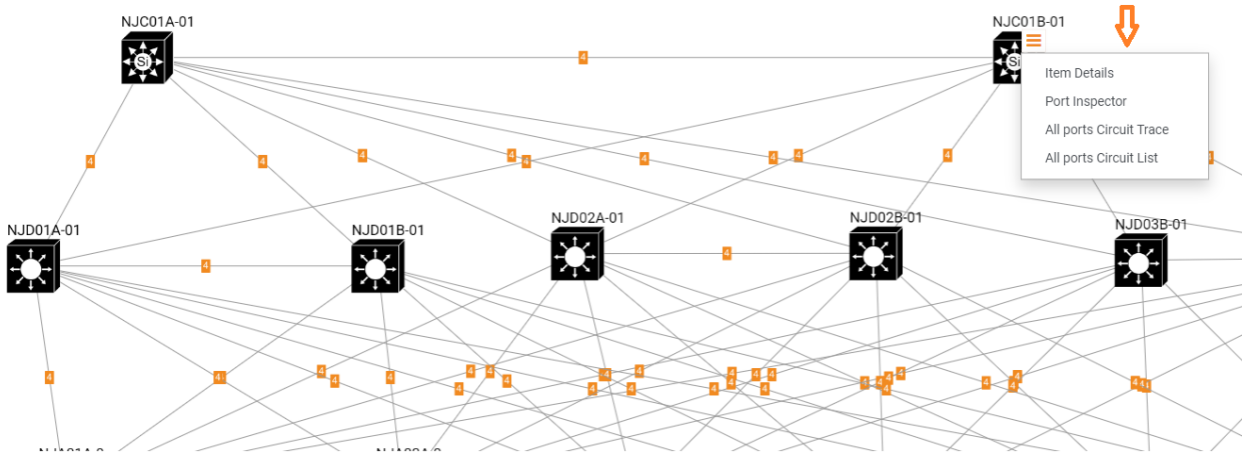


Item fields included in the tool tip are configured by clicking the Manage Diagrams button and selecting the "Item Tootlip Fields" option from the side menu panel. You can include up to 5 standard or custom fields to display in the tool tip.



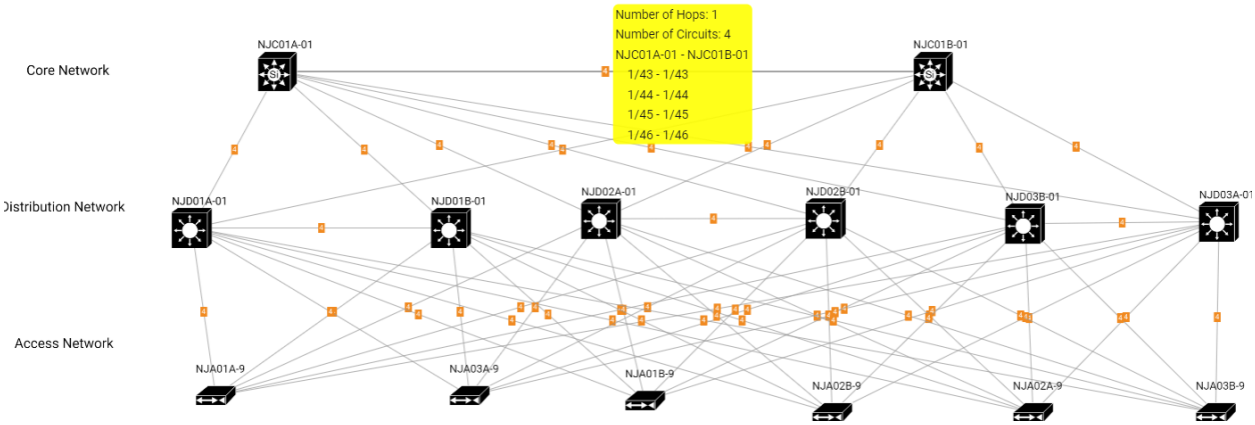
To get more information about each node, click the hamburger icon which is displayed when you hover a node. You need to zoom in your diagram to get this hamburger icon. You will get following options when you click this icon.

- Item Details – Navigate to item details page of that node.
- Port Inspector – Open the port inspector dialog.
- All Ports Circuit Trace - Navigate to Connectivity -> Circuit Trace showing all the data circuits for that Node
- All Ports Circuit List – Navigate to Connectivity -> Circuit list. The list is filtered to show all the data circuits for that node.
- Chassis Elevation – Opens the Chassis Elevation Dialog. This option appears only when the node is a Chassis.

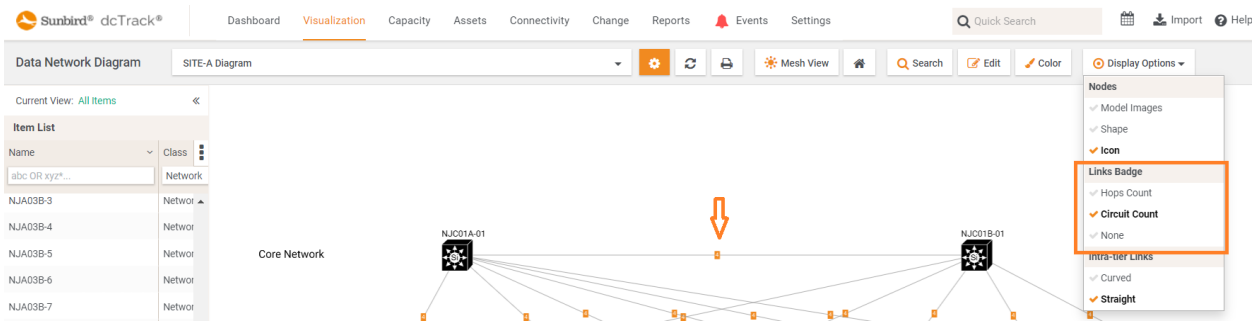


To view all the circuits between two nodes, double click on the connected line which will navigate directly to the Circuit Trace page.

When you hover over the connected line a tooltip will show the detailed information about the Number of Hops, Circuits and Port Names for the connected nodes.



You can also include the Hop Counts or Circuit Counts in the diagram. To enable this option click Display Option in the toolbar and select the option for Link Badge.



Note: All the above options apply to both Tier View and Mesh View.

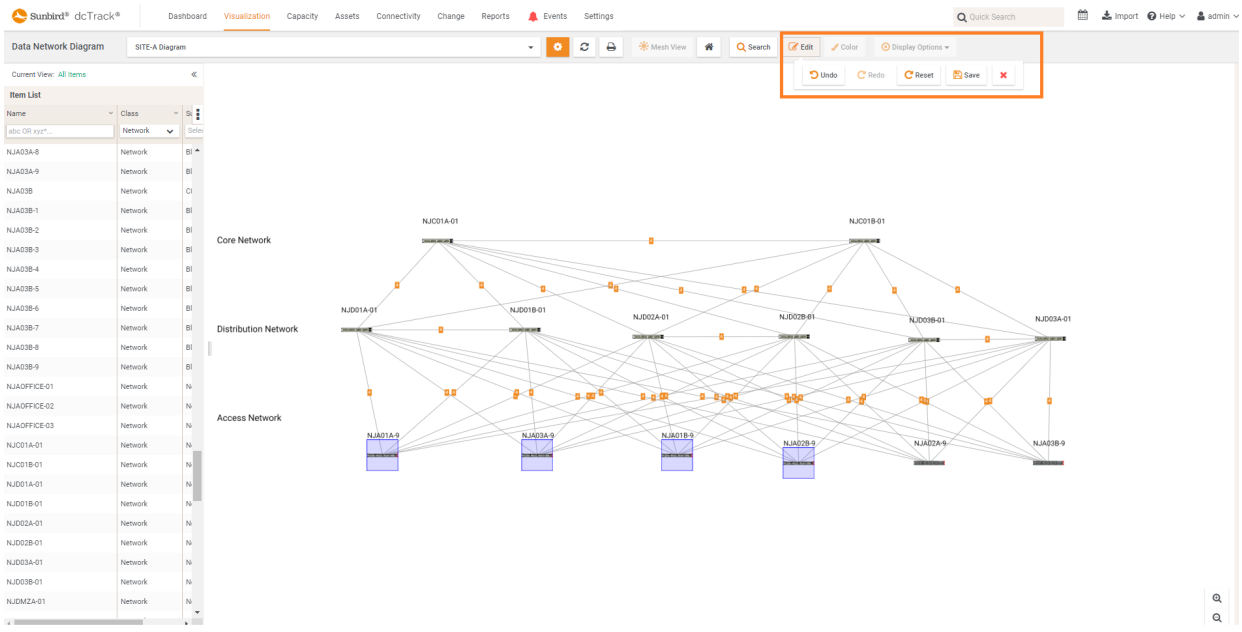
Edit and Reset Network Diagram

The position of the nodes in the network diagram can be edited. This applies to both Tier View and Mesh View. You must have user role Manage Network Diagrams to edit the diagram.

Steps to Edit Network Diagram:

1. Navigate to Visualization -> Data Network Diagrams.
2. Click Edit button in Data Network Diagram toolbar.

   A sub-menu appears with options Undo, Redo, Reset and Save.



3. Drag and drop the nodes to move them to a better spot in the diagrams. You can also select multiple nodes and move them together. This can be done by holding down the Ctrl key and then clicking to select multiple nodes or just hold the Ctrl key and drag to draw a rectangle around a group of nodes which can be moved together.

   While holding the Ctrl key if you click on a node already selected in the group, it would be unselected from the group.
4. Click Save to save the diagram.

While editing the diagram if you want to undo the last action performed, click Undo or press Ctrl + Z on the keyboard. To redo the last action performed, click Redo or press Ctrl + Y on the keyboard.

You can also reset the diagram to its original position using the Reset option. All the saved positions will be deleted when the diagram is reset.

Note: In Tier View you can drag an item up or down but within the Tier Height.

Color Coding Data Network Diagrams

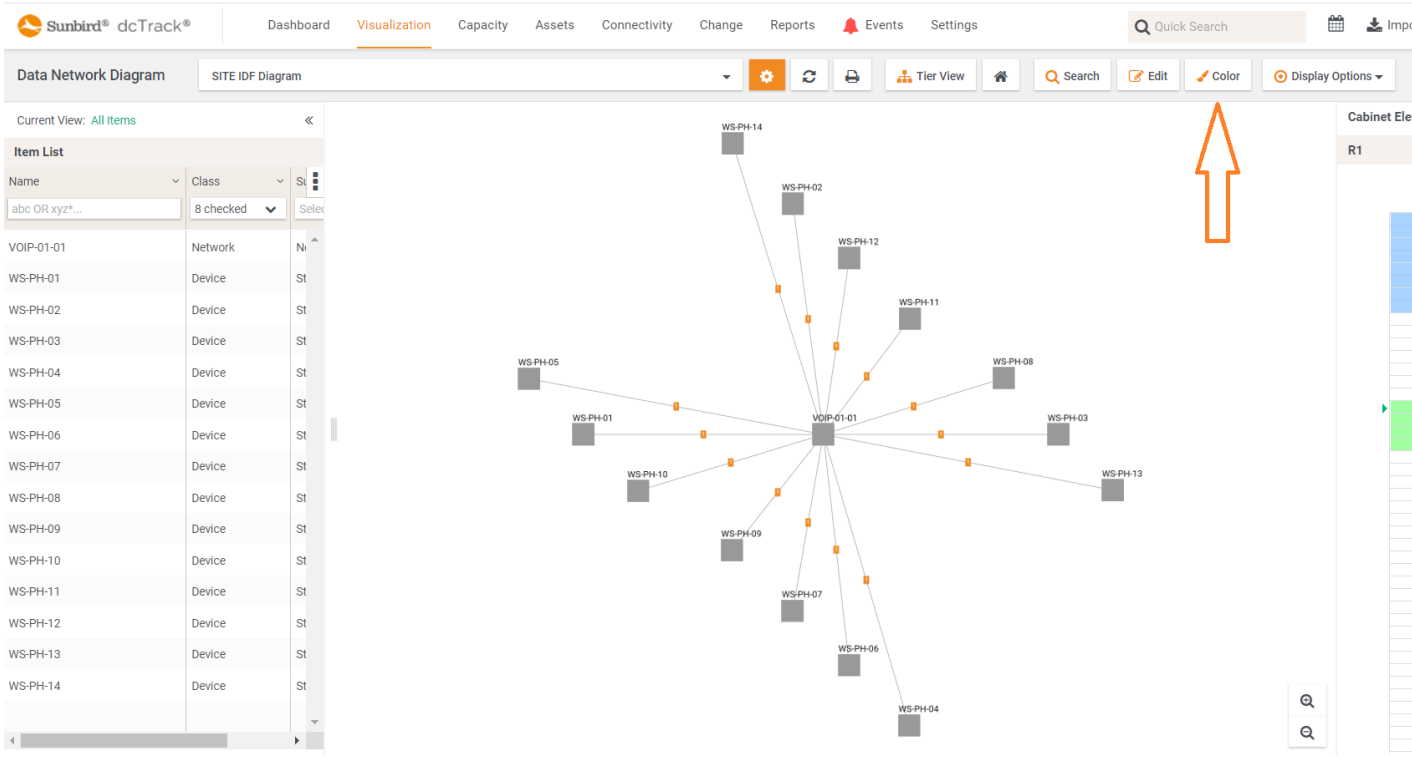
System Administrators and users with the "Manage Network Diagrams" role can choose to highlight Items on Data Network Diagrams by assigning colors based on Standard or Custom Field Values. For example, users can highlight and quickly see all of the Items for a single Project or multiple Projects.

Note: dcTrack will assign up to 20 unique colors to the Diagram. For this reason selections are limited to 20 Items.

Steps to Color Code a Data Network Diagrams:

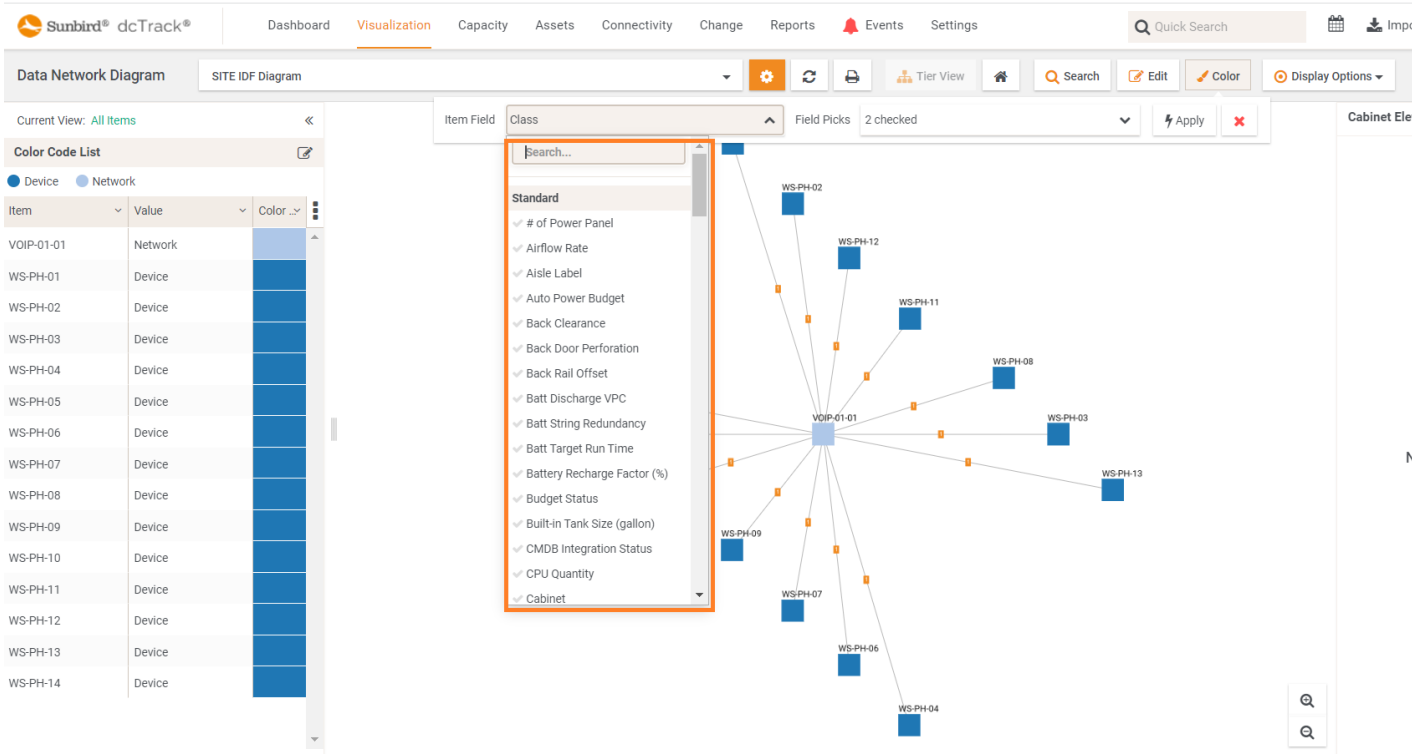
1. Navigate to the Visualization > Data Network Diagrams
2. Select the Location whose Diagram you want to see

3. Click the Color button on the Visualization Tool Bar

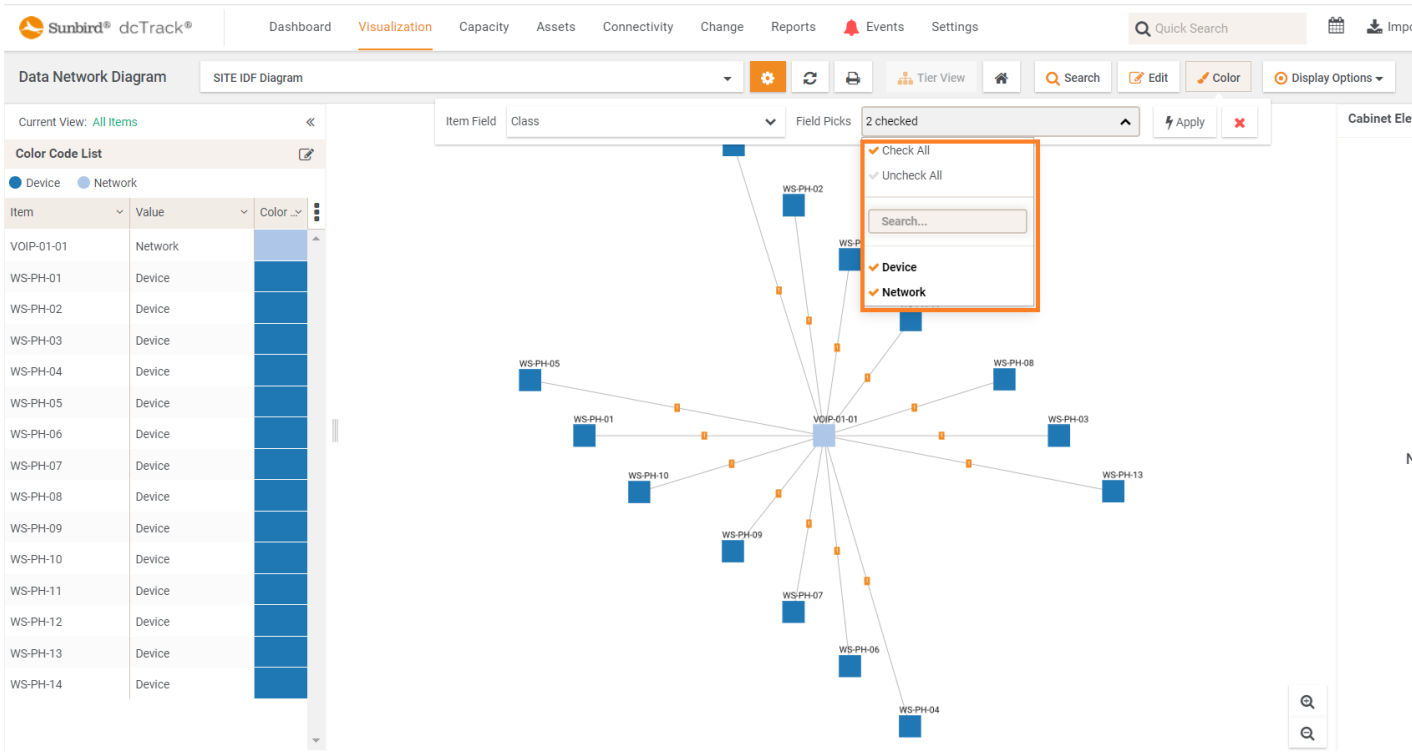


4. A sub Tool Bar is displayed with a drop down list for selecting the Field you want to filter on

Note: Available fields include most Standard and Custom fields with the exception of Text and Text area fields and fields that are unique for each Item (i.e. Item Name).

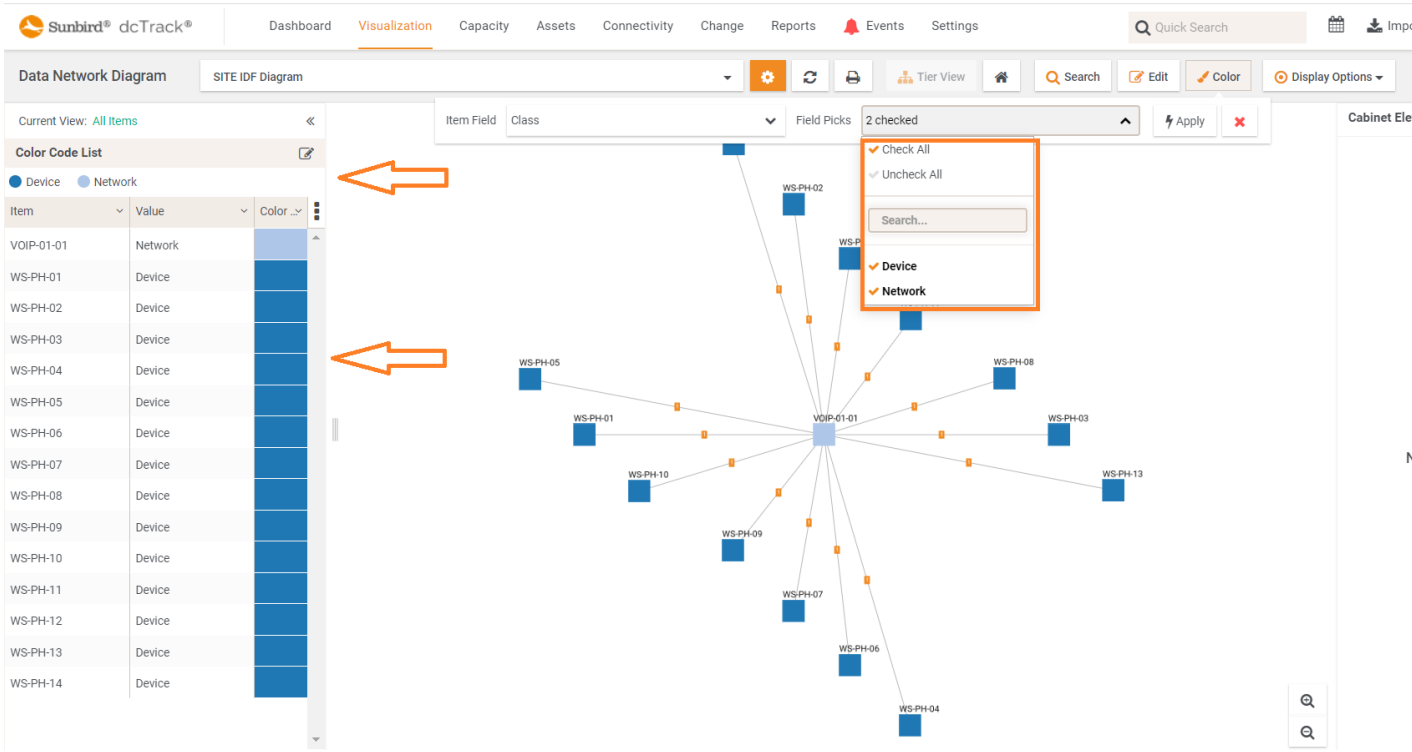


5. Once the Field is selected the second drop down list is populated with all of the values applicable to that field and the "Colors" field defaults to "auto".

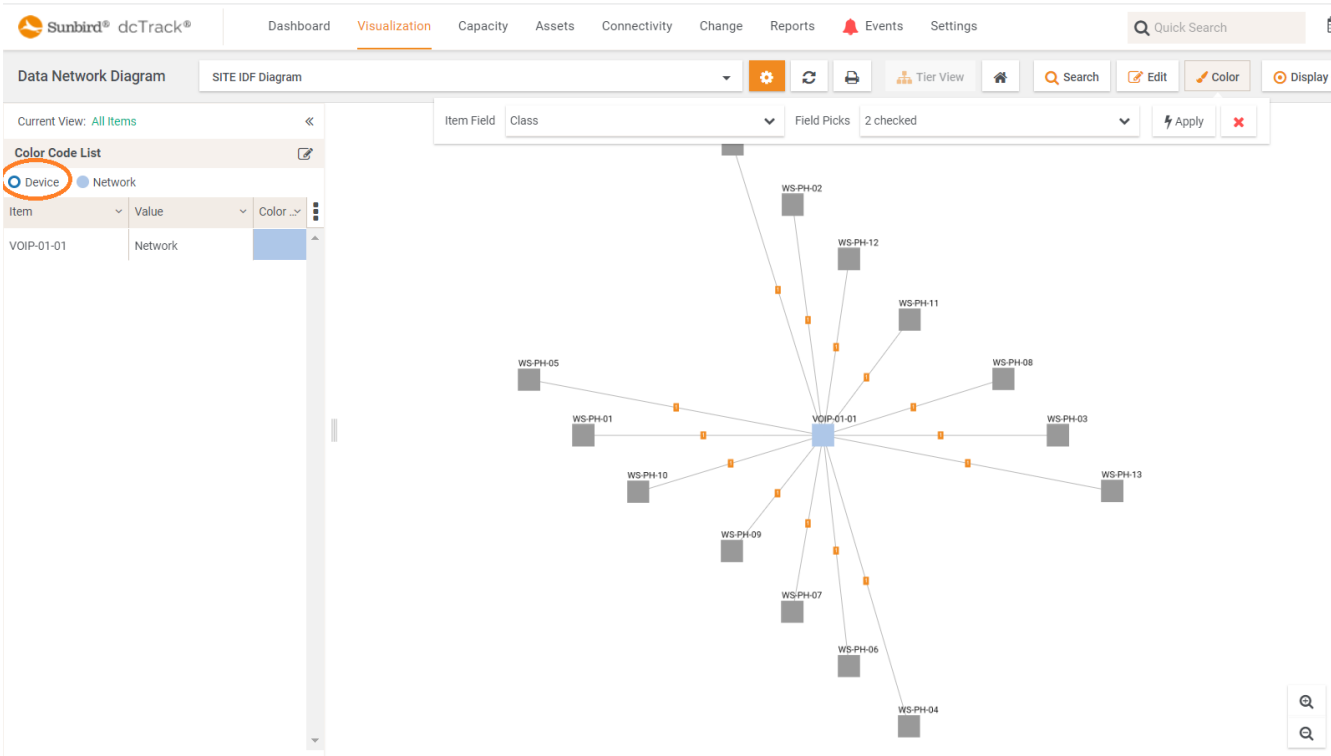


6. The list will have all values selected, however you can deselect values to suit your needs
7. The left Side panel will display the Color Code List with an Item list below. The Item list includes all items that have a value set for the selected field. The diagram will also display with the colors applied.

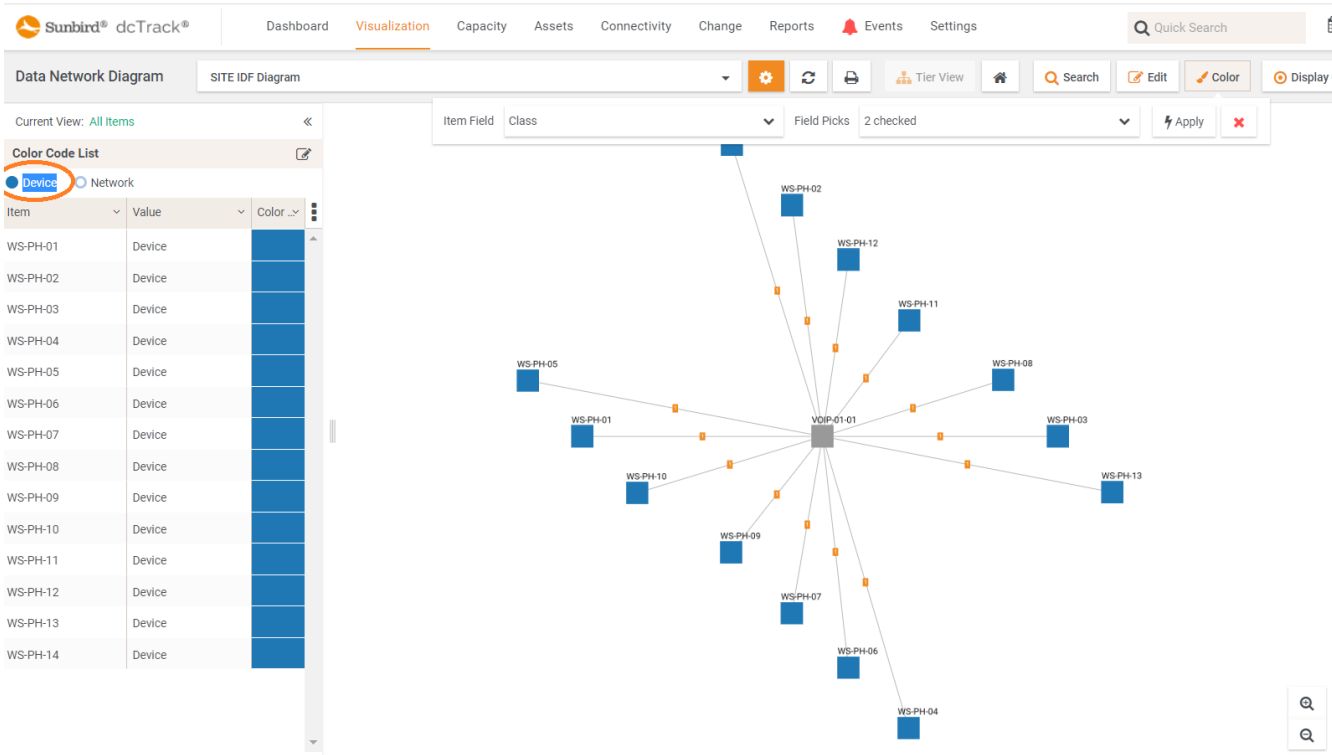
8. Initially dcTrack custom colors are applied



9. The list as well as the Diagram can be filtered by clicking the colors in the color box.
    a. Click once to filter out the selected color. The color inside the clicked circle will be cleared while all other circles remain solid. The Items associated with the selected color will be removed from the Item List and the Diagram. You may click as many colors as you like to remove those colors as well.



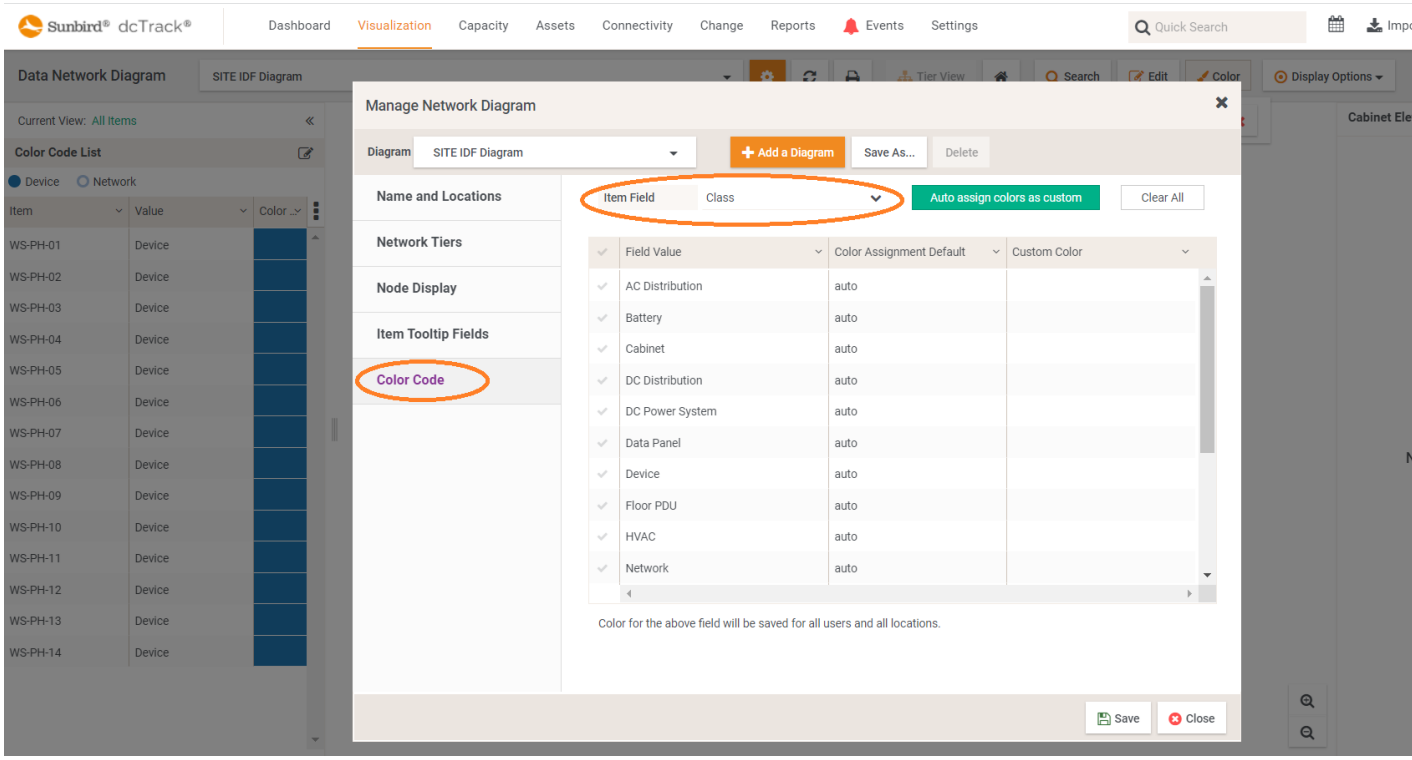
b. Double click to filter out all colors except the selected color. The color inside the clicked circle will remain solid while the circle for all other colors will be cleared. The Item list and the Diagram will filter out all Items for every color except the selected color. You may click as many other colors as you like to add them back in.



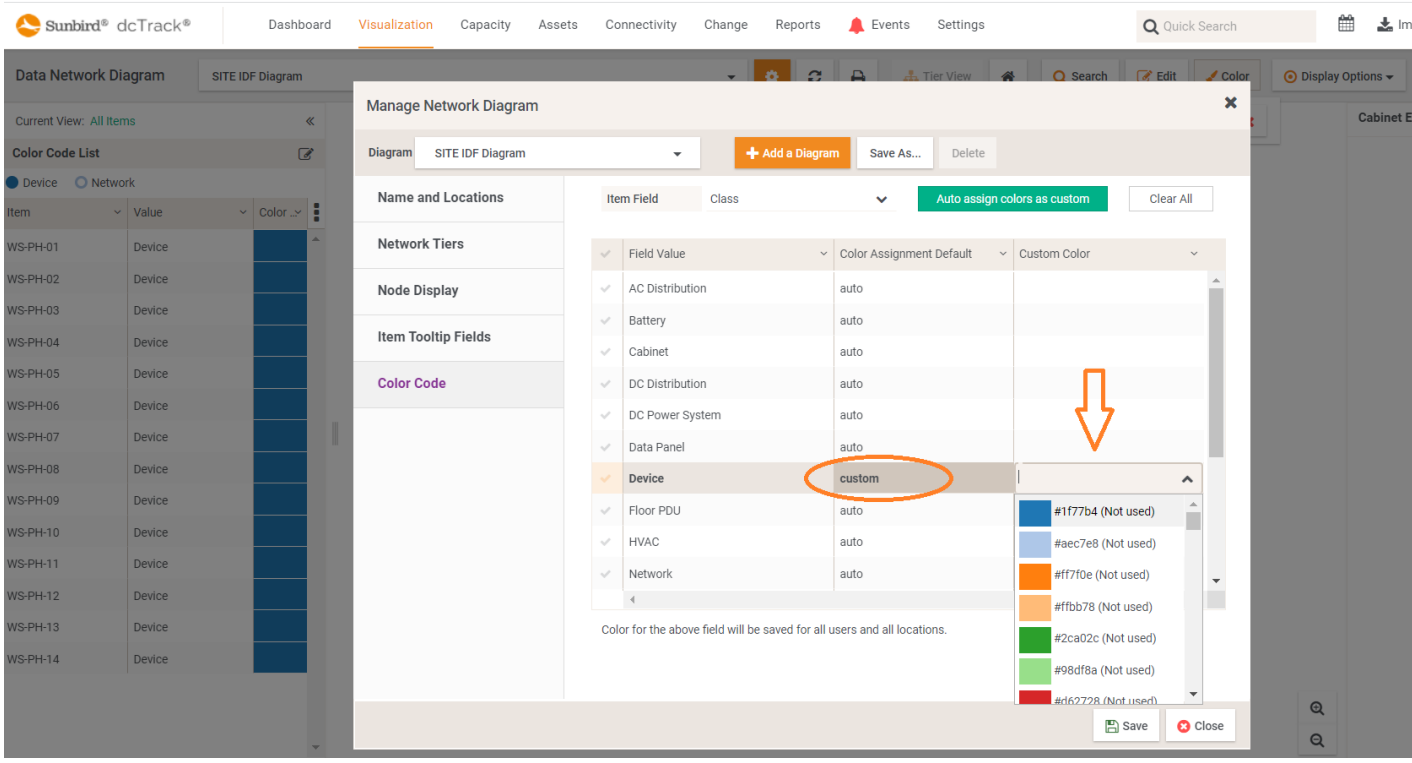
c. Click again to restore the color list to its original state

10. To set Custom colors, click the edit icon in the Color Code List

11. This will open a dialog box with the Color menu open and the selected field pre-populated. The selected field can be changed to set color values for a different field.

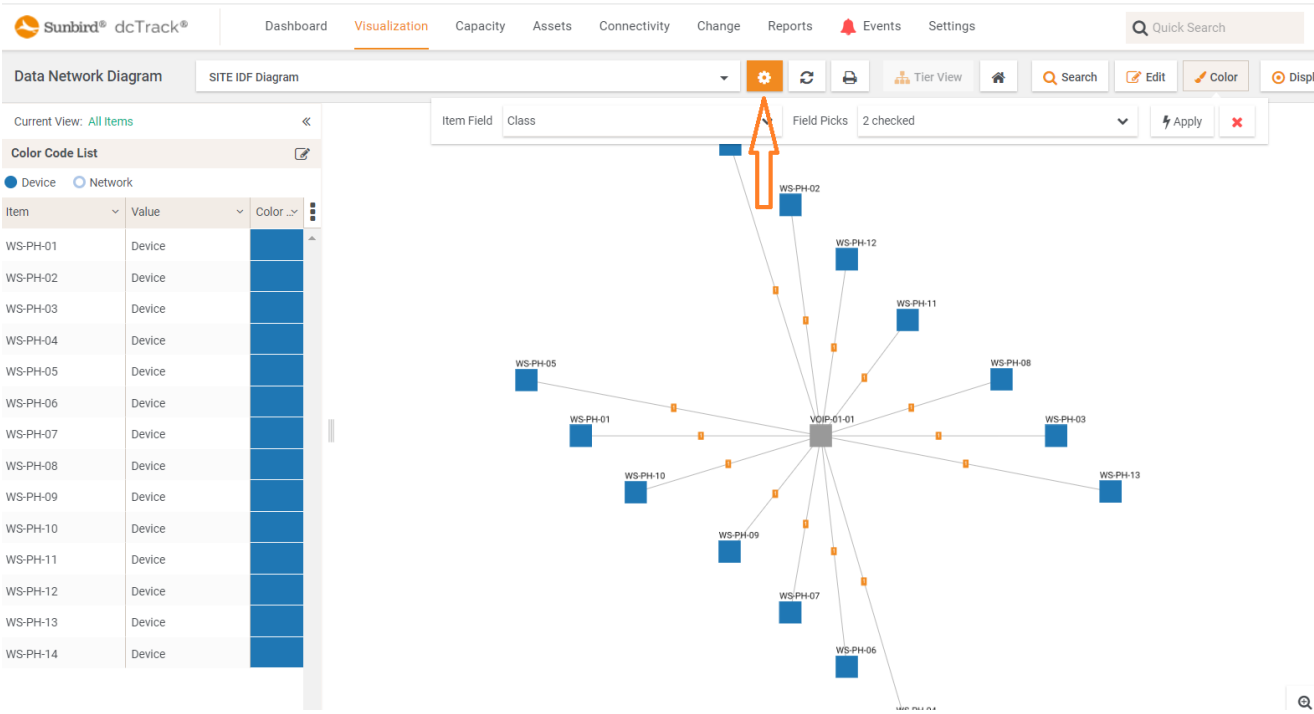


12. Initally all color assignments will be set to "auto" and the Custom Color column will be empty
13. To set a custom color to a field value, select it from the custom color drop down. This will display the color in the custom color field and change the assignment from "auto" to "custom". If a custom color has not been assigned to a value it will appear in the list with the notation "(Not used)" next to the color. You can only apply a color to one value. If you attempt to assign the same color to a second value, the color will be removed from the first value and the Color Assignment Default for that value will be set back to "auto".



14. Clicking "Clear All" will remove all custom assignments and mark the color as "Not used".
15. To revert a custom color assignment, change its assignment from "custom" to "auto". This will revert the color back to the default color assigned by dcTrack. The custom color will remain selected in the Custom Color field and will still appear in the color drop down list as if it was assigned. Reserving the color in this way allows you to quickly flip back and forth between custom and default colors without having to reassign from the list. Since it will still appear in the list without the "Not Used" notation, users will know not to use this color for a different assignment.
16. Click the Save button to apply all assignments
17. Click the "Auto Assign Colors as Custom" button to freeze color assignments. This will revert all colors to the dcTrack default colors, but will mark the color as "custom". This prevents inserting a new value from changing all of the colors after the new field. For example.
    a. Value AAA is assigned the color Red
    b. Value CCC is assigned the color Blue
    c. Value DDD is assigned the color Green
    d. Inserting a value of BBB will not affect the color assignments of CCC or DDD.
18. Custom colors are applied to the Diagram drawing objects that have custom colors set, while the other objects are set using dcTrack's default colors. The Item List Panel is also displayed using the same color scheme as the Diagram.
19. Click the ✖ icon on the color tool bar to clear the filter and return the Diagram to its original state.
20.

21. You can also assign Colors by clicking the Config icon on the Diagram tool bar and clicking on the "Color" tab on the left side menu.



22.

Power Single Line Diagrams

dcTrack 9.0.0 includes a new Power Single Line Diagram (SLD) feature. This feature allows users to visualize the entire Power Chain and use this view to understand connectivity and relationships. Users can also view readings and capacities at a glance to better understand load balancing and Fail-over impacts.

This feature can be managed by System Administrators and Users that have the new auxiliary role"Manage Power SLD" role. Please refer to the documentation on Auxiliary Functional roles for additional information.

Generating a Power Single Line Diagram

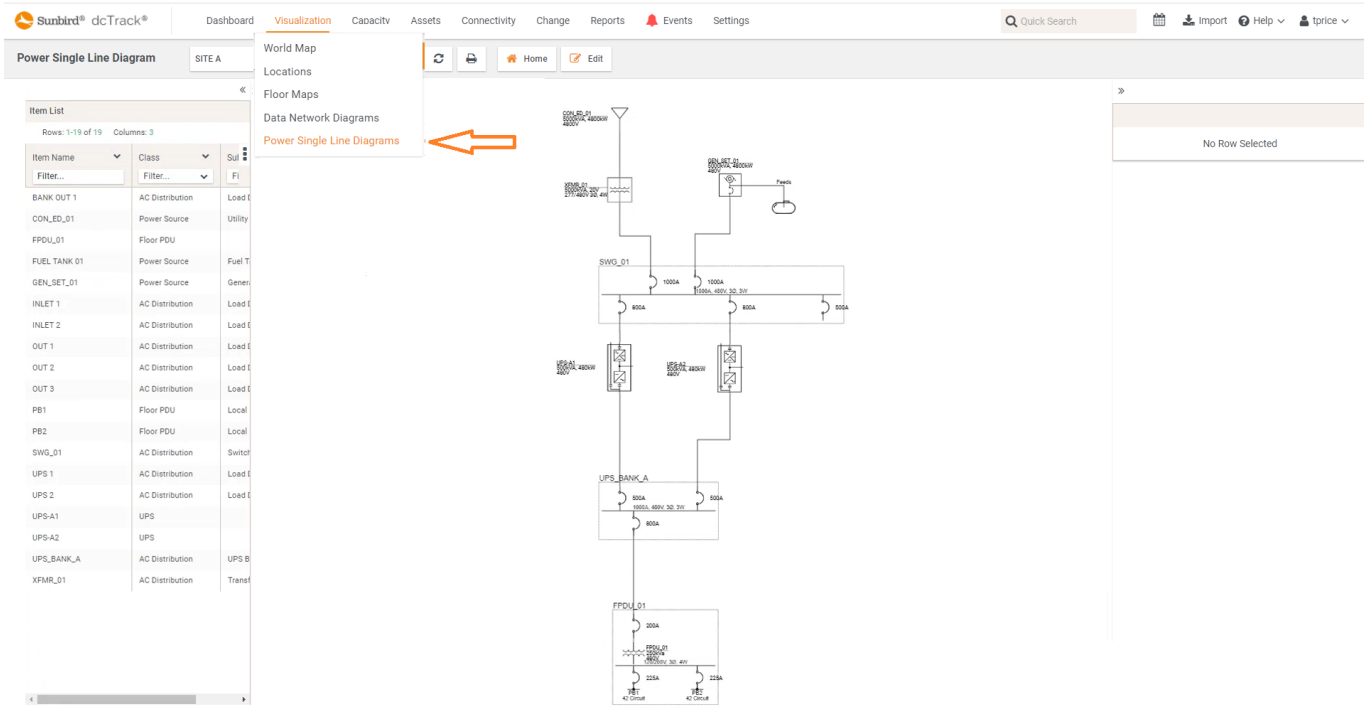
Configuring a Power Single Line Diagram

Create and Manage Power Single Line Diagrams

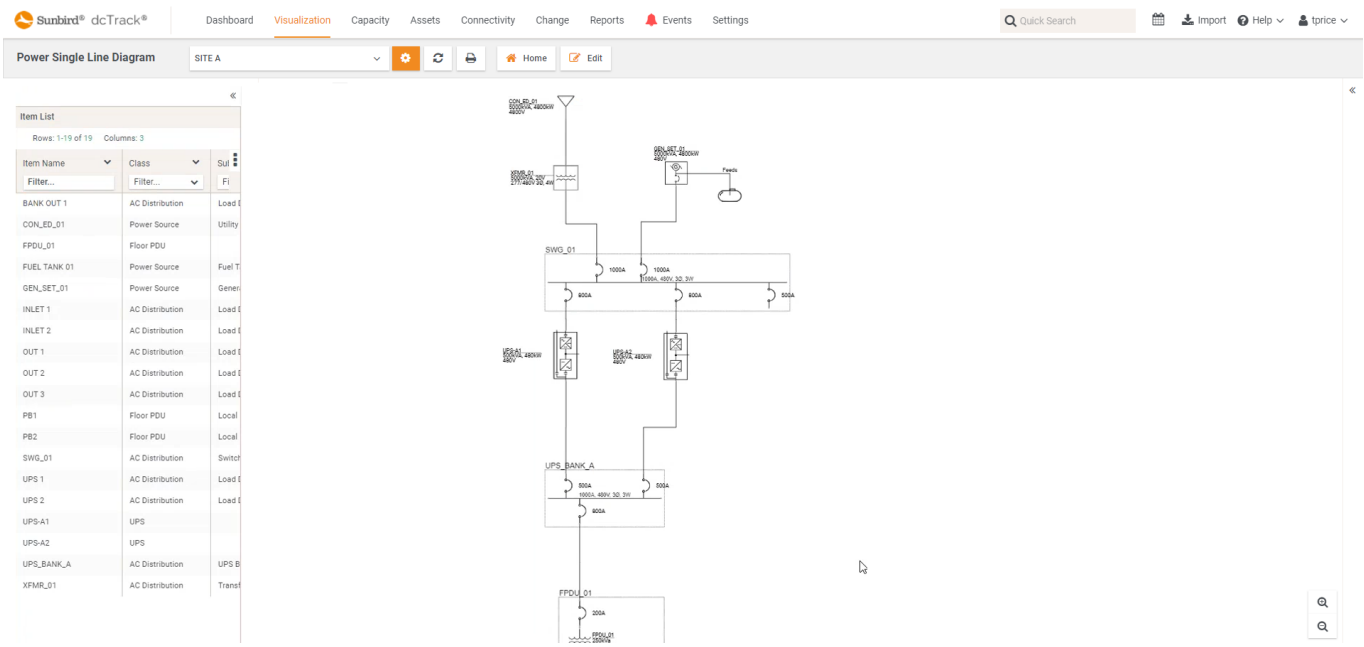
To create and manage Power Single Line Diagrams users must have the "System Administrator" or "Manage Power SLD" role.

Steps to create a diagram

1. Navigate to Visualization > Power Single Line Diagrams

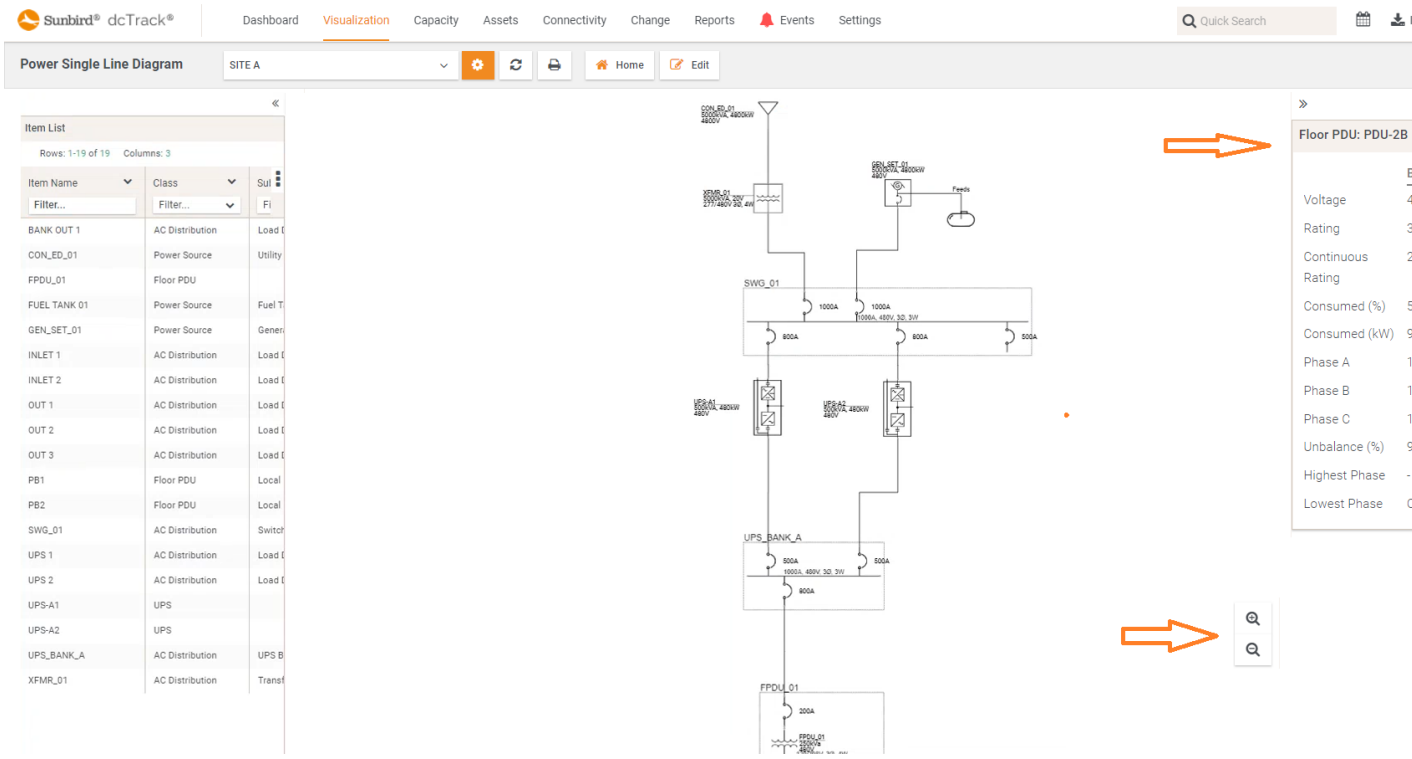


2. Select the Location you wish to generate the Diagram for
    - All of the power items in all descendant locations will be included in the single Line Diagram. For example if a Data Center has 2 Rooms and the Data Center level is selected, power items from both rooms will be displayed in the diagram. If a specific Room is selected only power items for that room will be displayed in the diagram.
3. The Diagram is automatically generated based on the connections you have defined in dcTrack



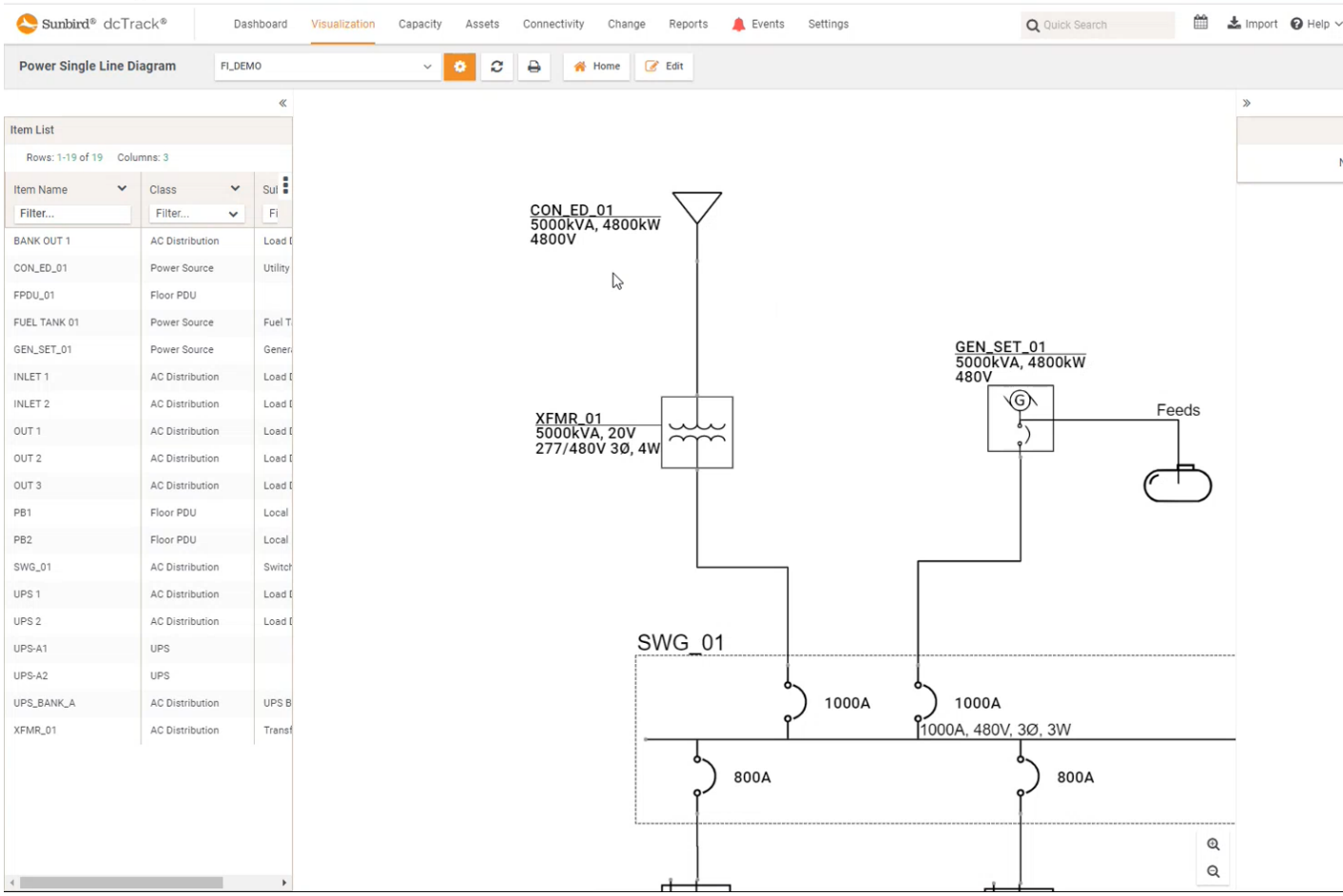
4. The panel on the left is an Item list containing all the Facility Items reflected on the diagram. Note will not be all the Items in the data center.
5. To obtain additional details about any Item, select the Item either from the Item List on the left or clicking the Item in the diagram. This will display the detail panel which contains the power sum information for the item. The readings for the Item will come from Power IQ if the item is integrated or they can be entered using the

Actual Readings API.



The top of the diagram will always start with an AC Service class item, if not present then a generator, if neither is present a UPS Bank item. The objects rendered in the chain will end when a Floor PDU is reached.

6. For very detailed diagrams, zooming in will allow you to see the labels and other pertinent electrical characteristics more clearly



7. Clicking the Print button in the tool bar will allow you to print a copy of the diagram image.

Note, if you are already using the power chain currently in dcTrack, the Floor PDUs, UPS Banks, and UPS already exist, and will be displayed on the diagram.

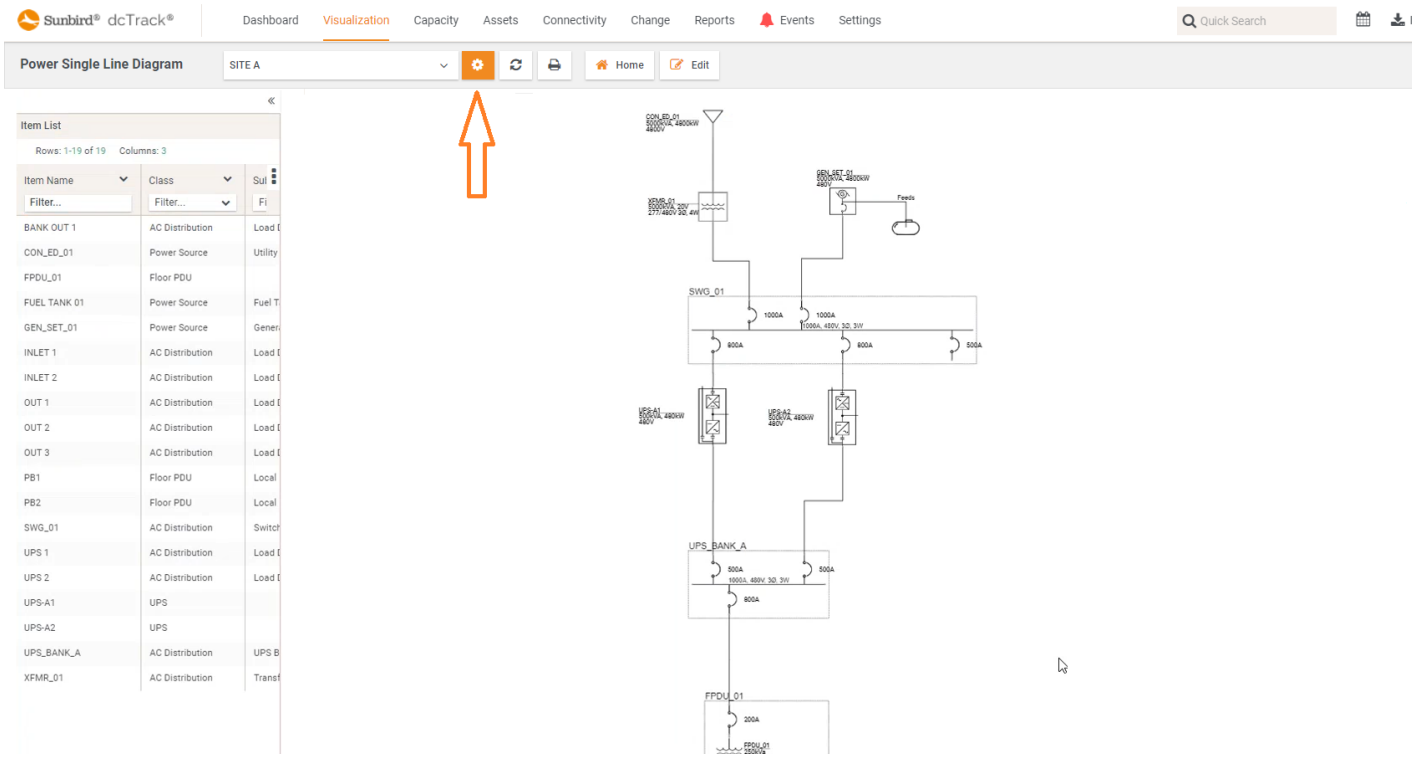
For additional information about modifying the layout and features of the automatically generated Single Line Diagram see Configure Power Single Line Diagrams

Configure Power Single Line Diagrams

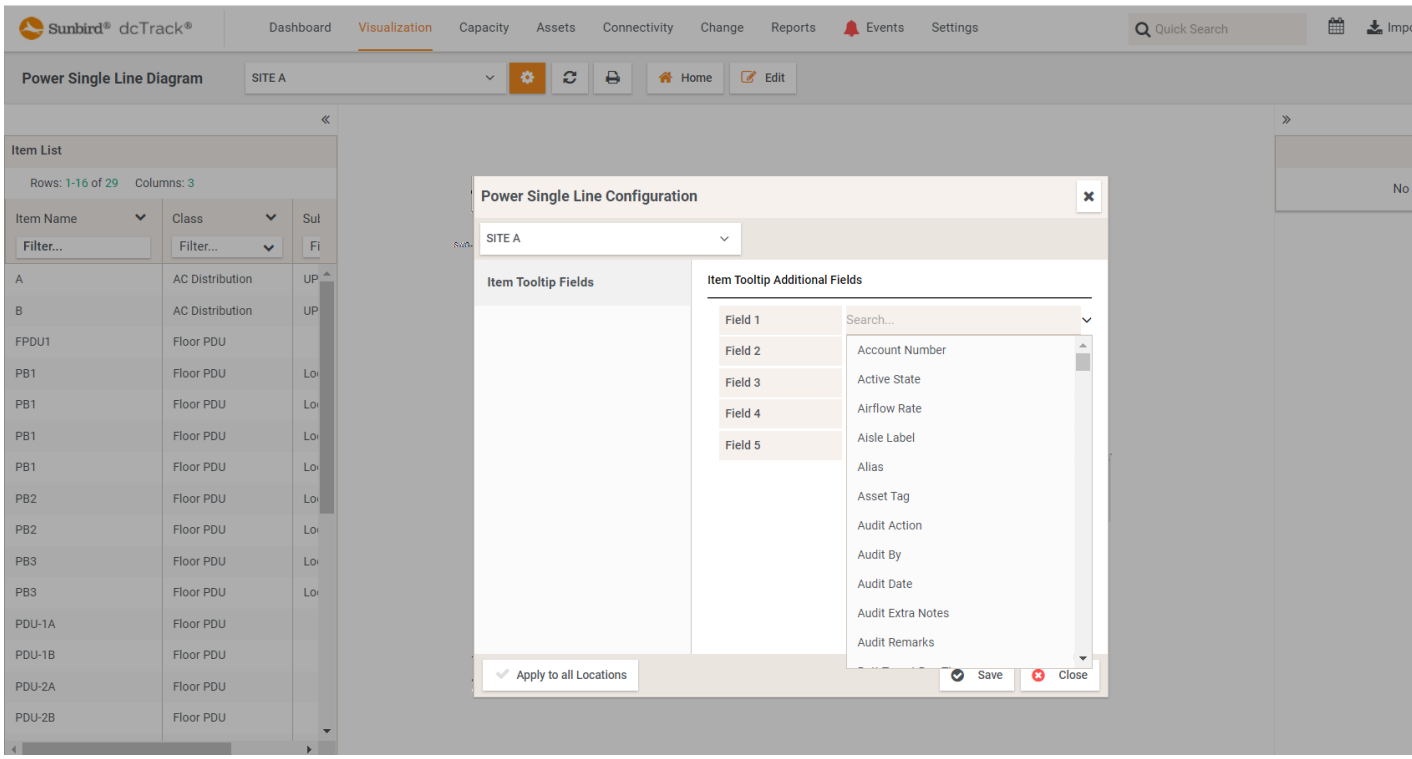
While Power Single Line Diagrams are generated automatically, they can be configured to suit you needs.

Steps to configure a diagram

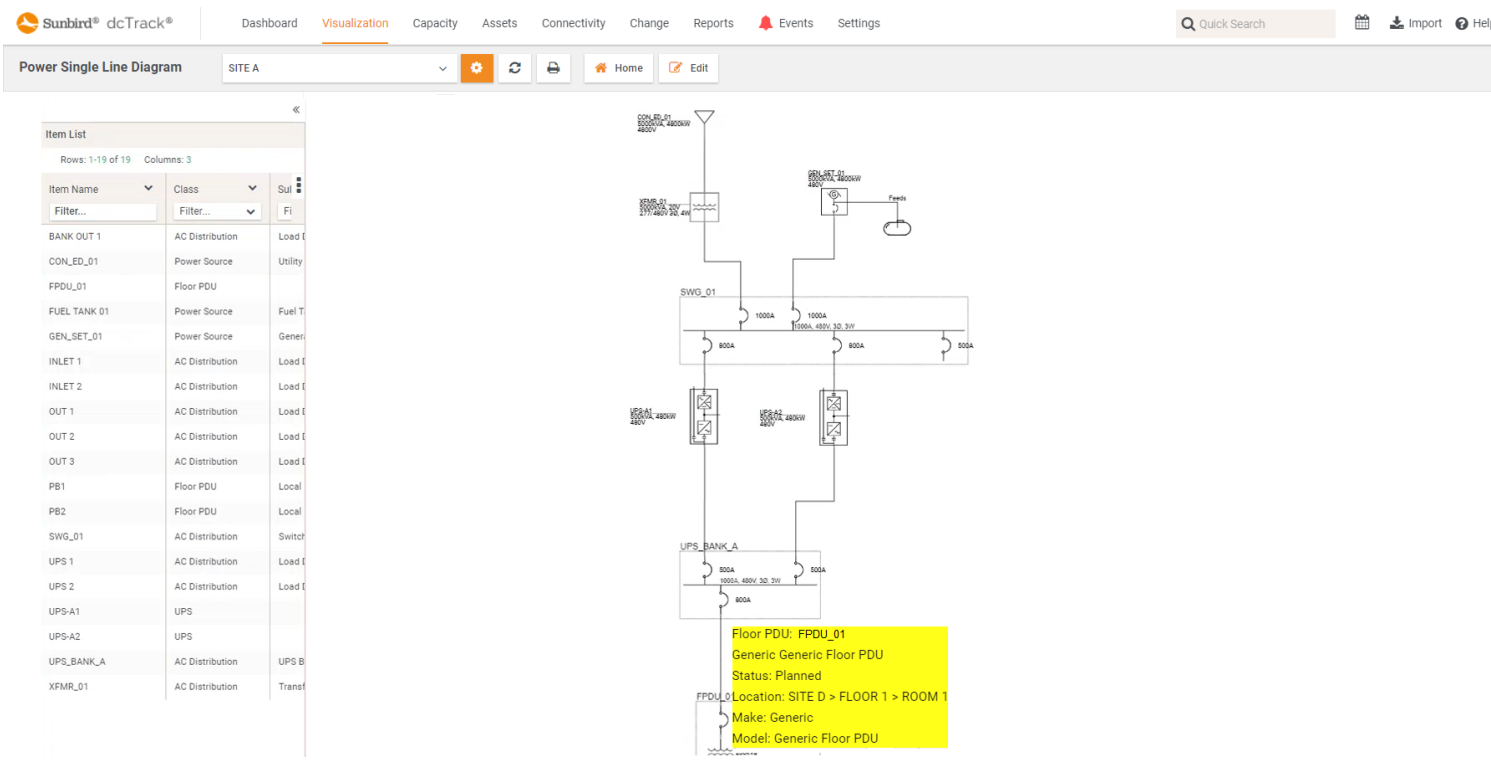
1. Click the configure icon in the tool bar



2. On the Configuration screen, you can choose up to 5 Item fields to appear in the tool tip on the diagram. The drop down list contains all Item Standard and Custom fields.



3. The fields you select will appear in tool tips in addition to 5 default fields which are:
    - Class/Subclass
    - Item Name
    - Make
    - Model
    - Status
4. These settings apply to the currently selected Location. To configure settings for a different Location, select the location from the Location drop down
5. To apply these settings to all Locations click the "Apply to All Location" button



6. To move items on the diagram, click the Edit button available on the tool bar to enter Edit Mode.
7. While in Edit Mode you can drag-and drop items to move them to a better place on the diagram. When dragging an Item, the connected lines will move with the Item. These lines can also be adjusted to add or remove turns and reduce overlap, however all lines will be rectilinear.
8. To move multiple Items together, you can select multiple Items by drawing a rectangle around the Items. You can also select multiple Items by holding down the CTRL key and clicking on the Items.
9. Click the "Undo" button on the tool bar to undo the last change
10. Click the "Redo" button on the tool bar to reinstate the last change that was un-done.
11. Click the "Reset" button to restore the diagram to its original state
12. Click "Save" to save you changes. The saved diagram will load each time the Location is selected.
13. You can resize the digram using the magnifiers in the lower right corner of the diagram or use the scroll button on your mouse
14. Click the "Home" button in the tool bar to restore the diagram to its size the last time the diagram was saved.

World Map

dcTrack includes a World Map feature enabling you to visualize your data center infrastructures across the world. The World Map is accessed from the Visualization menu. It provides a tree view of all your locations as well as a visual representation of their locations.

The hierarchy of the tree is Country > Data Center > Floor > Room. If the address of the Location has been supplied the tree will display a building icon next to the Location, if not a question mark "?" icon is displayed.

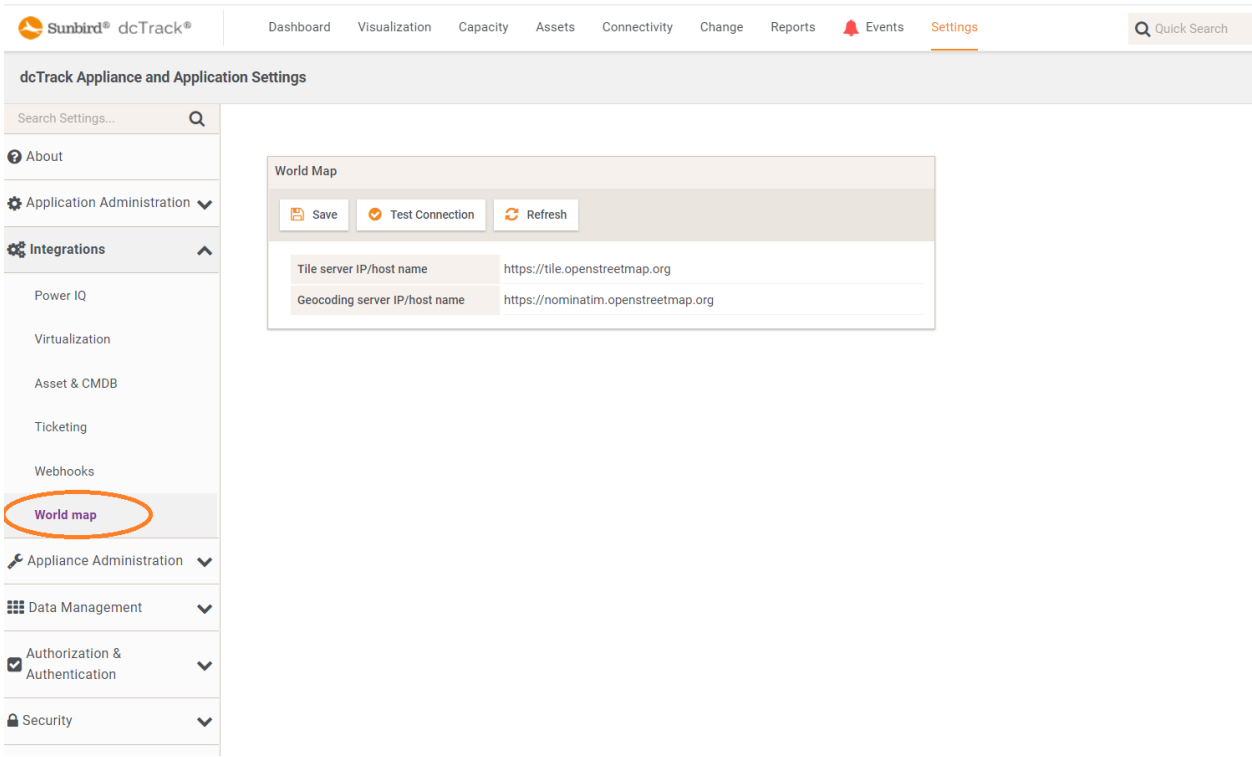
Setting up the World Map

1. ## Set up the Tile and Geocoding Servers

    a. Navigate to Settings > Integration > World Map

    b. Both a Tile Server and Geocoding Server are automatically provided upon installing dcTrack version 9.0.0. These servers can be replaced to utilize your own servers. Both servers are required to properly render the World Map in dcTrack.

    - The Tile Server provides the image tiles. Image tiles are small square image files that are stitched together to look like a single large image of the map. The tile server must allow cross origin requests in order for the test connection button to work correctly.
    - The Geocoding Server points to a web service that takes in an address and returns the corresponding location coordinates.



2. ## World Map UI

    a. Navigate to Visualization > World Map

    b. The left panel of the page will display the country of every location in your data base

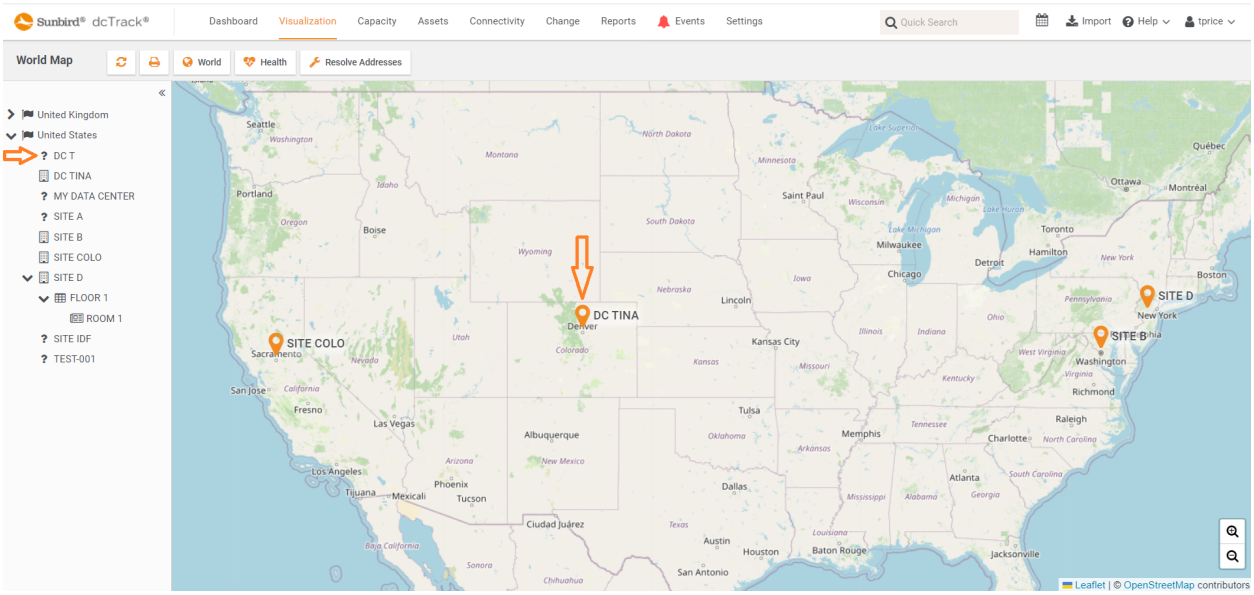
    c. Click the arrow to expand the tree

d. A node is displayed for each data center. If the data center has children, click the arrow next to the data center to display the children nodes

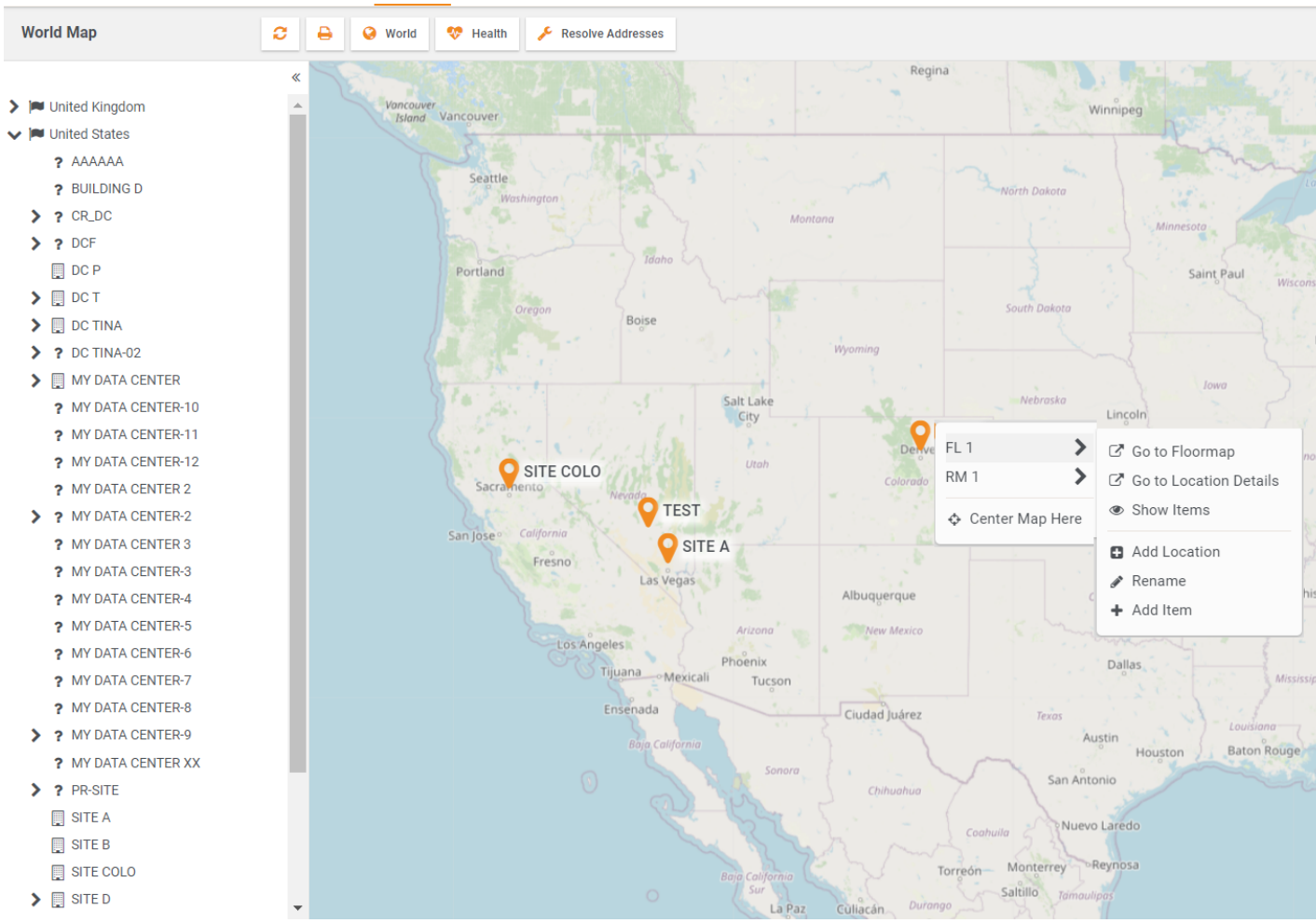
e. If an address has been supplied for the data center, it is displayed with a building icon in front of the name

f. If no address was displayed for the data center, or if the Longitude and Latitude can not be determined from the address supplied, the data center is displayed with a leading "?".

g. An pin icon is placed on the map for the location of each data center



3. Right click on any level or any pin icon to display its sub-menu with options applicable to each level



Add Address

- Jump to location details in Edit mode where address can be supplied - Available on Data Centers whose address is invalid

Go to Floormap

- Jump to the Floormap for the selected location - Available on Data Center level only

Go to Location Details

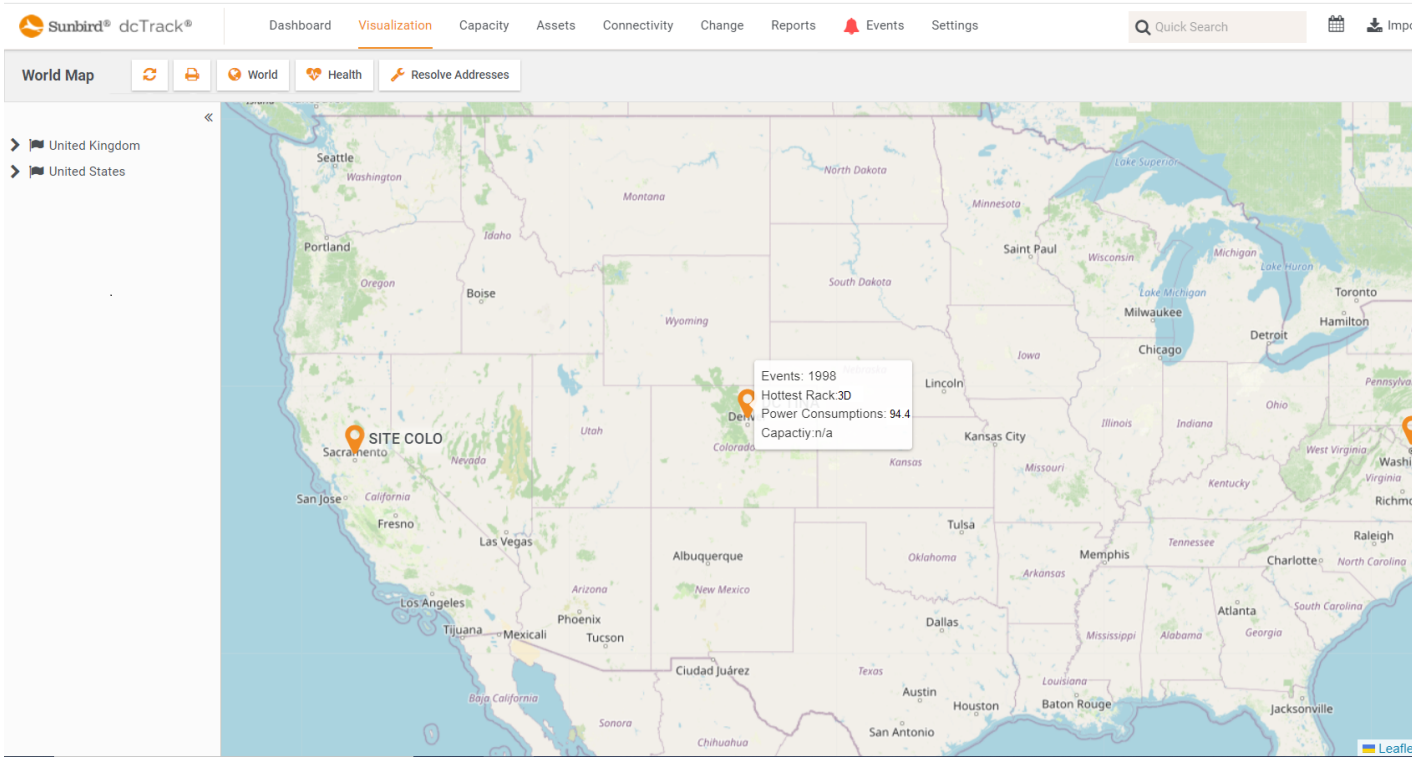
- Jump to the locations Details page in view mode

Show Items

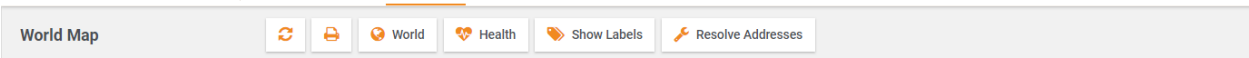
- Jump to the Item List filtered to Items located in the selected location

Add Location	- Jump to the add a location detail page to add a new location
Rename	- Rename the selected location
Add Item	- Jump to the add an Item page with the selected location pre-populated

4. Hover over the Data Center icon to view health statistics



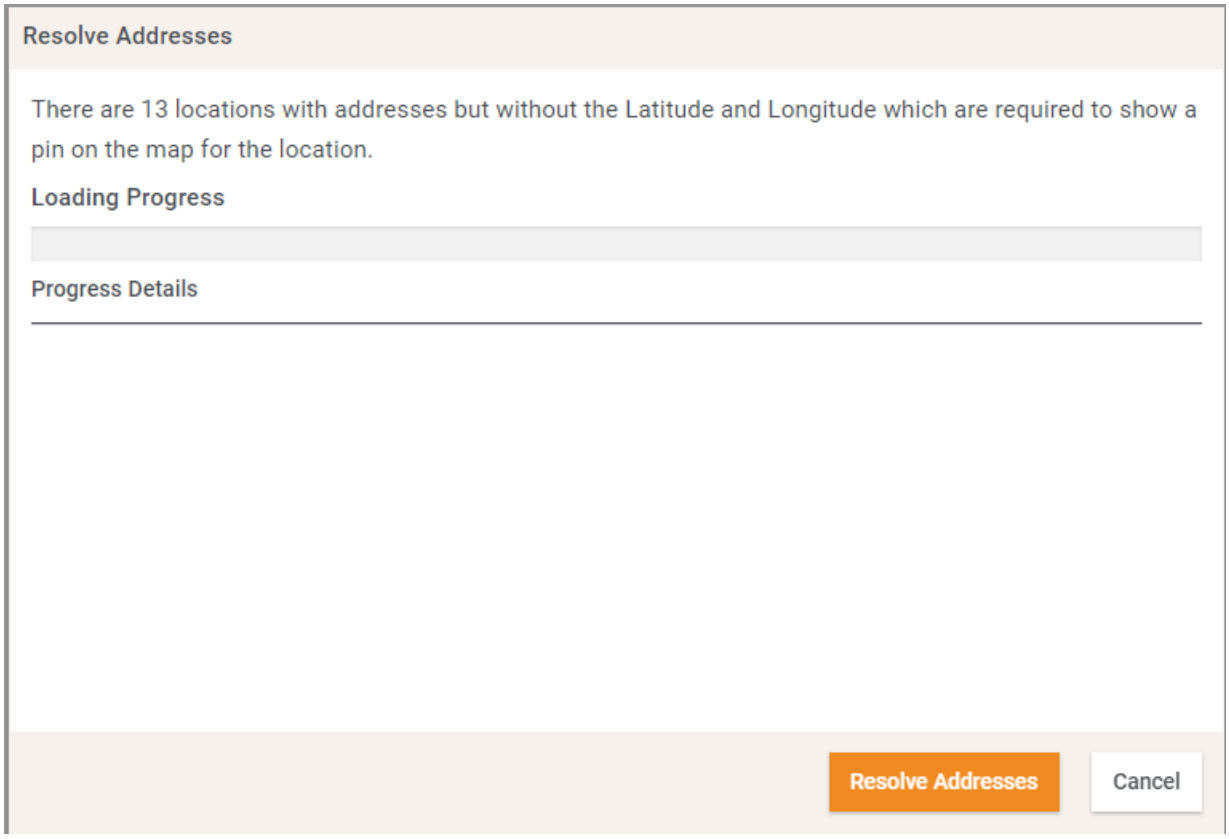
5. Double Click any icon pin to navigate to the Floor Map for that location provided one exists
6. World Map tool bar



a. Click the refresh button to collapse the location tree on the left and reposition the Map to the area that encompasses all of your locations
b. Click the print button to print an image of the map

c. Click the world button World to reposition the Map to the area that encompasses all of your locations without collapsing the location tree
d. Click the Health button Health to display the Pin icons in a color (red, yellow, green) that represents the health state of the Location (the same as the Dasgboard Enterprise Health tiles)

e. Click the Show Labels button Show Labels to display pin labels on the map. This button allows users to toggle between hiding and showing pin labels. This setting is per user and will remain the setting until the user clicks the button to change the view. The default is Hidden.
f. Click the Resolve Address button to have dcTrack calculate the Longitude and Latitude for any data centers with addresses that do not have a Longitude and Latitude set.



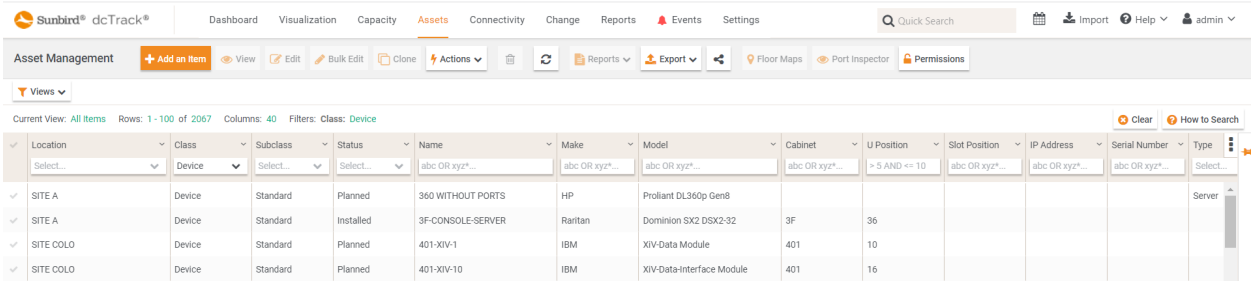
See Also Dynamic Content-Security-Policy.

Chapter 4:Asset Management

This section covers the asset management features available in dcTrack.

Items List Toolbar Toolbar

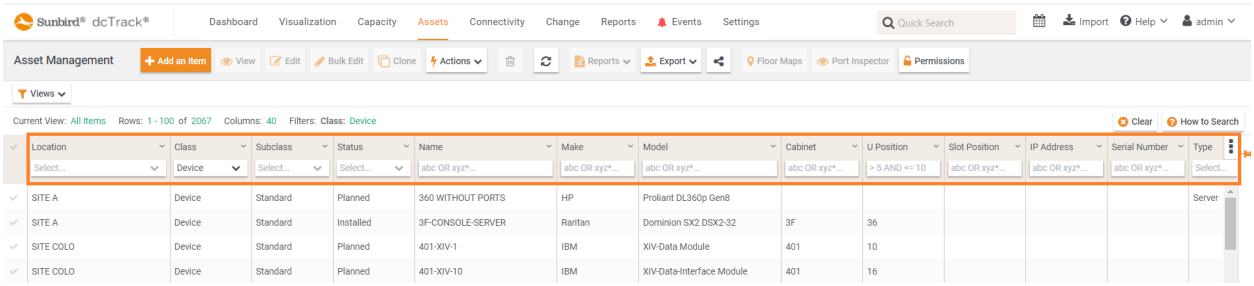
The Asset tab in dcTrack has been enhanced to make it faster and easier for you to find items, including a new and improved Asset Management toolbar:



Icon	Summary
Add an Item	Opens a new page to add an item
View	Opens one or more selected Item Details pages in View mode
Edit	Opens one or more selected Item Details pages in Edit mode
Bulk Edit	Edit multiple selected Items
Clone	Opens one or more clones of the selected Item Details pages
Actions	Dropdown that enables you to make item requests
Delete	Deletes the selected items
Refresh	Refreshes the Item Details page
Reports	Prints an Item Details report for the selected item
Export	Dropdown where you can export the Items List or download the Import Template
Share	Generates a share link to the current Items List view
Floor Maps	View the selected item on the floor map in the Visualization tab
Port Inspector	View Port Placement for selected Item
Permissions	Add or delete permissions. Only available to users with the appropriate permissions.

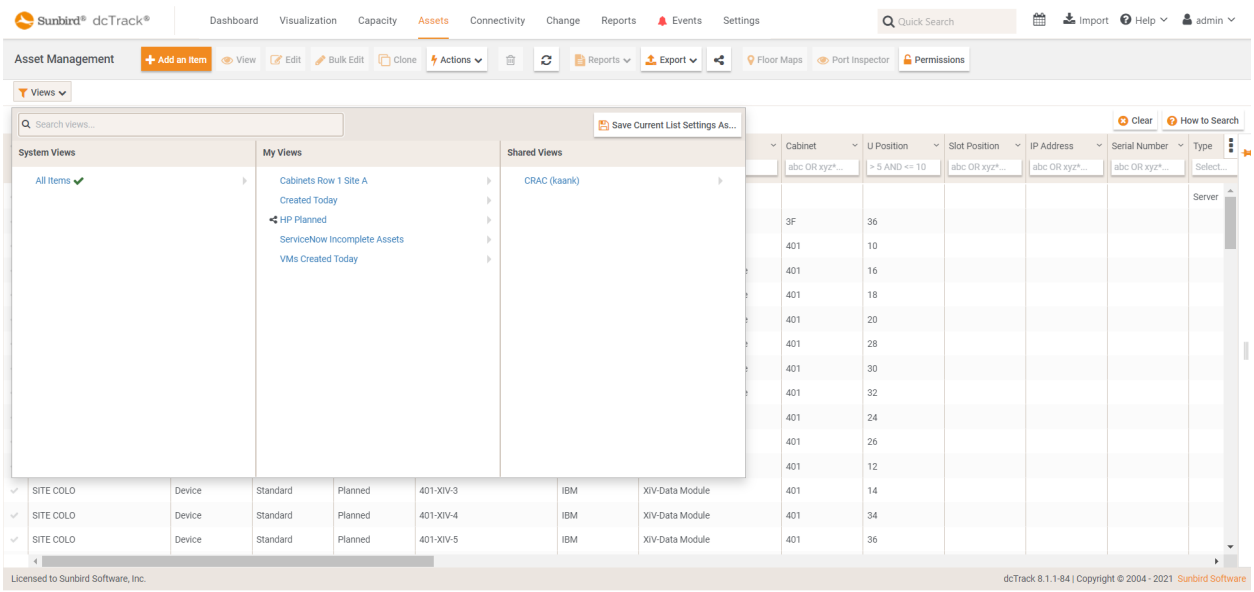
Search and Filter the Items List

The Items List now can be filtered based on criteria for any of the available columns:



You can reorder the columns by dragging and dropping. You can also edit an Item's Name, Alias, Type, Function, Contact, Contact Team and Customer, PO Number, Project Number, Purchase Price, Contract Amount, Location Ref and Notes in line in the Items List.

As with the floor map search results and other dcTrack features, you can save and share your current view by clicking the Views dropdown and clicking the Save Current List Settings As... icon. Multiple list views are available for each user. To clear the view, click the Clear icon in the right corner.



Using Paste in dcTrack Lists

When pasting into the filter input box of a column in any of the full-page lists that support querying with "OR", dcTrack will no longer insert an "OR" between every space in the string. dcTrack has been enhanced to only insert an "OR" when a Carriage Return/Line Feed (CRLF) is detected. This new feature allows users to copy columns of data from a spreadsheet or multiple lines from a text editor and paste it into a dcTrack list to search by all the row values of this column. For example, a column of strings you would like to search for can be copied directly from Excel and pasted into dcTrack for immediate filtering. When the data is pasted, dcTrack will automatically surround each

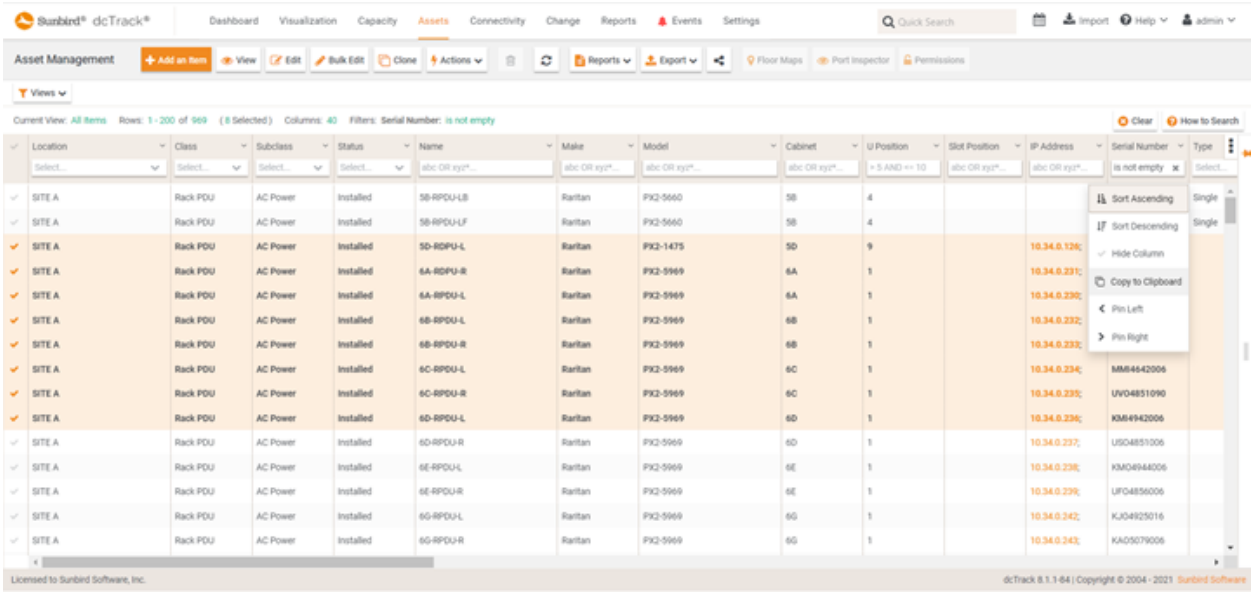
string with double quotes forcing exact match filtering on each string. You can, however, also choose to toggle the double quotes off in which case dcTrack will perform a contains search on each string. Pressing CTRL+Q on your keyboard toggles the quotes on and off.

Note: When pasting on top of existing text, if the pasted text does not contain CRLF, then it will paste it where the cursor or highlight was in the existing text. But if the pasted text does contain CRLF, then it will overwrite the existing text completely.

Copy to Clipboard

dcTrack version 8.1.1 includes a new “Copy to Clipboard” option in the column headers for all full-page lists. Users can copy the value of a single cell, a single cell on multiple rows, or an entire column of data. When this feature is used, data can be pasted into spreadsheets or other applications, and each cell will be pasted as a separate row. Users can also paste the data as filter criteria in any dcTrack list filter input box and the data of multiple cells will have an “OR” inserted.

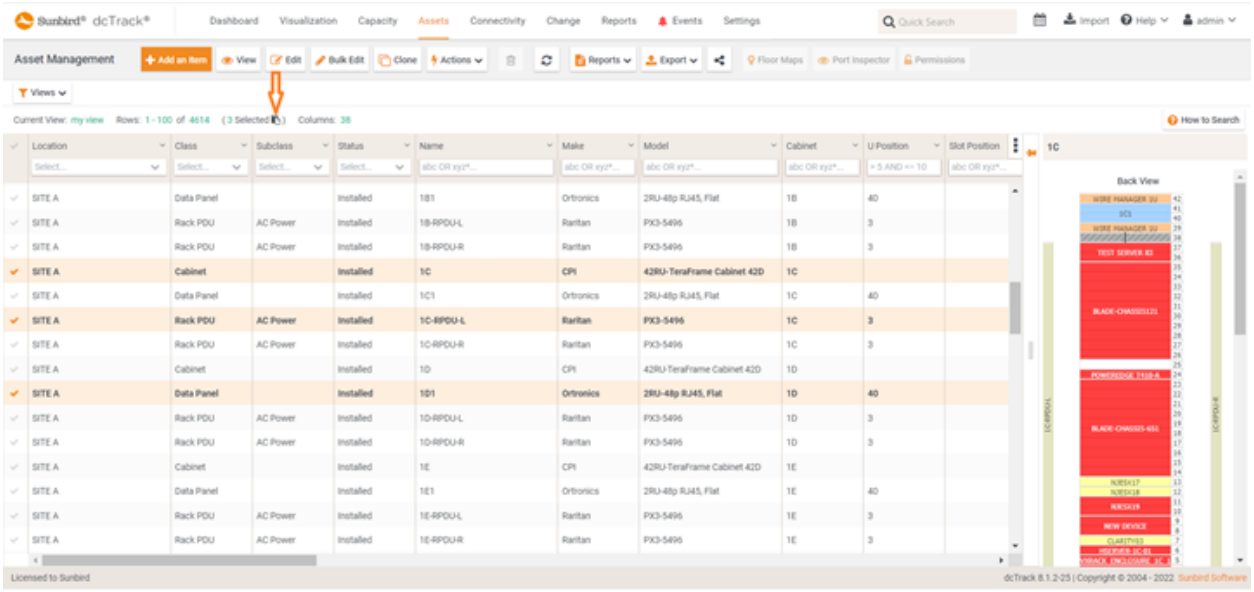
To copy data of one cell, select the row of that cell. To copy multiple cells of a column, use the CTRL or SHIFT keys and select those rows. To copy an entire column, no selections are needed before clicking the Copy to Clipboard option. Note however, that an entire column refers to the rows that have been loaded which is identified in the List Status bar just above the list.



Copy Rows

As a further enhancement to the “Copy to Clipboard” feature introduce in dcTrack 8.1.1 which allows users to copy and paste columns of data, dcTrack 8.1.2 now supports copying and pasting rows of data. When one or more rows are selected, users can copy the selected rows by pressing “CTRL+C” or by clicking the copy icon that appears in the list filter status bar near the (x Selected) label. When either action is taken, the (x Selected) label changes to (x Copied) for 1 second to indicate the copy was performed. The copied data can then be pasted into other editors.

When pasting into Excel, the rows and columns are preserved including the dcTrack column headers.

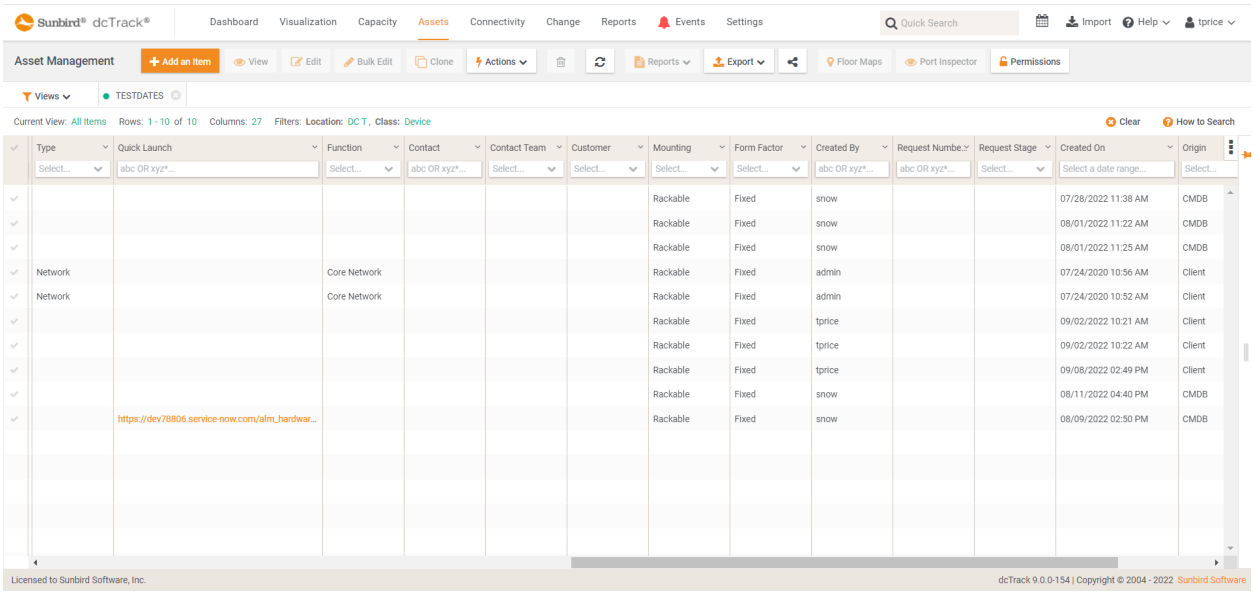


The Copy Row feature is supported in the following major lists:

- Locations List
- Items List
- Parts List
- Parts Transactions
- Circuits List
- Structured Cabling List
- Requests List
- Work Orders List
- Projects List
- Tickets List
- Events
- Models Library
- Connectors Library
- Parts Library

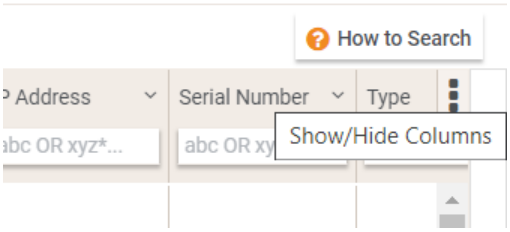
Using Hyperlinks in dcTrack's Item List

dcTrack version 9.0.0 can now support hyperlinks for any text field on the Item list. If a text field, either Standard or Custom contains a valid URL it will be converted into a hyperlink. This will allow users to navigate directly from the list without having to access the Item Details page. As with hyperlinks on the Detail page, the hyperlinks on the Items list will always open in a new tab.



Show/Hide Columns

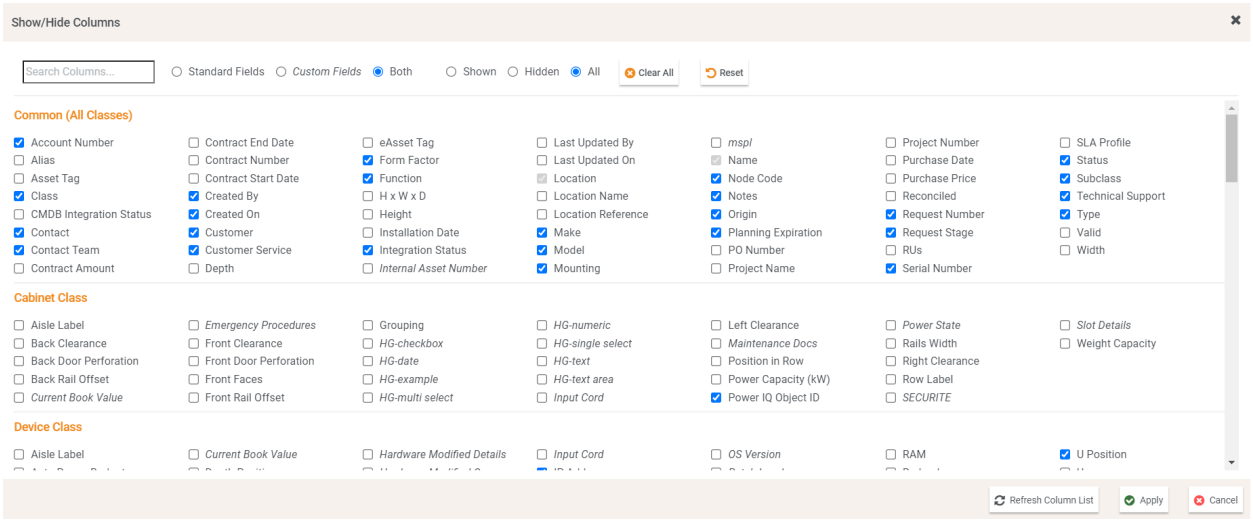
To specify which columns are shown or hidden, click the Show/Hide columns icon in the upper right corner:



The Show/Hide Columns dialog displays. All columns are displayed by class. You can check or uncheck the box next to each to show or hide the corresponding column.

At the top of the dialog are filtering capabilities. You can search for columns by typing your criteria into the search box, specify standard or custom fields, filter by panel on the Item Details page, or select Shown or Hidden columns. The available columns will update automatically based on your selections.

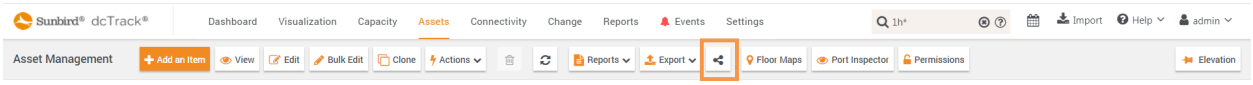
To save your selections, click the Apply icon.



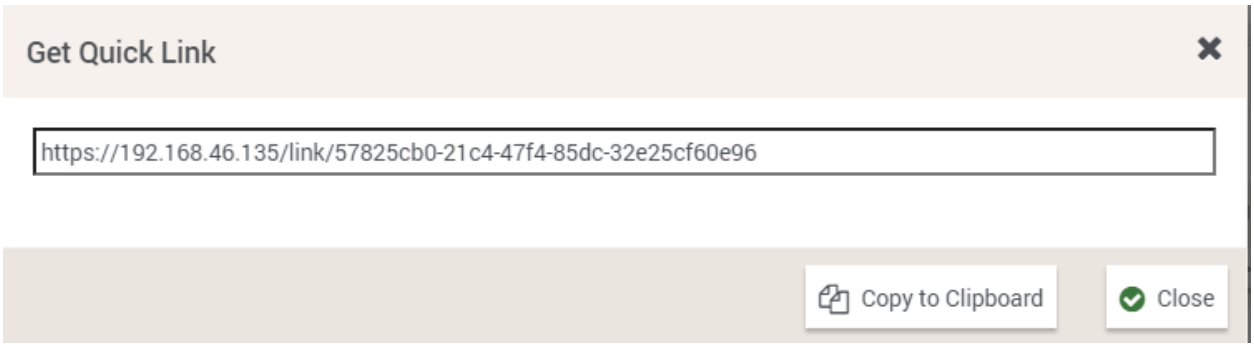
Share a Link to the Items List

Being able to provide a dcTrack user with a link to a specific Item Details or Search results or Reports page can save time and simplify the process of sharing information. With a shareable link, users can copy and paste the link into other applications and share it with their team, without having to explain how to navigate to the specific page or define the exact search parameters. The link obscures any information that may otherwise be included in the URL that is not intended to be shared with all users.

To share a link to your Items List search or filtered results, click the Share icon on the Asset Management toolbar.



In the Get Quick Link dialog, copy the link and paste it into your email, chat, or other applications where you would like to share the link. Any logged-in dcTrack user will be able to see the same results, except for any items that they do not have permissions to view.



Bulk Edit Item Field

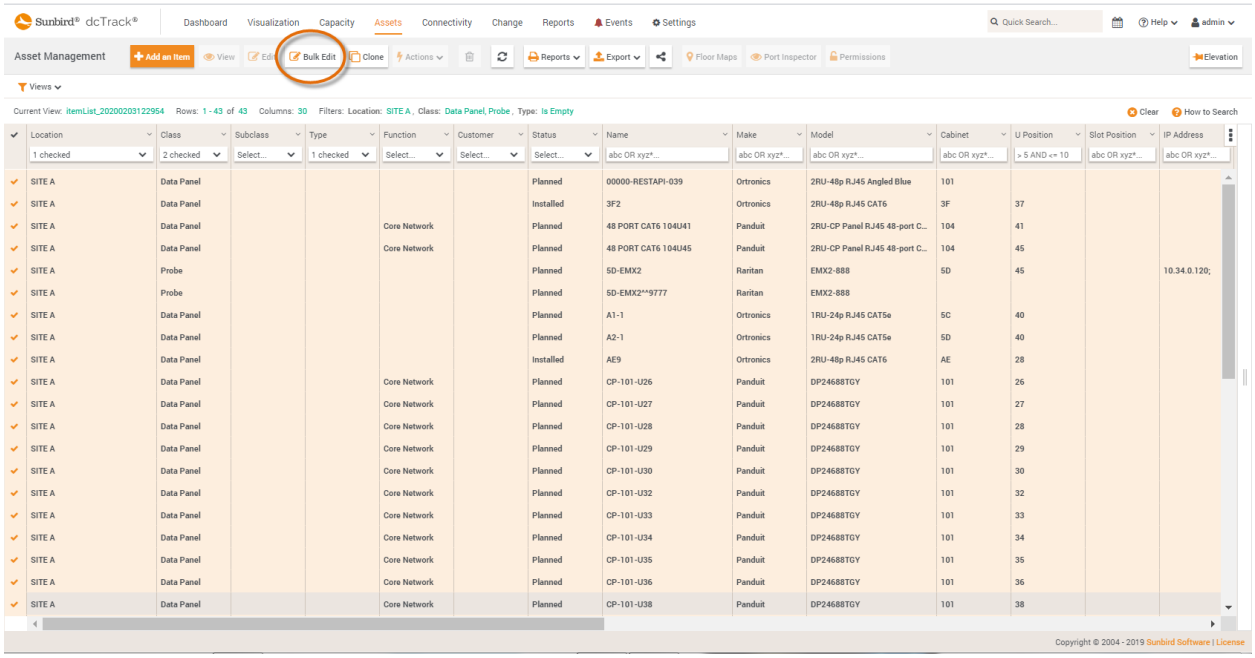
dcTrack's Bulk Edit feature allows you to edit multiple fields, both Standard and Custom, across multiple Items directly from the Web UI. This feature can be used as an alternative to File Import when there is a need to quickly

update information for a large number of Items. Bulk Edit enforces all of the same rules as editing a single Item. Because of this when editing Items for a variety of Classes, the fields eligible for selection is limited to only those fields that apply to each of the selected Item's Classes. For example the "Type" and "Function" fields would contain different selection options depending on the Class of the Item you are editing. For this reason, these fields would not appear in the "Field to edit" list if the Items being edited are for multiple Classes. Similarly, Custom Fields that are not applicable to all of the selected Item's Classes would also not appear in the list.

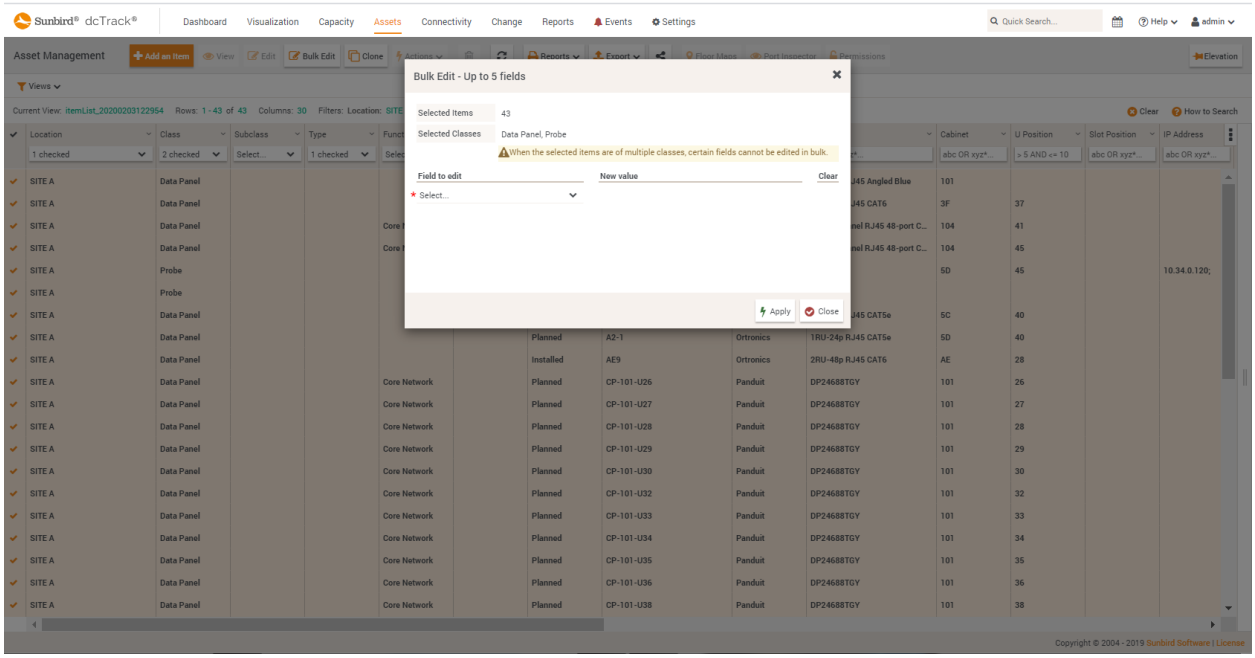
Note: Operators must have the "Bulk Import" Role assigned to use this feature.

Steps to Bulk Edit Item fields:

1. Navigate to the Asset > Asset List
2. Filter and select the Items you wish to edit and click the Bulk Edit button on the Tool Bar.

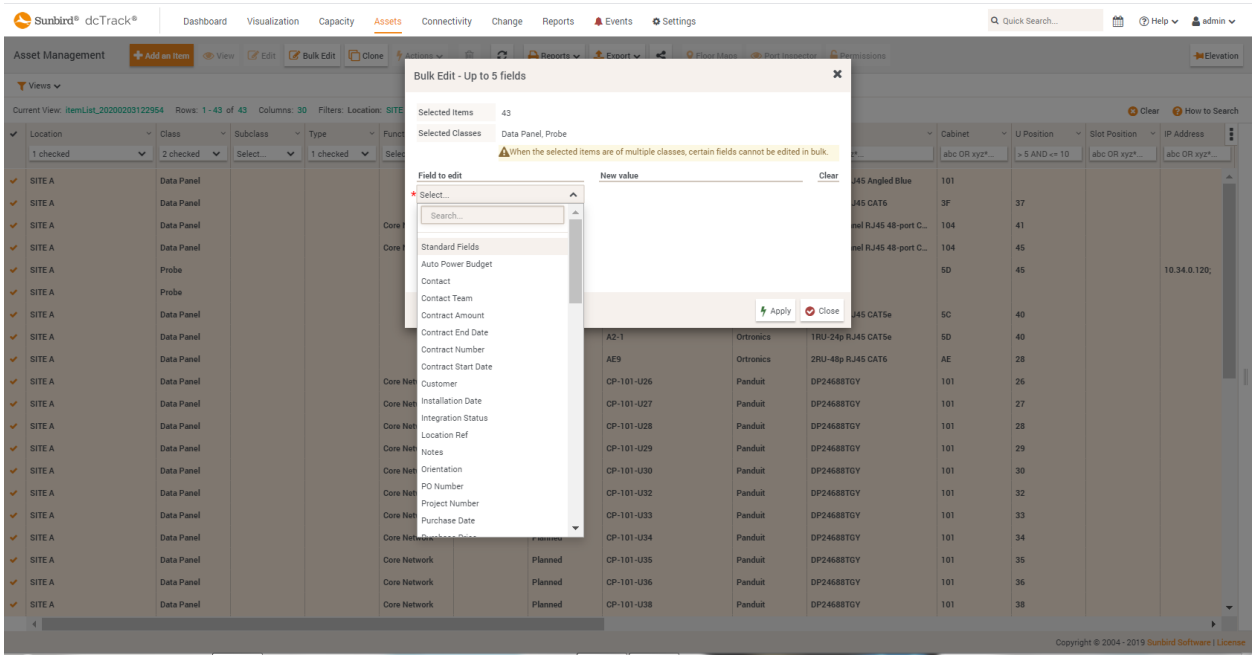


3. Upon clicking the Bulk Edit button the Bulk Edit dialog is displayed.

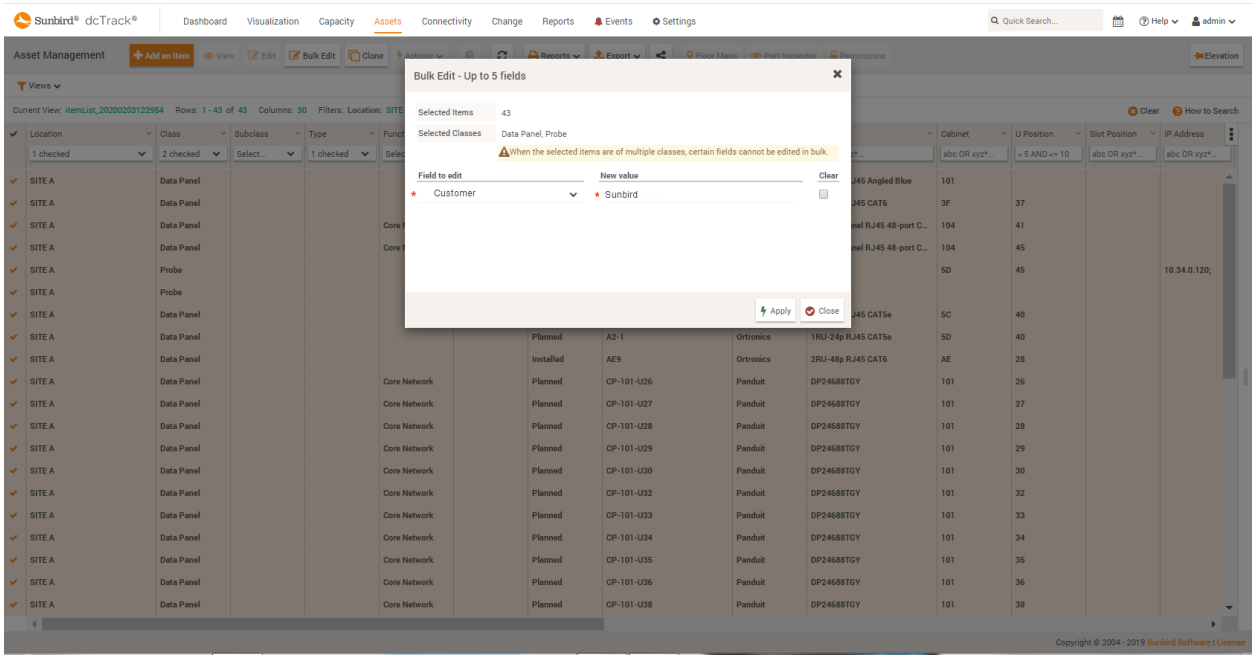


The dialog includes the number of selected Items and a list of the Classes associated with the selected Items. If multiple Classes are included in the Edit, a warning message is displayed indicating that because multiple Classes are involved, certain fields cannot be edited.

4. Select the Field you wish to edit from the Field List. You can also search for Fields by typing the Field Name into the Search box. A field can only be selected a single time. Once selected the field is removed from the list.



5. After selecting the Field to be edited, you may enter new values in the "New Value" field or select the "Clear" check box to clear the field value.
    - Clicking the "Clear" option will clear all the data in this field for each selected Item.
    - Entering a "New Value" will update the field with the new value for all of the selected Items. The type of entry depends on the individual Field Type.
        - For Single Select Pick List fields you will be required to select a single option from a list
        - For Multi Select Pick List fields you may select one or more options from a list
        - For Date Fields you may select a date from the Date Selector or you may enter a date directly into the field
        - For Check Box Fields will present as a Check Box that you may check or leave unchecked
        - Text and Numeric fields will present as a text field where you may enter a value



6. As the data for each row is completed, a new row is created allowing you to select another field to edit.

Note: You may edit a maximum of 5 fields at a time.

7. When you have completed your edits, Click the Apply button to apply the changes to the selected records.
8. After Clicking the Apply button, a Progress Bar is displayed showing the progress of the changes.
9. Upon Completion you will receive a message indication the number of Items updated and the number of Items skipped. Items could by skipped for various reasons. For example if a user has view only permission on one or more of the Items, or an Item has a pending Request issued.
10. The asset list automatically refreshes after a bulk edit operation.

Use File Import to Add, Edit Delete and Move

The following is detailed information and step-by-step instructions on the File Import feature.

When to Use File Import

Use File Import in the Web Client to:

- Create data center locations, cabinets, items, connections, ports and parts.
- Move Cabinets, Rackable Devices and Blades

Note: dcTrack checks to ensure you do not exceed your cabinet licenses. Cabinets that exceed the license limit are not imported and dcTrack informs you of this.

- Perform the following operations for cabinet items, device items, connections and ports:
  - ADD

- EDIT
- DELETE

- Additionally the following operation is available for Cabinets, Rackable Devices and Blades
  - MOVE - For additional information on MOVE see Use File Import to Move Cabinets, Rackable Devices and Blades.

For information on using EDIT and DELETE, see **Use File Import to Edit or Delete Locations, Cabinets, Items or Connections**.

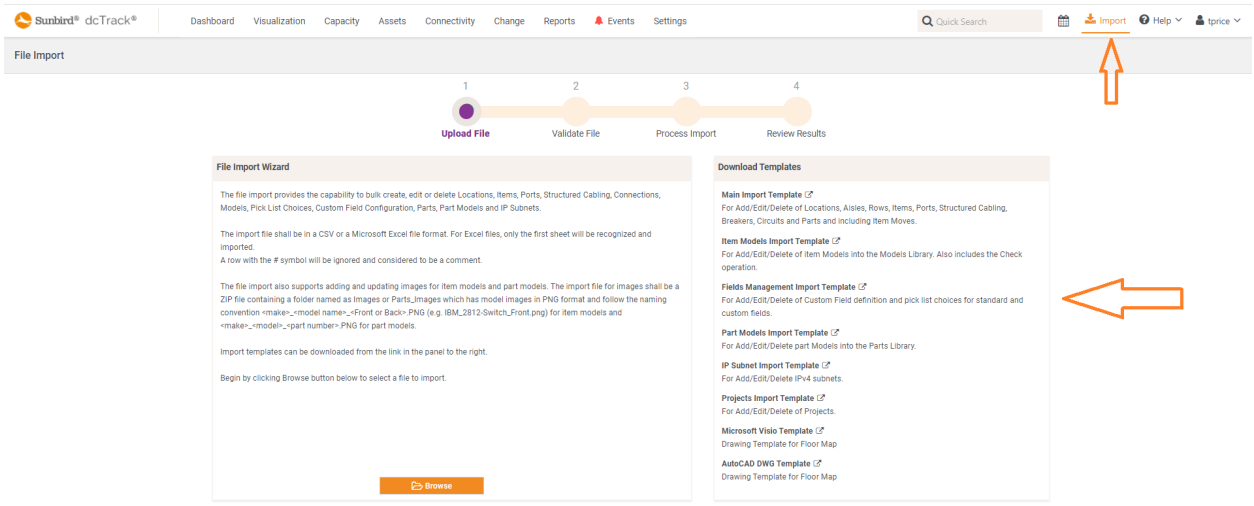
Supported Classes and Subclasses

All item classes and subclasses can be added, edited and deleted using File Import. You can delete items so long as they are in a Planned status and you have edit access to the location and cabinet.

Note: dcTrack checks to ensure you do not exceed your cabinet licenses. Cabinets that exceed the license limit are not imported and dcTrack informs you of this.

Import Template

Sunbird provides Import Templates that can be downloaded directly from the Import menu available on the Main tool bar.



The Import Templates are designed to make the import process as easy as possible.

Sunbird highly recommends using the sample templates or exporting into an Import template even if you have your own spreadsheets already. You can copy and paste your data into the Import Template if you are using your own spreadsheet, then "clean it" based on the standards outlined in the spreadsheet. This ensures the import runs smoothly.

The Import Template includes the most commonly required fields needed to perform imports and updates, as well as a listing of additional fields you can add.

Instructions on the data you must enter in each field, as well as sample data, are also included in the Import Template.

File Import supports .XLS, XLSX and .CSV file formats.

Create a Primary File

It is good practice to capture all of your data for all of your locations in a single Import Template and use that as a Primary template. You can then save copies as individual import files - one for locations, one for cabinets, one for rack PDUs and so on.

Create Individual Import Templates after Entering All Data

Importing a spreadsheet does not import the data on each worksheet at once; you must import each worksheet's data separately.

It is recommended that you create an import file for each item type and connection type, and delete the worksheets that are not being imported. Doing this helps ensure you do not import the same item's data more than once and makes tracking your imports easier.

It is also good practice to delete the worksheets that are not part of the import. However, leaving the other worksheets in the import file does not cause the import to fail - the data are simply not imported.

If you do not create individual import files, be sure you open the right worksheet in the primary file when you perform the import. File Import imports the locations/items/connections on the worksheet that is open - all other worksheets are ignored during the import. For example, rack PDUs are imported if that the Rack PDU worksheet is open, but no other data on any other worksheet is imported.

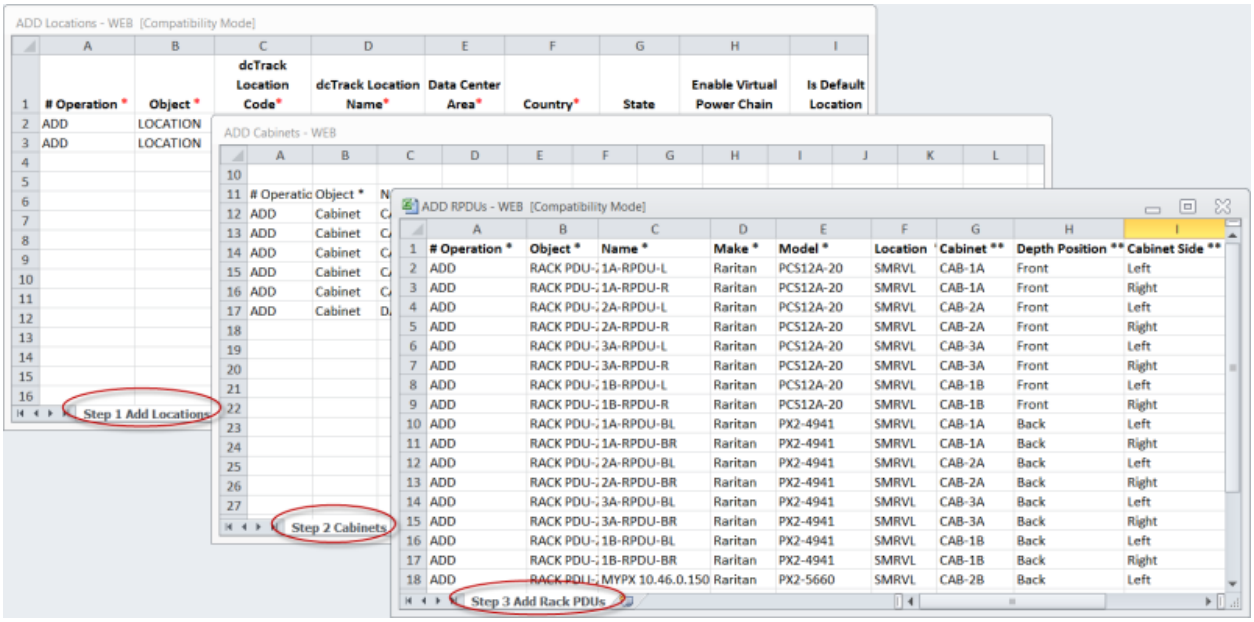
Delete Blank/Hidden Worksheets

Delete any blank worksheets in the spreadsheet, if applicable. And ensure there are not hidden worksheets in the template. By default, there are no hidden worksheets, but if you marked worksheets as hidden, delete them.

The Order of the Import Matters

It is recommended you follow the import order laid out by each of the template's worksheets - Step 1 Locations (if applicable), Step 2 Cabinets, Step 3 Rack PDUs and so on.

Do this because you cannot reference items that are not already imported. For example, you cannot create a power connection to a rack PDU that does not already exist in dcTrack.



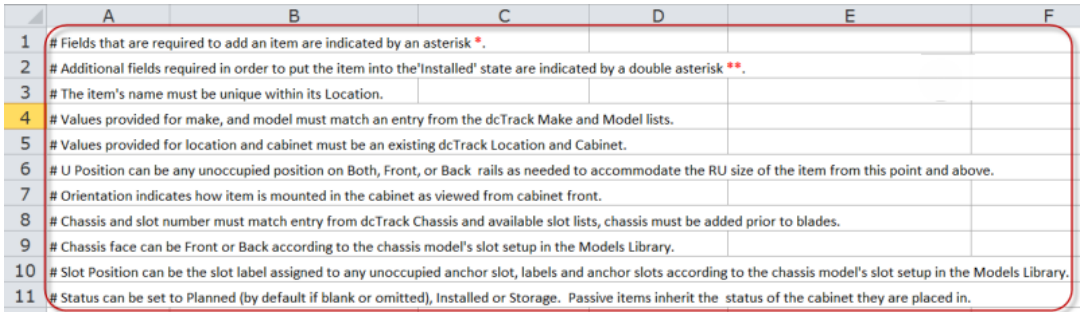
Sample Data in the Import Template

Sample data and other default information are preceded in the spreadsheet by a hashtag #. For example - # Fields that are required to add an item are indicated by an asterisk *.

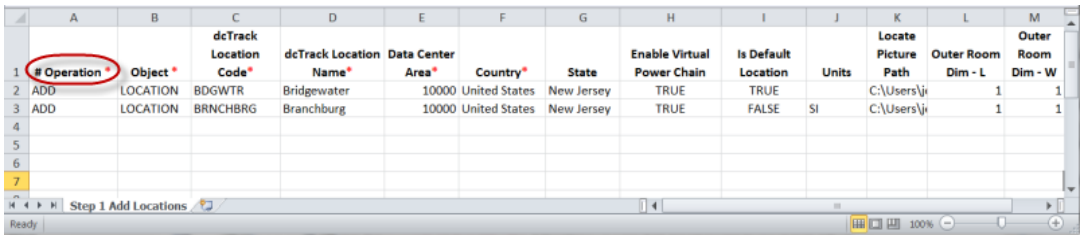
The hashtag tells dcTrack not to import the data the follows it. You do not have to delete this data from the spreadsheet to successfully import.

If you want to included information, for example notes, in the spreadsheet and want it to be ignored during the import, insert a # in front of it.

Note: If you perform a File Import and the expected data was not imported, verify data are not preceded by a hashtag. Since dcTrack ignores the data after a hashtag, warnings or errors are not generated, but the data are not imported.



Note: You must leave the hashtag # in front of "Operation". # Operation is a template field; it is not meant to be imported into dcTrack.



	A	B	C	D	E	F	G	H	I	J	K	L	M
1	# Operation *	Object *	dcTrack Location Code*	dcTrack Location Name*	Data Center Area*	Country*	State	Enable Virtual Power Chain	Is Default Location	Units	Locate Picture Path	Outer Room Dim - L	Outer Room Dim - W
2	ADD	LOCATION	BDGWTR	Bridgewater	10000	United States	New Jersey	TRUE	TRUE		C:\Users\j	1	1
3	ADD	LOCATION	BRNCHBRG	Branchburg	10000	United States	New Jersey	TRUE	FALSE	SI	C:\Users\j	1	1
4													
5													
6													
7													

Step 1 Add Locations

Ready 100%

Notes on Entering Data into the Import Template

Following are high-level notes on entering data into a spreadsheet. These are notes on various import fields. Specific instructions for each field are provided in the worksheet.

For information on syncing dcTrack and Power IQ data during an import, see **Use File Import to Sync Integrated dcTrack and Power IQ**.

Required fields in the template are indicated by an asterisk*. The data will not import unless required fields are entered. Required fields change depending on the item and operation.

	A	B	C	D	E	F	G	H	I	J
1	# Operation *	Object *	dcTrack Location Code*	dcTrack Location Name*	Data Center Area*	Country*	State	Enable Virtual Power Chain	Is Default Location	Units
2	ADD	LOCATION	BDGWTR	Bridgewater	10000	United States	New Jersey	TRUE	FALSE	
3	ADD	LOCATION	BRNCHBRG	Branchburg	94	United States	New Jersey	TRUE	FALSE	SI
4										
5										

When adding and item or connection, if the status is not entered in the spreadsheet, it is imported in a Planned status. Optionally, you can change an item's status during the import to either Installed or Storage.

	B	C	D	E	F	G	H	I	J
10									
11									
12	Object *	Name *	Make *	Model *	Location *	Front Faces	Row Label **	Position in Row **	Status
13	CABINET	CAB-A1	CPI	42RU-TeraFrame Cabinet 42D	BDGWTR	North	A	1	Installed
14	CABINET	CAB-A2	CPI	42RU-TeraFrame Cabinet 42D	BDGWTR	North	A	2	Installed
15	CABINET	CAB-A3	CPI	42RU-TeraFrame Cabinet 42D	BDGWTR	North	A	3	Installed
16	CABINET	CAB-A4	CPI	42RU-TeraFrame Cabinet 42D	BDGWTR	North	A	4	Installed
17	CABINET	CAB-A5	CPI	42RU-TeraFrame Cabinet 42D	BDGWTR	North	A	5	Installed

To add items in an Installed status, you must complete fields marked with two asterisk **.

	A	B	C	D	E	F	G	H
14								
15	# Operation *	Object *	Name *	Make *	Model *	Location *	Cabinet **	Depth Position **
16	ADD	RACK PDU-ZERO U	A1-RDPU-L	Rarit				
17	ADD	RACK PDU-ZERO U	A1-RDPU-R	Rarit				
18	ADD	RACK PDU-ZERO U	A2-RDPU-L	Rarit				
19	ADD	RACK PDU-ZERO U	A2-RDPU-R	Raritan	Dominion PX DPCS12-20L	BDGWTR	A2	Back
20	ADD	RACK PDU-ZERO U	A3-RDPU-L	Raritan	Dominion PX DPCS12-20L	BDGWTR	A3	Back
21	ADD	RACK PDU-ZERO U	A3-RDPU-R	Raritan	Dominion PX DPCS12-20L	BDGWTR	A3	Back
22	ADD	RACK PDU-ZERO U	A4-RDPU-L	Raritan	Dominion PX DPCS12-20L	BDGWTR	A4	Back
23	ADD	RACK PDU-ZERO U	A4-RDPU-R	Raritan	Dominion PX DPCS12-20L	BDGWTR	A4	Back
24	ADD	RACK PDU-ZERO U	A5-RDPU-L	Raritan	Dominion PX DPCS12-20L	BDGWTR	A5	Back
25	ADD	RACK PDU-ZERO U	A5-RDPU-R	Raritan	Dominion PX DPCS12-20L	BDGWTR	A5	Back

Cabinet ** Depth Position **

When entering US States, use full state names – do not use abbreviations. To view a list of States, ppen a Location in Edit mode and view the State drop-down list.

	A	B	C	D	E	F	G	H	I	J
1	# Operation *	Object *	dcTrack Location Code*	dcTrack Location Name*	Data Center Area*	Country*	State	Enable Virtual Power Chain	Is Default Location	Units
2	ADD	LOCATION	BDGWTR	Bridgewater	10000	United States	New Jersey	TRUE	FALSE	
3	ADD	LOCATION	BRNCHBRG	Branchburg	94	United States	New Jersey	TRUE	FALSE	SI
4										
5										

If you configure a location to use SI (metric) units, you must provide metric values in the spreadsheet for that location.

	A	B	C	D	E	F	G	H	I	J	K
1	# Operation *	Object *	dcTrack Location Code*	dcTrack Location Name*	Data Center Area*	Country*	State	Enable Virtual Power Chain	Is Default Location	Units	Locatio Picture Path
2	ADD	LOCATION	BDGWTR	Bridgewater	10000	United States	New Jersey	TRUE	FALSE		C:\Users
3	ADD	LOCATION	BRNCHBRG	Branchburg	94	United States	New Jersey	TRUE	FALSE	SI	C:\Users
4											
5											

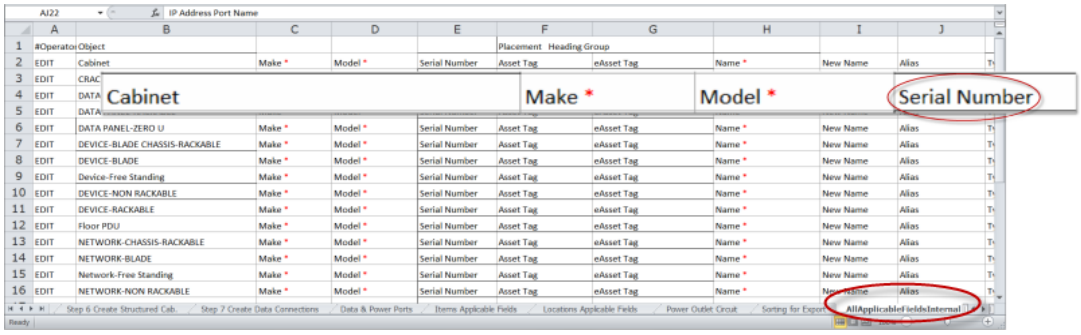
To add a data center image file for each location during an import, enter the images location in the Locate Picture Path.

	A	B	C	D	E	F	G	H	I	J	K
1	# Operation *	Object *	dcTrack Location Code*	dcTrack Location Name*	Data Center Area*	Country*	State	Enable Virtual Power Chain	Is Default Location	Units	Location Picture Path
2	ADD	LOCATION	BDGWTR	Bridgewater	10000	United States	New Jersey	TRUE	FALSE		C:\Users\Desktop\IMPORTITEMS\For Help\greendatacenter1.jpg
3	ADD	LOCATION	BRNCHBRG	Branchburg	94	United States	New Jersey	TRUE	FALSE	SI	C:\Users\Desktop\IMPORTITEMS\For Help\greendatacenter2.jpg
4											
5											
6											

Additional Field Worksheets

The fields that appear by default on each spreadsheet are required fields and commonly used fields.

In addition to these fields, you can copy and paste fields from among those listed on the item's corresponding "Applicable Fields" worksheet or "AllAppicableFields" worksheet. For example, you can add a Serial Number field for Device Item imports by copying and pasting the field from the "All Applicable Fields" worksheet.



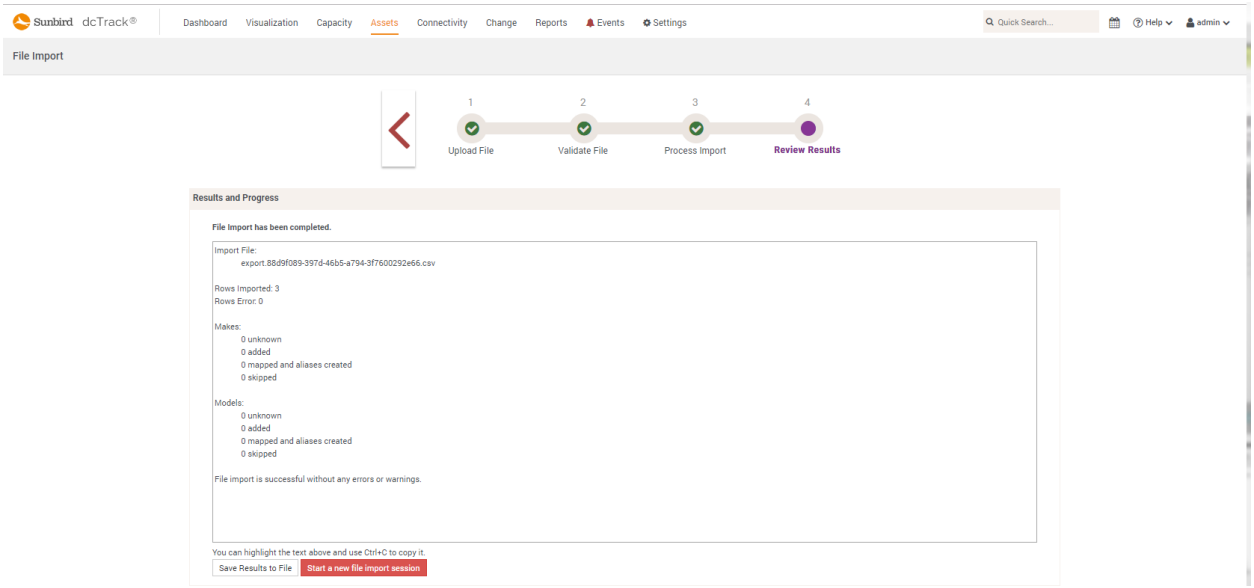
File Validation and Import Process

When you initially access an import file, dcTrack verifies it is in a proper file format and reports any file format errors.

Once you click Begin Import, dcTrack performs a line-by-line validation and reports errors encountered for a line. All operations (ADD/EDIT/DELETE) that are valid are completed. Only those operations where errors are encountered are not completed. You can correct those errors and re-import with the updated data.

Warnings and Errors

Warning and error information are presented in the File Import dialog in the Results section.



Warnings are displayed when data may require attention but are not considered invalid, such as port index conflicts resolved automatically on import.

An error may be a duplicate name or invalid number of characters in a field. When an error is encountered, dcTrack displays the invalid data as well as the line on the spreadsheet the data is entered.

Errors must be fixed before that row of data can be successfully imported. However, the remaining data in the spreadsheet are imported so long as they are valid.

Use the Save Results to File function. This allows you to save a file with only rows containing invalid data causing errors. You can then make changes directly to that file and then re-import it.

Alternatively, highlight the information in the Results section, then use Ctrl+C to copy and paste the information to a file. Reference the information when you update the incorrect data.

Proceed on Warning

Select Proceed on Warning if you want dcTrack to continue with the import but display data that caused the warning. For example, duplicate serial numbers on items can generate a warning.

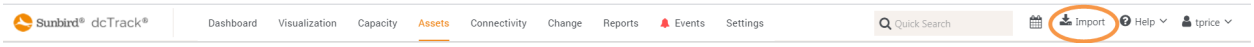
If Proceed on Warning is not selected, dcTrack does not import the data.

Use File Import to Add Locations and Items

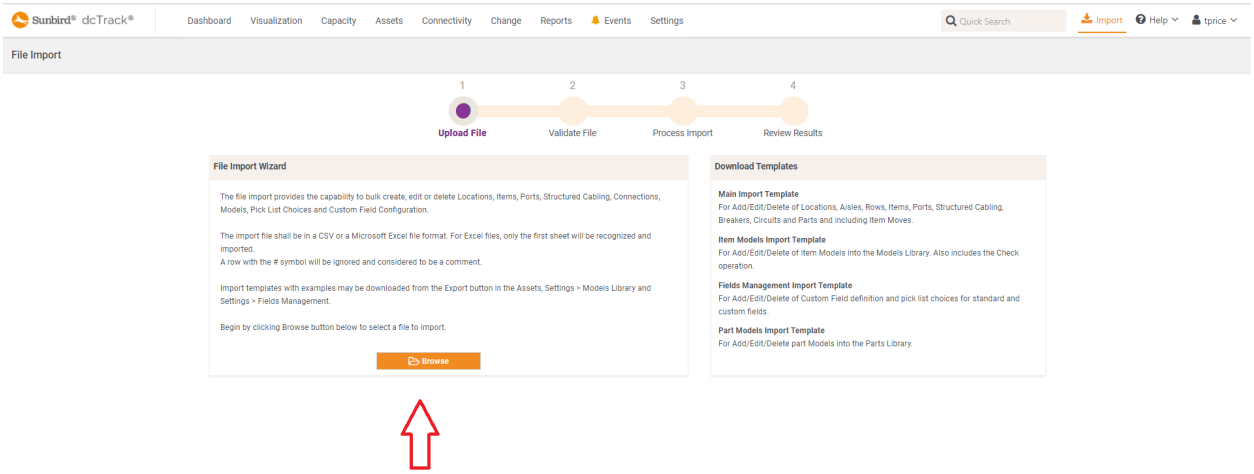
Perform a File Import

The following steps cover importing locations, verifying locations were imported, importing items and connections, verifying items and connections were imported, and uploading and syncing drawing files with locations.

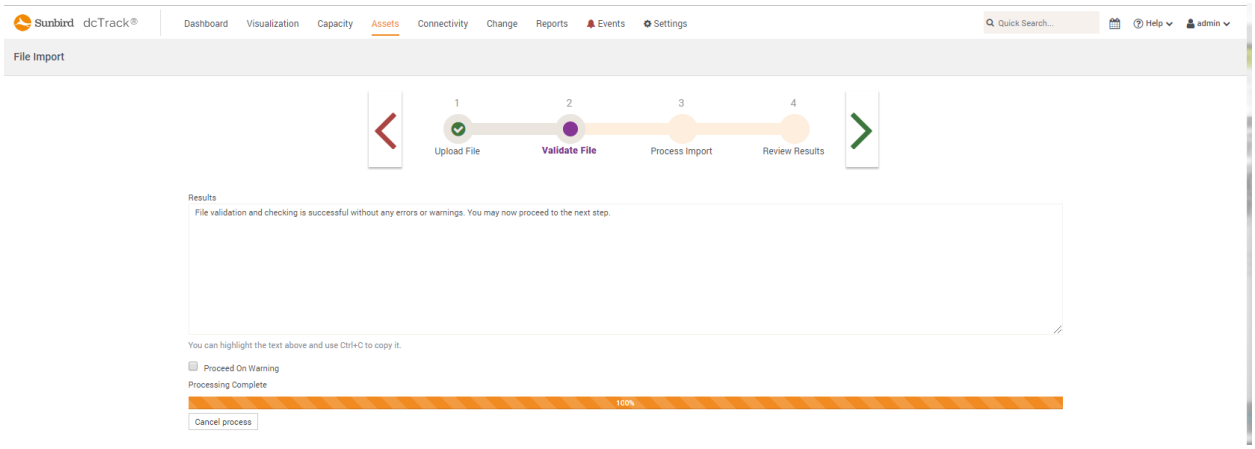
1. Import locations first if you have not already done so. Once locations exist in dcTrack, import items and connections.
2. Begin a File Import by clicking the Import button in the dcTrack main tool bar



3. Once you select the File Import option, the File Import dialog opens. Use Browse to locate the import file.

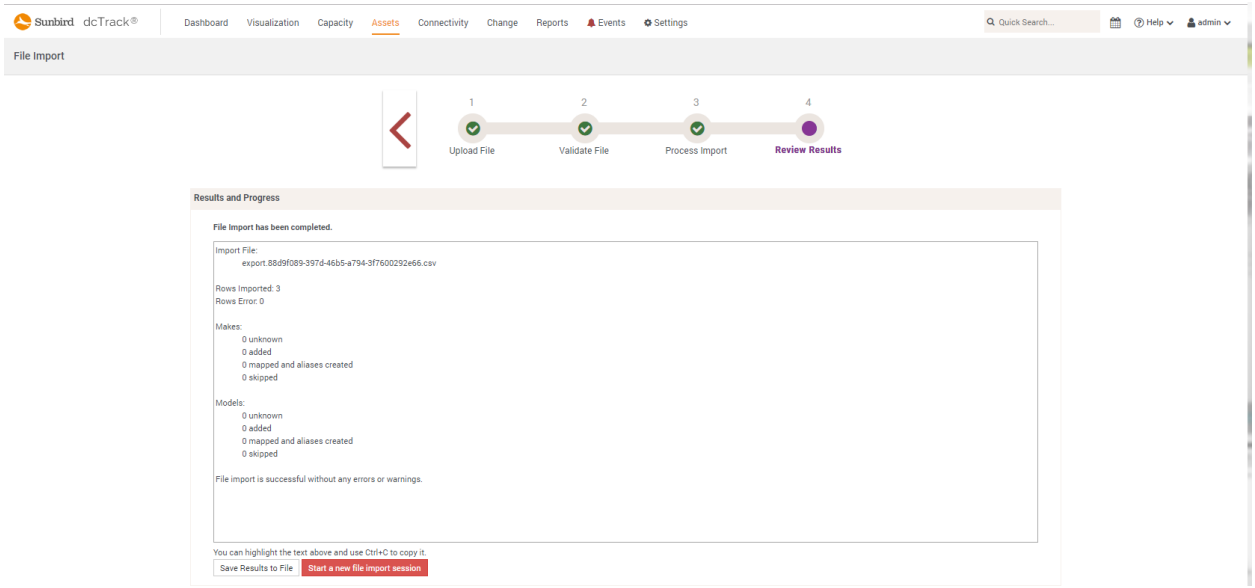


As soon as you select the import file, the file is validated by dcTrack to ensure it is formatted correctly. All errors encountered during file validation must be corrected before proceeding to 'Process Import'.



4. If no validation errors are found or once corrected, click the green arrow on the right of the process bar to continue to the Process Import step.

Warning or errors are displayed, if found.

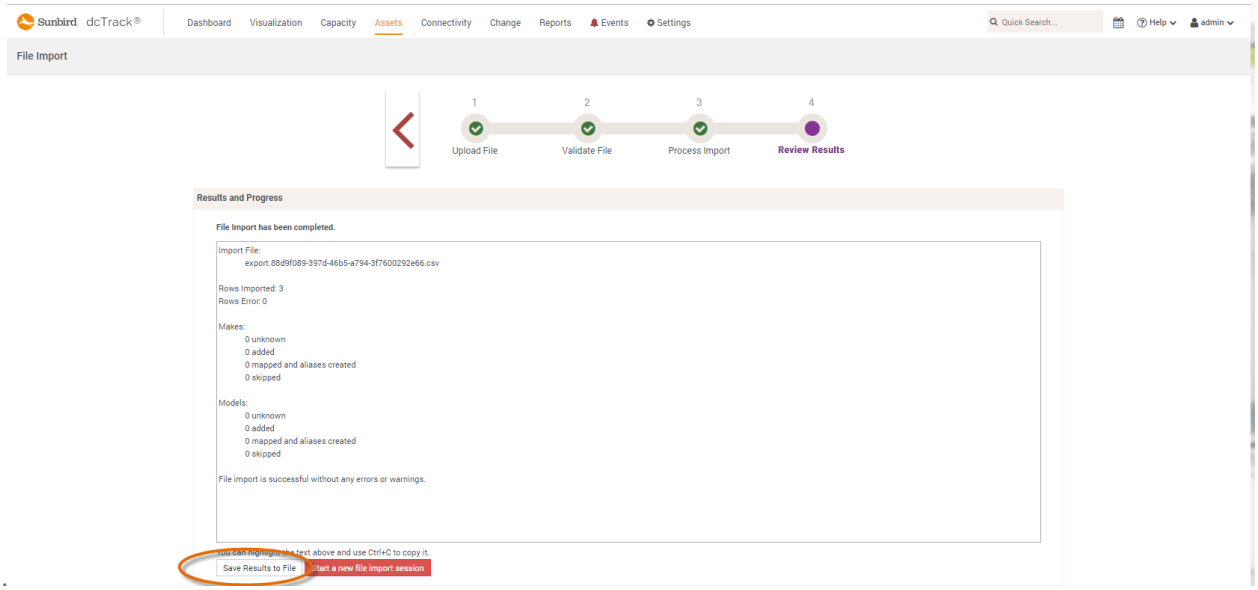


As dcTrack imports your data, a progress bar is displayed at the bottom of the window.

5. Once the import is complete, you can go on to view the newly added locations, begin another import session, or select any option from the top menu bar to move to another activity.

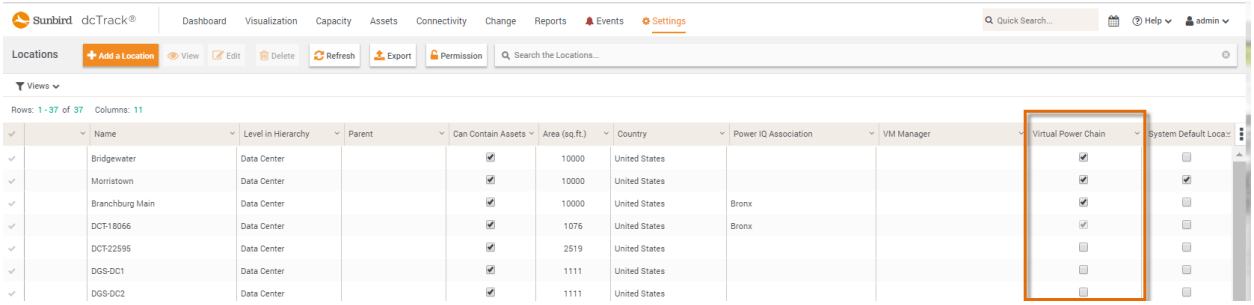
Any errors encountered during import are listed in the Results section of the File Import dialog, and all valid data are imported.

Select "Save Results to File" to create a file containing only invalid data. You can then fix the issues and import the data again



6. Locations appear in the Default Location drop-down, Location drop-down, on the Items List under Assets and so on.
7. If you entered TRUE for "Enable Virtual Power Chain", ensure VPC is enabled by selecting Assets > Locations in the Web Client.
8. The VPC checkbox is selected for locations that are VPC enabled.

If VPC is not enabled for a location, you can enable it from this page.



9. If needed, integrate dcTrack with one or more Power IQs. Navigate to Settings > dcTrack Settings > Application Administration and open the Power IQ Integration Settings tab. You can then use File Import to sync integrated Power IQs. See **Use File Import to Sync Integrated dcTrack and Power IQ**.

10. Next, import cabinets and items if you have not already done so.
11. You can perform this step now or at a later time, but note that cabinets and items must exist in the data center in order to sync drawing files. Otherwise, you must map or import them after syncing.

12. Use File Import and follow the same steps that are outlined above.

No readings are displayed in the widgets on the Web Client Dashboard until:

- Items that can send SNMP readings are added and configured to send them, and/or you are integrated with Power IQ.
- Items sending readings are powered on.

This is also true on item pages once items are added.

14. Import power and data connections once items are imported.
15. You can perform this step now or at a later time.
16. Use File Import and follow the same steps that are outlined above.
17. To view newly added items or connections, click Refresh on the Items List or Circuits List page.

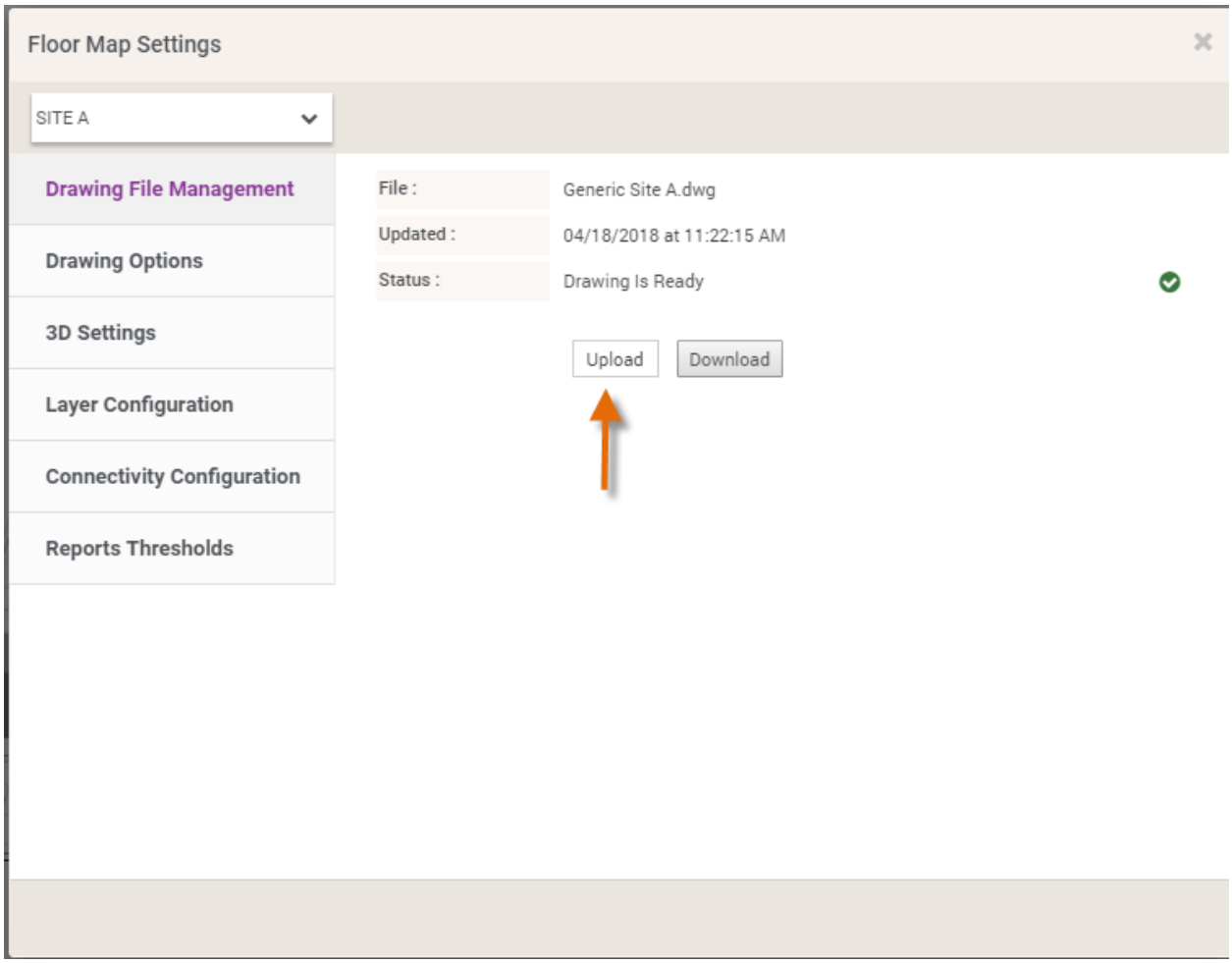
Note: For items, filter the list by Origin = Import. You can also filter by Location so only imported items for the specified location are displayed.

18. Next, upload each location's drawing file, if applicable.

This is done in the Web Client using the Upload feature on the Floor Maps page.

Upload each data center's drawing file separately.

19. Click on the Visualization tab to open the Floor Maps page.
20. From the Location drop-down, select the location you want to upload the drawing file to.
21. Click Settings if the Upload icon is not displayed already.
22. Click Upload, then use browse to locate and select the .DWG file.



The upload time may vary depending on file size and network speed.

Once the file has uploaded, a processing message is displayed while dcTrack processes and syncs the file.

dcTrack syncs the objects in the drawing file with existing dcTrack items of the same name.

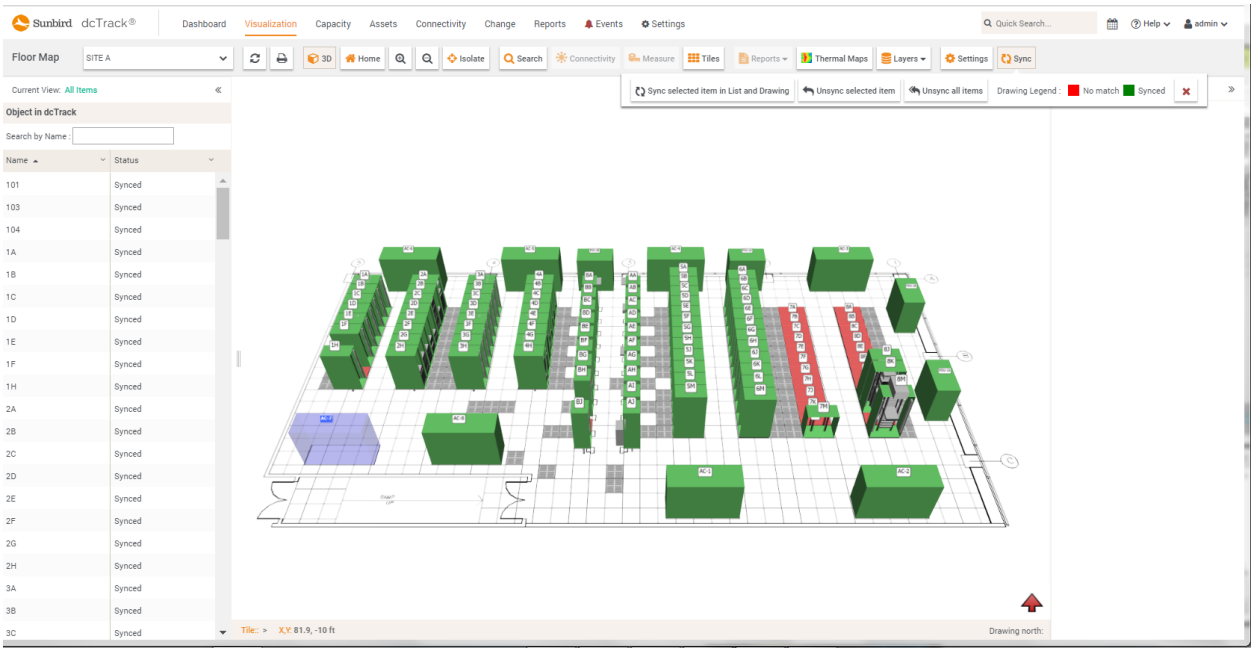
Processing typically takes a few seconds, and does not require you to stay on the Floor Maps page.

A message indicates when the file is being rendered. Click OK to close it or allow it to close on its own.

A successful upload is indicated by the floor map appearing and a green checkmark icon at the top of the page.

The floor map loads, and all synced cabinets are listed in the Items List on the left.

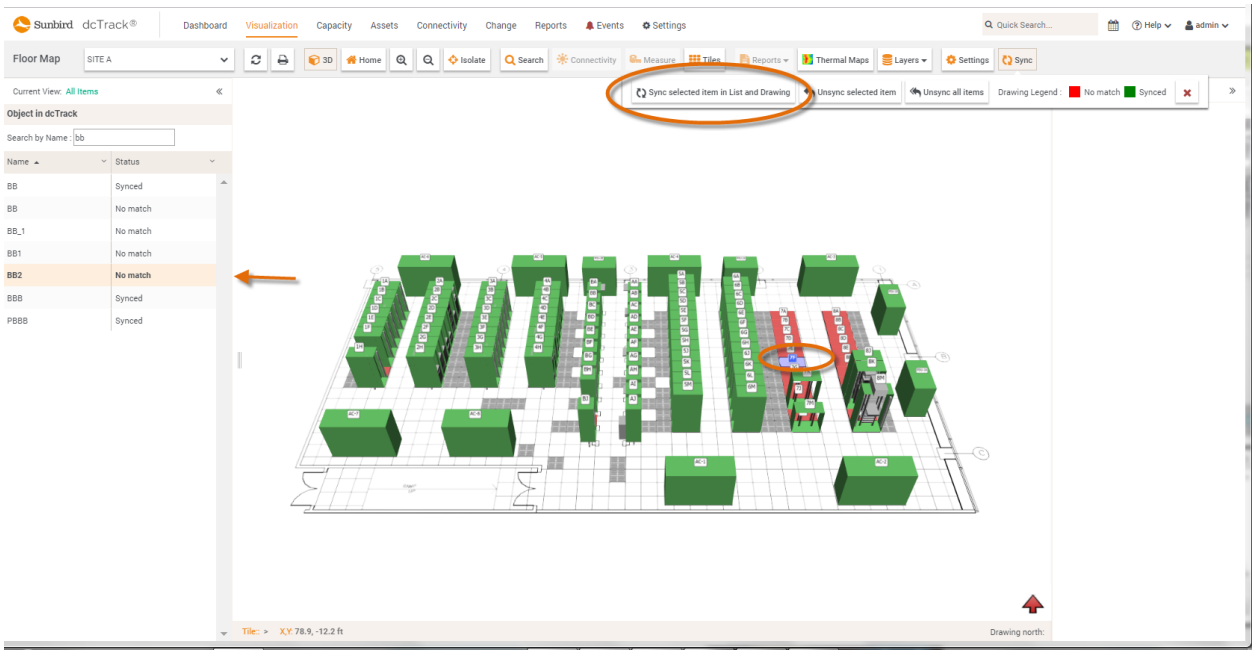
23. Cabinets and items that are not synced during the drawing file upload must be synced using the Sync Button on the Floormap tool bar.



Items that are not sync'd will have a status value of "No Match" in the Item List

To sync objects:

24. Click the Sync button on the tool bar
25. Select the unmatched item from the item list
26. Click on the corresponding match in the Floor Map
27. Click the Sync Selected Item in List and Drawing button



Use File Import to Sync Integrated dcTrack and Power IQ

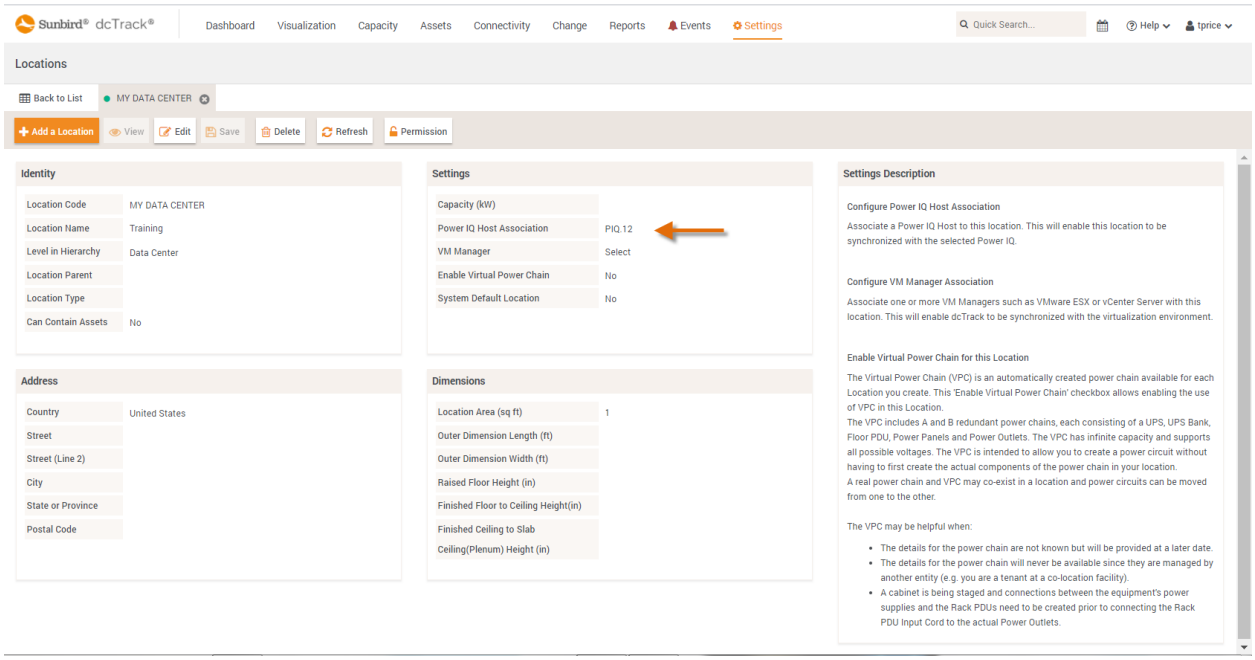
If Power IQ Integration is configured and enabled for a location, you can sync individual locations or items from dcTrack to existing data centers or assets from PIQ.

Steps to Integrate dcTrack and Power IQ using file import:

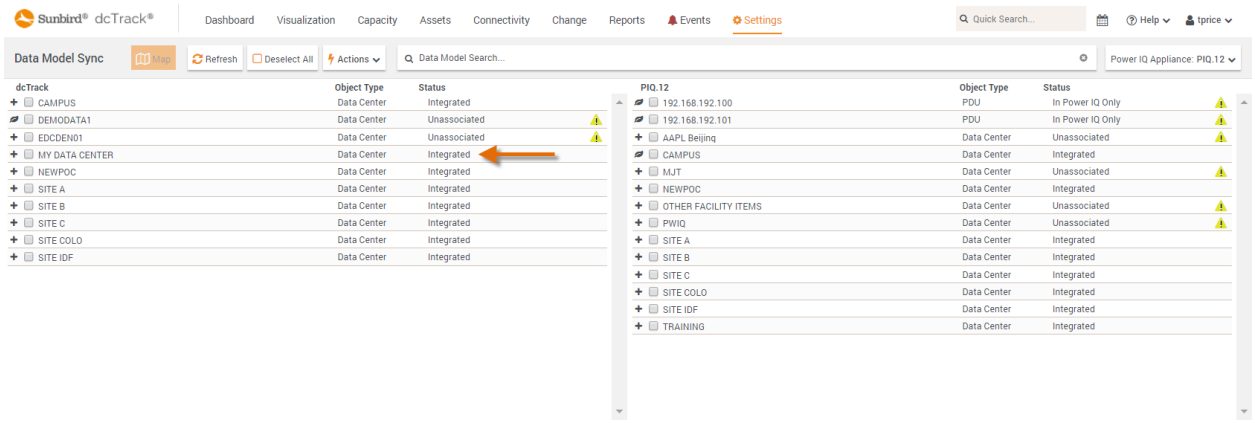
1. Verify the hierarchy and Location names in dcTrack match Power IQ
2. Generate an export file from Power IQ using the external export feature. This export includes all of the columns required by dcTrack's Import feature.

   To access the external Export use https://<Power IQ IP Address>/admin/integration/export

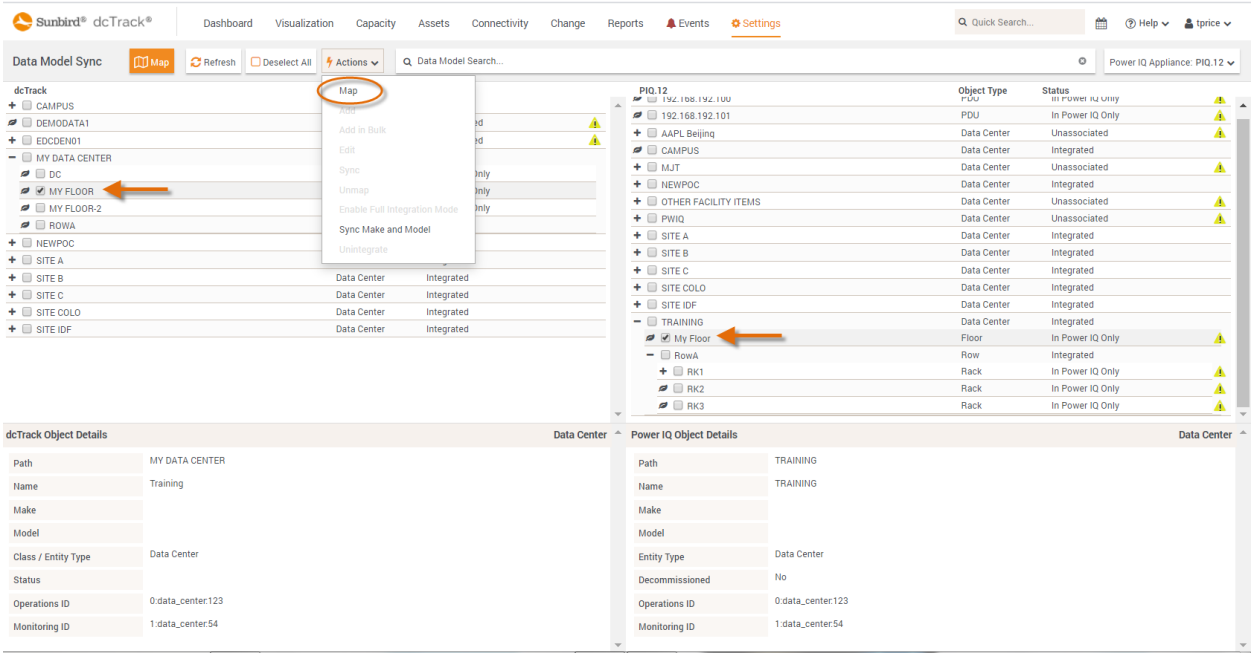
3. From the dcTrack Location Detail page, associate the Location you wish to synchronize with the appropriate Power IQ instance



4. Navigate to Settings > Data Model Sync to verify the dcTrack Location's status is Integrated



5. If not all Floors and Rooms appear as integrated use the Map Action in Data Model Sync to Map them.
   a. Select the entity you want to map (Floor, Room) on the left side (dcTrack side) of the page.
   b. Select the associated Power IQ entity to be mapped on the right side of the page
   c. Click the Map option on the Actions menu



6. Import the Rows, Cabinets, Rack PDUs and devices using the CSV file generated in Step 2.
7. Before importing make sure you change the Operation in the file to MAP

	A	B	C	D	E	F	G	H	I	J	K	L
1	# Operation *	Object *	Sub Location Name *	Location *	Sub Location Type *	Parent Sub Location	Capacity(kW)	Power IQ Object Type	Power IQ Object ID *	Power IQ Appliance		
2	MAP	SUBLOCATION	RowA	TRAINING	ROW			Row	90			
3	# Operation *	Object *	Name *	Make *	Model *	Location *	Front Faces	Aisle Label	Row Label	Position in Row	Status	Capacity(k
4	MAP	CABINET	RK3			TRAINING			RowA			
5	MAP	CABINET	RK2			TRAINING			RowA			
6	MAP	CABINET	RK1			TRAINING			RowA			
7	# Operation *	Object *	Name *	Make *	Model *	Location *	Cabinet	U Position	Rails Used	Orientation	Status	Power IQ (
8	MAP	DEVICE-RACKABLE	MyITDevice01			TRAINING	RK1					Device
9												

8. Navigate back to Data Model Sync
9. Refresh the page
10. Verify the Status of each entity (Location, Floors, Rooms, Aisles, Rows, Cabinets, Rack PDUs, devices) is Integrated

If Power IQ Integration is configured and enabled for a location, you can sync individual locations or items from dcTrack to existing data centers or assets from PIQ.

When entering Power IQ information enter:

- Power IQ Appliance Name, IP Address or Hostname: This information is provided by your network System Administrator.
- Power IQ Object External Key

The Power IQ Object External Key can be pulled from Power IQ by doing the following:

1. In the Power IQ, open the Settings tab.
2. Click Enterprise Relationships.
3. In the CSV Data Mapping Actions section, click Export Relationships.

A .CSV file such as this is generated. The fields that are circled indicate the information you need. You can copy and paste this information into the Import Template.

	A	B
10	# The following section contains the current list of Rows and the Row column headers for use during import.	
11	# object_type	external_key
12	# The following section contains the current list of Racks and the Rack column headers for use during import.	
13	# object_type	external_key
14	RACK	Rack -- 1
15	RACK	Rack -- 2

Insert a new line for each location or item, and enter the required integration information.

You can then add the following information to your integrated Power IQs using File Import.

Use File Import to Create Power and Data Connections

Prerequisites

Before you can import data and power connections into dcTrack, the items used in the connections must exist. So, import your rack PDUs, devices and so on. Add or configure ports on devices if needed. Note that you can manually add your items instead of importing them.

You must also create your power infrastructure in dcTrack. This means adding Cooling units and then adding the Cooling Units to Cooling Zones, adding UPS units and adding UPS units to UPS banks, and creating your floor PDUs, breakers, poles, busways and so on. See **Add and Configure Power Infrastructure Items - Cooling Units, UPS Units and Floor PDUs**.

Power Connections

Use the Create Power Connections worksheet in the Import Template to create power connections and import them into dcTrack.

	A	B	C	D	E	F	G	H	I	J	K	L	M
4	# Value provided for cord type can be one already existing in the dcTrack Connectors Library, Connection Cords list or can be added as a new entry for the list.												
5	# Starting items can be Device, Network, Probe and Rack PDU class items only.												
6	# When the Ending Item Location has the Virtual Power Chain enabled, VPC-A or VPC-B can be designated as the Ending Item along with a Virtual Power Port (VPP) as Ending Port Name.												
7	# Only circuits in the Planned state can be deleted.												
8	# Cord color must be accompanied by cort type.												
9	# Length Units are US or SI, it is US by default and can be omitted.												
10													
11	**# Operation ***	**Object ***	**Starting Item Location ***	**Starting Item Name ***	**Starting Port Name ***	**Ending Item Name ***	**Ending Port Name ***	**Cord Type**	**Cord ID**	**Cord Color**	**Cord Length (ft/m)**	**Length Units**	**Ending Item Location ***
12	ADD	POWER-CONNECTION	BDGWTR	A1-RDPU-L	Input Cord	VPC-A	VPP	Inlet Cord	ip-001	blue	6	US	BDGWTR
13	ADD	POWER-CONNECTION	BDGWTR	A1-RDPU-R	Input Cord	VPC-B	VPP	Inlet Cord	ip-002	red	6	US	BDGWTR
14	ADD	POWER-CONNECTION	BDGWTR	HP-C7000-01	PS1	A1-RDPU-L	Outlet 01	Power Cord	ps-001	blue	6	US	BDGWTR
15	ADD	POWER-CONNECTION	BDGWTR	HP-C7000-01	PS2	A1-RDPU-R	Outlet 01	Power Cord	ps-002	red	6	US	BDGWTR
16	ADD	POWER-CONNECTION	BDGWTR	HP-C7000-01	PS3	A1-RDPU-L	Outlet 02	Power Cord	ps-003	blue	6	US	BDGWTR
17	ADD	POWER-CONNECTION	BDGWTR	HP-C7000-01	PS4	A1-RDPU-R	Outlet 02	Power Cord	ps-004	red	6	US	BDGWTR
18	ADD	POWER-CONNECTION	BDGWTR	HP-C7000-02	PS1	A1-RDPU-L	Outlet 03	Power Cord	ps-005	blue	6	US	BDGWTR
19	ADD	POWER-CONNECTION	BDGWTR	HP-C7000-02	PS2	A1-RDPU-R	Outlet 03	Power Cord	ps-006	red	6	US	BDGWTR
20	ADD	POWER-CONNECTION	BDGWTR	HP-C7000-02	PS3	A1-RDPU-L	Outlet 04	Power Cord	ps-007	blue	6	US	BDGWTR
21	ADD	POWER-CONNECTION	BDGWTR	HP-C7000-02	PS4	A1-RDPU-R	Outlet 04	Power Cord	ps-008	red	6	US	BDGWTR
22	ADD	POWER-CONNECTION	BDGWTR	CISCO-C2950-01	PS1	A1-RDPU-L	Outlet 05	Power Cord	ps-009	blue	6	US	BDGWTR
23	ADD	POWER-CONNECTION	BDGWTR	CISCO-C2950-01	PS2	A1-RDPU-R	Outlet 05	Power Cord	ps-010	red	6	US	BDGWTR
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Step 1 Add Locations | Step 2 Add Cabinets | Step 3 Add Rack PDUs | Step 4 Add Devices | **Step 5 Create Power Connections** | Step 6 Create Data Connections | Data & Power Ports | Item All Applicab

The connections between all of the items in a power chain form a complete circuit.

'Power connections' refers a connection between a starting item, such as a server or switch, and an ending item that is either a rack PDU or outlet.

It is important to designate the item's power supply port as the starting point, and the power outlet's input power port or rack PDU's input power port, as the ending item.

Once connected, these form the first half of a power circuit.

The remaining portion of the circuit is the upstream power connection to the power source, which consist of the floor PDU, power panel or busway, and UPS unit.

These connections already exist in dcTrack. They are created when you create your structured cabling.

Note: You can use the File Import to import power outlet circuiting. This eliminates having to manually create circuits from power outlets to either busways or power panels on existing floor PDUs.

Alternatively, you can connect items to virtual power chains if you are not ready to create 'normal' power circuits.

Connect items to virtual power chains manually, or import virtual power chain connections in bulk using the File Import.

Performing the Import

You cannot use a single file that includes a variety of hop quantities for each circuit. Make one file for all circuits that use no cabling hops, one file for those that have only one hop, one file for those with 2 hops and one file for those with 3 hops.

For a list of the requirements and/or prerequisites, as well as recommendations and examples of spreadsheets, see the worksheets in the templates.

Importing power connections follows the same basic steps using the File Import as other imports.

(Optional) Verify the circuits are imported by looking them up. Use the search and filter options on the Circuits List in the Web Client.

You can submit Connect Requests for one or more circuits now or at a later time. Submit a request in the Web Client from the Actions menu on the Circuits List.

See **Submit Circuit Requests from the Actions Menu**.

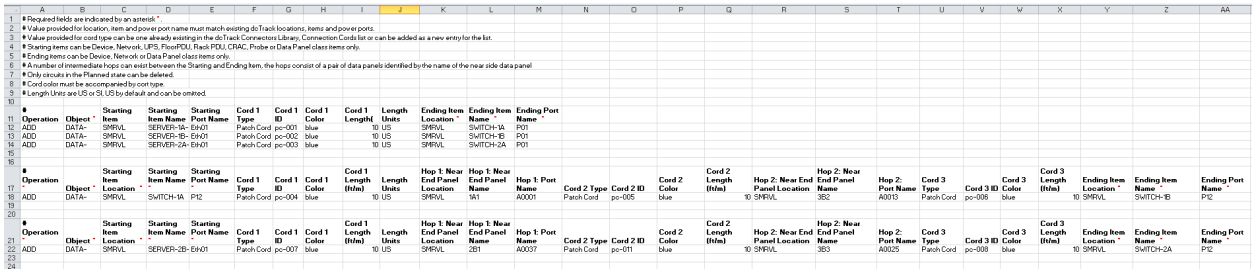
Data Connections

Prerequisites

Your structured cabling layout must already exist in dcTrack before importing connections.

Import Template

Use the Create Data Connections worksheet in the Import Template to create data connections and import them into dcTrack.



	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z	AA
1	# Required fields are indicated by an asterisk *																										
2	# Value provided for location, item and power port name must match existing dcTrack locations, items and power ports.																										
3	# Value provided for cord type can be one already existing in the dcTrack Connectors Library, Connection Cords list or can be added as a new entry for the list.																										
4	# Starting items can be Device, Network, UPS, FloorPDU, Rack PDU, CRAC, Probe or Data Panel class items only.																										
5	# Ending items can be Device, Network or Data Panel class items only.																										
6	# A number of intermediate hops can exist between the Starting and Ending Item, the hops consist of a pair of data panels identified by the name of the near side data panel																										
7	# Only circuits in the Planned state can be deleted.																										
8	# Cord color must be accompanied by cord type.																										
9	# Length Units are US or SI, US by default and can be omitted.																										
10																											
11	# Operation *	Object *	Starting Item Location *	Starting Item Name *	Starting Port Name *	Cord 1 Type	Cord 1 ID	Cord 1 Color	Cord 1 Length(	Length Units	Ending Item Location *	Ending Item Name *	Ending Port Name														
12	ADD	DATA-	SMRVL	SERVER-1A-	Eth01	Patch Cord	pc-001	blue		10 US	SMRVL	SWITCH-1A	P01														
13	ADD	DATA-	SMRVL	SERVER-1B-	Eth01	Patch Cord	pc-002	blue		10 US	SMRVL	SWITCH-1B	P01														
14	ADD	DATA-	SMRVL	SERVER-2A-	Eth01	Patch Cord	pc-003	blue		10 US	SMRVL	SWITCH-2A	P01														
15																											
16																											
17	# Operation *	Object *	Starting Item Location *	Starting Item Name *	Starting Port Name *	Cord 1 Type	Cord 1 ID	Cord 1 Color	Cord 1 Length (ft/m)	Length Units	Hop 1: Near End Panel Location	Hop 1: Near End Panel Name	Hop 1: Port Name	Cord 2 Type	Cord 2 ID	Cord 2 Color	Cord 2 Length (ft/m)	Hop 2: Near End Panel Location	Hop 2: Near End Panel Name	Hop 2: Port Name	Cord 3 Type	Cord 3 ID	Cord 3 Color	Cord 3 Length (ft/m)	Ending Item Location *	Ending Item Name *	Ending Port Name *
18	ADD	DATA-	SMRVL	SWITCH-1A	P12	Patch Cord	pc-004	blue		10 US	SMRVL	1A1	A0001	Patch Cord	pc-005	blue		10 SMRVL	3B2	A0013	Patch Cord	pc-006	blue		10 SMRVL	SWITCH-1B	P12
19																											
20																											
21	# Operation *	Object *	Starting Item Location *	Starting Item Name *	Starting Port Name *	Cord 1 Type	Cord 1 ID	Cord 1 Color	Cord 1 Length (ft/m)	Length Units	Hop 1: Near End Panel Location	Hop 1: Near End Panel Name	Hop 1: Port Name	Cord 2 Type	Cord 2 ID	Cord 2 Color	Cord 2 Length (ft/m)	Hop 2: Near End Panel Location	Hop 2: Near End Panel Name	Hop 2: Port Name	Cord 3 Type	Cord 3 ID	Cord 3 Color	Cord 3 Length (ft/m)	Ending Item Location *	Ending Item Name *	Ending Port Name *
22	ADD	DATA-	SMRVL	SERVER-2B-	Eth01	Patch Cord	pc-007	blue		10 US	SMRVL	2B1	A0037	Patch Cord	pc-011	blue		10 SMRVL	3B3	A0025	Patch Cord	pc-008	blue		10 SMRVL	SWITCH-2A	P12
23																											
24																											

Data circuits can consist of up to eight end points:

- 1 end point at the beginning of the circuit ~ 1 end point at the end of the circuit with up to 3 hops in between, each consisting of 2 end points.

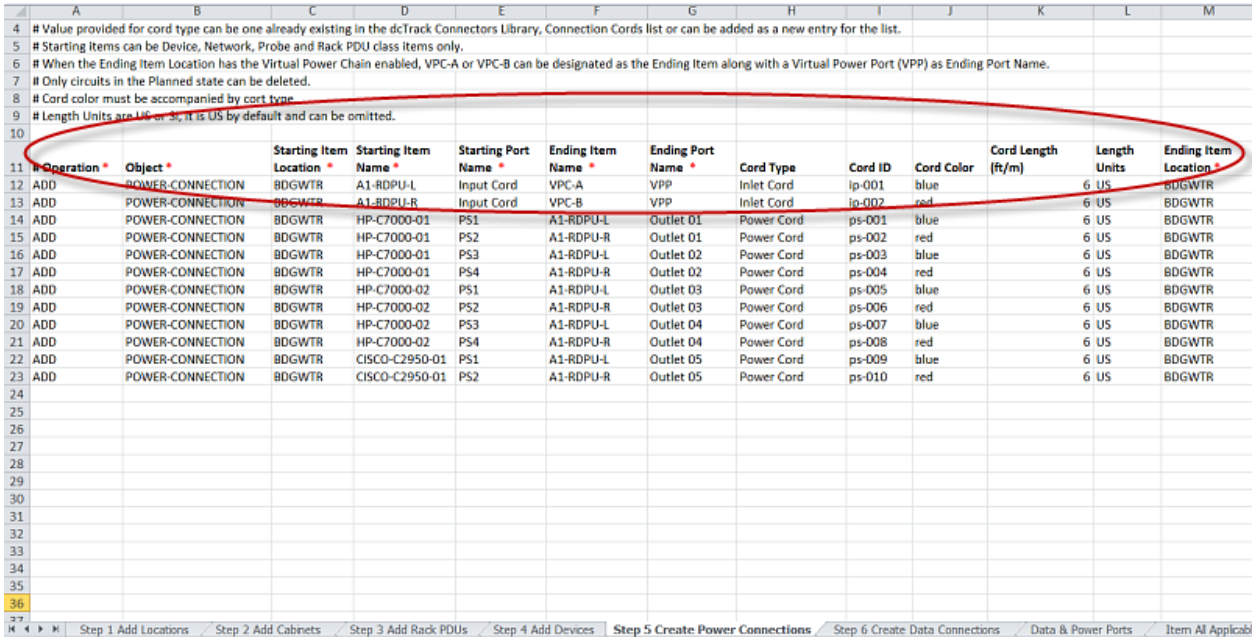
A spreadsheet file cannot include circuits that have a different number of hops. So, create individual import files for:

- Circuits with no cabling hops
- Circuits with 1 hop
- Circuits with 2 hops
- Circuits with 3 hops

Use File Import to Import Virtual Power Chain Connections

Watch a video on how to use import. https://youtu.be/8R-UsdiumcM

This topic outlines how to create a file that will import Virtual Power Chain connections. For detailed steps on using the File Import feature, see **Use File Import to Add, Edit Delete and Move**.



	A	B	C	D	E	F	G	H	I	J	K	L	M
4	# Value provided for cord type can be one already existing in the dcTrack Connectors Library, Connection Cords list or can be added as a new entry for the list.												
5	# Starting Items can be Device, Network, Probe and Rack PDU class items only.												
6	# When the Ending Item Location has the Virtual Power Chain enabled, VPC-A or VPC-B can be designated as the Ending Item along with a Virtual Power Port (VPP) as Ending Port Name.												
7	# Only circuits in the Planned state can be deleted.												
8	# Cord color must be accompanied by cord type.												
9	# Length Units are US or SI, it is US by default and can be omitted.												
10													
11	# Operation *	Object *	Starting Item Location *	Starting Item Name *	Starting Port Name *	Ending Item Name *	Ending Port Name *	Cord Type	Cord ID	Cord Color	Cord Length (ft/m)	Length Units	Ending Item Location *
12	ADD	POWER-CONNECTION	BDGWTR	A1-RDPU-L	Input Cord	VPC-A	VPP	Inlet Cord	ip-001	blue	6	US	BDGWTR
13	ADD	POWER-CONNECTION	BDGWTR	A1-RDPU-R	Input Cord	VPC-B	VPP	Inlet Cord	ip-002	red	6	US	BDGWTR
14	ADD	POWER-CONNECTION	BDGWTR	HP-C7000-01	PS1	A1-RDPU-L	Outlet 01	Power Cord	ps-001	blue	6	US	BDGWTR
15	ADD	POWER-CONNECTION	BDGWTR	HP-C7000-01	PS2	A1-RDPU-R	Outlet 01	Power Cord	ps-002	red	6	US	BDGWTR
16	ADD	POWER-CONNECTION	BDGWTR	HP-C7000-01	PS3	A1-RDPU-L	Outlet 02	Power Cord	ps-003	blue	6	US	BDGWTR
17	ADD	POWER-CONNECTION	BDGWTR	HP-C7000-01	PS4	A1-RDPU-R	Outlet 02	Power Cord	ps-004	red	6	US	BDGWTR
18	ADD	POWER-CONNECTION	BDGWTR	HP-C7000-02	PS1	A1-RDPU-L	Outlet 03	Power Cord	ps-005	blue	6	US	BDGWTR
19	ADD	POWER-CONNECTION	BDGWTR	HP-C7000-02	PS2	A1-RDPU-R	Outlet 03	Power Cord	ps-006	red	6	US	BDGWTR
20	ADD	POWER-CONNECTION	BDGWTR	HP-C7000-02	PS3	A1-RDPU-L	Outlet 04	Power Cord	ps-007	blue	6	US	BDGWTR
21	ADD	POWER-CONNECTION	BDGWTR	HP-C7000-02	PS4	A1-RDPU-R	Outlet 04	Power Cord	ps-008	red	6	US	BDGWTR
22	ADD	POWER-CONNECTION	BDGWTR	CISCO-C2950-01	PS1	A1-RDPU-L	Outlet 05	Power Cord	ps-009	blue	6	US	BDGWTR
23	ADD	POWER-CONNECTION	BDGWTR	CISCO-C2950-01	PS2	A1-RDPU-R	Outlet 05	Power Cord	ps-010	red	6	US	BDGWTR
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Step 1 Add Locations | Step 2 Add Cabinets | Step 3 Add Rack PDUs | Step 4 Add Devices | **Step 5 Create Power Connections** | Step 6 Create Data Connections | Data & Power Ports | Item All Applicabl

System Administrators and Gatekeepers can also add VPCs manually in the Web Client. For details on File Import, see **Manually Create Virtual Power Chain Connections**.

The Virtual Power Chains created from the spreadsheet are made up of connections between existing dcTrack items and virtual items in the Virtual Power Chain.

Therefore, the items that will be connected to the Virtual Power Chain connections must exist in dcTrack. Using File Import to add the items or add them manually. See **Use File Import to Add, Edit Delete and Move** and **Add and Edit Items**.

Virtual Power Chain must be enabled for the location(s). You can enable VPC when adding locations manually or when importing locations using File Import by setting the Enable Virtual Power Chain field to TRUE in the Import Template. See **Enable or Disable VPC for a Location** and **Use File Import to Add, Edit Delete and Move**, respectively.

Note that you do not need to create the items that make up the Virtual Power Chain; these Virtual Power Chain items exist by default.

Use File Import to Import Power Outlet Circuiting

Using File Import to bulk import power outlet circuiting greatly reduces the amount of time it takes to build your infrastructure in dcTrack.

Bulk importing eliminates the need to create each power outlet manually in the Web Client, and then create each connection from the power outlet to either a busway or power panel.

In order to bulk import power outlet circuiting, you must first add and configure your floor PDUs and either each floor PDU's busway (without poles) or each floor PDU's power panel (with poles and breakers). Whether you create busways or power panels depends on your infrastructure requirements.

Use the 07_ Power_Outlet_Circuiting_Import_Wizard_Spreadsheet_dcTrack5.x.xls template to import power outlet circuiting.

Carefully review the prerequisites for importing power outlet circuiting before you begin. Prerequisites are provided in the Sunbird template, and in this topic.

Prerequisites

Before beginning a power outlet circuiting import, the following prerequisites must be met.

Manually add or use File Import to bulk import your floor PDUs. These can be in the same or a different location. See **Add and Configure Power Infrastructure Items - Cooling Units, UPS Units and Floor PDUs**.

Manually add or use File Import to bulk import these items. See **Manually Configure a Floor PDU for Power Outlet Circuiting Imports**.

- Power Panel Outlets:
  - Each floor PDU's power panel the power panel's poles and breakers are created in dcTrack.
  - The power outlets are created and do not contain any ports in dcTrack

- Busway Power Outlets:
  - Each Floor PDU and its busways are created in dcTrack
  - The power outlets are created and do not contain any ports, poles or breakers in dcTrack.

If you bulk import these items, use the 02_ All_Items_Import_Wizard_Spreadsheet_dcTrack5.x.xls template.

Import Template

To import power outlet circuiting, use the Power Outlet Circuit worksheet of the Import Template.

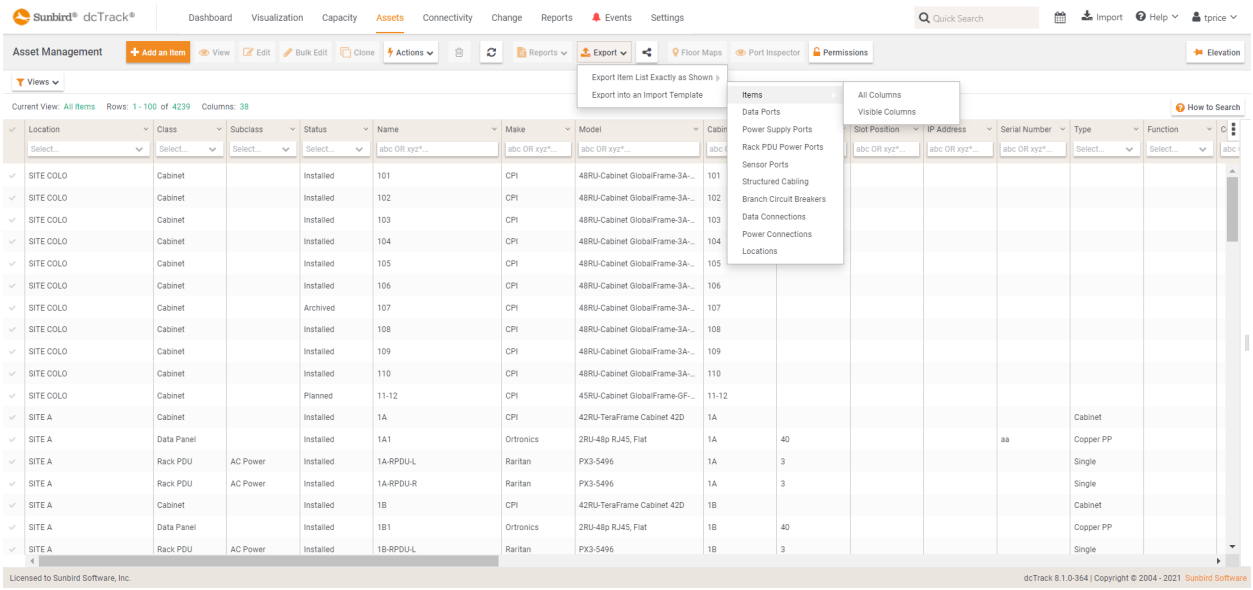
All spreadsheet columns are required for power outlet circuiting imports.

Performing the Import

If you are importing power outlet circuiting for both power panels and busways, perform separate imports using separate spreadsheets.

Export Data to Import Templates for Reimporting

This feature is available from the Items List, Connectivity List and Project List toolbars. Filter the Items List to contain the records you want to Export. From the List tool bar, click the "Export" menu button and select the "Export into an Import Template" option. For Items, you can additionally select from a list of Templates available for export.



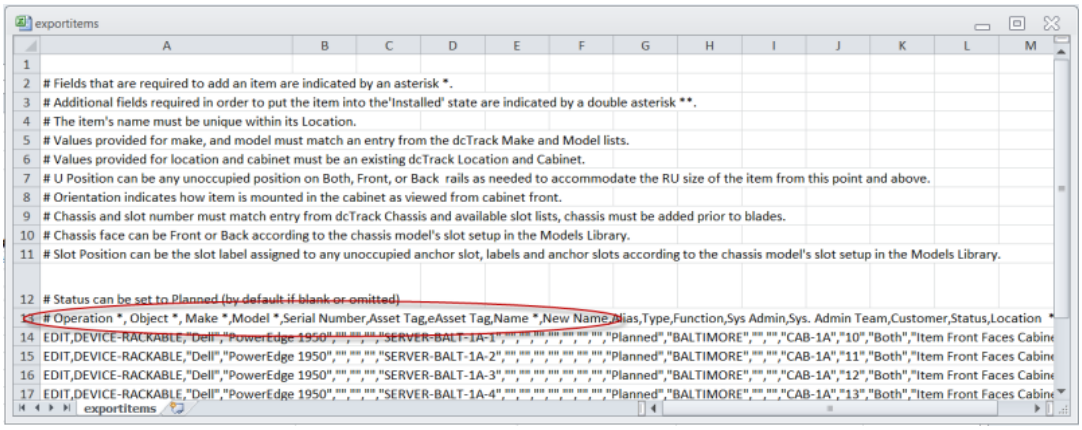
When exporting Items, two additional options are available, "All Columns", "Visible Columns". The "All Columns" option will export all columns applicable to the Item including all Custom Fields. The "Visible Columns" option displays only the Columns currently in the grid as well as any fields required by Import that are not in the current grid.

Using templates makes exports easier since you do not have to manually filter data in dcTrack to ensure the required fields are exported. And, since the required fields are exported to the template by default, this feature also helps ensure re-imports run smoothly.

Use this feature if, for example, you want to add serial numbers to a large number of items using the File Import EDIT operation.

To do this, export the data to the Item template so data for all required fields are exported. In the export template, required are identified with an asterisk and prepopulated with each data. You can then insert a Serial Number column in the spreadsheet, if needed, enter the serial numbers for each item, and reimport the file.

Note : When exporting the data with the 'Visible Columns' option, some columns not visible in the list are still included in the exported file and marked with double asterisks.



Any filters that are applied to the list view are applied to the template file.

Note: This feature is not available for Intelligent Capacity Search results.

Export Items and Connections to a .CSV File

dcTrack provides you with the ability to export items and connections from the Items List and Circuits List, respectively. This feature is useful for exporting data that you want to import into a third party system that does not require the same columns required by dcTrack's import feature.

From the Item list click the Export Button on the grid list toolbar and select the "Export Items Exactly as Shown" option. You can then select to export "All Rows", or only the "First 500 rows".

When "All Rows" is selected, all of the records that satisfy the current filter in the grid are exported. This includes rows beyond the visible portion of the grid.

When "First 500 rows" is selected, only the first 500 records based on the current sort are exported.

Any filters and sorting that are applied to the list view are applied to the export file. If you added fields to the list view, they are included in the template while fields you removed are not included.

From the Connectivity List Click the Export button on the tool bar and select the "Export Circuits" option.

For information on specifying a save location, see **How to Specify a Default Save Location for Downloaded Files**.

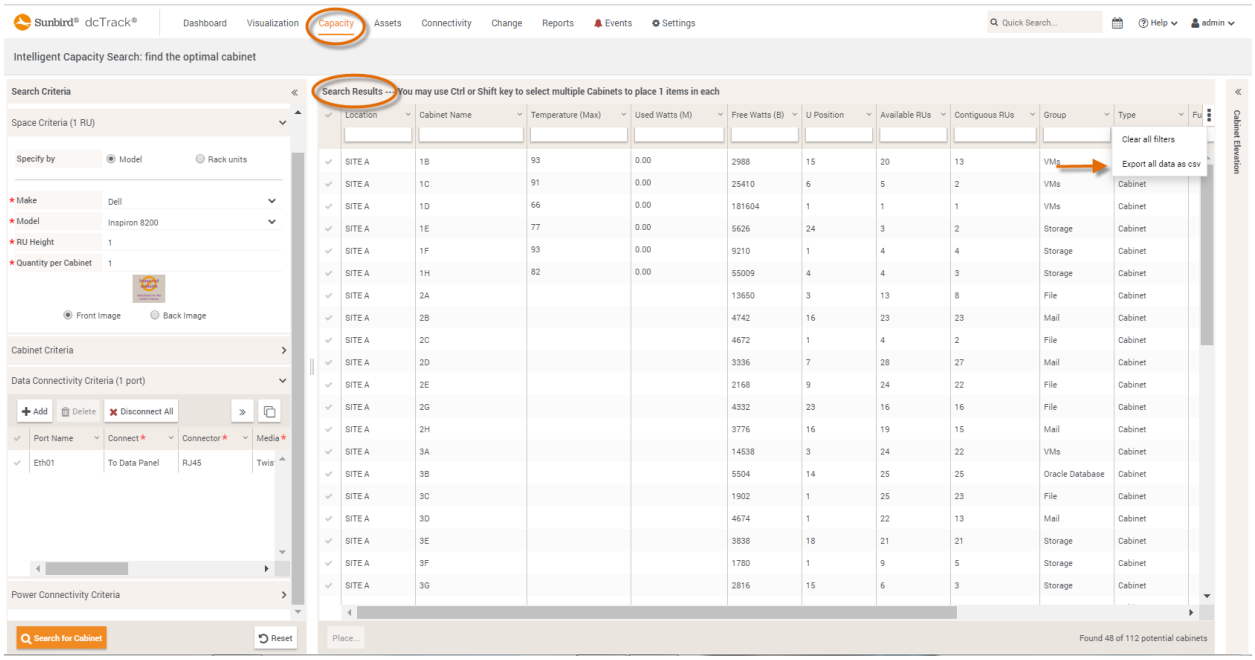
Note: If you change the order of the columns on the page, remove or add fields and so on, you can make that the default view for the list. Select the "Views" icon on the tool bar and then select "Save Current List Settings as...".

A	**Filter information you want to include in the export. For example, filter the list so only specific locations are included and only items in a Planned status at that location are included.**
B	Add or remove fields from the view and then export data. Only the columns that are still visible are included in the export.
C	Move columns by clicking on them and dragging them to a new position in the list view. The columns appear in the export file in the order you specify.

Export Intelligent Capacity Search Results

After performing an Intelligent Capacity Search, cabinets that meet the parameters your specified are listed in the Results section of the Intelligent Capacity Search page. This export is useful for auditing free cabinet space, determining available ports, determining the amount of free watts per cabinet, and locating the far end connection to cabinets to name just a few.

You can sort the results in the Results list by clicking on a column header. You can also reorder the columns by clicking on them and dragging them to a new position. When you export, the sort order of the items and the order of the columns is applied in the export file.



Use File Import to Edit or Delete Locations, Cabinets, Items or Connections

Overview

In addition to using File Import to add locations, items and connections, you can use it to update information and perform deletes.

To do this, first use the Export to Template feature in dcTrack to export the data you want to edit or delete. Next, make changes to the template and reimport it. Use the EDIT or DELETE operation, as needed. See **Export Data to Import Templates for Reimporting**.

You can update information for an item or delete an item so long as you have edit access to it.

Updates can include, but are not limited to, bulk renaming items, assigning IP addresses in bulk to ports, changing the status of items in bulk, deleting items or connections with a status of Planned, in bulk and so on.

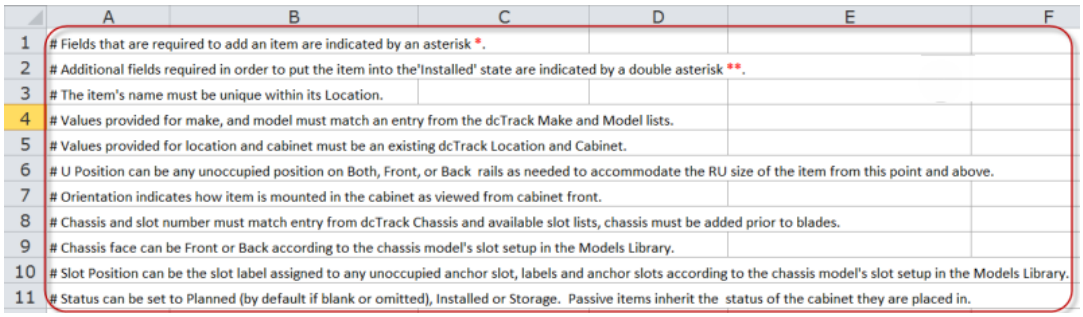
Update Items

Updates may include bulk name changes, adding information to existing items such as serial numbers, updating rack PDU IP addresses, modifying Part Numbers on Installed Items and so on.

- Enter EDIT in the # Operation fields for each item you want to update.
- Update information, as needed.

For example, change item names by inserting a New Name column in the Device Items worksheet, enter the new item names and update them using File Import.

- Complete all required and use the instructions on the page as a guideline for each field.
- Complete all required fields.
  - Operation
  - Object
  - Name
  - Location



	A	B	C	D	E	F
1	# Fields that are required to add an item are indicated by an asterisk *.					
2	# Additional fields required in order to put the item into the'Installed' state are indicated by a double asterisk **.					
3	# The item's name must be unique within its Location.					
4	# Values provided for make, and model must match an entry from the dcTrack Make and Model lists.					
5	# Values provided for location and cabinet must be an existing dcTrack Location and Cabinet.					
6	# U Position can be any unoccupied position on Both, Front, or Back rails as needed to accommodate the RU size of the item from this point and above.					
7	# Orientation indicates how item is mounted in the cabinet as viewed from cabinet front.					
8	# Chassis and slot number must match entry from dcTrack Chassis and available slot lists, chassis must be added prior to blades.					
9	# Chassis face can be Front or Back according to the chassis model's slot setup in the Models Library.					
10	# Slot Position can be the slot label assigned to any unoccupied anchor slot, labels and anchor slots according to the chassis model's slot setup in the Models Library.					
11	# Status can be set to Planned (by default if blank or omitted), Installed or Storage. Passive items inherit the status of the cabinet they are placed in.					

- Add columns to worksheets, if needed. Refer to the item's corresponding "Additional" worksheet that is found in the template.
- Follow the same steps to perform an import that are described in Add Cabinets, Items, Ports and Connections with File Import.
- Select Proceed on Warning if you want dcTrack to continue with the import but display data that caused the warning. For example, duplicate serial numbers on items can generate a warning.

It is also possible to modify Part Number on an Installed Item. This might be necessary if you have two Models with the same Model Name but different Part Numbers and an Item was linked to the wrong Model. If the Item is in a Planned status, you can simply modify the Item from the Item Detail page, however this is not possible on Installed Items within the UI. In this case you should use File Import to make the change as follows.

1. Export the Item using the "Export into an Import Template" option (you can also manually create the import file).
2. Change the operation to "UPDATE MODEL"
3. Enter the following information
    - # Operation * Object * Location * Name * Make * Model * New Part Number *
4. Import the file into dcTrack

To use this feature the new model must have the same Model Name, Class, Subclass, Mounting, Form Factor and RU Height as the original Model. Please note, the Model cannot be changed for an Item in the Archived status, and the change will not affect the Items Ports.

If Proceed on Warning is not selected, dcTrack does not import the data.

Delete Items

Use the DELETE operation to delete items and connections in bulk. For example, if you added cabinets to the wrong location, delete the cabinets at once using File Import.

All delete rules that apply when deleting items individually apply to deleting items in bulk:

- The item must be in a Planned state
- No open requests or work orders can exist for the item
- You must be the person who created the item or have edit privileges to the item

- The item cannot be deleted if a power or data connection exists to it

Deleting an item may impact other items it is associated with, as well as any connections. This is why you cannot simply open a cabinet's item page and delete an item from that page for example.

- When you delete items, additional ports created for the item, IP addresses, applications added to it, and so on, is also deleted.
- The item is permanently deleted from the database.
- If it is linked to an object on the floor map, that link is severed but the object itself is not affected.
- It is removed from the cabinet elevation if it was added to a cabinet.

To delete items:

- Enter DELETE in the # Operation field.
- Complete all required fields.
  - Operation
  - Object
  - Name
  - Location
- Follow the same steps to perform an import that are described in Add Cabinets, Items, Ports and Connections with File Import.
- Note that you are not prompted to confirm the deletion.
- Refresh the Items List or Circuits List to ensure the items were deleted.

Use File Import to Update the Status of Items in Bulk

This topic outlines how to create an import file that will bulk change the status of items.

For detailed steps on using the File Import feature, see **Use File Import to Add, Edit Delete and Move**

You can update item statuses so long as you have edit access to the location and items.

Export the items you want to update.

Ensure the Operation is set to Edit.

Complete all fields with a double asterisk**.

Complete all required fields marked with an asterisk*.

Change the status for each item in the Status column.

Use File Import to reimport the items.

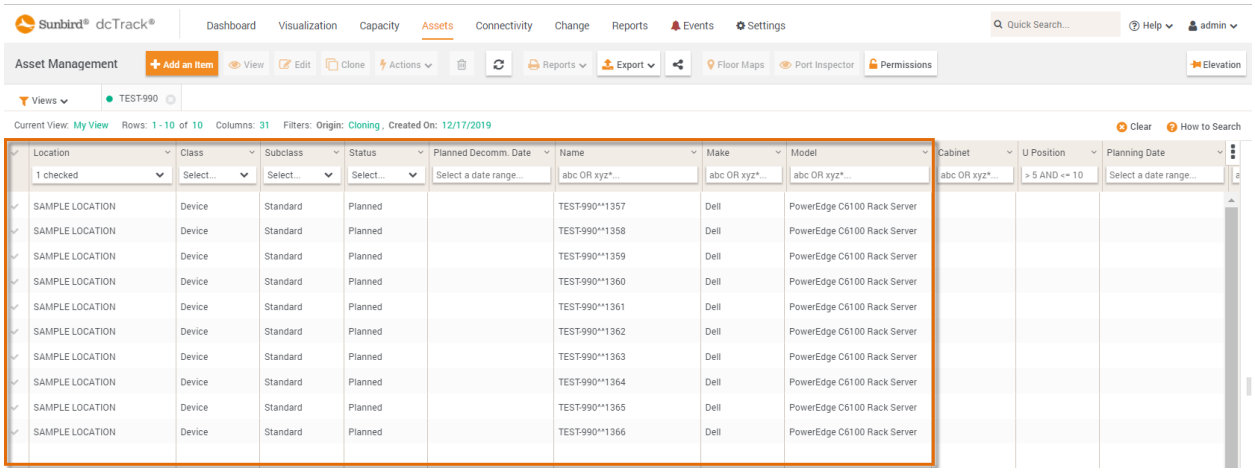
	A	B	C	D	E	F	G	H	I	J	K
13											
14	# Operation *	Object *	Name *	Make *	Model *	Location *	Cabinet **	U Position **	Rails Used **	Orientation **	Status
15	EDIT	DEVICE-STANDARD	KVM-Raritan-KXII-001	Raritan	Dominion KX DKX232	ZEN-1	CAB-A-Zen-1	46	Both	Item Front Faces Cabinet Front	Installed
16	EDIT	DEVICE-STANDARD	KVM-Raritan-KXII-002	Raritan	Dominion KX DKX232	ZEN-1	CAB-B-Zen-1	46	Both	Item Front Faces Cabinet Front	Installed
17	EDIT	DEVICE-STANDARD	KVM-Raritan-KXII-003	Raritan	Dominion KX DKX232	ZEN-1	CAB-C-Zen-1	46	Both	Item Front Faces Cabinet Front	Installed
18	EDIT	DEVICE-STANDARD	KVM-Raritan-KXII-004	Raritan	Dominion KX DKX232	ZEN-1	CAB-D-Zen-1	46	Both	Item Front Faces Cabinet Front	Installed
19	EDIT	DEVICE-STANDARD	KVM-Raritan-KXII-005	Raritan	Dominion KX DKX232	ZEN-1	CAB-E-Zen-1	46	Both	Item Front Faces Cabinet Front	Installed

Use File Import to Bulk Rename Items

This topic outlines how to create an import file that will rename items in bulk. For detailed steps on using the File Import feature, see **Use File Import to Add, Edit Delete and Move**.

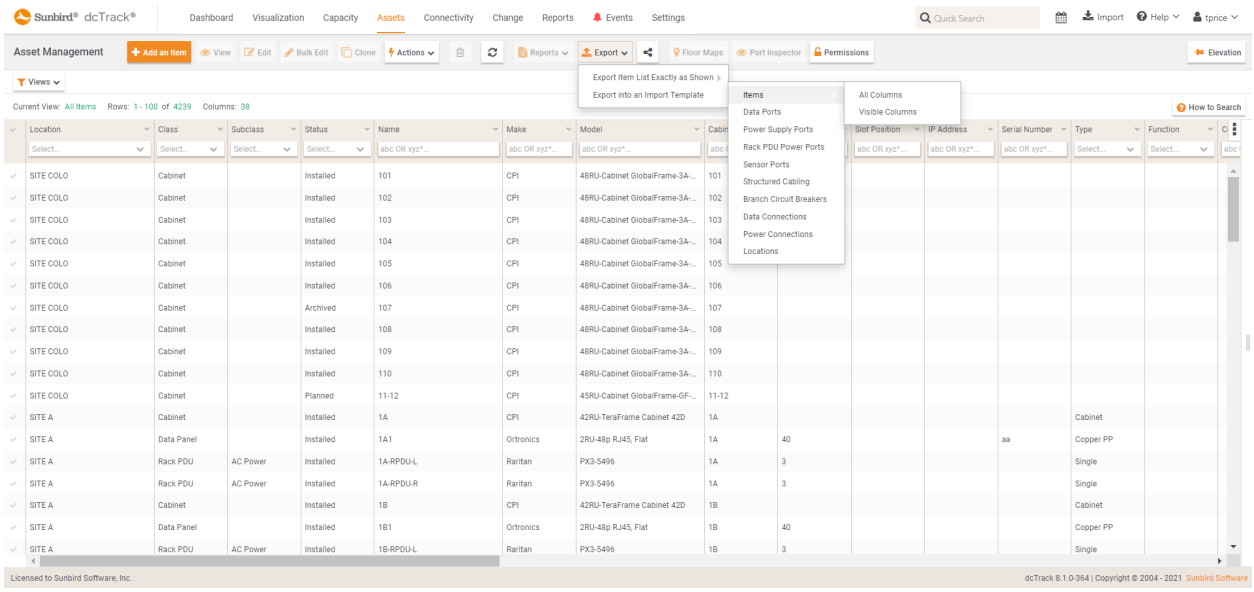
This is a useful feature if, for example, you have cloned one or more items and now need to rename the clones.

1. First, filter the Items List so only the items you want to export and rename are listed. In this example, clones are listed.



2. Use the Export feature in dcTrack to export the items.

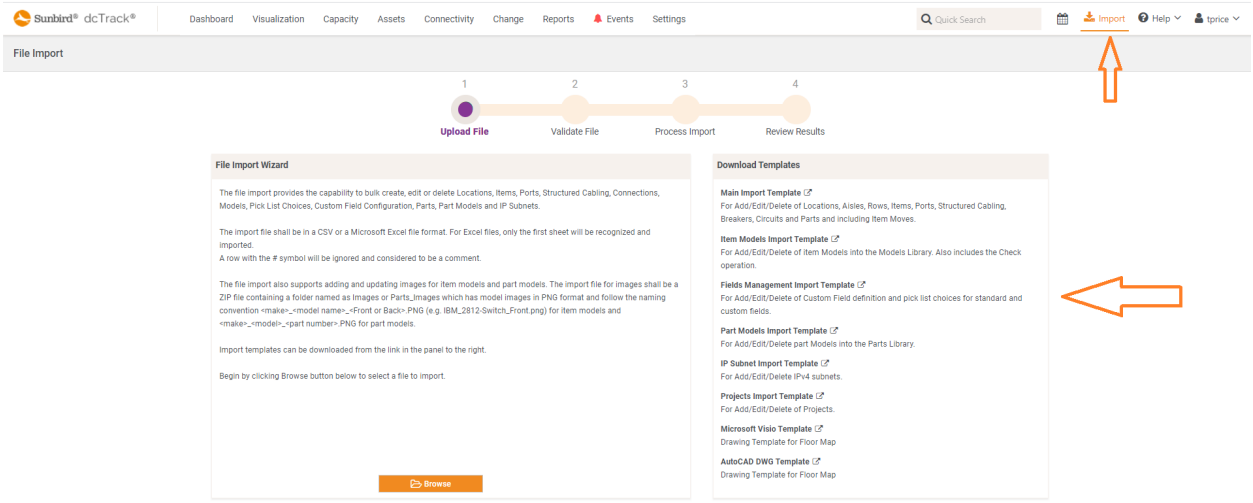
3. Export the items to the Item template so all required fields for a successful import are included. Note that a New Name column is included in the Item template.

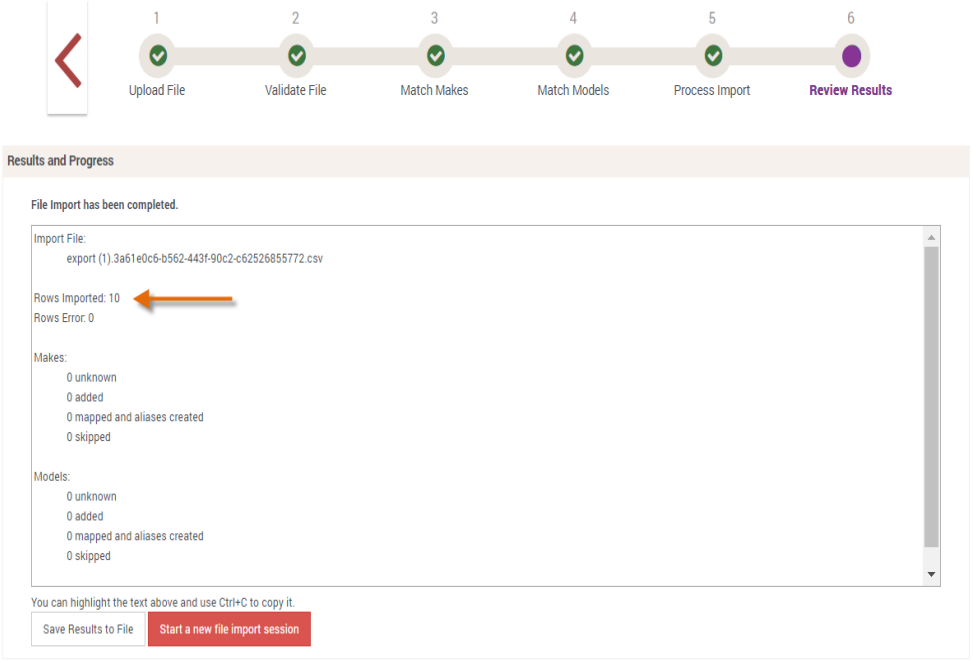


4. Save the file locally.
5. Once the items are successfully exported, you will be prompted to save the file locally.
6. Open the Item import template you just created.
7. The # Operation field will be set to EDIT. Note that you must leave the hashtag in front of Operation.
8. Format the file as needed. At a minimum, all required fields must be included.
    - Cabinet
    - Object
    - Make
    - Model
    - Location
    - Name
    - New Name
9. Leave the Name column as is, then enter the new item names in the New Name column.
10. Save and close the file, then return to the Web Client.

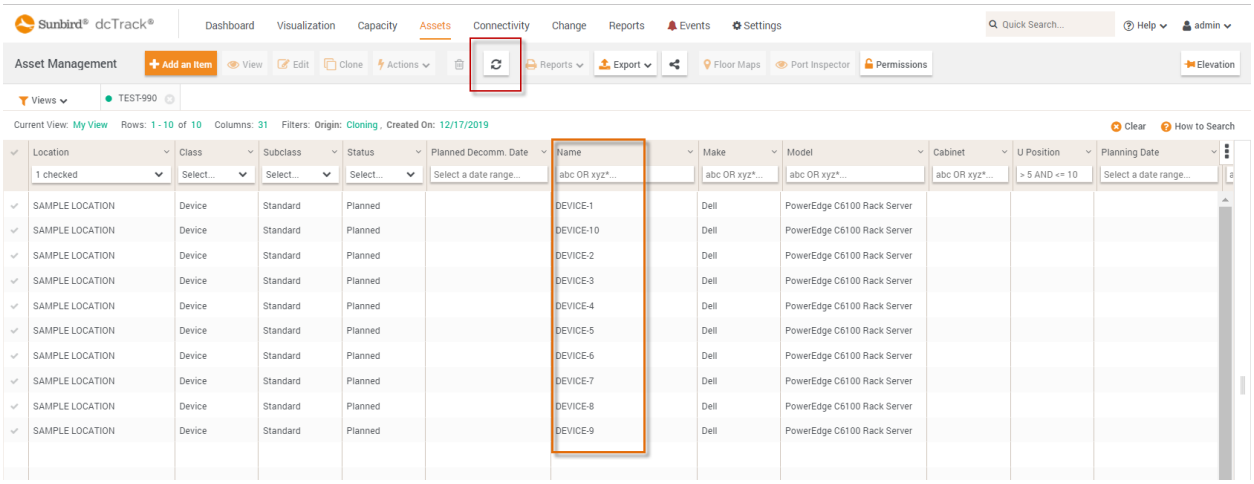
	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q
14	# Operatic	Object *	Make*	Model*	Serial Num	Asset Tag	eAsset Tag	Name*	New Name	Alias	Type	Function	Contact	Contact Te	Customer	Status	Planned D
15	EDIT	DEVICE-R/	Dell	PowerEdge C6100 Rack Server				TEST-990^^1357	DEVICE-1							Planned	
16	EDIT	DEVICE-R/	Dell	PowerEdge C6100 Rack Server				TEST-990^^1358	DEVICE-2							Planned	
17	EDIT	DEVICE-R/	Dell	PowerEdge C6100 Rack Server				TEST-990^^1359	DEVICE-3							Planned	
18	EDIT	DEVICE-R/	Dell	PowerEdge C6100 Rack Server				TEST-990^^1360	DEVICE-4							Planned	
19	EDIT	DEVICE-R/	Dell	PowerEdge C6100 Rack Server				TEST-990^^1361	DEVICE-5							Planned	
20	EDIT	DEVICE-R/	Dell	PowerEdge C6100 Rack Server				TEST-990^^1362	DEVICE-6							Planned	
21	EDIT	DEVICE-R/	Dell	PowerEdge C6100 Rack Server				TEST-990^^1363	DEVICE-7							Planned	
22	EDIT	DEVICE-R/	Dell	PowerEdge C6100 Rack Server				TEST-990^^1364	DEVICE-8							Planned	
23	EDIT	DEVICE-R/	Dell	PowerEdge C6100 Rack Server				TEST-990^^1365	DEVICE-9							Planned	
24	EDIT	DEVICE-R/	Dell	PowerEdge C6100 Rack Server				TEST-990^^1366	DEVICE-10							Planned	

11. Use File Import to rename the items. Click the Import button on the Main dcTrack tool bar to begin.





12. After the import is finished, you can return to the Items list and after refreshing the list, view the renamed items.



Use File Import to Bulk Add or Update Rack PDU IP Addresses

Watch a video on how to use import. https://youtu.be/8R-UsdiumcM

This topic outlines how to create an import file that will bulk add IP addresses.

For detailed steps on using the File Import feature, see Use **Use File Import to Add, Edit Delete and Move**.

Use the File Import to bulk update existing rack PDU or probe IP addresses, or bulk add IP addresses to existing rack PDUs or probes.

Specifically, you can:

- Apply a Single IP Address to Rack PDUs or Probes in Bulk
- Apply a Different IP Addresses to Each Port on Rack PDUs or Probes in Bulk

There is no interruption in data capture when you update IP addresses, unlike when you delete an IP address or add a new IP addresses to rack PDUs or probes.

Note: For rack PDUs configured to operate with a Proxy Index, bulk IP address updates and/or Proxy Index updates are not supported.

Apply a Single IP Address to Rack PDUs or Probes in Bulk

In this scenario, the rack PDUs or probes and their ports already exist in dcTrack.

A bulk import is used to update or add a single IP address to each rack PDU or probe.

The IP address is assigned to the first port on the rack PDU or probe.

dcTrack uses the port's index number to determine the first port. The port index number information is pulled from the Item Models Library. The port index order is determined by the rack PDU or probe's make.

Begin by generating or locating a spreadsheet template containing the rack PDUs or probes.

Sunbird recommends using the **Export Data to Import Templates for Reimporting** feature in order to ensure the template is formatted correctly.

Next, update the rack PDU or probe information in the spreadsheet and format it (if needed).

In this example, IP addresses are being bulk added to rack PDUs in dcTrack.

Enter the IP address you want to apply to the rack PDU or probe under the IP Address column.

If needed, insert a column called IP Address to enter this information.

Enter FALSE for each row under the "Data Ports from Library" column so dcTrack knows not to include port information pulled from the Item Models Library.

Insert this column, if needed.

Save the file locally and close it.

Import the file using File Import. For detailed steps on using File Import, see **Use File Import to Add, Edit Delete and Move**.

(Optional) Open the Web Client and verify that the IP addresses were updated or added. You can do this from the Items List or by opening each item's page and verifying the IP address was updated/added on the Data - N Ports tab.

Apply a Different IP Addresses to Each Port on Rack PDUs or Probes in Bulk

In this scenario, bulk import is used to update or add a different IP address to each port on existing rack PDUs or probes.

The IP address is assigned to the correct port by mapping the IP Address Port Name column in the spreadsheet with the port names on each rack PDU or probe.

The IP Address Port Names in your spreadsheet must be exactly the same as the port names on the rack PDU or probe.

The names of each port can be found on the item's page on the Data - N Ports tab in the Web Client.

Note: For rack PDUs configured to operate with a Proxy Index, bulk IP address updates and/or Proxy Index updates are not supported.

Begin by generating or locating a spreadsheet template containing the rack PDUs or probes.

Sunbird recommends using the **Export Data to Import Templates for Reimporting** feature in order to ensure the template is formatted correctly.

Next, update the rack PDU or probe information in the spreadsheet and format it (if needed).

For this example, IP addresses are being bulk updated for specific ports on rack PDUs in dcTrack.

Enter the exact names of each port under the IP Address Port Name column.

Add the column if needed.

Enter the new IP address you want to apply to the rack PDU ports under the IP Address column.

If needed, insert a column called IP Address to enter this information.

Enter FALSE for each row under the "Data Ports from Library" column so dcTrack knows not to include port information pulled from the Item Models Library.

Insert this column, if needed.

Perform a File Import.

Use File Import to Add, Edit, and Delete Structured Cabling

File import/ export can be used to create, edit and delete structured cabling. You must have the System Administrator or the "Bulk Import" role to create and manage projects.

Prerequisites

Data panels must exist for structured cabling to be created.

If creating fan-out cabling, the network switch and its ports must exist.

Structured Cabling can be created with existing data panel ports or by creating new data panel ports.

File Import

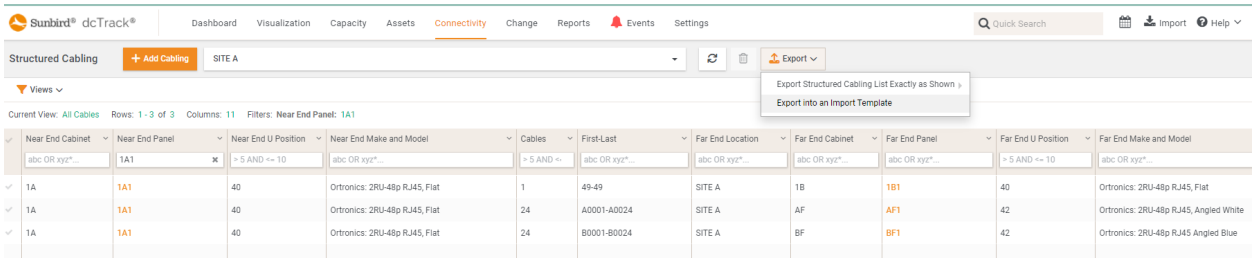
1. Download the Import Template file from the main Import page. The import template file have examples for adding, editing and deleting structured cabling.
2. Follow the instructions in the import template and prepare the import file.
3. Import the file.

Use ADD operation when creating the structured cabling and the data panel ports. If the data panels already have ports created use the EDIT operation to create the Structured Cabling.

DELETE operation will just disassociate the structured cabling between the data panels, data Panel Ports will not be deleted. If the structured cabling is part of a circuit, it cannot be deleted.

Export the Structured Cabling

To export the structured cabling, filter the structured cabling list, and select the export option. You can export the list exactly as shown or export into an import template.



For information on re-importing files, see **Export Data to Import Templates for Reimporting**.

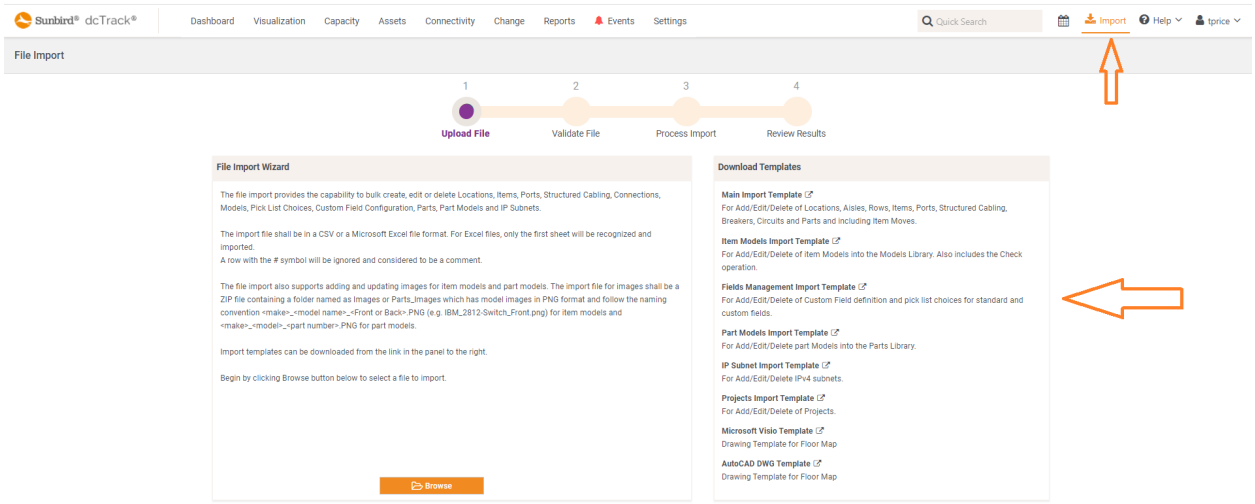
Note: If you are using a fan-out configuration, you cannot make edits via the Web Client's File Import feature if the starting item is a network item. To edit network port names or connectors, first export the Items list for data ports, edit the exported file, and re-import. To edit structured cabling attributes, including length, color, or group, export the structured cabling connections file, edit the exported file, and re-import.

Use File Import to Move Cabinets, Rackable Devices and Blades

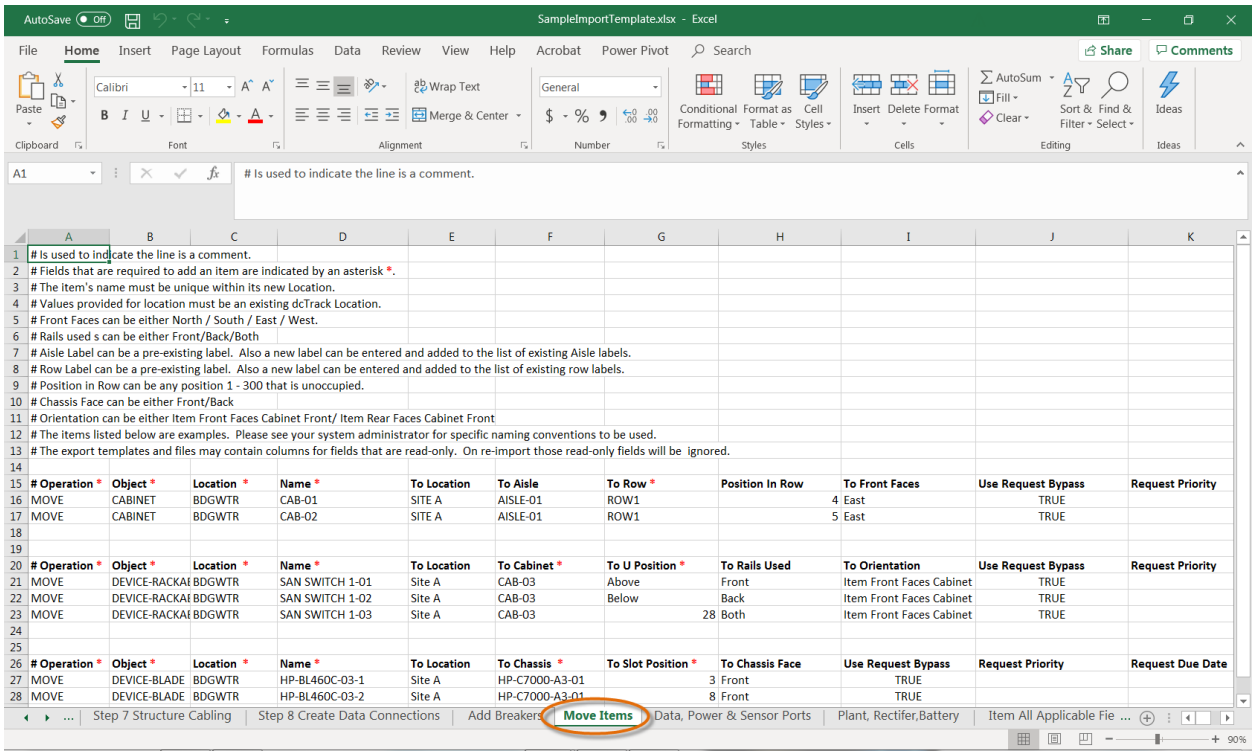
dcTrack allows you to move Cabinets, Rackable Devices and Blades in bulk using the File Import feature.

Import Template

The Move Import Template is available in the Sample Import Templates file. To access the template click the Import button on the dcTrack Main tool bar and select the appropriate template option.



Open the Template in Excel and click on the "Move Items" sheet.



You can then either delete the other the Sheets in the Workbook, or copy the Move Items sheet to a separate Workbook. Importing a spreadsheet does not import the data on each worksheet at once; you must import each worksheet's data separately. Use the samples in the worksheet to help you in determining what field data is required for each Object Type.

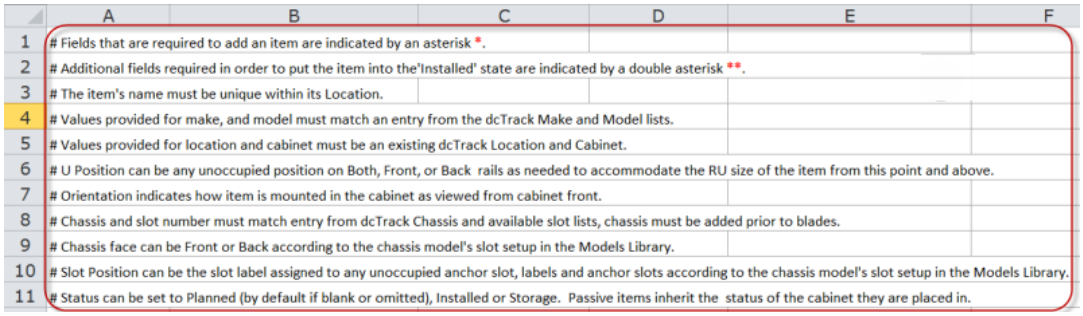
The Import Template is designed to make the import process as easy as possible.

The Import Template includes all of the required fields needed to perform the Move operation.

Instructions on the data you must enter in each field, as well as sample data, are also included in the Import Template.

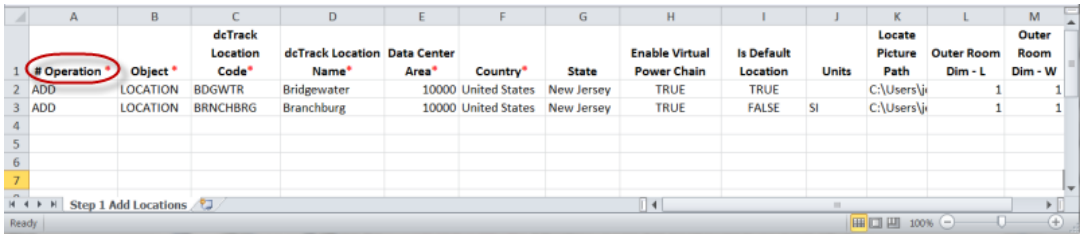
File Import supports .XLS, XLSX and .CSV file formats.

Note: If you perform a File Import and the expected data was not imported, verify data are not preceded by a hashtag. Since dcTrack ignores the data after a hashtag, warnings or errors are not generated, but the data is not imported.



	A	B	C	D	E	F
1	# Fields that are required to add an item are indicated by an asterisk *.					
2	# Additional fields required in order to put the item into the'Installed' state are indicated by a double asterisk **.					
3	# The item's name must be unique within its Location.					
4	# Values provided for make, and model must match an entry from the dcTrack Make and Model lists.					
5	# Values provided for location and cabinet must be an existing dcTrack Location and Cabinet.					
6	# U Position can be any unoccupied position on Both, Front, or Back rails as needed to accommodate the RU size of the item from this point and above.					
7	# Orientation indicates how item is mounted in the cabinet as viewed from cabinet front.					
8	# Chassis and slot number must match entry from dcTrack Chassis and available slot lists, chassis must be added prior to blades.					
9	# Chassis face can be Front or Back according to the chassis model's slot setup in the Models Library.					
10	# Slot Position can be the slot label assigned to any unoccupied anchor slot, labels and anchor slots according to the chassis model's slot setup in the Models Library.					
11	# Status can be set to Planned (by default if blank or omitted), Installed or Storage. Passive items inherit the status of the cabinet they are placed in.					

Note: You must leave the hashtag # in front of "Operation". # Operation is a template field; it is not meant to be imported into dcTrack.



	A	B	C	D	E	F	G	H	I	J	K	L	M
1	# Operation *	Object *	dcTrack Location Code*	dcTrack Location Name*	Data Center Area*	Country*	State	Enable Virtual Power Chain	Is Default Location	Units	Locate Picture Path	Outer Room Dim - L	Outer Room Dim - W
2	ADD	LOCATION	BDGWTR	Bridgewater	10000	United States	New Jersey	TRUE	TRUE		C:\Users\j	1	1
3	ADD	LOCATION	BRNCHBRG	Branchburg	10000	United States	New Jersey	TRUE	FALSE	SI	C:\Users\j	1	1
4													
5													
6													
7													

Step 1 Add Locations

Ready 100%

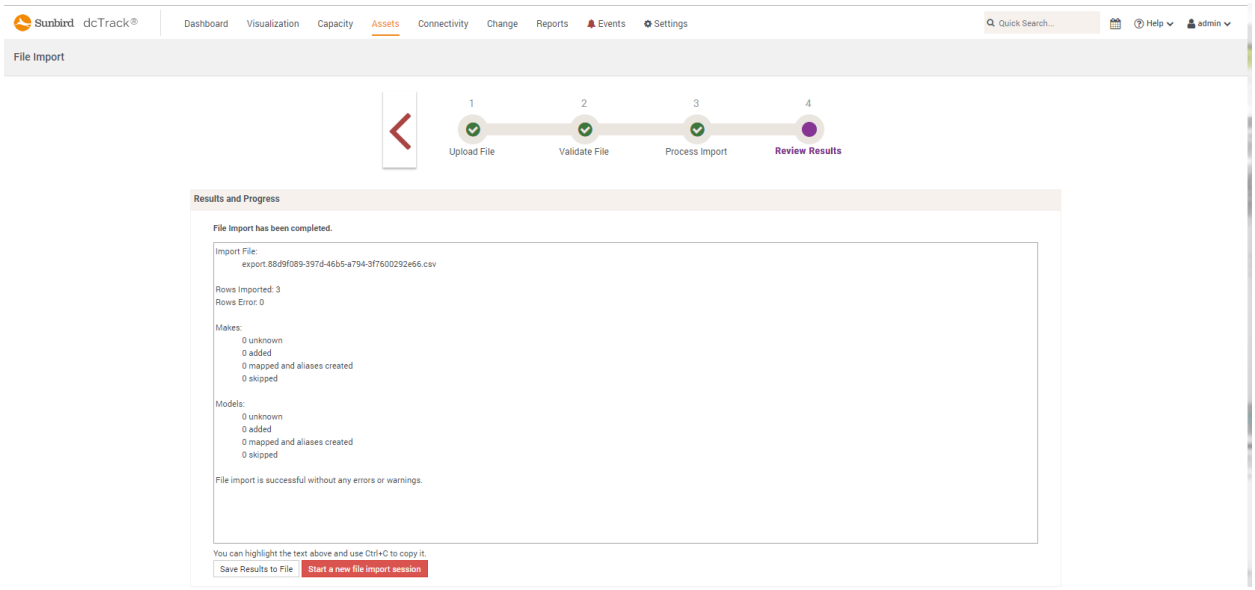
File Validation and Import Process

When you initially import a file, dcTrack verifies it is in a proper file format and reports any file format errors.

Once you click Begin Import, dcTrack performs a line-by-line validation and reports errors encountered for a line. All rows that are valid are completed. Only those operations where errors are encountered are not completed. You can correct those errors and re-import with the updated data.

Warnings and Errors

Warning and error information are presented in the File Import dialog in the Results section.



Warnings are displayed when data may require attention but are not considered invalid.

An error may be a missing required column or an invalid number of characters in a field. When an error is encountered, dcTrack displays the invalid data as well as the line on the spreadsheet the data is entered.

Errors must be fixed before that row of data can be successfully imported. However, the remaining data in the spreadsheet is imported so long as it is valid.

Use the Save Results to File function. This allows you to save a file with only rows containing invalid data causing errors. You can then make changes directly to that file and then re-import it.

Alternatively, highlight the information in the Results section, then use Ctrl+C to copy and paste the information to a file. Reference the information when you update the incorrect data.

Proceed on Warning

Select Proceed on Warning if you want dcTrack to continue with the import but display data that caused the warning.

If Proceed on Warning is not selected, dcTrack does not import the data.

Rules for Moving Objects

- Objects in the Planned state cannot be moved using this feature. For Planned Items use "Edit" to modify any Location data.
- When moving a Cabinet, all of the Cabinets contents is moved with the Cabinet.
- The Cabinet and all of the Items within the Cabinet retain their current status.
- All Power Connections associated with the Items within the Cabinet are retained.
- All Planned Data Connections contained within that extend beyond the Cabinet will be Deleted.
- All Installed Data Connections contained within the Cabinet are retained.
- Managed IP Addresses remain unchanged if moving within the same Location.
- Managed IP Addresses are deleted if moving to a different Location.
- Un-managed IP Addresses remain unchanged regardless of whether the move is within the same Location or a different Location.

Add and Edit Items

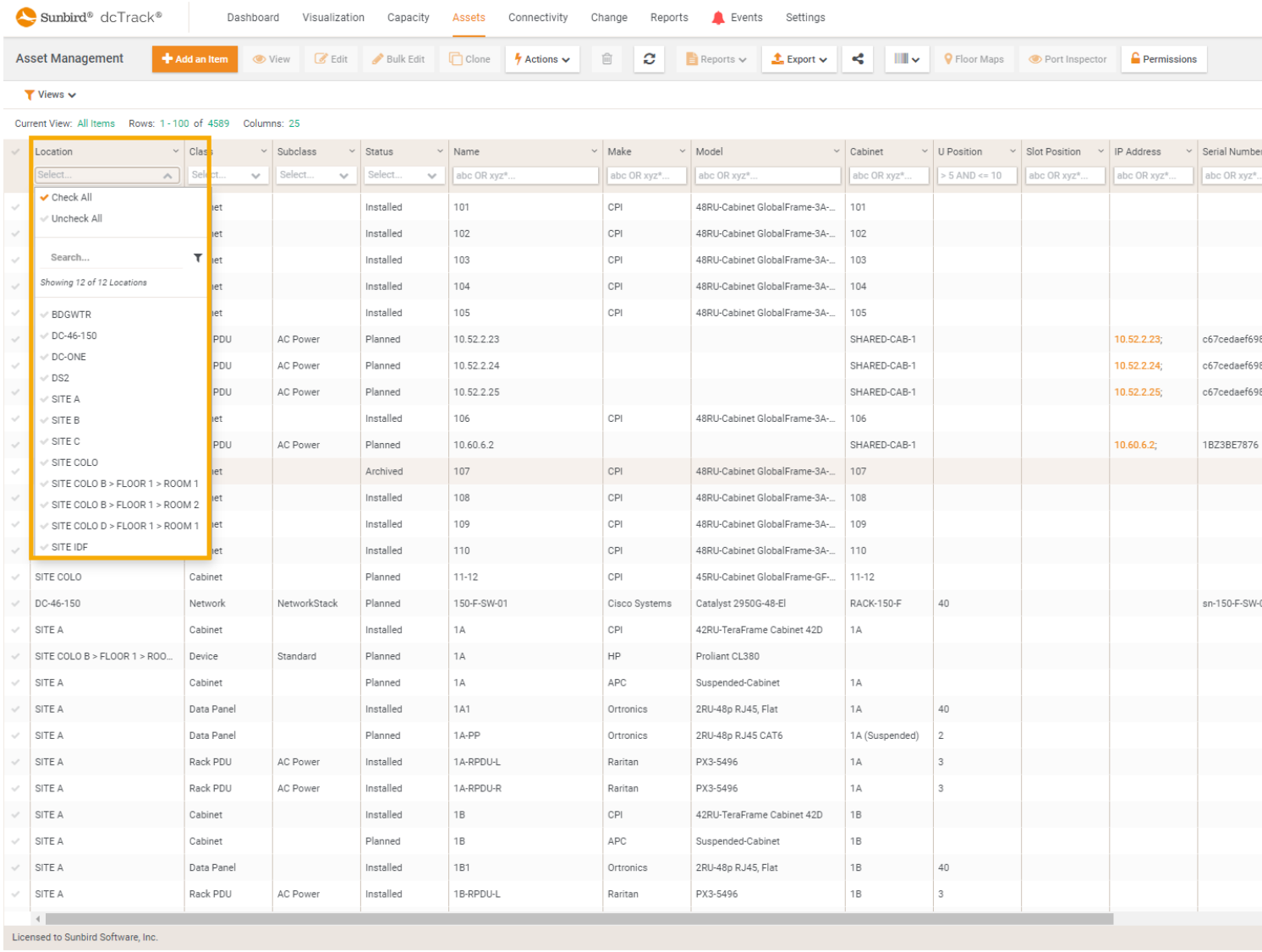
This section walks you through manually building a cabinet in dcTrack using the Create New Item function, and then moving the cabinet to an Installed status either by submitting an Install Item Request or changing its status manually (if you have permissions to do so).

Note: You can also use File Import to add cabinets and items, as well as their data and port connections. During the import, provided you have privileges to do so, you can also move them to an Installed, Stored or Archived status.

Using File Import is particularly useful for importing large numbers of items.

Prerequisites when Manually Creating a Cabinet

You know the data center exists in dcTrack if it is available for selection in any of the Location drop-down lists and you can access it.



You must have add/edit privileges assigned to your role to add cabinets and items in dcTrack.

You know you have edit access to the data center location if you are able to open a New Item page from the Assets tab.

Clone Existing Items to Create New Items

Once you have built a cabinet, you can then clone it (if needed). Cloning is a faster way to create new items rather than creating them from scratch. For details, see **Cloning**.

Note: Cabinet items and device items can be also be added to dcTrack using the following methods, provided you have permissions to do so:

- Importing using File Import. See **Add Cabinets, Items, Ports and Connections**.

Add Cabinets, Items, Ports and Connections

Items are added in the Assets tab.

At a minimum, *required fields marked with a red asterisk must be completed.

Custom fields designated by your System Administrator and fields required based on item class may also be required.

You must have add/edit privileges assigned to your role to add cabinets and items in dcTrack.

You must be a System Administrator or a user with the "Bulk Import" role to import cabinets and items using the File Import.

Note that passive items are added from the Items tab on a cabinet's item page. See **ol, Add Passive Items** .

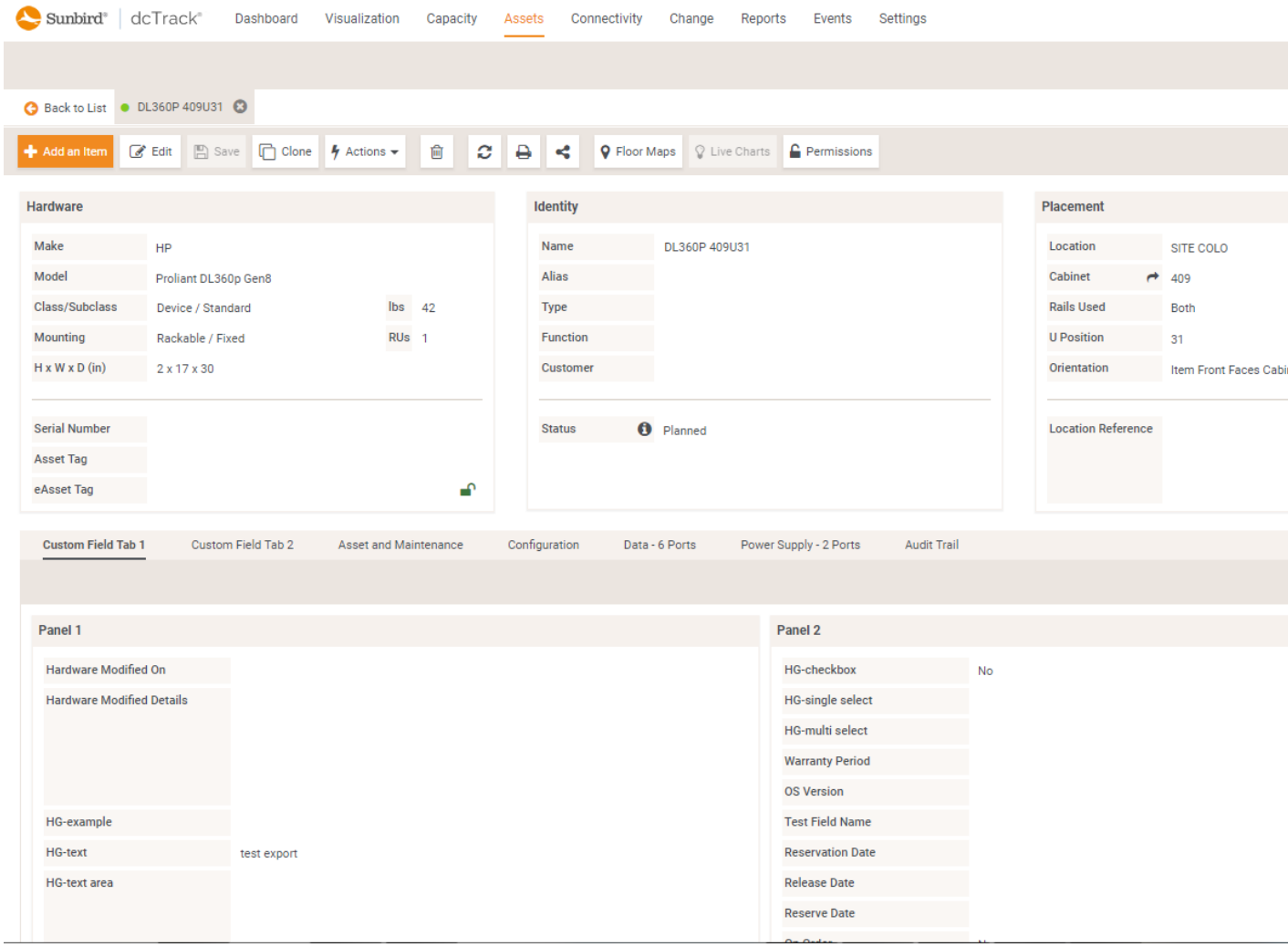
Blade chassis are added like any other item, blades are added from the Blades tab on the chassis' item page. See **Add Blade Chassis and Blades**.

Note: Adding a Zero-U height cabinet follows the same process as adding any standard item. For information on creating a model for a Zero-U height cabinet, see **Add a Model to the Models Library**.

To add standard items in dcTrack:

1. To add a new item, click the orange Add an Item icon in the Asset Management toolbar or select the Assets tab > Add an Item.
2. A New Item page with just the Hardware panel will display. When you enter the Make (required), the Model (required) field will automatically populate with the models of the selected make.
3. Once selected, the Identity, Placement, and bottom panels will display.
4. Add the Name in the Identity Panel.
5. Add the Placement in the Location panel.

6. Click the Save button to create your new item.



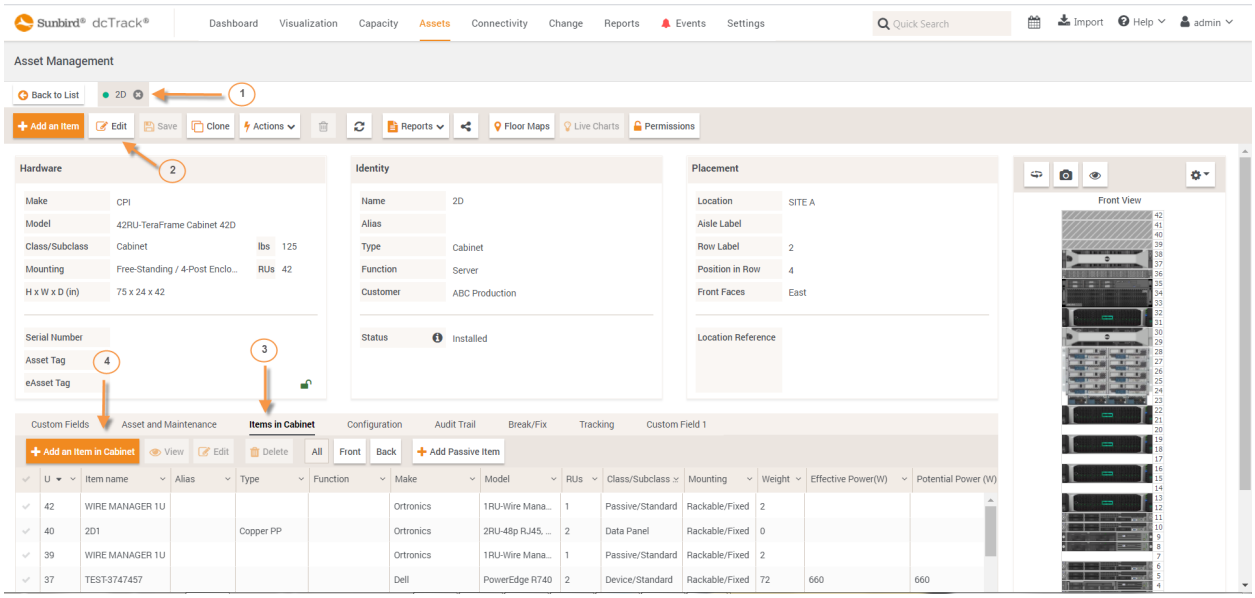
Note: If the item you are creating is a VM, check the VM box next to the Make field in the Hardware panel. The Class will automatically be updated to Device / Virtual Machine, and only the Name and Location will be required.

Add Items to Cabinet

Items can also be created and added automatically to a Cabinet from a Cabinets Item Detail Page. To add an Item directly from a Cabinet:

1. From the Items List under the Assets tab, select the cabinet you want to add the item to.
2. Open the cabinet's page in Edit mode.
3. Click on the Items in Cabinet sub tab.
4. Click the "Add an Item in Cabinet" button.

5. This will open a New Item tab. The Location and Cabinet for the new Item will default to the same values as the Cabinet. You must then complete the remaining required fields and save the new record.
6. Once Saved, the Item is added to the Cabinet.



Additional Notes on Adding an Item

If you cannot find a make or model, there are next step options. See **What To Do if A Make or Model Is Not Available for Selection**

Tip: In the Model dialog, Filter Model Information and View "My Company Standard" Models. If your Gatekeeper or System Administrator designated models as 'My Company Standard', only those are displayed.

A cabinet or item name must be unique within the location. The only exception to this rule is if you reuse the name of cabinet or item that is decommissioned archive (it is in an Archived status).

A name can contain up to 64 alphanumeric characters.

A name cannot contain the characters \ & ? '

Selecting a System Admin or Admin Team limits those who can edit the item to the item's creator, anyone in the System Admin role and anyone on the Admin Team.

Note that you can click the Cabinet link to Access a Cabinet's Page from an Item's Page (if applicable).

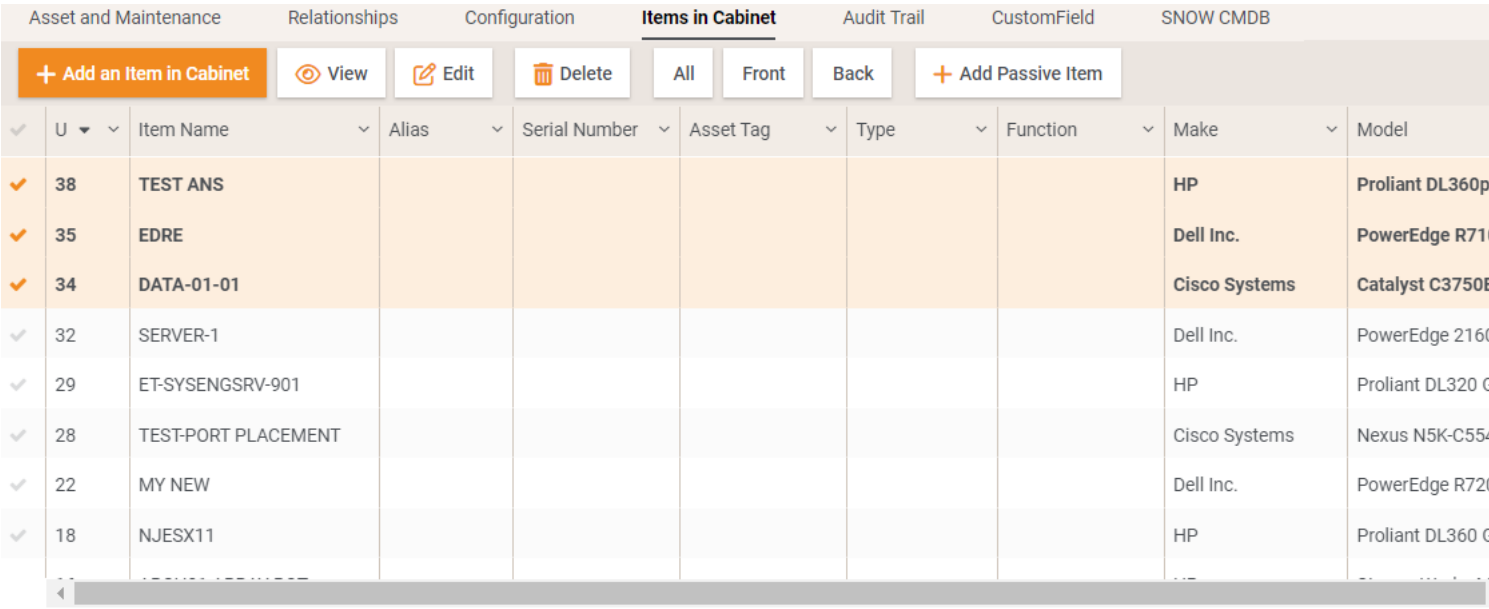
A cabinet model can be defined to be Zero U height. This allows floor space to be reserved to prevent overloading conditions.

The "Rackable" mountings of Transformers and Power Panel Items are not currently supported. dcTrack however, will allow this mounting type for their models. This was done so when they are supported you will not have to go back and add that mounting in the Model screen.

When dcTrack does support this mounting type for Transformers and Power Panel Items, they will be mounted in AC Bays only. They will not be mounted in Cabinets.

Viewing and Editing Items from the Items in Cabinet Subtab

Multiple Items can be selected from the Items List on the Items in Cabinet subtab for either viewing or editing. Once the Items are selected, clicking the View button will open a tab for each selected item in view mode. You can also open the Items in Edit Mode by clicking the Edit button.



If you do not know a specific cabinet that can accommodate the item or if a specific cabinet can accommodate an item, consider using Intelligent Capacity Search to locate one in your data center. See **Use Intelligent Capacity Search to Locate or Qualify Cabinet Space for One or More Items**.

Rules for Setting Dates

When setting the Contract Start and End Dates, the Contract Start Date must precede the Contract End Date, and the Contract Start Date must be on or after the Purchase Date.

When setting the Installation Date, it must precede the Contract End Date.

When setting the Purchase Date it must be on or prior to the Installation Date, and the Purchase Date must be prior to the Contract End Date.

Note: Click the Settings icon in the Cabinet Elevation to open the Cabinet Legend.

When selecting the Orientation, Depth Position and/or Rails Used by the item, use the illustration depicting the front and back of the cabinet, and the front and rear rails of the cabinet. This is a useful reference when creating an item and selecting position information.

Use **Drag-and-Drop an Item to a New U Position in a Cabinet** or **Change an Item's U Position in a Cabinet** (if applicable).

You can go to the Data - N Ports tab on applicable item pages to:

- **Create a Data Port (Web Client)**, **Edit a Data Port (Web Client)** and **Delete a Data Port (Web Client)**
- Assign a Unique IP Address to an Individual Port
- **Assign Multiple IP Addresses to the Same Port**
- Assign the Same IP Address to Multiple Ports on the Same Port Team and Manage Them Together **Assign the Same IP Address to Multiple Ports on the Same Port Team and Manage Them Together**.
- **Assign the Same IP Addresses to Multiple Ports on a Port Team but Manage Them Separately**
- **Access a Connected Item's Page from the Data Port Tab**
- **Connect to a Server via a Data Port IP Address (Web Client)**
- **Connect to a New Data Circuit Page (Web Client)**
- **Trace a Data Port Circuit**

You can go to the Power - N Ports tab on application item pages to:

- **Create Power Ports (Web Client)**, **Edit a Power Port (Web Client)**, **Remove Power Ports (Web Client)** and **Delete Power Ports (Web Client)**
- **Connect to a New Power Circuit Page (Web Client)**
- **Trace a Power Port Circuit**
- **Access a Connected Item's Page from the Power Port Tab**

You can go to the Sensor - N Ports tab on applicable item pages to:

- **Create Sensor Ports for Sensors in Cabinets (Web Client)**
- **Create Sensor Ports for Sensors Outside of Cabinets (Web Client)**
- **Edit Sensor Ports (Web Client)**
- **Delete Sensor Ports (Web Client)**

The tab turns green once saved. The item is now in a Planned status.

At this point, **Submit an Install Item Request** now or at a later time. You submit multiple Install Item Requests from the Items List.

Find Items on the Floor Map by Clicking the Floor Maps Icon located at the top of the page. The item must be synched with a floor map or there is nothing to locate.

Data Panel Port Connection Rules

When creating a data panel port:

- The near end and far end cabinets in the connection cannot be the same.
- The data port can connect to another data port on the same data panel.
- The far end of the connection can be in another site
- A data port connection can go directly to an existing network item within the same or a different site.

Add and Configure Power Infrastructure Items - Cooling Units, UPS Units and Floor PDUs

If Cooling units, UPS units, and floor PDUs exist on your floor map drawing file, they are added to dcTrack when you upload and sync the file with a site/location.

Infrastructure items can be added in bulk as individual items. However, since each item is part of a power chain, they are typically created at the same time.

The items are created and configured in the Web Client Specifically:

- Each Cooling unit must be added to a Cooling Zone.
- Each UPS unit must be added to a UPS bank
- Either a busway or power panel must be configured for each floor PDU
- Create the power outlet connections

Note: Power outlet circuiting can be imported rather than manually created. See Import Power Outlet Circuiting.

This topic walks your through each step to create your infrastructure power chain. You can find each step in individual topics as well.

Add Cooling Units and Add them to Cooling Zone

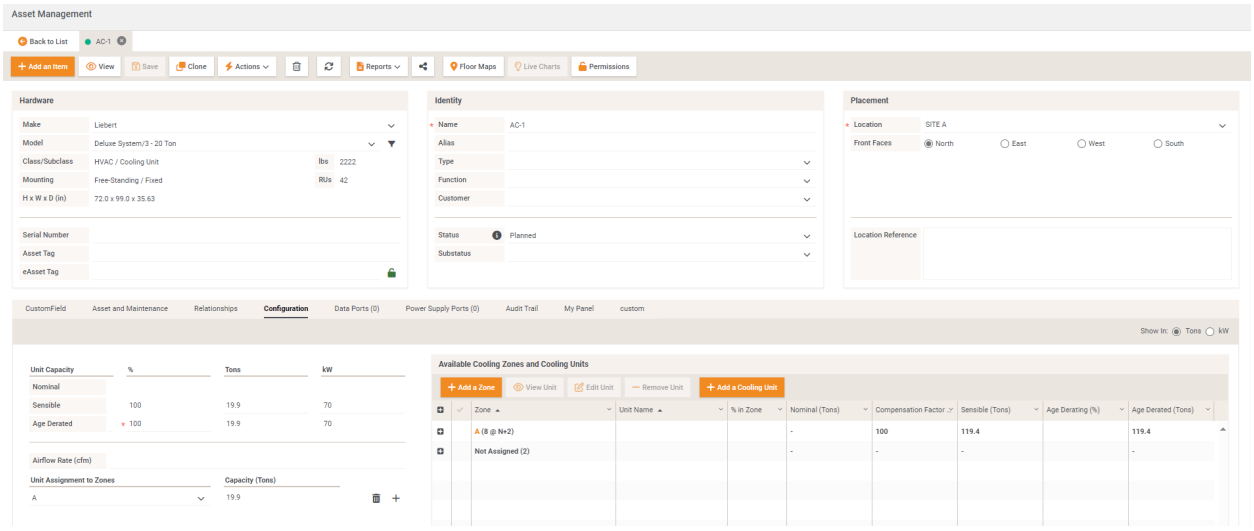
Steps to Add Cooling Units:

1. Click Assets > New Item or click on the New Item icon on the Items List under Assets.
2. Select the Cooling unit make and model.
3. Assign a name to the Cooling unit.
4. Select a location for the Cooling unit, if different from the one already selected in the Location drop-down.
5. Enter following fields for Cooling Unit specifications.
    - Sensible Capacity (Tons)
    - Sensible Capacity (kW)
    - Age Derated (Required)
    - Airflow Rate (cfm)

You can enter the value for Capacity (Tons) or Sensible Capacity (kw), dcTrack calculates the value for other using this formula Sensible Capacity (Tons) * 12,000 * 0.0002930711 = Sensible Capacity (kW).

Age Derated field can be used to further reduce the Cooling Unit Capacity to the Cooling Unit's age. Age Derated value should be between 0.1 and 100.

Note : If the model selected have these values then items will inherit the model's value. Nominal Capacity values are the Nameplate value for the model.



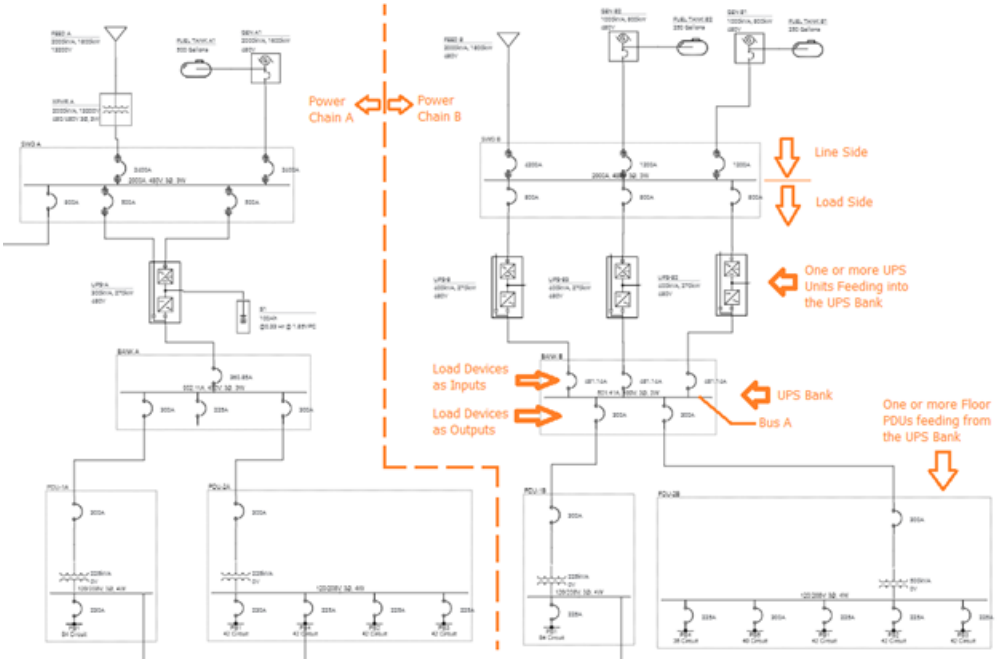
6. Next, go to configuration sub tab and add the Cooling unit to a Cooling Zone.
7. You must add the Cooling unit to a Cooling Zone before you can mark the unit as Installed.
8. To assign a Cooling unit to a Cooling Zone, select a Cooling Zone from the Unit Assignment to Zones and click Save.
9. If the Cooling Zone does not exist, create one and assign the Cooling unit to it. Cooling Zones are created in the Available Cooling Zones section of the page.
10. Click Add a Zone.
11. Enter Cooling Zone name.
12. Click Save in the toolbar.

You can also assign multiple Cooling Zones to a Cooling Unit. See here Cooling Zone.htm

To create the UPS, UPS Bank and Floor PDU power chain, follow the below steps:

1. Create UPS Units
2. Create a UPS Bank
3. Create UPS Bank Load Devices

4. Connect UPS Bank Load Devices to UPS Units
5. Create Floor PDUs
6. Connect Floor PDUs to UPS Bank Load Devices



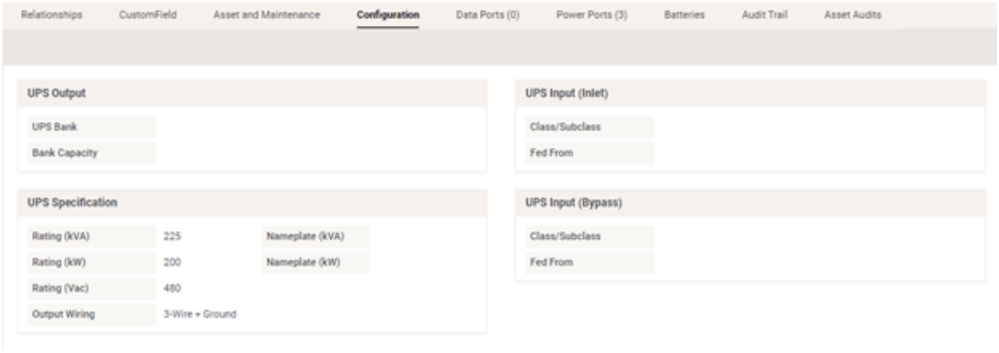
Note: The configuration settings for the UPS and Power Panel can also be set via File Import

Add UPS Units

One or more UPS Units can be aggregated using the UPS Bank which in turn feeds one or more Floor PDUs. Each power chain in your data center may have one or more UPS Units.

1. In the Assets tab > Item List, click the Add an Item button. A new Item page will open in a new dcTrack tab.
2. In the New Item page, select the UPS Unit's make and model.
3. Assign a name to the UPS Unit.
4. Select a location for the UPS Unit, if different from the one already selected in the Location dropdown.
5. In the Configuration sub-tab enter the following information:
    a. Rating (kVA)
    b. Rating (kW)
    c. Rating (Vac)
    d. Output Wiring
6. Save the UPS item.

7. Repeat for any additional UPS Unit items.



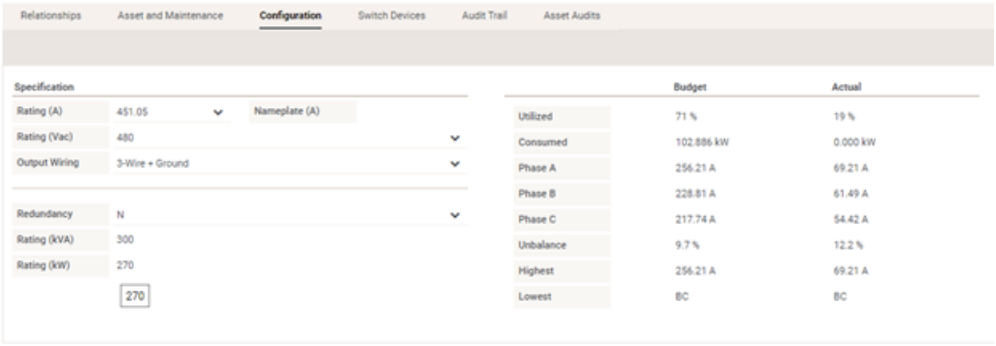
Add UPS Banks

You will need a UPS Bank for each power chain in your data center. Typically, data centers have 2 redundant power chains. A UPS Bank is technically a Switchgear which in dcTrack is represented using the Class/Subclass AC Distribution/Switch. Therefore, an AC Distribution/UPS Bank and AC Distribution/Switch electrically and functionally are the same, but in dcTrack the UPS Bank is a special case of a switch since it is the switchgear that feeds from the UPS Units and distributes out to the Floor PDUs.

1. In the Assets tab > Item List, click the Add an Item button. A new Item page will open in a new dcTrack tab.
2. In the New Item page, select the UPS Bank's make and model. You may use the Generic UPS Bank model.
3. Assign a name to the UPS Bank.
4. Select a location for the UPS Bank, if different from the one already selected in the Location dropdown.
5. In the Configuration sub-tab enter the following information:
    a. Rating (A)
    b. Rating (Vac) - This should also match the Voltage of the UPS Units.
    c. Output Wiring

    Note: The above 3 values are the specification of the Busbar that is inside the UPS Bank switchgear.

    d. Redundancy – this depends on the number of UPS Units that you will connected to the bank in Step 13 below. You will want to update this value after connecting all the UPS units to this bank.
    e. Rating (kVA) and Rating (kW) are read-only. They are automatically calculated based on the number of UPS Units that you will connect to the Bank in step 8 below and the Redundancy setting.

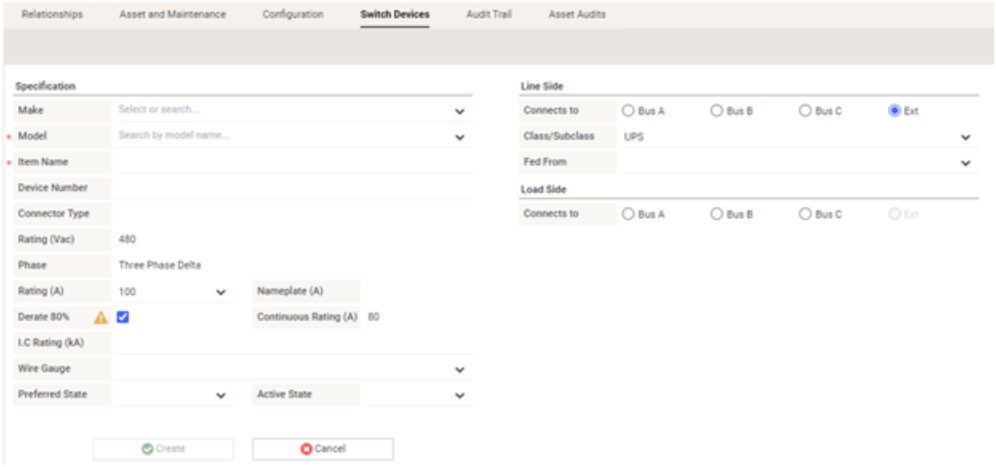


6. Save the UPS Bank item.
7. Repeat for any additional UPS Bank items.
8. In the Switch Devices sub-tab of the UPS Bank, click the Create Switch Devices button and choose Load Device. You will repeat this step for as many UPS Units and Floor PDUs there are connecting from and to this UPS Bank. A load device is the large breakers that are installed in the UPS Bank.
    a. Select the Make and Model for the Load Device.
    b. Give the Load Device a name. This name must be unique within the UPS Bank item only.
    c. Give the Load Device an optional number for easier reference within this UPS Bank.
    d. The Connector Type is inherited from the Model of the Load Device. If this remains blank, it is because the Load Device Model does not have the Connector Type set. You may want to create multiple Load Device models for each Connector Type you want to use. Each Connector Type displays it own symbol in the Single Line Diagram.
    e. Rating (Vac) is read-only and is inherited from the UPS Bank itself, which was selected in the Configuration sub-tab.
    f. Phase is read-only and is inherited from the UPS Bank itself. (It will show Three Phase Delta if the Bank's Output Wiring is 3-Wire + Ground, or Three Phase Wye if the Bank's Output Wiring is 4-Wire + Ground.
    g. Rating (A) must be equal to or less than the Rating (A) of the UPS Bank.
    h. Derate 80%. Uncheck this box if the Load Device breaker is 100% rated.
    i. The remaining fields are optional.
    j. When the Rating (A) was filled in, you will notice a form appears to the right. This specifies how this Load Device connects internally within the UPS Bank switchgear.
        1. For a Load Device that feeds from the UPS Units select the following:
            1. Line Side:
                a. Connects to: Ext
                b. Fed From: Select the UPS Unit's Output.

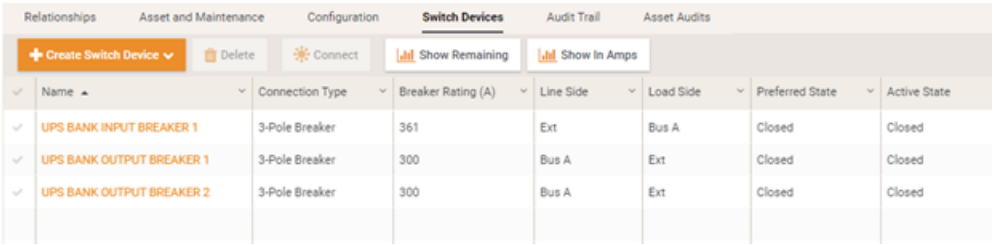
2. Load Side:
    a. Connects to: Bus A.
2. For a Load Device that feeds to the Floor PDUs, select the following:
    1. Line Side:
        a. Connects to: Bus A
    2. Load Side:
        1. Connects to: Ext.

Note: Bus B and Bus C are optional and would only be used when the Switchgear has more then one bus. When multiple buses exist, a Load Device would connect them together. These 3 bus notations should not be confused with the 3 poles of a Three Phase circuit.

k. Click Create



l. Create all other Load Devices and select the appropriate selections at step j based on what this load device will connect to.

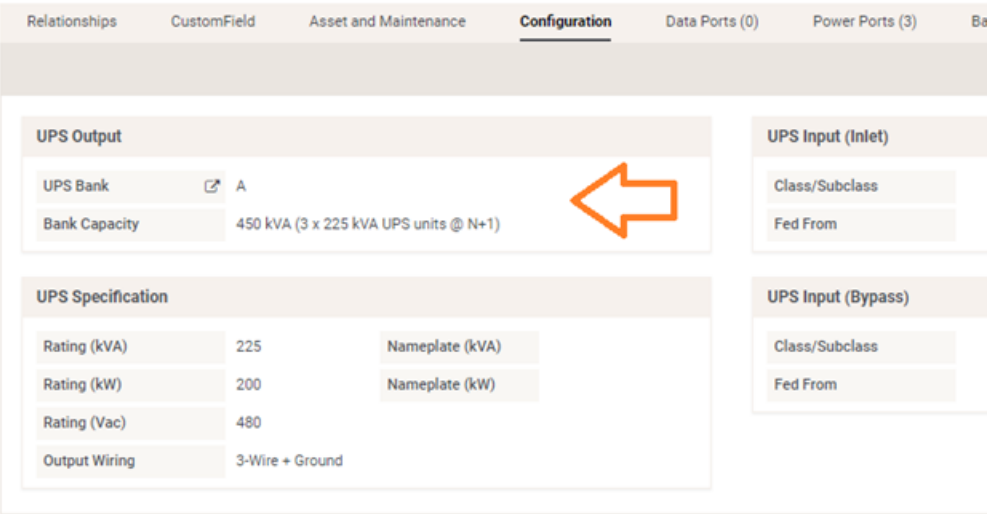


m. Save the UPS Bank Item.

n. At this point, you should have a UPS Bank connected to the UPS Unit(s). If you go back to the UPS item (s) (Refresh it, if it was already open)

and in the Configuration sub-tab, the UPS Output section should display the Bank name that this UPS Unit is part of and the total capacity of the

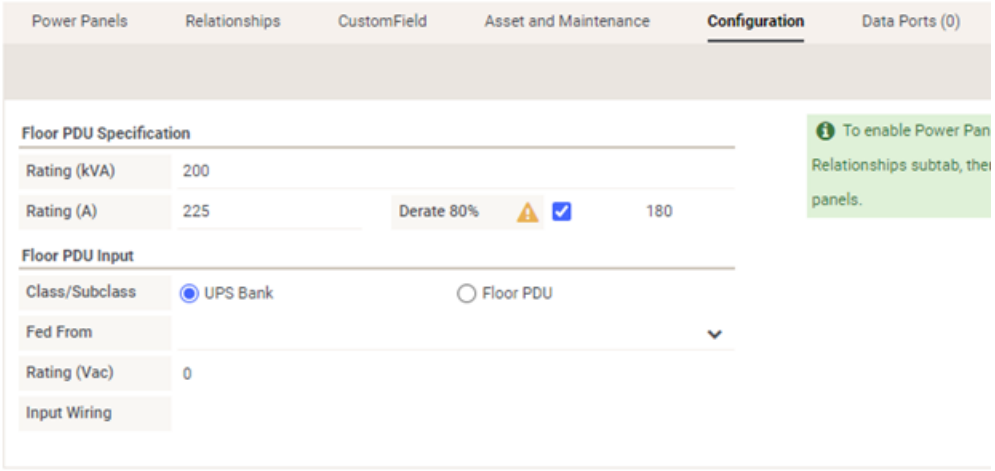
UPS Bank. If this total is higher than expected, you may need to adjust the Bank's Redundancy field.



Add Floor PDU

1. In the Assets tab > Item List, click the Add an Item button. A new Item page will open in a new dcTrack tab.
2. In the New Item page, select the floor PDU's make and model.
3. Assign a name to the floor PDU.
4. Select a location for the floor PDU, if different from the one already selected in the Location dropdown.
5. In the Configuration sub-tab enter the following information:
    a. Rating (kVA)
    b. Rating (A) – Should be a number that is close to the result of this formula: Rating (kVA) * 1000 / (Rating (Vac) * SQRT(3) * NEC Derating), where the Rating (Vac) is the voltage of the item feeding the Floor PDU and the NEC Derating is 80% for Data Centers in the United States.
    c. Class/Subclass: Select UPS Bank option
    d. Fed From: Select the UPS Bank Load Device feeding this Floor PDU.

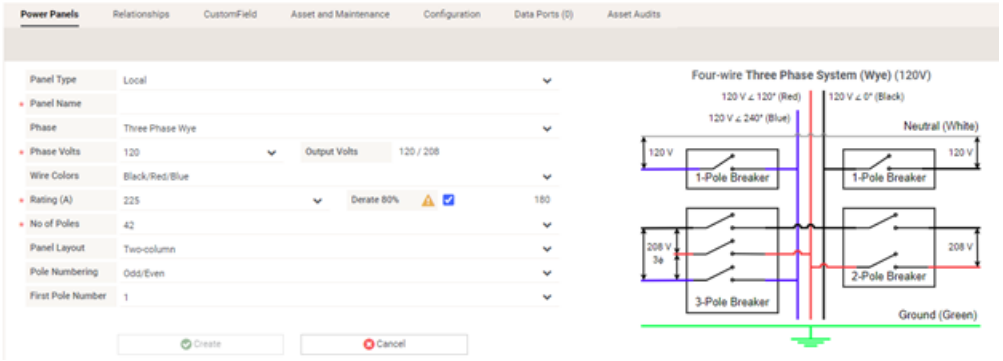
    If you do not have a UPS Bank created, you can also select VPC UPS Bank from the drop-down. AC VPC must be enabled for the location in order to view VPC UPS banks in the drop-down. See Enable or Disable VPC for a Location.
    e. The Rating (Vac) and Input Wiring will be automatically filled in based on the Fed From selection.



f. Save the Floor PDU item.

g. Repeat these steps for each additional Floor PDU.

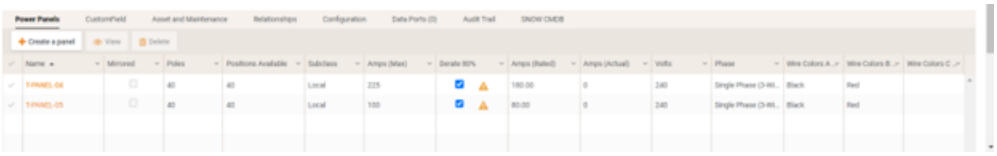
h. In the Power Panels sub-tab of each Floor PDU, create one or more power panels that are either internal to the Floor PDU (Local), remotely placed panels or RPPs (Remote), or busway systems feeding from the Floor PDU (Busway). Click Create a panel and fill in all the required fields to create each panel accordingly to the panel specifications. Note that the panel name needs to be unique only within the Floor PDU.



i. Click Create button

j. Repeat for each additional panel for this Floor PDU.

k. From the list of power panels in this sub-tab, you can click each panel name to open that panel and begin adding breakers within the panel which would also include creating the Power Outlet items that are fed from each of the breakers.



Add the Circuit Breakers via File Import

1. Back on the Power Panels sub-tab, click on the desired power panel to view its Item Details page.
2. In the Power – [x] Poles, [y] Breakers sub-tab, click the Bulk Edit button to edit the breakers. Alternatively, in the Assets tab > Items List, click the Export button and select either of the following options:
    a. Download Import Template to download the import template as a CSV file.
    b. Export into an Import Template > Branch Circuit Breakers to download an import template populated with the panel and busway breakers as a CSV file.
3. Open your CSV file.
4. Follow the instructions in the CSV file to add breakers.
5. In the Assets tab > File Import page, import the edited CSV file to create the breakers. This will also create the outlets and connect the breakers to those outlets.

Power Outlet Circuiting Prerequisites

At this point, if you are planning on using File Import to create power outlet circuiting, note the following pre-requisites.

- Each floor PDU and its busways must be created in dcTrack before you can import power outlet circuiting.
- Each floor PDU's power panel and the power panel's poles and breakers must be created in dcTrack before you can import power outlet circuiting.

Important: At this point, if you are planning on using File Import to create power outlet circuiting, note the following prerequisites -

- Busway Power Outlet Prerequisites
    - Each Floor PDU and its busways must be created in dcTrack before you can import power outlet circuiting.
    - The power outlets that were created cannot contain any ports, poles or breakers in dcTrack.
- Power Panel Outlet Prerequisites
    - Each floor PDU's power panel the power panel's poles and breakers must be created in dcTrack before you can import power outlet circuiting.
    - The power outlets that were created cannot contain any ports in dcTrack.

You can now do one of the following based on your needs:

- **Manually Configure a Floor PDU for Power Outlet Circuiting Imports**

- **Manually Configure a UPS Unit and Floor PDUs with Busways**

Manually Configure a Floor PDU for Power Outlet Circuiting Imports

Create the items in the power chain that the busway or power panel will connect to.

*Note: When creating certain items, there is information that must be entered in order to connect one item to another item in the power chain. However, these fields may not be indicated as *required in the dcTrack interface. This is because they are 'technically' not required to create the item in the dcTrack database. For example, in order to complete the busway, you must enter the floor PDU's specification information even though those are not required fields to create the floor PDU.*

If a field is required to complete the busway creation process, it is identified in the steps that follow as "Required".

Create your power chain and busway:

1. Click Assets.
2. Click the New Item icon.
3. Select the Make and Model of the UPS unit.
4. Enter a name for the UPS unit.
5. Select the Location of the UPS unit (if different from the default).
6. Enter the UPS unit's specification information.
7. Select/Add the UPS bank on the Configuration sub tab based on the specifications
8. Enter additional information if needed, then click Save. The item's tab turns green.
9. In the Web Client, click the New Item icon.
10. Select the Make and Model for the floor PDU.
11. Enter a name for the floor PDU.
12. Verify the floor PDU location.
13. Enter the floor PDU specifications. Required
14. Enter the floor PDU input information. Required
15. Important: At this point, if you are planning on using the File Import to create power outlet circuiting, review the prerequisites for adding a busway or power panel.
16. Each floor PDU's power panel the power panel's poles and breakers are created in dcTrack.
17. The power outlets are created and do not contain any ports in dcTrack
18. Busway Power Outlets -
19. Each Floor PDU and its busways are created in dcTrack

20. The power outlets are created and do not contain any ports, poles or breakers in dcTrack.

Manually Configure a UPS Unit and Floor PDUs with Busways

Note: These steps DO NOT involve configuring floor PDUs for use with imported power outlet circuiting function. See **Manually Configure a Floor PDU for Power Outlet Circuiting Imports**.

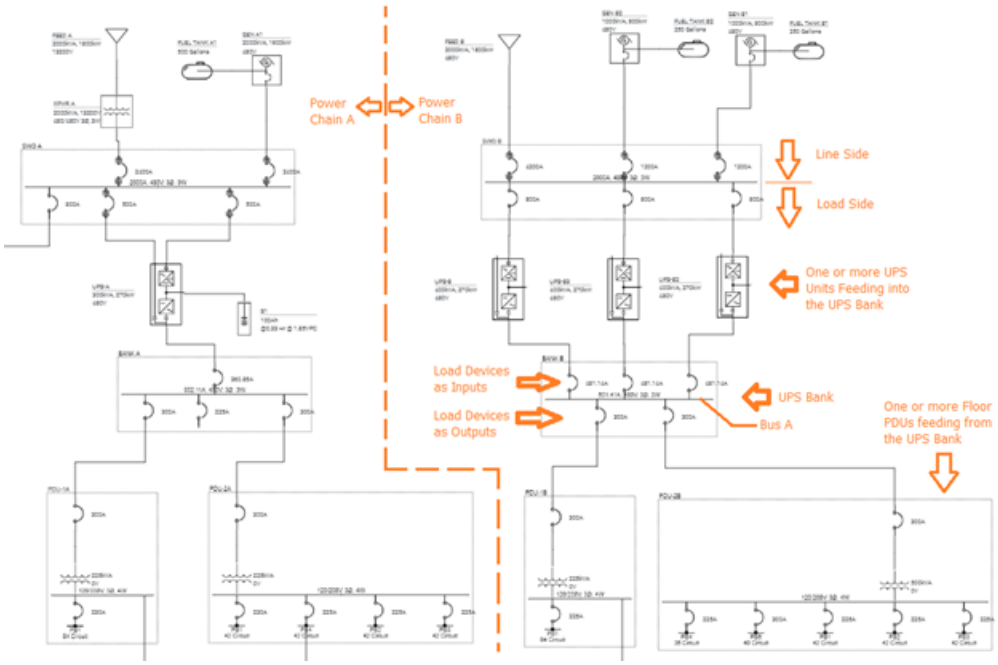
Prior to adding and configuring a busway or power panel, create the items in the power chain it connects to.

*Note: When creating certain items, there is information that must be entered in order to connect the item to another item in the power chain. However, these fields may not be indicated as *required in the dcTrack interface. This is because they are 'technically' not required to create the item in the dcTrack database. For example, in order to complete the busway, you must enter the floor PDU's specification information even though those are not required fields to create the floor PDU.*

If a field is required to complete the busway creation process, it is identified in the steps that follow as "Required".

To create the UPS, UPS Bank and Floor PDU power chain, follow the below steps:

1. Create UPS Units
2. Create a UPS Bank
3. Create UPS Bank Load Devices
4. Connect UPS Bank Load Devices to UPS Units
5. Create Floor PDUs
6. Connect Floor PDUs to UPS Bank Load Devices



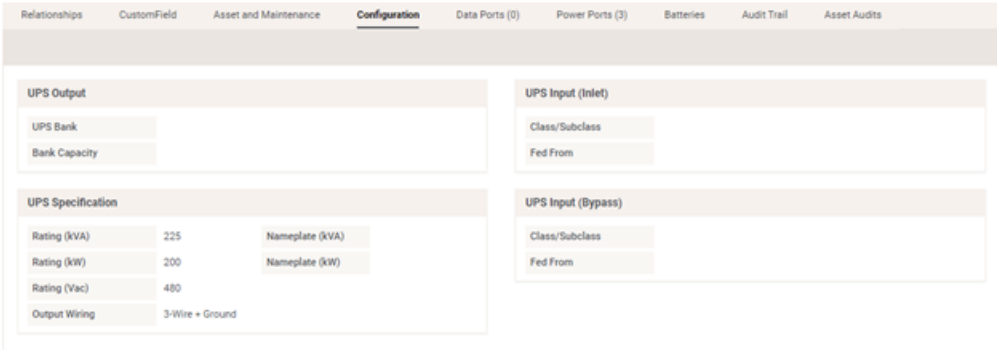
Note: The configuration settings for the UPS and Power Panel can also be set via File Import

Add UPS Units

One or more UPS Units can be aggregated using the UPS Bank which in turn feeds one or more Floor PDUs. Each power chain in your data center may have one or more UPS Units.

1. In the Assets tab > Item List, click the Add an Item button. A new Item page will open in a new dcTrack tab.
2. In the New Item page, select the UPS Unit's make and model.
3. Assign a name to the UPS Unit.
4. Select a location for the UPS Unit, if different from the one already selected in the Location dropdown.
5. In the Configuration sub-tab enter the following information:
    a. Rating (kVA)
    b. Rating (kW)
    c. Rating (Vac)
    d. Output Wiring
6. Save the UPS item.

7. Repeat for any additional UPS Unit items.



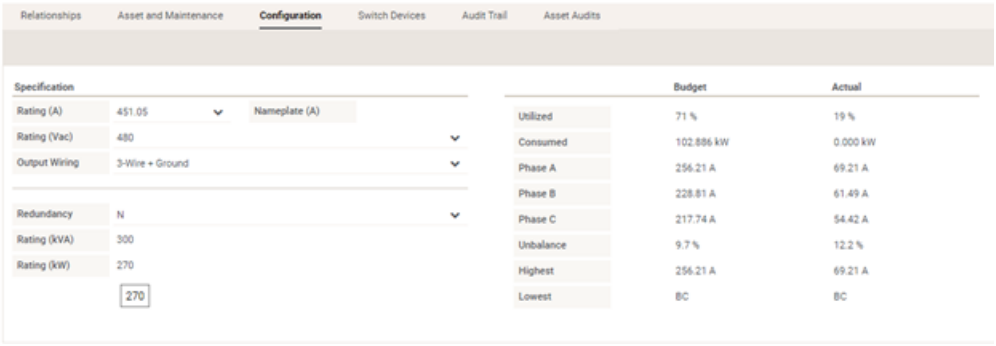
Add UPS Banks

You will need a UPS Bank for each power chain in your data center. Typically, data centers have 2 redundant power chains. A UPS Bank is technically a Switchgear which in dcTrack is represented using the Class/Subclass AC Distribution/Switch. Therefore, an AC Distribution/UPS Bank and AC Distribution/Switch electrically and functionally are the same, but in dcTrack the UPS Bank is a special case of a switch since it is the switchgear that feeds from the UPS Units and distributes out to the Floor PDUs.

1. In the Assets tab > Item List, click the Add an Item button. A new Item page will open in a new dcTrack tab.
2. In the New Item page, select the UPS Bank's make and model. You may use the Generic UPS Bank model.
3. Assign a name to the UPS Bank.
4. Select a location for the UPS Bank, if different from the one already selected in the Location dropdown.
5. In the Configuration sub-tab enter the following information:
    a. Rating (A)
    b. Rating (Vac) - This should also match the Voltage of the UPS Units.
    c. Output Wiring

    Note: The above 3 values are the specification of the Busbar that is inside the UPS Bank switchgear.

    d. Redundancy – this depends on the number of UPS Units that you will connected to the bank in Step 13 below. You will want to update this value after connecting all the UPS units to this bank.
    e. Rating (kVA) and Rating (kW) are read-only. They are automatically calculated based on the number of UPS Units that you will connect to the Bank in step 8 below and the Redundancy setting.

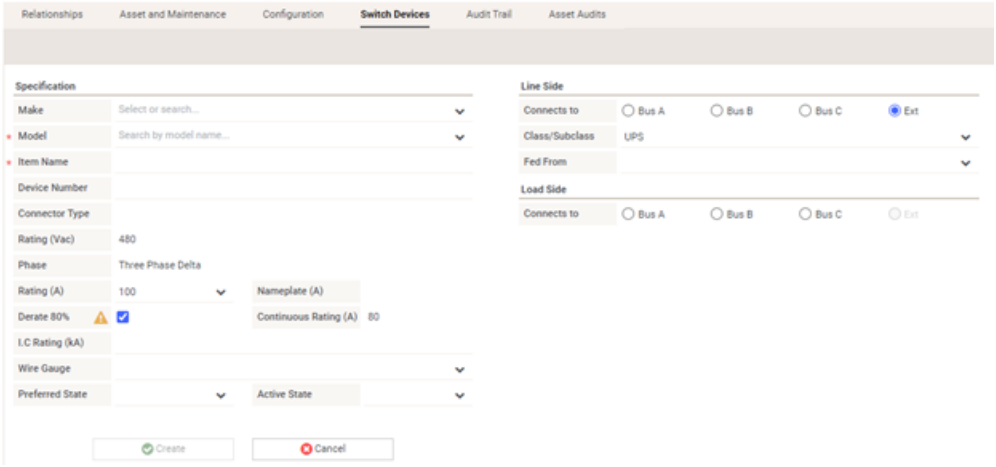


6. Save the UPS Bank item.
7. Repeat for any additional UPS Bank items.
8. In the Switch Devices sub-tab of the UPS Bank, click the Create Switch Devices button and choose Load Device. You will repeat this step for as many UPS Units and Floor PDUs there are connecting from and to this UPS Bank. A load device is the large breakers that are installed in the UPS Bank.
    a. Select the Make and Model for the Load Device.
    b. Give the Load Device a name. This name must be unique within the UPS Bank item only.
    c. Give the Load Device an optional number for easier reference within this UPS Bank.
    d. The Connector Type is inherited from the Model of the Load Device. If this remains blank, it is because the Load Device Model does not have the Connector Type set. You may want to create multiple Load Device models for each Connector Type you want to use. Each Connector Type displays it own symbol in the Single Line Diagram.
    e. Rating (Vac) is read-only and is inherited from the UPS Bank itself, which was selected in the Configuration sub-tab.
    f. Phase is read-only and is inherited from the UPS Bank itself. (It will show Three Phase Delta if the Bank's Output Wiring is 3-Wire + Ground, or Three Phase Wye if the Bank's Output Wiring is 4-Wire + Ground.
    g. Rating (A) must be equal to or less than the Rating (A) of the UPS Bank.
    h. Derate 80%. Uncheck this box if the Load Device breaker is 100% rated.
    i. The remaining fields are optional.
    j. When the Rating (A) was filled in, you will notice a form appears to the right. This specifies how this Load Device connects internally within the UPS Bank switchgear.
        1. For a Load Device that feeds from the UPS Units select the following:
            1. Line Side:
                a. Connects to: Ext
                b. Fed From: Select the UPS Unit's Output.

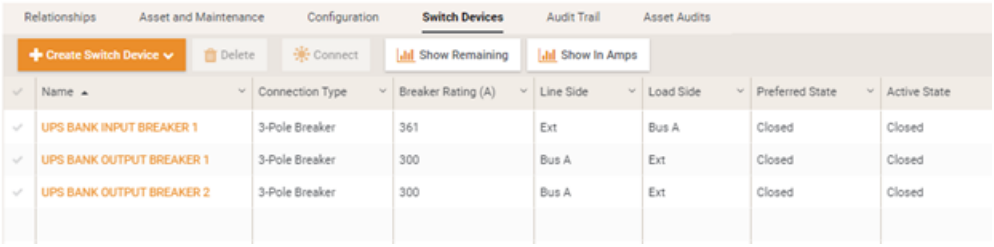
2. Load Side:
    a. Connects to: Bus A.
2. For a Load Device that feeds to the Floor PDUs, select the following:
    1. Line Side:
        a. Connects to: Bus A
    2. Load Side:
        1. Connects to: Ext.

Note: Bus B and Bus C are optional and would only be used when the Switchgear has more then one bus. When multiple buses exist, a Load Device would connect them together. These 3 bus notations should not be confused with the 3 poles of a Three Phase circuit.

k. Click Create



l. Create all other Load Devices and select the appropriate selections at step j based on what this load device will connect to.

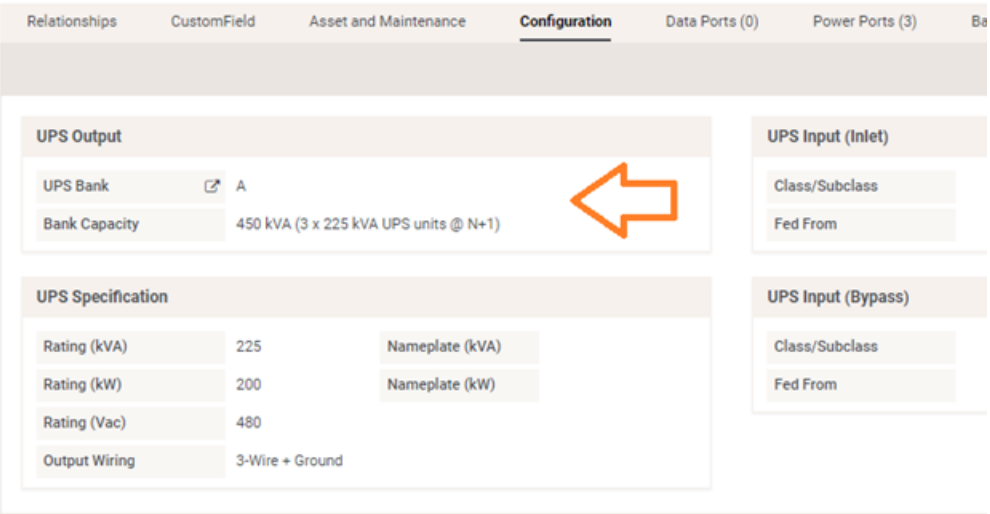


m. Save the UPS Bank Item.

n. At this point, you should have a UPS Bank connected to the UPS Unit(s). If you go back to the UPS item (s) (Refresh it, if it was already open)

and in the Configuration sub-tab, the UPS Output section should display the Bank name that this UPS Unit is part of and the total capacity of the

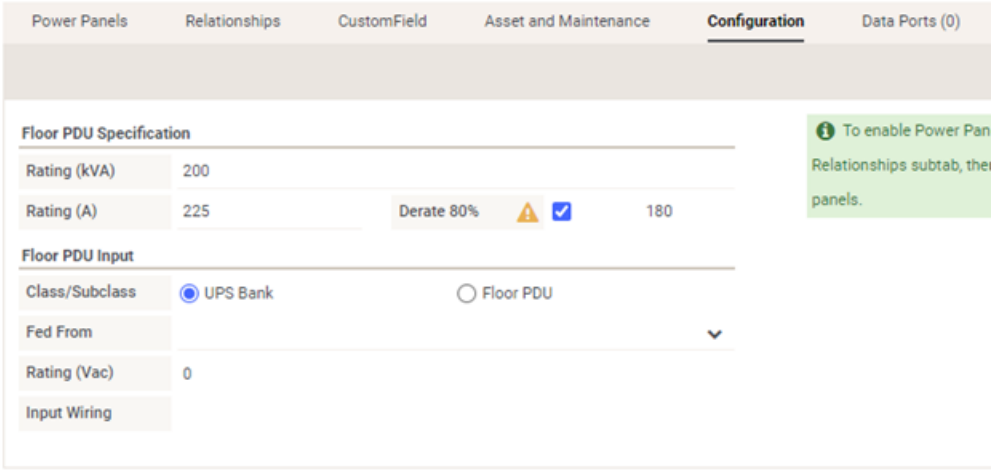
UPS Bank. If this total is higher than expected, you may need to adjust the Bank's Redundancy field.



Add Floor PDU

1. In the Assets tab > Item List, click the Add an Item button. A new Item page will open in a new dcTrack tab.
2. In the New Item page, select the floor PDU's make and model.
3. Assign a name to the floor PDU.
4. Select a location for the floor PDU, if different from the one already selected in the Location dropdown.
5. In the Configuration sub-tab enter the following information:
    a. Rating (kVA)
    b. Rating (A) – Should be a number that is close to the result of this formula: Rating (kVA) * 1000 / (Rating (Vac) * SQRT(3) * NEC Derating), where the Rating (Vac) is the voltage of the item feeding the Floor PDU and the NEC Derating is 80% for Data Centers in the United States.
    c. Class/Subclass: Select UPS Bank option
    d. Fed From: Select the UPS Bank Load Device feeding this Floor PDU.

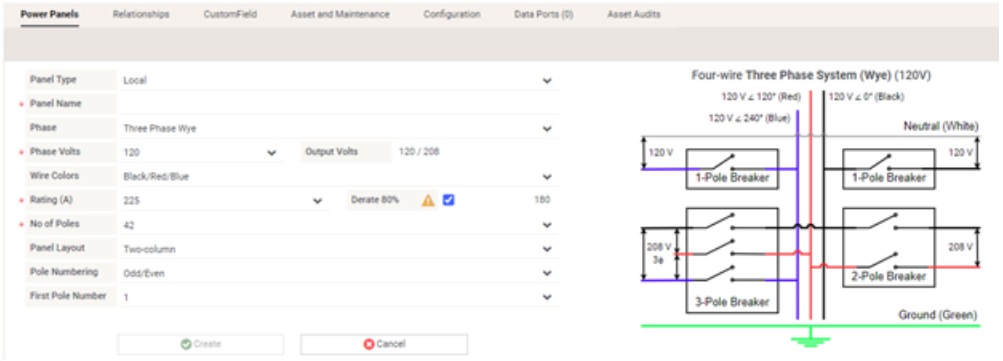
    If you do not have a UPS Bank created, you can also select VPC UPS Bank from the drop-down. AC VPC must be enabled for the location in order to view VPC UPS banks in the drop-down. See Enable or Disable VPC for a Location.
    e. The Rating (Vac) and Input Wiring will be automatically filled in based on the Fed From selection.



f. Save the Floor PDU item.

g. Repeat these steps for each additional Floor PDU.

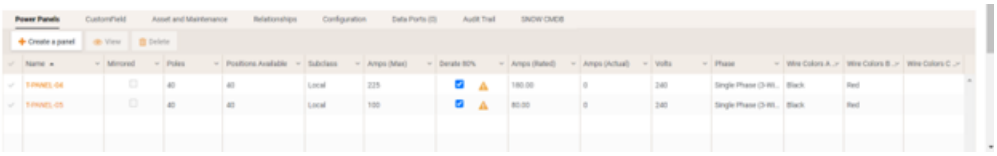
h. In the Power Panels sub-tab of each Floor PDU, create one or more power panels that are either internal to the Floor PDU (Local), remotely placed panels or RPPs (Remote), or busway systems feeding from the Floor PDU (Busway). Click Create a panel and fill in all the required fields to create each panel accordingly to the panel specifications. Note that the panel name needs to be unique only within the Floor PDU.



i. Click Create button

j. Repeat for each additional panel for this Floor PDU.

k. From the list of power panels in this sub-tab, you can click each panel name to open that panel and begin adding breakers within the panel which would also include creating the Power Outlet items that are fed from each of the breakers.



Add the Circuit Breakers via File Import

1. Back on the Power Panels sub-tab, click on the desired power panel to view its Item Details page.
2. In the Power – [x] Poles, [y] Breakers sub-tab, click the Bulk Edit button to edit the breakers. Alternatively, in the Assets tab > Items List, click the Export button and select either of the following options:
    a. Download Import Template to download the import template as a CSV file.
    b. Export into an Import Template > Branch Circuit Breakers to download an import template populated with the panel and busway breakers as a CSV file.
3. Open your CSV file.
4. Follow the instructions in the CSV file to add breakers.
5. In the Assets tab > File Import page, import the edited CSV file to create the breakers. This will also create the outlets and connect the breakers to those outlets.

Power Outlet Circuiting Prerequisites

At this point, if you are planning on using File Import to create power outlet circuiting, note the following pre-requisites.

- Each floor PDU and its busways must be created in dcTrack before you can import power outlet circuiting.
- Each floor PDU's power panel and the power panel's poles and breakers must be created in dcTrack before you can import power outlet circuiting.

Create Your Busway

Creating your busway can be completely entirely in the Web Client. The steps that follow tell you when to do so.

1. In the Web Client, click the New Item icon.
2. Enter the busway Make and Model.
3. Select a Busway subclass model. Required
4. Enter a name for the outlet in the Item Name field.
5. Update the location and any additional information, if needed.
6. Click Save.
7. In the Web Client, click the New Item icon.
8. Enter the power outlet information. Required
9. Select a cabinet and position for the outlet. Required
10. Click Save on the outlet's page.
11. In the Web Client, click Clone on the outlet's item page.
12. Enter the number of cloned outlets for the busway you are creating - do not create ports for another busway.

13. In the Clone dialog, clone only the following:
    a. Child items
    b. Parent-child associations
    c. Power ports
    d. Custom fields (if applicable)
14. Click Clone.

ol, Add Passive Items

Passive items include wire managers, blanking plates, cabinet shelves, and so on.

Passive items are added to cabinets.

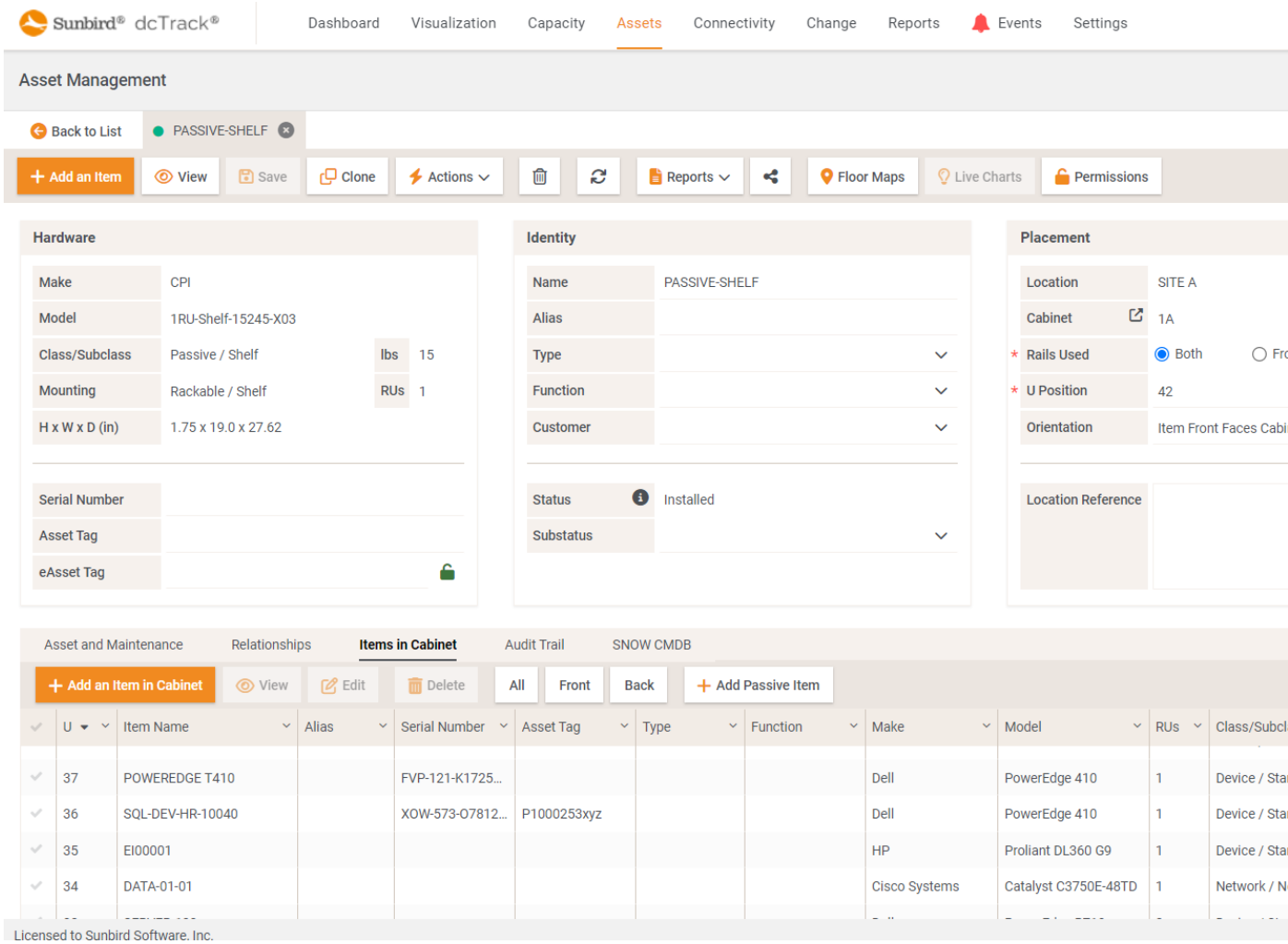
Passive items are added to a specific cabinet by creating them directly on the cabinet's item page from the Items tab while the page is in Edit mode or by creating them from their own Item Detail page.

Once added, passive items are displayed in the Cabinet Elevation and are considered by dcTrack to be installed.

To add a passive item to a cabinet from its Item detail page.:

1. Click the Add an Item button from either the Item List or any Item detail page
2. Select the Make and Model of the Passive Item you want to Add
3. Give the Item a name. You can also leave the Name field blank to auto generate the name.
    a. Passive item name is auto-generated using the format “[Cabinet Name]-[YY]RU-[XX]-U[ZZ]-[F/B]” where
        i. YY = zero-padded RU height of the passive item
        ii. ZZ = zero-padded U Position in the cabinet of the passive item. When Passive items are placed above or below the cabinet then ABV is used and BLW is used for below. Letter U will not be used. For example: 1A-02RU-GN-ABV-F
        iii. XX = abbreviation for passive item subclass: GN = General, BP = Blanking Plate, SH = Shelf
        iv. F/B = Indicates the used rails. -F = mounted on the Front rails. -B = mounted on the Back rails and -FB = mounted on Both Rails (Front and Back)
4. To immediately assign the item to a cabinet, select the cabinet from the drop down. You can also leave the field blank and edit it at a later time when you are ready to do the assignment. Once assigned to a Cabinet, it will appear on the "Items in Cabinet" subtab of the Cabinet Item. If the Item Name field is left blank then Cabinet, Rails Used and U position fields are required to auto-generate the name.
5. Once the Item is assigned to a cabinet, the Passive Item itself will have an "Items in Cabinet" subtab that lists all

the Items assigned to the Cabinet.



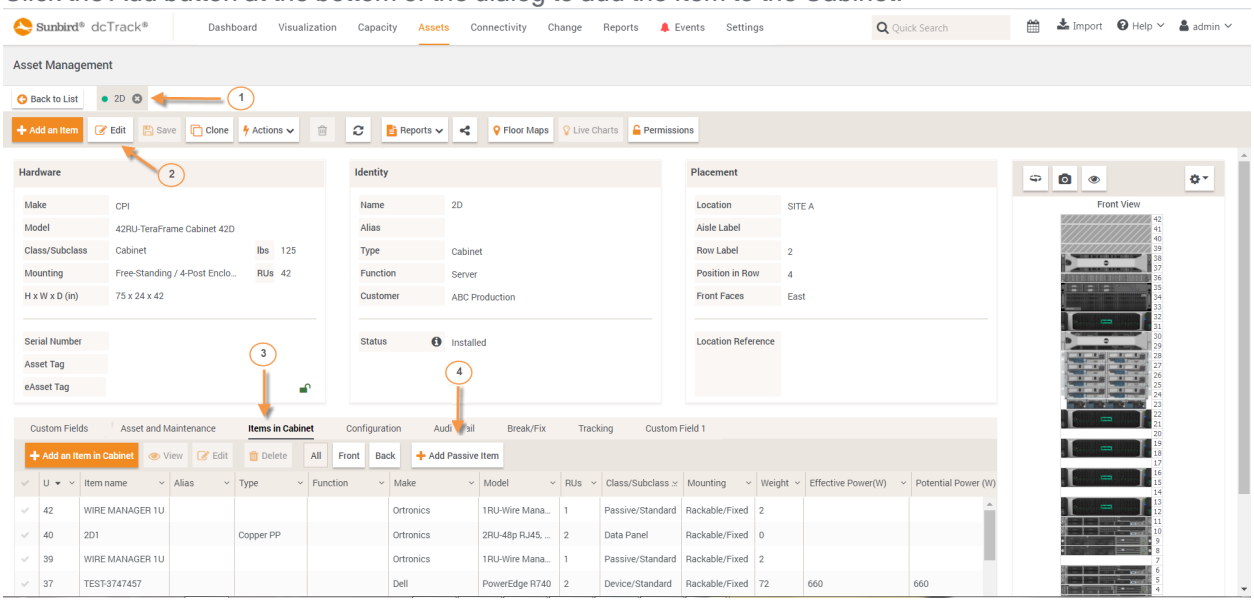
1.

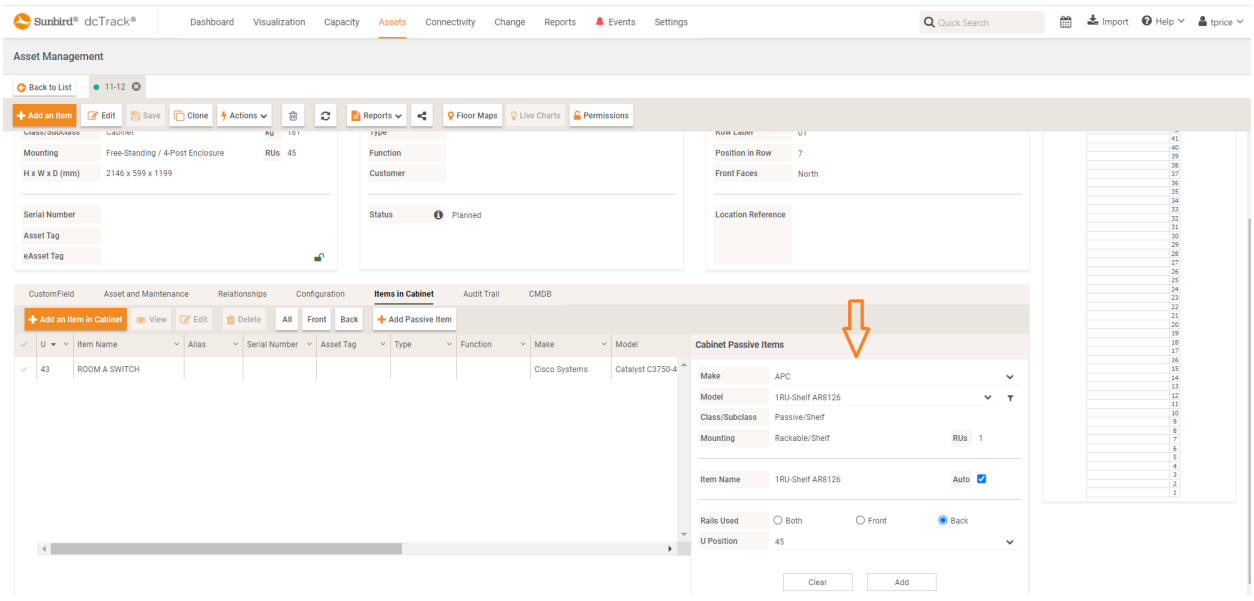
Once a Passive Item is created, it will appear in the Item List and can be selected to View/Edit it's detail page.

Passive Items can also be added from Cabinet Item details.

To add a passive item to a cabinet from the "Items in Cabinet" subtab on the Cabinet's Item detail page:

1. From the Items List under the Assets tab, select the cabinet you want to add the passive item to.
2. Open the cabinet's page in Edit mode.
3. Click on the "Items in Cabinet" sub tab.
4. Click the "Add Passive Item" button to enable the Create Passive Items panel.
5. This will open a dialog panel to the right of the list. Select the Make and Model of the Passive Item to be added.
   - Note the Models List is populated with only those Models whose Class is "Passive"

6. If the Item name is left blank, dcTrack will automatically generate the name. If you want to assign your own name, simply type it into the Item Name field.
7. Click the Add button at the bottom of the dialog to add the Item to the Cabinet.
8. 

9. 

Status field for Passive Item is read-only. When the Passive Item is created without a cabinet, the item status will be Planned. When the Passive Item get assigned to a Cabinet, status field inherits the value from the Cabinet.

Note: Passive Items no longer support duplicate names. After upgrading to dcTrack 9.2.0, existing Passive items with the same name as their model will be updated using the new syntax for auto generated name: "[Cabinet Name]-[YY]RU-[XX]-U[ZZ]-[F/B]". If duplicate names are found, they will be updated with the addition of ^^itemId.

Passive Items can also be managed via File Import and can be exported from the Asset List in the import template format or exactly as shown.

Passive items are no longer included when exporting Cabinet items.

Edit a Passive Item

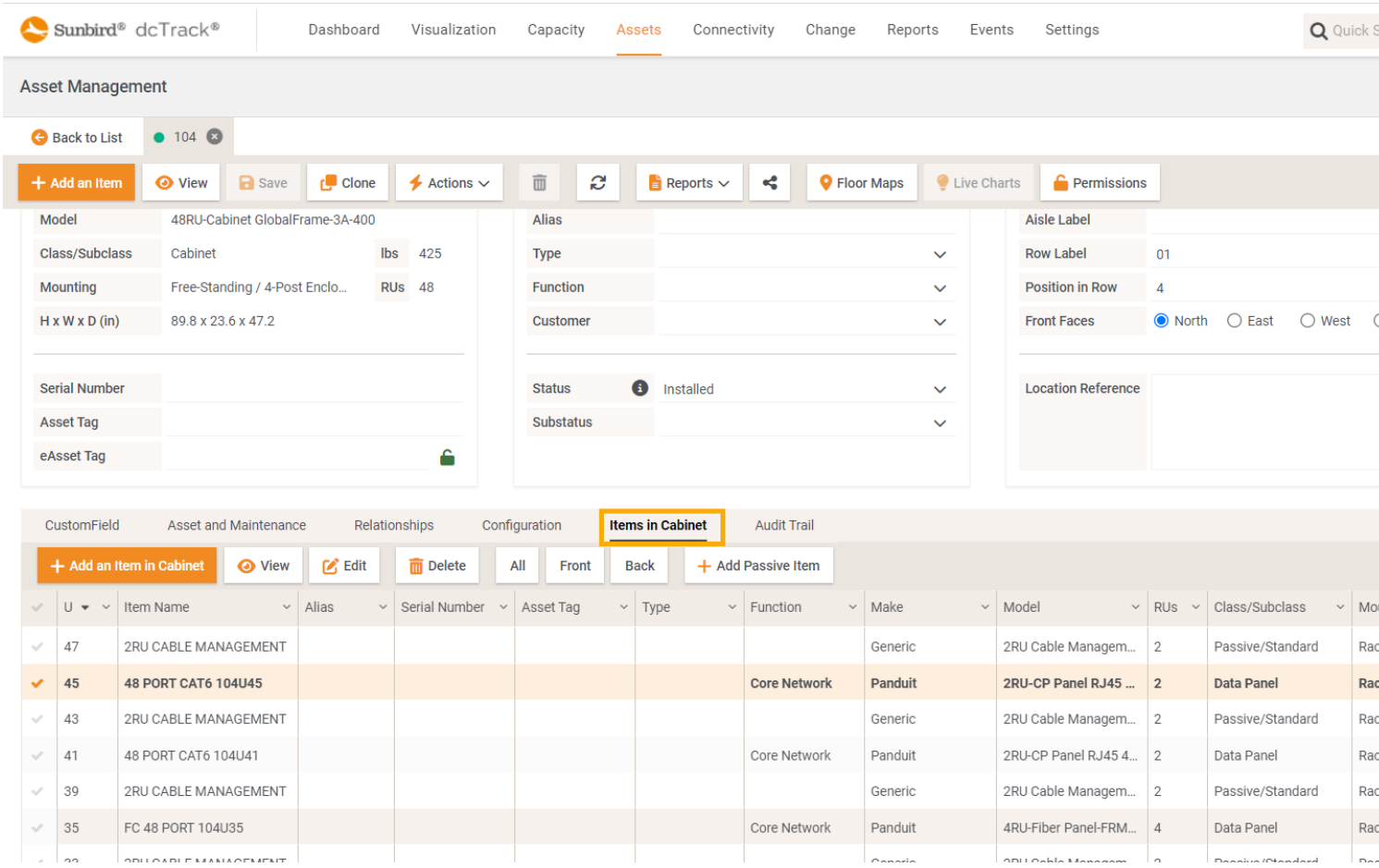
Since passive items are associated with a specific cabinet, no status is applied to them and they do not move through dcTrack's® Change Control workflow process, so you can edit a passive item's information at any time provided you have edit privileges for the cabinet.

To edit a passive item's information:

1. Open item details page of Passive item in edit mode.
2. Make changes as needed.
3. Click Save.

Passive Items can also be edited from Cabinet item details page.

1. In the Asset List, select the cabinet containing the passive item you want to edit.
2. Open the cabinet's details page.
3. Click Edit to enable edit mode.
4. Click the Items in Cabinet tab.
5. Select the passive item from the list.
6. Click Edit. The Cabinet Passive Item details page opens in a new tab.
7. Make changes as needed.
8. Click Save. The changes are reflected in the Cabinet Elevation and in the Items list under the Assets tab



Status field for the Passive items is read-only and they inherit the status of the Cabinet. Action requests do not apply to Passive Items and are disabled.

1. When the cabinet status is changed to Archived or Storage, the Passive item's status also changes as Cabinet and Cabinet, U Position fields get cleared. Status Field remain read-only and Item name does not change. Cabinet and U position fields remain editable for Passive items.
2. When a Passive Item with Archived or Storage status is assigned to cabinet, the status field is updated to match the status of the cabinet. Item name of the Passive Item is updated if the item is placed in a different cabinet or u position. If the Passive Item name was not auto-generated, the item name will not be updated when the Passive item is placed in a different cabinet or u position.

Delete a Passive Item

Passive items are associated with a specific cabinet, therefore, no status is applied to them and they do not move through dcTrack's Change Control workflow.

Because of this, you can delete a passive item from a cabinet at any time provided you have Edit privileges for the cabinet.

Passive items can be deleted using delete button in Asset List or item details page of Passive items.

Since the Passive items in a cabinet are also listed in the Cabinet Item details, they can also be deleted from there.

1. In Asset list, select the cabinet containing the passive item you want to edit.
2. Open the cabinet's page in Edit mode.
3. Click on the Items in Cabinet tab.
4. Select the passive item from the list.
5. Click the Delete icon. The item is deleted immediately. You are not prompted to confirm.

Blanking Panels/Passive Items

1. Blanking Panels are added as a passive device. Passive items are any items that do not have any data or power port capabilities. They serve a direct purpose to the workings of the data center (i.e. shelves, blanking panels, cable managers, etc.) Example: APC, Panel.

2. Passive items can be seen in the asset list, from their own Item detail page as well as cabinet detail > Items in Cabinet

3. You can export passive items from the Asset List. Exported file can be re-imported to add, edit or delete passive items.

4. Blanking Panels impact cabinet capacity planning – they are considered “used space”.

5. In the UI passive items can be added by going to the cabinet, items in cabinet, and add passive item. They can also be added from their own Item detail page.

6. Reporting – passive items are displayed in rack elevation report. Go to Assets, select a cabinet, Reports, Cabinet Elevation Report.

7. There is a widget that displays Cabinet elevations without passive items. Request this widget from tech@sunbirddcim.com

Add Blade Chassis and Blades

Blade chassis, and the blades or items that are mounted inside the chassis, are all added as separate items.

Both device and network blade servers are supported.

Other devices can also be mounted inside a blade chassis. Specifically:

- Power supplies
- I/O devices

- Fans
- Management modules

Add these items to dcTrack as you would any other item.

When you add the blade or item to dcTrack, you select the chassis it is mounted in.

Depending on how it is configured, devices may be mounted vertically and horizontally within the chassis. Additionally, a chassis may be configured to fit devices that are for full height, half height, quarter height, and double width.

Blades or items can be added to a chassis directly on the chassis page after it has been saved, or by adding the blades or items individually and then assigning them to the chassis.

After blades or items are added to a chassis, the slot the item occupies is colored red in the depiction of the chassis on the chassis page in the Blades tab. An orange dot in the slot indicates it is the anchor slot.

Once added, the chassis and any blades or other devices housed in the chassis are listed as individual items on the Items List page.

Add a Blade Chassis

Blade chassis can be configured in different ways in dcTrack depending on the chassis model. For example, chassis can be configured to use full or have size slots in the chassis, and so on.

It is recommended but not required that the chassis model you are adding be configured to fit your needs before you add the chassis in dcTrack. This ensures that the chassis is ready to accommodate the blades or other items you add to it.

Blade chassis cannot be marked as Installed until the cabinet they are associated with is marked as Installed.

Blades and other items can be added to the chassis while you are creating them, or created separately as individual items and then added to the chassis.

To create a blade chassis:

1. Select Assets > Items List.
2. Select the chassis make. Required
3. Select the chassis model. Required
4. Enter a name for the chassis in the Item Name field. The name cannot contain the characters \ & ? ' Required
5. Select the location the chassis is installed at. Required
6. Select the U position of the chassis. Optional
7. Complete any additional fields as needed.
8. Click Save.

The chassis is displayed in the Cabinet Elevation, and in the Chassis View section of the page. The chassis is red to indicate it is in the Planned status.

9. If needed, blades or items can be added to the chassis once the chassis has been saved.
    a. From the Blades tab on the chassis page, click the New Item icon. A New Item page opens.
    b. The Make field defaults to the make selected for the chassis.
    c. The Model field defaults to the blade model supported by the chassis. Leave this field as is, or select another blade or item to add to the chassis.
    d. Enter a name for the item in the Item Name field. Required
    e. From the Slot drop-down, select the slot in the chassis that will house the blade. Only available slots are a displayed. Optional
    f. Complete any additional fields as needed.
    g. Click Save.

If you selected the chassis and slot position for the blade, click on the Blades tab in the middle of the page to view the blade in the chassis. The blade is red to indicate it is in the Planned status. An orange dot in the slot indicates it is the anchor slot.

Submit an install item request for the item in addition to submitting a separate request for the chassis.

Submit an Install Item request by clicking on Actions > Install Item Request, then click OK on the install confirmation message. A confirmation message is displayed. For a receipt of the action, save it to a file locally using Save File, or use Ctrl+C to copy the confirmation in the message, paste into a file, and save the file locally. Click OK to close the message.

Alternatively, submit one or more Install Item requests at once using Ctrl+click to select them on the Item's List page, then clicking Actions > Install Item Request.

Note that the request can be issued now or at a later time.

Check the status of the request at any time from the Web UI by clicking Change > Requests.

After the Gatekeeper has reviewed and approved the request, a work order to actually perform the task is issued by the Gatekeeper. Once the work order is marked as Complete in dcTrack, the action is considered complete. The Gatekeeper must then mark the request as Complete.

Add a Blade to a Chassis

Blades and other items can be added to the chassis while you are creating them, or created separately as individual items and then added to the chassis.

The steps in this topic walk you through creating a blade as in individual item, and adding to an existing chassis while you are creating it.

Blades can be created in dcTrack without first creating the chassis the blade will be housed in. However, you cannot change a blades status to Installed without first assigning it to a cabinet and chassis.

Once a blade is associated with a chassis, in order to change a blade's status to Installed, the cabinet and chassis statuses must be in an Installed state.

Note: A chassis and its blade devices are all listed as individual items on the Items List page.

To add a blade server:

1. Select Assets > Items List.
2. Select the blade make. Required
3. Select the blade model. Required
4. Enter a name for the blade in the Item Name field. The name cannot contain the characters \ & ? ' Required
5. Select the location the blade is installed at. Required
6. Select the cabinet containing the chassis the blade will be housed in. This field is required in order to change the blade's status to Installed.
7. Select the chassis the blade will be installed in. Optional

From the Slot drop-down, select the slot in the chassis that will house the blade. Only available slots are a displayed. This field is required in order to change the blade's status to Installed.

Complete any additional fields as needed.

Click Save.

If you selected the chassis and slot position for the blade, click on the Blades tab in the middle of the page to view the blade in the chassis. The blade is red to indicate it is in the Planned status. An orange dot indicates it is the anchor slot.

If you try to add the blade to a chassis that does not have slots defined, a warning message appears. Selecting Yes adds the blade to dcTrack and the chassis, but the blade is not displayed in Chassis View section of the page within the chassis until the chassis is configured.

Submit an Install Item request by clicking on Actions > Install Item Request, then click OK on the install confirmation message. A confirmation message is displayed. For a receipt of the action, save it to a file locally using Save File, or use Ctrl+C to copy the confirmation in the message, paste into a file, and save the file locally. Click OK to close the message.

Alternatively, submit one or more Install Item requests at once using Ctrl+click to select them on the Item's List page, then clicking Actions > Install Item Request.

Note that the request can be issued now or at a later time.

Check the status of the request at any time by clicking Change > Requests.

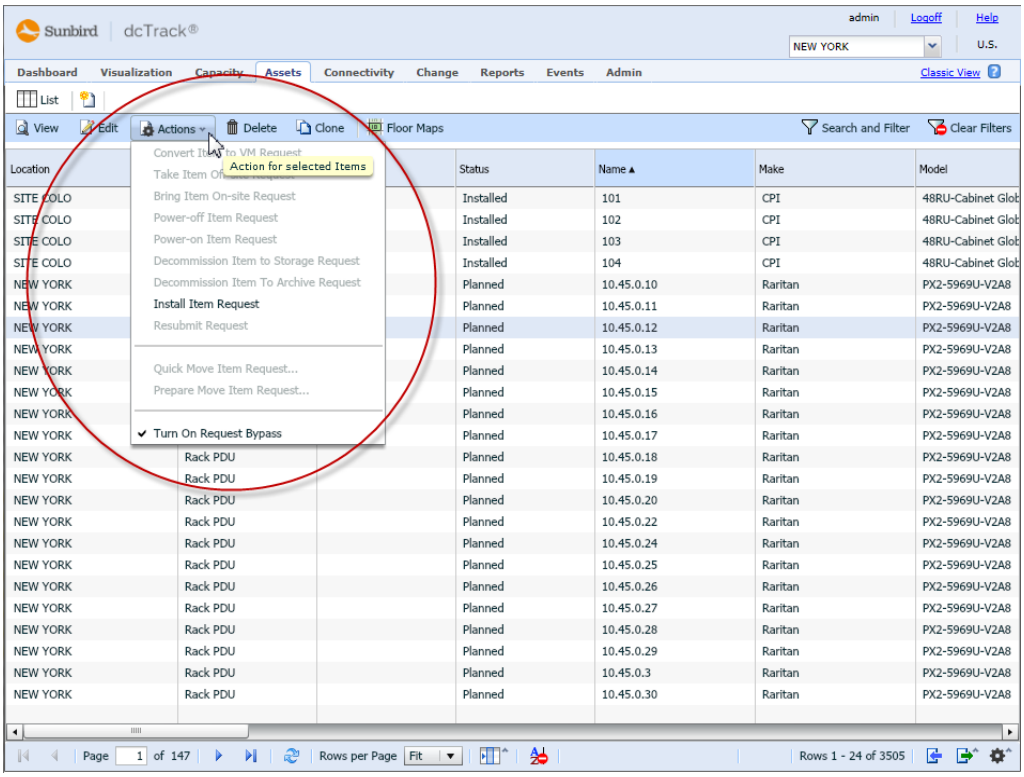
After the Gatekeeper has reviewed and approved the request, a work order to actually perform the task is issued by the Gatekeeper. Once the work order is marked as Complete in dcTrack, the action is considered complete. The Gatekeeper must then mark the request as Complete.

Once blade chassis and blades are added, create a circuit between a blade's logical port and a network blade in the same chassis as needed. You can also create data and power circuits between the blade and other items as needed.

dcTrack does require that a Chassis be placed in a Cabinet before any Blades can be added to that Chassis. There may be situations however, where you want to place blades in a Chassis that is not yet in a Cabinet. To work around this requirement, you can create a Zero-U cabinet in a "storage location" and use that to satisfy the restriction that the Chassis must be in a cabinet. Since the Cabinet is 0U, it will not be included in the Cabinet count for licensing.

Submit an Install Item Request

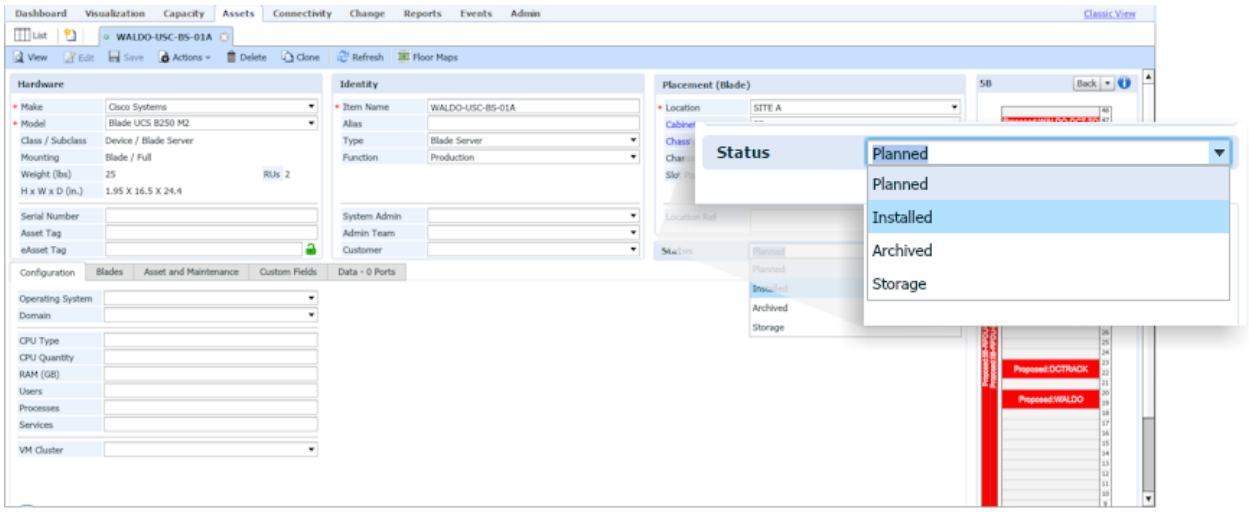
After adding a cabinet or an item, Select Install Item Request from the Actions menu to submit the request, and select Yes when prompted to confirm.



For more information on requests and the Actions menu, see **Item Action Request Types**.

If Request Bypass is enabled, the request is processed immediately. If Request Bypass is disabled, the request is submitted to the Change Control workflow and processed.

Alternatively, change the item's status to from the Status drop-down on the item's page provided you have privileges to do so.



Note: A cabinet must be in an Installed status in order to add items to it.

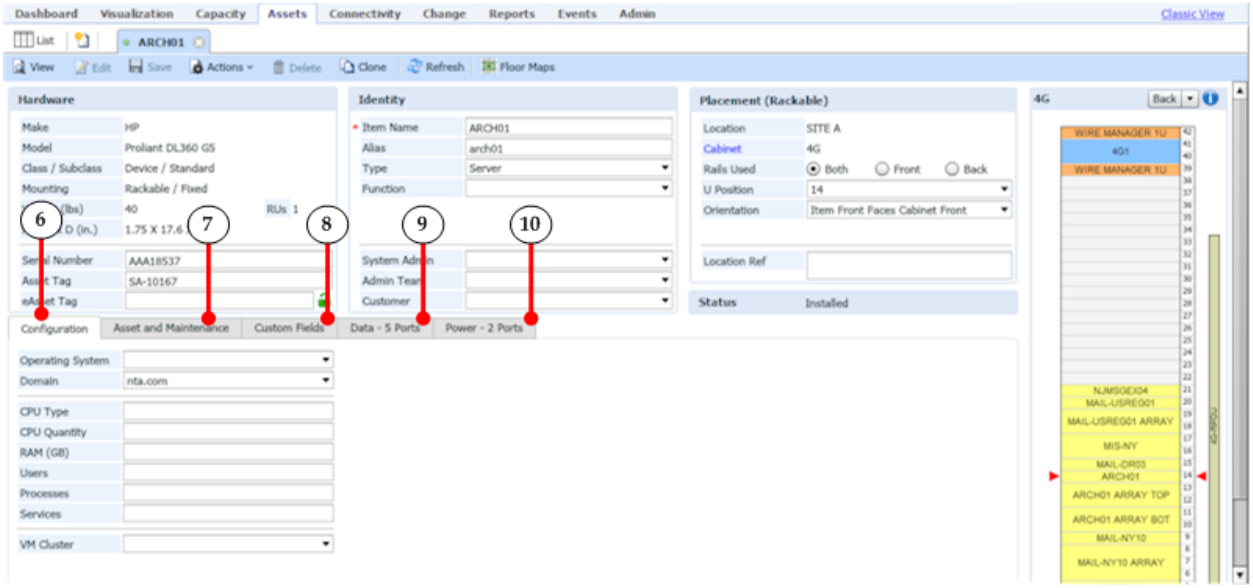
Edit Items in the Web Client

You must have Edit privileges to an item to edit it. For details, see **Edit Access Privileges to Items**.

You can edit item information in the Web Client for any item that was created in the Web Client.

Opening an Item's Page in Edit mode displays the following:

- Updateable Hardware information fields
- Updateable Identity fields
- Note that editing the System Administrator and Admin Team may impact who can and cannot edit the item in the future. See .
- Updateable Placement information
- Note that you can change the item's U position from the U Position drop-down, or using drag-and-drop in the cabinet elevation
- For more information, see **Drag-and-Drop an Item to a New U Position in a Cabinet** and **Change an Item's U Position in a Cabinet**.



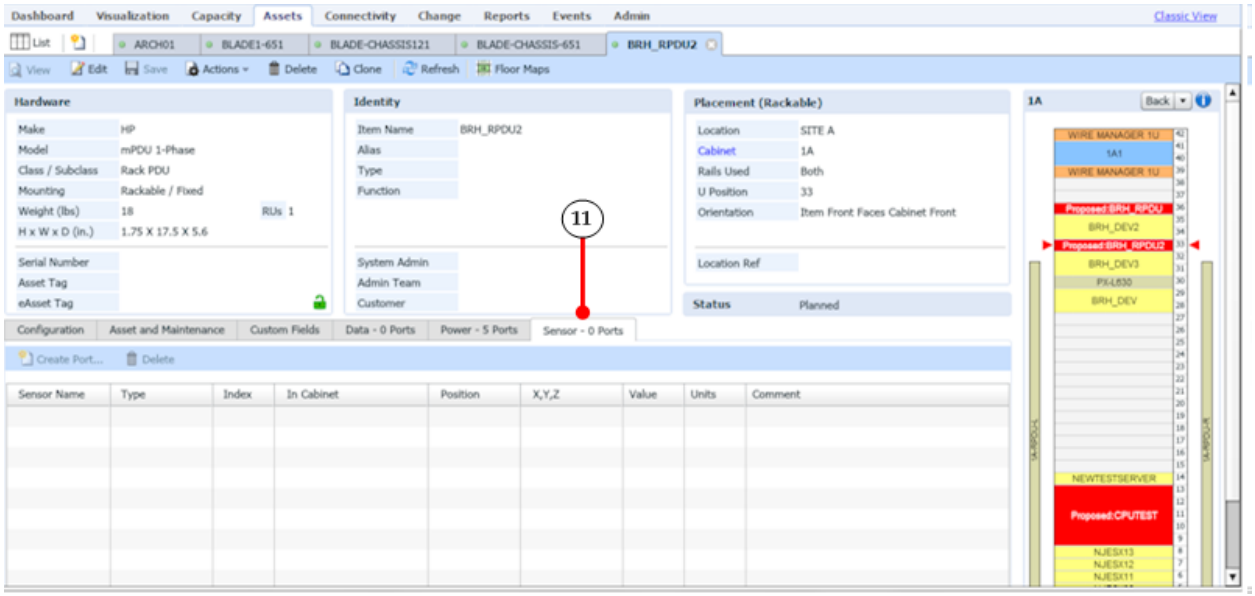
Tab	Description
6	Updateable Configuration tab information.
7	Updateable Asset and Maintenance tab information.
8	Updateable Custom field tab information.
9	From the Data - N Ports tab: • **Edit a Data Port (Web Client)** • **Create a Data Port (Web Client)** • **Delete a Data Port (Web Client)**
10	Power port information is updated for items on the Power - N Ports tab. • **Edit a Power Port (Web Client)** • **Remove Power Ports (Web Client)** • **Delete Power Ports (Web Client)** • **Create Power Ports (Web Client)** • **Edit a Power Port on a Rack PDU**

Rules for Modifying Dates on the Asset and Maintenance Tab

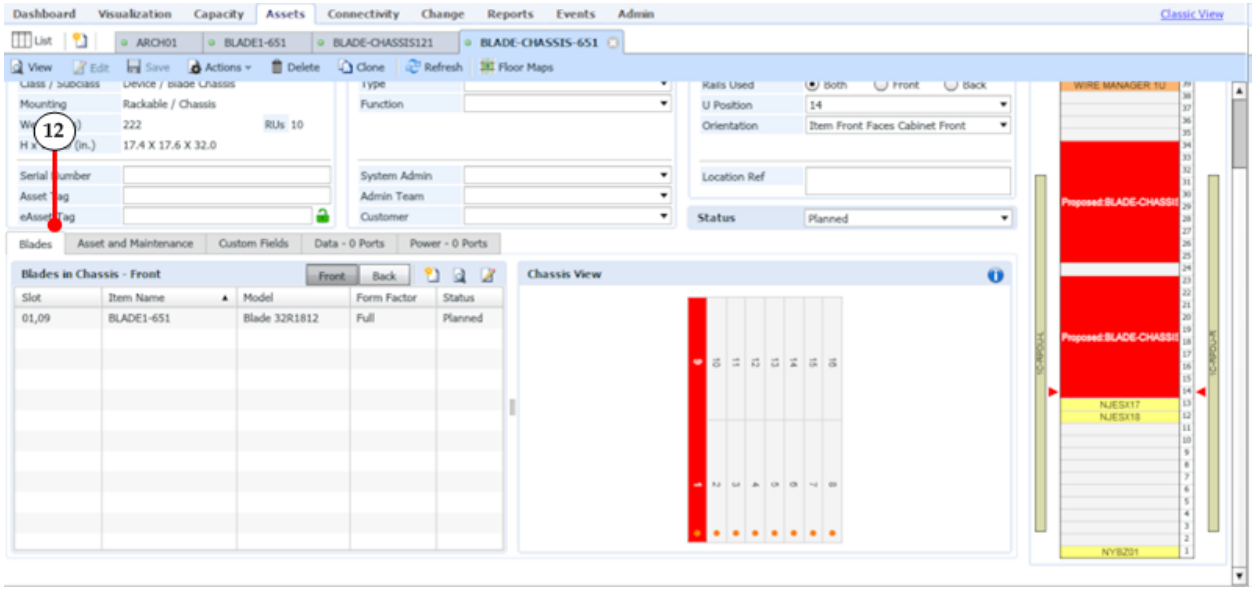
When setting the Contract Start and End Dates, the Contract Start Date must precede the Contract End Date, and the Contract Start Date must be on or after the Purchase Date.

When setting the Installation Date, it must precede the Contract End Date.

When setting the Purchase Date it must be on or prior to the Installation Date, and the Purchase Date must be prior to the Contract End Date.



Label	Description
11	From the Sensor - N Ports tab, if applicable: • Edit Sensor Ports (Web Client) • Delete Sensor Ports (Web Client) • Creating Sensor Ports for Rack PDUs and Probes (Web Client)



Label	Description
12	Update, delete or add blades to chassis, if applicable. Note that you can change the position of a blade in a chassis by making a new selection from the Slot Position drop-down on the blade's item page, or by dragging-and-dropping the blade into another open slot in the same chassis. See **Drag-and-Drop a Blade to a New Slot in a Chassis** and **Changing a Blade's Slot Position in a Blade Chassis**.

Data Panel Ports

The Data Ports sub-tab provides a grid of ports that have been created for data panels with links to connected items. Edit capability is provided in the grid for Port Name, Index, Color Code, Grouping/VLAN, Connector (only if not connected), Cable Grade, and Comment.

The sub-tab also provides trace capability so users can view the circuit where the connection is being made or used. To view the circuit details, click the Trace button.

The sub-tab also provides the ability to initiate bulk import of structured cabling and connect for data panel ports not already in use. For more information, see **Use File Import to Add, Edit, and Delete Structured Cabling** .

Power Outlet/Supply Ports

The Power Ports sub-tab provides a grid of ports that have been configured for the power outlets with links to connected items. Edit capability is provided in the grid for attributes that are not associated with connections, such as Port Name, Index, Color Code, Connector (only if not connected), Wire Gauge, and Comment.

Note: You cannot make edits for connected assets on attributes associated with the connections.

Power Panel Power Poles and Breakers

The Power Panel Power Poles and Breakers sub-tab provides grid of power panel poles and breakers with links to connected items. The columns in the grid cover the power panel's Pole, Breaker Rating, Connected Item, Status, Free Budgeted Power and Phase.

The sub-tab also provides trace capability.

Optional Power Supply Ports for Items

Users with the appropriate permissions are able to designate power supply ports as optional on items.

Power ports can be designated as optional on the Item Details page.

To designate a power supply port as optional:

1. In the Item Details page, click the Edit button to enable Edit mode.
2. On the Power Ports tab:
    a. Check the checkbox in the Optional column next to the port you want to designate as optional.
    b. Uncheck the checkbox if you want to designate that port as non-optional.
3. Click the Save button to save your changes.

In additional to the optional or non-optional designation, power supply ports have Port ID to make it easy to uniquely identify the port you want to modify.

Important Notes for Optional Power Supply Ports for Items

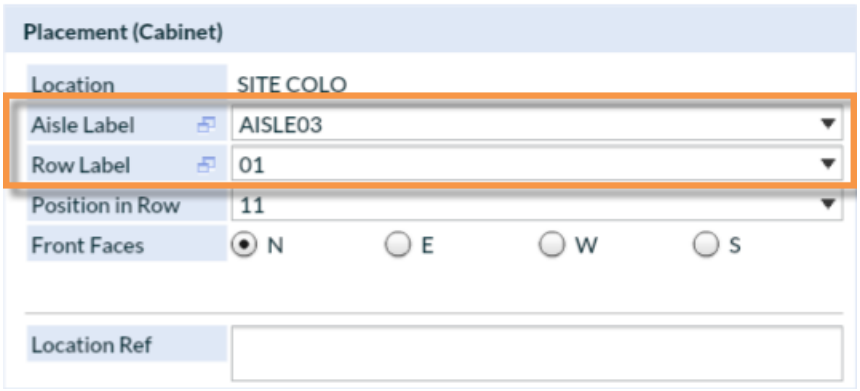
For power supply ports that are designated as optional:

- Changes made to an optional power supply port are made only to that port.
- Optional power supply ports are excluded from port counts, lists, reports, and dashboard widgets.
- Optional supply ports cannot be connected, and ports that are connected cannot be designated as optional.
- Optional power supply ports do not need unique names, indices, or other editable fields that are required to be unique for non-optional ports.
- Optional supply ports are not subject to validations; however, names and other attributes must still be valid in terms of length, characters, etc.
- Power supply ports can be designated as optional or non-optional via bulk File Import.
- Designating power supply ports as optional or non-optional is captured in the system audit log.
- Optional ports are included when the item is cloned.

Aisles and Rows as Sub-Locations

Aisles and rows have been added to dcTrack's EDM hierarchy and are collectively referred to as sub-locations.

Users with the appropriate permissions are able to edit the Placement (Cabinet) panel on Item Details pages to reflect aisles and rows as sub-locations when applicable. To specify an aisle or row in the Placement panel, simply select the desired aisle or row from the appropriate dropdown. To add an aisle or row, simply select the icon to launch the aisle or row dialog.



As in previous versions of dcTrack, positions in rows continue to be numbered 1-300. Upon upgrade to dcTrack 6.0 from a previous version, all existing rows will be migrated. However, instead of typing in the row to specify it, users will need to select a row via the Row Label dropdown to specify the row.

Authorized users also can add, edit and delete aisles and rows via File Import.

Aisles and rows are included in the Cabinet Detail and Item Detail reports.

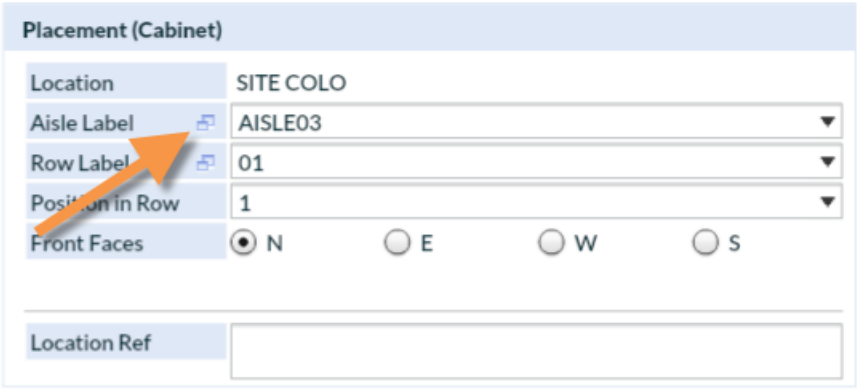
Note: Aisles and rows are included in the Data Model Sync when integrated with Power IQ.

Managing Aisles from the Item Details Page

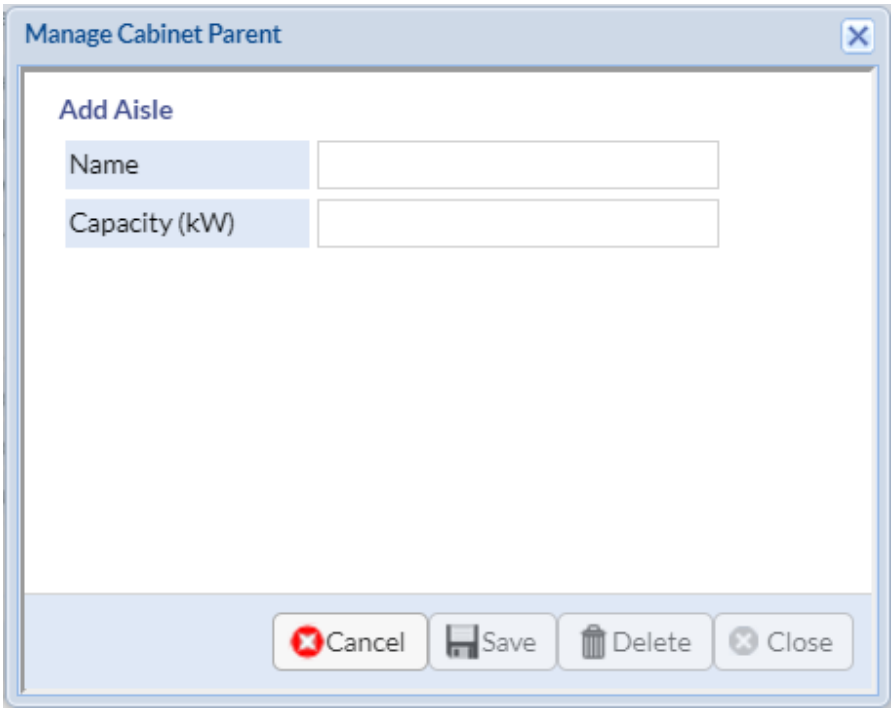
Note: For Aisles, Name is the only required field and must be unique.

Adding an Aisle

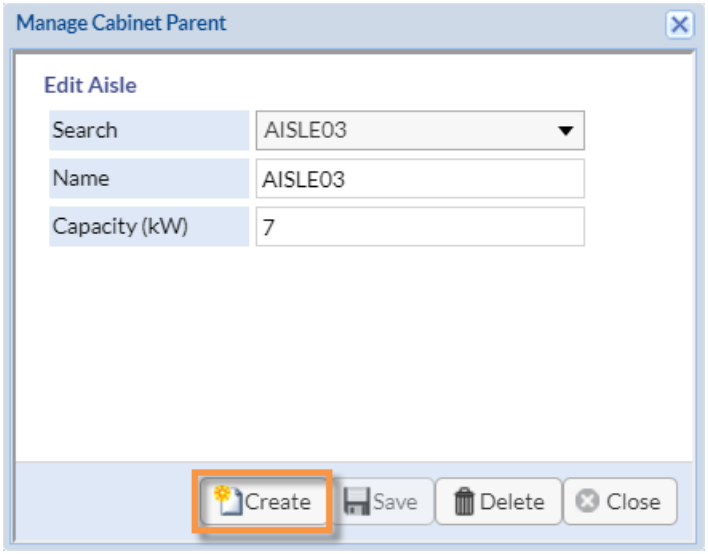
1. In the Assets tab, select an item and click the Edit icon to enable Edit mode for that item.
2. In the Placement (Cabinet) panel, click the Manage icon next to the Aisle Label.



3. If no aisle has been specified, the Add Aisle dialog opens.



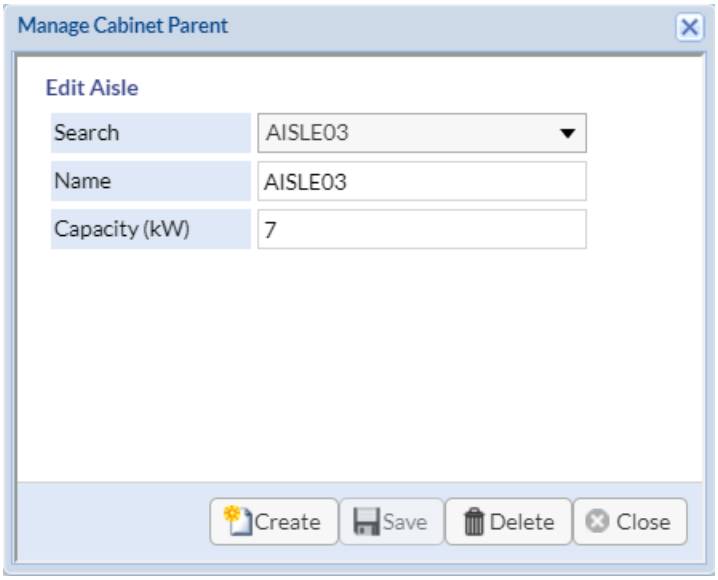
4. If an aisle has been specified, the Edit Aisle dialog will display. Click the Create button to access the screen above.



5. Add the Name (required) and Capacity (Optional), then click the Save button. At this point, you can create additional aisles or click the Close button to close the dialog.

Editing an Aisle

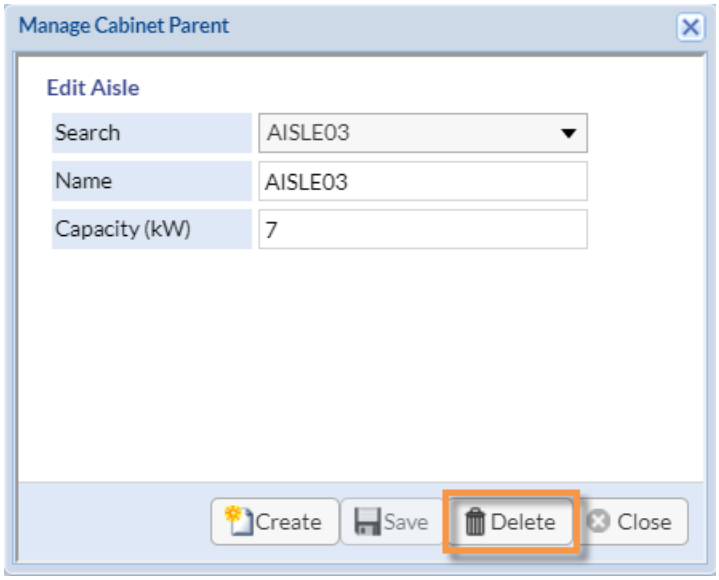
1. In the Assets tab, select an item and click the Edit icon to enable Edit mode for that item.
2. In the Placement (Cabinet) panel, click the Manage icon next to the Aisle Label.
3. In the Edit Aisles dialog, select the aisle you want to edit from the Search dropdown. The Name and Capacity fields will automatically populate with the data from the selected aisle.



4. Make your edits to the Name and Capacity fields, then click the Save button. At this point, you can select other aisles to edit or click the Close button to exit the dialog.

Deleting an Aisle

1. In the Assets tab, select an item and click the Edit icon to enable Edit mode for that item.
2. In the Placement (Cabinet) panel, click the Manage icon next to the Aisle Label.
3. In the Edit Aisles dialog, select the aisle you want to delete from the Search dropdown. The Name and Capacity fields will automatically populate with the data from the selected aisle.



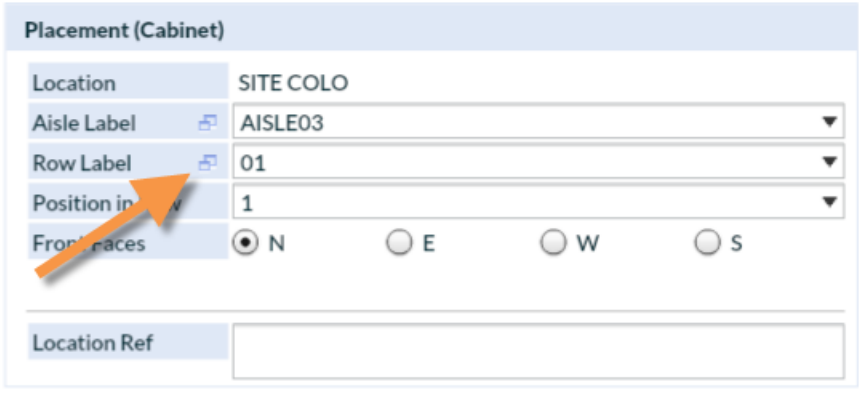
4. Click the Delete button to delete the aisle. At this point, you can select other aisles to delete or click the Close button to exit the dialog.

Managing Rows from the Item Details Page

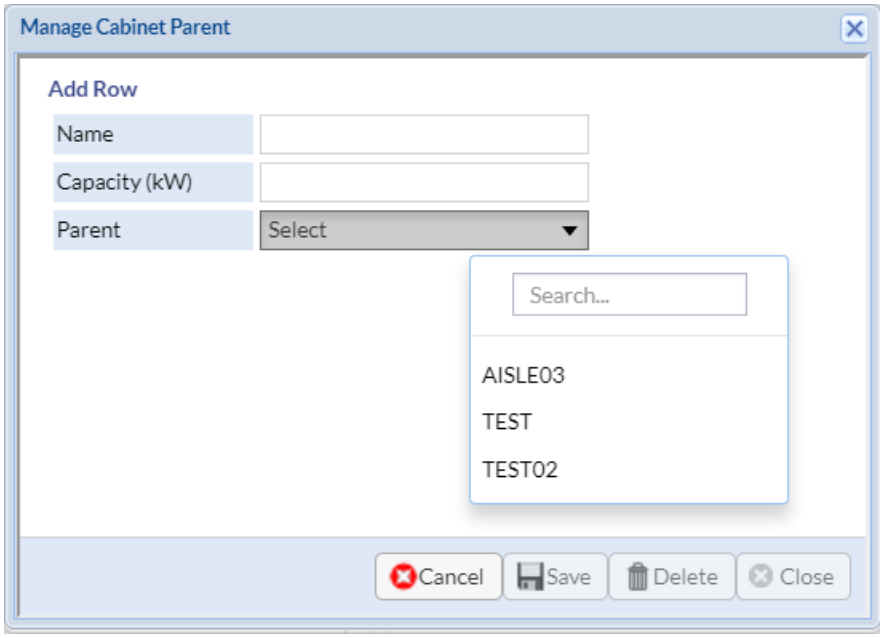
Note: For Rows, Name is the only required field and must be unique. If you want to specify a Parent aisle for a row, you must create the parent aisle before associating the row with the Parent aisle.

Adding a Row

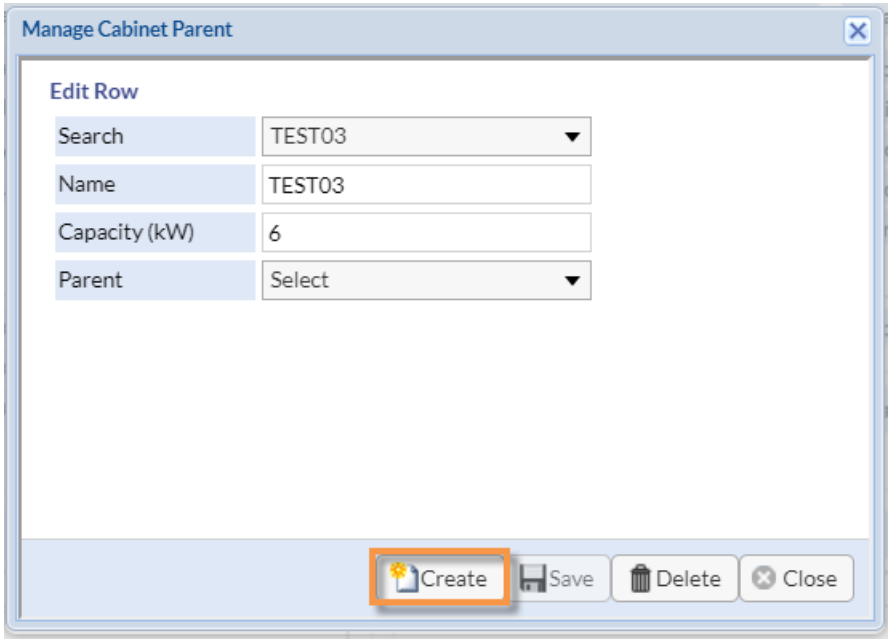
1. In the Assets tab, select an item and click the Edit icon to enable Edit mode for that item.
2. In the Placement (Cabinet) panel, click the Manage icon next to the Row Label.



3. If no row has been specified, the Add Row dialog displays.



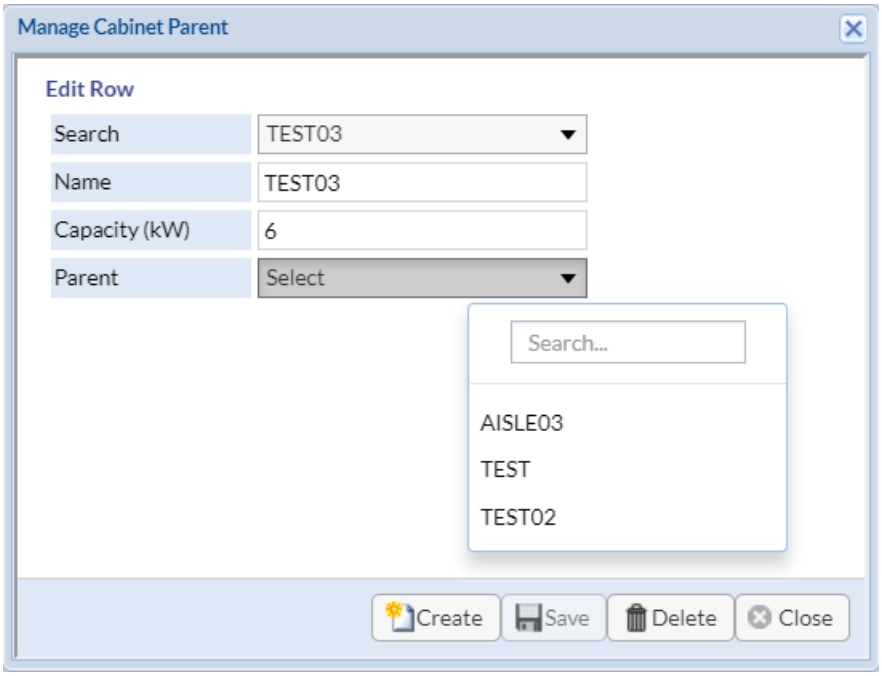
4. If a row has been specified, the Edit Row dialog appears. Click the Create button to access the Add Row dialog above.



5. In the Add Row dialog, provide the Name, Capacity, and Parent aisle. You can choose from the aisles list or type in the Search box to filter available aisles by your criteria.
6. Click the Save button to save your changes. At this point, you can continue to create additional rows or click the Close button to exit the dialog.

Editing a Row

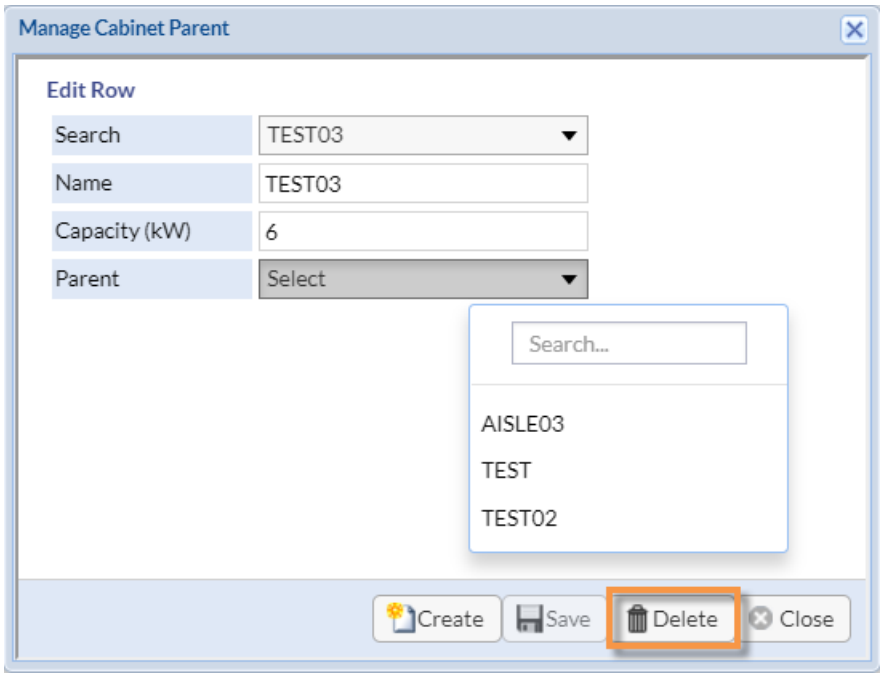
1. In the Assets tab, select an item and click the Edit icon to enable Edit mode for that item.
2. In the Placement (Cabinet) panel, click the Manage icon next to the Row Label.
3. In the Edit Row dialog, select the row you want to edit from the Search dropdown. The Name, Capacity, and Parent aisle fields will automatically populate with the data from the selected aisle. You can choose from the aisles list or type in the Search box to filter available aisles by your criteria.



4. Click the Save button to save your changes. At this point, you can continue to edit additional rows or click the Close button to exit the dialog.

Deleting a Row

1. In the Assets tab, select an item and click the Edit icon to enable Edit mode for that item.
2. In the Placement (Cabinet) panel, click the Manage icon next to the Row Label.
3. In the Edit Row dialog, select the row you want to delete from the Search dropdown. The Name, Capacity, and Parent aisle fields will automatically populate with the data from the selected aisle.



4. Click the Delete button to delete the row. At this point, you can select other rows to delete or click the Close button to exit the dialog.

Adding, Editing, and Deleting Aisles and Rows via File Import

Authorized users can add, edit, and delete aisles and rows via File Import.

Step 2 in the Import Template is specific to sub-locations. The screenshot below is provided as an example.

The Operation is ADD, EDIT, or DELETE. The Object is SUBLOCATION. The Sub Location Type indicates whether the sub-location is an aisle or row. The Sub Location Name is the name specified for the aisle or row. Parent Sub Location is only applicable to rows.

	A	B	C	D	E	F	G	H
1	# Is used to indicate the line is a comment.							
2	# Required fields are indicated by an asterisk *.							
3	# Aisles and Rows are generically referred to as Sub Locations.							
4	# Values for Sub Location Name must be unique within its parent Location or parent Sub Location.							
5	# Value for Location Column should be an existing dcTrack Location and be the full Path Code of that Location (e.g. DataCenter1 > Floor 1 > Room 1).							
6	# Capacity can be a numeric floating point value.							
7	# The items listed below are examples. Please see your system administrator for specific naming conventions to be used.							
8								
9	**# Operation ***	**Object ***	**Sub Location Name***	**Location ***	**Sub Location Type***	**Parent Sub Location**	**Capacity(kW)**	
10	ADD	SUBLOCATION	Aisle01	BDGWTR	Aisle		8	
11	ADD	SUBLOCATION	Row1	BDGWTR	Row	Aisle01	5	
12	ADD	SUBLOCATION	Row2	BDGWTR	Row	Aisle01	6	
13	ADD	SUBLOCATION	Aisle02	BDGWTR	Aisle		8	
14	ADD	SUBLOCATION	Row3	BDGWTR	Row	Aisle02	5	
15	ADD	SUBLOCATION	Row4	BDGWTR	Row	Aisle02	6	
16								
17								
18								
19								
20								
21								
22								

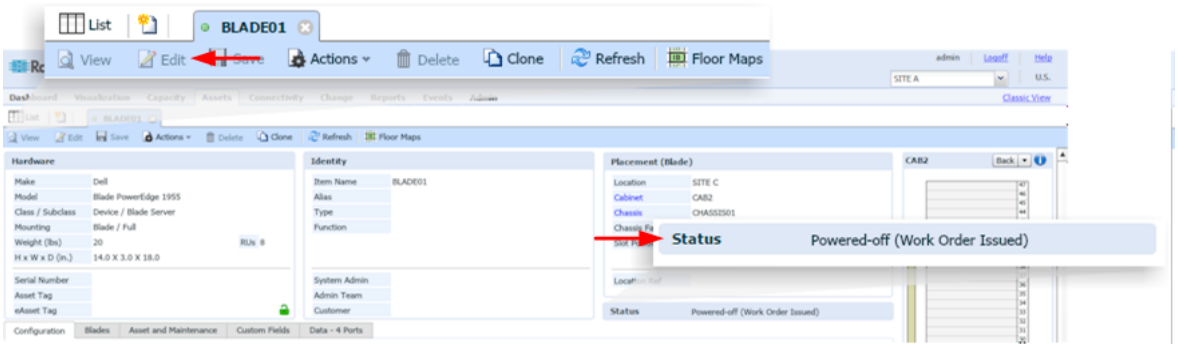
Step 1 Add Locations | **Step 2 Add Aisles and Rows** | Step 3 Add Cabinets | Step 4 Add Rack PDUs | Step 5 Add Devices | Step 6 C ...

For a full specification of every field that is applicable to sub-locations, see the Subloc All Applicable Fields tab in the Import Template.

Edit Item Disabled or Disallowed

You are not able to edit items:

- If you do not have edit privileges to them. See **Edit Access Privileges to Items**
- If there is an outstanding Work Order pending for them.



Edit Access Privileges to Items

A user's ability to edit an item is based on:

- Whether or not the user's role has Edit privileges

For example, Viewers cannot edit any items, System Administrators can edit all items.

- The System Administrator defined for the item in the System Admin drop-down, if applicable
- The Team defined for the item in the Admin Team drop-down, if applicable
- The item's workflow status

Items with an Approved request cannot be edited; the item's Work Order must be marked Complete to edit the item.

For additional information, see **Manage a User's Edit Access to Items**.

Deleting Items

Deleting items in dcTrack means permanently removing them from the database before they are put into use in the data center - that is, when they are in Planned status.

dcTrack allows you to delete items while they are in a Planned status because doing so does not have adverse effects on other items, as opposed to items that are installed.

An item in an Installed state cannot be deleted.

Instead, decommission the item to storage to remove it without purging it from the application.

Or, if you want to completely remove it from the application, decommission it to archive and then purge it. Once it is in an Archived status, it can be completely remove them from the database. See **Purge Archived Items from dcTrack**.

The following criteria must be met to delete items from dcTrack:

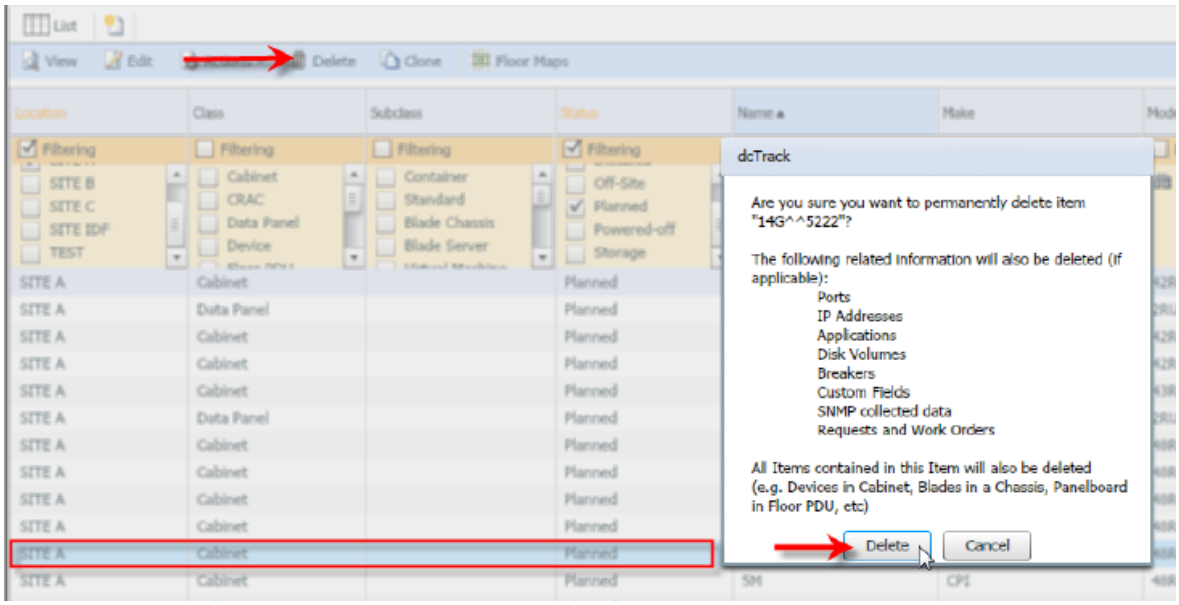
- The item must be in a Planned state
- No open requests or work orders can exist for the item
- You must be the person who created the item or have edit privileges to the item
- The item cannot be deleted if a power or data connection exists to it

Deleting an item may impact other items it is associated with, as well as any connections. This is why you cannot simply open a cabinet's item page and delete an item from that page for example.

- When you delete items, additional ports created for the item, IP addresses, applications added to it, and so on, is also deleted.
- The item is permanently deleted from the database.
- If it is linked to an object on the floor map, that link is severed but the object itself is not affected.
- It is removed from the cabinet elevation if it was added to a cabinet.

Delete Items from the Items List

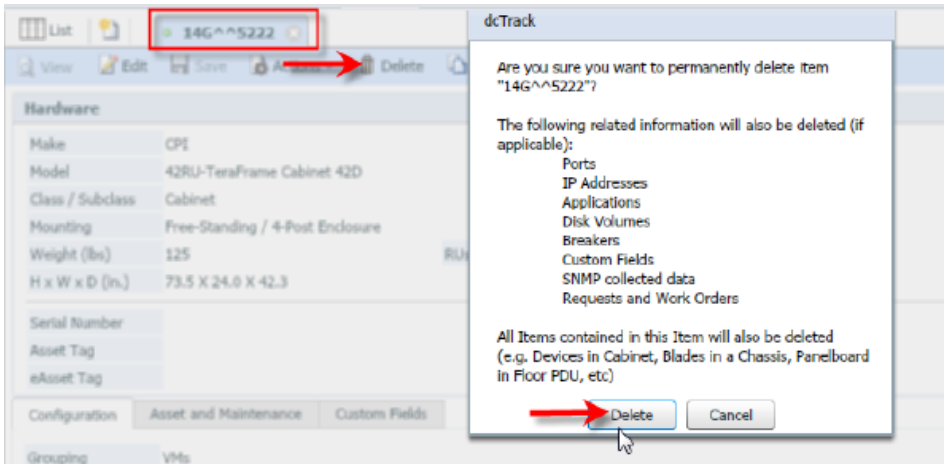
1. In the Web Client, click Assets > Items List. The Items List page opens.
2. Select the item you want to delete. Only one item can be deleted a time.
3. Click Delete.
4. Click Delete on the confirmation message.



Delete an Item from Its Item Page

To delete an item from its item page:

1. After opening the item's page from the Items List page, click Delete.
2. Click Delete on the confirmation message.



Cloning

Cloning is a faster way to create new items rather than creating them from scratch.

Cloning cabinets along with the items in it is particularly useful if many or all cabinets in your data center are the same and are populated with the same devices. Rather than having to create a new cabinet and add devices to it each time you add a new cabinet, you just clone an existing cabinet, then edit the clone's information as needed to make it unique.

Update each clone's information so it is unique, such as updating the item names, by manually editing the information or using making bulk updates. Bulk updates are made by first exporting the clone's information to a .CSV file, updating the information in the .CSV, and then reimporting the file using dcTrack's File Import.

Clone a single item, or multiple items at once. Depending on the item being cloned, you can elect to clone an item's data ports, power ports, sensor ports and custom field data. You can also elect to maintain parent-child relationships between items, such as the parent-child relation of chassis-blades.

When cloning cabinets, you can elect to clone just the cabinet, or cabinet and all the cabinet's items. When you clone the entire cabinet and its items:

- All items within the cabinet are cloned
- All zero U items on the cabinet, such as zero U rack PDUs attached to the front/back/left/rear of the cabinet, are cloned
- All device items above and below the cabinet, such as a busway outlets, are cloned. Free-standing items, such as floor PDUs, are not cloned; they must be cloned individually as single items or multiple items
- The parent-child relationships between the cabinet (parent) and the items in the cabinet (children) is maintained when a cabinet is cloned. For example, each child item in the cabinet remains in the same U position within the cabinet, the rail orientation of the child item remains the same and so on.
- The parent-child relationships between the children of the child items are maintained. For example, the relationship between blades that are the children of a chassis within a cloned cabinet are maintained.

The following are examples of parent-child relationships maintained during the cloning process where they already exist for items and cabinets:

Parent cabinet	>	Child devices in cabinet	>	Children of child devices within the cabinet
Parent chassis	>	Child blade		
Parent network stack	>	Child network items		
Parent floor PDU	>	Child panel		

Privileges

No special privileges are needed for cloning.

You must just be able to create, edit and delete items in dcTrack.

Supported Classes and Subclasses

Any item class and subclass in dcTrack can be cloned.

For example, chassis and blade devices, floor PDUs and power outlets, virtual machines and so on.

Supported Statuses

Clones can be created from items and cabinets in any status.

During the cloning process, you assign either a Planned or Storage status to the cloned item.

Maximum Number of Supported Clones

Up to 999 clones can be made at a time from an existing item or cabinet.

Cloned Item Naming Conventions for Standard Items

Standard, cloned item names consist of the Original Item Name plus ^^ followed by a clone ID

For example:

- Original item - DELL-R710
- Clones - DELL-R710^^7384, DELL-R710^^7385

Cloned Item Naming Conventions for Network Items

For network stacks, if the parent-child relationship between other items connected to the stack are maintained during the cloning process, the clone names consist of the ORIGINALITEM_STACKNAME plus ^^ and the < clone's stack primary item id >

For example:

- Original item and network stack - BLADE1_NET1
- Clones - BLADE1__NET1^^4566, BLADE1__NET1^^4567

For each stack member, the new item name is made up of the ORIGINALITEM_STACKNAME-0n^^<clone's stack primary item id> where n is a number greater than 0

For example:

- Clones - BLADE1__NET1-01^^4566, BLADE1__NET1-02^^4566, BLADE1__NET1-03^^4566

If the parent-child relationship with other items connected to the network stack is not maintained during the cloning process, the clone names consist of the ORIGINALITEM_ITEMNAME1^^<clone's item id>

For example:

- Original Item - CHASSIS1_BLADE1
- Clones - CHASSIS1_BLADE1^^7789, CHASSIS1_BLADE1^^7790

Cloning Scenarios

Following are examples of supported cloning scenarios.

- Single item cloning is supported for:
  - A single cabinet
  - A single device item, including chassis and blades
  - A single device virtual machine
  - A single network item, including chassis and blades

    - UPS
    - Floor PDU
    - Power outlet
    - Rack PDU
    - Cooling Units
    - Probe
- Cloning single items and their item containers:
    - A free-standing device item with its container cabinet
    - A free-standing network item with its container cabinet
- Cloning single items and their children:
    - A cabinet with items it contains
    - A chassis with blades it contains
    - A network stack with multiple stack members
- Cloning multiple items:
    - A blade chassis with blades from one cabinet, an Ethernet switch, and a rack PDU from another cabinet
- Cloning multiple items with children:
    - A cabinet with some items, including a blade chassis with blades
    - A cabinet with all items, including a blade chassis with blades

Cloning a Single Item

1. In the Web Client, select Assets > Items List to access the Items List page.
2. In the Item List, double-click on the item you want to clone.

The item's page opens in a new tab.

3. Click Clone at the top of the page. If the Clone icon is disabled, the item cannot be cloned.

The Cloning Dialog opens, and the Selected Item(s) box contains a list of the items to be cloned.

4. Complete the required fields at a minimum.

- "Times to clone selected Items(s)" - number of clones to create Required
- Location - location to add the clones to. Required
- "Status of cloned Items" - status to apply to the clones.
- "Include children Items" - select to clone the item's children. Checkbox is disable if not applicable.
- "Maintain parent-child associations" - selected by default when "Include children Items" is selected, deselect to sever the parent-child relationship.
- "Include Far End Data Panel and Structured Cabling" - select to maintain the connection between the item and data panel, and any structured cabling.
- Select include data ports, power ports, sensor ports and custom fields as needed.
- "Filter Items List to show cloned Items" - leave selected to automatically open the List Items page and filter the page to display newly cloned items once they are created.

5. Click the Clone button. Your cursor becomes a timer as the cloning process runs.

Once the cloning process completes, the Cloning Dialog closes.

Cloned items are contained on the Item's List page.

The Items List page opens automatically if you selected the "Filter Items list to show cloned Items" checkbox on the Cloning Dialog (see **View Newly Created Clones**).

6. Edit the newly cloned information as needed (see **Update a Clone's Information**), then update its status (**Update a Clone's Status**).

Cloning Multiple Items

1. In the Web Client, select Assets > Items List to access the Items List page.
2. In the Item List, use select the items you want to clone.
3. Click Clone at the top of the Items List page.

If the Clone icon is disabled, one or more items cannot be cloned.

The Cloning Dialog opens. The Selected Item(s) box contains a list of the items to be cloned.

4. Complete the required fields at a minimum.
   - "Times to clone selected Items(s)" - number of clones to create Required
   - Location - location to add the clones to. Required
   - "Status of cloned Items" - status to apply to the clones.

- "Include children Items" - select to clone the item's children. Checkbox is disable if not applicable.
- "Maintain parent-child associations" - selected by default when "Include children Items" is selected, deselect to sever the parent-child relationship.
- "Include Far End Data Panel and Structured Cabling" - select to maintain the connection between the item and data panel, and any structured cabling.
- Select include data ports, power ports, sensor ports and custom fields as needed.
- "Filter Items List to show cloned Items" - leave selected to automatically open the List Items page and filter the page to display newly cloned items once they are created.

5. Click the Clone button. Your cursor becomes a timer as the cloning process runs.

Once the cloning process completes, the Cloning Dialog closes.

Cloned items are contained on the Item's List page.

The Items List page opens automatically if you selected the "Filter Items list to show cloned Items" checkbox on the Cloning Dialog (see **View Newly Created Clones**).

6. Edit the newly cloned information as needed (see **Update a Clone's Information**), then update its status (**Update a Clone's Status**).

Cloning a Single Cabinet and Its Contents

To clone a single cabinet and its contents to create new cabinets:

1. In the Web Client, select Assets > Items List to access the Items List page.
2. In the Item List, double-click on the cabinet you want to clone.

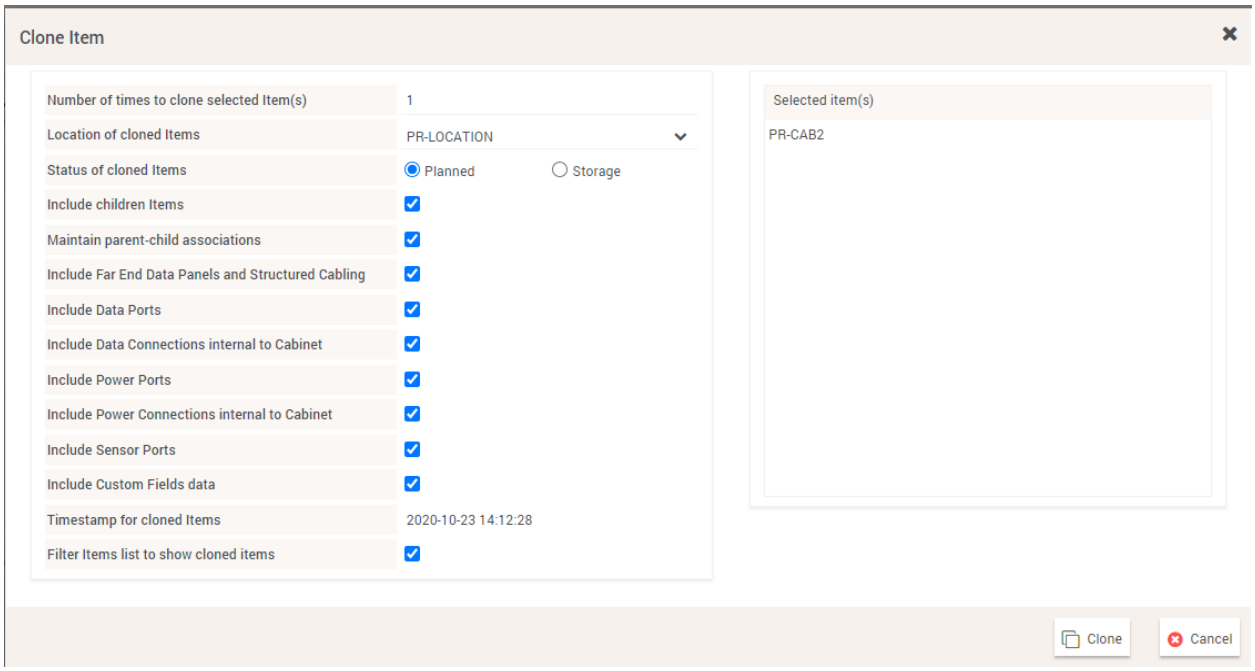
The cabinet's page opens in a new tab.

3. Click Clone at the top of the page to open the Cloning Dialog.

If the Clone icon is disabled, the cabinet cannot be cloned.

The Cloning Dialog opens, and the Selected Item(s) box contains the cabinet to be cloned.

4. Complete the required fields at a minimum.



- "Number of times to clone selected Items(s)" - number of clones to create Required
- Location of cloned Items- location to add the clones to. Required
- "Status of cloned Items" - status to apply to the clones.
- "Include children Items" - select to include the items in the cabinet. Just the cabinet is cloned if not selected.
- "Maintain parent-child associations" - selected by default when "Include children Items" is selected, deselect to sever the parent-child relationship.
- "Include Far End Data Panel and Structured Cabling" - select to maintain the connection between the item and data panel, and any structured cabling.
- "Include Data Ports" - select to include the Data Ports of the Cabinet's children. This option is only applicable when the "Include children Items" option is selected.
- "Include Data Connections internal to Cabinet - select to include the internal Data Connections for the Cabinet's children. This option is only available when "Include children Items", "Maintain parent-child associations" and "Include Data Ports" are also selected.
- "Include Power Ports" - select to include the Power Ports of the Cabinet's children. This option is only applicable when the "Include children Items" option is selected.
- "Include Power Connections internal to Cabinet" - select to include the internal Power Connections for the Cabinet's children. This option is only available when "Include children Items", "Maintain parent-child associations" and "Include Power Ports" are also selected.
- "Include Sensor Ports" - select to include the Sensor Ports of the Cabinet's children. This option is only applicable when the "Include children Items" option is selected.

- Include Custom Fields Data - select to include Custom Field data on cloned Items.
- "Filter Items List to show cloned Items" - leave selected to automatically open the List Items page and filter the page to display newly cloned items once they are created.
- Click the Clone button.

Note: If cloning a cabinet would cause you to exceed your dcTrack® license, you are prevented by dcTrack from cloning the cabinet.

Once the cloning process completes, the Cloning Dialog closes.

Cloned cabinets, and cloned cabinet items if they were cloned too, can be viewed on the Item's List page.

The Items List page opens automatically if you selected the "Filter Items list to show cloned Items" checkbox on the Cloning Dialog. See **View Newly Created Clones** for more information.

5. Edit the newly cloned information as needed. See **Update a Clone's Information**.

Cloning Multiple Cabinets and Their Contents

To clone multiple cabinets and their contents to create new cabinets:

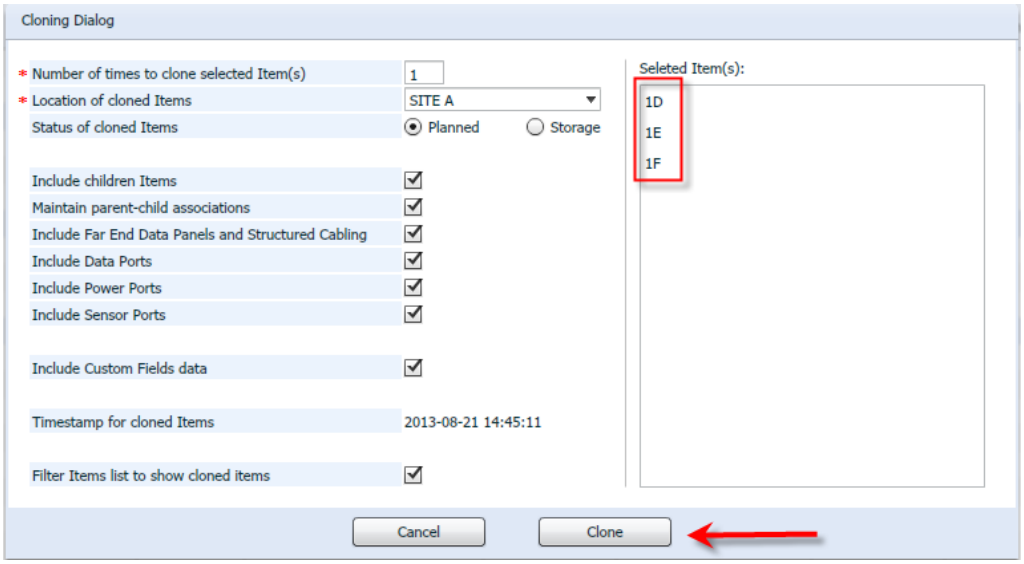
1. In the Web Client, select Assets > Items List to access the Items List page.
2. In the Item List, use select the cabinets you want to clone.
3. Click Clone at the top of the Items List page.

If the Clone icon is disabled, it means one or more of the cabinets you selected cannot be cloned.

The Cloning Dialog opens, and the Selected Item(s) box contains the cabinet to be cloned.

4. Complete the required fields at a minimum.
   - "Times to clone selected Items(s)" - number of clones to create Required
   - Location - location to add the clones to. Required
   - "Status of cloned Items" - status to apply to the clones.
   - "Include children Items" - select to include the items in the cabinet. Just the cabinet is cloned if not selected.
   - "Maintain parent-child associations" - selected by default when "Include children Items" is selected, deselect to sever the parent-child relationship.
   - "Include Far End Data Panel and Structured Cabling" - select to maintain the connection between the item and data panel, and any structured cabling.
   - Select include data ports, power ports, sensor ports and custom fields as needed.

- "Filter Items List to show cloned Items" - leave selected to automatically open the List Items page and filter the page to display newly cloned items once they are created.



Note: If cloning a cabinet would cause you to exceed your dcTrack® license, you are prevented by dcTrack from cloning the cabinet.

Once the cloning process completes, the Cloning Dialog closes.

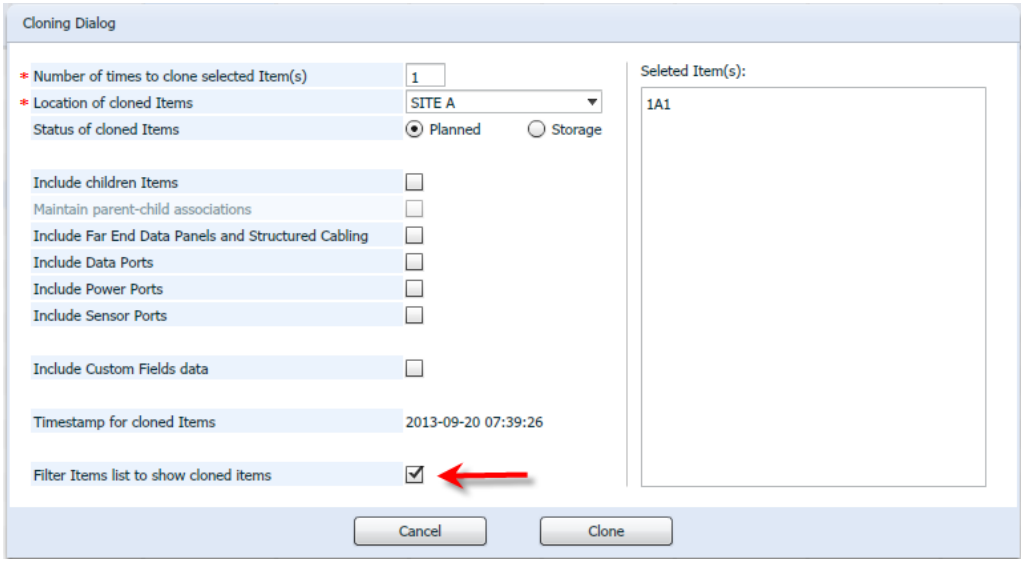
Cloned cabinets, and cloned cabinet items if they were cloned too, can be viewed on the Item's List page.

The Items List page opens automatically if you selected the "Filter Items list to show cloned Items" checkbox on the Cloning Dialog. See **View Newly Created Clones** for more information.

5. Edit the newly cloned information as needed. See **Update a Clone's Information**.

View Newly Created Clones

If the "Filter Items list to show cloned Items" checkbox remains selected on the Cloning Dialog when the item or cabinet is cloned, the Items List page opens automatically once the cloning process completes successfully.



The cloned items are displayed on the Items List page. 'Cloning' is indicated as the origin of each clone in the Origin column. The clone retains this origin value throughout its life in dcTrack.

When cabinets with items are cloned, they are displayed on the Items List page.

The cloned cabinet items and their items are displayed in the Name column, and cloned cabinets they are contained in are displayed in the Cabinets column.

The Items List is filtered by default to display only the newly cloned items, or cabinets and cabinet items that were cloned.

By default, the list is sorted by the date and time each clone was created (as indicated in the Created On column).

Update a Clone's Information

Once clones are created, make changes to each clone's information as needed so it is unique. For example, change the clone names, update serial numbers, aliases and so on.

Manually update cloned item information, or use the export and import features in dcTrack to quickly update multiple items and cabinets at once.

Manually Update Clones

Manually update a clone's information using the Edit feature just like any other item in dcTrack. See Editing Items and Circuits for information on editing each type of item.

Bulk Update Clone Information

Quickly update the information for a large number of clones at once using dcTrack's export and import features.

Export the cloned item and/or cabinets and cabinet item information to an Item Template from the Items List, make updates to the items such as bulk renaming, updating serial numbers and so on, then use File Import to reimport the items and update them all at once.

For details, see **Export Data to Import Templates for Reimporting**, **Use File Import to Edit or Delete Locations, Cabinets, Items or Connections** and **Use File Import to Bulk Rename Items**.

Note: Users with the Operator Without Delete role cannot change the model of a cloned item because they cannot delete item ports, which is required to change the model.

Update a Clone's Status

When a clone is created, you can elect on the Cloning dialog to put it in a state of Planned or Storage.

After a clone is created, you can manually update its status or bulk update its status as you do with any other item.

For details on bulk updating status of clones, see **Use File Import to Update the Status of Items in Bulk**.

Manually update the status of clones using the Actions menu or Status drop-down menu.

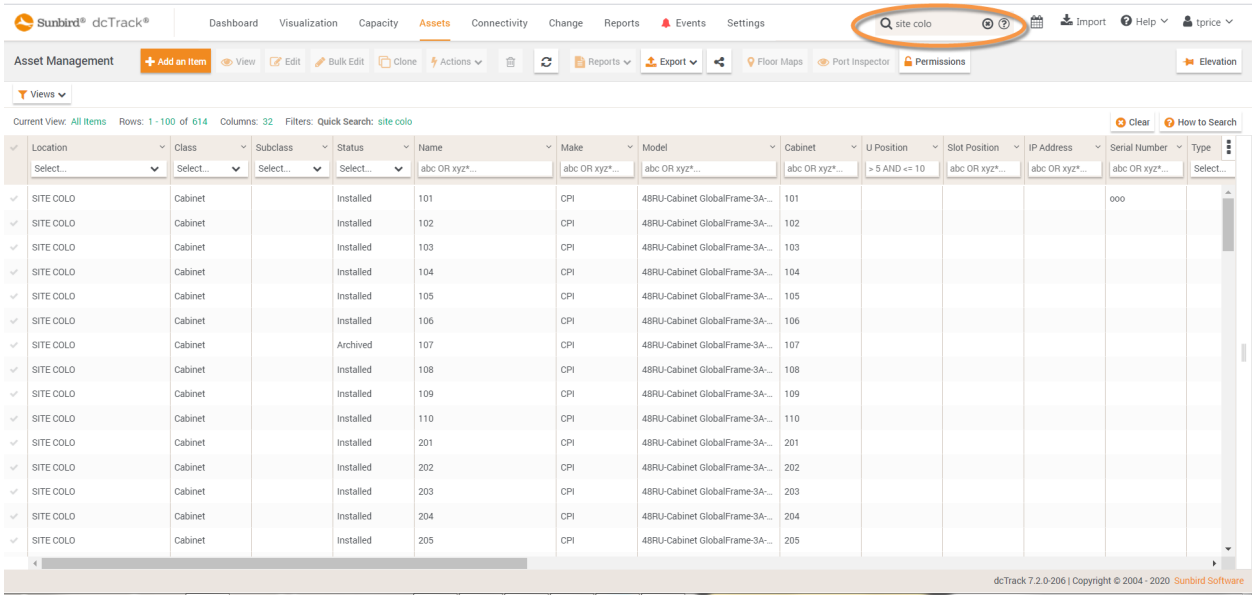
Depending on your role's privileges, submit an Install Item Request by selecting from the Actions menu in the Web Client to install the item, or change the items status directly on the item page by selecting from the Status drop-down menu.

Use Quick Item Search to Find Items and Information

Once items are added to dcTrack, you can apply various methods to quickly locate items and information about those items.

Search for a Specific Item in the Data Center - Web Client Quick Item Search

Use Quick Item Search in the Web Client to locate a specific item in the data center.



Enter your search criteria and press the Enter key on your keyboard to begin the search. The Quick Item Search supports full or partial search criteria.

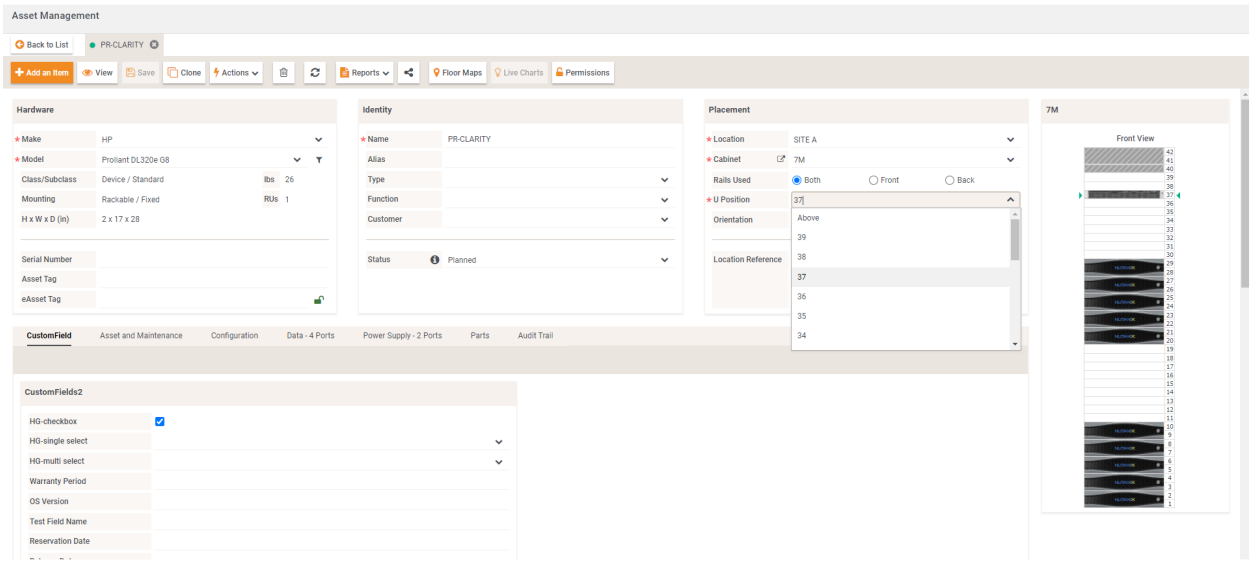
Results of the search are then displayed on the page where they can be accessed by double-clicking on them, or using the Edit or View buttons.

Note: Use the Export to CSV file feature to export the search results to and save the information (if needed).

Change an Item's U Position in a Cabinet

Change an item's U position in a cabinet by:

- Selecting a new position from the U Position drop-down



Or

- Dragging-and-dropping an item in a cabinet elevation to move it to a new position within the cabinet

See **Drag-and-Drop an Item to a New U Position in a Cabinet**.

Drag-and-Drop an Item to a New U Position in a Cabinet

Drag-and-drop is supported in the Web Client.

For rackable and non-rackable items, you can drag-and-drop from one U position to another available U position in the Cabinet Elevation. You can do this anywhere in dcTrack where you can view the Cabinet Elevation.

You must have edit permission for the item you want to drag and drop from one U position to another.

When using this feature in the Cabinet Elevation of item details, item must be in edit mode.

In the item details Cabinet Elevation you can only drag and drop that item. You can not drag and drop other items in the item details Cabinet Elevation.

However Cabinet Elevation in other screens of dcTrack like Item List, Visualization, Capacity Search you can drag and drop any item from one u position to another u position.

Passive items are dragged-and-dropped in the Cabinet Elevation on the cabinet's item page.

Zero-U items are not supported.

You can also drag-and-drop an item to a different cabinet. See Drag and Drop an item to a different cabinet

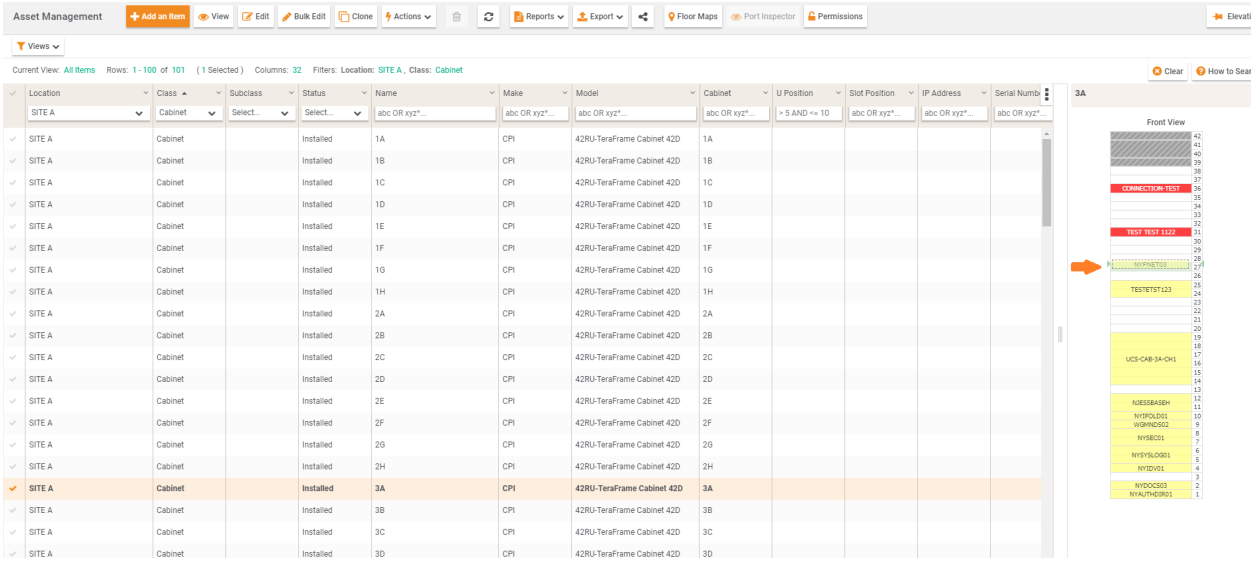
You cannot move an entire cabinet using drag-and-drop. Instead, submit a Quick Move Item Request. See **Move Item Requests for Cabinets**.

Label	Description
Privileges	See **Edit Access Privileges to Items**.
Statuses	Items in any status with the exception of Archived.
Items	Any rackable/non-rackable item of any class, drag-and-drop is supported in the Cabinet Elevation. Passive items, , drag-and-drop is supported on the cabinet's page. Zero-U items are not supported. See **Identifying an Item in a Cabinet Elevation**.
Position in cabinet and elevation view	Drag-and-drop an item to any free position within the same cabinet that has sufficient, contiguous rack units to accommodate the item. Once saved, the item's previously occupied space is made available for new items. Drag-and-drop can be performed in a Cabinet Elevation while in Text view and Image view. Drag-and-drop items mounted on the front rails to RUs on the front of the cabinet from the Front view. Drag-and-drop items mounted on the rear rails to RUs on the rear of the cabinet from the Back view. Drag-and-drop items mounted on both rails from either the Front view or Back view. See Cabinet Elevation Drop-Down - Front, Back, Image and Text. Drag-and-drop is not supported when moving items above or below cabinets. Select either Above or Below from the U Position drop-down to move an item above or below a cabinet, if applicable.
Connections	All connections are retained.

Note: You must drag-and-drop items located on front rails from the Front elevation view and items on rear rails from the Back elevation view. Items mounted on both rails can be dragged-and-dropped from either the Front or Rear elevation view.

To drag and drop items within a location follow below steps :

1. Left-click on the item in the Cabinet Elevation, then drag-and-drop the item to a position in the cabinet with sufficient contiguous rack units to accommodate it.



For the available U position, you will notice a green highlight.

For example, U positions 30 and 31 are free in a cabinet. You can drag-and-drop a 2 RU server from its current location of U position 28 to U position 30 and you will notice green highlight when you place it at U position 30. If you try to drop the item at U position 31 you will notice a red highlight, the item will move back to the original U position and cannot be dropped.

The U Position drop-down is updated with the item's new RU once the item is dropped into its new position.

The item's connections are retained when its position is changed within the cabinet.

Note: You need to Save the item only when you are dragging and dropping the item in Cabinet elevation of item details page.

Optional: If you are using dcTrack's Change Control workflow, you can submit a Quick Move Item Request instead of using drag-and-drop or manually changing the item's position in the Slot drop-down.

Drag-and-Drop an Item to a Different Cabinet

As of dcTrack 7.2 users can move items from one cabinet to another by dragging the item in the cabinet elevation from one cabinet to another cabinet. This feature is available in the Items List where you can select multiple cabinets and view the cabinet elevation for selected cabinets.

Rackable and Non-Rackable items can be moved from one cabinet to another with drag and drop.

Passive items can also be dragged and dropped from one cabinet to another cabinet.

Zero-U items are not supported.

You must have edit access for the item and the destination cabinet where you want to drop the item.

You can drag and drop only one item at a time.

Drag-and-drop an item in Installed Status from one cabinet to another cabinet will issue a move request and the item dropped will be a new “when-moved” item. The original dragged item remains in its original cabinet till the move request is complete.

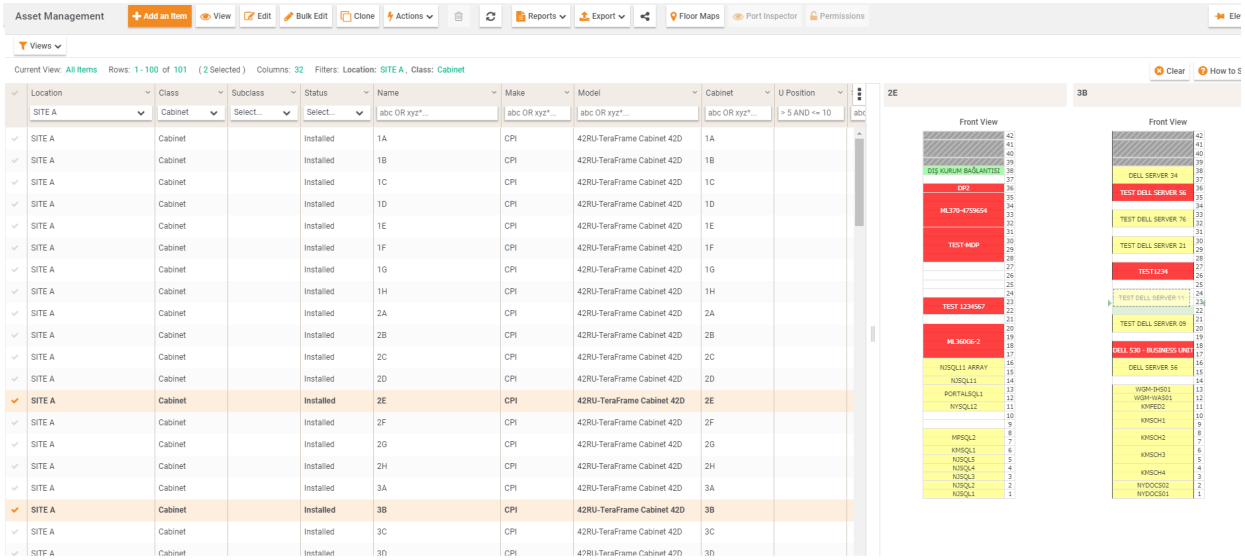
Label	Description
Privileges	Requires edit access of item and the destination cabinet. See **Edit Access Privileges to Items**.
Statuses	Items in any status with the exception of Archived.
Items	Rackable, Non-rackable and Passive items are supported. Zero-U items are not supported. See **Identifying an Item in a Cabinet Elevation**.
Position in cabinet and elevation view	Drag-and-drop an item to any free position in the destination cabinet that has sufficient, contiguous rack units to accommodate the item. Once dropped, the item's previously occupied space is made available for new items. Drag-and-drop can be performed in a Cabinet Elevation while in Text view and Image view. Items mounted to front or back rails when dropped, they get mounted to the side that the cabinet is displaying at time of drop. Items mounted on both rails when dropped remain on both rails when dropped regardless of Front view or Back view. See Cabinet Elevation Drop-Down - Front, Back, Image and Text. Drag-and-drop is not supported when moving items above or below cabinets. Select either Above or Below from the U Position drop-down to move an item above or below a cabinet, if applicable.
Connections	All Planned circuits will be deleted All Installed or Powered off circuits associated with the item will have disconnect request issued.

Label	Description
IP Address	Managed IP addresses will be deleted if item is dropped to cabinet in different location

To drag and drop item from one cabinet to another follow below steps :

1. In the item list select the source and destination cabinets.

2. Left-click on the item in the source Cabinet Elevation, then drag-and-drop the item to a position in the destination cabinet with sufficient contiguous rack units to accommodate it.



For Planned items the U Position drop-down is updated with the item's new RU once the item is dropped into its destination cabinet's U position.

For Installed items, you will get move request dialog and only when you confirm the move request is issued. the item dropped will be a new "when-moved" item. The original dragged item remains in its original cabinet till the move request is complete.

Drag-and-Drop a Blade to a New Slot in a Chassis

Drag-and-drop is supported in the Web Client.

Users with either the System Administrator, Gatekeeper, Operator, or Operator without Delete Roles may drag-and-drop Blades.

Drag-and-drop for blades is performed on the Blade's or Chassis item page from the Blades tab if moving the blade to a different position within the same Chassis.

You can also move Blades between Chassis from the Item's List using drag-and-drop.

The blade's new slot must be on the same side, front or back; you cannot move the blade to the other side of a chassis.

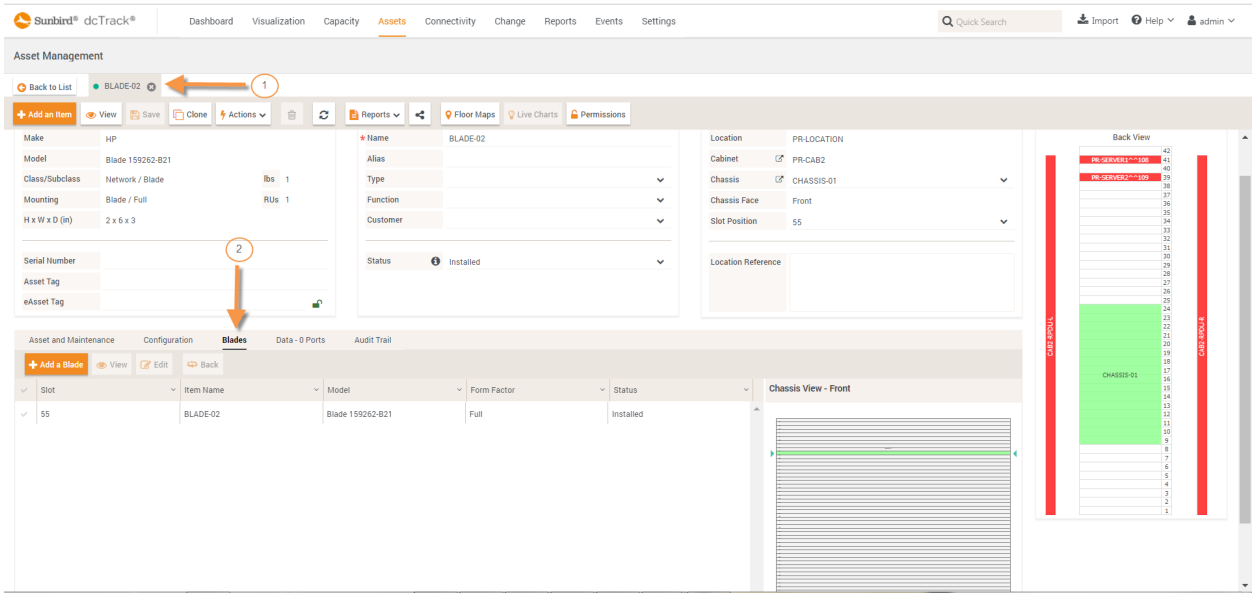
You can only move a blade to slot that can support it and that is available. For example, you cannot move a full-blade to a half-blade slot, and you cannot move a blade to a slot that is grayed out (designated as unavailable). You can however, move Blades from a horizontal Chassis to vertical Chassis and vice versa.

IP addresses assigned to ports are retained when moving a Blade to a Chassis in the same Location.

IP addresses assigned to ports are deleted when moving a Blade to a Chassis in a different Location.

Label	Description
Privileges	See **Edit Access Privileges to Items**.
Statuses	Items in any status with the exception of Archived.
Items	Any item visible in the chassis elevation: • Device or network blades • Device or network chassis
Position in cabinet and elevation view	Drag-and-drop an item to any free slot within the same chassis. The slot's form factor must be able to accommodate the blade - for example, a half, full and so on. Blades cannot be dragged-and-dropped into slots that are designated as 'Unavailable'. See Once saved, the occupied slot is made available. Drag-and-drop front facing blades in the chassis to other slots facing the front of the chassis. Drag-and-drop front rear blades in the chassis to other slots facing the back of the chassis. For more information on slot positions, see **About Blade Chassis Slots**.
Connections	All connections are retained when moving a Blade to a different U Position within the same Chassis. All connections are disconnected when moving a Blade to a different Chassis.

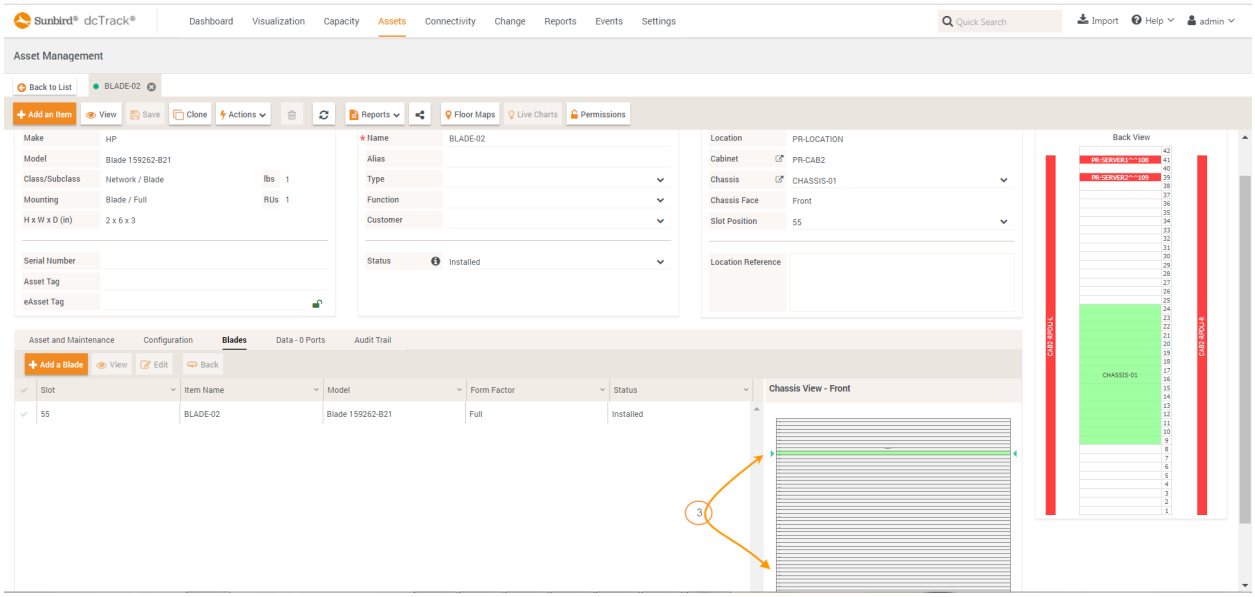
Drag to a new position within a Chassis



1. Open an Item's Page in Edit mode. This is the blade's item page.
2. The chassis elevation is displayed on the Blades tab of the page.

Note: Blades facing Front cannot be dragged-and-dropped Back and vice versa.

3. Left-click on the blade in the chassis elevation view, then drag-and-drop the blade to a new slot in the chassis that can to accommodate it.



The Slot Position drop-down in the Placement section automatically reflects the new slot position.

The blade's connections are retained when its slot is changed within the chassis.

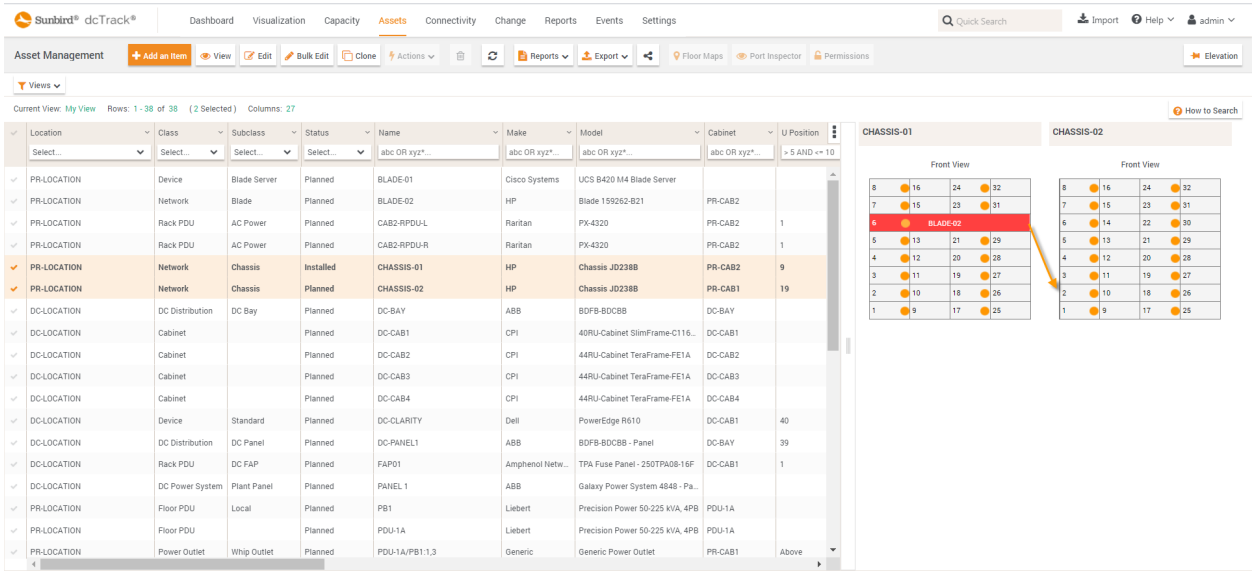
4. Click Save.

The slot number(s) in the Blades tab under the Blades column is updated at this point.

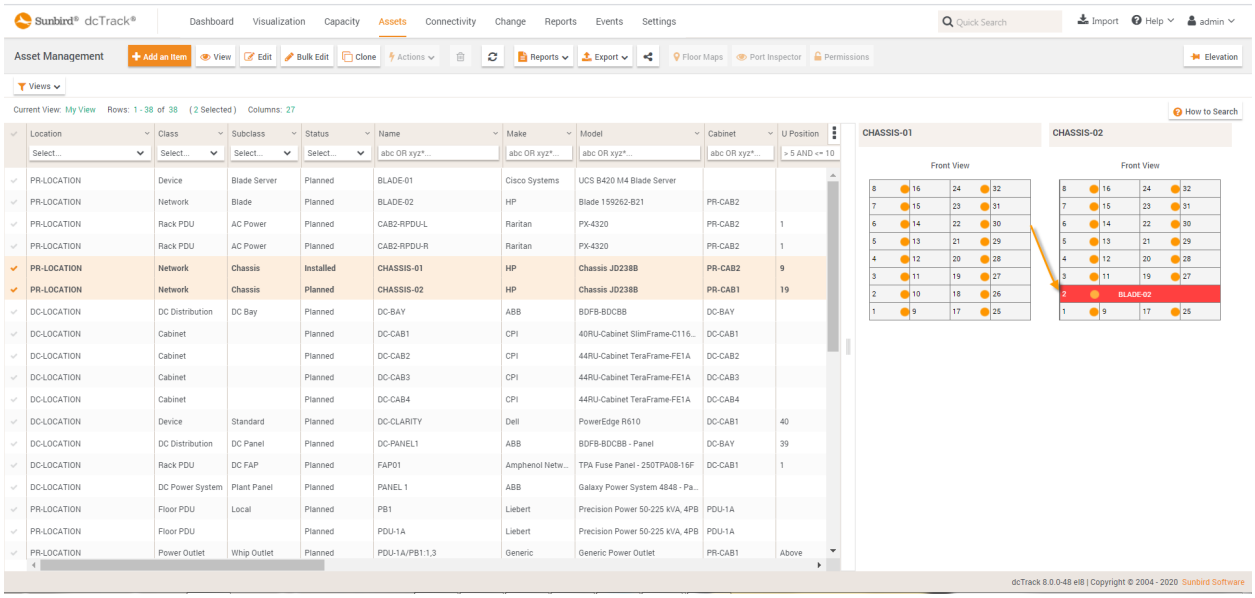
Once saved, the blade's previously occupied slot is made available.

Drag and Drop Blade to a different Chassis

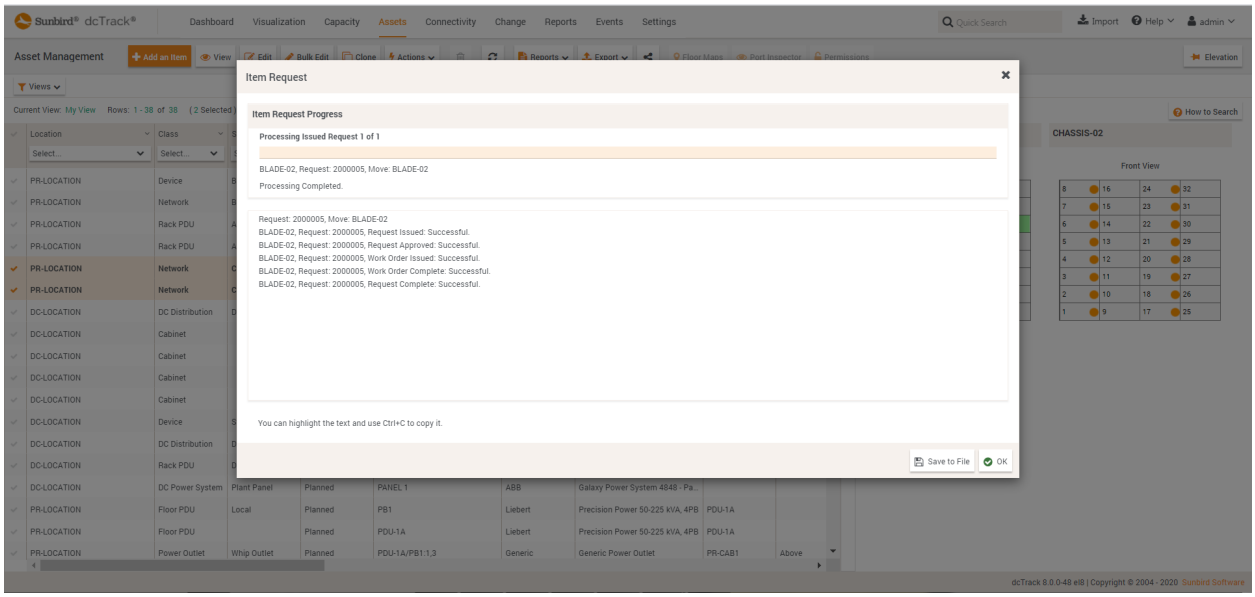
1. Select the Chassis the Blade currently resides in from the Item List. The first Chassis elevation is displayed in the List.
2. Select the destination Chassis. The second Chassis elevation is displayed in the list.



3. Drag the Blade from its position in the first Chassis to the desired position in the second Chassis



4. The Blade is immediately moved to the new Chassis.
5. If the Blade is in an Installed status, a Move request will be automatically generated. If Request Bypass is on, the Move request will be automatically completed.



Optional: If you are using dcTrack's Change Control workflow, you can submit a Quick Move Item Request instead of using drag-and-drop or manually changing the item's position in the Slot drop-down.

Changing a Blade's Slot Position in a Blade Chassis

Change a blade's slot position within the same chassis by -

- Selecting a new slot position from the Slot Position drop-down on the blade's item page while it is in Edit mode

Or

- Dragging-and-dropping the blade to a new position within its blade chassis elevation

See **Drag-and-Drop a Blade to a New Slot in a Chassis**.

Remove a Blade from a Chassis

To remove a blade from a chassis, submit a Decommission to Storage or Decommission to Archive request.

See Putting Items in Storage - Decommission Item to Storage Request or Archiving Items - Decommission Item to Archive Request.

To move a blade within the same chassis -

- **Drag-and-Drop a Blade to a New Slot in a Chassis**
- **Changing a Blade's Slot Position in a Blade Chassis**

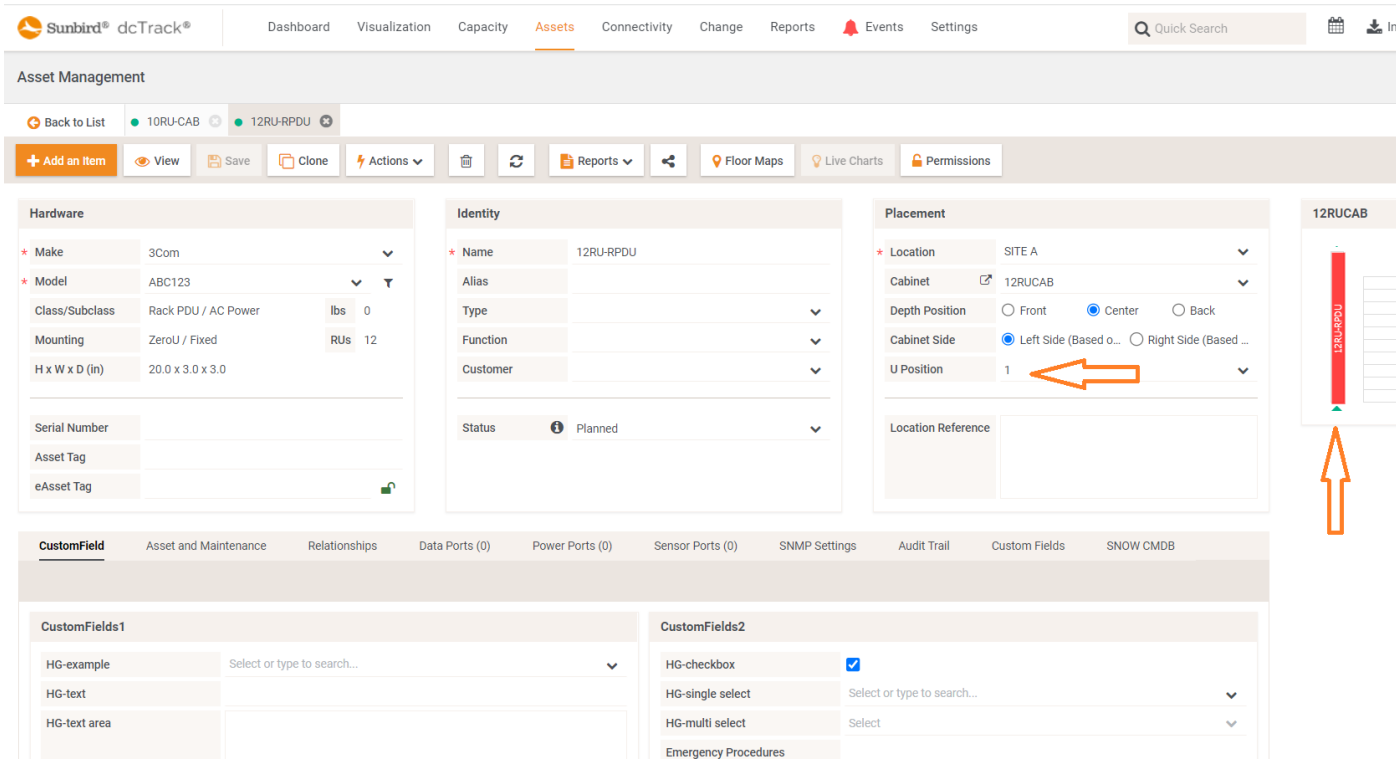
To move the blade to another chassis -

- **Move Item Requests for Blade Servers and Blades**

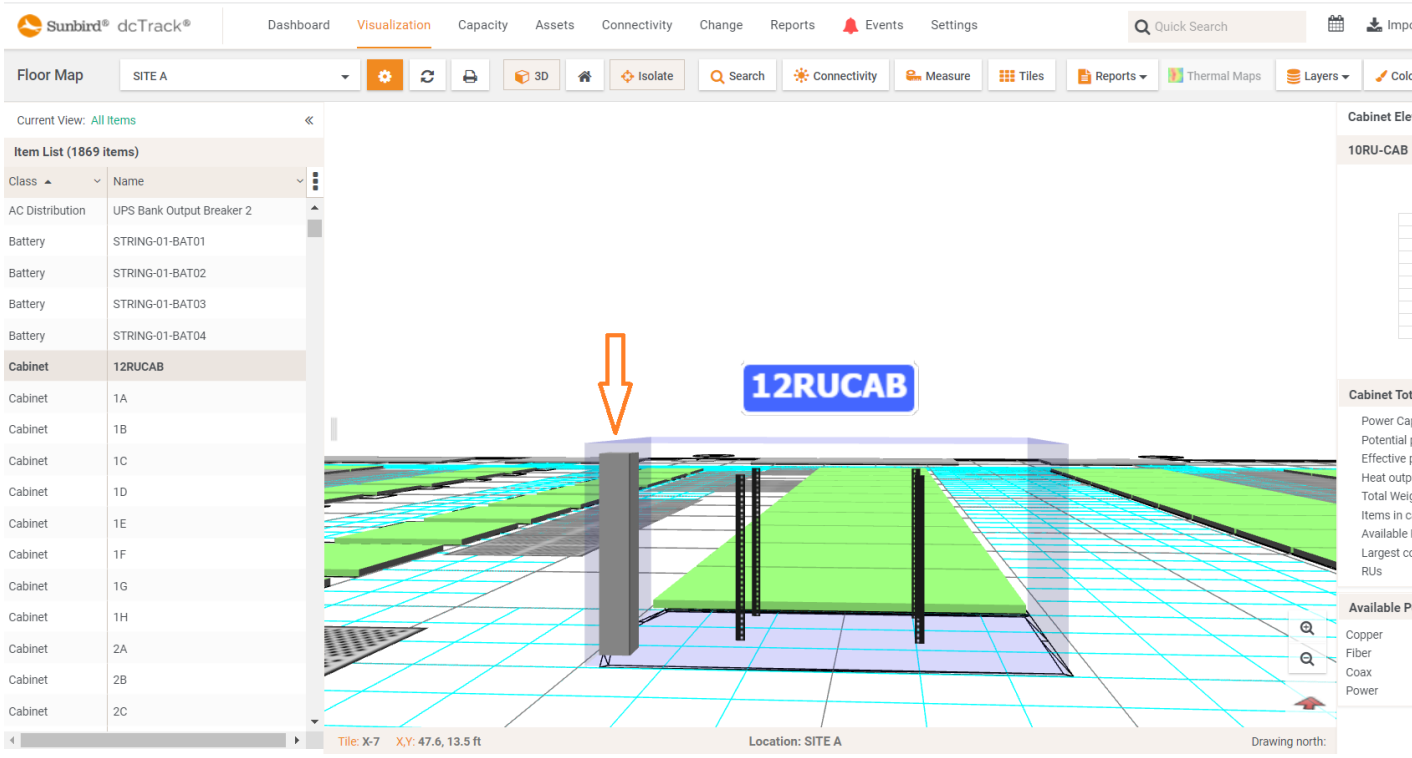
Zero-U Rack PDU Placement Options

As of dcTrack version 9.0.0 users can properly place Zero-U Rack PDUs. As a result they display correctly in Floor Maps. To determine if a Rack PDU will fit in a cabinet, dcTrack uses the cabinet height in inches as it compares the Rack PDU height in inches instead of making the determination based on RUs.

For example, a 10 RU Cabinet whose height is 21 inches can accommodate a Zero-U Rack PDU that is 12 RU and 20 inches. This allows you to place the Rack PDU in a U-Position within the cabinet.



Additionally, Zero-U Rack PDUs on Floor Maps will now correctly display within the dimensions of the cabinet.



Purge Archived Items from dcTrack

Items with a status of Archived can be purged from dcTrack without first requiring the item to transition to "Planned". Since purging an Item removes the Item completely from the database, previously this feature was limited to users with the System Administrator role. dcTrack version 9.0.0 introduced a new Auxiliary Functional role, "Manage Archived Items". Users with this role will also be allowed to Edit and Delete Archived Items. Operators and Gate-keepers will no longer be allowed to Edit Archived Items unless they also have the "Manage Archived Items" role assigned.

Please refer to the documentation on Auxiliary Functional roles for additional information.

Steps to Purge Archived Items:

1. In the Web UI, navigate to the Items List.
2. Filter the Item List to include the Archived Items you want to purge.
3. Select the Items.
4. Click Delete in the toolbar.
5. Click Yes to confirm that you want to delete the items.

Archived Items can also be deleted from the Item Detail page.

Note: Items with open Work Orders or Requests can not be deleted

Important: Use caution when you decide to use purge as deleted records can not be recovered.

Customize the Items List and Circuits List

Customizing your Items List and Circuits List provides you with the ability to define your default view of the data that is important to you, the ability to search, sort and filter data so you can locate items or information you need, run reports for inventory purposes and much more.

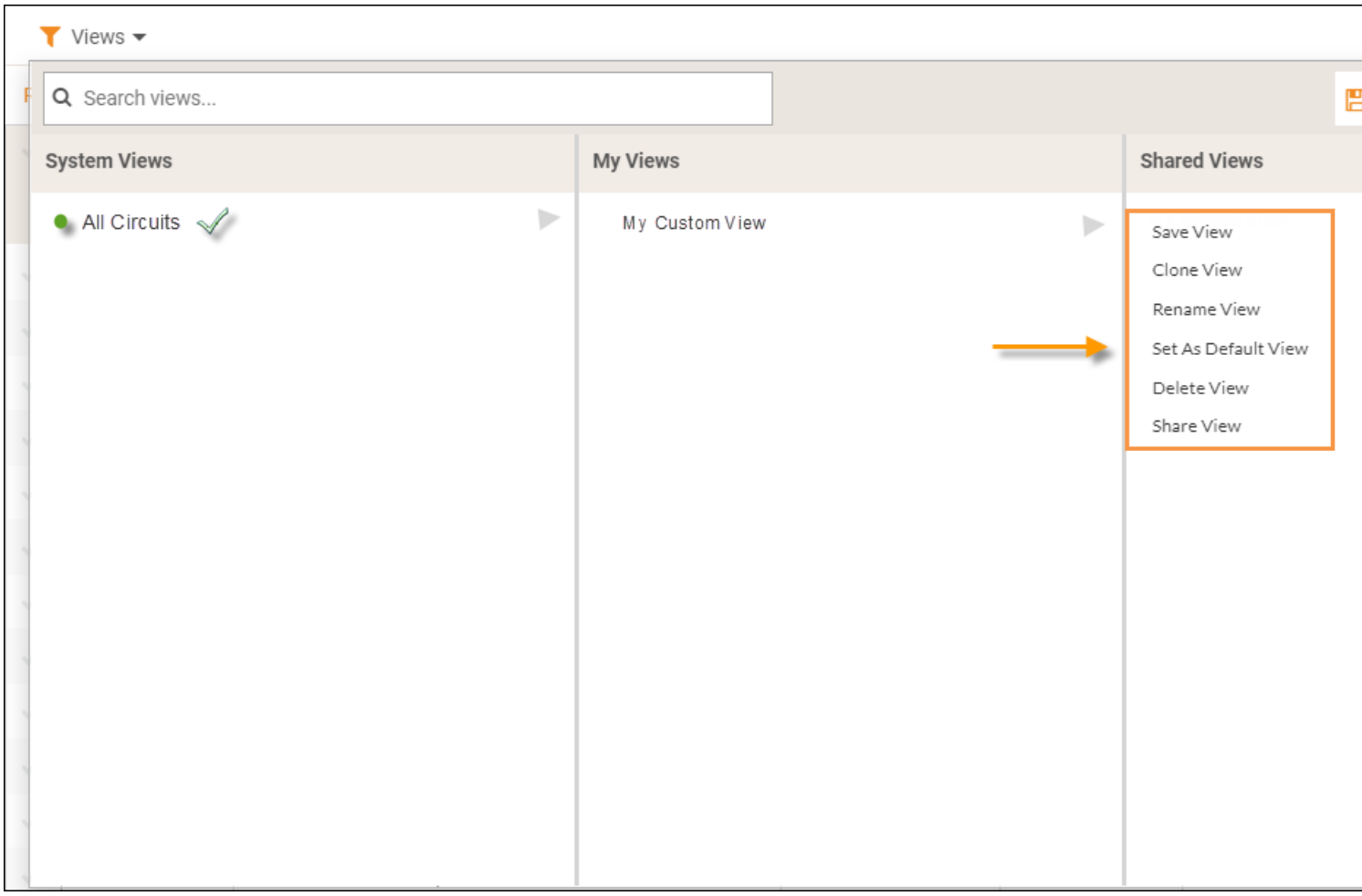
For example, you can customize your Items List for the following:

- The list is sorted by Location. See **Sort Data on a List Page in the Web Client**
- You specify the amount of rows to display on the page by default. See **Update the Rows per Page on List Pages**.
- You change the default order of your columns. For example, follow Location by the Status of your cabinets at the location, then the Cabinets, Cabinet Name, their Row Label, and so on. See **Reorder Columns on List Pages**.
- Columns are added or hidden from view (as long as they are not required). See **Show or Hide Columns on List Pages**.

Once you are done, you can save your custom view. See **Save Your Customized List Page Settings**.

Save Your Customized List Page Settings

After you customize the Items List page and Circuits List page by reordering, hiding and displaying columns, save the changes as a View. To make them your default, select the Set As Default View Option.



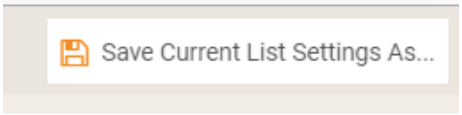
If you do not save the View settings, any changes you make to the view are lost when you log off of dcTrack.

Default Views do not change after you log off. They are saved until you switch back to the default dcTrack view by selecting the Set As Default View option for the System View.

Unless they are shared using the Share View option, View settings apply only to your dcTrack session and do not apply to all users. Shared Views are available to other users and users may select any Shared View as their default view.

View Options

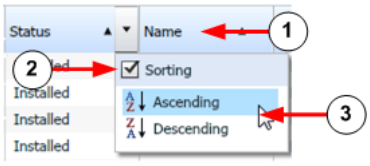
Option	Description
Save View	Saves current settings to the currently selected view
Clone View	Allows you to make a copy of the selected view with a new name
Rename View	Allows you to rename the selected view
Set As Default View	Allows you to make the selected view your Default view
Delete View	Allows you to delete the selected view
Share View	Allows you to make the selected view available to other users

To save the current listing as a new view, click the 

icon in the upper right corner of the page.

Sort Data on a List Page in the Web Client

Sort data in ascending and descending order by clicking on any of the column headers on a list page to access the Sort drop-down.



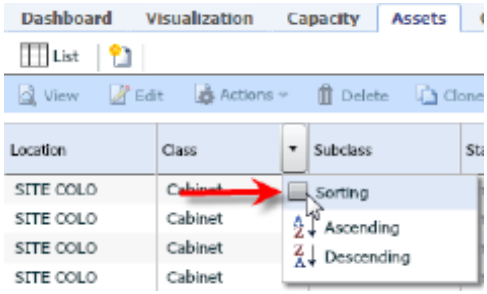
Label	Description
1	Hover your mouse over a column header to access a Sort drop-down.
2	Enable sorting by selecting the Sorting check box.
3	Click Ascending or Descending.

Only one sort order can be applied to the list at a time. For example, you can sort the Items List in ascending order by Name, but you cannot sort by Name, Make and Model.

Note: dcTrack does not prevent you from selecting different sort orders for multiple columns at once, but it does not apply the sorting.

Clear the sorting on the page before you apply a new sort order. Do any one of the following to remove the sorting order from a list page in the Web Client:

- Click the Restore Sorting icon in the taskbar at the bottom of the page.
- Manually deselect the sorting applied to a column.



- Apply a new sort order to the same or another column.

If you leave a list page during a current dcTrack session, the settings you applied remain.

Once you log off of dcTrack, the dcTrack default settings are reapplied.

However, the settings can be saved using the Save Configuration function.

- Click the Save Config icon on the taskbar at the bottom of the page, then click Save Current List Settings.

Once saved, the settings become the default list view until you change them or reset them to the dcTrack defaults.

For more details on the Save Configuration function, see **Save Your Customized List Page Settings**.

Reorder Columns on List Pages

Change the order of the columns on any list page by clicking on a column header, holding down your left mouse button, and dragging the column to the position you want it.

If you export list data to a CSV file, the columns are exported in the order you apply. See Exporting List Data to a .CSV File from the Web Client

If you leave a list page during a current dcTrack session, the settings you applied remain.

Once you log off of dcTrack, the dcTrack default settings are reapplied.

However, the settings can be saved using the Save Configuration function.

- Click the Save Config icon on the taskbar at the bottom of the page, then click Save Current List Settings.

Once saved, the settings become the default list view until you change them or reset them to the dcTrack defaults.

For more details on the Save Configuration function, see **Save Your Customized List Page Settings**.

Show or Hide Columns on List Pages

Use the Show/Hide Columns function to hide and show columns on the Items List and Circuits List.

Click the Show/Hide Columns icon on the far right side of each grid to view the show/hide column options.

The options in the list are based on the available columns on the page and custom fields created for your version of dcTrack.

Note: Some columns are required and cannot be hidden, such as Location, Model and Status on the Items List and Creation Date on the Circuits List.

This feature is useful to customize your list view and determine the data exported to CSV from the list page.

For example, you can create a custom Items List that displays only specific columns. Only those columns and their data are exported to the CSV file when it is generated.

For more details on exporting, see Exporting List Data to a .CSV File from the Web Client.

If you leave a list page during a current dcTrack session, the settings you applied remain.

Once you log off of dcTrack, the dcTrack default settings are reapplied.

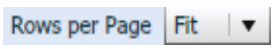
However, the settings can be saved by storing the selections as a view.

Once saved, the view can be set as the default list view until you change them or reset them to the dcTrack defaults.

For more details on the Save Configuration function, see **Save Your Customized List Page Settings**.

Update the Rows per Page on List Pages

On List pages, you can specify the number of rows displayed at once by selecting from the "Rows per Page" drop-down in the task bar. For example, you can specify Fit, 50, 200 and so on.



"Fit" is the default and displays as many rows in the list as your computer display allows. "All" displays all records. Note that this could be a large number of rows depending on the number of records.

"Rows per Page" directly impacts what is exported to your CSV file when you specify "Export Current Page".

For example, if only 50 rows are displayed on the page, only 50 rows are exported to the CSV file.

If you have a total of 1000 rows you intended to export, select the option when you export to CSV. Alternatively, select 1000 from the "Rows per Page" drop-down and specify "Export Current Page".

If you leave a list page during a current dcTrack session, the settings you applied remain.

Once you log off of dcTrack, the dcTrack default settings are reapplied.

However, the settings can be saved using the Save Configuration function.

- Click the Save Config icon on the taskbar at the bottom of the page, then click Save Current List Settings.

Once saved, the settings become the default list view until you change them or reset them to the dcTrack defaults.

For more details on the Save Configuration function, see **Save Your Customized List Page Settings**.

Cabinet and Chassis Elevations in the Items list

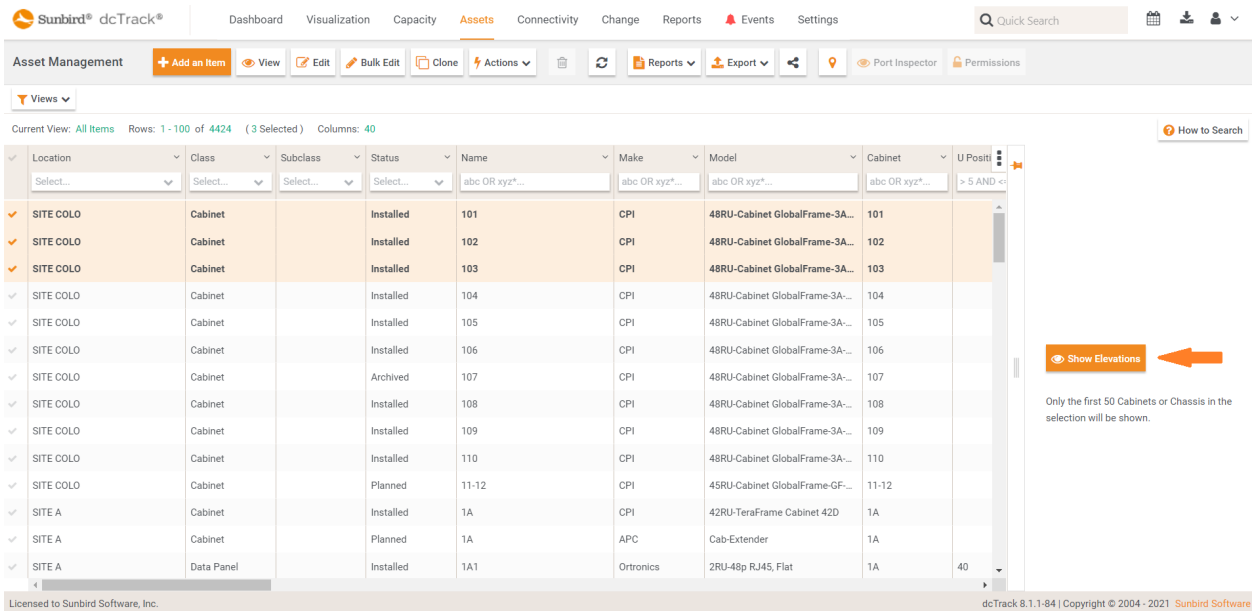
Selecting cabinets in the Items List will display their respective cabinet elevations in a side panel. Use the Ctrl or Shift key to select multiple cabinets.

When only one cabinet is selected, use the draggable divider to increase the size of the cabinet elevation space to zoom the cabinet view.

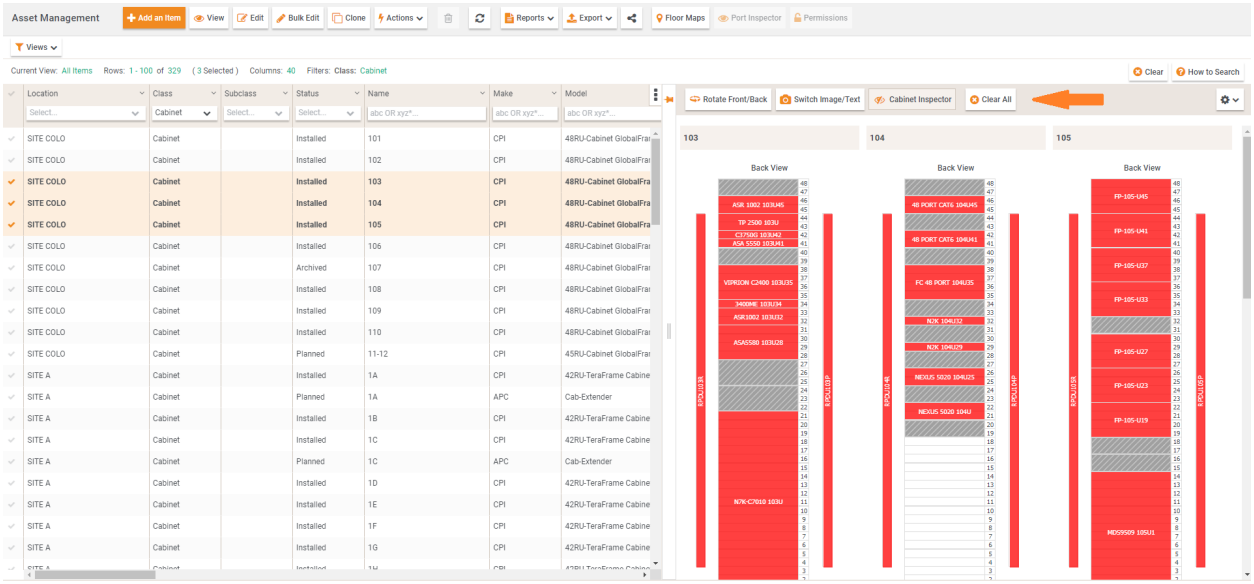
Note: Use the Elevation button in the toolbar to pin the cabinet elevation divider in its current position so that it doesn't automatically adjust as you select and deselect cabinets from the items list.

Cabinet Elevations

In the Item List when more than one cabinet is selected, user need to click Show Elevation button to get the Cabinet Elevation of the selected cabinets in the Item List.



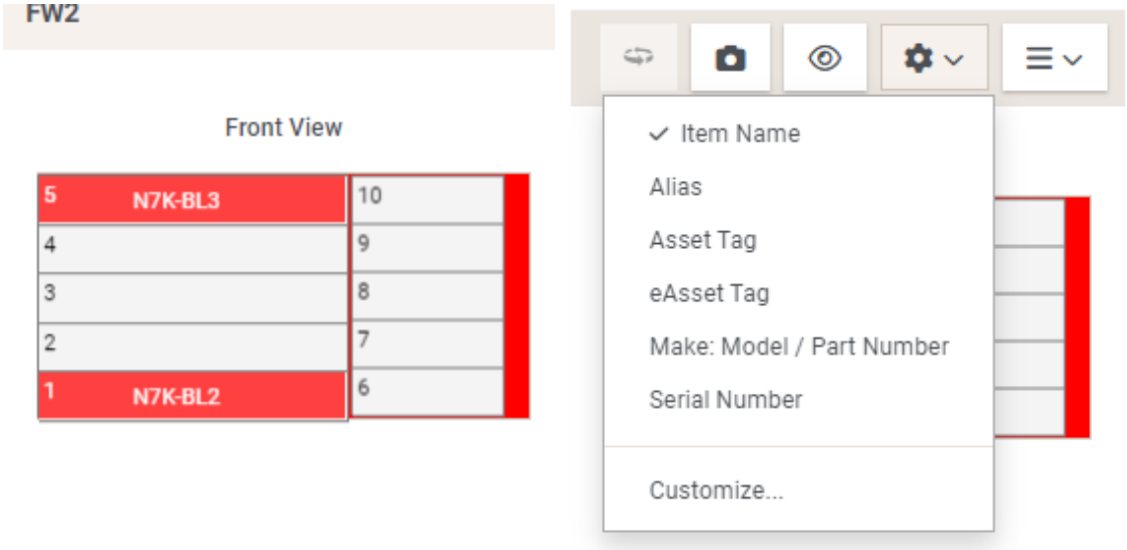
The cabinet elevation for each cabinet will have common toolbar that will allow to you to switch between text and images and front and back views, as well as Cabinet Inspector and Health Inspector views.



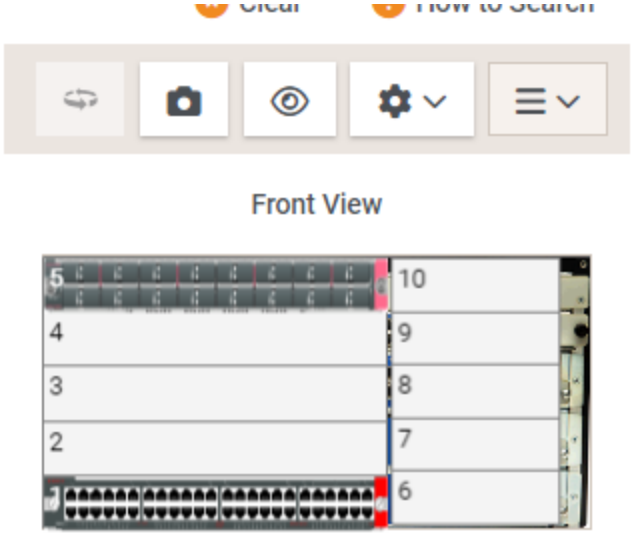
Cabinets that do include items that are part of the circuits are turned into x-ray mode. All cabinets that do not contain items that are included in the displayed circuits are dropped to the floor.

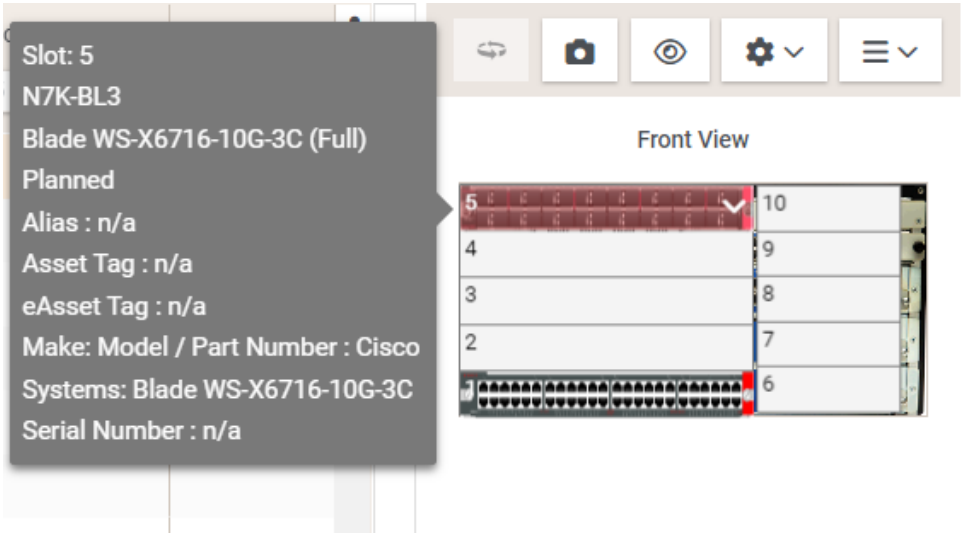
Chasis Elevations

Selecting a Chassis in the Items list displays its elevation based on the Slot and Bay placement defined in the model. When displayed in text view, the elevation displays the Bays based on the proportions defined by the Model representing the Size of each Bay, the Slots contained in each Bay and any spacing that exists between or adjacent to each Bay. Slots that are occupied by a Blade display the text as selected from the tool bar. You can select one of the options from the menu or customize the selection to include a total of up to 10 fields from which to choose.

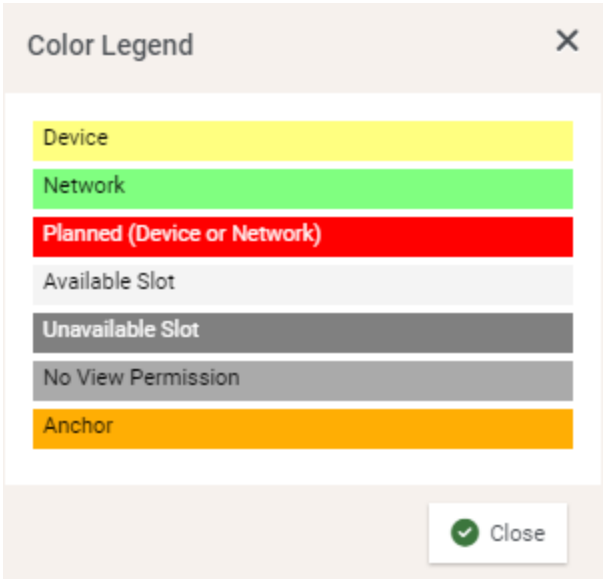


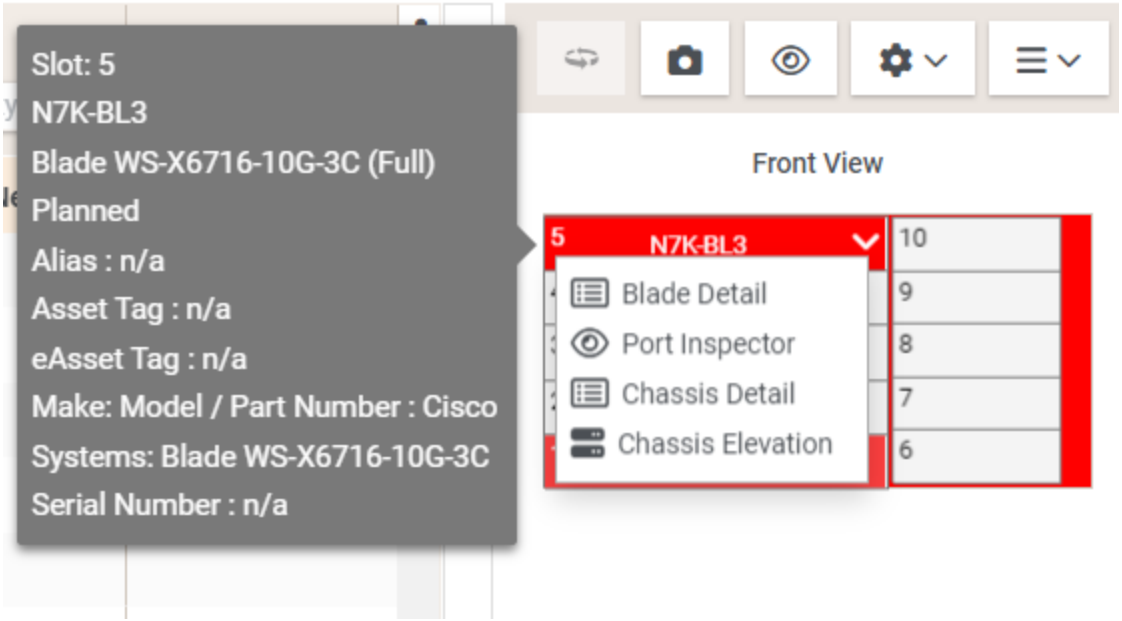
When Chassis are displayed in image view the elevation again displays based on the Slot and Bay placement as defined by the Model. The image also includes the Chassis image, each slot, and the image of any Blades that have been placed in the Chassis.



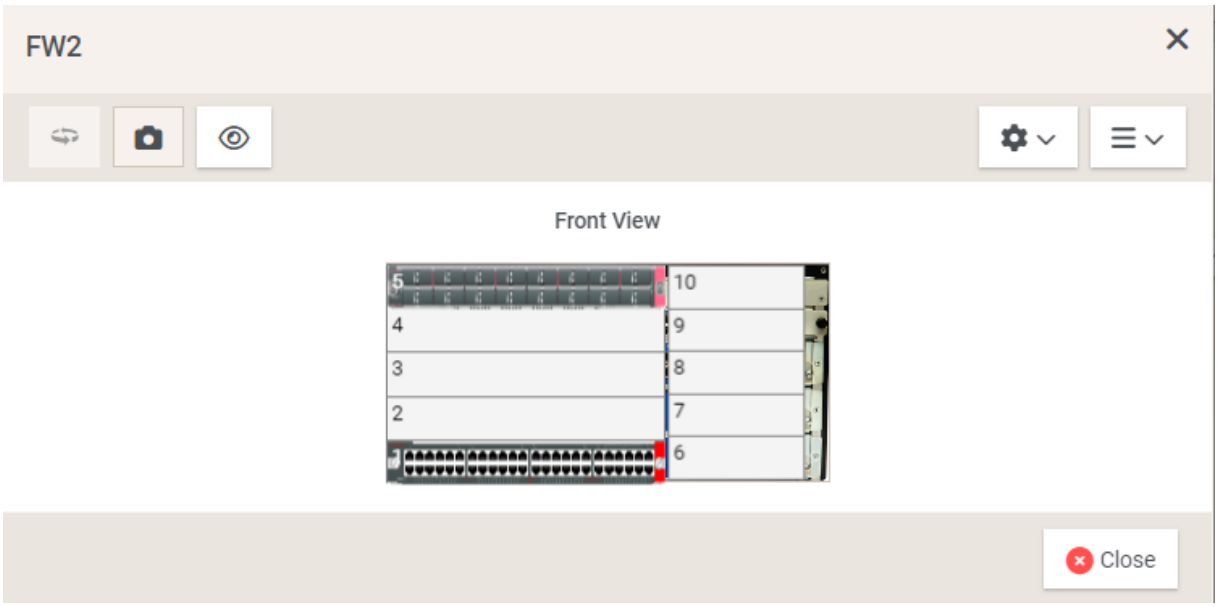


In both text and image view, hovering over a Blade displays additional details about the Blade. Clicking the Hamburger icon in the elevation header displays 2 options. You can select to be directed to the Chassis Item detail page, or display a legend describing how colors are assigned in the elevations.



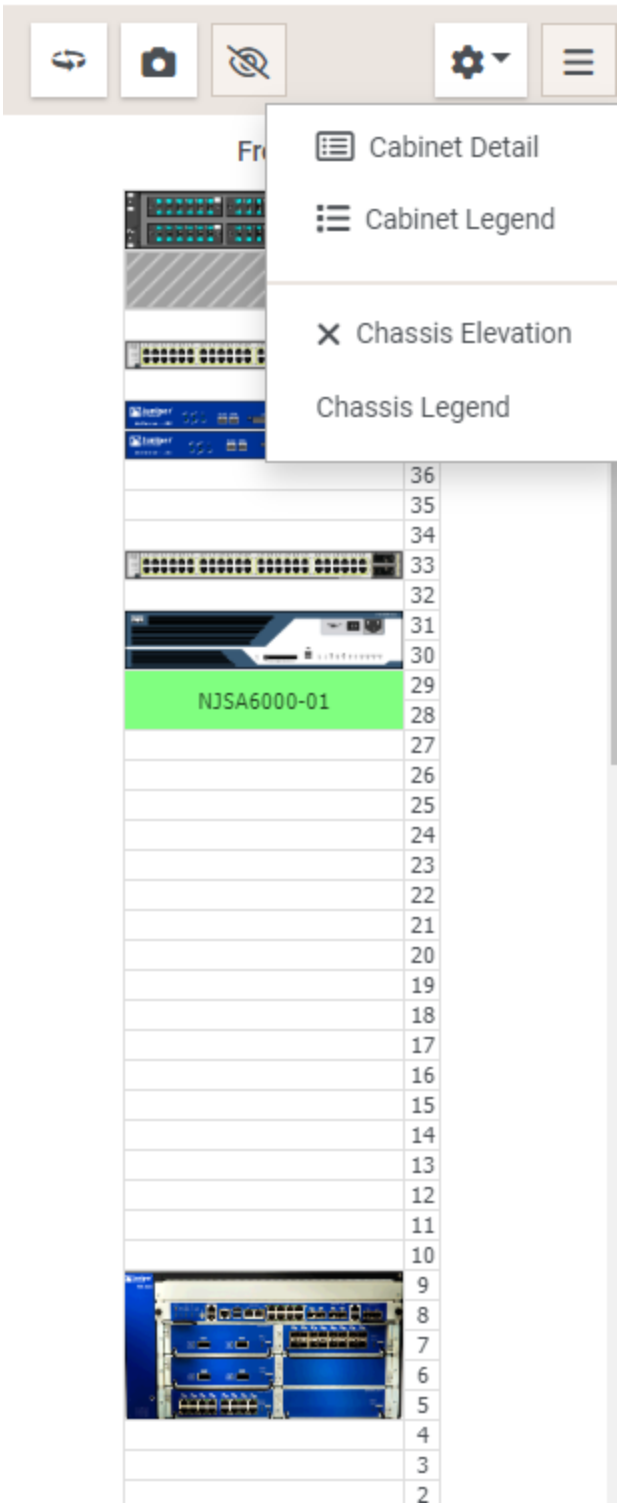


You can also click the down arrow on any Blade to reveal additional options. You can chose to be redirected to the Blades Item detail page, view the Blades Ports, be redirected to the Chassis Item detail page, or view an expanded version of the Chassis elevation and its contents.



Chassis Elevations within a Cabinet

Displaying Chassis within a Cabinet behaves exactly as it does when viewing the specific Chassis elevation. When the cabinet is displayed in text view the Chassis within the Cabinet are also displayed in text view. When the cabinet is displayed in image view the Chassis and Blades within the Cabinet are also displayed in image view. Clicking the hamburger icon in the Cabinets header will display additional options allowing you to be redirected to the Cabinet detail page, view the Cabinet Legend, view the Chassis Legend or have the option of viewing the Chassis Elevation alone or the Chassis Elevation including any Blades contained within the Chassis. Chassis Elevation is not the default view however, it can be toggled on by clicking the Chassis Elevation option from the menu.


Cabinet Detail
Cabinet Legend
Chassis Elevation
Chassis Legend
NJSA6000-01

Suspended Cabinet Mounting

dcTrack version 8.1.1 supports a new Mounting type of "Suspended" for Cabinet Class Models. You can create Cabinet Models with Suspended Mounting and create and manage Suspended Cabinet Items.

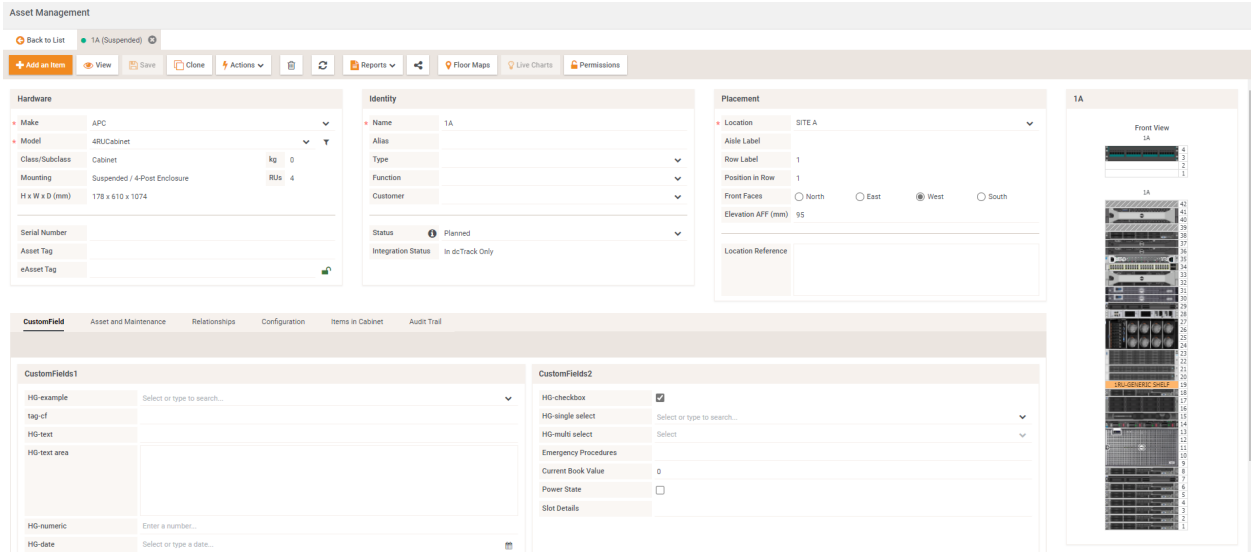
Suspended Mounting Cabinets support following Form Factors.

- 2-Post Frame
- 4-Post Enclosure

Suspended Mounting Cabinets can be used to represent overhead rack above a free-standing cabinet which is also referred as Cabinet Extender.

Cabinet Items with Suspended Mounting can share the same Row and Position in Row as a Free-Standing Cabinet. Suspended Cabinet Items can also share the same Item Name as one Free-Standing Cabinet in the same location.

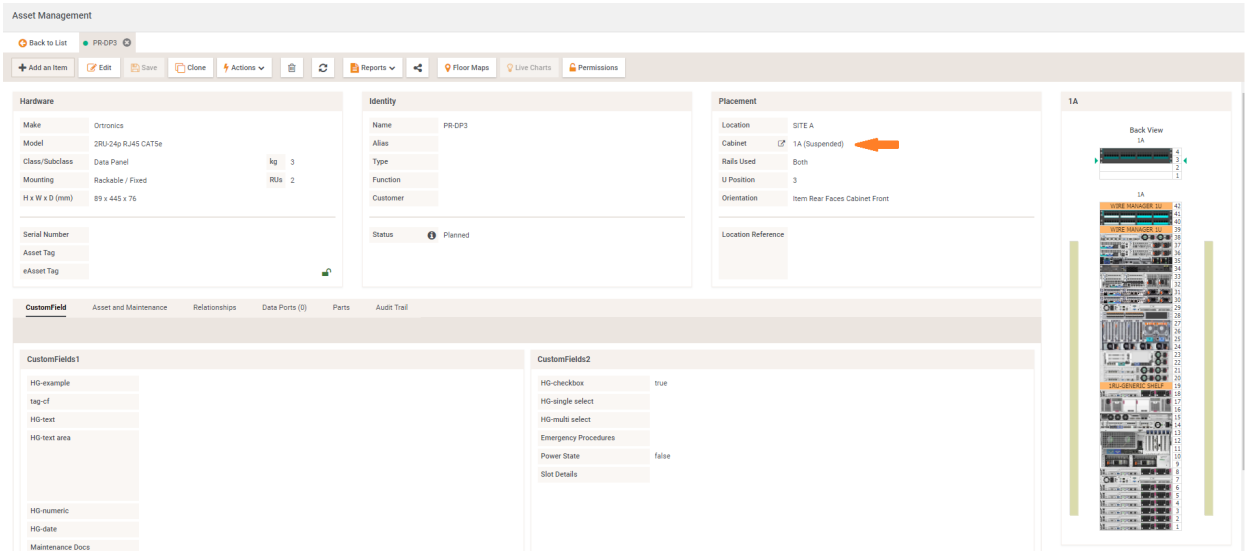
However multiple Suspended Cabinet Items can share the same Row and Position row.



Suspended Cabinets behave same as a Free-Standing Cabinet with the following exception :

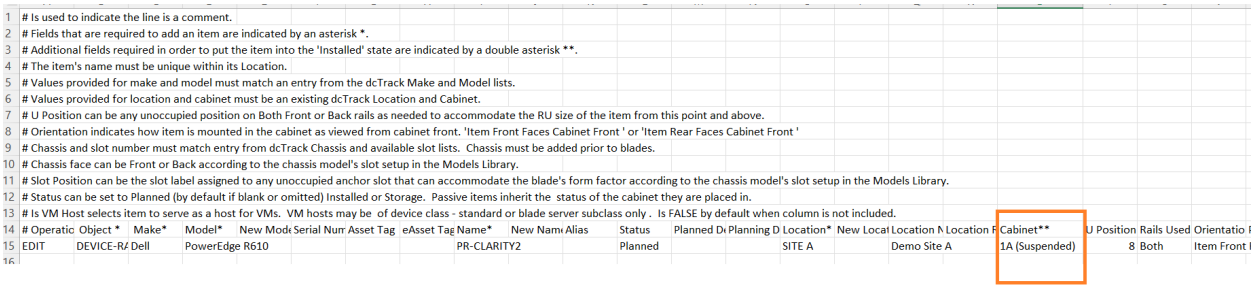
1. When Suspended Cabinets share the same Row and Position in Row as Free-Standing Cabinet, the name of the Suspended Cabinet must match the name of the Free-Standing Cabinet. The field Row and Position in Row will become read only for Suspended Cabinet items and can only be updated from the Free-Standing Cabinet with same name.

2. Only when the Item Name of the Suspended Cabinet is unique, the field Row and Position in Row will be editable. Hence Power Outlet items can not be placed in Suspended Cabinets.
3. Items can be placed in Suspended Cabinets. However the U position Above and Below will not be available for Suspended Cabinets.
4. Cabinet field in the Item Details page will have the suffix Suspended added to the Suspended Cabinet Name to distinguish the Suspended Cabinets from the Free-Standing Cabinets specially when they share the same name.
5. Power Outlets can not be placed in a Suspended Cabinet.



Suspended Cabinets Items can also be created and managed using File Import. Model column is required for the EDIT operation when updating a Suspended Cabinet item view File Import.

When placing Items in a Suspended Cabinet view File Import, make sure to add the suffix (Suspended) in the Cabinet column. For example the Cabinet Column should have a value "1A (Suspended)".

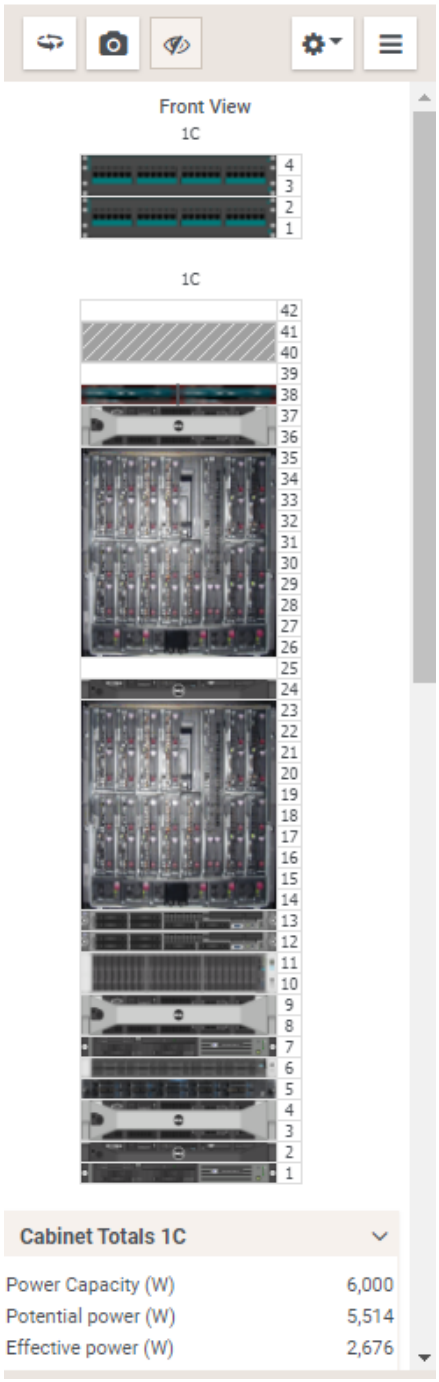


1	# Is used to indicate the line is a comment.																			
2	# Fields that are required to add an item are indicated by an asterisk *.																			
3	# Additional fields required in order to put the item into the 'Installed' state are indicated by a double asterisk **.																			
4	# The item's name must be unique within its Location.																			
5	# Values provided for make and model must match an entry from the dcTrack Make and Model lists.																			
6	# Values provided for location and cabinet must be an existing dcTrack Location and Cabinet.																			
7	# U Position can be any unoccupied position on Both Front or Back rails as needed to accommodate the RU size of the item from this point and above.																			
8	# Orientation indicates how item is mounted in the cabinet as viewed from cabinet front. 'Item Front Faces Cabinet Front ' or 'Item Rear Faces Cabinet Front '																			
9	# Chassis and slot number must match entry from dcTrack Chassis and available slot lists. Chassis must be added prior to blades.																			
10	# Chassis face can be Front or Back according to the chassis model's slot setup in the Models Library.																			
11	# Slot Position can be the slot label assigned to any unoccupied anchor slot that can accommodate the blade's form factor according to the chassis model's slot setup in the Models Library.																			
12	# Status can be set to Planned (by default if blank or omitted) Installed or Storage. Passive items inherit the status of the cabinet they are placed in.																			
13	# Is VM Host selects item to serve as a host for VMs. VM hosts may be of device class - standard or blade server subclass only . Is FALSE by default when column is not included.																			
14	# Operatic	Object *	Make*	Model*	New Mode	Serial Num	Asset Tag	eAsset Tag	Name*	New Nam	Alias	Status	Planned D	Planning D	Location*	New Local	Location N	Location F	Cabinet**	U Position	Rails Used	Orientatio
15	EDIT	DEVICE-R/	Dell	PowerEdge	R610				PR-CLARITY2			Planned			SITE A		Demo Site A		1A (Suspended)	8	Both	Item Front
16																						

Cabinet Elevation for Suspended Cabinets

Cabinet with Suspended Mounting can share the same Row and Position in Row as a Free-Standing Cabinet and other suspended cabinets.

Cabinet Elevation will show all the cabinets sharing the same Row and Position in Row in the same elevation view.

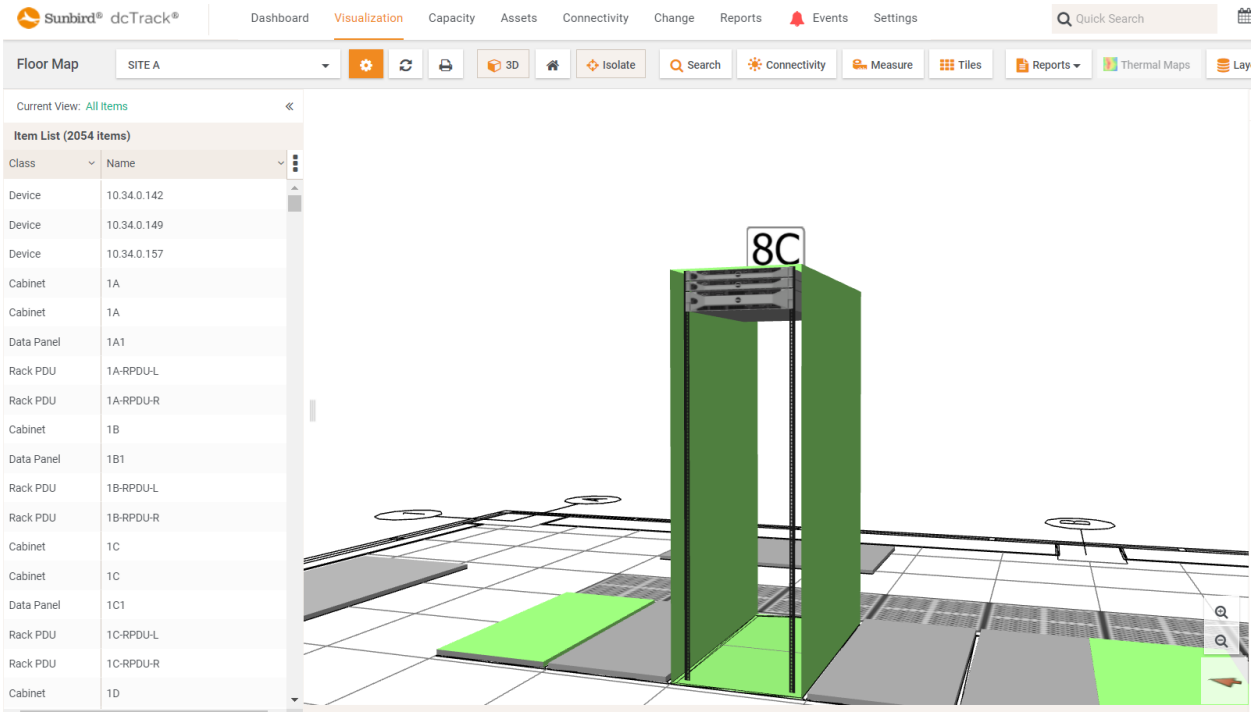


All the buttons in the Cabinet Elevation toolbar apply to all the Cabinets in the Cabinet Elevation.

Cabinet with 2 Post Frame

dcTrack 8.2 introduces a new form factor 2-Post Frame for Cabinets. Cabinet models with mounting Free-Standing or Suspended can have form factor of 2-Post Frame.

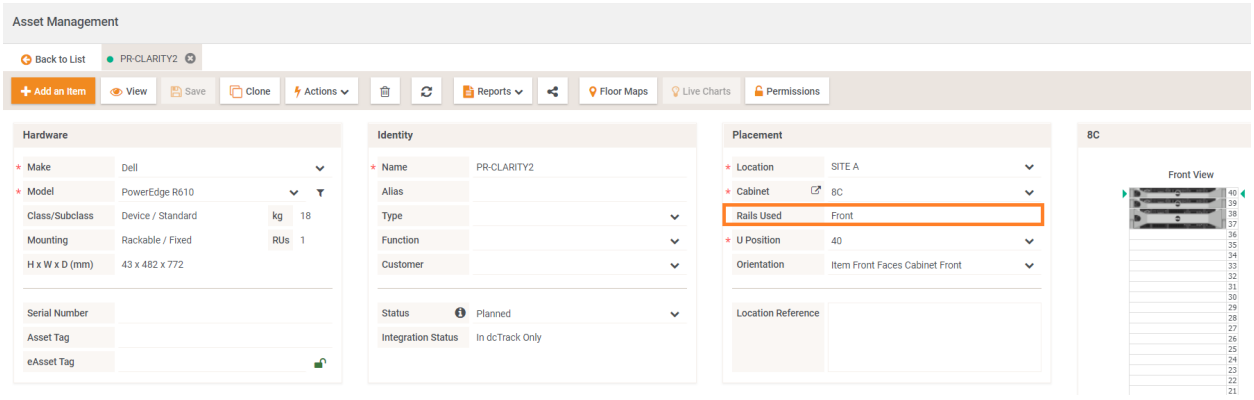
Cabinet that has a Form-Factor of 2-Post Rack is rendered in floor map with only one set of rails at the front of the Cabinet.



Note: When creating objects in CAD file for 2-Post Frame cabinets it is recommended to hatch the ~4" width of the mounting posts and not the wider bracket at the base. Adding poly lines to represent the base bracket without hatching them give a nice visual effect when rendered in 3D.

Since Cabinets with 2-Post Frame form factor have rails at the front you can place only one item at the front of the cabinet for a U position.

The field Rails Used become read only and set to Front when you place an item in 2-Post Frame Cabinet.



Cabinet Live Charts

Overview

When you are integrated with Power IQ, use Cabinet Live Charts on cabinet pages to quickly gain access to power readings and event information. Specifically, Cabinet Live Charts provide reading totals at the cabinet, rack PDU outlet, rack PDU breaker, and rack PDU inlet levels.

Use this information to monitor power trends over select time periods and view corresponding events. This is useful if you want to track trends and monitor power at a granular level.

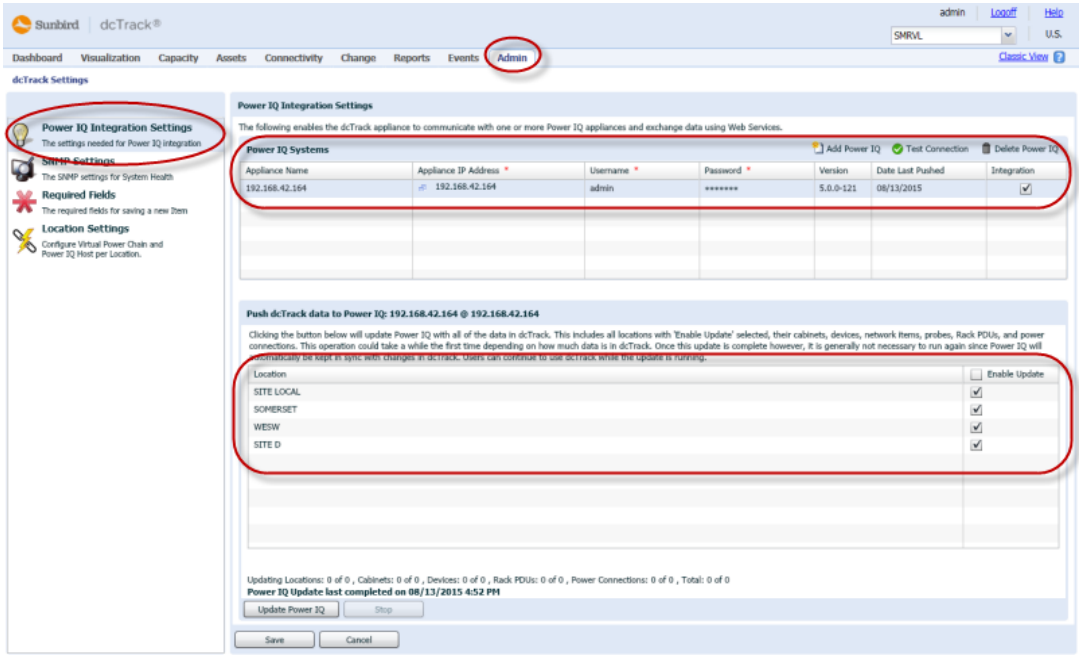
Cabinet Live Chart settings are saved per user and are applied to all cabinets you have access to. So, you can configure charts to display the information you want to see in the way you want to see it, and the same configuration is applied to all cabinets you have access to - you do not have to configure each cabinet separately. For example, set charts on a cabinet to display average readings for the past week and the same settings are applied to all of your cabinets.

Prerequisites

Cabinet Live Charts are available on cabinet pages provided:

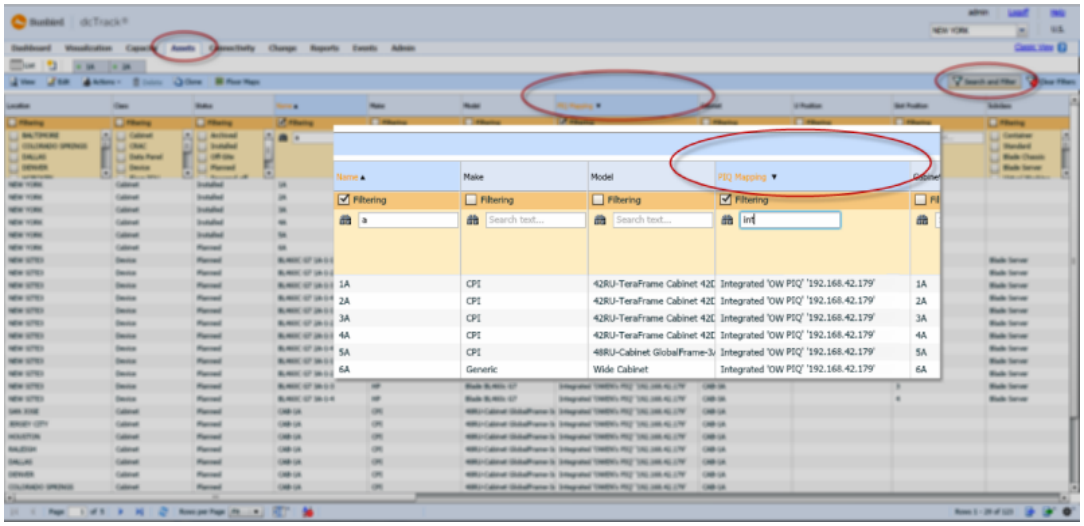
- Your dcTrack is integrated with Power IQ and Power IQ Integration is enabled in dcTrack.
- The rack PDUs in the cabinet being viewed are powered on and configured in Power IQ and dcTrack.

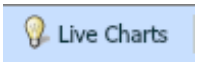
Note: To verify you are integrated with Power IQ and it is enabled for a location, select Admin > dcTrack Settings.



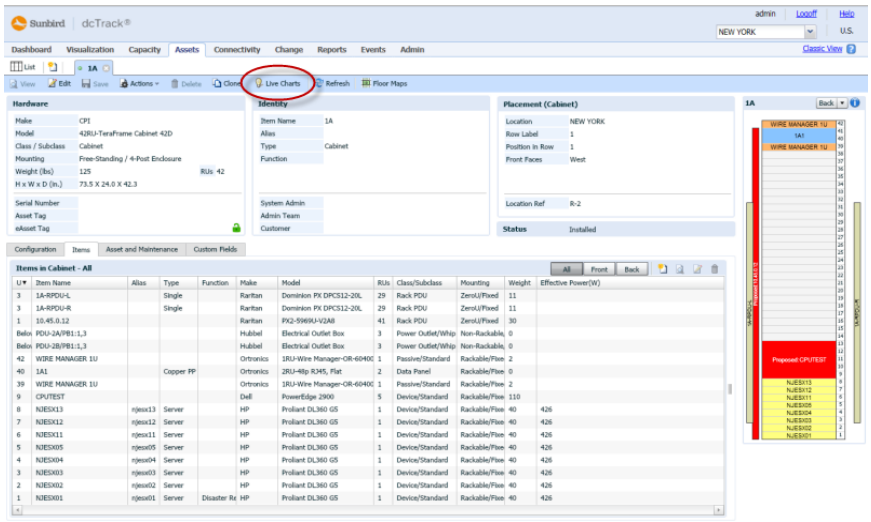
Access Cabinets and Their Cabinet Live Charts

Easily identify items with Cabinet Live Charts from the Items List in the Web Client by filtering the PIQ Mapping column and filtering by Cabinet on the Class column.



View Cabinet Live Chart readings by opening a cabinet page and selecting the Live Charts icon 

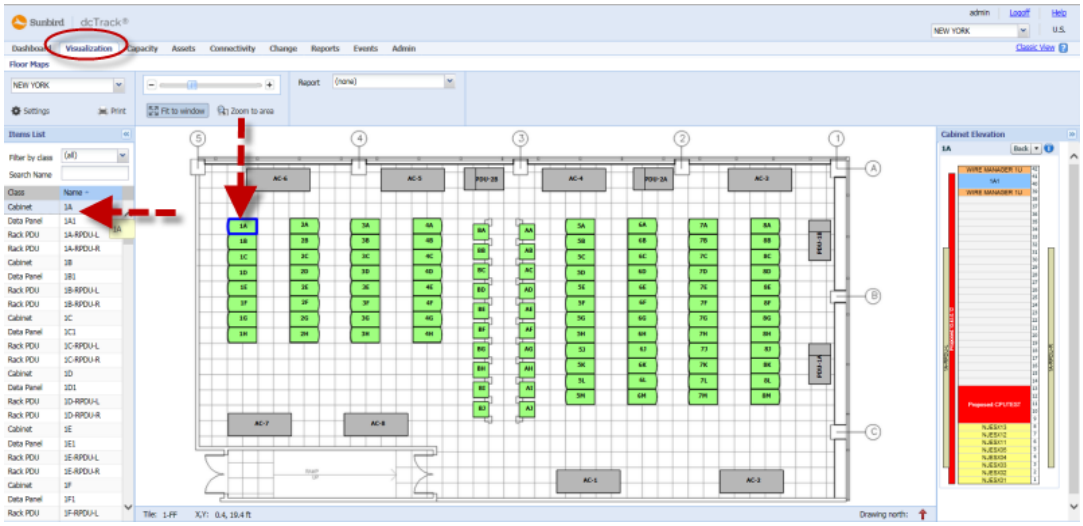
in the toolbar.



Access a cabinet page from the Items List: From the Items List under the Assets tab in the Web Client double-click on a cabinet.

Access a cabinet page from the Floor Maps page:

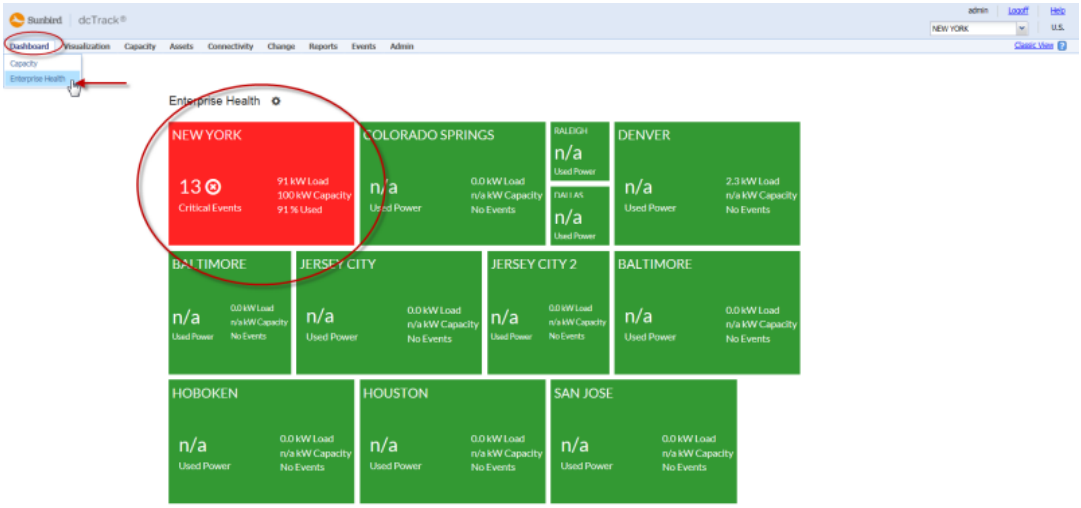
- Under the Visualization tab, select Health Map from the Reports drop-down.
- Double-click on cabinet in a floor map or in the Items List.



Drill down to Cabinet Live Charts on a cabinet page from a Health Map via the cabinet's Enterprise Health page -

To access the Enterprise Health page, hover your mouse over the Dashboard tab, then select Enterprise Health when the menu opens.

To open a location's Health Floor Map from the Enterprise Health page, click on the location's tile.

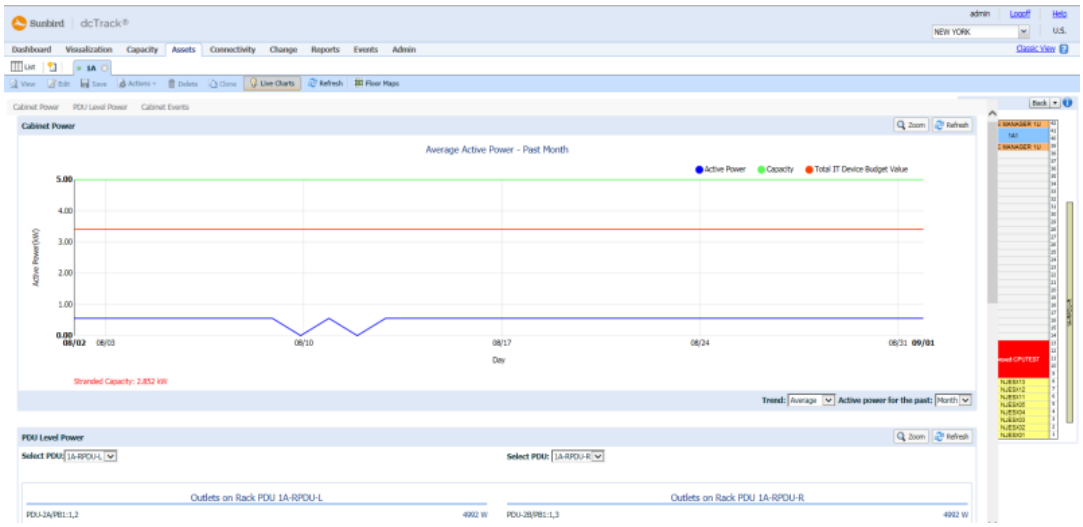


The Health Floor Map for that location opens in a Floor Map view.

Click on a cabinet in the floor map or Items List. Its Health Details automatically expands on the right of the page. Click the Expand/Collapse icon in that section if it does not display automatically.

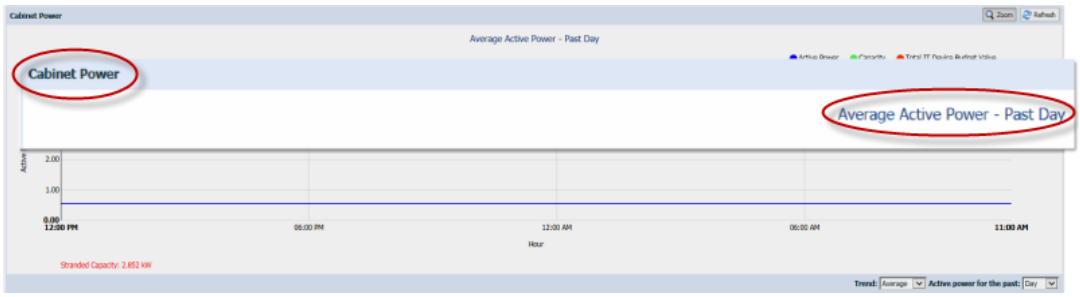
Click the name of the cabinet in Health Details - the name is a link to the cabinet page.

The cabinet's page opens and the Cabinet Live Charts are displayed by default.



Cabinet Power

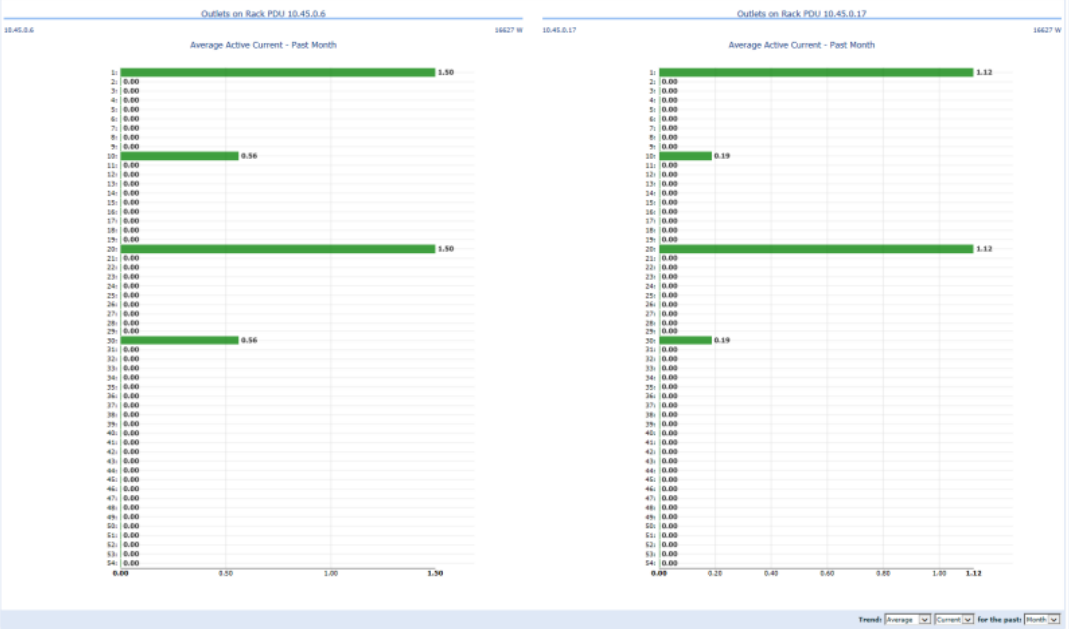
This chart provides the active power trend for the cabinet's power and the cabinet capacity limit. The amount of stranded power, if any, is noted at the bottom of the chart in red.



PDU Level Power

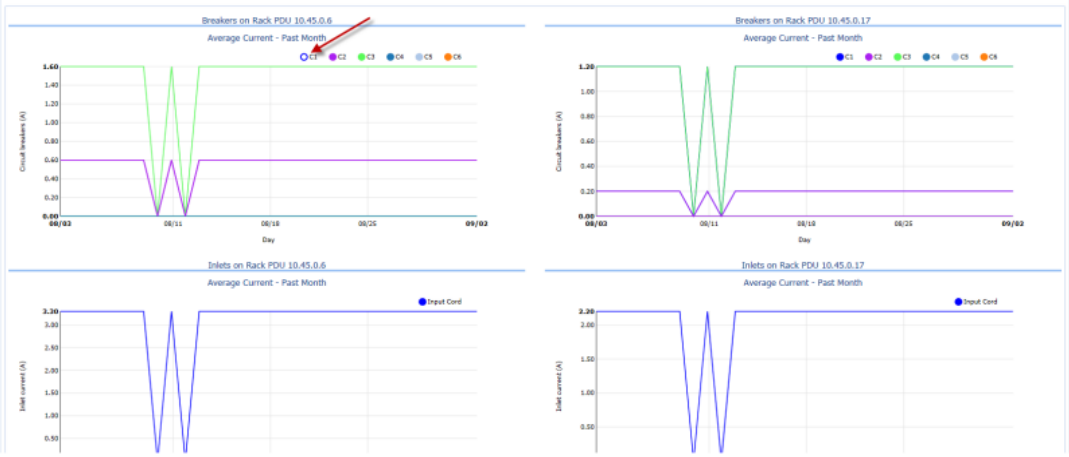
This section allows you to select two rack PDUs in your cabinet to compare their power or current trends at the outlet, breaker and inlets levels.

The Cabinet Live Charts autoselect the first two rack PDUs in your cabinet. If you have more than two rack PDUs in the cabinet, use the pulldown to select the rack PDU you want to see in the left chart and the one in the right chart.



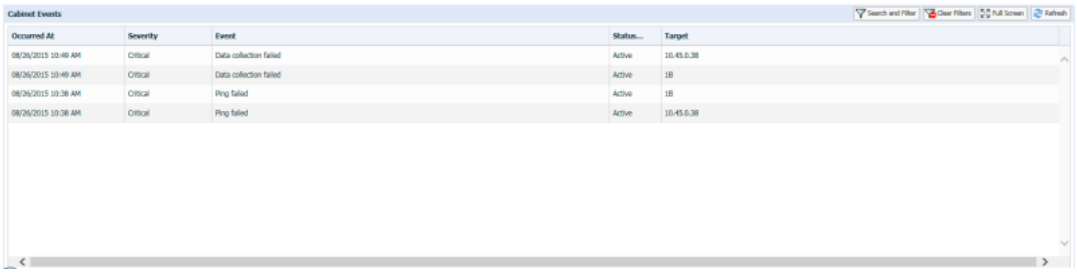
Breakers and Inlets

In order to focus on a specific breaker or inlet, you can select a breaker or inlet from the legend to add or remove it from the view.



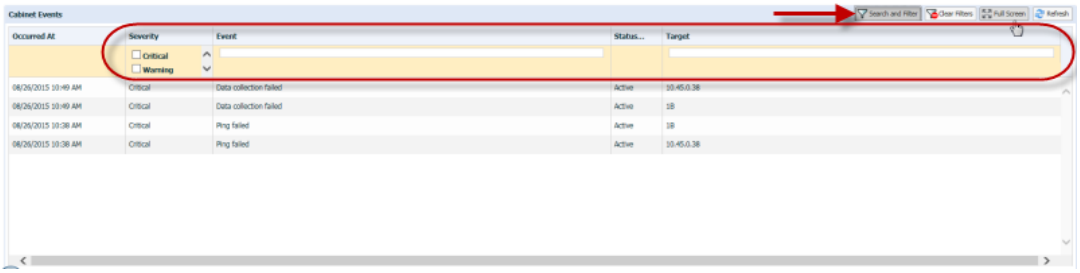
Cabinet Events

Cabinet events, such as Cabinet Threshold events, and cabinet content events, such as rack PDU events, are listed in this section. Only Active events are shown.



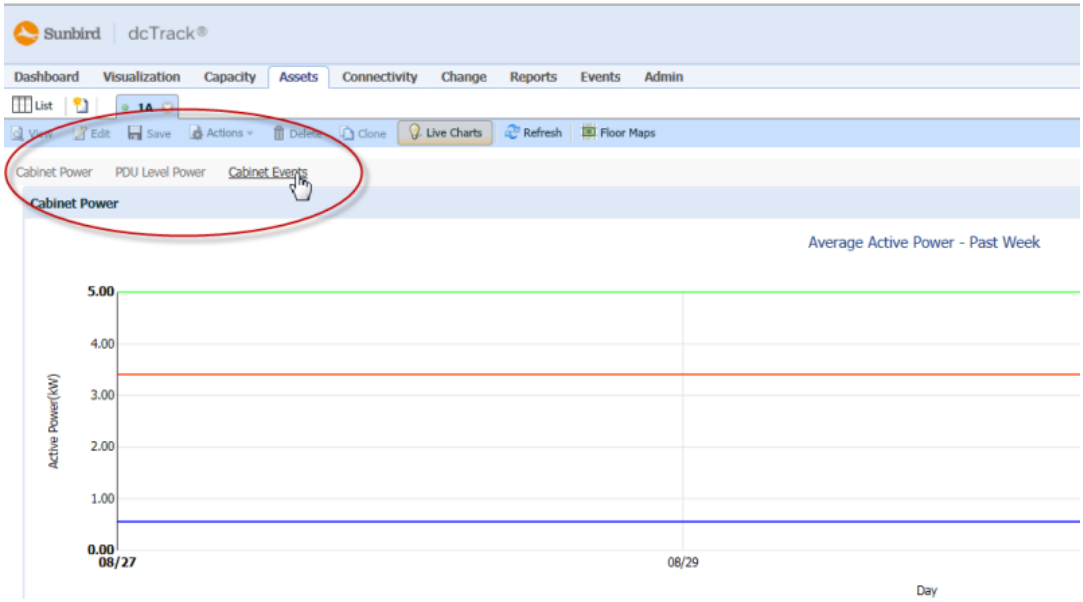
If a large number of events are displayed in the chart, use Search and Filter to narrow results.

You can also click the Full Screen button to expand the Cabinet Events chart to the entire size of the charts area, if needed.



Navigate

Link to each Cabinet Live Chart on the page using quick links. These links remain visible no matter what chart you are viewing.



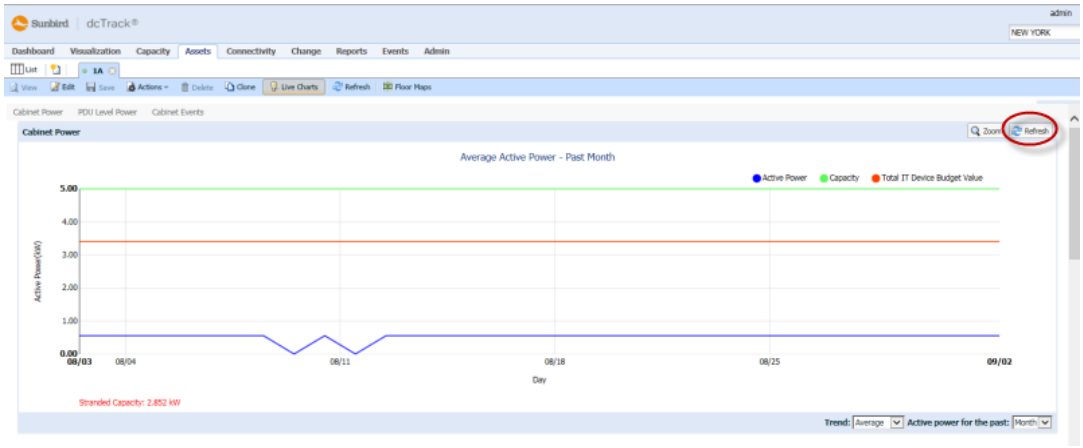
Controlling Data Displayed in Cabinet Live Charts

This chart provides a summary of the active power trends for the cabinets.

View the Average, Maximum or Minimum active power by Month, Week or Day.

Using Cabinet Live Charts

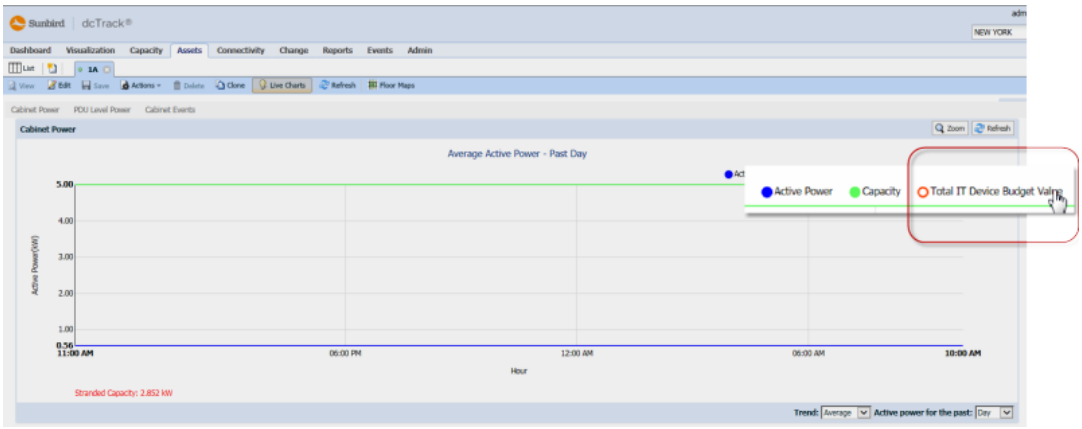
Click the Refresh button in each Cabinet Live Chart to refresh the chart and view the latest data.



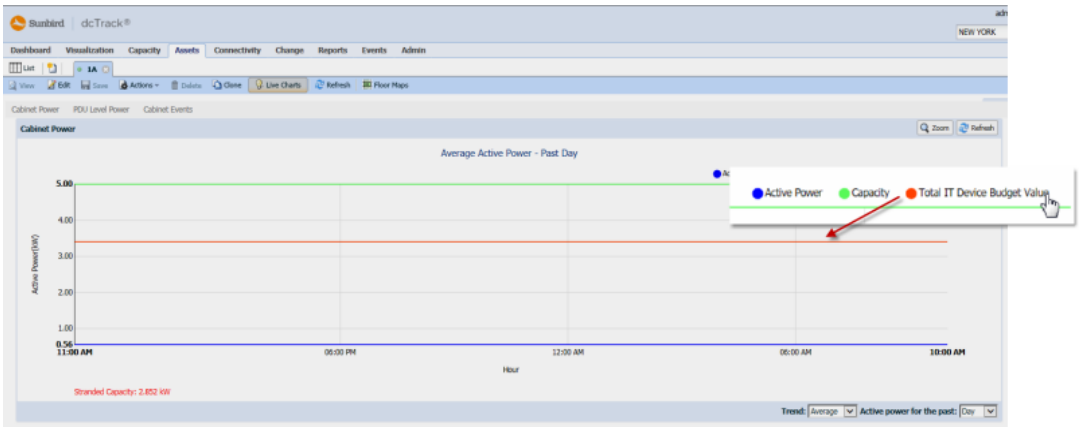
Clicking the Refresh button at the top of the page in the toolbar refreshes the entire page, and all Cabinet Live Charts at once.

Hovering over data point on a chart provides the data series name and data point values for x and y axis.

To hide specific data on a chart, click on it in the legend that appears above the chart. For example, hide the Total IT Device Budget Value by clicking on it in the legend. The data line on the chart is removed.



Click on it again to restore it.

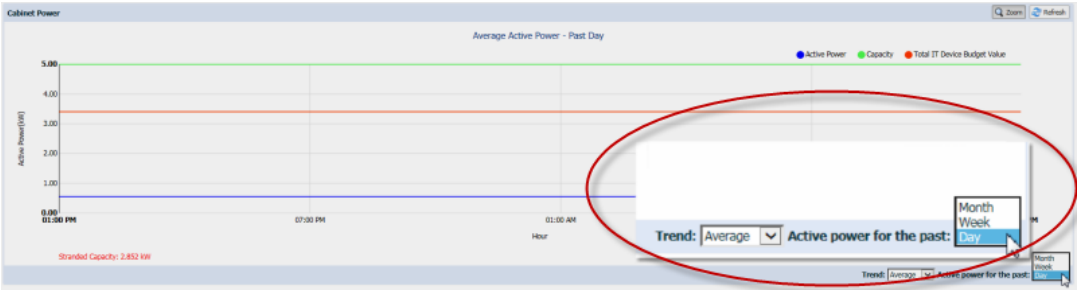


Click Zoom to zoom in to the lowest value being charted. This is the point on the chart where the y-axis starts and intersects with the x-axis. Zooming out and returning to the default view, shows the chart starting at zero.

Chart Settings

Trend readings are available for the past day, week or month.

Trends are measured as maximum, minimum or average readings.

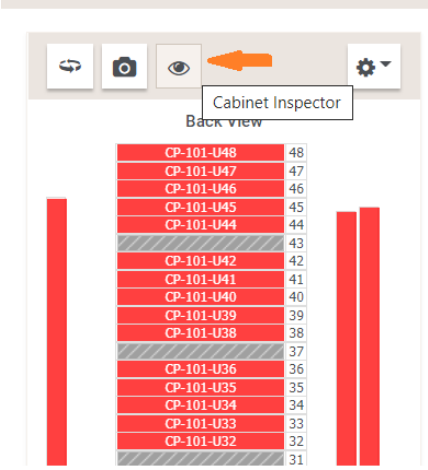


Once you set a chart to display a specific trend for a specified time period, those same settings are applied to all of the charts on the page. For example, select Trend = Average for the Day, those same settings are applied to the Outlets chart, Inlets chart and so on.

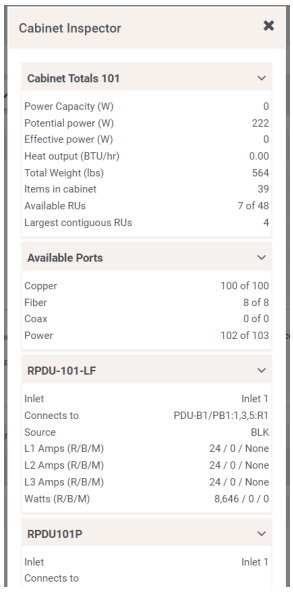
Cabinet Inspector

Use the Cabinet Inspector to quickly obtain cabinet item totals, available ports, and power data for the cabinet.

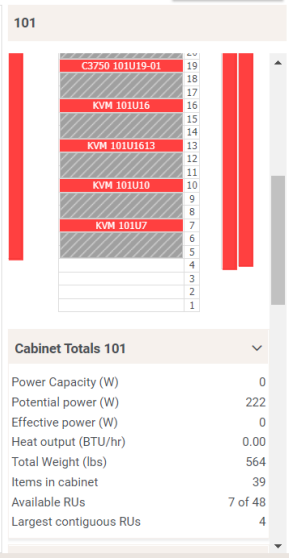
Cabinet Inspector is accessed from cabinet elevations on every page.



It opens in a dialog, you can use the vertical scroll bar to view the information at the bottom. Click Close to close the dialog.



In Item List and Floor Map the Cabinet Inspector will always show in the Cabinet Elevation by default. Scroll to the bottom of the Cabinet Elevation to view the Cabinet Inspector.



You can click the eye icon in the Cabinet Elevation toolbar if you don't want to view the Cabinet Inspector in the Cabinet Elevation.

Cabinet Inspector Cabinet Capacity Totals

The cabinet totals presented in this panel are based on the items in the cabinet.

As items are added, removed and updated, the totals change.

For example, the weight increases when an item is added, RU availability decreases and so on.

A cabinet's total budgeted power is calculated by adding the budgeted power information for each item in the cabinet.

Budgeted power information is entered automatically based on data from the Item Models Library, or it is entered manually when the item is created.

This reading is displayed only for items that require power.

If redundant power supplies are used, dcTrack does not include the redundant power supply as part of the budgeted power calculation; only the primary power supply is used in the calculation. This provides an accurate reading since the redundant power supplies are not in use.

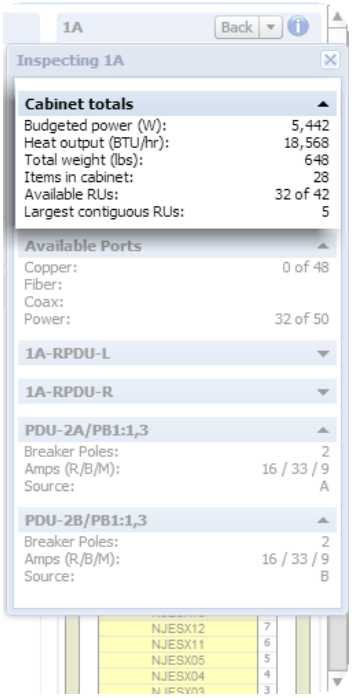
For example:

- RPDU-P is the primary power supply and RPDU-R is the redundant (backup) power supply for a cabinet.

Only RPDU-P is used to calculate the total budgeted watts.

Cabinet Inspector readings are not live. Click Refresh to see the most current totals.

- "Budgeted power (W)" - the total budgeted power for cabinet
- "Heat output" - total BTUs or Kw output per hour from the cabinet
- "Total weight" - total weight the cabinet in pounds in or kilograms
- "Items in cabinet" - the total number of items in the cabinet
- "Available RUs" - the total number of available rack units (front and back) out of the total number of rack units in the cabinet
- "Largest contiguous RUs" - the largest number of contiguous RUs available in the cabinet



Note: The dcTrack® System Administrator configures the units of measure used (US or SI).

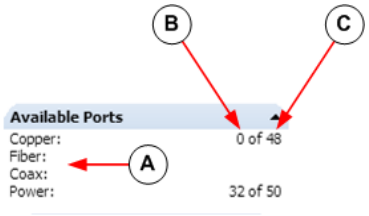
Cabinet Inspector Available Ports

As port usage changes, the totals are updated.

If no data are listed, no assets with those port types are contained in the cabinet.

Ports must exist for items in order for them to be counted in the totals.

An item's port information is included when the item is created so long as the port information is included for the item in the Item Models Library. Ports can also be added manually when the item is created or at a later time.



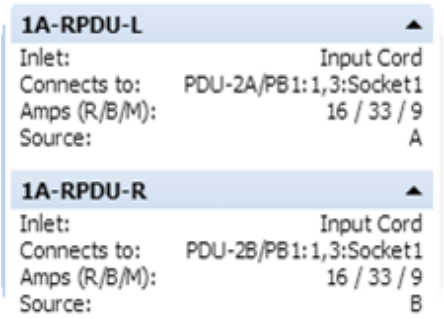
A	**Types of ports - copper, fiber, coax and power ports. Port totals are broken down by type.**
B	Total number of ports for that port type.
C	Total number of available ports for that port type.

Cabinet Inspector readings are not live. Click Refresh to see the most current totals.

Cabinet Inspector Rack PDUs

Note that in order for connection path information ("Connect to") to be available, the circuit that connects the rack PDU to its power supply must exist in dcTrack.

- **Inlet or Outlet - the name of the inlet or power outlet the rack PDU connects to**
- **"Connect to" - the power path of the upstream power connection**
- **Amps (R/B/M) - the rated, budgeted and measured amps of the rack PDU's inlet or power outlet connection. Each line and R/B/M reading for each is listed for 3-phase rack PDUs**
- **Source - the rack PDU's power source**



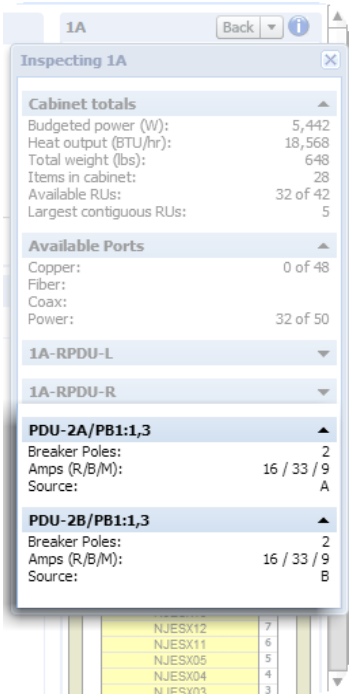
Cabinet Inspector readings are not live. Click Refresh to see the most current totals.

Cabinet Inspector Power Source

PDUs are the power sources for rack PDUs.

The PDU must be part of the power circuit that exists for the rack PDU in order for data to be displayed in this panel.

- Number of breaker poles
- The rated, budgeted and measured amps at the power outlet associated with the PDU
- The name of the originating PDU's power source, such as a UPS unit
- Name of the sub-panel (if applicable, not shown in the example)



Cabinet Inspector readings are not live. Click Refresh to see the most current totals.

Business Rules

Rules Builder

The Rules feature does not associate a Rule to a Model. are applied to any Items that qualify based on the Rule's built in logic and parameters. Based on requirements provided by users, Sunbird Technical Support will provide a rule that can be uploaded into the application. The rule is evaluated and applied whenever an item that meets the rules criteria is created or updated.

Some example use cases include:

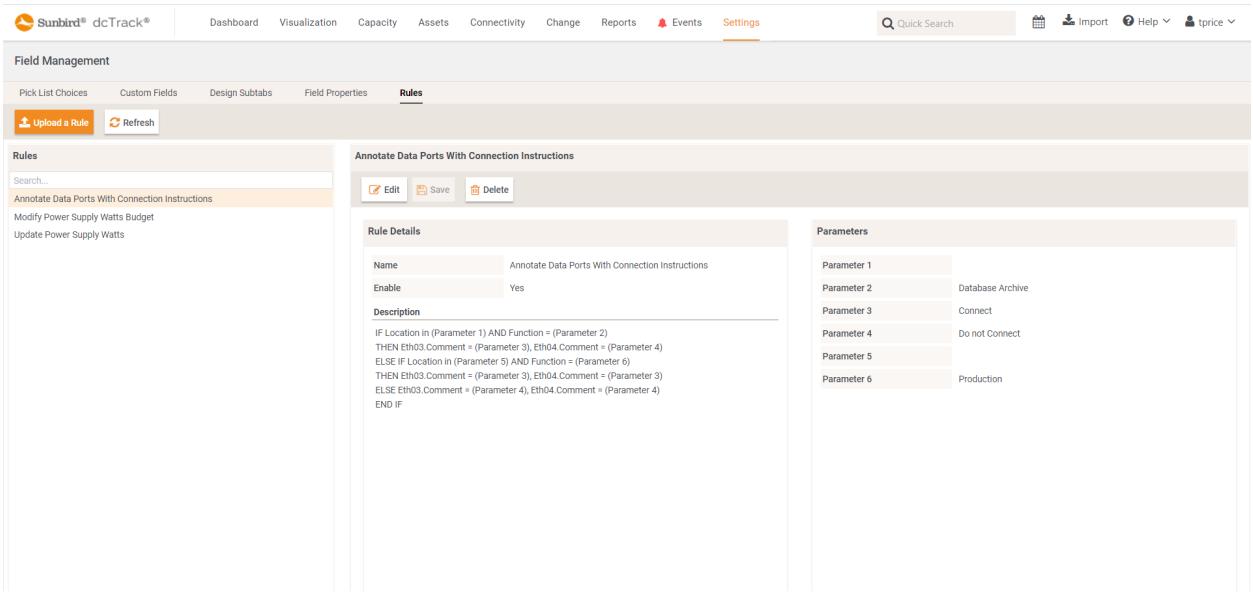
- *I need to update PS1 and PS2 budgeted watts based on the Items Location.*
- *I need to provide data port comments based on an item's Location and Function type.*

You can launch the Rules Builder dialog by clicking the Rules tab on the Field Management page.

Any rule that is not marked as disabled will be executed whenever any Item is updated or inserted.

When a Rule is selected, its details are displayed in the Rule Details section in the right panel.

The screenshot below shows an example of a rule in the Manage Rules dialog based on a requirement to add comments to data ports when deploying an item into specific locations with a specific Function type.



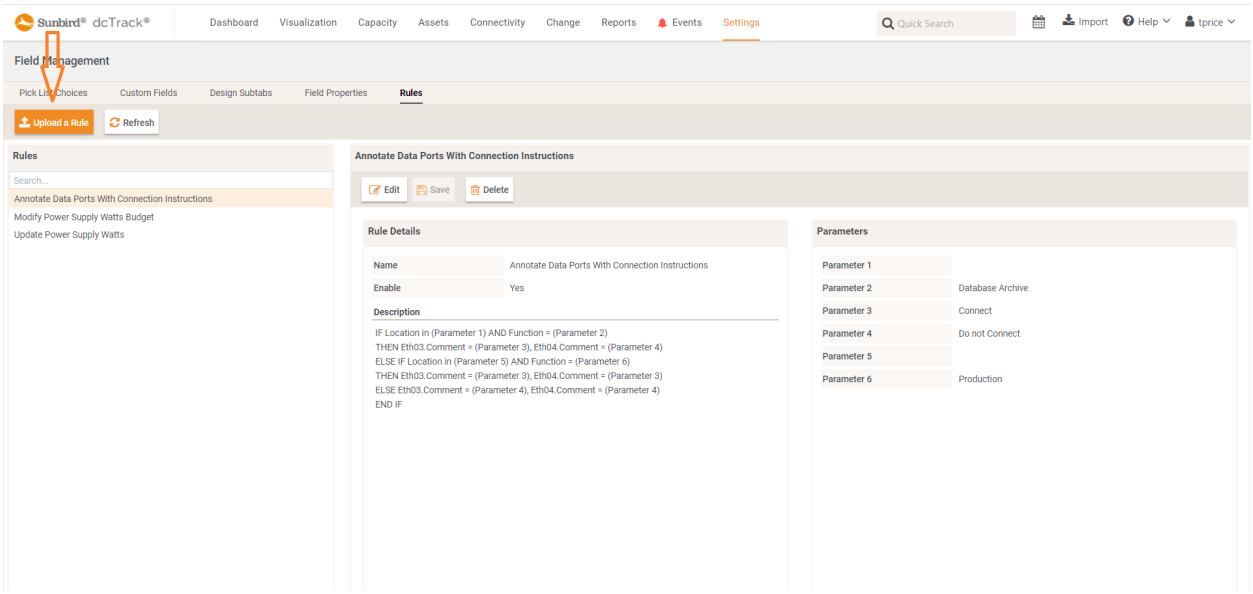
The Rule Details section includes the following fields:

- Rule Name: The name of the rule.
- Enable: Yes or No indicating the Rules current status
- Description: The rule statement, including elements that have been parameterized.
- Parameters: Values for the parameters in the rule.

Uploading a Rule

The rule file provided by Sunbird Professional Services can be uploaded to your system by clicking the Upload button.

1. In the Manage Rules dialog, click the Upload button.



Once uploaded, you are able to customize the parameters based on any changes in your environments or requirements.

Click the Save icon and button to save your changes.

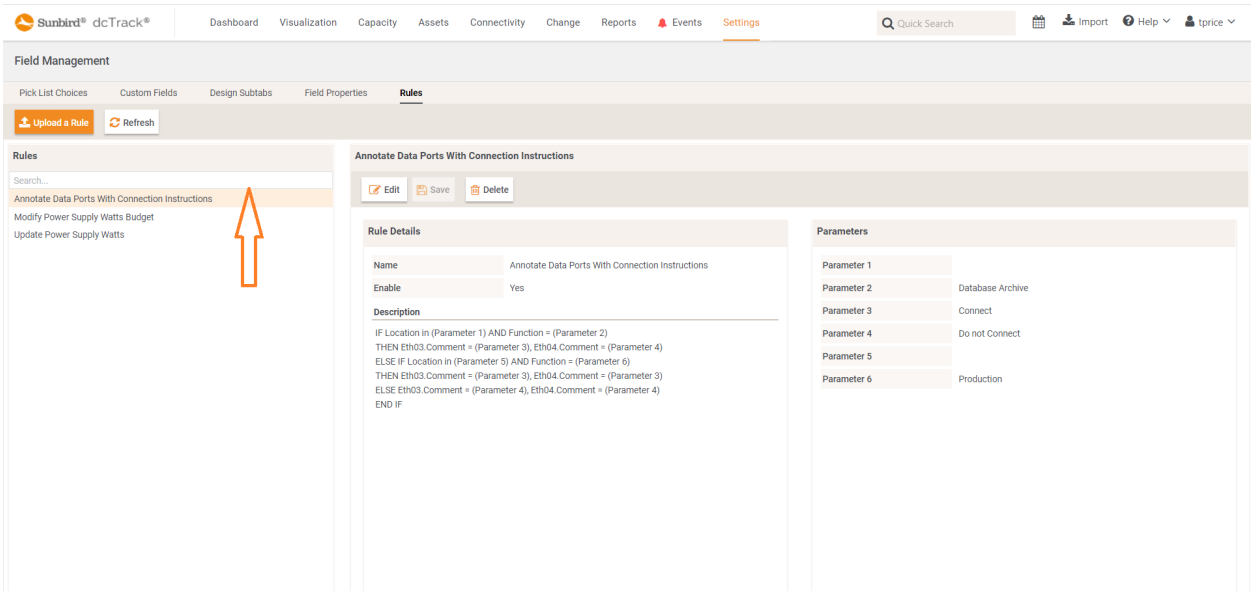
Additional Rule Actions

Deleting a Rule

To delete a rule, select the rule you wish to delete in the Rules Builder and click the Delete button.

Filtering Rules

You can filter rules by entering the full or partial name of the rule into the filtering bar in the left panel of the Rules Builder dialog.



Please note, while Inserts and Updates will trigger Rules in most cases, for example through the UI, APIs, and File Import, there are limited functions that will not trigger Rules. These features are listed below:

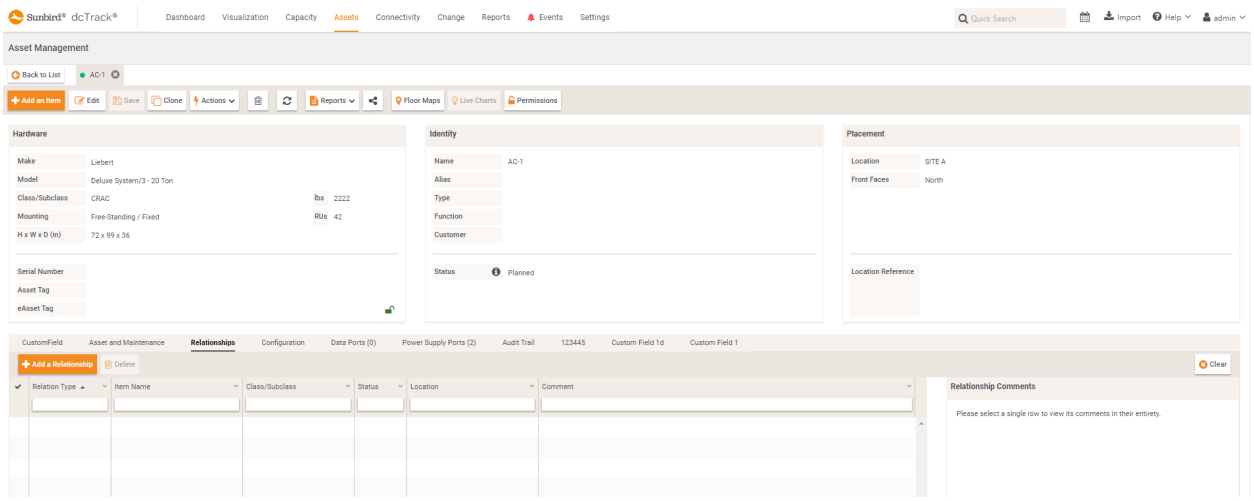
- Adding an invalid (incomplete) Item via integration

Item Relationships

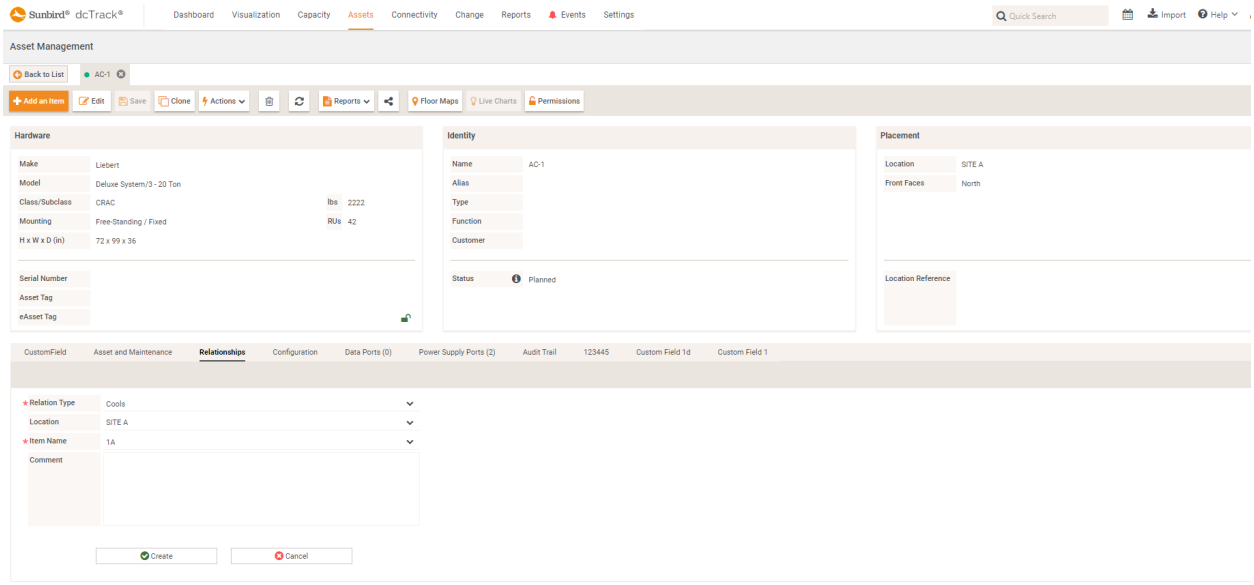
dcTrack allows you to define relationship between Items. You can set the relationship of any of your Items such as relates to or other relationship.

Steps to Create Item Relationship :

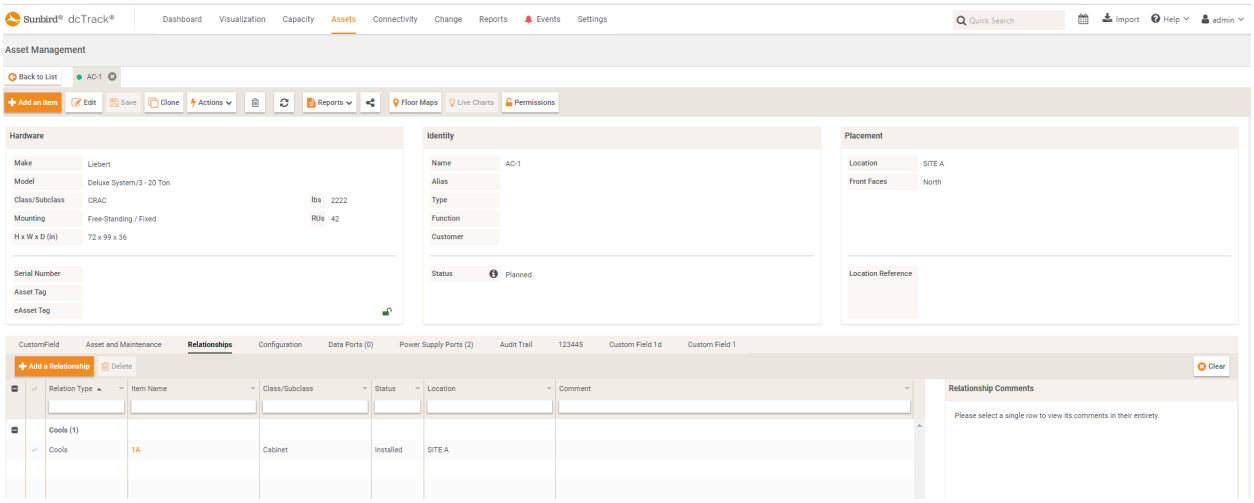
1. Navigate to the Asset List page from the Asset menu.
2. Double click the row for the Item you want to create Relationship.
3. Click Relationship sub tab of Item.



4. Click Add a Relationship.
5. Provide the following information to create Relationship.
    a. Relation Type : Select the Relation Type from the drop down. If the Relation Type you are looking for does not appear in the drop down option then you can create Relation Type from Field Management screen. See here Configuring Options for Single and Multi-Select List for more details. Required.
    b. Location : Select the Location of the item you wan to create Relationship. You can multi- select Locations from the drop down.
    c. Item Name : Select the Item Name. The drop down will show the items for the selected Location(s). Required.
    d. Comment : Optional.
6. Click Create.



Related Items will appear in the Relationship sub tab.



To Delete Item Relationship :

1. Navigate to the Asset List page from the from the Change menu.
2. Double click the row for the Item you want to delete Relationship.
3. Click Relationship sub tab of Item.
4. Select one or more Relationships from the list.
5. Click Delete.

Note : To create and delete Item Relationship, you must have edit permission for the Project.

Note: Business Rules that depend on item relationships run for both items when an item relationship is added or deleted. If the relationships are modified from the item detail page of the item that displays the result of a rule, an item refresh will be required since this item is neither saved nor refreshed due to the change in relationship.

You can also create and delete Item Relationship using File Import /Export. Refer to the examples in the sample import template for Item.

Asset Audit Overview

The Asset Audit feature is designed to provide an easy way to perform Data Center Audits. Through the use of Bar Code scanning and Voice Response, audits can be completed quickly and efficiently by a single user. Upon completing the audit, a summary can be generated and exported for review. After verifying the changes suggested in the export, simply import this file back into dcTrack to make the actual updates, ensuring your dcTrack application always reflects the actual state of your Data Center.

Requirements

- For Bar Code scanning a 1D, 2D or combo 1D/2D scanner is required to be connected (wired or wireless) to the computer used for the audit

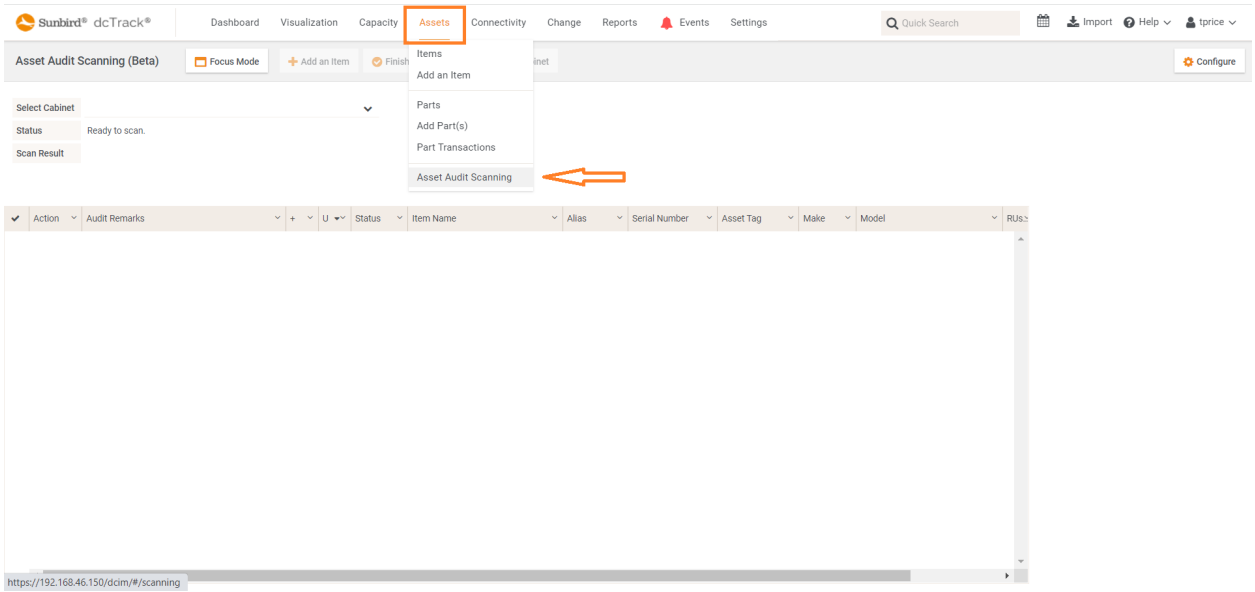
- If 2D codes (i.e. QR codes) are used the content of the QR code is expected to be a single value. QR codes containing multiple values are not supported.
- Supported Browsers for Text-To-Speech
    - Google Chrome (Windows, macOS)
    - Microsoft Edge (Windows, macOS)
- Audit Custom Fields. There are 5 Custom Fields that are updated during the Audit Process. These fields must exist prior to beginning your first Audit. If you do not create them prior to your first Audit, they will be created automatically the first time the Audit screen is accessed. When created automatically they are assigned to Cabinet, Data Panel, Device, Network, Probe and Rack PDU classes by default.
    - Audit Action - Type Text
    - Audit By - Type Text
    - Audit Date - Type Date
    - Audit Extra Notes - Type Text Area
    - Audit Remarks - Type Text Area

For additional information about the Asset Audit feature please refer to the following help topics:

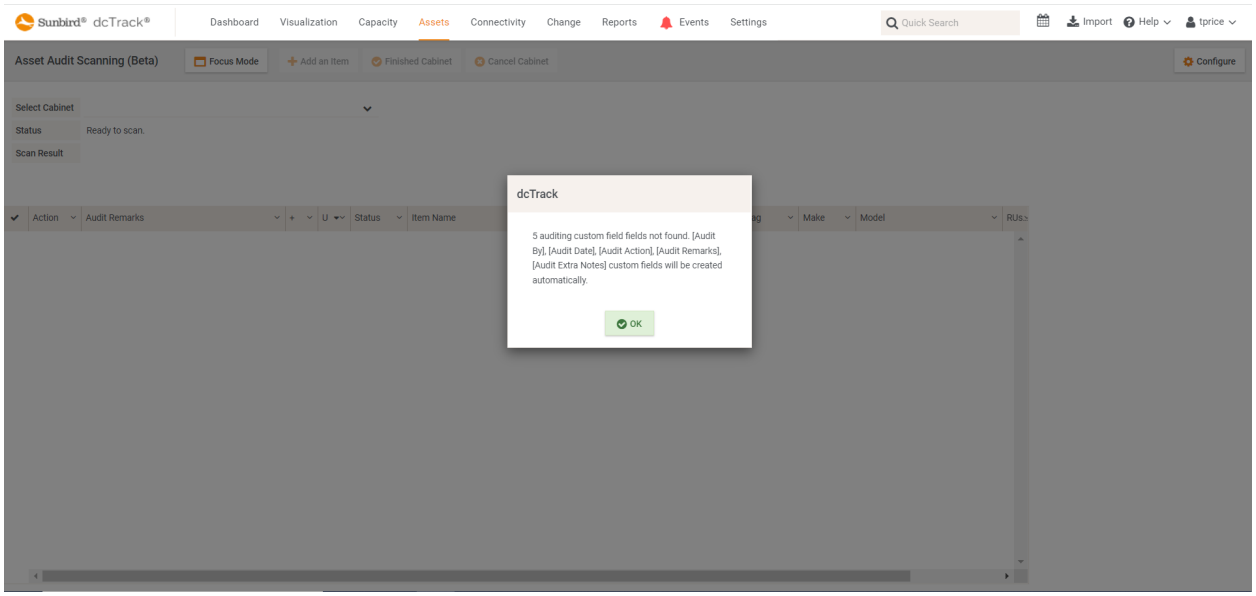
- Asset Audit Screen
- Asset Audit Configuration
- Performing an Audit Session
- Completing an Audit Session

Asset Audit Screen

To access the Asset Audit feature navigate to the Asset Audit Scanning page available from the Asset menu in the dcTrack header tool bar.

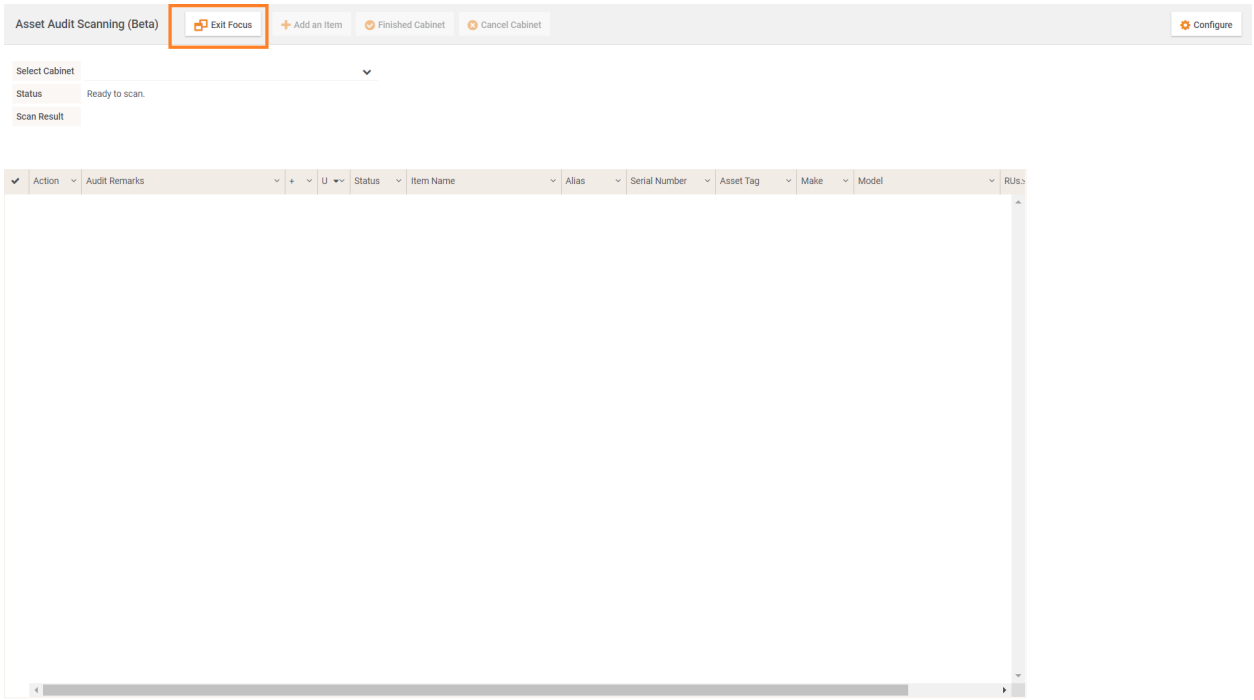


If this is the first time an Audit is being performed and you have not already created the required Custom Fields, you will see a message indicating the Custom Fields will be created automatically.



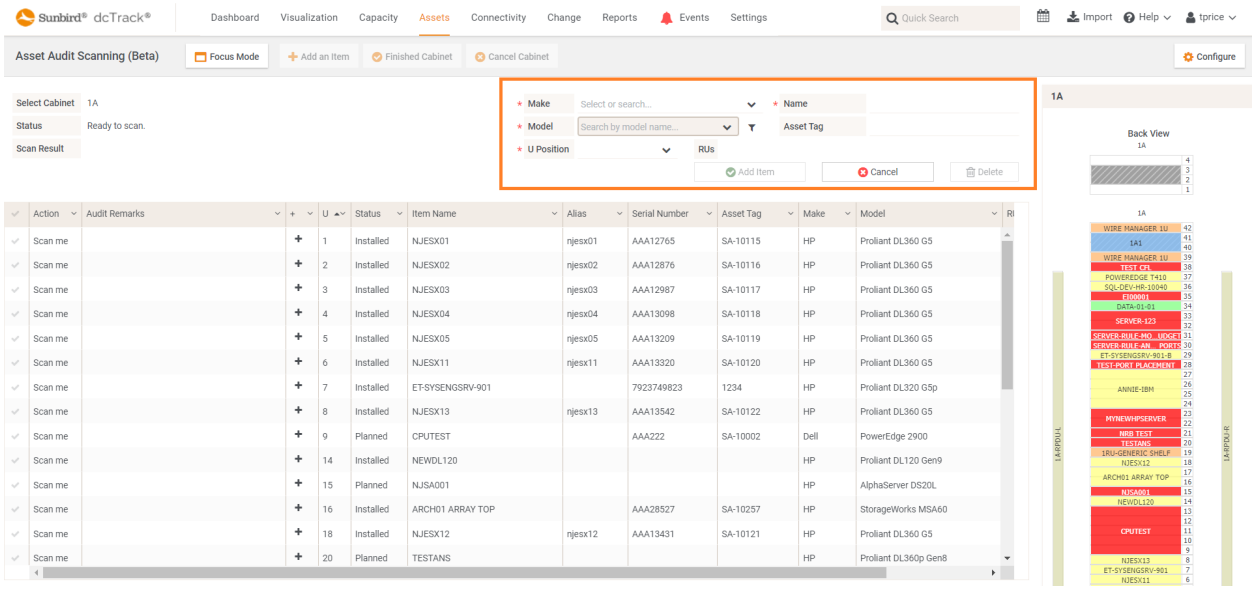
Users with any Role can access this feature. If you want to prevent Auditors from being able to make updates on any other screens, create a User or Group with the Global Viewer Role only, or to limit the User/Group to audits on only certain Locations, you can assign the User/Group the Viewer Role at the Location level for only the specific Locations they are allowed to access. If you are limiting Auditors to Viewer access only, you must also grant them specific Operator level Permissions on the Custom Fields required by the Audit. For details about setting permissions on Custom Fields please see Managing Permissions for Custom fields.

By default the Asset Audit page is displayed in normal view. To view the page in full screen mode, click the "Focus Mode" button in the Asset Audit Scanning tool bar. This will fill your screen with only the Asset Audit page (dcTrack header menu and browser elements will not be visible and the Focus Mode button will now be labeled "Exit Focus"). Performing your audit in Focus Mode is helpful in preventing the screen from accidentally losing focus resulting in the scanner input being directed to the wrong place. To exit Focus mode you can press the escape key or click the "Exit Focus" button.



After selecting a Cabinet, the following buttons become available on the tool bar:

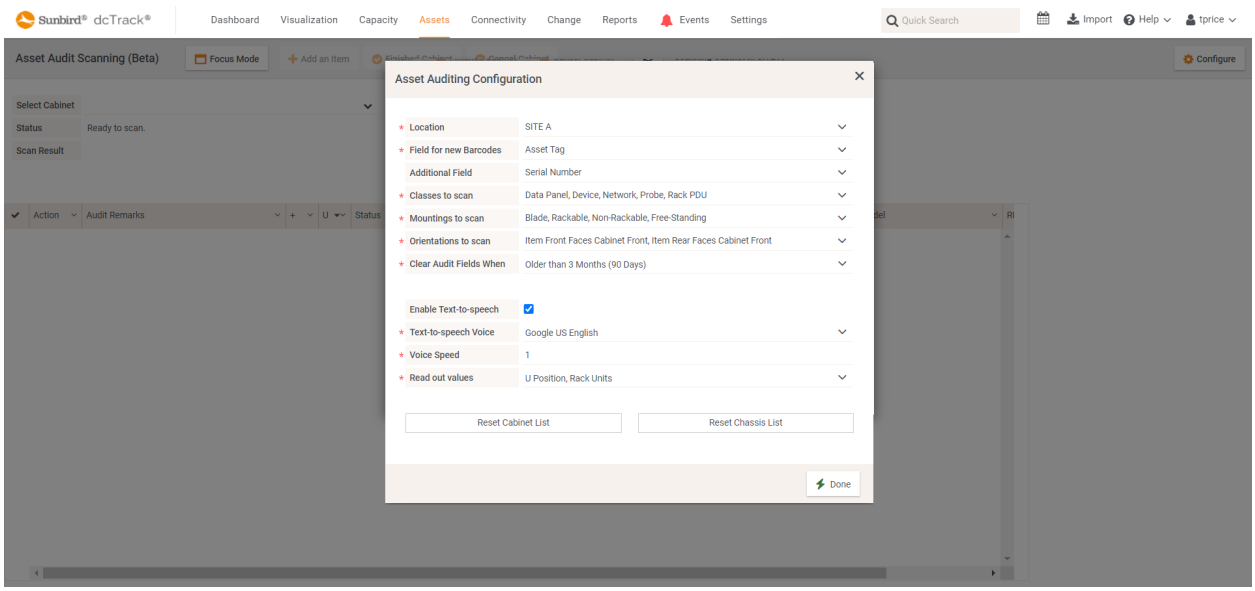
- Add an Item - Clicking this button will display the necessary fields to Add a new Item to the Cabinet



- Finished Cabinet - Click this button to complete the Audit for the selected Cabinet
- Cancel Cabinet - Click this button to cancel the Audit for the selected Cabinet which will erase all previously scanned information for the selected Cabinet.

Asset Audit Configuration

To Configure your Audit Session, click the "Configure" button in the Asset Audit Scanning tool bar. This will open a dialog box allowing you to define your preferences for the audit session. Once saved, the configuration settings are retained for future Audits.



- **Location** - This field is a single-select drop down list of all your dcTrack Locations that "Can Contain Assets". By default the selected Location is set to the Users Default Location. If the user performing the Audit was given access to only certain Locations, the drop down will be populated with those Locations only. Select the Location of the Cabinet you want to Audit. Only a single Location can be selected at a time.
- **Field for new Barcodes** - This field is a single-select drop down list of all dcTrack Standard and Custom Fields whose Type is "Text". This is the field the scanned barcode will be inserted into when a new Item is added. By default the selected field is set to "Asset Tag". Only a single field can be selected.
- **Additional Field** - This field is a single-select drop down list of additional fields that can be included when adding a new item as part of the Audit.
- **Classes to scan** - This field is a multi-select drop down list populated with the 5 classes that would be found inside a cabinet. (Device, Network, Probe, Data Panel, Rack PDU). When searching for Items in a Cabinet, only Items from the selected Classes will be returned. By default all 5 Classes are selected.
- **Mountings to Scan** - This field is a multi-select drop down list populated with the currently supported Mountings (Rackable, Non-Rackable). When searching for items, only the items with the selected mountings will be returned. By default both Mountings are selected. Note, additional Mountings will be added in future releases.
- **Orientations to Scan** - This field is a multi-select drop down list populated with the currently supported Orientations (Item Front Faces Cabinet, Item Read Faces Cabinet). When searching for items, only the items with the selected Orientations will be returned. By default both Orientations are selected.
- **Clear Audit Fields** - This field is a single-select drop down list populated with 7 aging options. This value determines when an existing value in the Audit Action custom field for an item can be

cleared because it is assumed that this is not from the current Audit effort. By default the "Older than 3 Months (90 days)" option is selected.

- **Enable Text-to-speech** - Check box field that controls whether dcTrack will read out the responses to the scans via the computer's speakers.
- **Text-to-speech Voice** - This single-select drop down is populated with the different voices/languages that are supported by the browser. This list will vary from browser to browser. When a voice option is changed, the new selection name will be heard. The default voice will be either "Google UK English Female" or "Microsoft Aria Online (Natural) - English (United States) depending on the browser used. This field is disabled if "Enable Text-to-speech" is not selected.

  Please Note: In the current release, the spoken text is not translated to the languages that dcTrack supports. This option will be available in a future release.

- **Voice Speed** -Enter a number between 0.5 and 1.5 to set the speed of the selected Voice. When the value is changed, the selected Voice is heard at the new speed. By default a speed of 1 is set. This field is disabled if "Enable Text-to-speech" is not selected.
- **Read out values** - This field is a single-select drop down list populated with combinations of the fields Make, Model, U Position, Rack Units and Status. This controls what is spoken when an item is found after a scan. By default "U Position, Rack Units" is selected. This field is disabled if "Enable Text-to-speech" is not selected.

Clicking "Done" or the X buttons, will close the dialog. All changes made are automatically retained for the duration of the user session in dcTrack. These settings will return to their defaults the next time the user logs in.

Performing an Asset Audit

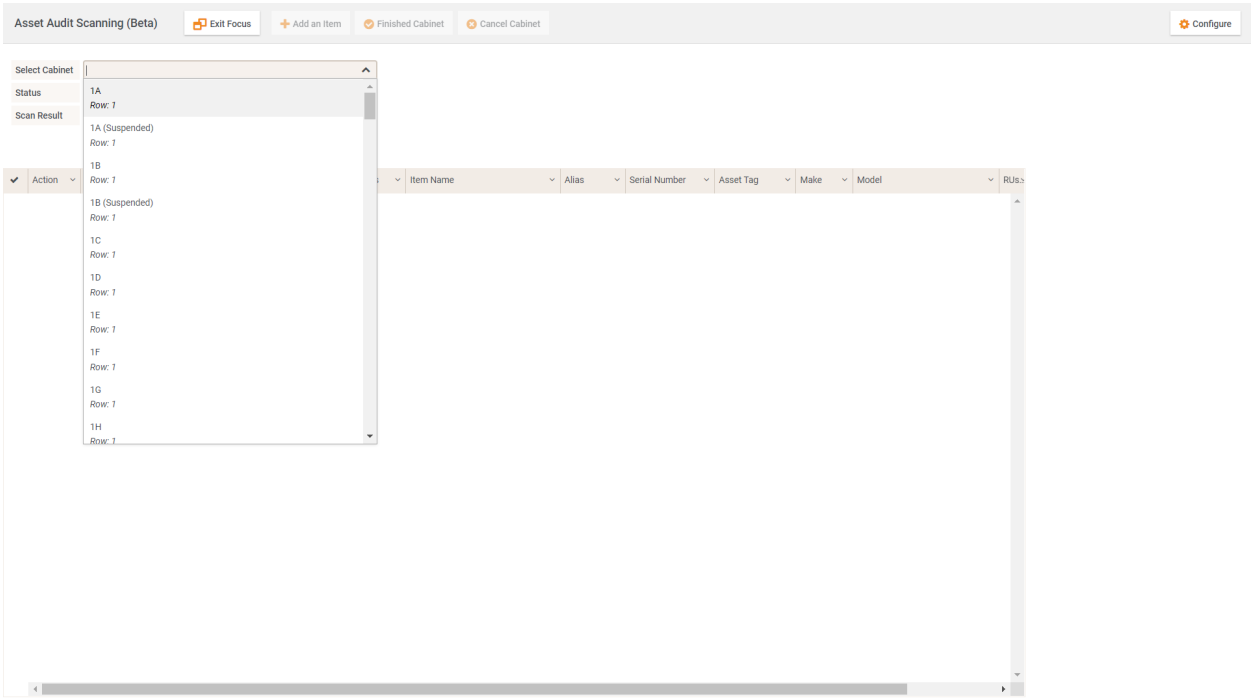
Once you have completed the configuration process, you are ready to begin the Audit. Previously set configurations will remain in effect until either changed by the User, or until the User logs out which will end the current session. During the Audit process users may navigate away from the Audit page and return to pick up where they left off.

Steps to perform an Audit:

Select a Cabinet

1. Select the Cabinet to be audited. You can either type the cabinet name into the Cabinet field, select the cabinet from the drop down list of cabinets or if the cabinet has a barcode you can scan the barcode to select the cabinet.

   Note, if the cabinet selector is bank, any scan input that does not contain special start/end characters will be interpreted as the barcode of a cabinet. This code will be used to search for a cabinet within the selected location. Additionally, scanning input will be ignored while the Select Cabinet drop down is open. Any keyboard strokes will be directed to selecting an option from the Cabinet drop down.

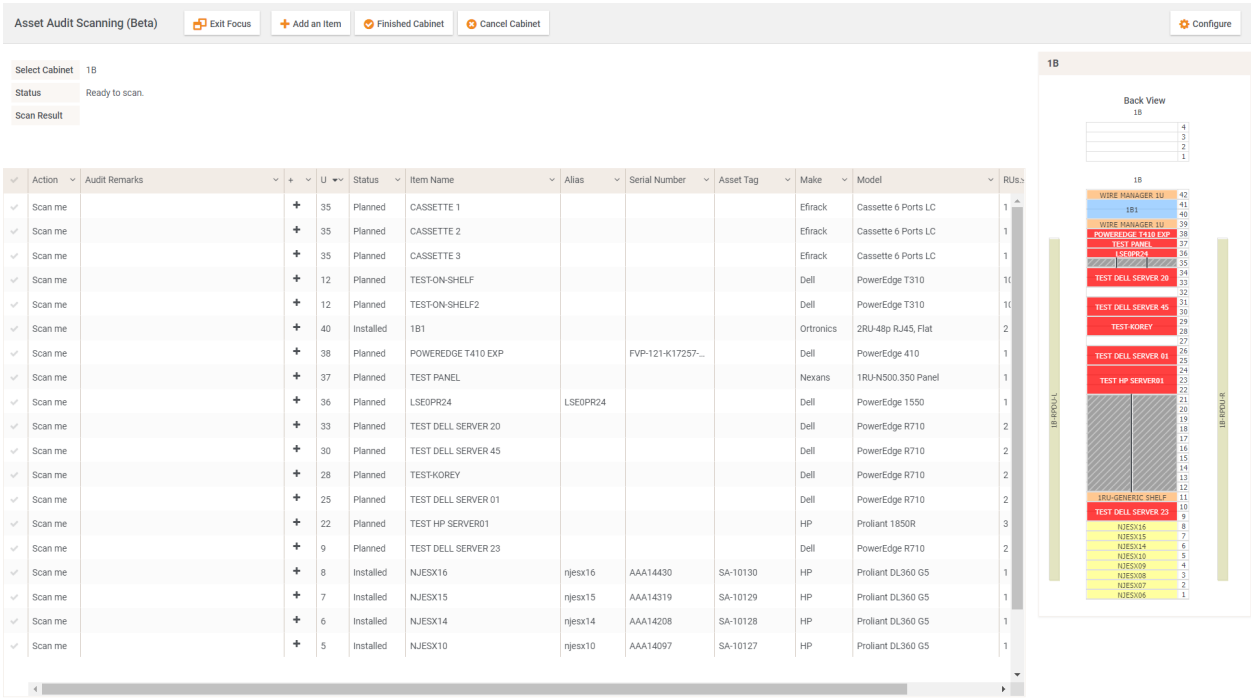


2. When a code is received, a barcode image is displayed and the Status field displays the text "Received from scanner: ABC" where "ABC" is the received code.

   Note, the supplied code will be searched for an exact match (surrounded by double quotes) against multiple fields within dcTrack, similar to searching using the Quick Search feature in the dcTrack header. This search will only consider Items of Class Cabinet in either the Planned, Installed, or Storage status.

3. If no cabinet is found, "Cabinet not found" is spoken indicating the system is ready to receive a new scan input and the Status field will display "Ready to scan."

4. If a cabinet is found, the cabinet will be selected in the drop down, the Cabinet field will become read-only, the cabinet elevation is displayed, and the grid is populated with all of the Items contained in the cabinet.



5. If you wish to cancel processing for the current cabinet click the "Cancel" button in the tool bar. This will erase all previously scanned information for the selected Cabinet.
6. If you have finished the Audit for the Cabinet, click the "Finished Cabinet" button in the tool bar.

Scan an Item in the Cabinet (Item Found in Cabinet)

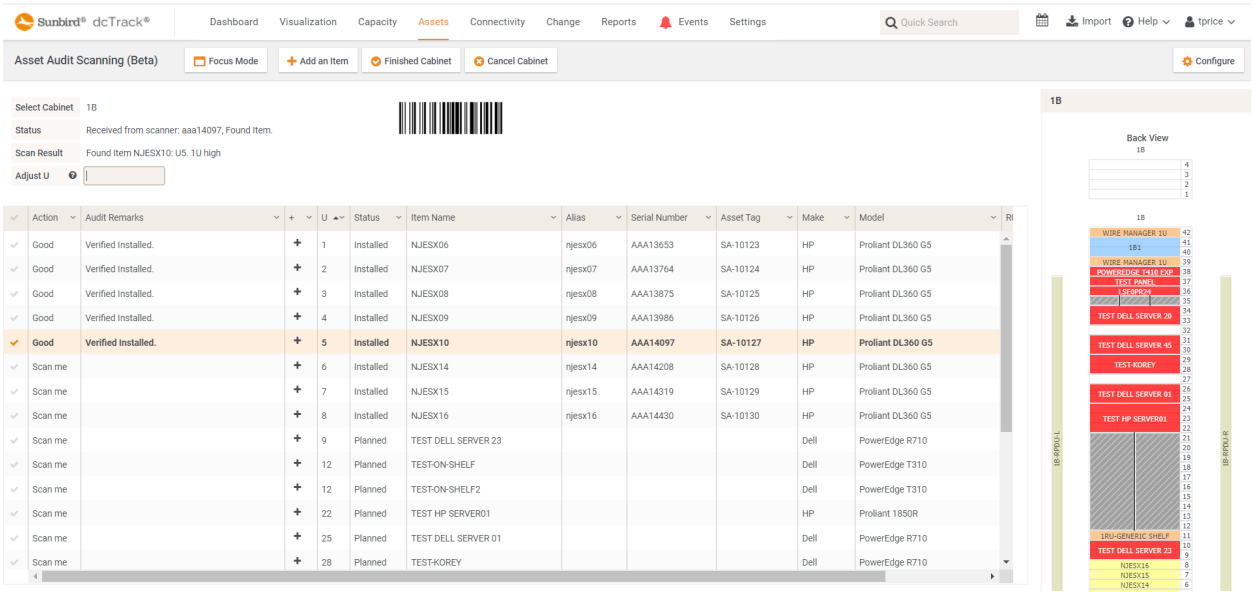
1. Scan an Item in the cabinet. Items can be scanned in any order, top-to-bottom, bottom-to-top or randomly (random is not recommended as Items could be easily missed).

   Note, if you are not using a scanner or a barcode is damaged and unable to be scanned, simply type in the text you want dcTrack to search on and hit Enter. You do not need to reposition your cursor, dcTrack will automatically direct the input to the appropriate field.

2. If the Item is found:
   - The Status field displays: "Received from scanner: xxxxxx, Found Item", where xxxxx is the scanned code.
   - The image of the barcode is displayed.
   - The Scan Result field will become green and display "Found Item <item name>: U <u position>. <x> U high". where x is the height of the item in rack units (the Scan Result field green background will disappear after a few seconds).
   - The voice will speak the details of the found item based on what was selected in the configure dialog for the read out fields.
   - The Adjust U input field will appear and be editable.

- The cabinet elevation will show the green arrows on either side of this item
- The row in the grid for this item will be selected.
- If the Item's Status is "Installed", the Audit Action column for this item will display the text "Good" and the Audit Remarks column for this item will display the text "Verified Installed.
- If the item status is other than installed, the Audit Action column for this item will display the text "Update" and the Audit Remarks for this item will display the text "Status to Installed".

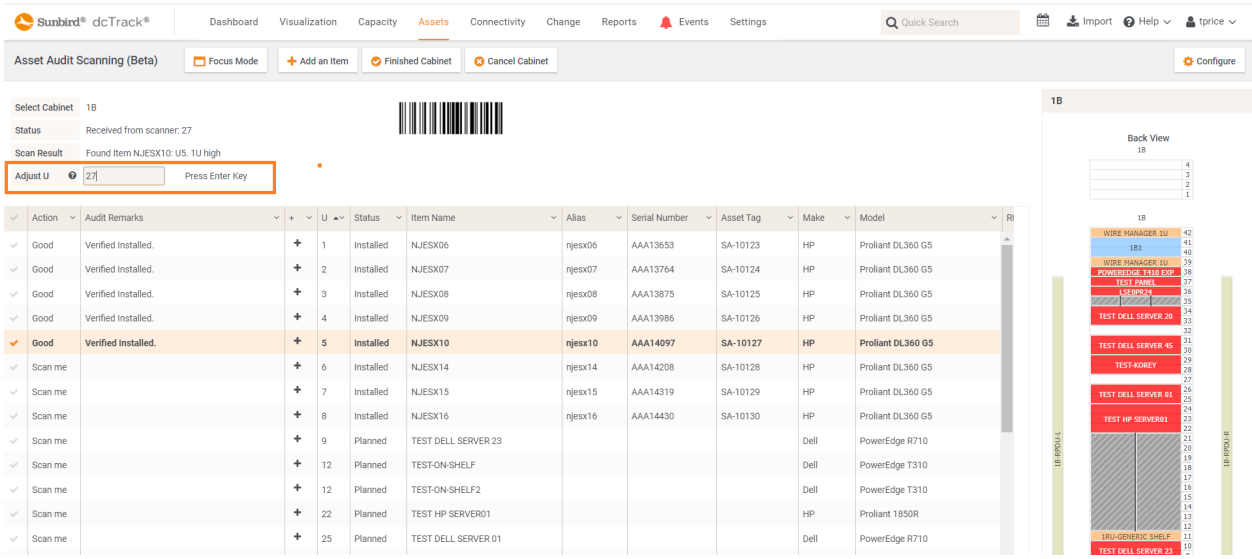
3. If the information for the Item is correct, you may move on to scan the next Item in the cabinet.



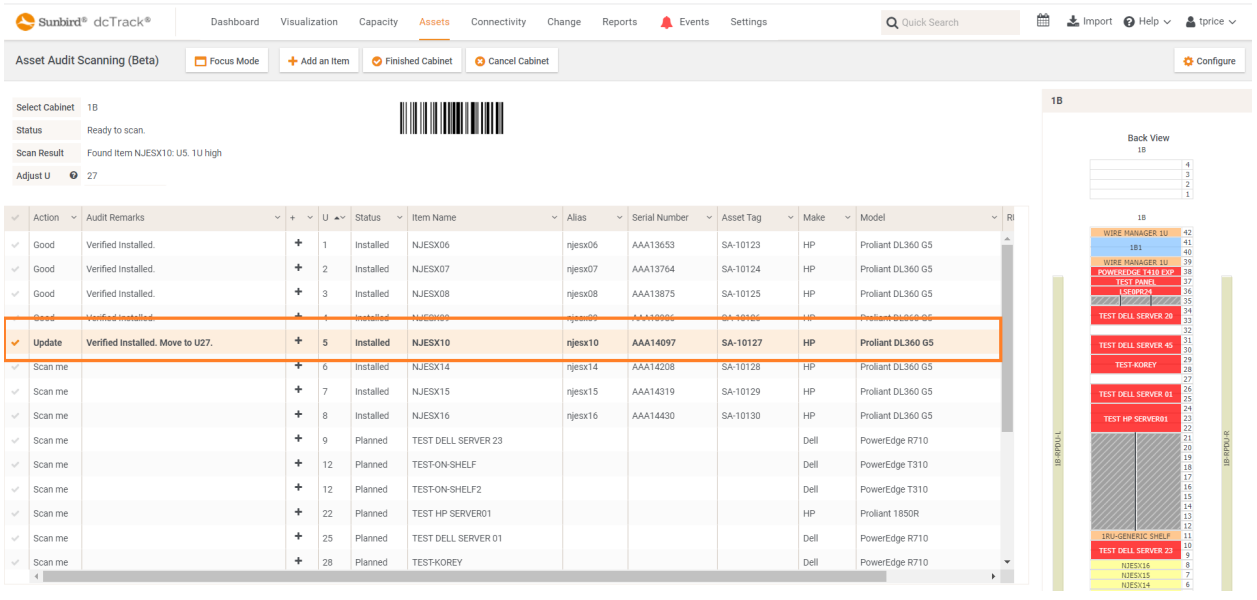
4. If the current U position in dcTrack is not the same as the Items actual location in the cabinet, use the keyboard to correct the U Position or scan one of two barcodes sequentially on the BarCode responses sheet to indicate the U position.

- The barcodes on the sheet use sepcial start/end charecters. This sheet can be printed and carried with you during the audit
- The Word doc contains two columns of barcodes. On the left are 5 barcodes. Scanning one of these codes, indicate that you want to scan a two digit U Position. Therefore, the next scan is expected to be the second digit of the number. The voice will say "tens" or "twenties", etc.
- If the u position is 9 or lower, scan a barcode from the code on the right.
- If you select a U Position that is not available, dcTrack will speak the message "U <xx> is not available".

- Note, scanning the U Position values is repeatable without causing issues. You can scan the first digit code over and over. Only the last code scanned will be used. Once the second digit scanned is recieved, re-scanning the second digit code again will change the u position to a single digit number.



5. When the U position value is received the voice will say "Moved to U Position xx"
6. "Move to Uxx." is appended to the Audit Remarks for this item and the Audit Action column for this item will display the text "Update".



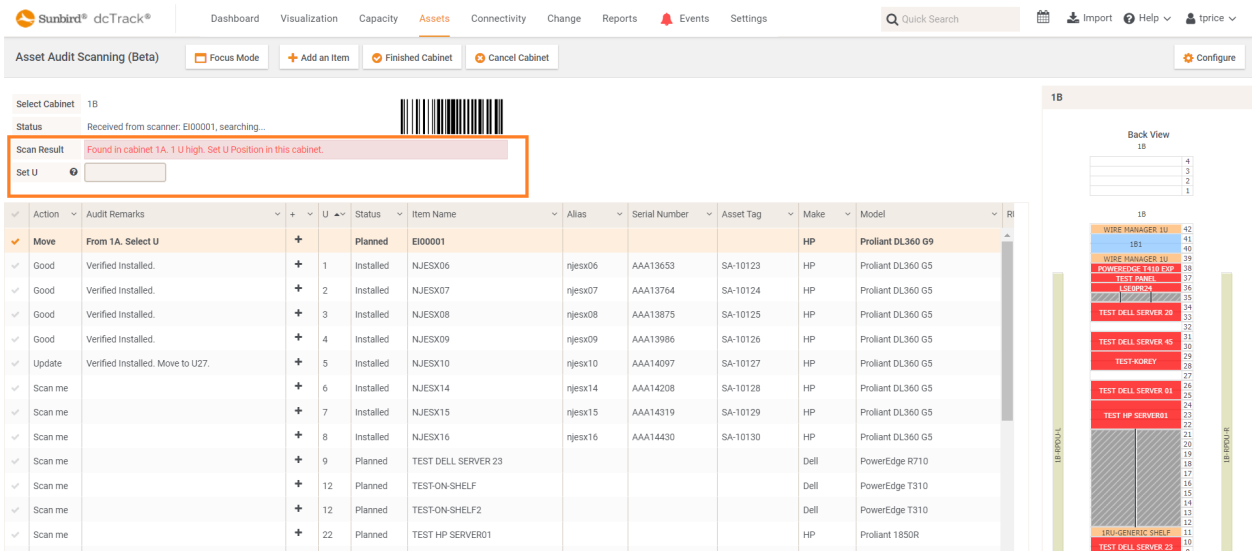
7. You can now move on to scan the next Item in the Cabinet.

Scan an Item in the Cabinet (Item Found in a different Cabinet)

1. Scan an Item in the cabinet. Items can be scanned in any order, top-to-bottom, bottom-to-top or randomly (random is not recommended as Items could be easily missed).

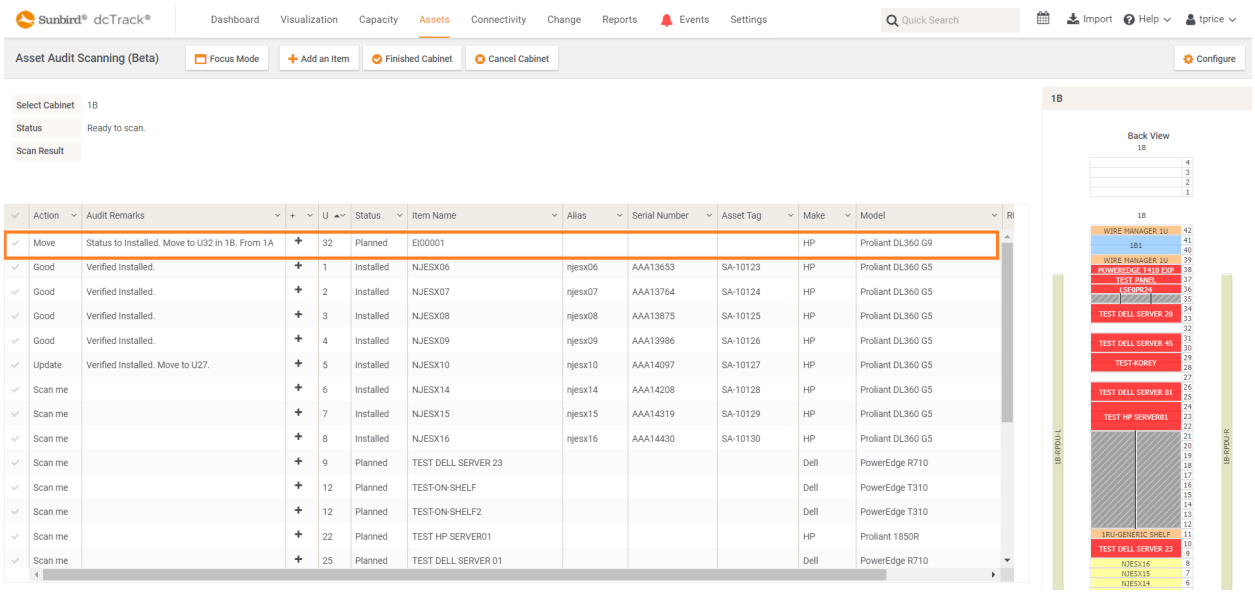
   Note, if you are not using a scanner or a barcode is damaged and unable to be scanned, simply type in the text you want dcTrack to search on and hit Enter. You do not need to reposition your cursor, dcTrack will automatically direct the input to the appropriate field.

2. If the Item is found but located in a different Cabinet:
   - The Status field displays: "Received from scanner: xxxxxx, searching..."
   - The image of the barcode is displayed.
   - The Scan Result field will become red and display "Found in Cabinet <cabinet name>: <x> U high. Set U Position in this cabinet". (the Scan Result field red background will disappear after a few seconds).
   - The voice will speak the text in the Scan Result field.
   - The Set U input field will appear and be editable.
   -



3. Use the keyboard to set the U Position or scan one of two barcodes sequentially on the BarCode responses sheet to indicate the U position.
   - If you select a U Position that is not available, dcTrack will speak the message "U <xx> is not available".
4. The item will be added to grid and selected.
5. If the item status is installed, the Audit Remarks field for this item will display the text "Verified Installed".
6. If the item status is other than installed, the Audit Remarks for this item will display the text "Status to Installed".

7. The Remarks field is then appended with "Move to U<xx> in <Cabinet name>. From <Cabinet name>.
8. The Audit Action will be set to "Move".



9. You can now move on to scan the next Item in the Cabinet.

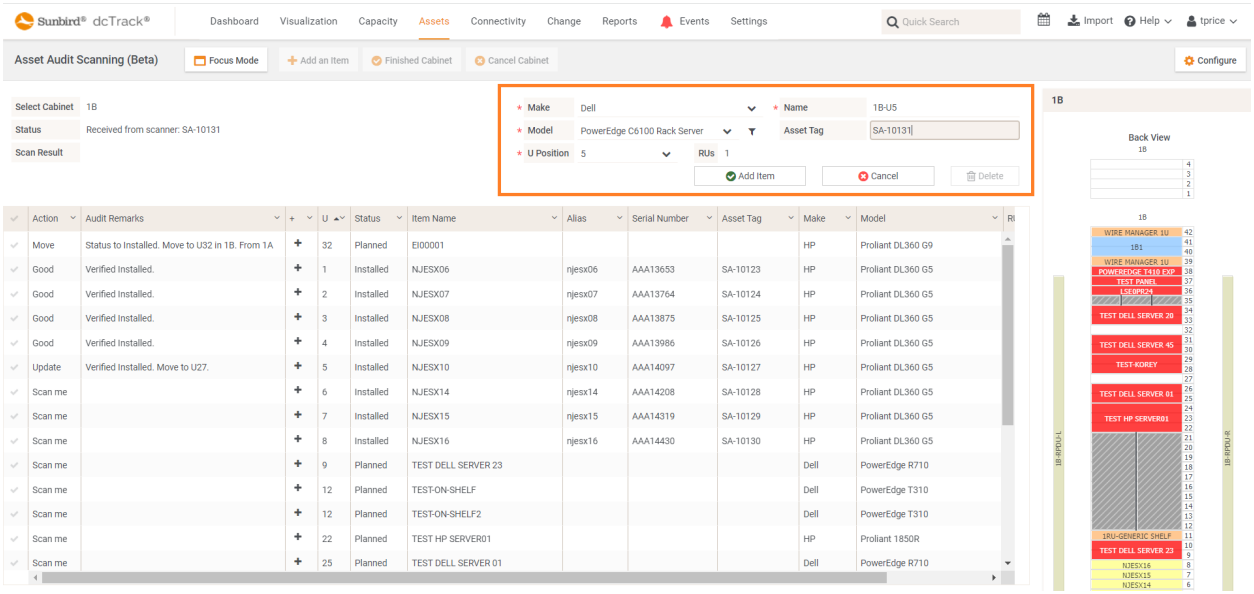
Scan an Item in the Cabinet (Item Not Found in dcTrack)

1. Scan an Item in the cabinet. Items can be scanned in any order, top-to-bottom, bottom-to-top or randomly (random is not recommended as Items could be easily missed).

   Note, if you are not using a scanner or a barcode is damaged and unable to be scanned, simply type in the text you want dcTrack to search on and hit Enter. You do not need to reposition your cursor, dcTrack will automatically direct the input to the appropriate field

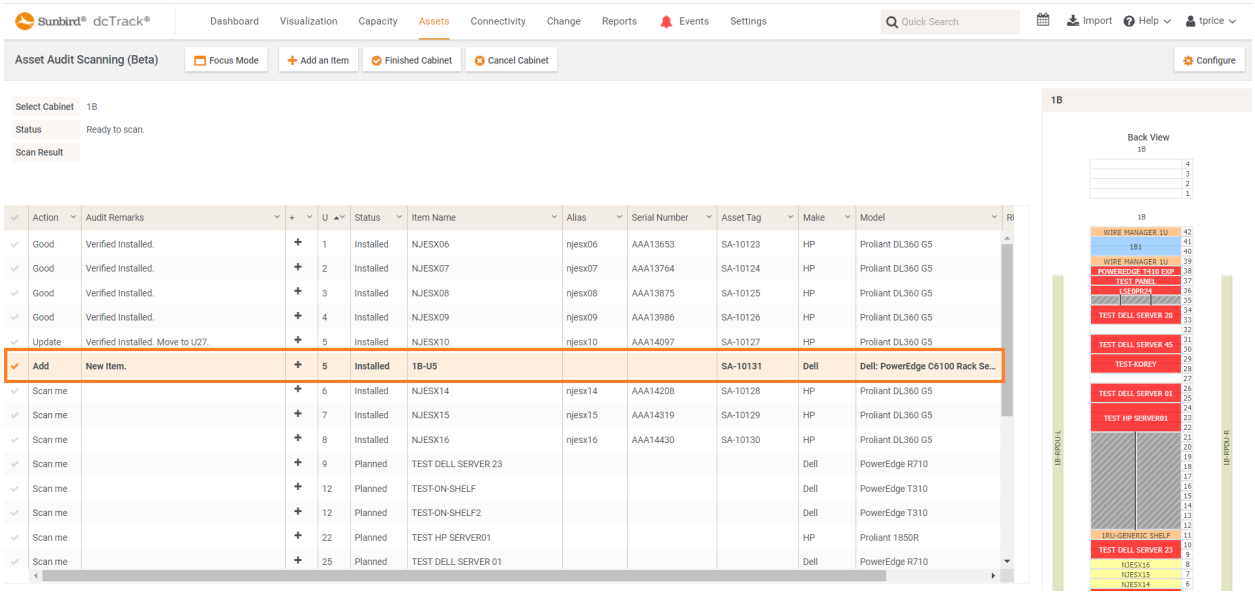
2. If the Item is not found in dcTrack:
   - Status field displays: "Enter or Scan details."
   - The image of the barcode is displayed.
   - The Scan Result field will become red and display"Item not found for code <code scanned>" (the Scan Result field red background will disappear after a few seconds).
   - The voice will speak "Item not found. Enter or scan details"
   - The Add an item fields are displayed.
     - **Make** - Enter the Make of the Item to be added
     - **Model** - Enter the Model of the Item to be added

- **U Position** - Enter the U Position the Item was found at. You may use the BarCode responses sheet to enter the U Position.
- **RUs** - Read only field populated with the RU height of the selected Model.
- **Name** - dcTrack will automatically populate the Name field using a combination of the Cabinet Name and UPosition (<cabinet>-<Uposition>). You can overwrite the pre-populated name by simply typing in the Name field.
- **Scan Field** - The final field is based on your Configuration setting. The label will display the name of the field you selected to receive scanned barcodes.



- While the Add form is displayed, any scanner input is directed to the location of the cursor in any of the Add Item fields.

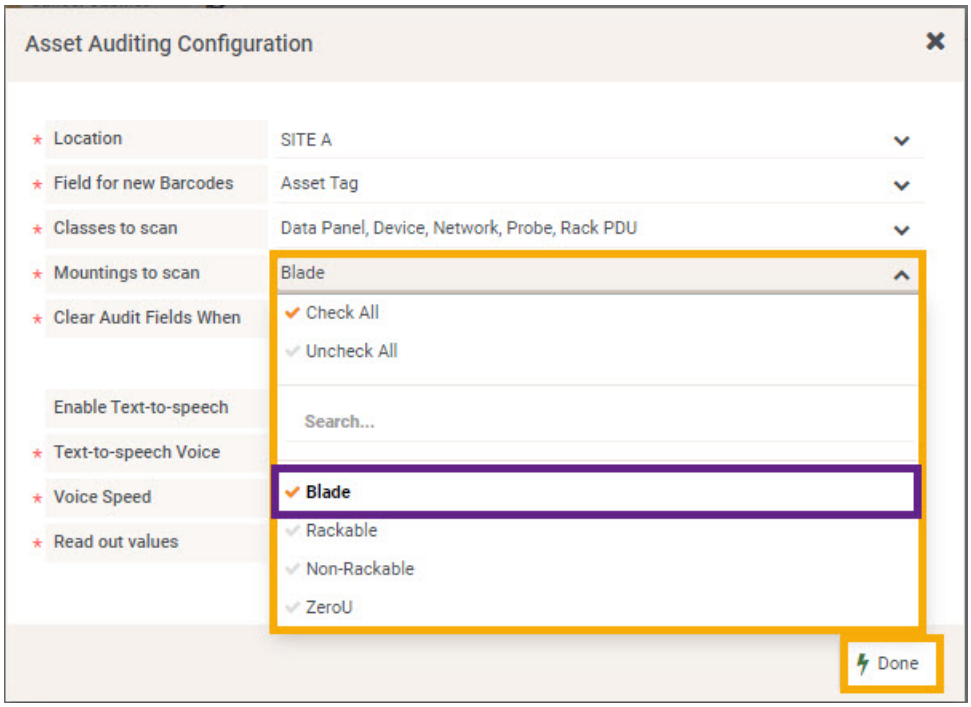
3. Once all of the Add Item fields are supplied, click the "Add Item" button to add the Item.
4. The new Item is added to the grid with an Audit Action of "Add" and the "Audit Remarks" set to "New Item".



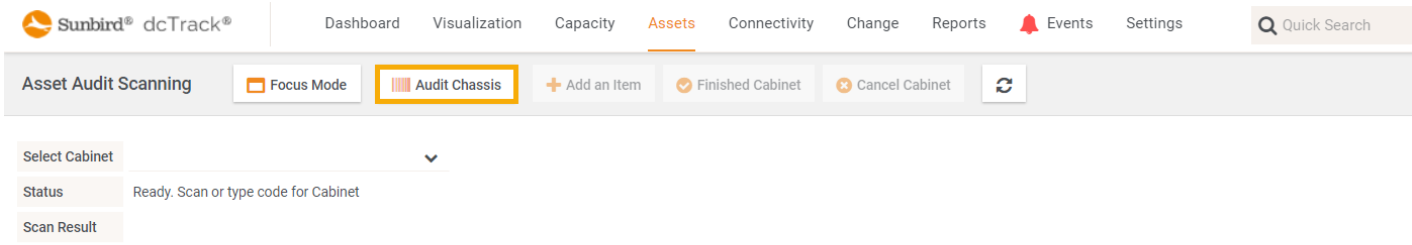
5. You can now move on to scan the next Item in the Cabinet.

Scan Blades

1. In the Asset Auditing Configuration dialog, select Blade in the Mountings dropdown, then click the Done button.

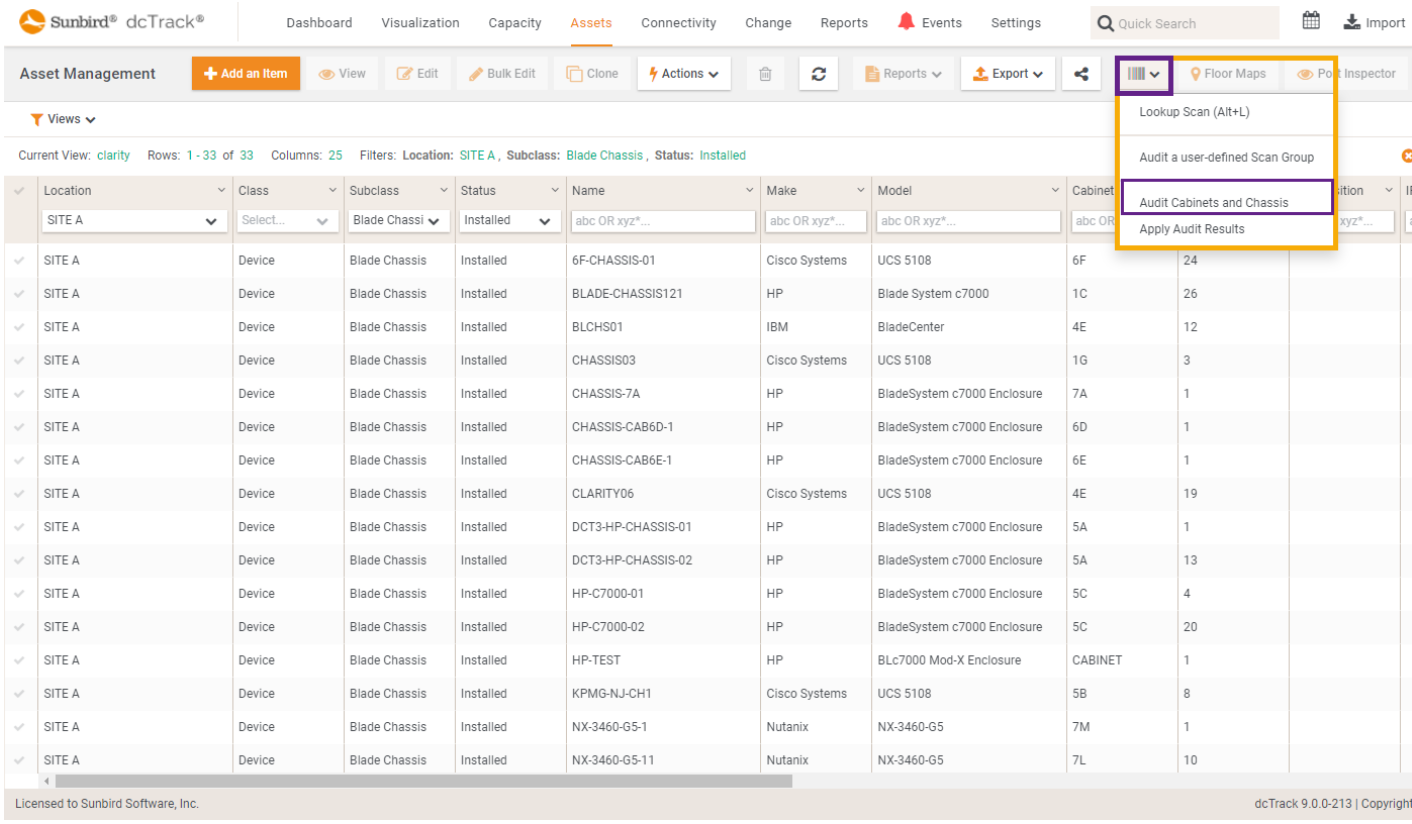


2. A new Audit Chassis button appears in the toolbar. You can click the Audit Chassis button at any time to enable you to scan blades. Clicking the Audit Chassis button updates the Asset Audit Scanning screen for scanning blades.



Note: If a chassis row is selected in the Items list when you click the Audit Chassis button, the Select a Chassis drop-down in the Asset Audit Scanning screen is populated with the selected chassis. If the Scan Blades button is clicked without a chassis selected in the Items list, the Select a Chassis dropdown will be blank and editable, listing all chassis in the selected cabinet. If the Audit Chassis button is clicked without a cabinet selected, the Select a Chassis dropdown will be blank and editable, listing all chassis in the location.

3. Alternatively, click the Barcode button in the toolbar on the Items List and select the Audit Cabinets and Chassis option.


Sunbird® dcTrack®
Dashboard Visualization Capacity Assets Connectivity Change Reports Events Settings
Quick Search
Import
Asset Management
Add an Item
View
Edit
Bulk Edit
Clone
Actions
Reports
Export
Floor Maps
Lookup Scan (Alt+L)
Audit a user-defined Scan Group
Audit Cabinets and Chassis
Apply Audit Results
Views
Current View: clarity Rows: 1 - 33 of 33 Columns: 25 Filters: Location: SITE A , Subclass: Blade Chassis , Status: Installed
Location Class Subclass Status Name Make Model Cabinet
SITE A Select... Blade Chassi Installed abc OR xyz*... abc OR xyz*... abc OR xyz*... abc OR
SITE A Device Blade Chassis Installed 6F-CHASSIS-01 Cisco Systems UCS 5108 6F 24
SITE A Device Blade Chassis Installed BLADE-CHASSIS121 HP Blade System c7000 1C 26
SITE A Device Blade Chassis Installed BLCHS01 IBM BladeCenter 4E 12
SITE A Device Blade Chassis Installed CHASSIS03 Cisco Systems UCS 5108 1G 3
SITE A Device Blade Chassis Installed CHASSIS-7A HP BladeSystem c7000 Enclosure 7A 1
SITE A Device Blade Chassis Installed CHASSIS-CAB6D-1 HP BladeSystem c7000 Enclosure 6D 1
SITE A Device Blade Chassis Installed CHASSIS-CAB6E-1 HP BladeSystem c7000 Enclosure 6E 1
SITE A Device Blade Chassis Installed CLARITY06 Cisco Systems UCS 5108 4E 19
SITE A Device Blade Chassis Installed DCT3-HP-CHASSIS-01 HP BladeSystem c7000 Enclosure 5A 1
SITE A Device Blade Chassis Installed DCT3-HP-CHASSIS-02 HP BladeSystem c7000 Enclosure 5A 13
SITE A Device Blade Chassis Installed HP-C7000-01 HP BladeSystem c7000 Enclosure 5C 4
SITE A Device Blade Chassis Installed HP-C7000-02 HP BladeSystem c7000 Enclosure 5C 20
SITE A Device Blade Chassis Installed HP-TEST HP BLc7000 Mod-X Enclosure CABINET 1
SITE A Device Blade Chassis Installed KPMG-NJ-CH1 Cisco Systems UCS 5108 5B 8
SITE A Device Blade Chassis Installed NX-3460-G5-1 Nutanix NX-3460-G5 7M 1
SITE A Device Blade Chassis Installed NX-3460-G5-11 Nutanix NX-3460-G5 7L 10
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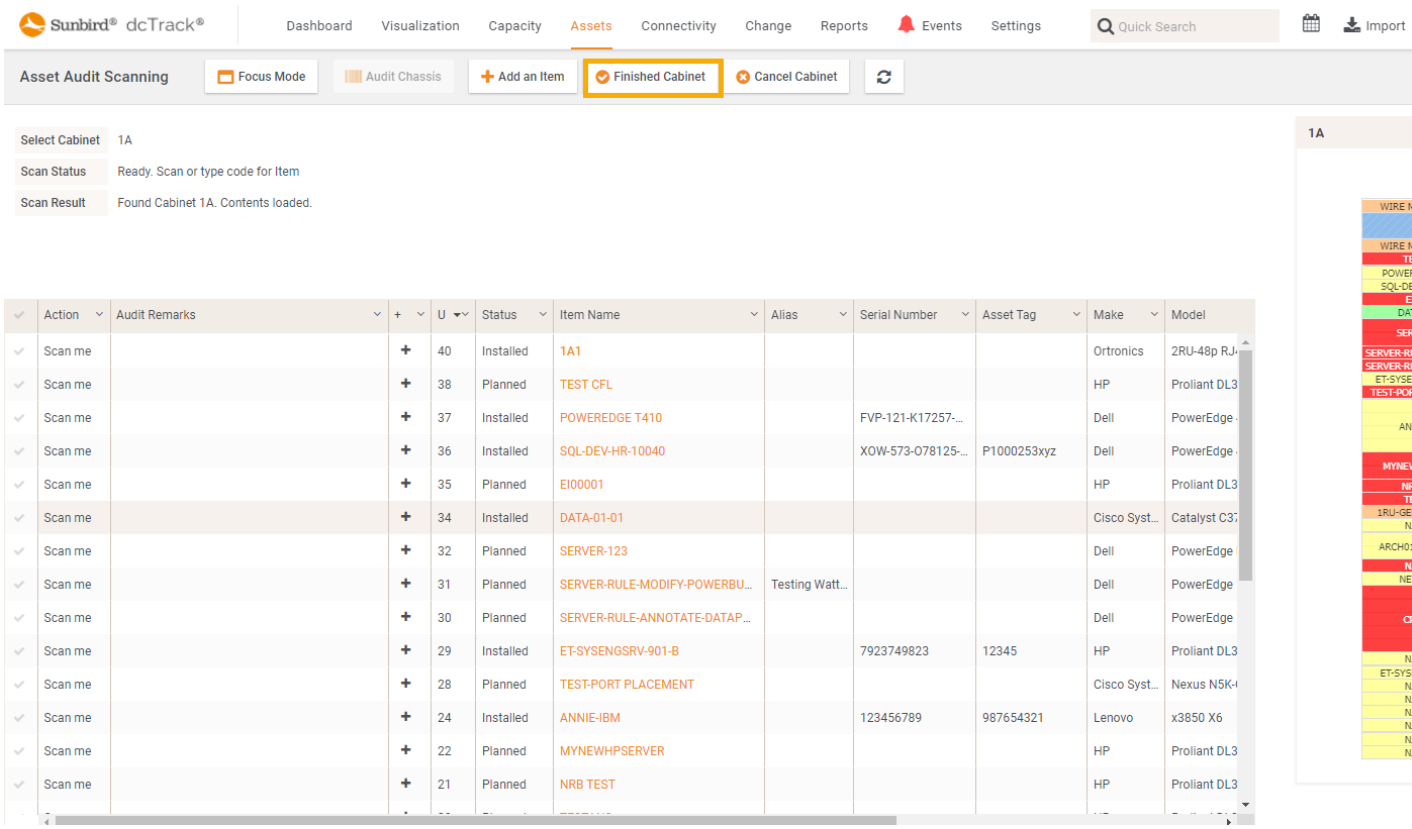
dcTrack 9.0.0-213 | Copyright

4. To finish the chassis, click the Finished Chassis button.



Note: When you click the Finished Chassis button, any unscanned blades in the chassis are marked for removal and the screen returns to the Cabinet Scanning view as it was before entering blade scanning mode (the previously selected cabinet is still selected, its items are in the list, the chassis that was selected is still selected, and all audit actions, remarks, and extra notes are intact.

Scan Zero-U Mounted Items

1. In the Asset Audit Configuration dialog, select Zero-U mounting in the Mountings dropdown, then click the Done button.
2. After you select a cabinet containing Zero-U items, the Zero-U items display in the items grid. The Rails Used column also becomes the Rails/Side column. A new Orientation/Depth column displays in the grid and displays the Orientation for a Rackable item and the Depth Position for a Zero-U item.
3. When a scanned barcode matches a Zero-U item in the cabinet, the voice response also provides the cabinet side and the depth position.
4. After a scanned Zero-U item is found, you can adjust its U position, cabinet side and depth position. When scanning the cabinet is finished and a Zero-U item was not scanned, it is marked for removal.

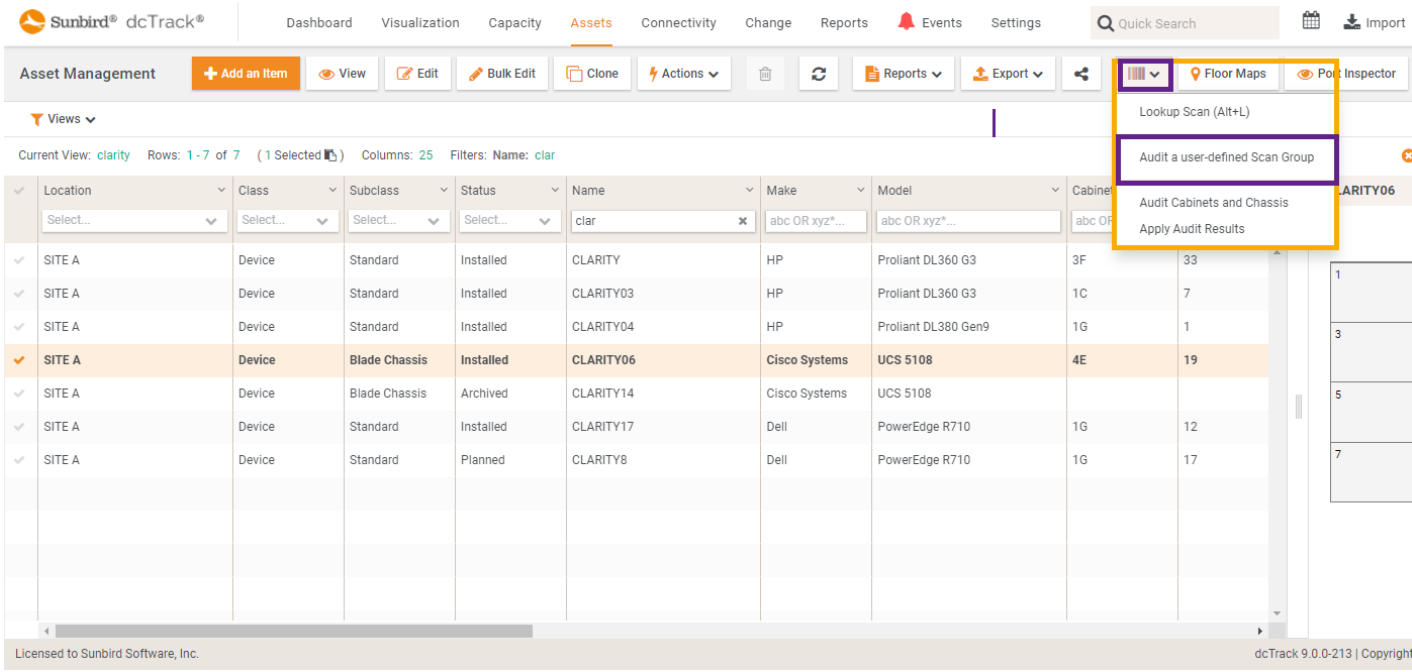
5. When scanning the cabinet is finished and a Zero-U item was not scanned, it is marked for Remove.

Scan Items That Are Not in a Cabinet

dcTrack enables you to scan items that are not in cabinets, such as free-standing items and items on a pallet or a shelf in a storage room. This feature requires you to have a permission level that allows you to add new items and edit existing items. (e.g., Global Operator or Operator in a location.).

To use this feature, you first need to create a Scan Group of all the items that you want to scan to verify that the items in the group in dcTrack are the same items that physically exist in your location and that the number of items is the same.

1. Create a scan group:
    a. Filter the items list by one location.
    b. Then filter the list by a field that all the items have in common, such as a custom field
2. Click the Barcode button in the toolbar.



3. Select the Audit a user-defined Scan Group option
4. If you select the Audit a user-defined group option without first creating a scan group. dcTrack displays a prompt with instructions for how to use the feature.
5. If you scan an item that is not found, dcTrack allows you to add a new item with the following information:

- Make
- Mode
- Item name

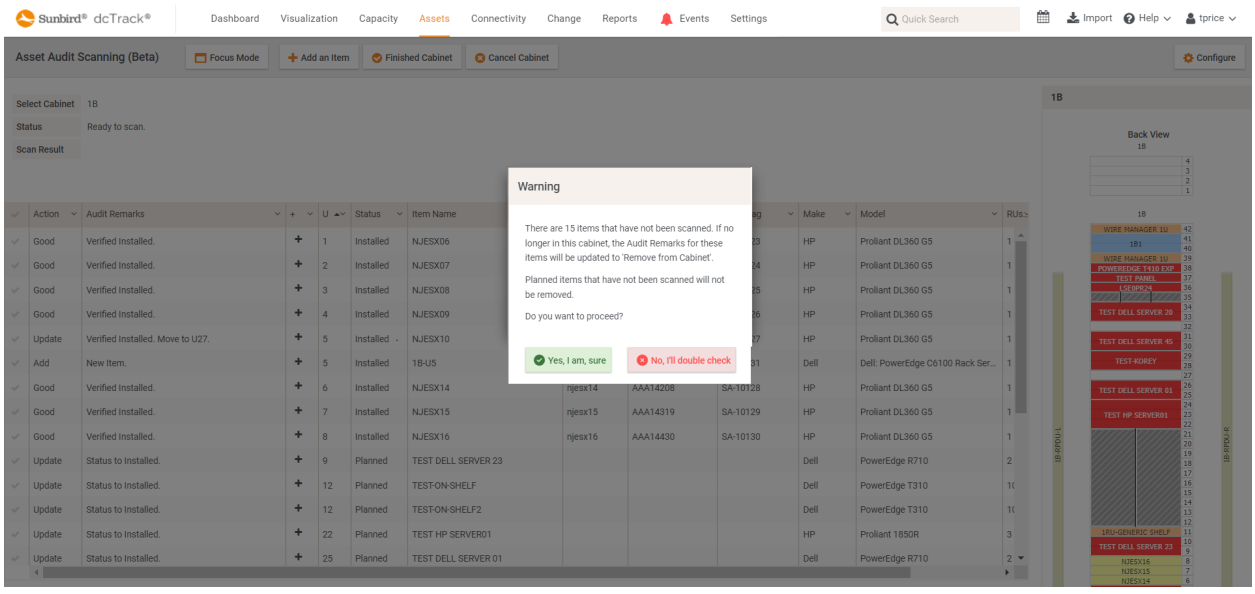
6. The new Item will be added to the scan group item list
7. When all Items in the group have been scanned, click the Finish group button to finish the group. To cancel the group, click the Cancel group button.

Completing an Audit Session

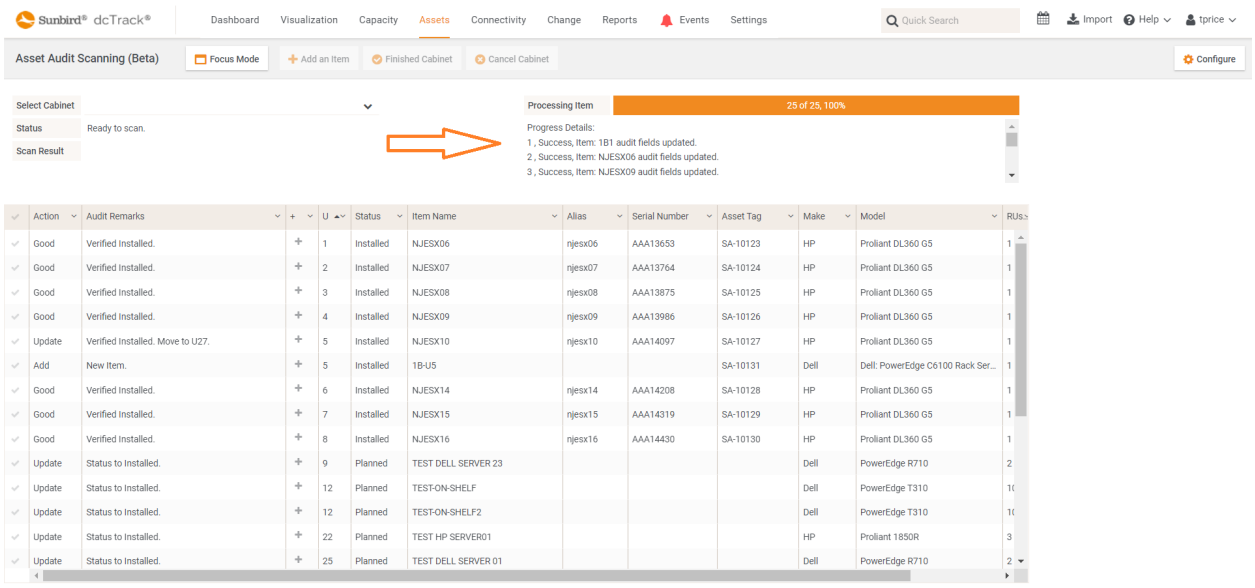
Once you have scanned all of the Items in the Cabinet, you are ready to complete the scanning session for the Cabinet. If instead you would like to cancel the audit, you can select the "Cancel Cabinet" button in the tool bar. You can cancel the Cabinet at any time during the audit session, however please note, canceling the cabinet will erase any previously scanned information for the selected Cabinet.

Steps to Complete an Audit:

1. To complete the Audit session click the "Finished Cabinet" button in the tool bar.
2. If there are Items in the dcTrack Cabinet that have not been scanned, you will receive a message indicating if you proceed, the Item's Audit Remarks will be updated to "Remove from Cabinet". You may chose to continue by clicking "Yes, I am sure", or return to the audit session by clicking "No, I'll double check". Planned Items that have not been scanned will not be removed from the cabinet.



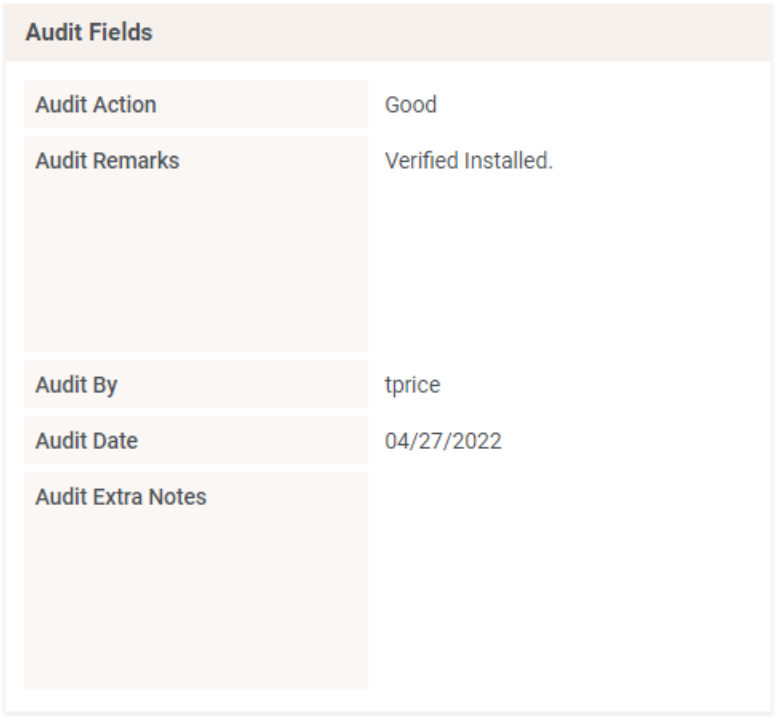
3. If you chose to proceed, dcTrack will begin processing each Item in the Cabinet. When complete the details for each Item are displayed below the progress bar. You can scroll through the details to view each item, or hover over the Progress Details field to display them as a tool tip.



Action	Audit Remarks	+	U	Status	Item Name	Alias	Serial Number	Asset Tag	Make	Model	RUs
Good	Verified Installed.	+	1	Installed	NJESX06	njesx06	AAA13653	SA-10123	HP	Proliant DL360 G5	1
Good	Verified Installed.	+	2	Installed	NJESX07	njesx07	AAA13764	SA-10124	HP	Proliant DL360 G5	1
Good	Verified Installed.	+	3	Installed	NJESX08	njesx08	AAA13875	SA-10125	HP	Proliant DL360 G5	1
Good	Verified Installed.	+	4	Installed	NJESX09	njesx09	AAA13986	SA-10126	HP	Proliant DL360 G5	1
Update	Verified Installed. Move to U27.	+	5	Installed	NJESX10	njesx10	AAA14097	SA-10127	HP	Proliant DL360 G5	1
Add	New Item.	+	5	Installed	1B-U5			SA-10131	Dell	Dell: PowerEdge C6100 Rack Ser...	1
Good	Verified Installed.	+	6	Installed	NJESX14	njesx14	AAA14208	SA-10128	HP	Proliant DL360 G5	1
Good	Verified Installed.	+	7	Installed	NJESX15	njesx15	AAA14319	SA-10129	HP	Proliant DL360 G5	1
Good	Verified Installed.	+	8	Installed	NJESX16	njesx16	AAA14430	SA-10130	HP	Proliant DL360 G5	1
Update	Status to Installed.	+	9	Planned	TEST DELL SERVER 23				Dell	PowerEdge R710	2
Update	Status to Installed.	+	12	Planned	TEST-ON-SHELF				Dell	PowerEdge T310	1
Update	Status to Installed.	+	12	Planned	TEST-ON-SHELF2				Dell	PowerEdge T310	1
Update	Status to Installed.	+	22	Planned	TEST HP SERVER01				HP	Proliant 1850R	3
Update	Status to Installed.	+	25	Planned	TEST DELL SERVER 01				Dell	PowerEdge R710	2

4. During processing, the values for each of the 5 Audit Custom fields is updated on each Item to reflect the values from the Audit.
5. For all newly added items, their notes are added to the custom fields of the cabinet since the Items don't yet exist in dcTrack.
6. When processing is complete, the Select Cabinet field is cleared and is once again editable.
7. You can now select another Cabinet to begin a new Audit session.
    - The results from the previous Audit will remain available on the page until a new Cabinet is selected
8. Audit Custom Fields should now appear updated for each Item processed during the Audit

- Verified Item



Audit Fields	
Audit Action	Good
Audit Remarks	Verified Installed.
Audit By	tprice
Audit Date	04/27/2022
Audit Extra Notes	

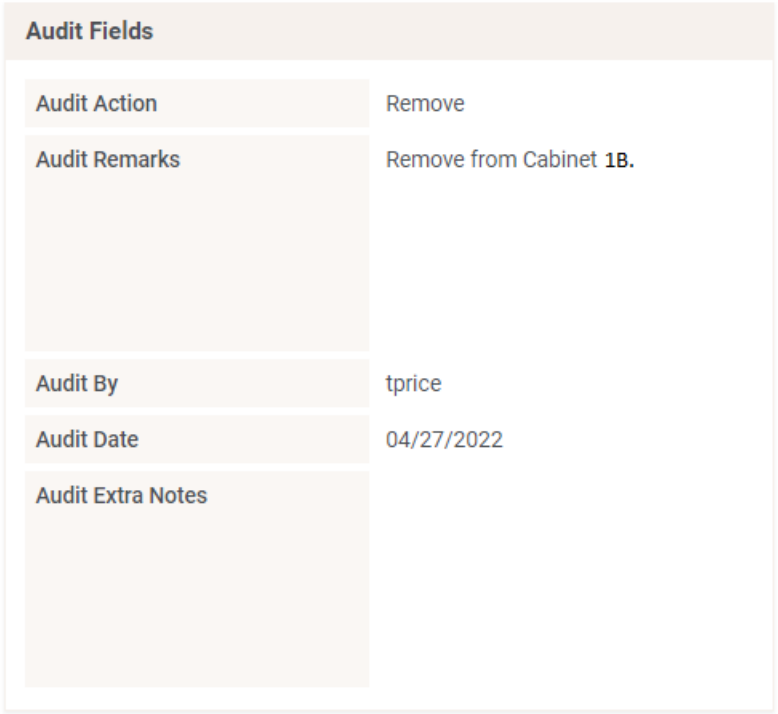
- Item moved to different U Position in the same Cabinet

Audit Fields	
Audit Action	Update
Audit Remarks	Verified Installed. Move to U27.
Audit By	tprice
Audit Date	04/27/2022
Audit Extra Notes	

- Item moved from a different Cabinet

Audit Fields	
Audit Action	Move
Audit Remarks	Status to Installed. Move to U32 in 1B. From 1A
Audit By	tprice
Audit Date	04/27/2022
Audit Extra Notes	

- Item not found in physical Cabinet



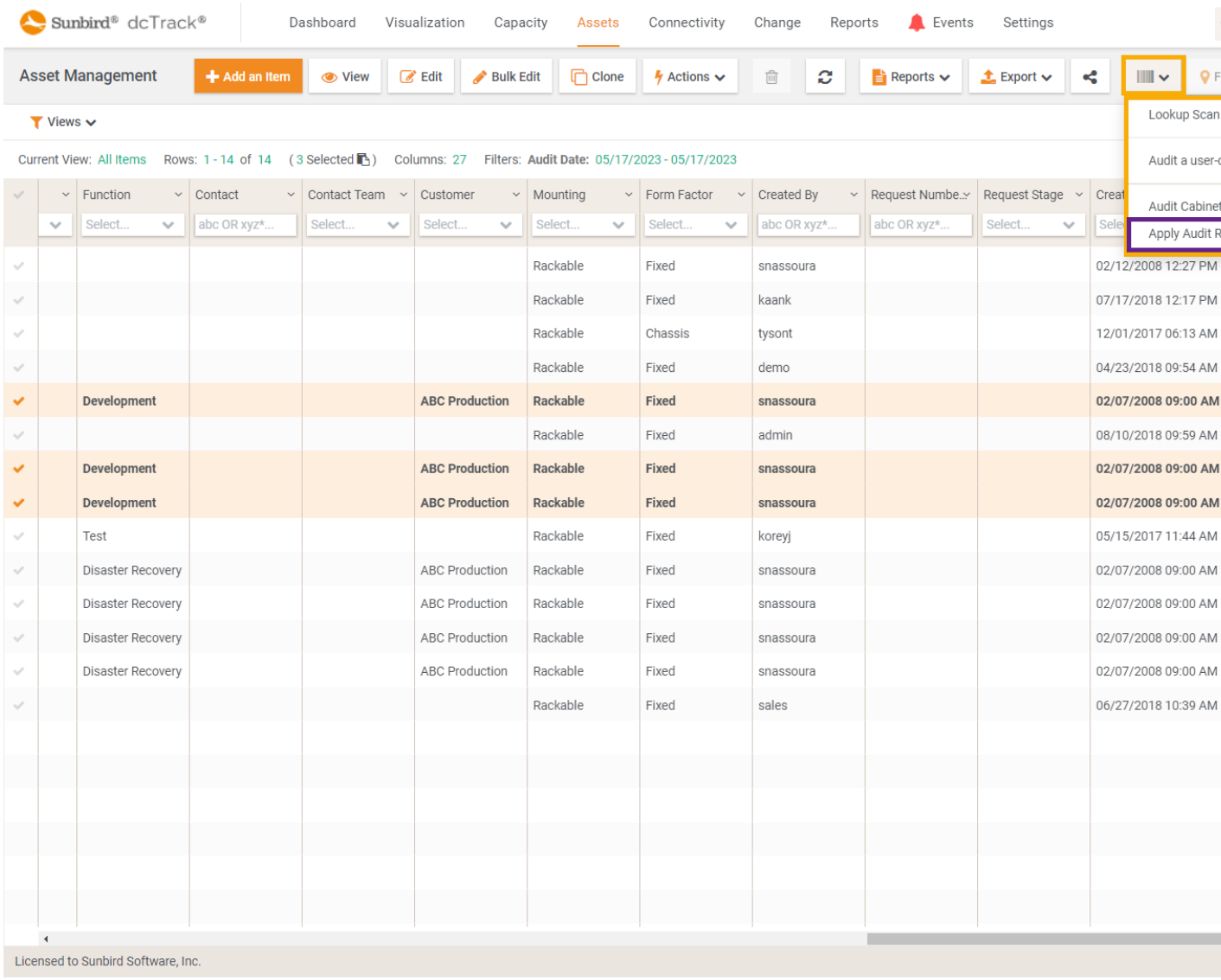
To apply the resultd of the audit, see **Apply Audit Results**

Apply Audit Results

After completing a new asset audit of items in a cabinets or in a chassis, a user with permissions to update the item can apply the audit results from the bar code menu on the items list to make the changes:

1. Filter the Items list by Audit Date.
2. Select the cabinets and all other items that were audited.
3. Click the bar code menu icon on the items list and select Apply Audit Results.
4. The changes are processed immediately

Note: The update will process items that are in the Installed status and need to be moved to another cabinet by issuing a Move Request. If Request Bypass is enabled before you select Apply Audit from the bar code menu, this request will complete. If it is not enabled, the request will be issued and a "WhenMoved" item will be created for each item moved.



Facility Items

dcTrack 8.2.0 introduced new classes to track the inventory associated with all the equipment typically found in the “gray space” from the Commercial Utility feed and Emergency Generators down to the distribution level including switchgear and switchboards, transformers, and power panels (panelboards).

dcTrack 9.0.0 includes enhancements to these Facility Items to allow you to capture additional details specific to each Power Source (see table below) as well as support for Power Ports and Connections.

Before configuring Items, you should create the Models for the Facility Item Classes and Subclasses. While dcTrack supports Facility Items, currently you must create the Models for these Classes/Subclasses manually. Library update does not create Models for these Classes/Subclasses.

Note : After upgrading to 8.2.0 all existing CRAC items and models will be migrated to Class HVAC subclass Cooling Unit and CRAC Group will be called Cooling Zone.

AC Distribution Class

AC Distribution Class is broken into following subclasses.

- Switch - Item representing Switch Gears, Switch Boards, ATS
- Load Device - Large breakers found in a switch gear that has both inputs and outputs allowing connections to other items
- Other Device - Other type of Load Device
- Power Panel - Component that splits a power feed into secondary circuits, while simultaneously providing a protective circuit breaker
- Transformer - Used to step up (increase) or step down (decrease) the voltage levels before distributing it to the next circuit
- AC Bay
- UPS Bank - Sister subclass to the Switch, fed from UPS and downstream to PDUs

Power Source Class

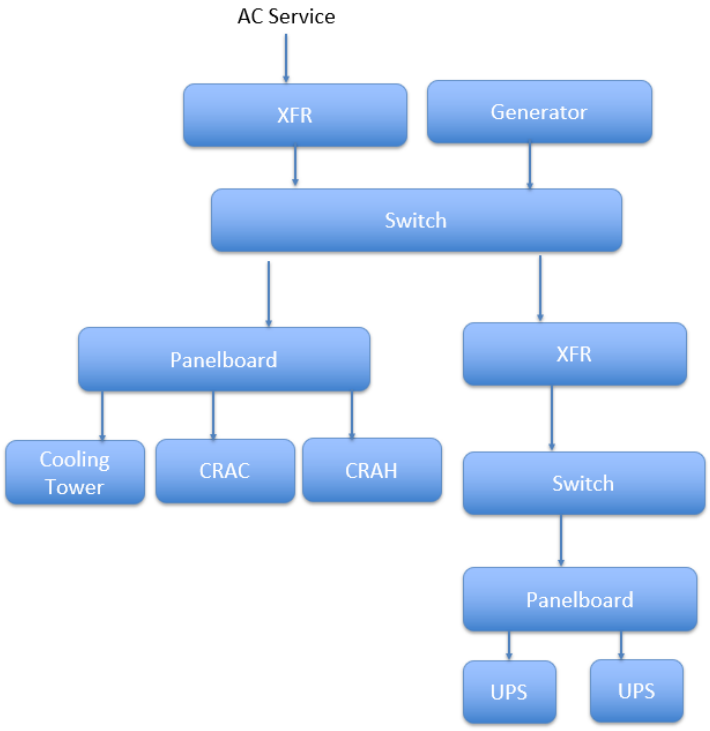
Power Source Class is broken into following subclasses.

- Generator - supply backup power when utility power goes out
- Fuel Tank - Used to store fuel for the generator
- Utility Feed - Independent electrical feed coming into a data center from the utility company

HVAC Class

HVAC Class is broken into following subclasses.

- Cooling Unit - Previously called CRAC
- Cooling Zone - Previously call CRAC group
- Heat Rejection - Covers other cooling objects such as chillers, condensers and water towers



Sunbird
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These new fields can be found on the Configuration sub tab of each Class/Subclass Item Detail page.

Field	Applies To	
	Power Source	AC Distribution
Tank Size (gal-lon)	Fuel Tank	
Rating (kVA)	Generator, Utility Feed	Transformer
Rating (kW)	Generator, Utility Feed	
Rating (A)	Generator, Utility Feed	UPS Bank, Switch, Load Device, Power Panel

Field	Applies To	
Derate 80%	Generator, Utility Feed	Load Device, Power Panel
Rating (Vac)	Generator, Utility Feed	UPS Bank, Switch, Load Device
Phase Volts, Output Volts		Transformer, Power Panel
Output Wiring	Generator, Utility Feed	UPS Bank, Switch
Phase		Transformer, Power Panel, Load Device
Output Phase		Transformer
Wire Gauge	Generator, Utility Feed	Load Device, Transformer
Wire Colors		Power Panel
Speed (RPM)	Generator	
Built-in Tank Size (gal-lon)	Generator	
Con-nector Type		Load Device
I.C Rat-		Load Device, Power Panel

Field	Applies To
ing (kA)	
Number of Poles	Power Panel
Panel Layout	Power Panel
Power Fed From	Load Device, Transformer, Power Panel
Pole Num-bering	Power Panel
First Pole Number	Power Panel
Active State, Pre-ferred State	Load Device
Device Number	Load Device

For Additional Information please see the following topics:

Configuring Facility Items

Connecting Facility Items

Configuring Facility Items

dcTrack version 9.0.0 introduced the ability to configure Facility Items where applicable. The Item Detail page for these Items will now contain a "Configuration" subtab with the specific configuration detail for the Item.

Configuring AC Distribution Class Items
- Power Panel
- UPS Bank
- Load Device
- Switch
- Transformer

Configuring Power Source Class Items
- Fuel Tank
- Generator
- Utility Feed

Configuring DC Power Class Items
- Rectifier
- Plant
- Plant Panel

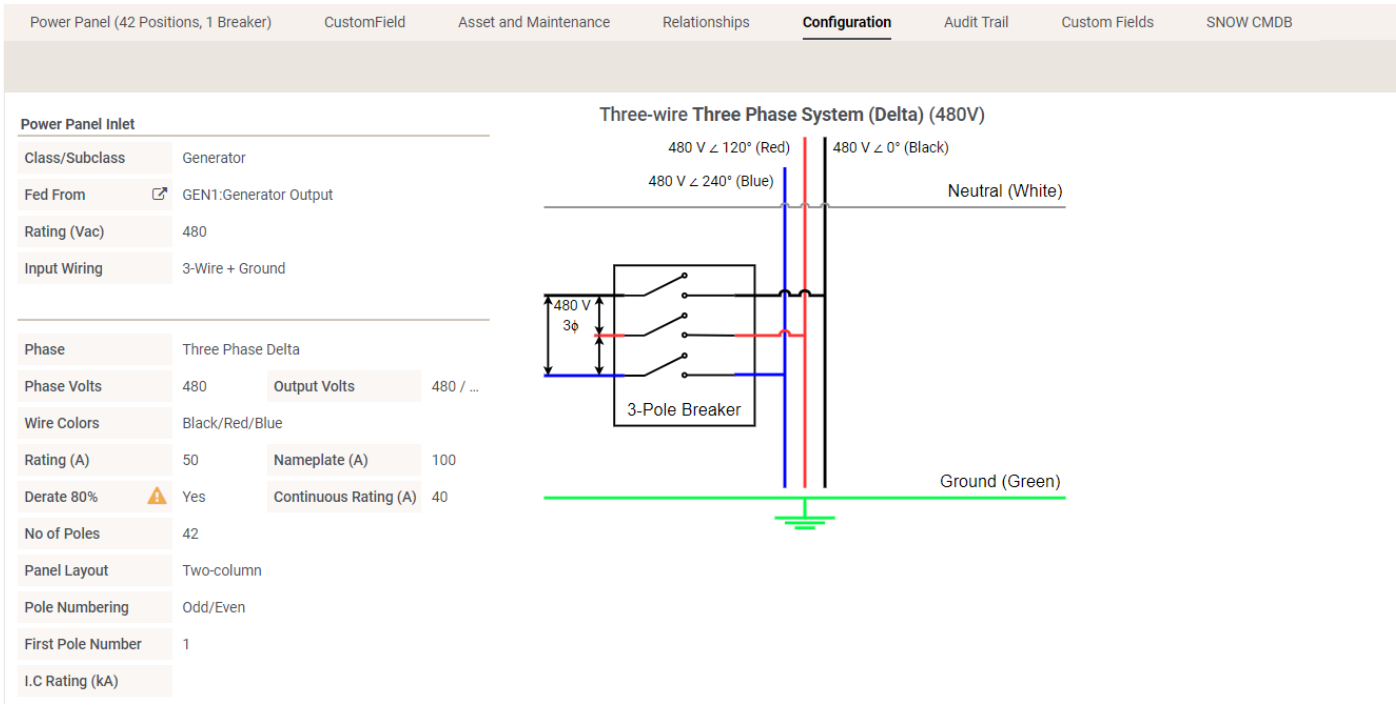
Configuring AC Distribution

The following fields are available for configuration on Distribution Class Items:

Power Panel

Steps to configure a Power Panel

1. Navigate to the Item Detail page of an AC Distribution/Power Panel Item
2. Click the Configuration subtab



- Class/Subclass : Drop down list for selecting the Class the Power Panel will be fed from.
    - Generator
    - Utility Feed
    - Power Panel
    - Load Device
    - Transformer
- Fed From: Item name of the Item the Power Panel will be fed from

While none of the fields on this subtab are required to create a Power Panel Item, at a minimum you must supply the following fields before you can connect this Item.

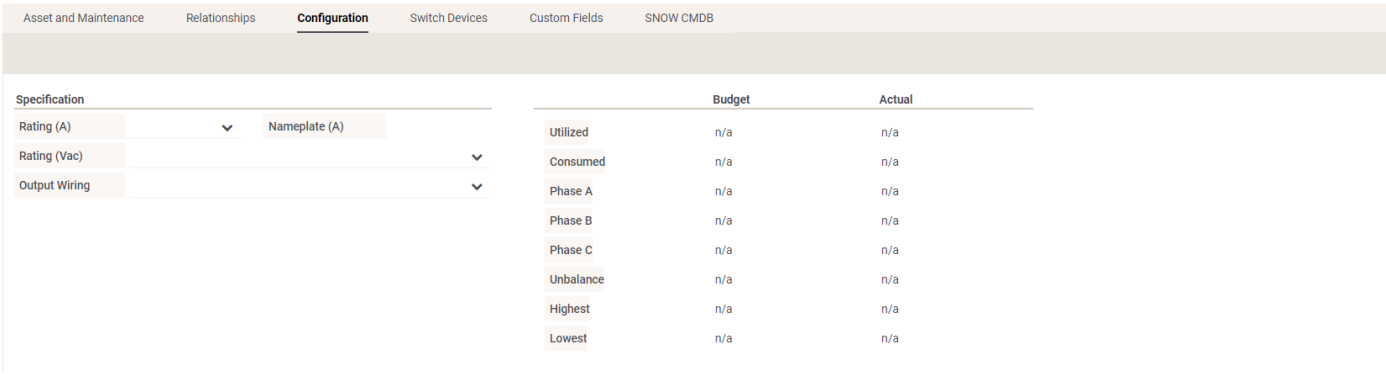
- Class/Subclass
- Fed From
- Phase
- Rating (A)

For additional information see the topic on Connecting Facility Items.

Switch

Steps to configure a Switch

1. Navigate to the Item Detail page of an AC Distribution/Switch Item
2. Click the Configuration subtab

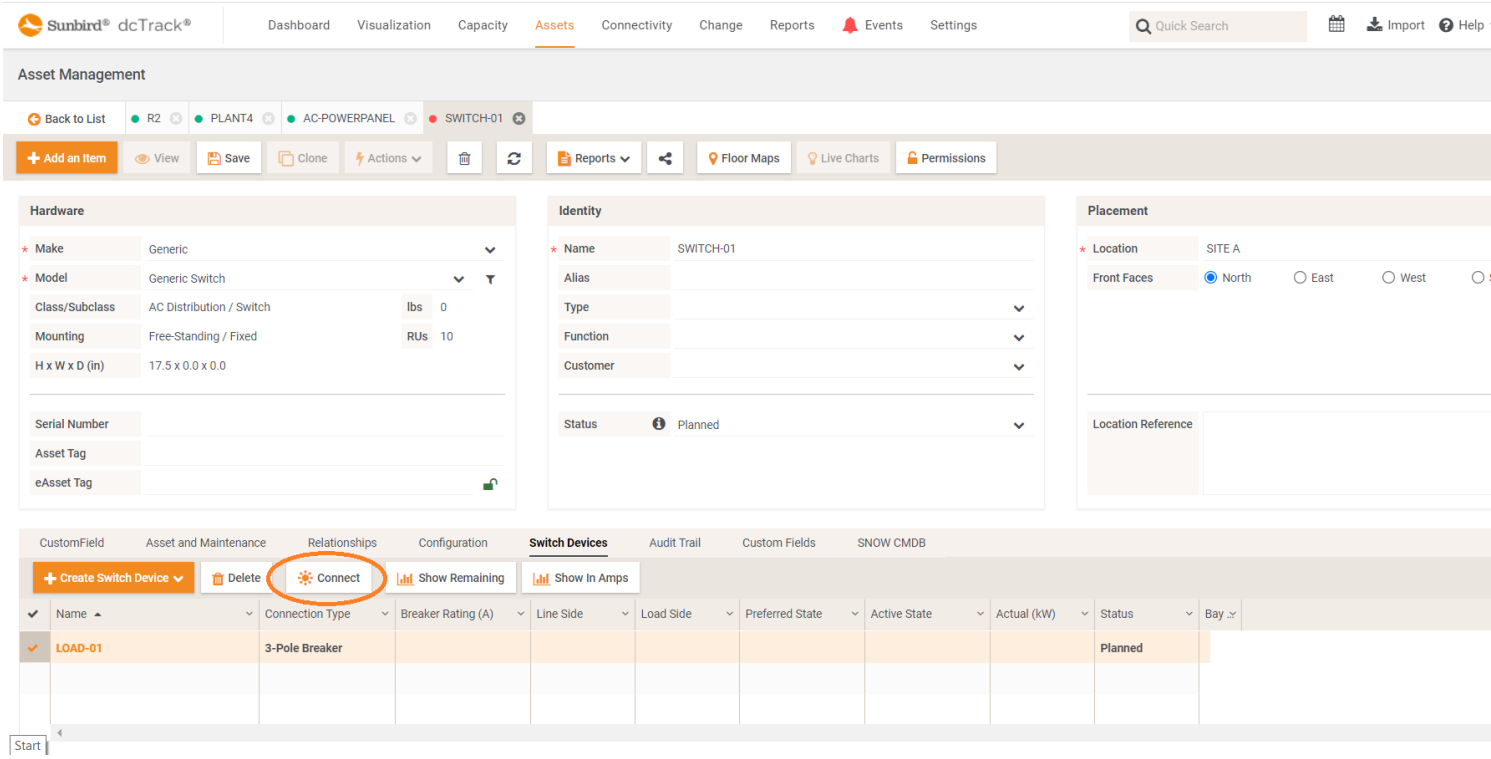


While none of the fields on this subtab are required to create a Switch Item, at a minimum you must supply the following fields before you can connect this Item.

- Rating (A)
- Output Wiring

The Nameplate value is read only and will be inherited from the Models Rating.

After configuring the Switch you can add Load Devices. To connect a load device from the Switch Devices subtab select a row while in Edit mode and click the Connect button.

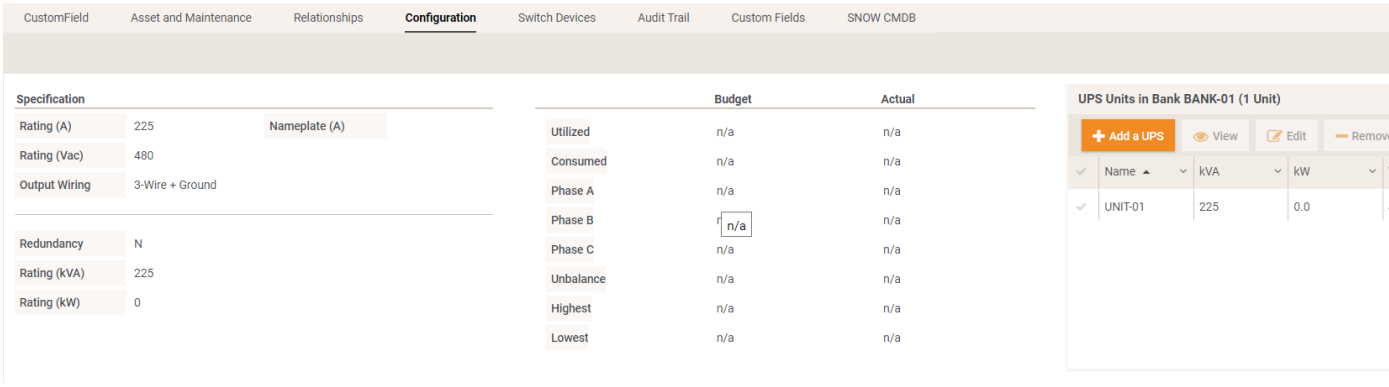


For additional information see the topic on Connecting Facility Items.

UPS Bank

Steps to configure a UPS Bank

1. Navigate to the Item Detail page of an AC Distribution/UPS Bank Item
2. Click the Configuration subtab

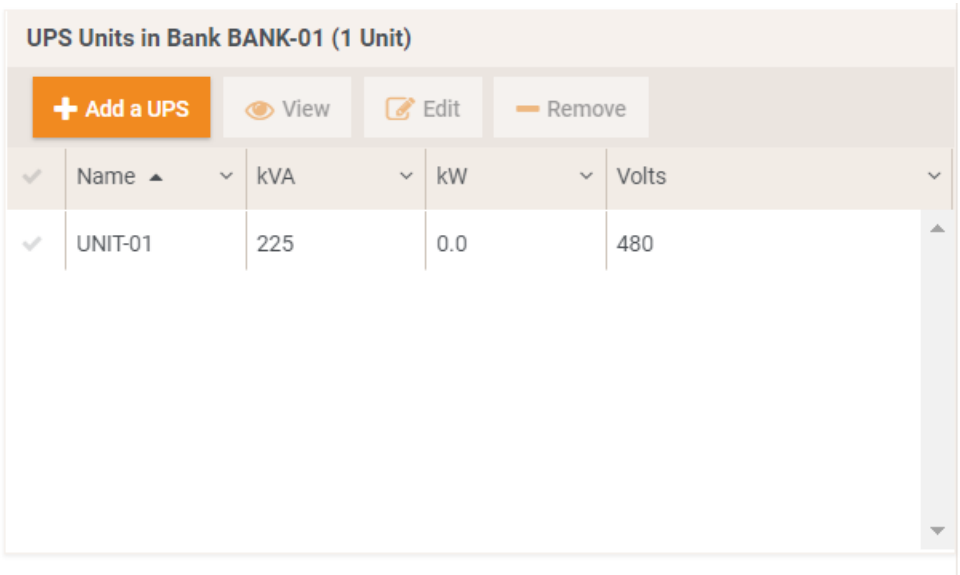


While none of the fields on this subtab are required to create a Switch Item, at a minimum you must supply the following fields before you can connect this Item.

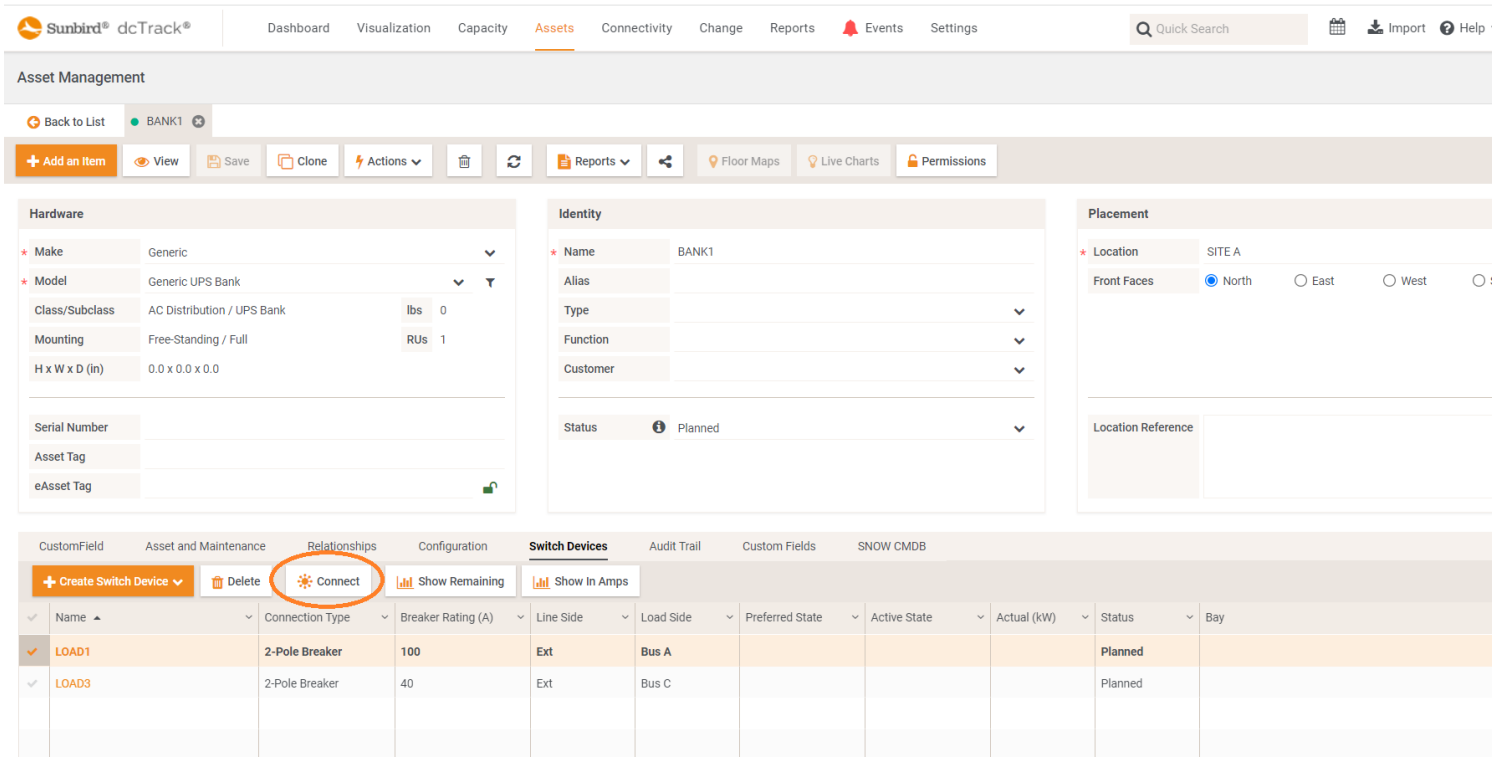
- Rating (A)
- Output Wiring

The Nameplate value is read only and will be inherited from the Models Rating.

As UPS Units are added to the Bank they are displayed in the UPS Units list.



After configuring the UPS Bank you can add Load Devices. To connect a load device from the Switch Devices subtab select a row while in Edit mode and click the Connect button.

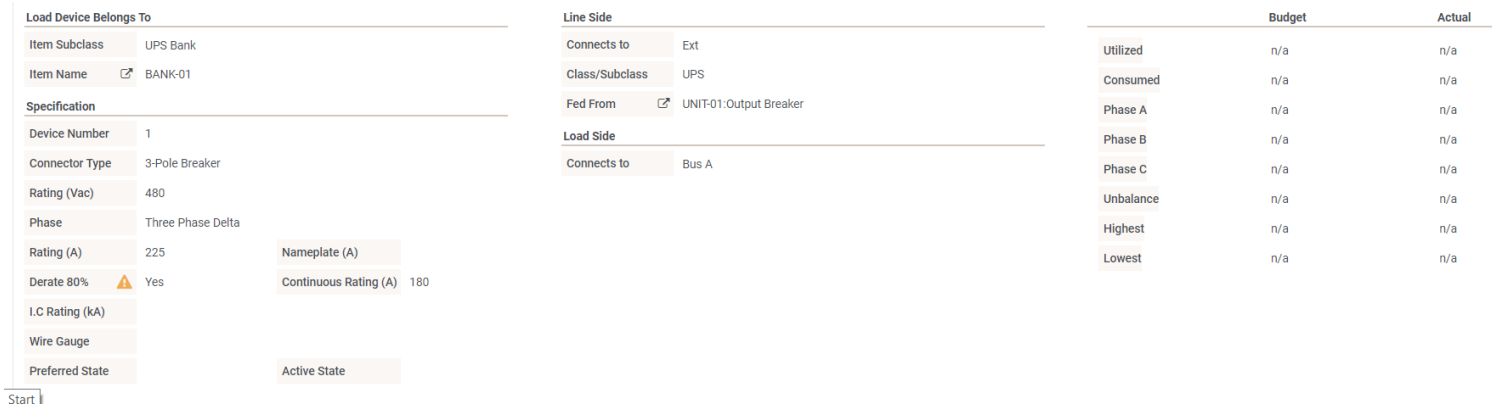


For additional information see the topic on Connecting Facility Items.

Load Device

There are several ways to configure a Load Device.

1. Adding an AC Distribution/Load Device Item by clicking "Add an Item"
2. From the "Switch Devices" subtab of an AC Distribution/UPS Bank by clicking the "Create Switch Device" button
3. From the "Switch Devices" subtab of an AC Distribution/Switch by clicking the "Create Switch Device" button



While none of the fields on this subtab are required to create a Switch Item, at a minimum you must supply the following fields before you can connect this Item.

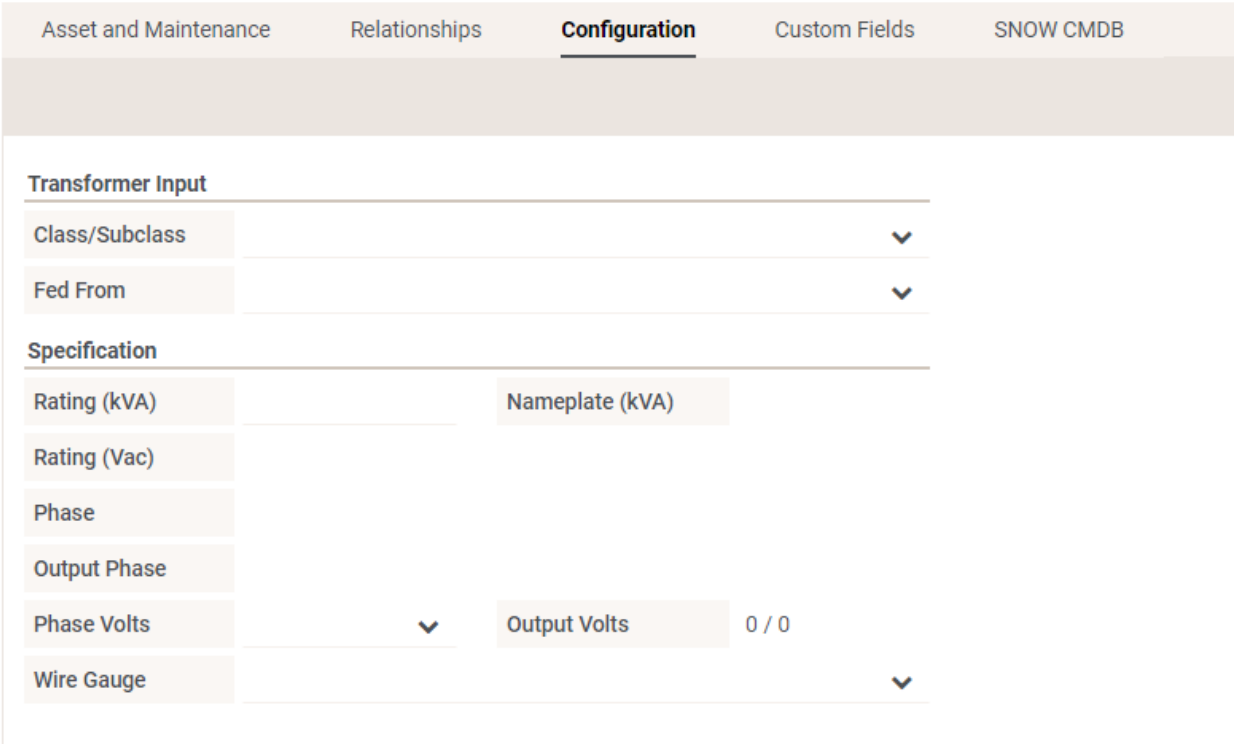
- Item Subclass: This is the Item Subclass the Load Device will be Fed From. (UPS Bank, Switch)
- Item Name: Drop down list box populated with qualifying Items based on the Subclass selected
- Rating (A)
- Line Side: How the Load Device connects upstream (Upstream equipment that is feeding the Load Device.
  - Options Are: Bus A, Bus B, Bus C or Ext.
  - If Ext (External) is selected you will be prompted for the Class of the Upstream Item you want to connect. This will populate the Fed From drop down with all qualifying Items and their power ports. Appears above the main breaker on a single line diagram
- Load Side: How the Load Device connects downstream. Appears below the main breaker on a single line diagram
  - Options are: Bus A, Bus B, Bus C or Ext
  - If Ext (External) is selected, you must make the connection from the Item you want to connect.

For additional information see the topic on Connecting Facility Items.

Transformer

Steps to configure a Transformer

1. Navigate to the Item Detail page of an AC Distribution/Transformer Item
2. Click the Configuration subtab



- While none of the fields on this subtab are required to create a Transformer Item, at a minimum you must supply the following fields before you can connect this Item.
    - Class/Subclass
    - Fed From
    - Phase
    - Rating (A)
- Class/Subclass : Drop down list for selecting the Class the Power Panel will be fed from.
    - Generator
    - Utility Feed
    - Power Panel
    - Load Device
    - Transformer
    - Fed From: Item name of the Item the Transformer will be fed from

For additional information see the topic on Connecting Facility Items.

Configuring Power Sources

The following fields are available on the Configuration subtab of Power Source Class Items:

Fuel Tank

Steps to configure a Fuel Tank

1. Navigate to the Item Detail page of an Power Source/Fuel Tank Item
2. Click the Configuration subtab

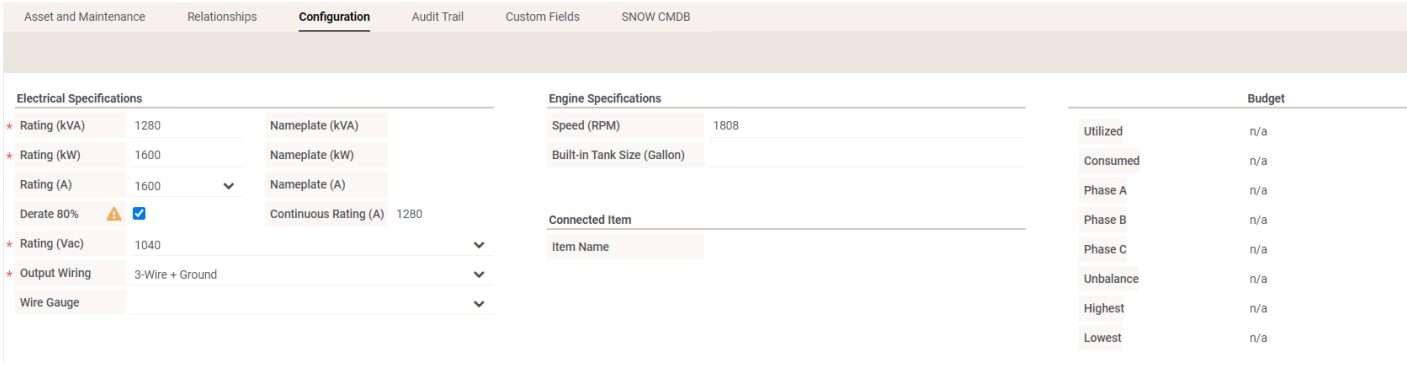
- Nameplate (Gallons): Inherited from the Model.
- Feeds a Generator

For additional information see the topic on Connecting Facility Items.

Generator

Steps to configure a Generator

1. Navigate to the Item Detail page of an Power Source/Generator
2. Click the Configuration subtab



- Rating (kVA): Required
- Rating (kW): Required
- Rating (A) : Required before item can be connected
- Rating (Vac): Required
- Output Wiring: Required

Feeds the following Items:

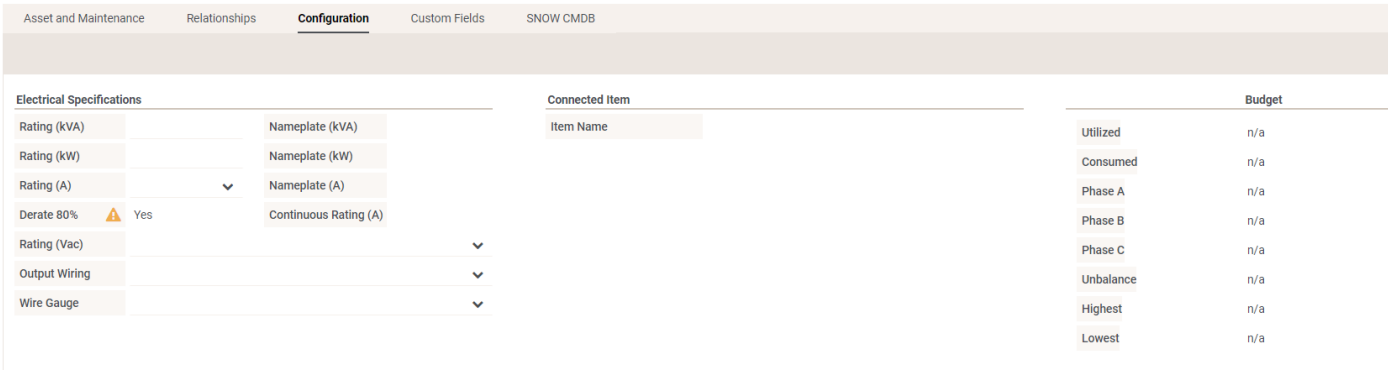
- AC Distribution/Power Panel (inlet)
- Switch (Line Side)
- Load Device (Line Side)
- Transformer
- UPS Inlet/UPS Bypass
- Rectifier

For additional information see the topic on Connecting Facility Items.

Utility Feed

Steps to configure a Fuel Tank

1. Navigate to the Item Detail page of an Power Source/Utility Feed Item
2. Click the Configuration subtab



- Rating (kVA): Required
- Rating (kW): Required
- Rating (A) : Required before item can be connected
- Rating (Vac): Required
- Output Wiring: Required

Feeds the following Items:

- AC Distribution/Power Panel (inlet)
- Switch (Line Side)
- Load Device (Line Side)
- Transformer
- UPS Inlet/UPS Bypass
- Rectifier

For additional information see the topic on Connecting Facility Items.

Connecting Facility Items

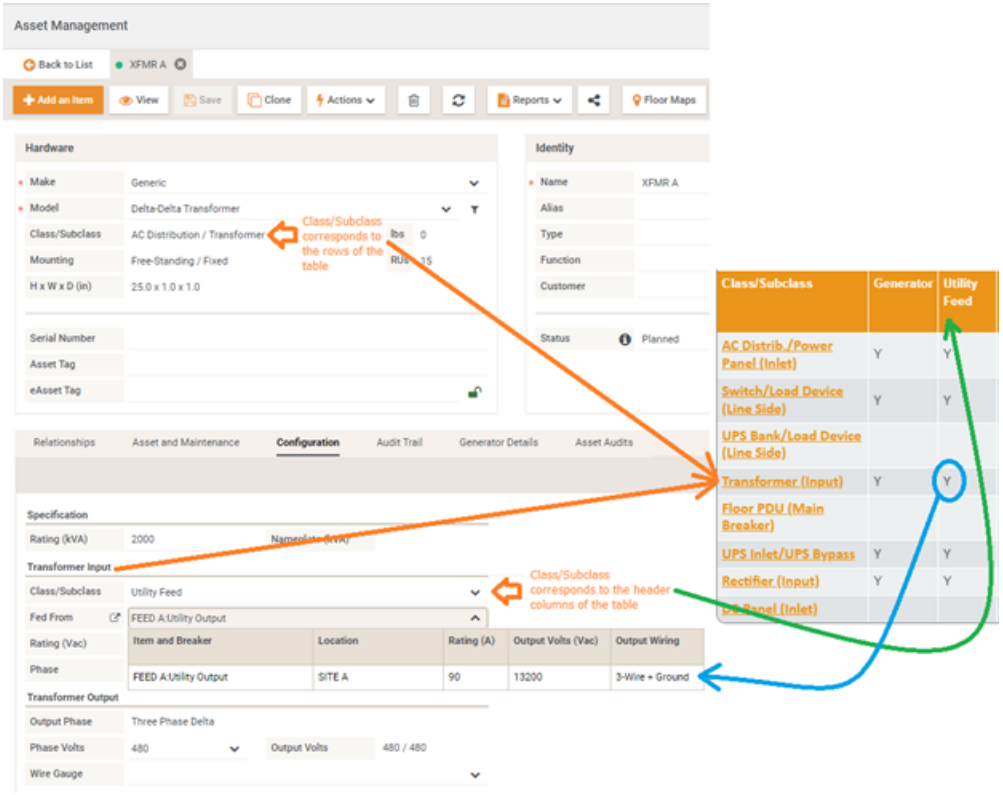
The table below is a general overview of the rules for connecting Facility Items.

	Fed From Class/Subclass Fields

Class/Subclass of the Item you are on	Generator	Utility Feed	AC Distrib. / Power Panel Branch Breaker	Switch / Load Device (Load Side)	UPS Bank / Load Device (Load Side)	Transformer (Output)	Floor PDU/Power Panel Branch breaker	UPS Output	Plant Panel Branch Breaker	DC Panel Branch Breaker
AC Distrib./Power Panel (Inlet)	Y	Y	Y	Y		Y				
Switch/Load Device (Line Side)	Y	Y	Y	Y		Y				
UPS Bank/Load Device (Line Side)								Y		
Transformer (Input)	Y	Y	Y	Y		Y				
Floor PDU (Main Breaker)					Y		Y	Y		
UPS Inlet/UPS Bypass	Y	Y	Y	Y		Y				
Rectifier (Input)	Y	Y	Y	Y		Y				
DC Panel (Inlet)									Y	Y

How to read the table

- An Item of the Class/Subclass in the first column on the left can be Fed From an item of the Class/Subclass in the header row where the cell has a Y.
- In other words, when the item detail page you are on is for an item of the class/subclass from the first column on the left in the table below, that item's Fed From field will only allow you to choose an item of the Class/Sub-class in the Header Row where there is a Y in that cell.
- Example:



The general rules for connecting Items:

If Item A is being fed from Item B where Item A correspond to a row and Item B corresponds to a column, in the table above:

- Voltage of A = Voltage of B
- If Phase of A is Wye then Phase of B is Wye
- If Phase of A is Delta then Phase of B is Wye or Delta
- If Phase of A is Single Phase (3-Wire) then Phase of B is Single Phase (3-wire)
- If Phase of A is Single Phase (2-Wire) then Phase of B is Single Phase (3-wire) or (2-wire)
- Amps of A <= Amps of B

Connecting Utility Feed and Generator Items

Utility Feeds and Generator Items are always at the top of the power chain. This means they do not get fed from another item but rather they feed to other items. Therefore, you cannot connect these items from their item details pages. To connect them, you should go to the item details page of the item it feeds, such as a Transformer, or a Switchgear Load Device. From there, look for the “Class/Subclass” and “Fed From” fields in the Configuration sub-tab. Set the Class/Subclass to Power Source/Utility Feed or Power Source/Generator and then select the appropriate item from the Fed From dropdown.

If you don’t find the item you want to connect to, check the Volts, Phase and Amps ratings of both items to ensure that they follow the rules defined above in section “The general rules for connecting Items”

Load Devices in Switchgear and UPS Bank

A Load Device represents an input or output connection point for the Switchgear. Load Devices can also be used to connect multiple Busbars within the Switchgear, if they exist. These are often referred to as Mechanical Tie Breakers.

Input Load Devices:

To set up a Load Device as an input, go to the Line Side/Load Side form in the Configuration sub-tab and select “Ext” for the Connects to radio button under Line Side. This will reveal the Class/Subclass and Fed From fields where you can select the item that this load device is fed from. Then select Bus A radio button for the Connects to field of the Load Side. When a Load Device is set up this way, it will appear above the “Bus A” horizontal line within the Switchgear in the Single Line Diagram.

When needed, Bus B or Bus C can be selected depending on the configuration of the Switchgear busbars and where this particular Load Device is installed.

Output Load Devices:

To set up a Load Device as an output, go to the Line Side/Load Side form in the Configuration sub-tab and select Bus A radio button for the Connects to field of the Line Side. When a Load Device is set up this way, it will appear below the “Bus A” horizontal line within the Switchgear in the Single Line Diagram.

When needed, Bus B or Bus C can be selected depending on the configuration of the Switchgear busbars and where this particular Load Device is installed.

Then select “Ext” for the Connects to radio button under Load Side. Note that being an output this load device is not connected to the item it feeds from this page. Proceed to the item it connects to and from there, use the Fed From field to select this Load Device.

Busbar Tie Load Device:

When multiple busbars exist in the Switchgear, set up a Load Device to connect them to each other by selecting one of the busbars in the Line Side and the other in the Load Side.

Chapter 4:Project Management

dcTrack version 8.1.0 introduced the Infrastructure Project Management. This feature allows users to plan projects by estimating costs, start and end dates and resource requirements. You can track and manage any type of infra-

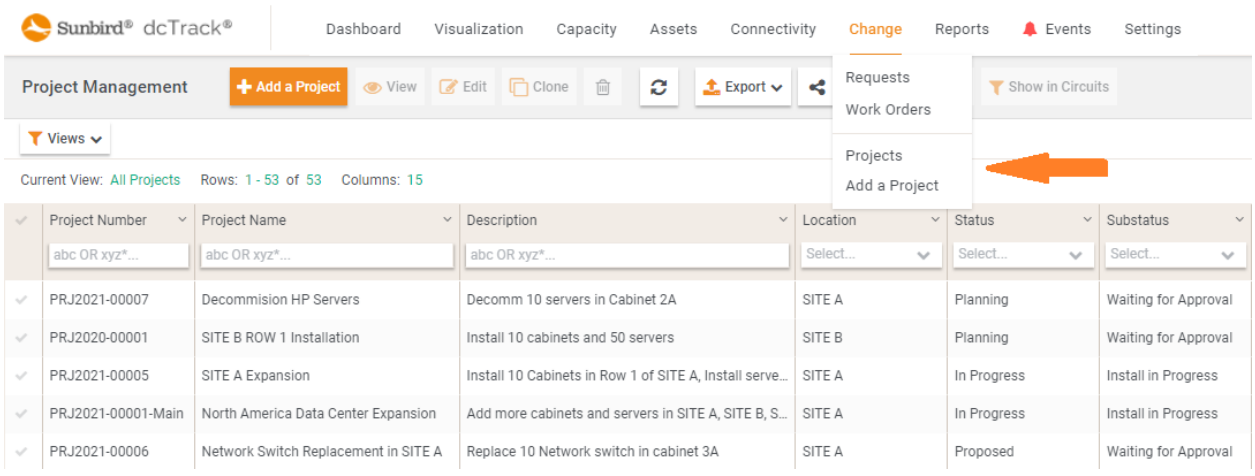
structure project, like site migration, new sit or cabinet row build outs, asset decommissions, new server and connection installations or any other infrastructure project.

Please refer to the topics below for complete details about this feature and the steps involved in managing your projects.

Project List
Project Custom Field
Adding and Managing Project
Assigning Items to Project
Assigning Circuits to Project
Request and Work Order for Project
Project Relationship
Project Audit Trail
Importing and Exporting Project

Project List

To access Project List, go to Change Tab -> Projects.



This list contains a row for each Project created in dcTrack. Every field applicable to a Project is available on the grid. You can Show or Hide using the Show/Hide icon in the upper right corner of the grid. Fields in the grid can be

repositioned by dragging and dropping the column to the desired position. Each field is filterable and sortable from the column header.

The Project List can also be exported to a .csv file by selecting the appropriate export option from the Export button on the tool bar.

After upgrading to 8.1, all the projects created in prior release will appear in this list. This list will be empty if there are no projects created in your dcTrack database.

Project List Toolbar

Icon	Summary
Add a Project	Opens a new page to add a Project
View	Opens one or more selected projects in View mode
Edit	Opens one or more selected project in Edit mode
Clone	Creates a new project by cloning the selected project
Delete	Deletes the selected Projects
Refresh	Refreshes the Project List
Export	Drop down that allows users to export Projects list exactly as shown or export the export the project into an import template
Share	Generates a share link to the current Project List view
Show in Assets	Navigate to filtered item list containing the items assigned to selected projects in the list
Show in Circuits	Navigate to filtered circuit list containing the circuits assigned to selected projects in the list

Project Custom Fields

The Project Management feature allows you to create and manage Custom Fields that are specific to only Project, or can also apply to Items, Circuits or parts. Custom Fields enable organizations to capture and display additional

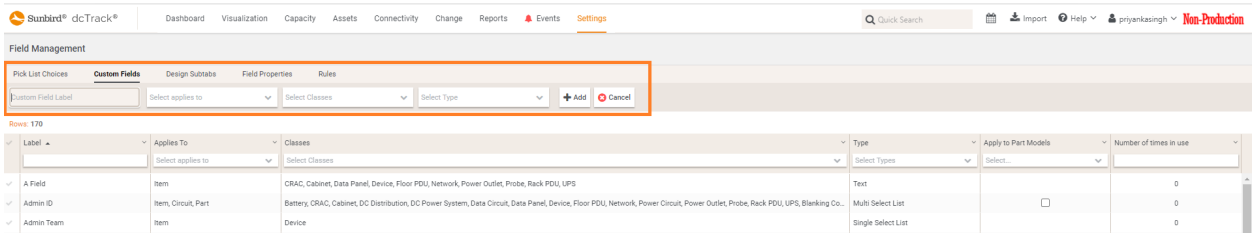
data that may not be covered by dcTrack's Standard Fields.

Users with the System Administrator role or who have the Field Management Operator auxiliary role can add, edit, and delete Custom Fields.

Adding Project Custom Fields

Steps to add Project Custom Fields:

1. Navigate to Settings > Field Management
2. Click the Custom Fields Subtab
3. Click the Add a Custom Field button
4. Once clicked dcTrack displays the input fields in the tool bar



5. Specify the following information in the input fields
    a. Custom Field Label - The name of the Custom Field
    b. Applies To - Select one or more options to specify what the Custom Field applies to
        - Item
        - Circuit
        - Part
        - Project
    c. Classes - Select the classes the Custom Field is valid for. Depending on the "Applies To" options you selected, you can select multiple classes including Part, Item, Power and Data Circuits.
    d. Type - Select the data type of Custom Field.
6. Click the Add button in the tool bar to add the Custom field or you may click the Cancel button to disregard your most recent entry and close the tool bar.

The grid below the tool bar will list all existing Custom fields.

Editing Project Custom Fields

Inline editing is supported for the Custom Fields grid, so authorized users can simply select the cell they want to edit to make changes to Custom Fields.

Steps to Edit Project Custom Fields:

1. Navigate to Settings > Field Management
2. Click the Custom Fields Subtab
3. Click the cell that you want to edit. The grid will allow you to make changes directly to the cell content by typing in the cell or selecting new values from the available lists.
4. Your changes will save automatically once you have completed your edits and exited the cell.

Deleting Custom Fields

1. Navigate to Settings > Field Management
2. Click the Custom Fields Subtab
3. In the Custom Fields tab, select the Custom Fields that you want to delete.
4. Click the Delete icon.

Note: If the Custom Field is not in use, it will be deleted, however, if the field is in use, dcTrack will display a dialog asking you to confirm the deletion before proceeding.

Designing Custom Field Subtabs

System Administrators and Field Management Operator can customize Custom Field sub-tab layouts for use on Project detail page, including adding, editing, and deleting panels and the Custom Fields assigned to each panel. The Project detail page support up to 99 Custom Field sub-tab. Please refer to Configuring Custom Field Panels for complete details on designing Custom Field Panels.

Creating Options for Custom Field Single and Multi-Select List Types

System Administrators and Field Management Operator can specify single-select and multi-select pick lists among the types for Custom Fields. Once one of these list types is selected, you can create, edit, and delete the options for each list. For more information, see **Configuring Options for Single and Multi-Select List Types**.

Configuration of Custom Fields via CSV Import

Users with the System Administrator role can add, edit, delete Custom Fields, their properties, and their list contents via bulk import. All other users require both the Field Management Operator and Bulk Import auxiliary roles to add, edit, delete Custom Fields list contents via bulk import.

To add, edit, or delete Custom Fields and their properties in bulk via CSV Import/Export:

1. On the Custom Fields tab, select the Export icon > Export into an Import Template OR Download Import Template option.
2. If exporting into an import template, the only option to select is Custom Fields to export all fields.
3. Save the file in your desired location with the desired file name.
4. In the resulting CSV file, make your changes following the instructions provided in the CSV file.
5. Save your changes.
6. Back in the dcTrack UI, click the Import icon to import the updated file into dcTrack.

Note: Custom Fields that are applicable to different Object types are exported as two rows in the file.

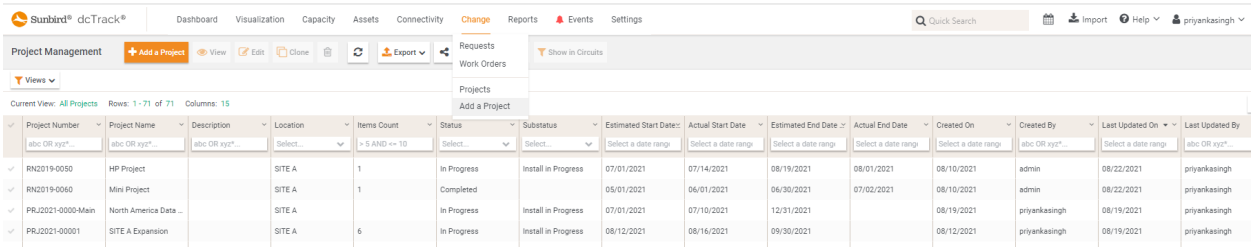
Add and Manage Projects

Projects can be added via the Web Client, imported using the File Import feature or using API . You need to have System Administrator or gatekeeper role to add and manage project.

Add Project

Steps to Add a Project:

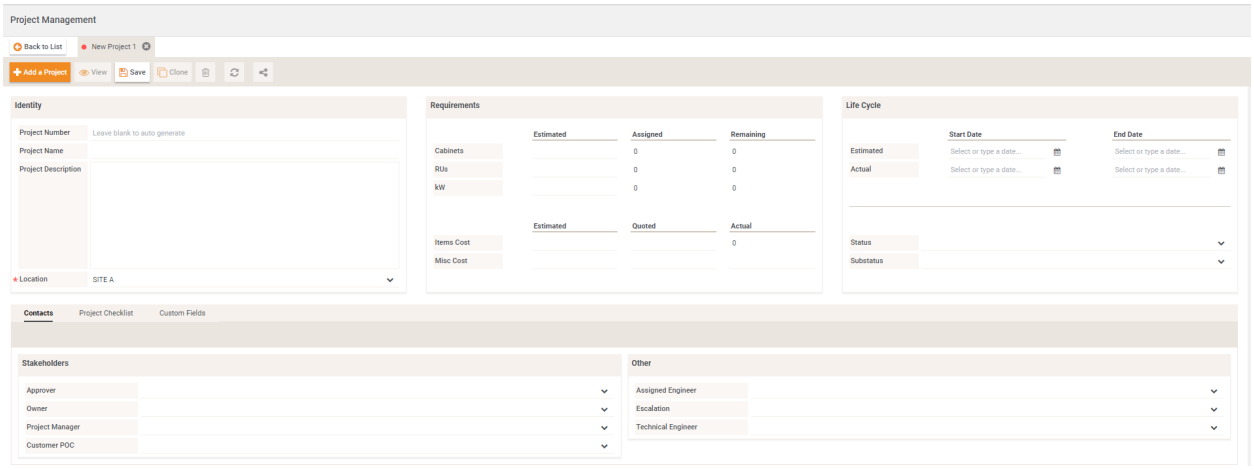
1. Navigate to the Add a Project page from the from the Change Menu or select the Add a Project button on the Projects List tool bar. Provide following information in New Project Tab.



2. **Project Number** - Enter the Project Number or leave blank to auto generate. Project Number should be unique.
3. **Project Name** - Enter the Project Name.
4. **Project Description** - Enter the Project Description.
5. **Location** - Select the Project Location. The default selection is the default location set by user in user preference setting. The Location entered here is the Primary Location for the Project. User with the location level permission need to have the permission for selected location to access this project. However the you can assign items from other locations to this project.
6. **Estimated Cabinets** - Enter the number of Estimated Cabinets for this Project. This field accepts negative number as well. You can enter negative number when the project is for cabinet decommission.
7. **Estimated RUs** - Enter the number of Estimated Rack Units for the Project. This field accepts negative number as well. You can enter negative number when the project is for items decommission.
8. **Estimated kW** - Enter the number of Estimated Power in kW for the Project. This field accepts negative number as well. You can enter negative number when the project is for item decommission.
9. **Assigned Cabinets** - Read Only. This field displays the number of Cabinets assigned to the Project.
10. **Assigned RUs** - Read Only. This field displays the number of rack units assigned to the project.
11. **Assigned kW** - Read Only. This field displays the Power measured in kW assigned to the project.
12. **Remaining Cabinets** - Read Only. Calculated from subtracting assigned from estimated.
13. **Remaining RUs** - Read Only. Calculated from subtracting assigned from estimated.
14. **Remaining kW** - Read Only. Calculated from subtracting assigned from estimated.
15. **Estimated Items Cost** - Enter the Estimated Items Cost for the Project.
16. **Quoted Items Cost** - Enter the Quoted Items Cost for the Project.
17. **Actual Items Cost** - Read Only. Calculated from adding the Purchase Price and Contract Amount of all items assigned to the Project. If there are Parts assigned to the items, Parts Purchase Price is also included in the calculation.
18. **Estimated Misc Cost** -Enter the Estimated Misc cost for the Project.
19. **Quoted Misc Cost** - Enter the Quoted Misc Cost for the Project.
20. **Actual Misc Cost** - Enter the Actual Misc Cost for the Project.

21. **Estimated Start Date** - Select or type the Estimated Start Date for the Project.
22. **Estimated End Date** - Select or type the Estimated End Date for the Project. Estimated End Date can not be before Estimated Start Date.
23. **Actual Start Date** - Select or type the Actual Start Date for the Project.
24. **Actual End Date** - Select or type the Actual End Date for the Project. Actual End Date can not be before Actual Start Date.
25. **Status** - Select the Status for the Project.
26. **Substatus** - Select the Substatus for the Project.

Note : Pick list Choices for the Status and Sub Status fields can be configured. See here Configuring Options for Single and Multi-Select List Type *for more details.*

27. 

You can also enter additional Project information by creating custom fields. See here Project Custom Fields for more details.

Editing Project

Project can be edited to correct or update data after the project is created.

Steps to Edit a Project:

1. Navigate to the Project List page from the from the Change menu.
2. Double click the row for the record you want to edit, or you can select one or more rows from the list and click the Edit button on the tool bar (when editing multiple rows each record will be opened in a separate detail page tab).
3. Enter the updated information.
4. Save the Project.

Deleting Project

Project can be deleted.

Steps to Delete a Project:

1. Navigate to the Project List page from the from the Change menu.
2. Double click the row for the record you want to delete, or you can select one or more rows from the list and click the Delete button on the tool bar.

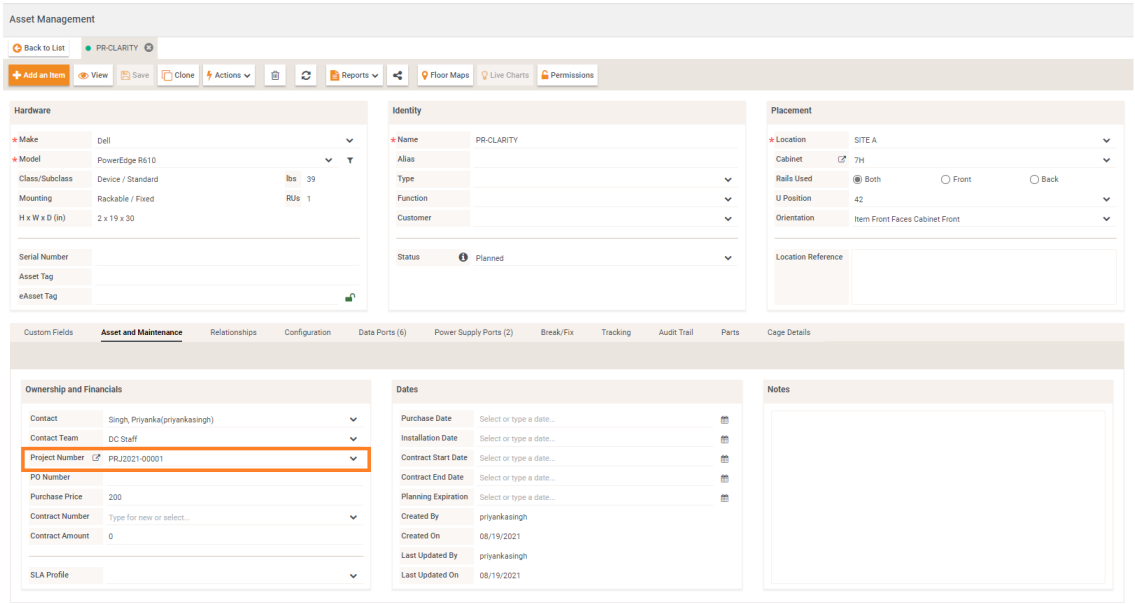
Note : You need to have System Administrator or Global Gatekeeper role to delete a project. Users with location level Gatekeeper permission can not delete project.

Assigning Items to Project

Items can be assigned to Projects using the standard item field Project Number.

Steps to assign items to projects :

1. Navigate to the item you want to assign project.
2. Click on the Asset and Maintenance sub tab at the bottom of the Item Details page.
3. Click the Edit button for the Item
4. Click Project Number field and select the project number you want to assign the item to. The drop down list is populated with all the projects created in dcTrack database. You can search for Project Number by typing the Project Number or Project Name.
5. Save the item.



Click on the hyperlink icon in the Project Number field to navigate to Project Detail screen.

You can also assign items in bulk using :

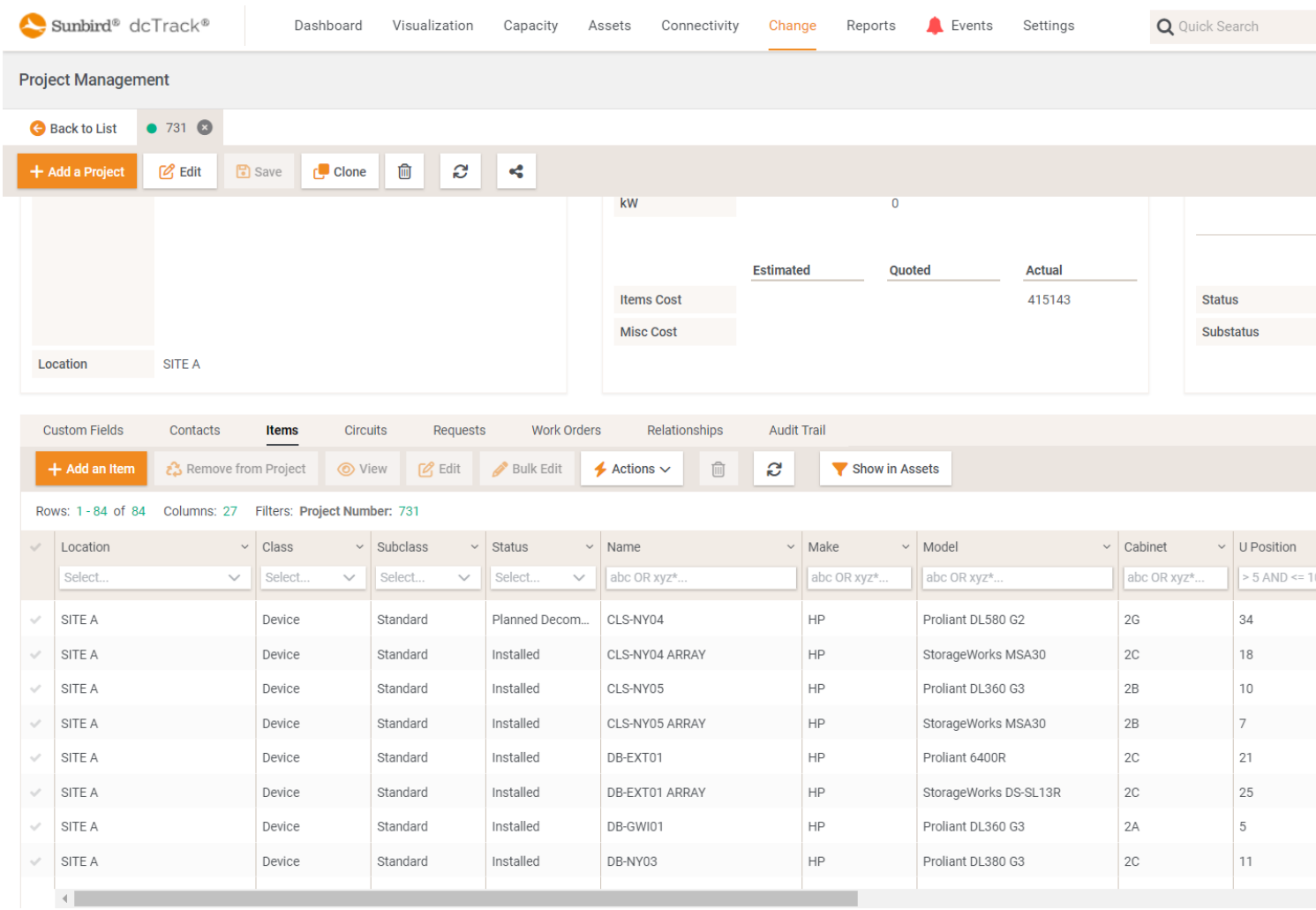
- Bulk Edit : When items are already created in dcTrack. See Bulk Edit Item Fields for more details.
- File Import : When you are creating items in bulk using file import. Include Project Number column in the csv file to be imported.
- Public API : When you are creating items using Public API. Include the Project Number field in the request.
- Place Items using Capacity Intelligent Search : When you place the items in bulk using Capacity Search. See Placing Items using Capacity Intelligent Search for more details.

Note : In dcTrack 8.1 onwards you can not create project number on fly by entering new project number when adding or editing items/ circuits via UI, File Import or API. Project Number entered should be an existing Project Number in dcTrack database.

Items Sub Tab in Project Details

All the items that are assigned to Project will show in the Items sub tab of Project Detail screen. The list also includes the items that were previously assigned to this Project.

Item list in this sub tab show all the items assigned to the project. The list include all the columns from Item List. To specify which columns are shown or hidden, click the Show/Hide columns icon.



Refer to the table below for details on Items Sub Tab toolbar.

Icon	Summary
Add an Item	Opens a new page to add an item. Project Number field will be auto populated for the new item
Remove from Project	Unassign the selected items from the project. If the selected item has pending Request, it will not be removed from the Project.
View	Opens one or more selected items in View mode

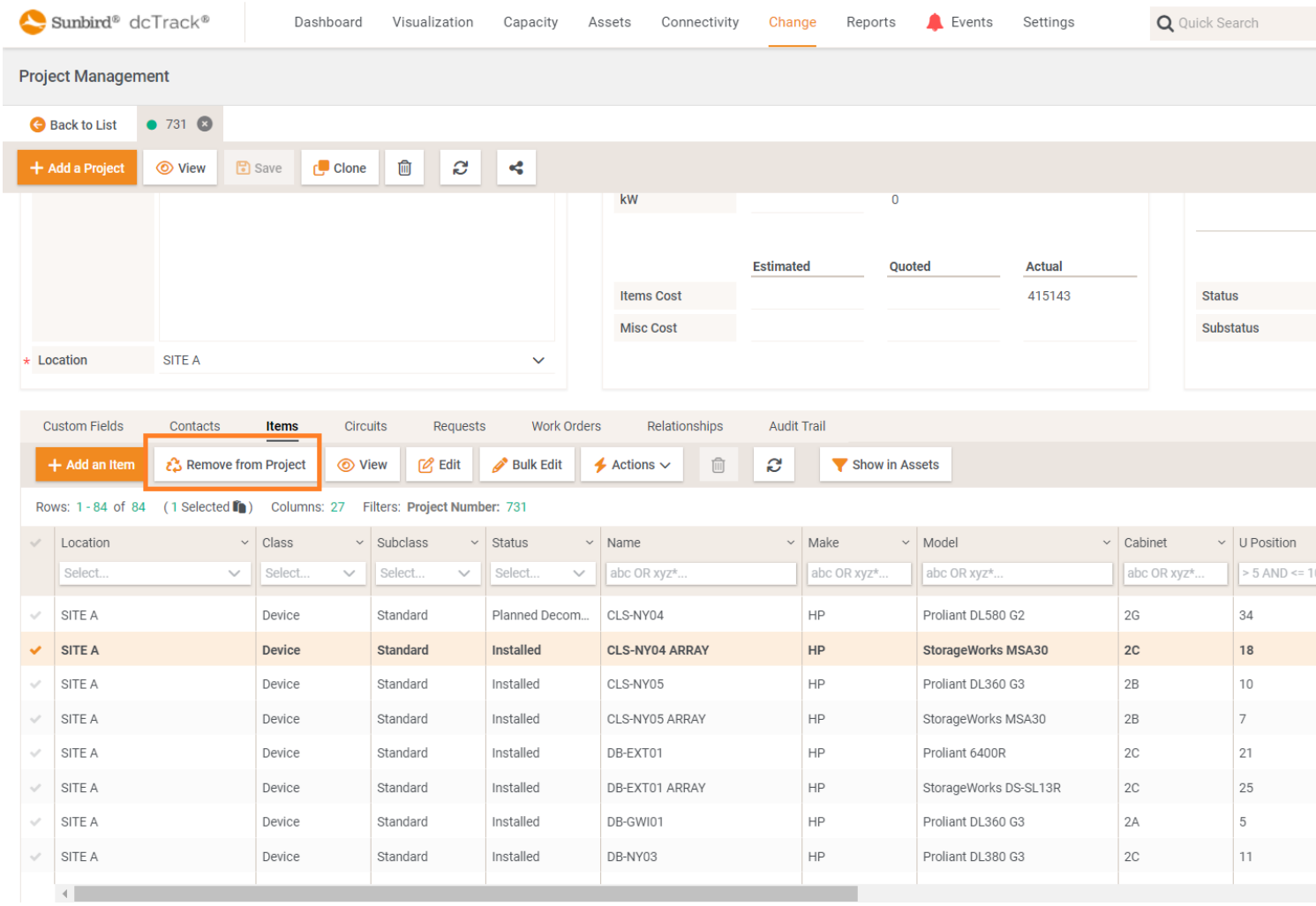
Icon	Summary
Edit	Opens one or more selected items in Edit mode
Bulk Edit	Opens the Bulk Edit dialogue to bulk edit selected item fields
Actions	Drop down that allows toggling Request Bypass, Install, Decommission requests etc.
Delete	Deletes the selected items
Refresh	Refreshes the Item List subtab
Show in Assets	Navigates to the Item List filtered to just the Items for the Project

Unassigning Items from Project

Steps to unassign item from the project :

1. Navigate to project you want to unassign the item.
2. Click Items sub tab in Project Details screen.
3. Select one ore more items in the list and click the button Remove from Project.

Item list is refreshed and the selected item is unassigned from the project.

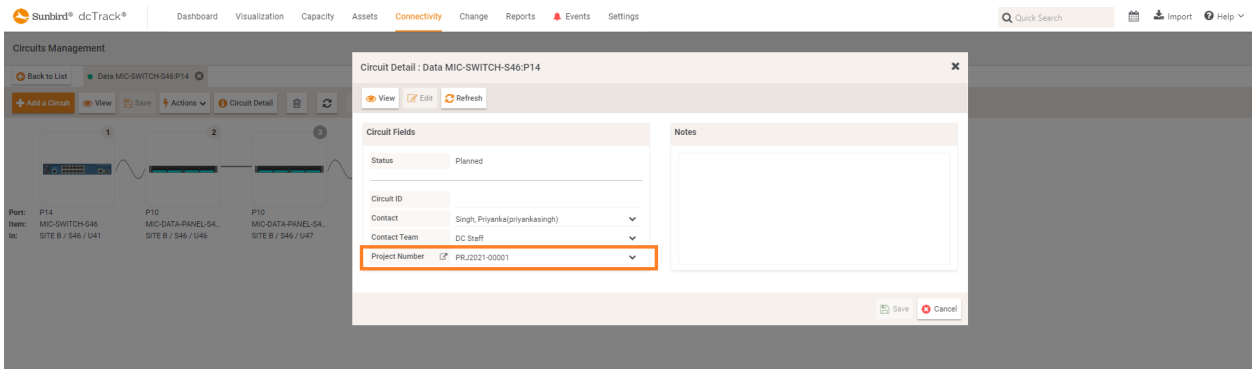


Assigning Circuits to Project

Circuits can be assigned to Projects using the standard circuit field Project Number.

Steps to assign circuits to projects :

1. Navigate to the circuit you want to assign project.
2. Click Circuit Detail.
3. In the Circuit Detail dialogue, click Edit button.
4. Click Project Number field and select the project number you want to assign the circuit to. The drop down list is populated with all the projects created in dcTrack database. You can search for Project Number by typing the Project Number or Project Name.
5. Click Save and close the dialogue.



You can also assign circuits in bulk using :

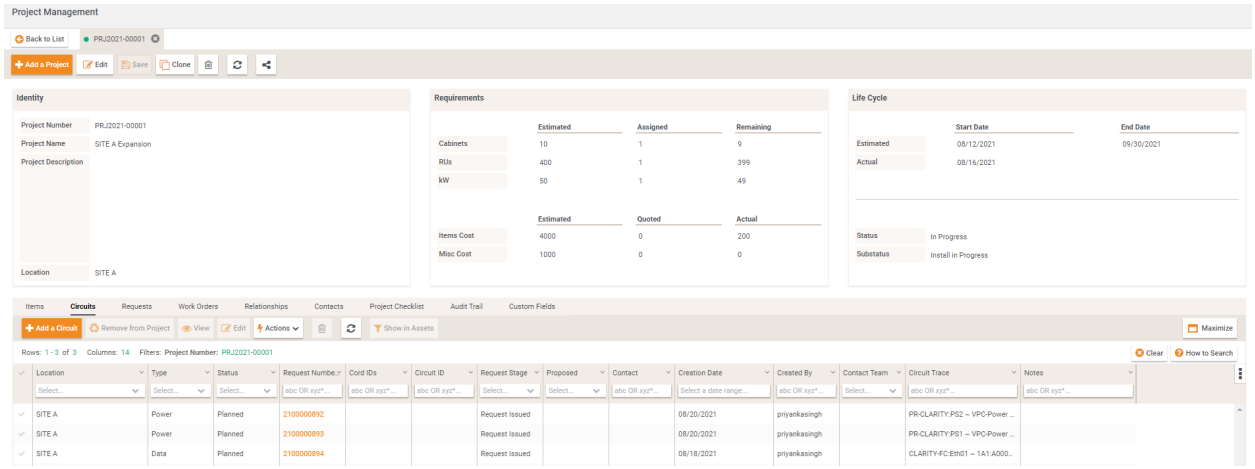
- File Import : When you are creating circuits in bulk using file import. Include Project Number column in the csv file to be imported.
- Public API : When you are creating circuits using Public API. Include the Project Number field in the request.

Note : In dcTrack 8.1 onwards you can not create project number on fly by entering new project number when adding or editing items/ circuits via UI, File Import or API. Project Number entered should be an existing Project Number in dcTrack database.

Circuits Sub tab in Project Details

All the Circuits that are assigned to Project will show in the Circuits sub tab of Project Detail screen.

Circuit list in this sub tab show all the circuits assigned to the project. The list include all the columns from Circuit List. To specify which columns are shown or hidden, click the Show/Hide columns icon.



Refer to the table below for details on Circuit sub tab toolbar.

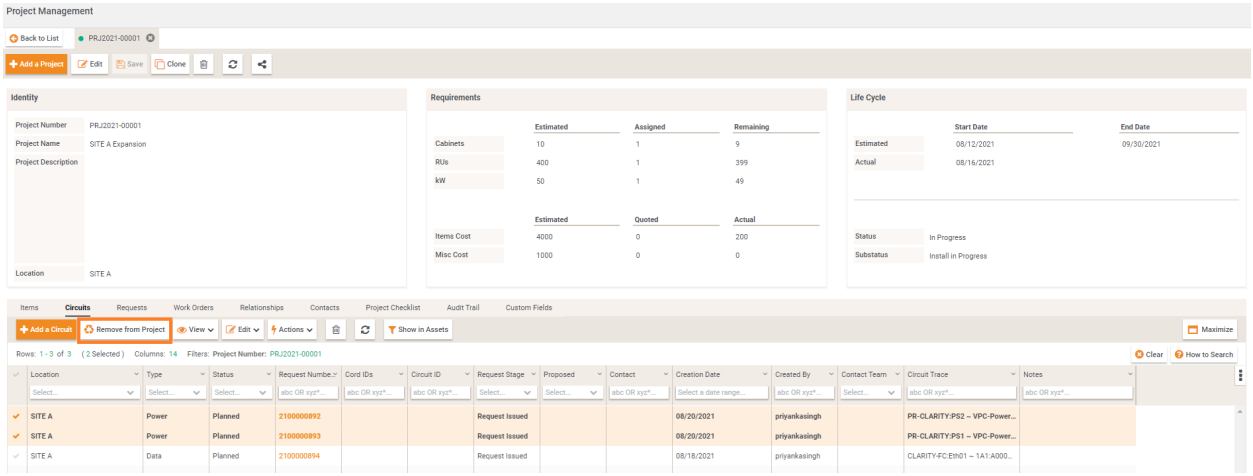
Icon	Summary
Add a Circuit	Opens a new page to add Circuit. Project Number field will be auto populated for the new circuit.
Remove from Project	Unassign the selected circuits from the project. If the selected circuit has pending Request, it will not be removed from the Project.
View	Opens one or more selected Circuits on a single or multiple tabs in View mode.
Edit	Opens one or more selected Circuits on a single or multiple tabs in Edit mode.
Delete	Deletes the selected Circuits.
Refresh	Refreshes the Circuit List.
Actions	Dropdown that allows toggling Request Bypass, Connecting or Disconnecting Circuits.
Show in Assets	Navigate to filtered item list containing the items assigned to selected projects in the list.

Unassigning Circuits from Project

Steps to unassign circuit from the project :

1. Navigate to project you want to unassign the circuit.
2. Click Circuits sub tab in Project Details screen.
3. Select one ore more Circuits in the list and click the button Remove from Project.

Circuit list is refreshed and the selected circuit is unassigned from the project.

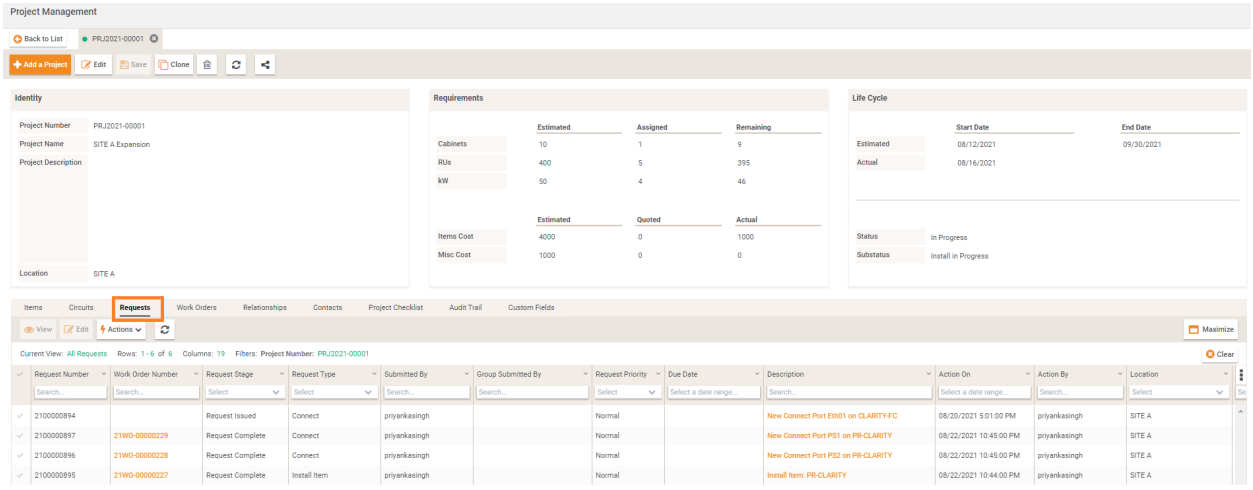


Request and Work Order for Project

dcTrack 8.1.0 allows you to keep track of all the Requests and Work Orders created for a Project.

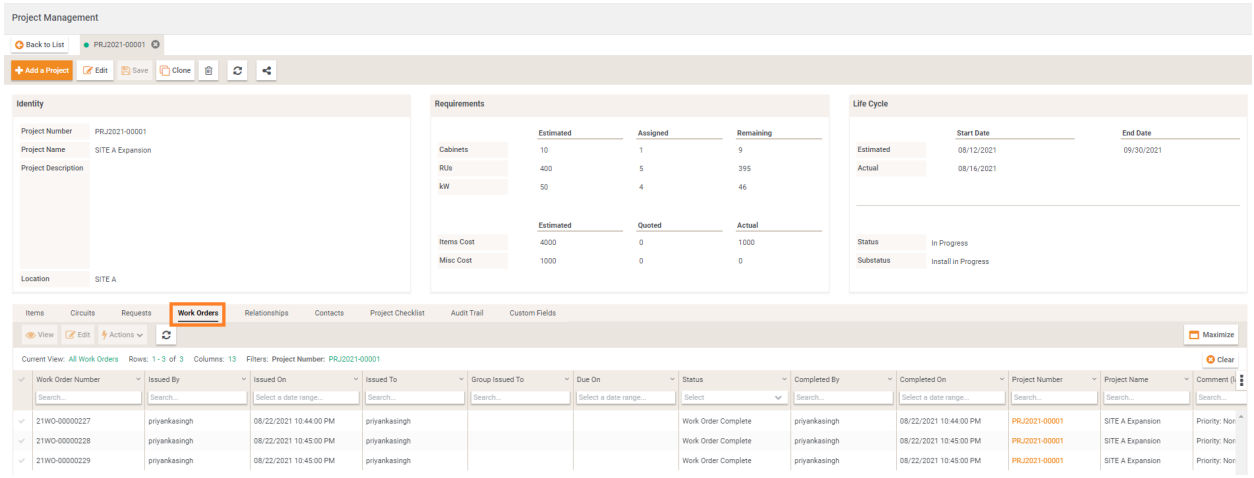
When the items and circuits get assigned to a Project, Requests created for those items and circuits also get assigned to the Project.

You can view the list of Requests assigned to a Project in the Request Sub tab of Project Details screen.



Work Orders created for those Requests also get assigned to the same Project Number.

You can view the list of Requests assigned to a Project in the Request Sub tab of Project Details screen.

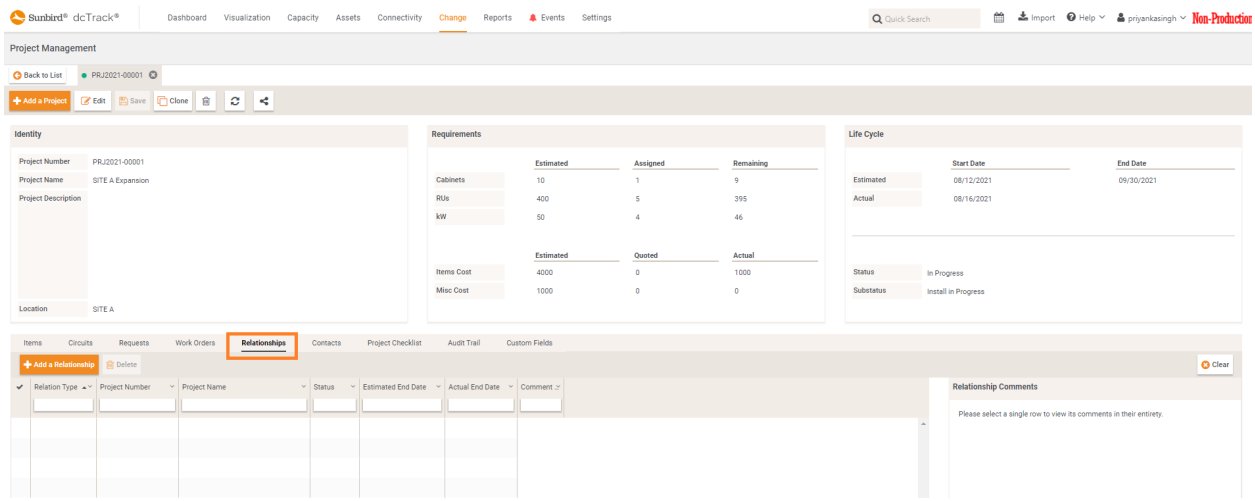


Project Relationship

dcTrack allows you to define relationship between Projects. You can set the relationship of any of your projects such as parent/ child or other relationship. You can also specify whether one project starts after another to streamline the process.

Steps to Create Project Relationship :

1. Navigate to the Project List page from the from the Change menu.
2. Double click the row for the Project you want to create Relationship.
3. Click Relationship sub tab of Project.



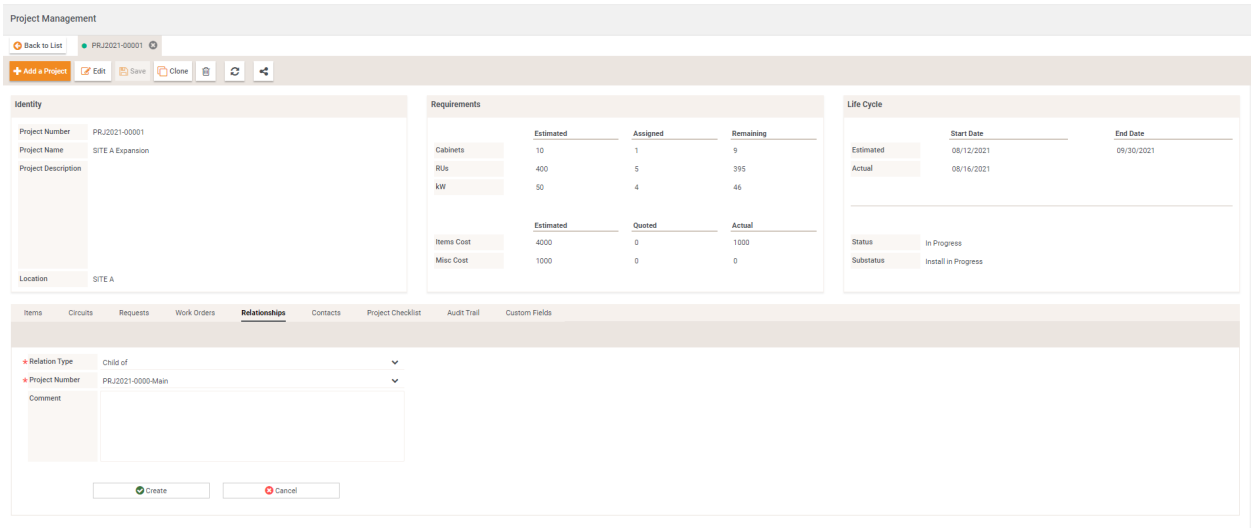
4. Click Add a Relationship.
5. Provide the following information to create Relationship.
    a. Relation Type : Select the Relation Type from the drop down. If the Relation Type you are looking for does not appear in the drop down option then you can create Relation Type from Field Management

screen. See here Configuring Options for Single and Multi-Select List for more details. Required.

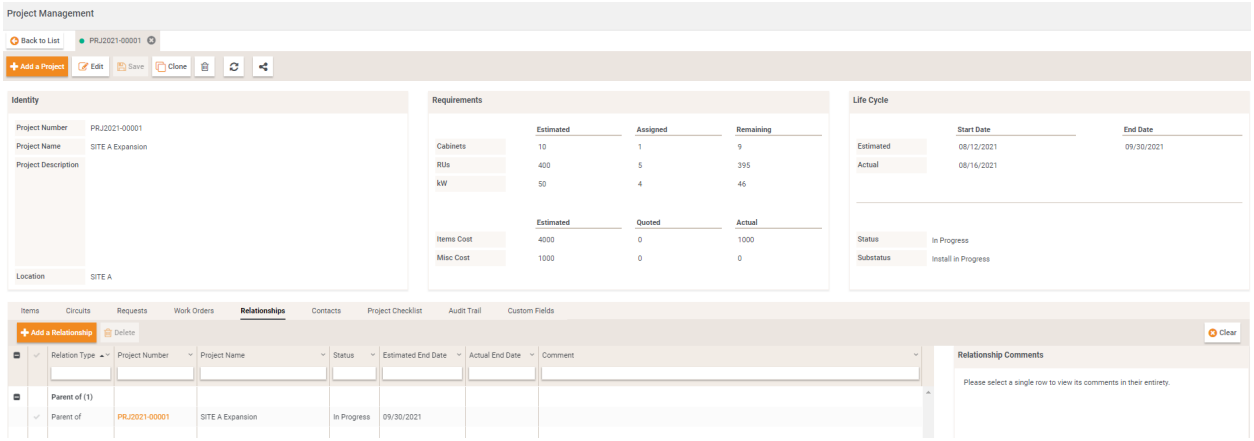
b. Project Number : Select the Project Number from the list. You can also search for the Project by entering the Project Number or Project Name. Required.

c. Comment : Optional.

6. Click Create.



Related Project will appear in the Relationship sub tab.



To Delete Project Relationship :

1. Navigate to the Project List page from the from the Change menu.
2. Double click the row for the Project you want to delete Relationship.
3. Click Relationship sub tab of Project.
4. Select one or more Relationships from the list.
5. Click Delete.

Note : To create and delete Project Relationship, you must have edit permission for the Project.

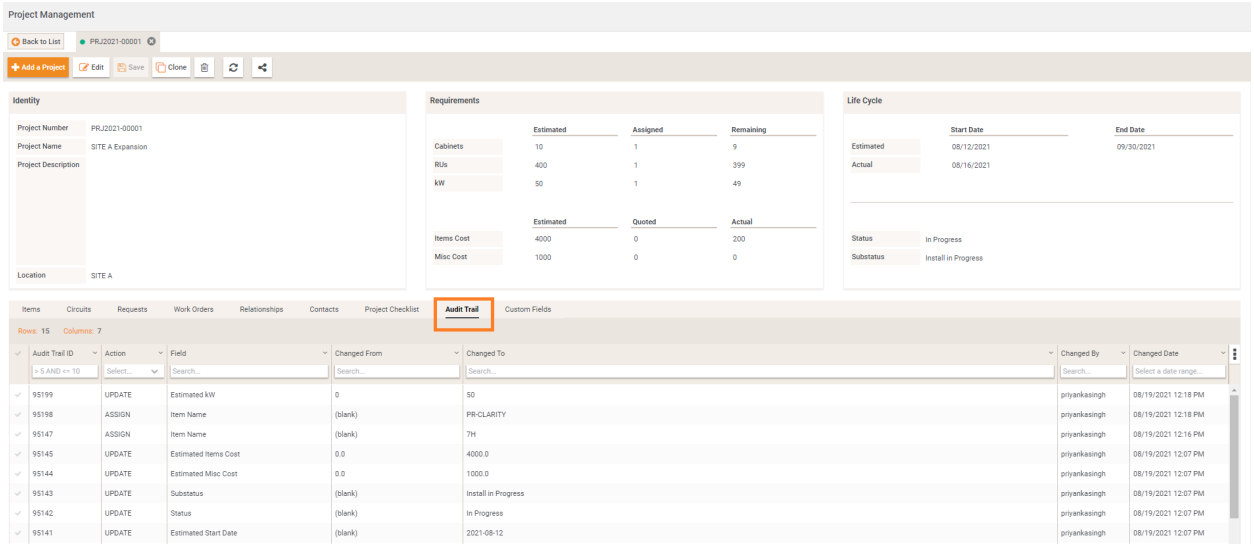
You can also create and delete Project Relationship using File Import /Export. Refer to the examples in the sample import template for Projects. See here Importing and Exporting Projects for more details

Project Audit Trail

Changes to project's information are tracked in the Audit Trail log. Each Project's Audit Trail log is accessible from the Project's Audit Trail sub tab on the Project Detail page.

Project Audit Trail log also captures the record when an item, circuit get assigned to a project or are unassigned from the project.

You can sort and filter the audit trail grid as needed. You can also export the audit trail log in csv and pdf format.



To view the audit log for projects across the database you can design your own custom sql grid widget. For additional information about creating Sql Grid Widgets see Custom Sql Grid Widgets.

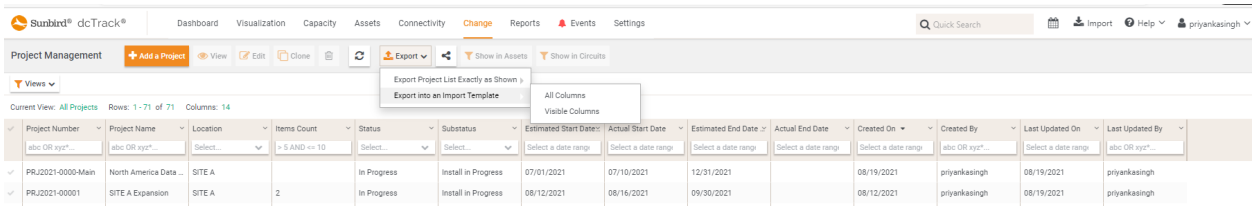
Importing and Exporting Projects

File import/ export can be used to create, edit and delete projects. You must have the System Administrator or the "Bulk Import" role to create and manage projects.

Exporting Projects

Projects exported from the Project List grid page. Users have two options when exporting Projects. You can "Export Project List Exactly as Shown" or "Export into an Import Template". When exporting the list exactly as shown, you can export only selected rows, First 500 rows or All rows. dcTrack will generate a .csv file that contains a record for each row in the list with just the columns available in the current view.

When exporting the list into an Import Template, you can export only the visible columns or export all the columns. The exported .csv file will contain a record for each row in the list. The Operation column in the template will be set to "Edit" for each Project row.



Exactly as Shown

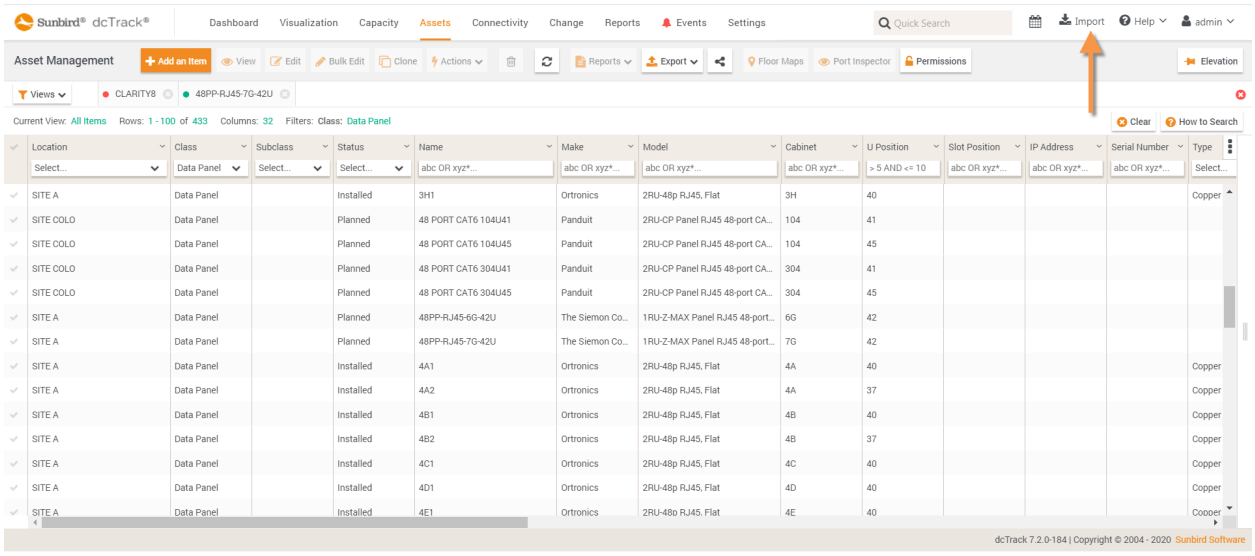
Project Number	Project Name	Location	Items Count	Status	Substatus	Estimated Start Date	Actual Start Date	Estimated End Date	Actual End Date	Creation Date	Created By	Last Updated Date	Last Updated By
PRJ2021-0000-Main	North America Data Cer	SITE A		In Progress	Install in Progress	7/1/2021	7/10/2021	12/31/2021		8/19/2021 12:33	priyankasingh	8/19/2021 12:35	priyankasingh
PRJ2021-00001	SITE A Expansion	SITE A	2	In Progress	Install in Progress	8/12/2021	8/16/2021	9/30/2021		8/12/2021 16:17	priyankasingh	8/19/2021 12:18	priyankasingh

Import Template

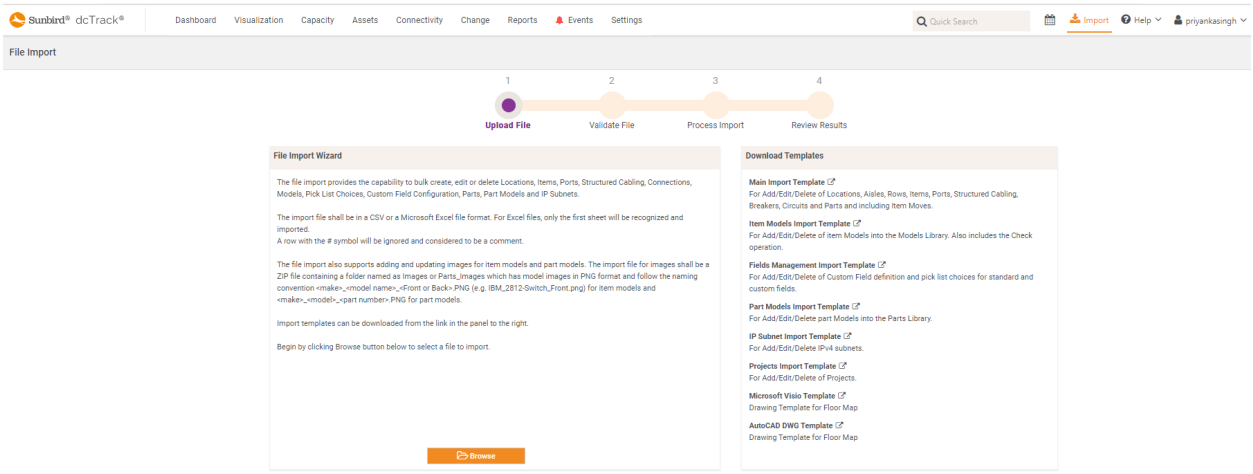
# Is used to indicate the line is a comment.																				
# Fields that are required to add an item are indicated by an asterisk *.																				
# Project Number if not provided will be auto generated																				
# Values provided for location must be an existing dcTrack Location.																				
# Status and Subtatus values should be an existing value created for the lookup field Project Status and Project Substatus. Refer to the field management picklist choices screen to create additional project status and substaus.																				
# The projects listed below are examples. Please see your system administrator for specific naming conventions to be used.																				
# The export templates and files may contain columns for fields that are read-only. On re-import those read-only fields will be ignored.																				
# Operatic	Object *	Project Number	New Proje	Project Name	Description	Location*	Estimated Item	Quoted Items	Estimated	Quoted M	Actual Mi	Estimated	Assigned	Remainin	Estimated	Assigned	Remainin	Estimated	Assigned	Remainin	Estimated Start D
EDIT	PROJECT	PRJ2021-0000-Main		North America Data Center Expansion		SITE A	0	0	0	0	0	0			0			0			7/1/2021
EDIT	PROJECT	PRJ2021-00001		SITE A Expansion		SITE A	4000	0	1000	0	0	10	1	9	400	1	399	50	1	49	8/12/2021

Importing Projects

To import Projects access the main File Import page by clicking the Import button located at the top of every dcTrack page.



You can then select the file you wish to import by clicking the Browse button to begin the upload process.



Note: Import templates for all object types can be downloaded from the main import page by clicking the appropriate option from the right side panel.

For additional information on using the File Import feature, please refer to the help on Use File Import to Add, Edit Delete and Move.

Chapter 4:Ticket Management

dcTrack 8.2.0 and beyond includes a new Ticketing feature. This feature allows you to create and manage Tickets between dcTrack and any external Ticketing system that provides public REST API access to their Ticketing data. Additionally, this feature also supports manual Tickets that are not integrated with any external system but allow you to track progress and tasks within dcTrack.

For information about Ticketing integration please see: Integrate with Ticketing Systems

Ticket List

Ticket Custom Fields

Adding and Managing Tickets

Assigning Items to Tickets

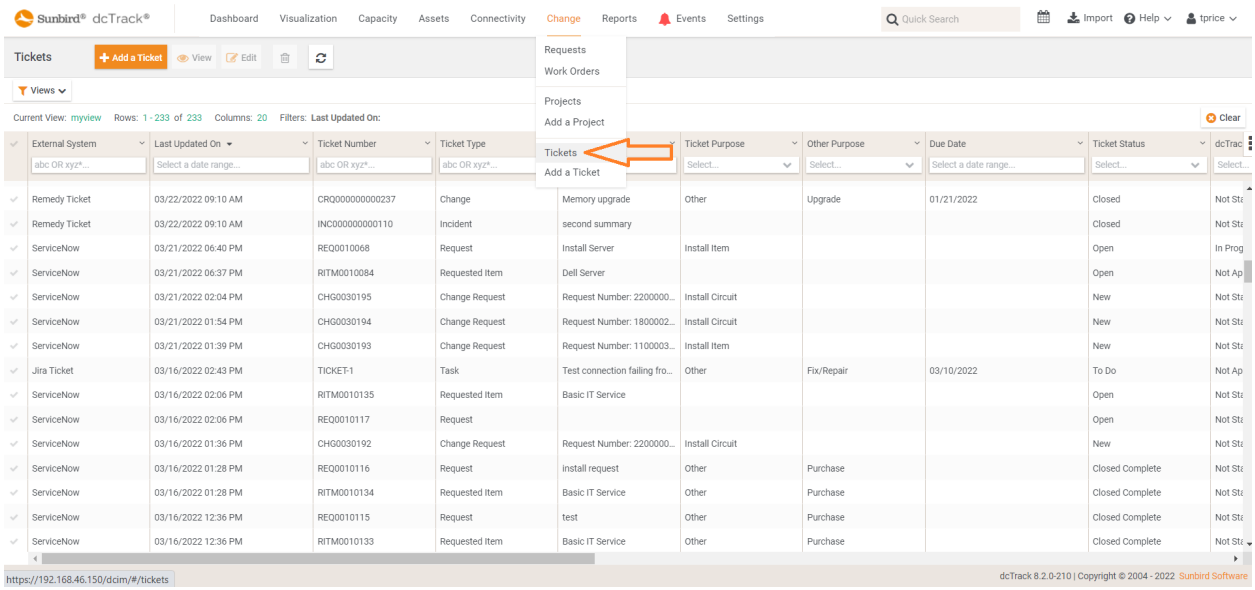
Assigning Circuits to Tickets

Ticket Relationships

Ticket Audit Trail

Ticket List

To access the Ticket List, navigate to Change -> Tickets.



This list contains a row for each Ticket in dcTrack regardless of whether it was created in dcTrack or created via integration. Every field applicable to a Tickt is available on the grid.

You can Show or Hide columns using the Show/Hide icon in the upper right corner of the grid. Fields in the grid can be repositioned by dragging and dropping the column to the desired position. Each field is filterable and sortable from the column header.

Ticket List Toolbar

Icon	Summary
Add a Ticket	Opens a new page to add a Ticket
View	Opens one or more selected Tickets in View mode
Edit	Opens one or more selected Tickets in Edit mode
Delete	Deletes the selected Tickets
Refresh	Refreshes the Ticket List

Ticket Custom Fields

The Fields Management feature now includes support for Ticket Custom fields in addition to its existing support for Project, Items, Circuits and Parts. Custom Fields. Ticket Custom Fields enable organizations to capture and display additional Ticket data that may not be covered by dcTrack's Standard Fields.

Users with the System Administrator role or who have the Field Management Operator auxiliary role can add, edit, and delete Custom Fields.

For detailed information on managing Custom Fields please see: Standard and Custom Fields

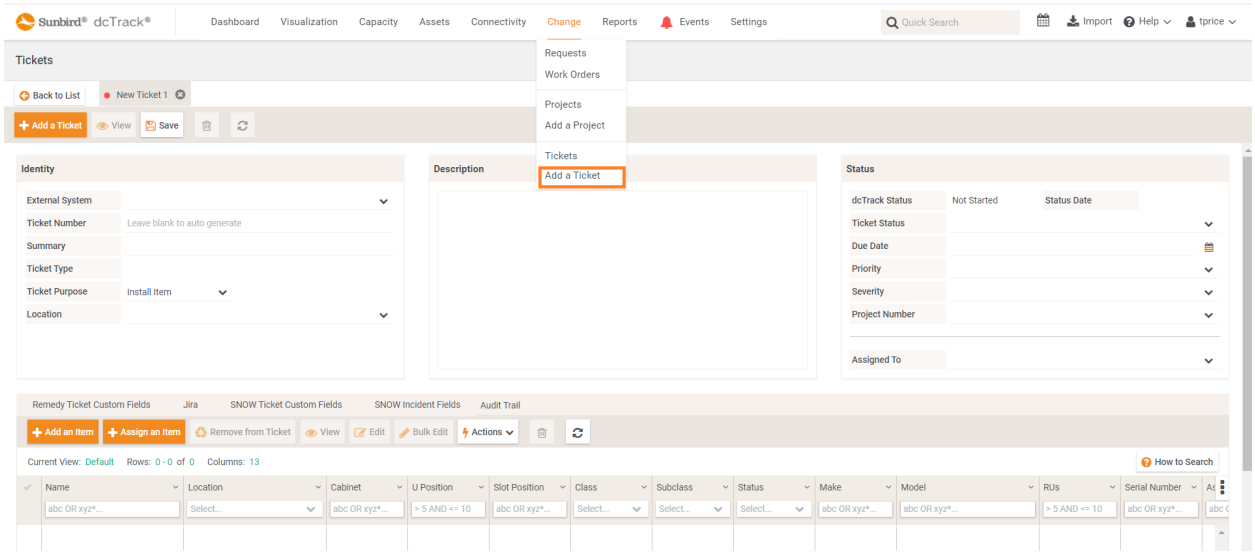
Add and Manage Tickets

Tickets can be added via the Web Client or created from an external application via Ticketing integration. Users with either the Operator, Gatekeeper or System Administrator role can add and manage Tickets.

Add Tickets

Steps to Add a Ticket in dcTrack:

1. Navigate to the Add a Ticket page from the from the Change Menu or select the Add a Ticket button on the Tickets List tool bar. Provide the following information in New Ticket Tab.



2. **External System** - For integrated Tickets, select the Connector record from the drop down. For Tickets that should not be integrated, leave this field blank.
3. **Ticket Number** - If you have selected a Connector indicating this is to be an integrated Ticket, this field will be read-only. When the record is saved, the field will be auto populated with the dcTrack generated Ticket Number. Upon successful integration, this field will be updated with the Ticket Number for the associated Ticket on the external system. For non-integrated Tickets, you can supply a globally unique value or leave the field blank and dcTrack will auto populate the field with the dcTrack generated Ticket Number.

4. **Summary** - Enter a brief description for the Ticket. This field is optional on dcTrack but depending on the field mapping could be required by the external system.
5. **Ticket Type** - For non-integrated Tickets, this field is read only. For Integrated Tickets, select the Ticket Type from the drop down list. This list is populated with the Ticket Types defined in the Connector record for the selected Connector.
6. **Ticket Purpose** - Select the Ticket Purpose from the drop down. This field is optional on dcTrack but depending on the field mapping could be required by the external system.
7. **Other Purpose** - When the selected Ticket Purpose is "Other", you must select the appropriate Other Purpose from the drop down. This list is populated with the user defined options supplied as Pick List Options for the "Ticket Other Purpose" field in the Field Management feature.
8. **Location** - Select the associated Location from the drop down. This list is populated with all dcTrack Locations that can contain assets. This field is optional on dcTrack but depending on the field mapping could be required by the external system. This field is required if you want to supply a value in the Project Number field.
9. **Description** - Enter a detailed Description for the Ticket. This field is optional on dcTrack but depending on the field mapping could be required by the external system.
10. **dcTrack Status** - Read Only. This field is updated automatically for Tickets managed by dcTrack's Workflow features.
11. **Status Date** - Read Only. This field is updated automatically for Tickets managed by dcTrack's Workflow features. It displays the date the "dcTrack Status" field was last updated.
12. **Ticket Status** - Select the appropriate Ticket Status from the drop down. This list is populated with the user defined options supplied as Pick List Options for the "Ticket Status" field in the Field Management feature. This field is optional on dcTrack but depending on the field mapping could be required by the external system.
13. **Due Date** - Enter the Due Date for the Ticket. This field is optional on dcTrack but depending on the field mapping could be required by the external system.
14. **Priority** - Select the appropriate Priority for the Ticket from the drop down. This list is populated with the user defined options supplied as Pick List Options for the "Ticket Priority" field in the Field Management feature. This field is optional on dcTrack but depending on the field mapping could be required by the external system.
15. **Severity** - Select the appropriate Severity for the Ticket from the drop down. This list is populated with the user defined options supplied as Pick List Options for the "Ticket Severity" field in the Field Management feature. This field is optional on dcTrack but depending on the field mapping could be required by the external system.
16. **Project Number** - Select the appropriate Project Number for the Ticket from the drop down. This list is populated with the all of the valid Projects on dcTrack whose Location matches the Ticket Location. This field is optional on dcTrack but depending on the field mapping could be required by the external system.
17. **Assigned To** -Select the appropriate Assignee for the Ticket from the drop down. This list is populated with the user defined options supplied as Pick List Options for the "Ticket Assigned To" field in the Field Management feature. This field is optional on dcTrack but depending on the field mapping could be required by the external system.

You can also enter additional Ticket information by creating custom fields. See here Ticket Custom Fields for more details.

Editing Tickets

Any Ticket can be edited to correct or update data after the Ticket is created. For integrated Tickets, fields owned by the external system will be read only. Fields owned by "dcim" or "both" can be updated and upon saving will be pushed to the external system.

Steps to Edit a Project:

1. Navigate to the Ticket List page from the from the Change menu.
2. Double click the row for the record you want to edit, or you can select one or more rows from the list and click the Edit button on the tool bar (when editing multiple rows each record will be opened in a separate detail page tab).
3. Enter the updated information.
4. Save the Ticket.

Deleting Tickets

Any Ticket on dcTrack can be deleted. Tickets deleted on dcTrack will also be deleted on the external system if the <pushDeleteToTicket> element in the Ticketing Config file is set to "true".

Steps to Delete a Ticket:

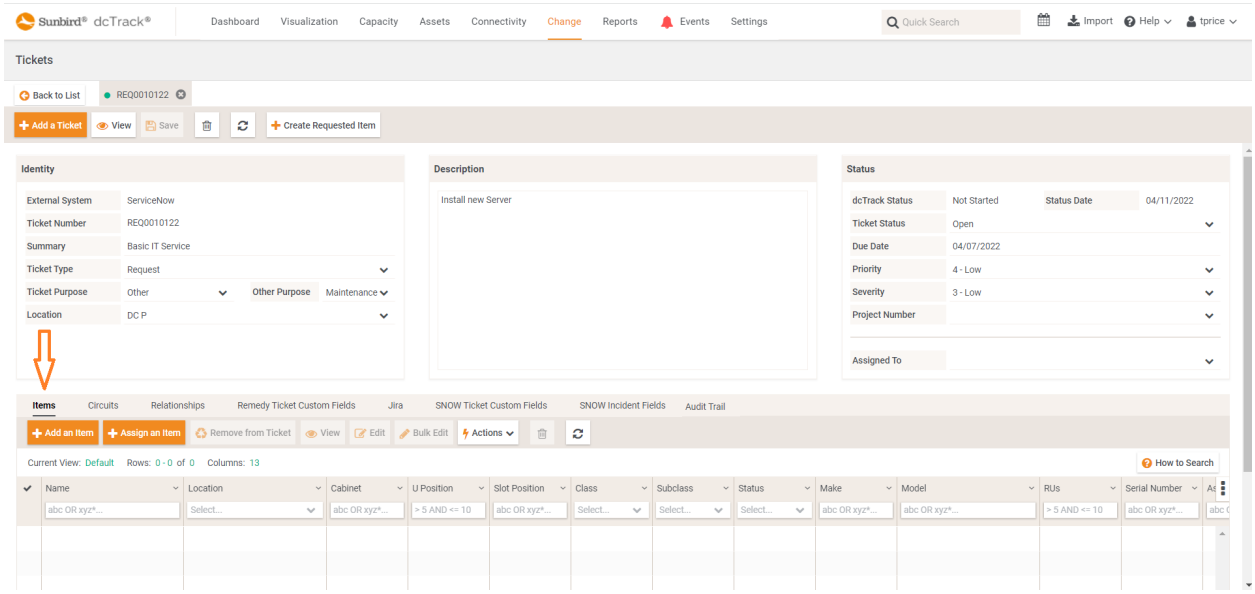
1. Navigate to the Ticket List page from the from the Change menu.
2. Double click the row for the record you want to delete, or you can select one or more rows from the list and click the Delete button on the tool bar.

Assigning Items to Tickets

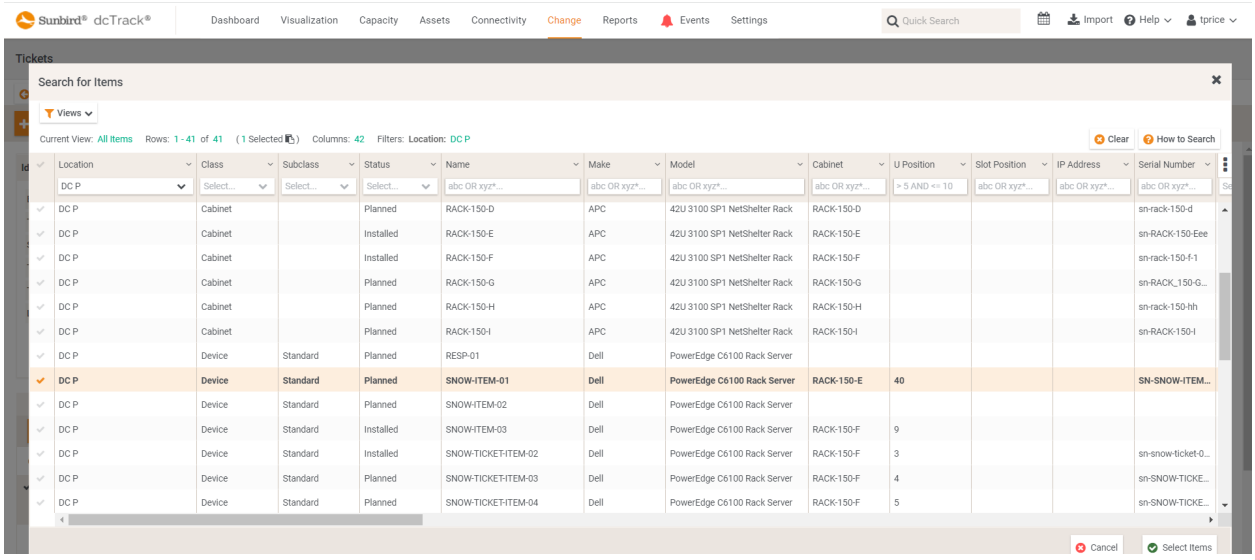
Items can be assigned to Tickets from the Items sub tab on the Ticket Detail page or via integration when configured in the Ticketing Connector Config. For more information on integrating Item assignments please see the Integrate with Ticketing Systems documentation.

Steps to assign items to Tickets in dcTrack:

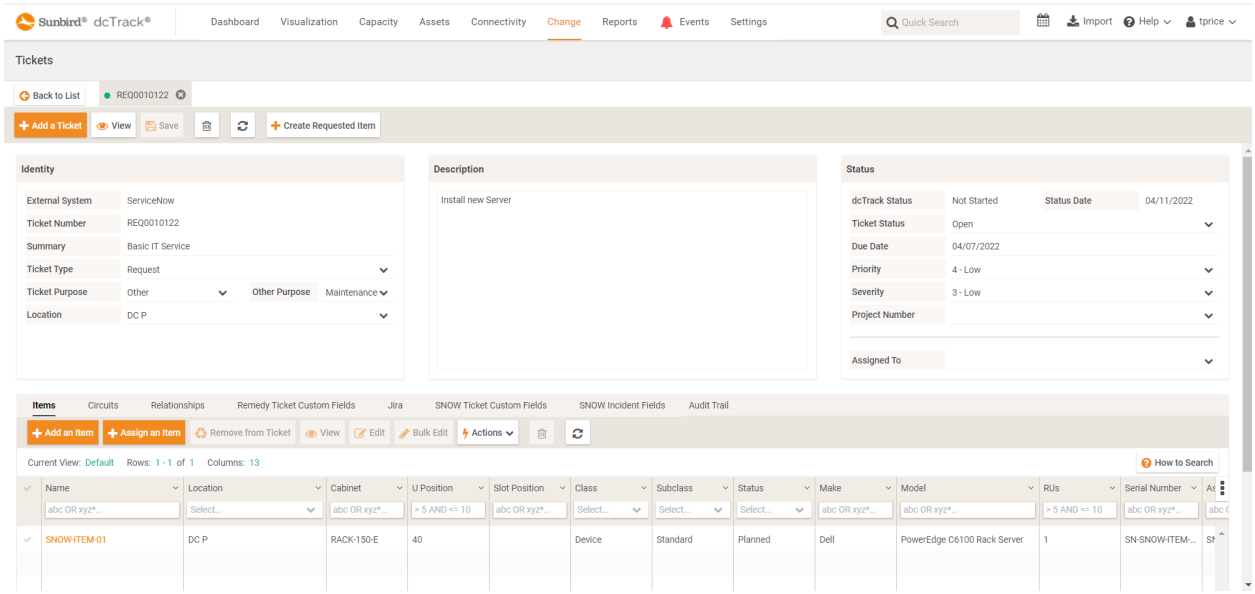
1. Navigate to the Ticket you want to assign the Item to.
2. Click on the Item sub tab at the bottom of the Ticket Details page.



3. To create a new Item that is automatically assigned to the Ticket, Click the "Add an Item" button.
4. To Assign an existing Item(s) click the "Assign an Item" button.
5. Select the Item(s) you want to assign from the Search for Items dialog. You can filter using any columns to narrow your selection options.



6. Once you have selected the Items to be assigned, click the Select Items button.
7. The selected Items will be assigned to the Ticket on dcTrack and if configured in the Connector will be associated to the Ticket on the external system.



8. To remove an Item association click the "Remove from Ticket" button.

Clicking on the hyperlink in the Item Name field will navigate to the Item Detail screen.

Additional Actions available from the Item Sub tab tool bar:

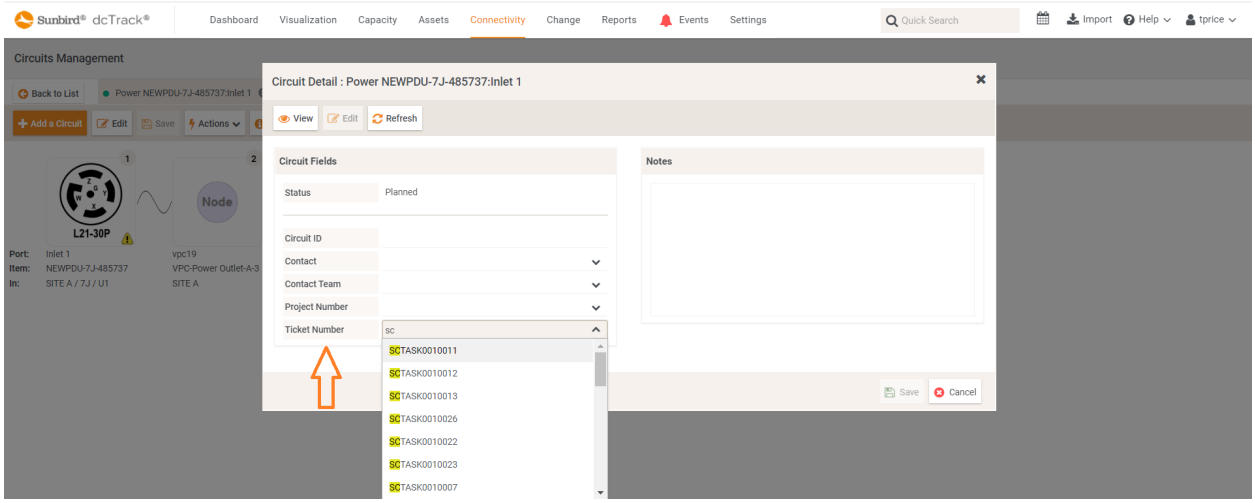
Icon	Summary
Add an Item	Opens a new page to add an item. The new Item will be automatically associated to the Ticket.
Remove from Ticket	Un-assign the selected items from the Ticket.
View	Opens one or more Item Detail pages in View mode
Edit	Opens one or more Item Detail pages in Edit mode
Bulk Edit	Opens the Bulk Edit dialogue to bulk edit selected item fields
Actions	Drop down that allows toggling Request Bypass, Install, Decommission requests etc.
Delete	Deletes the selected items
Refresh	Refreshes the Item List

Assigning Circuits to Tickets

Circuits can be assigned to Tickets using the standard circuit field Ticket Number.

Steps to assign circuits to Tickets :

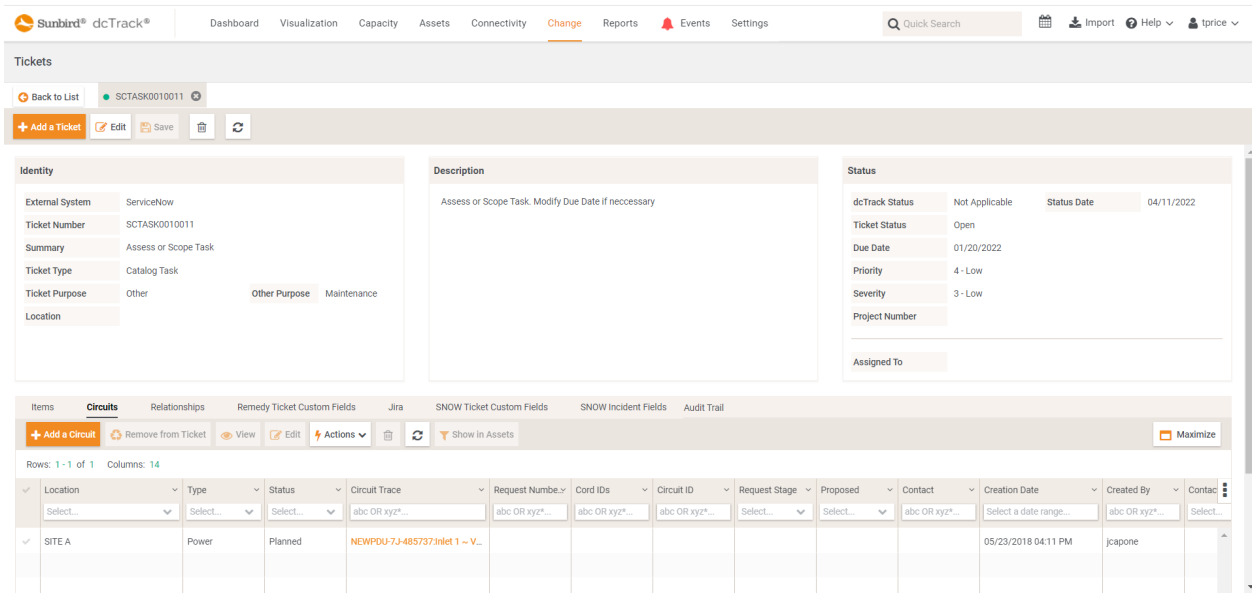
1. Navigate to the circuit you want to assign to a Ticket.
2. Click Circuit Detail.
3. In the Circuit Detail dialogue, click Edit button.
4. Click Ticket Number field and select the Ticket number you want to assign the circuit to. The drop down list is populated with all the Tickets created in dcTrack database whose Location matches the circuit or Tickets with no Location specified. You can search for Ticket Numbers by typing the Ticket Number in the Ticket Number field.
5. Click Save and close the dialogue.



Circuits Sub tab on Ticket Details page

All the Circuits that are assigned to a Ticket will display on the Circuits sub tab of Ticket Detail screen.

The Circuit list in this sub tab displays all the circuits assigned to the Ticket. The list includes all the columns from Circuit List. To specify which columns are shown or hidden, click the Show/Hide columns icon.



Refer to the table below for details on Circuit sub tab toolbar.

Icon	Summary
Add a Circuit	Opens a new page to add a Circuit. The circuit will be automatically associated with the Ticket.
Remove from Ticket	Unassign the selected circuits from the Ticket.
View	Opens one or more selected Circuits on a single or multiple tabs in View mode.
Edit	Opens one or more selected Circuits on a single or multiple tabs in Edit mode.
Delete	Deletes the selected Circuits.
Refresh	Refreshes the Circuit List.
Actions	Dropdown that allows toggling Request Bypass, Connecting or Disconnecting Circuits.
Show in Assets	Navigate to a filtered item list containing the selected Circuits First Node items.

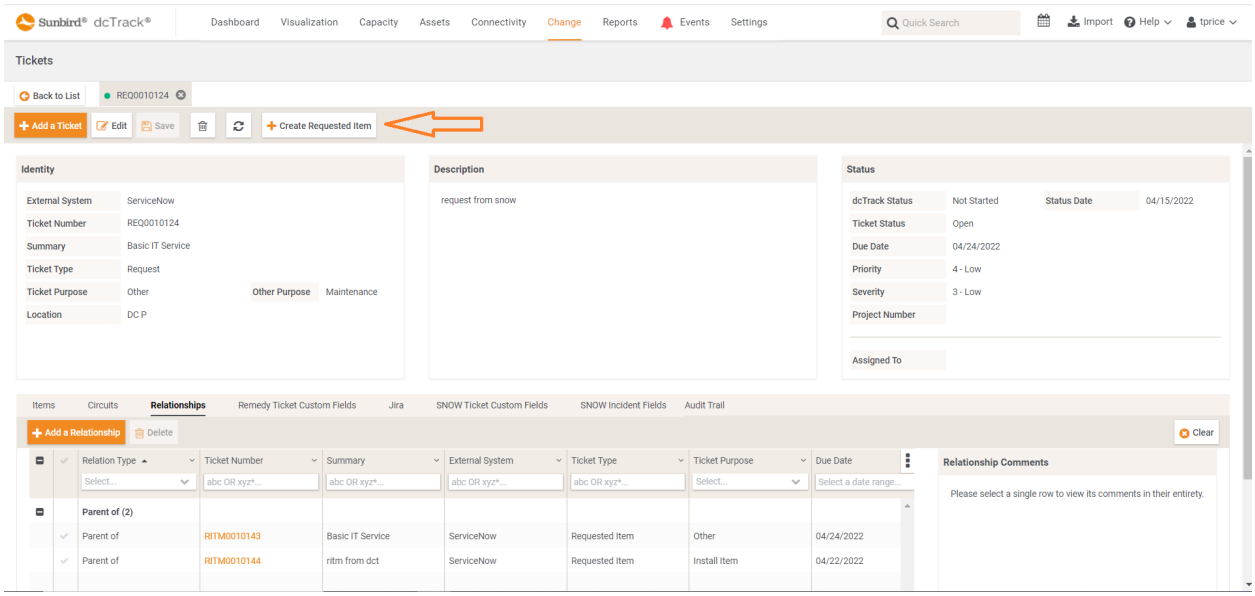
Ticket Relationships

dcTrack allows you to define relationships between Tickets. Relationships between integrated Tickets are managed through the settings defined in your Ticketing Connector xml. If relationships have been defined for Integrated Tickets, an additional button is displayed in the Ticket Detail Page tool bar to create the Related Ticket. The label for this button is defined as part of the Relationship definition in the Ticketing Connector configuration file. For additional information about setting up the Ticketing Connector is dcTrack, please see: Integrate with Ticketing Systems.

Please Note: For integrated Tickets, you should never create Relationships from the Relationship sub tab. Relationships created from this sub tab will not be reflected on the external application.

Steps to create a Relationship for an Integrated Ticket:

1. After defining the relationship in the Ticketing Connector Configuration file, navigate to the Ticket you wish to create the relationship for.
2. In the top tool bar you will see a button to create the Child Ticket as defined in the configuration.

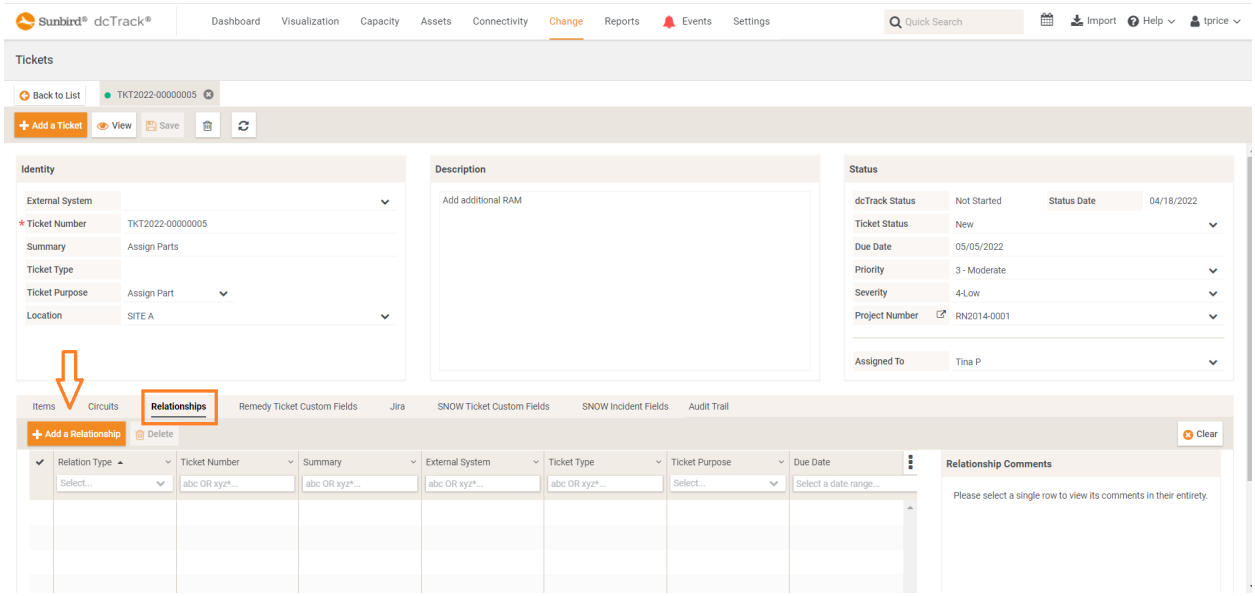


3. Click the "Create ..." button to open a new Create Ticket page.
4. Supply the data for the integrated fields on the new Ticket.
5. Click Save to save the new Ticket.
6. Refresh the page to see if the Ticket is successfully integrated. If the Ticket was successfully integrated the Auto Generated Ticket Number will be replaced by the Ticket Number as it exists on the external application. For Integrations that use polling, the refresh will reflect the new Ticket Number only after the next Poll has occurred.
7. Once successfully integrated, the related ticket is displayed on the Relationship sub tab for both the Child Ticket and the Parent Ticket.

For manual Tickets (Tickets that are not integrated with an external application), Relationships are created from the Relationship sub tab.

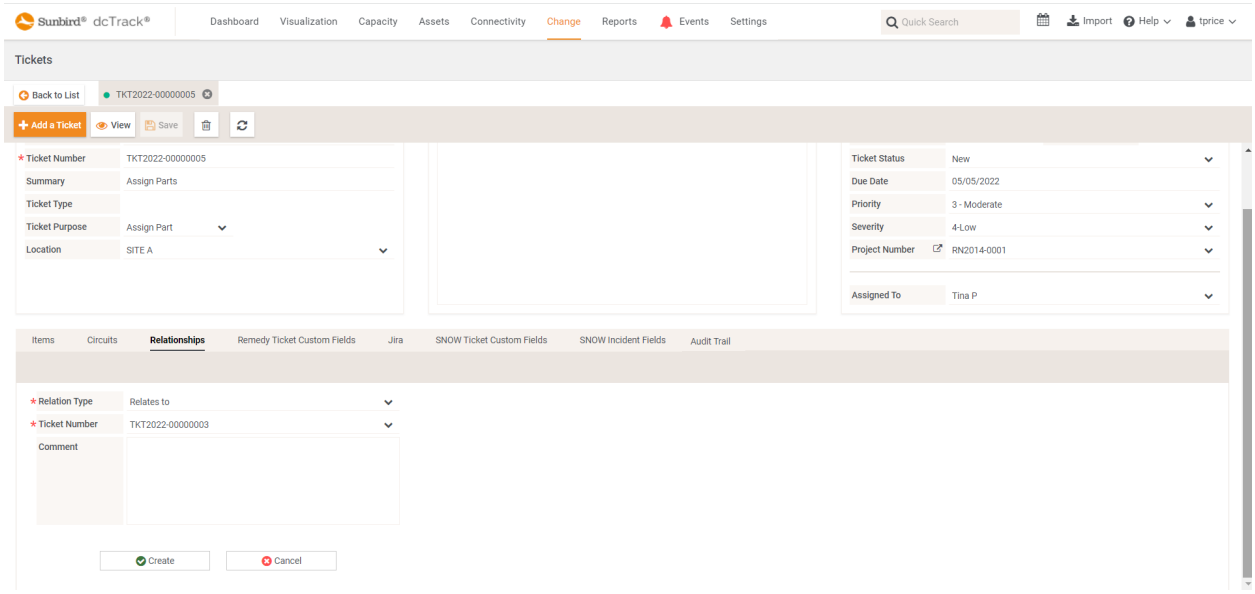
Steps to Create Ticket Relationships for non integrated Tickets:

1. Navigate to the Ticket List page from the from the Change menu.
2. Double click the row of the Ticket for which you want to create the Relationship.
3. Click the Relationship sub tab of Ticket.

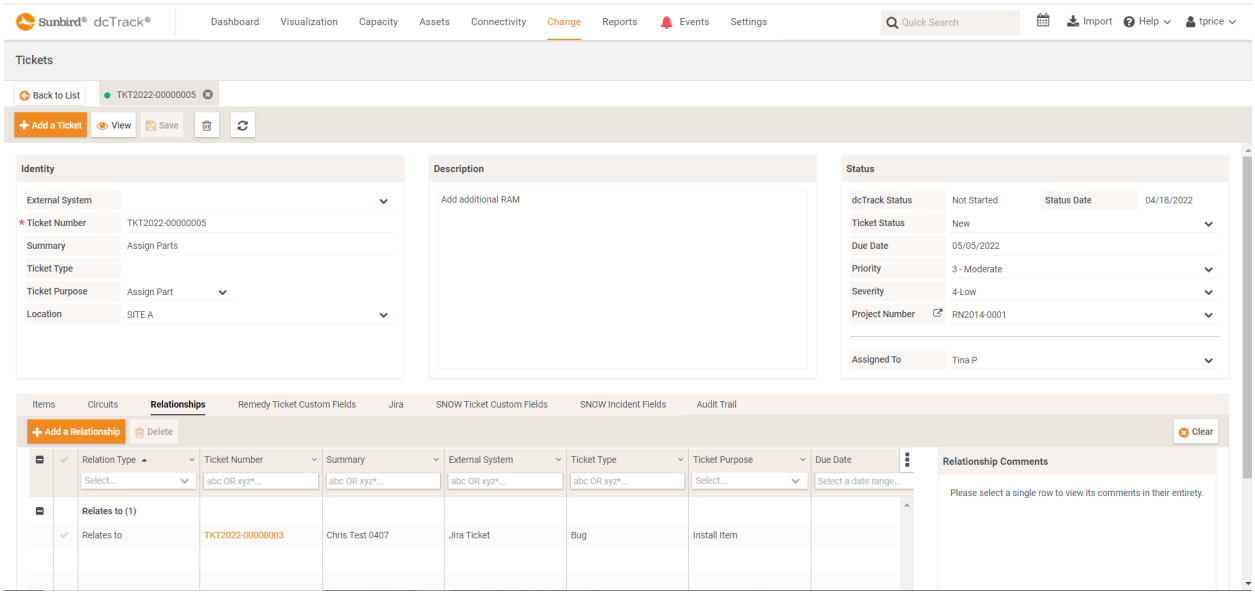


4. Click Add a Relationship.
5. Provide the following information to create Relationship.
    a. Relation Type : Select the Relation Type from the drop down. If the Relation Type you are looking for does not appear in the drop down option then you can create a new Relation Type as a pick list option from the Field Management screen. See Configuring Options for Single and Multi-Select Lists for more details. Required.
    b. Ticket Number : Select the Ticket Number from the list. You can also search for the Ticket by typing the Ticket Number into the field. Required.
    c. Comment : Enter any Comments related to the relationship. Optional.

6. Click Create.



The Related Ticket is displayed on the Relationship sub tab for both Tickets.



To Delete a Ticket Relationship :

1. Navigate to the Ticket List page from the from the Change menu.
2. Double click the row of the Ticket for which you want to delete the Relationship.
3. Click Relationship sub tab of Ticket.
4. Select one or more Relationships from the list.
5. Click Delete.

Chapter 4:Item Models Library

Overview

dcTrack provides the following default, prepopulated libraries:

- Item Models Library
- Connectors Library
- SNMP Library

These libraries are used by dcTrack when populating fields that require model information, connector types, equipment make names, and so on.

Libraries can be edited by System Administrators so they can be customized based on company-specific needs.

For example, you can designate certain models 'My Company Standard'. This allows users to filter model dialogs so they display only those models used by your company.

Another example is the ability to add or update model and connector images, add new models rather than wait for a library upgrade from Sunbird, manage blade chassis by defining anchor slots, slot numbering and so on.

The Items Models Library is available in dcTrack 5.1.0 and higher. The Connectors Library is available in dcTrack 7.2.0 and higher.

What Is the Item Models Library and Sunbird Models Library file?

dcTrack uses the terms Sunbird Models Library file and Item Models Library.

The Sunbird Models Library file is maintained by Sunbird and distributed to clients to update their Item Models Library with new model information.

"Item Models Library" always refers to your local library. This is the library on your sever that is updated with new models from the Sunbird Models Library file.

The Sunbird Models Library file is available for download on the Sunbird DCIM Professional Services and Support at http://support.sunbirddcim.com.

Note: A username and password are required to access the DCIM Professional Services and Support site. If you do not have a username and password to access the website, contact Professional Services and Support via the Support site.

Why Update?

Updating the Item Models Library after you have implemented dcTrack for the first time is important in order to ensure you are using the most current version.

Updating before doing a large bulk import of items is a recommended practice so you can ensure all of the most current makes and models are found.

Regularly updating your Item Models Library once you are using dcTrack ensures data consistency since Sunbird adds new models on a regular basis. If you do not update the library, you run the risk of having library entries that are similar but not identical.

For example, Sunbird may add a new server model named Server-1000. If you manually add the same model but call it Server 1000, both model entries are available for selection by users.

However, if you have already added models manually, you can map them to models in the Sunbird Models Library file during the library update.

Ensure You Have the Most Current Models in Your Library

The Sunbird Models Library file files are incremental, not cumulative. This means each Sunbird Models Library file release contains only newly added models and updated models; the file does not contain all of the models in the entire Sunbird Models Library file.

For example, file version 5.0.042 does not contain all the models in file 5.0.041.

Note: If you have not updated each time a new file version was release, update to each of the previous Item Models Library versions before you update to the latest.

What To Do if a Model is Not in Your Item Models Library

You can do one of the following to request a model/make be added to the Sunbird Models Library file contact:

- **Add a Model to the Models Library** (provided you have privileges to do so)
-
- Contact Sunbird Professional Services and Support to request a model be added to the library and included in the next Sunbird Models Library file releases

For more information, see **What To Do if A Make or Model Is Not Available for Selection**.

Item Models Library Updates Wizard

Updates are performed using the Library Update Wizard, which walks you through each step of the process.

Until the actual update has started, you can return to previous steps to make changes or cancel the update to clear all settings. If you cancel the update to close the Models Library update wizard, your uploaded file and changes will be lost.

Note: Only one Models Library update can occur at a time.

Note: Download the Sunbird Models Library file and save it locally before attempting to update the Models Library. You will need the file to update the library.

Update the Models Library (High-Level Steps)

1. If you have not already done so, download the most recent Sunbird Models Library file and save it locally.
2. In the Models Library, select Actions > Update Models Library to access the Library Update Wizard.
3. On the first step (welcome screen), click Start a New Update Session to start the wizard. The results of the previous update will be displayed if available.
4. On the second step, click Browse to locate the Sunbird Models Library file you saved locally.

   The file upload takes place in two stages: uploading and then processing/staging. Once this step has completed, the following message is displayed: "Models Library Staging is successful without any errors or warnings. You may now proceed to next step." Click the green arrow to the right of the steps to proceed.

5. Map information.

   Each step displays the items that do not exactly match the database objects. Users will be able to add non-matching items to the database or can select objects from a list of potential matches.

   Items that match exactly will be automatically updated in the database. These items are not displayed.

   If there is information in the Sunbird Models Library file that is not in your Item Models Library, it is automatically copied to your library once the wizard completes.

   - Step 3 maps Data Connectors.
   - Step 4 maps Power Connectors.
   - Step 5 maps Protocols.
   - Step 6 maps Data Rates.
   - Step 7 maps Breakers and Fuses.
   - Step 8 maps Makes.
   - Step 9 maps Models.

   Certain rows in the grid may be flagged with a Warning or Error icons. Hovering the mouse over the icon reveals the issue that you may be able to correct by changing the Best Match selection, or for certain errors, you must choose the Skip action and resolve the problem in your system.

6. In Step 9, you will be able to generate a spreadsheet of Classis and Blade Items affected by the update (if any) and a spreadsheet of Actions on Models in the Update. Click the Export button to view these options.
7. On Step 10, click Begin Library Update to begin the library update.

   New models are added and existing model information is updated once Begin Update is selected.

   As the process is underway, monitor the progress using the progress bar. No additional input is required, and the update can be left to run unattended.

8. Once the update is complete, the results will be displayed in the Results and Progress box.

Supported Library Upgrades

Each model in the Sunbird Models Library file is given a version number based on the library update file it is issued in.

The library version you can upgrade to depends on your current version of dcTrack.

3.x and later users, download the Sunbird Models Library file for your current dcTrack version.

dcTrack 2.x users should contact Professional Services and Support via the Support website at http://support.sunbirddcim.com for assistance.

Library Update Wizard Details

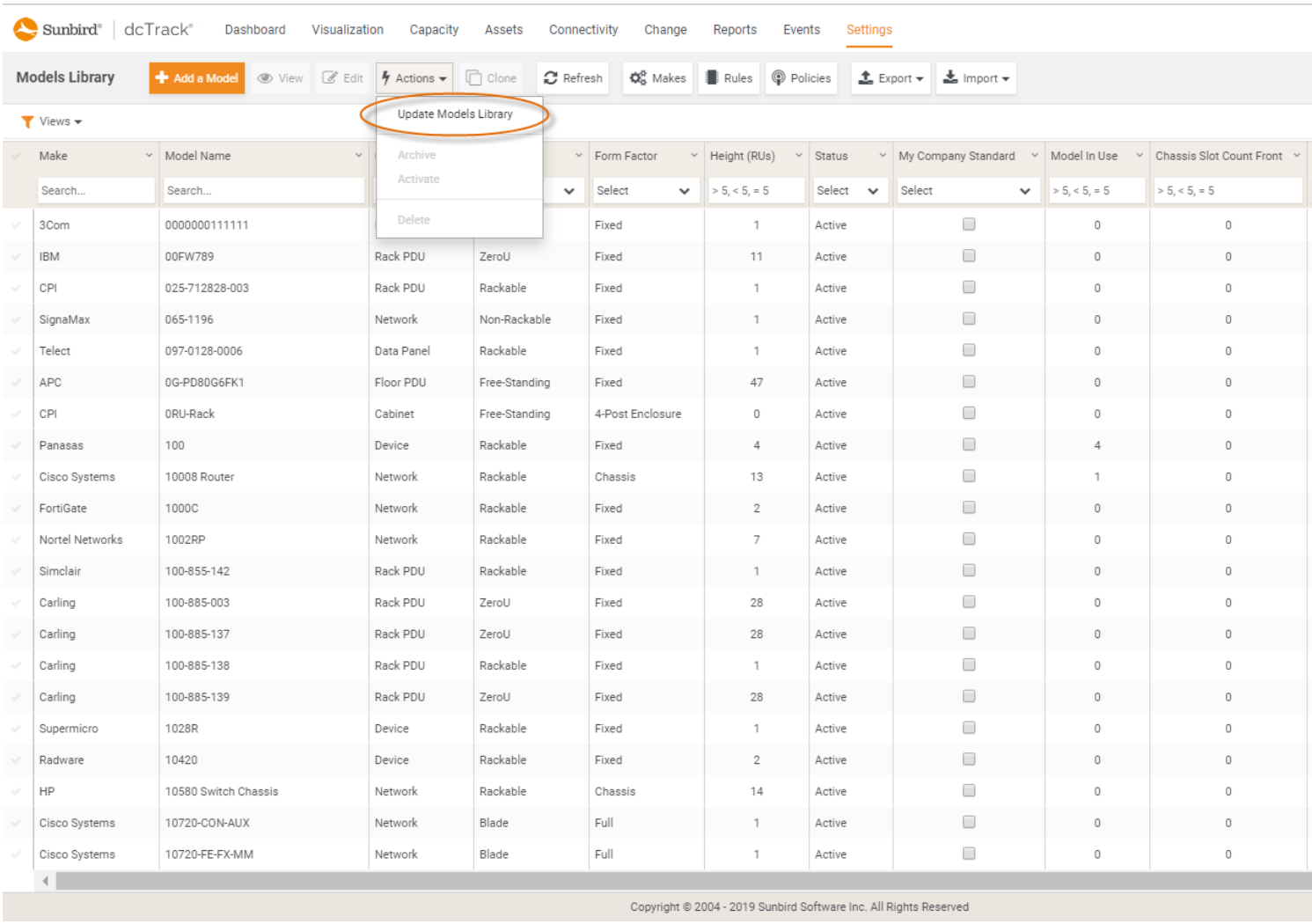
The Library Update Wizard provides a step-by-step walkthrough for updating the dcTrack Models Library and associated information as well as additional features that are available at different steps during the Wizard. For high-level steps when using the Wizard, see **Item Models Library**.

Users are able to review the items in the update file that do not already exist in their databases and to compare these items with those in their databases that they may want to map. The best match is automatically displayed in the row for the item. The user can select to Use Best Match or Add.

In the case of models, the user can select to User Best Match, Add, Skip or Always Skip. The details for the model in the file and the model in the database are displayed, and differences are highlighted for easy comparison.

Validation is performed on current selections and any errors or warnings are flagged using the appropriate icons. All errors must be resolved or skipped before the update can begin.

To start the Library Update Wizard in the Web Client, select Settings > Models Library > Actions > Update Models Library.



Step 1: Start (Welcome Screen)

The Models Library Update Wizard launches in a new tab within the Models Library.

The progress bar along the top of the screen displays your progress through the wizard's 10 steps. Your current step is marked in purple. Completed steps are marked in green. At any time before the update takes place, you may return to the previous steps to edit your selections.

A welcome message with important information on using the wizard displays on the left of the screen. The results of the last update session, if available, display in the Results of Last Update Session box on the right of the screen.

To start a new update, click the green Start a New Update Session button.

Note: Only one update can take place at a time. You cannot attempt to update the Models Library if another update is already in progress.

Step 2: File Upload

You need to download the most recent Sunbird Models Library file and save it locally to update the Models Library.

The file is a Microsoft Access (mdb) database file and includes updates to the model data in your library.

Click Browse to select the file and begin the file upload.

The file upload takes place in two stages: uploading and then processing/staging. Once this step has completed, the following message is displayed: "Models Library Staging is successful without any errors or warnings. You may now proceed to next step."

Note: When you upload a Models Library Update file (.mlu) to dcTrack, if a standard or network device model in the file matches a model in your library and the "Do Not Update" option for the model is false, the ports in the MLU file will overwrite the ports in your library regardless of whether the ports were modified by you. For Rack PDU power ports, if you modified any port, all power ports will be considered modified and no ports will be added from the MLU file.

Note: The file upload can be canceled at any time by closing out of the tab or by clicking the Cancel button above the progress bar.

Steps 3-9: Mapping Information

The wizard walks users through mapping the information in the file with their current database for each of the following items:

- Data Connectors
- Power Connectors
- Protocols
- Data Rates
- Breakers & Fuses
- Makes
- Models

Each step displays the models that do not exactly match the models. Users will be able to add non-matching models to the database or can select objects from a list of potential matches.

Models that are exact matches of models in the database will be automatically updated in the database. These models are not displayed in the wizard.

Step 3: Map Data Connectors

Map data connectors that are in your library to data connectors in the Sunbird Models Library file.

Step 4: Map Power Connectors

Map power connectors that are in your library to power connectors in the Sunbird Models Library file library.

Step 5: Map Protocols

Protocol information includes Ethernet/IP address, HSSI information and so on that is in your library but not in the Sunbird Models Library file.

Step 6: Map Data Rates

Map data rates if, for example, a network item in your library may have a data rate of 2GB.

If the model does not exist in the Sunbird Models Library file, add it so it is associated with the network item when the library update is complete.

Step 7: Map Circuit Breakers and Fuses

Map circuit breakers and fuses if there are circuit breakers and fuses in the Sunbird Models Library file that are not in your library, they are added.

Step 8: Map Makes

If there are new makes in the Sunbird Models Library file that are not in your library, they are automatically copied to your library during the data connectors step.

If needed, map makes that are in your library to makes in the Sunbird Models Library file.

Mapping is needed if makes in your library are named differently than those the Sunbird library.

Step 9: Map Models

If an exact match to your library model is found in the Sunbird Models Library file, dcTrack updates your library with the latest model information, ports and image (if any).

If no exact match is found, dcTrack looks for the best match for the model. If a match is not found, dcTrack prompts you to find a match or add it to the library.

If you map a model in your library to a model in the Sunbird Models Library file but the models are not an exact match, all models that are currently using the Sunbird Models Library file model are updated in the database to reflect the new library model you apply.

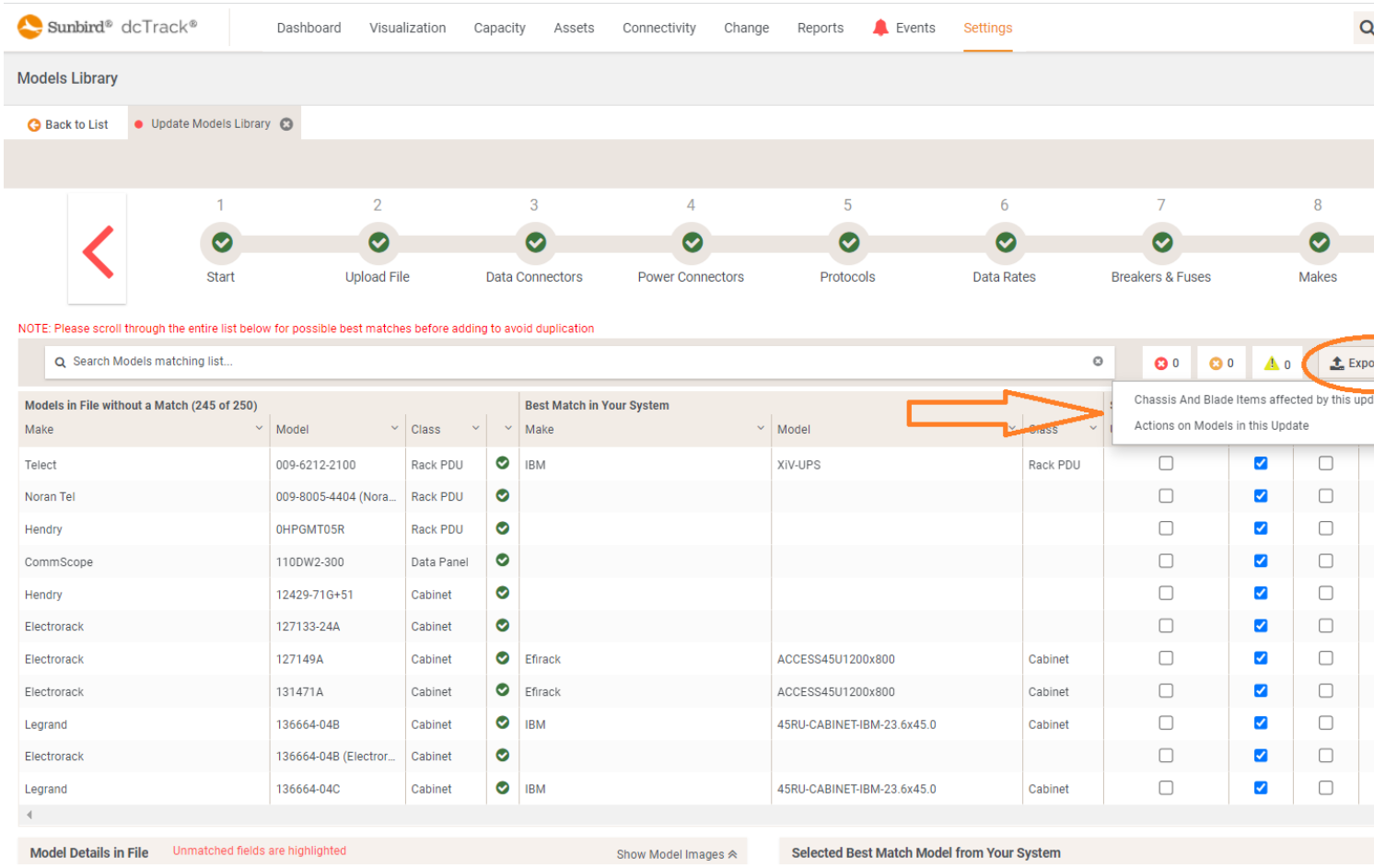
Note: In dcTrack version 9.0.0 and beyond, Model uniqueness will be determined based on the combination of Model Name and Part Number.

Export Options

In Step 9 of the wizard, dcTrack provides you with the following two options:

- Generate a spreadsheet to review all of the chassis and blade models affected by the upgrade
- Generate a spreadsheet file to review the actions that will be taken for each model that is included in the update file during the upgrade process

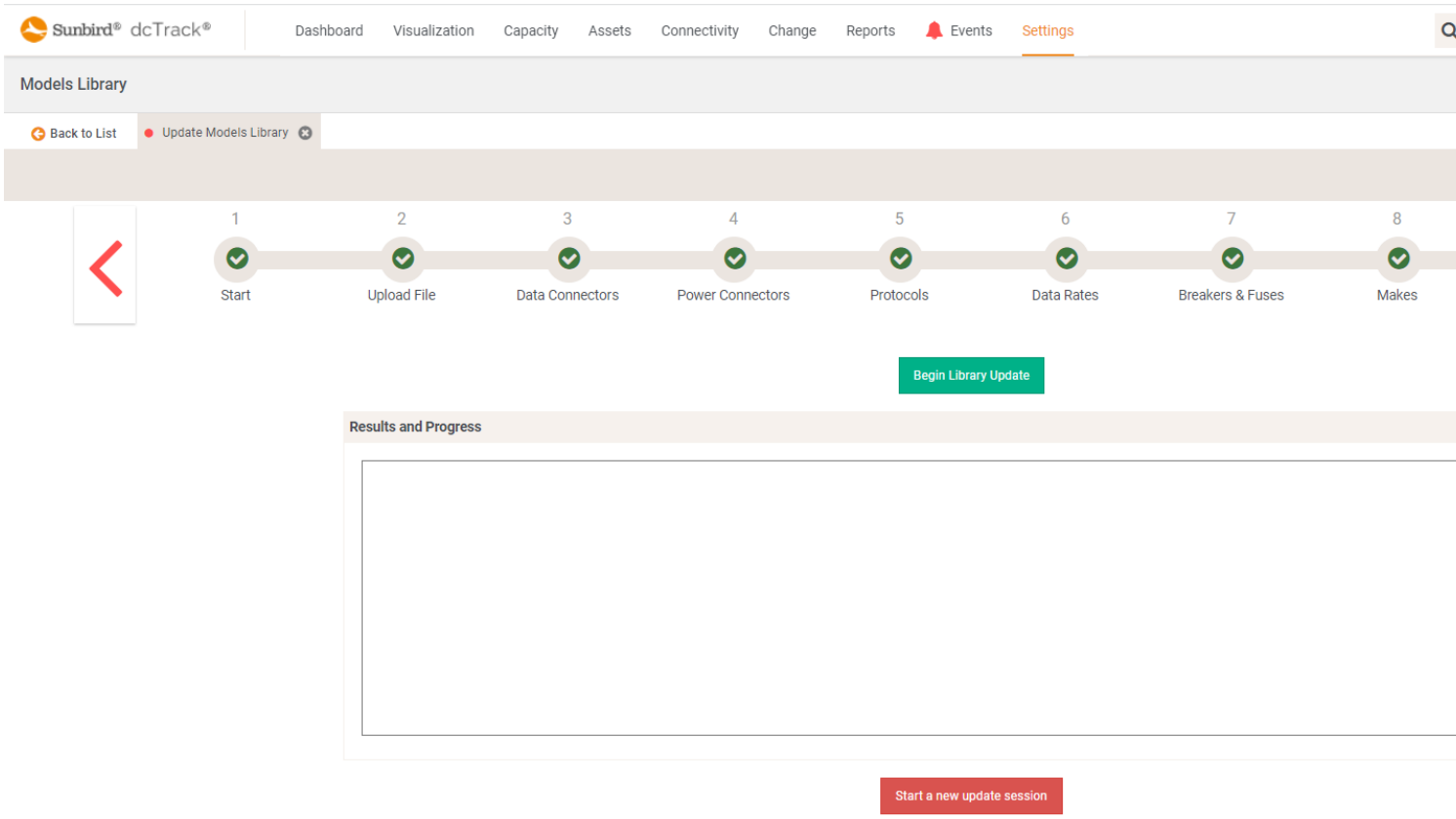
Click the Export button to view these options and to generate the files for review.



Step 10: Finish

Click the green Begin Library Update button to begin the update. The results will be displayed in the Results and Progress box below the button.

The red Start a New Update Session button at the bottom of the screen will start a new session and return you to Step 2 to upload a new file.



Note: Up until you click the Begin Library Update button, you may return to previous steps to make changes to your selections.

Item Models Library

The Item Models Library contains the models and makes for each item you can add to dcTrack.

dcTrack version 9.0.0 introduced several new Standard Model fields:

- Part Number
- Description
- Made in
- Warranty Period

- Weight Capacity - Applies to Cabinet, DC Bay, Plant Bay and AC Bay only

All of the new fields are optional, however the rule for determining uniqueness of a model will now include Part Number. In other words, the combination of Model Name and Part Number must be unique across the data base including Model Aliases.

For example, consider Model 1 whose Model Name is DL360 and whose Part Number is 123. Model 2 has a Model Name of DL360 and Part Number 456. In this scenario dcTrack will allow an alias of "DL360" to be created (the combination of Model Name: "DL360" Part Number: Null is unique), but would not allow alias "DL360 123" to be created (this would be considered a duplicate of Model 1).

These fields can be used in File Import as well as CMDB configuration files.

The following information is listed in the grid (from the far left column to the right column):

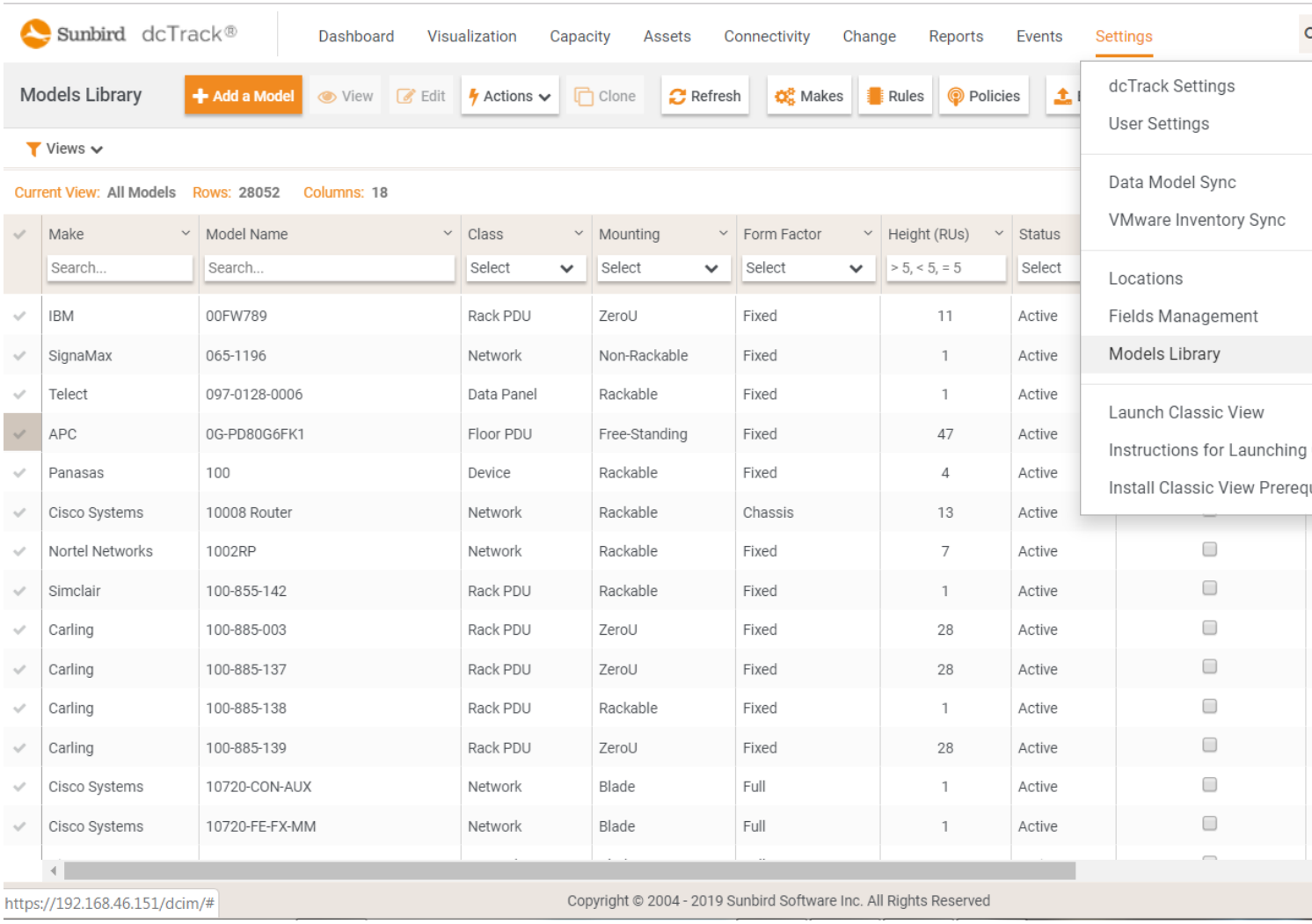
- Make
- Model Name
- Part Number
- Description
- Class
- Subclass
- Height (RUs)
- Mounting
- Form
- Height (RUs)
- Potential Power
- Output Volts (Vac)
- Status
- My Company Standard
- Models In Use
- Custom Models
- Chassis Slot Count Front
- Chassis Slot Count Back
- Data Ports Count
- Power Ports Count
- Front Image Available
- Back Image Available
- Created On
- Model Version
- Origin
- Notes
- Don't Update

Additional Model fields can be added to the grid by clicking the Show/Hide button.

Access the Item Models Library and View Model Details

Select Settings > Models Library from the main navigational menu. The Models Library UI will display.

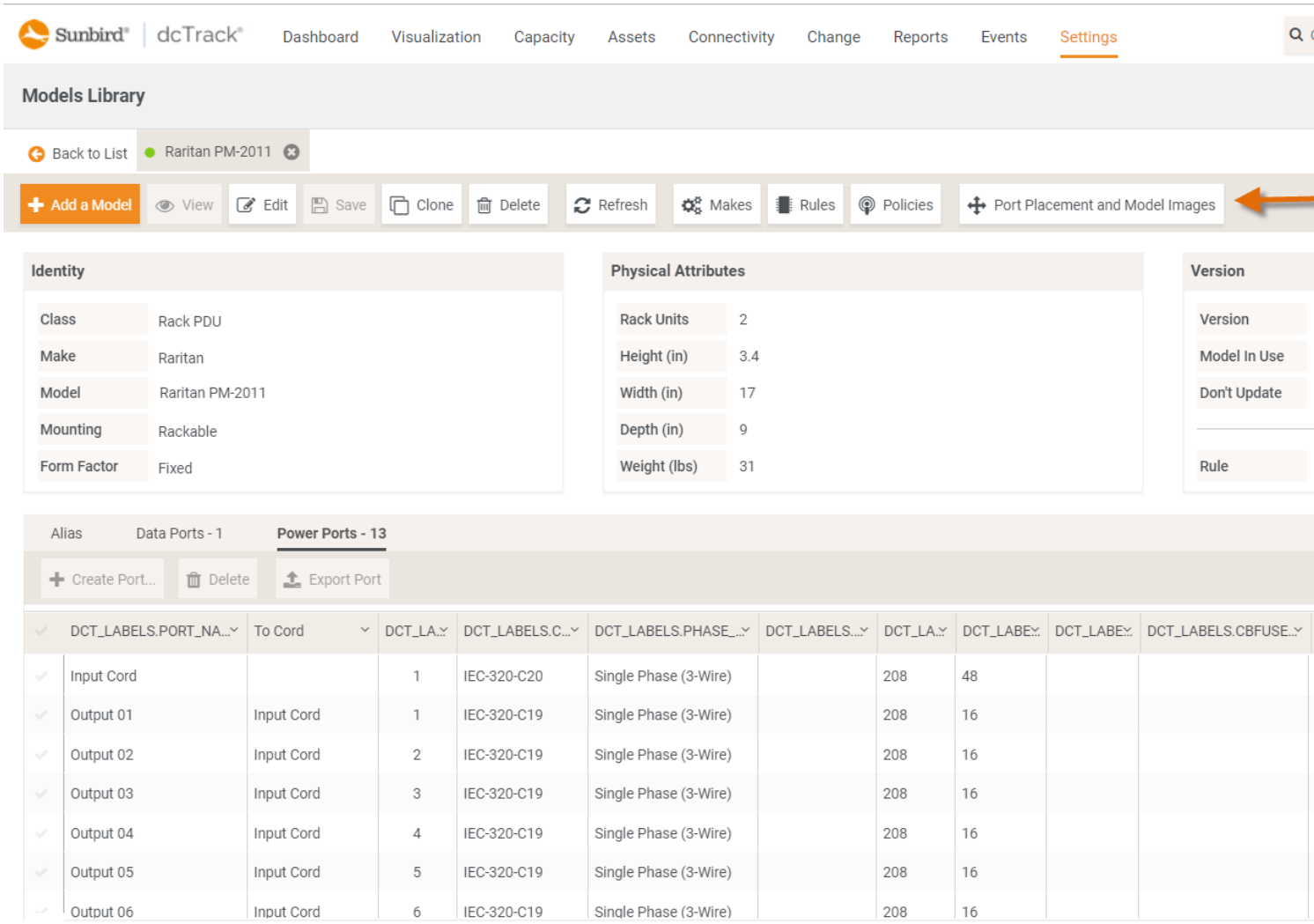
Note: The Models Library is accessible from the Settings menu because managing the Models Library is an administrative function. Only System Administrators are able to manage the Models Library.



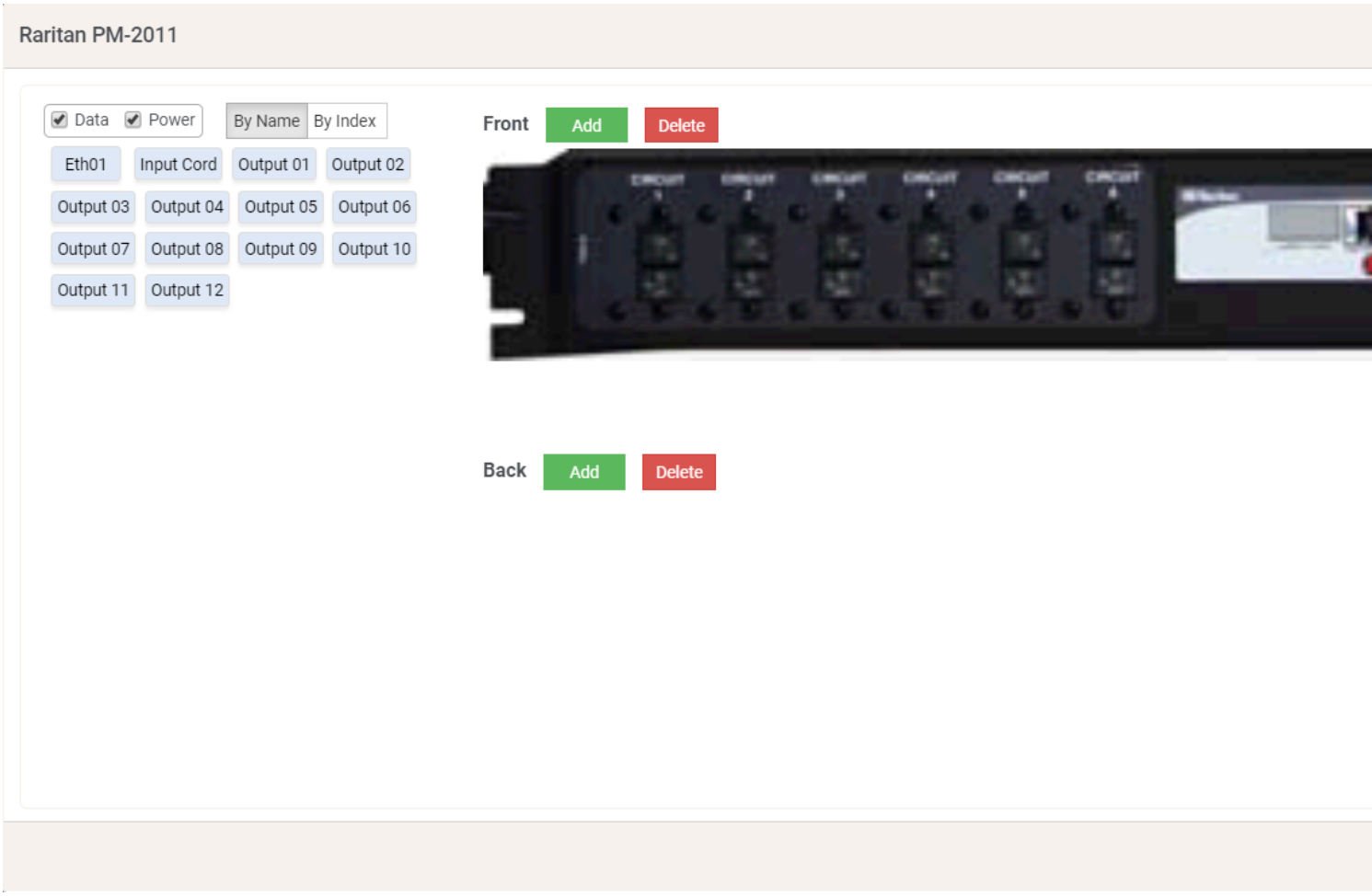
To view model details, double click on the row.

On the Model Details page, the details are grouped logically and sub-tabs are provided for data ports, power ports, and chassis slot setup (if available).

Note: If you are using Internet Explorer 10, you may encounter behavior where the power port grid for a rack PDU may appear empty or as if rows are missing. Scroll the power port grid up or down to display the ports. Alternatively, use Chrome or a different version of Internet Explorer.



A button is provided on the tool bar for viewing, adding, and deleting the model's images.



From this page you can Add and Delete images, as well as drag and drop Port labels to their correct position.

To return to the Model Details page, click the Save or Cancel button at the bottom of the Model Image panel.

Locate Makes and Models in the Item Models Library Using Filters and Sorting

Use filter and sort to locate models in the Item Models Library.

The library can be filtered and sorted based on criteria you select in the Filter by and Sort by dropdowns.

In addition to these criteria, you can define an = variable to the filter and sort criteria.

The available = variable selections vary based on the sort by and filter by criteria you select.

The selections you apply to the filter and sort criteria are reflected on the page once they are made.

What To Do if A Make or Model Is Not Available for Selection

If you cannot find a specific make and model when attempting to add a new item to dcTrack, you can do one of the following:

- Contact Professional Services and Support at http://support.sunbirddcim.com or via email at tech@sunbirddcim.com and request the information be added to the Sunbird Models Library file.

Once the information is added, the next time you upgrade your Item Models Library with the latest Sunbird Models Library file, the new make and model are added.

- Submit a request to your System Administrator to manually add the make and model to your Item Models Library, if you do not have privileges to do so.
- Manually add the make and model to your Item Models Library, if you have privileges to do so.

Add a Model to the Models Library

In addition to upgrading your Item Models Library with Sunbird Models Library file, you can add models to your library.

Fields marked with an asterisk (*) are required.

1. Go to the Settings tab > Models Library.
2. In the Models Library, click the Add a Model icon in the upper left of the screen to open a New Model tab.
3. Select the Models's class type from the Class drop-down.
4. Select the model's subclass from the Subclass drop-down. If the selected class does not have a subclass, then this field becomes read only and displays N/A.
5. Select the Model's make from the Make drop-down. To add a new Make, click Makes in the New Model tab to open the Manage Makes dialog. Enter the required information and click Save to create the make.

   Note: You can add another name by which the Make can be found in dcTrack for the Make by entering an Alias in the "Alias" field of this dialog. This can useful when mapping models for newly discovered assets via file import or integration.

6. Supply the Model name.
7. Optionally supply the Part Number

Note: In dcTrack version 9.0.0 and beyond, Model uniqueness will be determined based on the combination of Model Name and Part Number.

8. Select the Model's mounting from the Mounting dropdown.
9. Select the ModelForm Factor from the Form Factor dropdown.
10. Enter the number of rack units required.
11. Height is completed automatically based on the number of rack units.
12. Enter the model's depth.
13. Enter the model's weight.
14. Leave Don't Update deselected.

Note: This feature only applies when editing a model. It prevents changes you make to model information from being overwritten during a library upgrade.

15. Select the My Company Standards checkbox if you want this model to appear as a selection when users filter models in certain dialogs.
16. In the Specification Tab, enter the fields specific to the Model. All of the fields in the Model Specification Subtab are optional and can be used to provide additional model information.
17. To specify an Alias for the Model, click the Miscellaneous Subtab and click on the "+" icon.
18. Rules can also be applied to the Model by selecting the desired Rule on this subtab.
19. Click to expand the Model Image pane and click Add to select and add front and rear images of the device to the library. Images must be a .BMP files.

    Images are not required, but you must provide an image(s) to add ports to the model.

    Sunbird recommends the file size be 500KB or smaller so images load quicker in cabinet elevation views.
20. Save the images and collapse the Model Image pane to return to the New Model tab.
21. Click Save to save the model.

Add data (comm) and Power ports to the model if applicable.

At a minimum:

- No two ports of the same type can have the same index number. This means -
- Each physical, logical or virtual data port index number must be unique
- Each sensor port index number must be unique
- Each power port index number must be unique
- A port index number cannot be 0.

- Devices cannot have more than 8 power ports, so power port index numbers can only be numbered 1-8. For more information, see Port Index Numbering and Port Naming.

Edit an Existing Model in the Models Library

1. In the Web Client, access the Settings tab > Models Library.
2. Click to select the model you want to edit from the Models List.

Note: You cannot update a model with items in use. You must unassign a model from all items before updating it.

3. Click the Edit icon to enter Edit mode.
4. Make changes as needed and/or update images as needed.

Note: A cabinet model can be defined to be Zero U height. This allows floor space to be reserved to prevent over-loading conditions.

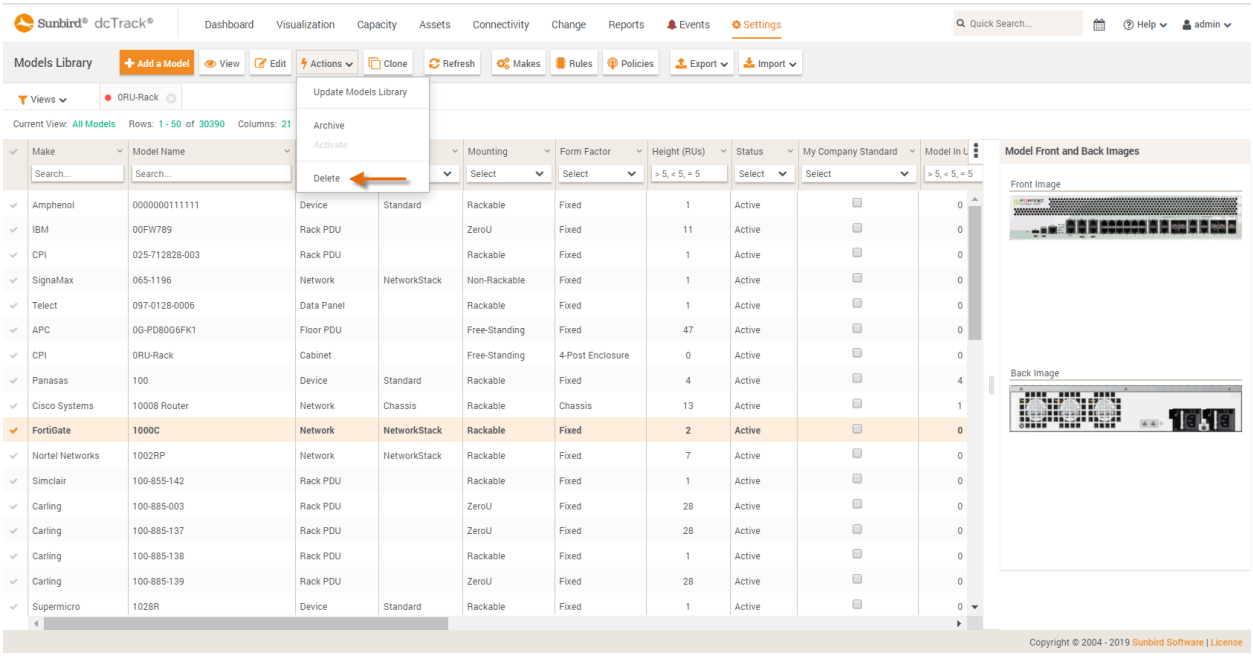
5. Deselect the 'My Company Standard' checkbox if you want the model to be removed from the filtered options in model lists (Std.). See Designate Models as 'My Company Standard' in the dcTrack Item Models Library.
6. If editing data (comm) or power ports:
   - No two ports of the same type can have the same index number. This means -
     - Each physical, logical or virtual data port index number must be unique
     - Each sensor port index number must be unique
     - Each power port index number must be unique
   - A port index number cannot be 0.
   - Devices cannot have more than 8 power ports, so power port index numbers can only be numbered 1-8.
7. Select the Don't Update checkbox if you do not want the changes you are making to the model to be overwritten when you perform a library upgrade.
8. Click Save.

Deleting a Model from the Models Library

To delete a model:

1. In the Web Client, Navigate to Settings > Models Library.
2. In the grid, click the check box to the left of the model to be deleted. The selected row will be highlighted.
3. Click Actions > Delete.

Note: The Delete action will be disabled if the Model selected is in use.



Adding an Alias to a Make or Model

In dcTrack, aliases are additional terms by which a make or model can be matched. When adding items in bulk, through Power IQ or VMware integration, with external ticketing, or via file import, and you encounter item makes and/or models that are not recognized by dcTrack, you can map the make or model to an existing make or model using the actual name or an alias.

Adding an Alias to New Make

1. Navigate to Settings > Models Library.
2. Click the Makes button on the Models Library toolbar. The Manage Makes dialog popup displays.
3. Provide the make details.
4. Type the desired alias into the Alias field.
5. Click the Add icon ("+") to add the alias.
6. Click the Create button to create the new make.

Adding an Alias to an Existing Make

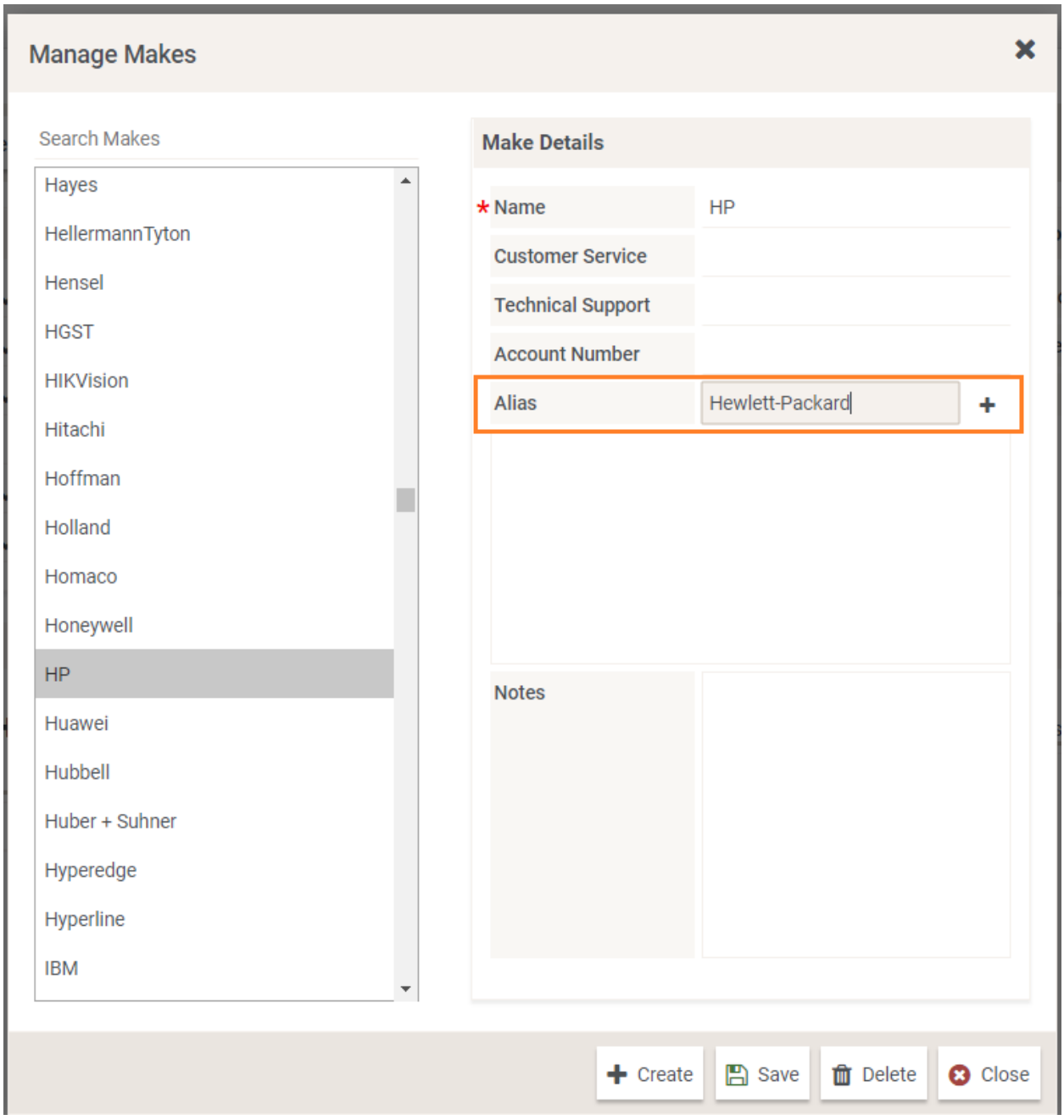
1. Navigate to Settings > Models Library.
2. Click the Makes button on the Models Library toolbar. The Manage Makes dialog popup displays.
3. Select the make that you want to add an alias to.
4. Type the desired alias into the Alias field in the Make details.

5. Click the Add icon ("+") to add the alias.
6. Click the Save button to save your changes.

Deleting an Alias for a Make

Note: Existing Make Aliases cannot be modified. You must delete the existing Alias and then add a new Alias to make a change to an existing alias.

1. Navigate to Settings > Models Library.
2. Click the Makes button on the Models Library toolbar. The Manage Makes dialog popup displays.
3. Select the Make with the alias that you want to delete.
4. Select the Alias you want to delete from the list of aliases.
5. Click the Delete icon (garbage can) to delete the alias.
6. Click the Save button to save your changes.



Adding an Alias to a New Model

1. Navigate to Settings > Models Library.
2. Click the Add a Model button on the Models Library toolbar. A New Model page opens in a new dcTrack tab.
3. Complete the required Model fields.

4. On the Miscellaneous sub-tab, type the desired Alias in the Alias field and click on the "+" to add the alias.
5. Click the Save button to save your changes.

Adding an Alias to an Existing Model

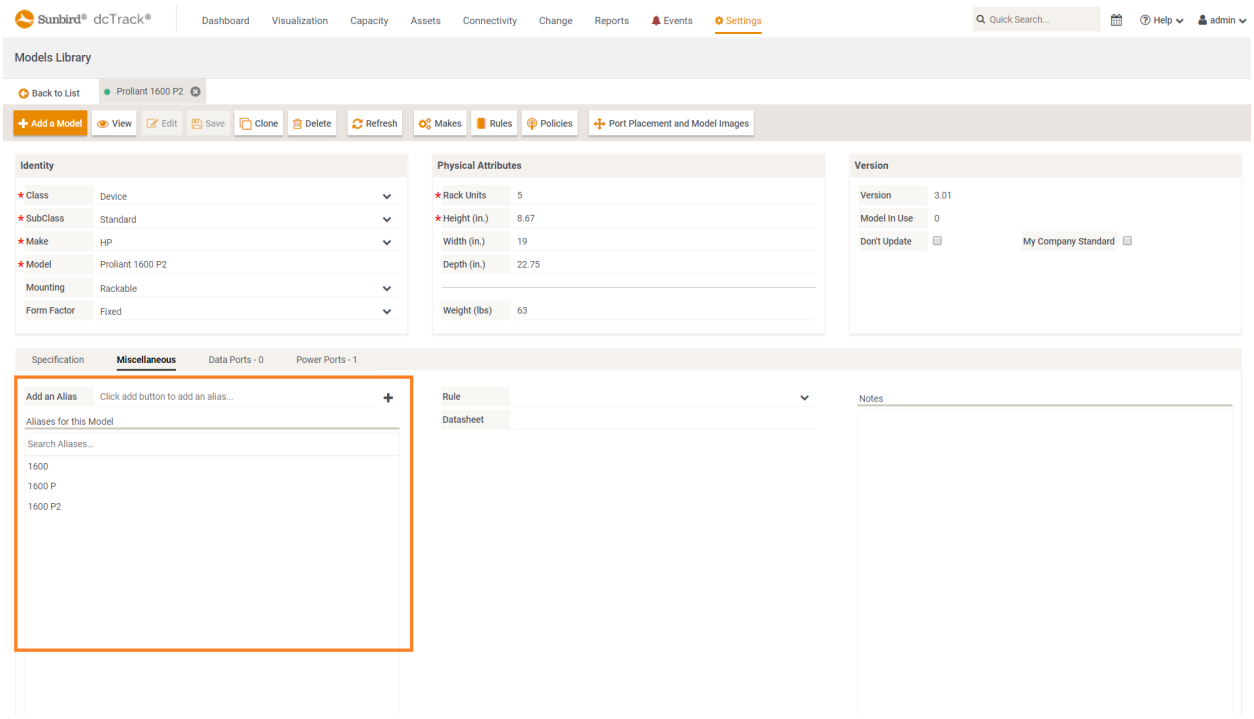
1. Navigate to Settings > Models Library.
2. Select the model to which you want to add an alias to from the list. The Model Details page opens in a new dcTrack tab.
3. On the Model Details page, in the Miscellaneous sub-tab, enter the Model's Alias and click the "+" to add the Alias. A new alias is added to the Alias grid.
4. Click the Save button to save your changes.

Note: Existing Model Aliases cannot be modified. You must delete the existing Alias and then add a new Alias to make a change to an existing alias.

Deleting an Alias for an Existing Model

1. Navigate to Settings > Models Library.
2. Select the Model whose Alias you want to delete. The Model Details page opens in a new dcTrack tab.
3. On the Model Details page, in the Miscellaneous sub-tab, select the alias you want to delete from the Alias list box.
4. Click the Delete icon (garbage can).
5. In the confirmation screen, click the "Yes" button to confirm the deletion.
6. Click the Save button to save your changes.

The alias will be removed from the Alias grid.



Matching or Adding Makes and Models with the Sync Make and Model Wizard

dcTrack 6.3 introduces the ability for System Administrators to map or add models to their dcTrack Models Library when adding items. This makes it faster and more efficient for users to add items while ensuring the integrity of their dcTrack data.

When adding items in bulk, through Power IQ or VMware integration, with external ticketing, or via file import, and you encounter item makes and/or models that are not recognized by dcTrack, you can map the make or model to an existing make or model. You can also add them to the Models Library.

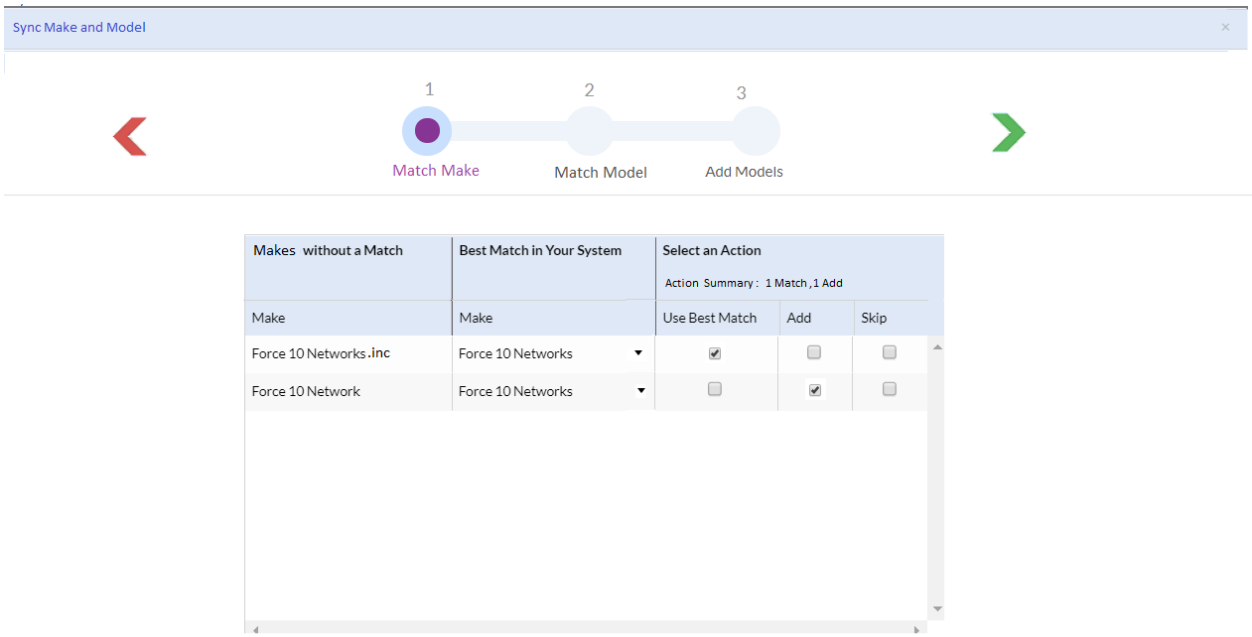
In dcTrack, a wizard will guide you through the steps to match or add makes and models.

Sync Make and Model Steps

These steps may also be replicated in the wizards for adding items via file import or in bulk, depending on if the new items match existing makes and models. For example: In the file import wizard, the steps for matching and adding makes and models may be displayed after the import file is uploaded and validated and only if the file includes makes and models that are not currently found in the dcTrack Models Library.

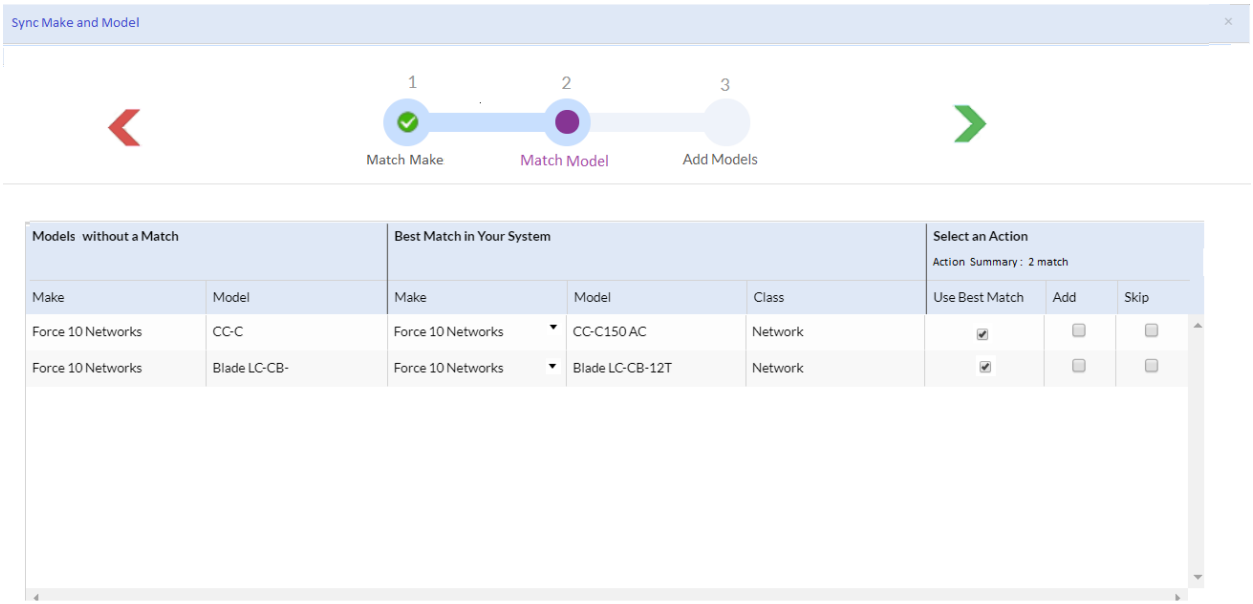
Step: Match Makes

This step displays the makes that do not match any of the makes in the dcTrack database. You're presented with the possible best match in dcTrack and can either use the suggested best match, add the make, or skip making a change by selecting the corresponding checkbox in the Select an Action column.



Step: Match Models

This step displays the models that do not match any of the makes in the dcTrack database. You're presented with the possible best match in dcTrack and can either use the suggested best match, add the model, or skip making a change by selecting the corresponding checkbox in the Select an Action column.

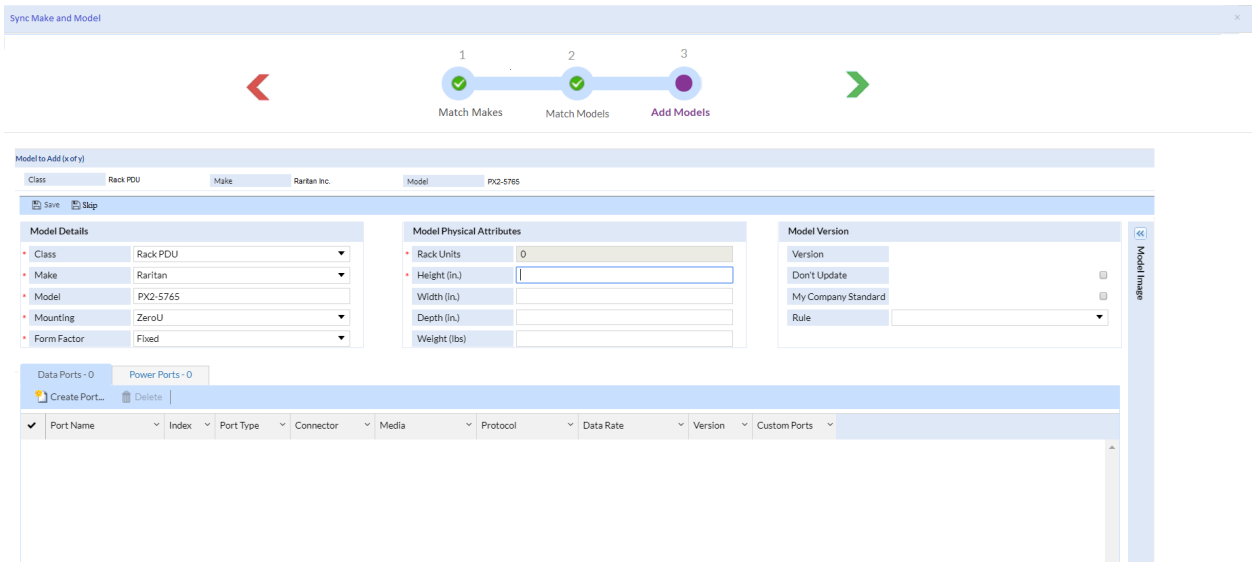


Step: Add Models

In this step, you can individually add the models that you have selected to add to the Models Library.

To add a model, provide the required model details and any other additional information, and then click the Save button. These models are added to dcTrack upon saving.

To change your selection from adding a model to skipping a model or using the best match candidate, return to the previous screen in the wizard ,and then select the appropriate option in the Select an Action column. Any previously added models will remain in the database.



About Blade Chassis Slots

Chassis slots can be defined by updating the dcTrack Item Models Library.

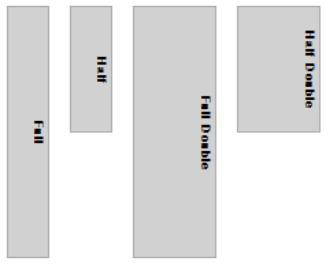
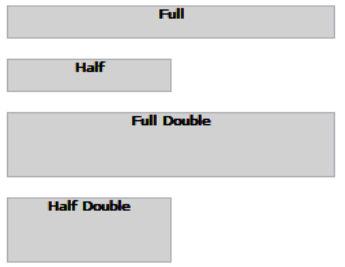
Alternatively, manually edit existing blade chassis slots, or setup slots when manually adding new chassis models. (See **Add a Model to the Models Library**).

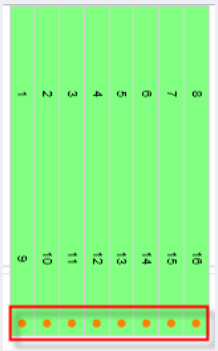
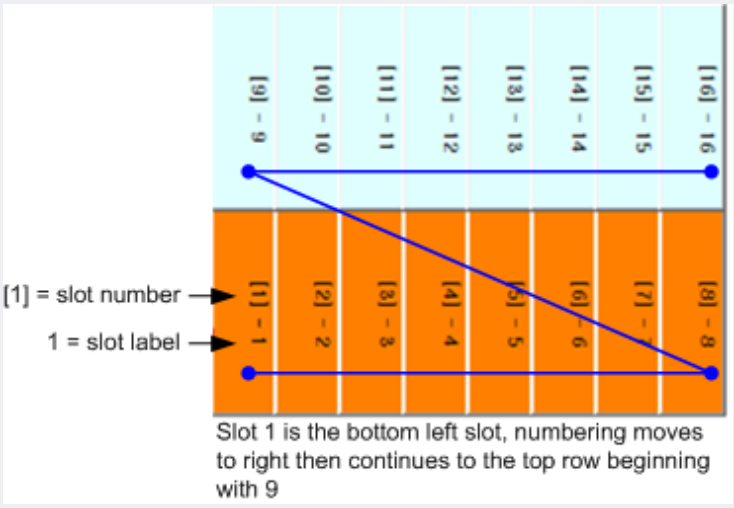
Important: Before you make changes to a chassis or blade model that is being used already, see Notes on Making Changes to Chassis Slots.

The following slot information is configured in the Item Models Library from the Slot Setup page:

Slot	Description
Chassis Face	This refers to the way the blade faces in the slot chassis - Front or Back. ■ In device chassis, device or network blades can face either Front or Back. ■ In network chassis, network blades can only face the Front. When creating a blade to add to a chassis, this is the Chassis Face on a blade's item page.
Slot orientation	How the slots are positioned in the chassis - vertically or horizontally
Slot Containers	This refers to the number of bays on the Chassis. If applicable Slot Containers can be set for both the Front and Back of the Chassis

Slot	Description
Slots per Container	This refers to the number of slots in each of the Slot Containers. Slots per Container x Slot Containers will give you the total number of slots in the Chassis
Spanning	Does the Chassis support Blades that span two Containers. Spanning is only permitted on Chassis with an even number of Slot Containers
Double Wide	Does the Chassis support Blades that span two adjacent slots in a Container
Quarter Blades	Does the Chassis support Blades that occupy a quarter slot. Quarter Blades are only permitted on Chassis whose Slot Containers are a multiple of 4 and allow Spanning.

Slot	Description
Blade slot sizes	Full blades - blades that occupy two slots in different bays, or span two bays
	Full, double blades - blades that span two bays, and occupy two adjacent slots in each bay
	Half blades - blades that occupy half a slot
	Half, double blades - blades that occupy a half slot, or occupy two adjacent slots in each bay
	Quarter blade - blades that occupy a quarter slot
	Slot Sizes Shown Vertically  Slot Sizes Shown Horizontally 
Slot anchor	The anchor position is the baseline slot position in the chassis. When a blade can span two slots, the anchor slot is the reference slot for the blade's position in the chassis. The anchor position of the blade is defined when setting up slots in a chassis. Anchor slots are indicated by an orange dot.

Slot	Description
	
Slot numbering	dcTrack slot numbering is used internally by the application and can not be changed. However, when placing Blades, Slot Labels are visible. By default, dcTrack tracks orders slots in chassis from left to right starting in the lower right (slot 1), then wrapping to the row above, and continuing the numbering from left to right. One chassis bay can contain up to 64 blade slots. The total number of slots depends on the model.
Slot labeling	The slot numbering order used by dcTrack may differ from the manufacturers ordering method. To accommodate this, dcTrack allows you to change slot labels so they accurately represent the model. Labels should be used when referring to a Blade's position in a Chassis. 
Slot Unavailable	If needed, mark slots as unavailable. Slots may be unavailable because they slot does not exist at the position. Alternatively, you can mark a slot as unavailable if you never want to use the slot to place a blade.

Slot	Description
	Note that if you mark a slot as Unavailable, the slot becomes unavailable in all of the chassis' models.

Chassis Bay Placement

Chassis Bays can be placed on a Model by clicking the "Bay Placement" button on the Slot Setup subtab of the Model detail page.

When placing Bays, you can either enter its coordinates, or place the Bay visually.

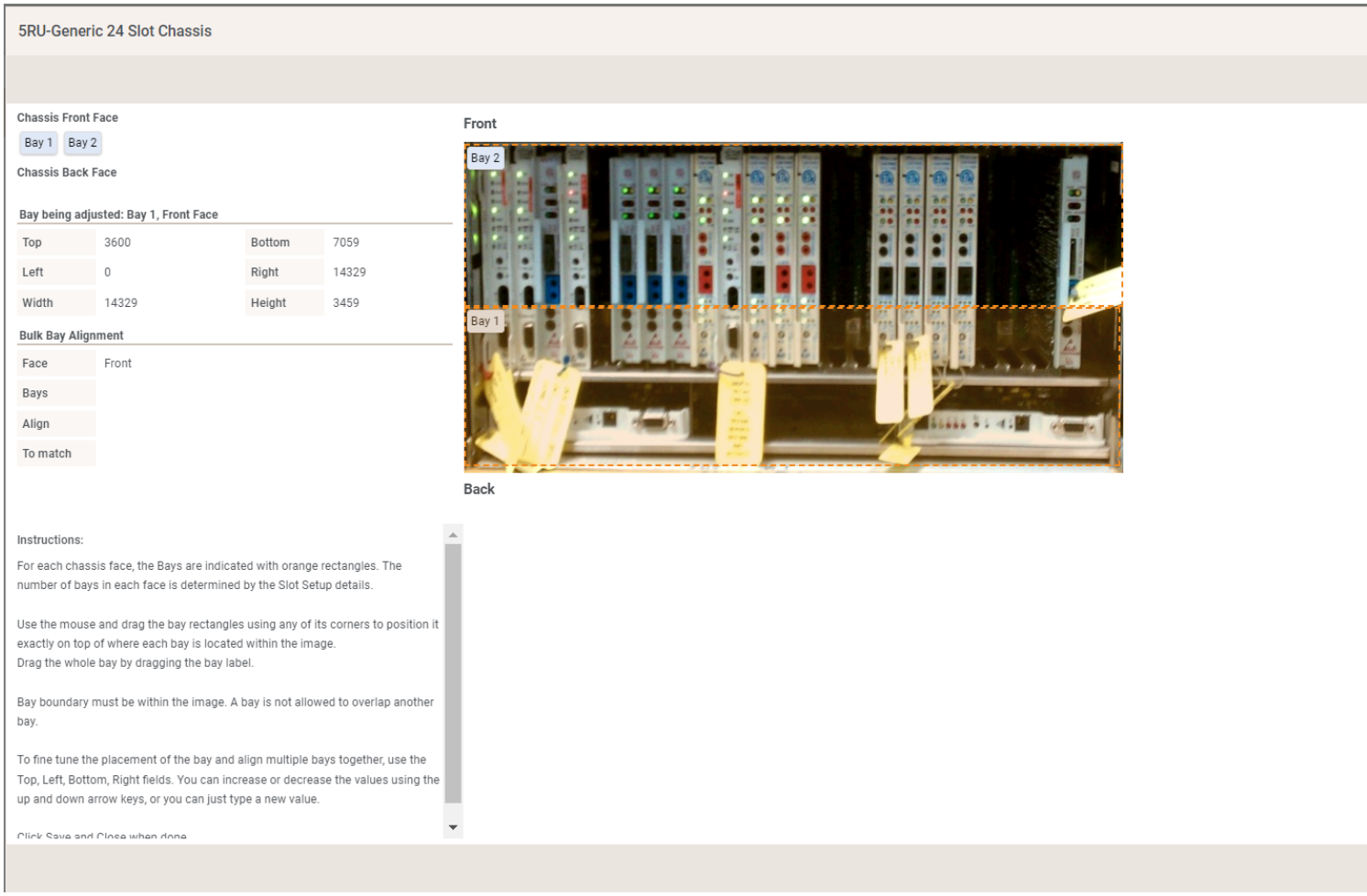
To place Bays using coordinates:

1. Select the Bay label from the top pane. The adjustment panel will display the Bay number being placed.
2. Enter the Top, Bottom, Left and Right coordinates for the Bay. The Height and Width will be automatically calculated based on the provided coordinates. The line above the

To place Bays visually:

1. When the screen is initially opened, rectangles will be pre-drawn dividing the Bays equally over the full face of the chassis.
2. Using your cursor, drag the corners of the rectangle to re-size the Bay or place your cursor on the Bay to move it.

When positioning Bays, they may not overlap or be placed outside the boundaries of the image.

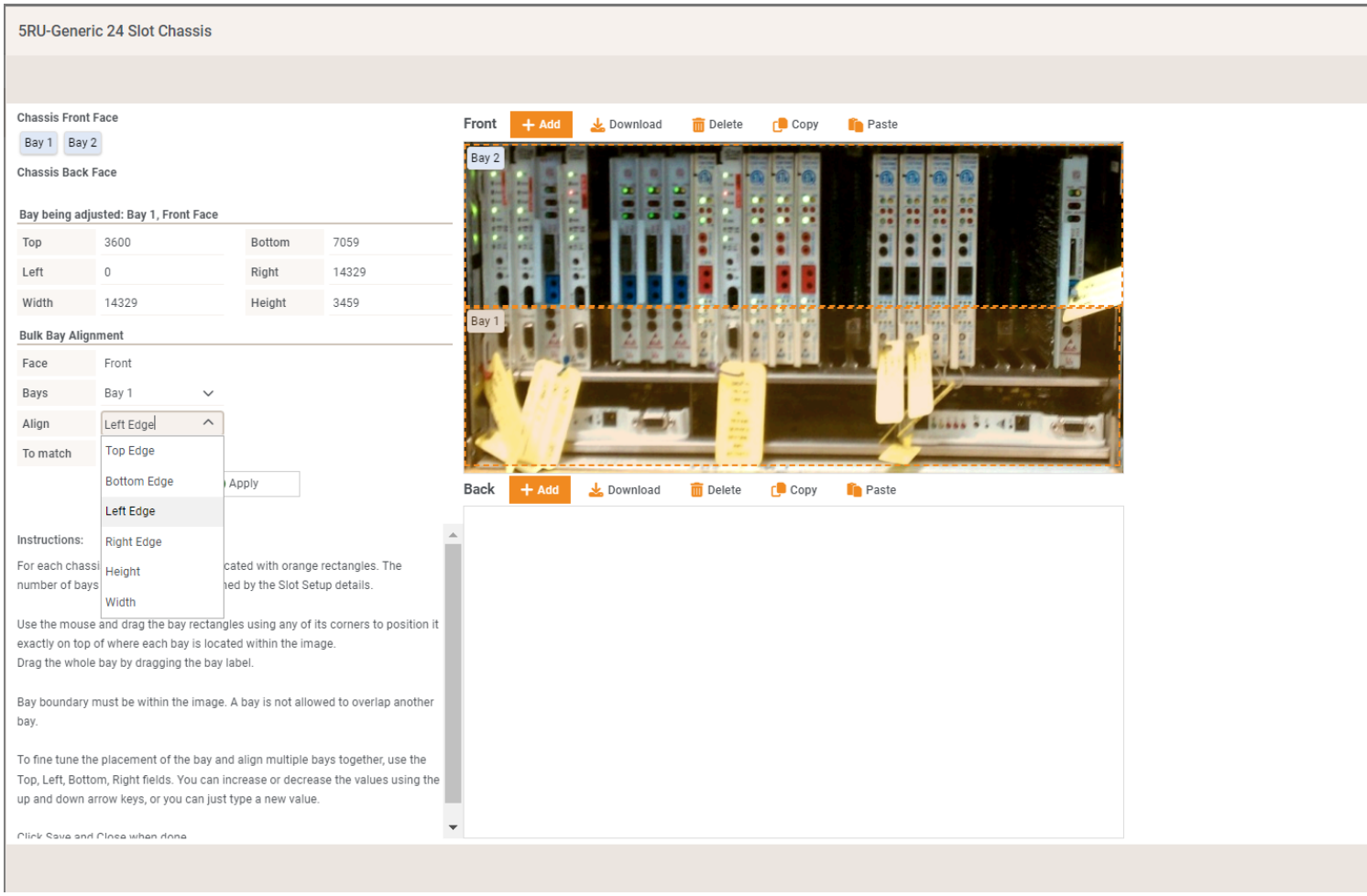


To assist you in accurately defining the Bay placement when placing multiple Bays, you can fine tune the placement from the Bay Bulk Alignment panel.

The following fields are used to fine tune the alignment:

1. Face - indicates whether you are placing Bays on the Front or Back of the Chassis
2. Bays - Select the Bays you would like to align from the drop down
3. Align - You can choose to align the selected Bays by:
    1. Top Edge
    2. Bottom Edge
    3. Left Edge
    4. Right Edge
4. To match - This is the Bay that will be used as the guide for alignment. For example, if Left Edge is chosen, all of the selected Bays' Left edge will align with the left edge of the "To match" bay

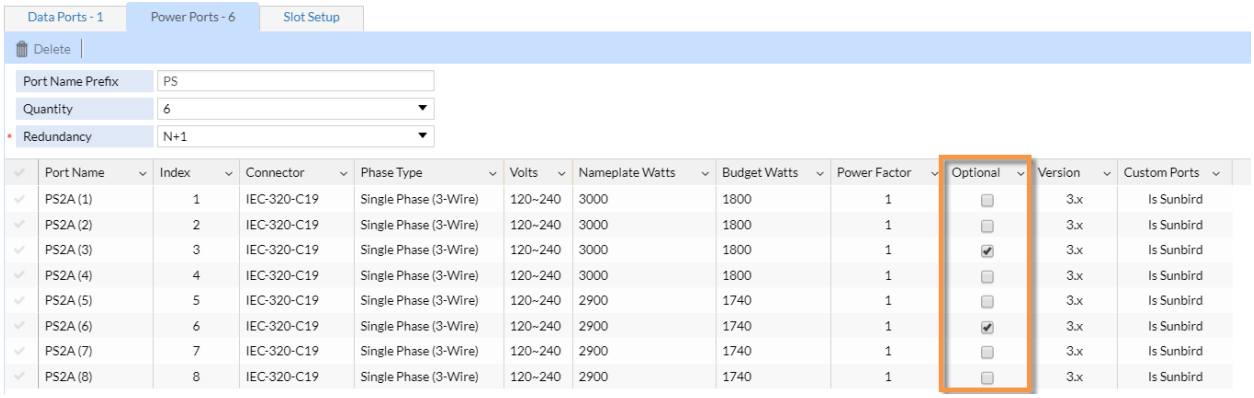
Height and Width will be automatically calculated base on the alignment of the Bays.



Optional Power Supply Ports for Models

Users with the appropriate permissions are able to designate power supply ports as optional on models. This feature enables users to leverage several power supply port options without creating multiple version of the same model.

Power ports can be designated as optional on the Model Details page.



Port Name	Index	Connector	Phase Type	Volts	Nameplate Watts	Budget Watts	Power Factor	Optional	Version	Custom Ports
PS2A (1)	1	IEC-320-C19	Single Phase (3-Wire)	120~240	3000	1800	1	☐	3.x	Is Sunbird
PS2A (2)	2	IEC-320-C19	Single Phase (3-Wire)	120~240	3000	1800	1	☐	3.x	Is Sunbird
PS2A (3)	3	IEC-320-C19	Single Phase (3-Wire)	120~240	3000	1800	1	☑	3.x	Is Sunbird
PS2A (4)	4	IEC-320-C19	Single Phase (3-Wire)	120~240	3000	1800	1	☐	3.x	Is Sunbird
PS2A (5)	5	IEC-320-C19	Single Phase (3-Wire)	120~240	2900	1740	1	☐	3.x	Is Sunbird
PS2A (6)	6	IEC-320-C19	Single Phase (3-Wire)	120~240	2900	1740	1	☑	3.x	Is Sunbird
PS2A (7)	7	IEC-320-C19	Single Phase (3-Wire)	120~240	2900	1740	1	☐	3.x	Is Sunbird
PS2A (8)	8	IEC-320-C19	Single Phase (3-Wire)	120~240	2900	1740	1	☐	3.x	Is Sunbird

To designate a power supply port as optional:

1. In the Model Details page, click the Edit button to enable Edit mode.
2. On the Power Ports tab:
    a. Check the checkbox in the Optional column next to the port you want to designate as optional.
    b. Uncheck the checkbox if you want to designate that port as non-optional.
3. Click the Save button to save your changes.

Important Notes for Optional Power Supply Ports

For power supply ports that are designated as optional:

- Changes made to an optional power supply port are made only to that port.
- The ports required for redundancy do not include power supply ports that are designated as optional. Similarly, optional power supply ports are excluded from port counts and reports.
- Optional power supply ports do not need unique names, indices, or other editable fields that are required to be unique for non-optional ports.
- Optional power supply ports are not included in port placement for model images.
- Optional supply ports are not subject to validations; however, names and other attributes must still be valid in terms of length, characters, etc.
- Power supply ports can be designated as optional or non-optional via bulk File Import.
- Optional ports are included when the model is cloned.
- A Models Library update will not affect power supply ports designated as optional.

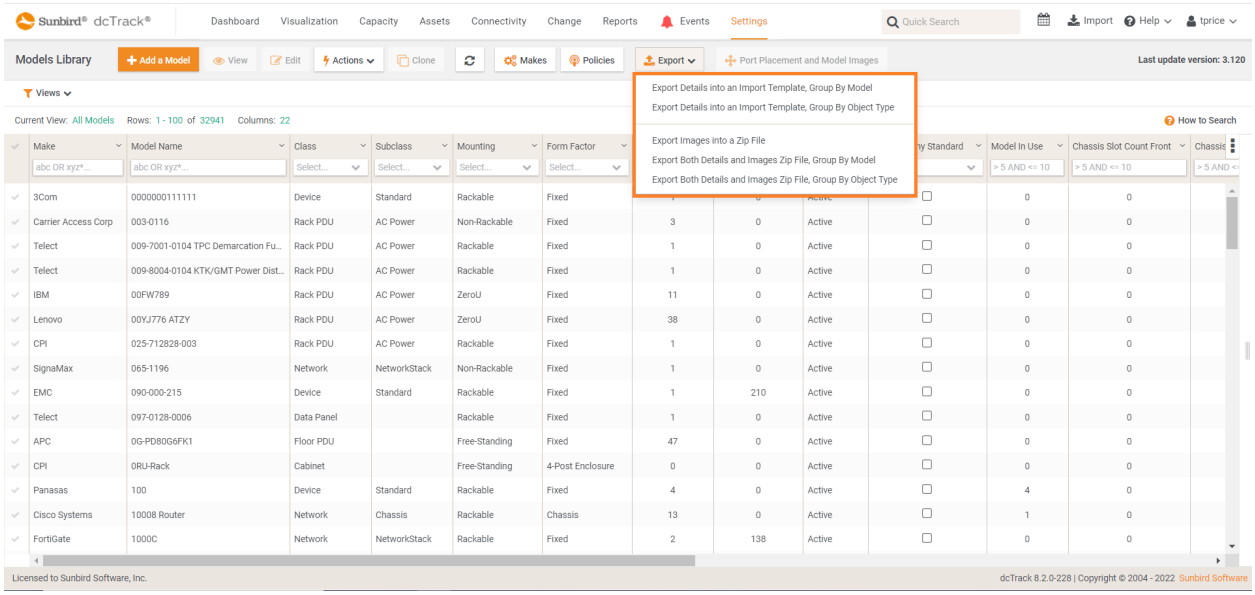
Import/Export Models from the Models Library

The Models Library provides System Administrators with the ability to export select models and re-import them into another system as if models were being added or updated on the target system. As a result, users can stage model library updates and modification in a test or development system, not the production system, and can extract and upload the model library data separated from full database backup.

To export models from the Models Library:

1. In the Models Library, click the Export dropdown in the Models Library toolbar
2. Select your desired export option from the following:

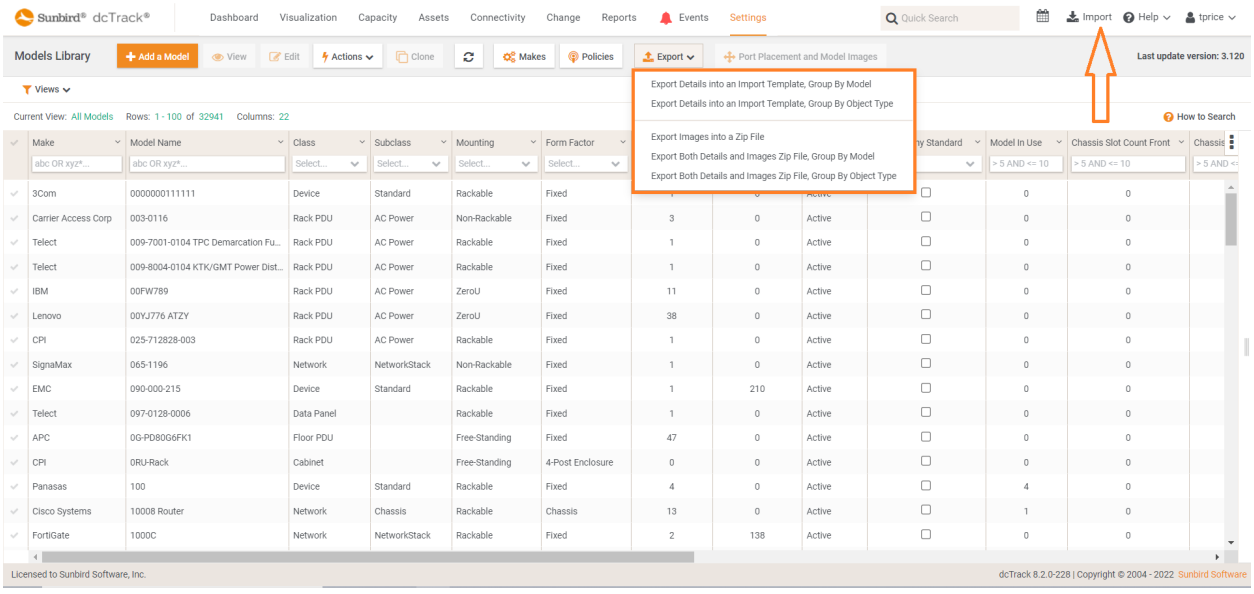
    a. Export Details Into Import Template, Group by Model
    b. Export Details Into Import Template, Group by Object Type
    c. Export Images Into Zip File
    d. Export Both Details and Images Into Zip File, Group by Model
    e. Export Both Details and Images Into Zip File, Group by Object Type
    f. Download Template File



Note: You can only export up to 50 models at a time. If your current view displays more than 50 models, you may have to search and/or filter your library to limit your results, or you can complete multiple exports.

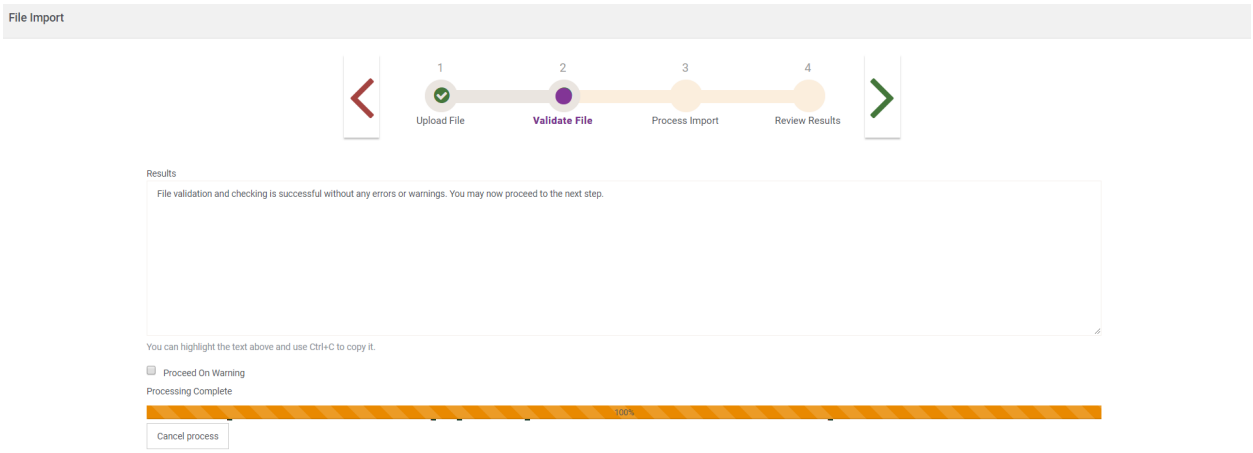
To re-import the models:

1. Click the Import button in located in the Main tool bar



2. On the File Import screen, click on the browse to upload the file.
3. Once the file is uploaded and validated click on green arrow to Process Import.

4. When the file import process is successfully completed, results are shown with errors and warnings.



Once the import is complete, you can save the results using Ctrl+C or save the result into a file.

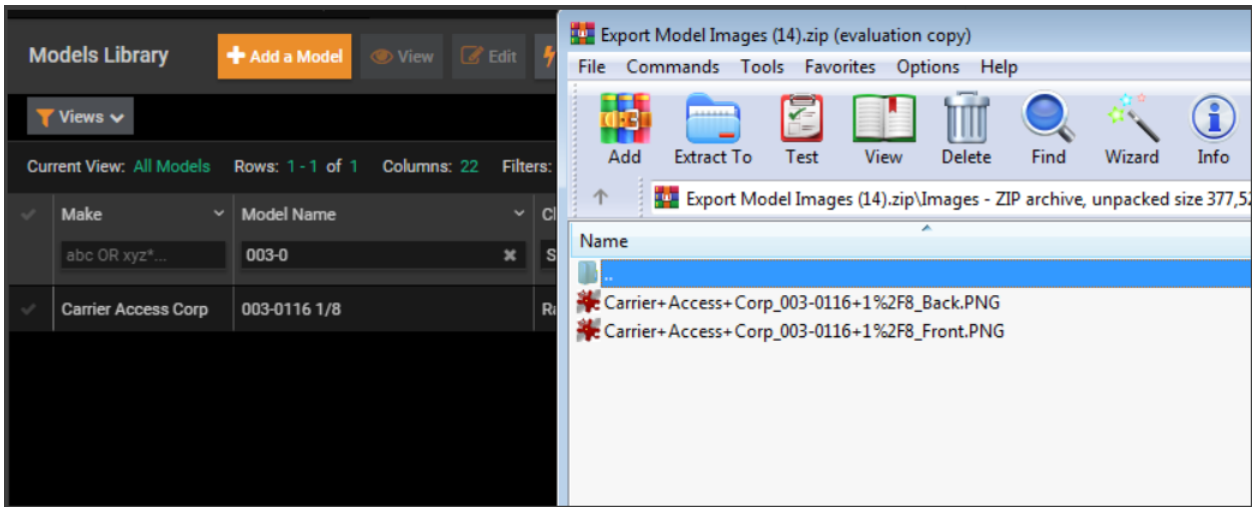
Notes on Importing Model Details and Images

Both model details and images can be imported and exported from the Models Library. Model details can be exported into the Import Template CSV file, while images or details with images are exported to a ZIP file. Model images are PNG files, stored in an Images folder, and follow the naming convention <make>_<model name>_<Front or Back>.PNG. A ZIP file of exported model details with images will include the Images folder and the Export Models CSV file, which includes the model details.

To re-import the models and images, click the Import button on the Main dcTrack tool bar. On the first screen of the File Import dialog, you will need to select either a CSV file if you want to import model details or the ZIP file of the Images folder if you want to import images. The file will be uploaded and then processed, and the information will be updated in the Models Library.

Note: You will need to re-import the models and images separately, with the images uploaded to dcTrack first, followed by the models. Edits to model details can be made in the CSV file. Updated images should be saved to the Images folder as PNG files, follow the naming convention <make>_<model name>_<Front or Back>.PNG, and be placed in the ZIP file.

Note: Image file names are URL encoded when exported from dcTrack and should be URL encoded when re-importing. URL encoding will ensure that any spaces or special characters in the file name are interpreted correctly. See example below:



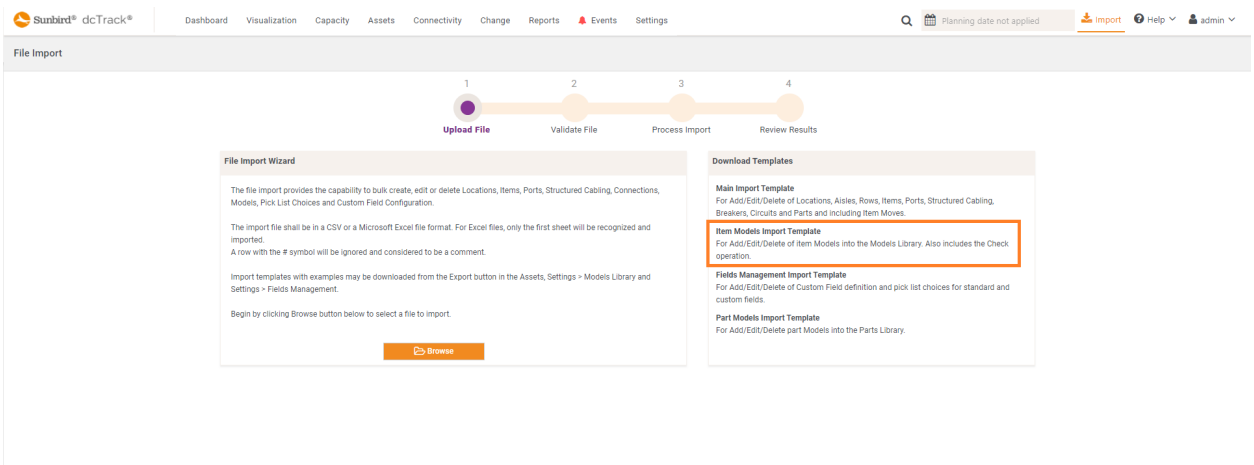
do

Matching Models With File Import

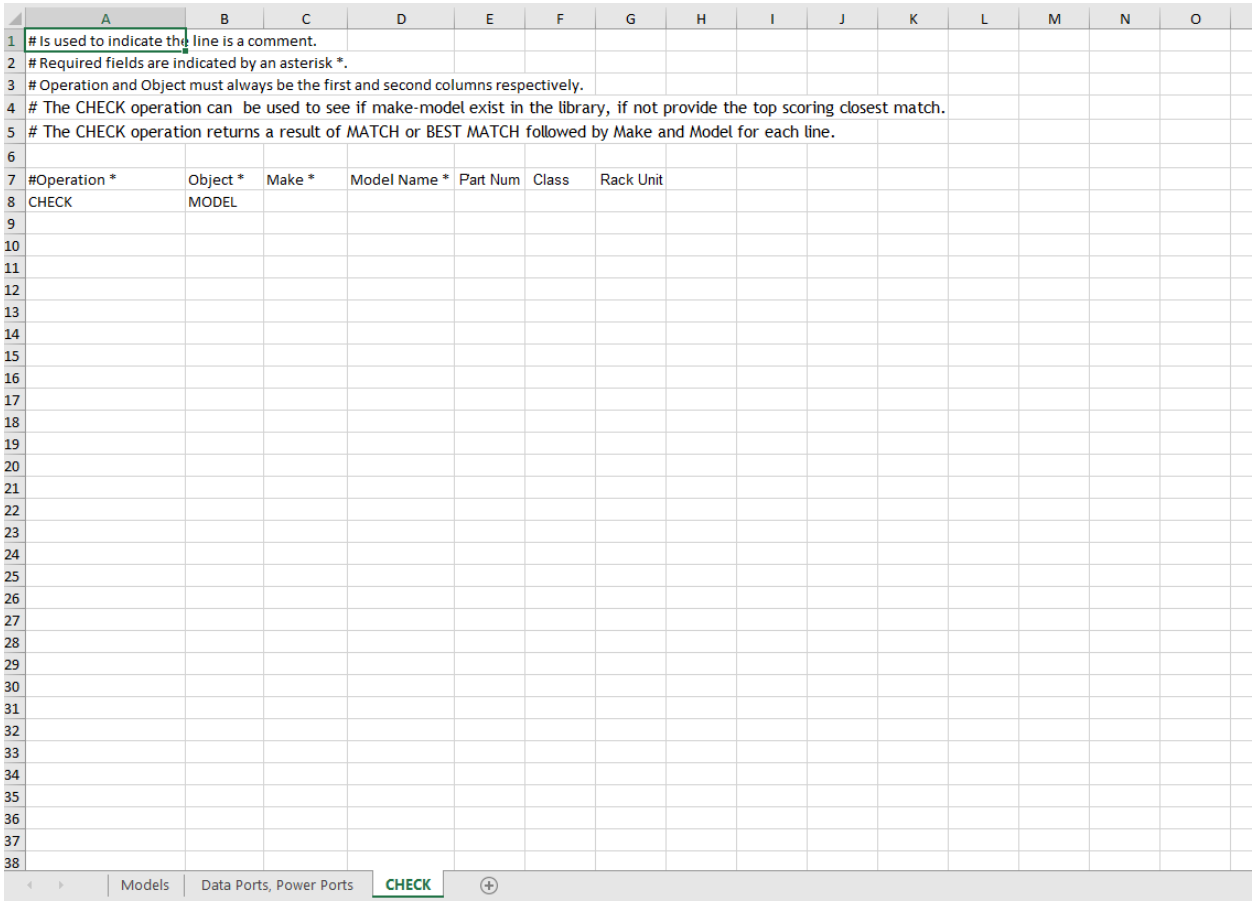
File Import for models also supports a CHECK operation that allows you to check if the models entered in a csv file match the models in dcTrack's Models library. This operation will provide a score for what is thought to be the "Best Match" and as of dcTrack 9.0.0 it will also include up to 20 other suggestions when a 100% match can not be found.

Note: The same algorithm will be applied to all areas where a lookup is performed on a Model (Library Update, CMDB Integration etc.)

1. To check if there is match to a model, download the Item Models template from File Import screen



2. In the template got to the Check Tab and enter the Make and Model Name.



	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O
1	# Is used to indicate the line is a comment.														
2	# Required fields are indicated by an asterisk *.														
3	# Operation and Object must always be the first and second columns respectively.														
4	# The CHECK operation can be used to see if make-model exist in the library, if not provide the top scoring closest match.														
5	# The CHECK operation returns a result of MATCH or BEST MATCH followed by Make and Model for each line.														
6															
7	#Operation *	Object *	Make *	Model Name *	Part Num	Class	Rack Unit								
8	CHECK	MODEL													
9															
10															
11															
12															
13															
14															
15															
16															
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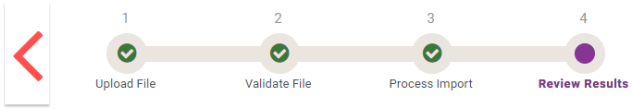
38															

Models | Data Ports, Power Ports | CHECK

3. Import the file in dcTrack

Note: Importing a Models Library update file with an empty part number field will make the part number of the matching model empty.

4. In the Review Result section you can view the Check Result. You can also Save Results to File which would download a csv file.



Results and Progress

File Import has been completed.

Import File:
ModelsTemplate (31).7eeb94a1-96e9-4073-91de-98918f6f230c.xlsx

Rows Imported: 0
Rows Error: 1

Makes:
0 unknown
0 added
0 mapped and aliases created
0 skipped

Models:
0 unknown
0 added
0 mapped and aliases created
0 skipped

Check Result: Line 8 - Match on Model,100%,Dell,PowerEdge R610,DEVICE-RACKABLE

You can highlight the text above and use Ctrl+C to copy it.

Save Results to File | Start a new file import session

Results

	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O
1	#Operatio	Object *	Make *	Model Name *	Check Result	Score	Matched Make (1)	Matched Model (1)	Matched Part Numb	Item Obje	Matched I	Matched I	Matched I	Item Obje	Matc
23	CHECK	MODEL	Cisco	Catalyst 6500	Match on Model	96%	Cisco Systems	Catalyst C6500		NETWORK	Cisco Syst	Catalyst WS-6500		NETWORK	Cisco
24	CHECK	MODEL	Cisco	Catalyst 2950G-48-EI	Match on Model	100%	Cisco Systems	Catalyst 2950G-48-EI		NETWORK-RACKABLE					
25	CHECK	MODEL	CPI	44RU-Cabinet TeraFrame-FE1A	Match on Model	100%	CPI	44RU-Cabinet TeraFrame-FE1A		Cabinet					
26	CHECK	MODEL	Cyberpow	Gamer Ultra 2111	Match on Model	5%	CyberPower	PDU15M10AT		RACK PDU-RACKABLE					
27	CHECK	MODEL	Cyberpow	Gamer Xtreme 1311	Match on Model	6%	CyberPower	PDU15M10AT		RACK PDU-RACKABLE					
28	CHECK	MODEL	Cyberpow	Gamer Ultra 2106	Match on Model	2%	CyberPower	PDU15M10AT		RACK PDU-RACKABLE					
29	CHECK	MODEL	Cyberpow	Gamer Ultra 2103	Match on Model	2%	CyberPower	PDU15M10AT		RACK PDU-RACKABLE					
30	CHECK	MODEL	Cyberpow	Gamer Ultra 2098	Match on Model	4%	CyberPower	PDU15M10AT		RACK PDU-RACKABLE					
31	CHECK	MODEL	CyberRAI	CyberData DeskTop Model 600	No Match	0%									
32	CHECK	MODEL	Dell	XPS 15z	Match on Model	49%	Dell	APC 1500		RACK PDU	Dell	UPS 310-4364		RACK PDU	Dell
33	CHECK	MODEL	Dell	2048P Switch	Match on Model	100%	Dell	2048P Switch		NETWORK-RACKABLE					
34	CHECK	MODEL	Dell	Vostro 260	Match on Model	39%	Dell	WORKSTATION 2850		DEVICE-R/	Dell	Inspiron 8200		DEVICE-R/	Dell
35	CHECK	MODEL	Dell	Alienware M17x	Match on Model	24%	Dell	Blade MXL 10/40GbE		DEVICE-R/	Dell	Blade PowerEdge M		DEVICE-BL	Dell
36	CHECK	MODEL	Dell	PowerEdge C2100 Rack Server	Match on Model	91%	Dell	PowerEdge C6100 Rack Server		DEVICE-R/	Dell	PowerEdge 1900 Ser		DEVICE-R/	Dell
37	CHECK	MODEL	Dell	PowerEdge T110 II	Match on Model	78%	Dell	PowerEdge R210 II		DEVICE-R/	Dell	PowerEdge 1950 II V		DEVICE-BL	Dell
38	CHECK	MODEL	Dell	OptiPlex 469	Match on Model	81%	Dell	Optiplex 960		DEVICE-R/	Dell	OptiPlex 980		DEVICE-R/	Dell
39	CHECK	MODEL	Dell	PowerEdge T710	Match on Model	100%	Dell	PowerEdge T710		DEVICE-RACKABLE					
40	CHECK	MODEL	Dell	Vostro 260	Match on Model	39%	Dell	WORKSTATION 2850		DEVICE-R/	Dell	Inspiron 8200		DEVICE-R/	Dell
41	CHECK	MODEL	Dell	XPS 14z	Match on Model	55%	Dell	UPS 310-4364		NETWORK	Dell	UPS 312-2229		RACK PDU	Dell
42	CHECK	MODEL	Dell	AX150	Match on Model	100%	Dell	AX150		DEVICE-RACKABLE					
43	CHECK	MODEL	Dell	XPS 15	Match on Model	58%	Dell	APC 1500		RACK PDU	Dell	Optiplex GX150		RACK PDU	Dell
44	CHECK	MODEL	Dell	Alienware M14x	Match on Model	23%	Dell	PowerEdge M1000e		DEVICE-BL	Dell	Blade PowerEdge M		DEVICE-BL	Dell
45	CHECK	MODEL	Dell	Precision T1600 Tower Workstation	Match on Model	35%	Dell	Precision 7920 Tower		DEVICE-R/	Dell	WORKSTATION 390		DEVICE-R/	Dell
46	CHECK	MODEL	Dell	Precision WorkStation T1600	Match on Model	37%	Dell	WORKSTATION 390		DEVICE-R/	Dell	WORKSTATION 2850		DEVICE-R/	Dell
47	CHECK	MODEL	Dell	AX150	Match on Model	100%	Dell	AX150		DEVICE-RACKABLE					
48	CHECK	MODEL	Dell	PowerEdge T610	Match on Model	100%	Dell	PowerEdge T610		DEVICE-RACKABLE					
49	CHECK	MODEL	Dell	PowerEdge C6100 Rack Server	Match on Model	100%	Dell	PowerEdge C6100 Rack Server		DEVICE-RACKABLE					
50	CHECK	MODEL	Dell	PowerEdge M710HD Blade Server	Match on Model	78%	Dell	POWEREDGE M610X BLADE SERVER		NETWORK	Dell	Blade PowerEdge M		DEVICE-R/	Dell
51	CHECK	MODEL	Dell	PDU A1979356	Match on Model	100%	Dell	PDU A1979356		RACK PDU-ZERO U					

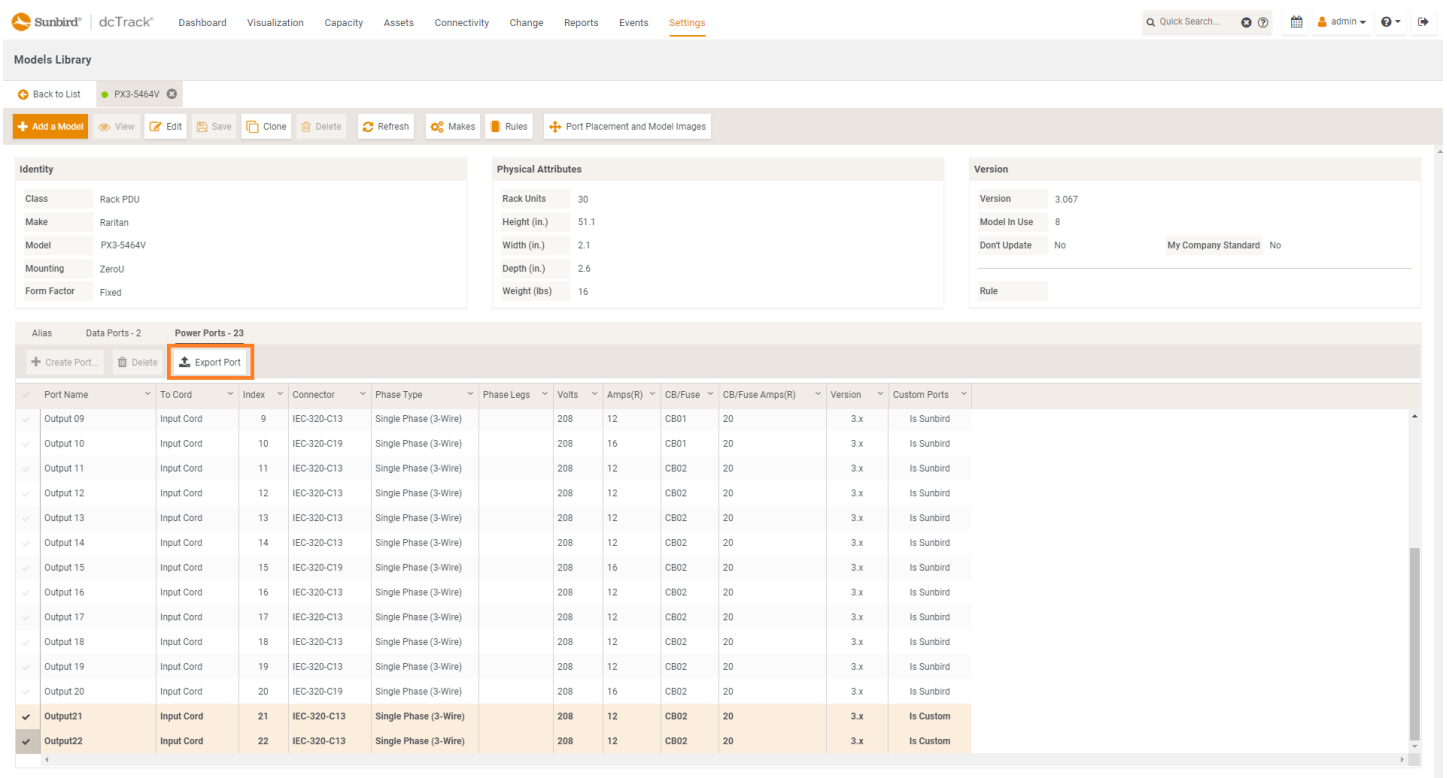
cmdb_hardware_product_model.423

Ready Accessibility: Unavailable

Update Model Ports and Apply Updates to Items

Models ports can be updated, and the updates can be applied to all item instances of that model.

From the Model Details Page, select the ports that need to be updated and click the Export Ports button. This will export a CSV file that contains rows for the selected ports of the model. The ports will be repeated for each instance of an item for that model.



The exported CSV file can be imported again to update the existing item ports and add new ports based on the updated Model.

- The Operation for Ports that are not found on an Item will be set to ADD
- The Operation for Ports that exist on an item will be set to EDIT

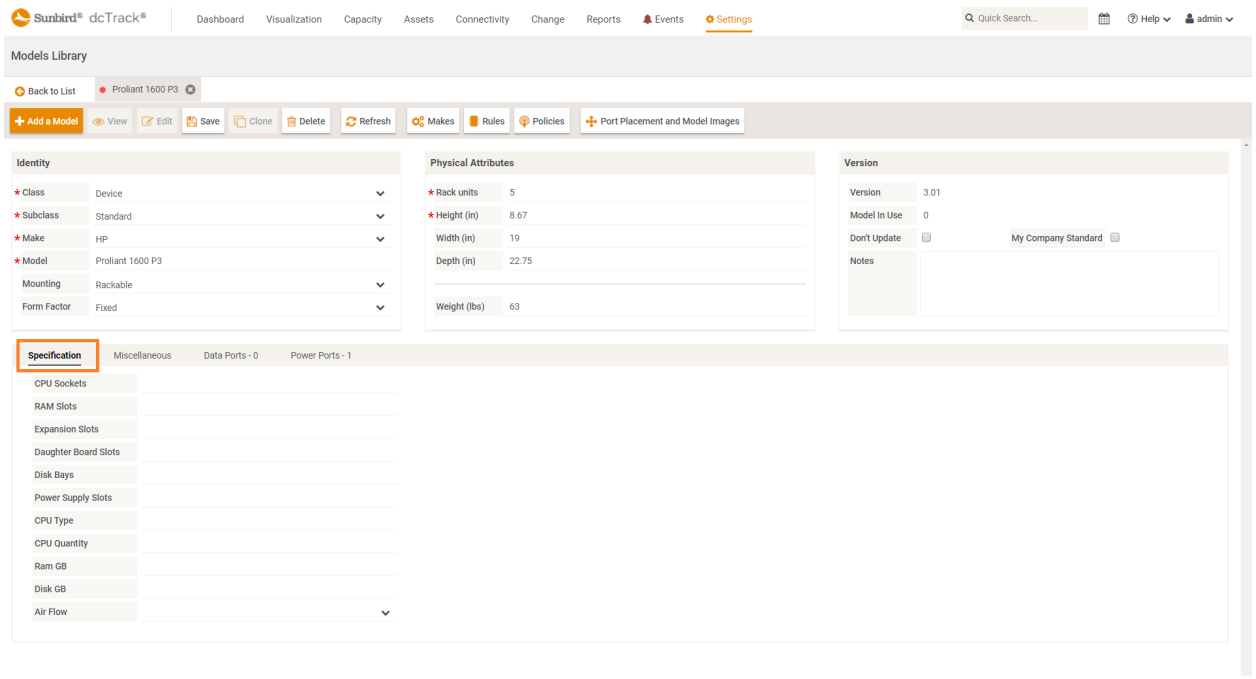
If required, this csv file can be edited prior to importing.

Required fields are indicated by an asterisk *.
Value provided for location / item / power port name (unless assigning new name) must match existing dcTrack locations / items / rack pdu power ports.
Value provided for port name can be up to 64 characters. The port name must be unique for the item.
To Cord is required where there is more than one Input Cord for the Rack PDU.
Value provided for To Cord is the list of ports of type Input Cord
Value provided for port index is an integer value of 1 or greater. The default value is the order the port was created in. Port Index must be unique for a port type of an item.
Value provided for port type must be Rack PDU Power Ports.
Value provided for color code / connector / phase type / and volts must match an entry from the dcTrack Color Code - Connector lists.
Value provided for Phase Type and Volts must match existing dcTrack Phase Type (Single Phase (2-Wire) / Single Phase (3-Wire) / Three Phase Delta / Three Phase Wye) and Volts (Single Phase: 120~240 / 120 / 240 / 277 / Three Phase: 208 / 380 / 400 / 415 / 480).
Value provided for watts budgeted can be provided as an absolute value or as a percentage of the watts nameplate value (e.g. 60%).
Only the values for port name / connector /phase type/ volts / color code / Amps(R) / CB Fuse / CB Fuse Amps(R) and comment can be edited if the port is connected.
Ports cannot be deleted when ports are connected.
Applies to Rack PDU class items only.
The items listed below are examples. Please see your system administrator for specific naming conventions to be used.

# Operation *	Object *	Item Location *	Item Name *	Port Name *	New Port	To Cord *	Index *	Port Type *	Connector *	Phase Type *	Phase Leg	Volts *	Amps(R) *	CB/Fuse	CB/Fuse A	Placemen	Placemen	Face
ADD	RACKPDU-POWER-PORT	NEWPOC	A1-RDPU-L	Output21		Input Cord	21	Rack PDU Output	IEC-320-C13	Single Phase (3-Wire)		208	12	CB02	20	0	0	
ADD	RACKPDU-POWER-PORT	NEWPOC	A1-RDPU-L	Output22		Input Cord	22	Rack PDU Output	IEC-320-C13	Single Phase (3-Wire)		208	12	CB02	20	0	0	
ADD	RACKPDU-POWER-PORT	NEWPOC	A1-RDPU-R	Output21		Input Cord	21	Rack PDU Output	IEC-320-C13	Single Phase (3-Wire)		208	12	CB02	20	0	0	
ADD	RACKPDU-POWER-PORT	NEWPOC	A1-RDPU-R	Output22		Input Cord	22	Rack PDU Output	IEC-320-C13	Single Phase (3-Wire)		208	12	CB02	20	0	0	
ADD	RACKPDU-POWER-PORT	NEWPOC	A2-RDPU-L	Output21		Input Cord	21	Rack PDU Output	IEC-320-C13	Single Phase (3-Wire)		208	12	CB02	20	0	0	
ADD	RACKPDU-POWER-PORT	NEWPOC	A2-RDPU-L	Output22		Input Cord	22	Rack PDU Output	IEC-320-C13	Single Phase (3-Wire)		208	12	CB02	20	0	0	
ADD	RACKPDU-POWER-PORT	NEWPOC	A2-RDPU-R	Output21		Input Cord	21	Rack PDU Output	IEC-320-C13	Single Phase (3-Wire)		208	12	CB02	20	0	0	
ADD	RACKPDU-POWER-PORT	NEWPOC	A2-RDPU-R	Output22		Input Cord	22	Rack PDU Output	IEC-320-C13	Single Phase (3-Wire)		208	12	CB02	20	0	0	
ADD	RACKPDU-POWER-PORT	NEWPOC	A3-RDPU-L	Output21		Input Cord	21	Rack PDU Output	IEC-320-C13	Single Phase (3-Wire)		208	12	CB02	20	0	0	
ADD	RACKPDU-POWER-PORT	NEWPOC	A3-RDPU-L	Output22		Input Cord	22	Rack PDU Output	IEC-320-C13	Single Phase (3-Wire)		208	12	CB02	20	0	0	
ADD	RACKPDU-POWER-PORT	NEWPOC	A3-RDPU-R	Output21		Input Cord	21	Rack PDU Output	IEC-320-C13	Single Phase (3-Wire)		208	12	CB02	20	0	0	
ADD	RACKPDU-POWER-PORT	NEWPOC	A3-RDPU-R	Output22		Input Cord	22	Rack PDU Output	IEC-320-C13	Single Phase (3-Wire)		208	12	CB02	20	0	0	
ADD	RACKPDU-POWER-PORT	NEWPOC	B1-RDPU-L	Output21		Input Cord	21	Rack PDU Output	IEC-320-C13	Single Phase (3-Wire)		208	12	CB02	20	0	0	
ADD	RACKPDU-POWER-PORT	NEWPOC	B1-RDPU-L	Output22		Input Cord	22	Rack PDU Output	IEC-320-C13	Single Phase (3-Wire)		208	12	CB02	20	0	0	
ADD	RACKPDU-POWER-PORT	NEWPOC	B1-RDPU-R	Output21		Input Cord	21	Rack PDU Output	IEC-320-C13	Single Phase (3-Wire)		208	12	CB02	20	0	0	
ADD	RACKPDU-POWER-PORT	NEWPOC	B1-RDPU-R	Output22		Input Cord	22	Rack PDU Output	IEC-320-C13	Single Phase (3-Wire)		208	12	CB02	20	0	0	

Model Detail Specification Subtab

In dcTrack 7.1 Model's details page was enhanced to add Specification to enter fields specific to Models. These fields are class/subclass specific.



The following is a list of fields that appear in Specification Tab. All of the fields are optional fields and will display in the Models list. By default, these fields will be hidden in the list, however you can use the show/hide feature in Models list to display these fields.

Fields	Class / Subclass
Nominal Voltage	Battery
Number of Cells	Battery
Discharge VPC	Battery
Capacity 1 (AH)	Battery
Capacity 1 Rate (Hours)	Battery
Capacity 2 (AH)	Battery
Capacity 2 Rate (Hours)	Battery
Compensation Factor (%)	Cooling Unit/ Floor PDU / Rectifier / UPS
Nominal Capacity (Tons)	Cooling Unit
Nominal Capacity (kW)	Cooling Unit
Airflow Rate (cfm)	Cooling Unit
Cassette Slots	Data Panel
Output Capacity (Amps)	DC Power System / Rectifier
CPU Sockets	Device / Blade Chassis / Blade Server /Standart Network / Blade / Chassis /NetworkStack
RAM Slots	Device / Blade Chassis / Blade Server /Standart Network / Blade / Chassis /NetworkStack
Expansion Slots	Device / Blade Chassis / Blade Server /Standart Network / Blade / Chassis /NetworkStack

Fields	Class / Subclass
Daughter Board Slots	Device / Blade Chassis / Blade Server /Standart Network / Blade / Chassis /NetworkStack
Disk Bays	Device / Blade Chassis / Blade Server /Standart Network / Blade / Chassis /NetworkStack
Power Supply Slots	Device / Blade Chassis / Blade Server /Standart Network / Blade / Chassis /NetworkStack
CPU Type	Device / Blade Server / Standard
CPU Quantity	Device / Blade Server / Standard
RAM GB	Device / Blade Server / Standard
Rating (kVA)	Floor PDU
Main Breaker (A)	Floor PDU
Max Panels	Floor PDU / DC Bay
Rating (kVA)	UPS
Rating (kW)	UPS
Rating (Vac)	UPS
Output Wiring	UPS
Weight Capacity (lbs)	Cabinet / DC Bay / Plant Bay / AC

These fields can be exported when exporting Models and included in the CSV file when importing Models.

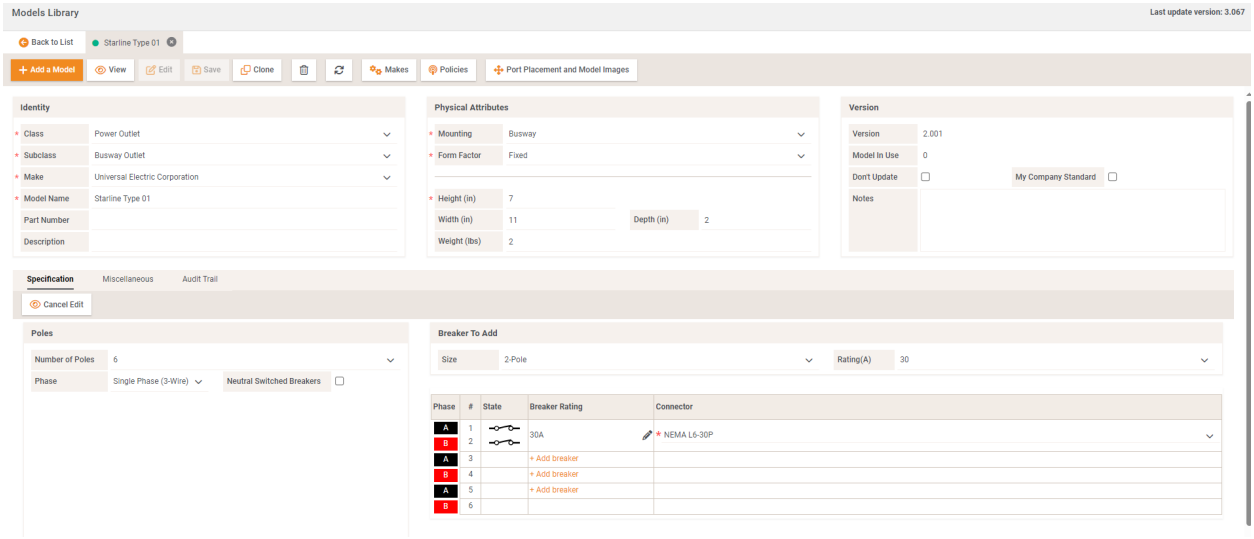
For additional information please see Import/Export Models from the Models Library.

Busway Outlet Breaker Configuration

Busway Outlet Breaker configuration can be done for the models. You can specify the number of poles and add breakers to Busway Outlet models. When items are created with these models, items inherit the breaker information.

Creating breakers for Busway Outlet models

1. In the Models Library, open Busway Outlet model in edit mode.
2. Click Edit Panel in Specification Tab.
3. Select the Number of Poles from the drop down.
4. Select the Phase from the drop-down. When Phase type "Single Phase (3-Wire)": is selected the option "Neutral Switch Breaker" is added.
5. Select the Breaker Size and Rating (A) in Breakers to Add panel.
6. Click text "Click here to add breaker" in Breaker Rating column to add breaker.
7. Select the connector from the drop down in Connector column.
8. Save the model.



Phase for the pole can be toggled by double clicking the Phase box. When Phase A is double clicked, it will change to B. When Phase B is double clicked it will change to Phase C. When Phase C is double clicked it will change to A. So to change from Phase A to C user will have to double click twice.

Phase boxes for 3 Pole breaker can not be edited and are disabled for editing. 3 Pole breaker must have Phase A, B, C in sequence.

Editing and Deleting Busway Breakers

1. Click on Edit Panel in Specification sub tab.
2. Click on the pencil icon in the Breaker Rating column to change breaker size and rating. To delete breakers, click on delete icon.
3. To edit Connector, select different connector from the drop down.
4. Save the model.

You can also add more pole positions by selecting higher number for Number of Poles.

To delete existing pole positions, select lower number for Number Poles. Breakers created for those pole positions will also be deleted.

Note: Busway outlets can also be edited via import, and you can modify the number of poles even after the breakers are created. However, when creating busway outlets via import, the number of poles value is not supported.

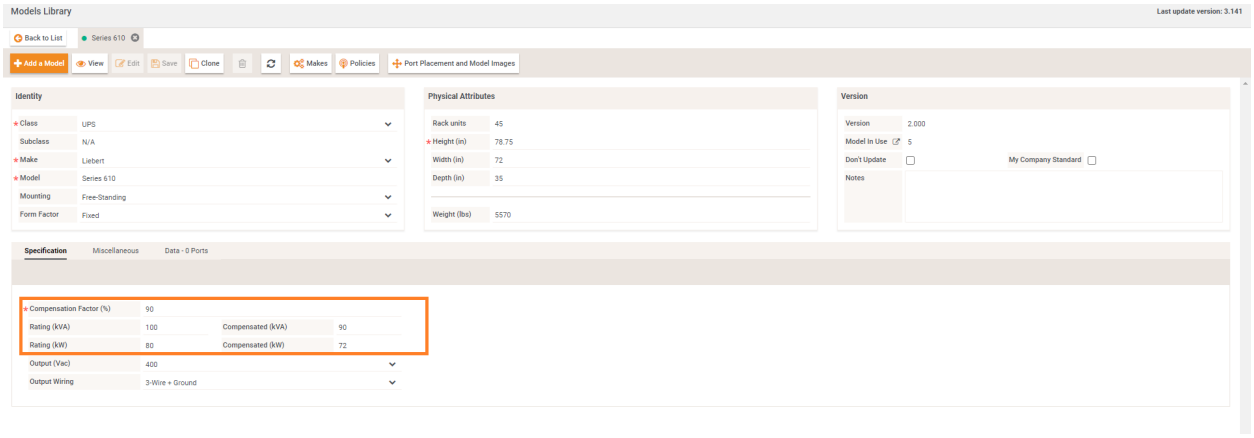
Compensation Factor for Models

dcTrack 8.1 introduces new model field called "Compensation Factor".

This field apply to following classes.

1. Cooling Unit
2. Floor PDU
3. Rectifier
4. UPS

This field accept the percentage value (1 - 200)and default to 100. This percentage value is used to calculate the output capacity for item when created from model.



For example, if the Compensation Factor for UPS is set 90 then Compensated (kVA) and Compensated (kW) will be 90% of the values entered for Rating (kVA) and Rating (kW) respectively.

When the UPS item is created, it will use the Compensated (kVA) and Compensated (kW) values.

The following is the list of fields that are calculated based on Compensation Factor.

Specification Fields	Compensated Fields	Class / Subclass
Nominal Capacity (Tons)	Sensible Capacity (Tons)	Cooling Unit
Nominal Capacity (kW)	Sensible Capacity (kW)	Cooling Unit

Specification Fields	Compensated Fields	Class / Subclass
Rating (kVA)	Compensated (kVA)	Floor PDU
Main Breaker (A)	Compensated (A)	Floor PDU
Output Capacity (Amps)	Compensated (Amps)	DC Power System / Rectifier
Rating (kVA)	Compensated (kVA)	UPS
Rating (kW)	Compensated (kW)	UPS

Specifications fields in the table are the list of fields the Compensation Factor apply to. Compensated fields are the list of fields that are calculated based on the Compensation Factor entered.

Compensated fields are read only till the Specification fields are entered. Once the Specification fields are entered, Compensated fields are auto-calculated and the fields become user entered fields.

Connectors Library

The Connectors Library contains all of the connector and connection cord types used by dcTrack.

Connectors are used to populate various fields in dcTrack such as the Connectors drop-down available when creating ports for an item, or the Connector drop-down in the Create Port dialog when adding ports.

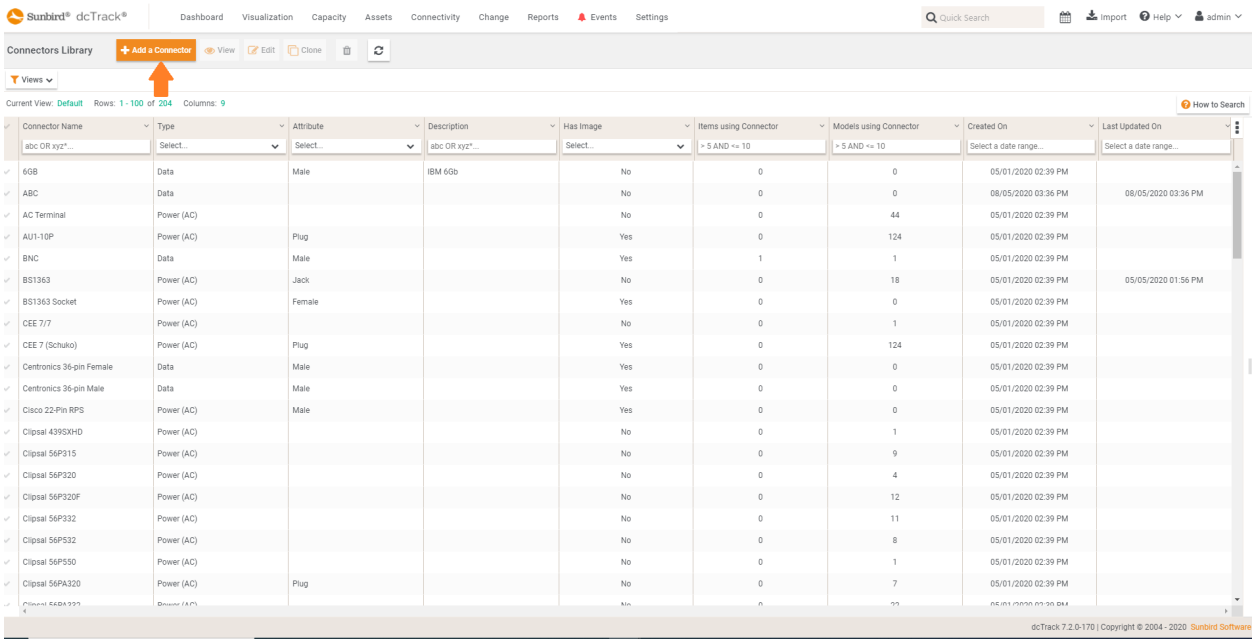
As of dcTrack version 7.2.0, users are able to manage the Connector Library directly from the Web Client.

Connector Library in Web UI can be accessed from Settings -> Connector Library.

System Administrators and users with Library Operator role can add, edit and delete connectors in Connector's Library.

Adding, Editing and Deleting Connectors in the Library

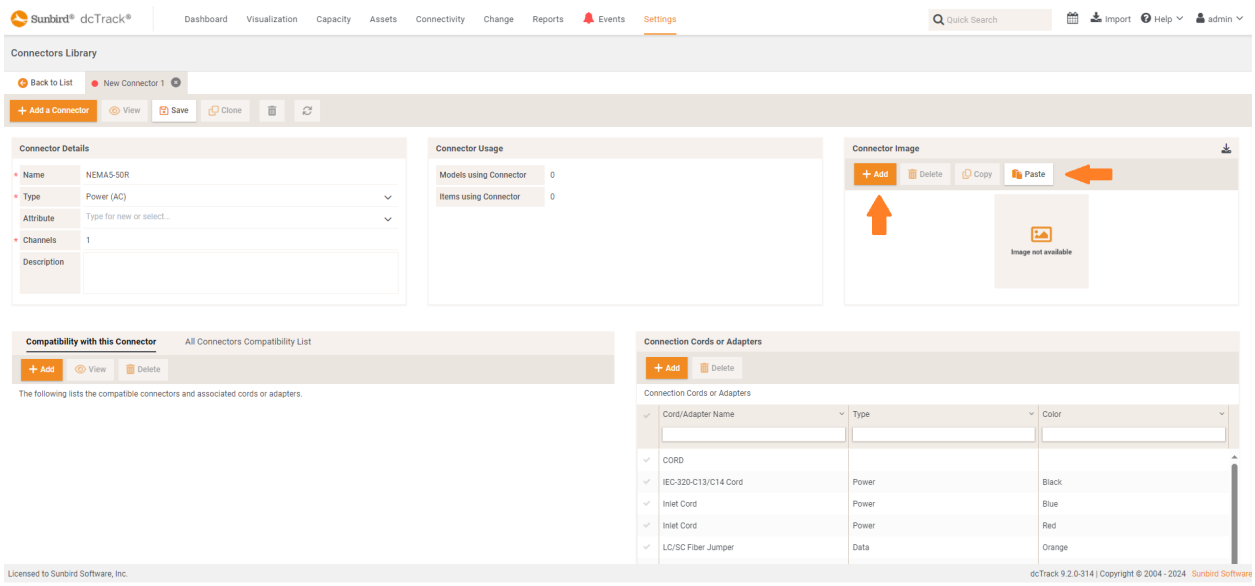
1. In Web UI, go to the Settings tab > Connector's Library.
2. In the Connector's library, click Add a Connector in the upper left of the screen to open a New Connector tab.



3. Enter a name for the connector. Name must be unique. Required
4. Select a type for the connector. Required

> *Note: If you are creating connector for power ports that support Direct Current select type Power (DC), otherwise select Power (AC). When creating Connectors for data ports, select type Data*

5. Select the connector's attribute: You can also enter connector's attribute by typing in and that attribute gets added to the drop-down list.
6. Enter the Channels. Required. By default it has value 1. Channels are used to build many to one, one to many or or many to many connections.
7. Enter a description for the connector. Optional
8. In Connector Image Panel click on Add button and locate the image you want to use. Images must be in PNG format. You can also use the Paste Button to paste the image from your clipboard. Make sure you have copied the image to Windows Clipboard.
    a. On your local machine or server, locate the image you want use. Images must be in BMP format.
    b. Copy the image to the Windows® Clipboard.
    c. In dcTrack, click Paste in the Image box in the Connectors Detail section of the page



9. Click Save to Save the connector

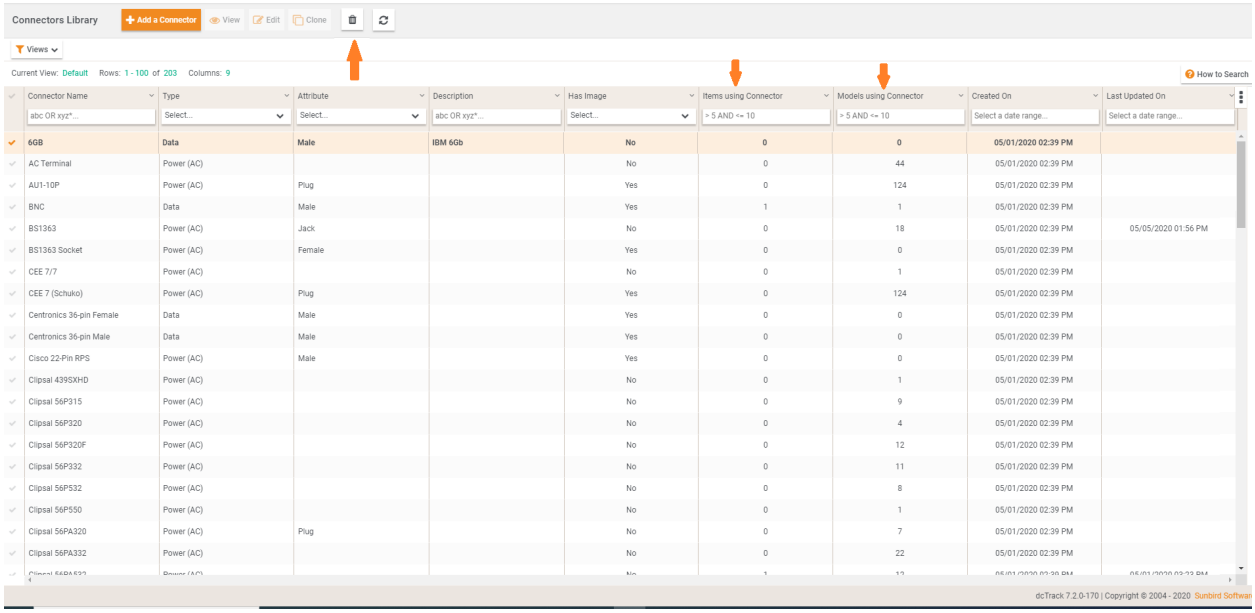
   To Edit a connector, select Connector from Connector's List and click on Edit to open Connector details. Make updates and click on Save to Save the Connector

---

Note: Once connector is saved Type cannot be changed.

To Delete a connector , select one or more Connectors from Connector's list and click on Delete to delete Connector.

Connectors that are in use by items and models can not be deleted. You can check the columns Items using Connector and Models using Connector , if the number is greater than 0 for any of these two columns the connector can not be deleted. Delete button will be disabled if you select a In use Connector.



You can also delete Connector from Connector details page by clicking on the Delete button in the toolbar.

Note: On upgrade to dcTrack 9.2.0, all the existing Connectors will have the Channels value 1.

Copy and Paste Images in the Models and Connectors Libraries

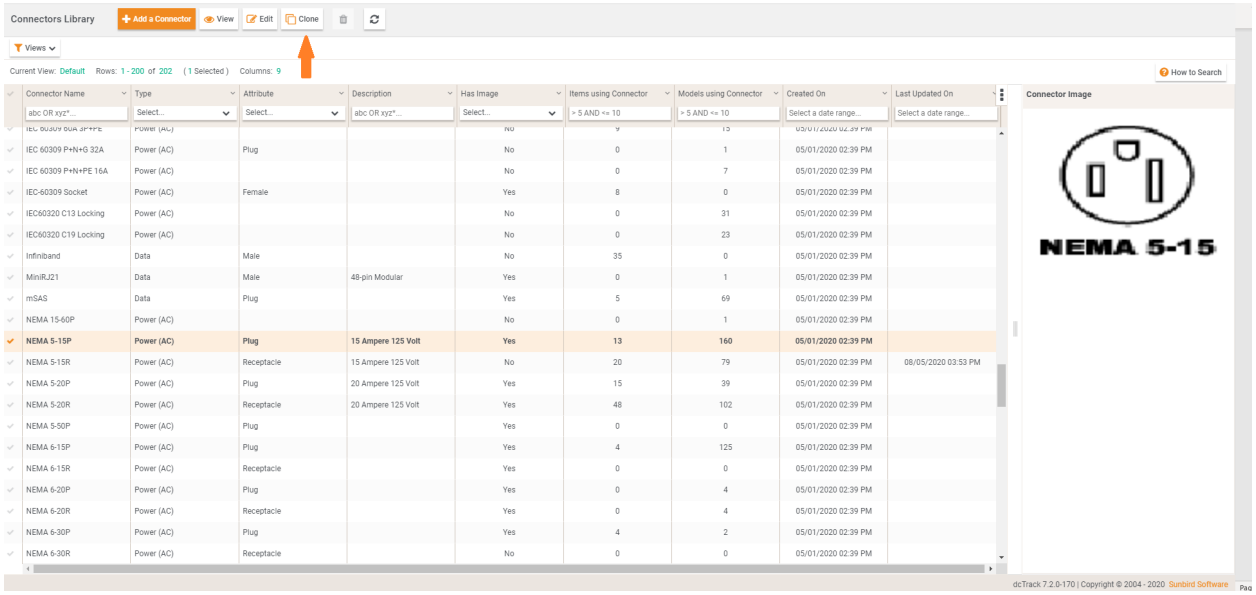
Items in the Item Models Library and Connectors Library can be copied and pasted into other applications such as Microsoft Word®, Photoshop®, and so on.

1. In the Web UI, navigate to Settings > Models Library or Settings > Connectors Library.
2. Right click on the image you want to copy and select the Copy Image option
3. Open the application you want to past the image into, then paste it using the application's paste function.

Cloning Connectors

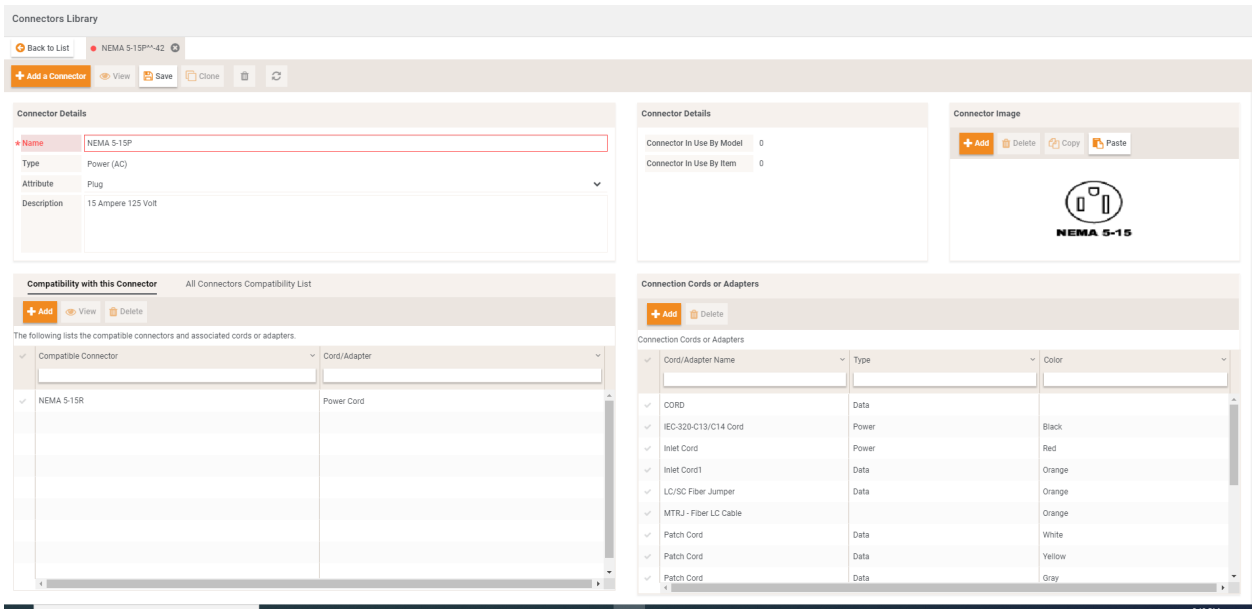
New connectors can be created by cloning an existing connector. When you clone a connector, the connector's computability and its image are also cloned.

To clone a connector, select a connector from Connector's list and click on Clone.



The Clone button is disabled when you select more than one connector from the list.

The new connector page opens with the connector details already populated, edit the Connector Name and click on Save.



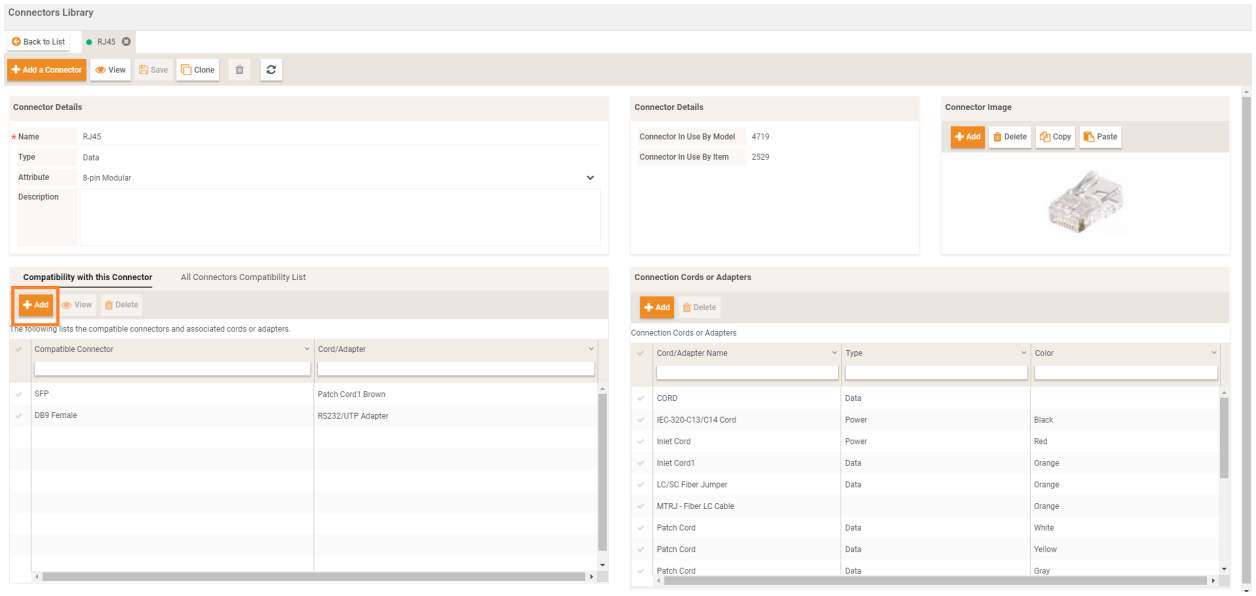
The Clone option is also available in the Connector details page.

Adding Editing and Deleting Connectors Compatibility

Adding, Editing and Deleting Connector's Compatibility

To add Compatibility to a connector, select the connector from the list open the connector details in edit mode.

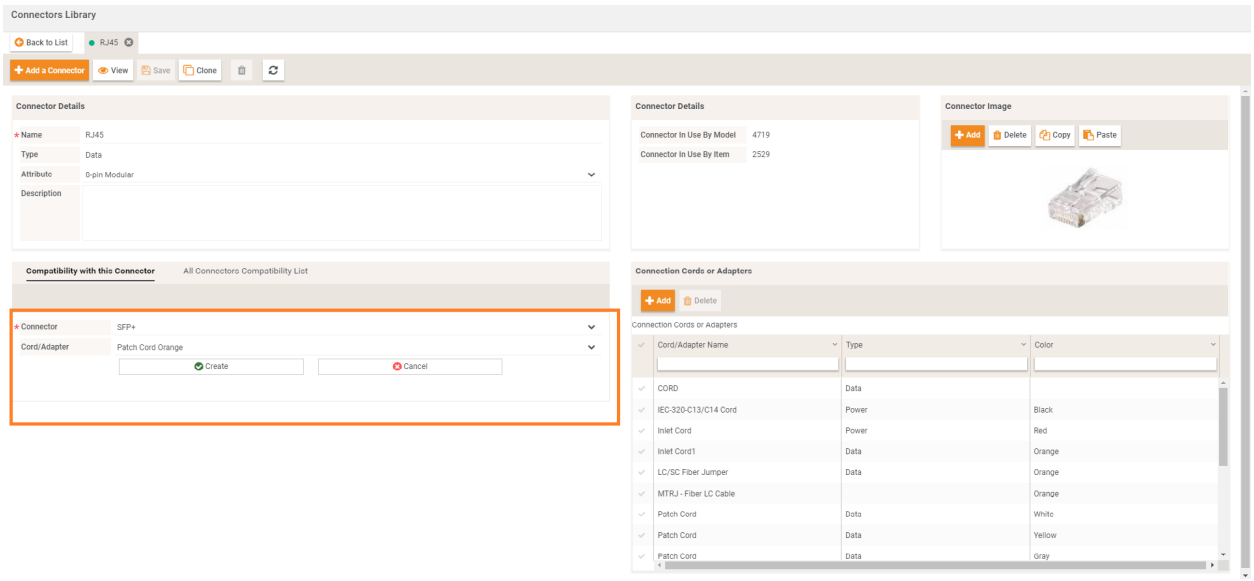
1. In the subtab Compatibility with this Connector click on Add.



2. Select the Connector from the dropdown. Required

Note : You can create compatibility only with connectors of same type.

3. Select the Cord/Adapter from the dropdown. Optional

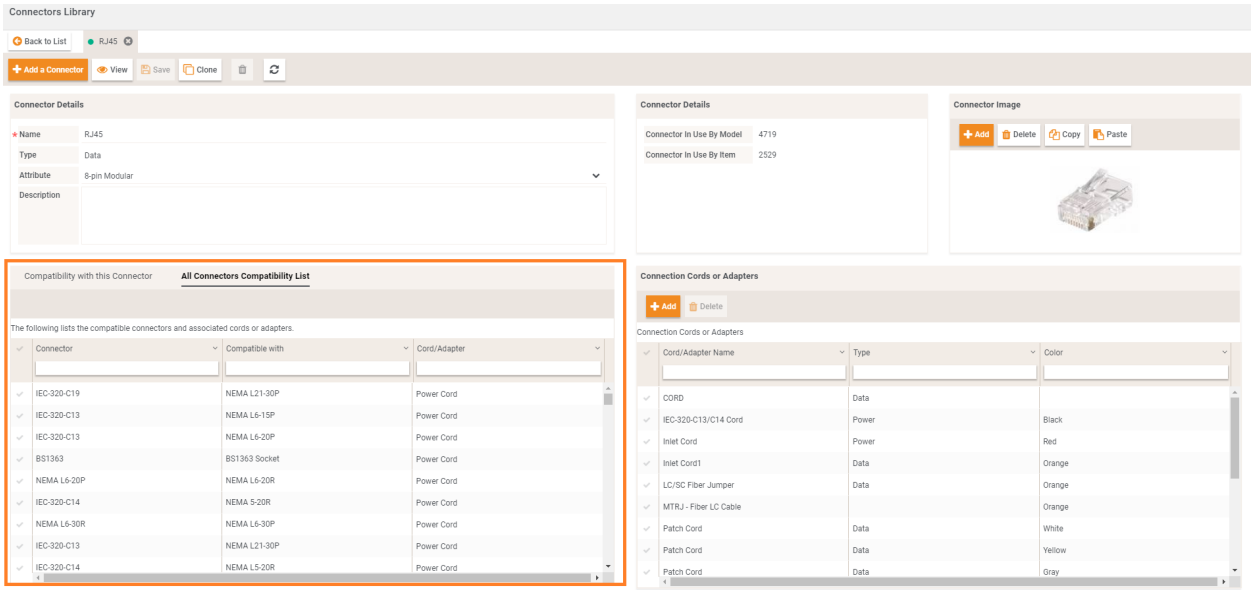


4. Click on Create.

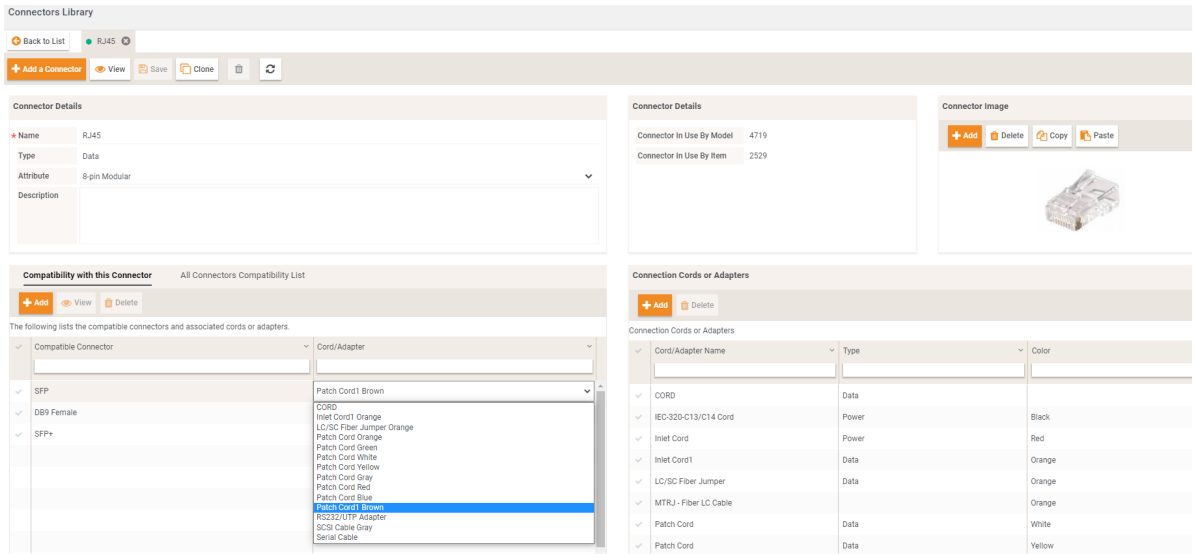
5. Save the Connector.

Compatible connector gets added to the list of Compatibility with this Connector.

You can also view the list of all Compatible Connectors in dcTrack in the subtab All Connectors Compatibility List. The list also includes the associated Cord/Adapter information for two compatible connectors. This list is read only and cannot be edited.



You can edit the compatibility by changing the cord/adapter. Click on Cord/Adapter cell and select the cord from the drop down and Save the Connector.

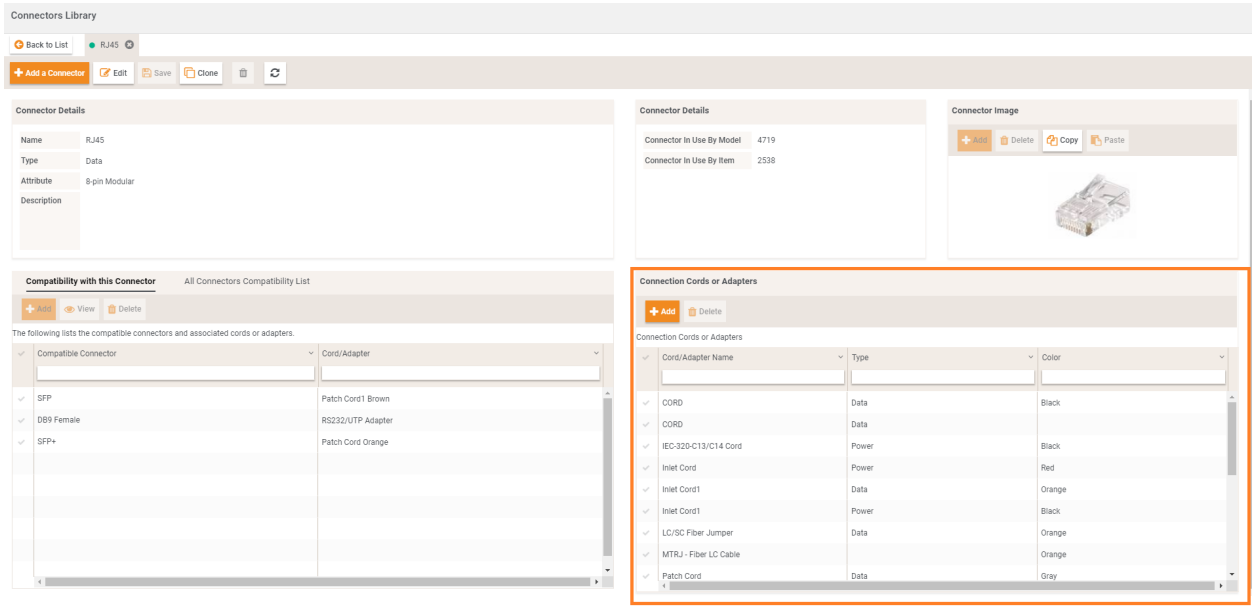


To delete Connector's Compatibility, select one or more Connectors from Compatibility with this Connector list, click on Delete and Save the Connector.

Note: If there are connections using these compatible connectors, then compatibility cannot be edited or deleted. You will get a warning message when saving the Connector

Connection Cords and Adapters

The list of all Connection Cords or Adapters can be accessed from the Connection Cords or Adapters subtab of Connector Details.

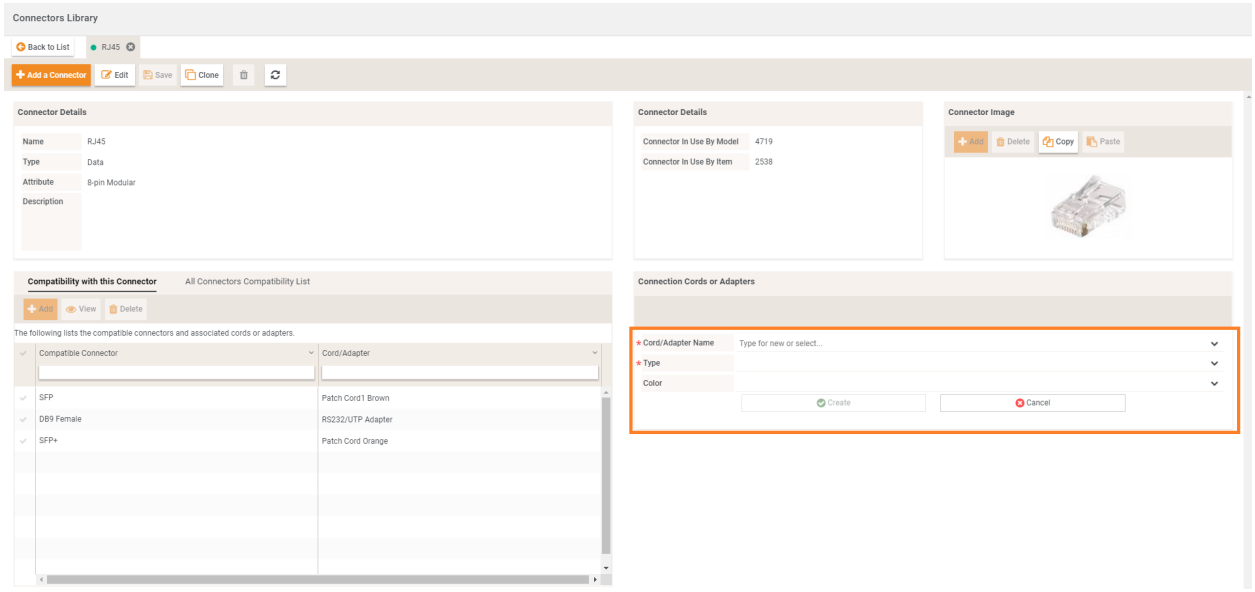


Steps to add a Connector Cord or adapter:

1. Select a Connector from the Connector list and open Connector details page.

The Connection Cord or Adapters subtab is available in all the Connector's details pages so you can select any Connector from the list and open the Connector details in view or edit mode.

2. Click the Add button in the Connection Cords or Adapters subtab.



3. Enter the Cord/Adapter Name. Required. You can also select an existing Connection Cord from the drop-down.

4. Select Type. Required.

If you have selected an existing Cord/Adapter, then you may select same or different Type.

5. Select Color. Optional

If you have selected an existing Cord/Adapter with the same Type, then you must select different Color to create new Cord/Adapter.

To create a New Cord/Adapter, Name together with Type and Color must be unique.

6. Click on Create.

Connection Cord you just created will get added to the Connection Cords or Adapters list.

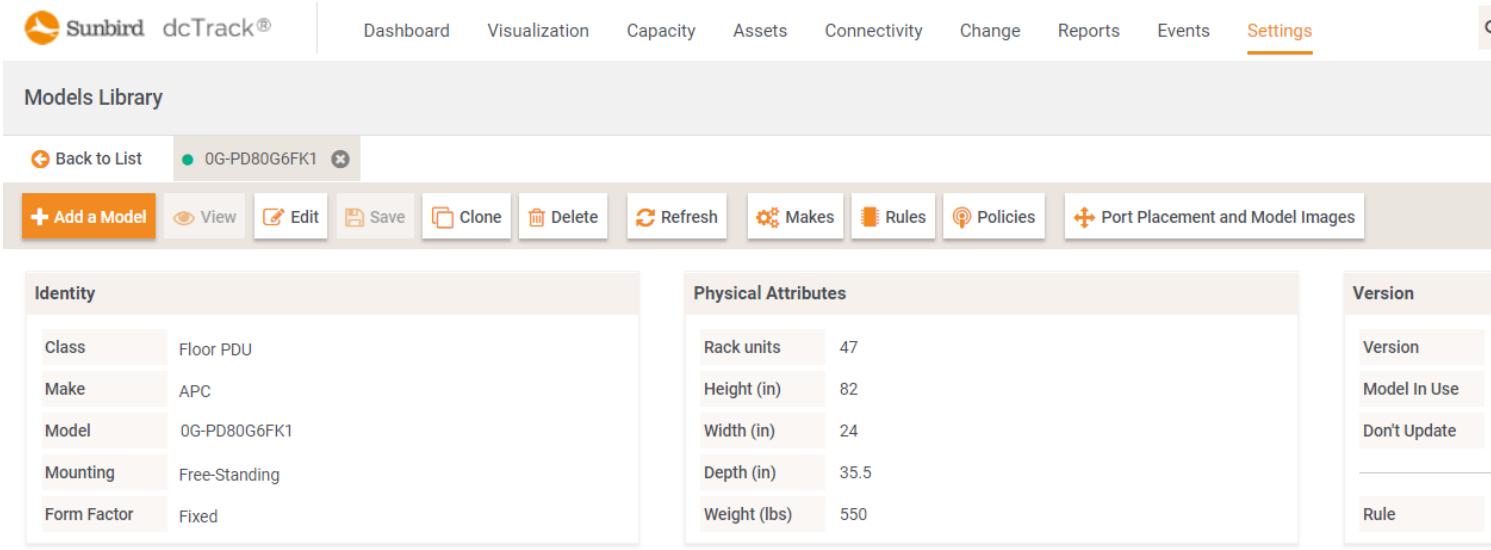
To Edit an existing Connection Cord or Adapter click on individual cell in the list. The list supports inline editing.

To Delete an existing Connection Cord or Adapter select one or more Cord or Adapter from the list and click on Delete button.

Note: If the Connection Cords or Adapters are in use by connections then it can not be edited or deleted, and you will get a warning message.

Configure dcTrack to Use Standard Models

System Administrators and Gatekeepers with the Manage Library functional role can designate item models as My Company Standard in the Item Models Library.



These are models that are used most often in your data center, or models standardized by your organization.

For example, if you only use Raritan Dominion PX2-5701 and PX2-5725 rack PDUs in your data center, designate those PX models as 'My Company Standard' in the Item Models Library.

Once a model is designated as a 'My Company Standard', you can -

- **Configure dcTrack to Display Only 'My Company Standard' Models**

This is applied at the application level, and allows users to see only models designated as 'My Company Standard'.

For example, you can configure dcTrack so only PX2-5701 and PX2-5725 rack PDUs are displayed to users as model selections.

- **Configure dcTrack to Display All Models**

This allows users to display all models, or check the Std. checkbox to filter their options so only 'My Company Standard' models are displayed.

Set a Model as 'My Company Standard'

To set a specific model as a 'My Company Standard':

Tip: While you go through the process of designating standard models, if you find models you use are missing from the library, note them and then submit a request to Sunbird Customer Support to include them in the next Item

Models Library build.

Alternatively, add the model to the library manually. See Manually Add New Models to the Item Models Library.

1. Navigate to Settings > Models Library.
2. Select a model from the model list box.
3. In the Model Details section of the page, click on the My Company Standard checkbox.
4. Repeat these steps for each model you want to mark as a standard model.

You can now:

- **Configure dcTrack to Display Only 'My Company Standard' Models**.
- **Configure dcTrack to Display All Models**.

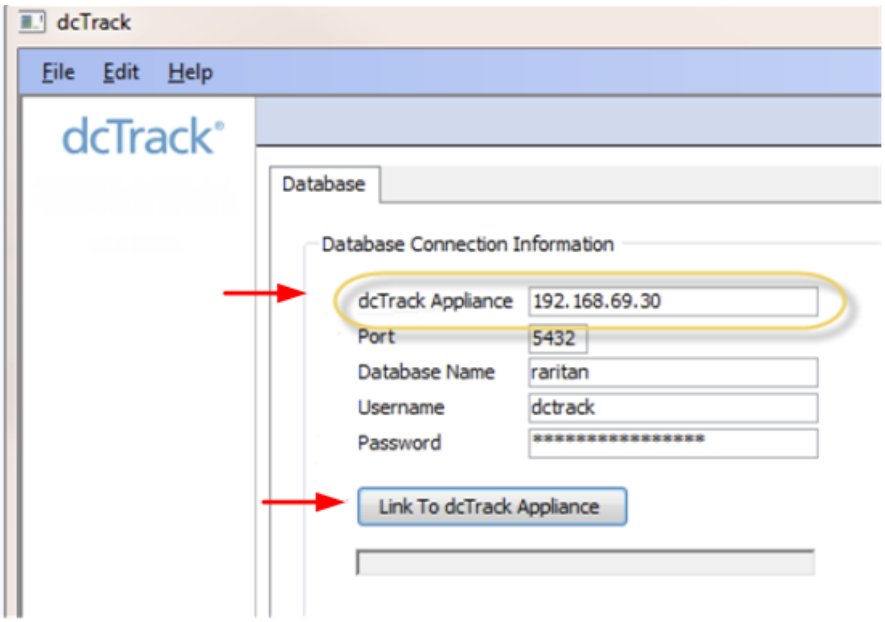
Use the Set My Library Tool to Designate 'My Company Standard' Models

The Set My Library tool is used to quickly designate a large number item models as 'My Company Standard', rather than manually designating each model individually in the Item Models Library.

The tool is used if you have already created a large number of items in dcTrack with different model types. For example, it is used to apply 'My Company Standard' to cabinet models, server models, rack PDU models and so on you have created since you began using dcTrack.

If you do not have a large number of items with different model types, manually designate the models 'My Company Standard' models. See Designate Models as 'My Company Standard' in the dcTrack Item Models Library.

1. Get the Set My Library tool by downloading the "IP address and Designate My Company Standard Models Import Tool" file from the Sunbird Support site at http://support.sunbirddcim.com.
2. Extract the Implementation Import Tool.mde file from the zip file and save it locally.
3. Double-click on the file to run the tool.
4. Enter your dcTrack access information to connect to dcTrack.



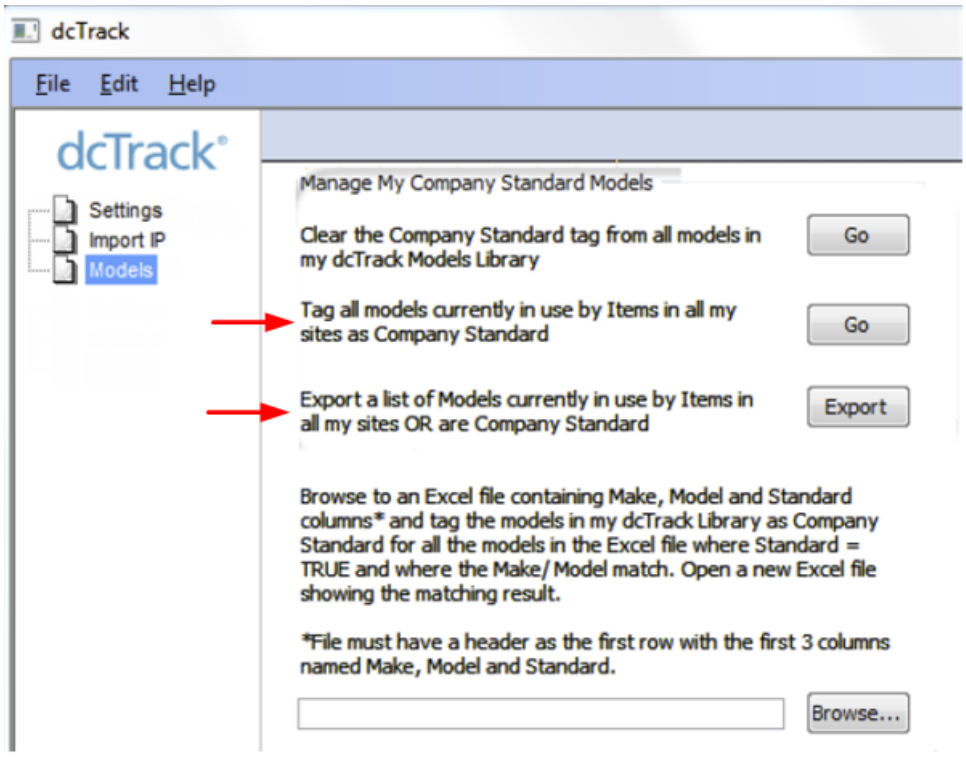
5. Use one of the following tool options to designate your 'My Company Standard' models:
    - Designate (tag) all of item models currently in use in your locations as 'My Company Standard' models.

This means the model for every item currently in use in dcTrack is designated as 'My Company Standard'.

Or

- Export a spreadsheet containing all models in the Item Models Library.

You can identify those that are already designated as 'My Company Standard' if they have a value of TRUE in their Standard column.



You can remove any model's 'My Company Standard' designation by accessing it in the Item Models Library and deselecting the 'My Company Standard' checkbox. See **Edit an Existing Model in the Models Library**.

Configure dcTrack to Display Only 'My Company Standard' Models

By default, only models designated as 'My Company Standard' are displayed to users. See Designate Models as 'My Company Standard' in the dcTrack Item Models Library.

The Std column does not appear in any Models dialog since there is no need to select it in order to filter the list for only those models.

To display only 'My Company Standard' (if needed):

1. Navigate to Settings > dcTrack Settings > Application Administration
2. Click the Application Menu Item
3. Enable the Company Standard Models feature

Configure dcTrack to Display All Models

By default, only models designated as 'My Company Standard' are displayed to users. See Designate Models as 'My Company Standard' in the dcTrack Item Models Library.

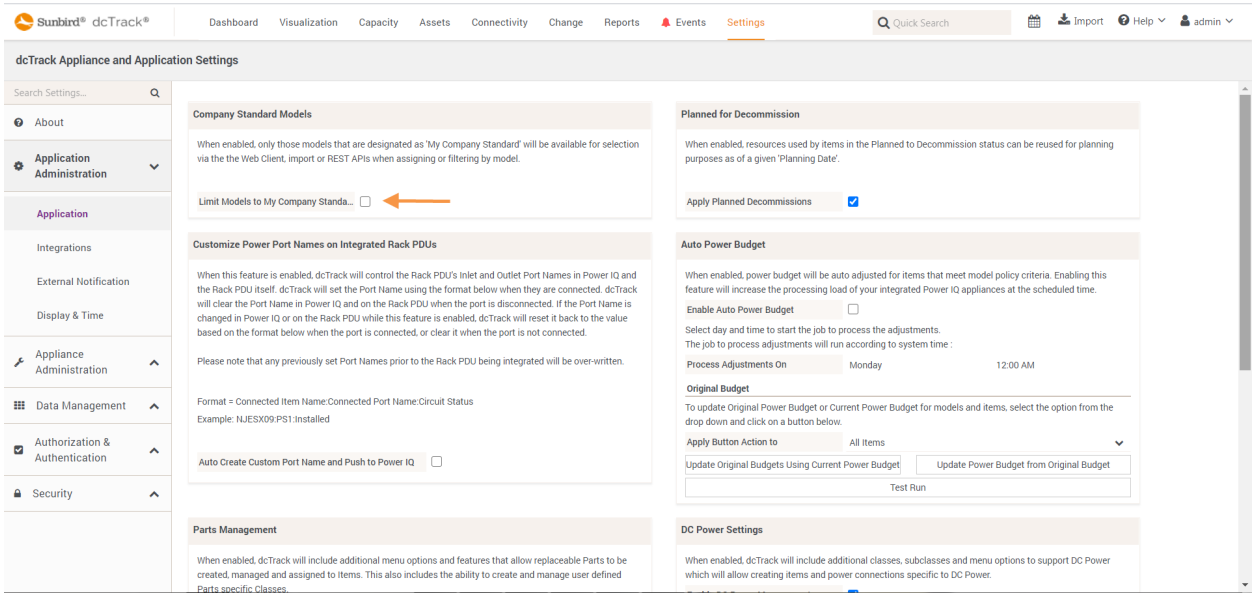
However, you can configure dcTrack to display all models designated in addition to those designated as 'My Company Standard' in the Item Models Library.

Users can view all models available in the Item Models Library or filter the list for 'My Company Standard' models.

When this option is disabled in dcTrack, the Std column appears in Model dialogs.

To view all Models disable the "Limit Models to My Company Standard" option.

1. In the Web UI , navigate to Settings > dcTrack Settings > Applicaton Administration.
3. Deselect "Limit Models to My Company Standard"

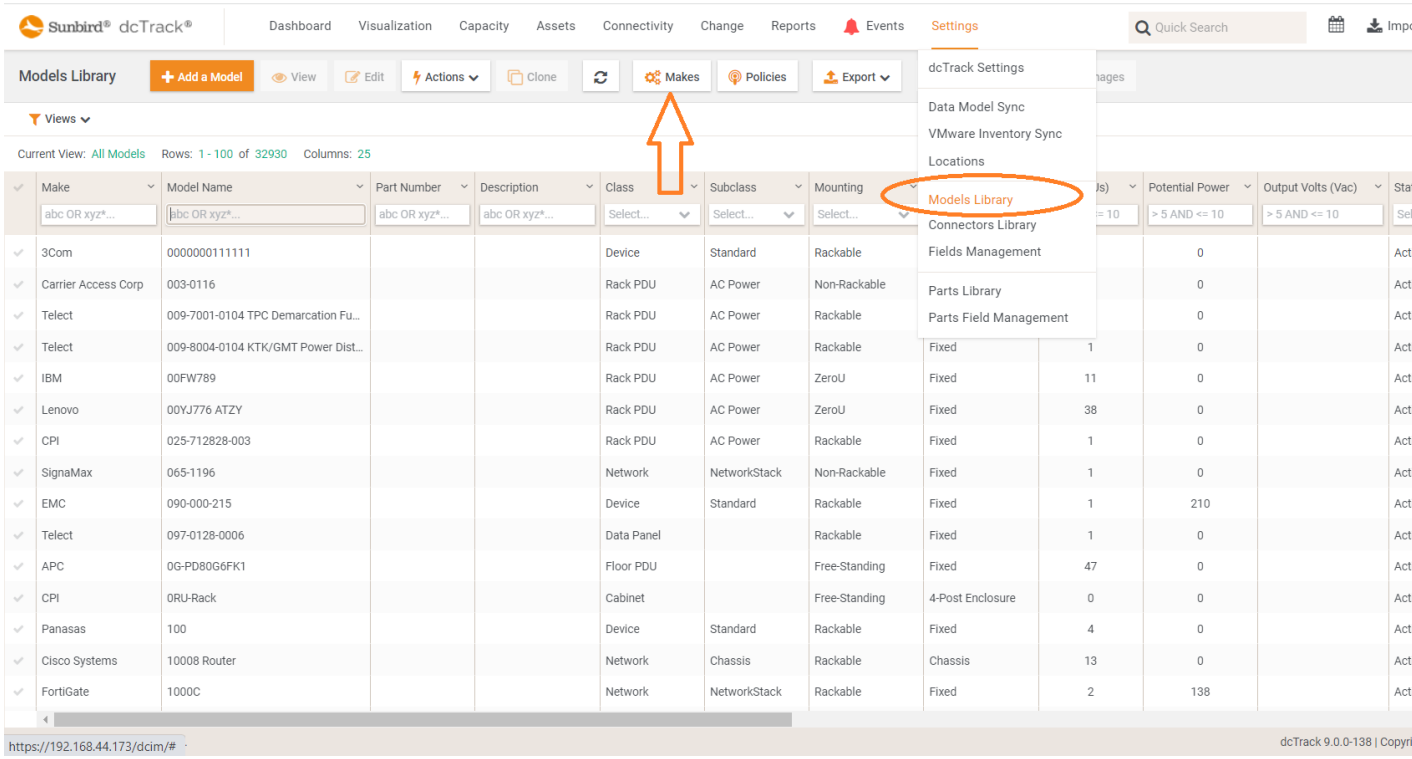


Manage Makes in the Models Library

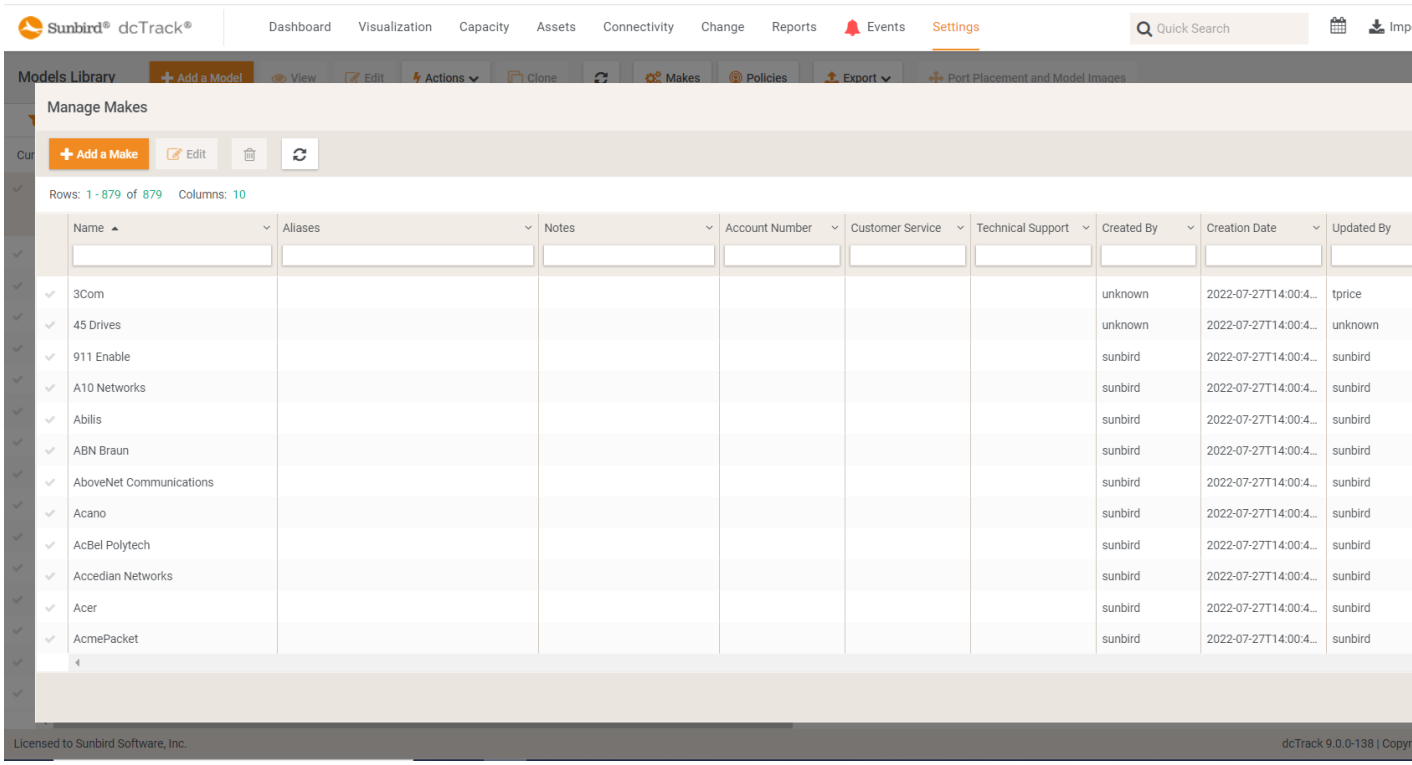
dcTrack version 9.0.0 introduced a new user interface for managing Makes in the dcTrack Models Library.

Steps to Add a new Make:

1. Navigate to Settings > Models Library



2. Click the Makes button in the Tool Bar to open the Manage Makes dialog



3. To add a new Make click the Add button on the tool bar and populate the applicable fields
    a. Name - Required
    b. Alias - Optional You can supply more than 1 alias for a given Make
    c. Notes - Optional
    d. Customer Service - Optional
    e. Technical Support - Optional
    f. Account Number
4. Click the Save button to create the new record

To edit an existing Make click the Edit button in the tool bar. In edit mode you can modify any of the field data including the "Name field.

If the Name field is changed, the change will apply to all existing Models currently assigned to the Make.

Chapter 4:Parts Management

dcTrack version 7.2.0 introduced the Parts Management module. When enabled, this feature allows users to create, manage and track assignments for their Parts inventory. Please refer to the topics below for complete details on how

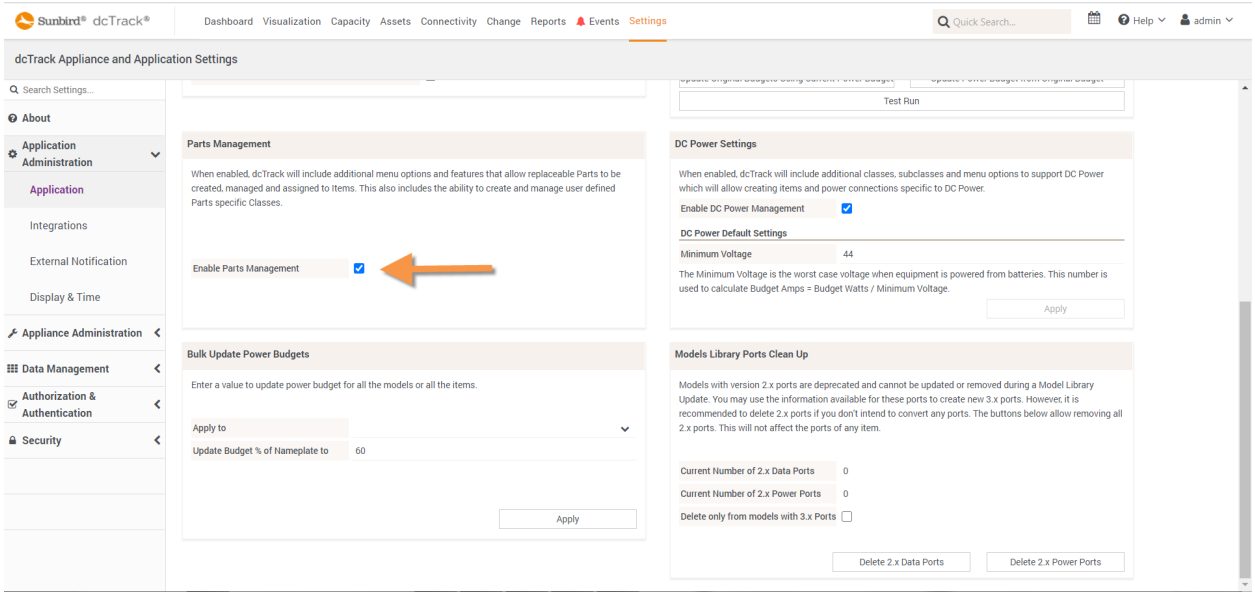
to enable this feature and the steps involved in managing your Parts Inventory. The list below is in the suggested order you should follow when setting up your Parts Management module.

Enabling and Disabling the Parts Management Feature
Part Classes
Part Custom Fields
Parts Actions
Parts Library
Parts List
Adding and Maintaining Parts Inventory
Importing and Exporting Parts Inventory and Assignments
Adjusting Parts Stock
Transferring Parts Inventory
Assigning and Unassigning Parts to Items
Assigning Parts to Item Ports
Part Transactions

Enabling Parts Management

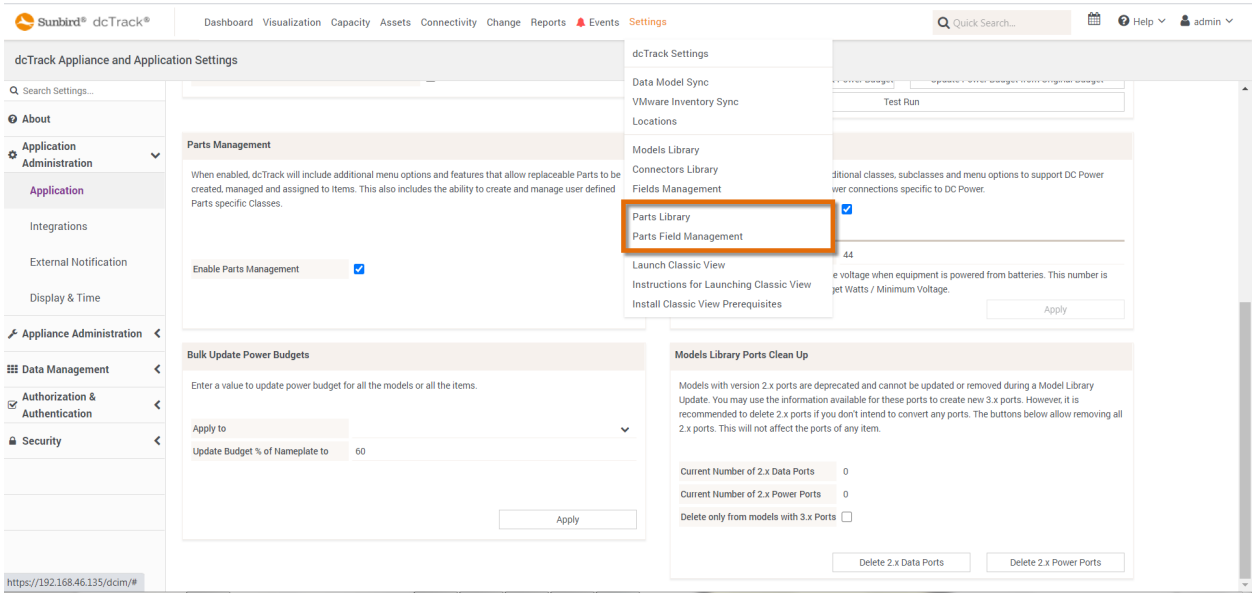
To enable the Parts Management feature:

1. Navigate to Settings > dcTrack Settings > Application Administration > Application.
2. On the Parts Management panel, select the "Enable Parts Management" check box.

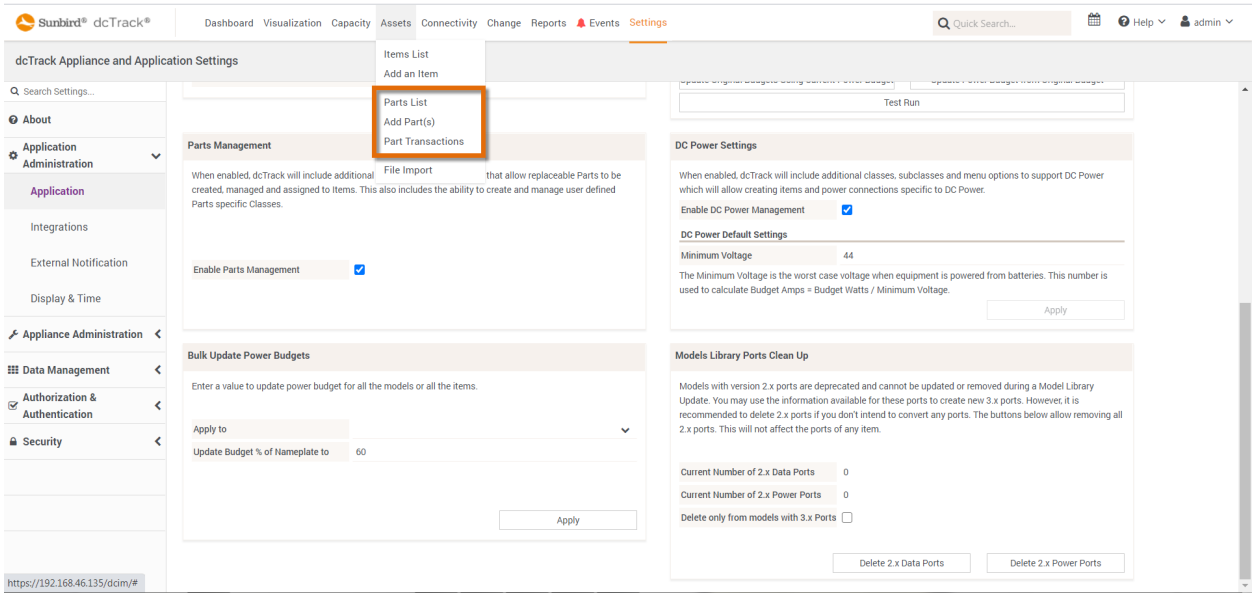


3. The Parts Management setting is saved immediately.

When this feature is enabled, dcTrack will include two new menu options under the main Settings menu for "Parts Library" and "Parts Field Management". Click the Parts Library menu option to navigate to the Parts Library list. This is where you can create and update the Parts Models that will be used to create your Parts Inventory. Click the Parts Field Management option to navigate to the pages used to manage Part Classes and Part Custom Fields.



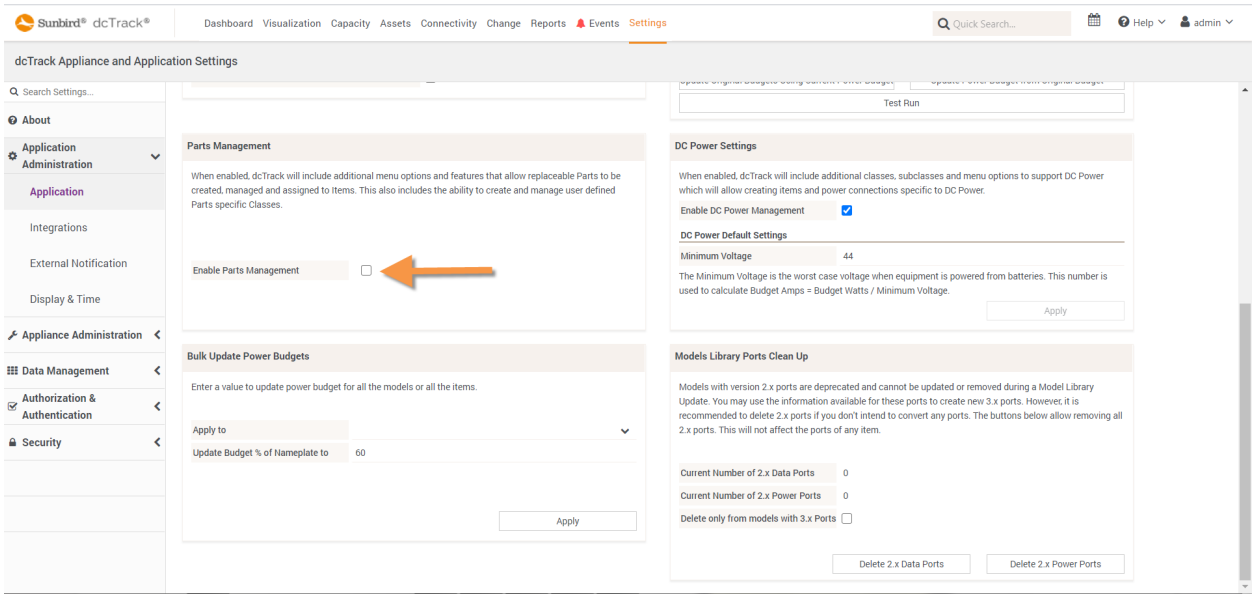
In addition to the menu options under Settings you will also have three new menu options under the main Assets menu for "Parts List", "Add Part(s)" and "Parts Transactions". These menu options provide access to the pages used to manage your actual Parts Inventory and view the Transactions applicable to each Part.



Disabling Parts Management

To disable the Parts Management feature:

1. Navigate to Settings > dcTrack Settings > Application Administration > Application.
2. On the Parts Management panel, uncheck the "Enable Parts Management" check box.



3. The Parts Management setting is saved immediately.

When the feature is disabled, the options specific to Parts Management on the Settings and Asset menu will no longer be available. Additionally you will no longer be able to Assign new Parts to Items or view existing Assignments.

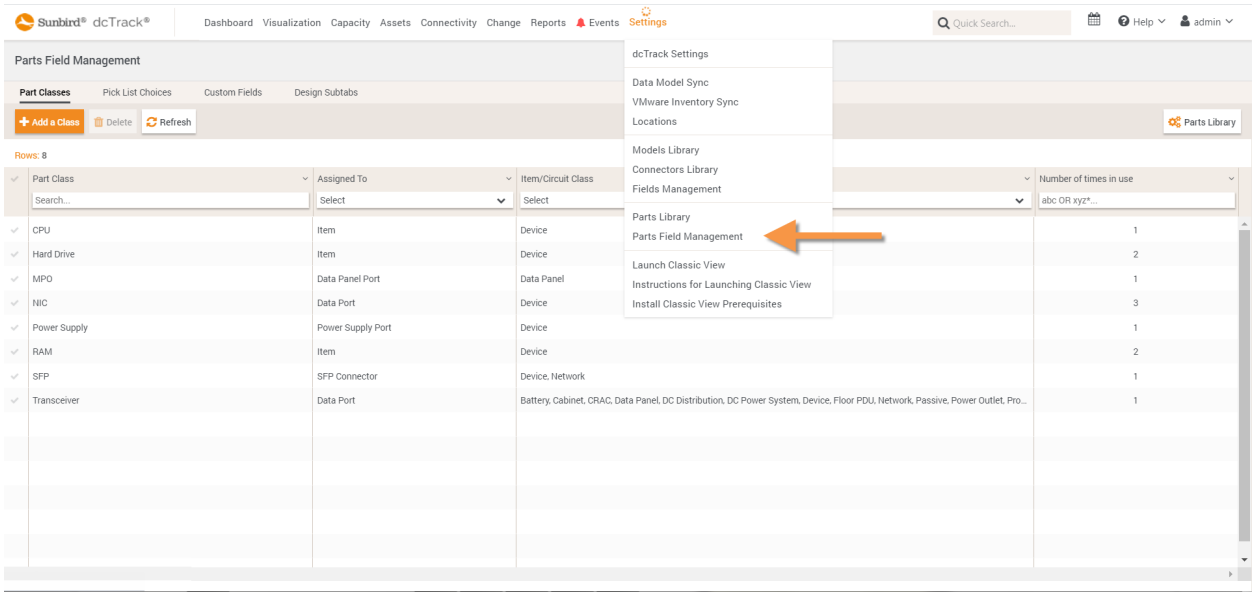
Part Classes

The Parts Management feature allows you to create and manage user defined Classes specific only to Parts. Similar to Item Classes, Part Classes provide a logical grouping of the Parts in your inventory. While you can create as many Part Classes as you require, dcTrack is delivered with 8 Part Classes as part of the feature. These Classes can be modified or deleted as needed.

- CPU
- Hard Drive
- MPO Cassette
- NIC
- Power Supply
- RAM
- SFP
- Daughter Board

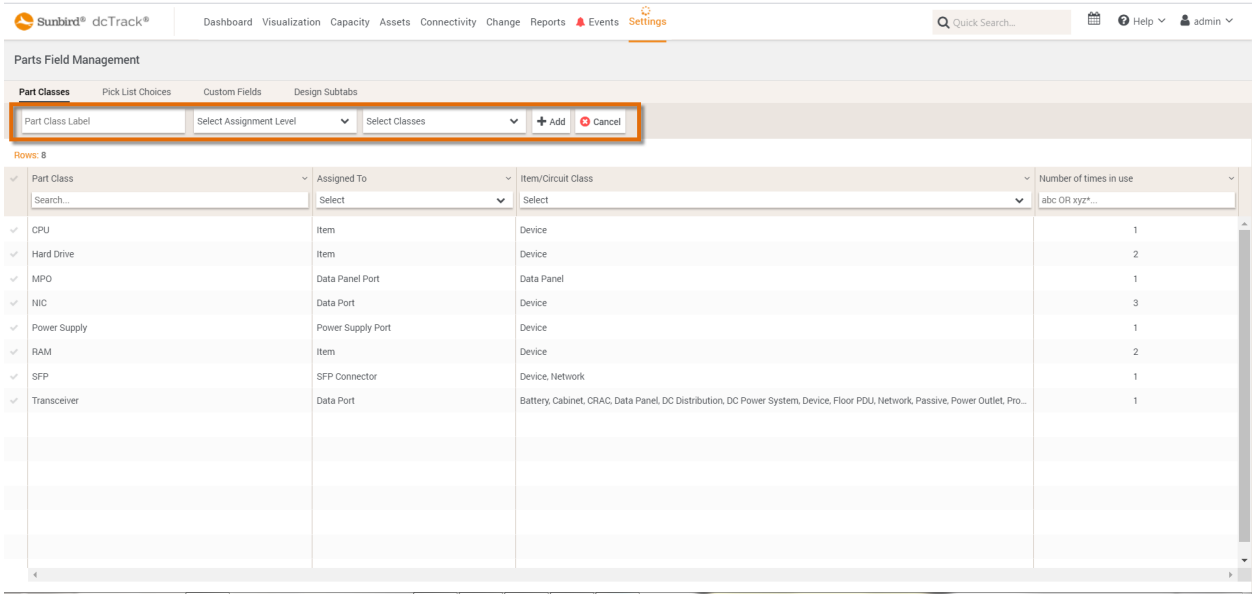
Steps to manage Part Classes:

1. Navigate to Settings > Parts Field Management



2. Click the Add a Class button

3. Once clicked dcTrack displays the input fields in the tool bar



4. Specify the following information in the input fields
    a. Part Class Label - User defined label used to identify the Part Class. This Label will appear in all Part Class drop down boxes.
    b. Assignment Level - Select the Item level at which Parts for this Class can be assigned
        - Item Level - Parts can only be assigned to Items
        - Data Panel Port - Parts can be assigned to specific Data Ports on Items whose Item Class is Data Panel
        - Data Port - Parts can be assigned to specific Data Ports on any Item Class that supports Data Ports
        - Power Supply Port - Parts can be assigned to specific Power Supply Ports on any Item Class that supports Power Supplies
        - SFP - Parts can be assigned to specific Data Ports whose Connector type is SFP on any Item Class that supports Power Supplies
    c. Item Classes - Select one or more Item Classes to which this Part Class can be assigned. Note, if you have the DC Power feature enabled, in addition to AC Power Classes, this list box will include the DC Power Classes.
5. Click the Add button in the tool bar to add the Part Class or you may click the Cancel button to disregard your most recent entry and close the tool bar.

The grid below the tool bar will list all existing Part Classes and is in-line editable. The only column that may not be modified is the "Number of times in use". This column displays the number of Part Models that exist in the Parts Library for each Part Class.

Note, Part Classes with a Number of times in use that is greater than 0 can not be deleted. Additionally, the Assignment Level and Item Classes can not be modified to exclude an entry if Part Models have been created for the Part Class that include that Assignment Level or Item Class.

Part Custom Fields

The Parts Management feature allows you to create and manage Custom Fields that are specific to only Parts, or can also apply to Items and Circuits. Custom Fields enable organizations to capture and display additional data that may not be covered by dcTrack's Standard Fields.

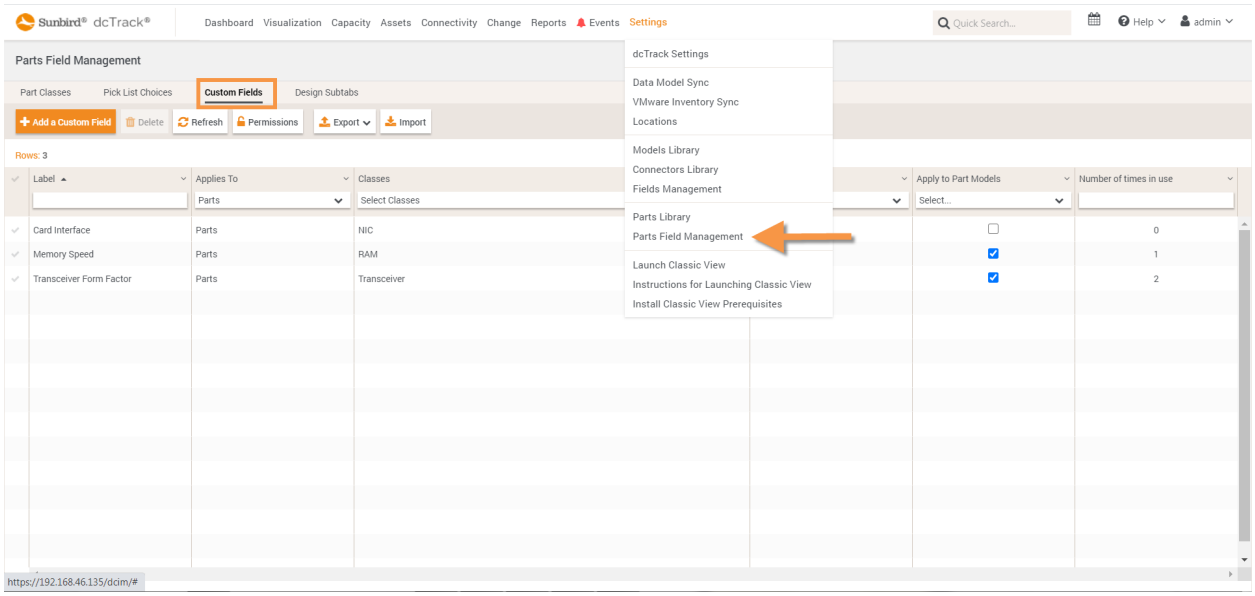
Users with the System Administrator role or who have the Manage Lists auxiliary role can add, edit, and delete Custom Fields.

Note: Permissions are not supported for Part and Part Model Custom Fields

Adding Part Custom Fields

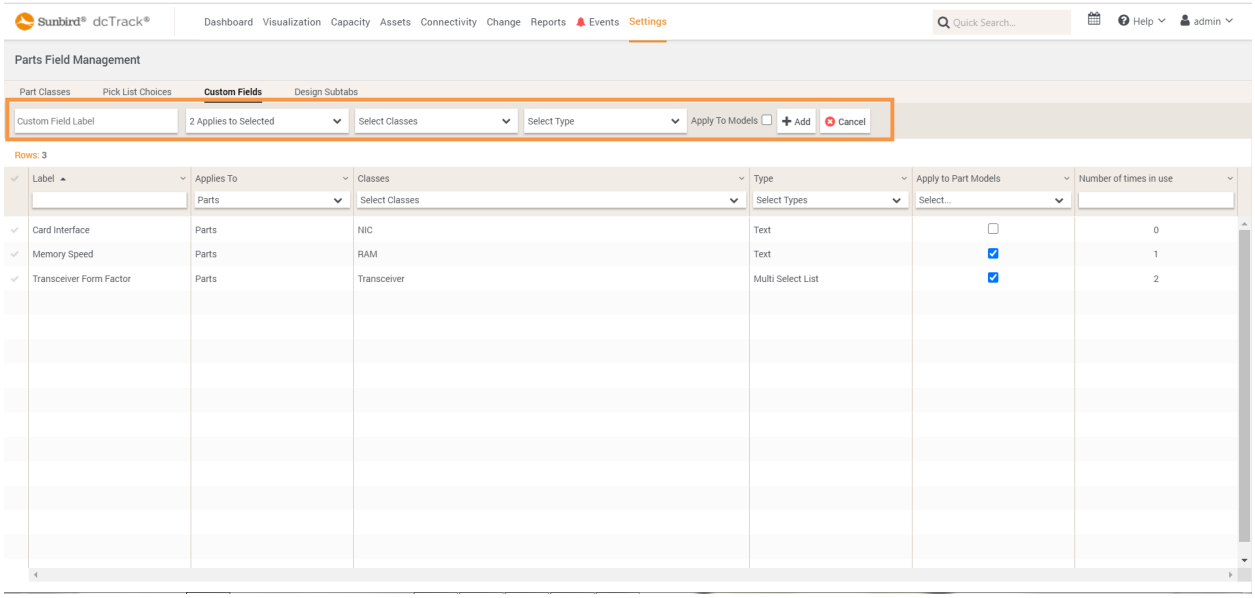
Steps to add Part Custom Fields:

1. Navigate to Settings > Parts Field Management



2. Click the Custom Fields Subtab
3. Click the Add a Custom Field button

4. Once clicked dcTrack displays the input fields in the tool bar



5. Specify the following information in the input fields
    a. Custom Field Label - The name of the Custom Field
    b. Applies To - Select one or more options to specify what the Custom Field applies to
        - Parts
        - Items
        - Circuits
    c. Classes - Select the classes the Custom Field is valid for. Depending on the "Applies To" options you selected, you can select multiple classes including Parts, Item, Power and Data Circuits.
    d. Type - Select the data type of Custom Field.
    e. Apply to Models - If the "Applies To" you selected includes "Parts", you may indicate the Custom Field should be applied to Part Models by checking the "Apply to Models" check box. Part Custom Fields that apply to Part Models may be placed on the Part Model Custom field subtab that appears on the Part Model detail page as well as the Custom Field subtab that appears on the Part Instance detail page. Part Model Custom fields that appear on the Part Instance Custom field subtab will inherit the value specified at the Part Model level but can be overridden at the Part Instance.
6. Click the Add button in the tool bar to add the Custom field or you may click the Cancel button to disregard your most recent entry and close the tool bar.

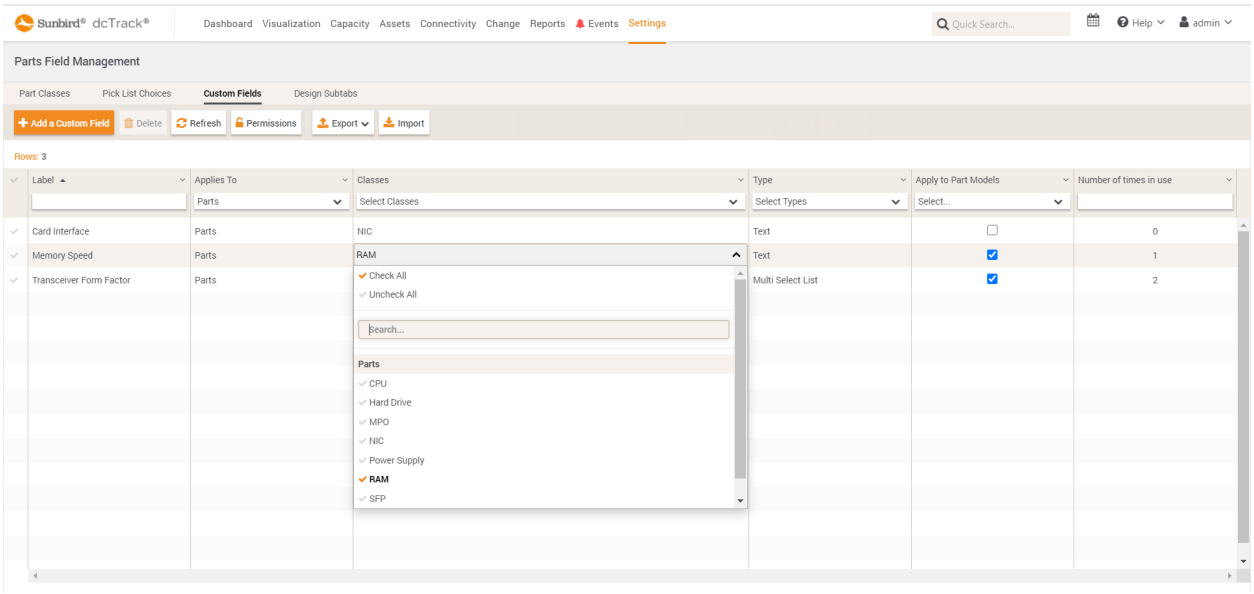
The grid below the tool bar will list all existing Custom fields.

Editing Part Custom Fields

Inline editing is supported for the Custom Fields grid, so authorized users can simply select the cell they want to edit to make changes to Custom Fields.

Steps to Edit Part Custom Fields:

1. Navigate to Settings > Parts Field Management
2. Click the Custom Fields Subtab
3. Click the cell that you want to edit. The grid will allow you to make changes directly to the cell content by typing in the cell or selecting new values from the available lists.



4. Your changes will save automatically once you have completed your edits and exited the cell.

Deleting Custom Fields

1. Navigate to Settings > Parts Field Management
2. Click the Custom Fields Subtab
3. In the Custom Fields tab, select the Custom Fields that you want to delete.
4. Click the Delete icon.

Note: If the Custom Field is not in use, the item will be deleted, however, if the field is in use, dcTrack will display a dialog asking you to confirm the deletion before proceeding.

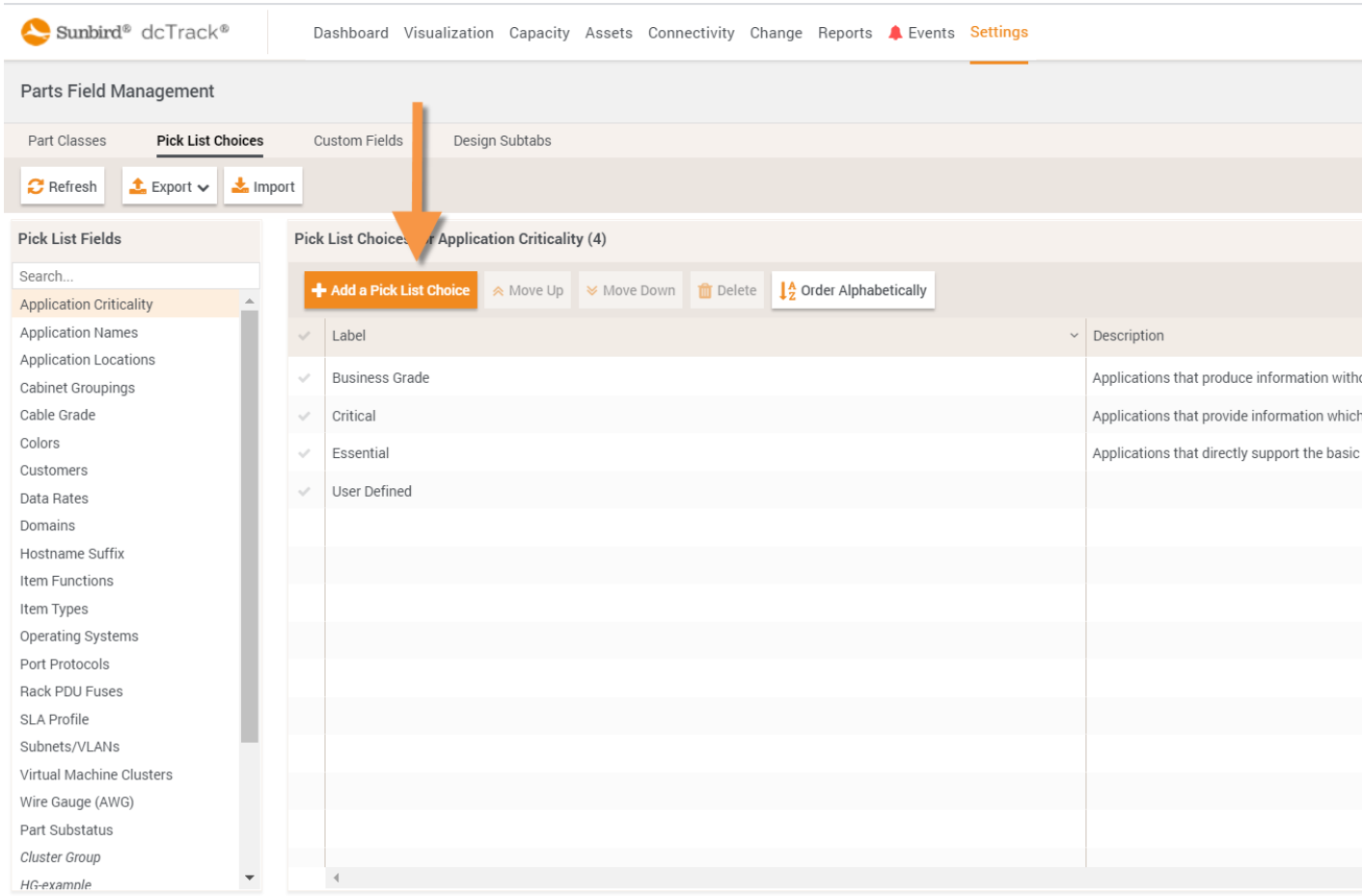
Designing Custom Field Subtabs

System Administrators can customize Custom Field sub-tab layouts for use on Parts Model Detail and Part Instance pages, including adding, editing, and deleting panels and the Custom Fields assigned to each panel. The Part Model detail page and the Part Instance detail page both support a single Custom Field sub-tab. Please refer to Configuring Custom Field Panels for complete details on designing Custom Field Panels.

Creating Options for Custom Field Single and Multi-Select List Types

System Administrators can specify single-select and multi-select pick lists among the types for Custom Fields. Once one of these list types is selected, you can create, edit, and delete the options for each list. For more information, see **Configuring Options for Single and Multi-Select List Types**.

1. Navigate to Settings > Parts Field Management
2. Click the Pick List Choices subtab
3. Click the Create button.



4. The Create bar will display immediately above the Pick List grid.
5. In the Create bar, provide the following information:
    a. Pick List Choice Label: The name of the pick list choice
6. Click the Add icon to add the pick list option. Click the Cancel icon to abort creation and collapse the Create bar.
7. Option is immediately added to the grid.

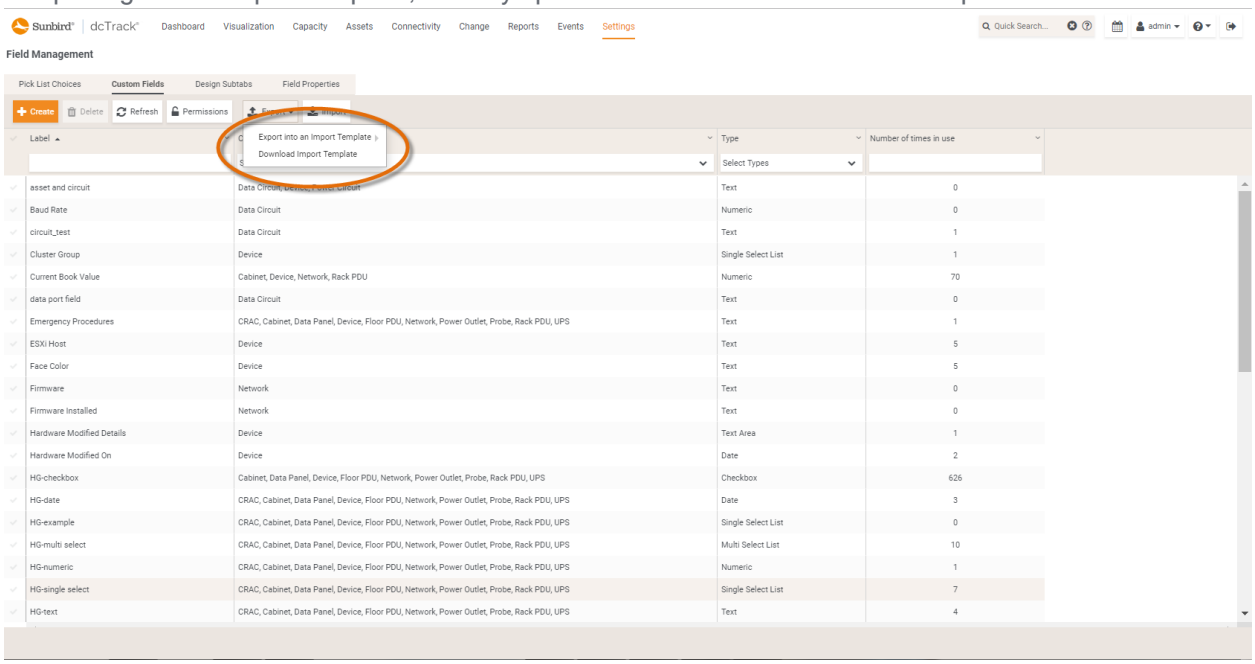
8. Optional. To reorder the pick list options, select the option you want to reorder and click the Move Up or Move Down icons until the pick list option is in your desired position or click the "Order Alphabetically" button. By default, new pick list options are positioned at the bottom of the list.

Bulk Configuration of Custom Fields via CSV Import

Users with the System Administrator role can add, edit, delete Custom Fields, their properties, and their list contents via bulk import. All other users require both the Manage Lists and Bulk Import auxiliary roles to add, edit, delete Custom Fields list contents via bulk import.

To add, edit, or delete Custom Fields and their properties in bulk via CSV Import/Export:

1. On the Custom Fields tab, select the Export icon > Export into an Import Template OR Download Import Template option.
2. If exporting into an import template, the only option to select is Custom Fields to export all fields.



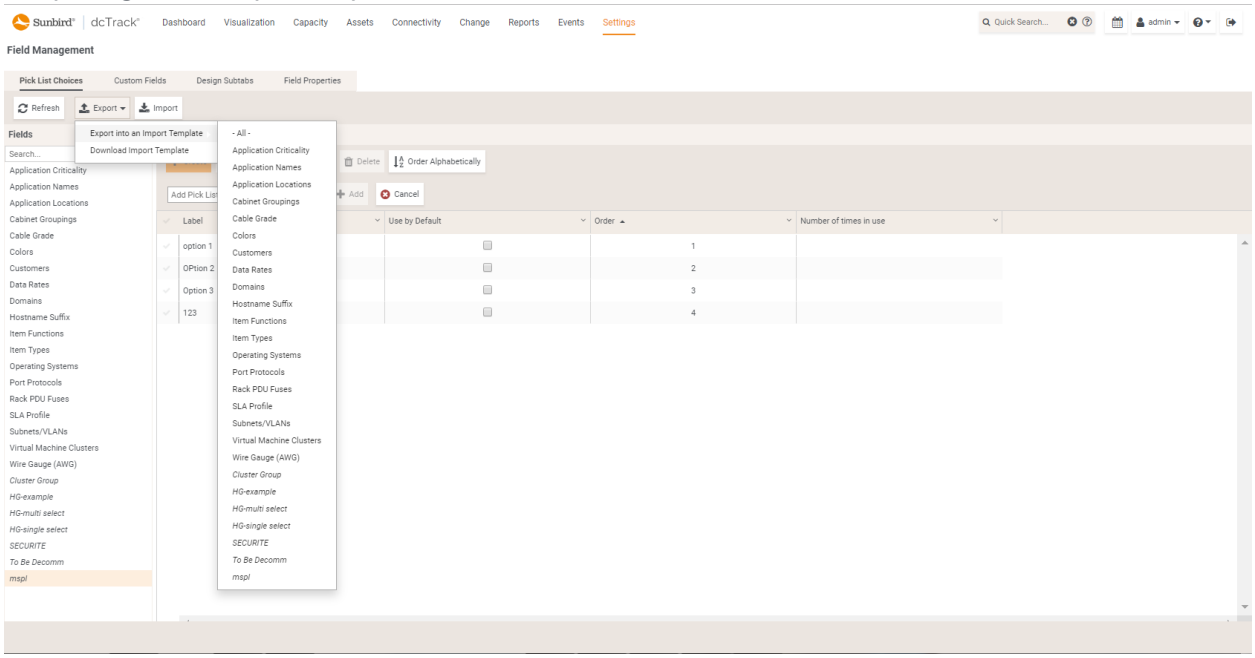
3. Save the file in your desired location with the desired file name.
4. In the resulting CSV file, make your changes following the instructions provided in the CSV file.
5. Save your changes.
6. Back in the dcTrack UI, click the Import icon to import the updated file into dcTrack.

Note: Custom Fields that are applicable to both Items and Circuits are exported as two rows in the file, one with an Object type of "Item Custom Field" and another with an Object type of "Circuit Custom Field".

To add, edit, or delete Custom Fields and their list contents in bulk via CSV Import/Export:

1. On the Pick List Choices tab, select the Export icon > Export into an Import Template OR Download Import Template option.

2. If exporting into an import template, select one or all lists.



3. Save the file in your desired location with the desired file name.
4. In the resulting CSV file, make your changes following the instructions provided in the CSV file.
5. Save your changes.
6. Back in the dcTrack UI, click the Import icon to import the updated file into dcTrack.

Note: To delete a Custom Field that is applicable to both Items and Circuits you must include two Delete rows in the file, one for each Object type. If only one Delete row is included, the Custom Field will only be considered no longer applicable to that Object type.

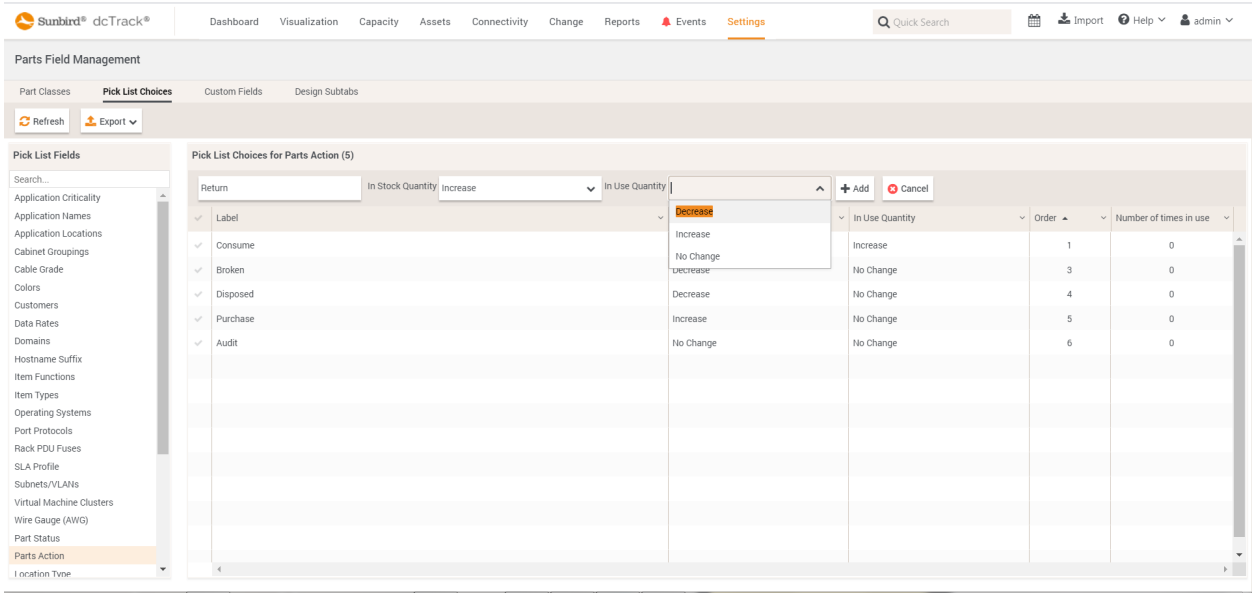
Parts Actions

The Parts Management feature allows users to determine what updates should happen as a result of a specific activity. This is managed through the definition of Parts Actions. Parts Actions are defined as pick list options for the Parts Action standard field. Parts Actions are applied for every transaction performed through the Adjust Stock function. When assigning Parts Actions users define how the Quantity in Stock and Quantity in Use fields should be updated.

Steps to Add Parts Actions:

1. Navigate to Settings > Parts Fields Management and click on the Pick List Choices subtab
2. Select "Parts Action" from the Pick List Fields
3. Click the "Add a Pick List Choice" button in the tool bar
4. Supply a Label that will be used to identify the Action
5. Select the Action for the "In Stock Quantity"
    - Increase
    - Decrease
    - No change

6. Select the Action for the "In Use Quantity"
    - Increase
    - Decrease
    - No Change
7. Click the Add button in the tool bar to add the option



A value must be supplied for all three fields (Label, In Stock Quantity, In Use Quantity). Each time a Part Action is used in the Adjust Stock function, the In Stock Quantity and In Use Quantity for the associated Part Instance will be updated based on the options defined for that Action.

Note: When using the No Change option, a transaction is created, however no change will be made to the associated Quantity field.

Parts Library

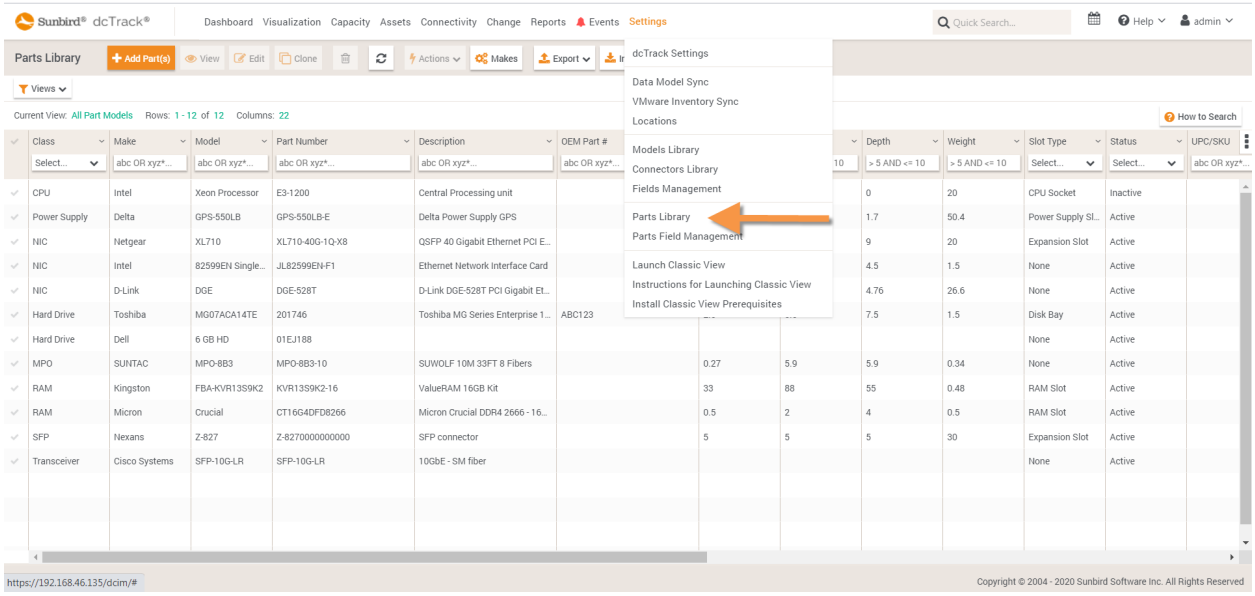
The Parts Management feature allows System Administrators to create and maintain a Parts Library of all of the Part Models and their Images in your Parts Inventory. The Part Models in your Library are used when creating your Parts Inventory on dcTrack.

Adding Part Models to the Library

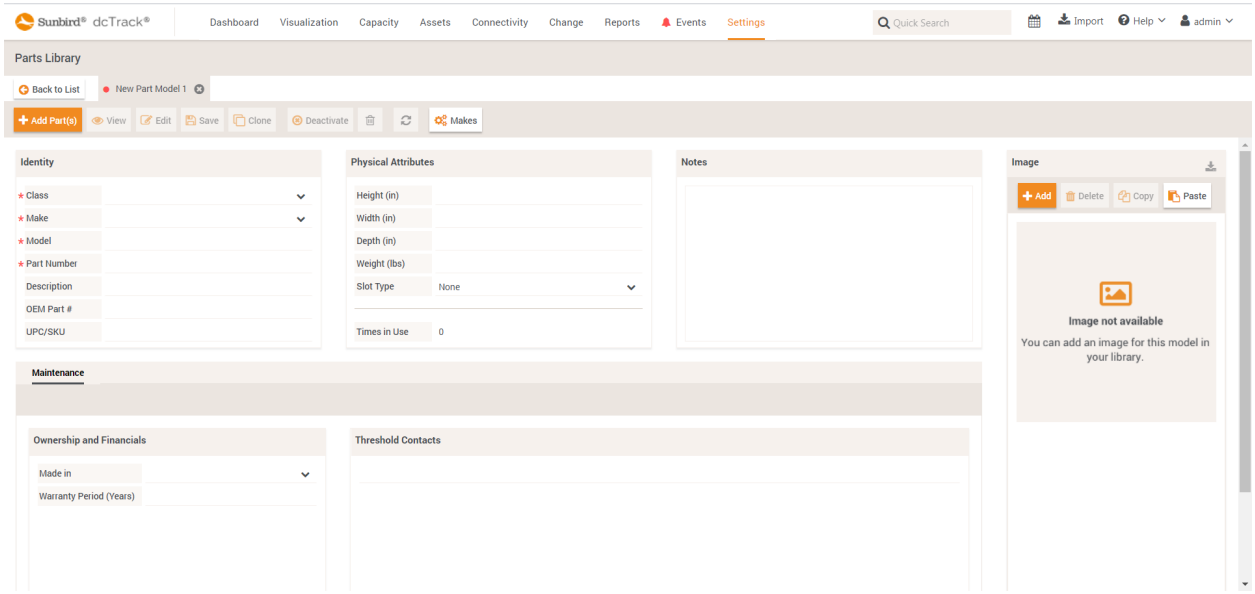
The Parts Library is a library of templates used when creating Parts Inventory in dcTrack. Each Part Instance you create must be based on an existing Part Model.

Steps to create a Part Model:

1. Navigate to Settings > Parts Library



2. Click the Add Parts button in the tool bar to access the Part Model detail page



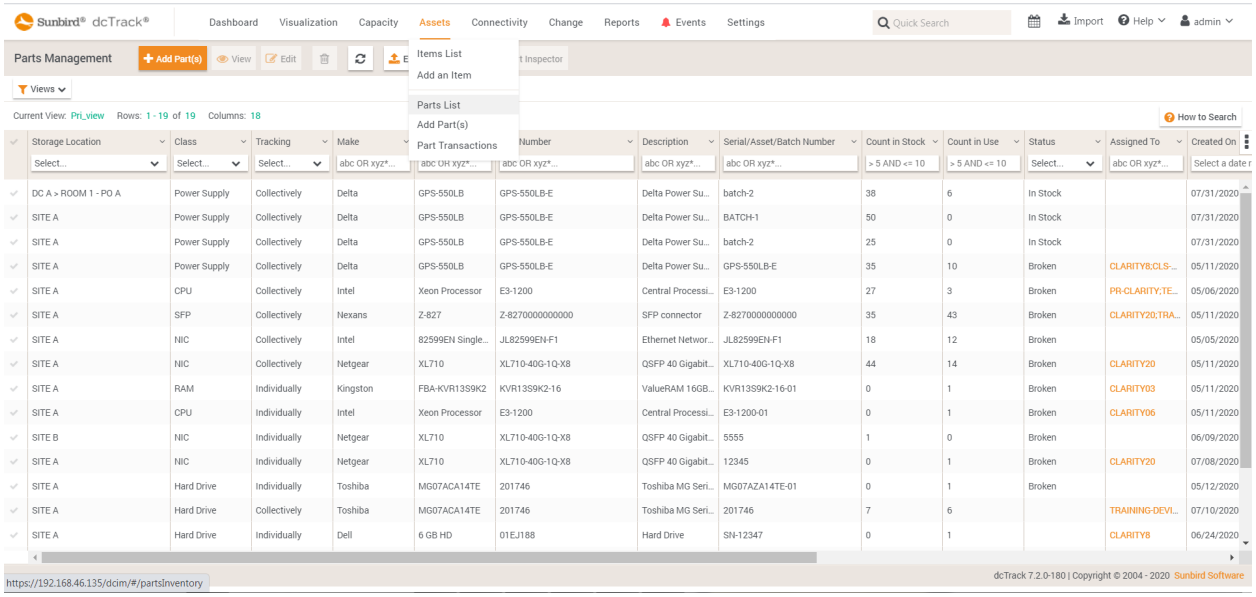
3. Select the Model's Part Class type from the Class drop-down. This list is populated with all of your user defined Part Classes. (Required)
4. Select the Model's Make from the Make drop-down. This list is populated with all of the Makes supported by the dcTrack Item Models Library. (Required)
5. Enter the Model Name for the Part. (Required)
6. Enter the Part Number for the Part (Required)

Note: The combination of Model and Part Number must be unique across all Parts in the Library

7. Optionally enter the following information
    - Description
    - OEM Part #
    - UPC/SKU
    - Height (in)
    - Width (in)
    - Depth (in)
    - Weight (lbs)
    - Notes
8. Select the Slot Type this Part will occupy. Slot Type is used when assigning the Part to Items. The number of available Slot Types can be defined when creating Item Models. If specified, dcTrack will validate when assigning a Part to an Item that the number of available slots for the specific Slot Type is not exceeded.
9. On the Maintenance sub tab you may enter the following optional data
    - Made In - Select the Country from the drop down list
    - Warranty Period (Years)
10. Select Threshold Contacts. You may select one or more contacts from the list of dcTrack user email addresses in the drop down list, or enter valid email addresses for non dcTrack users. Threshold Contacts will be notified by email whenever a Part Instance created for this Model is assigned that results in the Count in Stock for that Part falling below the its specified threshold.
11. You can optional add an Image for the Part by pasting it into the Image Panel or uploading an Image file from disk.

Parts Inventory List

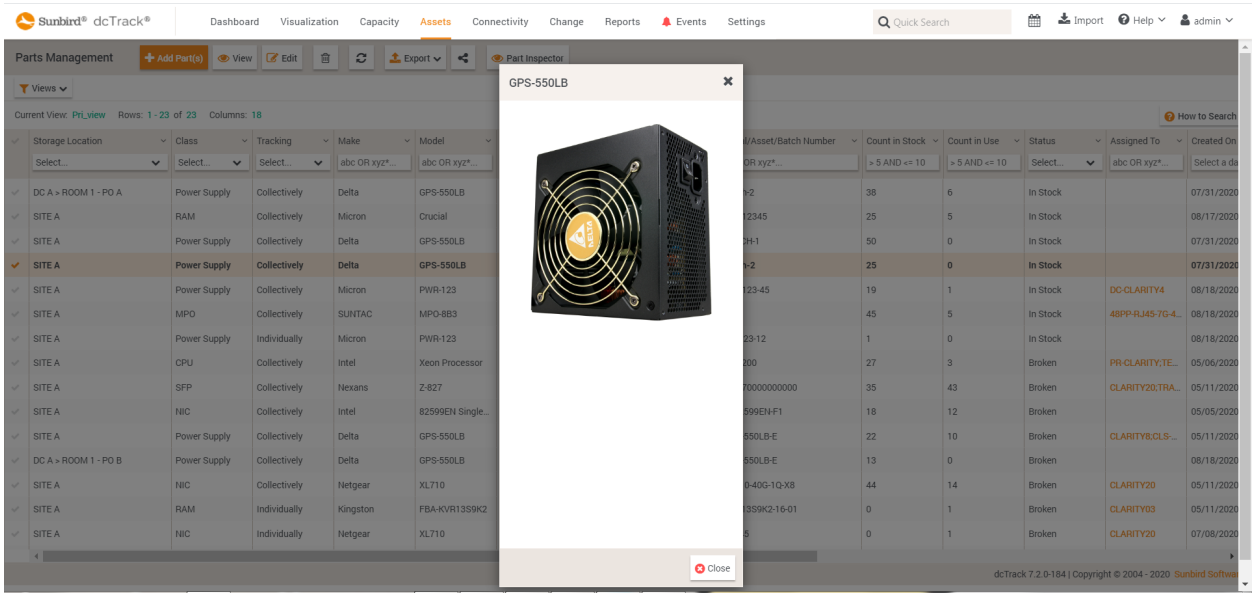
Existing Parts Inventory are listed on the Parts List page under the Assets tab.



This list contains a row for each Parts Instance created to represent current physical Parts Inventory. Every field applicable to a Part Instance is available on the grid. You can Show or Hide fields using the Show/Hide icon in the upper right corner of the grid. Fields in the grid can be repositioned by dragging and dropping the column to the desired position. Each field is filterable and sortable from the column header.

The Parts List can also be exported to a .csv file by selecting the appropriate export option from the Export button on the tool bar.

To view a Part's image select the Part from the grid and click the Part Inspector button in the tool bar.



Adding and Maintaining Parts Inventory

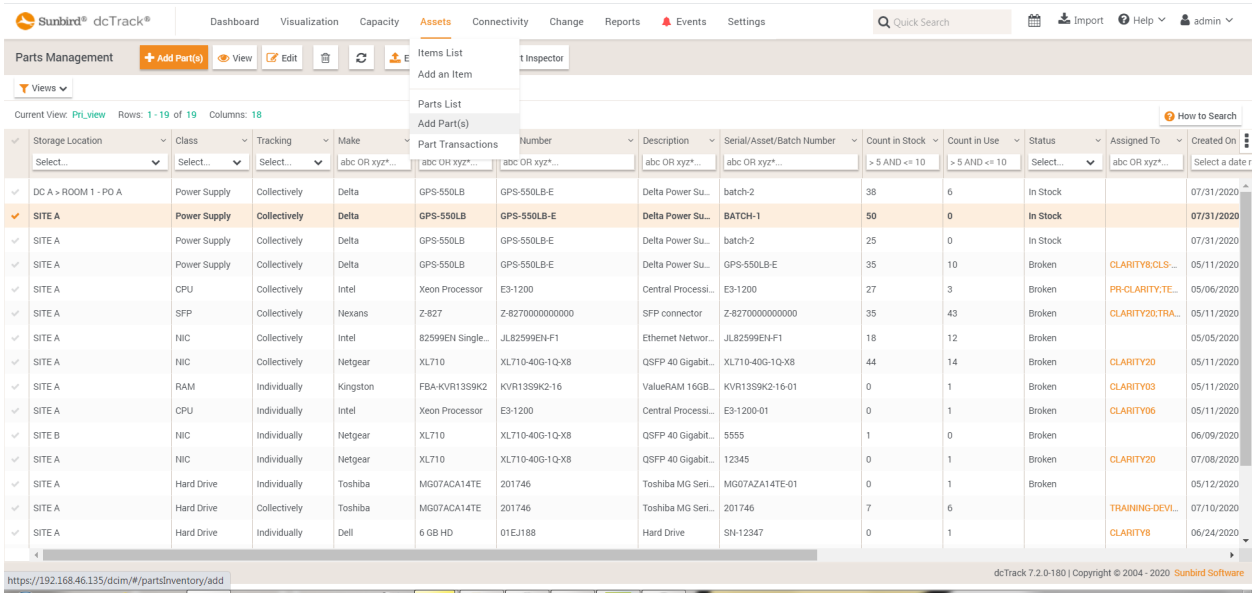
Parts inventory can be added via the Web Client or imported using the File Import feature.

Adding Part Instances

Part instances can represent a single Part in inventory (Individually Tracked) or a group of Parts in inventory (Collectively Tracked). Once Part instances are created, the inventory they represent is available to be assigned to specific Items.

Steps to Add a Part Instance:

1. Navigate to the Add Part(s) page from the from the Asset menu or select the Add Part(s) button on the Parts List tool bar



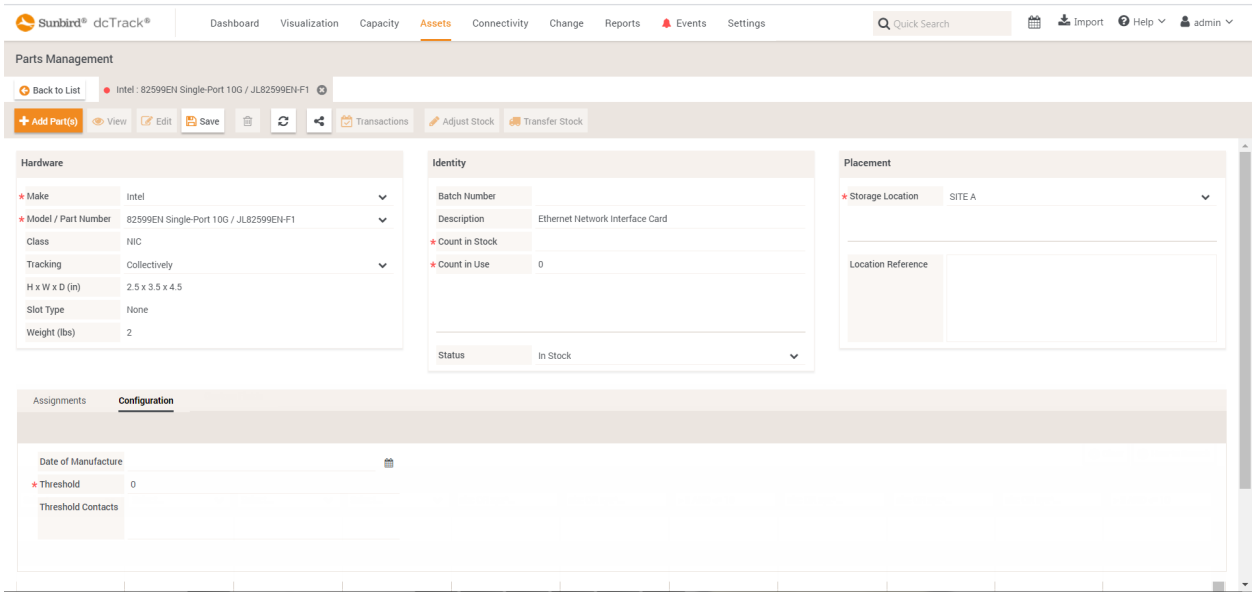
2. **Make** - Enter the Make into the Make field to receive a pre-populated list of Part Models for the specified Make in the Part Model field. Note, the list will only contain the Makes for which you have created valid Part Models
3. **Model** - Select the Model name or Part Number from the list of Parts associated with the Specified Make

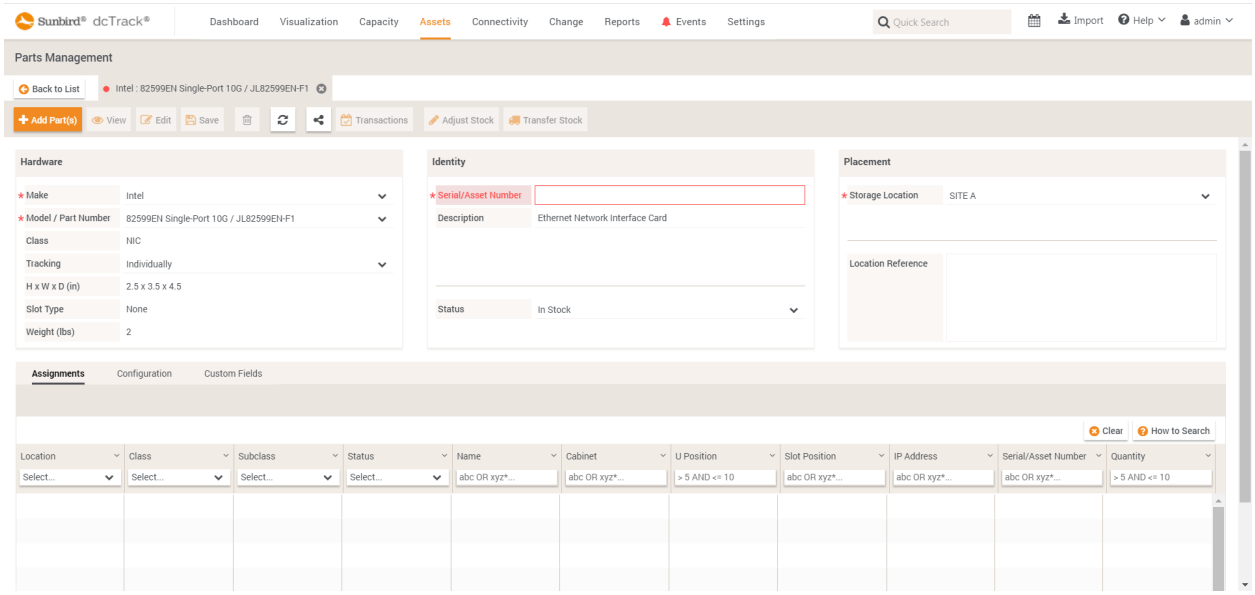
> *Note, you can leave the Make field blank and type in any portion of the Model name or Part Number to receive a list of Part Models that match the entered criteria*

4. **Tracking** - Enter the Tracking type.

   This indicates whether the Part will be tracked Individually or collectively. Individually Tracked Parts will add only a single Part to inventory that is then available for assignment. Collectively Tracked Parts allow you to enter a number In Stock and a number In Use. Assignments can be made from a Collectively tracked Part instance as long as there is quantity left in Stock.

5. **H x W x D (in)** - This is a read only field pre-populated with the value specified in the Part Model.
6. **Slot Type** - This is a read only field pre-populated with the value specified in the Part Model. It is used when assigning the Part to an Item to limit the assignments to only the number supported by the Item Model.
7. Weight - This is a read only field pre-populated with the value specified in the Part Model.
8. **Serial Number** - This field is only displayed for Individually Tracked Part instances. The value entered must be unique for all Individual Parts instances created for the Part Model. The combination of Make, Model, Part Number and Serial Number must be unique within a Storage Location.
9. **Batch Number** - This field is only displayed for Collectively Tracked Part instances. The value entered must be unique for all Collective Part instances created for the Part Model. The combination of Make, Model, Part Number and Batch Number must be unique within a Storage Location. The Batch Number can be left blank, however to adhere to the uniqueness validation, only a single Collectively Tracked Part instance can exist using the same Make, Model and Part Number.
10. **Description** - If a description was provided for the Part Model, it will be defaulted in the Description field, but can be modified for the instance you are adding.

11. **Count in Stock** - Enter the number of Parts you wish to make available for assignments (Only applicable to Collectively Tracked Part Instances)
12. **Count in Use** - Enter the number of Part assigned but not being tracked on dcTrack (Only applicable to Collectively Tracked Part Instances)
13. **Status** - Select the Status you wish to associate with the instance. This list is populated with the previously created user defined statuses
14. **Storage Location** - Select the Location where the In Stock Parts in Stock are stored.
15. **Location Reference** - Enter any additional information related to the Storage location.
16. **Configuration Subtab**
    a. **Date of Manufacture** - Enter the Manufacture Date for the Part Instance
    b. **Threshold** - Enter a Threshold for the Part Instance. The Threshold determines the lowest Count in Stock value the Instance can reach before email notifications are sent.
    c. **Threshold Contacts** - You may select one or more contacts from the list of dcTrack user email addresses in the drop down list, or enter valid email addresses for non dcTrack users. Threshold Contacts will be notified by email whenever an Assignment is issued that results in the Count in Stock for the Instance to fall below the its specified threshold. The Contacts listed at this level will be notified in addition to Contacts specified at the Parts Model level.
17. 



Editing Part Instances

Part instances can be edited to correct or update data after the instance is created. The fields that can be changed depend on the Tracking type and whether any assignments have taken place on dcTrack.

Steps to Edit a Part Instance:

1. Navigate to the Part List page from the from the Asset menu
2. Double click the row for the record you want to edit, or you can select one or more rows from the list and click the Edit button on the tool bar (when editing multiple rows each record will be opened in a separate detail page tab).
3. The following fields can be modified based on Tracking type and Assignment Status
    a. Individually Tracked Part with no dcTrack Assignments
        - All fields available when Adding a Part can also be modified.
    b. Individually Tracked Part with dcTrack Assignments
        - Serial Number - Can be modified to a different unique value
        - Description
        - Location Reference
    c. Collectively Tracked Part with no dcTrack Assignments
        - All fields available when Adding a Part can also be modified
    d. Collectively Tracked Part with dcTrack Assignments
        - Batch Number - Can be modified to a different unique value
        - Description
        - Location Reference
        - Threshold
        - Threshold Contacts

Note, to update the In Stock and In Use values please refer to the Adjust Stock feature.

Deleting Part Instances

Part instances can be deleted prior to performing Assignments on dcTrack.

Steps to Delete a Part Instance:

1. Navigate to the Part List page from the from the Asset menu
2. Double click the row for the record you want to delete, or you can select one or more rows from the list and click the Delete button on the tool bar.

> *Note, if any of the selected records have Assignments the Delete button will become disabled*

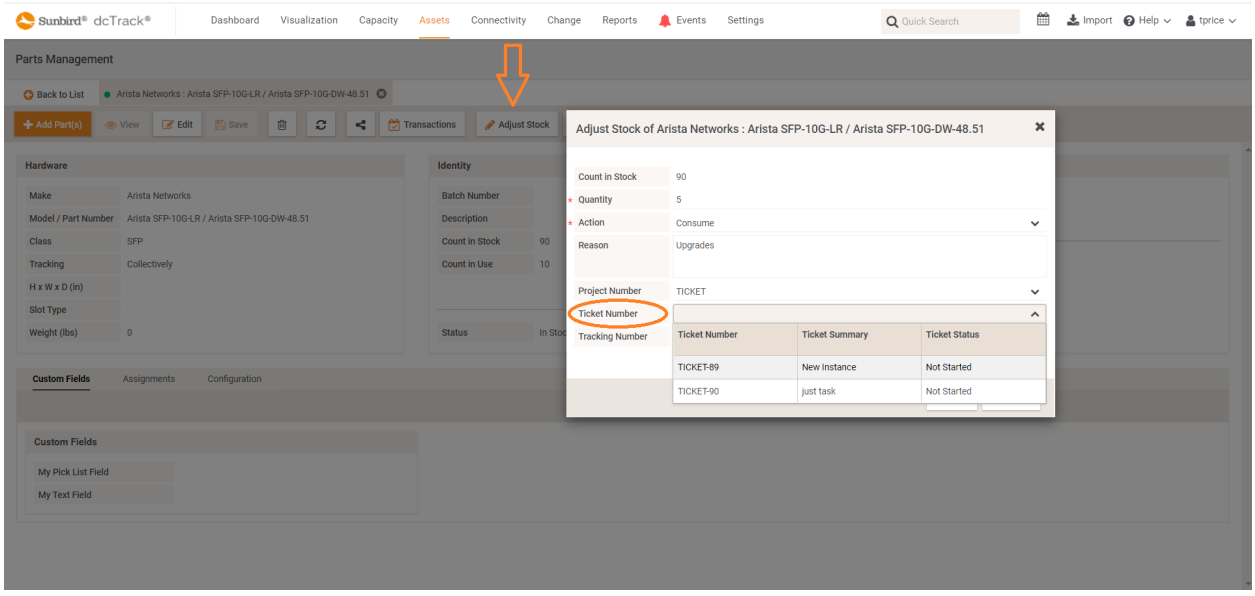
Adjust Stock

The Parts Management Adjust Stock function is used to make modifications to the "In Stock" and "In Use" values for Parts Instances. The Adjust Stock feature works in combination with the user defined Parts Actions defined using the Pick List Choices feature to allow you to generate transactions that control updates to the In Stock and In Use values based on your own definitions.

dcTrack version 9.0.0 introduced the ability to link a Ticket to the Adjust Stock and Transfer Stock Transactions.

Steps to Adjust Stock:

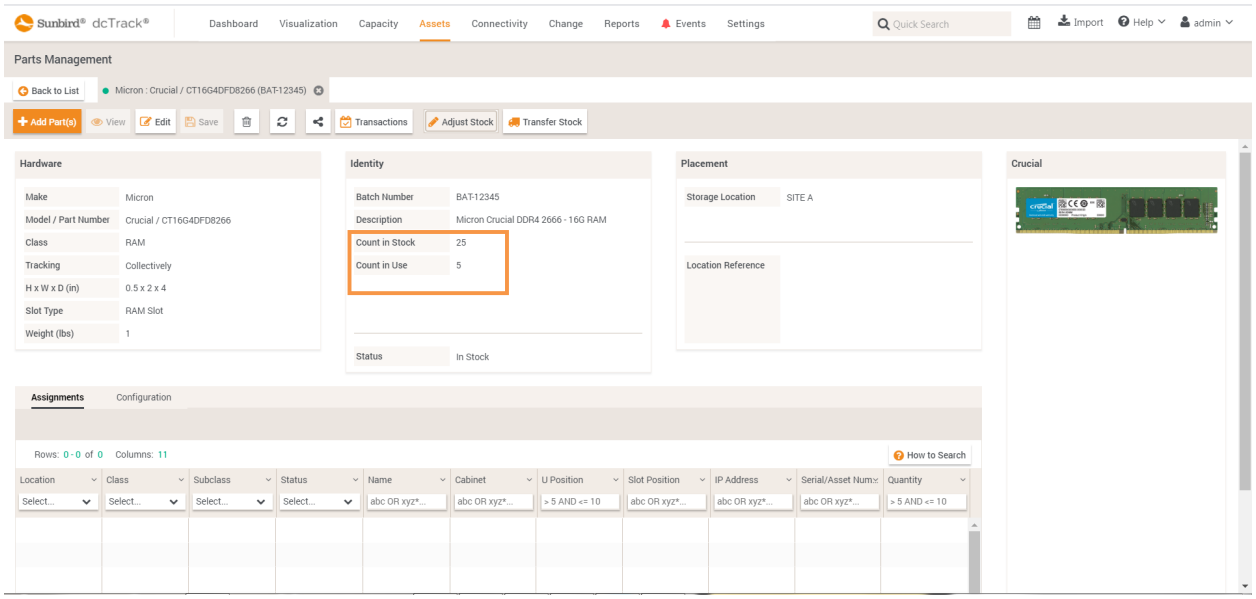
1. Navigate to the Part Instance Detail page of the Part Instance you want to Adjust
2. Click the Adjust Stock button on the tool bar
3. This will display the Adjust Stock dialog window



4. **Count in Stock** - Displays the current In Stock value for the Part Instance
5. **Quantity** - Enter the Quantity you want to adjust by

6. **Action** - Select the Action from the drop down list of available user defined Actions. The selected Action will control how the In Stock and In Use Values are adjusted.
7. **Reason** - Optionally enter the reason for the adjustment. The Reason entered will appear in the generated Transaction records and can be used for filtering and reporting.
8. **Project Number** - Optionally select an existing Project to link to the transactions. The Project Number will appear in the generated Transactions and can be used for filtering and reporting.
9. **Ticket Number** - Optionally select an existing Ticket to link to the transactions. If a Project has been selected, only Tickets linked to the selected Project will appear in the Ticket drop down box. If no Project is specified, the drop down is populated with all open Tickets. If entered the Ticket Number will appear in the generated Transactions and can be used for filtering and reporting.
10. **Tracking Number** - Optionally enter a Tracking Number. The Tracking Number will appear in the generated Transactions and can be used for filtering and reporting.
11. Click the Save button to complete the update.

Upon saving, the Count in Stock and the Count in Use of the Part Instance will be automatically adjusted based on the rules associated with the Part Action. The updated values will be immediately reflected in the Part Instance record.



Note, the Adjust Stock feature will always generate 2 Transactions, one for the In Stock value and one for the In Use value. These Transactions are generated even if the rule for the Action indicates No Change. In this case the Changed From and the Change To values will be the same and will reflect the original value of the record.

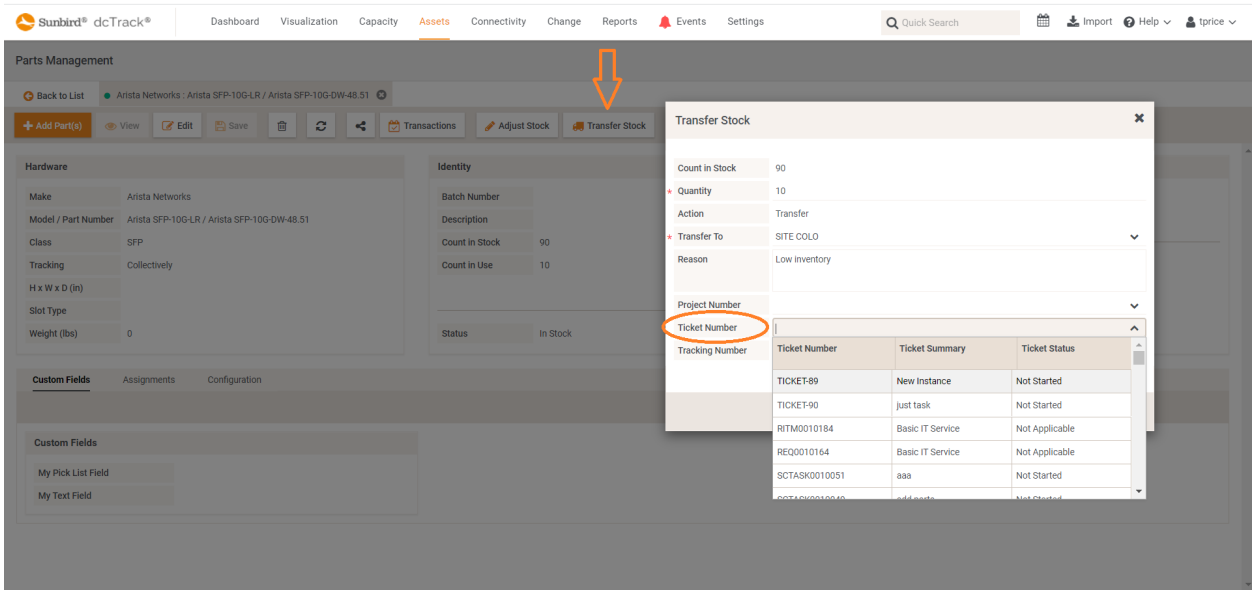
Transferring Parts Inventory

The Parts Management Transfer Stock function is used to Transfer all or a portion of the In Stock inventory for a Part Instance from one storage location to another.

dcTrack version 9.0.0 introduced the ability to link a Ticket to the Transfer Stock and Adjust Stock Transactions.

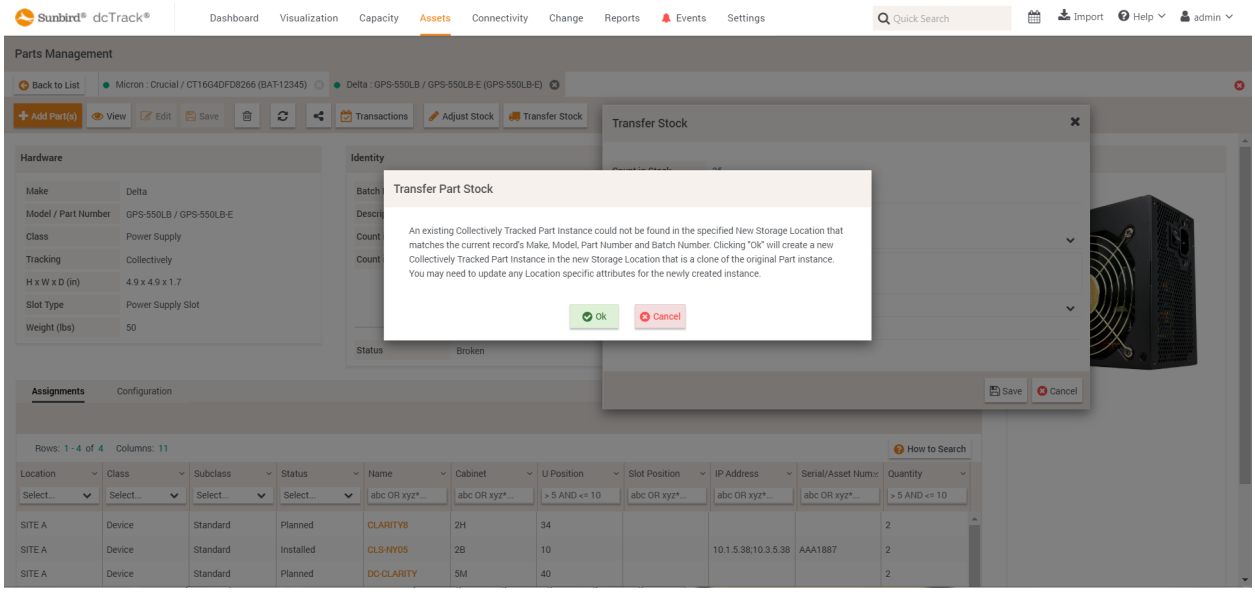
Steps to Transfer Stock:

1. Navigate to the Part Instance Detail page of the Part Instance you want to Transfer Stock from
2. Click the Transfer Stock button on the tool bar
3. This will display the Transfer Stock dialog window



4. **Count in Stock** - Displays the current In Stock value for the Part Instance
5. **Quantity** - Enter the Quantity you want to transfer. You may enter a value up to the current Count in Stock value.
6. **Transfer To** - Select the Location you want to Transfer To from the drop down list of dcTrack Locations.
7. **Reason** - Optionally enter the reason for the Transfer. The Reason entered will appear in the generated Transaction records and can be used for filtering and reporting.
8. **Project Number** - Optionally select an existing Project to link to the transactions. The Project Number will appear in the generated Transactions and can be used for filtering and reporting.
9. **Ticket Number** - Optionally select an existing Ticket to link to the transactions. If a Project has been selected, only Tickets linked to the selected Project will appear in the Ticket drop down box. If no Project is specified, the drop down is populated with all open Tickets. If entered the Ticket Number will appear in the generated Transactions and can be used for filtering and reporting.
10. **Tracking Number** - Optionally enter a Tracking Number. The Tracking Number will appear in the generated Transactions and can be used for filtering and reporting.
11. Click the Save button to complete the update.
12. Upon Saving, the In Stock value of the current Part Instance will immediately be decreased by the entered Quantity.
13. If the Transfer To Location selected has an existing Part Instance that matches the current Part Instance based on Make, Model, Part Number and Batch Number, the In Stock value of that existing Part Instance will be increased.
14. If the Transfer To Location selected does not have an existing Part Instance that matches the current Part Instance based on Make, Model, Part Number and Batch Number, you will receive a message indicating an existing record could not be found and a new Part Instance record will be created in the Transfer To Location. The new record will have the same Make, Model, Part Number and Batch Number as the original Part

instance record. The Count in Stock value of the new record will be set to the entered Quantity.



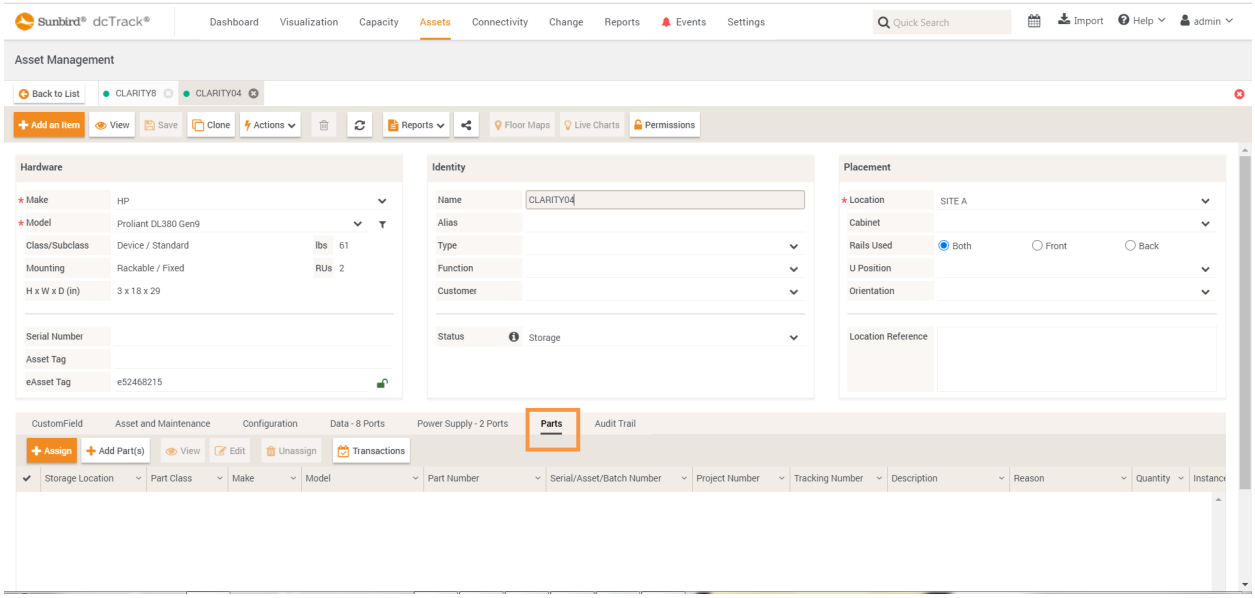
Note, the Transfer Stock feature will always generate 2 Transactions, one for the Transfer From Location and one for the Transfer To Location. The Action for the Transfer From location will be "Transfer Out". The Action for the Transfer To location with be "Transfer In" for locations where an existing record was found, and "Transfer New" for locations where a new Part Instance was created as a result of the Transfer.

Assigning Parts to Items

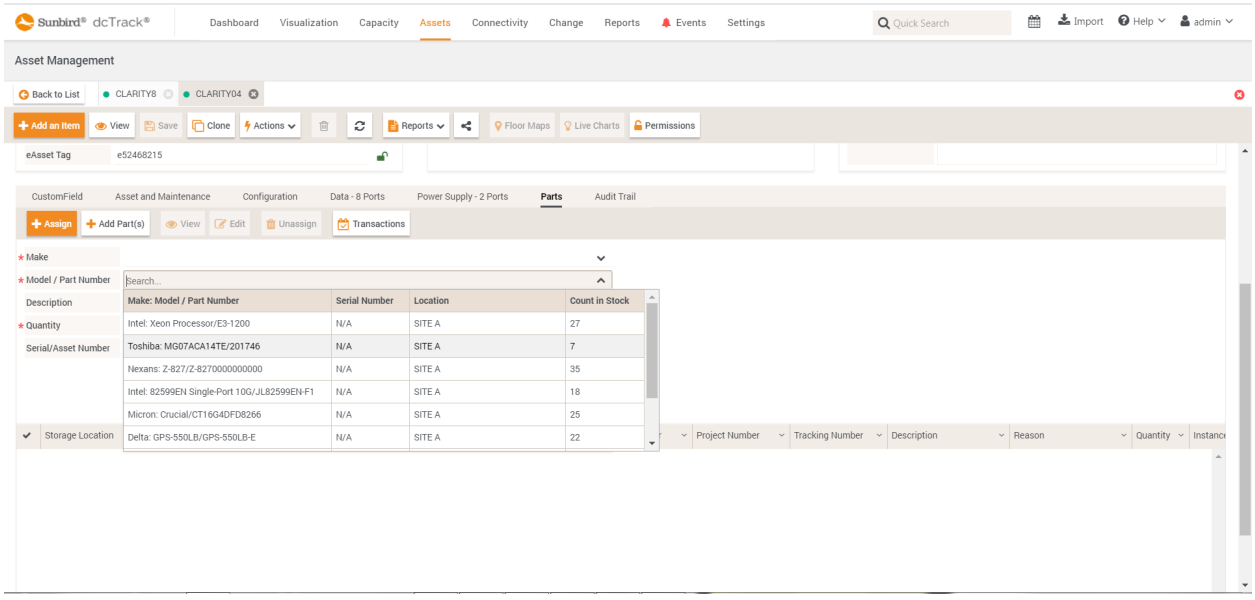
The Parts Management feature allows users to assign Parts inventory to specific Items. Parts Inventory can be assigned to any Item that qualifies based on the Part Class's "Assign To" option and the "Item Class" the Part is applicable to.

Steps to Assign a Part to an Item:

1. Navigate to the Item you want to assign Parts Inventory to
2. Click on the Parts sub tab at the bottom of the Item Detail page

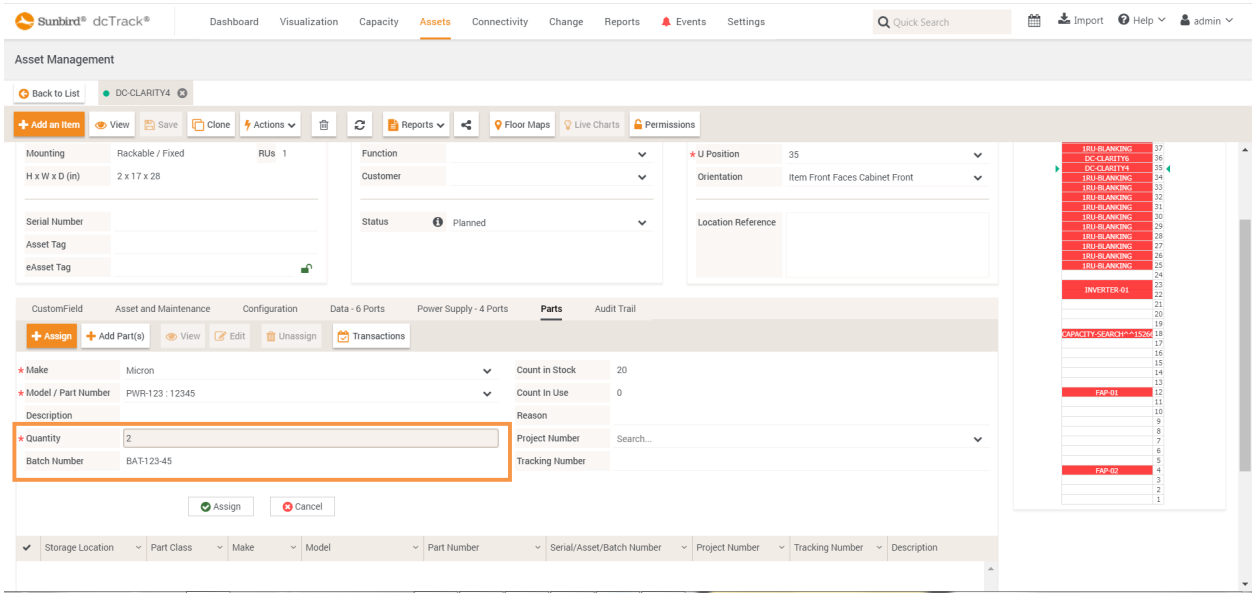


3. Click the Edit button for the Item. This will enable the Assign button on the Parts subtab tool bar
4. Click the Assign button to display the Assignment panel.
5. When the Assignment panel is displayed you will be positioned in the Model / Part Number field. You can begin typing in any portion of the Model name or Part Number to filter the list to the Part you want to assign. You can also click on the Make field to enter the make which will filter the Model list to only the Parts that are applicable to the entered Make.

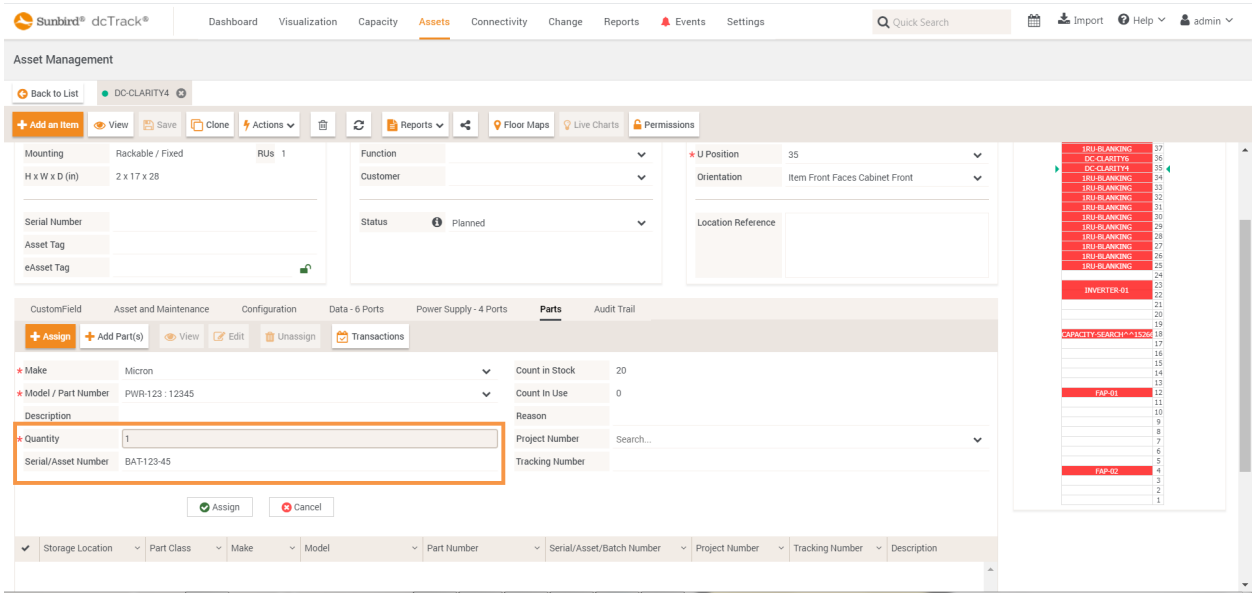


Note, the Model list will only include Models that are valid based on the Part Class's applicability to the Item Class.

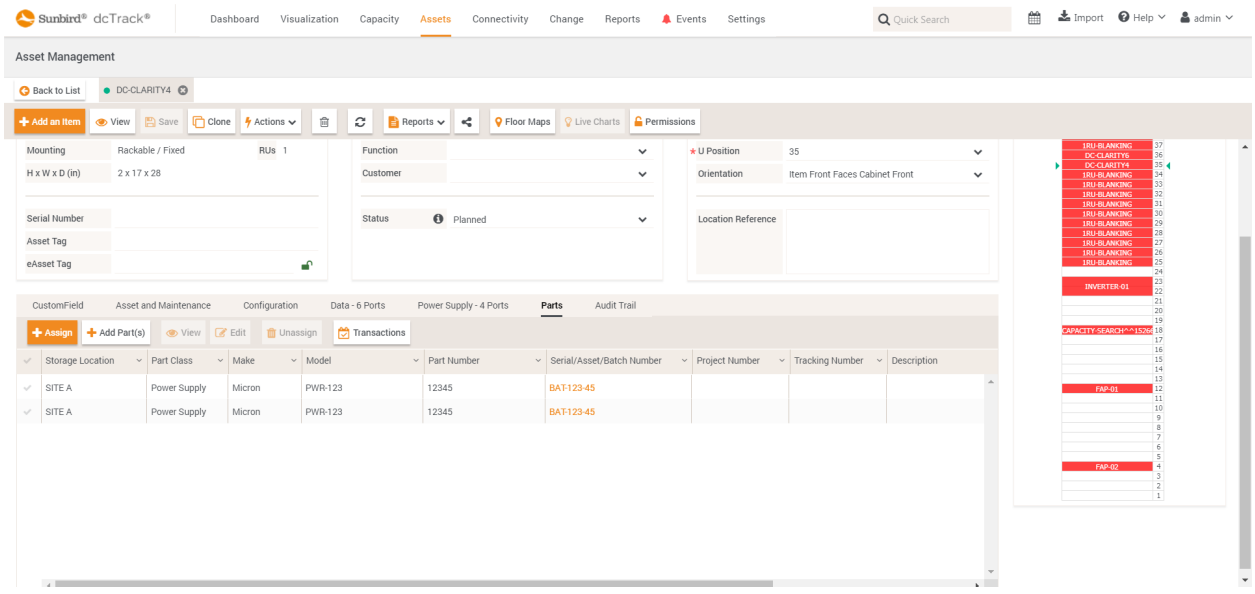
6. Select the Part you want to assign. If you select a Part Instance that is tracked Collectively you can enter the Quantity of the Part you want to assign.



7. If you enter a Quantity of 1 you can optionally convert the Collectively Tracked Part to an Individually Tracked Part by entering a unique Serial Number. If you do not want to convert the Part Instance to an Individual Instance simply leave the existing Batch Number and the record will continue to be tracked as part of the Collectively Tracked Instance. For Individually Tracked Part Instances a Quantity of 1 and the Part Instance Serial Number are defaulted and can not be changed.



8. Optionally enter the Reason for the Assignment. The Reason entered will appear in the generated Assign Transaction record and can be used for filtering and reporting.
9. Optionally select an existing Project to link to the transactions. The Project Number will appear in the generated Assign Transaction and can be used for filtering and reporting.
10. Optionally enter a Tracking Number. The Tracking Number will appear in the generated Assign Transactions and can be used for filtering and reporting.
11. Click the Assign button to save the Assignment
12. The assigned Parts will be added to the assigned Parts List for the Item. You will see a row in the grid for the Quantity of the Parts assigned

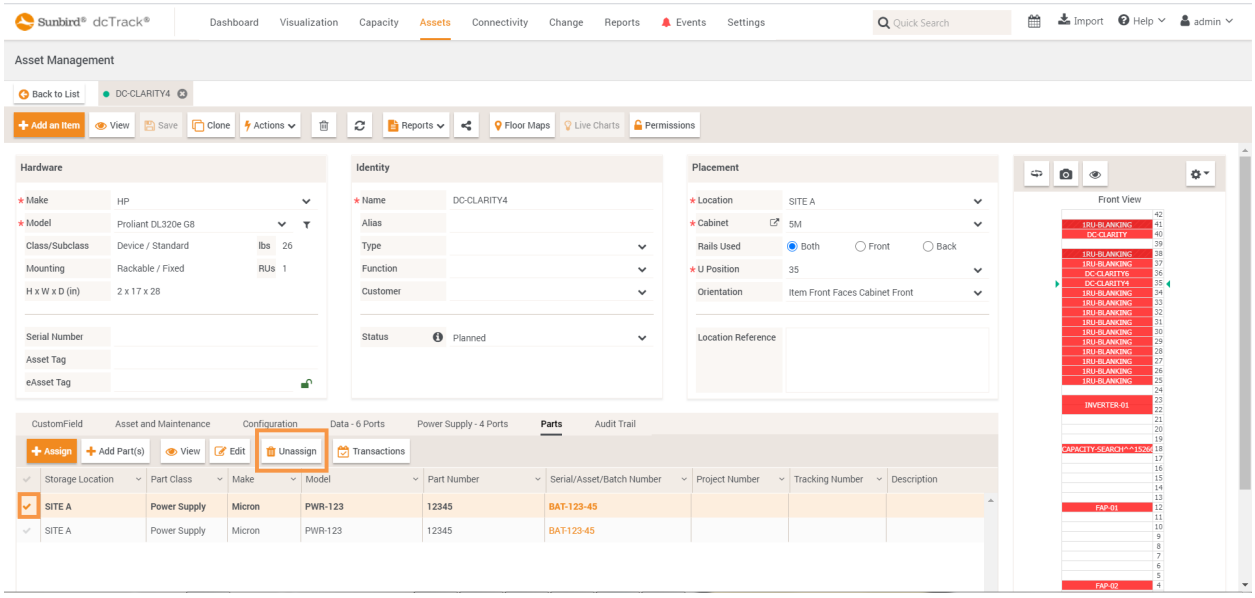


Unassigning Parts from Items

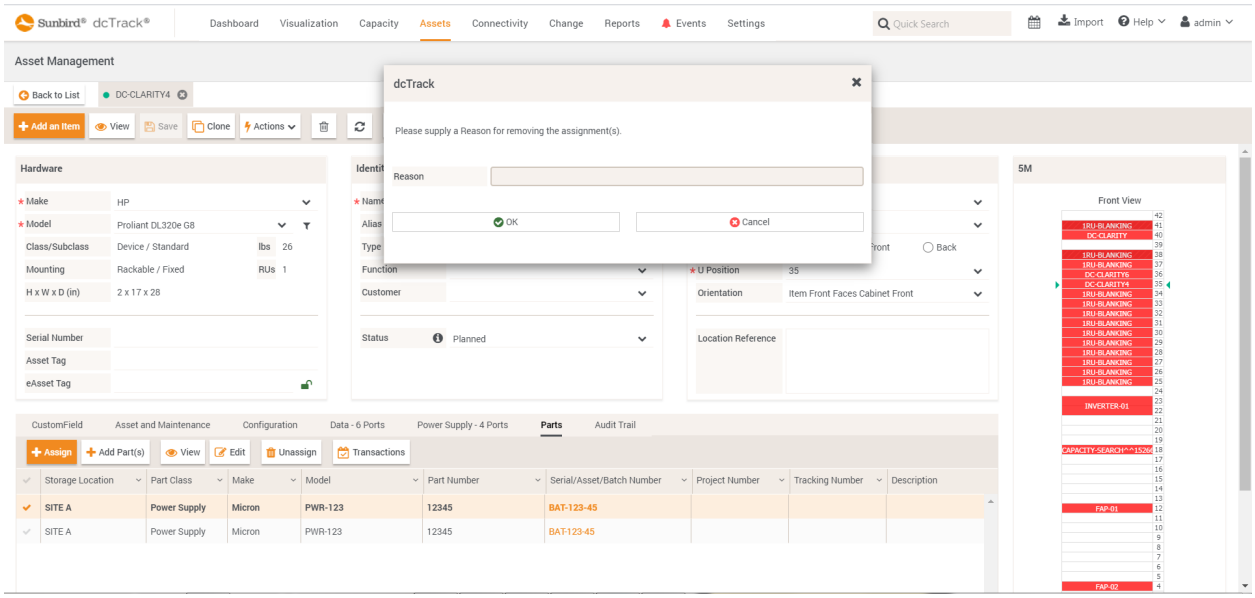
Parts can be Unassigned from a specific Item. Once Unassigned the Part is returned to Inventory and the Quantity of the original Part Instance record is increased. The Unassigned Part once again becomes available for future Assignments.

Steps to Unassign a Part:

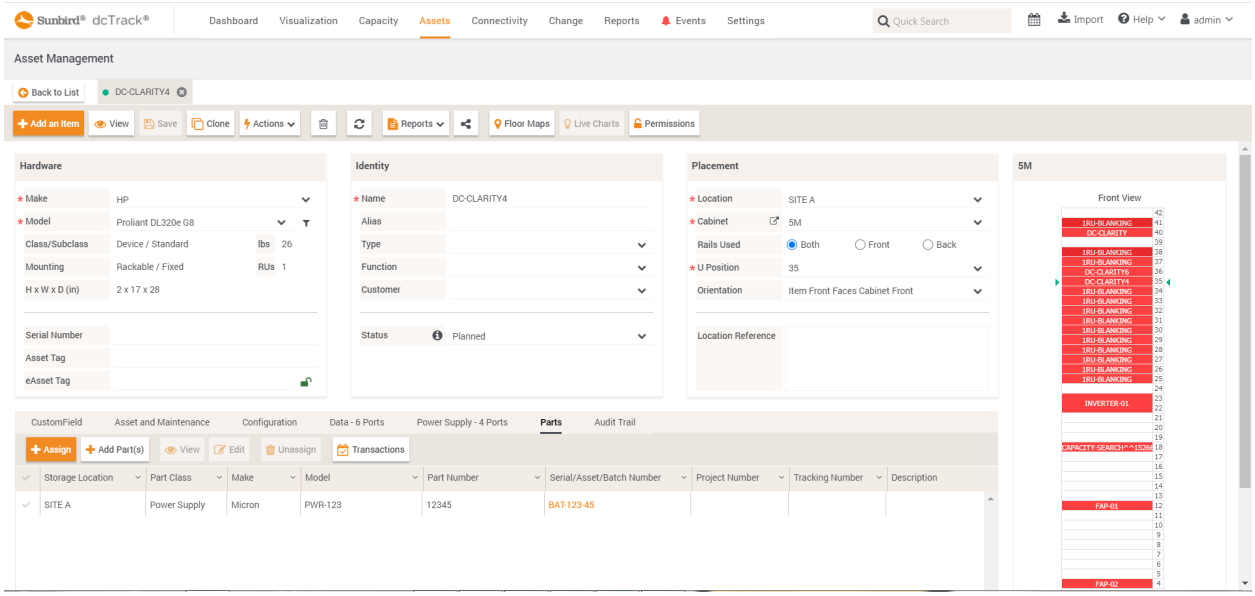
1. Navigate to the Item you want to assign Parts Inventory to
2. Click on the Parts sub tab at the bottom of the Item Detail page
3. Select the row(s) you wish to Unassign



4. Click the Unassign button in the Parts sub tab tool bar
5. You can optionally enter a Reason for the Unassignment in the Unassign dialog window



6. Click Ok to complete the Unassignment.
7. The Unassigned Part(s) is immediately removed from the Parts grid



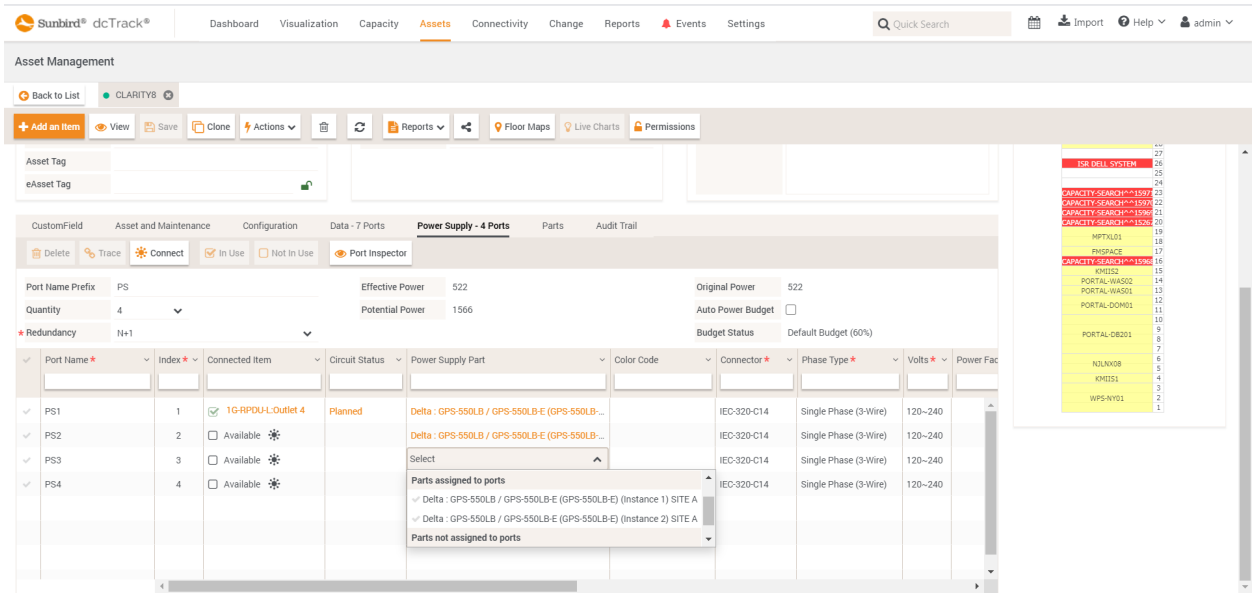
Assigning Parts to Item Ports

In addition to assigning Parts to Items, users can optionally choose to assign Parts to the individual Ports on an Item. Parts inventory can be assigned to an Item's Power Supply Ports, Data Ports, Data Panel Ports and SFP Ports. Parts Inventory can be assigned at these levels based on the Part Class's "Assign To" option and the "Item Class" the Part is applicable to. Parts assigned at these levels must first be assigned to the Item. Once assigned to the Item a list of available parts applicable to the Port Type becomes available in the associated grid.

Note, for Parts assignable to SFP ports, the Part does not have to be assigned to the Item first. These Parts can be assigned from a general inventory maintained in the Items Location.

Steps to Assign a Part to an Item Power Supply Port:

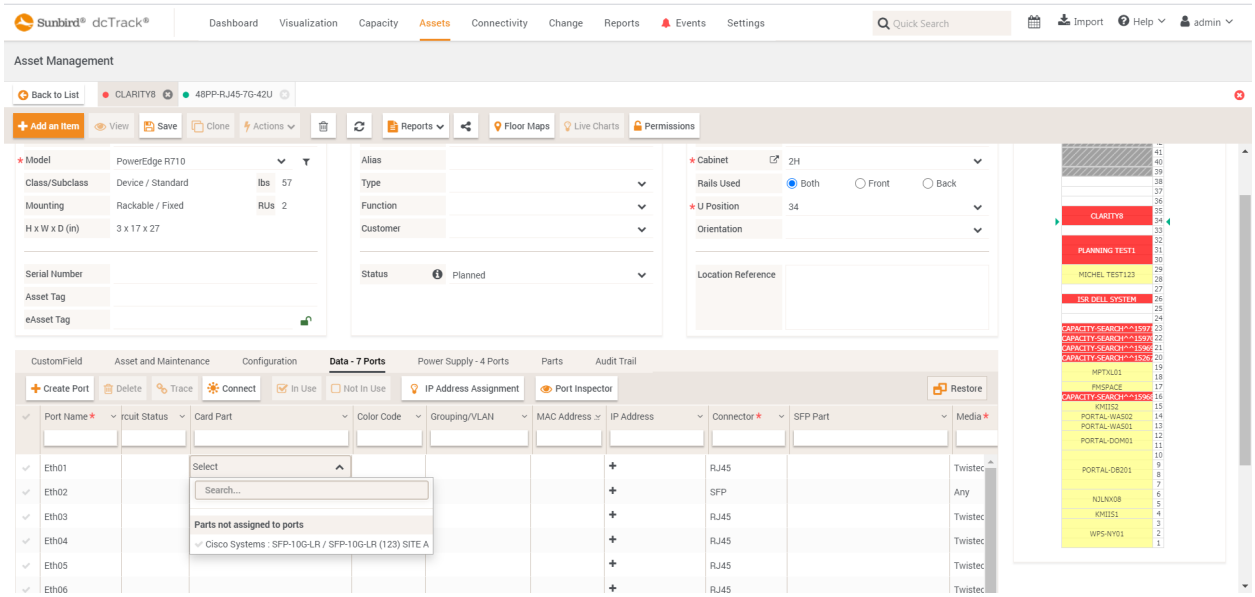
1. Navigate to the Item you want to assign Parts Inventory to
2. Click on the Power Supply sub tab at the bottom of the Item Detail page
3. Click the Edit button for the Item
4. Click in the Power Supply Part field for the Port you want to assign the Part to
5. The list is populated with all of the Parts assigned to the Item that can be assigned to a Power Supply Port. For Collectively Tracked Parts that were assigned to the Item with a quantity greater than 1, a row is displayed for each occurrence of the Part. The list is separated into 2 sections. The first section is for Parts already assigned to a Port in the Item. The second section is for Parts assigned to the Item but not yet assigned to a Port. Because certain Parts may have multiple slots, a Part that is already assigned to a Port can be assigned to additional Ports. As such you may select a Part from either section.



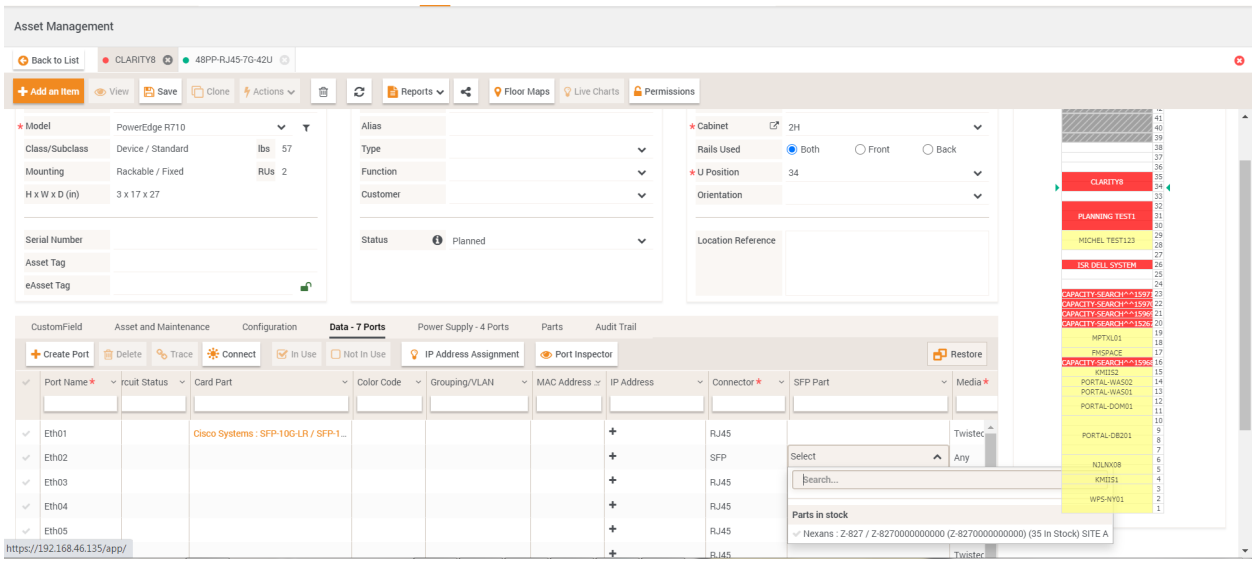
6. Once you have completed assigning Parts, click the Items Save button to save your changes.

Steps to Assign a Part to an Item Data Port Port:

1. Navigate to the Item you want to assign Parts Inventory to
2. Click on the Data Port sub tab at the bottom of the Item Detail page
3. Click the Edit button for the Item
4. Click in the Card Part field for the Port you want to assign the Part to
5. The list is populated with all of the Parts assigned to the Item that can be assigned to a Data Port. For Collectively Tracked Parts that were assigned to the Item with a quantity greater than 1, a row is displayed for each occurrence of the Part. The list is separated into 2 sections. The first section is for Parts already assigned to a Port in the Item. The second section is for Parts assigned to the Item but not yet assigned to a Port. Because certain Parts may have multiple slots, a Part that is already assigned to a Port can be assigned to additional Ports. As such you may select a Part from either section.



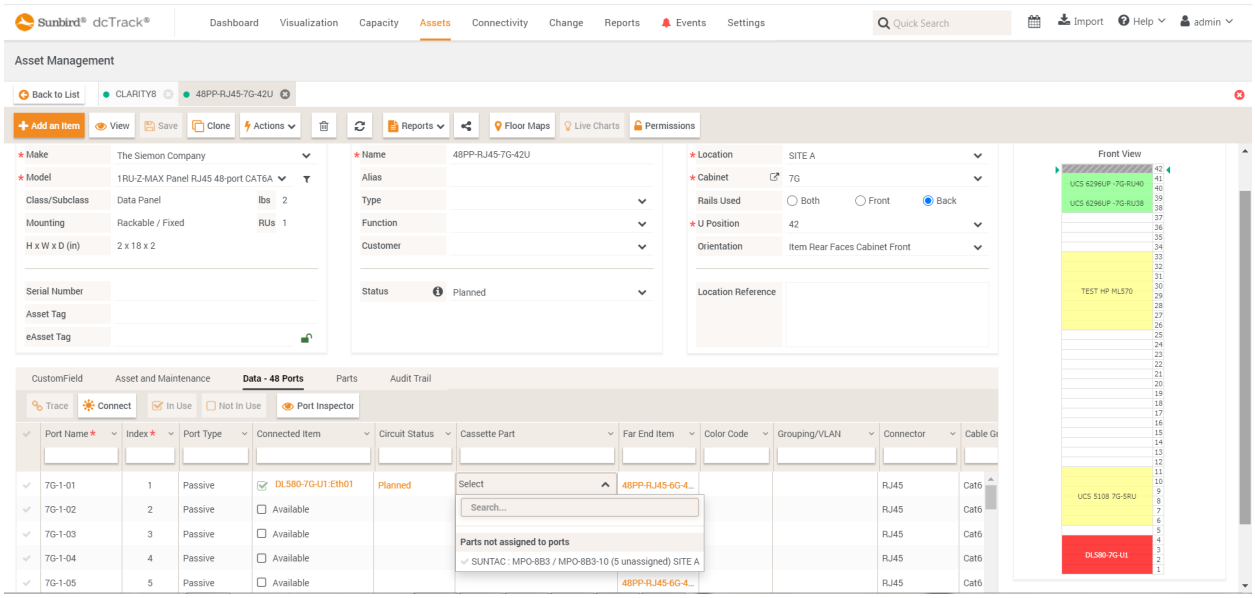
6. If the Connector type for the Port is any SFP type, you may also assign an SFP part to the Port
7. Click in the SFP Part field for the Port you want to assign the Part to
8. The list is populated with all of the Parts assigned to the Item that can be assigned to an SFP Connector. For Collectively Tracked Parts that were assigned to the Item with a quantity greater than 1, a row is displayed for each occurrence of the Part. The list is separated into 3 sections. The first section is for Parts already assigned to a Port in the Item. The second section is for Parts assigned to the Item but not yet assigned to a Port. The third section is for SFP Parts that are available in general inventory at the Items Location that have not yet been assigned. Because certain Parts may have multiple slots, a Part that is already assigned to a Port can be assigned to additional Ports. As such you may select a Part from any section.



9. Once you have completed assigning Parts, click the Items Save button to save your changes.

Steps to Assign a Part to a Data Panel Item's Data Port:

1. Navigate to the Data Panel Item you want to assign Parts Inventory to
2. Click on the Data Port sub tab at the bottom of the Item Detail page
3. Click the Edit button for the Item
4. Click in the Cassette Part field for the Port you want to assign the Part to
5. The list is populated with all of the Parts assigned to the Item that can be assigned to a Data Panel Data Port. For Collectively Tracked Parts that were assigned to the Item with a quantity greater than 1, a row is displayed for each occurrence of the Part. The list is separated into 2 sections. The first section is for Parts already assigned to a Port in the Item. The second section is for Parts assigned to the Item but not yet assigned to a Port. Because certain Parts may have multiple slots, a Part that is already assigned to a Port can be assigned to additional Ports. As such you may select a Part from either section.



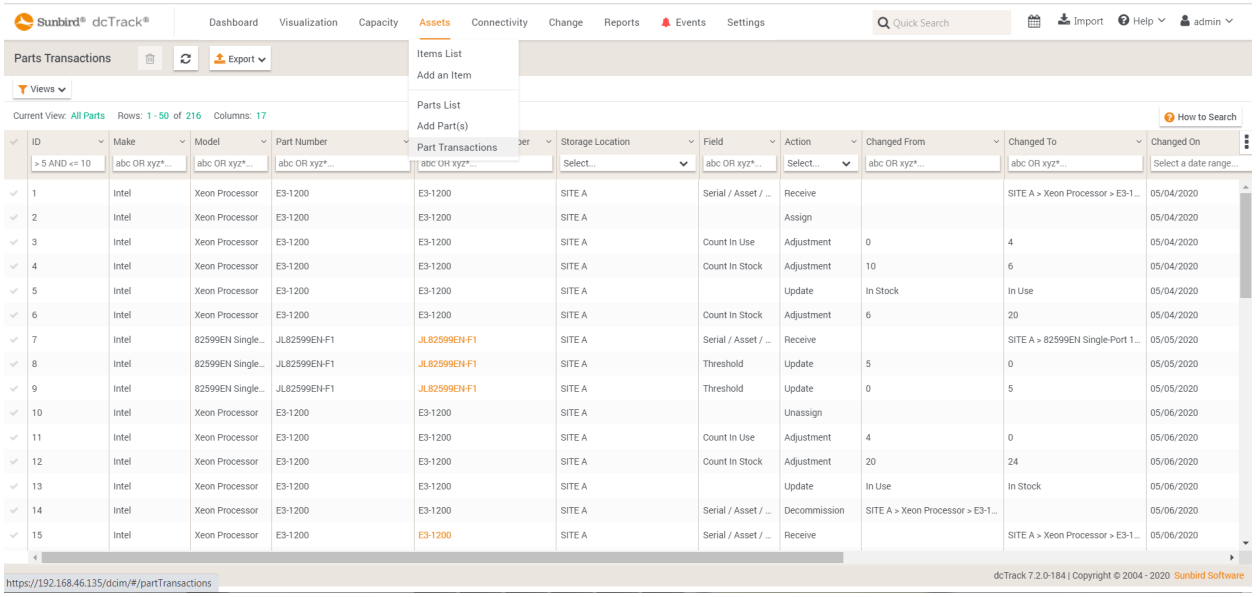
6. Once you have completed assigning Parts, click the Items Save button to save your changes.

Unassigning Parts from Item Ports

To unassign a Part from a Port, while in Edit mode for the Item tab into the Port Part field for the port you are unassigning. This will display the list of available Parts with the selected Part checked. Clear the check from the Part in the list and click the Save button for the Item.

Parts Inventory List

Existing Parts Transaction are listed on the Part Transaction page under the Assets tab.



This list contains a row for each Part Transaction created to represent the following Actions.

- Assign - Generated when a Part is assigned to a specific Item
- Delete - Generated when a Part Instance is deleted
- Receive - Generated when a new Part Instance is created
- Transfer - Generated when the Storage Location is modified for a Part Instance. This transaction type indicates the Storage Location was changed on a Part Instance. This is only possible prior to making any dcTrack Assignments for a Part Instance
- Transfer In - Generated when a Transfer Stock is performed. Created for the Location the inventory is transferred to.
- Transfer Out - Generated when a Transfer Stock is performed. Created for the Location the inventory is transferred from.
- Transfer New - Generated when a Transfer Stock is performed. Created for the new Part instance record created in the Transferred To Location.
- Update - Generated when any editable field is modified for a Part Instance
- Unassign - Generated when a Part is removed from a specific Item
- User Defined Actions - Generated when the Adjust Stock function is performed. The Action for these transaction will reflect the label assigned by the user.

Every field applicable to a Part Transaction is available on the grid. You can Show or Hide fields using the Show/Hide icon in the upper right corner of the grid. Fields in the grid can be repositioned by dragging and dropping the column to the desired position. Each field is filterable and sortable from the column header.

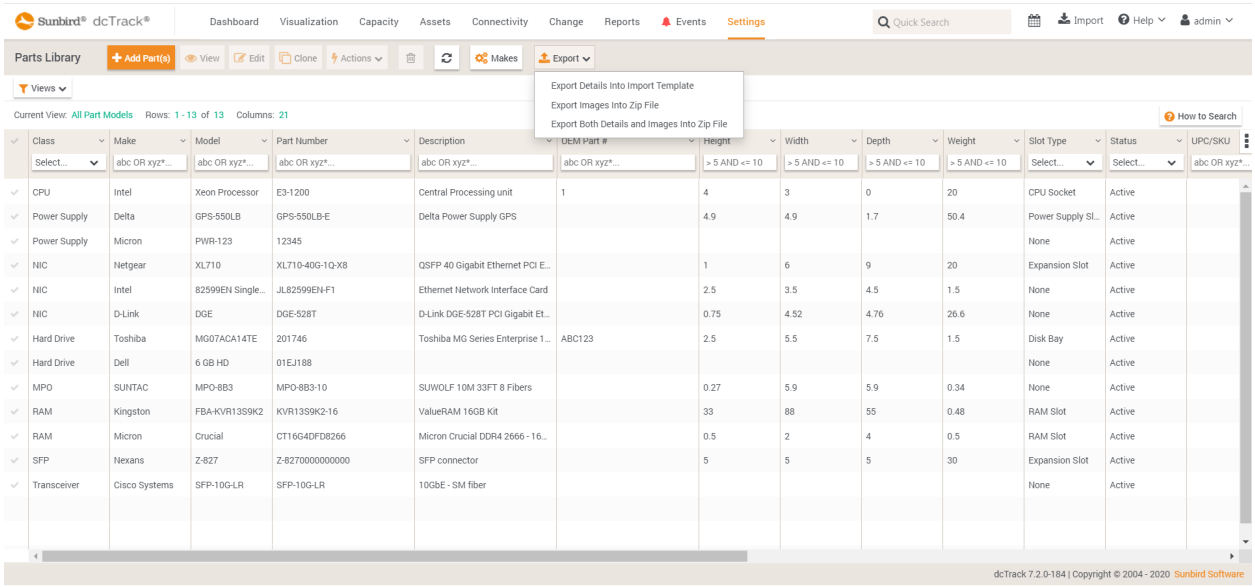
The Transaction List can also be exported to a .csv or .pdf file by selecting the appropriate export option from the Export button on the tool bar.

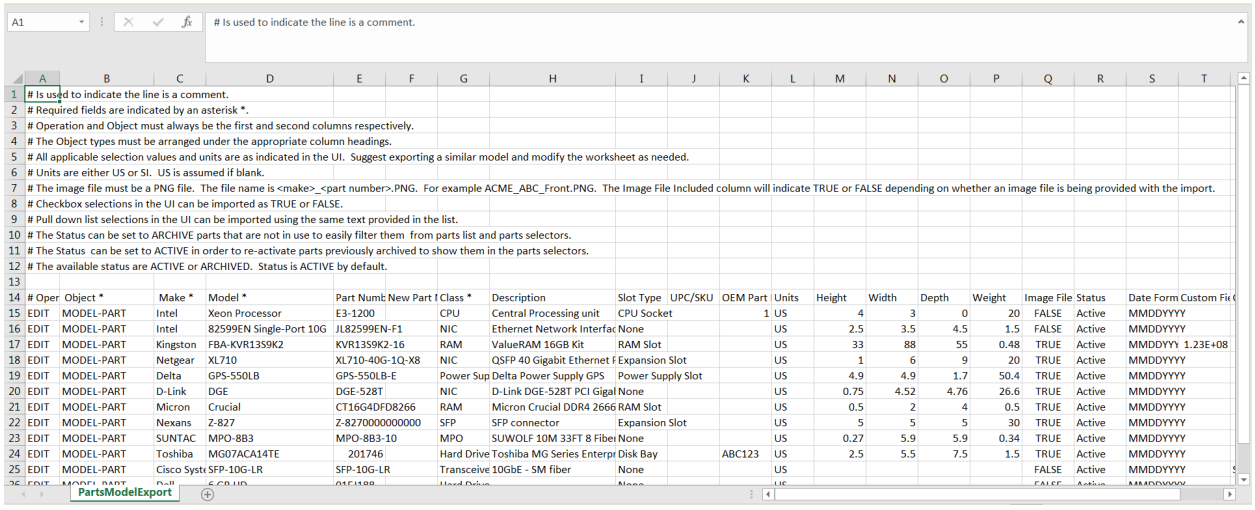
Exporting Part Models

Part Models can be exported from the Parts Library List grid page. Users have Three options when exporting Parts. You can "Export Details into Import Template", "Export Images into a Zip File" or "Export Both Details and Images

into a Zip File". When exporting the list into an Import Template, the .csv file will contain a record for each row in the list with all supported Part columns. The Operation column in the template will be set to "Edit" for each Part Model row. When exporting images only, dcTrack will generate a zip file that contains all of the Part Images for the Models in the current list in a directory called "Part_Images". When exporting both details and images, dcTrack will generate a zip file that contains a .csv file that contains a record for each row in the list with all supported Part columns and a .zip file that contains all of the Part Images for the Models in the current list in a directory called "Part_Images".

Note, when importing Part Models and Images, you should import the image file first followed by the detail file.

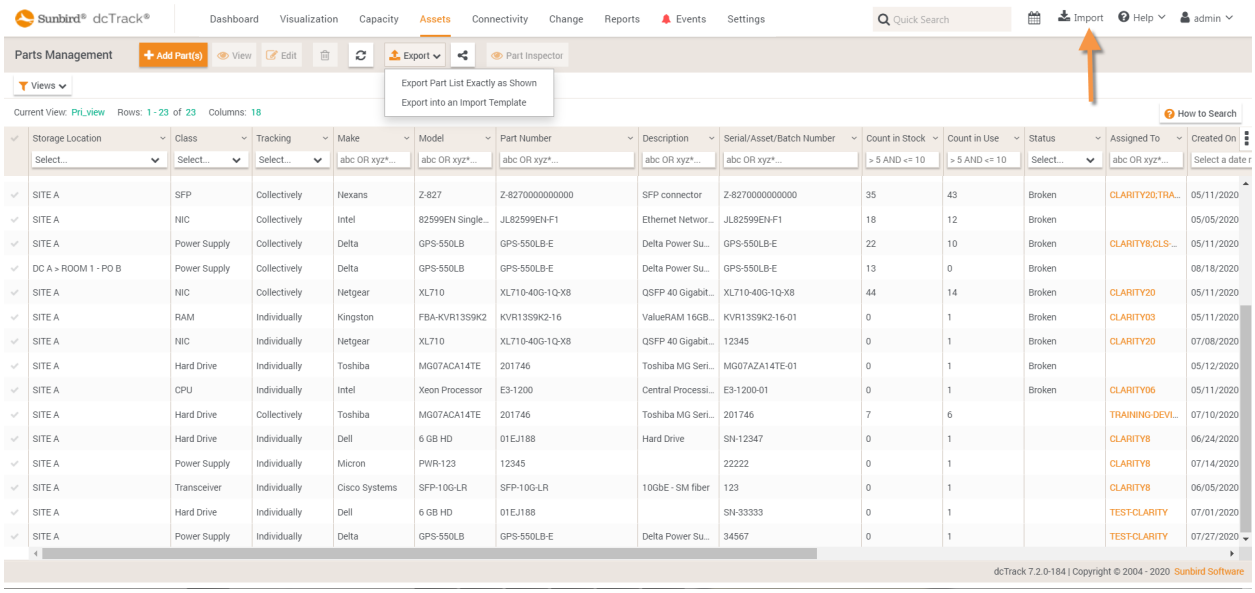




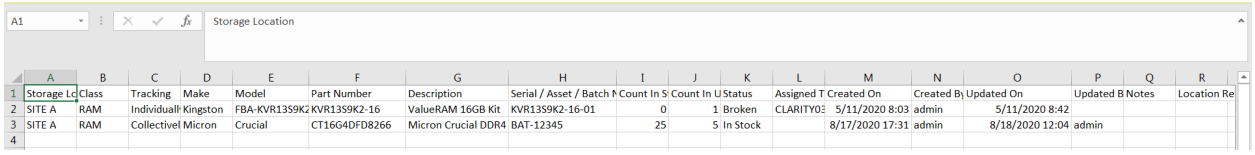
Exporting Parts Inventory and Assignments

Parts Inventory and Part Assignments can be exported from the Parts List grid page. Users have two options when exporting Parts. You can "Export Part List Exactly as Shown" or "Export into an Import Template". When exporting

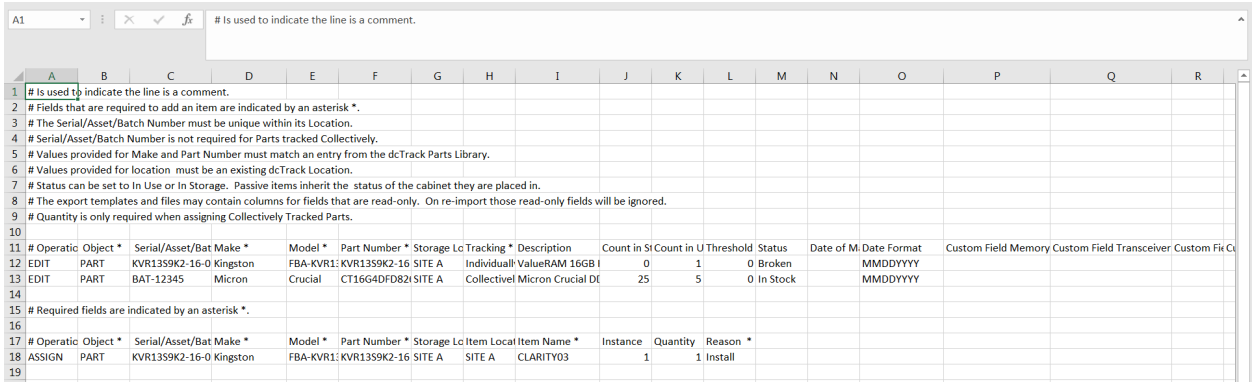
the list exactly as shown, dcTrack will generate a .csv file that contains a record for each row in the list with just the columns available in the current view. When exporting the list into an Import Template, the .csv file will contain a record for each row in the list with all supported Part columns. The Operation column in the template will be set to "Edit" for each Part Instance row. The file will also contain a row for each Assignment associated with any of the Parts.



Exactly as Shown

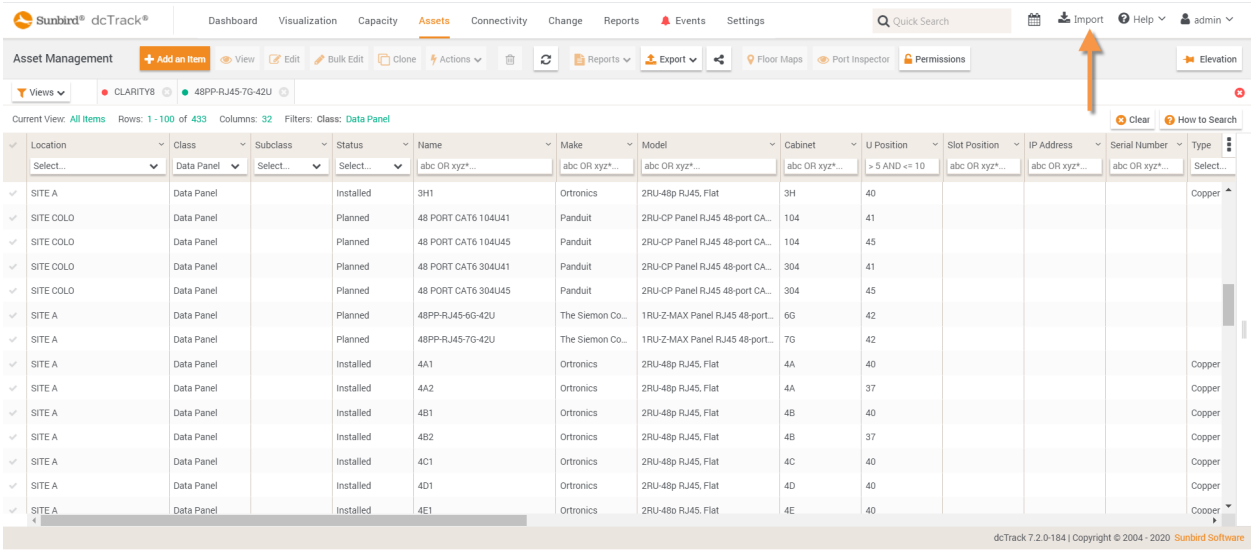


Import Template

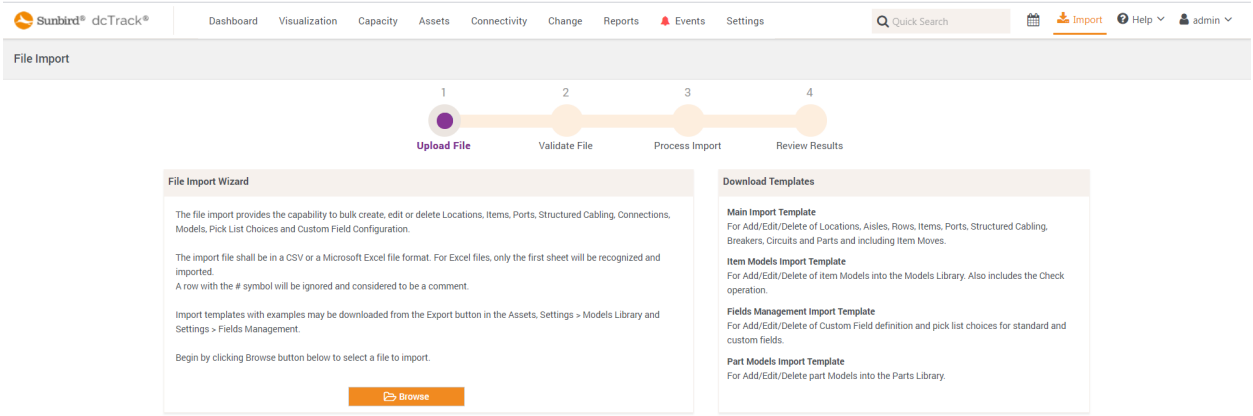


Importing Parts

To import Part Models, Parts Inventory and Part Assignments access the main File Import page by clicking the Import button located at the top of every dcTrack page.



You can then select the file you wish to import by clicking the Browse button to begin the upload process.



Note, import templates for all object types can be downloaded from the main import page by clicking the appropriate option from the right side panel.

For additional information on using the File Import feature, please refer to the help on Use File Import to Add, Edit Delete and Move.

Chapter 4:Standard and Custom Fields Management

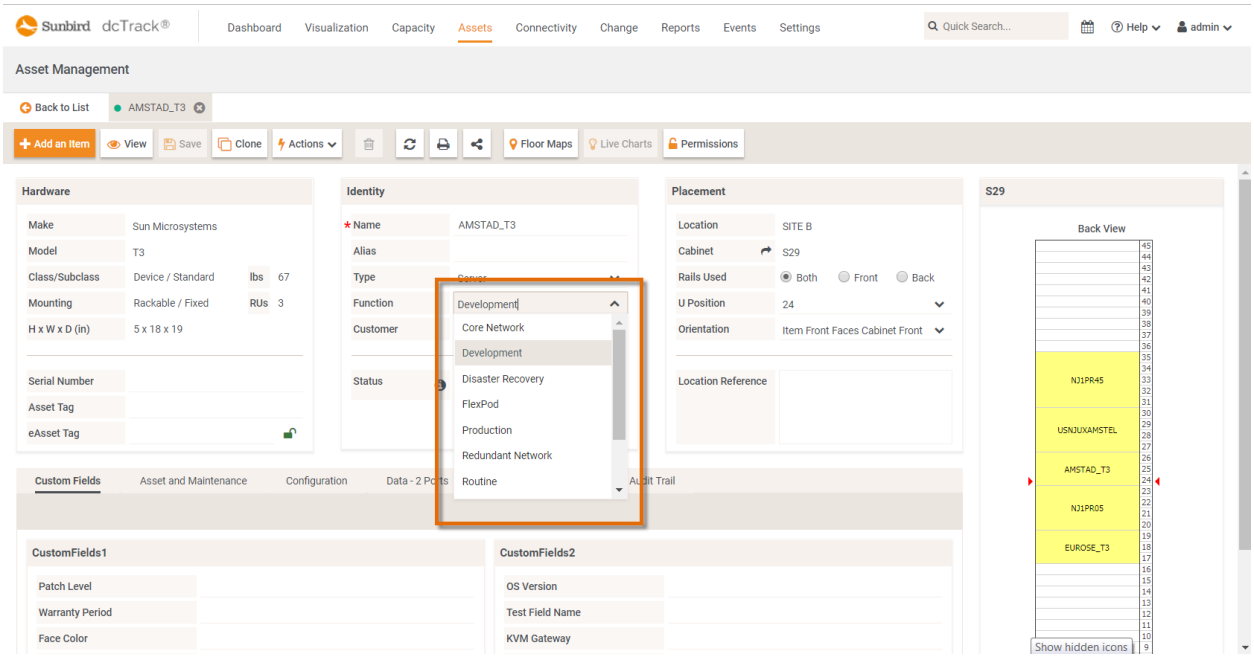
dcTrack provides the ability to create and assign Custom Fields to Items, Item Models, Parts, Part Models, Projects, Tickets, Locations, Data and Power Circuits.

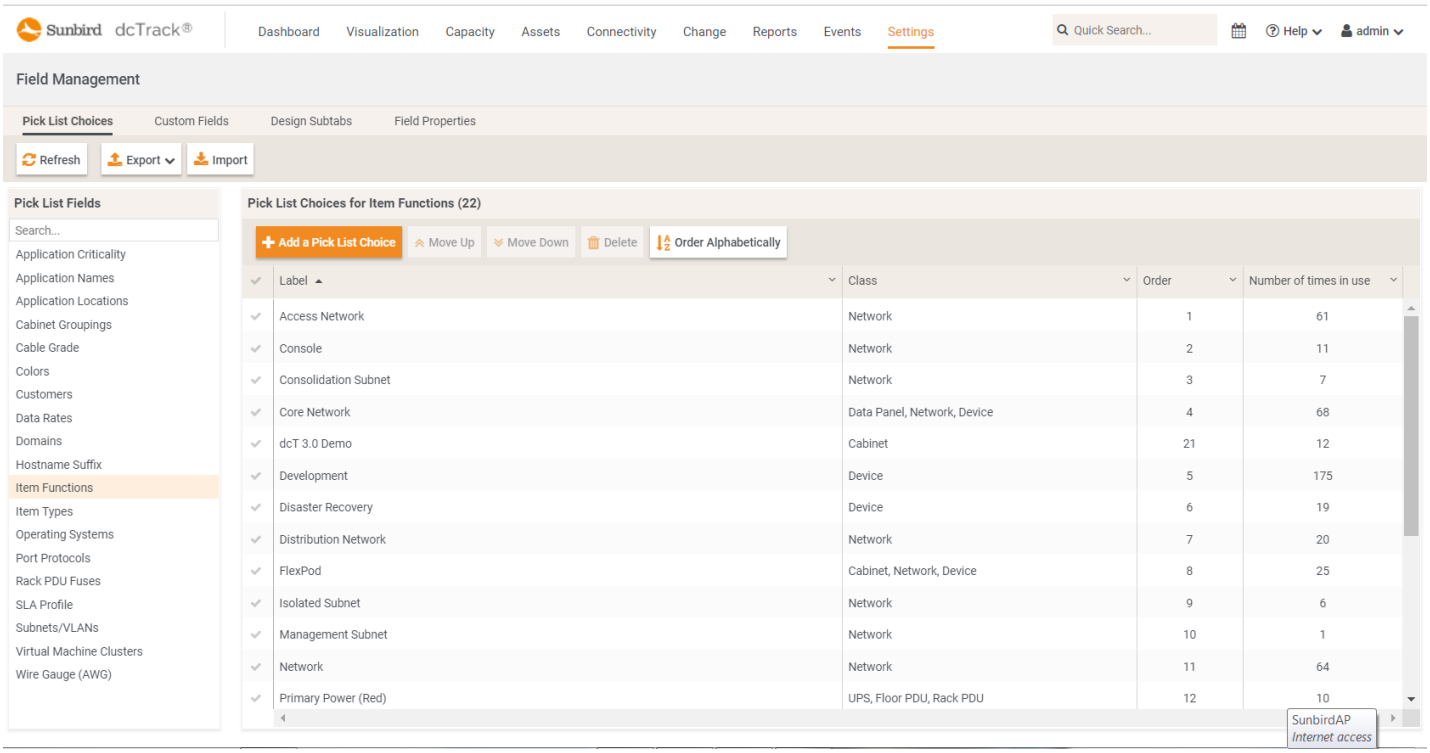
System Administrators and users with the Manage Lists auxiliary role can add, edit, and delete Item and Circuit Custom Fields. Additionally they can define list content for standard user-configurable lists and List type custom fields in the Web Client.

Role-based access control is also available for Custom Fields. System Administrators and Gatekeepers with the Manage Lists role can create, edit, delete, and manage permissions for Custom Fields.

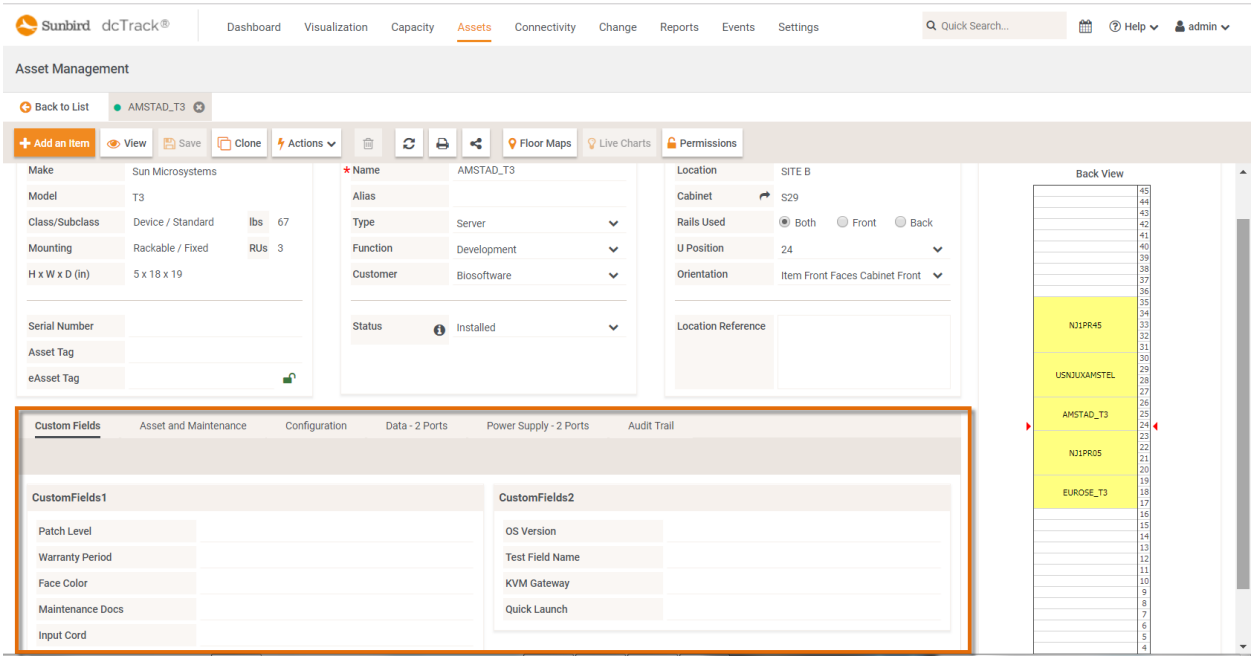
Standard Fields are available by default in dcTrack, while Custom Fields can be added by authorized users.

The elements contained in Standard and Custom List type Fields are used to populate drop-downs and menus in dcTrack. For example, the Function drop down on Item Detail page is populated using the Item Function Pick List.

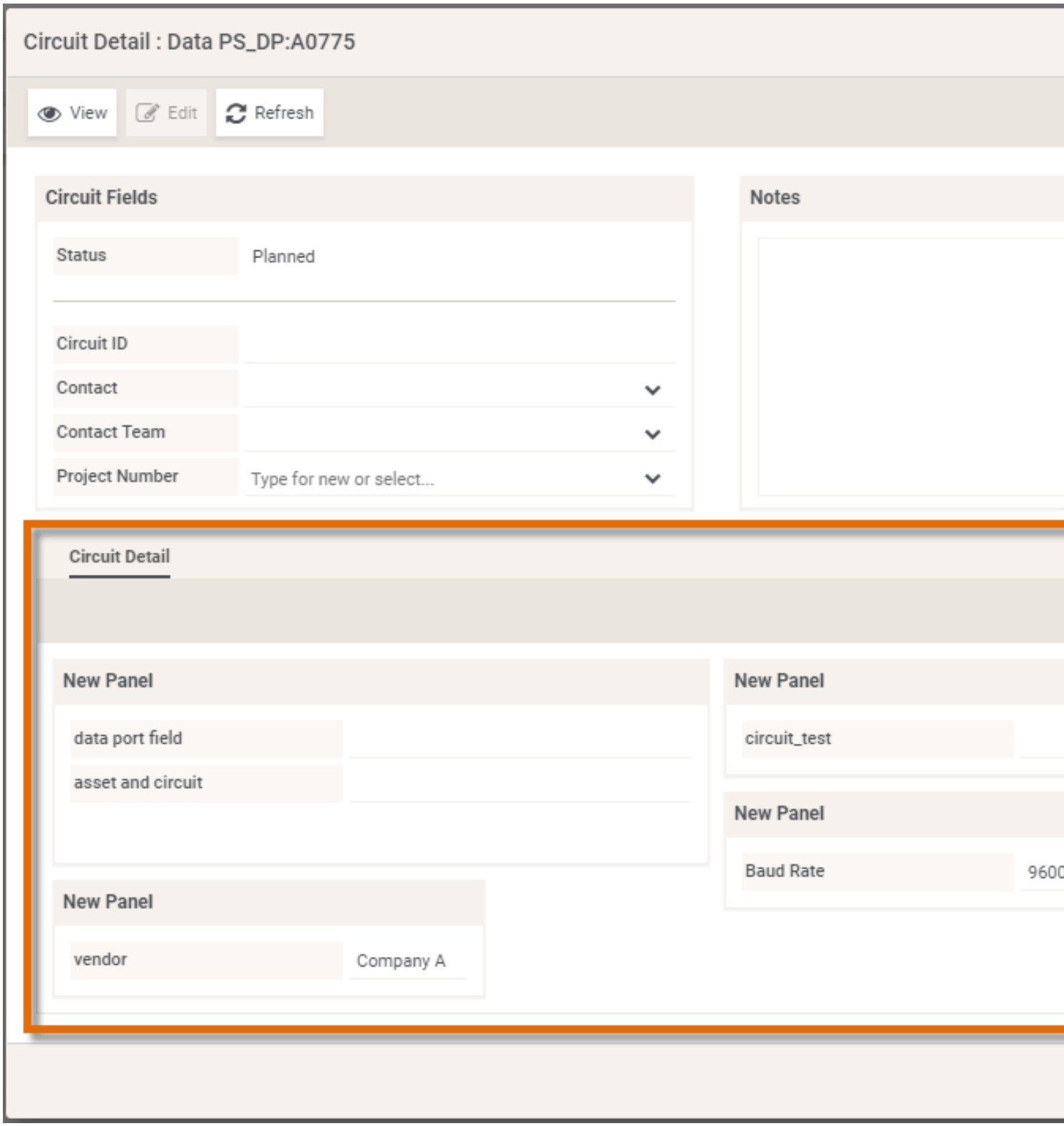




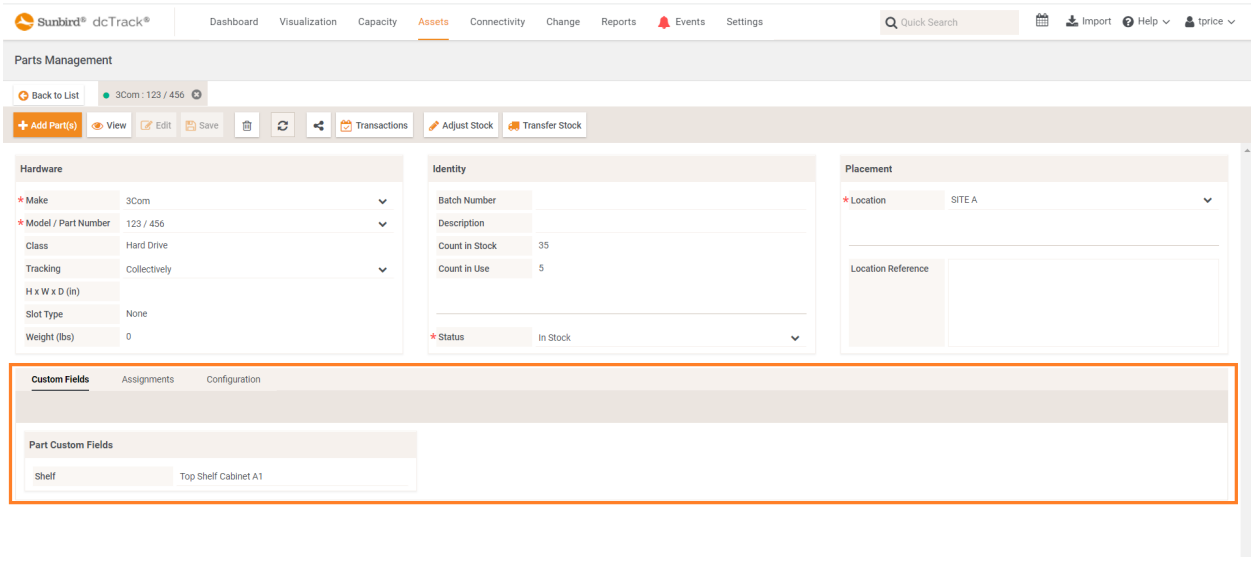
Custom Fields assigned to Items, Item Models, Projects, Tickets and Locations can be viewed in up to 99 Custom Field sub-tabs that can be customized by authorized users. Item Custom Fields can be placed in multiple panels on each sub-tab in configurations that make the most sense for an organization's users.



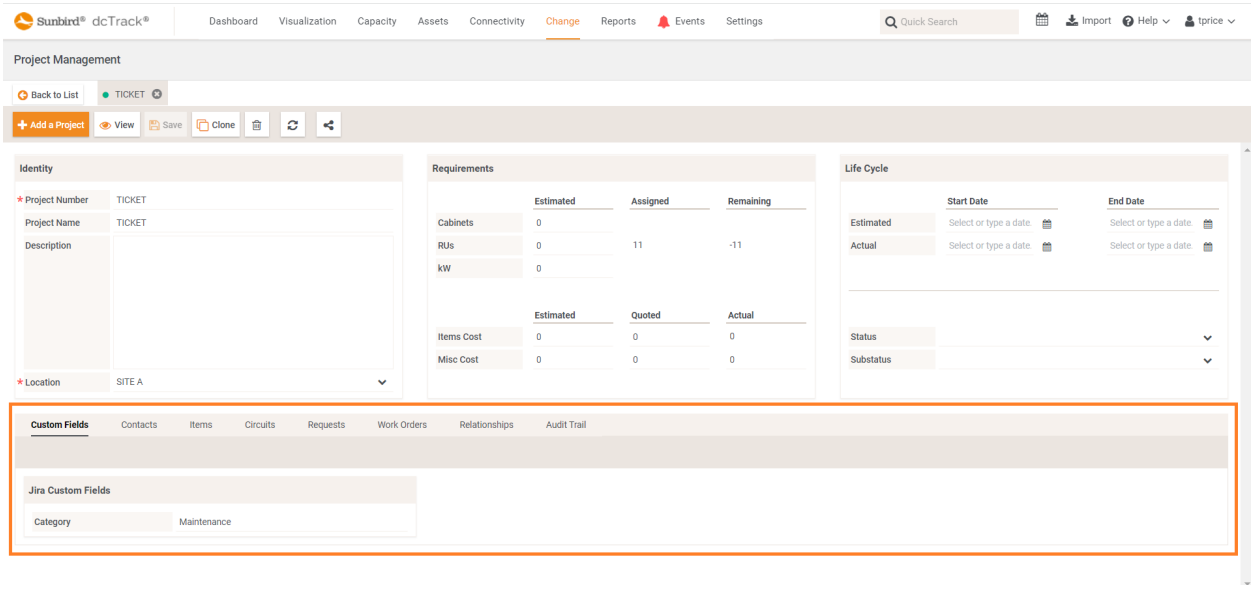
Custom Fields assigned to either Data or Power Circuits can be viewed on the Circuit Detail page for any Data or Power Circuit.



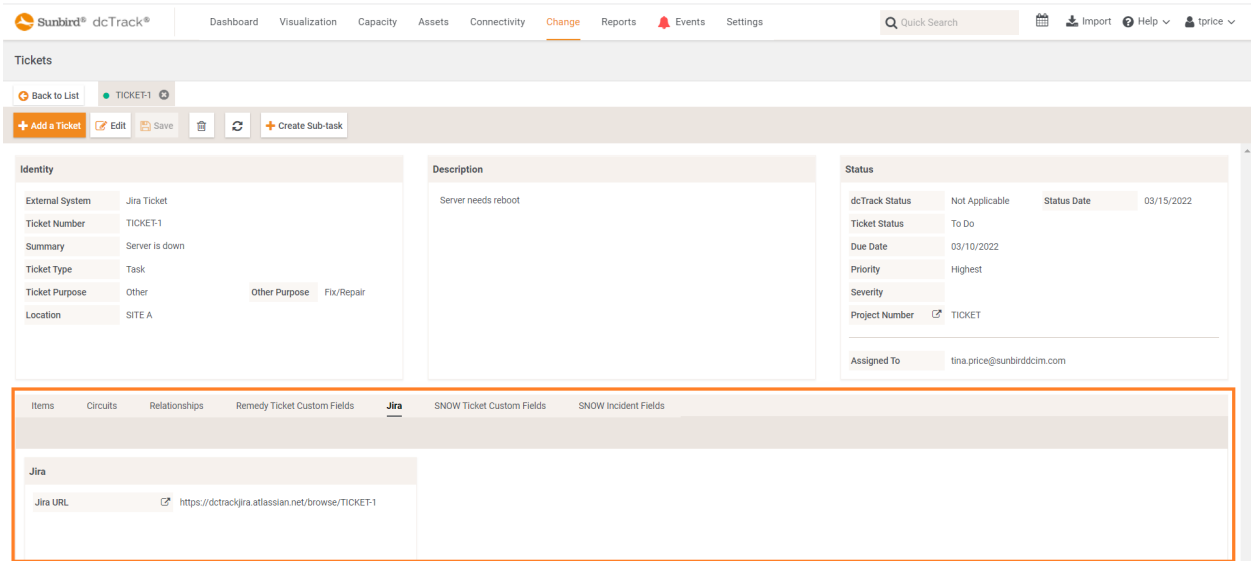
Custom Fields assigned to Parts can be viewed on Part Instance and Part Model Custom Field sub tabs.



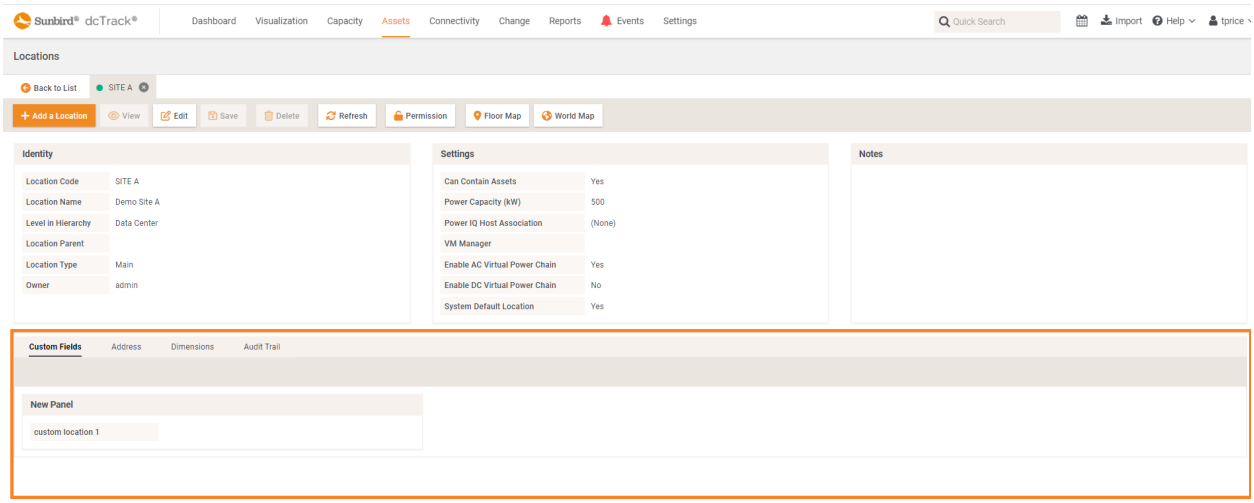
Custom Fields assigned to Projects can be viewed on Project Custom Field sub tabs.



Custom Fields assigned to Tickets can be viewed on Ticket Custom Field sub tabs.



Custom Fields assigned to Locations can be viewed on the Location Custom Field sub tabs



Standard Fields include default attributes that can be configured as needed so they fulfill your specific requirements. For example, you can add new customers to the Customers Standard Field list contents. Standard Fields are used across the dcTrack application.

Custom Fields can be used to capture information specific to your data center needs that are not included in dcTrack by default. Item Custom fields appear in the Custom Fields sub-tab on the Item Details page while Circuit Custom

Fields can be viewed on the Circuit Detail page for any Data or Power Circuit, accessible by clicking the Circuit Detail icon on either the Circuit List or Circuit Trace tool bars.

For details on available Standard Fields and how they can be used, see **Standard Field Descriptions**. For details on Custom Fields, see **Custom Field Attributes**, **Custom Field Types** and **Field Management Tabs**.

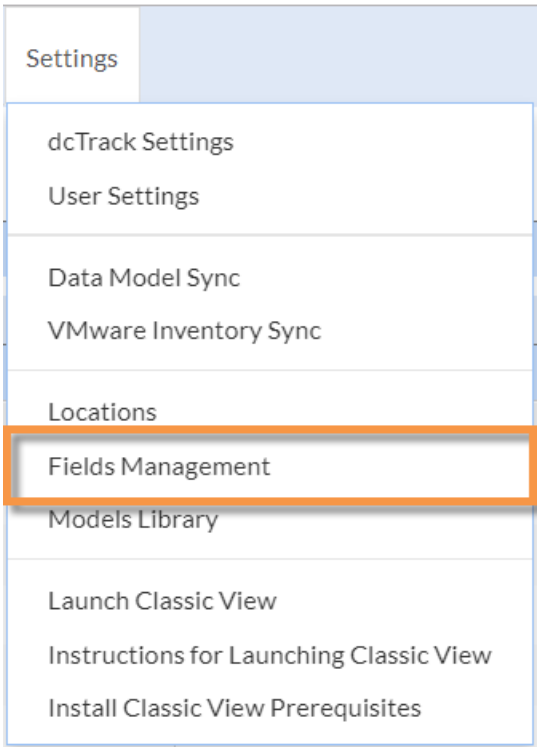
Custom Fields can be applied to one or multiple classes including Data and Power Circuits. For example, you can create a Custom Field called Installation Date, and then specify if you want to apply that field to one, multiple, or all classes. You can also specify data types for your Custom Fields for better data integrity and quality control.

Note: Upon upgrade to dcTrack 6.3 from a pre-6.0 release, the existing custom fields will be displayed in two panels in a single Custom Fields sub-tab. Upon upgrade to dcTrack 6.3 from Release 6.0 or later, Custom Fields will display as in the post- 6.0 release.

Note: Customize Standard and Custom Fields before you create your first data center locations and add items and connections for the first time. Add attributes to fields so they are available when you perform an import. This is important because dcTrack does not add items to fields during the import. Trying to import information that is not on a field causes errors during the import, and you must manually fix them before that data is added.

Accessing Standard and Custom Fields

Standard and Custom Fields can be managedunder the Settings tab > Fields Management. Only System Administrators and users with the Manage Lists auxiliary role can add, edit, and delete list content for standard user configurable lists and list content and type for custom fields.



Field Management Tabs

Only System Administrators and users with the Manage Lists auxiliary role can view, add, edit, and delete Standard and Custom Field content through the Web Client under the Settings tab > Fields Management.

Custom Fields can be created for Items, Item Models, Circuits, Part, Part Models, Projects, Tickets and Locations

The Field Management page contains four sub-tabs:

Custom Fields

This tab provides options to create and edit Custom Fields, select their classes and types, and view the number of times each custom field is in use.

To create a Custom Field:

1. Click the Settings tab > Fields Management > Custom Fields tab.
2. In the Custom Fields tab, click the Create button. The Create bar will display immediately below the Custom Fields tab menu.
3. In the Create bar, provide the following information:
    a. Custom Field Label: The name of the Custom Field.
    b. Applies To: The entitiy(s) the custom field applies to
    c. Class/Subclass:
        a. Items and Item Models Class (Subclass): The classes/subclass the Custom Field applies to. Multiple Classes/Subclasses can be selected.
        b. Parts and Part Models: The Model Class (User defined Part classes)
        c. Circuits: Data and Power
        d. Projects: The applies to will always be Project
        e. Ticket: The applies to will always be Ticket
        f. Location: The Location level the custom field applies to.
    d. Type: The type of Custom Field. You can only select one type. (see **Custom Field Types** for a list of valid Data Types).
4. Click the Add icon to add the Custom Field. Click the Cancel icon to abort creation and collapse the Create bar.

To update an existing Custom Field:

- The Custom Field grid supports inline editing for any editable field. Simply click in the column and make your changes. The change is saved upon clicking or tabbing out of the column. The "Number of times in use" value is not editable. This value is calculated by dcTrack based on the actual number of times a value is supplied for a specific Custom Field.
- To Delete a Custom Field, select the field in the grid and click the "Delete" button in the tool bar. If the field is not in use, it is immediately deleted. If the field is in use, you will receive a warning message alerting you to

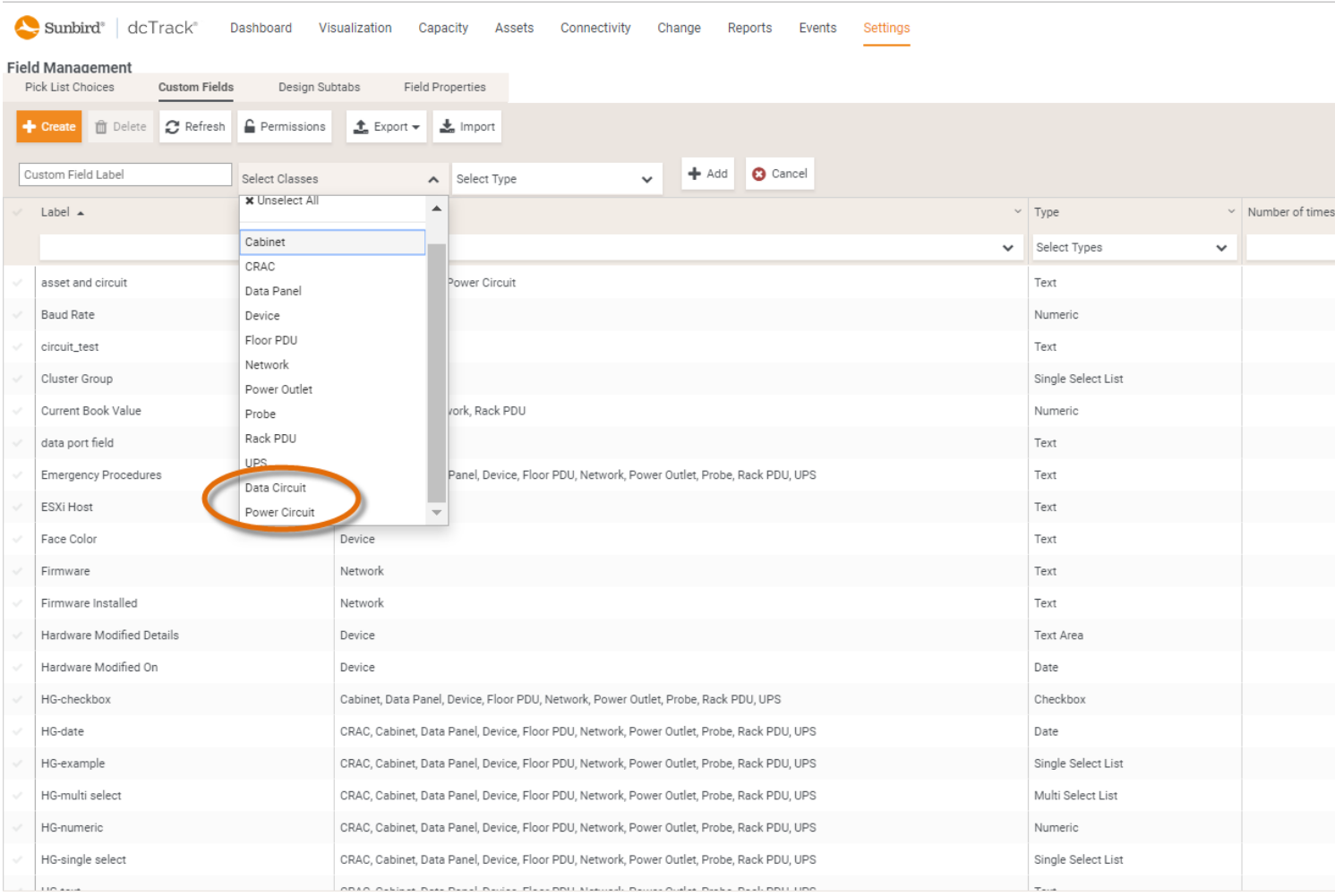
the number of Items or Circuits that currently have supplied a value for the field. If you choose to continue the field is deleted and removed from all subtabs.

The Custom Field toolbar provides both an Export and an Import feature.

The Export feature will export a list of all Custom Fields. Custom Fields that are applicable to both Items and Circuits are exported as two rows in the file, one with an Object type of "Item Custom Field" and another with an Object type of "Circuit Custom Field".

The Import feature supports the Add, Edit and Delete operations. Custom Fields that are applicable to both Items and Circuits must be imported using two rows. Rows whose Object type is "Item Custom Field" may only include Item classes in the Class column of the file. Rows whose Object type is "Circuit Custom Field" may only include Data Circuit and Power Circuit in the Class column. To delete a Custom Field that is applicable to both Items and Circuits you must include two Delete rows in the file, one for each Object type. If only one Delete row is included, the Custom Field will only be considered no longer applicable to that Object type.

From the Custom Field toolbar System Administrators and Gatekeepers with the Manage Lists role may also manage permissions for specific Custom Fields. Only users with the appropriate permissions will be allowed to View or Edit Custom Field values.



Pick List Choices

This tab provides options to add, edit, delete, and reorder the choices for Standard and Custom single-select and multi-select picklists.

To create a new list or update an existing list:

- Select the field name from the Fields column on the left side of the page. This will populate the grid on the right with any options that currently exist for that field.
- The grid supports inline editing for any editable field. Simply click in the column and make your changes. The change is saved upon clicking or tabbing out of the column. The "Order" field may be changed by selecting a row and clicking the "Move Up" or "Move Down" buttons in the toolbar or you can click the "Order Alpha-betically" button and dcTrack will automatically order the options alphabetically. The "Number of times in use"

value is not editable. This value is calculated by dcTrack based on the actual number of times a specific option is selected.

- To create a new option click the "Create" button in the tool bar. The fields required for the specific list will display below the tool bar. Once all of the required field values have been supplied, the "Add" button will be enabled. Click the "Add" button to save your changes or click the "Cancel" button to discard. For Standard fields, the required fields will vary and are determined by dcTrack based on the fields purpose. For Custom fields, the only required field is "Label".
- To Delete an option, select the option in the grid and click the "Delete" button in the tool bar. dcTrack will automatically reorder the options in the list that appear after the deleted option.

The Pick List tool bar provides both an Export and an Import feature. You can export a single list or all lists using the Export feature. The Import feature supports the Add, Edit and Delete operations.

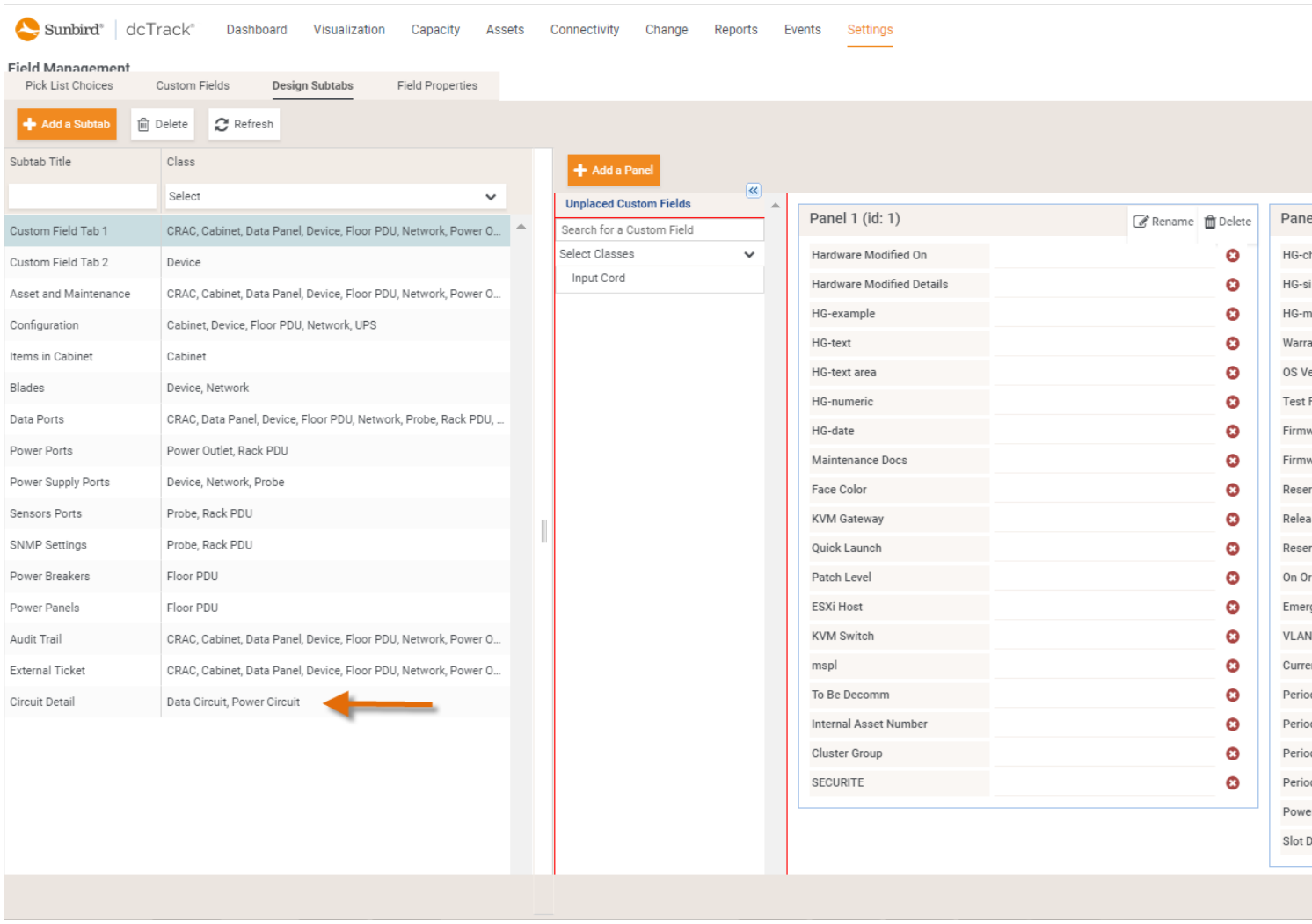
Design Subtabs

This tab provides options for customizing Custom Field subtab layouts for use on Item Detail, Item Model, Part, Part Model, Circuit Detail Project, Ticket and Location pages. Up to 99 subtabs can be created for Items, Item Models, Tickets Projects and Locations with any number of panels on each subtab. There is only a single subtab for Circuit, Part and Part Model Custom fields, however the user may create any number of panels on this subtab.

Only panels that contain at least one Custom Field will be displayed on the entity type's Detail pages.

Custom fields can only be placed on subtabs for the entity type they belong to:

- When an Item Custom Field is limited to only specific Class/Subclass, the custom field will only appear on the Item Detail page for Items of that Class/Subclass.
- When an Item Model Custom Field is limited to only specific Class/Subclass, the custom field will only appear on the Model Detail page for Models of that Class/Subclass.
- When an Part Custom Field is limited to only specific Class, the custom field will only appear on the Part Instance page for Parts of that Class/Subclass.
- When an Part Model Custom Field is limited to only specific Class, the custom field will only appear on the Part Model detail page for Parts of that Class/Subclass.
- When a Location Custom Field is limited to only specific Hierarchy Levels, the custom field will only appear on the Location Detail page for Locations of that level.
- When a Circuit Custom Field is limited to a specific Circuit type, the custom field will only appear on the Circuit Detail page for Circuits of that type.
- Project Custom Fields appear on all Project detail pages
- Ticket Custom Fields appear on all Ticket detail pages



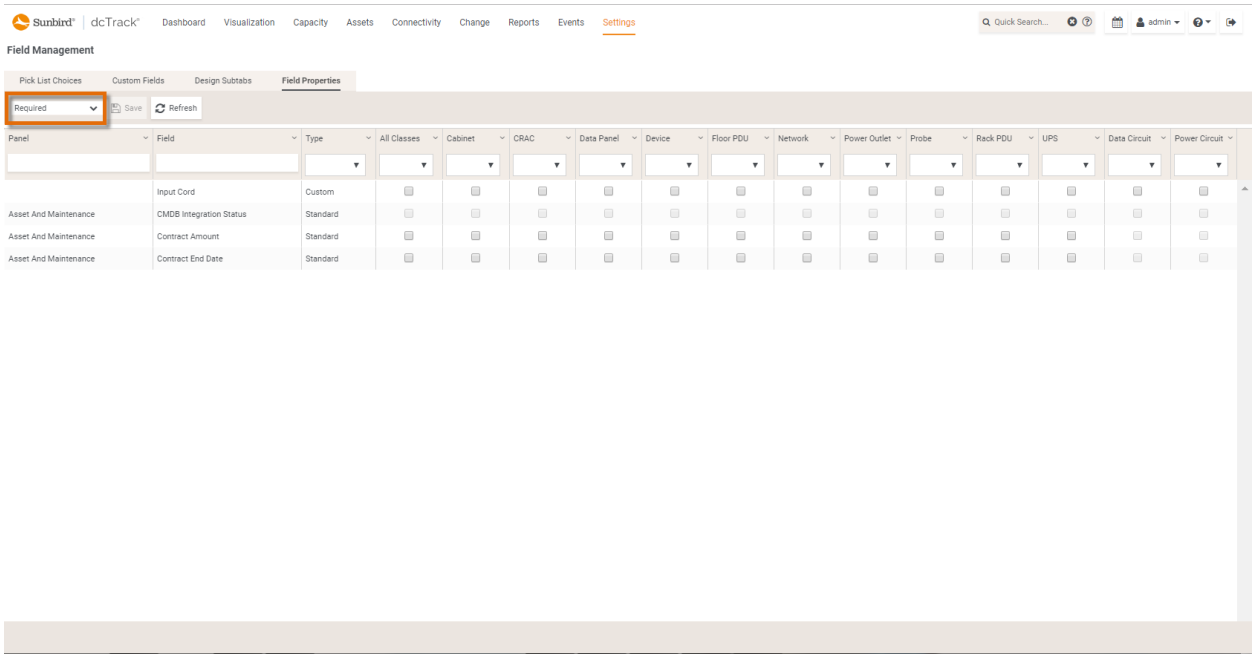
Field Properties

This tab provides the options to modify whether specific Standard and Custom fields are Required, Hidden, Unique, and assigned a Default Value.

Properties can be set for Custom Fields of any entity type.

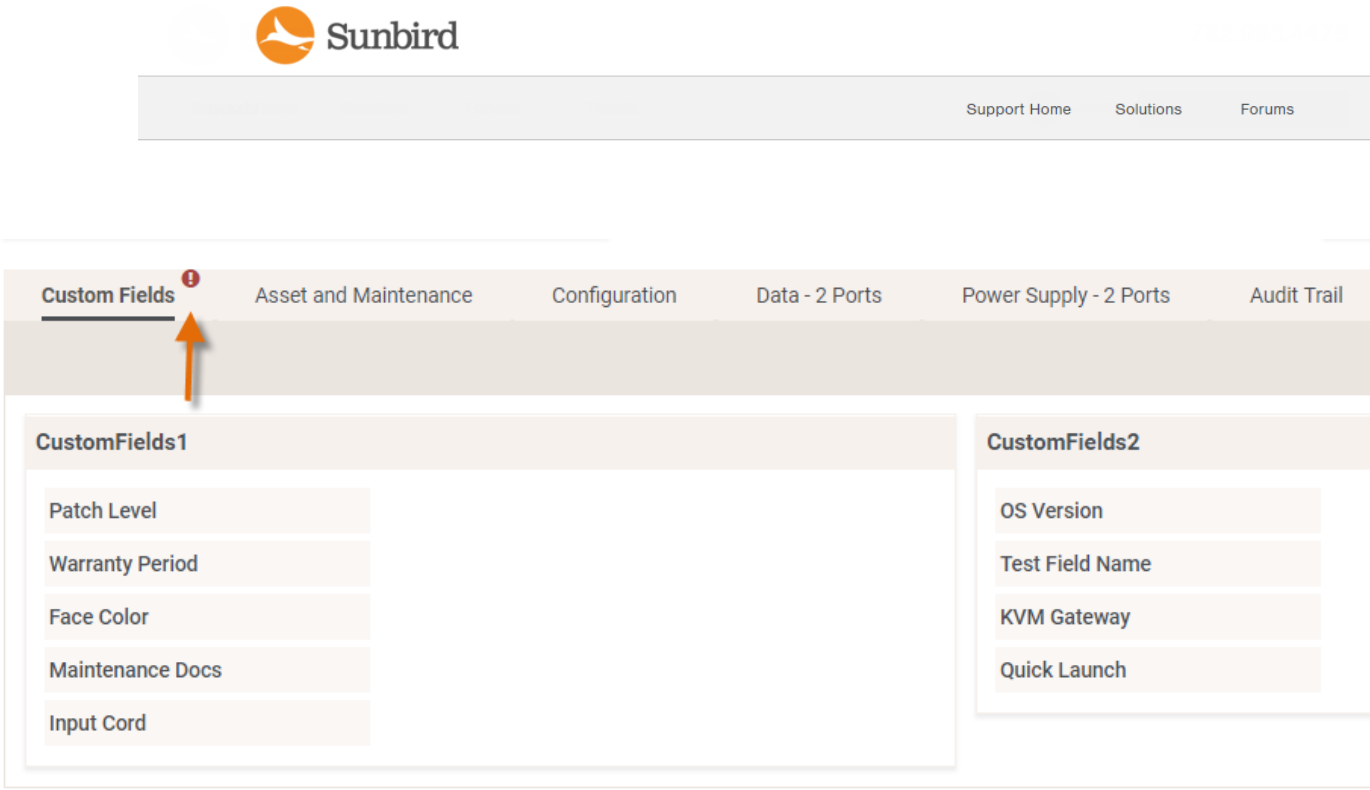
- Items
- Item Models
- Parts
- Part Models
- Circuits

- Projects
- Tickets
- Locations



Required Fields

Required fields require a value to be supplied for all new records added to dcTrack that contain that field. dcTrack will allow you to make an existing non-required field required, however it will be necessary to supply a value for the field the next time you edit a record containing the field and attempt to save. Whenever you open a record that is missing data for a Required field, dcTrack will flag the subtab containing the field.



Certain dcTrack Standard fields are always required and can not be changed.

- Items:
    - Make
    - Model
    - Name
    - Location
    - Status
- Item Models
    - Class
    - Subclass
    - Make
    - Model Name
    - Mounting
    - Form Factor
    - Height
- Parts
    - Make
    - Model/Part Number
    - Tracking
    - Count in Stock
    - Status
    - Storage Location
- Part Models
    - Class
    - Make
    - Model
    - Part Number

- Locations
    - Location Code
    - Location Name
    - Level in Hierarchy

Unique Fields

Unique fields will not allow you to supply a non-unique value for any new records added to dcTrack. dcTrack will allow you to modify a non-unique field making it unique, however if you edit a record whose field value is not unique for that field, you will be required to supply a unique value prior to saving the record.

Certain dcTrack Standard fields must always be unique and can not be changed.

- Asset Tag
- eAsset Tag

Hidden Fields

Hidden fields are not displayed in the UI. Custom fields may not be hidden so they do not appear in the grid list when the Hidden option is selected.

The visibility of certain Standard fields will always be controlled by dcTrack and can not be changed.

- Items:
    - Circuit List Id
    - Circuit List Trace
    - CMDB Integration Status
    - Created By
    - Created On
    - H x W x D
    - Last Updated By
    - Last Updated On
    - Location
    - Make
    - Model
    - Name
    - Origin
    - Request Number
    - Request Stage
    - Subclass
    - Status
- Item Models
    - Class
    - Subclass
    - Make
    - Model Name
    - Mounting

    - Form Factor
    - Height
- Parts
    - Make
    - Model/Part Number
    - Tracking
    - Count in Stock
    - Status
    - Storage Location
- Part Models
    - Class
    - Make
    - Model
    - Part Number
- Locations
    - Location Code
    - Location Name
    - Level in Hierarchy

Default Value Fields

Default field values will automatically be populated when adding a new record to dcTrack. Existing records are not affected by the Default Value setting. If when adding a new record, you choose to override the Default Value and supply a different value or clear the field, subsequent edits on the record will not reapply the Default Value.

Certain Standard field values are automatically supplied by dcTrack and do not allow you to specify a Default Value.

- Asset Tag
- Circuit List Id
- Circuit Trace
- CMDB Integration Status
- Created By
- Created On
- eAsset Tag
- H x W x D
- Name
- Origin
- Request Number
- Request Stage
- Subclass
- Level in Hierarchy

Managing Permissions for Custom Fields

Only System Administrators can create, edit, delete, and manage permissions for custom fields by default. Gatekeepers will require the Manage Lists in order to access and manage permissions for custom fields.

Permissions for custom fields are applied separately from the privileges a user inherits from an item's parent object. For example, a user with the Operator role on an item may be able to manage that item's details but not its custom field values, unless the appropriate custom field permissions are provided to the user. A user with the View role on an item and the Operator role on custom fields will be able to edit those custom fields in Edit mode from the Items List and Item Details page in the Web Client.

Note: A user with the Viewer role on an item and the Operator role on custom fields will be able to edit only the custom fields for which the user has the Operator role.

In dcTrack 6.0.1 and above, you can allow users with the Viewer role to make limited edits to select custom fields. For example:

- A user with a global Operator role has access to edit all items, but you want to limit this user to only be able to edit a few custom fields. In this case, you would assign the user the Operator role on the specific custom fields that the user should be allowed to edit.
- A user is restricted to a local Operator role on a few servers, but you want the user to be able to edit a few custom fields. In this case, you would assign the user the Operator role on the specific custom fields that the user should be allowed to edit.

Note: By default, all users will have the Inherit role for custom fields.

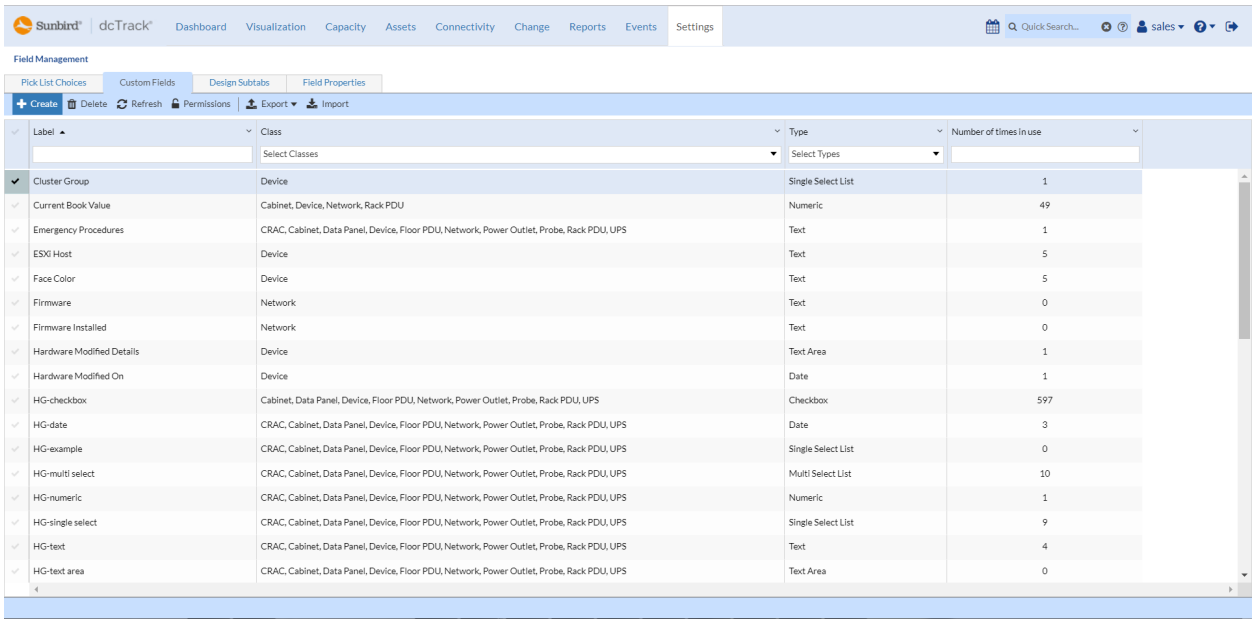
The table below summarizes the roles available for custom fields. All roles can be applied to all users and user groups.

Role	Description
Inherit	Permissions inherited from the parent object. Assigned by default to the All Users group for each custom field upon upgrade to 6.0.0. There is no action required on upgrade to maintain the pre-6.0.0 release behavior. In order to change the behavior of custom fields to explicitly control the users or user groups that can view or operate on the custom fields, remove the Inherit role permission from the custom field and assign either Viewer or Operator roles to users and/or user groups for the custom field.
Viewer	View-only permissions for the custom field's value.
Operator	Create, read, update and delete permissions for the custom field's value.

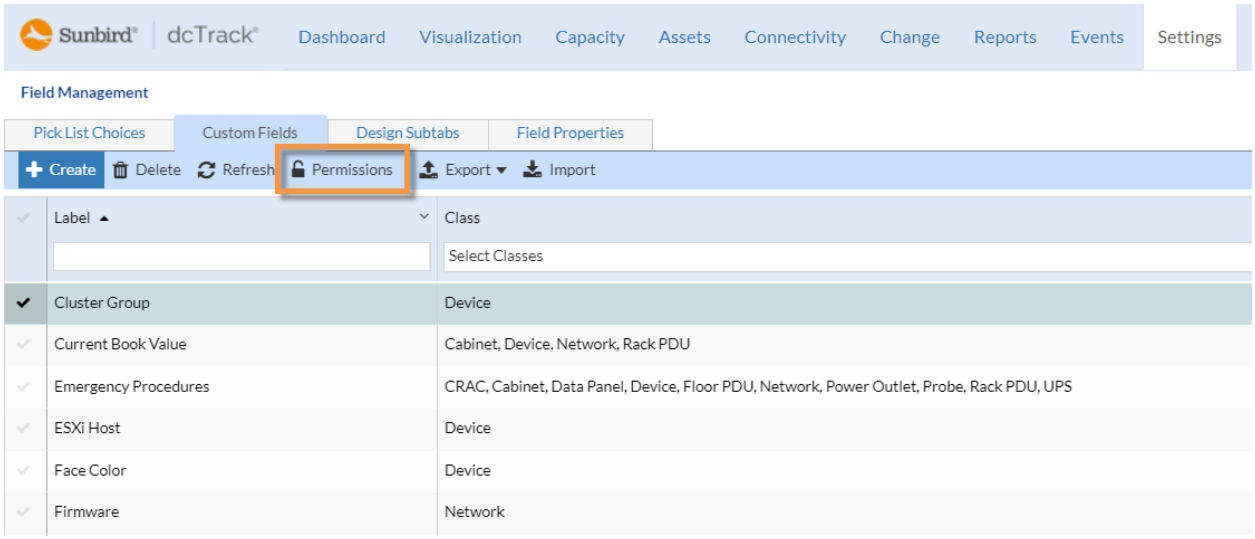
For more information on permissions for custom fields, see **Adding and Deleting Permissions for Custom Fields**.

Adding and Deleting Permissions for Custom Fields

1. In the Web Client under the Settings tab > Fields Management > Custom Fields tab, select the custom field whose permissions you want to edit.



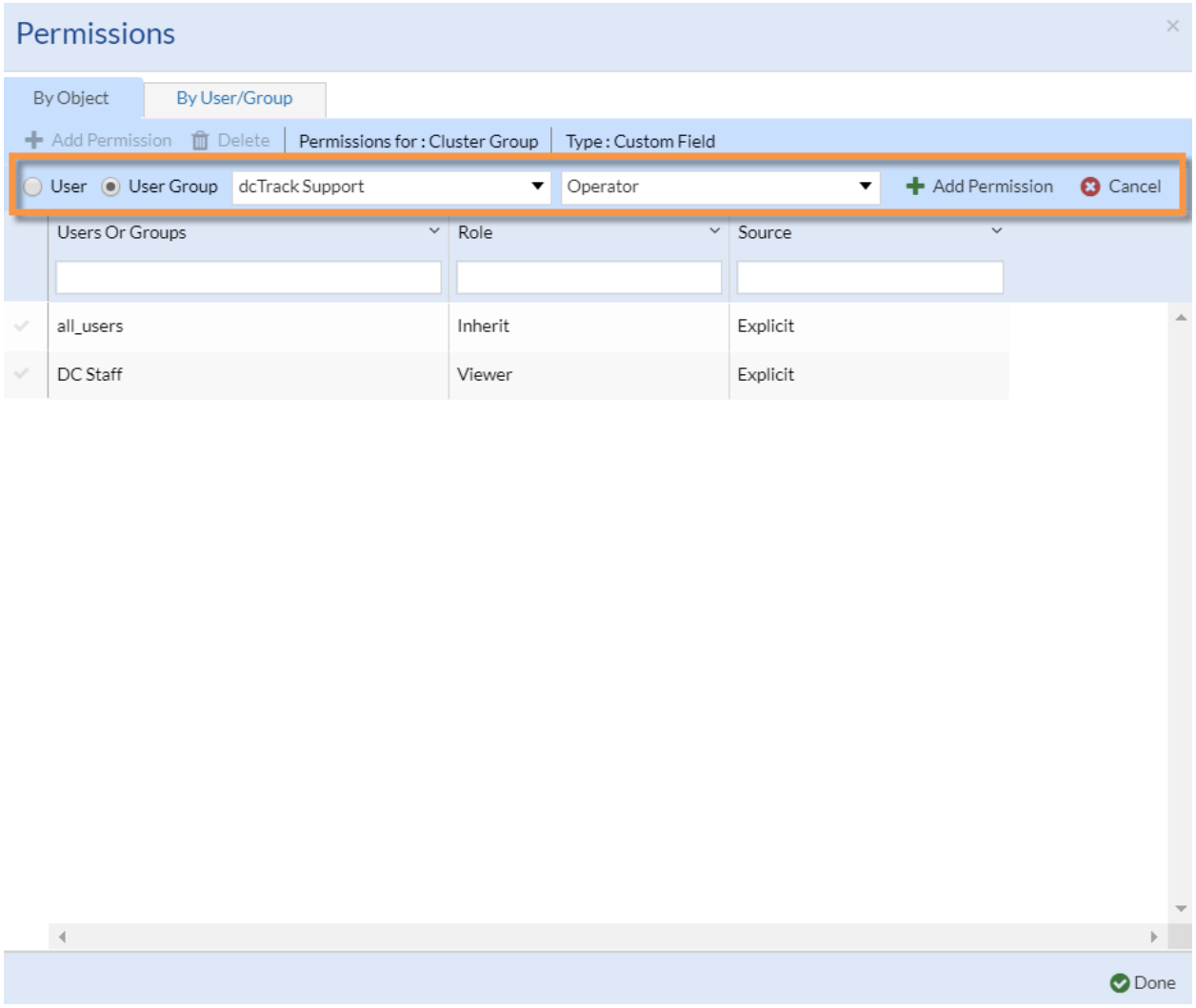
2. Click the Permission icon. The Permissions dialog will display.



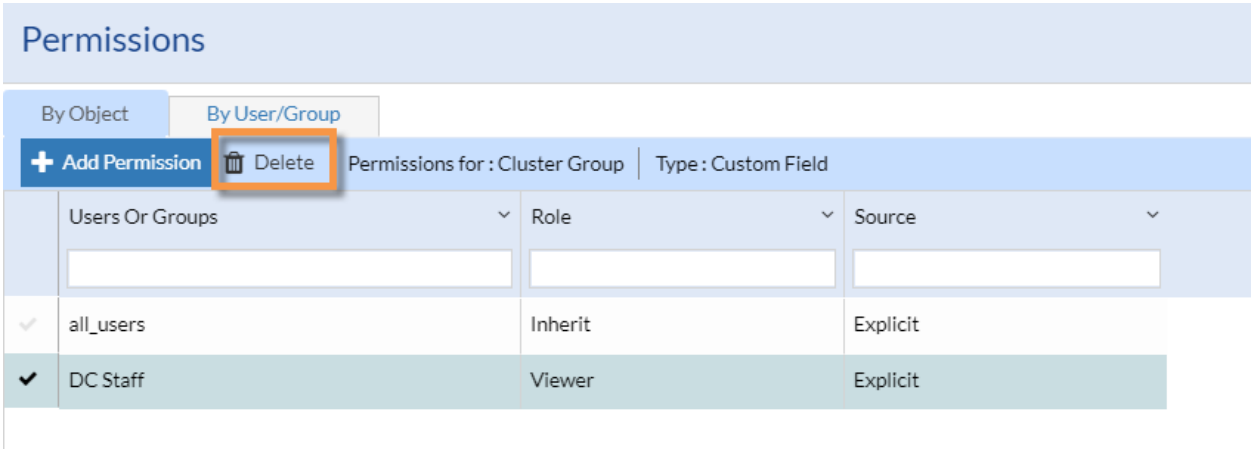
3. In the Permissions dialog box, you can add a permission for the selected Custom Field in the By Object tab:

a. To add a permission:
   i. Select to add the permission to a user or user group
   ii. Select the user or user group from the dropdown
   iii. Select the role you want to assign: Operator, Viewer, Inherit
   iv. Click the Add Permission icon to save the permission or the Cancel icon to abort

v. The permission will be displayed in the grid in the Permissions dialog box



b. To delete a permission, select the permission you want to delete in the grid and click the Delete icon. The permission will be removed from the grid.



For more information on permissions for custom fields, see **Managing Permissions for Custom Fields**.

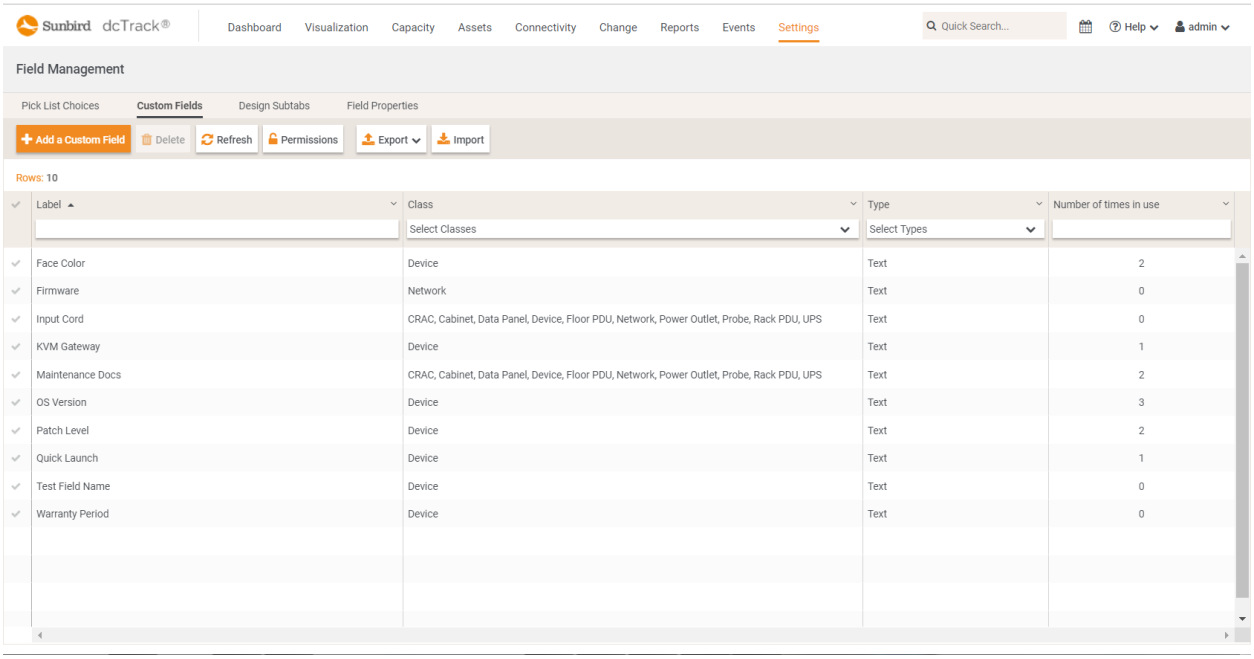
Add, Edit, and Delete Custom Fields

Custom Fields enable organizations to capture and display additional data that may not be covered by dcTrack's Standard Fields. This may include information from CMDB, ITSM, BMS, and other third-party systems as well as data that may be of interest to functional teams, such as Finance.

Custom Fields can be created for the following object types:

- Items
- Item Models
- Parts
- Part Models
- Circuits
- Projects
- Tickets
- Locations

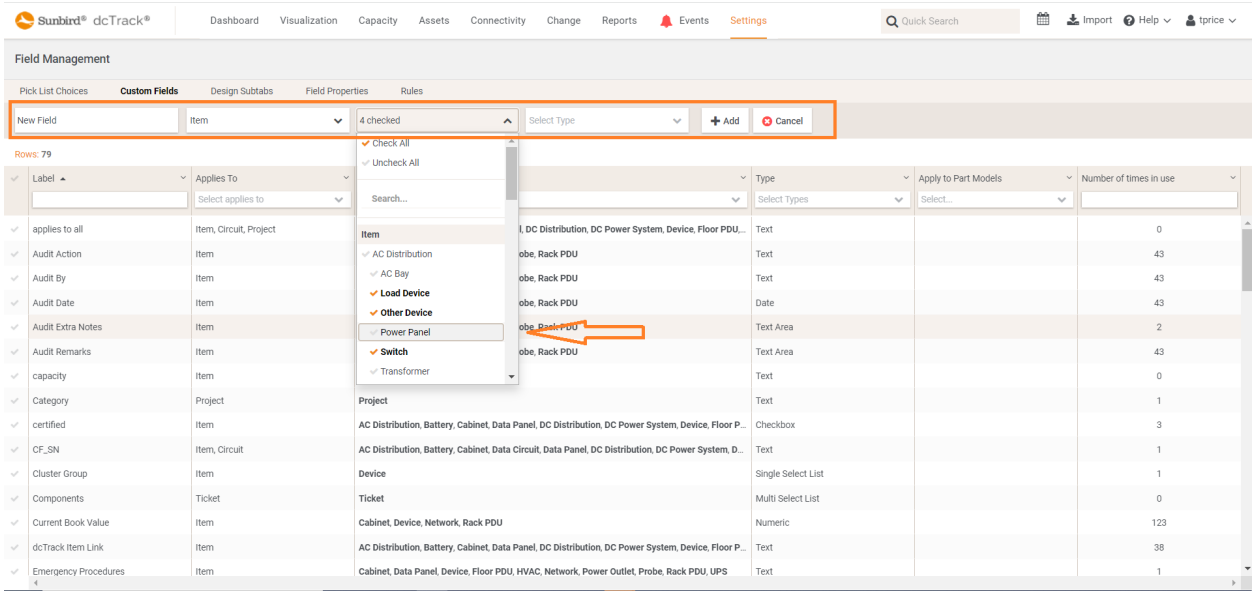
Users with the System Administrator role or who have the Field Management Operator auxiliary role can add, edit, and delete Custom Fields from the Settings tab > Fields Management page > Custom Fields tab.



Adding Custom Fields

1. In the Web Client, click the Settings tab > Fields Management > Custom Fields tab.
2. In the Custom Fields tab, click the Create button. The Create bar will display immediately below the Custom Fields tab menu.
3. In the Create bar, provide the following information:
    a. Custom Field Label: The name of the Custom Field.
    b. Applies To: The entitiy(s) the custom field applies to
    c. Class/Subclass:
        a. Items and Item Models Class (Subclass): The classes/subclass the Custom Field applies to. Multiple Classes/Subclasses can be selected.
        b. Circuits: Data and Power
        c. Projects: The applies to will always be Project
        d. Ticket: The applies to will always be Ticket
        e. Location: The Location level the custom field applies to.
    d. Type: The type of Custom Field. You can only select one type.

4. Click the Add icon to add the Custom Field. Click the Cancel icon to abort creation and collapse the Create bar.



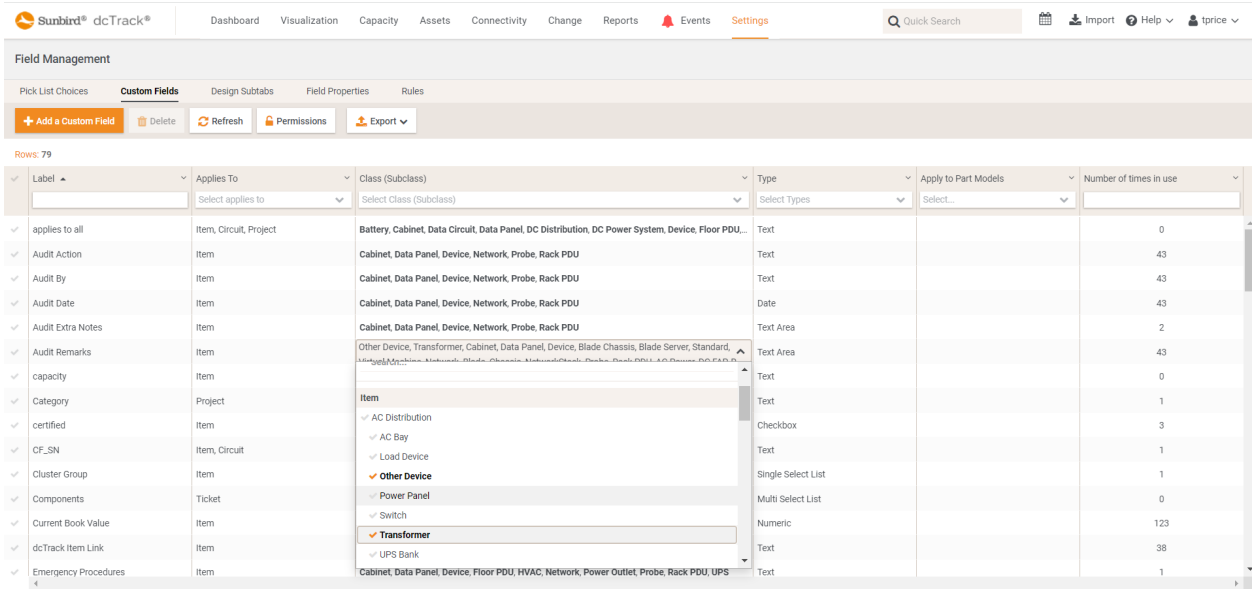
Note: The following characters are not supported in custom field labels: a period "." and a single quote " ' ". Using these characters in your custom fields labels may result in errors or missing information when using the APIs.

Editing Custom Fields

Inline editing is supported for the Custom Fields grid, so authorized users can simply select the cell they want to edit to make changes to Custom Fields.

1. In the Web Client, click the Settings tab > Fields Management > Custom Fields tab

2. In the Custom Fields tab, click the cell that you want to edit. The grid will allow you to make changes directly to the cell content by typing in the cell or selecting new values from the available lists.



Your changes will save automatically once you have completed your edits and exited the cell.

Deleting Custom Fields

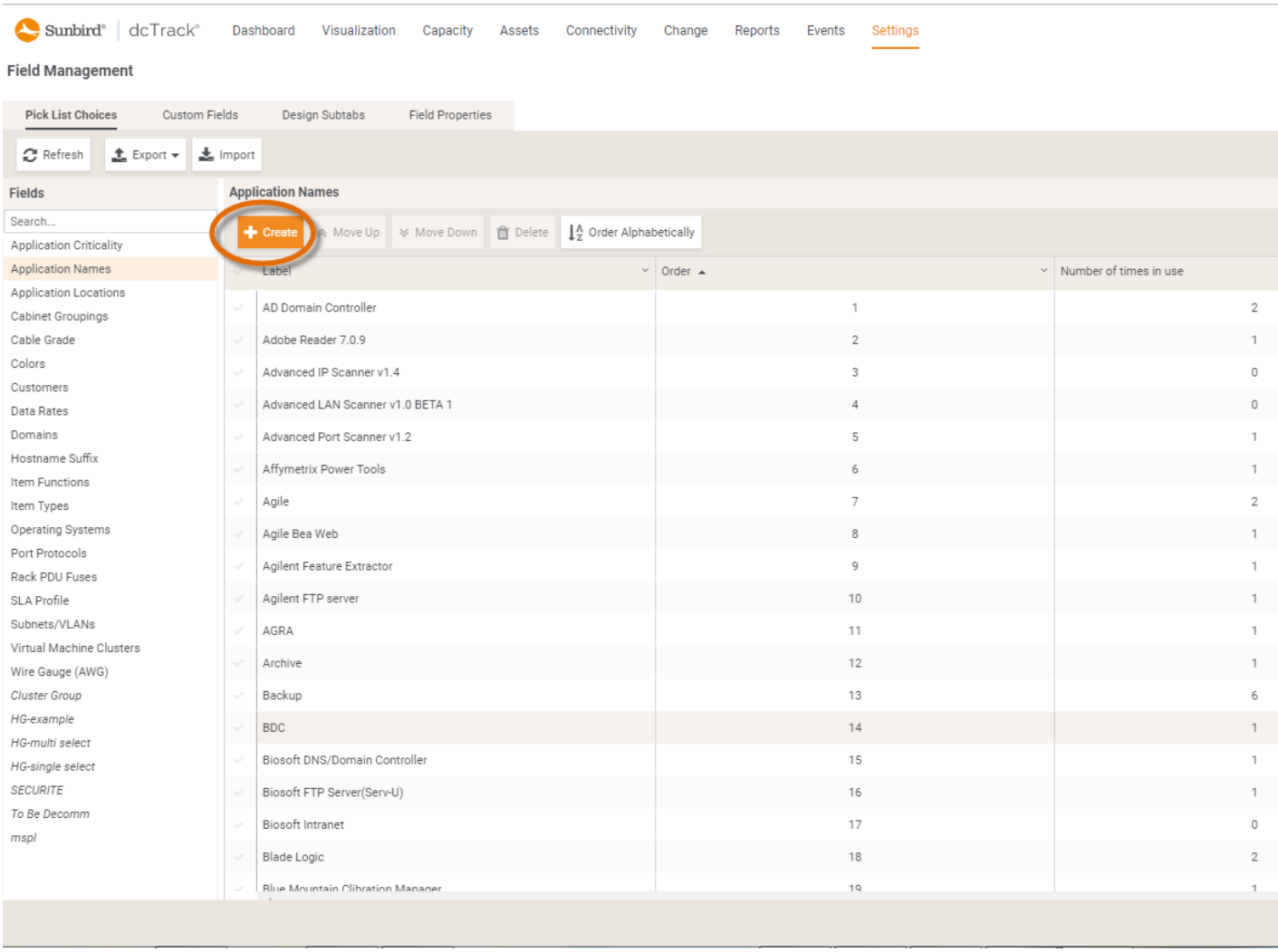
1. In the Web Client, click the Settings tab > Fields Management > Custom Fields tab.
2. In the Custom Fields tab, select the Custom Fields that you want to delete.
3. Click the Delete icon.

Note: If the Custom Field is not in use, the item will simple be deleted. However, if the field is in use, dcTrack will display a dialog asking you to confirm the deletion before proceeding.

Creating Options for Custom Field Single and Multi-Select List Types

System Administrators can specify single-select and multi-select pick lists among the types for Custom Fields. Once one of these list types is selected, you can create, edit, and delete the options for each list. For more information, see **Configuring Options for Single and Multi-Select List Types**.

1. In the Web Client, click the Settings tab > Fields Management > Pick List Choices tab.
2. In the Pick List Choices tab, click the Create button.



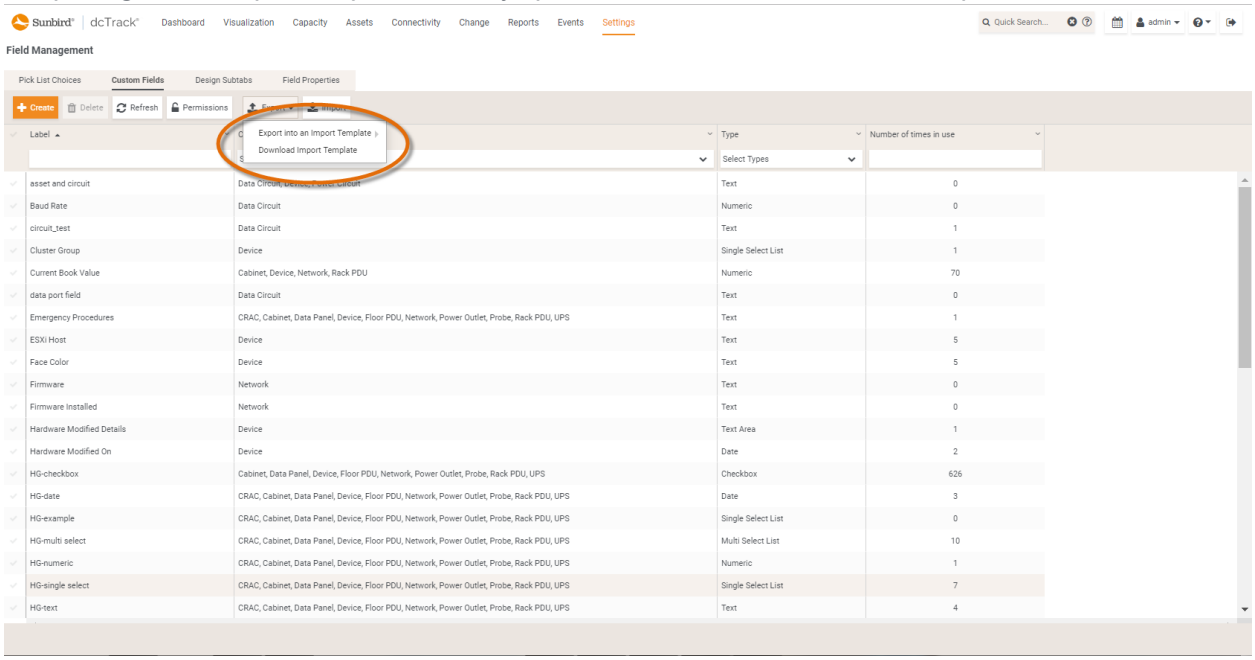
3. The Create bar will display immediately above the Pick List grid.
4. In the Create bar, provide the following information:
    a. Pick List Choice Label: The name of the pick list choice
5. Click the Add icon to add the pick list option. Click the Cancel icon to abort creation and collapse the Create bar.
6. Optional. To reorder the pick list options, select the option you want to reorder and click the Move Up or Move Down icons until the pick list option is in your desired position. By default, new pick list options are positioned at the bottom of the list.

Bulk Configuration of Custom Fields via CSV Import

Users with the System Administrator role can add, edit, delete Custom Fields, their properties, and their list contents via bulk import. All other users require both the Manage Lists and Bulk Import auxiliary roles to add, edit, delete Custom Fields list contents via bulk import.

To add, edit, or delete Custom Fields and their properties in bulk via CSV Import/Export:

1. On the Custom Fields tab, select the Export icon > Export into an Import Template OR Download Import Template option.
2. If exporting into an import template, the only option to select is Custom Fields to export all fields.



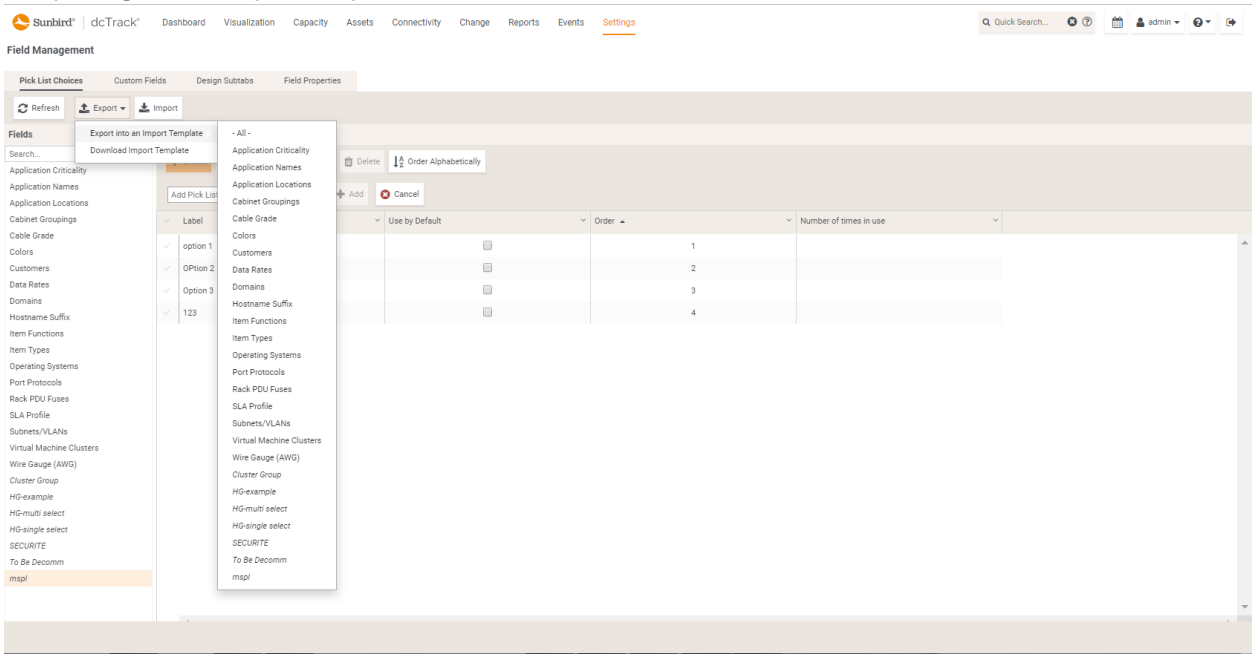
3. Save the file in your desired location with the desired file name.
4. In the resulting CSV file, make your changes following the instructions provided in the CSV file.
5. Save your changes.
6. Back in the dcTrack UI, click the Import icon to import the updated file into dcTrack.

Note: Custom Fields that are applicable to both Items and Circuits are exported as two rows in the file, one with an Object type of "Item Custom Field" and another with an Object type of "Circuit Custom Field".

To add, edit, or delete Custom Fields and their list contents in bulk via CSV Import/Export:

1. On the Pick List Choices tab, select the Export icon > Export into an Import Template OR Download Import Template option.

2. If exporting into an import template, select one or all lists.



3. Save the file in your desired location with the desired file name.
4. In the resulting CSV file, make your changes following the instructions provided in the CSV file.
5. Save your changes.
6. Back in the dcTrack UI, click the Import icon to import the updated file into dcTrack.

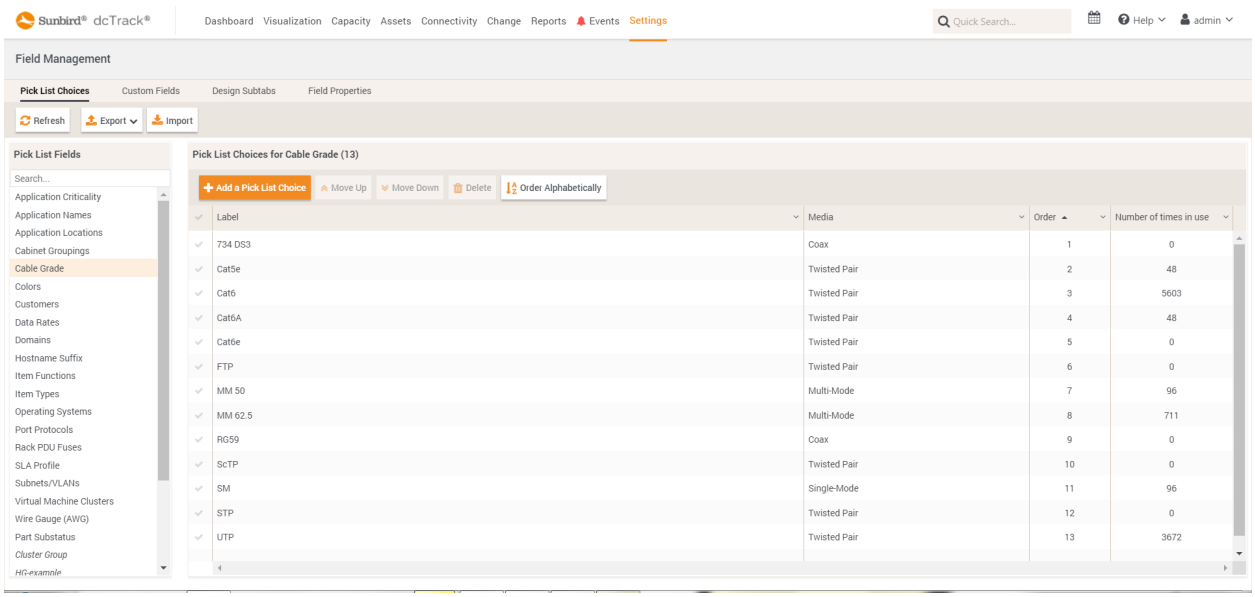
Note: To delete a Custom Field that is applicable to both Items and Circuits you must include two Delete rows in the file, one for each Object type. If only one Delete row is included, the Custom Field will only be considered no longer applicable to that Object type.

Configuring Options for Single and Multi-Select List Types

System Administrators can specify single-select and multi-select pick lists among the types for Custom Fields. Once one of these list types is selected, you can create the custom options for each list. You can also make changes to the list contents for Standard Fields.

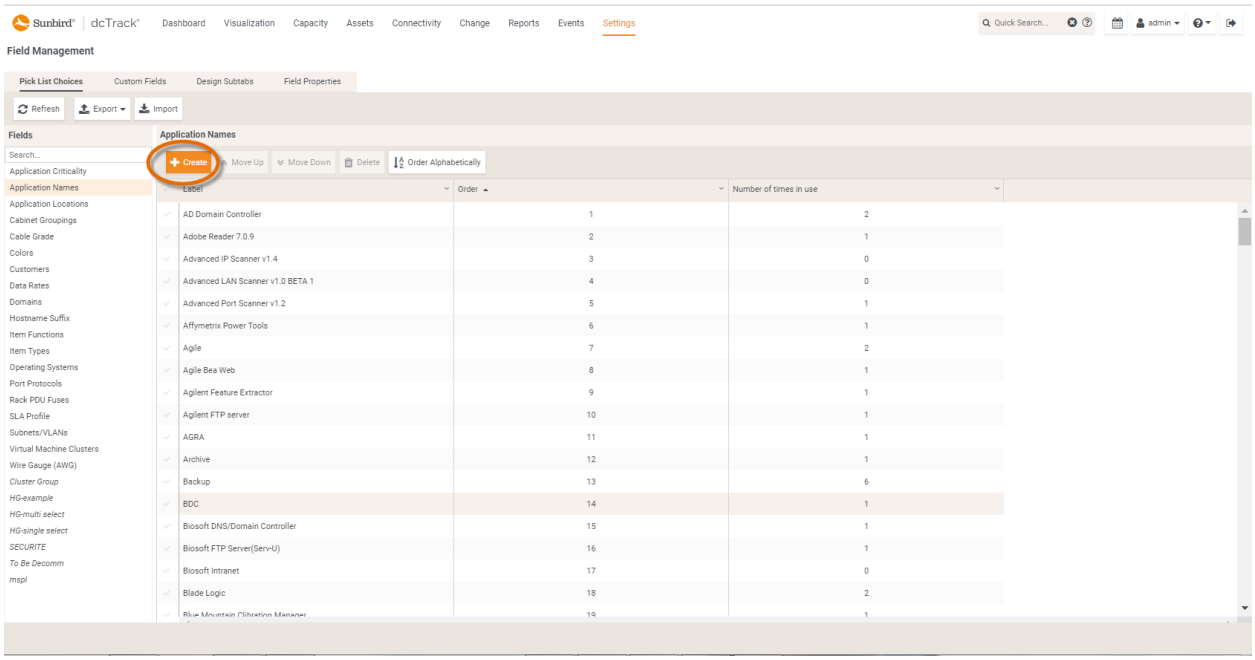
Existing pick lists are displayed in the left panel. Pick list choices are displayed in the right panel. The right panel is also where you will create, edit, and delete picklist choices.

Note: To add, edit, or delete a Custom Field pick list, you must add, edit, or delete the Custom Field with the single- or multi-select pick list in the Custom Fields tab.

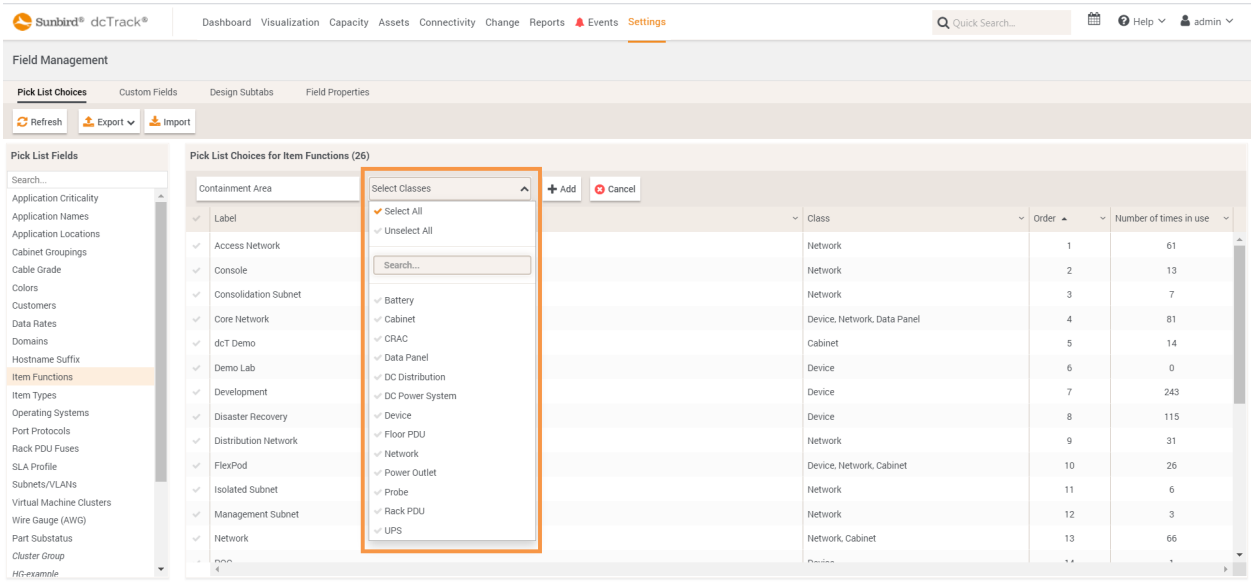


Adding Pick List Choices

1. In the Web Client, click the Settings tab > Fields Management > Pick List Choices tab.
2. In the Pick List Choices tab, click the Create button.



3. The Create bar will display immediately above the Pick List grid.



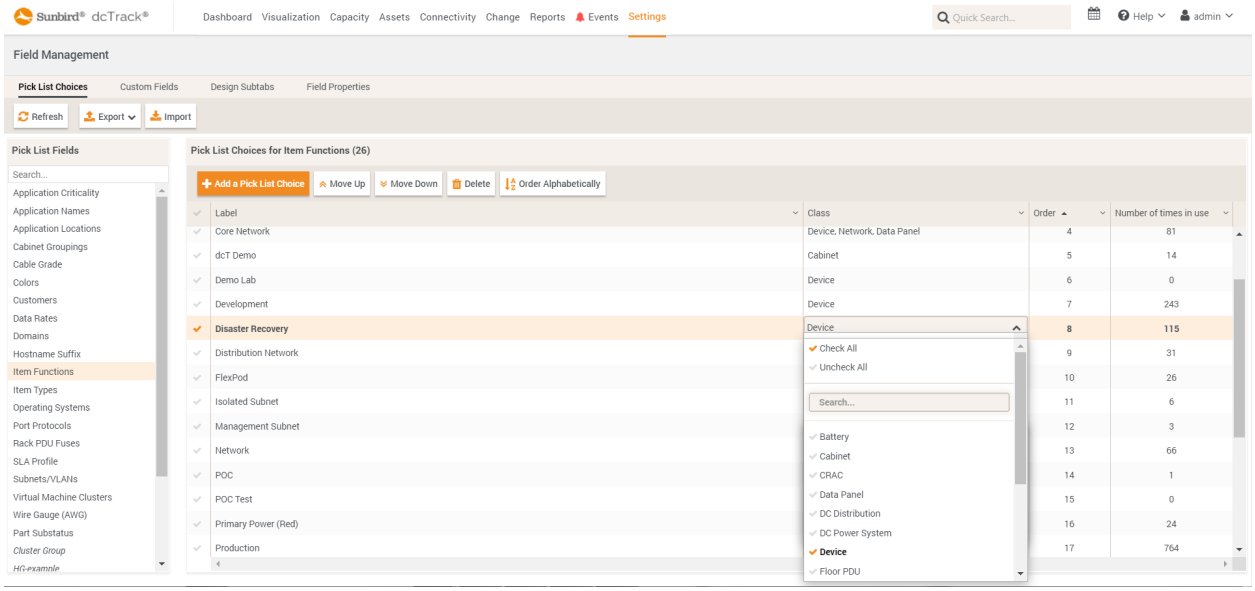
4. In the Create bar, provide the following information:
    a. Pick List Choice Label: The name of the pick list choice
    b. Class: The classes the pick list is valid for. You can select multiple classes.
5. Click the Add icon to add the pick list option. Click the Cancel icon to abort creation and collapse the Create bar.
6. Optional. To reorder the pick list options, select the option you want to reorder and click the Move Up or Move Down icons until the pick list option is in your desired position. By default, new pick list options are positioned at the bottom of the list.

Editing Pick List Choices

Inline editing is supported for the Pick List grid, so authorized users can simply select the cell they want to edit to make changes.

1. In the Web Client, click the Settings tab > Fields Management > Pick List Choices tab.

2. In the Pick List Choices tab, select the Pick List and the cell that you want to edit. The grid will allow you to make changes directly to the cell content by typing in the cell or selecting new values from the available lists.



Your changes will save automatically once you have completed your edits and exited the cell.

Deleting Pick List Choice

1. In the Web Client, click the Settings tab > Fields Management > Pick List Choices tab.
2. In the Pick List Choices tab, select the Pick List and Pick List Choice that you want to delete.
3. Click the Delete icon.

Note: If the Pick List Choice is not in use, the item will simple be deleted. However, if it is in use, dcTrack will display a dialog asking you to confirm the deletion before proceeding.

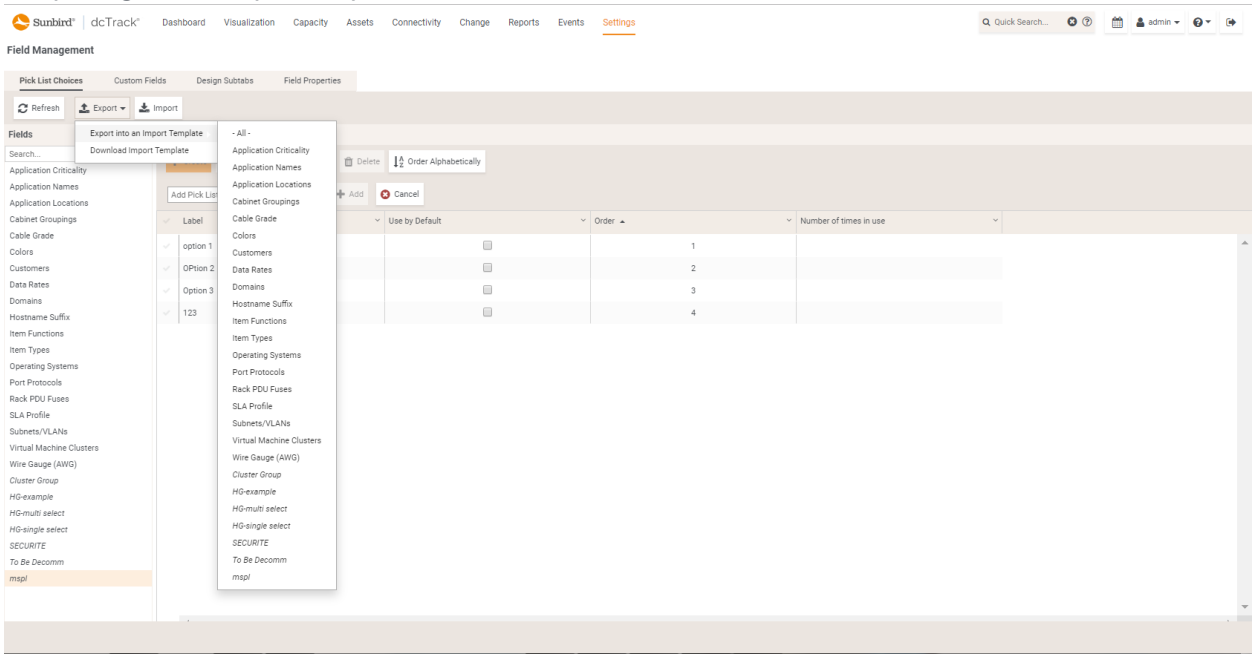
Bulk Configuration of Pick List Options via CSV Import

Users with the System Administrator role can add, edit, delete Standard and Custom Fields and their list contents via bulk import. All other users require both the Manage Lists and Bulk Import auxiliary roles to add, edit, delete Standard and Custom Fields list contents via bulk import.

To add, edit, or delete Standard and Custom Fields and their list contents in bulk via CSV Import/Export:

1. On the Pick List Choices tab, select the Export icon > Export into an Import Template OR Download Import Template option.

2. If exporting into an import template, select one or all lists.



3. Save the file in your desired location with the desired file name.
4. In the resulting CSV file, make your changes following the instructions provided in the CSV file.
5. Save your changes.
6. Back in the dcTrack UI, click the Import icon to import the updated file into dcTrack.

Custom Field Panels

System Administrators can customize Custom Field sub-tab layouts for use on Item Detail, Circuit Detail, Parts Model Detail and Part Instance pages, including adding, editing, and deleting panels and the Custom Fields assigned to each panel. This feature helps System Administrators organize data in ways that make sense for their users.

Note: The Item Custom Field Subtab feature has been enhanced increasing the limit of subtabs from 4 to 14. Users can limit the number of subtabs displayed for individual Items by grouping the custom fields displayed on a given subtab by Class.

Standard and Custom Field sub-tabs are listed in the left panel of the Design Sub-tabs panel under the Settings tab > Field Management. The left panel is also where you can add and delete Item Custom Field sub-tabs. The right panel is where you can add, edit, and delete panels and the Custom Fields assigned to each panel. Up to four Item Custom Field sub-tabs can be configured, each with unlimited panels and Custom Fields. While you can not add additional Sub-tabs for Circuit Details, you can add an unlimited number of panels to this Sub-tab.

To configure Custom Field panels for the Item Details pages:

- Create a new Custom Field sub-tab or use an existing Custom Field sub-tab
- Add panels to the sub-tab
- Add Custom Fields to each panel - Custom fields added to Item Detail panels must be applicable to at least one Item Class

To configure Custom Field panels for the Circuit Detail page:

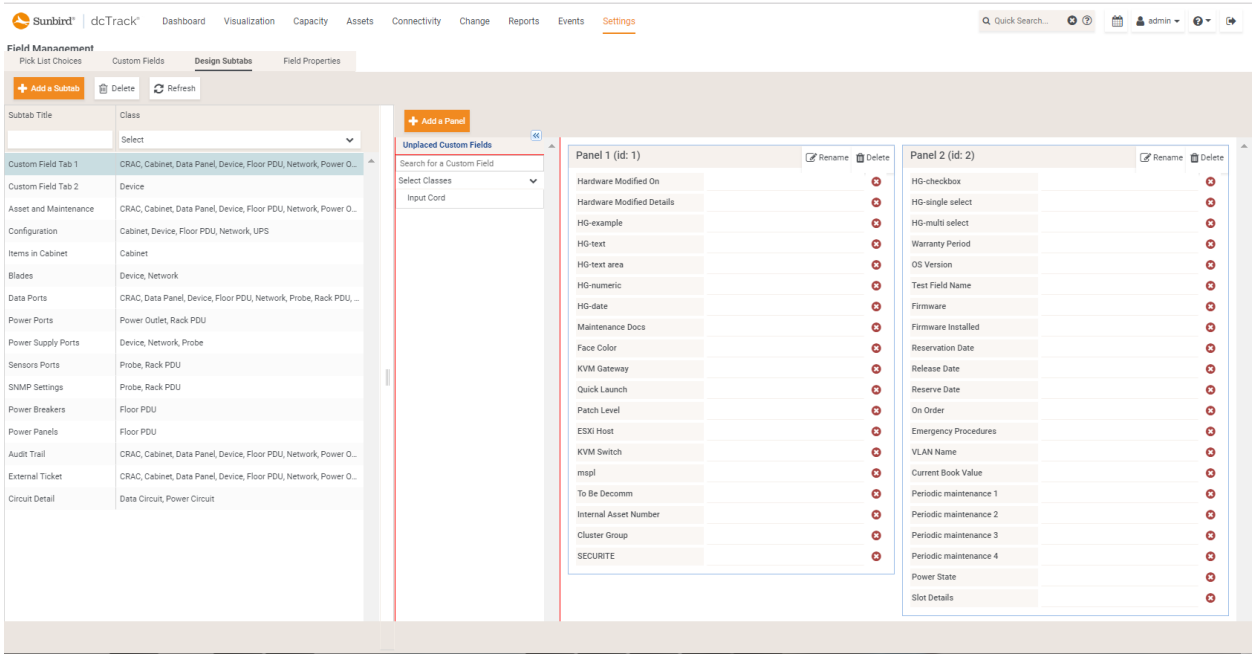
- Select the Circuit Detail Sub-tab from the left side panel
- Add panels to the sub-tab
- Add Custom Fields to each panel - Custom fields added to Circuit Detail panels must be applicable to either Power or Data Circuits

To configure Custom Field panels for the Parts Model and Parts Detail pages:

- Parts Models and Parts Instances support a single Custom Field sub-tab each
- Select the Part Custom Field or Part Model Custom Field sub-tab from the left side panel
- Add panels to the sub-tab
- Add Custom Fields to each panel - Custom fields added to the Part Detail panels must be applicable to at least one Part Class
- Part Custom Fields with the "Apply To Models" option checked can be added to either the Part Custom Field sub-tab or the Part Custom Field sub-tab.

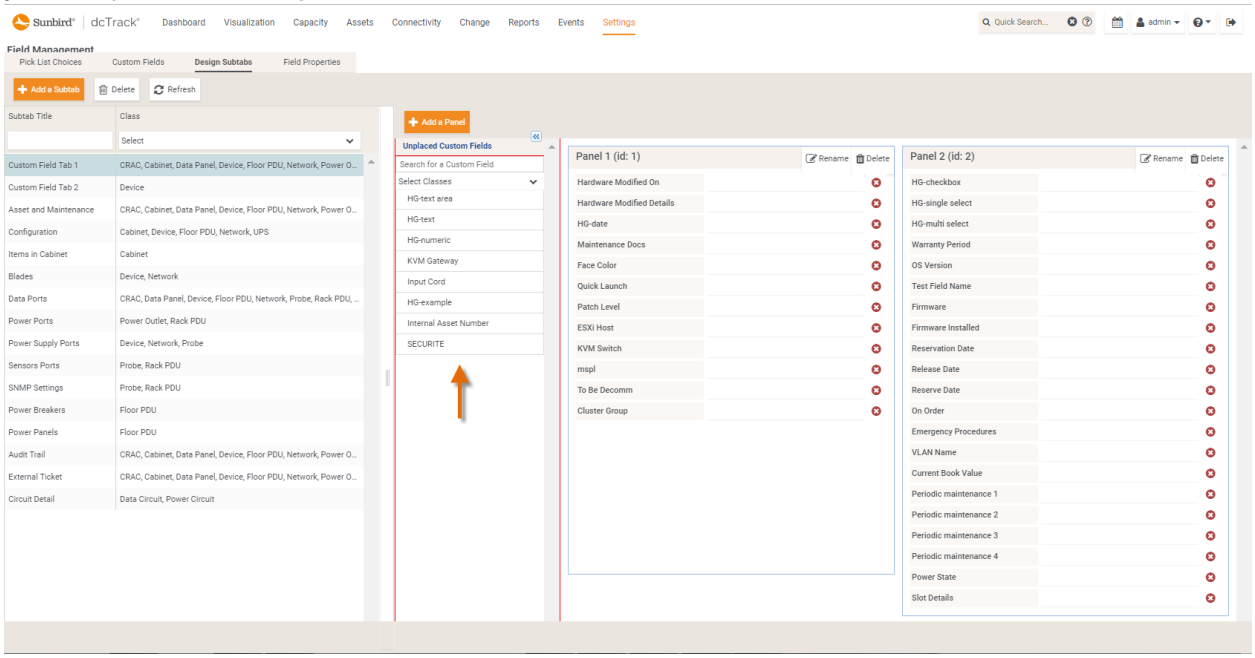
Panels are ordered from top left to bottom right by default. For example, the panel with an ID of 1 would be at the top left, the panel with an ID of 2 would be at the top right, the panel with an ID of 3 would be at the bottom left, and so on. Panels can be reordered and resized from their default positions by dragging and dropping.

Note: Standard Field sub-tabs cannot be edited or deleted and will display a "cannot be modified" message in the right panel if selected.

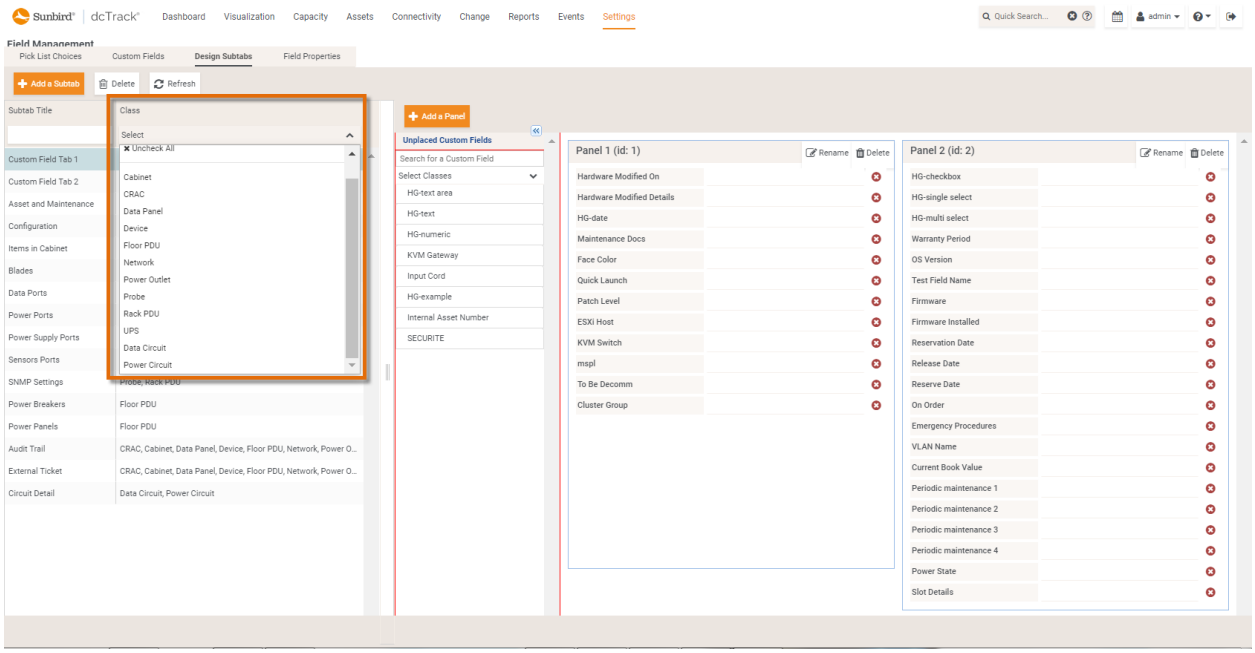


Configuring a Custom Field Sub-Tab with Panels and Custom Fields

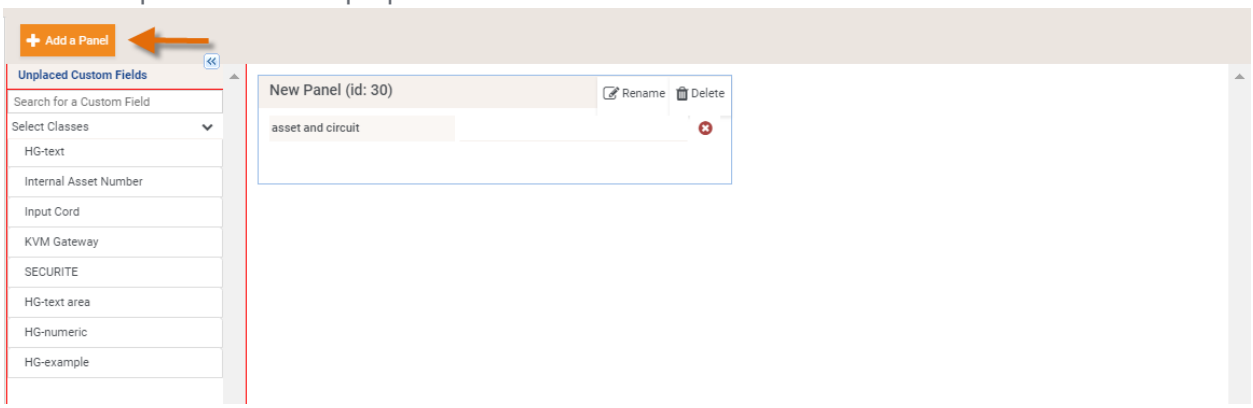
1. In the Web Client, click the Settings tab > Fields Management > Design Sub-tabs tab.
2. To create a new Item Detail sub-tab, in the Custom Fields tab, in the left panel, click the Add a Sub-tab tab. The new sub-tab will immediately be added with a Sub-tab Title of Custom Field [n], where n represents a number from 1 to 4, depending on the quantity of existing Custom Field sub-tabs at the time of creation. The new sub-tab will automatically be selected, and the right panel populated with Custom Fields that have not yet been placed on other panels.



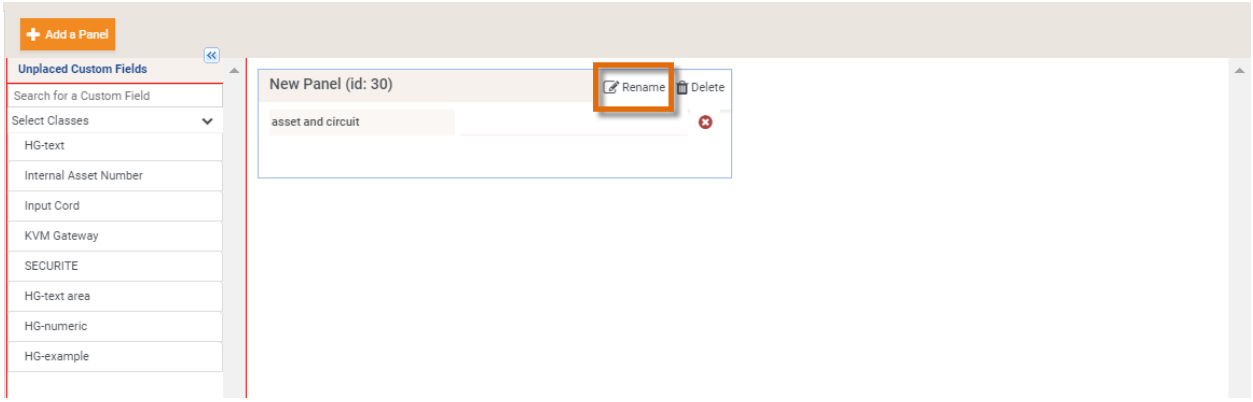
3. To configure an existing sub-tab, select the sub-tab in the left panel.
4. Click the Class dropdown for the sub-tab in the left panel to specify its classes.



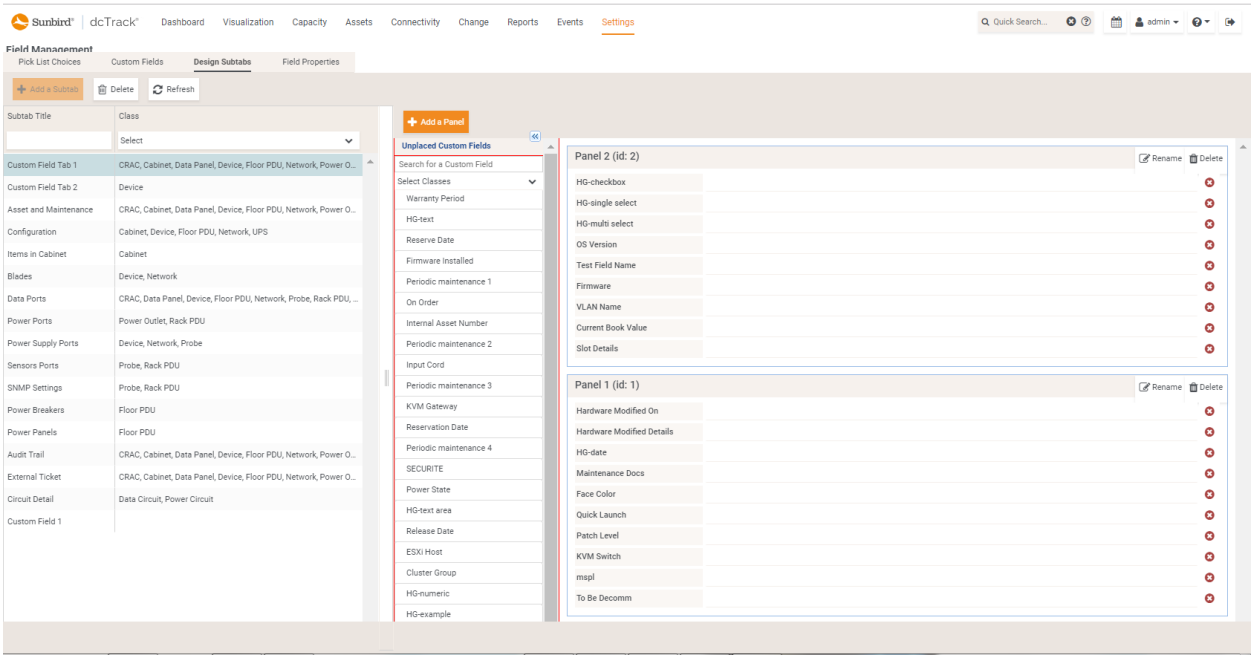
5. Configure your sub-tab with panels.
    a. In the right panel of the Design Sub-tabs tab, click the Add a Panel button. The new panel will automatically be added to the selected sub-tab with a default name of New Panel. Click the Add a Panel button multiple times for multiple panels.



    b. In the panel, click the Rename icon to rename the panel.



    c. Type the desired panel name in the field. Click the Save icon to save your changes. Click the Cancel icon to abort.
    d. Drag and drop to resize and reorder your panels.
    e. To delete a panel, click the Delete icon within the panel.
6. Configure your panels with Custom Fields.
    a. From the list of Unplaced Custom Fields in the right panel, select a Custom Field and drag it to the desired panel. Note: Custom Fields that are applicable to both Item and Circuit Classes may be placed on both an Item Detail sub-tab and the Circuit Detail sub-tab, however they may only be placed once on each.



   b. To delete a Custom Field from the panel, click the Cancel (X) icon to the right of the Custom field. This will make the deleted Custom Field available for placement on other panels.
7. To view your Item Detail Custom Field sub-tab on an Item Details page, go to the Assets tab > Items List.
   a. Select an item of the class selected for your Custom Field sub-tab.
   b. Click the Custom Field sub-tab on the Item Details page.
8. To view your Circuit Detail Custom Field sub-tab, go to the Connectivity > Circuit List
   a. Select a Circuit from the list and click the Circuit Detail button from the tool bar
   b. You can also view the Circuit Detail Custom Fields while viewing a Circuit Trace by clicking the Circuit Detail button on the Circuit Trace tool bar

Defining Required Fields for Your dcTrack

dcTrack allows you to define additional fields that are required in order for a user to save an item in the Web Client. This applies for both standard and custom fields.

The Required property can be applied to an entire Class or to only specific Subclasses within a class.

Changes to required fields affect only items that are added to dcTrack after the required field change is applied. Items that are already saved to the database are not affected.

For example, if you make the Alias field required for new device items, existing device items are not affected by the newly required field. However, if you edit an existing item and a field's required status changes, the new required fields are applied.

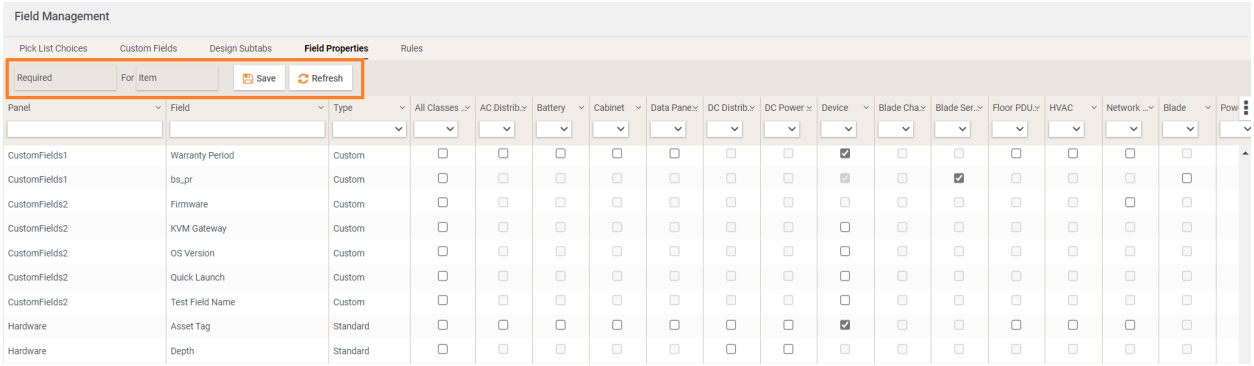
The following fields are required by default by dcTrack for all item types and cannot be changed:

- Make
- Model
- Item name

- Location

To make a standard or custom field required/not required:

1. In the Web Client, select the Settings tab > Fields Management.
2. Click the Field Properties tab.
3. In the Field Properties tab, select Required from the dropdown.
4. From the list of Standard and Custom fields, check the checkbox for each item class that you want the field to be required for. Uncheck the checkbox to make the field optional. When you set the field(standard or custom) to Required for a class it applies to all its sub classes. If a custom field applies to only subclass, you can set the field property Required for that subclass. However when the Custom Field applies to all the subclasses of a class, you can set the Field Property Required only for the class and not for the individual subclass.
5. Click the Save icon to save your changes.



Defining Hidden Fields for Your dcTrack

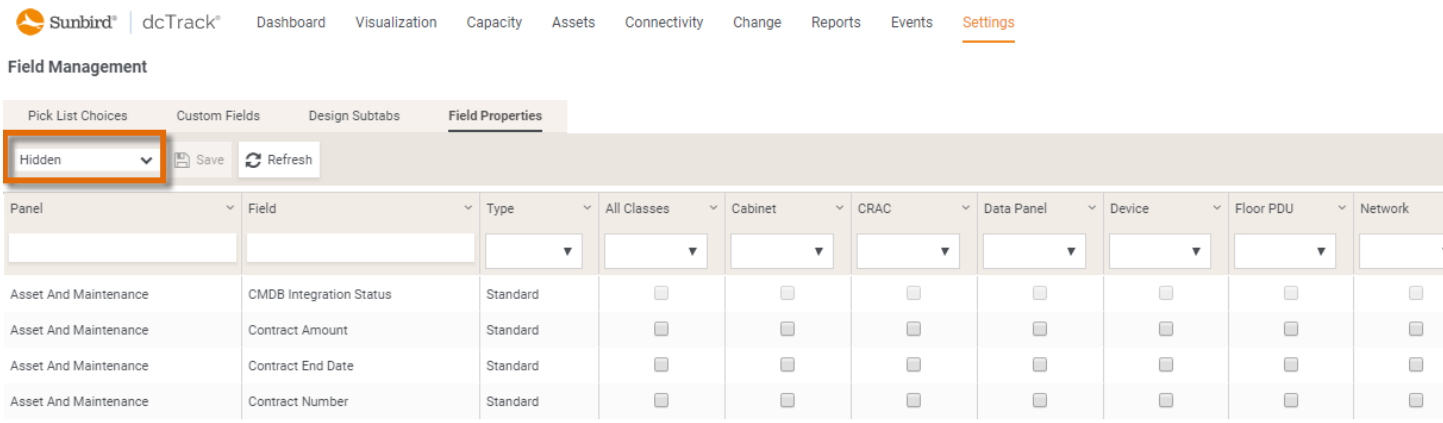
dcTrack allows you to define additional fields that are hidden in order to present a cleaner, more relevant Item Details page to users in the Web Client. The Hidden property applies only to Standard Fields.

The Hidden property can be applied to an entire Class or to only specific Subclasses within a class.

To make a standard field hidden/visible:

1. In the Web Client, select the Settings tab > Fields Management.
2. Click the Field Properties tab.
3. In the Field Properties tab, select Hidden from the dropdown.
4. From the list of Standard fields, check the checkbox for each field that you want hidden. Uncheck the checkbox to make the field visible.

5. Click the Save icon to save your changes.



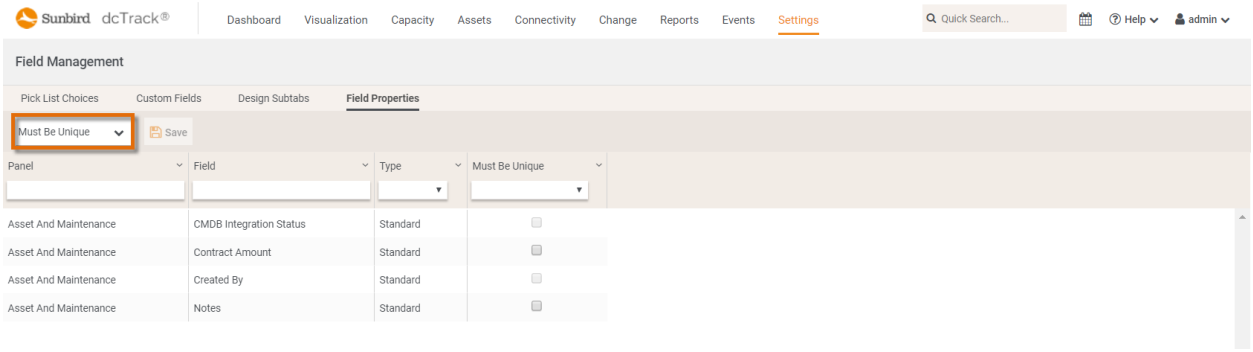
Defining Unique Field Values for Your dcTrack

dcTrack allows you to define additional fields whose values must be unique in order for a user to save an item in the Web Client. This applies for both standard and custom fields.

To make a standard or custom field unique/not unique:

1. In the Web Client, select the Settings tab > Fields Management.
2. Click the Field Properties tab.
3. In the Field Properties tab, select Must Be Unique from the dropdown.
4. From the list of Standard and Custom fields, check the checkbox for each field that you want the field value to be unique for. Uncheck the checkbox to define the field value as not unique.
5. Click the Save icon to save your changes.

Note: Some Standard Fields are unable to be specified as Must Be Unique. In these cases, the checkbox in the Must Be Unique column will be inaccessible.



Defining Default Field Values for Your dcTrack

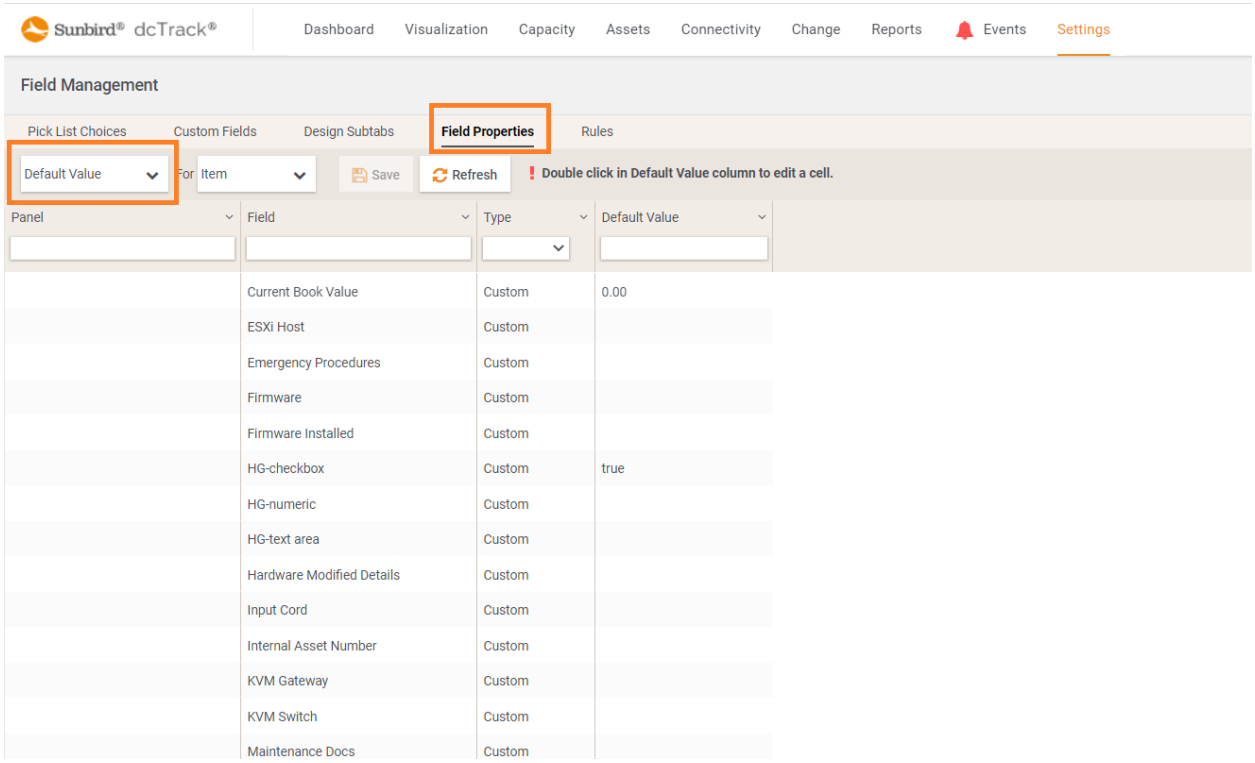
dcTrack allows you to define additional fields with default values to make it faster and easier to capture asset data. This applies for both Standard and Custom Fields.

To define a default value for a Standard or Custom Field:

1. In the Web Client, select the Settings tab > Fields Management.
2. Click the Field Properties tab.
3. In the Field Properties tab, select Default Value from the dropdown.
4. From the list of Standard and Custom fields, double-click in each cell in the Default Value column that you want to have a default value. Otherwise, leave the cell blank.
5. Click the Save icon to save your changes.

Note: Some Standard Fields do not support Default Values. In these cases, the cells in the Default Value column will not be accessible.

*Note: Default values for **Standard Fields** will only be set when creating Items via the UI. Default values will not be set for Standard Fields when creating via File Import or API. Default values for **Custom Fields** can be set from the UI as well as File Import and API as long as the field is not included on the Import Sheet for Import or the Request payload for APIs.*

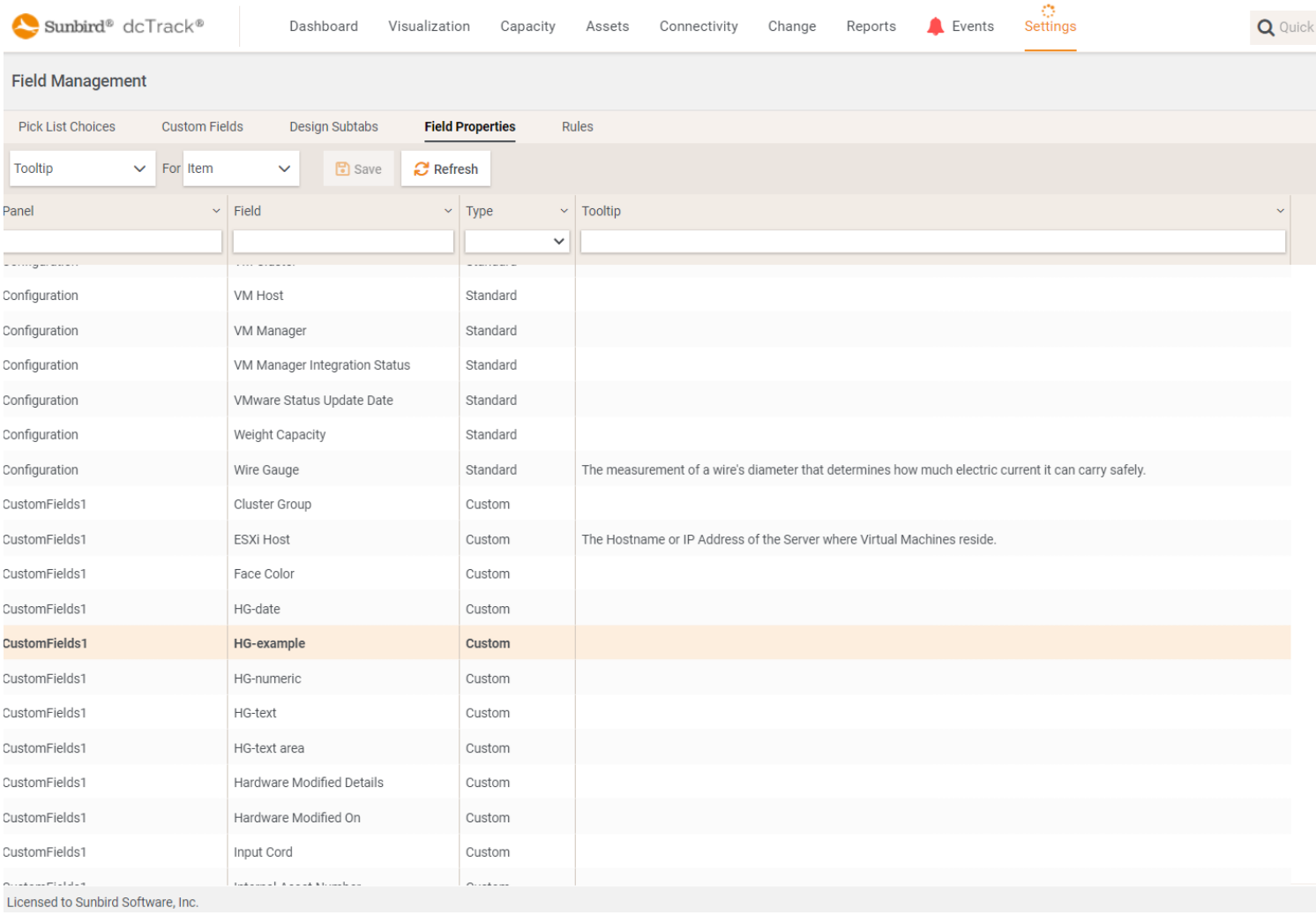


Defining Tooltips for Standard and Custom Fields

dcTrack allows you to define Tooltips. A Tooltip is text that provides additional information you want to supply for a field. This property applies for both Standard and Custom Fields. Once defined, Tooltips are displayed whenever a user hovers over the field.

Steps to create Tooltips for a field:

1. Navigate to Settings > dcTrack Settings > Fields Management.
2. Click the Field Properties tab.
3. In the Field Properties tab, select Tooltip from the dropdown.
4. From the list of Standard and Custom fields, double-click in the Tooltip column for whose custom field you want to set.
5. Click the Save button to save your changes.



Standard Field Descriptions

The following table includes standard fields and their descriptions for dcTrack.

List type	Description
Application Criticality	
Application Names	
Application Loca-	

List type	Description
tions	
Cabinet Groupings	For making logical groups of cabinets. Used in the IT Items\Cabinets, Visualize\Elevations and IP Subnets pages.
Cable Grade	For identifying grading of cables. Used in the Media field for Data Panel ports.
Colors	For color coding of ports and IP Subnets. Used in all Item pages for color coding ports. Also used in IP Subnets page for color coding subnets.
Customers	
Data Rates	The values available in the Data Rates drop-down when configuring Data Ports.
Domains	Used in the IT Items\Device page to identify the Domain of a server or when assigning IP addresses.
Hostname Suffix List	Suffix added to the Name of a server to create the DNS name for that server. Used in the IP Subnets page.
Item Function	Used to identify the function of an Item. Used in all Item pages.
Item Substatus	Single-select pick-list field used to provide additional information on an item's status.
Item Type	Used to identify the Type of an Item. Used in all Item pages.
Operating Systems	Used to identify the OS of a server in the IT Items\Device page in the Configuration sub-tab of all Item Details pages.
Port Protocols	Used to identify a Data Port's Protocol and Data Rate. Used in the Data Ports section of all Item pages.
Rack PDU Fuses	Used to identify the Fuse or Circuit Breaker within a Rack PDU, in the Power Item\Rack PDU page, and in the Models Library to select and make assignments.
SLA Profile	For identifying the Service Level Profile of a particular item in the Item Details Asset and Maintenance sub-tab.
Subnets/VLANs	Used to identify logical names of subnets and to build the full name of a subnet. Used in the IP Subnets page, for tagging all Data Ports, and when making IP address assignments.

List type	Description
Virtual Machine Clusters	For identifying the Cluster that a VM or a VM host belongs to. Used in the Item Details Configuration sub-tab of all IT Items\Device pages.
Wire Gauge (AWG)	Used to tag Power Outlet ports with the electrical cable gauge.
Part Status	Pick List Choices for Part Status
Parts Action	Pick List Choices for Parts Action
Location Type	Pick List Choices for Location Type
Project Status	Pick List Choices for Project Status
Project Substatus	Pick List Choices for Project Substatus
Relationships	Pick List Choices for Relationships
Ticket Other Purpose	Pick List Choices for Ticket Other Purpose
Ticket Priority	Pick List Choices for Ticket Priority
Ticket Severity	Pick List Choices for Ticket Severity
Ticket Status	Pick List Choices for Ticket Status
Ticket Assigned To	Pick List Choices for Ticket Assigned To
Fields prefixed with CF	Picklist choices for custom fields
Custom Field Headings	Used for creating custom fields for use with all items or applied to specific item classes.

Custom Field Attributes

The following table includes Custom Field attributes and their descriptions for dcTrack.

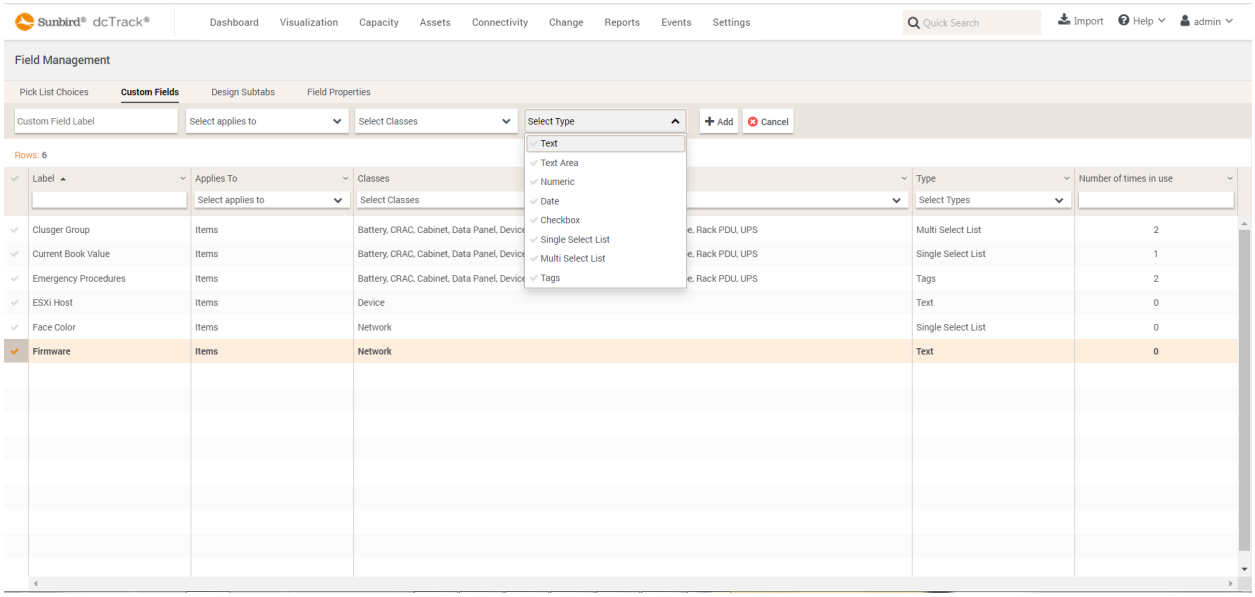
Field	Description
Number of times in use	The number of times the field is in use.
Label	Select from a list of available classes, including an option to apply to all classes.
Class(Subclass)	Select any combination of available item classes and subclasses, circuits, projects, parts and tickets.
Type	Select from one of the available types for custom fields. See **Custom Field Types**.
Subtab	Subtab where the custom field is placed.
Panel	Panel where the field is displayed in the Custom Fields sub-tab of the Items Detail page.
Order	The order in which the field is displayed in the Panel. By default, new custom fields are placed last.
Must be unique	Select if the field should be marked as unique.
Required	Indicates if the field is required.
Default value	Default value for the field.
Tooltip	Text that will appear when hovering over a Standard or Custom field

Custom Field Types

In dcTrack 6.0.0 and above, System Administrators can specify data types for Custom Fields for better data integrity and quality control.

dcTrack version 8.0.0 also introduced support for "Tags" data types. The “Tags” data type is similar to the existing MultiSelect data type in that users can define pick list options for Tags. Tags also allow the user to select multiple options from the list when supplying data in a Tag field. The difference is, Tags also allow the user to add options on the fly while inputting data in the field. Options that are added during input become part of the list and will be available for future selection. This is true when managing data for these fields either from the Web UI, File Import or REST APIs.

When adding a custom field on the Custom Fields sub tab of the Settings > Fields Management page, you can select the Type from the dropdown list:



The following types are available for custom fields:

- Text
- Text Area (for larger display area of text)
- Numeric
- Date (mm/dd/yyyy format)
- Checkbox for boolean
- Single-select pick list
- Multi-select pick list
- Tags
- Contacts

Note: Upon upgrade to dcTrack 6.0.0, Custom Fields of the type "Text" will be migrated and included in the Custom Fields sub-tab in Item Details pages.

Note: Starting with dcTrack 6.0.0, a custom field can be associated with multiple classes. On upgrade, multiple instances of a custom field that were associated with different classes will be consolidated into a single custom field associated with multiple classes. For example, the custom field "Services" for Device class and the custom field "Services" for Network class will be consolidated in a single instance of "Services" that will be associated with the Device and Network classes.

Chapter 4:Network and Power Cabling Connectivity Management

This section covers the network and power connectivity management features available in dcTrack.

Structured Cabling

In the data center, structured cables are the highways, and the connections are the on/off ramps.

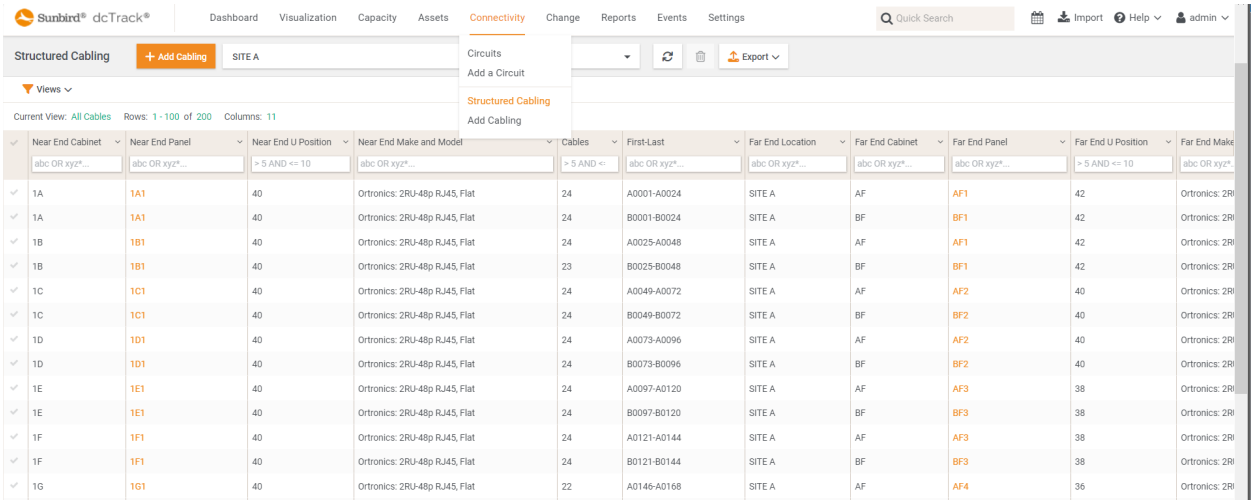
dcTrack allows you to go from Point A to Point B with ease by managing your structured cabling in bulk.

To view the list of Structured Cabling :

1. Navigate to Connectivity -> Structured Cabling.
2. Select the Location of your data center from the location selector. By default the default Location set in the user preference setting will be selected.

This list contains all the record of Structured Cabling created in dcTrack. Each Data Panel pair is listed twice in the list, once for each direction. This list also contains the records for Structured Cabling created between Data Panel and Network Items.

You can Show or Hide using the Show/Hide icon in the upper right corner of the grid. Fields in the grid can be repositioned by dragging and dropping the column to the desired position. Each field is filterable and sortable from the column header.



Please refer to the topics below for complete details about this feature and the steps involved in managing your Structured Cabling.

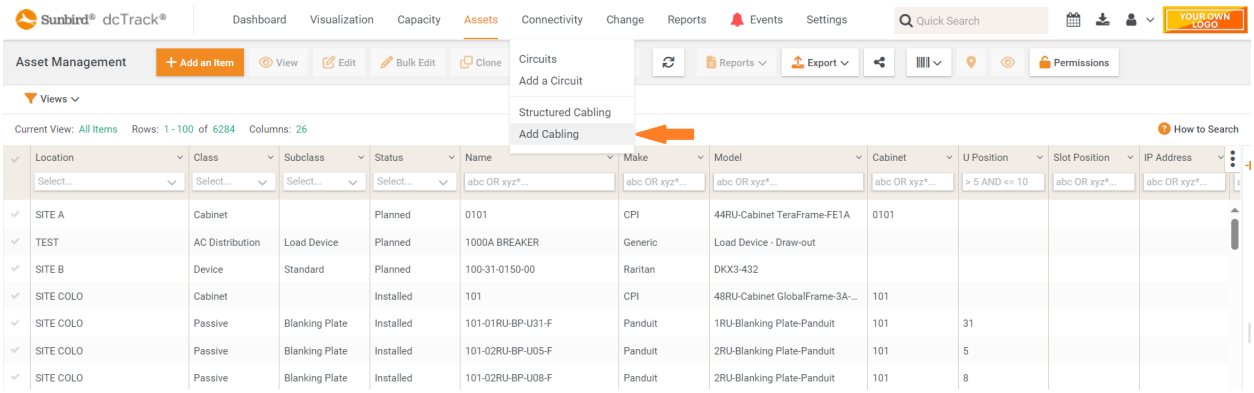
- Create Structured Cabling and Data Panel Ports
- Create Structured Cabling between Data Panel and Network
- Create Structured Cabling with Existing Ports
- Create Structured Cabling between MPO Data Panels
- Delete Structured Cabling
- Create and Manage Port Label Template

- Bulk Edit Data Panel Ports
- Use File Import to Add, Edit and Delete Structured Cabling

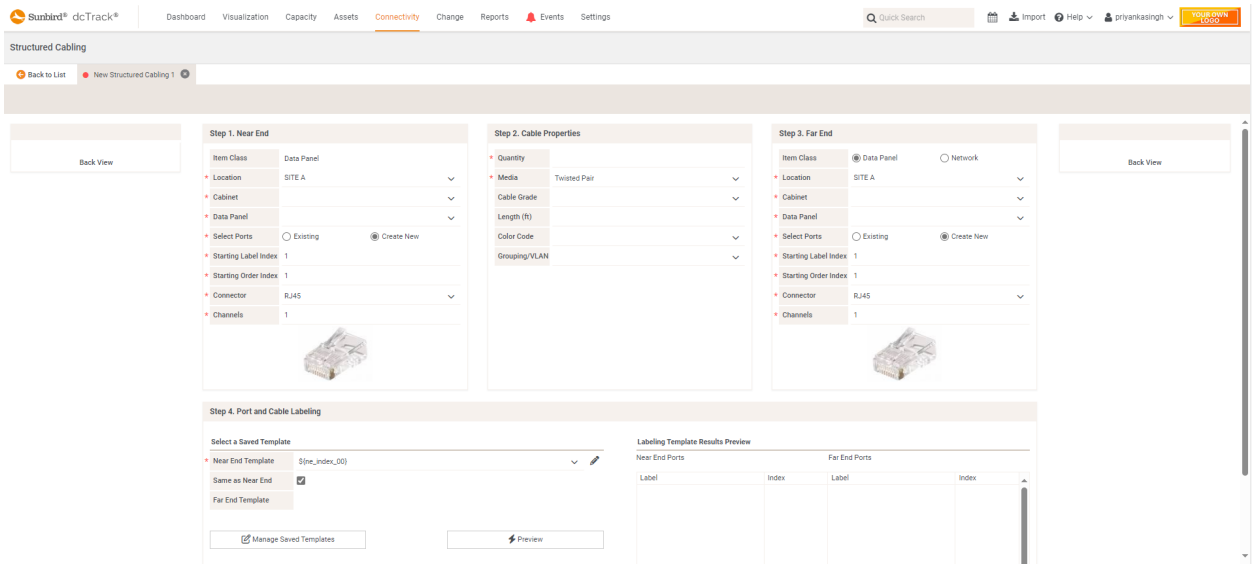
Create Structured Cabling and Data Panel Ports

To Create Structured Cabling in Web Client :

1. In Connectivity Tab, click Add Cabling .



2. A New Structured Cabling Tab will open.



3. Provide the following information for Step 1. Near End

a. Item Class : Rad Only field.
b. Location : Select the location of the data panel. Required. Default selection is the default location set as per user preference.
c. Cabinet : Select the cabinet. The cabinet elevation view appears to the left when the cabinet is selected. Required.
d. Data Panel : Select the data panel item. Required.
e. Select Ports : Select Existing or Create New. If the Data Panel items already have ports, you can select existing to create structured cabling for existing ports, otherwise select Create New which will create data panel ports and the structured cabling.
f. Starting Label Index : Enter the value for Starting index. The default value is the next available data panel port index which is 1 greater than highest existing index. Required. This value is used to generated the port label when the template selected uses ${ne_index} or {fe_index}.
g. Starting Order Index : Enter the value for Starting Order index. The default value is the next available data panel port index which is 1 greater than highest existing index. Required. This value is starting index for the new ports that get created.
h. Connector : Select the connector from the drop down. Required. Default selection is RJ45.
i. Channels : This field is auto-populated based on the channel value for Connector but the field remain editable allowing you to change the value.

4. Provide the following information for Step 2. Cable Properties

a. Quantity : Enter the number of data panel ports/cables you want to create. Required.
b. Media : Select the media type of the cables. The default value is Twisted Pair. Required.
c. Cable Grade : Select the Cable Grade. Optional.
d. Length (ft) : Enter the length of the cable in feet. Optional.
e. Color Code : Select the color code of the cable. Optional.
f. Grouping / VLAN. Select the grouping / vlan of the cable. Optional.

5. Provide the following information for Step 3. Far End

a. Item Class : Select the item class for the far end item. If you are creating structured cabling between two data panels, select the class Data Panel. If you are creating Port Mirror set up, select Network. See here for more info on Port Mirroring. For details on creating structured cabling between data panel and network item using Web Client. See here Create Structured Cabling between Data Panel and Network for more details.
b. Location : Select the location of the data panel. Required.
c. Cabinet : Select the cabinet. The cabinet elevation view appears to right when the cabinet is selected. Required.
d. Data Panel : Select the data panel item. Required.
e. Select Ports : Select Existing or Create New. If the Data Panel items already have ports, you can select existing to create structured cabling for existing ports, otherwise select Create New which will create data panel ports and the structured cabling.
f. Starting Label Index : Enter the value for Starting index. The default value is the next available data panel port index which is 1 greater than highest existing index. Required. This value is used to generated the port label when the template selected uses ${ne_index} or {fe_index}.
g. Starting Order Index : Enter the value for Starting Order index. The default value is the next available data panel port index which is 1 greater than highest existing index. Required. This value is starting index for the new ports that get created.
h. Connector : Select the connector from the drop down. Required. Default selection is RJ45. Near End and Far End Connectors must be same or compatible to each other, otherwise structured cabling

cannot be created. See here Adding Editing and Deleting Connectors Compatibility.htm for more details.

i. Channels : This field is auto-populated based on the channel value for Connector but the field remain editable allowing you to change the value.

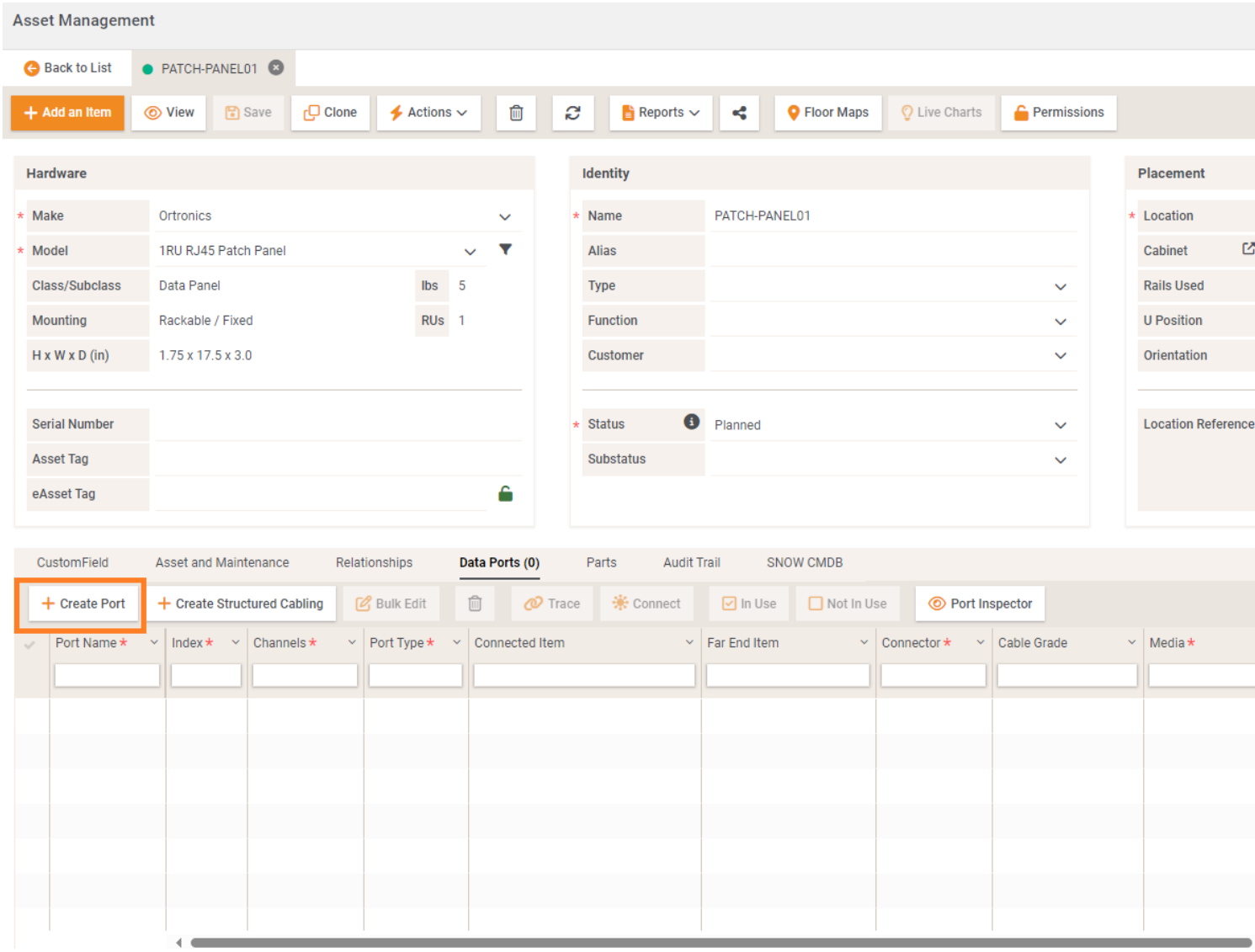
6. Provide the following information for Step 4. Port and Cable Labeling
   a. Near End Template : Select the template for port label. Required. See here Create and Manage Port Label Template for more details.
   b. Same as Near End : When checked, the far end item ports will be created using the same template as near end template.
   c. Far End Template : Select the template for Far End item. This field is required when the check box Same as Near End is unchecked.

   When structured cabling is created with existing ports, Cable Labeling section is hidden because the port labels have already been created.
7. Click Preview to button to preview the port labels for near end and far end data panels.
8. Click Step 5. Create Cabling.

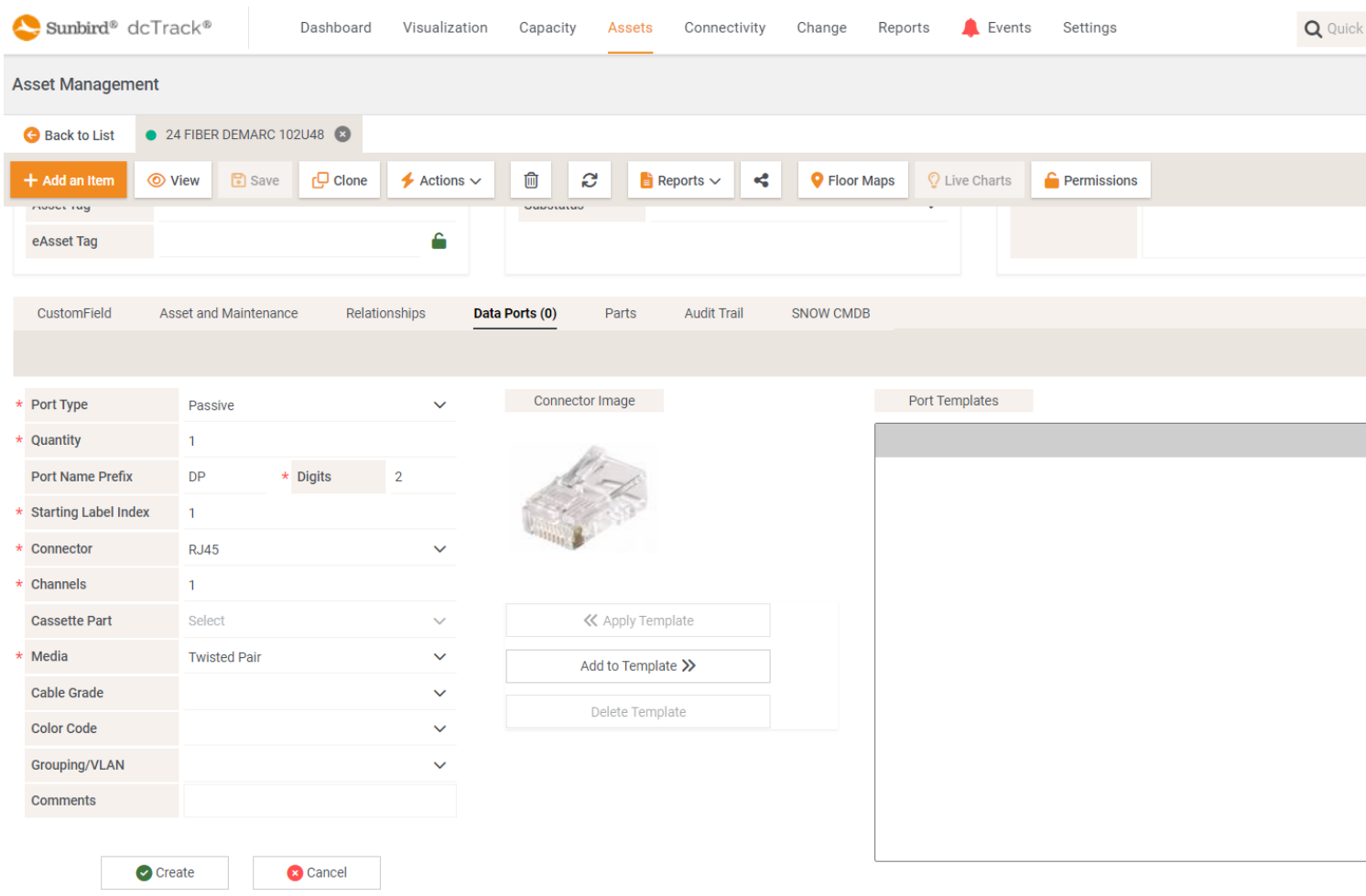
To verify the data panel ports, open the item details page of the near end and far end data panel and visit Data Port Sub tab.

Creating Ports

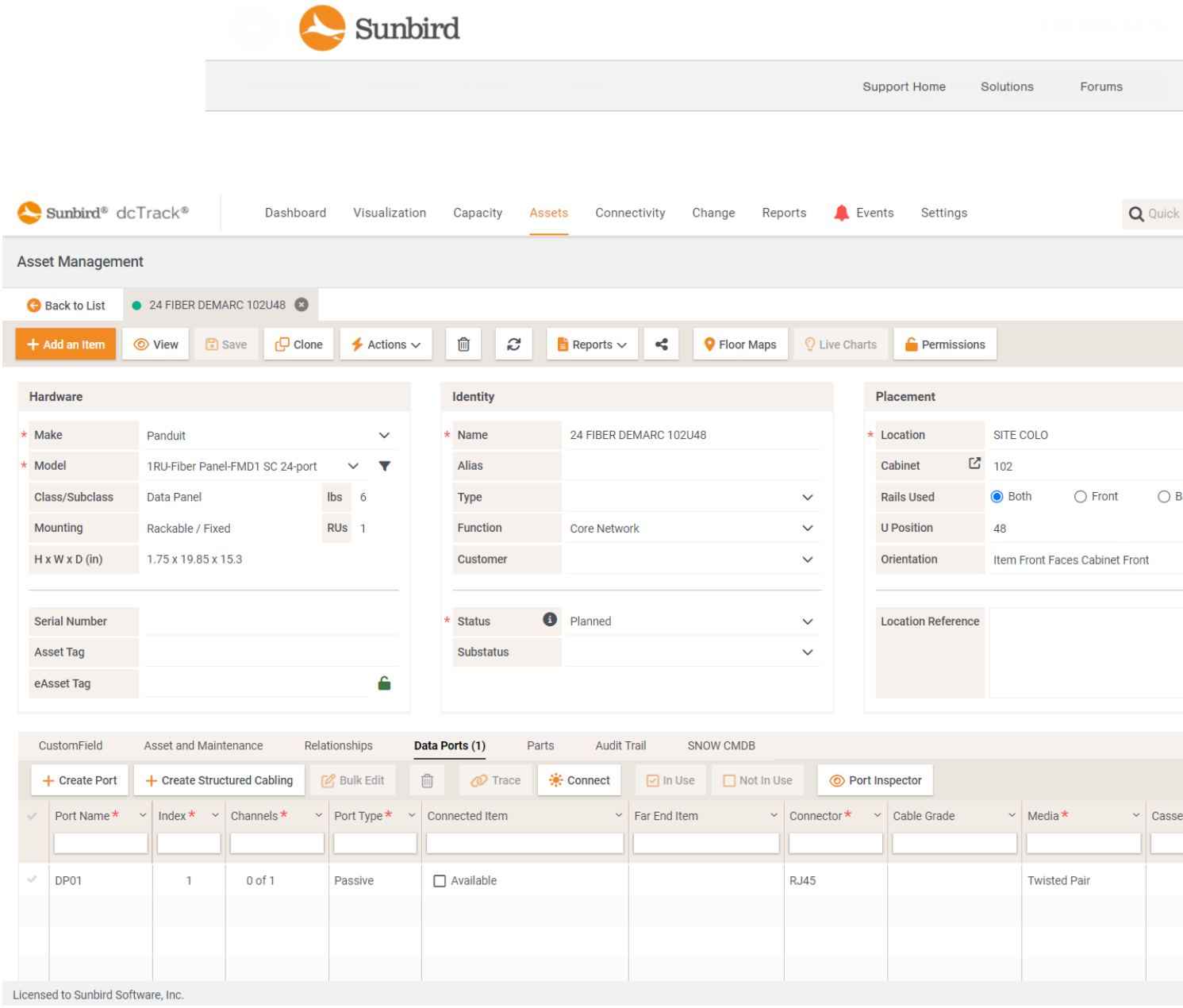
The Data Ports sub tab of data panel item details page provides the options to Create Ports without structured cabling.



If you want to create ports without structured cabling, click the Create Port button. This will open the create port dialog.



Complete the required fields and click the Create Button. This will create the port with the Far End Item field left blank.

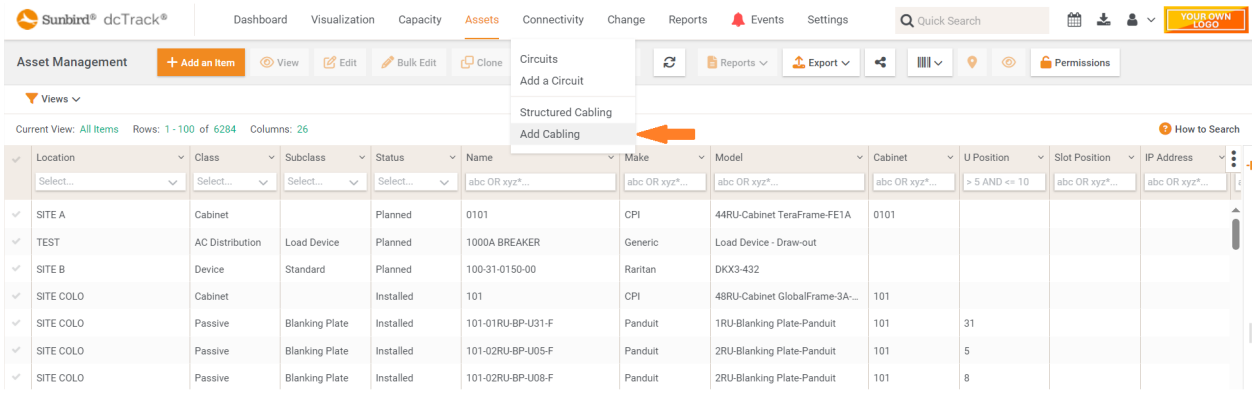


Create Structured Cabling between Data Panel and Network (Port Mirroring)

dcTrack allows you to create Structured Cabling between Data Panel and Network items which is called Port Mirroring. See Port Mirroring for more details.

To Create Structured Cabling between Data Panel and Network in Web Client :

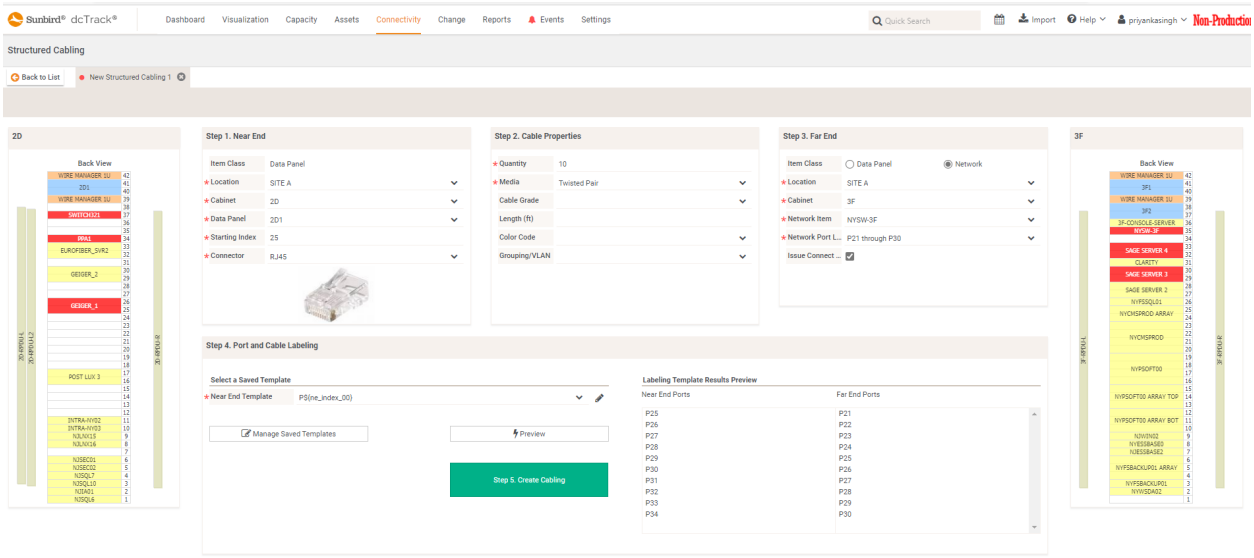
1. In Connectivity Tab, click Add Cabling .



2. A New Structured Cabling Tab will open.
3. Provide the following information for Step 1. Near End
    a. Item Class : Rad Only field.
    b. Location : Select the location of the data panel. Required. Default selection is the default location set as per user preference.
    c. Cabinet : Select the cabinet. The cabinet elevation view appears to the left when the cabinet is selected. Required.
    d. Data Panel : Select the data panel item. Required.
    e. Select Ports : Select Existing or Create New. If the Data Panel items already have ports, you can select existing to create structured cabling for existing ports, otherwise select Create New which will create data panel ports and the structured cabling.
    f. Starting Label Index : Enter the value for Starting index. The default value is the next available data panel port index which is 1 greater than highest existing index. Required. This value is used to generated the port label when the template selected uses ${ne_index} or {fe_index}.
    g. Starting Order Index : Enter the value for Starting Order index. The default value is the next available data panel port index which is 1 greater than highest existing index. Required. This value is starting index for the new ports that get created.
    h. Connector : Select the connector from the drop down. Required. Default selection is RJ45.
    i. Channels : This field is auto-populated based on the channel value for Connector but the field remain editable allowing you to change the value.
4. Provide the following information for Step 2. Cable Properties
    a. Quantity : Enter the number of data panel ports/cables you want to create. Required.
    b. Media : Select the media type of the cables. The default value is Twisted Pair. Required.
    c. Cable Grade : Select the Cable Grade. Optional.
    d. Length (ft) : Enter the length of the cable in feet. Optional.
    e. Color Code : Select the color code of the cable. Optional.
    f. Grouping / VLAN. Select the grouping / vlan of the cable. Optional.
5. Provide the following information for Step 3. Far End
    a. Item Class : Select the item class for the far end item. If you are creating Port Mirror set up, select Network.
    b. Location : Select the location of the Network item. Required.

c. Cabinet : Select the cabinet. The cabinet elevation view appears to right when the cabinet is selected. Required.
d. Network Item: Select the Network item. The list only include the Network items that have free ports equal to Quantity entered in Step 2. Required.
e. Ports : Select the Network Port list from the drop down. Port Range included in the list start from the first available port with same Media type selected for the Data Panel item. Required.
f. Issue Connect : Select the check box if you want to issue connect request to the Port Mirror circuits that will be created when you create Structured Cabling. If unchecked, the Port Mirror circuits will be created in Planned status.

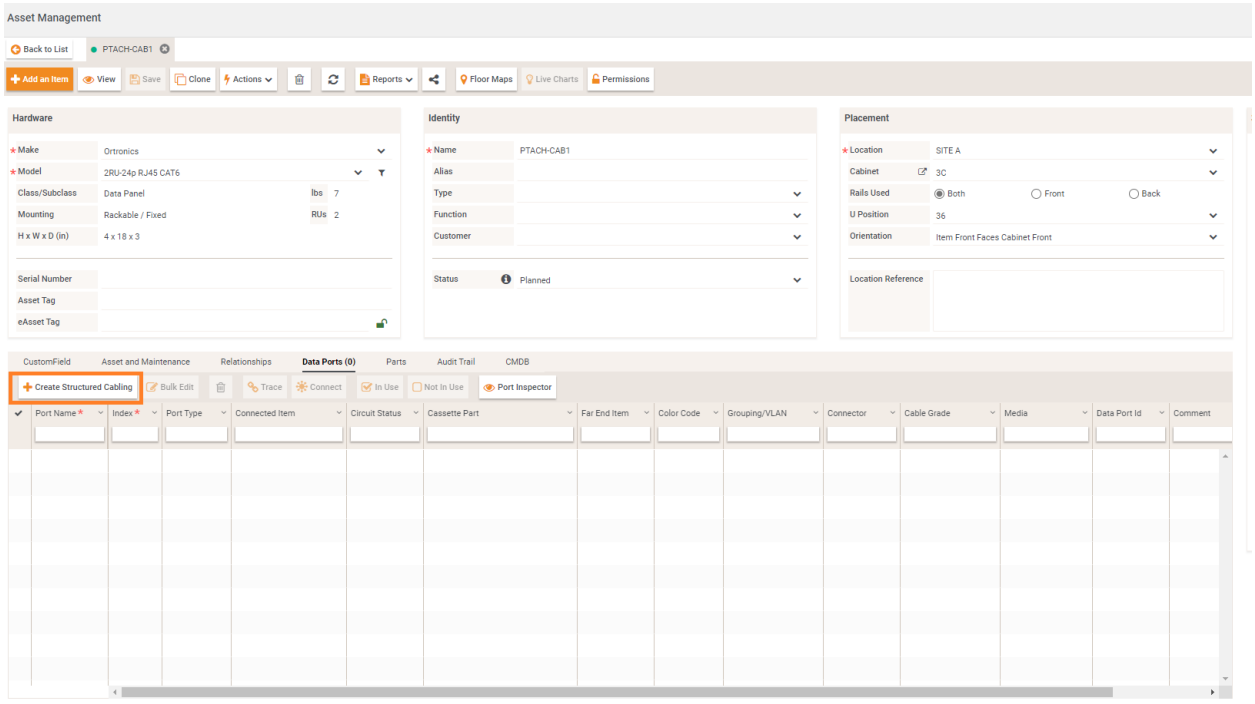
6. Provide the following information for Step 4. Port and Cable Labeling
   a. Near End Template : Select the template for port label. Required. See here Create and Manage Port Label Template for more details.
7. Click Preview to button to preview the port labels.
8. Click Step 5. Create Cabling.



To verify the data panel ports, open the item details page of the Data Panel item and Network item and visit Data Port Sub tab.

Since the Structured Cabling between Data Panel and Network creates Port Mirror circuit, it will be listed as a separate record in the Circuit List.

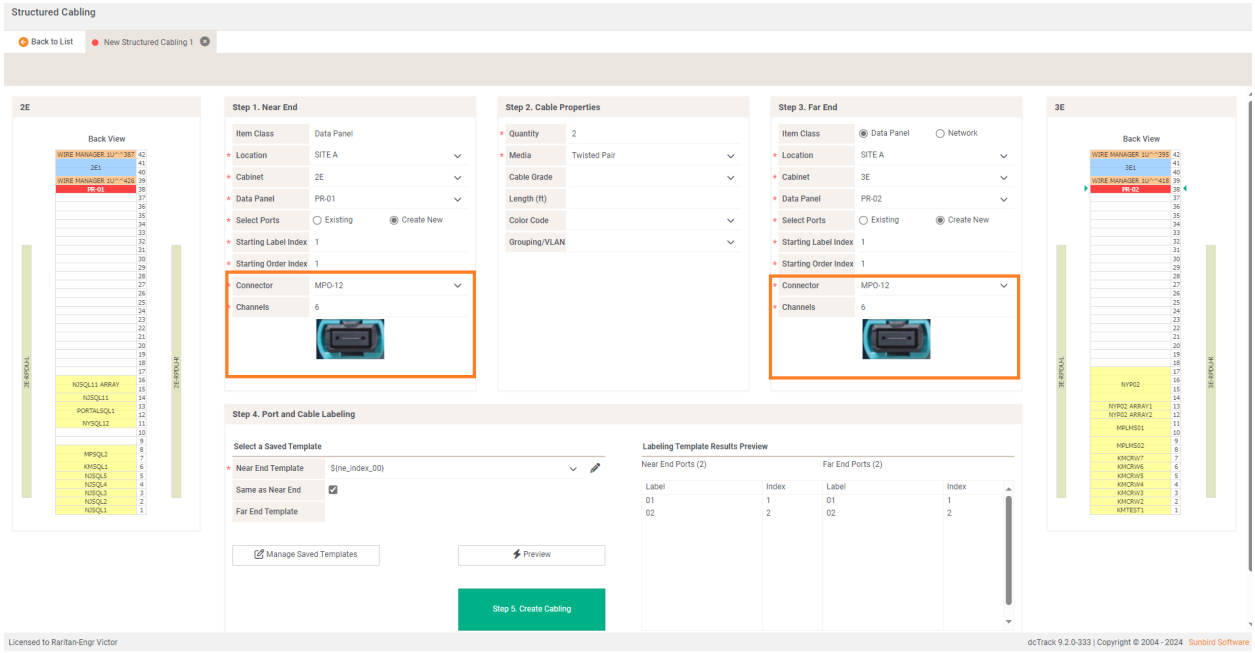
Data Ports sub tab of data panel item details page also have the option to Create Structured Cabling. When clicked, it will navigate to New Structured Cabling tab. Follow the same steps as above to create structured cabling.



Create Structured Cabling between MPO Data Panels

Structured Cabling can be created between Data Panels where both the ends have MPO Ports and have equal number of channels.

To create the structured cabling follow the steps mentioned here Create Structured Cabling and make sure to select the MPO connector.



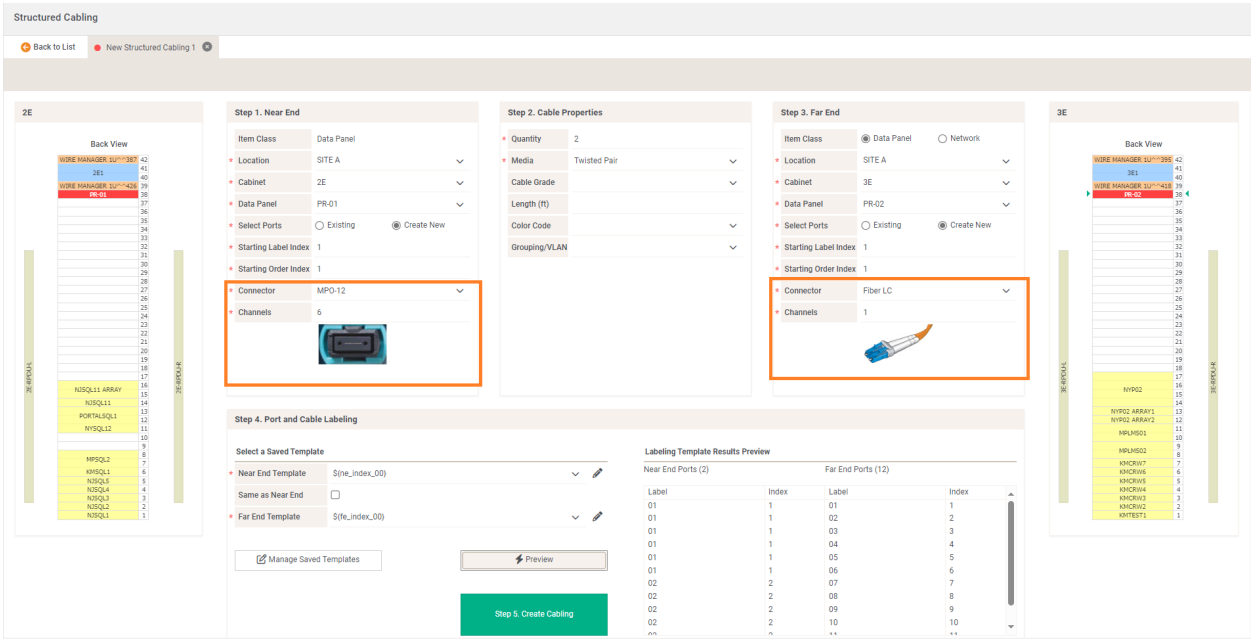
The number of ports created for the data panels will be same as the Quantity entered.

Additionally, structured cabling can also be created between a multichannel MPO port and a non-mpo port having 1 channel.

Repeat the same steps as mentioned above to create Structured Cabling but select the appropriate connectors for the ends.

When both the ends do not have same number of channels, the number of ports created for both the ends will be different. For example when Near End Connector has 6 channels and Far end has 1 channel and Quantity is 2 then number of Ports created for the Near End which is an MPO port will be equal to Quantity and number of Ports created for Far end will be Number of channels for MPO Port * Quantity. In this example 12 Far end data panel ports will get created.

Since the quantity of Ports created at both ends are different, the same port template cannot be used for both the ends as it will result in duplicate Port labels.

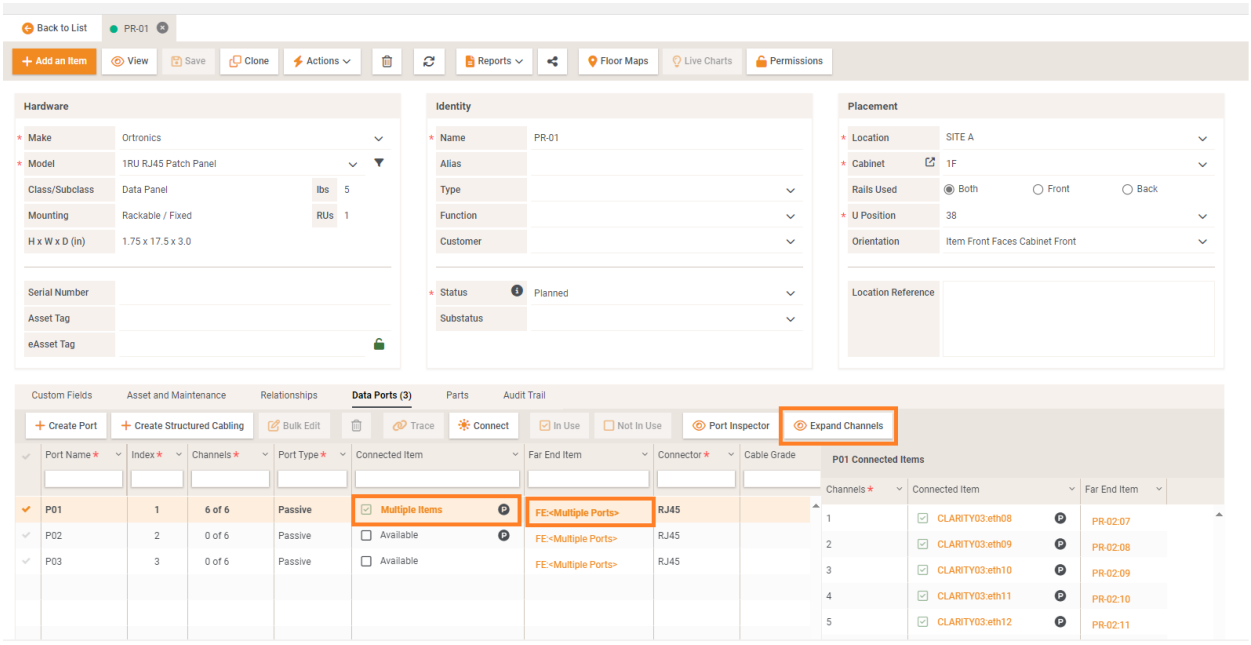


Note: Channels for Near End and Far End can have different value but one end must have value 1. However, when creating Port Mirroring where one end is a Data Panel and the other end is a Network item, Channels value must be same for both the ends.

You can view the ports created in the Data Port subtab of the data panel item details.

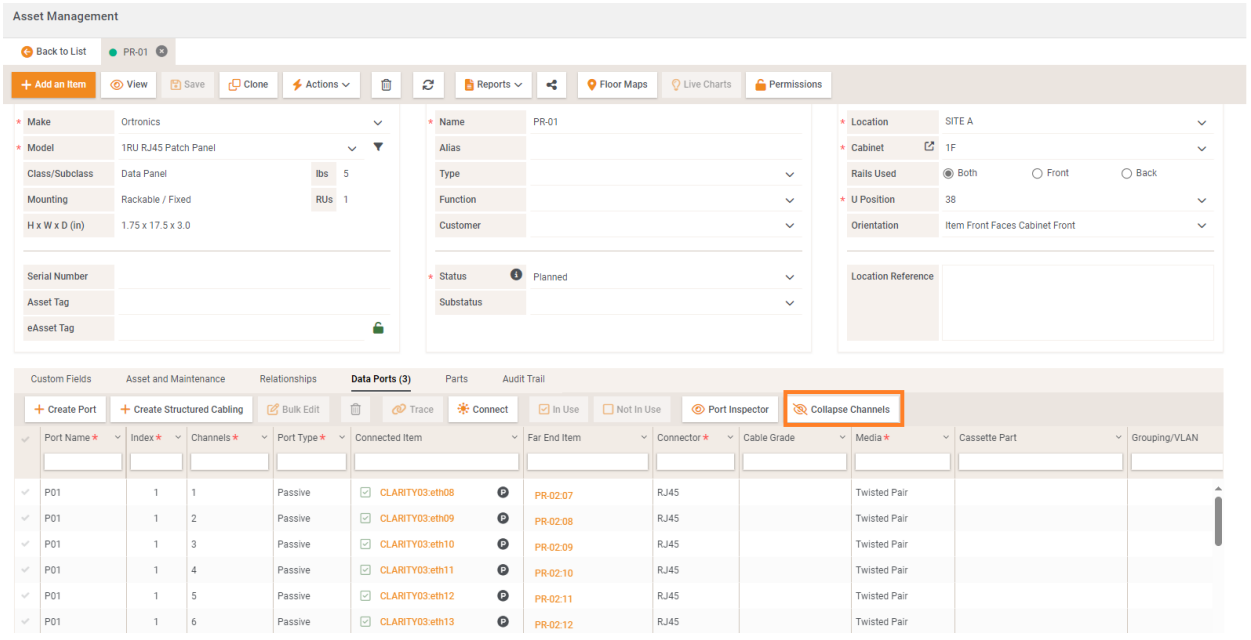
In the Data Panel Port subtab, the Far End column will have a hyperlink text FE:<Multiple Ports>, since one near end port connects to multiple far end ports. When this hyperlink text is clicked, the port list shows the list of connected items and the far end item for that port at the right.

When the hyperlink text FE:<Multiple Ports> is clicked again the Connected items list for that port disappears and the port list returns to normal view.



You can also see the list of Connected Items and the Far End Item Ports by clicking Expand Channels button in the Port list toolbar. This button appears in the toolbar only when at least one port in the list has multiple channels. When all the ports in the port list are single channel ports this button is hidden.

In the Expand Channel view you can see the list with one row for each channel, button label changes to Collapse Channels. To Collapse the port list click Collapse Channel.



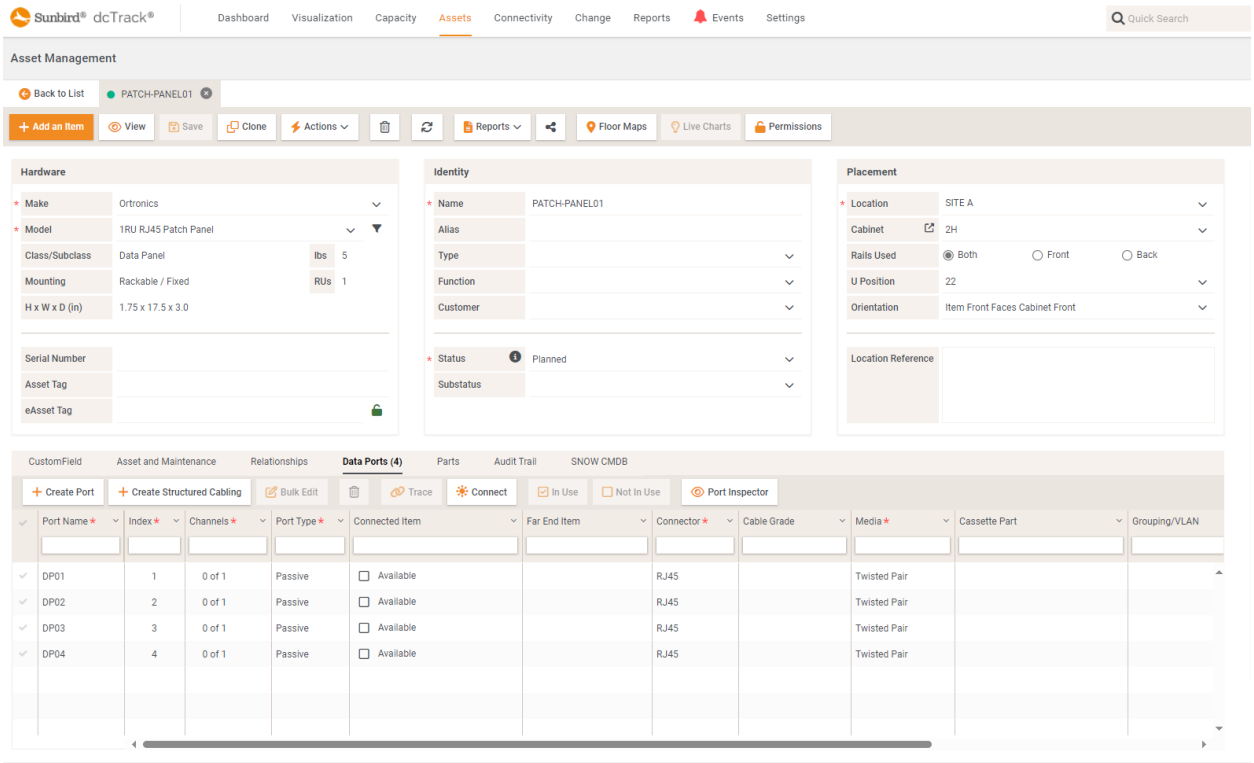
Create Structured Cabling with Existing Ports

Creating Data Panel Ports

The Data Ports sub tab of data panel item details page provides the options to create the port without structured cabling.

If you want to create ports without structured cabling, click the Create Port button. This will open the create port dialog.

Complete the required fields and click the Create Button. This will create the port with the Far End Item field left blank.

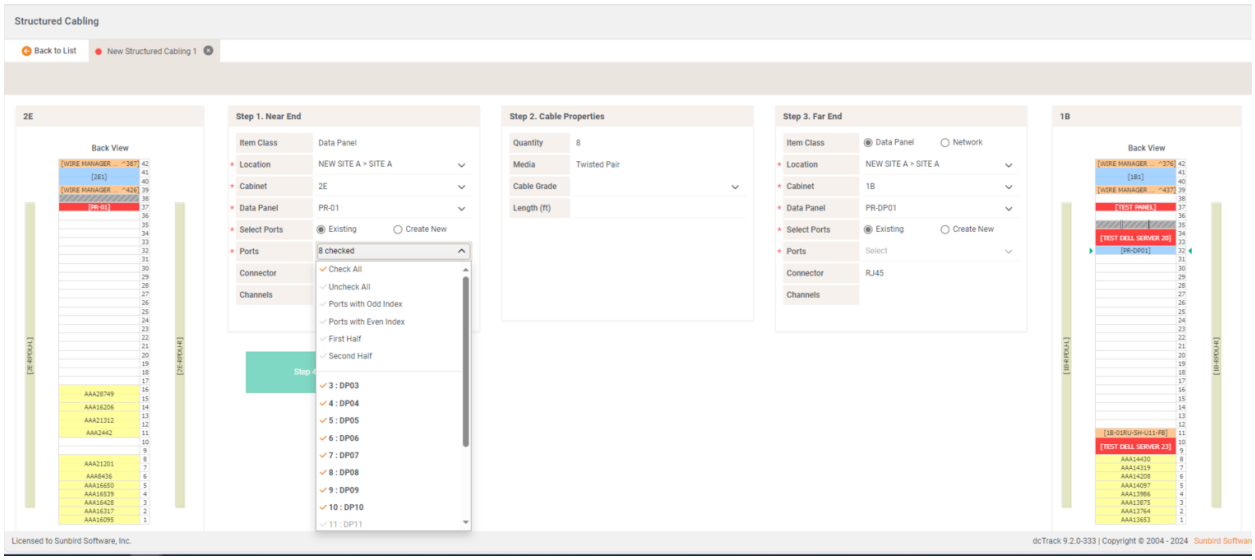


Creating Structured Cabling with Existing Ports

To Create Structured Cabling :

1. In the data panel item details, click Create Structured Cabling in the Data Ports subtab.
2. A New Structured Cabling Tab will open with Near End data panel info pre-populated.
3. Select Existing option in Select Ports.
4. Select the ports from the drop-down.

Connector and Channels fields are read-only and populated based on the ports selected. All the selected ports must have same, Connector, Media, Cable Grade. Therefore, when you make the first selection, then all unselected ports with a different connector, media, cable grade from the first selected port will be disabled and cannot be selected.



Provide the following information for Step 2. Cable Properties

a. Quantity : Read Only. It is populated based on the number of near end port selected.
b. Media : Read Only. It is set to the Media of near end ports.
c. Cable Grade : Read Only. It is set to the Cable Grade of near end ports. If the selected ports do not have a value for cable grade, they remain editable, and you can select a cable grade to assign to the existing selected ports, which will then be updated with structured cabling.
d. Length (ft) : Enter the length of the cable in feet. Optional.

Provide the following information for Step 3. Far End

a. Item Class : Select the item class for the far end item. If you are creating structured cabling between two data panels, select the class Data Panel. If you are creating Port Mirror set up, select Network. See here for more info on Port Mirroring. For details on creating structured cabling between data panel and network item using Web Client. See here Create Structured Cabling between Data Panel and Network for more details.
b. Location : Select the location of the data panel. Required.
c. Cabinet : Select the cabinet. The cabinet elevation view appears to right when the cabinet is selected. Required.
d. Data Panel : Select the data panel item. Required.

e. Select Ports : Select Existing.
f. Ports : Select Ports from the drop-down. The list includes all the ports where the structured cabling is not created. This list may include the ports that are connected but without structured cabling. All the ports in this list have same media type and same cable grade as the near en. All the ports have same or compatible connector as near end.
g. Connector : Read Only
h. Channels : Read Only.

When structured cabling is created with existing ports, Cable Labeling section is hidden because the port labels have already been created.

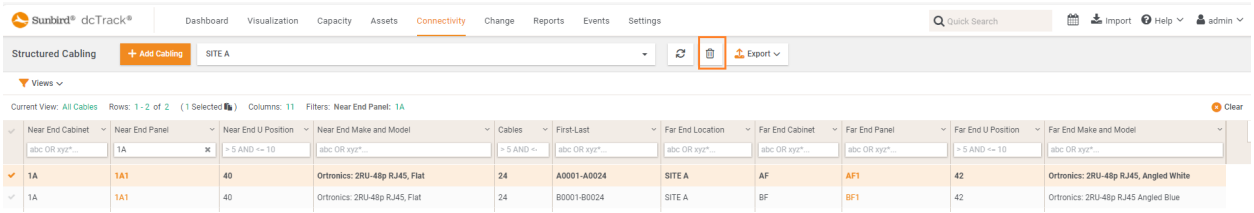
1. Click Preview to button to preview the port labels for near end and far end data panels.
2. Click Step 5. Create Cabling.

To verify the data panel ports, open the item details page of the near end and far end data panel and visit Data Port Sub tab.

Delete Structured Cabling

To delete Structured Cabling :

1. Navigate to Connectivity -> Structured Cabling.
2. Select the Location of your data center from the location selector. By default the default Location set in the user preference setting will be selected.
3. Filter the list to get the record of Structured Cabling that need to be deleted.
4. Select those records of Structured Cabling and click Delete.



You must have edit privileges to delete data panel ports. When you delete data panel ports, the structured cabling that connects the near end data panel and far end data panel also get deleted.

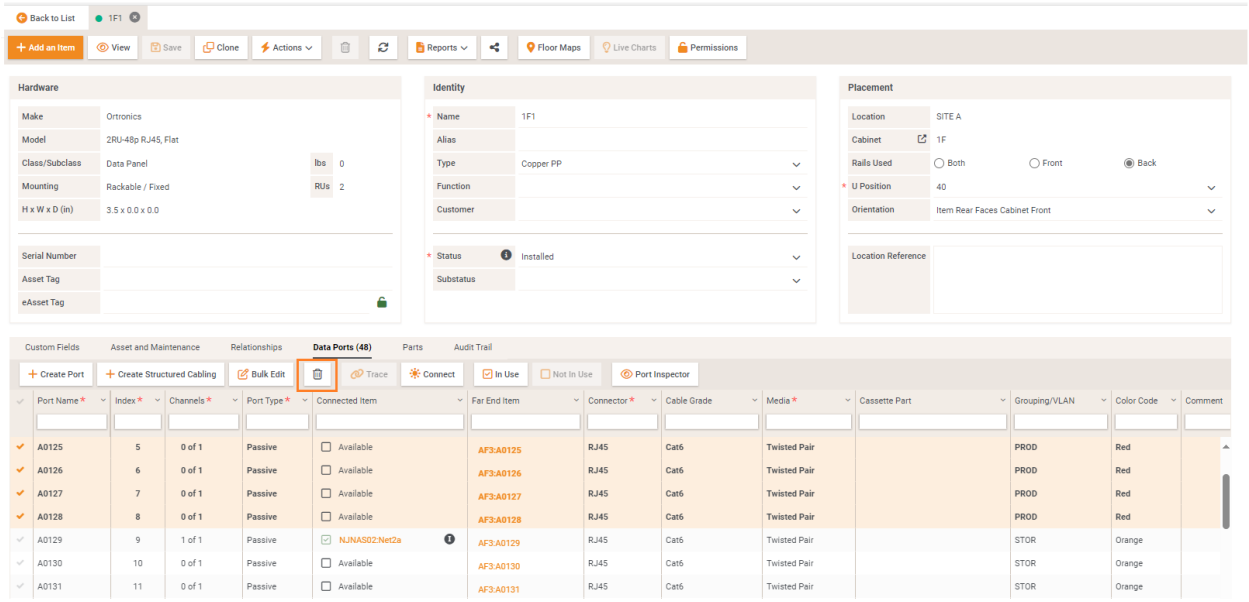
Connected and marked in use data panel ports cannot be deleted.

To delete data panel ports:

1. In the Web Client, click Assets > Items List.
2. Open an existing data panel item's page in edit mode.

3. Click on the Data Ports tab.
4. Click on the port or ports you want to delete. Use Ctrl + click to select multiple ports at once.
5. Click Delete on the Data Ports tab.
6. Save the item.

If the ports selected are connected or marked in use and can not be deleted, you will get a message confirming the ports deleted. Port list will be refreshed, deleted ports will be removed from the list ports that got skipped remain selected.



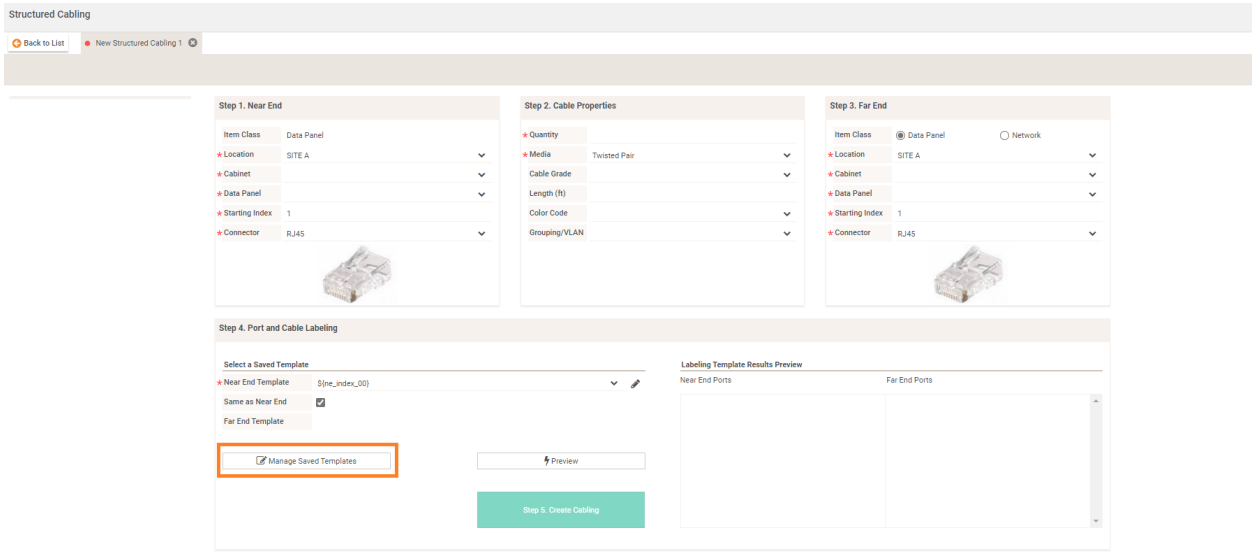
Create and Manage Port Label Template for Data Panel

dcTrack 8.1 allows you to create port label template for data panels. Once the template get created, it can be used to generated port labels for data panels. Templates are available across sites. You must have edit privileges to create a template.

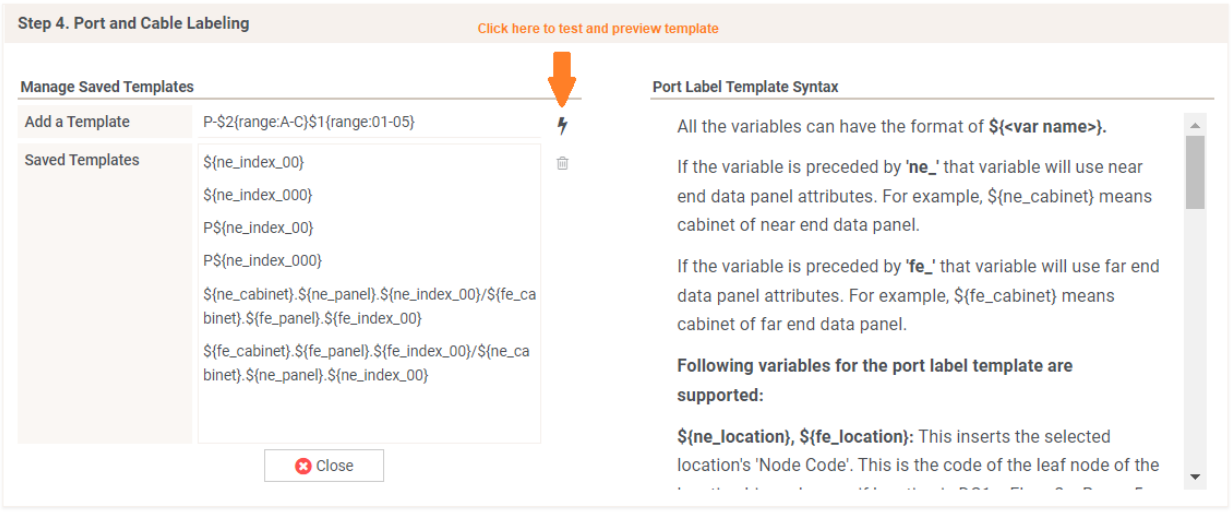
To Create a Template :

1. In the Web Client, select Connectivity Tab -> Add Cabling.
2. In the New Structured Cabling Tab, click Managed Saved Template.

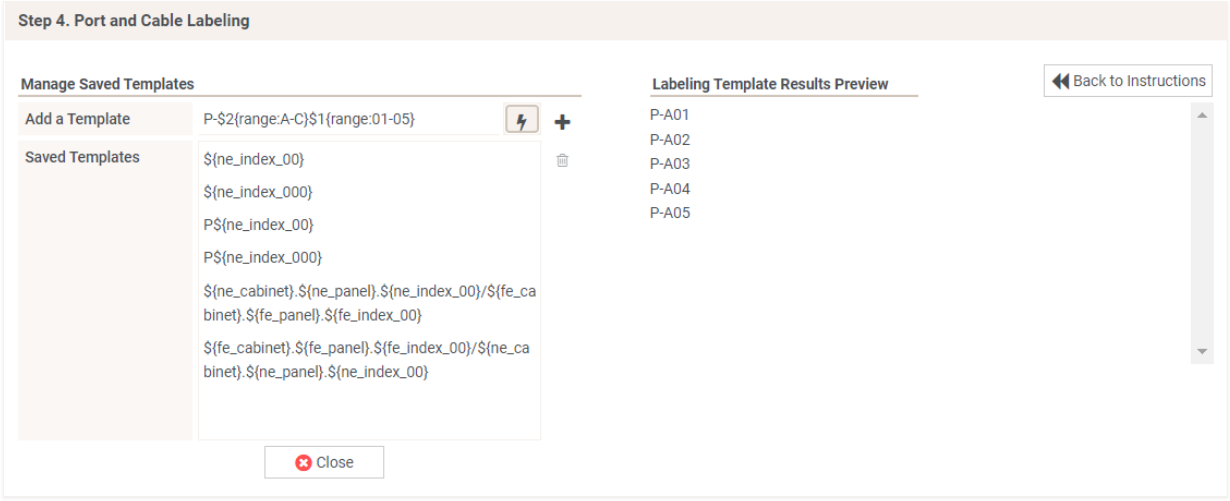
Note : New Structured Cabling Tab can also be opened from Create Structure Cabling button in Data Ports sub tab of Data Panel item.



3. Enter the Template in the field Add a Template. Refer to the Port Label Template Syntax for more information on variable and syntax used for creating new template.
4. Test the template by clicking the bolt icon next to Add a Template field. If the template is valid, you will get a message confirming the same. You can also Preview the template result if all the required fields to create the structured cabling are entered.



5. Click the plus icon to add the template. The plus icon appear only if the template is valid. Newly created template will appear in the Saved Template List.



To Delete a Template :

1. Select the template in the Saved Template list.
2. Click the delete icon.

You can also select multiple templates by holding the Ctrl key and click delete icon to delete the selected templates.

To Edit a Template

1. In New Structured Cabling Tab, click the pencil icon next to Near End Template field. To Edit Far End Template, click the pencil icon next to Far End Template.
2. This field will become a text box. Edit the template.
3. Click Preview button to test the updated template. If the template is valid, preview will show. If the template is invalid, you will get a message confirming the same.

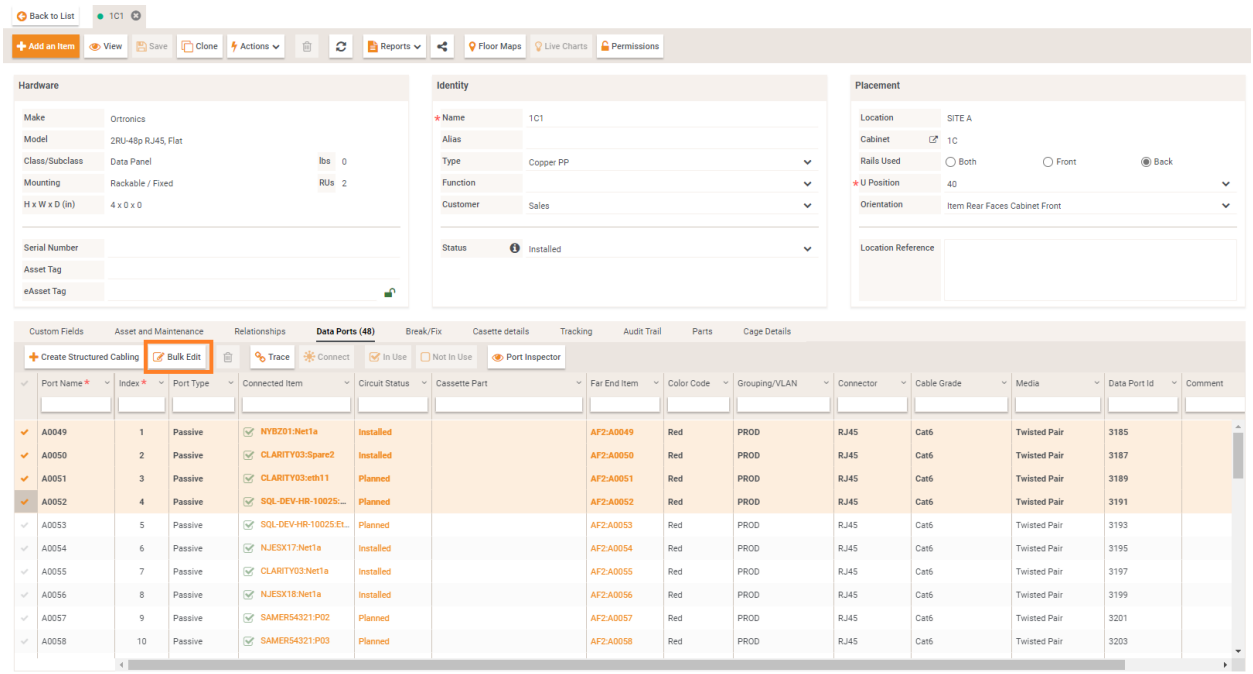
To cancel the edit, click x icon and the field will become drop down.

Note : Edited template can not be saved and will not appear in the Saved Template List. However you can edit an existing template and create structured cabling using the edited template.

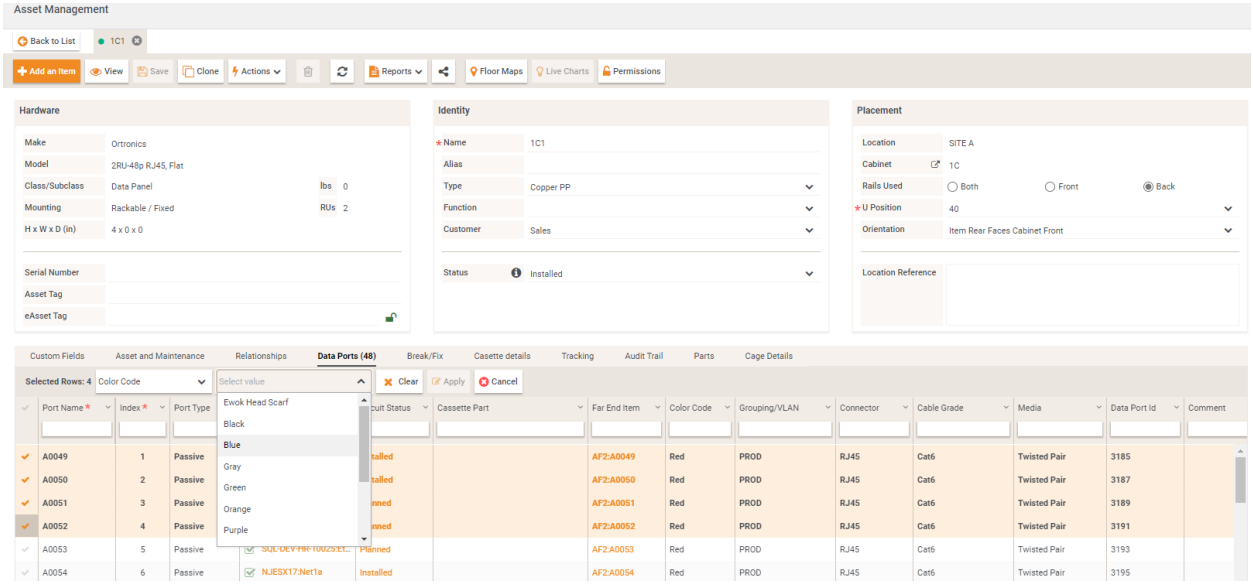
Bulk Edit Data Panel Ports

Bulk Edit feature allows you to edit port attributes of multiple data panel ports.

1. Open Data Panel Item in edit mode.
2. In the Data Ports sub tab, select multiple data panel ports.
3. Click Bulk Edit.



4. Provide following information to update the ports.
    a. Select Column to update : In the drop down, select the port field that you want to bulk update.
    b. Select Value : In the drop down, select the field value. The drop down list will be populated based on the column selected.



5. Click Apply. If you want to clear the data on the select field, click Clear.
6. Save the item.

Since data panel ports in dcTrack are connected through structured cabling, the field values for the Far End Item will also get updated.

Following are the rules for the fields that can be updated using Bulk Edit option

- Cassette Part : Can be updated to any Cassette Part Instance from the drop down list
- Color Code : Can be updated to any color code from the drop down list. Color Code of the far end item also get updated.
- Grouping/VLAN : Can be updated to any value from the drop down list. Grouping/VLAN of the far end item will also be updated.
- Connector : For connected ports or ports having a Far end, selected connector must be compatible with the connector of the port it is connected to. For ports that are not connected or do not have a Far end, it can be updated to any connector from the drop down list.
- Media : Can only be updated for ports that are not connected. Media for the far end item also get updated.
- Cable Grade : Can be updated to the Cable Grade which maps to the same media type.
- Comments : Can be updated.

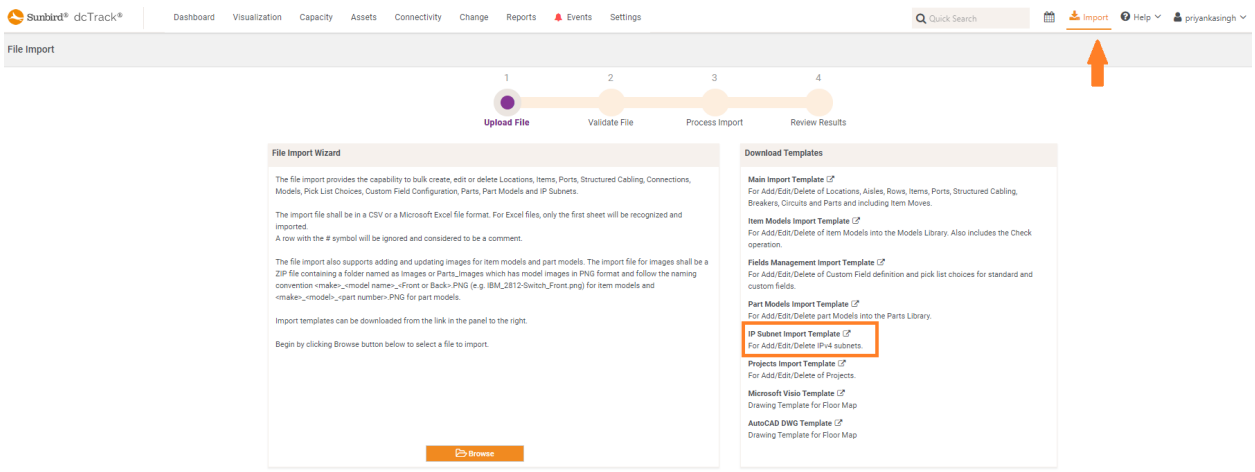
IP Subnet Import

dcTrack 8.1 allows you to create IP Subnet using File Import feature.

It is recommended that you define your subnets before you begin assigning IP addresses to data ports or setting up port teams in the Web Client. Subnets are defined for a particular location, so you can have different subnets for each data center you create in dcTrack.

Steps to Import IP Subnet :

1. Navigate to File Import page by clicking the Import button located at the top of every dcTrack page.
2. Download the sample import template for IP Subnet.



3. Follow the instructions and the examples in the sample import template to create import file for adding IP Subnet.

1	# Is used to indicate the line is a comment.									
2	# Required fields are indicated by an asterisk *.									
3	# Only one of the two fields indicated by double asterisks ** is required, but both can be provided.									
4	# Values for Location must be the full path to an exiting location in dcTrack. eg. DataCenter1 > Floor2 > Room15									
5	# Subnet Start must be a valid IPv4 address ending with the appropriate octet for the CIDR. Eg. For a /24 Subet start could be 10.10.1.0, for a /25 it could be 10.10.10.128									
6	# CIDR is a number from 9 through 31.									
7	# Mask goes from 255.128.0.0 for a /9 CIDR up to 255.255.255.254 for a /31 CIDR									
8	# Subnet Name is used to identify the subnet when assigning IP addresses. It does not have to be unique.									
9	# Hostname Suffix is a string that gets appended to the name of the item being assign an IP address from this subnet to create a hostname that is associated with the IP address assignment									
10	# if the Hostname suffix begins with a dash, then add a single quote so that Excel does not interpret it as a forumla									
11	# For Add operation, any existing IP address assignment to items in the indicated location that fall within the range of the new subnet will become managed ip addresses.									
12	# This means the ip address record will point to this new network, and the mask entered with the ip address will be updated to match the mask for the new network.									
13	# For EDIT operation, only the Location and Subnet Start are required to identify the subnet being edited. Subnet Start, CIDR and Mask are not editable.									
14	# For DELETE operation, only the Location and Subnet Start are required to identify the subnet being deleted. If IP assignments have been made from this subnet, they will remain but will no longer be associated with a subnet.									
15										
16	**# Operation ***	**Object ***	**Location ***	**Subnet Start ***	**CIDR ****	**Mask ****	**Gateway ***	**Subnet Name***	**VLAN Number**	**Hostname Suffix**
17	ADD	IP_SUBNET	BDGWTR	192.168.1.0	24	255.255.255.0	192.168.1.1	PROD Row 1	5	-prod-R1
18	ADD	IP_SUBNET	SITE A > ROOM_1	192.168.4.0	22	255.255.252.0	192.168.4.1	Management	6	
19	EDIT	IP_SUBNET	SITE A > ROOM_1	10.1.1.0			10.1.1.128	NewName	16	-newsuffix
20	DELETE	IP_SUBNET	SITE A > ROOM_1	10.10.15.0						

4. Import the file.

Once the file import is successful, you can assign IP addresses to data ports from the newly created IP Subnet. See here Assigning IP Addresses to Data Ports for more details.

Note : IP Subnets can not be exported from Asset List. You can either create SQL widget or download the SQL widget IP Availability from Sunbird Addons Site and export the data in SQL widget to CSV file. For more details on SQL widgets see SQL Gride Widgets.

Manage Virtual Power Chains

Overview

Virtual Power Chains (VPC) are used to connect power circuits without needing to build out all the power infrastructure components (power chains) in dcTrack.

In addition to the existing support for AC Virtual Power Chains, dcTrack version 9.0.0 introduced support for DC Virtual Power Chains.

These are useful if, for example, you want to build out a cabinet and create power connections, but do not want to build your power chain at the same time. You can add all of your items to the cabinet and connect each circuit to a VPC.

Each item in the VPC is created automatically by dcTrack; you do not to create the VPC items.

The AC VPCs include connectors, power outlets, power outlet ports, power panels/busways, breakers, floor PDUs, UPS units, and UPS banks. DC VPCs include connectors, DC Plants, DC Rectifiers and DC Plant Panels.

VPCs have unlimited power capacity since they are virtual, so you can use them to connect as many power circuits as needed.

For AC Power Connections, you connect rack PDUs to Virtual Power Chains at the outlet level. Alternatively, connect items at the rack PDU inlet level like 'normal' power circuits.

For DC Power Connections, when creating a circuit and the selected node is for a device power supply (direct current phase), you connect the the power supply directly to a Generic VPC Plant Panel breaker.

When creating a circuit and the selected node is for a DC FAP or Rack Inverter Inlet, you connect the Inlet directly to a Generic VPC Plant Panel breaker.

User Privileges

Gatekeepers and System Administrators can enable and disable Virtual Power Chain Settings for locations in dcTrack.

Prerequisites

The appropriate VPC type (AC, DC) must be enabled for the location in order to create connections to Virtual Power Chains of that type. See **Enable or Disable VPC for a Location**.

By default, AC Virtual Power Chain Settings are enabled when a new location is created, however DC Virtual Power Chain settings are not enabled by default.

Enable or Disable VPC for a Location

This can be done manually or by enabling VPC in a spreadsheet and importing using File Import. For information on enabling VPC during an import, see Use File Import to Import Locations, Items and Connections **Use File Import to Add, Edit Delete and Move**.

# Operation *	Object *	dcTrack Location Code*	dcTrack Location Name*	dcTrack Location Hier	dcTrack Location P	Can Contain Assets	Enable AC Virtua
ADD	LOCATION	BDGWTR	Bridgewater	Data Center		TRUE	TR
ADD	LOCATION	BRNCHBRG	Branchburg	Data Center		TRUE	TR
ADD	LOCATION	HPWL	Hopewell	Data Center		TRUE	TR
ADD	LOCATION	SMVL	Sommerville	Data Center		TRUE	TR
ADD	LOCATION	SITE A	Somerset	Data Center		FALSE	FA
ADD	LOCATION	SITE A > 2ND	Somerset 2nd Floor	Floor	SITE A	FALSE	FA
ADD	LOCATION	SITE A > 2ND > OFFICE	Somerset 2nd Floor Main O	Room	SITE A > 2ND	TRUE	TR
ADD	LOCATION	SITE A > 2ND > STORAGE	Somerset 2nd Floor Storage	Room	SITE A > 2ND	TRUE	TR
ADD	LOCATION	SITE A > LAB	Somerset Lab	Room	SITE A	TRUE	TR

Create Virtual Power Chain Connections

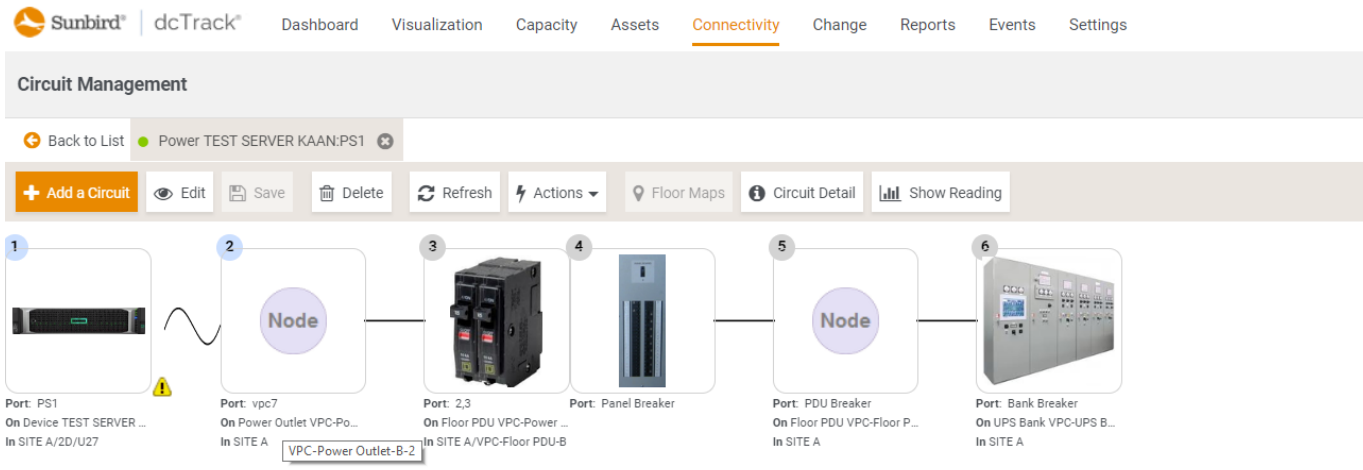
Virtual Power Chain connections can be created manually or using File Import. See **Manually Create Virtual Power Chain Connections** and **Use File Import to Import Virtual Power Chain Connections**.

Differences Between Virtual Power Chain Connections and "Normal" Power Circuits

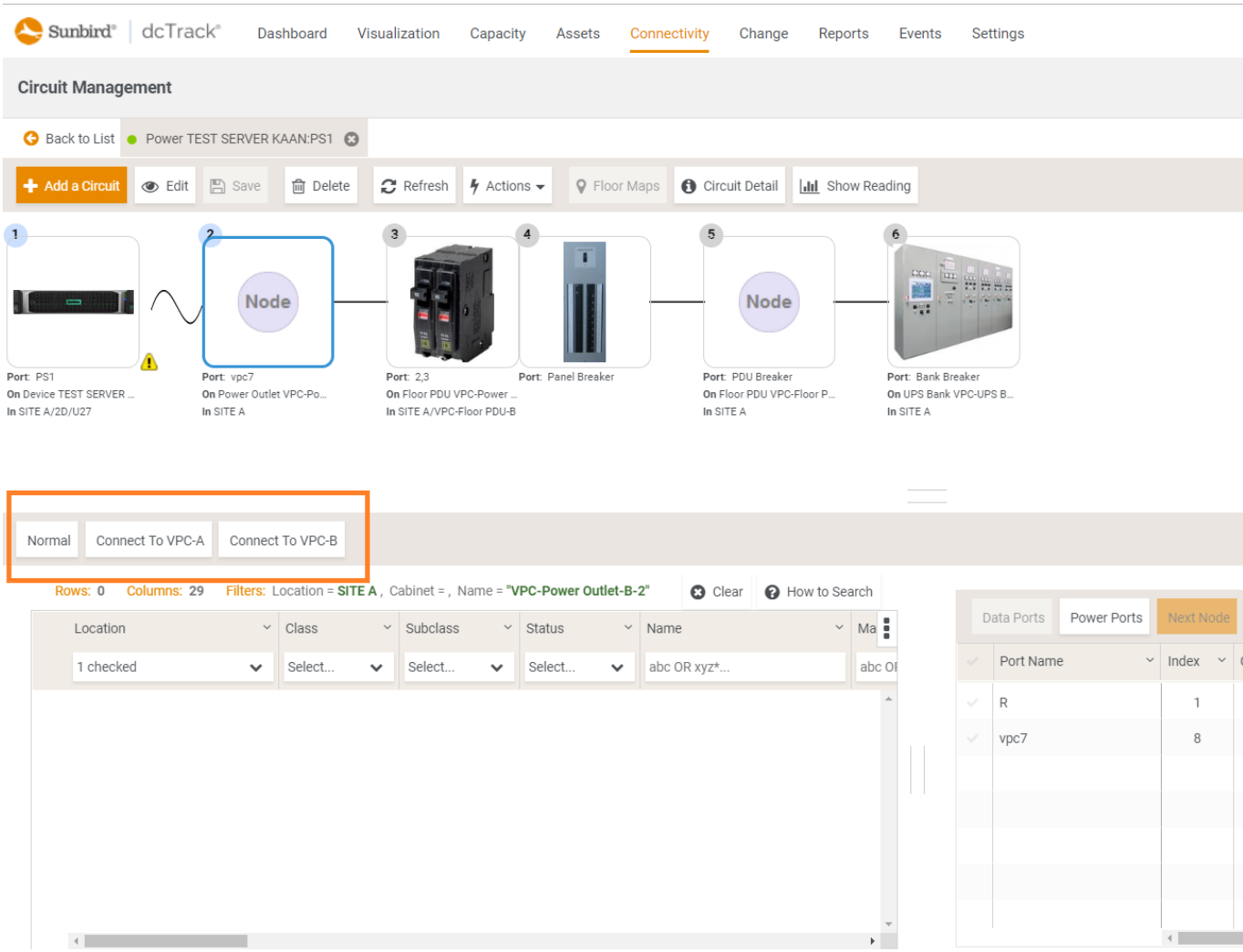
The connections are managed by dcTrack's Change Control workflow like 'normal' power connections; requests are submitted for them, statuses are applied to them, and they can be updated and deleted.

The only differences are:

- The power port you connect to is selected for you when creating the connection.



- You select whether to connect to the VPC A (virtual UPS bank A) or VPC B (virtual UPS bank B) power chain.



Readings from Virtual Power Chains

Once Virtual Power Chain connections are made, you are able to budget and track an item's power consumption in the data center as you would an item connected to a 'normal' power circuit.

Additionally, item power supply, rack PDU, DC FAP and Rack Inverter inlet connections are validated against ratings and tracked. This allows you to review budgeted values at the item or cabinet level.

Switch a Virtual Power Chain Connection to a "Normal" Power Circuit, or Switch "Normal" Power Circuit to a Virtual Power Chain Connection

When you are ready to create your 'normal' power chain, you can switch from VPC circuits to 'normal' circuits - you do not have to recreate the power circuits.

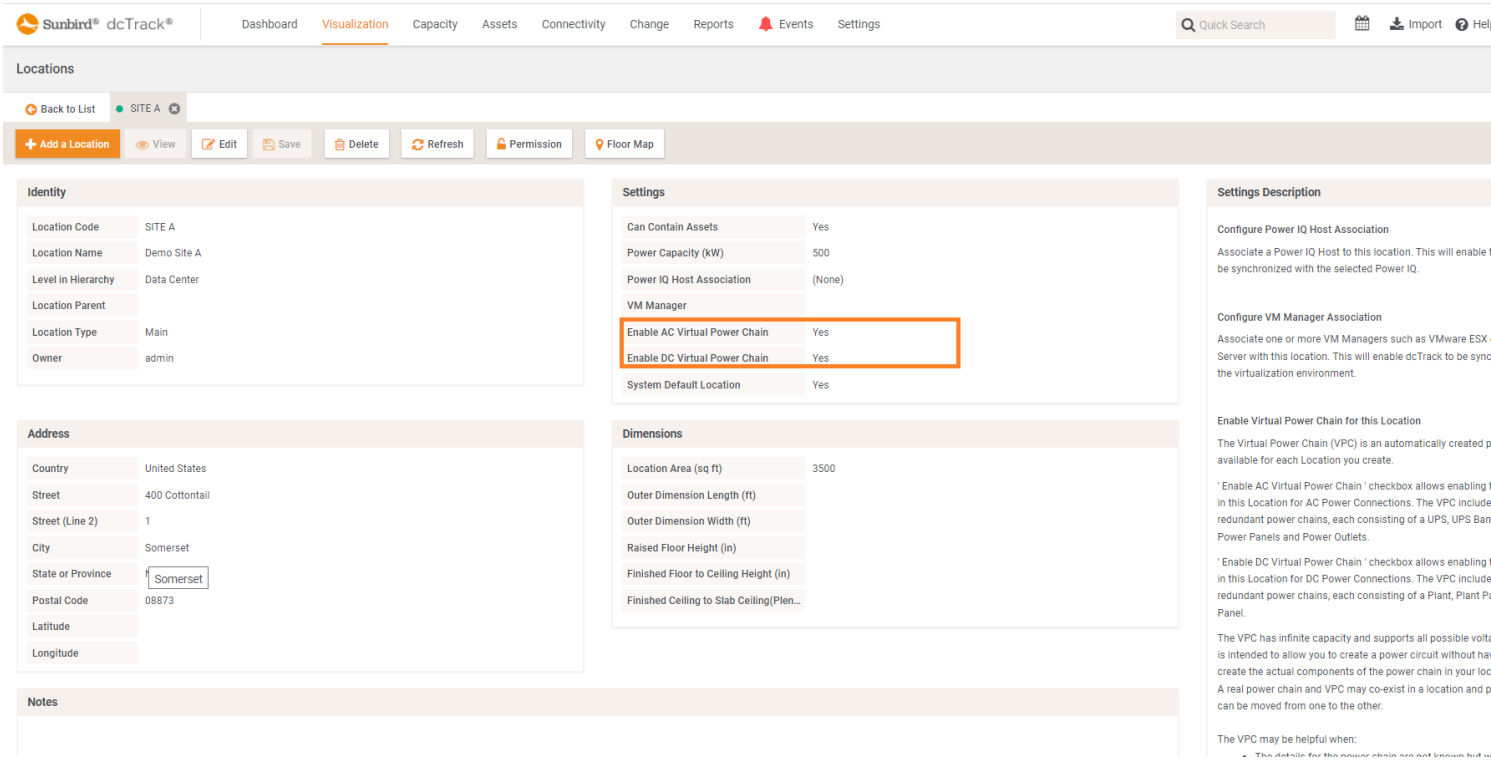
Alternatively, you can switch existing power circuits to connect to VPCs and then switch them back at a later time. See Switch from a 'Normal' Power Circuit to a Virtual Power Chain. See **Switch from a 'Normal' Power Circuit to a Virtual Power Chain (Connect and Disconnect)**.

Enable or Disable VPC for a Location

Enable VPC for one or more locations so you can create Virtual Power Chains.

This can be done manually in the Web Client, or by entering TRUE for "Enable Virtual Power Chain" on the Import Template and then importing the information using File Import.

From the Locations page



Via File Import

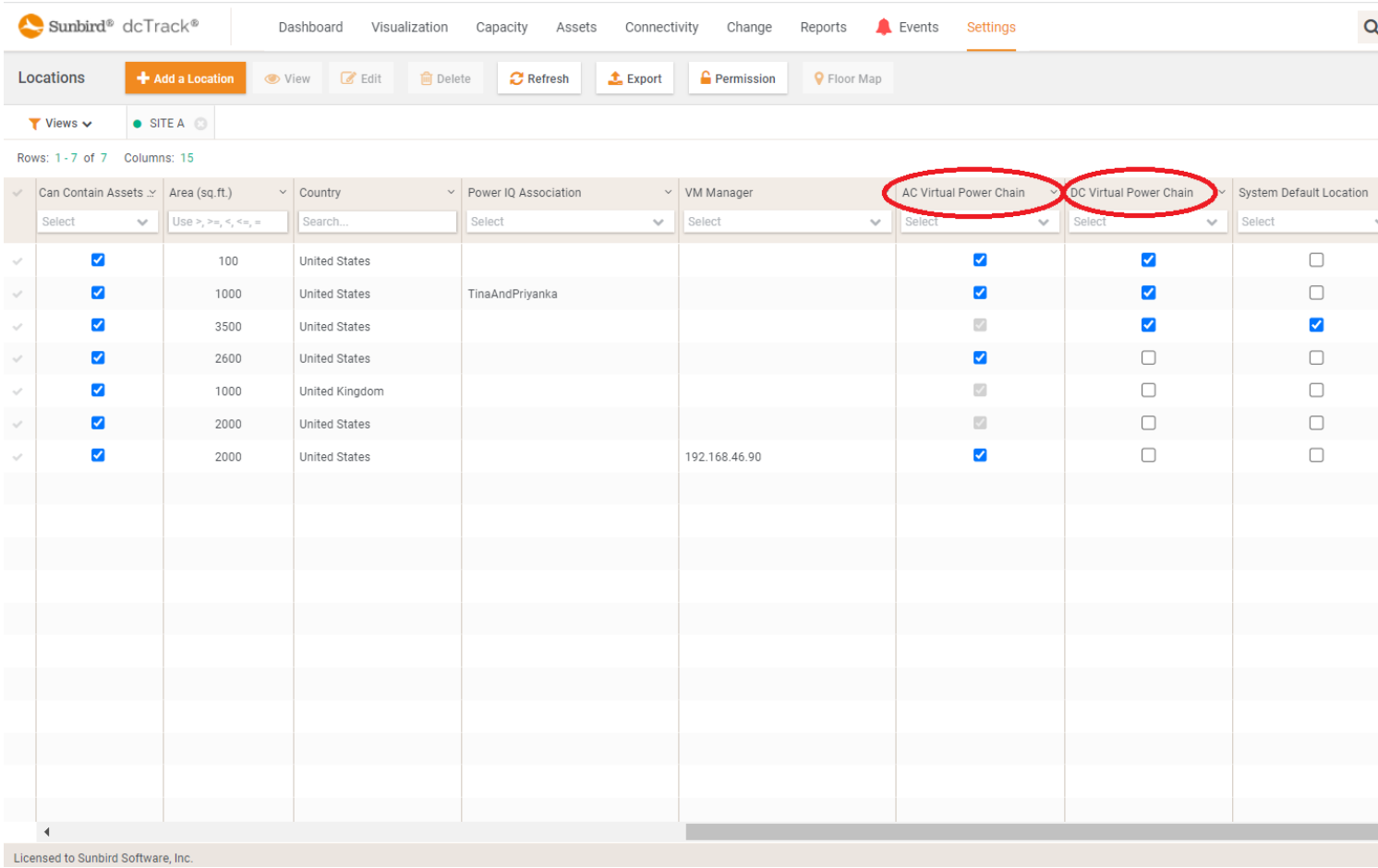
# Operation *	Object *	dcTrack Location Code*	dcTrack Location Name*	dcTrack Location Hier	dcTrack Location P	Can Contain Assets	Enable AC Virtual Power Cl
ADD	LOCATION	BDGWTR	Bridgewater	Data Center		TRUE	TRUE
ADD	LOCATION	BRNCHBRG	Branchburg	Data Center		TRUE	TRUE
ADD	LOCATION	HPWL	Hopewell	Data Center		TRUE	TRUE
ADD	LOCATION	SMVL	Sommerville	Data Center		TRUE	TRUE
ADD	LOCATION	SITE A	Somerset	Data Center		FALSE	FALSE
ADD	LOCATION	SITE A > 2ND	Somerset 2nd Floor	Floor	SITE A	FALSE	FALSE
ADD	LOCATION	SITE A > 2ND > OFFICE	Somerset 2nd Floor Main O	Room	SITE A > 2ND	TRUE	TRUE
ADD	LOCATION	SITE A > 2ND > STORAGE	Somerset 2nd Floor Storage	Room	SITE A > 2ND	TRUE	TRUE
ADD	LOCATION	SITE A > LAB	Somerset Lab	Room	SITE A	TRUE	TRUE

System Administrators and users with the "Bulk Import" role can also import virtual power circuits into dcTrack rather than connect them manually. For details on File Import, see **Use File Import to Import Virtual Power Chain Connections**.

The virtual power circuits created from the spreadsheet are made up of connections between existing dcTrack items and items in the Virtual Power Chain.

13	# Operatic	Object *	Starting Ite	Starting Ite	Starting Pc	Cord Type	Cord ID	Cord Colo	Cord Leng	Length Uni	Ending Ite	Ending Item Parent Name**	Ending Item Name*
14	EDIT	POWER-C(	DC T	DCFAP_ITE	Inlet 1					US	DC T	VPC-Plant-A	VPC-Plant Panel-A
15	EDIT	POWER-C(	SITE A	NEWPDU-	Inlet 1					US	SITE A		VPC-A

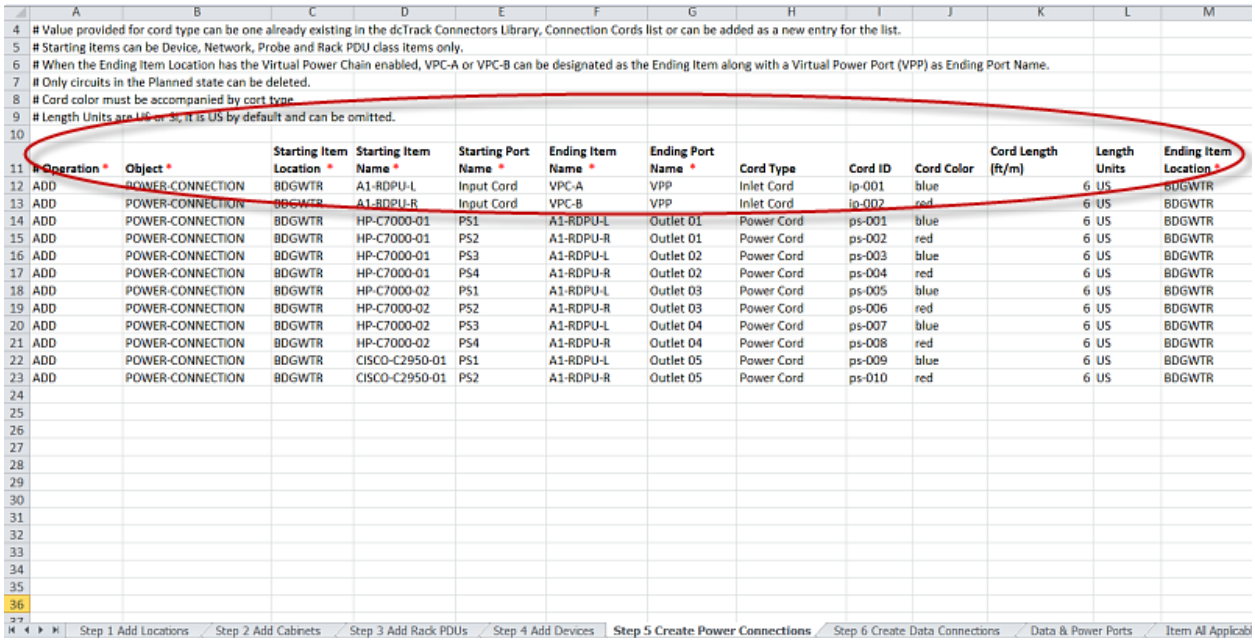
1. In the Web Client, Assets > Locations.
2. Click the Location you want to enable VPC for.
3. Check the appropriate Virtual Power Chain checkbox to enable VPC for the selected location.
4. Uncheck the appropriate Virtual Power Chain checkbox to disable VPC for the selected location.



Use File Import to Import Virtual Power Chain Connections

Watch a video on how to use import. https://youtu.be/8R-UsdiumcM

This topic outlines how to create a file that will import Virtual Power Chain connections. For detailed steps on using the File Import feature, see **Use File Import to Add, Edit Delete and Move**.



	A	B	C	D	E	F	G	H	I	J	K	L	M
4	# Value provided for cord type can be one already existing in the dcTrack Connectors Library, Connection Cords list or can be added as a new entry for the list.												
5	# Starting Items can be Device, Network, Probe and Rack PDU class items only.												
6	# When the Ending Item Location has the Virtual Power Chain enabled, VPC-A or VPC-B can be designated as the Ending Item along with a Virtual Power Port (VPP) as Ending Port Name.												
7	# Only circuits in the Planned state can be deleted.												
8	# Cord color must be accompanied by cord type.												
9	# Length Units are US or SI, it is US by default and can be omitted.												
10													
11	# Operation *	Object *	Starting Item Location *	Starting Item Name *	Starting Port Name *	Ending Item Name *	Ending Port Name *	Cord Type	Cord ID	Cord Color	Cord Length (ft/m)	Length Units	Ending Item Location *
12	ADD	POWER-CONNECTION	BDGWTR	A1-RDPU-L	Input Cord	VPC-A	VPP	Inlet Cord	ip-001	blue	6	US	BDGWTR
13	ADD	POWER-CONNECTION	BDGWTR	A1-RDPU-R	Input Cord	VPC-B	VPP	Inlet Cord	ip-002	red	6	US	BDGWTR
14	ADD	POWER-CONNECTION	BDGWTR	HP-C7000-01	PS1	A1-RDPU-L	Outlet 01	Power Cord	ps-001	blue	6	US	BDGWTR
15	ADD	POWER-CONNECTION	BDGWTR	HP-C7000-01	PS2	A1-RDPU-R	Outlet 01	Power Cord	ps-002	red	6	US	BDGWTR
16	ADD	POWER-CONNECTION	BDGWTR	HP-C7000-01	PS3	A1-RDPU-L	Outlet 02	Power Cord	ps-003	blue	6	US	BDGWTR
17	ADD	POWER-CONNECTION	BDGWTR	HP-C7000-01	PS4	A1-RDPU-R	Outlet 02	Power Cord	ps-004	red	6	US	BDGWTR
18	ADD	POWER-CONNECTION	BDGWTR	HP-C7000-02	PS1	A1-RDPU-L	Outlet 03	Power Cord	ps-005	blue	6	US	BDGWTR
19	ADD	POWER-CONNECTION	BDGWTR	HP-C7000-02	PS2	A1-RDPU-R	Outlet 03	Power Cord	ps-006	red	6	US	BDGWTR
20	ADD	POWER-CONNECTION	BDGWTR	HP-C7000-02	PS3	A1-RDPU-L	Outlet 04	Power Cord	ps-007	blue	6	US	BDGWTR
21	ADD	POWER-CONNECTION	BDGWTR	HP-C7000-02	PS4	A1-RDPU-R	Outlet 04	Power Cord	ps-008	red	6	US	BDGWTR
22	ADD	POWER-CONNECTION	BDGWTR	CISCO-C2950-01	PS1	A1-RDPU-L	Outlet 05	Power Cord	ps-009	blue	6	US	BDGWTR
23	ADD	POWER-CONNECTION	BDGWTR	CISCO-C2950-01	PS2	A1-RDPU-R	Outlet 05	Power Cord	ps-010	red	6	US	BDGWTR
24													
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Step 1 Add Locations | Step 2 Add Cabinets | Step 3 Add Rack PDUs | Step 4 Add Devices | **Step 5 Create Power Connections** | Step 6 Create Data Connections | Data & Power Ports | Item All Applicab

System Administrators and Gatekeepers can also add VPCs manually in the Web Client. For details on File Import, see **Manually Create Virtual Power Chain Connections**.

The Virtual Power Chains created from the spreadsheet are made up of connections between existing dcTrack items and virtual items in the Virtual Power Chain.

Therefore, the items that will be connected to the Virtual Power Chain connections must exist in dcTrack. Using File Import to add the items or add them manually. See **Use File Import to Add, Edit Delete and Move** and **Add and Edit Items**.

Virtual Power Chain must be enabled for the location(s). You can enable VPC when adding locations manually or when importing locations using File Import by setting the Enable Virtual Power Chain field to TRUE in the Import Template. See **Enable or Disable VPC for a Location** and **Use File Import to Add, Edit Delete and Move**, respectively.

Note that you do not need to create the items that make up the Virtual Power Chain; these Virtual Power Chain items exist by default.

Manually Create Virtual Power Chain Connections

Only System Administrators and Gatekeepers with privileges to the location can enable VPC settings. See **Enable or Disable VPC for a Location**.

Virtual power connections are created in the same way as "normal" power circuits except that you connect items at the port or rack PDU level to the VPC.

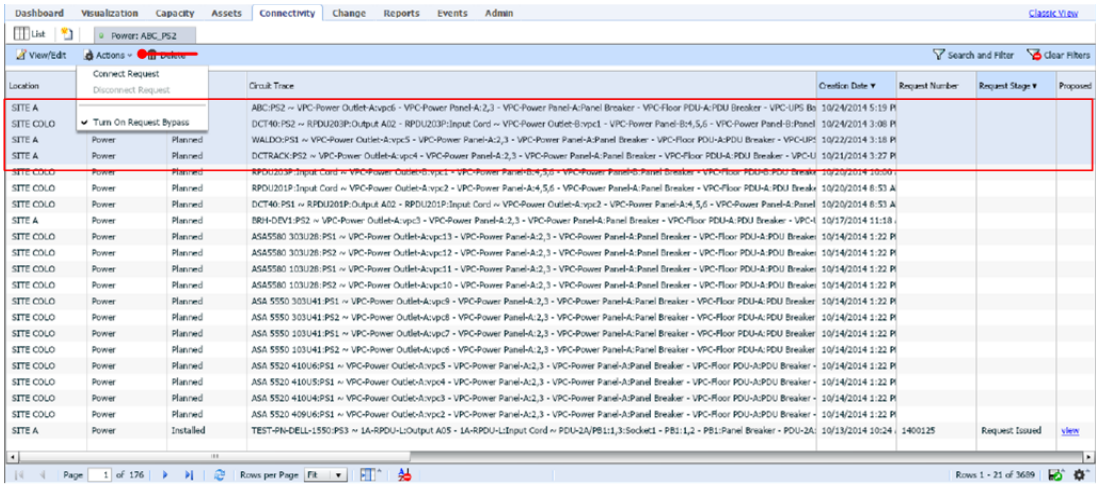
Submit an Connect Request for a Virtual Power Circuit

Submit a Connect Request or Disconnect Request for the circuit when it is created, or at a later time:

- Select an action request from the Actions menu on the circuit's page

Or

- Select one or more circuits on the Circuits List that are in the same current status, then select a request from the Actions menu



The request you can submit depends on the current status of the circuit and you must have edit access to the circuit to submit a request for it.

If Request Bypass is enabled, requests are automatically processed from the initial submit request stage to the Work Order Complete stage.

When Request Bypass is not enabled, requests move through each stage of the dcTrack Change Control workflow.

For information on the Change Control workflow process and Request Bypass, see **Request Bypass and Manual Change Control**.

Identify Circuits Connected to Virtual Power Chains

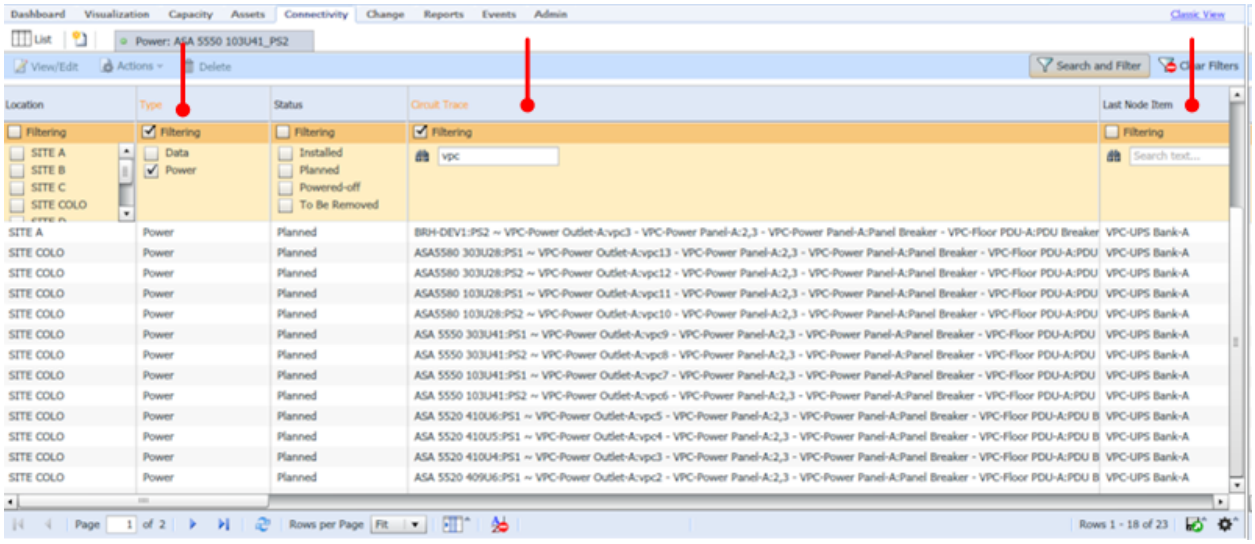
Virtual Power Chains are identified by 'VPC' as part of their Circuit Trace and Last Node Item.

You can easily locate circuits connected to a VPC on the Circuits List using search, filters and sorting.

For example, filter and search by -

- Type = Power
- Search Circuit Trace = VPC (or some variation of the circuit path)

- Last Node Item = VPC



Switch from a Virtual Power Chain to a 'Normal' Power Circuit (Connect and Disconnect)

Once you are ready to create your real power chain, you can switch your connection from the Virtual Power Chain to the 'normal' power circuit.

You must have edit access to the circuit to switch.

Note that you can also switch from a 'normal' circuit to a Virtual Power Chain. See **Switch from a 'Normal' Power Circuit to a Virtual Power Chain (Connect and Disconnect)**.

Access the Circuits List by selecting Connectivity > Circuits List.

Open the circuit you want to change by:

- Selecting it in the Circuits List and click View/Edit at the top of the page.

Or

- Double-clicking on it to open the circuit's page.

Click on Node 2 to open it. This is where you begin the new circuit with the new power source.

Click the Normal button on the Item List tool bar.

Select the power source from the Items List.

Select the power source outlet port from the Port List.

Click Accept Changes.

The remainder of the circuit is built automatically by dcTrack.

Save the circuit to submit a request to switch the VPC to a 'normal' circuit.

If Request Bypass is enabled, requests are automatically processed from the initial submit request stage to the Work Order Complete stage.

When Request Bypass is not enabled, requests move through each stage of the dcTrack Change Control workflow.

For information on the Change Control workflow process and Request Bypass, see **Request Bypass and Manual Change Control**.

Switch from a 'Normal' Power Circuit to a Virtual Power Chain (Connect and Disconnect)

You can switch a 'normal' power circuit in a Planned, Installed or Powered-off status to connect to a Virtual Power Chain.

This is useful if you need to move an item from a location where the power chain is completely built out, to a location where it is not. The Virtual Power Chain acts as a placeholder for the actual power circuit in the interim.

After you no longer need to items connected to a Virtual Power Chain, you can switch the connection back to a 'normal' power circuit. See **Switch from a Virtual Power Chain to a 'Normal' Power Circuit (Connect and Disconnect)**.

You must have edit access to the circuit, and Virtual Power Chain Settings must be enabled for the location.

Access the Circuits List by selecting Connectivity > Circuits List.

Open the circuit you want to change by:

- Selecting it in the Circuits List and click View/Edit at the top of the page.

Or

- Double-clicking on it to open the circuit's page.

Click on the rack PDU node, Node 2, to open it.

Click on either the VPC A or VPC B button on the Item List tool bar.

Click Save to save the circuit.

The remainder of the circuit is built automatically by dcTrack.

- If the circuit is in a Planned status, save the circuit.
- If the circuit is in an Installed status, you must submit a Disconnect Request for the 'normal' circuit since you cannot change the number of nodes in the circuit and then save it.

Manage Circuits and Power in Your Data Centers

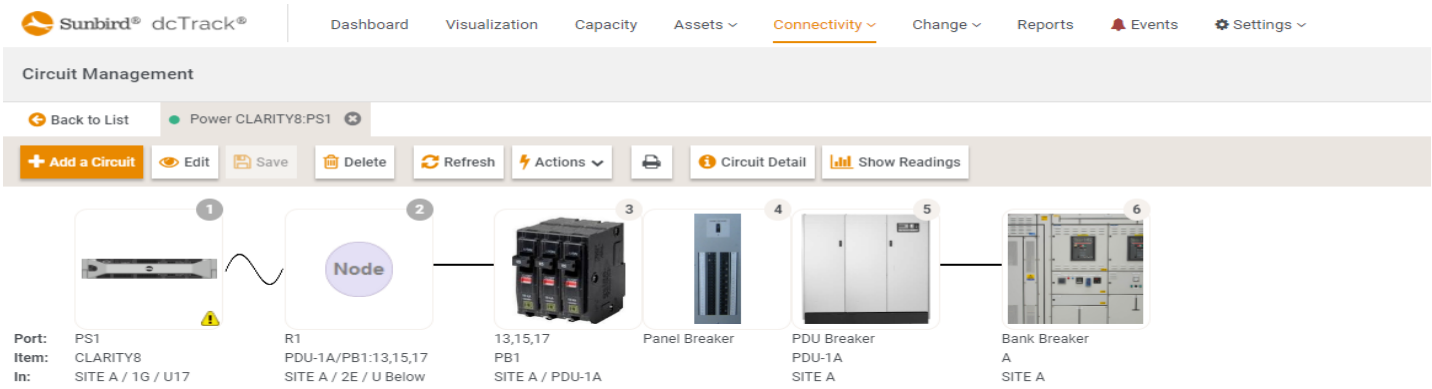
In dcTrack, each node represents a point in a circuit, and connections link each node in the circuit.

For example, a server connects to a rack PDU at the rack PDU's inlet, the rack PDU connects to floor PDU's power outlet, and so on.

For more about how these relationships, see dcTrack Hierarchy and Item Classes.

When building circuits in dcTrack, you join nodes, to create connections, to complete your circuit.

Each node and connection in the circuit is displayed using a graphical representation of the circuit. You can view the complete circuit from the starting item to the ending item, including each item in between.



Minimum Requirements to Create and Save a Data Circuit

To save a data circuit, you must connect at least two nodes.

Starting and Ending Items in a Data Circuit

Data circuits can begin with any Item that has Data Ports.

Data circuits that begin with a Device class item can end with:

- Another Device class item

or

- A Network class item

Data circuits that begin with a Network class item can only end with another Network class item

Circuits cannot end with any other class of item. However, dcTrack allows you to create partial data circuits that can end with a data panel. For more detailed steps on how to created Partial circuits, see Build Partial Data Circuits.

Minimum Requirements to Create and Save a Power Circuit

Power circuits can begin with an item having either a Power Supply Port or an Input Cord. The Power chain must be built before creating a power circuit. If your power chain is not built, you may use Virtual Power Chains to connect power circuits.

For detailed steps on how to build circuits using Virtual Power Chain, see Manage Virtual Power Chains.

Partial power circuits start with a rack PDU and end on a power infrastructure item. You can connect a device with a partial power circuit to make it a complete circuit.

Building a Circuit

When you click on the Add a Circuit button, the circuit you are building is displayed in its own New Circuit tab. A red dot in the New Circuit tab indicates the circuit is not yet saved, a green dot means it is saved. Once you save the circuit, dcTrack generates the circuit name and the Circuit becomes available on the Circuits List.

You can also build multiple circuits in a single tab. This tab is called a Multiple Circuits tab. A green dot is displayed on this tab only when all of the circuits in the tab are saved. If any of the circuits have unsaved changes, the tab will display a red dot.

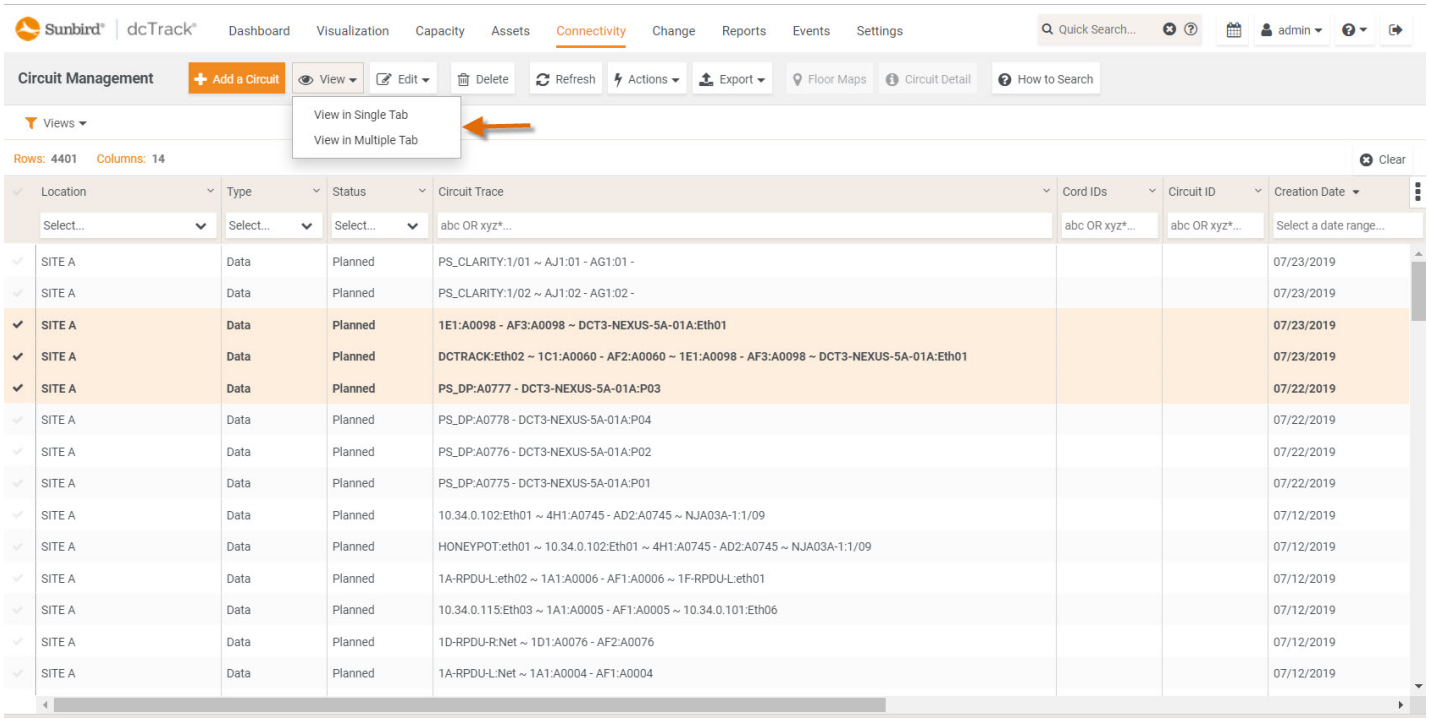
See additional information on building Data and Power Circuits:

Building Power Circuits

Building Data Circuits

View Circuits

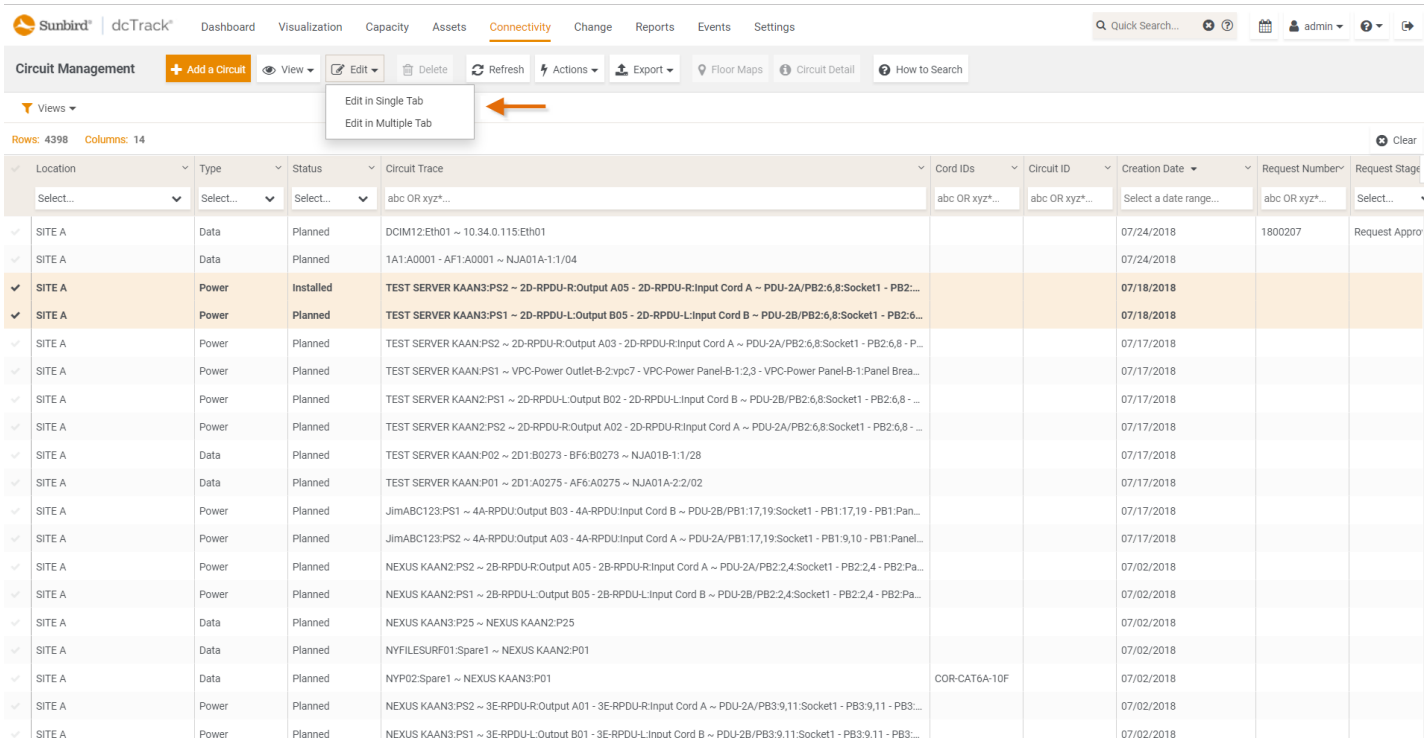
View a specific data or power circuit by double-clicking on it to open its circuit page, or by selecting one or more circuits and clicking the View button on the tool bar. Multiple circuits can be viewed in single tab. To view multiple circuits in single tab, select the circuits from the circuit list and select the View in Single Tab option from the View menu. To view circuits in multiple tab, select the View in Multiple Tab option.



Edit Circuits

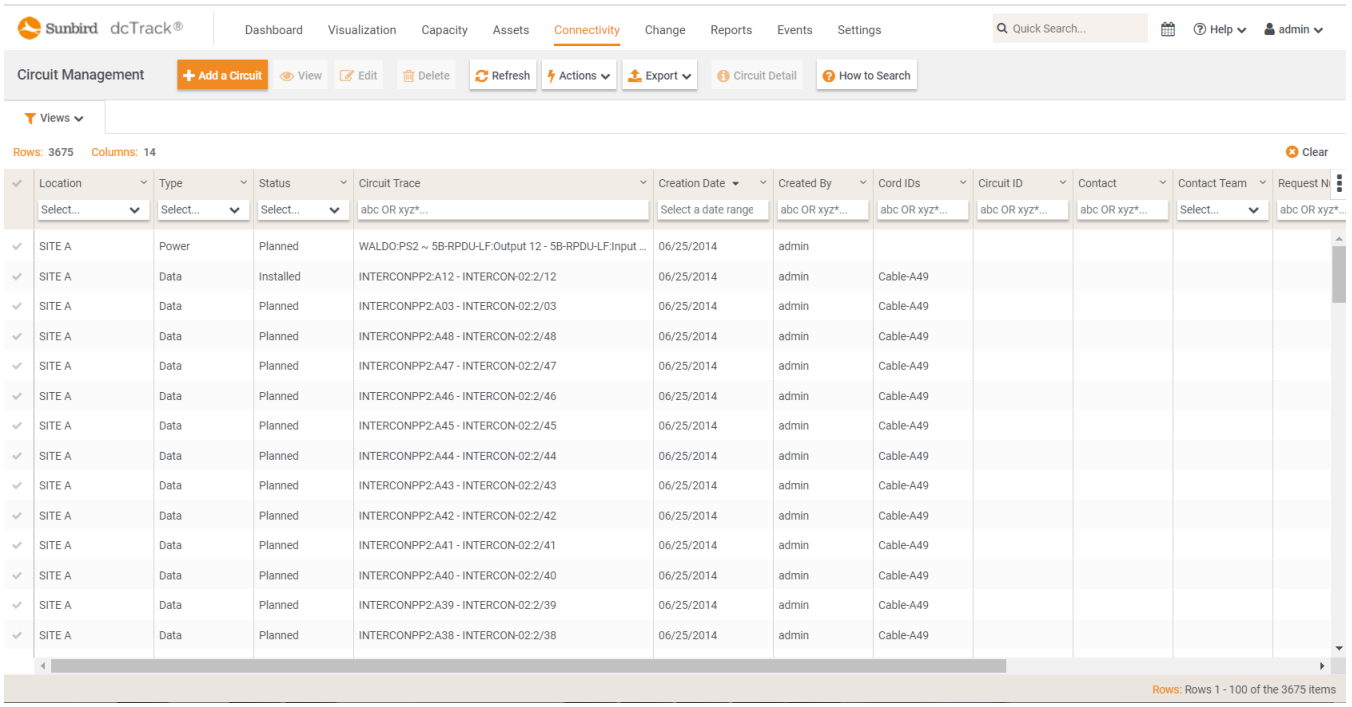
Edit a specific data or power circuit by selecting the circuit and clicking on the Edit button in the toolbar. This opens the circuit in edit mode. Multiple circuits can be edited in single tab. To edit multiple circuits in single tab, select the circuits from the circuit list and select the Edit in Single Tab option from the Edit menu. To edit circuits in multiple tabs, select the “Edit in Multiple Tab” option.

Editing an installed circuit generates a Proposed Circuit and issues a Disconnect Request. This is applicable when editing either a Data Circuit or a Power Circuit.



Circuit List Toolbar

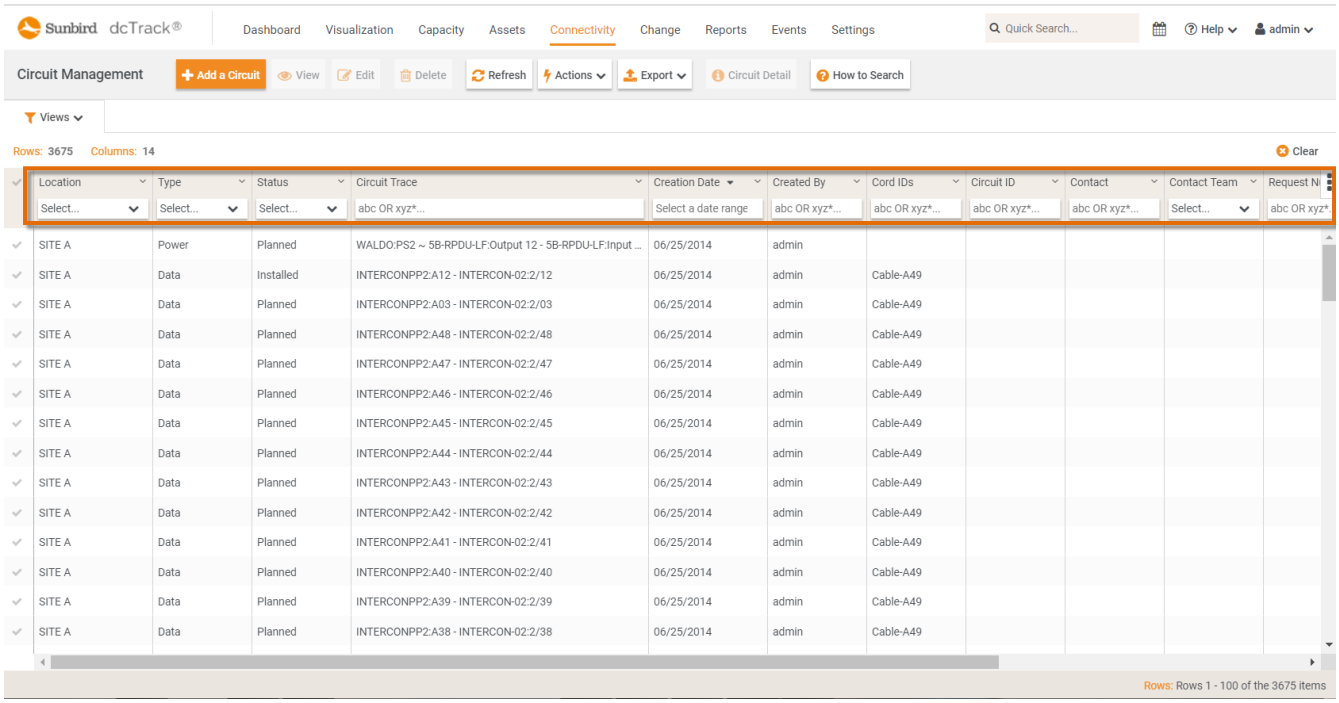
The Circuit List in dcTrack has been enhanced to make it faster and easier for you to manage Data and Power Circuits, including a new and improved Asset Management toolbar:



Icon	Summary
Add a Circuit	Opens a new page to add one or more Circuits
View	Opens one or more selected Circuits on a single or multiple tabs in View mode
Edit	Opens one or more selected Circuits on a single or multiple tabs in Edit mode
Delete	Deletes the selected Circuits
Refresh	Refreshes the Circuit List
Actions	Dropdown that allows toggling Request Bypass, Connecting or Disconnecting Circuits
Export	Dropdown that allows users to export Circuits and Download the Import Template
Circuit Detail	View the Circuit Detail page for a selected Circuit
Search Help	View tips for better advanced searches

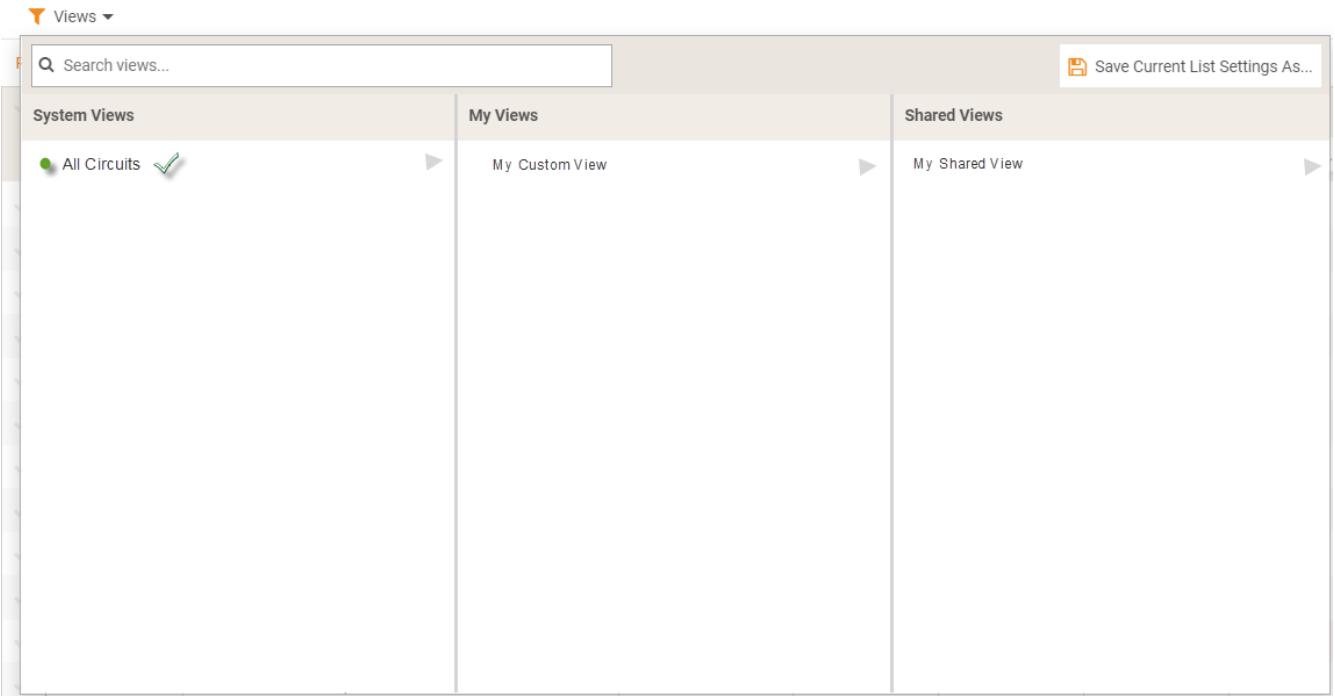
Search and Filter the CircuitList

The Circuit List now can be filtered based on criteria for any of the available columns:



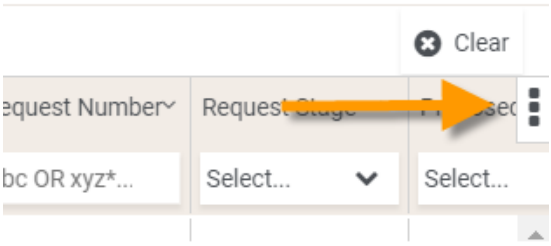
You can select the columns that appear in the list by clicking the Show/Hide columns icon on the far right side of the grid. You can reorder the columns by dragging and dropping them into the desired position.

As with the Item List search results and other dcTrack features, you can save and share your current view by clicking the Views drop-down and clicking the Save Current List Settings As... icon. Multiple list views are available for each user. To clear the view, click the Clear icon in the right corner.



Show/Hide Circuit Columns

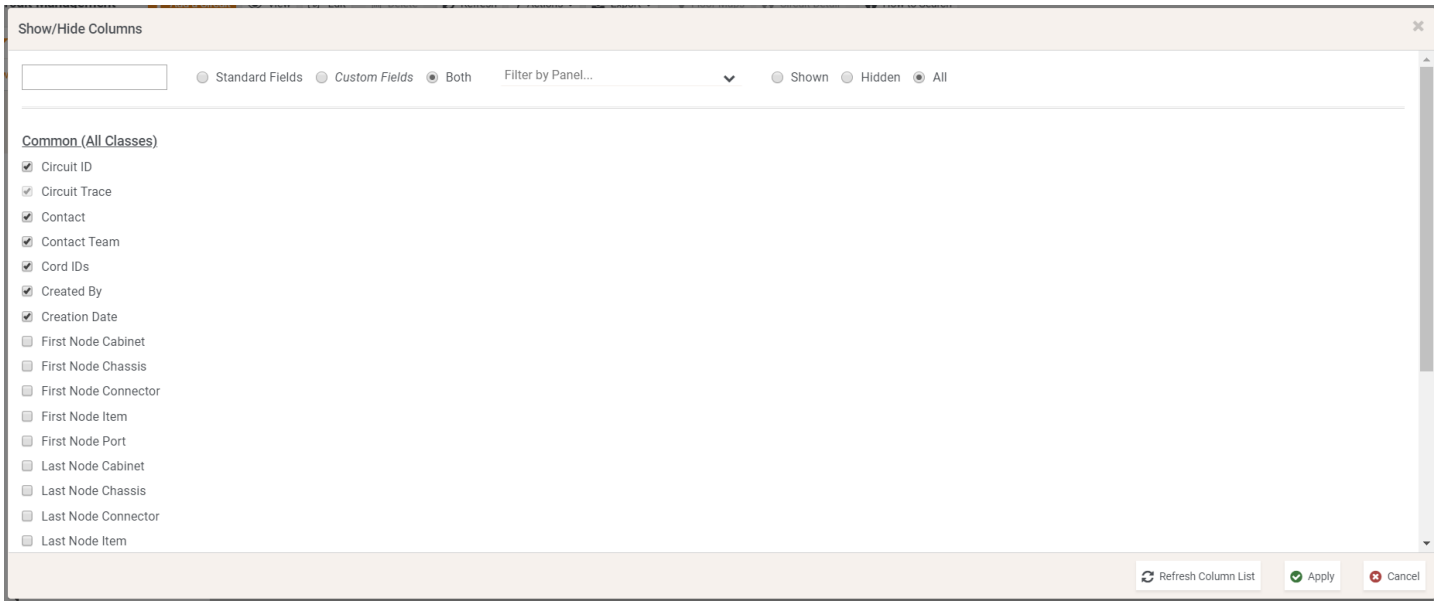
To specify which columns are shown or hidden, click the Show/Hide columns icon in the upper right corner:



The Show/Hide Columns dialog displays. All Standard and Custom Circuit fields are displayed. You can check or uncheck the box next to each to show or hide the corresponding column.

At the top of the dialog are filtering capabilities. You can search for columns by typing your criteria into the search box, specify standard or custom fields, filter by sub-tab on the Circuit Details page, or select Shown or Hidden columns. The available columns will update automatically based on your selections.

To save your selections, click the Apply icon.



yImport Circuits Using the File Import

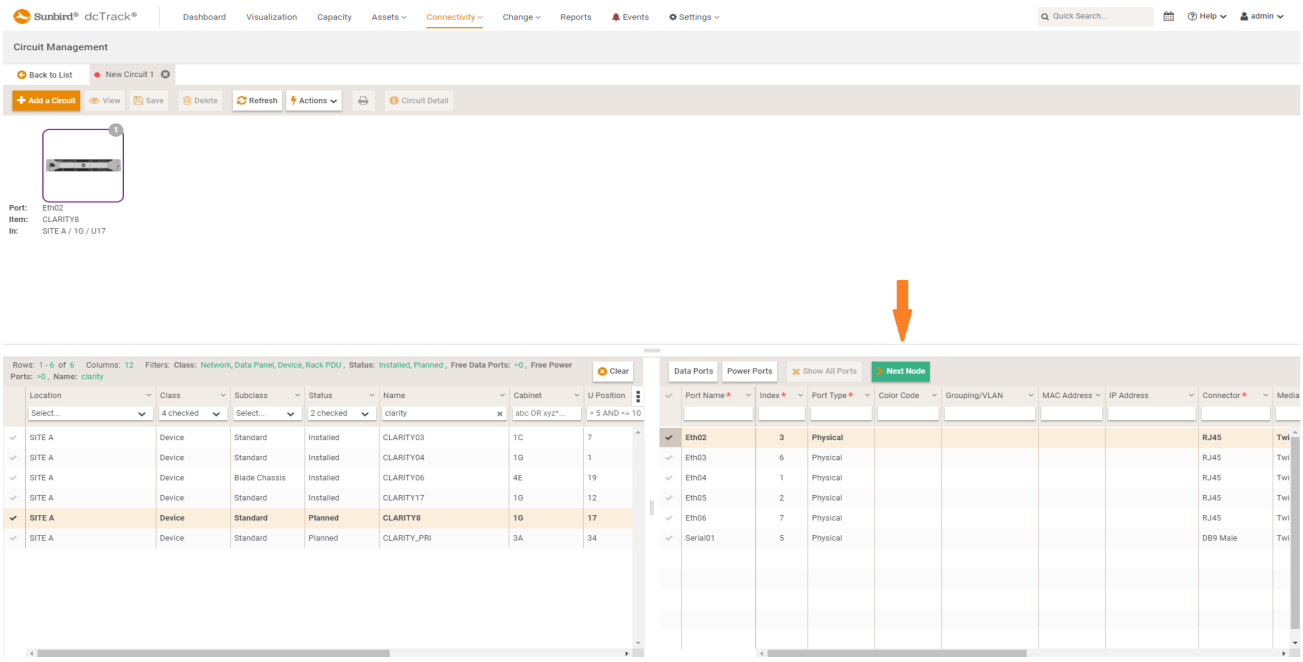
Rather than manually build circuits when a large number must be created, System Administrators and users with the "Bulk Import" role can use File Import to import circuits into dcTrack in bulk.

For details, see **Use File Import to Add, Edit Delete and Move**.

Building a Data Circuit

To build a data circuit:

1. In the Web Client, click Connectivity > Add a Circuit. A New Circuit tab is opened with an empty node highlighted in blue and an Item List for selecting the Item for this Circuit Node.
2. From the Item List, select the item from which the circuit is initiated. Required
3. Next, select the data port from the Ports List from which the connection originates. dcTrack validates the port selection to make sure there are no issues. Required

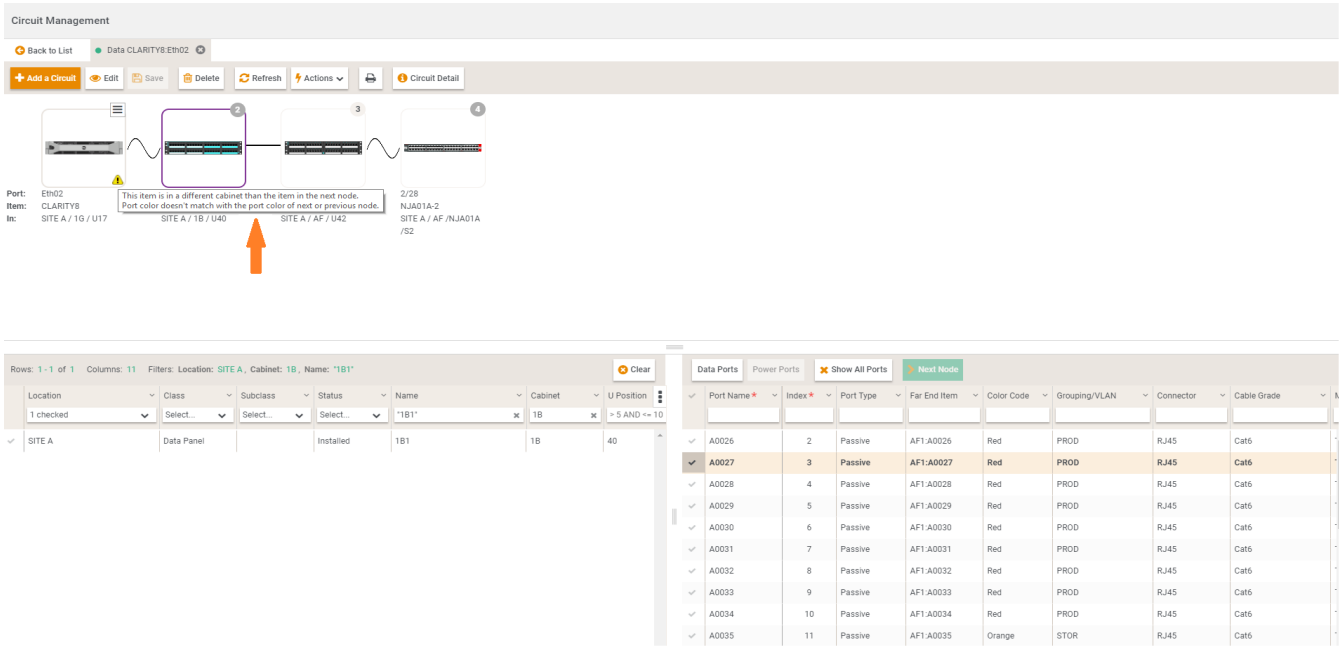


When building the first node, you can switch to building a power circuit instead of a data circuit by selecting the Power Ports tab from the Port List.

Once you have moved on to creating the next node, the option to select Power Port is no longer available, so you would need to start building the circuit over.

4. Continue adding nodes as needed by clicking on Next Node in the Item List tool bar and selecting the Items and Ports from the list. When selecting the port list from second node onwards, you will see an option to show only compatible ports that are most likely to be used for building this circuit. By default, this option will be enabled, if you want to view all the available ports for the selected item, can click on Show All Ports in the Port List toolbar.

If there is an issue between the node item or port you selected and the item and port of the previous node, a Caution icon ( ) is displayed at the bottom right of the node. Click on the node to view the conflict details. Make changes if needed.

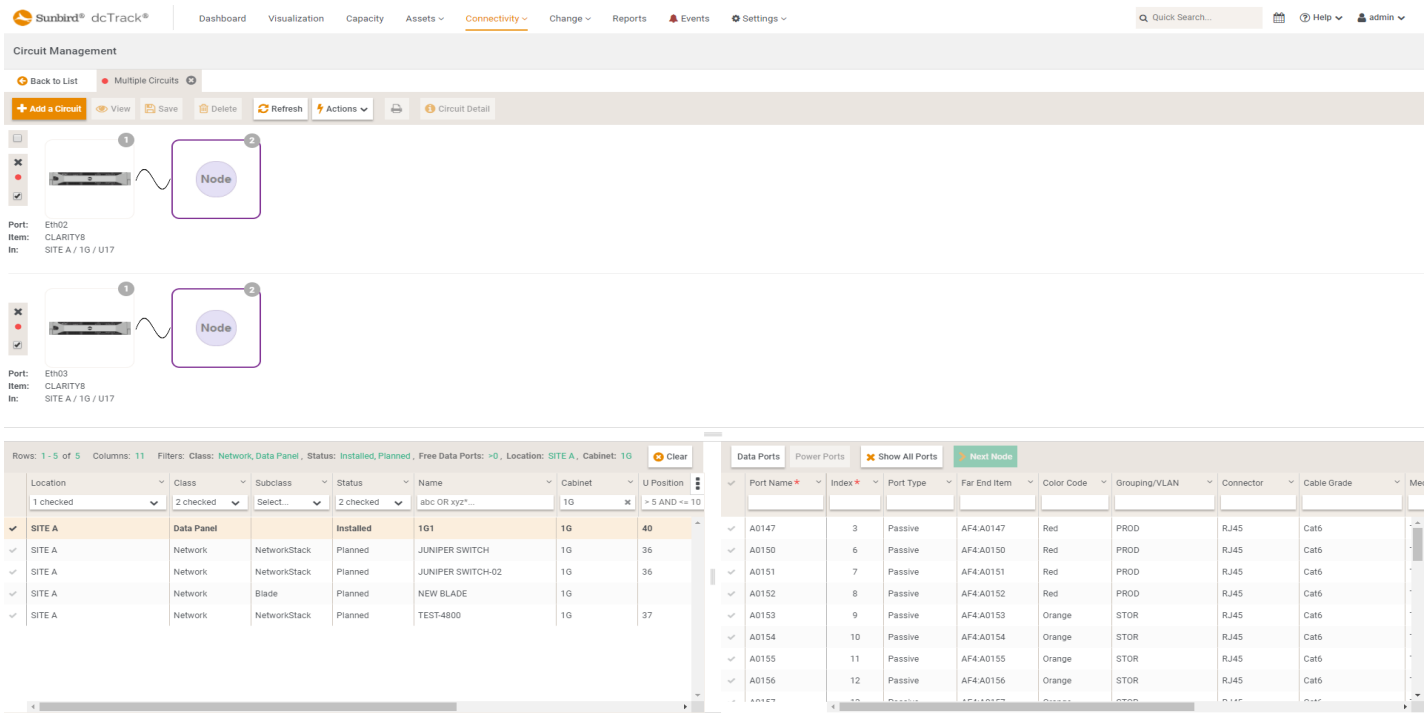


Note: If you make changes and have already added additional nodes, the nodes that follow are deleted. dcTrack displays a warning when this will occur.

5. Click Save.
6. Submit a Connect Request now or at a later time.

You can also build multiple data circuits in single tab by selecting an item and selecting multiple ports for that item. You can continue to build the circuits by clicking Next Node and selecting the same item for the next node for all the circuits by leaving each circuit checked. In this case you will have to select the same number of ports for the second item as the number of circuits being built.

If the number of free ports or compatible ports selected for second node is less than the number of multiple circuits, the selection would only apply to the first n number of the circuits. For example: If you are building 4 circuits and the item selected for the second node only has 2 free ports, the item selected would only apply to the first two circuits.



You can also select different items for the second node when the first item is the same for all the circuits. In this case, you select each circuit and build them individually.

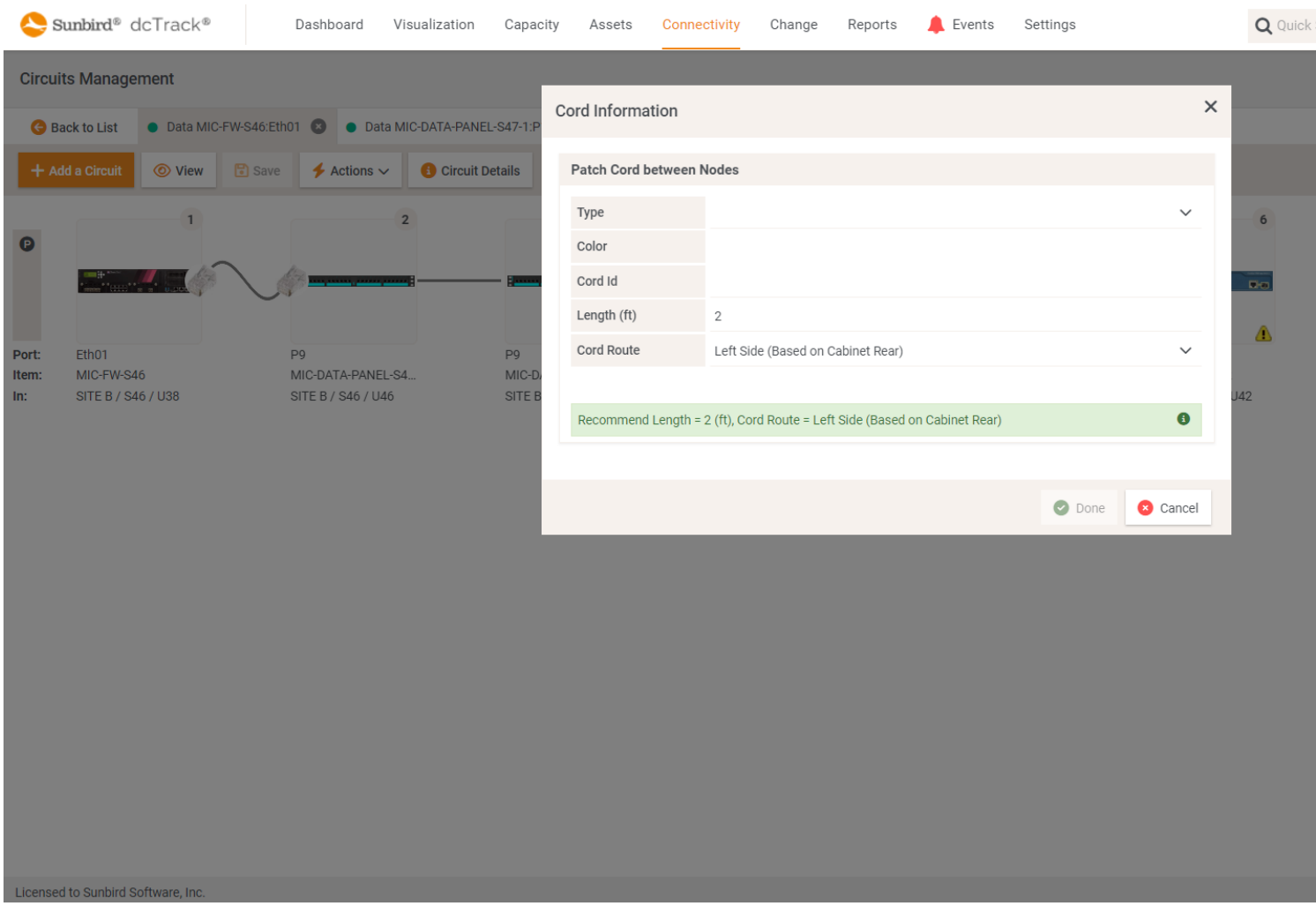
Once all the circuits are built, you can save all the circuits by selecting all the circuits by clicking the checkbox at the top left corner of the page and clicking Save or by saving each circuit individually by selecting that circuit.

Once all the circuits are saved, you can submit a connect requests for all the circuits.

Cord Details

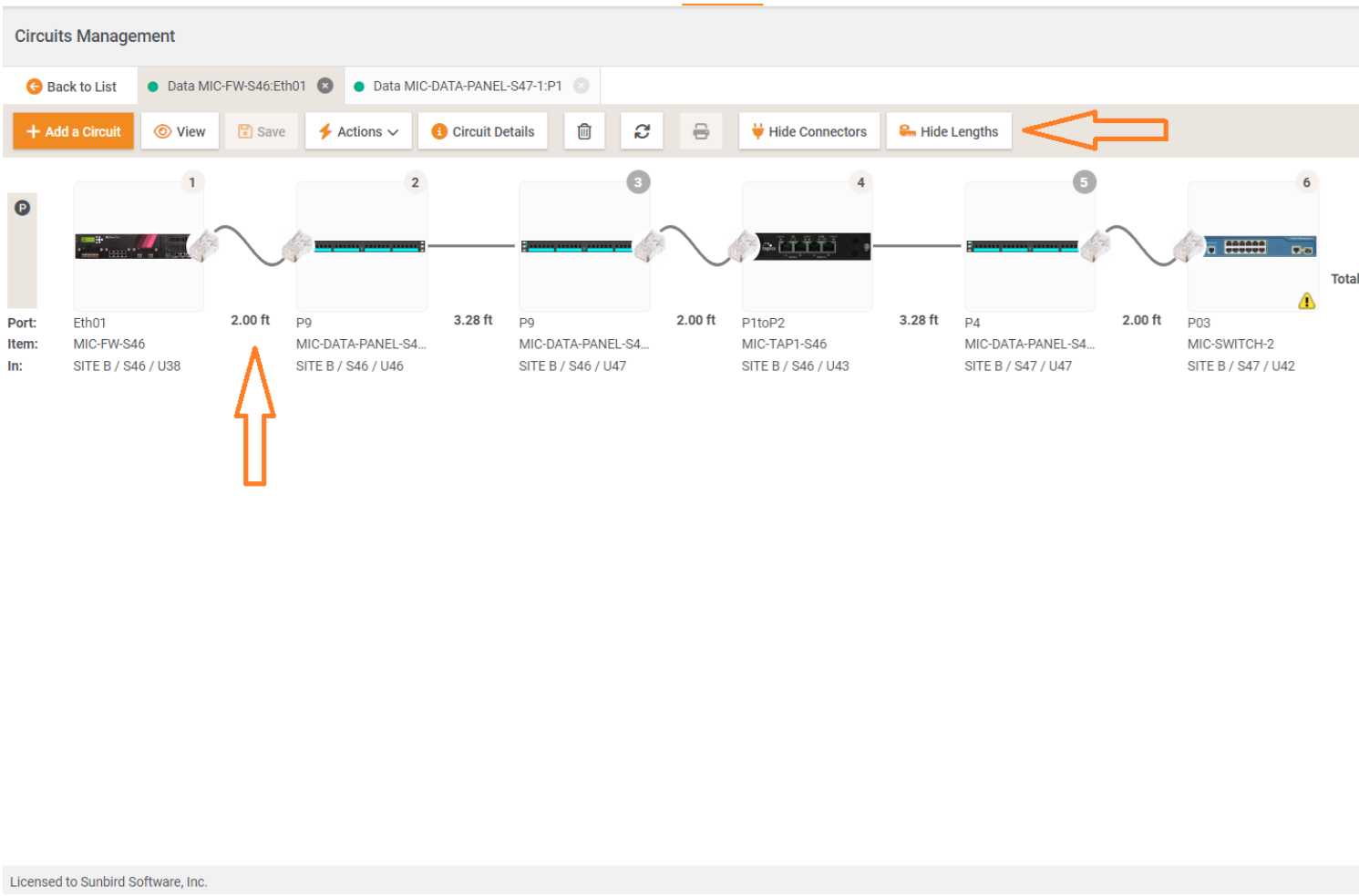
When building or editing a data connection, users are allowed to manually enter Cord Type, Cord Color and Cord ID from the Cord Detail dialog. Cord Length and Cord Side however can be automatically calculated for you. When building or editing a connection, upon saving the record, the Cord Length and Cord Side are automatically calculated and stored with the connection.

Opening the Cord Detail dialog will display the calculated length and side in a message at the bottom of the dialog. This calculated value is also populated in the Cord Length and Cord Side fields. You can always override the calculated value and supply your own values. Upon saving it will always be the values that are stored in these fields that will be saved with the connection record. If the Cord Detail dialog is opened again it will continue to display the calculated values in the message at the bottom of the page, however it will retain any values that you have overridden in the actual fields.



When viewing the Circuit trace you can view the length values by toggling the Show Lengths button. The individual Cord Lengths are displayed below the cords and if a length exists for every cord in the circuit, the Total Cord Length is also displayed.

Cord length and side can only be calculated when both items in the connection reside within the same Cabinet. The Total Circuit Length is only calculated when every cord in the circuit has a value.



When calculating Length and Side, dcTrack takes into consideration, the Uposition of both Items, the placement of the connected ports, whether or not the cords pass through a wire manager. with an allowance for the distance between the item sides and cabinet side.

Build Partial Data Circuits

View, build and edit partial circuits in dcTrack.

dcTrack allows you to build two types of partial data circuits

- A Left Partial data circuit is one that starts with any item with free data ports and ends with a data panel.
- A Right Partial data circuit is one that starts with a data panel and ends with a network item.

When a partial circuit is created, it is saved as an independent circuit.

When another circuit is built that joins to the partial circuit, the circuit is saved as a new circuit.

Partial Data circuits can be connected to make a complete circuit

When a Left partial circuit is connected to a right partial circuit it will be saved as full circuit.

- This can be done by editing a left partial circuit and connecting it to a right partial circuit.

or

- Building a new circuit by selecting the far end data panel of a left partial circuit as the first node. This loads the left partial circuit. Then click on the Next Node button and select the far end data panel of another left partial circuit and click Save.

    For example:

    Left partial circuit Dev~DataPanel 1- DataPanel 2 when connected to Right Partial circuit

    DataPanel 3-DataPanel 4 ~ Network will be saved as a complete circuit.

    The Circuit List will display complete circuit Dev~DataPanel 1- DataPanel 2 ~ DataPanel 3-DataPanel 4 ~ Network and right partial circuit DataPanel 3-DataPanel 4 ~ Network.

    The Network Item can be connected to a left partial circuit and will be saved as a complete circuit.

    - This can be done by editing the left partial circuit and on the next node selecting the network item

    Or

    - Add a new circuit and for the first node select the far end data panel of the left partial circuit. This loads the left partial circuit. Click the Next Node to select the network item and save the circuit. This can also be done by clicking on the Connect button on the Item Detail page of the far end data panel which loads the left partial circuit in the Connectivity page and then select the Network item for the second node.

    Device items can be connected to a right partial circuit and will be saved as a complete circuit. The Circuit list will display the complete circuit and the right partial circuit.

Partial circuits that are part of a full circuit are read-only. They are editable only if:

- The full circuit that it is a part of is edited to use another unrelated node in place of the partial circuit.
- The full circuit that it is a part of is deleted or disconnected.

To delete or disconnect partial circuits, the partial circuits must first be removed from existing circuits they are used in.

Network to Left Partial Circuit

Complete circuits can also be formed by connecting a Network Item to a Left Partial Circuit.

Steps:

1. When building a circuit in the first node, select the Network Item you wish to connect from the Item List grid
2. Next, select the data port from the Ports List from which the connection originates. dcTrack validates the port selection to make sure there are no issues.
3. Click the Next Node button
4. In the next Node, select the Far End Data Panel of the Left Partial Circuit. This will add the left Partial circuit to the trace.
5. Click Save to save the Circuit. After click the Save button, you will recieve a message indicating "Circuits starting with a Network Item will be saved in reverse order".
6. After the Save, the circuit will flip placing the Network Item in the Last Node.

This process can also be performed via File Import.

Steps:

1. Enter "DATA-CONNECTION" in the Object column
2. Enter "EDIT" as the Operation (EDIT is the only supported Operation for this type of Data Connection)
3. Enter the Location, Item Name and Port Name of the Network Item in the corresponding Starting columns
4. Enter the Location, Item Name and Port Name of the Far End Data Panel (Left Partial Circuit) in the corresponding Ending columns.

Connecting Two Right Partial Circuits via File Import

File Import will allow users to connect and disconnect Right Partial Circuits. This can only be done using the File Import feature.

Steps:

1. Specify EDIT in the Operation column
2. Specify the Item name of the Data Panel of the first Right Partial Circuit in the Starting Item Name column
3. Specify the Item Location of the Data Panel of the first Right Partial Circuit in the Starting Item Location column
4. Specify the Port on the Data Panel of the first Right Partial Circuit in the Starting Item Port column
5. Specify the Item name of the Data Panel of the second Right Partial Circuit in the Ending Item Name column
6. Specify the Item Location of the Data Panel of the second Right Partial Circuit in the Ending Item Location column
7. Specify the Port on the Data Panel of the second Right Partial Circuit in the Ending Port column
8. Upon completion of the import, a new complete circuit will be created.

Example

DP1:A01 -DP2:B01 - NW1

DP3:C01-DP4:D01 - NW2

In the Import file the Starting Item Name would be DP1 and the starting Port Name would be A01. The Ending Item Name would be DP3 and the Ending Port Name would be C01.

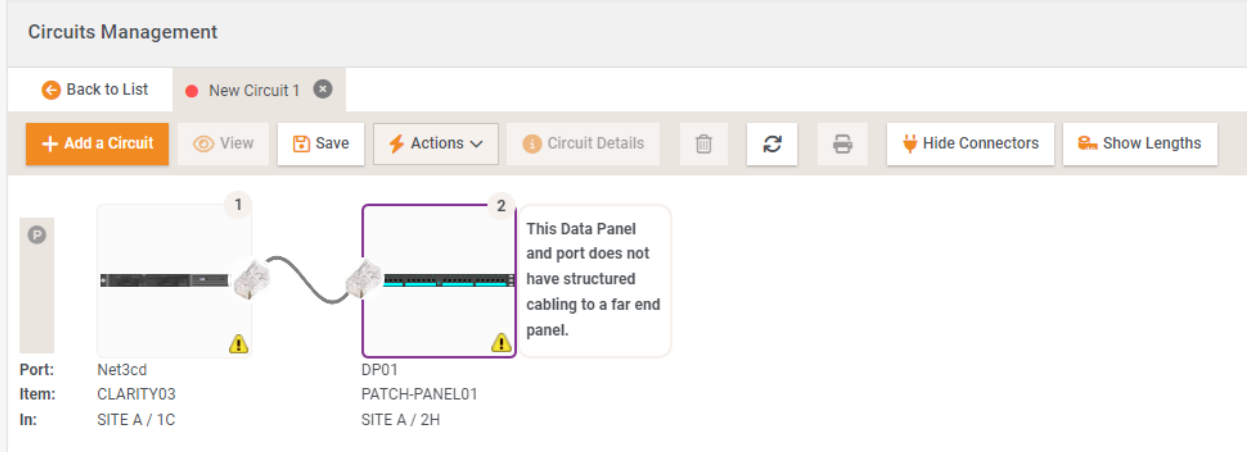
After file import the result would be the new complete circuit saved as NW1-DP2:B01-DP1:A01-DP3:C01-DP4:D01-NW2, the second Right Partial circuit DP3:C01-DP4:D01-NW2 will still appear as separate circuit in the Circuit List, but will be considered read-only.

Create circuit with Data Panel without Structured Cabling

Data Panel ports without structured cabling can be connected to a device or switch. Such circuits can include one or more hops of data panel before it ends on data panel without structured cabling.

To build the circuit:

1. In the Web Client, click Connectivity > Add a Circuit. A New Circuit tab is opened with an empty node highlighted in blue and an Item List for selecting the Item for this Circuit Node.
2. From the Item List, select the item from which the circuit is initiated. Required
3. Next, select the data panel port from the Ports List. If the data panel port does not have a far end a warning message will notify the same.



5. Click Save.

This circuit is not considered as a partial circuit and may include one or more hops of data panels before ending on a data panel without structured cabling.

When structured cabling is created for this data panel port, the circuit will be saved as a partial circuit.

Port Mirroring

Port Mirroring in a Circuit is when one data panel is connected through structured cabling to a network item and each of the ports on the data panel align exactly with the ports on the network item. Once the data panel's ports are

connected to a network item through structured cabling, there will be straight line between the data panel and the network item. This circuit will appear as a separate circuit in the circuit list.

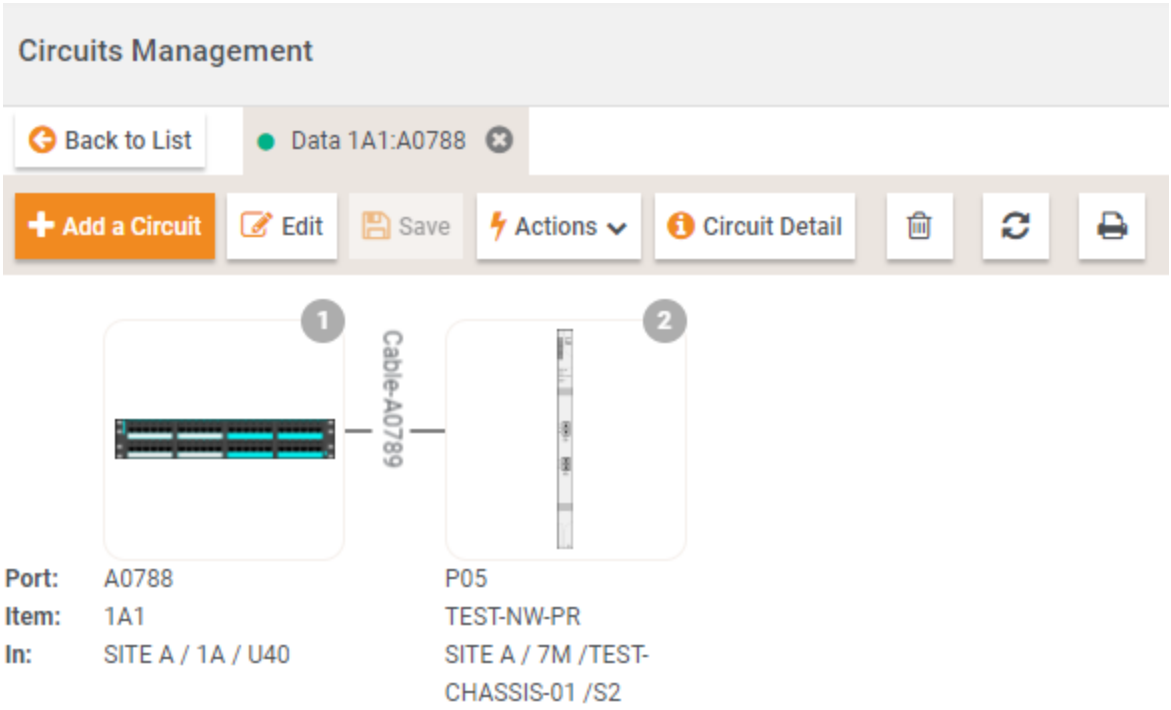
For example if a data panel has 5 ports which are connected to 5 ports of a network item through structured cabling, the circuit list it will contain 5 different circuits.

Port Mirrored circuits can be created via File Import or using Web client. See Create Structured Cabling between Data Panel and Network for more details.

To create Port Mirrored Circuits using file import you should use the Structured Cabling import template where the Data Panel is the Starting Item and the Network Item is the Ending Item.

Note : Port Mirrored Circuits appear in the Circuit List. However these circuits can not be exported from Circuit List. You can export it as Structured Cabling from Asset Tab by selecting the Data Panel item or Network item from the list, clicking Export button in the toolbar and selecting Export into an Import Template -> Structured Cabling.

You can connect a Right Partial Circuit to a Port Mirrored Circuit, however you can not connect two Compound Right Partial Circuits (circuits that connect to a Mirrored Port).



Connecting Right Partial Circuit to a Port Mirror

File import allows you to connect Right Partial circuit to a Port Mirror.

Steps

1. Specify EDIT in the Operation column
2. Specify the Item Name of the Data Panel of the Right Partial Circuit in the Starting Item Name column
3. Specify the Item Location of the Data Panel of the Right Partial Circuit in the Starting Location column
4. Specify the Port on the Data Panel of the Right Partial Circuit in the Starting Port Name column
5. Specify the Item Name of the Data Panel of the Port Mirror circuit in the Ending Item Name column
6. Specify the Item Location of the Data Panel of the Port Mirror circuit in the Ending Location column
7. Specify the Port on the Data Panel of the Port Mirror circuit in the Ending Port Name column.

Note: You can also specify Data Panel of the Port Mirror Circuit in the Starting Item Name column and Data Panel of Right Partial Circuit in the Ending Item column.

Example

DP1:A01 -DP2:B01 ~NW1 : Right Partial Circuit

DP3:C01-NW2 : Port Mirror

Upon completion of the import the Right Partial circuit will become a complete circuit and will be saved as NW1~ DP1:A01 -DP2:B01~ DP3:C01- NW2.

The Port Mirror circuit DP3:C01- NW2 will appear as a separate circuit in the circuit list.

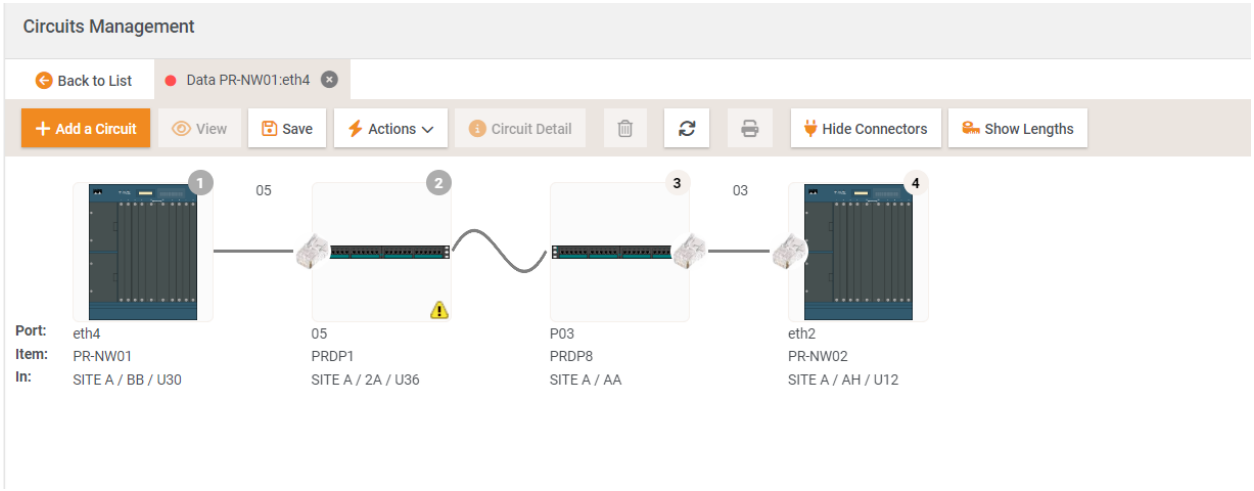
When the complete circuit NW1~ DP1:A01 -DP2:B01~ DP3:C01- NW2 is deleted or disconnected, the right partial circuit and the port mirror circuit will stay and show as separate circuit in the circuit list.

Connecting Two Port Mirror

Port Mirror circuits can be connected via UI or Import

Steps to connect via UI

1. Go to item details page of the data panel, in the data port subtab select the port whose far end item is Network port and click connect.
2. In Connectivity select the item for the next node. Select the data panel item and port.
3. Click Save.



Steps to connect via File Import

1. Specify EDIT in the Operation column
2. Specify the Item name of the Data Panel of the first Port Mirror Circuit in the Starting Item Name column
3. Specify the Item Location of the Data Panel of the first Port Mirror Circuit in the Starting Item Location column
4. Specify the Port on the Data Panel of the first Port Mirror Circuit in the Starting Item Port column
5. Specify the Item name of the Data Panel of the second Port Mirror Circuit in the Ending Item Name column
6. Specify the Item Location of the Data Panel of the second Port Mirror Circuit in the Ending Item Location column
7. Specify the Port on the Data Panel of the second Port Mirror Circuit in the Ending Port column

Building Compound Circuits with Two Port Mirror

Circuits like NW1 - DP1 ~ DP2 - DP3 ~ DP4 - DP5 ~ DP6 - DP7 ~ DP8 - NW2 which is a combination of two right partial circuits with Port Mirror are called Compound Circuits.

This type of circuit can be built via file import.

Steps

1. Build this circuit "DP2 - DP3 ~ DP4 - DP5 ~ DP6 - DP7 ~ DP8 - NW2" using ADD operation via file import.
2. Connect the right partial circuit created in the step above to Port Mirror circuit NW1-DP1 using EDIT operation. Specify DP1 as the starting item and DP2 as ending item.

After the file import the circuit will be saved as NW1 - DP1 ~ DP2 - DP3 ~ DP4 - DP5 ~ DP6 - DP7 ~ DP8 - NW2.

Build a Blade's Logical Port Circuit

You are able to build data circuits between:

- Device blade ~ network blade
- Device blade ~ chassis

dcTrack supports:

- Multiple blades connected through one or more logical blade ports at the same time
- One or more virtual machine virtual ports connected to a device/network virtual machine host, then connected to the host's logical network port
- One or more blade servers connected through the same network blade logical port

If Node 1 is a blade with a logical port, Node 2 must be a network blade with a logical port in the same chassis as the Node 1 blade.

Unlike other circuits, dcTrack does not complete a circuit based on the connection created for the existing port when a port on an item is already in use.

See **Building a Data Circuit** for details on creating data circuits.

Switch an Item's Power or Data Connection (Connect and Reconnect)

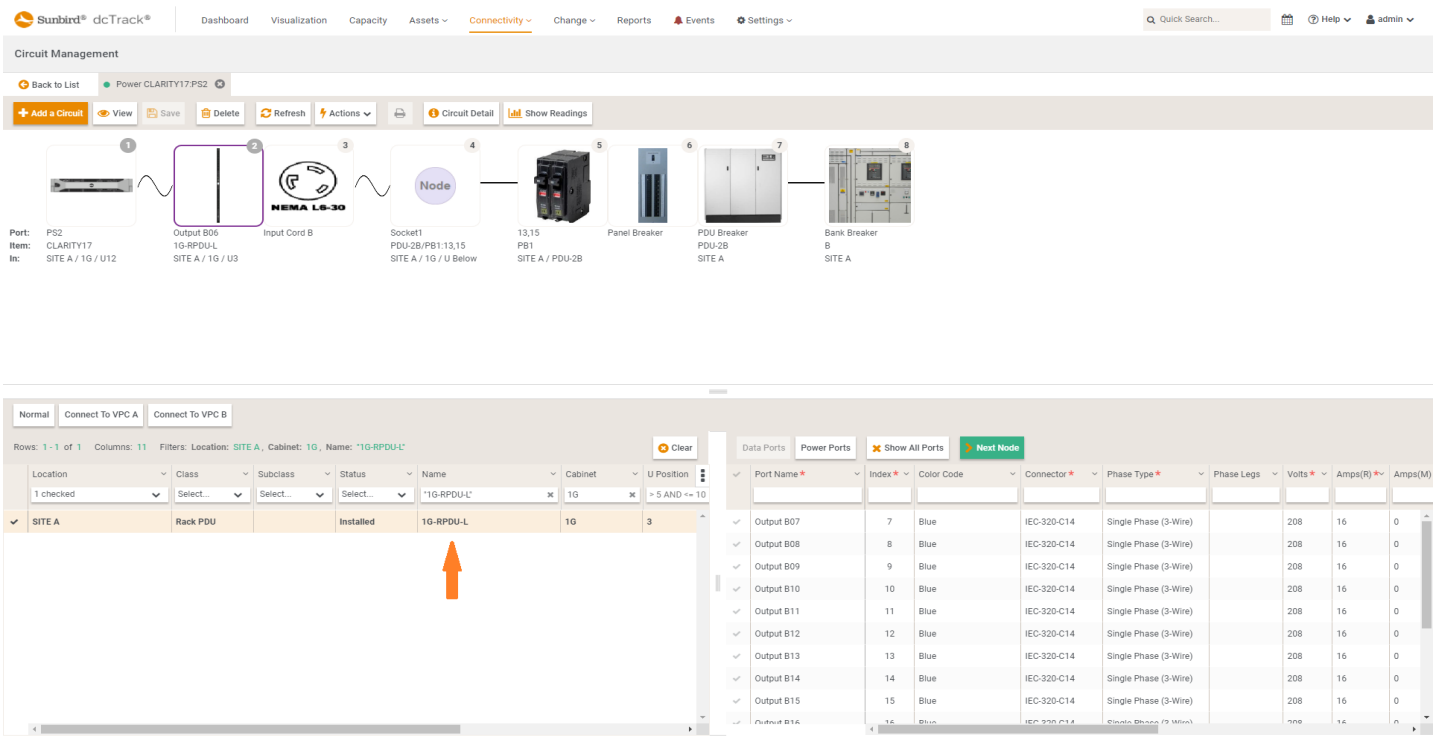
dcTrack allows you to switch an item's power or data connections for both Planned and Installed connections. This allows you to make changes without having to issue separate disconnect and connect requests.

For example, if you install a new rack PDU in a cabinet to replace an existing rack PDU, you can switch each item's connection from the old rack PDU to the new rack PDU. The same is true if you want to switch ports or connected items on a Data Circuit.

In all cases, you must have edit access to the circuit.

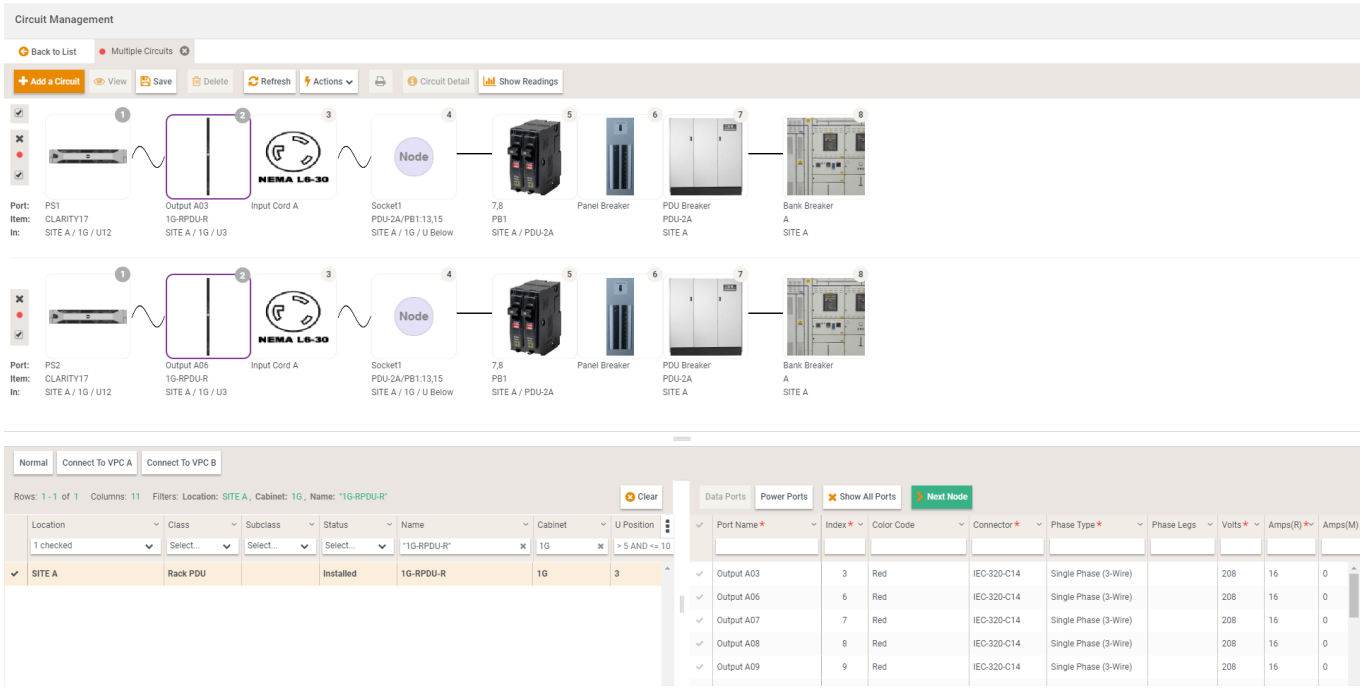
This action can be performed when circuits are in an Installed, Powered-off, or Planned status.

To switch a connection, simply open the item's circuit in edit mode, select a new connected Item or Port and Save the Circuit.



You can also switch multiple power connections in single tab.

1. Select the power circuits of the old Item from the circuit list.
2. Open circuits from the old Item in edit mode.
3. Select each circuit by clicking on the original Items node and select the new Item from the item list.
4. Use ctrl+click to select rack PDU output for each circuit.
5. Click Save



Submit a new Connect Request.

For multiple circuits, , select all the circuits by checking the checkbox at the left top select the Connect Request from the Actions menu in the toolbar.

The request can be processed when Request Bypass is enabled or disabled. If Request Bypass is enabled, the request is processed immediately. If Request Bypass is disabled, the request moves through each stage of the Change Control workflow. For information on the Change Control workflow process and Request Bypass, see **Request Bypass and Manual Change Control**.

Build a Virtual Machine Circuit

dcTrack supports the following virtual machine (VM) data circuits:

- VM virtual port ~ device/rackable VM host ~ device/rackable hosts physical port
- VM virtual port ~ device/blade server VM host ~ device/blade hosts physical port
- VM virtual port ~ device/blade server VM host ~ device/blade hosts logical port ~ blade chassis ~ blade chassis physical port

If Node 1 is a virtual machine, Node 2 in the data circuit can only be a rackable, device item or device blade.

Additionally, the virtual machine cluster the Node 2 item belongs to must be the same as the Node 1 virtual machine cluster.

If the virtual machine is managed by VMware, then the Node 2 item must be a parent node of Node 1.

Unlike other circuits, dcTrack does not complete a circuit based on the connection created for the existing port when a port on an item is already in use.

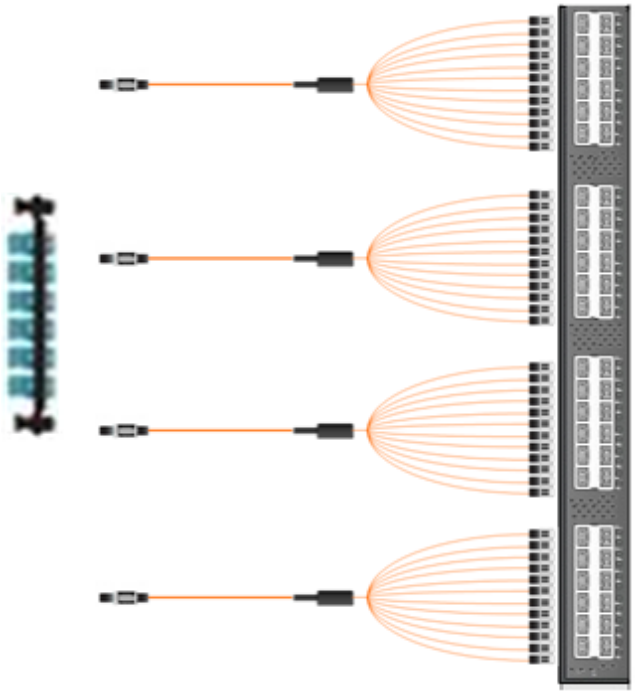
See **Building a Data Circuit** for details on creating data circuits.

Build MTP/MPO Fiber Patch Panel-to-Network/Device Item Connections

MTP/MPO fiber patch panel-to-patch panel connections are the same as any other connection between two items.

However, MTP/MPO fiber patch panel-to-network/device item connections using an LC-harness are more complex.

The connection is complex due to the one-to-many relationship between the multiple LC connectors that plug into the network/device item ports.



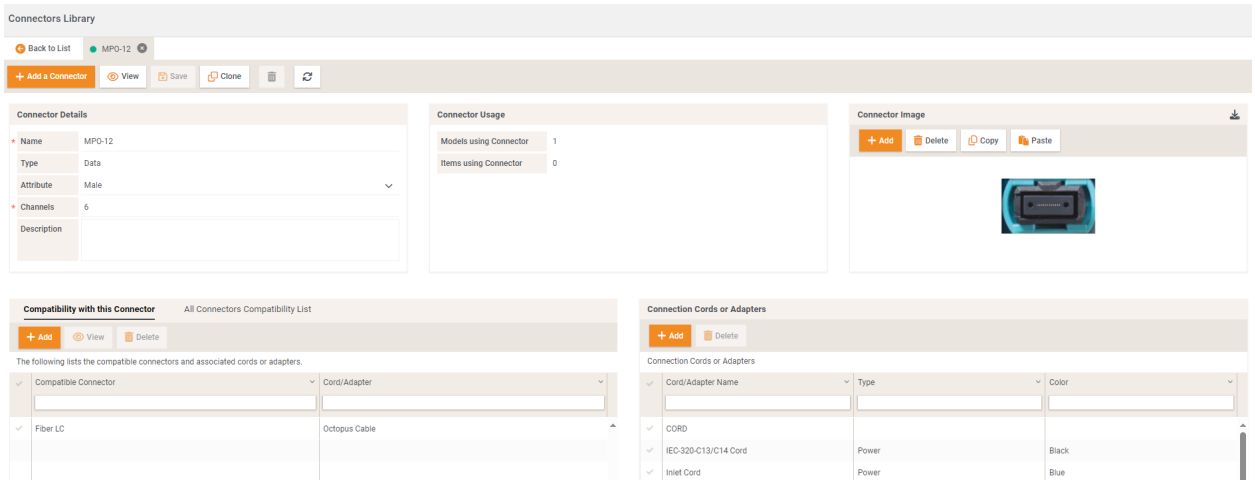
dcTrack 9.2.0 introduces a new property Channels which applies to Connector, Model port and Item port. Channels are used to track the number of circuits that can run through the port (i.e. communication paths). A port with multiple channels can accept multiple connections. For example: 6 (1-channel) ports with LC connectors can all connect to a single Port with MPO connector having 6 channels. This allows 6 circuits to be created that are all using the same MPO port.

Prerequisites for building MPO Circuits.

1. In the Connector's library, create MPO connector and enter a value for the Channels. For example an MPO-12 should have 6 channels, MPO-24 should have 12 channels. If you already have MPO connectors in the

Connector's library, update the Channels value.

2. Define the connector compatibility for MPO connectors so that circuit can be built between the ports having mpo or non-mpo connectors.



3. Create MPO ports on your items. If you do not have items created in dcTrack , follow the steps here Add and Edit Items to create items. For best practices, it is recommended to create MPO ports directly on the model. This ensures that any items created from the model will automatically inherit the ports.
4. Next, create structured cabling. See here Create Structured Cabling with MPO Data Panels if you have MPO Data Panels, otherwise see here Create Structured Cabling to create structured cabling. You can skip this step if structured cabling is already created or you do not manage structured cabling.

Building MPO Circuits

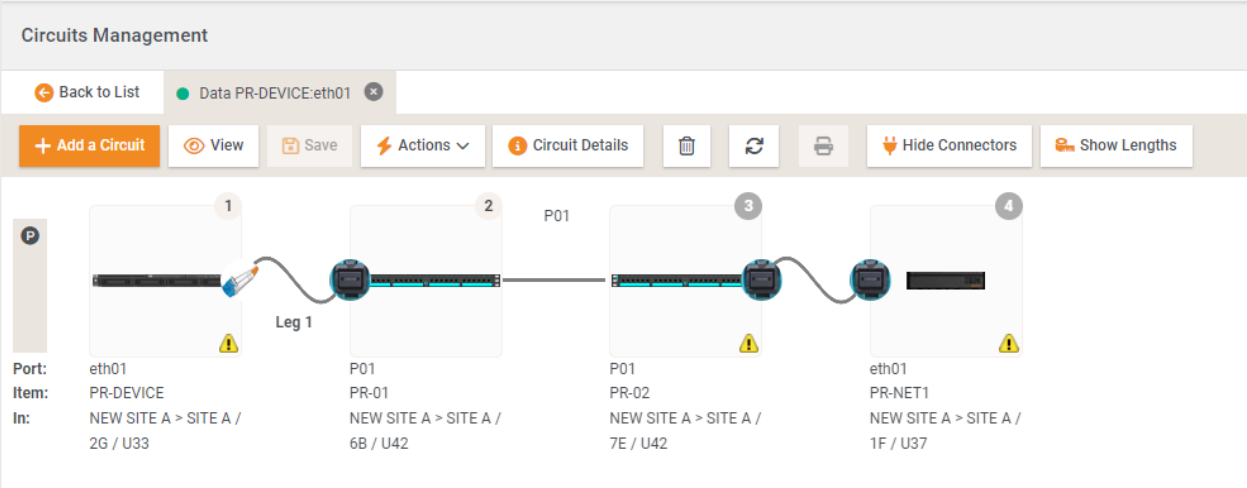
MPO circuits can be built in dcTrack in the same way as other data circuits. However, since MPO ports support multiple connections, each port must have multiple channels.

Consider the use case below where a server port that is an LC 1-Channel is connected to the Data Panel that has MPO 6-Channel Connectors and which is further connected to MPO 6-channel Switch ports.

The cord used on the left side is typically referred to as "Octopus", "Breakout" or "Harness". 5 more circuits can be created from 1-Channel ports in Node 1 and the rest of the circuits comes up as previously built circuits.

Steps to build circuits this circuit in dcTrack:

1. In Connectivity, add a circuit and select the item and the port for the first node.
2. For the second node, select the data panel which has the MPO port. The far end right panel is shown as the third node.
3. For the fourth node, select the network item that has MPO port.
4. Save the Circuit.

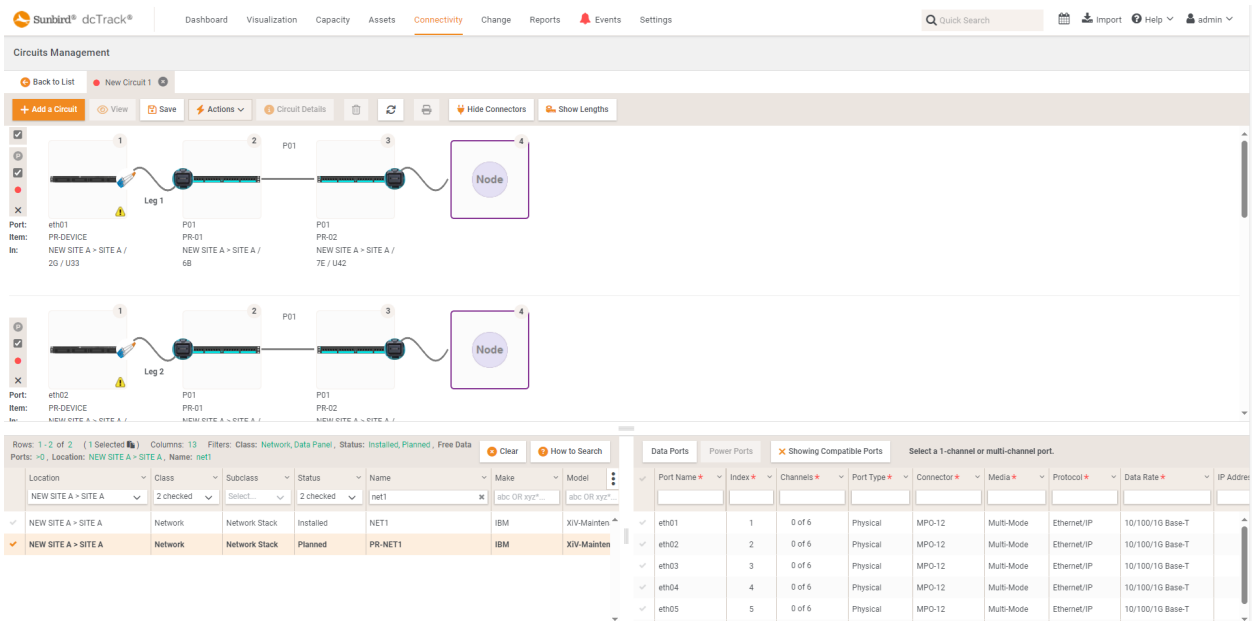


When the circuit is saved it will have two records in the Circuit List, one full circuit and one shared right partial circuit. In this case the two data panels and network switch form a shared right partial circuit. The shared right partial circuit cannot be disconnected when used in a full circuit.

Since the MPO port on the data panel can still accept five more connections, it will appear in the list of available ports when building a circuit. This port will no longer appear in the list when all its channels are connected.

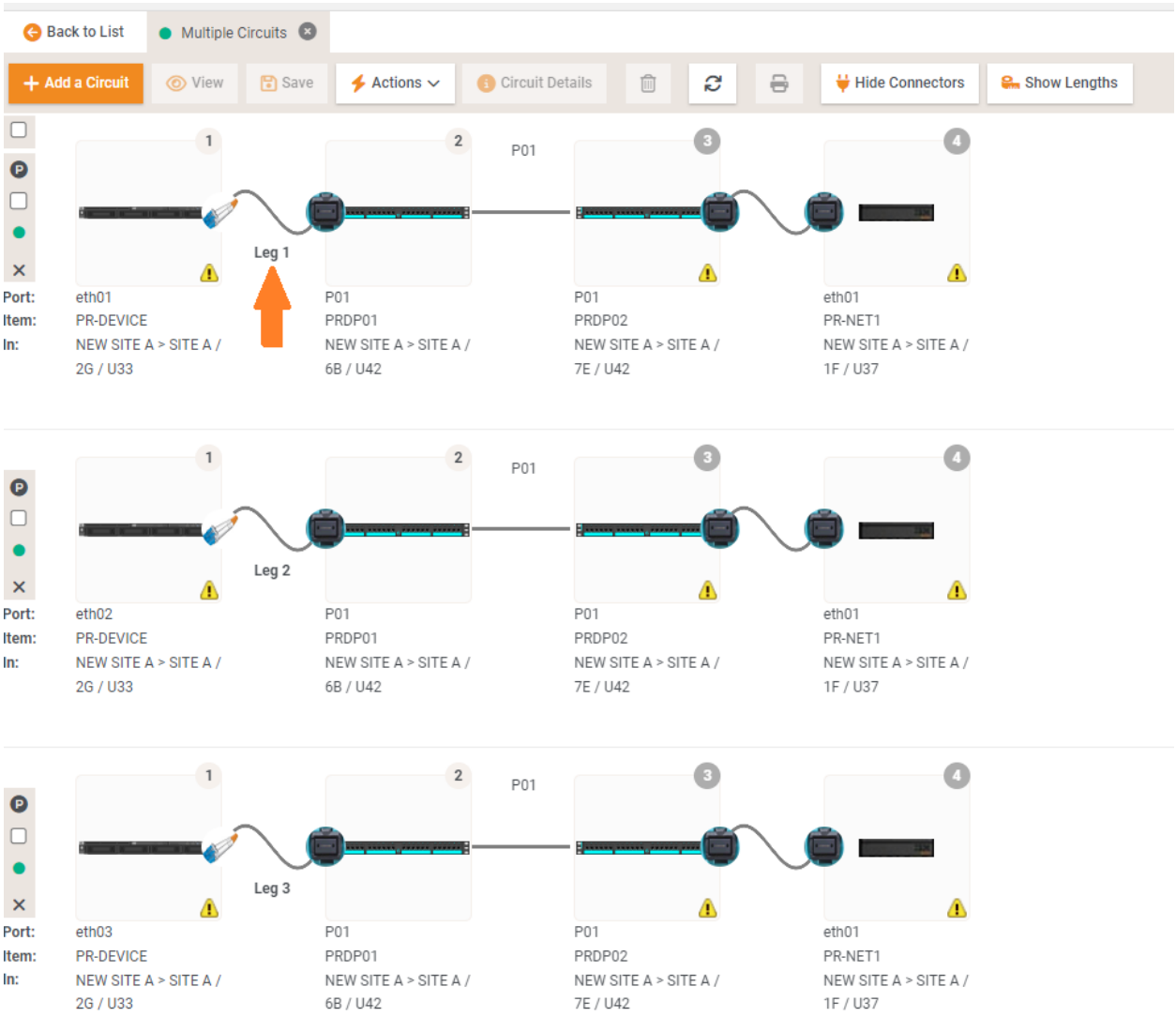
First Node Location	Type	Status	Circuit Trace	Creation Date	Created By	Breakout Leg
NEW SITE A > SITE A	Data	Planned	PR-DEVICE:eth01 ~ PR-01:P01 - PR-02:P01 ~ PR-NET1:eth01	11/12/2024 3:07 PM	admin	1
NEW SITE A > SITE A	Data	Planned	PR-01:P01 - PR-02:P01 ~ PR-NET1:eth01	11/12/2024 3:07 PM	admin	

You can also build all 6 circuits for this use case in the same tab by selecting 6 servers ports together from item details page, when the first node is the same item for all the 6 circuits and then selecting the MPO data panel port and for the fourth node, selecting the network MPO port.



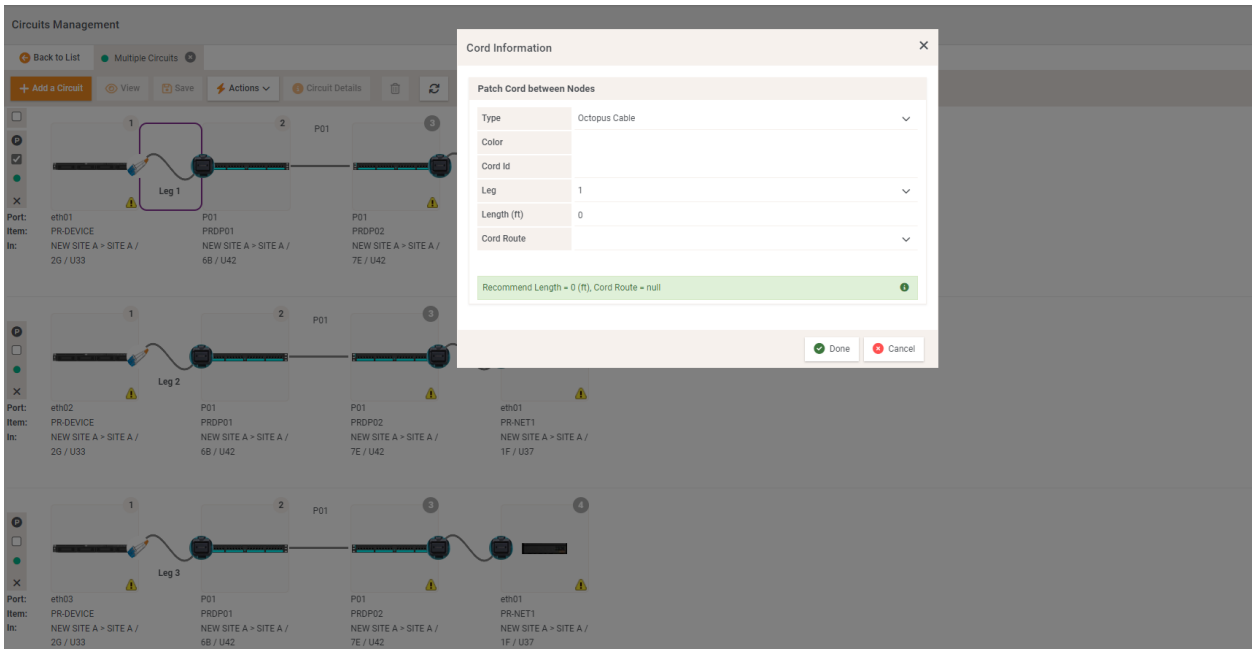
When these circuits are saved, the circuit list will have 7 records where 6 circuits are full circuits and 1 circuit is the shared right partial circuit.

Circuit trace will also show the Leg value when two ports on either side of the cord have different number of channels. In this use case the first node of the circuit is 1 channel port which connects to 6-channel MPO port, hence the 6 circuits have a Leg value from 1 to 6. Leg value here indicates which leg of the Octopus or Breakout cable the Cord is using.



The Cord Information dialog also includes a Leg field to indicate which leg the cord is using. This field appears only when the two ports on either side of the cord have a different number of channels. This field is a drop-down and the options includes the leg numbers available for connection.

For example, when a single-channel server port is connected to a 6-channel MPO port, the drop-down menu will offer options 1, 2, 3, 4, 5, and 6, with 1 selected by default. After the circuit is saved, the available options will be 2, 3, 4, 5, and 6, indicating that Leg 1 of the cable is in use. This field is editable, so you can change the leg value to other options available in the drop-down.

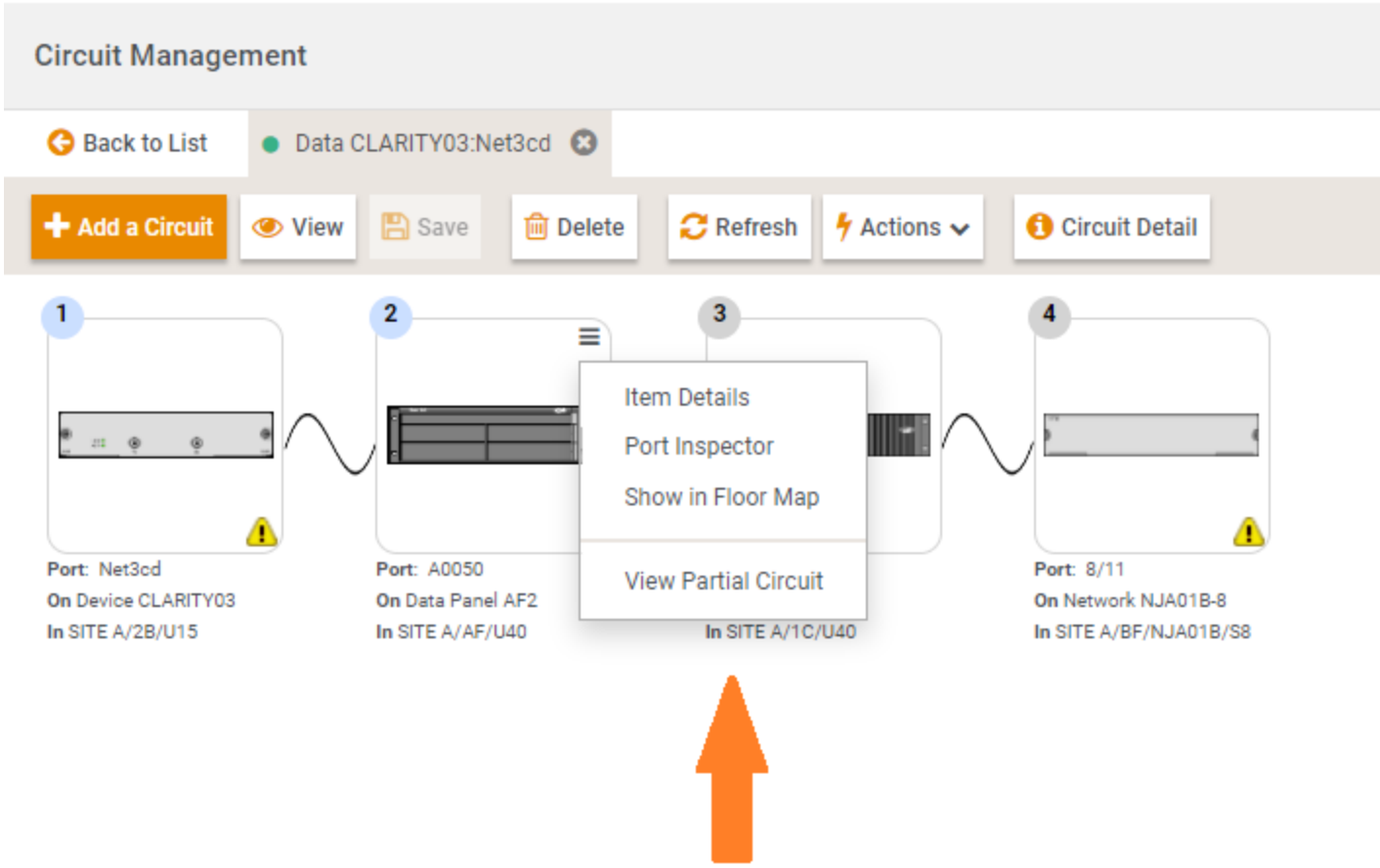


A new column Breakout Leg is added to the Circuit List which display the Leg value for each circuit. This column will be blank when all the ports used in the circuit have same number of channels.

View Circuit Node Info

View each circuit node info by clicking the hamburger icon on each node. This opens a menu with the following options.

1. Item Details – Click here to go to the Item Details page of the selected node.
2. Port Inspector – Click here to open the Port Inspector for the item of the selected node.
3. Show in Floor Map- Click here to see where the item is in your data center. You will be redirected to the Visualization tab showing the floor map of your data center.
4. View Partial circuit – You will get this option only if this circuit was built using a partial circuit. This option will display the Partial circuit in the current tab.



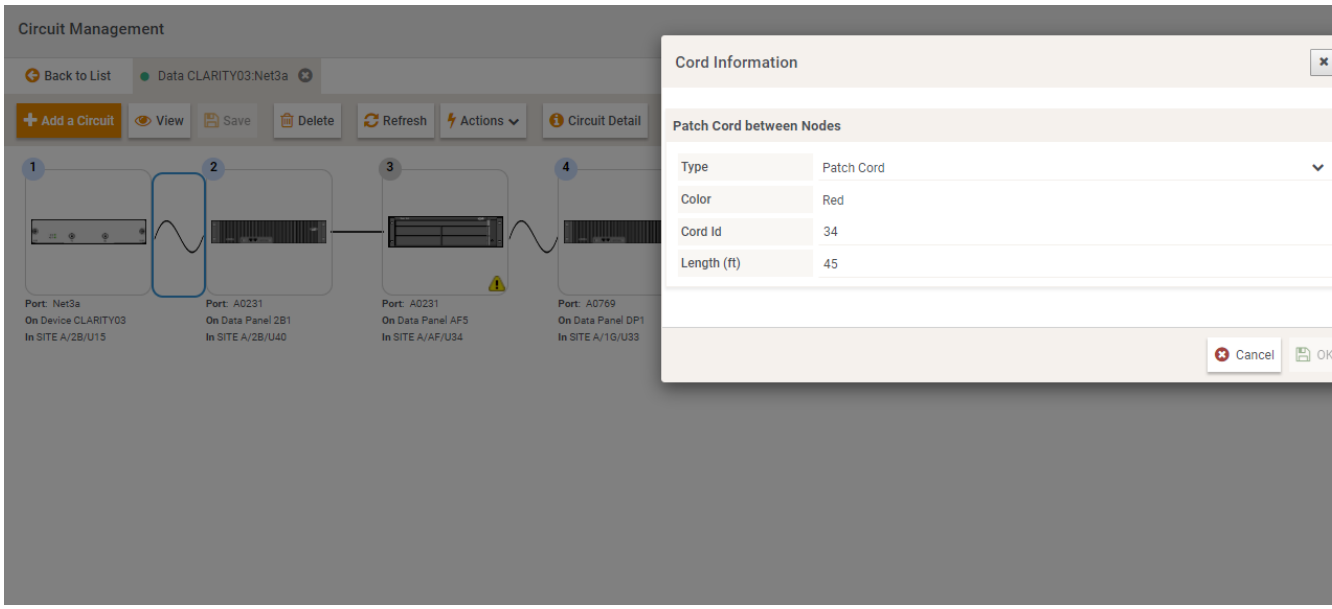
You can also view cord information for Patch Cords and Structured Cabling between two nodes.

To view cord information, click on the patch cord or structured cabling between two nodes. This opens a dialog window with the associated cord information.

If you have opened the circuit in edit mode, you can also edit the Patch Cord Information. Saving the circuit also saves the cord details.

You can only edit cord information for patch cords, for structured cabling the Cord Information dialog is read only.

If your circuit is built using a partial circuit, the cord information for the partial circuit will not editable when opened from the full circuit. You can edit the cord information in the partial circuit which will update the cord information for the full circuit.

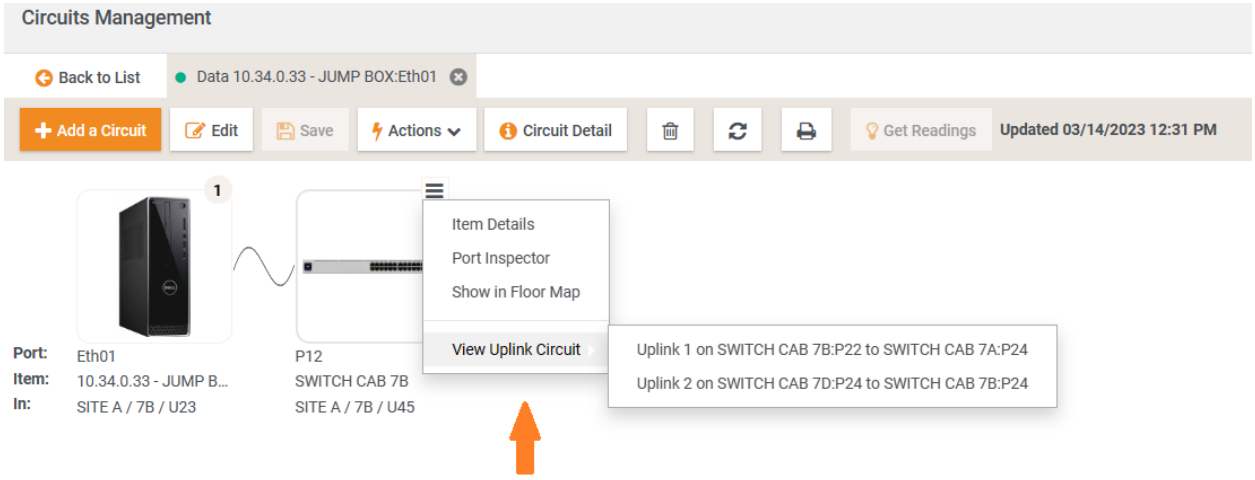


View Uplink Circuit

Network to network circuits are called as Uplinks. dcTrack allows you to visualize a circuit from the Network item at the end of the circuit to the next circuit or circuits that lead to another network item.

To view Uplink Circuit :

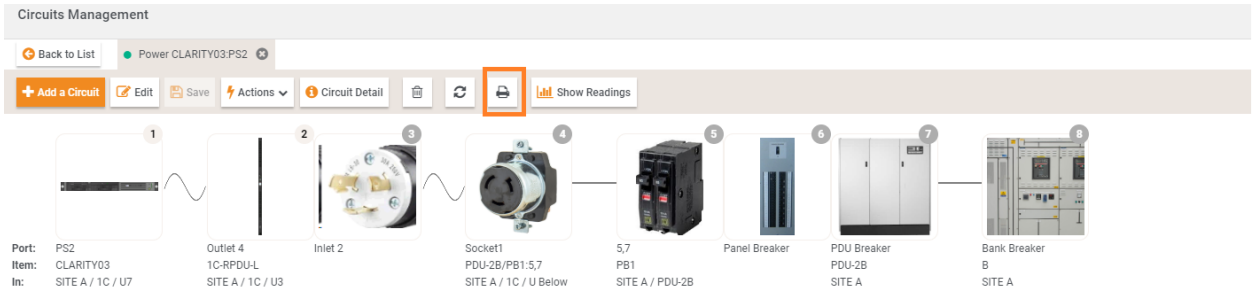
1. In the circuit trace, click hamburger icon on the last node.
2. In the menu go to the option View Uplink Circuit. You will see the list of Uplink Circuits.
3. Click the Uplink Circuit that you want to view.



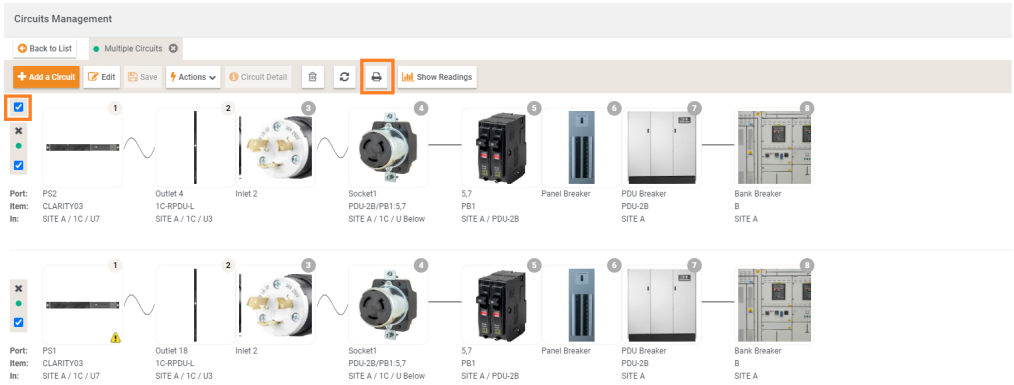
Uplink Circuit will show as a separate circuit below in the same tab.

Printing Circuits

To print a single circuit, click the print button in the toolbar.



To print multiple circuits, select all the circuits by checking the checkbox at the top left corner of the page and click print button in the toolbar.



Note: When multiple circuits are viewed in single tab, each circuit will have checkbox to select the circuit and perform any action.

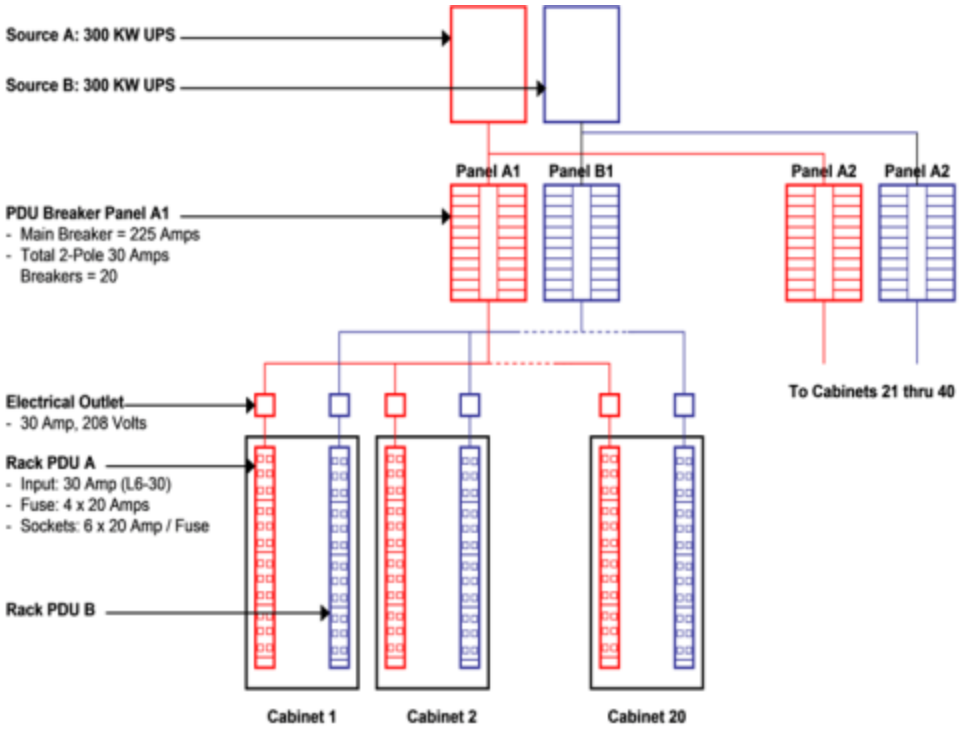
Building Power Chains in dcTrack

Power infrastructure in dcTrack can be built out using the Web Client and File Import.

The high-level process for building a power chain in dcTrack is as follows:

1. Create a UPS. Users with the appropriate permissions can create a UPS using the Add an Item button in the Assets tab.
2. Create a UPS bank. A UPS bank is a child of a UPS and can be created in the UPS Item Details page.
3. Assign the UPS to the UPS bank. The UPS can be assigned to a UPS bank from the UPS Item Details page.
4. Create a floor PDU. Users with the appropriate permissions can create a floor PDU using the Add an Item button in the Assets tab.
5. Create the power panels for the floor PDU.
6. Create panel and busway breakers via File Import or UI. This will also create outlets if outlet do not exist and connect breakers to those outlets.

The following diagram depicts an example power chain:



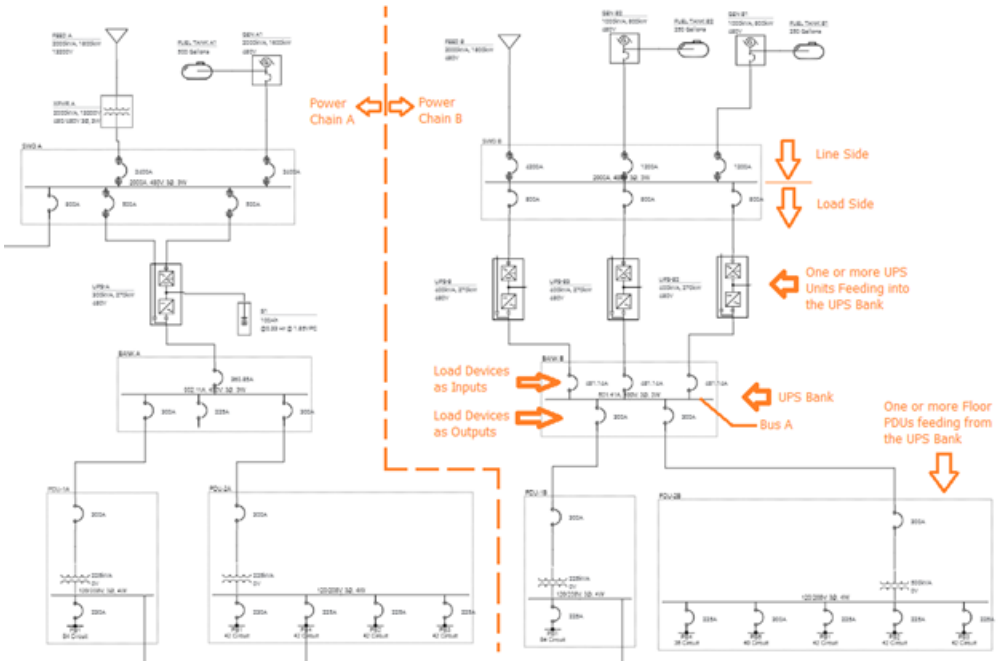
Steps for Creating a Power Chain in dcTrack

In order to build out power circuits from the IT equipment power supplies, the power chain must be created first. At a minimum, this power chain must include UPS units, UPS Banks, Floor PDUs with power panels and Power Outlets at the Cabinets. Alternatively, the Virtual Power Chain (VPC) can be used.

As of 9.0.0, the power chain can be expanded beyond the UPS units all the way to the Utility Feed and Generators passing through any number of Switchgear, switchboard, Power Panel and Transformer. For Instructions about adding and connecting these facility items, refer to Connecting Facility Items.

To create the UPS, UPS Bank and Floor PDU power chain, follow the below steps:

1. Create UPS Units
2. Create a UPS Bank
3. Create UPS Bank Load Devices
4. Connect UPS Bank Load Devices to UPS Units
5. Create Floor PDUs
6. Connect Floor PDUs to UPS Bank Load Devices



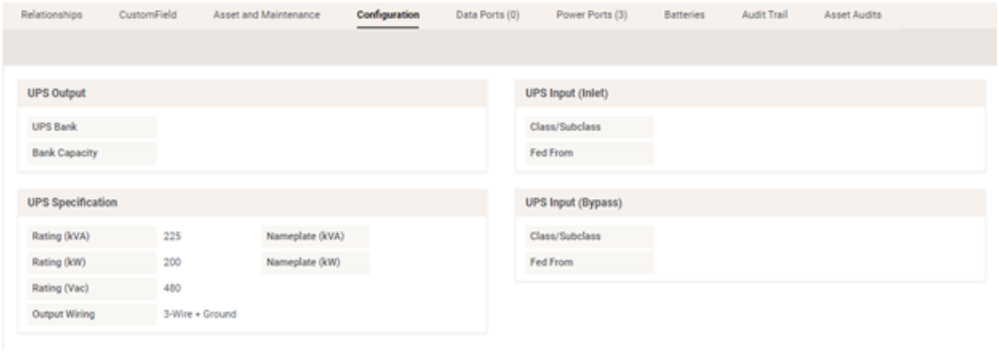
Note: The configuration settings for the UPS and Power Panel can also be set via File Import

Add UPS Units

One or more UPS Units can be aggregated using the UPS Bank which in turn feeds one or more Floor PDUs. Each power chain in your data center may have one or more UPS Units.

1. In the Assets tab > Item List, click the Add an Item button. A new Item page will open in a new dcTrack tab.
2. In the New Item page, select the UPS Unit's make and model.
3. Assign a name to the UPS Unit.
4. Select a location for the UPS Unit, if different from the one already selected in the Location dropdown.
5. In the Configuration sub-tab enter the following information:
    a. Rating (kVA)
    b. Rating (kW)
    c. Rating (Vac)
    d. Output Wiring
6. Save the UPS item.

7. Repeat for any additional UPS Unit items.



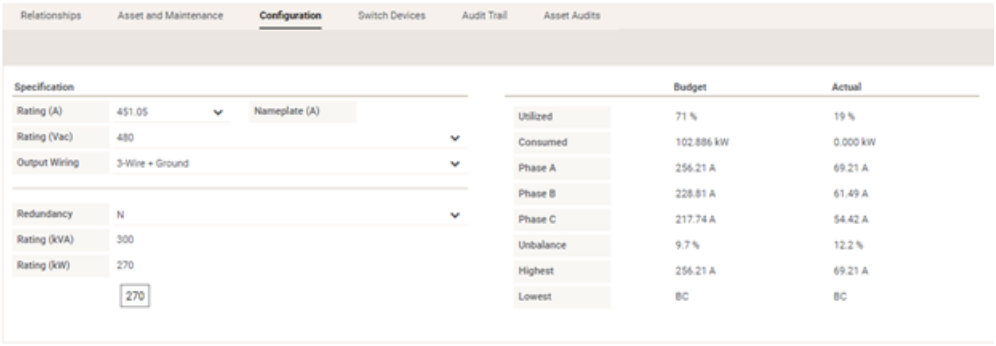
Add UPS Banks

You will need a UPS Bank for each power chain in your data center. Typically, data centers have 2 redundant power chains. A UPS Bank is technically a Switchgear which in dcTrack is represented using the Class/Subclass AC Distribution/Switch. Therefore, an AC Distribution/UPS Bank and AC Distribution/Switch electrically and functionally are the same, but in dcTrack the UPS Bank is a special case of a switch since it is the switchgear that feeds from the UPS Units and distributes out to the Floor PDUs.

1. In the Assets tab > Item List, click the Add an Item button. A new Item page will open in a new dcTrack tab.
2. In the New Item page, select the UPS Bank's make and model. You may use the Generic UPS Bank model.
3. Assign a name to the UPS Bank.
4. Select a location for the UPS Bank, if different from the one already selected in the Location dropdown.
5. In the Configuration sub-tab enter the following information:
    a. Rating (A)
    b. Rating (Vac) - This should also match the Voltage of the UPS Units.
    c. Output Wiring

    Note: The above 3 values are the specification of the Busbar that is inside the UPS Bank switchgear.

    d. Redundancy – this depends on the number of UPS Units that you will connected to the bank in Step 13 below. You will want to update this value after connecting all the UPS units to this bank.
    e. Rating (kVA) and Rating (kW) are read-only. They are automatically calculated based on the number of UPS Units that you will connect to the Bank in step 8 below and the Redundancy setting.

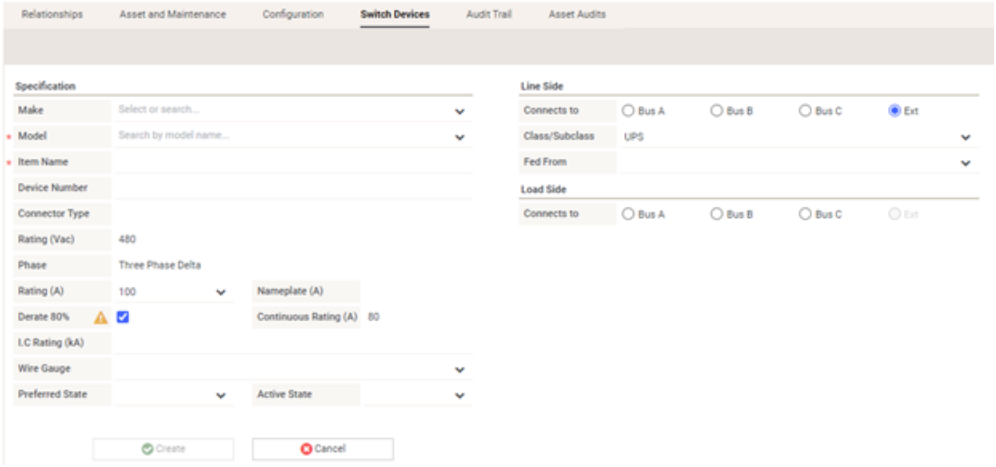


6. Save the UPS Bank item.
7. Repeat for any additional UPS Bank items.
8. In the Switch Devices sub-tab of the UPS Bank, click the Create Switch Devices button and choose Load Device. You will repeat this step for as many UPS Units and Floor PDUs there are connecting from and to this UPS Bank. A load device is the large breakers that are installed in the UPS Bank.
    a. Select the Make and Model for the Load Device.
    b. Give the Load Device a name. This name must be unique within the UPS Bank item only.
    c. Give the Load Device an optional number for easier reference within this UPS Bank.
    d. The Connector Type is inherited from the Model of the Load Device. If this remains blank, it is because the Load Device Model does not have the Connector Type set. You may want to create multiple Load Device models for each Connector Type you want to use. Each Connector Type displays it own symbol in the Single Line Diagram.
    e. Rating (Vac) is read-only and is inherited from the UPS Bank itself, which was selected in the Configuration sub-tab.
    f. Phase is read-only and is inherited from the UPS Bank itself. (It will show Three Phase Delta if the Bank's Output Wiring is 3-Wire + Ground, or Three Phase Wye if the Bank's Output Wiring is 4-Wire + Ground.
    g. Rating (A) must be equal to or less than the Rating (A) of the UPS Bank.
    h. Derate 80%. Uncheck this box if the Load Device breaker is 100% rated.
    i. The remaining fields are optional.
    j. When the Rating (A) was filled in, you will notice a form appears to the right. This specifies how this Load Device connects internally within the UPS Bank switchgear.
        1. For a Load Device that feeds from the UPS Units select the following:
            1. Line Side:
                a. Connects to: Ext
                b. Fed From: Select the UPS Unit's Output.

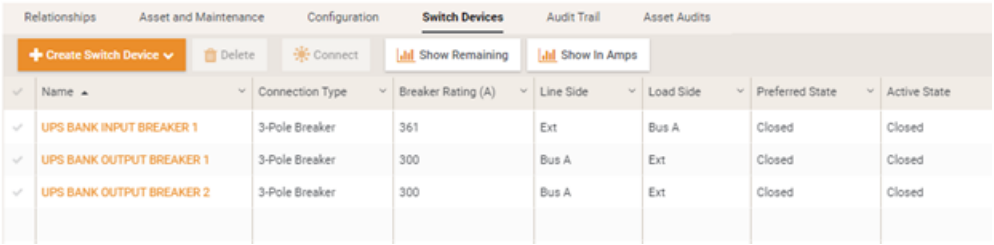
2. Load Side:
    a. Connects to: Bus A.
2. For a Load Device that feeds to the Floor PDUs, select the following:
    1. Line Side:
        a. Connects to: Bus A
    2. Load Side:
        1. Connects to: Ext.

Note: Bus B and Bus C are optional and would only be used when the Switchgear has more then one bus. When multiple buses exist, a Load Device would connect them together. These 3 bus notations should not be confused with the 3 poles of a Three Phase circuit.

k. Click Create



l. Create all other Load Devices and select the appropriate selections at step j based on what this load device will connect to.

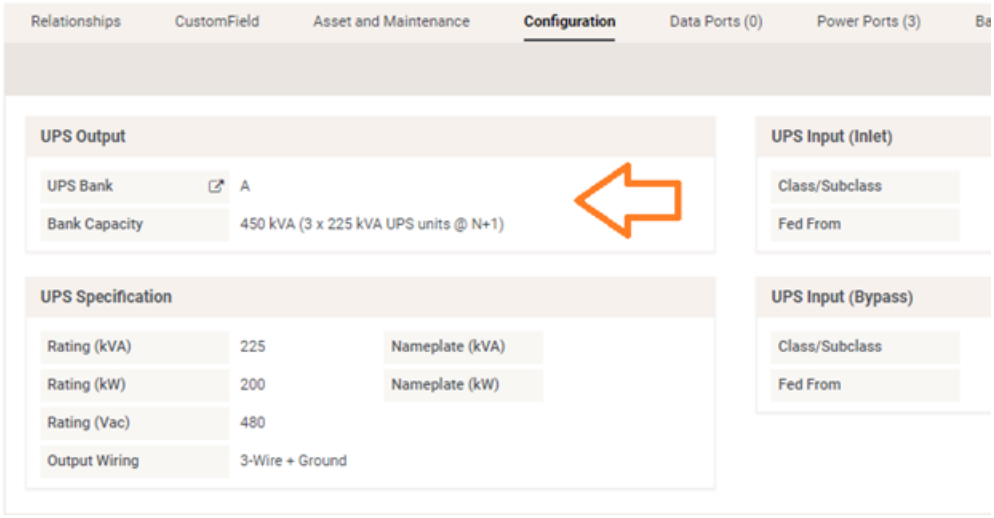


m. Save the UPS Bank Item.

n. At this point, you should have a UPS Bank connected to the UPS Unit(s). If you go back to the UPS item (s) (Refresh it, if it was already open)

and in the Configuration sub-tab, the UPS Output section should display the Bank name that this UPS Unit is part of and the total capacity of the

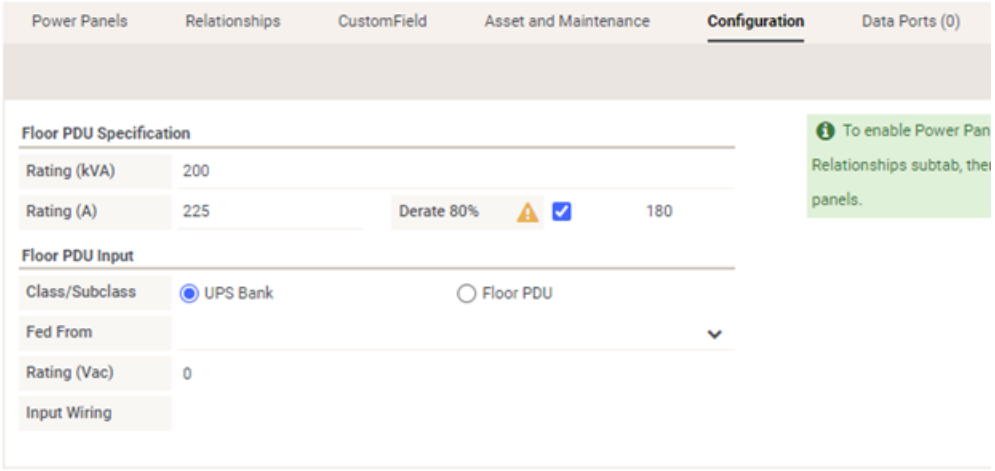
UPS Bank. If this total is higher than expected, you may need to adjust the Bank's Redundancy field.



Add Floor PDU

1. In the Assets tab > Item List, click the Add an Item button. A new Item page will open in a new dcTrack tab.
2. In the New Item page, select the floor PDU's make and model.
3. Assign a name to the floor PDU.
4. Select a location for the floor PDU, if different from the one already selected in the Location dropdown.
5. In the Configuration sub-tab enter the following information:
    a. Rating (kVA)
    b. Rating (A) – Should be a number that is close to the result of this formula: Rating (kVA) * 1000 / (Rating (Vac) * SQRT(3) * NEC Derating), where the Rating (Vac) is the voltage of the item feeding the Floor PDU and the NEC Derating is 80% for Data Centers in the United States.
    c. Class/Subclass: Select UPS Bank option
    d. Fed From: Select the UPS Bank Load Device feeding this Floor PDU.

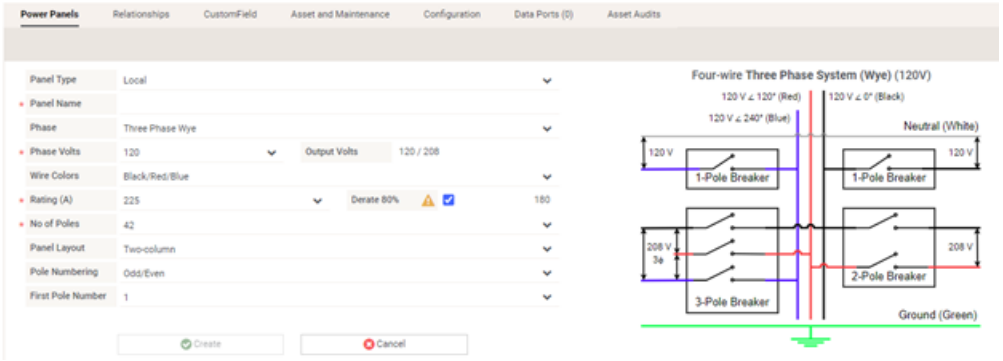
    If you do not have a UPS Bank created, you can also select VPC UPS Bank from the drop-down. AC VPC must be enabled for the location in order to view VPC UPS banks in the drop-down. See Enable or Disable VPC for a Location.
    e. The Rating (Vac) and Input Wiring will be automatically filled in based on the Fed From selection.



f. Save the Floor PDU item.

g. Repeat these steps for each additional Floor PDU.

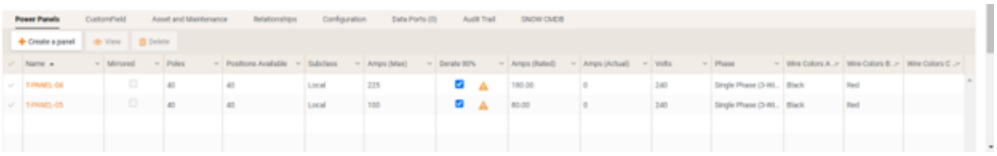
h. In the Power Panels sub-tab of each Floor PDU, create one or more power panels that are either internal to the Floor PDU (Local), remotely placed panels or RPPs (Remote), or busway systems feeding from the Floor PDU (Busway). Click Create a panel and fill in all the required fields to create each panel accordingly to the panel specifications. Note that the panel name needs to be unique only within the Floor PDU.



i. Click Create button

j. Repeat for each additional panel for this Floor PDU.

k. From the list of power panels in this sub-tab, you can click each panel name to open that panel and begin adding breakers within the panel which would also include creating the Power Outlet items that are fed from each of the breakers.



Add the Circuit Breakers via File Import

1. Back on the Power Panels sub-tab, click on the desired power panel to view its Item Details page.
2. In the Power – [x] Poles, [y] Breakers sub-tab, click the Bulk Edit button to edit the breakers. Alternatively, in the Assets tab > Items List, click the Export button and select either of the following options:
    a. Download Import Template to download the import template as a CSV file.
    b. Export into an Import Template > Branch Circuit Breakers to download an import template populated with the panel and busway breakers as a CSV file.
3. Open your CSV file.
4. Follow the instructions in the CSV file to add breakers.
5. In the Assets tab > File Import page, import the edited CSV file to create the breakers. This will also create the outlets and connect the breakers to those outlets.

Power Outlet Circuiting Prerequisites

At this point, if you are planning on using File Import to create power outlet circuiting, note the following pre-requisites.

- Each floor PDU and its busways must be created in dcTrack before you can import power outlet circuiting.
- Each floor PDU's power panel and the power panel's poles and breakers must be created in dcTrack before you can import power outlet circuiting.

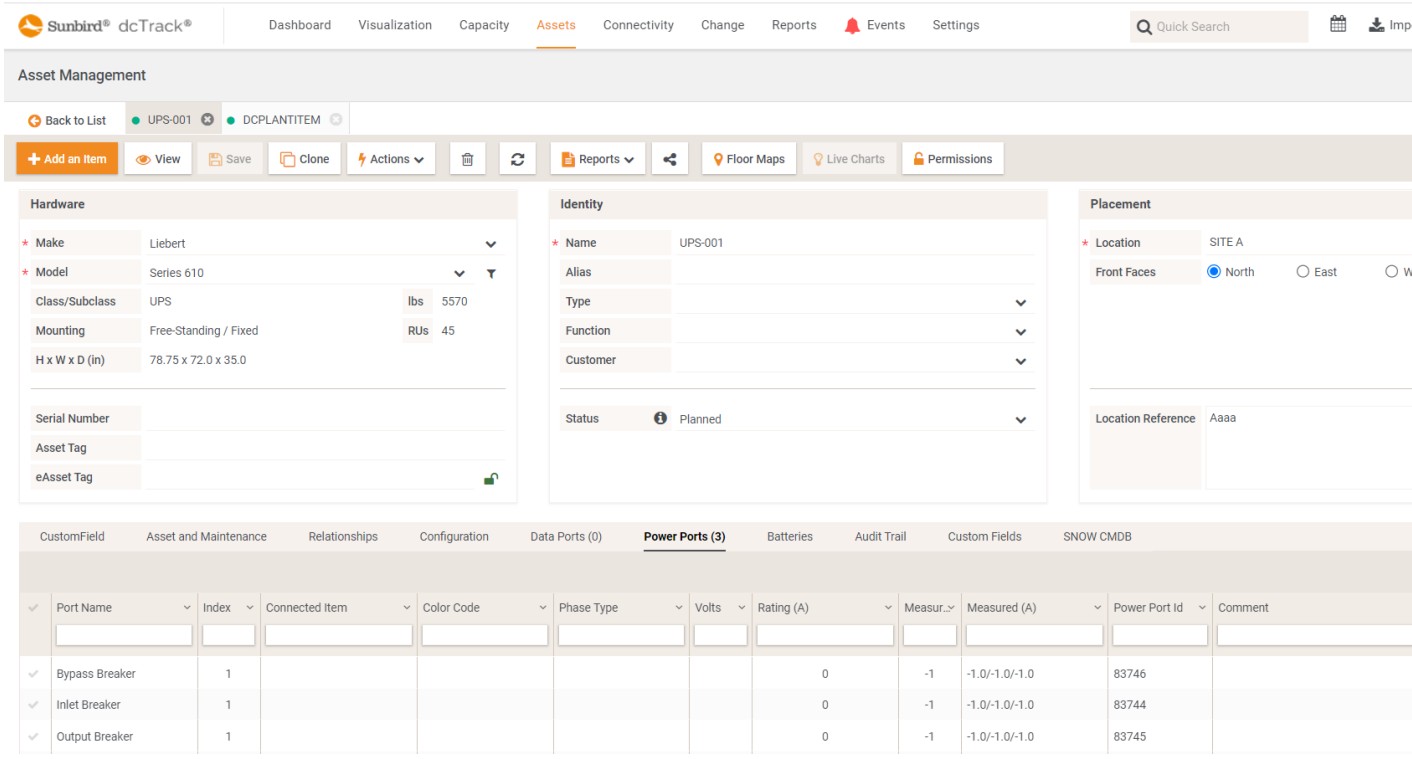
Managing UPS Items

dcTrack version 9.0.0 has introduced many new features for UPS Items.

UPS Items will now be created with 3 Power Ports (these will be automatically created for existing UPS Items upon upgrading to 9.0.0).

- Bypass Breaker
- Inlet Breaker

- Output Breaker



UPS specifications can be viewed from the UPS Specification panel of a Configuration sub-tab on a UPS Item Details page.

The Configuration sub-tab on UPS Item Detail pages includes the following panels:

- UPS Output
- UPS Specification
- UPS Input (Inlet)
- UPS Input (Bypass)
- UPS Units in Bank

The data in the UPS Specification panel includes the following:

- Rating (kVA)
- Nameplate (kVA)
- Rating (kW)
- Nameplate (kW)

- Rating (Vac)
- Output Wiring

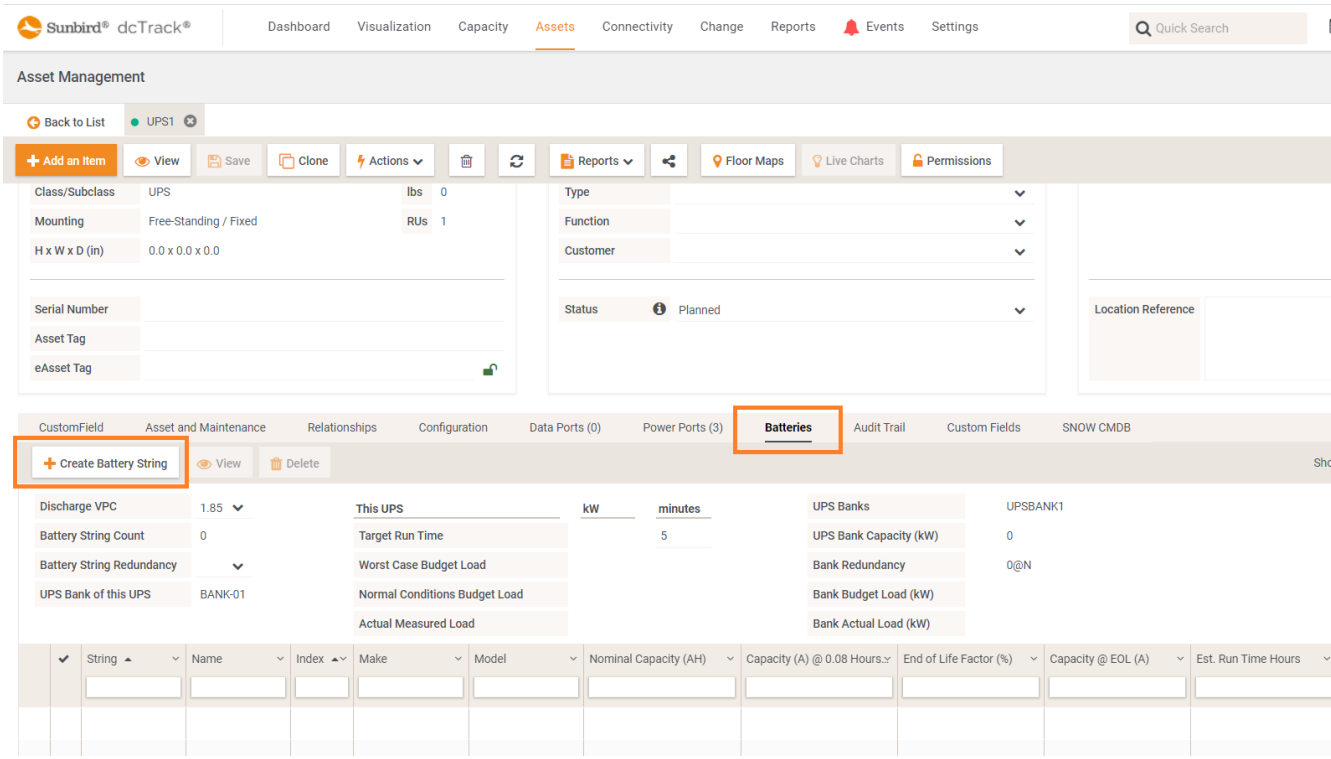
You can also assign the UPS to a bank in the UPS Specification panel through the UPS Bank dropdown.

To edit these specifications, click the Edit icon to enter Edit mode, make your changes, and then click the Save icon to save the new configuration.

Creating Battery Strings for a UPS Unit

Steps to create a Battery String for an UPS Unit:

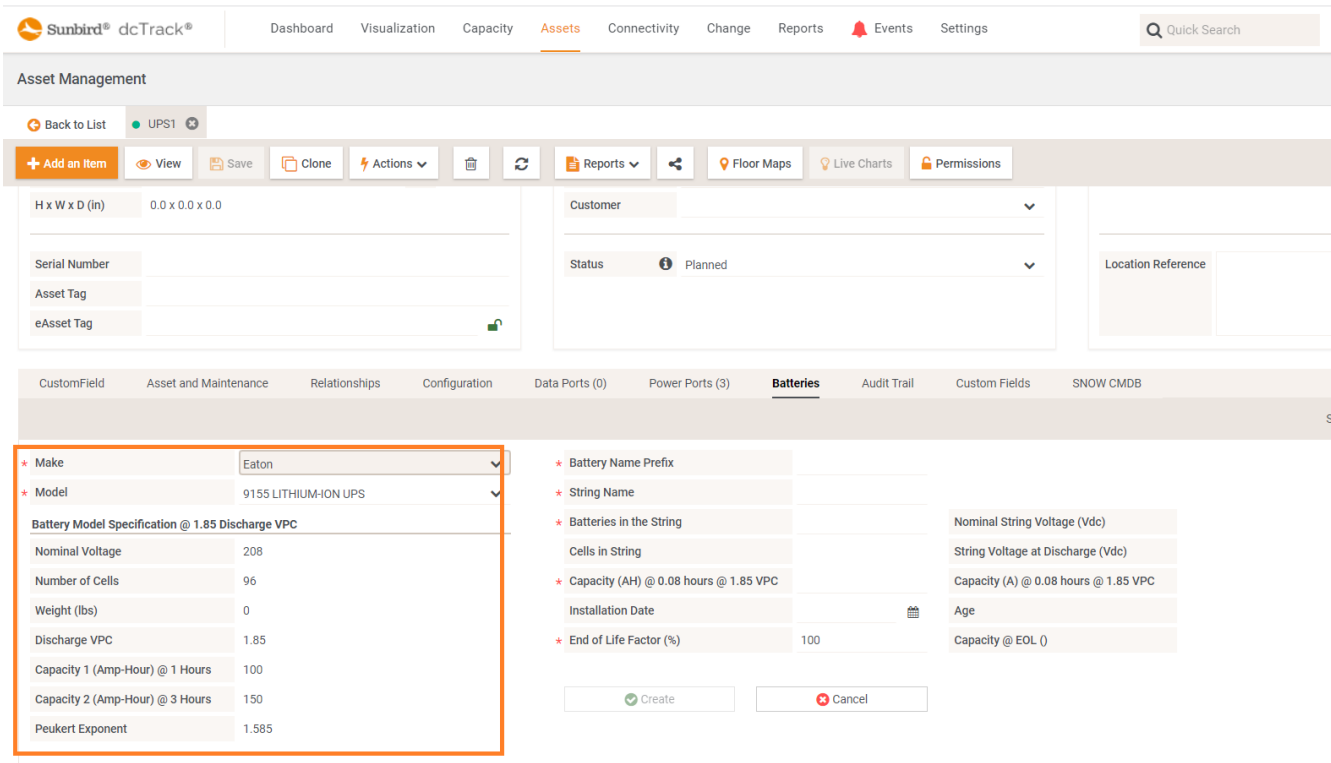
1. Navigate to the Item details Page of an UPS.
2. In the Edit Mode, click the Create Battery Strings button on the Batteries Subtab. The "Create Battery Sting" button is only enabled when Discharge VPC and Target Runtime for the UPS are > 0.



3. Select the Model for the Battery from the Model drop down.

Note: Battery Models must be created in dcTrack before creating a Battery string.

4. Once the model is selected, the Battery Model Specification section is populated with the values from the model and is read only. The value for the Peukert Exponent is calculated based on the Battery model specification fields. These fields are read only and cannot be edited.



If the model you have selected is missing any of the Specification fields, you will not be able to create the Battery String and will receive an error message when saving the UPS Item.

5. Battery Name Prefix: User defined prefix. (Required)
6. String Name: User defined name. (Required)
7. Batteries in the String: Required. Based on the number entered, Nominal String Voltage (Vdc), Cells in String and String Voltage at Discharge (Vdc) are calculated.
8. Capacity (AH) @ X Hours @ VPC. Required. For this field X is the value for Target Run Time Hours, and VPC is the Discharge VPC value for the UPS.

Note: If the Discharge VPC of the Battery and the UPS are equal, and Target Run Time Hours of the UPS matches one of the Capacity Rate Hours from the Models Library, the Capacity Amp-Hours field is filled from the Battery Model for the matching hour, otherwise it is left blank and the user must input this value.

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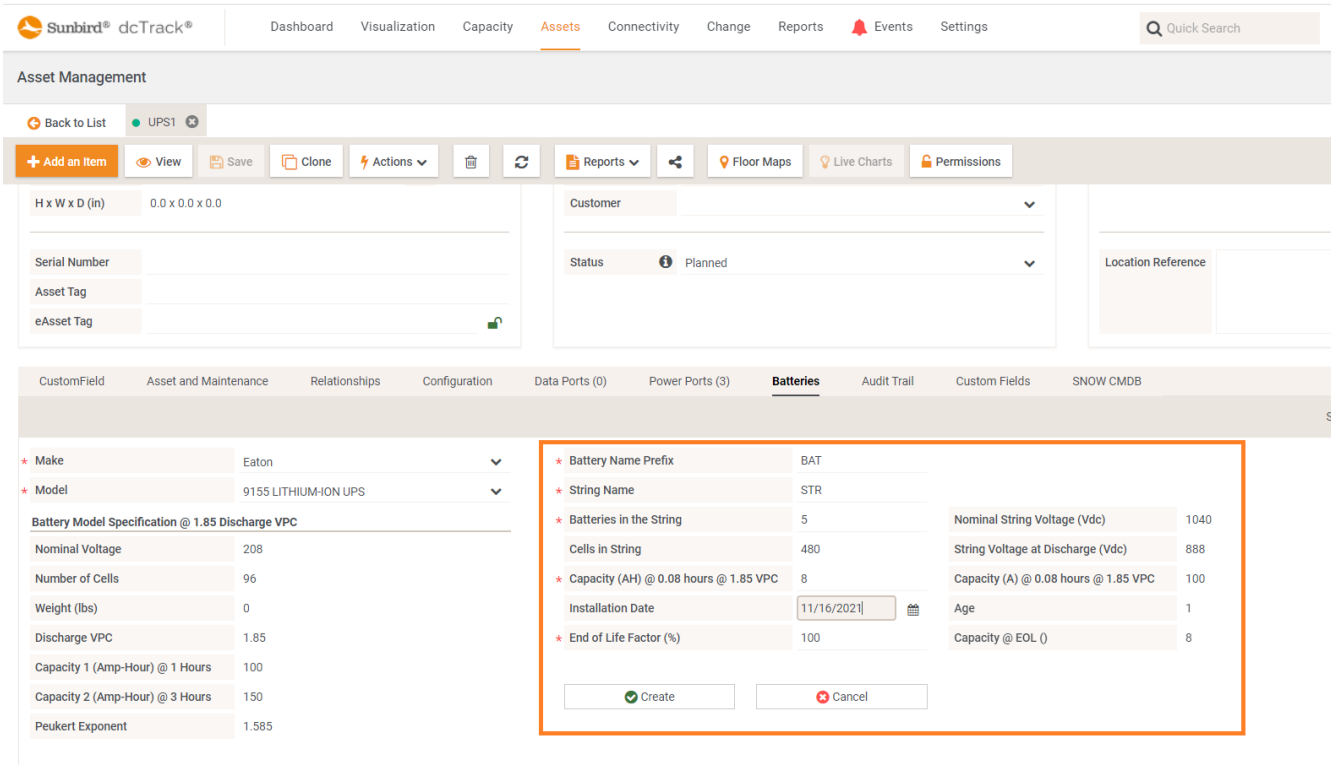
9. Installation Date. Optional

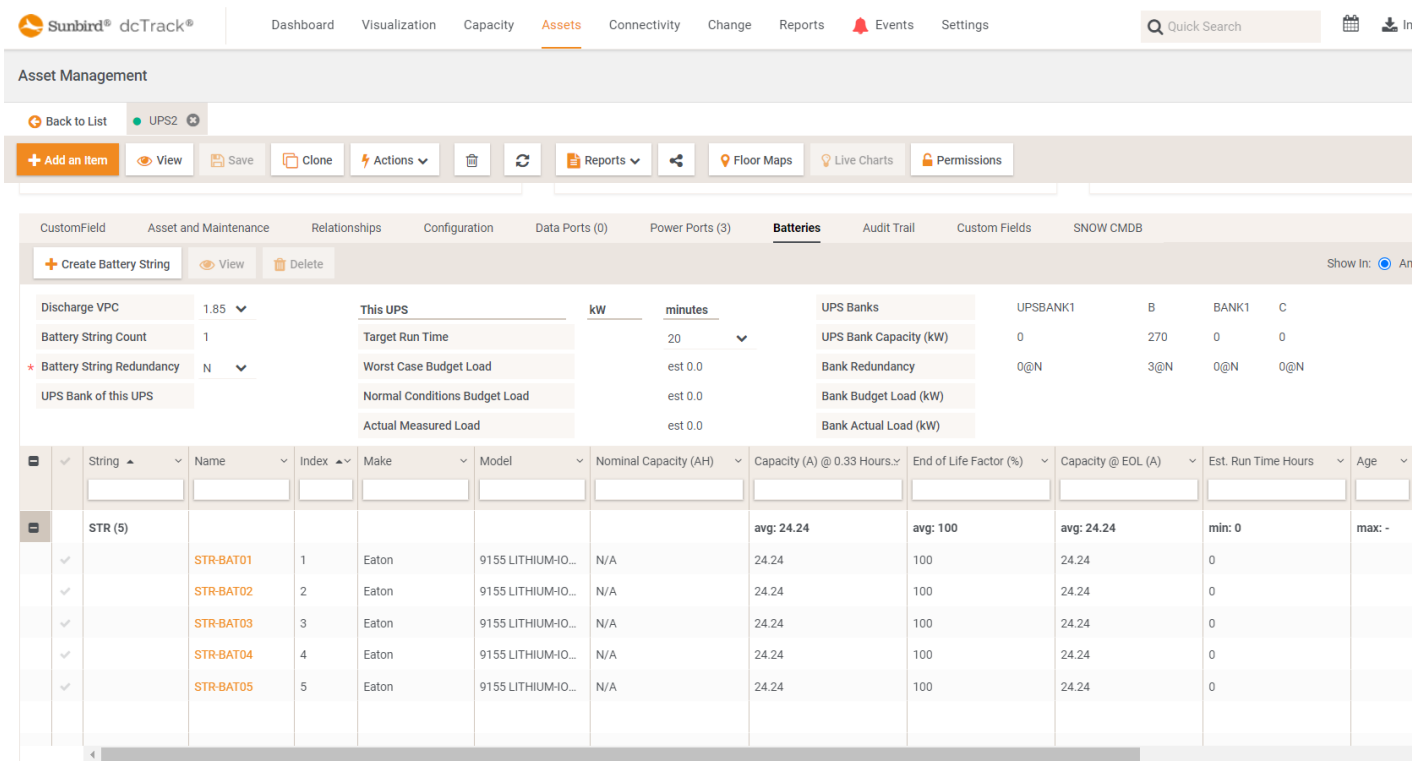
   Age is calculated in years based on the Installation date you have entered.

10. End of Life Factor (%). Required. By default, it is set to 100 but can accept any integer between 1-100.

    Capacity @ EOL (AH) is calculated based on the End of Life Factor (%)



11. Click on Create and close.
12. Save the item.



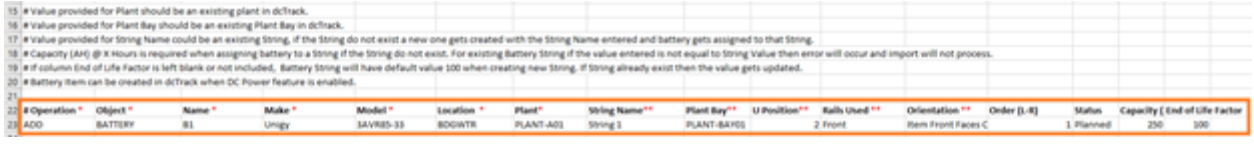
Batteries created appear in the list grouped by the Battery String. The following information can be edited inline in the list.

- Capacity (AH) @ X Hours
- End of Life Factor (%) Accepts any integer between 1-100.

Value of Capacity @ EOL (AH) and Estimated Run time Hours will be updated based on the End of Life Factor. Estimated Run Time Hours is also updated when you enter a value for Additional Load (A).

Note : Additional Load (A) value can be used to simulate additional load to determine its impact on Estimated Run Time

Battery Strings can also be created when creating Battery Items via File Import. Download the Import Template file and in the Plant or Rectifer & Battery tab, follow the instructions and examples to assign the Battery to a String when adding Batteries via File Import.



Assigning a UPS to a UPS Bank

UPSs can be assigned to a specified UPS bank in the UPS Specification panel of a Configuration sub-tab on a UPS Item Details page.

Note: You must have permissions to edit the UPS in order to edit the Configuration sub-tab information.

To assign a UPS to a UPS bank:

- In the UPS Item Details page of the UPS you want to assign, click the Edit icon to enter Edit mode.
- Click the Configuration sub-tab.
- In the Configuration sub-tab, in the UPS Specification panel, select the desired UPS bank from the drop-down.
- Click the Save icon to save the configuration.

Note: The UPS dropdown only populates the UPS banks that are in the same location as in the UPS unit.

Viewing, Adding, Editing, or Deleting a UPS Bank

Users with the appropriate permissions can view, add, edit, and delete a UPS bank from the Available UPS Banks panel in the Configuration sub-tab of a UPS Item Details page.

The available UPS banks are listed based on the location of the UPS. For example, if the UPS in located in Site A, the available UPS banks listed in the Available UPS Banks panel will be those in Site A. If the UPS is already assigned to a UPS bank, that UPS bank will be automatically selected in the Available UPS Banks panel and will be used to populate the UPS Units in Bank panel.

The Available UPS Banks panel lists the following information for each bank:

- Bank: The name of the UPS bank
- Units: The number of UPS units assigned to the bank
- Redundancy: N or N+1, depending on the number of UPSs assigned to the UPS bank
- kVA
- Volts
- Amps

Adding a UPS Bank

To add a UPS bank, only the UPS bank name is required.

1. In a UPS Item Details page > Configuration sub-tab, click the Edit icon to enter Edit mode.
2. Click the Add a Bank button in the Available UPS Banks panel.
3. In the Available UPS Banks panel, in the Bank Name field, enter the name of your UPS bank. Note: The Bank Name must be unique; otherwise, you will receive an error.
4. Click the Create button.

Upon successful creation, the new UPS bank will appear in the Available UPS Banks panel and in the UPS Bank dropdown in the UPS Specification panel.

Note: You must have permissions to edit the UPS in order to edit the Configuration sub-tab information.

Editing a UPS Bank

Only a UPS bank name and its redundancy can be edited.

5. In a UPS Item Details page > Configuration sub-tab, click the Edit icon to enter Edit mode.

1. In the Available UPS Banks panel, select the UPS that you want to edit.
2. Click the Edit button in the Available UPS Banks panel.
3. Edit the Bank Name and Redundancy fields as desired.
4. Click the Save button to save the new configuration.

Upon successful saving, the new bank name and redundancy will be reflected in the Available UPS Banks panel. Only the new bank name will be reflected in the UPS Bank dropdown in the UPS Specification panel.

Note: You must have permissions to edit the UPS in order to edit the Configuration sub-tab information.

Deleting a UPS Bank

Deleting a UPS bank will remove it from the Available UPS Banks panel and from selection in the UPS Bank drop-down in the UPS Specification panel, but it will not delete the UPSs that are assigned to the bank.

1. In a UPS Item Details page > Configuration sub-tab > click the Edit icon to enter Edit mode.
2. In the Available UPS Banks panel, select the UPS that you want to delete. You can select all UPS banks by clicking the checkbox at the top of the grid. You can also select multiple UPS banks by holding the Shift button to select multiple consecutive items, or the Ctrl button to select multiple non-consecutive items.
3. Click the Delete link in the Available UPS Banks panel.

The items will be deleted and removed from the Available UPS Banks panel and the UPS Bank dropdown in the UPS Specification panel.

Note: You must have permissions to edit the UPS in order to edit the Configuration sub-tab information.

Viewing, Adding, Editing, and Deleting a UPS in a UPS Bank

Users with the appropriate permissions can view, add, edit, and delete a UPS in a UPS bank from the Available UPS Banks panel in the Configuration sub-tab of a UPS Item Details page.

The panel lists the UPSs assigned to the UPS bank selected in the Available UPS Banks panel. If the UPS is already assigned to a UPS bank, that UPS bank will be automatically selected in the Available UPS Banks panel and will be used to populate the UPS Units in Bank panel.

The panel lists the following information for each UPS:

- Name
- kVA
- kW
- Volts

All UPS units of a UPS bank should have same output voltage and output wiring. Changing the output voltage and output wiring of UPS can result in changing these values for all the units in UPS bank. The rating or UPS capacity cannot be changed once the UPS is assigned to a bank.

From the UPS Units in Bank panel in the Configuration sub-tab of a UPS Item Details page, you can view, add, edit, and delete UPSs assigned to a UPS bank.

Note: You must have permissions to edit the UPS in order to edit the Configuration sub-tab information.

Viewing a UPS from the UPS Units in Bank Panel

Select a UPS in the Available UPS Banks panel, and then click the View icon. This action will open the UPS Item Details page in a new dcTrack tab in View mode.

Adding a UPS from the UPS Units in Bank Panel

In the UPS Units in Bank panel, click the Add a UPS button. This action will open a New Item page in a new dcTrack tab with the UPS item details prepopulated based on the UPS bank selection.

Editing a UPS in a UPS Bank from the UPS Units in Bank Panel

Select a UPS in the Available UPS Banks panel, and then click the Edit icon. This action will open the UPS Item Details page in a new dcTrack tab in Edit mode.

Deleting a UPS in a UPS Bank from the UPS Units in Bank Panel

Select a UPS in the Available UPS Banks panel, and then click the Delete icon. This action will delete the UPS.

Viewing, Creating, Editing and Deleting AC Panels and Breakers

AC Power panels can be viewed in the Power Panels sub-tab of the Remote and Local Floor PDU or AC Distribution/Power Panel Item Details page.

Note: You must have the appropriate permissions to view, create, or delete a power panel.

Creating a Power Panel

1. In a Floor PDU Item Details page > Power Panels sub-tab, click the Create a panel button.
2. In the Create a panel screen, provide the following information:
    a. Panel Type: Local, Remote, Busway. Note: When Busway is selected, the No of Poles, Pole Layout, Pole Numbering, and Start First Pole Number At fields are disabled.
    b. Panel Name: The name of the panel. Can be selected from the dropdown or manually typed in.
    c. Phases: Single Phase(Two-Wire), Single Phase(Three-Wire) ,Three Phase Wye and Three Phase Delta. Once you select the phase, a diagram will display in the right side of the panel.
    d. Phase Voltage: Provides voltage values that are prepopulated based on the Phases selection.

i. Output Voltage: Provides output voltage values that are prepopulated based on the selected phase voltage.

e. Wire Colors: Provides a list of wire colors. Prepopulated based on the phases selection.

f. Rating (A): Enter any value greater than 0 or select a value from the drop down.

g. No of Poles: The number of poles.

h. Panel Layout: Two Column or Single Column.

i. Pole Numbering: Provides pole numbering based on the pole layout selection.

i. Single Column: Odd, Even, Sequential, Grouped A,B,C, Grouped 1,2,3, Grouped R,Y,B

ii. Two Column: Odd/Even, Sequential, Grouped A,B,C, Grouped 1,2,3, Grouped R,Y,B

j. First Pole Number At: Provides the value for the first pole number. Prepopulated based on the pole numbering selection and the number of poles.

Click the Create button.

Power Panel Layout

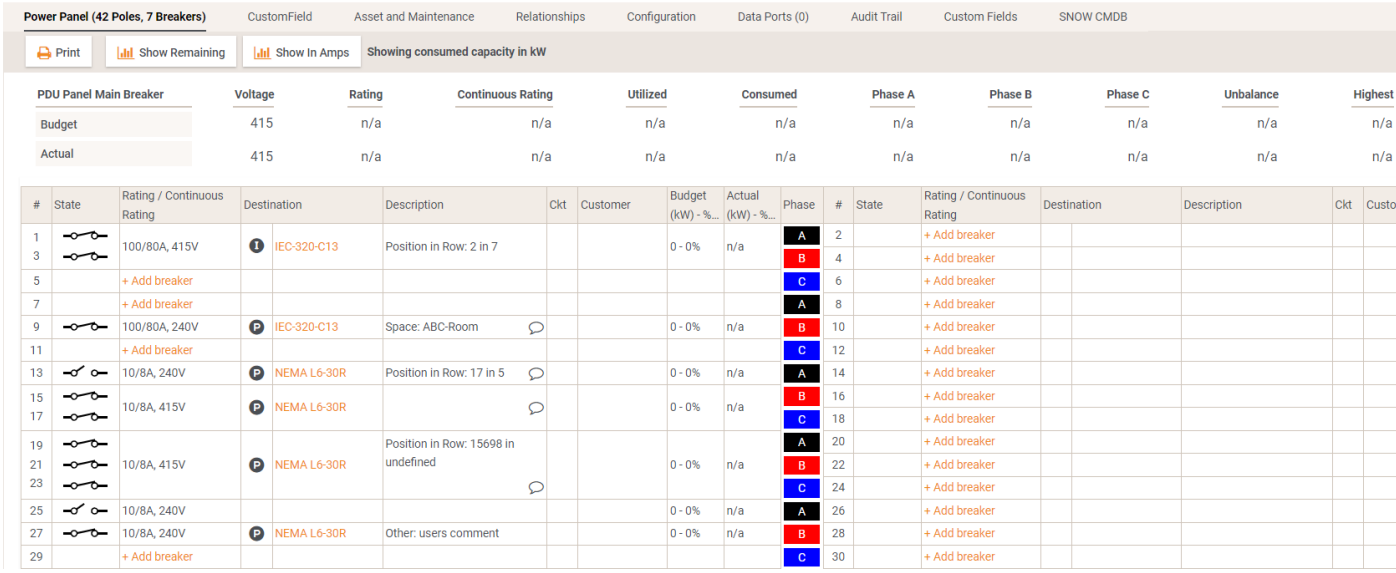
The top panel of the Power Panel subtab displays readings for the panel. The tool bar provides several options for viewing the readings

- Print - Print the Power Panel Subtab
- Show Remaining/Show Consumption - This button can be toggled between the two options to either show remaining power or power consumed
- Show in Amps/Show in kW - This button can be toggled between the two options to either display the readings in Amps or kilowatts

The following columns are available in the grid.

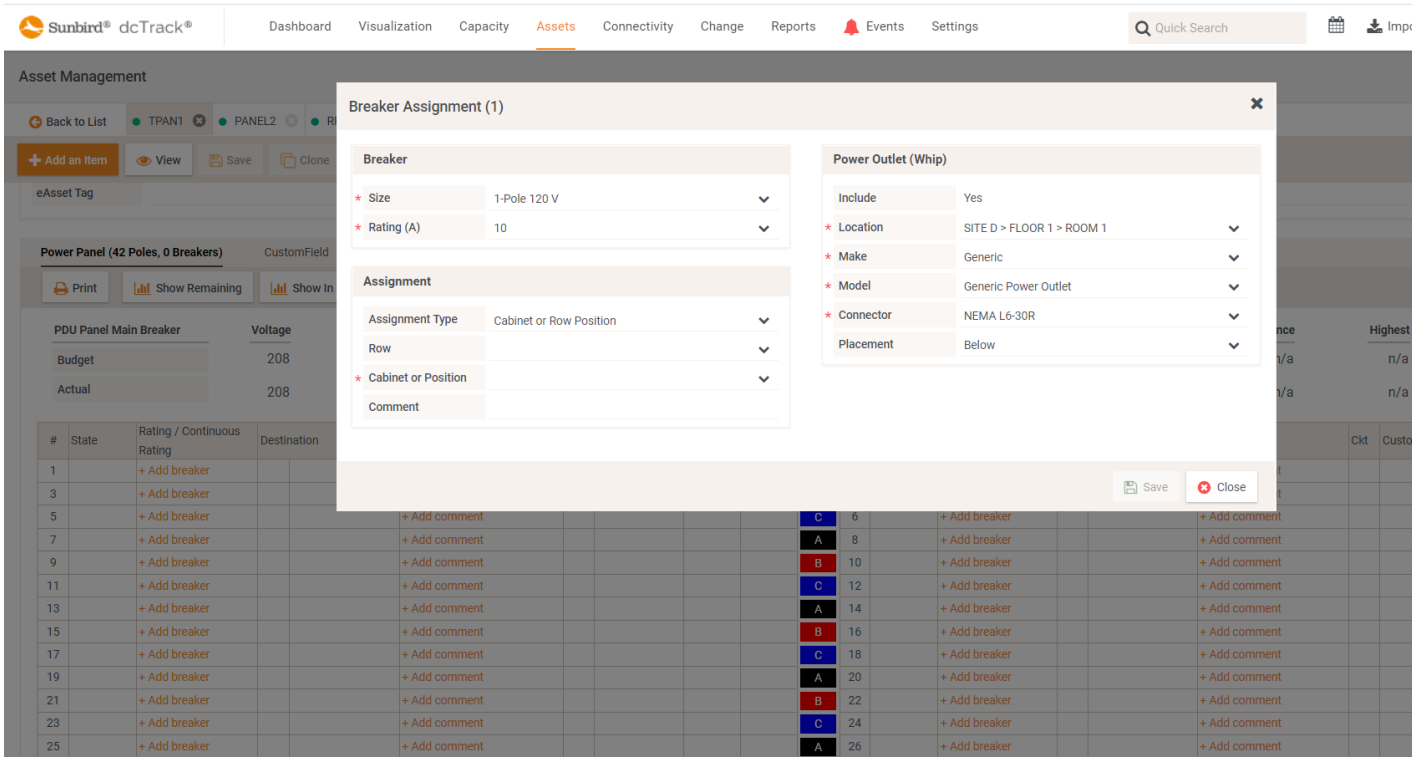
- The # Poles
- State - Open Closed
- Rating/Continuous Rating - Displays the Rating, the De-Rated value and the voltage for the breaker
- Destination - This column is broken into two sections the first displays the Status P Planned I Installed. For AC Panels it is the Status of the Power Outlet. For DC Items it is the status of the connected Item. The second section displays the connector of the Power Outlet or Connector Name when connected to a Floor PDU. When the Power Outlet has multiple ports the connectors will be listed comma separated. The text "+ Add Whip" is displayed when the breaker is not connected to an outlet.
- Description - Displays the assignment type and assignment text. A caption icon will be dispalyed when there is a comment, hovering over the caption icon will display the comment text.
- Ckt - Circuit status when the Power Outlet is connected to equipment. When clicked you are navigated to the circuit trace. (existing functionality)

- Customer: Customer field from cabinet item for the power outlet. If customer is not assigned to cabinet, then the customer field assigned to the power outlet. In the case where there is no power outlet, the customer field will remain blank.
- Budget (kw) % of Rating: Budget: Budget value in kw or amps
- Actual (kw) % of Rating: Actual value in kw or amps
- Phase



Creating/Editing Power Panel Breakers

1. Navigate to the Power Panel subtab on the Floor PDU Item Detail Page
2. While in Edit mode click the "add breaker" hyperlink in the breaker grid to open the Breaker Assignment dialog box



3. Supply the field data for the following fields:
    a. Size: -Pole xxx V, 2-Pole xxx V, 3-Pole xxx V where xxx voltage value is calculated based on the panel volts and the pole size. (Required)
    b. Rating (A): The maximum current in amperes the breaker will carry continuously. (Required)
    c. Assignment: Assignment Type. Drop down includes:
        a. Cabinet or Row Position
        b. Row
        c. Sub-Panel : This option only appears when Size is 3-Pole.
        d. Space
        e. Other
    d. Row: Drop down options that include all the rows for the selected location. (Required when Assignment type is "Row")
    e. Cabinet or Position: Drop down list of cabinets for the selected Row as well as Future Cabinet Assignments that can be used as placeholders while looking for suitable space. (Required when Assignment type is "Cabinet or Row Position")
    f. Floor PDU: Drop down lists all the Floor PDUs for the selected location which are not connected upstream (to UPS Bank or another Floor PDU Panel) and have Rating(A) less than or equal to Rating

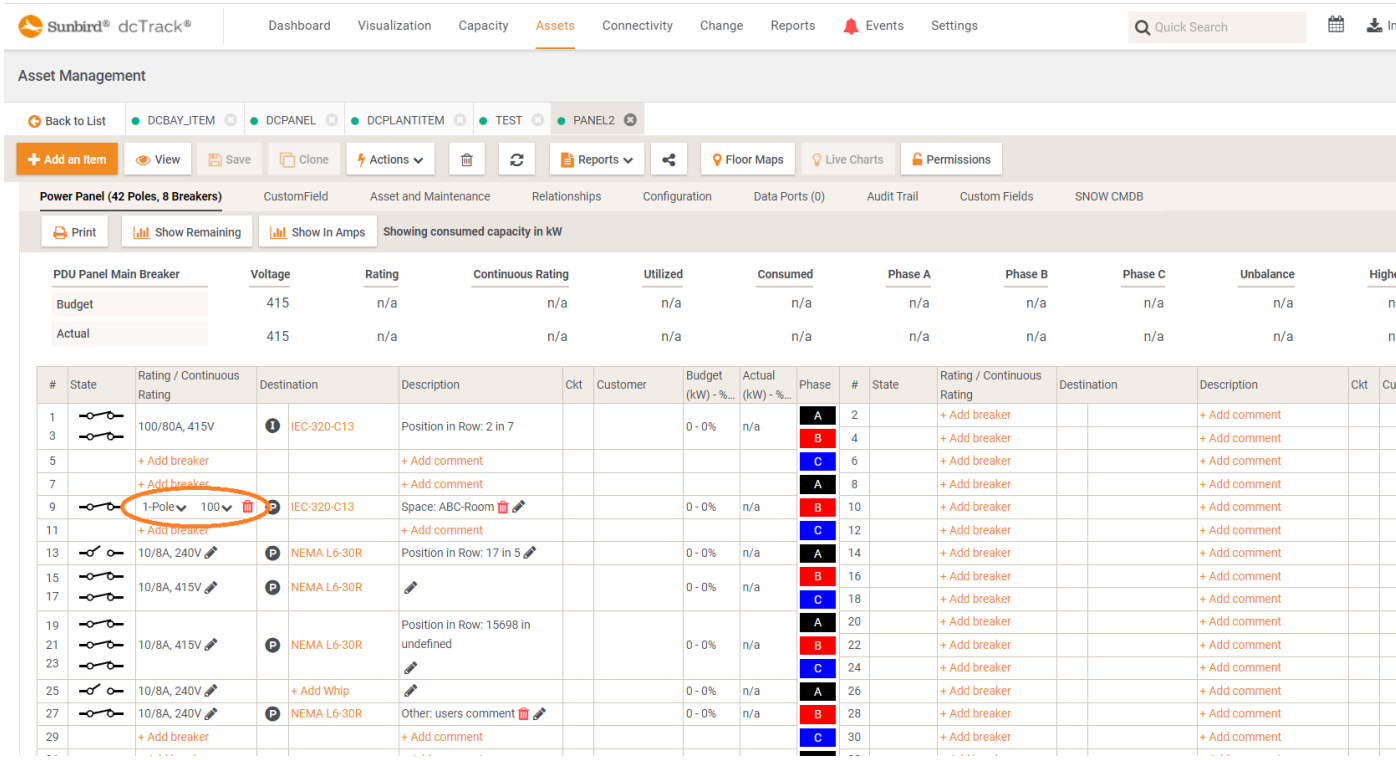
(A) entered for the breaker. (Required when Assignment type is "Sub-Panel")

g. Space Name: User defined Space Name used when not assigning to a cabinet or row. (Required when Assignment type is "Space")
h. Space ID: User defined ID used when not assigning to a cabinet or row. (Required when Assignment type is "Space")
i. Comment: User supplied comments associated with the breaker
j. Include: Determines if information for the Whip Outlet should be included.
    a. When assignment type is "Cabinet or Row Position" or "Row" the value is set to Yes and the field becomes read only.
    b. When assignment type is "Space" or "Other" the box will be checked but can be unchecked if not including outlet.
k. Location - List of Locations. Defaults to the location of the power panel. (Required)
l. Make - Drop down list filtered to the make of Whip Outlets. Default is Generic. (Required)
m. Model - Drop down list filtered to the Power Outlet/Whip Outlet models for the selected Make. (Required)
n. Connector - Drop down list of AC power connectors. Default is "NEMA L6-30R". (Required)
o. Placement'- Options are Above, Below. "Below" is selected by default.

Note: You must have the appropriate permissions to create a power panel.

Deleting Power Panel Breakers

To delete a power panel breaker click the pencil icon in the Rating/Continuous Rating column of the breaker to enter edit mode. Once in edit mode the delete icon is displayed in the column. Click the icon to delete the breaker.

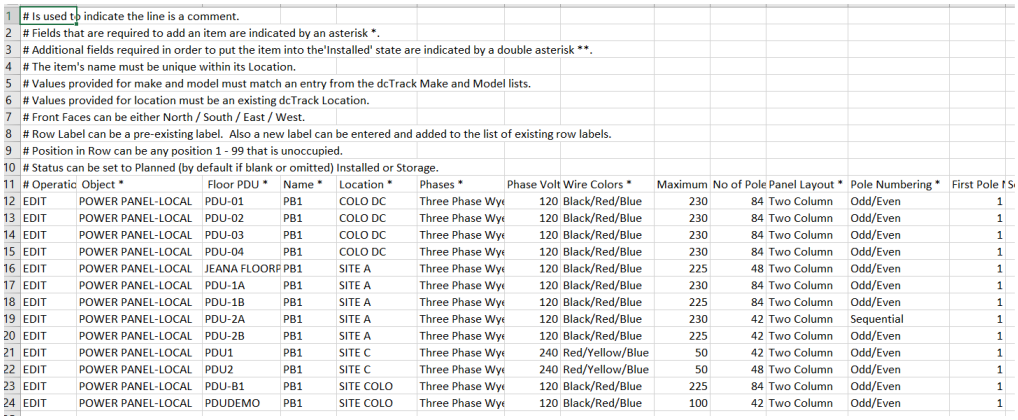


Note : You must have the appropriate permissions to delete a power panel.

Import/Export of Power Panel

You can also create and manage Power Panels using file import feature. Refer to the sample import template for examples and follow the instructions.

To Export Power Panels, filter the item list for Power Panels and Export into Import Template -> Items -> All Columns or Visible Columns.



1	# Is used to indicate the line is a comment.											
2	# Fields that are required to add an item are indicated by an asterisk *.											
3	# Additional fields required in order to put the item into the'Installed' state are indicated by a double asterisk **.											
4	# The item's name must be unique within its Location.											
5	# Values provided for make and model must match an entry from the dcTrack Make and Model lists.											
6	# Values provided for location must be an existing dcTrack Location.											
7	# Front Faces can be either North / South / East / West.											
8	# Row Label can be a pre-existing label. Also a new label can be entered and added to the list of existing row labels.											
9	# Position in Row can be any position 1 - 99 that is unoccupied.											
10	# Status can be set to Planned (by default if blank or omitted) Installed or Storage.											
11	# Operatic	Object *	Floor PDU *	Name *	Location *	Phases *	Phase Volt	Wire Colors *	Maximum	No of Pole	Panel Layout *	Pole Numbering *	First Pole N
12	EDIT	POWER PANEL-LOCAL	PDU-01	PB1	COLO DC	Three Phase Wye	120	Black/Red/Blue	230	84	Two Column	Odd/Even	1
13	EDIT	POWER PANEL-LOCAL	PDU-02	PB1	COLO DC	Three Phase Wye	120	Black/Red/Blue	230	84	Two Column	Odd/Even	1
14	EDIT	POWER PANEL-LOCAL	PDU-03	PB1	COLO DC	Three Phase Wye	120	Black/Red/Blue	230	84	Two Column	Odd/Even	1
15	EDIT	POWER PANEL-LOCAL	PDU-04	PB1	COLO DC	Three Phase Wye	120	Black/Red/Blue	230	84	Two Column	Odd/Even	1
16	EDIT	POWER PANEL-LOCAL	JEANA FLOOR	PB1	SITE A	Three Phase Wye	120	Black/Red/Blue	225	48	Two Column	Odd/Even	1
17	EDIT	POWER PANEL-LOCAL	PDU-1A	PB1	SITE A	Three Phase Wye	120	Black/Red/Blue	230	84	Two Column	Odd/Even	1
18	EDIT	POWER PANEL-LOCAL	PDU-1B	PB1	SITE A	Three Phase Wye	120	Black/Red/Blue	225	84	Two Column	Odd/Even	1
19	EDIT	POWER PANEL-LOCAL	PDU-2A	PB1	SITE A	Three Phase Wye	120	Black/Red/Blue	230	42	Two Column	Sequential	1
20	EDIT	POWER PANEL-LOCAL	PDU-2B	PB1	SITE A	Three Phase Wye	120	Black/Red/Blue	225	42	Two Column	Odd/Even	1
21	EDIT	POWER PANEL-LOCAL	PDU1	PB1	SITE C	Three Phase Wye	240	Red/Yellow/Blue	50	42	Two Column	Odd/Even	1
22	EDIT	POWER PANEL-LOCAL	PDU2	PB1	SITE C	Three Phase Wye	240	Red/Yellow/Blue	50	48	Two Column	Odd/Even	1
23	EDIT	POWER PANEL-LOCAL	PDU-B1	PB1	SITE COLO	Three Phase Wye	120	Black/Red/Blue	225	84	Two Column	Odd/Even	1
24	EDIT	POWER PANEL-LOCAL	PDUDEMO	PB1	SITE COLO	Three Phase Wye	120	Black/Red/Blue	100	42	Two Column	Odd/Even	1

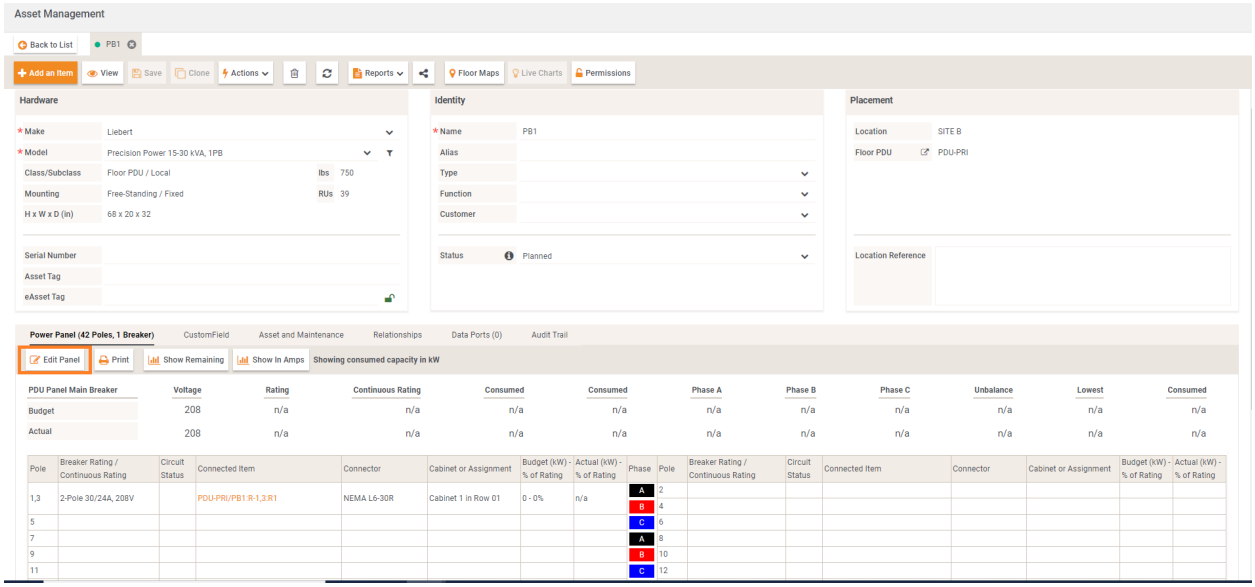
Creating and Managing Local and Remote Panel Breakers

dcTrack 8.1 allows you to create and manage your panel breakers in UI.

Creating Local and Remote Panel breakers

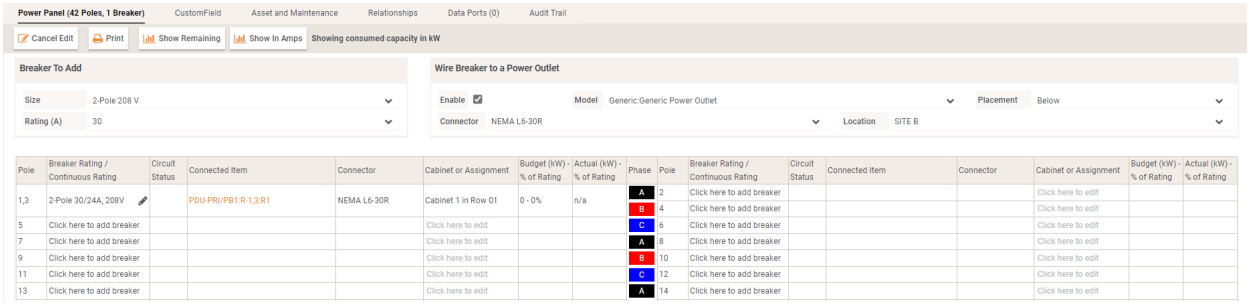
To create panel breakers:

1. Open item details page of Power Panel in edit mode.
2. In the Power Panel sub tab, click on Edit Panel button.



3. Provide following information to add the breakers
    a. Size : Select the size of the breaker.
    b. Rating (A) : Select Rating Amps for the breaker. You can also enter a number if the drop down list do not have the value that you want to select.
4. Provide following information to connect breaker to a Power Outlet. Make sure Enable check box is checked.
    a. Model : Select the model for the Whip Outlet.
    b. Placement : Select the placement for the power outlet.
    c. Connector : Select the connector type for power outlet.
    d. Location : Select the location for the power outlet.

Note : Power Outlets can be created without placing in Cabinet. You only need to specify the Row Label and the Position in Row where the Power Outlet will be placed.



5. All the empty pole positions without any breaker will have a text "Click here to add breaker". Click on the text to add the breaker.
6. Select the Row and Cabinet in the Cabinet or Assignment column. If the cabinet do not exist, select the position in row for the future cabinet.
7. Save the item

Note : If you want to add the breakers and do not connect it to a Power Outlet, uncheck the Enable check box in Wire Breaker to a Power Outlet.

Editing a Breaker

Follow the steps below to edit breakers in UI.

1. In the Edit Panel mode, click on the pencil icon in Breaker Rating column.
2. Edit breaker size and breaker rating by selecting different value from the drop down.
3. Save the item.

If the breaker is connected to a Power Outlet that is connected downstream and Circuit Status column have a value, then breaker size can not be edited. Breaker Rating can be updated, however if the selected value is smaller and not sufficient to carry the load of the circuit, an error message will show and the changes will not be saved.

Deleting a Breaker

Follow the steps below to delete breakers in UI.

1. In the Edit Panel mode, click on the pencil icon in Breaker Rating column.
2. Click on the delete icon to delete the breaker.

If the breaker is connected to Power Outlet that is connected downstream and the Circuit Status is Planned, the breaker along with the Power Outlet and the circuit it is connected to will be deleted.

If the circuit status is installed, the breaker can not be deleted.

Creating and Managing Busway Breakers

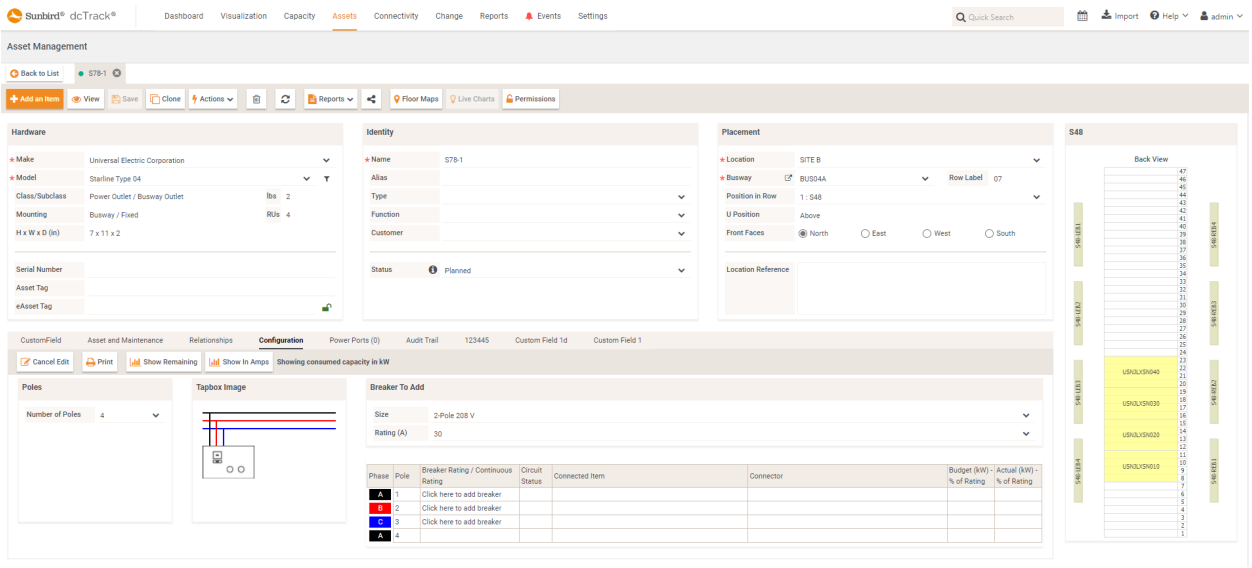
dcTrack 8.1 allows you to create and manage your Busway breakers in UI.

To create Busway Breakers you need to have Busway Panel and Busway Outlet (Tap Box) item created in dcTrack.

Creating Busway Breakers

To create Busway breakers:

1. Navigate to Asset List, select Busway Outlet and Click Edit to open the item in Edit mode.
2. In Busway Outlet Item Details Page -> Configuration Sub Tab.
3. Click Edit Panel.
4. Select the Number of Poles from the drop down.
5. Select the Breaker Size and Rating (A) in Breakers to Add Panel.
6. Click text "Click here to add breaker" in Breaker Rating column to add breaker.
7. Select the connector from the drop down in Connector column.
8. Save the item.



Editing a Busway Breaker

Follow the steps below to edit breakers in UI.

1. Navigate to Asset List, select Busway Outlet and Click Edit to open the item in Edit mode.
2. In Busway Outlet Item Details Page -> Configuration Sub Tab.
3. Click Edit Panel.
4. Click the pencil icon in Breaker Rating column.
5. Edit breaker size and breaker rating by selecting different value from the drop down.
6. Save the item.

You can also add more Pole Positions by selecting higher number for Number of Poles.

If the breaker is connected connected downstream and Circuit Status column have a value, then breaker size can not be edited. Breaker Rating can be updated, however if the selected value is smaller and not sufficient to carry the load of the circuit, an error message will show and the changes will not be saved.

Deleting a Breaker

Follow the steps below to delete breakers in UI.

1. Navigate to Asset List, select Busway Outlet and Click Edit to open the item in Edit mode.
2. In Busway Outlet Item Details Page -> Configuration Sub Tab.
3. Click Edit Panel.
4. Click the pencil icon in Breaker Rating column.
5. Click on the delete icon to delete the breaker.

You can also delete existing pole positions, select lower number for Number Poles. Breakers created for those pole positions will also be deleted.

If the breaker is connected downstream and the Circuit Status is Planned, the breaker and circuit it is connected to will be deleted.

If the circuit status is installed, the breaker can not be deleted.

Use File Import to create and manage Branch Circuit Breakers

Panel breakers can be viewed from the Power – [x] Poles, [y] Breakers sub-tab of a power panel's Item Details page.

Panel breakers can be created using the File Import feature in dcTrack.

The import template includes a step to add breaker poles, with remote and local panel breakers and busway breakers requiring slightly different fields.

Creating Breakers Using CSV Import

To create panel breakers:

1. In the Assets tab > Items List, click the Export button and select either of the following options:
    a. Download Import Template to download the import template as a CSV file.
    b. Export into an Import Template > Branch Circuit Breakers to download an import template populated with the panel and busway breakers as a CSV file.
2. Open your CSV file.
3. Follow the instructions in the CSV file to add breakers.
4. In the Assets tab > File Import page, import the edited CSV file to create the breakers.

Deleting a Breaker

Deleting a breaker can be done only through file import with the DELETE operation.

Creating and Managing Three Phase Power Panels

AC Power Panels can be created with phase type Three Phase Delta.

See here for steps to create AC Power Panels Viewing Creating and Deleting a Power Panel for a Floor.htm

Three-Phase Delta Power Panels that uses 200V can be created by selecting Phase Voltage option 200 I 200. This type of Power Panel will support only 2-Pole and 3-Pole breakers.

Power Outlets can also be created for Three Phase Delta Power Panels, but only when the Power Panel uses a 200 or 208 Voltage. Power Outlets created from this Power Panel will have the same voltage, matching that of the Power Panel.

Single-Phase Power Panels that uses 100 and 200 Voltage can be created in dcTrack. This voltage option applies to all types of Power Panels in dcTrack.

When creating a Power Panel with Phase type "Single Phase (3-Wire) a new option "Neutral Switch Breaker" is added. This option when set to true then No of Poles dropdown will contain the same options used when the selection is Three-phase, because when the neutral switched breakers option is set, the poles on one side of the panel must be divisible by 3 (because there are three legs: A,N and B).

The voltage for the Panel breakers will depend on the Neutral Switched Breakers setting.

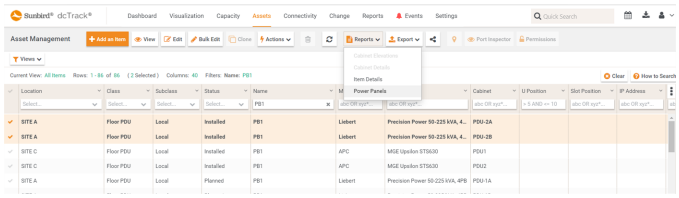
a. When adding Panel breakers, and the 'Neutral Switched Breakers" is false, if the breaker is 1-pole, the voltage should be 100, when the breaker is 2-poles, the voltage is 200.
b. When adding breakers, and the 'Neutral Switched Breakers" is true, if the breaker is 2-pole and it touches a Neutral phase, the voltage should be 100, when the breaker is 2-pole and it touches the A and B phases or when it is 3-poles, the voltage is 200. (1-pole breakers are not supported in this panel)

Power Panel Report

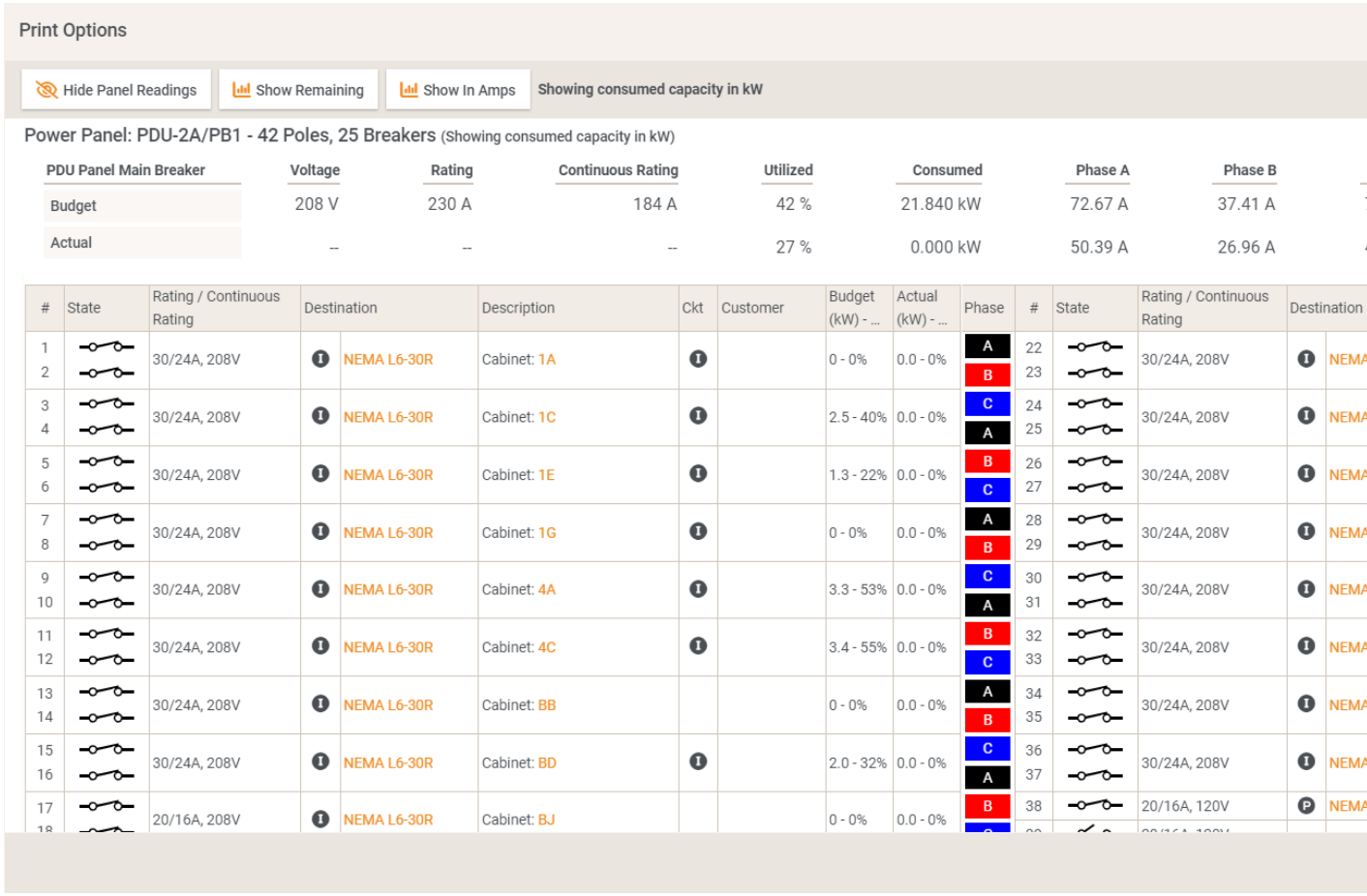
dcTrack allows you to print Panel Views for multiple Power Panels.

These steps apply to AC Distribution / Power Panel, Floor PDU / Local or Remote panels

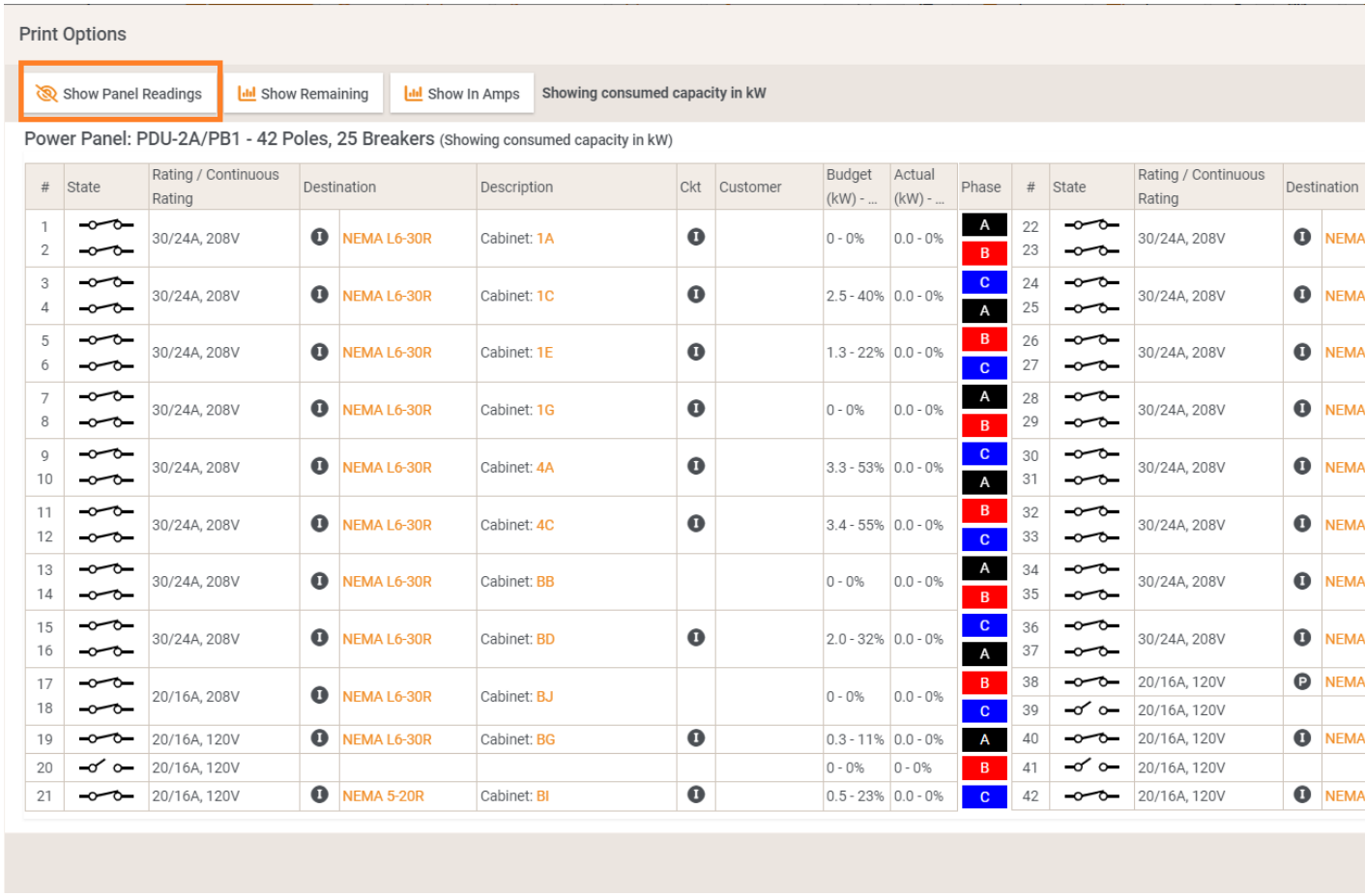
1. In the Asset list, select the Power Panels that you want to print.
2. Click Report -> Power Panel



3. If you would like to print the Report, once rendering is complete click the Print button in the lower right side of each page of the report.



4. If you would like to exclude the Panel Level readings, click the "Hide Panel Readings" button in the tool bar. This button allows you to toggle between Hiding and Showing the Panel



#	State	Rating / Continuous Rating	Destination	Description	Ckt	Customer	Budget (kW) - ...	Actual (kW) - ...	Phase	#	State	Rating / Continuous Rating	Destination
1		30/24A, 208V	NEMA L6-30R	Cabinet: 1A			0 - 0%	0.0 - 0%	A	22		30/24A, 208V	NEMA
2									B	23			
3		30/24A, 208V	NEMA L6-30R	Cabinet: 1C			2.5 - 40%	0.0 - 0%	C	24		30/24A, 208V	NEMA
4									A	25			
5		30/24A, 208V	NEMA L6-30R	Cabinet: 1E			1.3 - 22%	0.0 - 0%	B	26		30/24A, 208V	NEMA
6									C	27			
7		30/24A, 208V	NEMA L6-30R	Cabinet: 1G			0 - 0%	0.0 - 0%	A	28		30/24A, 208V	NEMA
8									B	29			
9		30/24A, 208V	NEMA L6-30R	Cabinet: 4A			3.3 - 53%	0.0 - 0%	C	30		30/24A, 208V	NEMA
10									A	31			
11		30/24A, 208V	NEMA L6-30R	Cabinet: 4C			3.4 - 55%	0.0 - 0%	B	32		30/24A, 208V	NEMA
12									C	33			
13		30/24A, 208V	NEMA L6-30R	Cabinet: BB			0 - 0%	0.0 - 0%	A	34		30/24A, 208V	NEMA
14									B	35			
15		30/24A, 208V	NEMA L6-30R	Cabinet: BD			2.0 - 32%	0.0 - 0%	C	36		30/24A, 208V	NEMA
16									A	37			
17		20/16A, 208V	NEMA L6-30R	Cabinet: BJ			0 - 0%	0.0 - 0%	B	38		20/16A, 120V	NEMA
18									C	39		20/16A, 120V	
19		20/16A, 120V	NEMA L6-30R	Cabinet: BG			0.3 - 11%	0.0 - 0%	A	40		20/16A, 120V	NEMA
20		20/16A, 120V					0 - 0%	0 - 0%	B	41		20/16A, 120V	
21		20/16A, 120V	NEMA 5-20R	Cabinet: BI			0.5 - 23%	0.0 - 0%	C	42		20/16A, 120V	NEMA

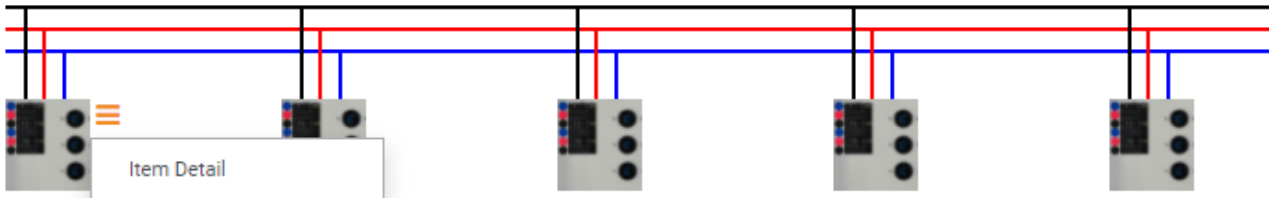
To print Panel view for Busway Tap Boxes follow the steps below

1. Open a Busway item details page.
2. In the Power Tap Boxes sub tab, hover over the Tap Box image and click the hamburger icon.

Power Tap Boxes (6) | CustomField | Asset and Maintenance | Relationships | Data Ports (0) | Audit Trail

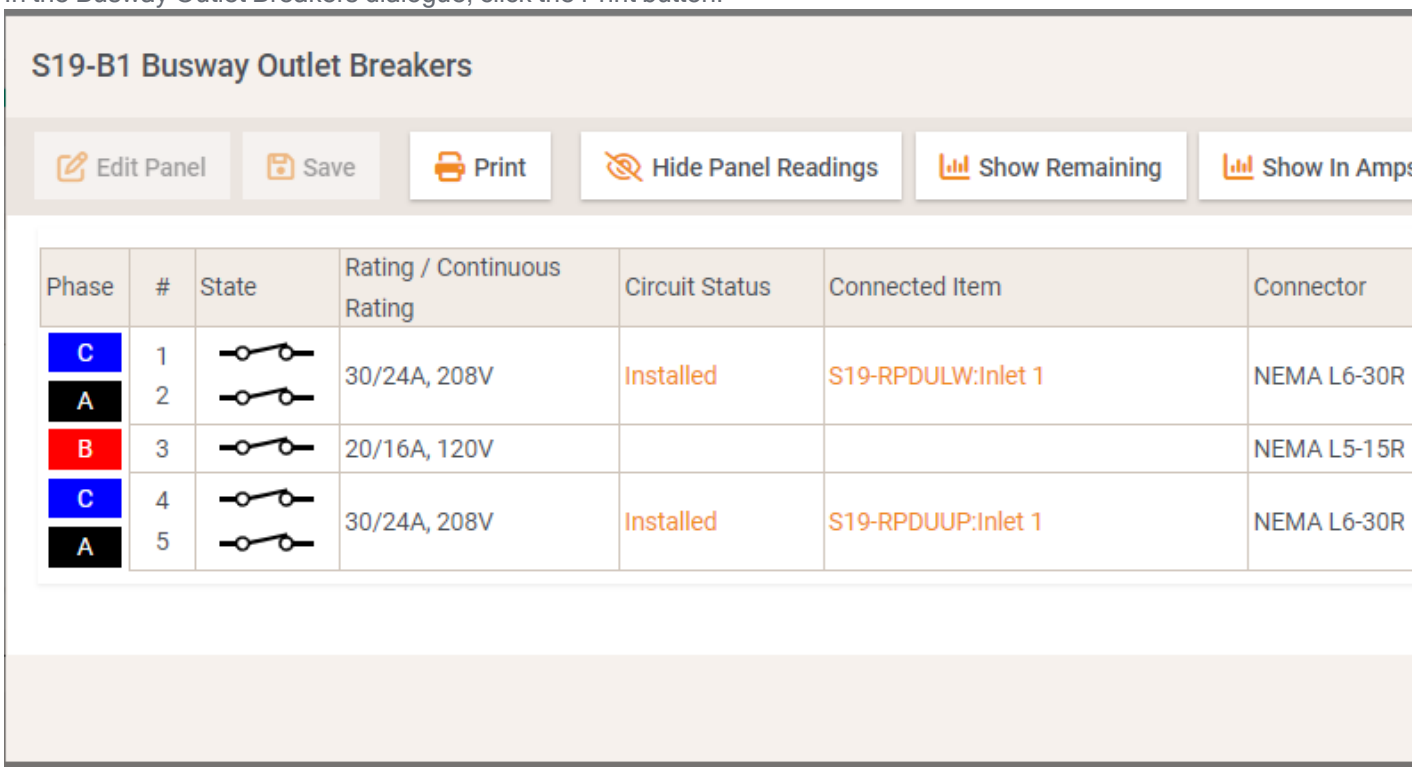
Show Remaining | Show Empty Positions

Busway Main Breaker	Voltage	Rating	Continuous Rating	Consumed
Budget	208 V	225 A	180 A	0.43 %
Actual	--	--	--	0 %



Position in Row	1		6	7	8
Cabinet			S06	S07	S08
Tapbox	BUS01	S05-A1	S06-A1	S07-A1	S08-A1
Budget (kW)	0.00 [0.0%]	6.88 [46.3%]	5.43 [36.5%]	1.58 [10.6%]	2.99 [20.1%]
Actual (kW)	0.00 [0.0%]	0.00 [0.0%]	0.00 [0.0%]	0.00 [0.0%]	0.00 [0.0%]

3. Click Panel View from the menu.
4. In the Busway Outlet Breakers dialogue, click the Print button.



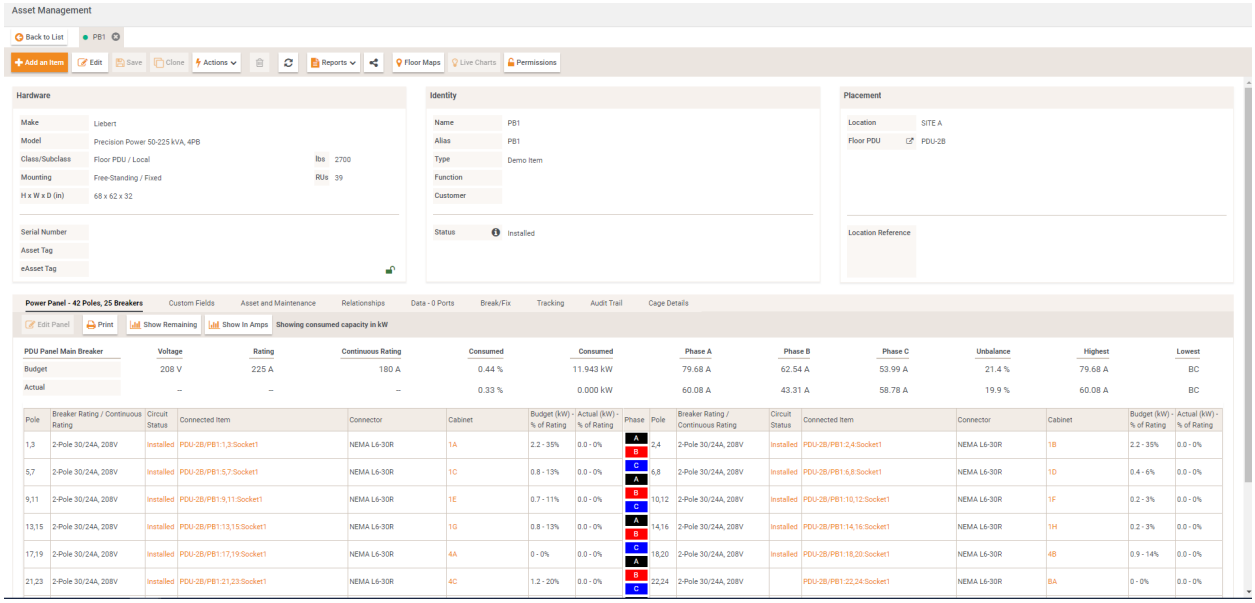
5. The display of Panel Readings can be toggled using the "Hide Panel Readings" button.

Panel Breaker Measurement

dcTrack 8.1 allows you to view budget and actual values for PDU Panel Main Breaker.

For Local and Remote Power Panels you can view this information in the Power Panel sub tab of panel item. This information read only and the values are in Amps.

Actual readings for PDU Panel Main Breaker come from Power IQ and will only show when your dcTrack is integrated with Power IQ.



For each panel breaker you can view the budget and actual value in the columns Budget % of Rating and Actual % of Rating respectively.

By default these columns show percentage of consumed capacity in kW. To see these values in Amps, click the toggle button Show in Amps.

You can also view the remaining capacity for the breakers by clicking the toggle button Show Remaining.

When you hover over these column cells, you will get the summary of budget and actual values for each breaker in a tool tip.

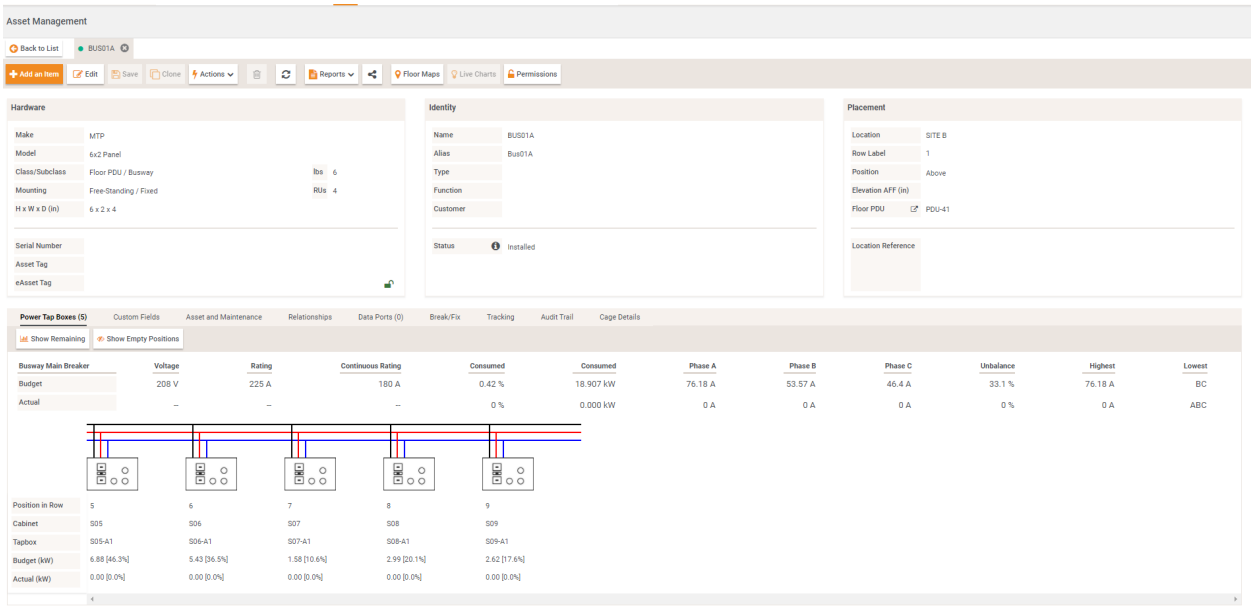
Actual value for each breaker will come from Power IQ if dcTrack is integrated with Power IQ. However if your dcTrack is not integrated with Power IQ, you can use file import feature to add actual reading for each panel breakers.

Note : Toggle buttons Show Remaining and Show in Amps apply to the columns Budget % of Rating and Actual % of Rating.

Busway and Tap Boxes

dcTrack allows you to create Busway item and add Busway Outlets (Tap Boxes) to the Busway.

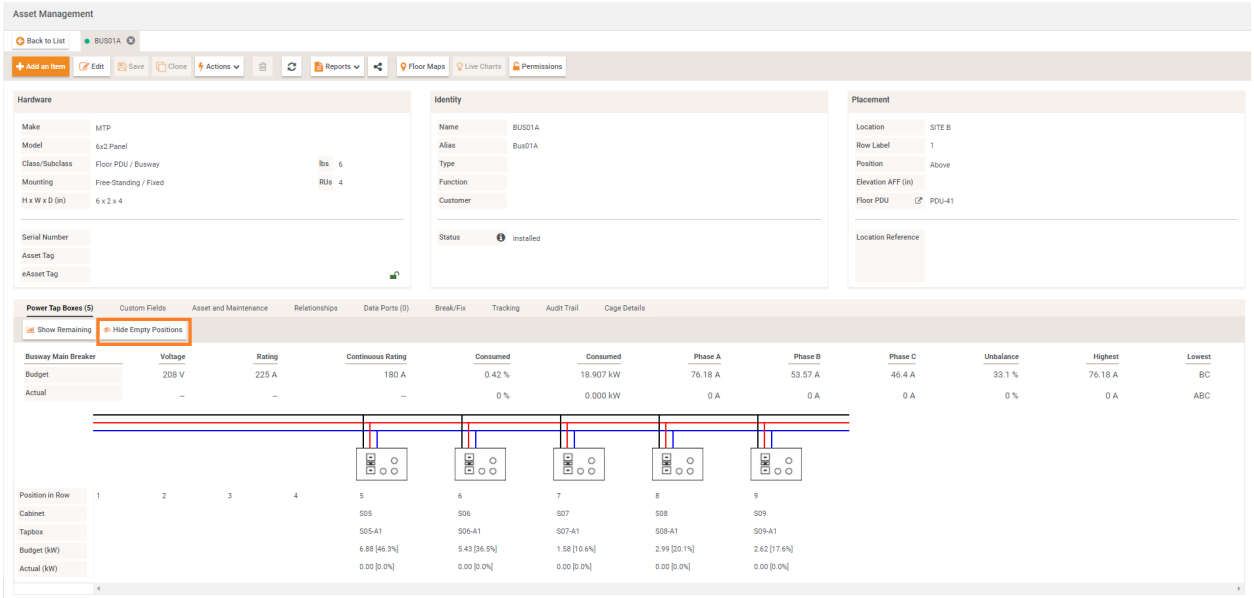
You can view all the Tap Boxes associated with a Busway item in Power Tap Boxes sub tab of Busway item details.



For the Busway Main Breaker and for each Tapbox you can also view the Actual and Budget values. See Busway Breaker Measurement for more details.

You can also check for Empty Positions where you can add more Tap Boxes when you click the toggle button Show Empty Positions.

To Hide Empty Positions, click Hide Empty Positions.



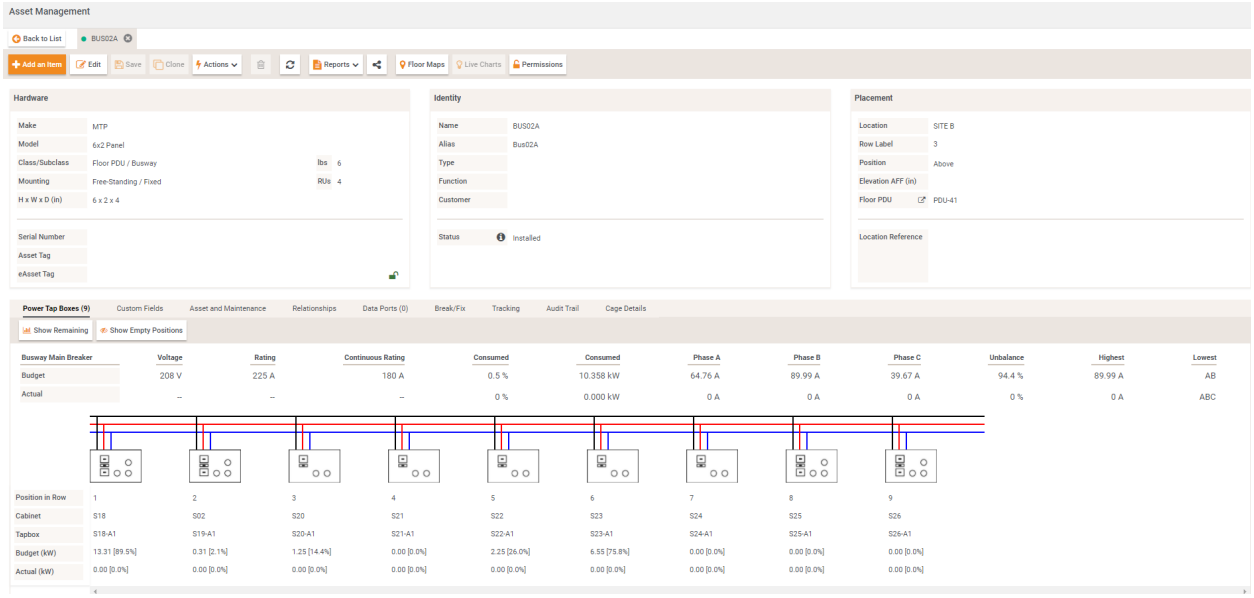
Note : You can assign more than one Tap Box at the same Position in Row.

Busway Breaker Measurement

To view Busway Panel measurements, go to Power Tap Boxes sub tab of Busway Panel item.

Here you can view the Budget and Actual values for the Busway Main Breaker. Also you can view consumed and remaining capacity for each Tap Box associated with the Busway.

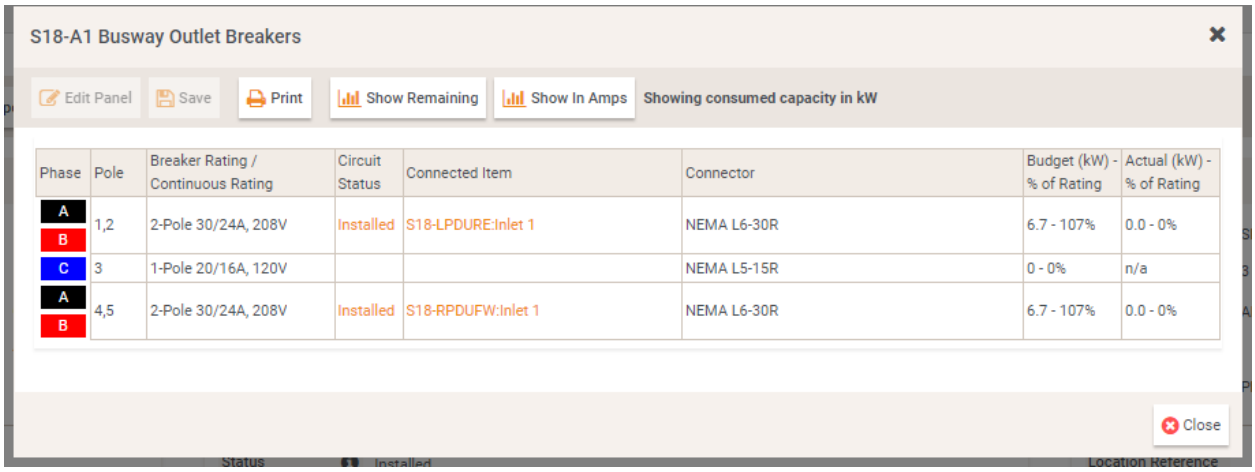
Actual readings for Busway Main Breaker come from Power IQ and will only show when your dcTrack is integrated with Power IQ.



You can also view the percentage of consumed capacity for Budget and Actual values in kW for each Tap Boxes associated with the Busway. To view remaining capacity, click the toggle button Show Remaining.

Note : Toggle buttons Show Remaining apply to Budget(kW) and Actual(kW) for each Tap Box.

Budget and Actual values for individual busway breakers can be viewed in the panel view for Tap Box or in the Configuration sub tab of Busway Outlet item.



For each breaker you can view the budget and actual value in the columns Budget % of Rating and Actual % of Rating respectively.

By default these columns show percentage of consumed capacity in kW. To see these values in Amps, click the toggle button Show in Amps.

You can also view the remaining capacity for the breakers by clicking the toggle button Show Remaining.

When you hover over these column cells, you will get the summary of budget and actual values for each breaker in a tool tip.

Actual value for each busway breaker will come from Power IQ if dcTrack is integrated with Power IQ. However if your dcTrack is not integrated with Power IQ, you can use file import feature to add actual reading for each busway breakers.

Note: Busway breaker readings in dcTrack are the sum of the actual amps from the RPDUs connected to the panel breaker. To obtain these readings, the busway outlets must be connected to smart rack PDUs that are integrated with Power IQ.

Breaker Assignment

Please refer to the topic below for additional information

Viewing, Creating, Editing and Deleting AC Panels and Breakers

For Information on Breaker Assignment for AC please see

Breaker Assignment for DC

Power Panel Mirroring

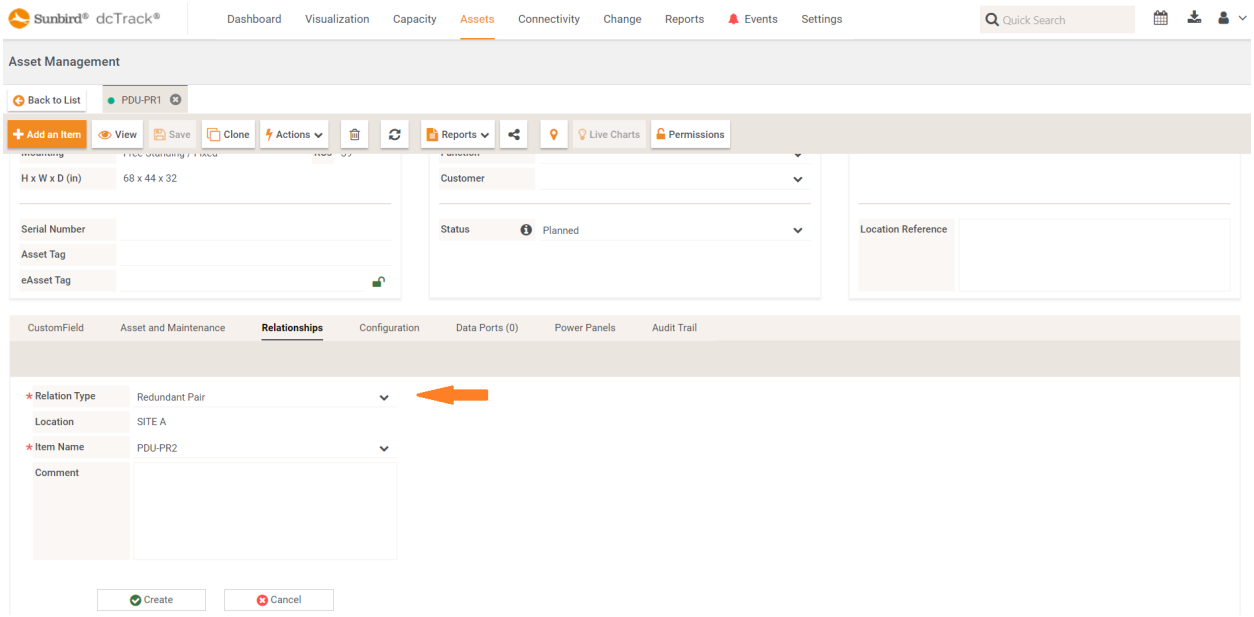
dcTrack 8.1.1 allows you to set up redundant pair for Floor PDU and mirror their Local and Remote Power Panels. All the mirrored Power Panels will be in full sync for all the changes like adding / removing breakers, circuiting power outlets, assigning power outlets to cabinets, editing text assignments etc.

In order to mirror Power Panels its parent Floor PDU must have a redundant pair.

Steps for setting redundant pair:

1. Navigate to Item Details page of Floor PDU.
2. In the Relationship sub tab click Add Relationship.
3. Select Relation type Redundant Pair.
4. Select the Floor PDU from item drop down.
5. Click Create.

Redundant Floor PDU must be in the same location and must have same rating for Main Breaker (A). Only one Floor PDU can be set as Redundant pair to another Floor PDU.



You can also create and delete Item Relationship using File Import /Export. Refer to the examples in the sample import template for Item.

Note : Relation Type Redundant pair applies only to item class Floor PDU and DC Bay. This Relation type can not be managed in Field Management.

Once the Redundant Pair is set up, Local and Remote Power Panels of the redundant Floor PDU items can be mirrored.

Following are the prerequisite to mirror Power Panels.

1. Floor PDU must have redundant pair.
2. Local Power Panels to be mirrored must have the same name.

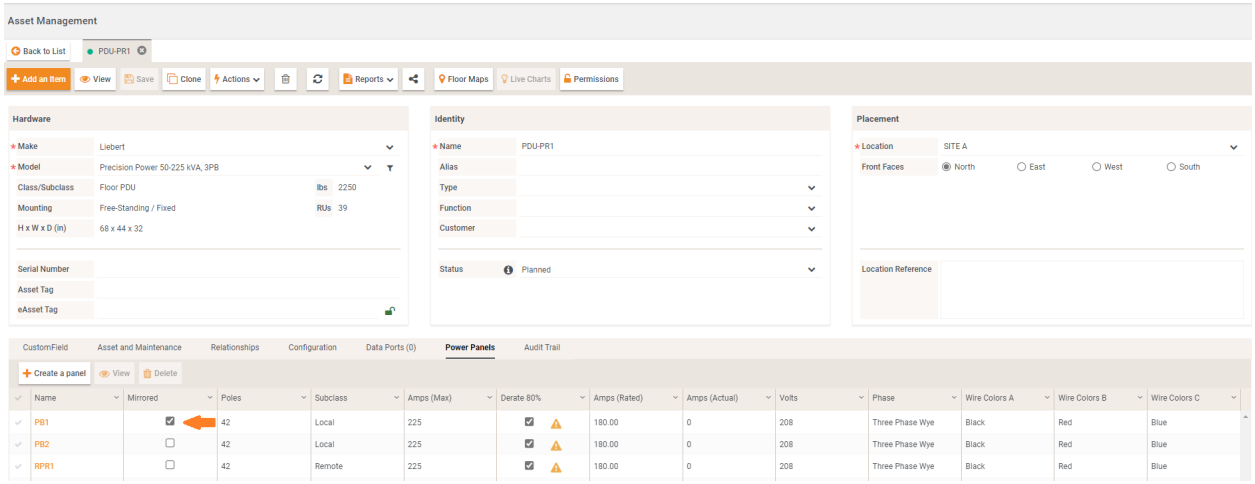
   The above rule only applies to Local Power Panels because in dcTrack the name of the Local Power Panel is unique per Floor PDU. This rule will not apply to Remote Power Panels because their name uniqueness is per location.

3. Power Panels to be mirrored must be configured identically. They should have same amps rating, number of poles, layout and numbering scheme. Phase and Volts must be same. If there are breakers already created, they must be identical in size, position, rating and assignment.

Note : When one of the Power Panel to be mirrored have breakers and other Power Panel have no breakers, then these Power Panels can also be mirrored. Once they are mirrored the existing Breakers from the Power Panel will be copied to its mirrored counterpart.

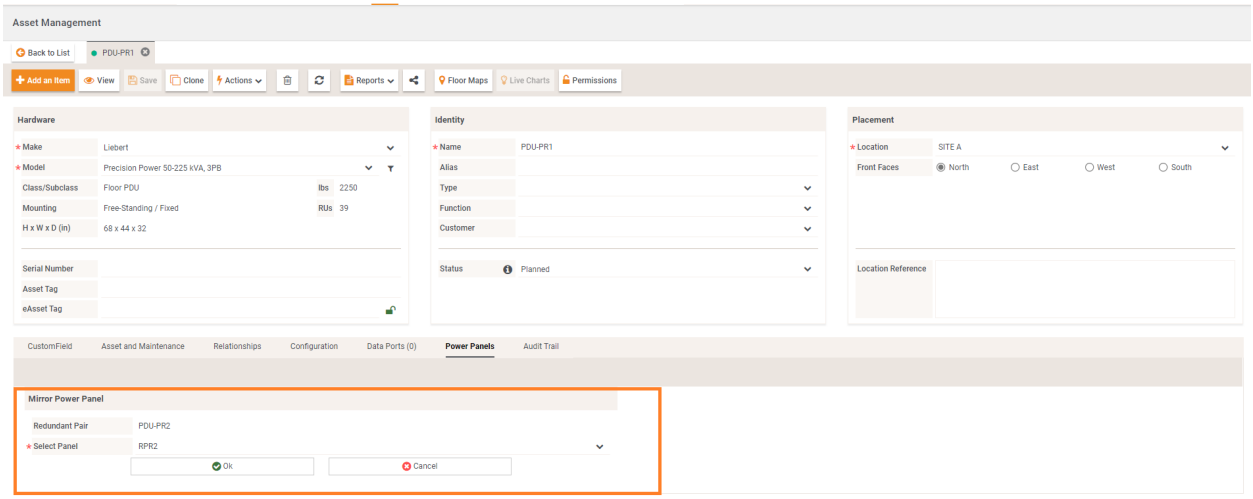
Steps to Mirror Local Power Panel.

1. Navigate to Item Details page of Floor PDU.
2. Click Edit button in the toolbar.
3. In the Power Panel sub tab check the Mirrored column.



Steps to Mirror Remote Power Panels.

1. Navigate to Item Details page of Floor PDU.
2. Click Edit button in the toolbar.
3. In the Power Panel sub tab check the Mirrored column.
4. Select Remote Panel from the drop down.
5. Click Ok.



Mirrored Panels will be in sync. Any changes made to one of the panel will get updated to its mirrored counterpart. However any connections made to the Panel Breaker Power Outlets will not be included in the sync. Mirrored Panel Breakers Power Outlets can connect to different items downstream.

To remove the mirroring, uncheck the Mirrored column for the respective Power Panel or delete the relation type Redundant Pair for Floor PDU item which will un-mirror all the Power Panels of that Floor PDU.

Once the mirroring is removed, the panels will no longer be in sync and any changes made will not be copied.

Build Power Circuits

You are able to:

- **Build a "Normal" Power Circuit**
- **Build a Partial Power Circuits**

Additionally, you can:

- **Switch an Item's Power or Data Connection (Connect and Reconnect)** rather than having to submit a Disconnect Request and rebuild a circuit.
- Connect to a Virtual Power Chain if you want connect to a VPC until you are to build your power chain at a later time
- **Switch from a 'Normal' Power Circuit to a Virtual Power Chain (Connect and Disconnect)** if you want to connect to a VPC until you can once again switch back to a 'normal' circuit
- **Switch from a Virtual Power Chain to a 'Normal' Power Circuit (Connect and Disconnect)** once you are ready to build your power chain

Build a "Normal" Power Circuit

To build a power circuit:

1. In the Web Client, click Connectivity > Add a Circuit. A New Circuit tab is opened with an empty node highlighted in blue and an Item list for selecting Items for this circuit node.
2. From the Item list below, select the item from which the circuit is initiated. Required
3. Next, select the port the connection originates from. dcTrack validates the port selection to make sure there are no issues. Required

   When selecting the port list from second node onwards, you will have the option to show only compatible ports that are most likely to be used for building this circuit. By default, this option will be enabled, if you want to view all of the available ports for the selected item you can click on Show All Ports in the Port List toolbar.
4. When building the first node, you can switch to building a data circuit instead of a power circuit by selecting the Power Ports tab from Port List.
5. Once you have moved on to creating a power circuit for the next node, the option to select Data Port is no longer available. To switch to building a Data circuit, click the Refresh button which will reset the circuit and bring you back to the first node.
6. To continue building the circuit click the Next Node button in the Port List toolbar and select the item and port for the next node.
7. Select the power item the device will be connected to, then select the power port. One of the following occurs:
   - If you select the rack PDU output for a rack PDU that is already connected upstream, the remainder of the circuit is displayed automatically.

For example, Server ~ rack PDU ~ input cord ~ power outlet ~ PDU panel ~ floor PDU ~ UPS bank.

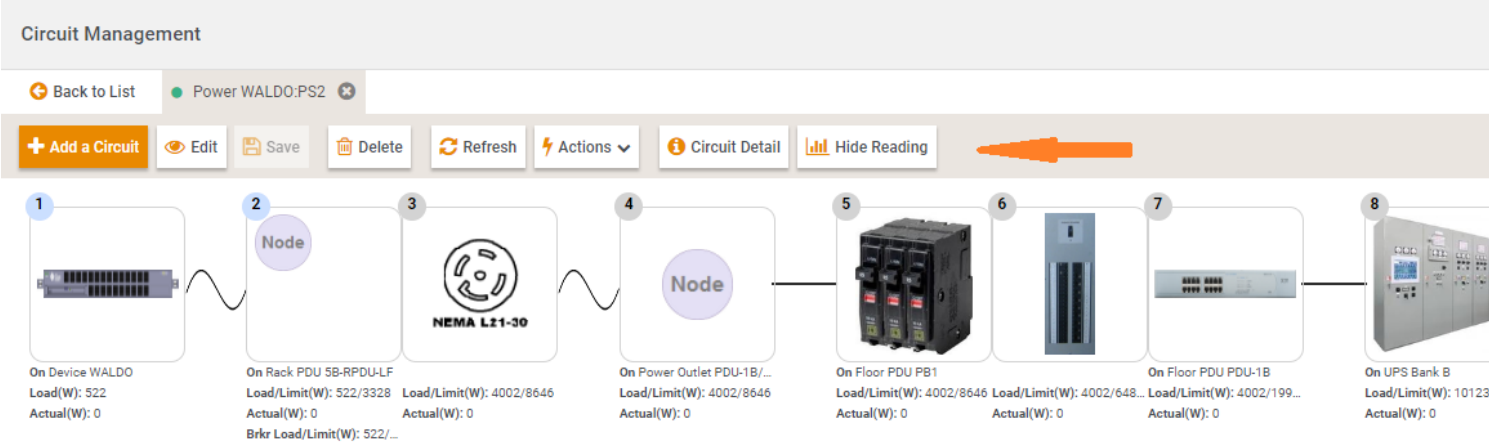
   - If the circuit is not already connected upstream, click Next Node to continue building the circuit.

If there is an issue between the node item or port you selected and the item and port of the previous node, a Caution icon ( ) is displayed at the bottom right of the node. Click on the Caution icon to view the conflict details.

Note: If you make changes and have already added additional nodes, the nodes that follow are deleted.

8. Click Save to save the circuit.
9. Submit a Connect Request now or at a later time.

After the power circuit is saved, you can view the actual load and the reading for each node by clicking on the button Show Reading in the toolbar. You can also hide the readings by clicking on Hide Reading Button.



You can also build multiple power circuits in single tab. You can do this by selecting an item and selecting all of the ports for that item. This will build the same number of circuits as the number of ports you have selected in single tab. Click on Next Node and select the item for next node and so on.

Build a Partial Power Circuits

Partial power circuits start with a rack PDU and end on a power infrastructure item.

You cannot join two partial circuits together to create a compound circuit.

Submit Circuit Requests from the Actions Menu

You can submit a Disconnect Request or Connect Request for circuits in dcTrack. Like item action requests, these are requests to perform actions in the data center.

A disconnect or connect request can be submitted separate of an item request. For example, you can submit a Disconnect Request for a rack PDU's circuit without needing to move the rack PDU and submit a Move Item Request for it.

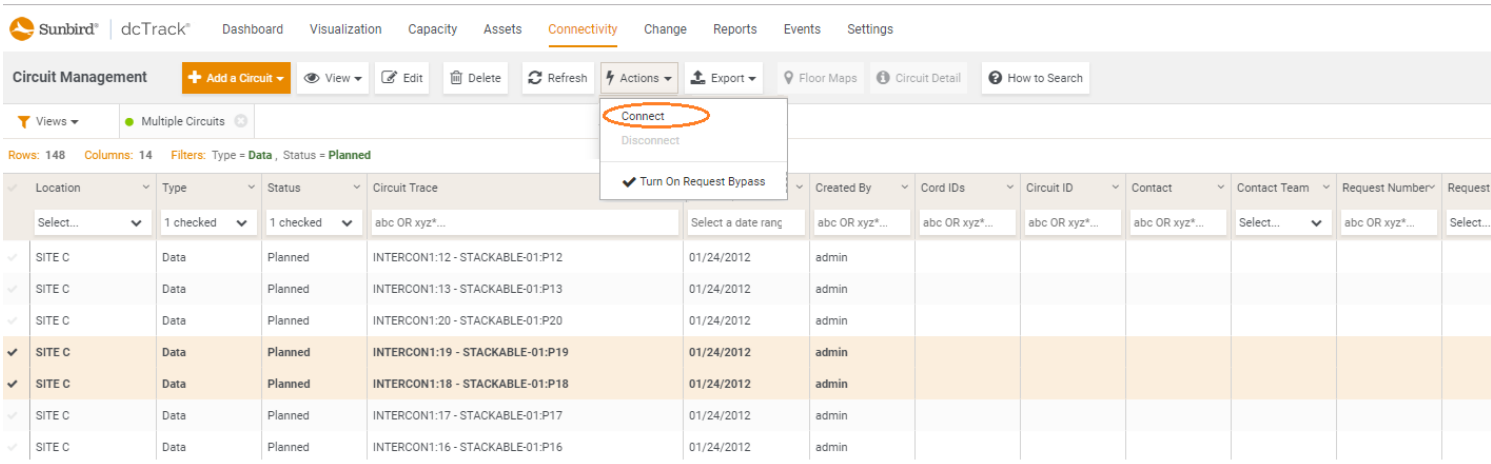
When submitting requests from the Actions menu, you can select multiple circuits from the Circuits List and submit a request for them at the same time.

Requests can be submitted while in Request Bypass is enabled or disabled.

A circuit's status does not change until a request is submitted for it. Once an action request is submitted -

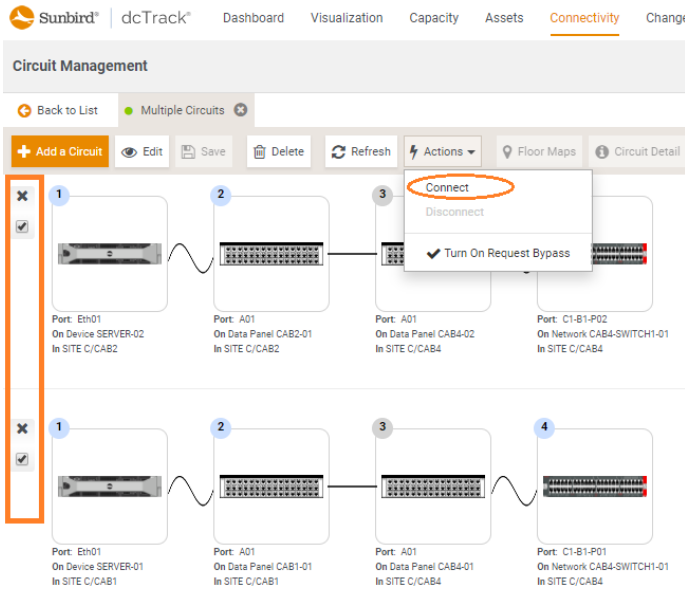
- If you are working in Request Bypass, the request is processed automatically and either approved or rejected.
- The request is submitted for review if Request Bypass is disabled.

For information on checking a request status, see **Requests and Work Orders**.



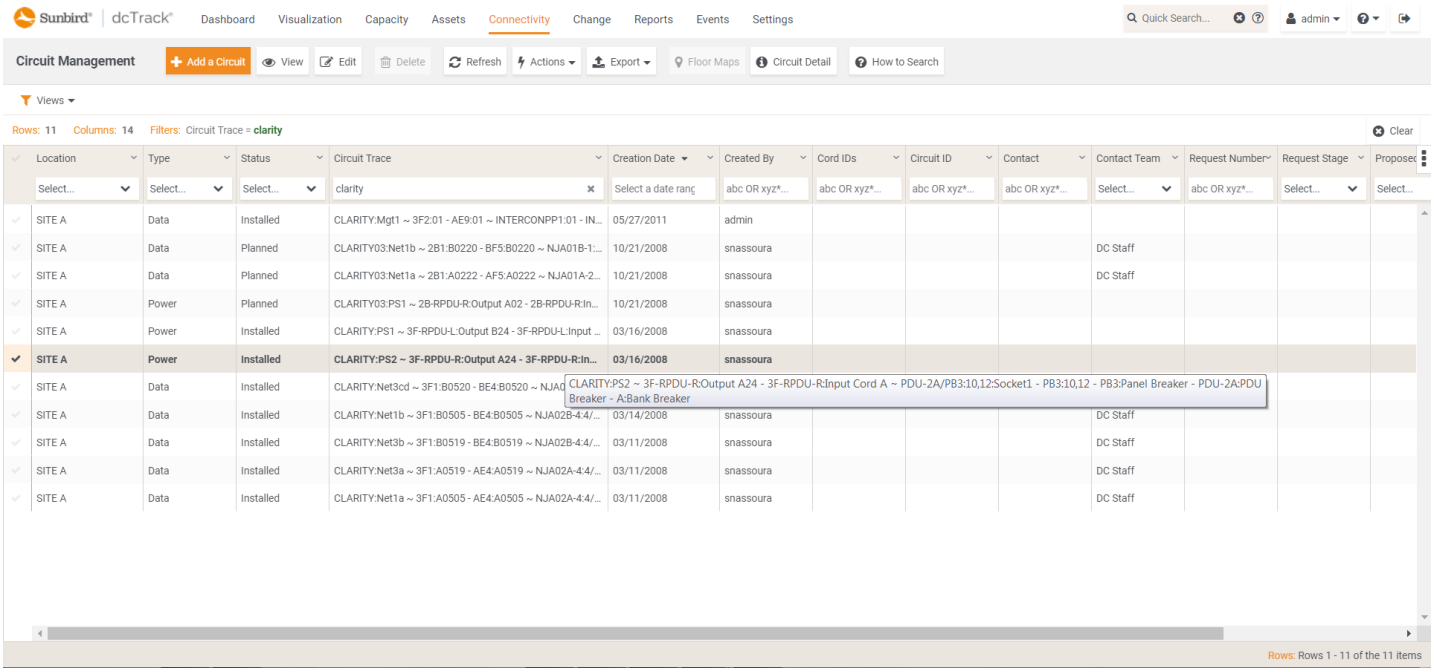
Circuit request can also be submitted from Circuit Trace

- If you have more than one circuit opened in single tab, select the circuits by selecting the checkbox next to each circuit and submit a request for them at the same time.

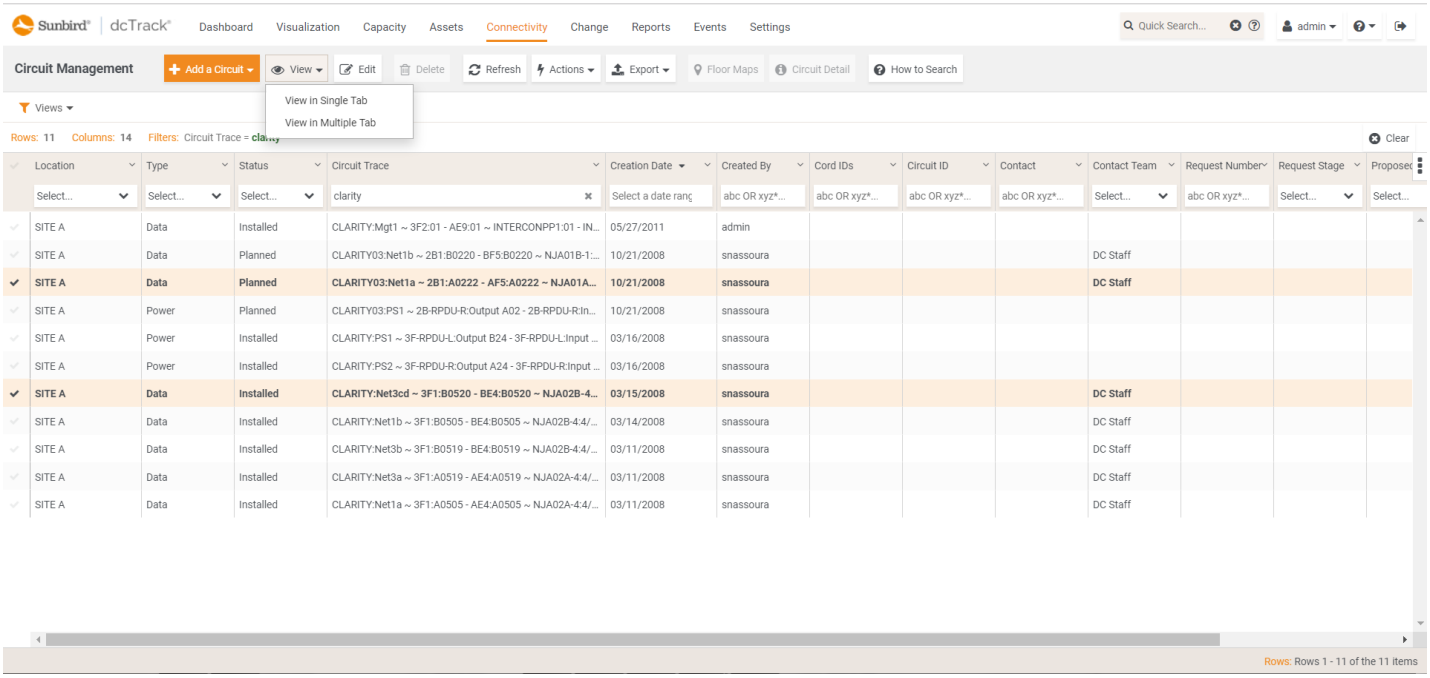


Tracing Circuits from the Circuits List

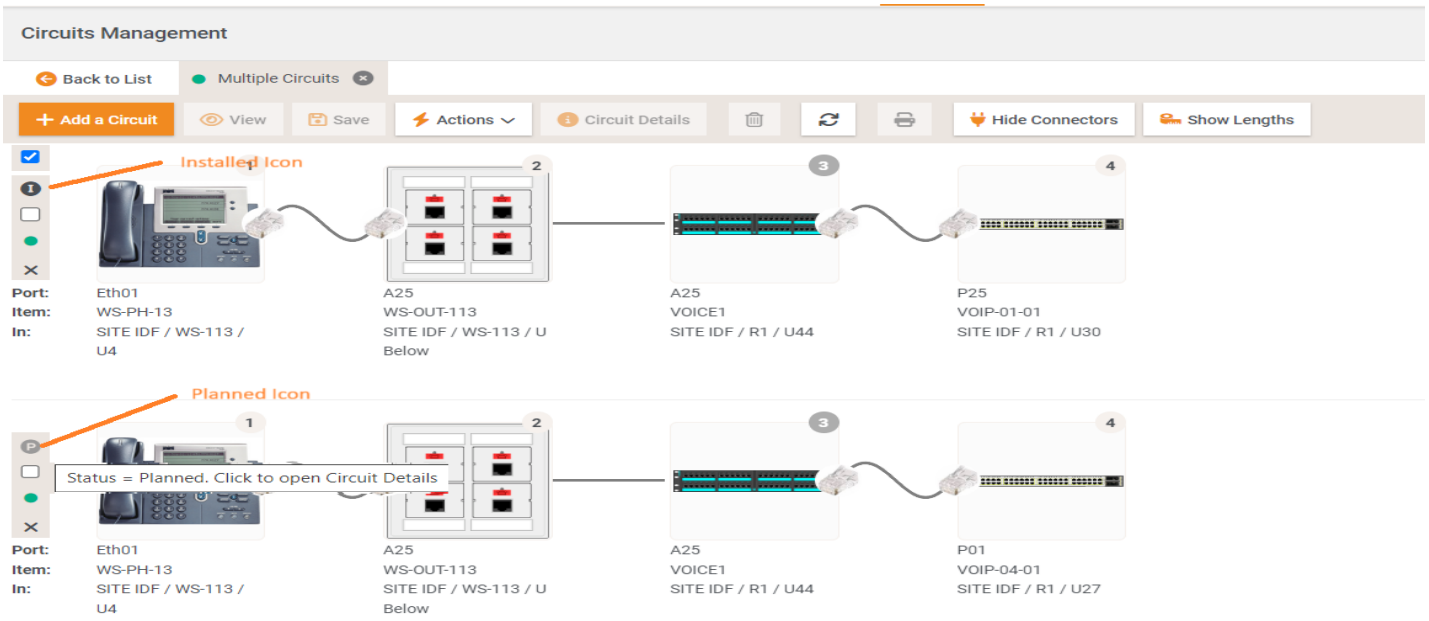
The Circuit Trace column on the Circuits List page provides the circuit's path to items in dcTrack. Use the column based filtering feature on the page to narrow results.



View a specific data or power circuit by double clicking on the circuit on the Circuits List page, or by selecting one or more circuits and clicking the View button on the toolbar. When only a single circuit is selected in the list you will be taken directly to the Circuit Trace page for the selected circuit. When multiple circuits are selected the View button will provide a drop-down list allowing you to select whether to view the selected circuits in a single tab or multiple tabs.



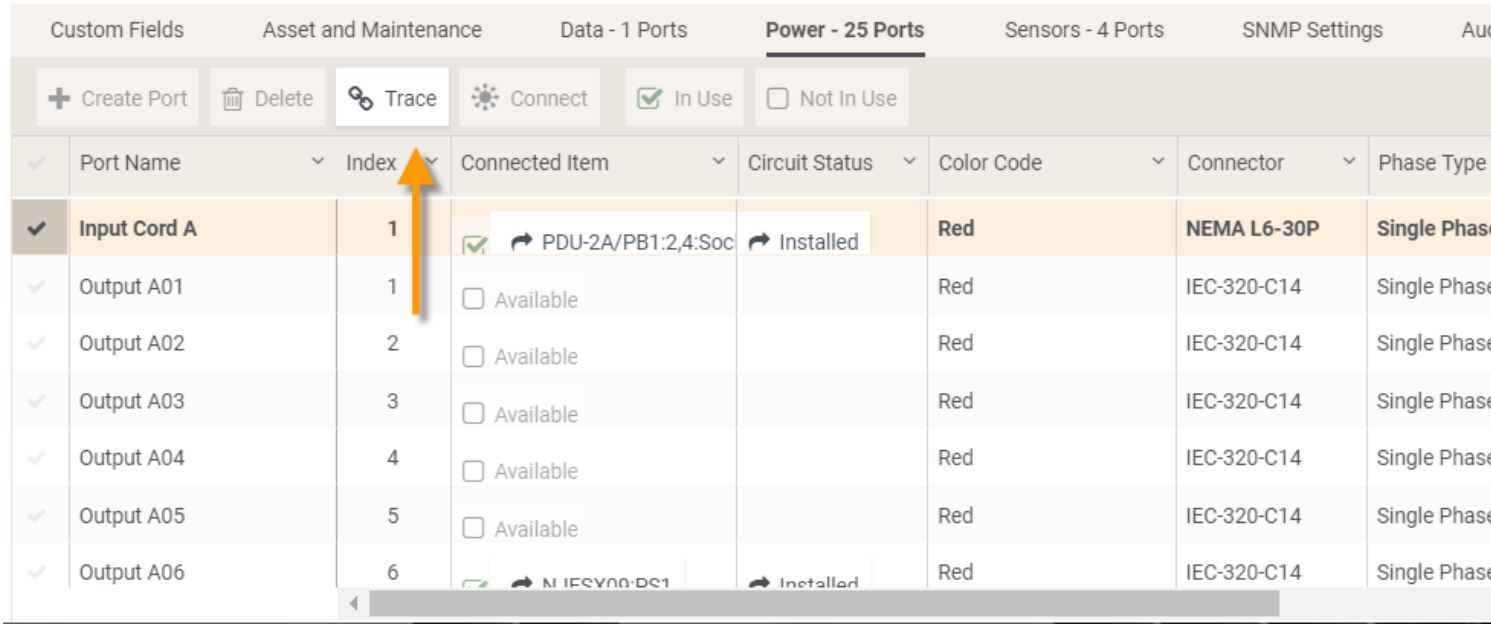
When viewing a circuit trace, the Status icon will display the current status of each circuit. The icon will display a "P" for planned circuits and an "I" for Installed circuits. This icon is displayed on both Data and Power Circuits. Hovering over the icon displays a tool tip with additional information.



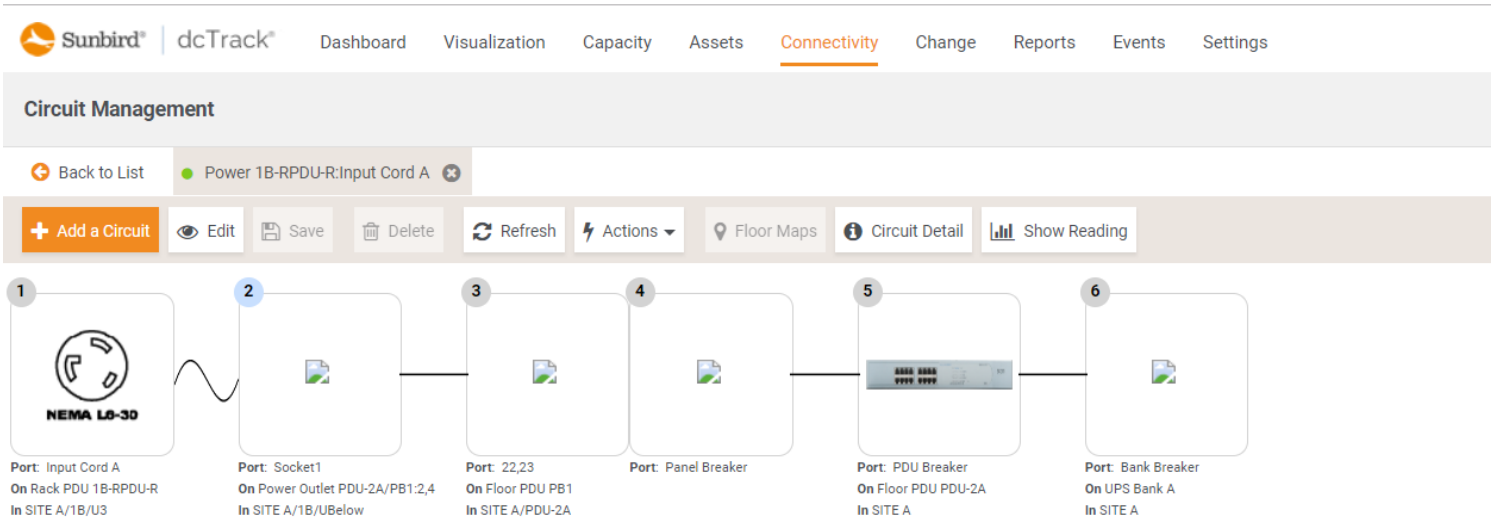
Trace a Power Port Circuit from the Power Port Tab (Web Client)

Users with View access and above can trace a power port circuit directly from the Power - n Ports tab on an item's page in the Web Client.

Select a single port or use Ctrl + click to select multiple ports, then click Trace.



The circuit page opens under the Connectivity tab.



Trace a Data Port Circuit from the Data Port Tab (Web Client)

Users with View access and about can trace a data port circuit directly from the Data - n Ports tab on an item's page in the Web Client.

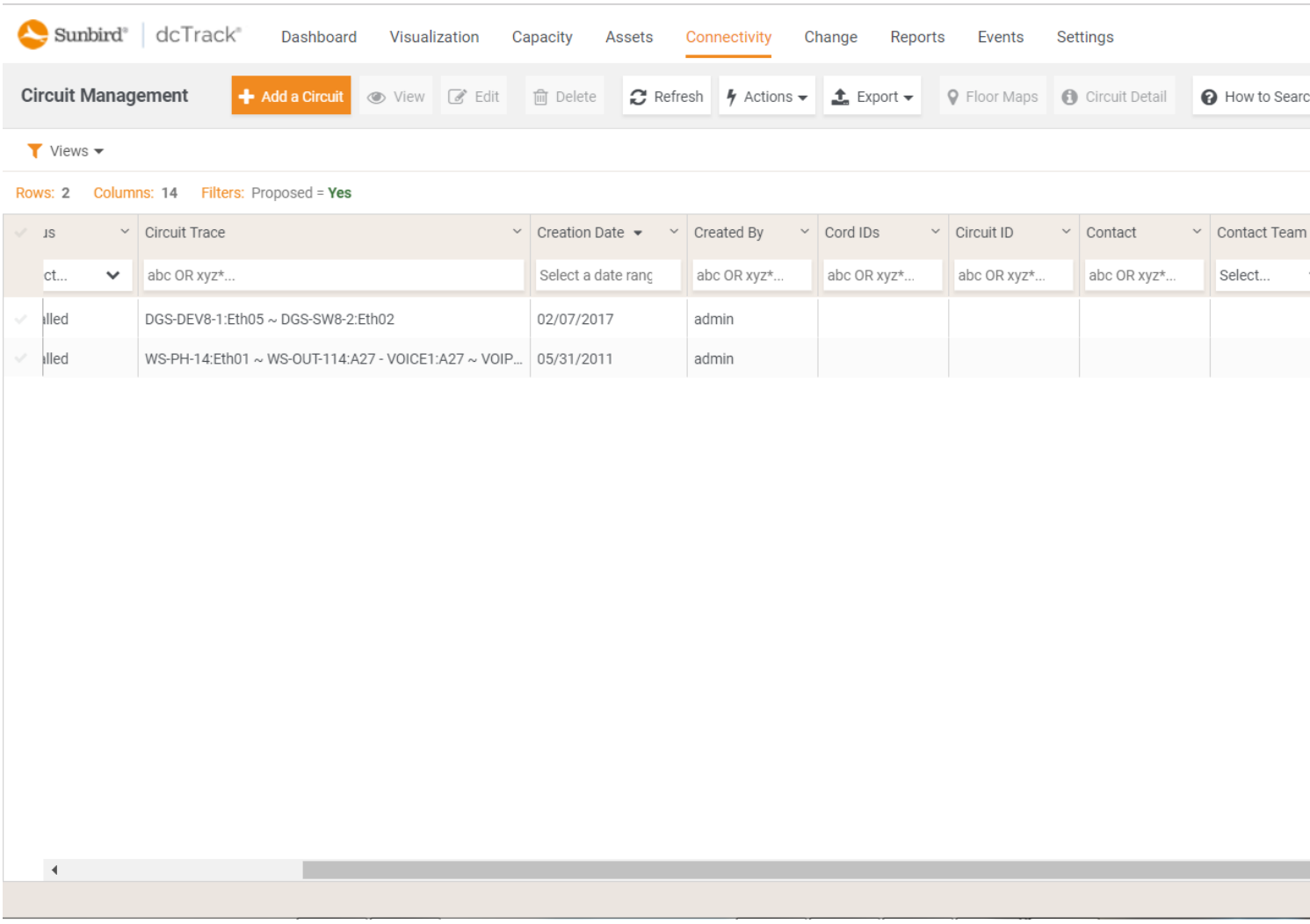
Select a single port or use Ctrl + click to select multiple ports, then click Trace.

The circuit page(s) open under the Connectivity tab.

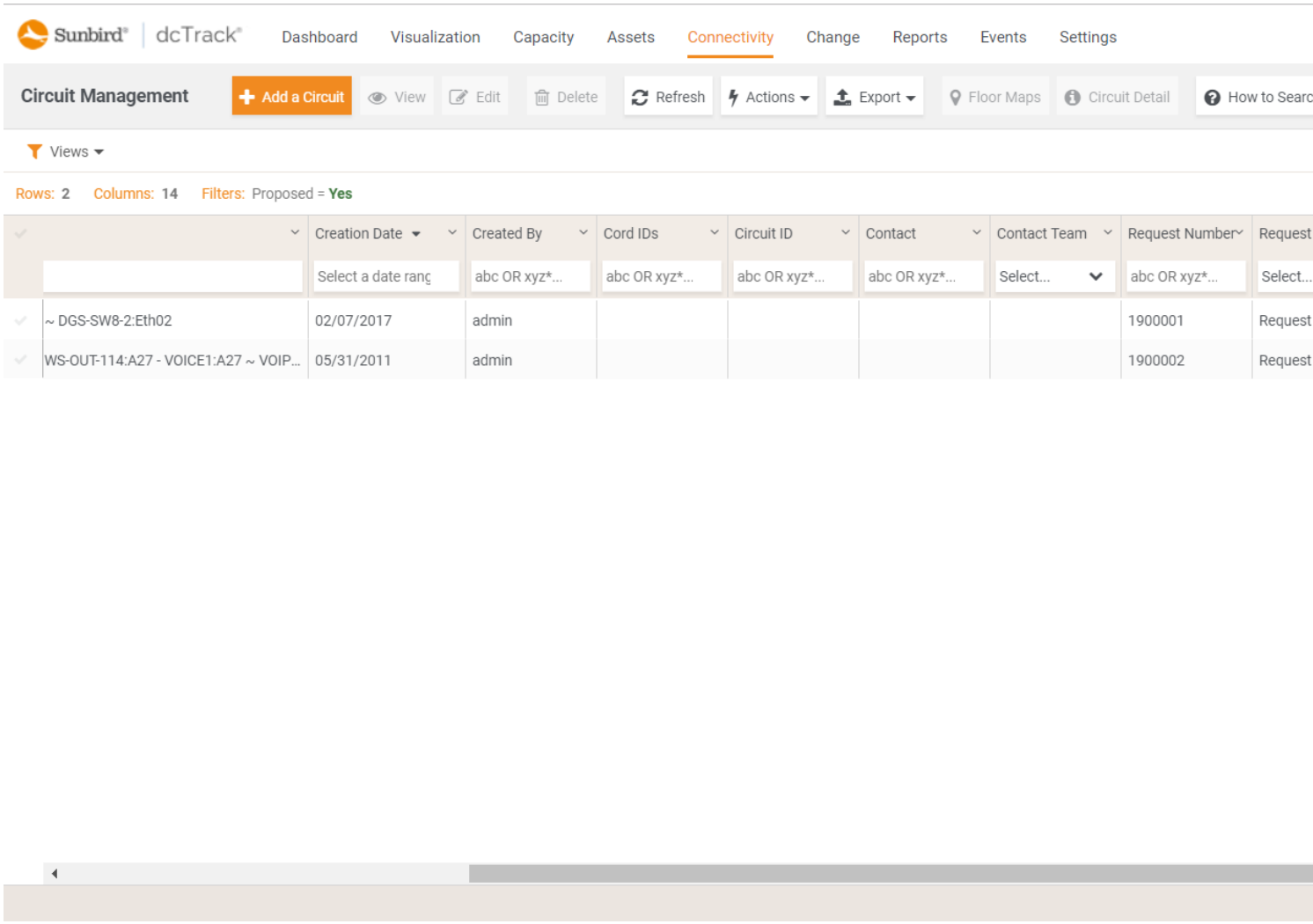
Viewing Proposed Circuits

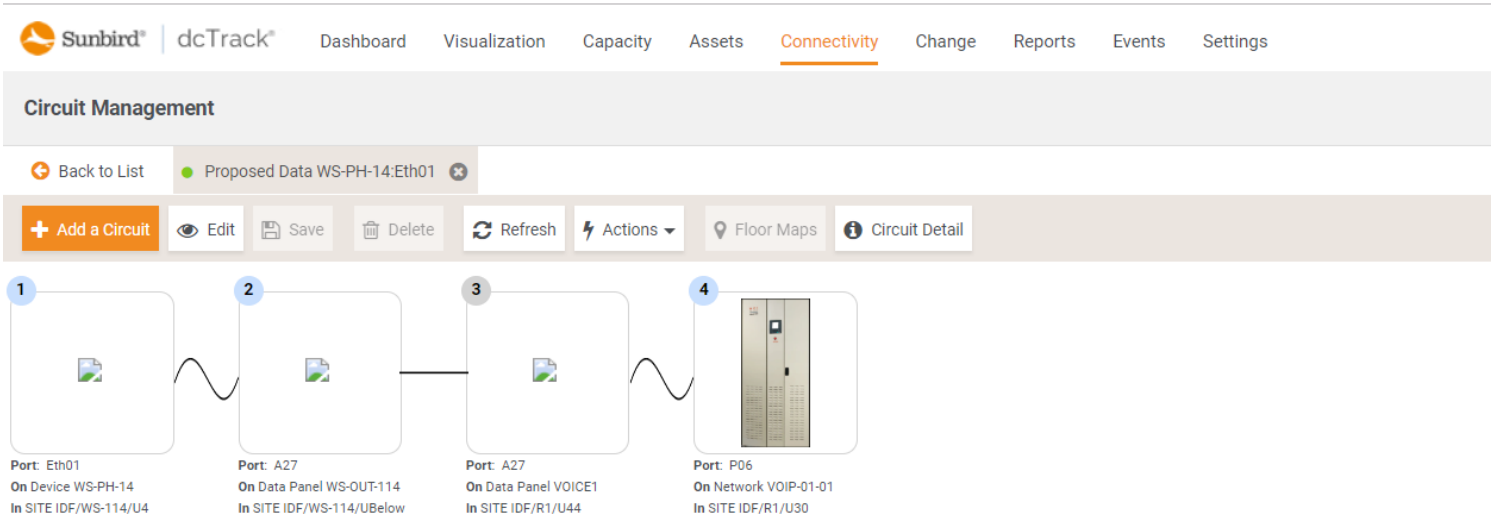
When saving the edits made to an Installed circuit, both the Original circuit and a Proposed version of the circuit are created.

To view a list of Proposed Circuits, filter the Circuit grid on the Proposed Column by selecting "Yes". This will provide a list of all Proposed Circuits.



Clicking the View link in the Proposed column on the Circuits List page allows you to view a proposed circuit.


Sunbird dcTrack
Dashboard Visualization Capacity Assets Connectivity Change Reports Events Settings
Circuit Management
Add a Circuit View Edit Delete Refresh Actions Export Floor Maps Circuit Detail How to Searc
Views
Rows: 2 Columns: 14 Filters: Proposed = Yes
Creation Date Created By Cord IDs Circuit ID Contact Contact Team Request Number Request
Select a date ranç abc OR xyz*... abc OR xyz*... abc OR xyz*... abc OR xyz*... Select... abc OR xyz*... Select...
~ DGS-SW8-2:Eth02 02/07/2017 admin 1900001 Request
WS-OUT-114:A27 - VOICE1:A27 ~ VOIP... 05/31/2011 admin 1900002 Request



Delete Circuits

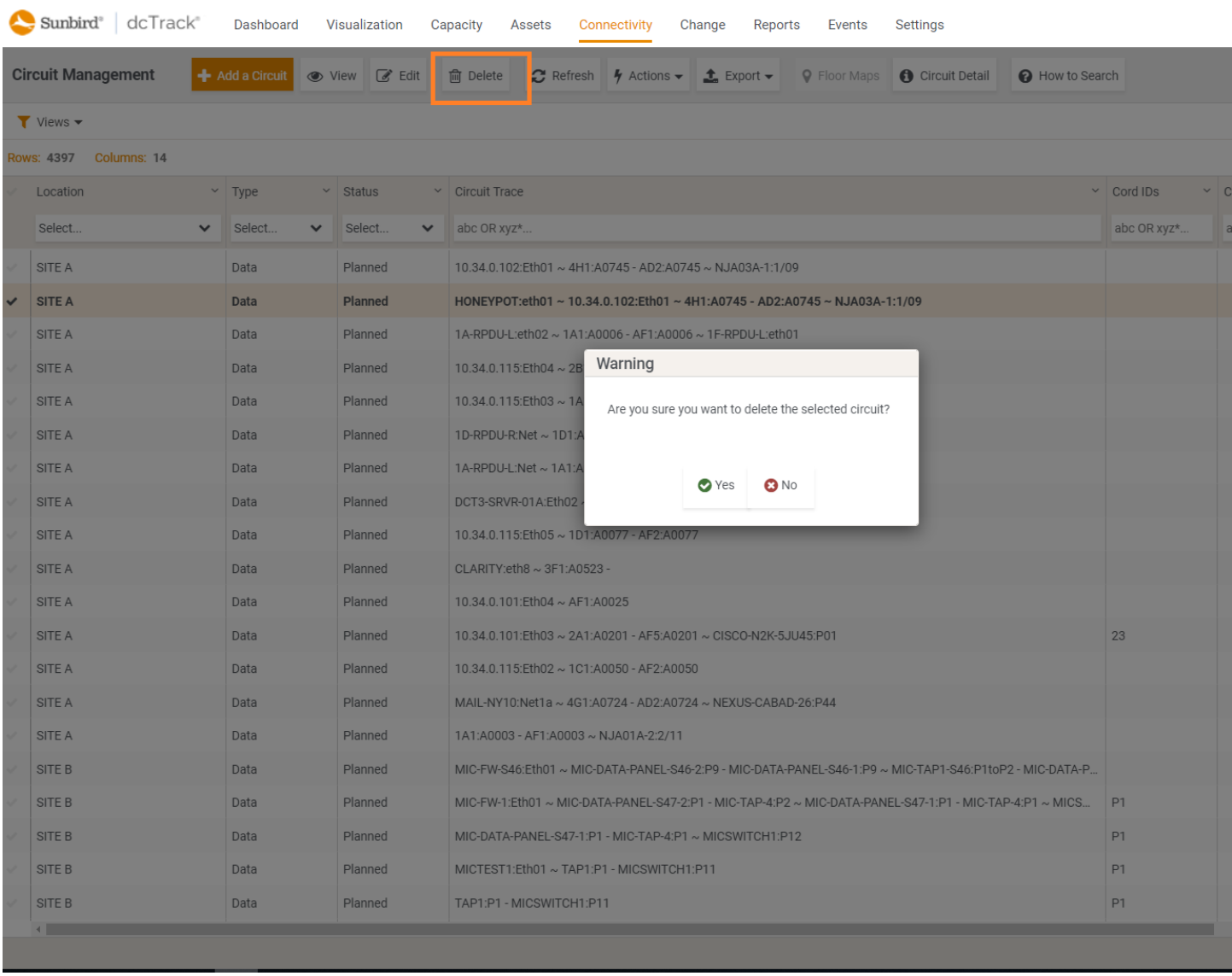
You can delete power circuits in a Planned status as long as you have edit access to the circuit.

When you delete circuits, the entire circuit is deleted; this means all connections in the circuit are deleted.

Partial Circuits that are part of a Full Circuit cannot be deleted. These Circuits must first be removed from the Full Circuits in which they are used.

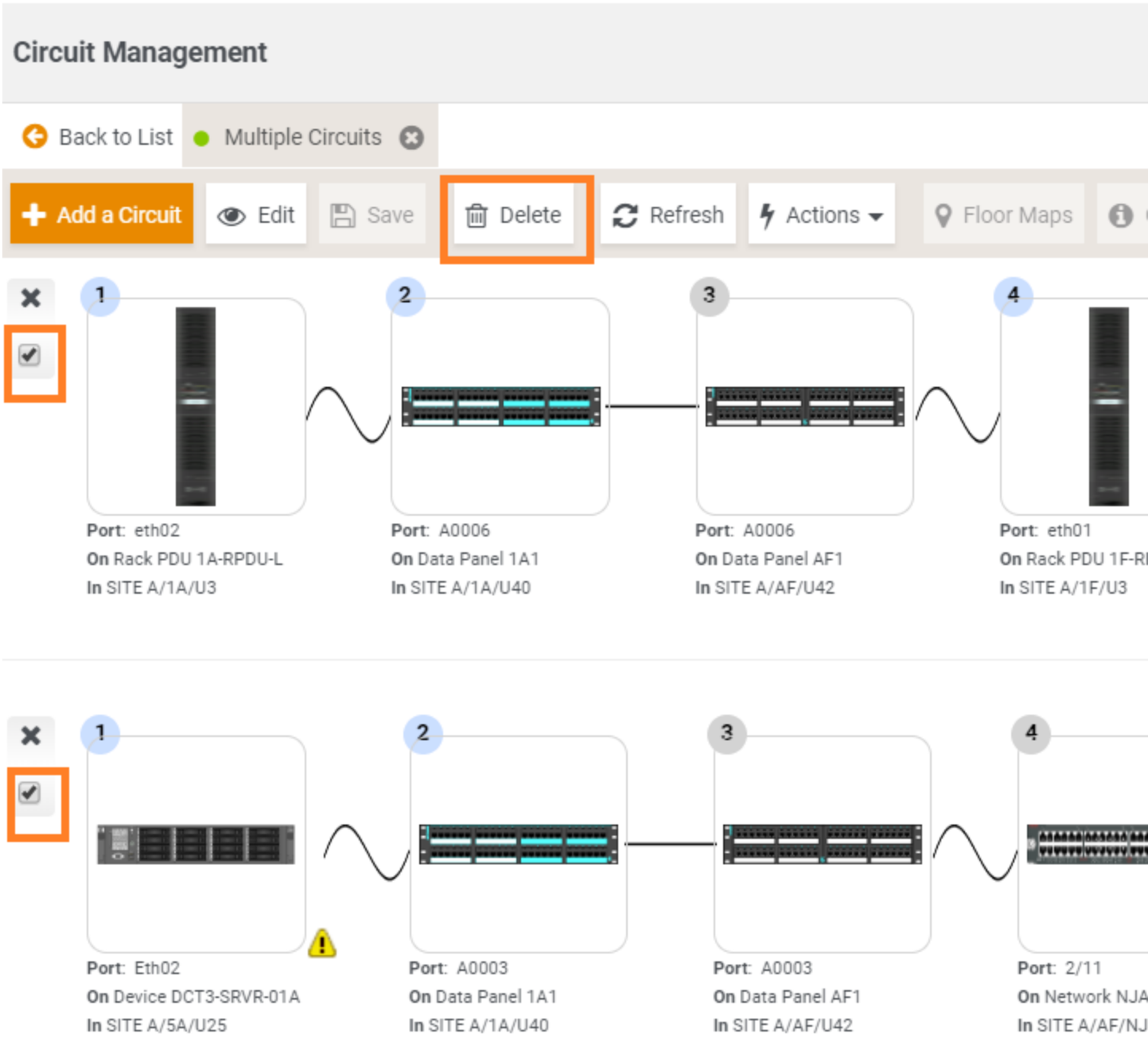
Circuits are deleted in the Web Client by:

- Selecting one or more circuits from the Circuits List, clicking Delete at the top of the page, and clicking Yes when prompted to confirm the deletion



Or

- Opening a circuit's page, clicking Delete at the top of the page, and clicking Yes when prompted to confirm the deletion.
  - When multiple circuits are opened in a single tab, select the circuits to be deleted by selecting the check box next to each circuit and clicking the Delete button.


Circuit Management
Back to List
Multiple Circuits
Add a Circuit
Edit
Save
Delete
Refresh
Actions
Floor Maps
1
2
3
4
Port: eth02
On Rack PDU 1A-RPDU-L
In SITE A/1A/U3
Port: A0006
On Data Panel 1A1
In SITE A/1A/U40
Port: A0006
On Data Panel AF1
In SITE A/AF/U42
Port: eth01
On Rack PDU 1F-R
In SITE A/1F/U3
1
2
3
4
Port: Eth02
On Device DCT3-SRVR-01A
In SITE A/5A/U25
Port: A0003
On Data Panel 1A1
In SITE A/1A/U40
Port: A0003
On Data Panel AF1
In SITE A/AF/U42
Port: 2/11
On Network NJA
In SITE A/AF/NJ

Note: The steps to delete normal power circuits and virtual power circuits are the same.

Resetting Circuits

While data and power circuits are being built, click the Refresh button on the New Circuit page to clear all the nodes you have created so far and begin again.

When building a single circuit in a tab, the Refresh button clears all the nodes except the first one.

When building multiple circuits in single tab, only the selected circuit will be reset by clicking the Refresh button.

Quick Connect for Data Port and Power Port Connections

When working on an item in dcTrack, there are a few common use cases that cover the majority of scenarios when creating connections. For example, when creating data port connections, you typically connect to either a top-of-rack or end-of-row network switch configuration. Alternatively, you may want to connect to a far-end item, without having to be concerned about the structured cabling in-between or knowing exactly which port on which data panel you need to connect to.

dcTrack's Quick Connect feature enables users with the appropriate permissions to make data port and power port connections more efficiently by making the connections for them.

There are two types of Quick Connect options for connections:

- **Best Candidate**: The items and ports contained within the cabinet are given preference when displaying the possible items and ports available that can be connected to. The Best Candidate results for data ports display the possible items and ports available that match the connector and port media. Available ports are weighted based on location, item class, number of hops, redundancy, color, V-LAN group, protocol, and data rate (speed). The Best Candidate results for power ports display a list of available ports that match the connector, phase, and volts. Available ports are weighted based on power chain capacity, item class, color, redundancy, phase balancing and positional symmetry.
- **Best Path:** The far-end item that needs to be connected to is identified, and dcTrack presents the best available options to make the connection. The Best Path results for data ports display a list of available ports that match the connector and port media. Available ports are weighted based on target item free ports, followed by data panels located in the cabinet.

The Best Candidate and Best Path options are available for connections between items and data ports. Only the Best Candidate option is available for outlet and power outlet port connections.

Note: The ports to be connected must be attached to an item located in a cabinet.

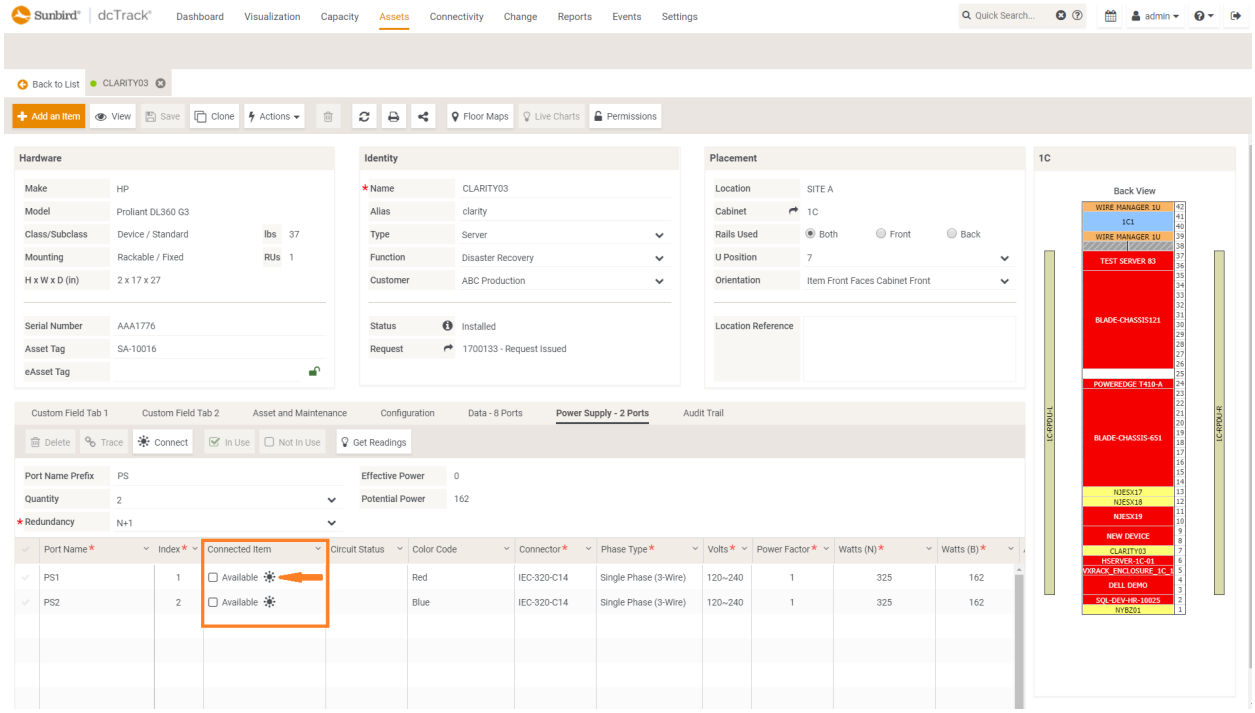
How to Create Quick Connections

You can access the Quick Connect feature from an Item Details page. In the appropriate data ports or power ports tab, simply click the Quick Connect icon next to the port you want to make the connection for. The Quick Connect icon will not appear for ports that are connected or ports that are marked in use. For Best Candidate matches, dcTrack will provide a list of available items and ports where you can select what you want to connect to, and then the system creates the circuit for you. If connecting to a far-end item with the Best Path option, you enter the name of the item (and optionally the location), and the system will present the best paths available for you to connect.

Using Quick Connect for Power Port Connections

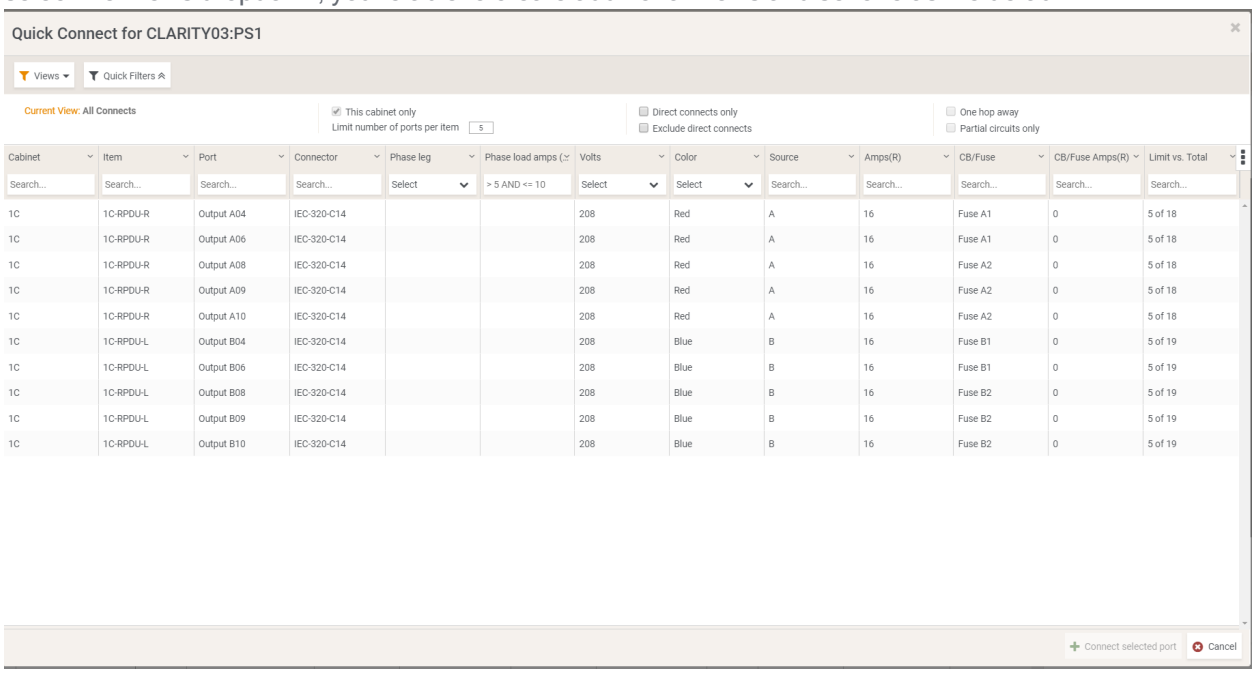
1. In the desired Item Details page in Edit mode, select the Power ports tab at the bottom of the page.

2. In the Connected Item column, next to the port you want to make the connection for, click the Quick Connect icon. Ports that are not connected will show as Available in the Connected Item column.



3. The Quick Connect dialog will display. Best Candidate results are populated by default. Note that you can sort and filter results by cabinet, item name, port, connector, phase leg, phase load amps, volts, color, source, Amps, CB/fuse, CB/fuse amps, and limit vs. total ports per item. You can also include or exclude ports in the specified cabinet, direct connections, partial circuits, and ports more than one hop away. Limiting the number of ports per item will display only the items with minimum number of ports specified. As with other grids in dcTrack, you can show or hide selected columns by clicking the Filters icon (three dots) on the right. If you

select the Views dropdown, you're able to create additional views and set one as the default.

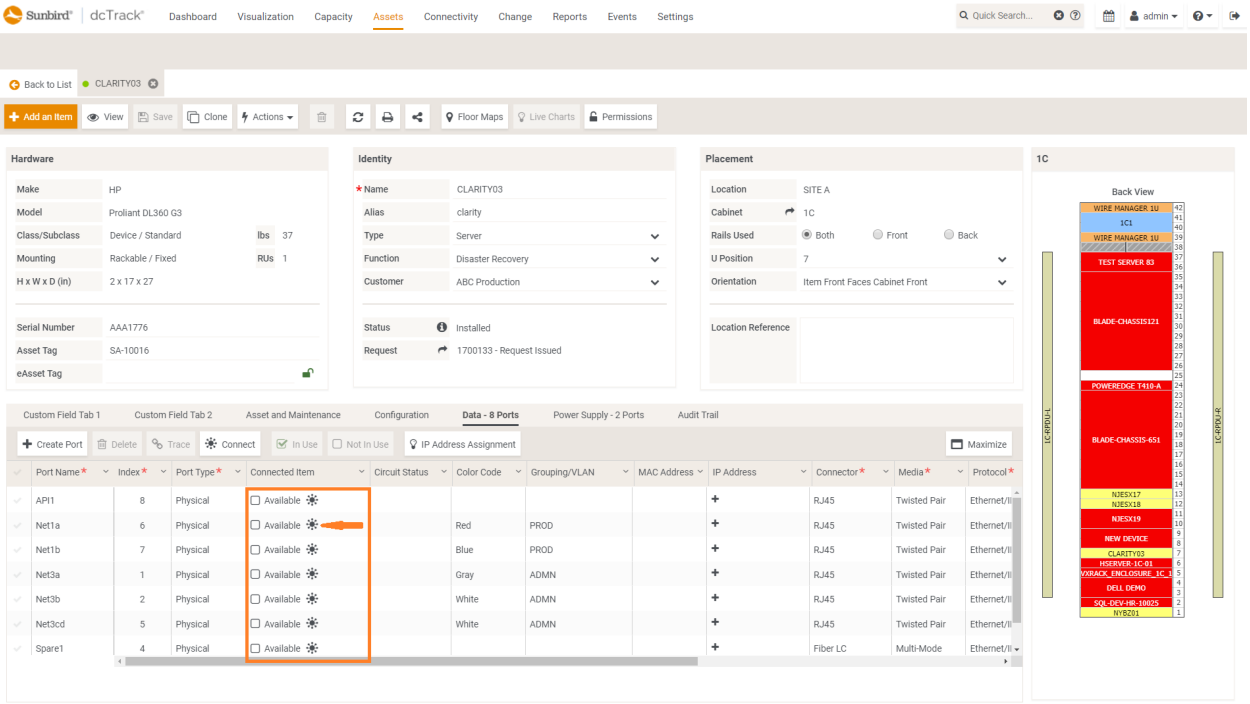


4. Select the port you want to connect to.
5. Click the Connect Selected Port button.
6. You'll be taken to the new circuit's Details page in the Connectivity tab.
7. Click the Save button to save your changes.

Using Quick Connect for Data Port Connections

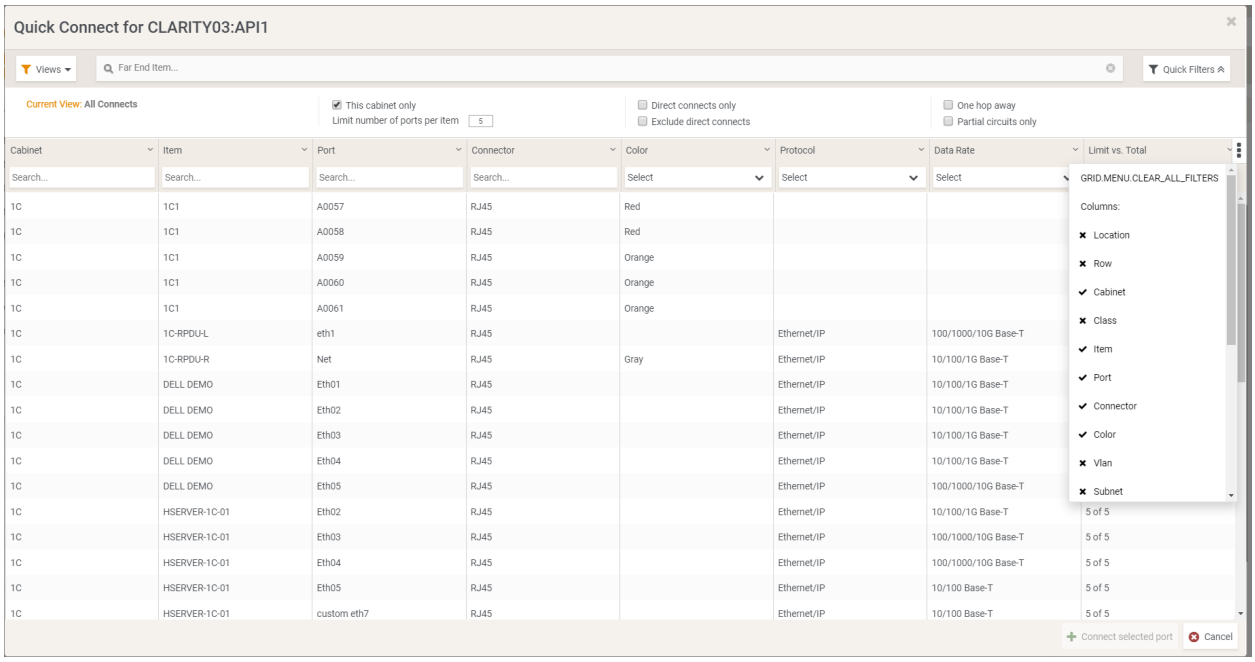
1. In the desired Item Details page in Edit mode, select the Data ports tab at the bottom of the page.

2. In the Connected Item column, next to the port you want to make the connection for, click the Quick Connect icon.

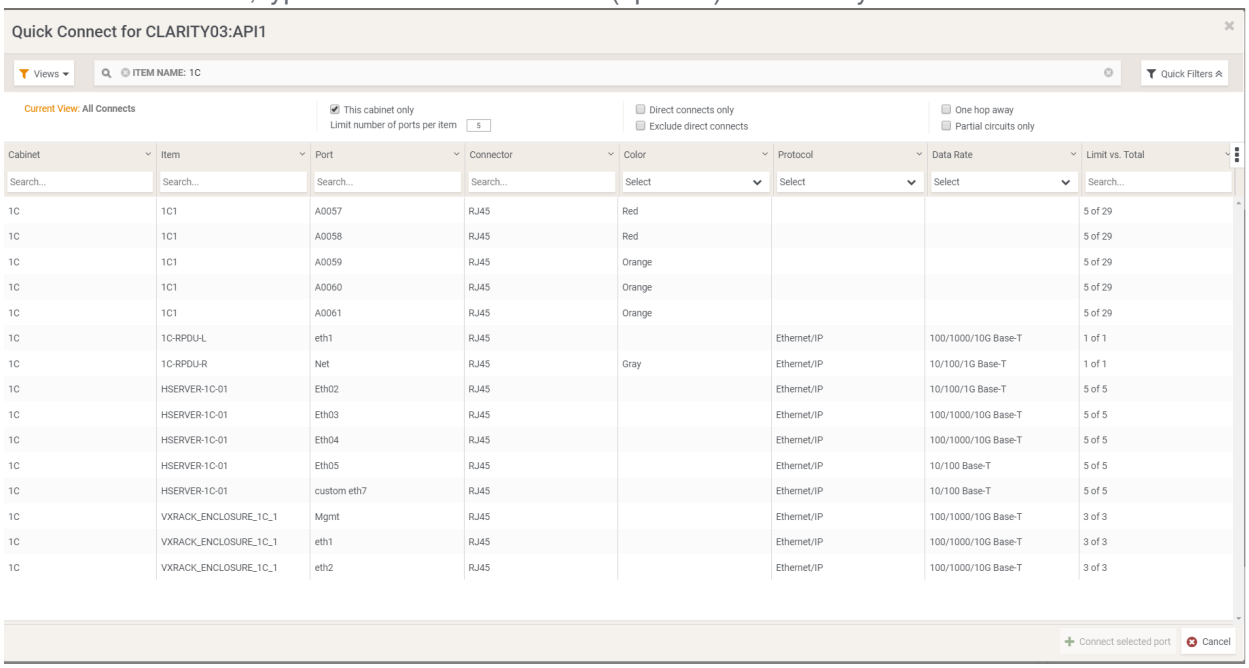


3. The Quick Connect dialog will display. Best Candidate results are populated by default. Note that you can sort and filter results by cabinet, item name, port, connector, color, protocol, data rate, and limit vs. total ports per item. You can also include or exclude ports in the specified cabinet, direct connections, partial circuits, and ports more than one hop away. Limiting the number of ports per item will display only the items with minimum number of ports specified. As with other grids in dcTrack, you can show or hide selected columns by clicking the Filters icon (three dots) on the right. If you select the Views dropdown, you're able to create addi-

tional views and set one as the default.



4. For Best Path results, type in the name and location (optional) of the item you want to connect to.



5. Select the port you want to connect to.
6. Click the Connect Selected Port button.
7. You'll be taken to the new circuit's Details page in the Connectivity tab.
8. Click the Save button to save your changes.

Quick Connect Best Candidate and Best Path Results for Data Ports

The Best Candidate results for data ports display a list of available ports that match the connector and port media. Available ports are weighted based on:

- Location in the same cabinet
- Item class: Network class, followed by Data Panel, and then by any other classes
- Number of hops, if there is a partial circuit
- Redundancy
- Color
- V-LAN group
- Protocol
- Data rate(speed)

The Best Path results for data ports display a list of available ports that match the connector and port media. Available ports are weighted based on target item free ports, followed by data panels located in the cabinet.

Quick Connect Best Candidate Results for Power Ports

The Best Candidate results for power ports display a list of available ports that match the connector, phase, and volts. Available ports are weighted based on:

- Power chain capacity
- Item class: Rack PDUs come first, followed by Power Outlets
- Color
- Redundancy
- Phase balancing
- Positional symmetry

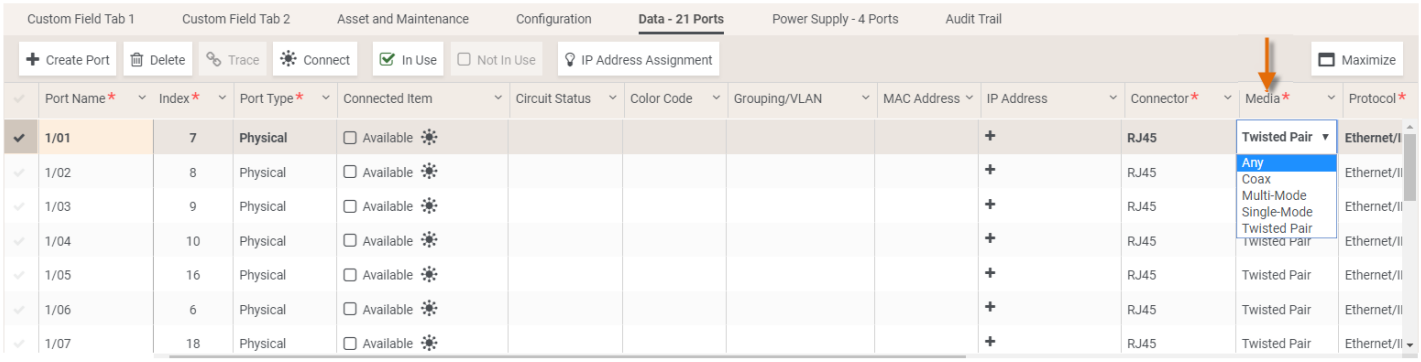
Note: Candidate ports cannot include ports from items that are in “Archived,” “Storage,” or “Hidden” status.

Allow Ports with Different Media Types to Connect

dcTrack version 7.0.0 introduced the ability to create Data Connections between Ports with different media types by including a Media Type of "Any". Setting the Media Type on the Data Ports tab of the Item Details page to "Any" allows a Port to be connected to Ports of any Media Type.

To change the Port Media Type in dcTrack, navigate to the Item Details page in Edit mode and select “Any” from the drop down box in the Media column on the Data Ports sub-tab and save the item.

Note: Media type cannot be changed when the ports are connected or marked In Use



You can also change the media type to “Any” when creating or modifying data ports for specific models. When the model is saved, Item Ports created from that model will have a media type of “Any” for each Port that was set in the model.

Media Type for data ports can also be updated through file import. This can be done both for Items as well as models.

When connecting Ports with different Media Types, the following rules apply:

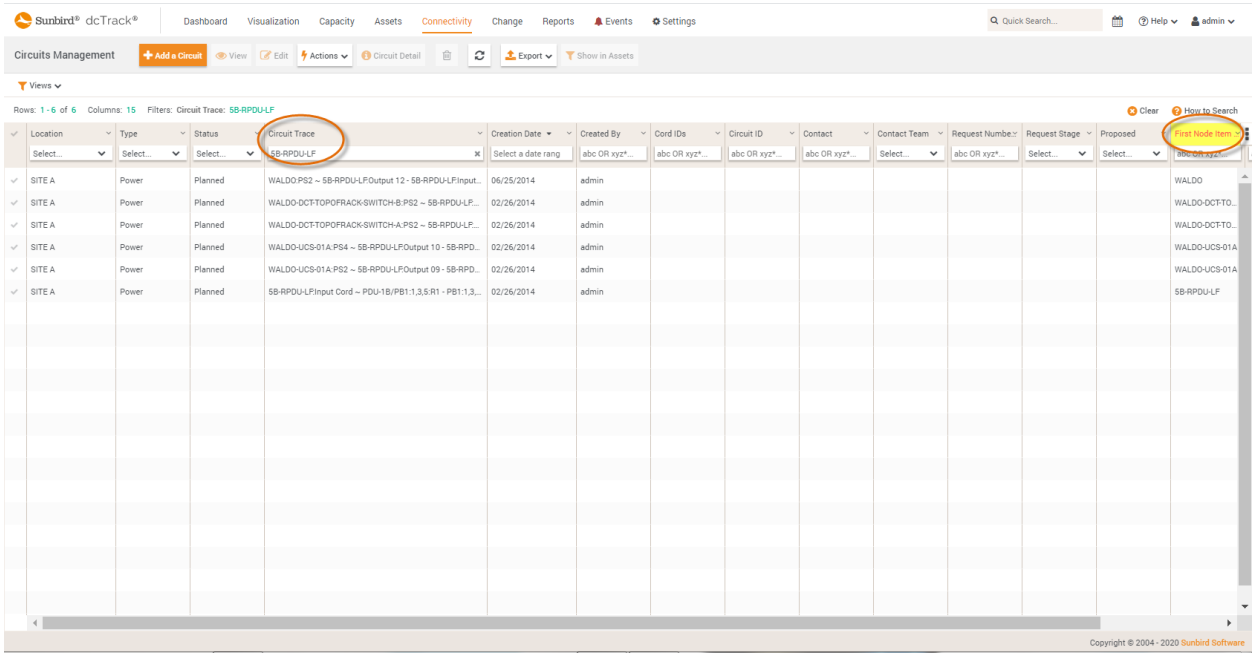
1. Data connections can be made between two data ports of the same media type.
2. Data connections can be made between data ports with Media Type “Any" to other media types i.e. Twisted Pair, Coax, Single-Mode, Multi-Mode.

Show Assets for Specific Circuits

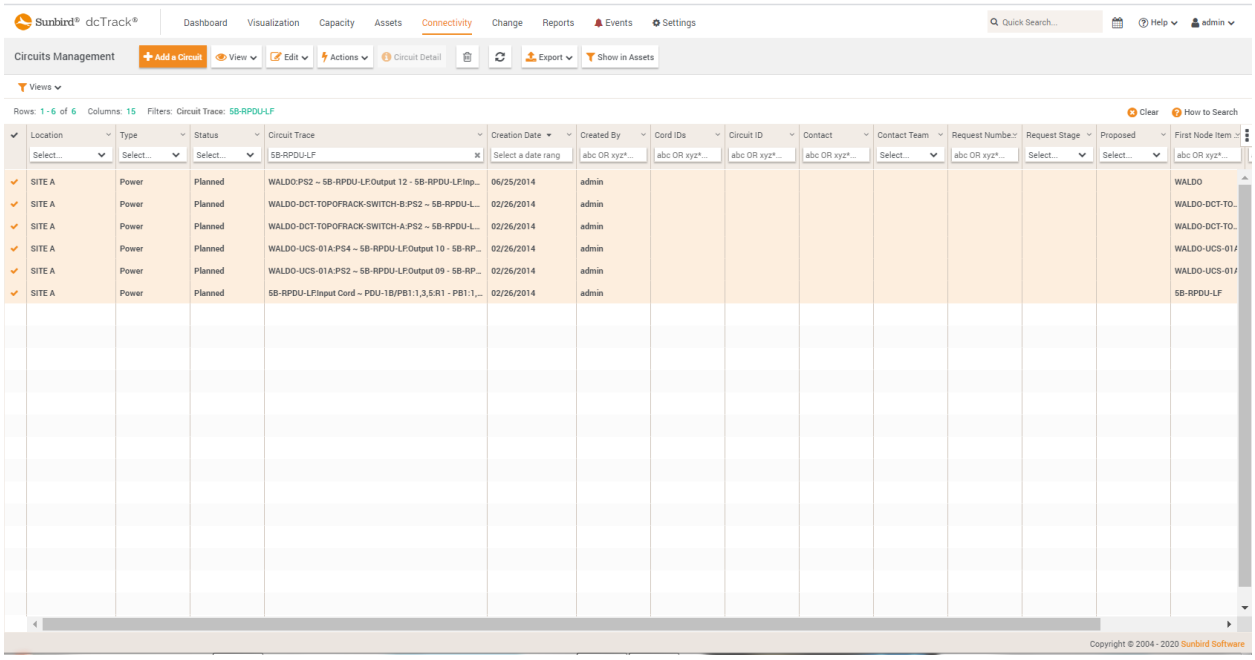
dcTrack provides a quick and efficient way to identify Assets associated with a specific Circuit node. This can be particularly useful for impact analysis when it is necessary to identify the Assets affected by a failure or an expected outage. The "Show in Assets" button available on the Circuit List tool bar allows users to quickly navigate to a filtered Items List containing the first node Items for a selected group of Circuits.

Steps to identify and filter Items:

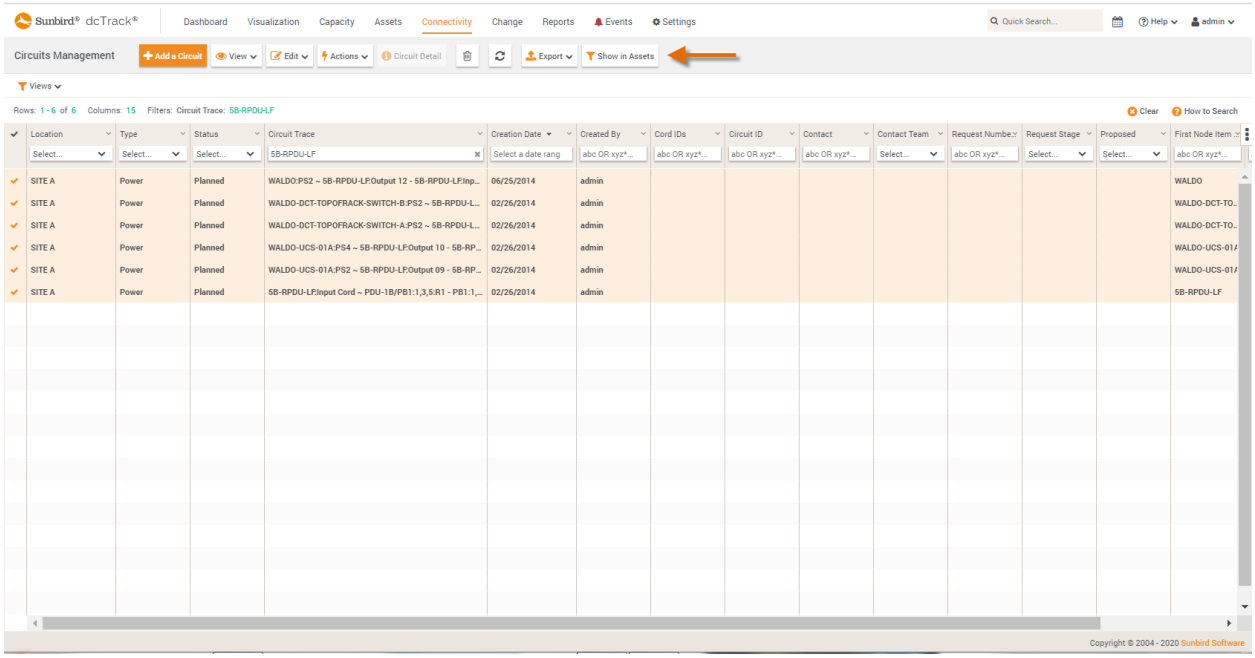
1. Navigate to the Connectivity > Circuit List.
2. Filter on the Node you are interested in. You can use the Show/Hide icon to include the First Node Item column in the Circuit List grid.



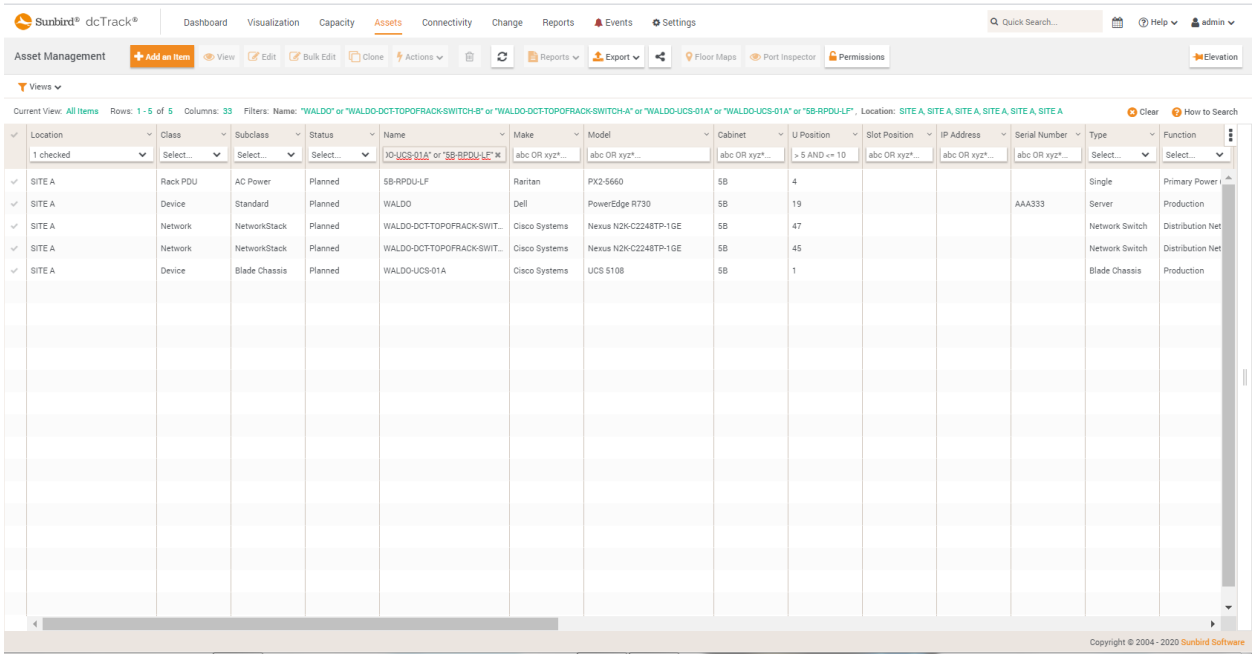
3. Select the individual Items you are interested in or use the Select All check box at the top of the grid to select all of the Items.



4. Click the Show In Assets button on the tool bar.



5. You are immediately redirected to the Items List page filtered to the first node Items for the previously selected circuits.



Structure Cabling and Power Panel Data Capture Worksheets

Sunbird provides Microsoft Excel® worksheets that are used to capture structure cabling and power panel data.

Worksheets are meant as data capture tools only; they cannot be used like import spreadsheet templates to import data using File Import.

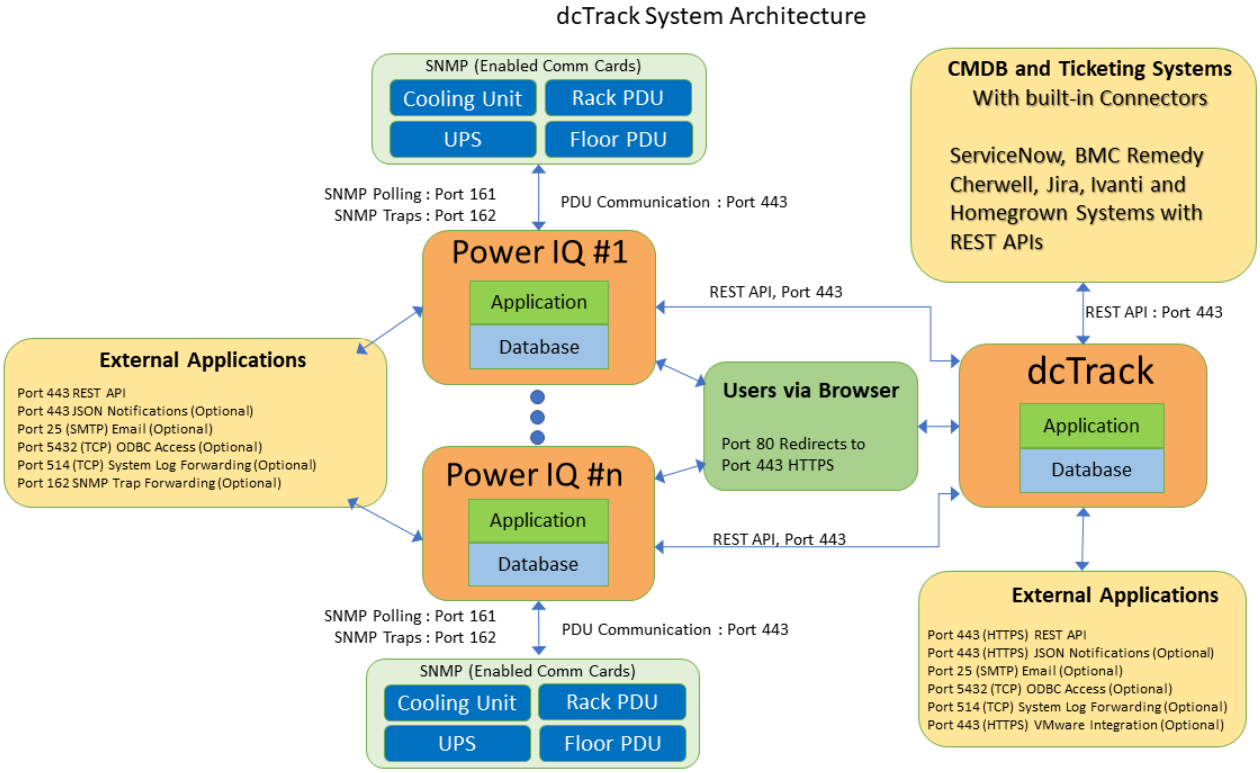
Worksheets are used primarily when you are implementing dcTrack. See the dcTrack Implementation and Integration Guide.

Chapter 4:Integration with Other Systems

This chapter covers integrating or connecting dcTrack with other systems. These can include:

- Sunbird's Power IQ® DCIM Monitoring Software
- CMDBs and Ticketing Systems, such as ServiceNow and BMC's Remedy
- Virtual Machine technologies, such as VMware

The diagram below describes the dcTrack System Architecture, and its Open port requirements:



Integrate with One or Multiple Power IQs

dcTrack can be used as a standalone product or integrated with Sunbird's Power IQ for power and environmental monitoring. Integrating allows you to access the functionality of both applications without having to maintain data in each application.

Integrating with multiple Power IQs is especially useful if you have multiple Power IQs at various locations, and each of those Power IQs is managing a large number of assets. Instead of managing each Power IQ and its assets individually, you manage them all from dcTrack.

Once integration is enabled, all data can be synced between dcTrack and Power IQ.

Note: In order to prevent round trips when sending data from Power IQ or dcTrack, both Power IQ and dcTrack maintain revision numbers. When data is pushed from Power IQ or dcTrack, the revision numbers are compared to determine which system has the freshest data. The system with the freshest data will make the update and increment both revisions. If the revision numbers are the same no update is performed and the revision numbers are not incremented.

Depending on your environment, the first time you integrate multiple Power IQs may require the help of Professional Services to ensure your data are in sync. See **Check When to Contact Professional Services and Support and When to Begin Multiple Power IQ Integrations on Your Own**.

It is important you read the information that is specific to your configuration scenario before you use this feature.

Power IQ Data Model

The Power IQ® data model is relevant to dcTrack users who are integrating an existing dcTrack with Power IQ.

From the top of the hierarchy to the bottom:

- DATA_CENTER: The data center object type. This object has no parent.
- FLOOR: The floor object type. This object can only have a DATA_CENTER as a parent.
- ROOM: The room object type. This object can have a DATA_CENTER or FLOOR as a parent.
- AISLE: The aisle object type. This object can have a DATA_CENTER, FLOOR, or ROOM as a parent.
- ROW: The row object type. This object can have a DATA_CENTER, FLOOR, ROOM, or AISLE as a parent.
- RACK: The rack object type. This object can have a DATA_CENTER, FLOOR, ROOM, AISLE, or ROW as a parent.
- DEVICE: The IT Device object type. This object can only have a RACK as a parent.
- DOOR: The door object type. This object can have a DATA CENTER, FLOOR, ROOM, AISLE, ROW, or RACK as a parent.

These objects represent PDUs and sensors:

- PDU: The PDU object type. This object represents all types of PDUs in Power IQ, including Rack PDUs, Rack Transfer Switches, Cooling Units, Floor PDUs, Floor UPS, Power Panels, and Standalone Meters. This object can have a DATA_CENTER, FLOOR, ROOM, AISLE, ROW, or RACK as a parent.
- SENSOR: The sensor object type. This object can have a DATA_CENTER, FLOOR, ROOM, AISLE, ROW, or RACK as a parent.

Check When to Contact Professional Services and Support and When to Begin Multiple Power IQ Integrations on Your Own

Contact Professional Services and Support when...	
You are using multiple Power IQs and want to integrate them with dcTrack.	This means you have multiple Power IQs that contain data. They can be in one or more locations. You now want to integrate them with dcTrack. Please note, multiple PIQ instances per datacenter/location is not supported.
You are already using a dcTrack integrated with a Power IQ, and your data is out-of-sync or you are not sure of the state of your data.	Before adding additional Power IQs, it is important your data be in sync between dcTrack and the existing Power IQ.

Contact Professional Services and Support when...	
	Data may be out of sync if you integrated, disabled integration, then re-enabled integration but never resynced your data. This may also occur if you integrated and continued to enter data in Power IQ. Contact Professional Services and Support for help syncing your data.

You can begin integrating with one or multiple Power IQs when...	
You are using Power IQ and want to integrate with a new dcTrack.	This means Power IQ is populated with data and you want to push the data to a new dcTrack installation that does not contain data.
You are currently using a dcTrack that is already integrated with a Power IQ and know your data is synced correctly.	You do not have to take extra steps when you move to dcTrack 4.0.0. dcTrack uses the Power IQ IP address and access credentials you already provided to automatically associate your dcTrack and Power IQ. Important: If you believe your data is out of sync between dcTrack and Power IQ, Professional Services and Support must help you sync your data.
You are integrating with a one or more new Power IQs.	This means integrating a new or existing dcTrack with a new Power IQ installation that contains no data. See **Integrating Multiple, New Power IQs with dcTrack**.

IMPORTANT: Maintain Your dcTrack Data Integrity After Syncing with Power IQ

When dcTrack is integrated with Power IQ, in order to maintain data integrity, all integrated items should be added and updated in dcTrack. The only exception is when the functionality exists in Power IQ only

.Please refer to the following links for specific information related to Power IQ Integration.

The Power IQ Data Model

When to contact Professional Services and when to Proceed on your own

Integrate an existing dcTrack to a fresh Power IQ

Integrate an existing Power IQ to a fresh dcTrack

Integrating multiple new Power IQs with dcTrack

Import or Synchronize an Entire Data Center

Steps to Add an RPDU in dcTrack and integrate with Powwe IQ

Auto Update Rack PDU Inlet and Outlet Names
Retrieving Sensor Readings
Manually Configure dcTrack Items to retrieve Readings from One or More Items
Sync Multiple Ports at the Same Time
Sensor Integration
Decommission RPDUs in dcTrack when integrated with Power IQ
Delete/Disable Power IQ integration
Data Model Sync
Syncing Power IQ and dcTrack Floor Maps

Steps To Integrate dcTrack and PowerIQ

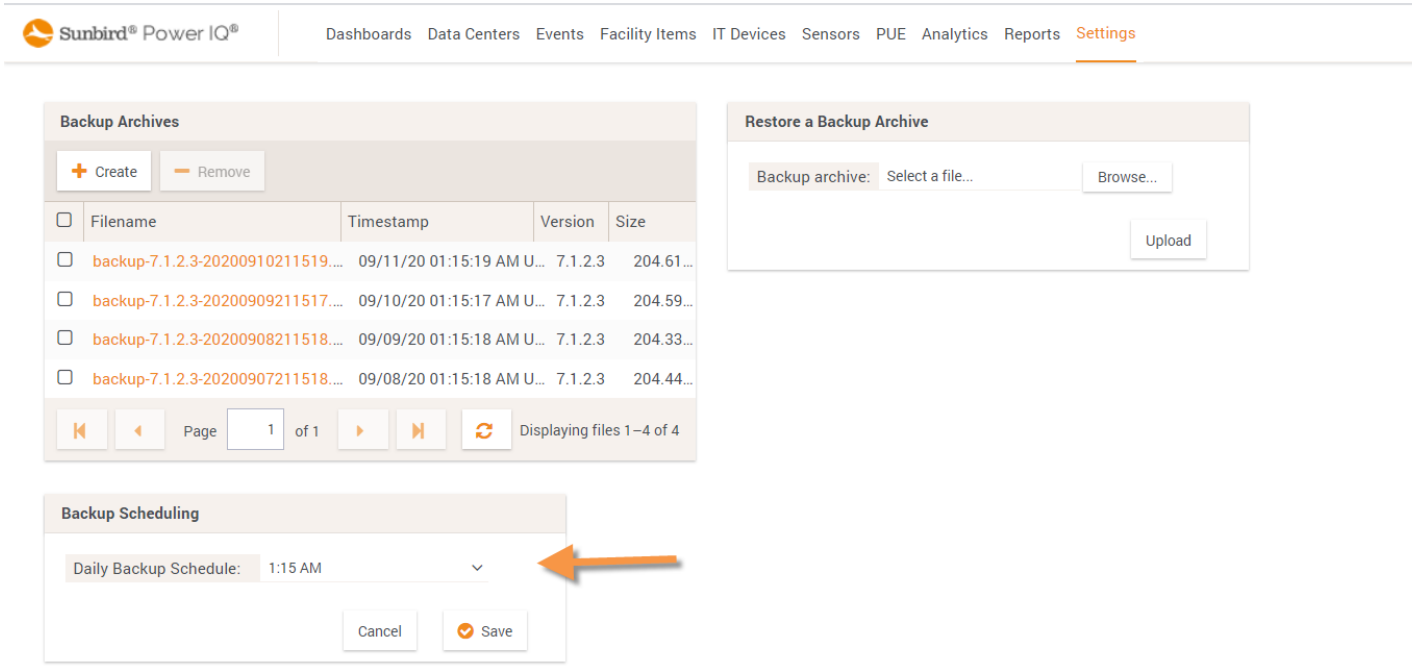
For specific instructions on how to integrate dcTrack and Power IQ please refer to the documentation below that best describes your installation:

Steps to Integrate an Existing dcTrack with a New Power IQ
Steps to Integrate an Existing Power IQ with a new dcTrack

Integrate an Existing dcTrack to Fresh Power IQ

1. Make sure you have a current back-up of Power IQ
2. Set Power IQ auto back-up time xxx to match dcTrack (make sure Network Time Protocol is enabled on both systems)

Note: In dcTrack versions prior to 8.1.0, the backup time was 1AM Eastern Time and could not be changed. In dcTrack version 8.1.0 and later the backup schedule can be configured by the user.



3.

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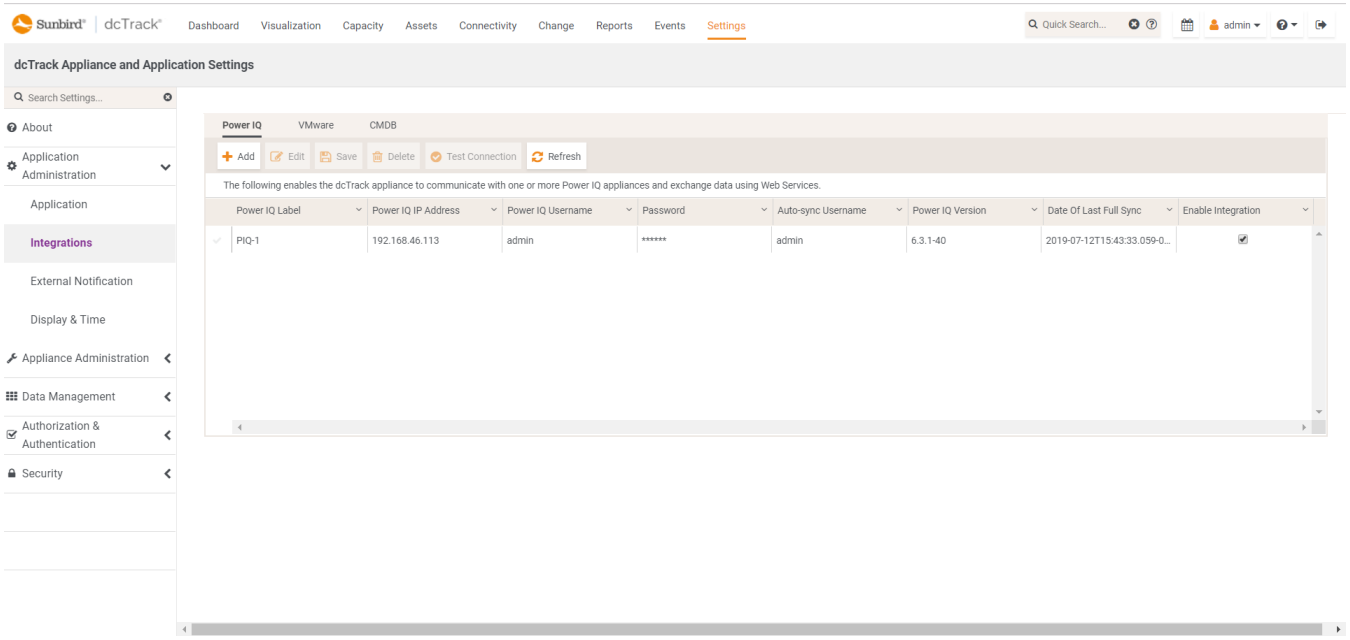
4. Add the Power IQ appliance to dcTrack Integration grid



a. Power IQ Label - Required - Label used to identify the integration record

b. Power IQ IP Address - Required - IP address of the Power IQ instance you want to integrate with

c. Power IQ Username - Required - Username to be used for authentication to the Power IQ instance To properly integrate with Power IQ, the chosen Power IQ Username must have the System Administrator Role in Power IQ.

d. Password - Required - Password associated the specified Username

e. Auto-sync-Username - Required - Local dcTrack Username that will be used in audit trail records that result form the integration.

f. Power IQ version - Read Only - This value is retrieved from Power IQ upon successful integration

g. Last Sync - Read Only - Date and Time of the last sync

h. Reading Refresh Interval - This is the amount of time dcTrack will consider readings to be up to date. If Readings are older than the interval they will be refreshed automatically the next time a page with readings is accessed. If the readings were refreshed within the time-frame of this interval dcTrack will not request fresh readings. Additionally, if a user requests readings manually by clicking the "Get Readings" button, readings will only be refreshed if the last reading was outside of the time-frame of the interval.

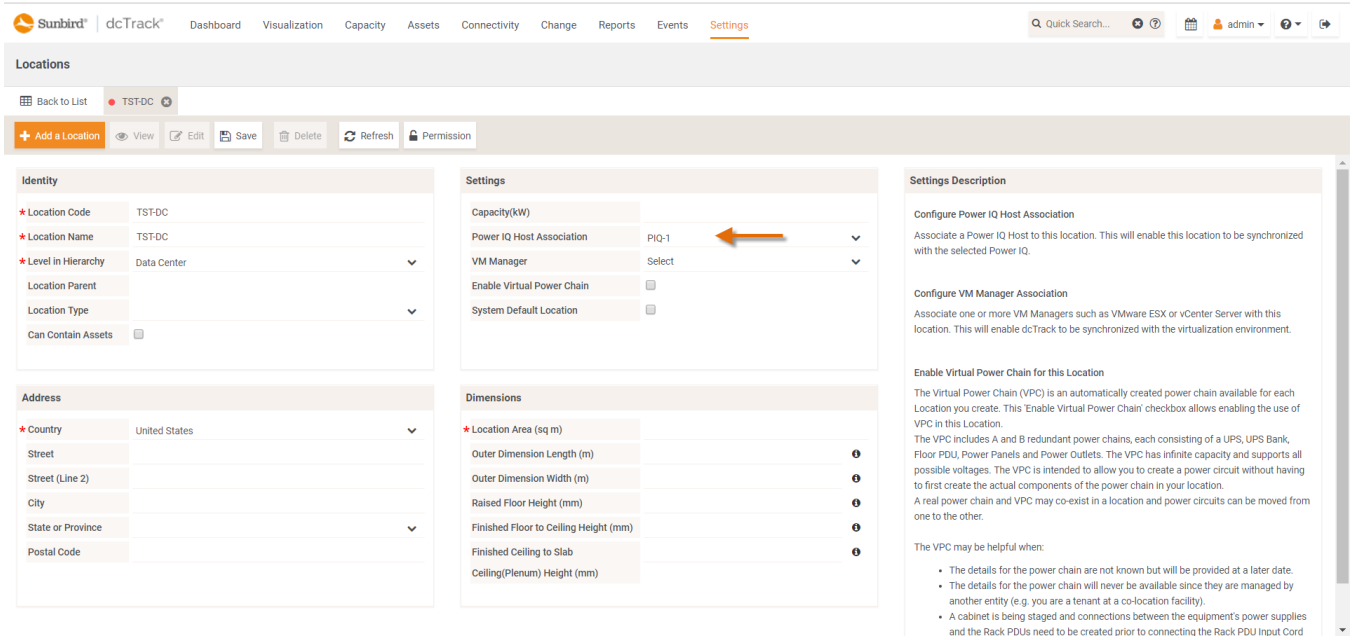
   For example, if the Reading Refresh Interval is set to 10 and readings are refreshed at 9:15, readings will not be eligible for a refresh until 9:25.

   This setting affects readings on the following pages:

a. Item Detail page (Power Ports and Sensors)
b. Circuit Trace
c. Floor Maps
d. Dashboard Widgets that report readings

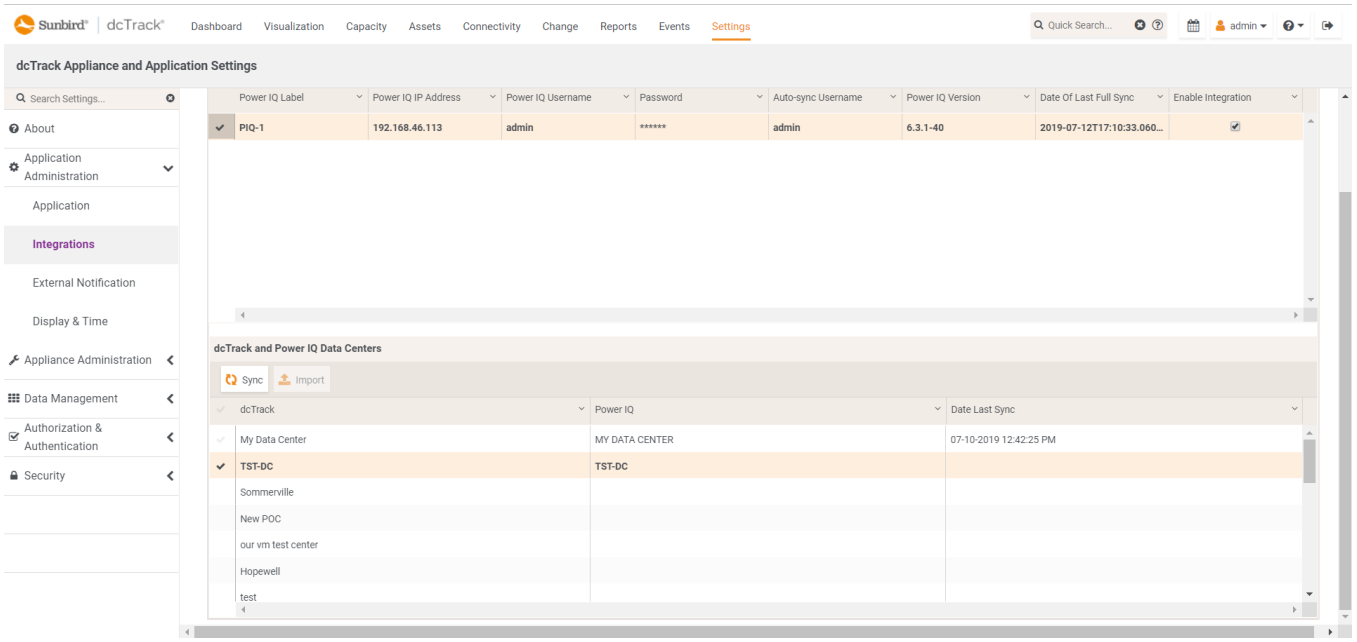
Note: the Reading Refresh Interval is available in dcTrack version 9.0.0 and later.

5. Enable Integration
6. Navigate to Locations. Assets > Locations
7. Associate each Location you want to integrate with the Power IQ you just added



8. Once the Location is associated with the Power IQ instance, the Location Name will appear under the Power IQ column in the same row as its associated dcTrack Location.

9. Select the row(s) you wish to process.



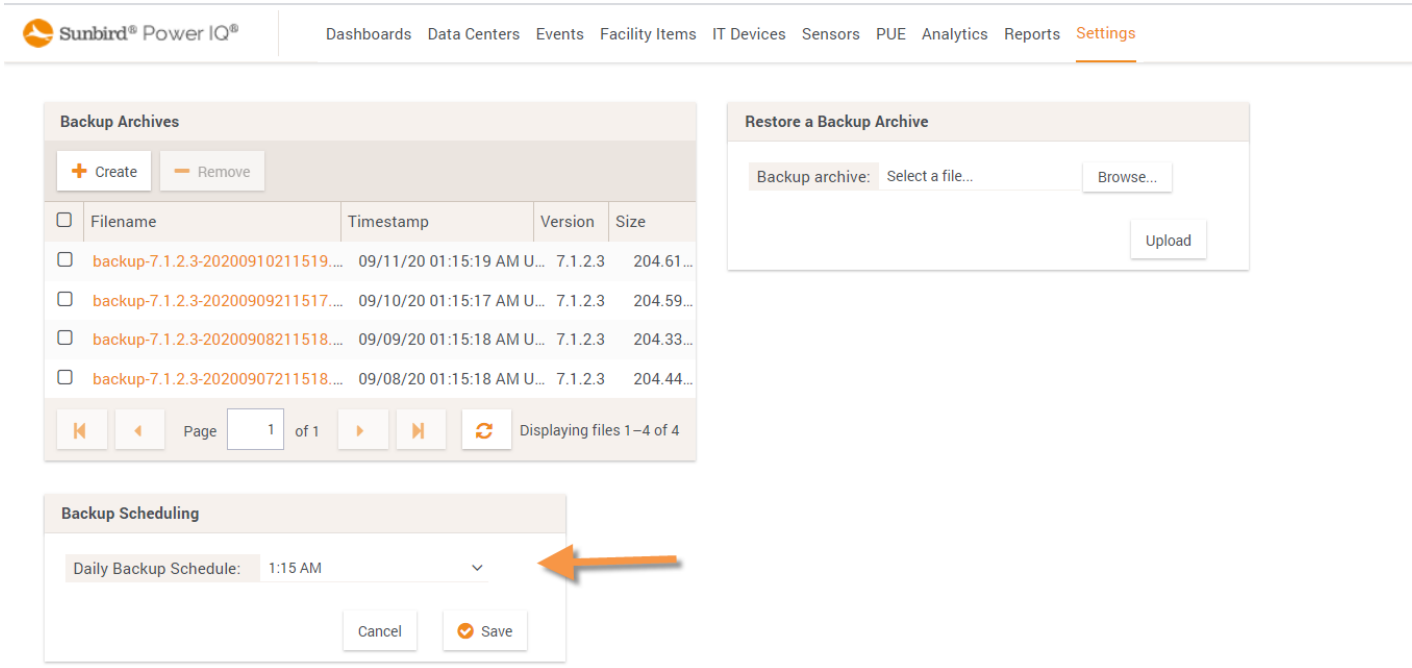
10. Click the Sync button in the tool bar
11. You will be presented with a pop up describing the process. You can either click the OK button to continue the process or click the Cancel button to return to the Integration page.
12. Once the process starts, a progress bar is displayed at the bottom of the page.
13. You can cancel the process at any time by clicking the Cancel button.

Note: You may continue processing on dcTrack while the Import is running. If any user returns to this page while the process is running, the progress bar is displayed and refreshed with the current progress.

Integrate an Existing Power IQ to Fresh dcTrack

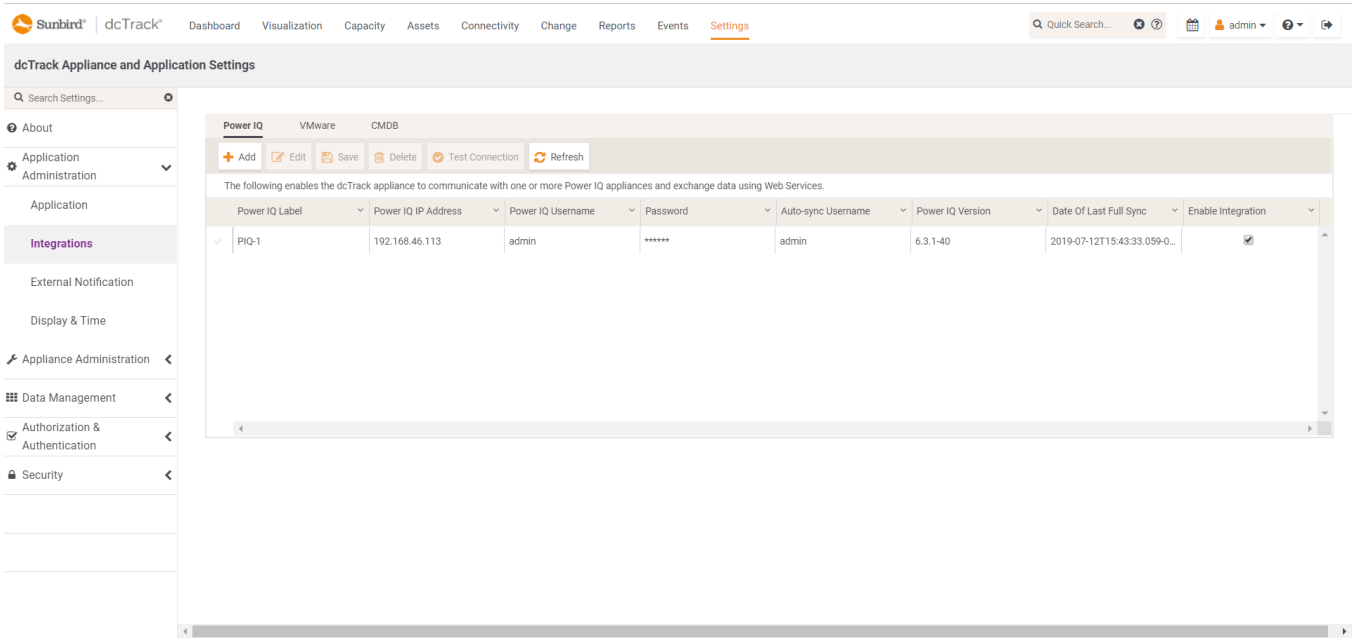
1. Make sure you have a current back-up of Power IQ
2. Set Power IQ auto back-up time xxx to match dcTrack (make sure Network Time Protocol is enabled on both systems)

Note: In dcTrack versions prior to 8.1.0, the backup time was 1AM Eastern Time and could not be changed. In dcTrack version 8.1.0 and later the backup schedule can be configured by the user.



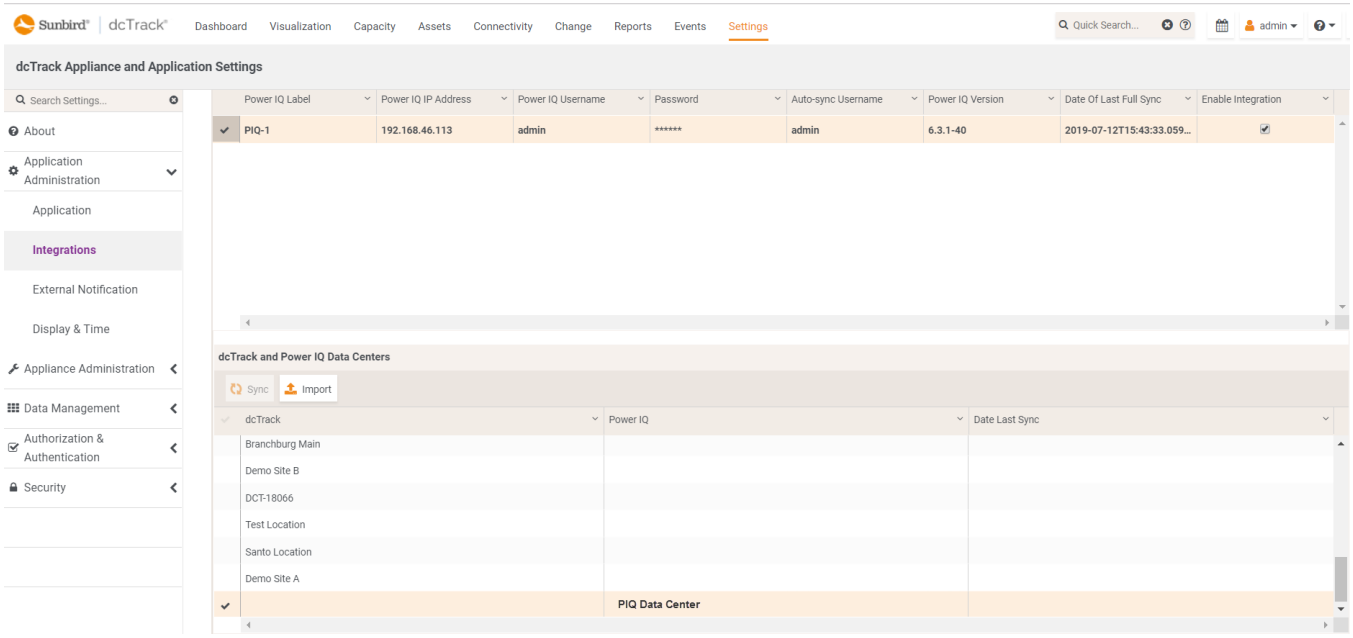
1. Licensed to Internal Use Only
2. Export the list of PDU Makes and Models from the Power IQ Facility Item Table
3. Export Power IQ Enterprise Relationships from the Data Management panel under the Settings Menu
4. Make sure the exported list of Makes and Models are in the dcTrack Models Library and the port assignments are accurate.

5. Add the Power IQ appliance to dcTrack Integration grid



Note: To properly integrate with Power IQ, the chosen Power IQ Username must have the System Administrator Role in Power IQ.

6. Enable Integration
7. Select the Data Center you wish to import from the bottom grid



8. Click the Import button in the tool bar

9. You will be presented with a pop up describing the process. You can either click the OK button to continue the process or click the Cancel button to return to the Integration page.
10. Once the process starts, a progress bar is displayed at the bottom of the page.
11. You can cancel the process at any time by clicking the Cancel button.

Note: You may continue processing on dcTrack while the Import is running. If any user returns to this page while the process is running, the progress bar is displayed and refreshed with the current progress.

Integrating Multiple, New Power IQs with dcTrack

Before using this feature, review **Check When to Contact Professional Services and Support and When to Begin Multiple Power IQ Integrations on Your Own** to determine if you should proceed on your own or with the help of Sunbird Professional Services.

To integrate with a Power IQ:

1. Add the Power IQ information to dcTrack on the Power IQ Integration tab under Settings > dcTrack Settings > Application Administration > Integrations

2. Enable integration with the Power IQ.

3. Select the Power IQ Integration instance you just added

4. From the bottom grid, select the Power IQ Data Centers you wish to integrate

5. Click the Import button on the tool bar

Adding, Editing, or Deleting a Power IQ and Enabling Integration

1. Click the Settings tab > dcTrack Settings > Application Administration > Integrations > Power IQ sub-tab.

2. On the Power IQ sub-tab, in the Power IQ Systems grid, provide the following information for each Power IQ that you want to add:

    a) Power IQ Label: The user-defined name for the Power IQ to distinguish between different Power IQs.

    b) Power IQ IP Address: Required. The IP Address for the Power IQ.

    c) Power IQ Username: Required. The username for the account that will be used to access the Power IQ via its REST API. The account must have the System Administrator Role.

    d) Power IQ Password: Required. The password for the account that will be used to access the Power IQ via its REST API.

    e) dcTrack Username: Required. The account that the Power IQ will use to communicate updates to dcTrack via its notification API. Must be a local account. The credentials associated with the account will be provided to Power IQ via Registration API, without manual user configuration.

    f) Power IQ Version: Version of Power IQ that dcTrack will interface with. Retrieved from the Power IQ REST API.

    g) Date of Last Full Sync: The date of the last full sync with Power IQ.

h) Enable Integration: Check or uncheck the box to indicate whether integration is enabled or disabled.

Note: dcTrack 5.2 introduces enhancements to the enterprise data model and synchronization that require integration with Power IQ 5.2 to support the new features. If integrating with a previous version of Power IQ, dcTrack will operate in legacy mode.

3. Optional. Test Connection. Once you have populated the fields in the Power IQ Settings grid and checked the Enable Integration box, you can check that the Power IQ is accessible by clicking the Test Connection button at the top right of the grid.

4. To edit a Power IQ, click the field that you want to edit in the grid and make your desired changes.

5. To delete a Power IQ, select the Power IQ that you want to delete and click the Delete Power IQ icon and button.

Associate One or More Locations with Power IQ

You can associate multiple locations with a Power IQ via dcTrack Settings > Location Settings or on the Details page for specific Locations.

1. Under the Settings tab > Location Settings, select the Location that you want to associate with Power IQ.

2. Under Power IQ Host, use the dropdown to select your desired Power IQ.

3. Click the Save button to save your changes.

4. Optional. Click the Enable Virtual Power Chain box to enable the Virtual Power Chain.

Or

1. In the Locations List page, select the Location that you want to associate with Power IQ.

2. Click the Edit Button to open the Location Details page in Edit mode.

3. In the Settings panel in the Location Details page, select from the dropdown the Power IQ you want to associate dcTrack with.

4. Optional. Click the Enable Virtual Power Chain box to enable the Virtual Power Chain.

Import Entire Data Center

Integration between **Power IQ®** and **dcTrack®** has been improved in dcTrack version 7.0.0 making it even easier to synchronize data between the two systems. dcTrack now allows users to Import or Synchronize entire data centers with a single click.

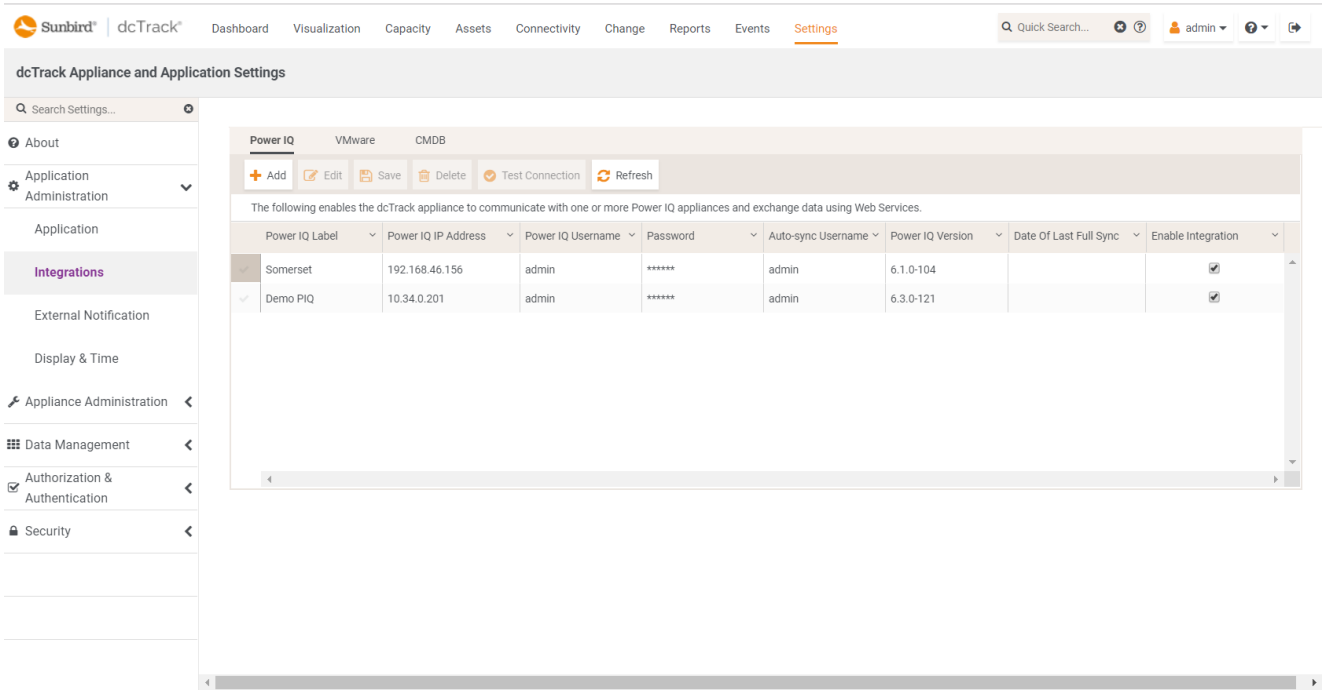
Users have the ability to Import an entire non-integrated Power IQ data center, or Synchronize data between dcTrack Locations and Power IQ data centers that have already been associated at the dcTrack Location level. For more information on associating a Power IQ instance with dcTrack see Adding, Editing and Deleting Locations.

Importing/Synchronizing Power IQ Data Center(s) to dcTrack

Steps to import a Power IQ data center into dcTrack

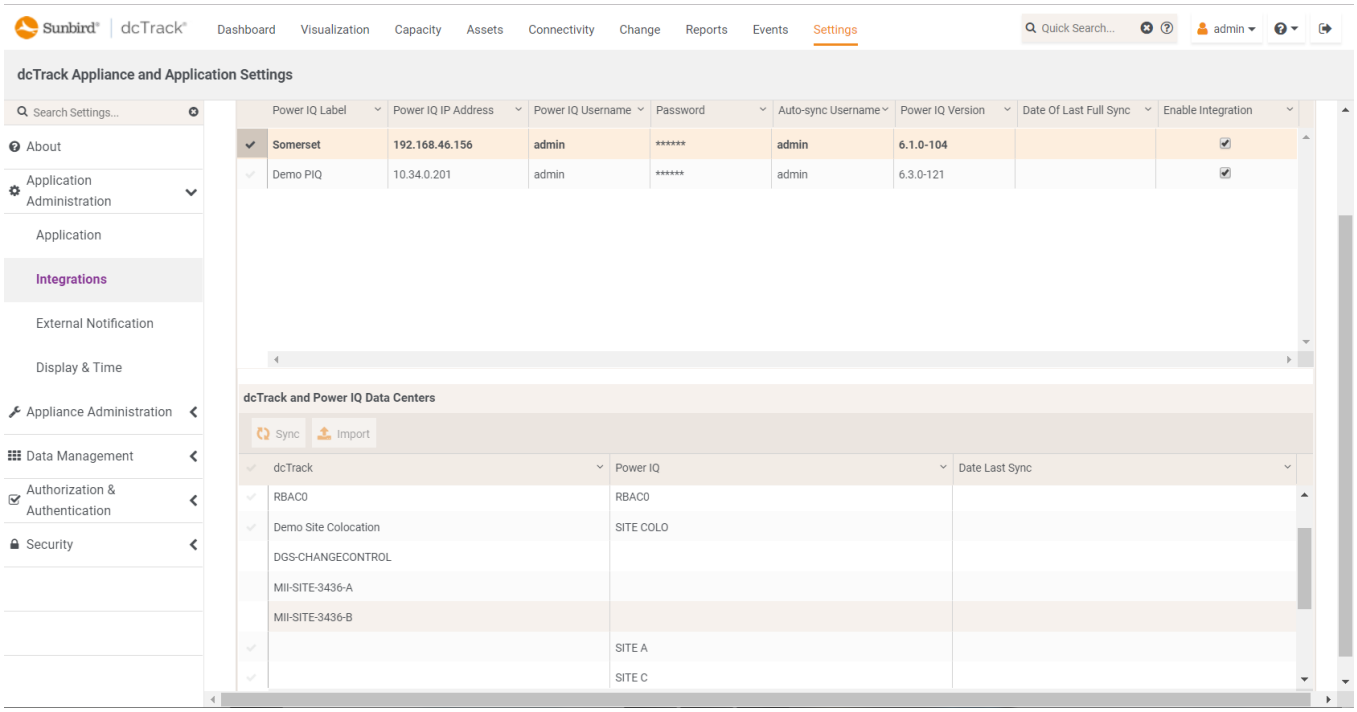
1. Navigate to the Power IQ integration tab (Settings > Application Administration > Integrations)

   The top half of this page all lists all of the Power IQ instances that have been added to dcTrack. For information on adding Power IQ instances see the help topics under Integrate with One or Multipl Power IQs.



2. Select the Power IQ instance you want to work on. Only a single Power IQ can be selected at a time.

   Once a Power IQ is selected the bottom half of the page is populated in the following way: The left side of the grid is populated with all dcTrack Locations currently associated with the selected Power IQ instance, followed by dcTrack Locations not associated with any Power IQ. The right side of the grid is populated with Power IQ data centers associated with dcTrack Locations (these Power IQ data centers appear on the same line as the dcTrack Location they are associated with), followed by Power IQ data centers not associated with any dcTrack Location.



Note: there may be a gap between the last associated Power IQ data center and the first non-associated data center if dcTrack locations exist that are not associated with any Power IQ.

3. From the bottom grid select the data center(s) you wish to Import. Selecting one or more non-associated Power IQ data centers will enable the import button on the tool bar. Selecting one or more associated data centers will enable the Sync button on the tool bar. You may not process a combination of associated and non-associated data centers. Selecting a combination of associated and non-associated data centers will cause both the Sync and Import buttons to be disabled.
4. Click the Import button to proceed.
5. Before the process begins you will be presented with a pop up describing the action you selected and the data that will be affected. You can either click the "OK" button to begin the process, or click the "Cancel" button to cancel the operation.
6. While the activity is running a progress bar is displayed at the bottom of the page. The user may navigate away from the page while the activity is running and continue to process in dcTrack. Any user who accesses the Integration page while the process is still running will be presented with an updated progress bar.

When importing a Data Center from Power IQ the following entities are created on dcTrack when applicable:

- Data Center
- Floors
- Aisles
- Rows
- Racks
- IT Devices
- Rack PDU Inlets/Outlets (with current readings)

- Specific Sensors (with current readings)
  - Absolute Humidity Sensors
  - Air Pressure Sensors
  - Air Flow Sensors
  - Humidity Sensors
  - Door Sensors
  - Contact Closure Sensors

Note: Since Make and Model information for Devices is not available on Power IQ, dcTrack will store these objects as Incomplete (Invalid) Items. You must edit these Items and supply the missing information. Upon saving the Items in a Complete (Valid) state, they will immediately become integrated.

Note: Since Devices could not be completely integrated in the initial Import Process, Connections will not have been imported into dcTrack. To complete the Import process, you may use File Import to import Power Connections.

When Synchronizing a Data Center the data is exchanged as follows:

Field Name	Direction
Rack PDU Name	dcTrack will retrieve the Name from Power IQ on initial integration. Once integrated the Name is owned by dcTrack. If the Name is modified on dcTrack, the modified Name is immediately pushed to Power IQ. Changes to the Name on Power IQ will not be pushed to dcTrack. If the Name is changed on Power IQ, it will be reverted to the dcTrack value when the next sync is performed.
Inlet Names	dcTrack will retrieve the Names from Power IQ on initial integration. Once integrated changes to the Name are not pushed in either direction.
Outlet Names	dcTrack will retrieve the Names from Power IQ on initial integration. Once integrated updates are bi-directional.
Power Connections	Connection data is owned by dcTrack. Connections will always be pushed from dcTrack to Power IQ.
Sensor Names	dcTrack will retrieve the Names from Power IQ on initial integration. Once integrated updates are bi-directional.
Sensor Cabinet	dcTrack will retrieve the Cabinet on initial integration. Once integrated updates are bi-directional. Note: If the Rack PDU Cabinet is modified, only Sensors that reside in the original Cabinet will be updated to the new Cabinet.
Sensor Position	dcTrack will retrieve the Position on initial integration. Once integrated updates are bi-directional. Note: The presence of a value in the dcTrack X,Y,Z sensor field will map to Outside Air on Power IQ.

Field Name	Direction
	When pulling data from Power IQ, Outside Air will update the Sensor X,Y,Z field to 0,0,0.
Outlet Readings	Readings for Measured Amps and Actual Watts are always pulled from Power IQ.
Sensor Readings	Value is always pulled from Power IQ.

Syncing Data Between dcTrack and Power IQ After Integrating

Once you integrate dcTrack with one or more Power IQs, the information is automatically synced between the two applications as long as the Integration checkbox remained selected for the Power IQ on the Power IQ Integration Settings page.

After dcTrack and Power IQ data is synced, all assets should be added, updated and deleted from dcTrack.

Integration Supported Assets

The following classes are supported for integration between dcTrack and Power IQ:

- Cabinets
- Devices
- Network and Probe (supported but are considered as Devices and Rack PDUs, respectively.
- Rack PDUs

See **Item Classes and Subclasses** for more information on each class).

Port Integration

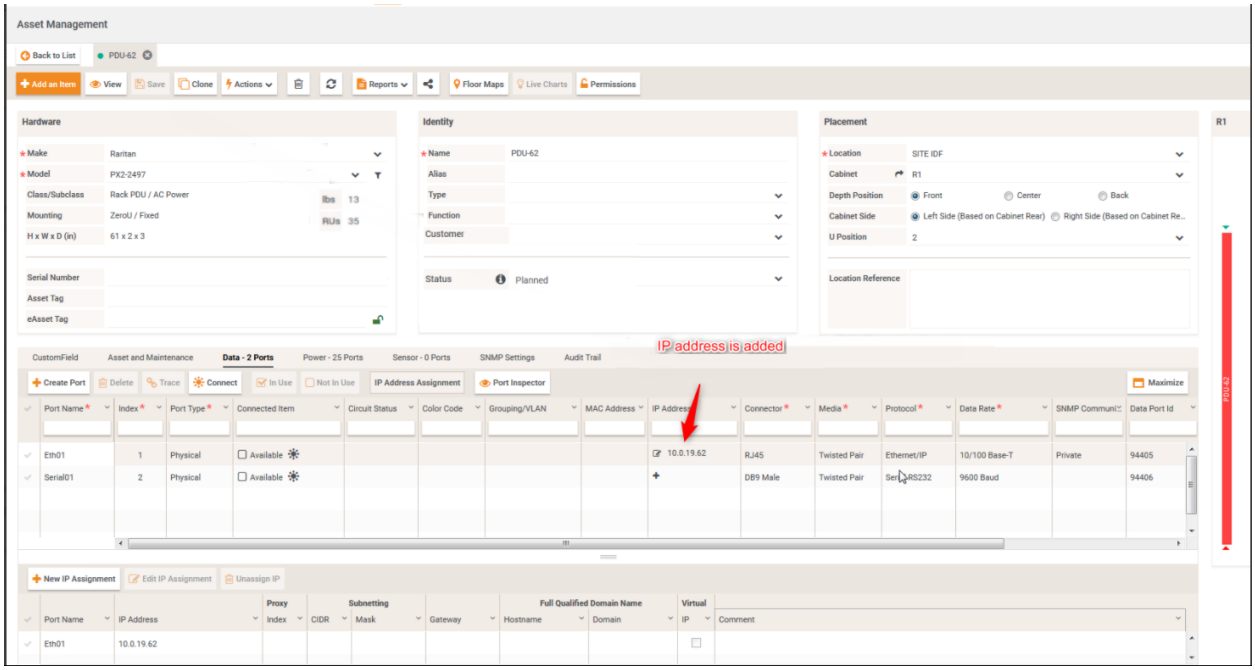
Synchronization of Outlet Names for integrated Rack PDUs has been enhanced in dcTrack version 7.0.0.

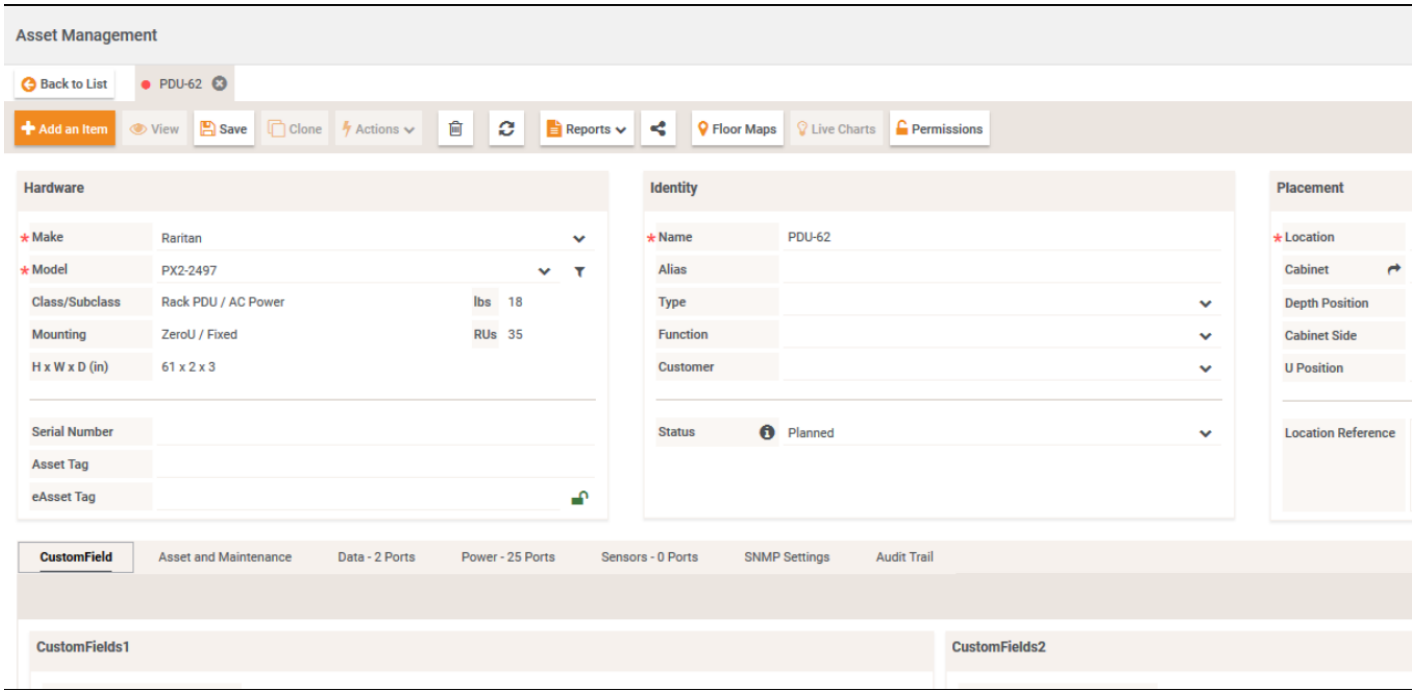
When Rack PDUs are initially integrated, the Outlet names from Power IQ are pushed to dcTrack. Once integrated, any changes to Outlet Names on Power IQ are automatically pushed to dcTrack. Similarly changes to Outlet (Port) Names on dcTrack are automatically pushed to Power IQ. This includes changes to Port Names that result from Port Connections when the Auto Update Rack PDU Inlet and Outlet Name feature is enabled. For additional information See Auto Update Rack PDU Inlet and Outlet Names.

Note: When a Rack PDU is added in dcTrack, the port information is derived from its Model. Once integrated with Power IQ, the ports are updated to match the ports in Power IQ. In some cases this will result in additional ports being added to the Rack PDU on dcTrack. These ports are added without values for connector, phase, volts, amps, phase legs, breaker and breaker amps resulting in the Event Log message "<PDU Name> Power Port Outlet xx index xx was added but requires additional information because it is not in the dcTrack model <model name>". To rectify this issue, you must manually enter the data for the newly added ports.

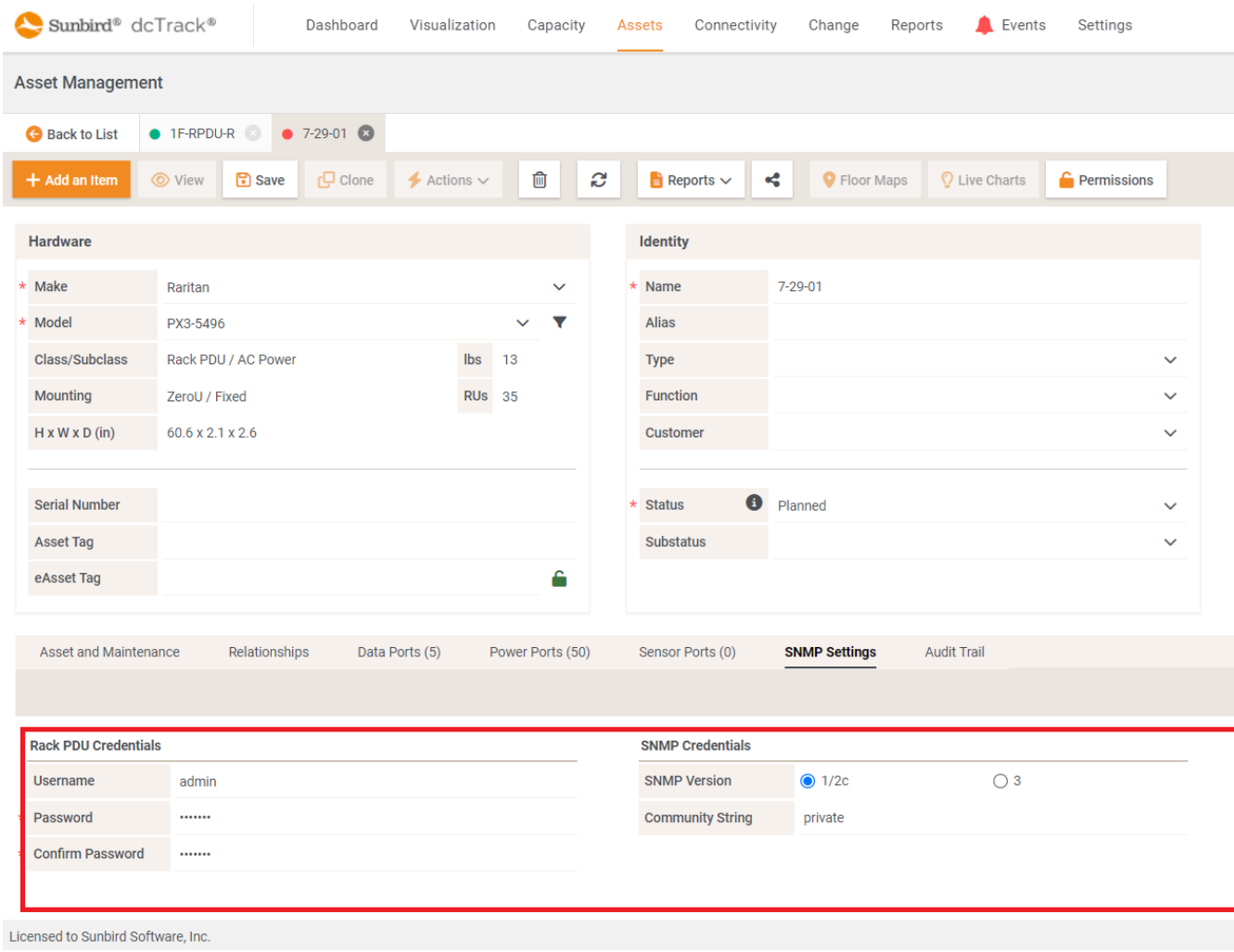
ticAdd an RPDU or Rack UPS to dcTrack and Integrate with Power IQ

Both Rack PDUs and Rack UPS can be fully integrated with Power IQ. Once integrated Power IQ will provide the readings unique to each object.

1. Add the Item making sure to fill in the Placement information
2. Click Save to save the record
3. Click on the Data Port sub tab
4. Supply the RPDU's or Rack UPS IP Address
5. 

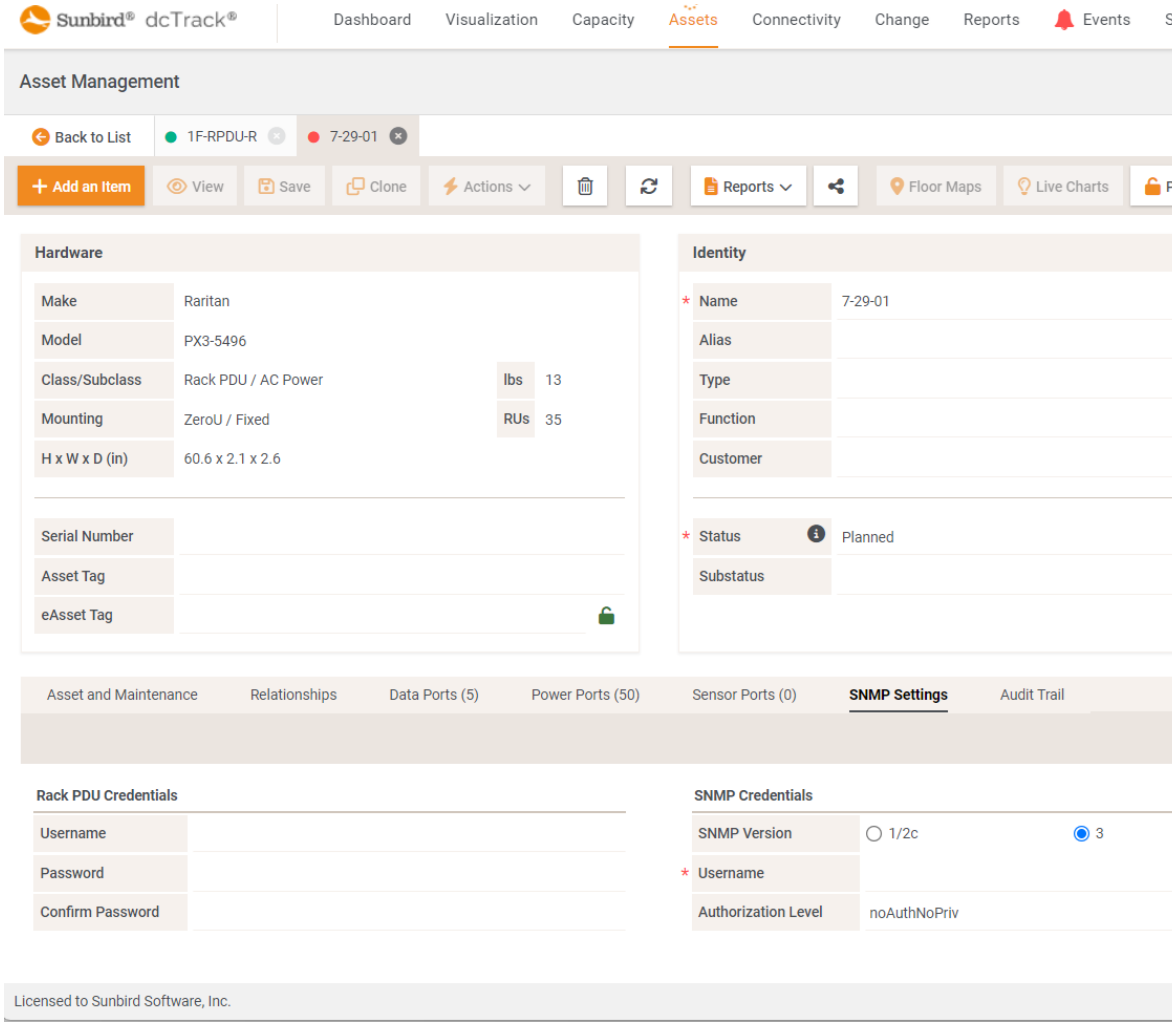


6. Click on the SNMP sub tab
7. Supply the appropriate Rack PDU/Rack UPS Credentials
    - For SNMP 2 complete the following fields:
        - Username
        - Password
        - Community String

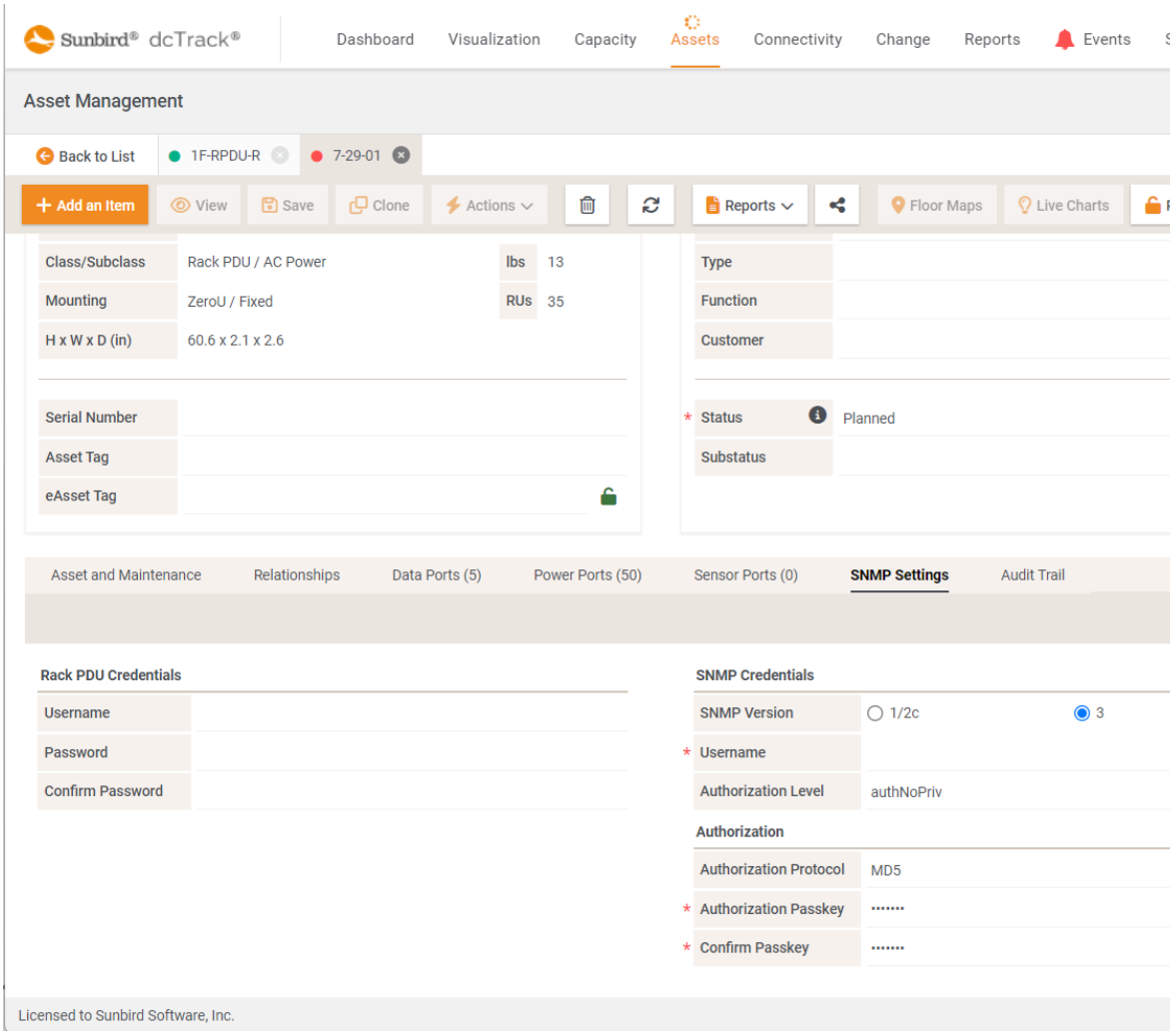


- For SNMP 3 complete the following fields:
  - Username
  - Authorization Level

- noAuthNoPriv - requires no additional information

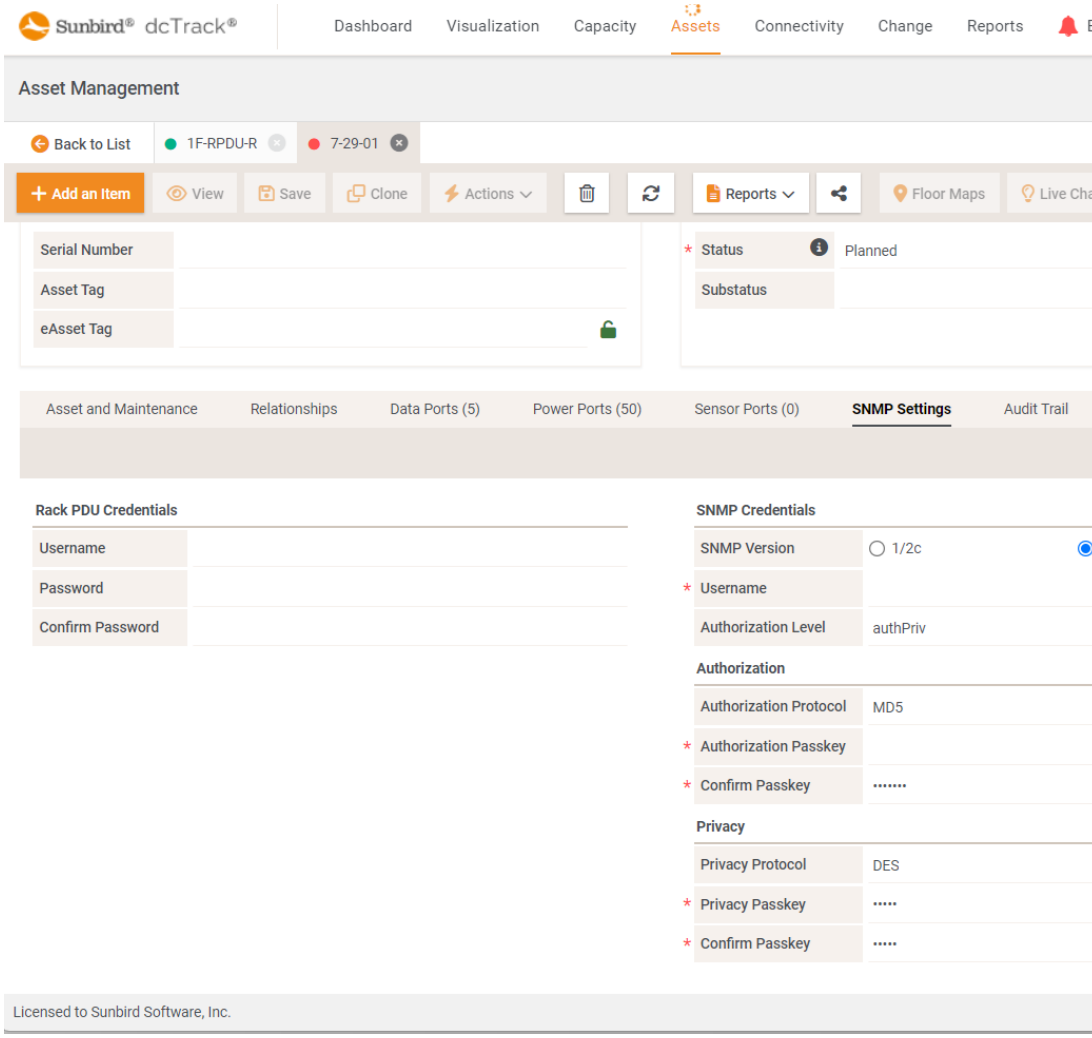


- authNoPriv requires the following:
  - Authorization Protocol
  - Authorization Passkey



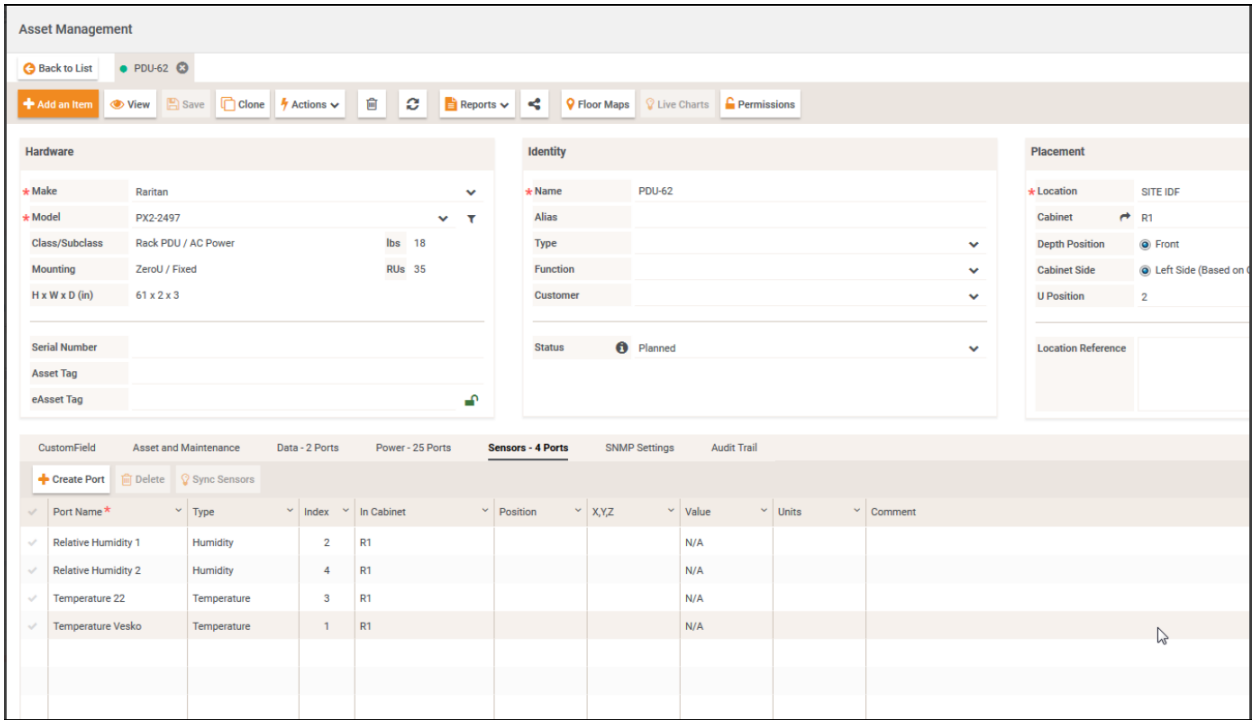
- authPriv rquires the following:
  - Authorization Protocol
  - Authorization Passkey
  - Privacy Protocol

- Privacy Passkey

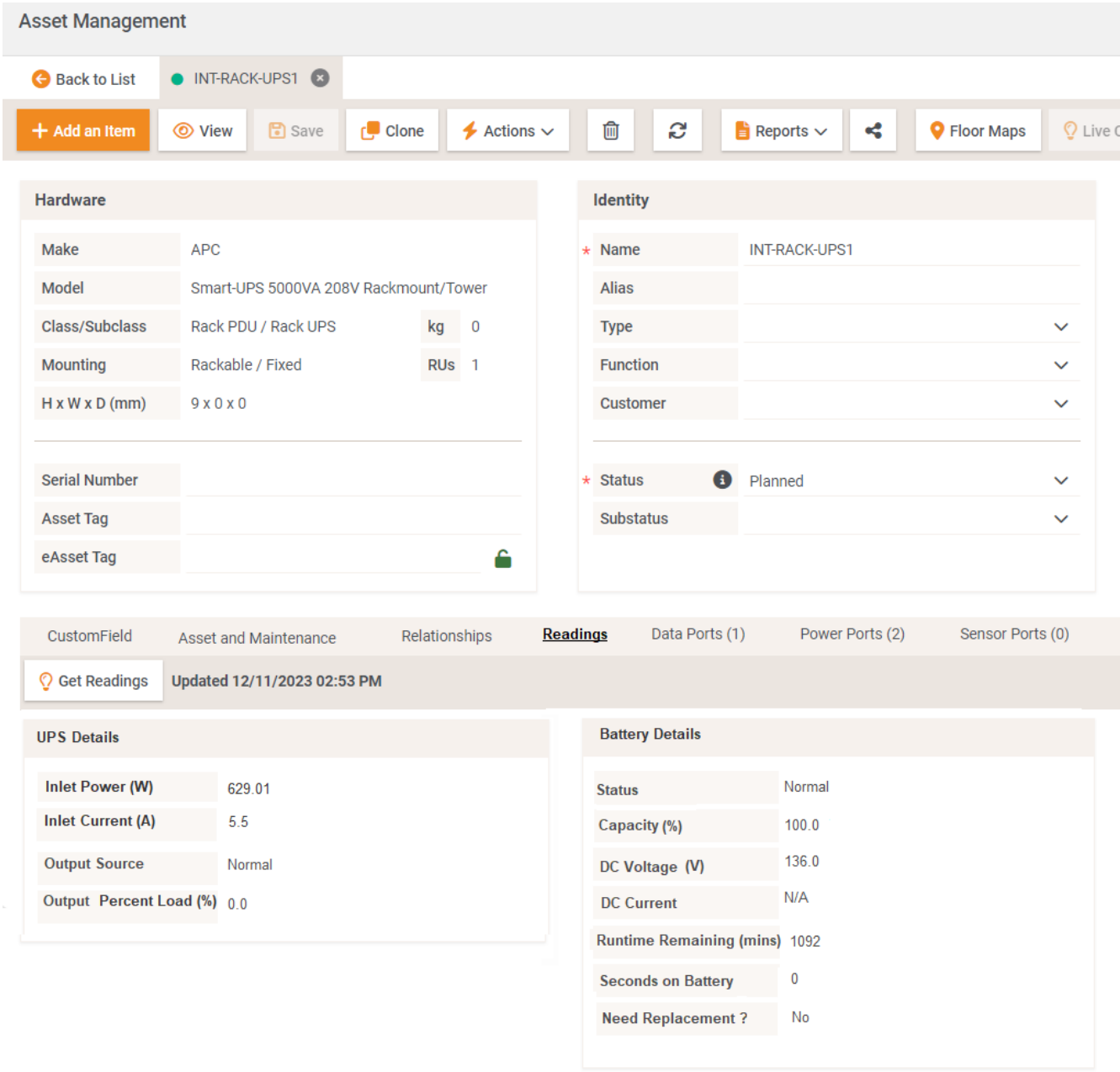


8. Click Save
9. Click on the Sensors or Power Ports sub tab
10. Click the Refresh button

11. Sensors are now available



12. If you are integrating a Rack UPS, once integrated a "Readings" subtab is added to the Item. This subtab contains the readings for the UPS load and readings for the battery from PIQ. This subtab is only available on integrated Rack UPS.



1.

Note: One of the two options below should be used if dcTrack has a Probe item that is not integrated with Power IQ AND Power IQ includes a PDU object related to the Probe already.

1. If Power IQ has just the PDU (in the correct cabinet) and nothing that represents the IT asset side of the Probe. Do one of the following two choices:

a. Delete the unintegrated PDU from Power IQ and then push the Probe via normal mechanisms
b. Create an IT asset in Power IQ in the same cabinet as the PDU with Power IQ Integration is Disabled, then Enable Power IQ Integration and map the IT devices (using DMS or import)

2. If Power IQ has both the PDU and the IT asset in the correct cabinet, then map the IT devices (using DMS or import)

Configure and Synch Items to Get Power and Sensor Readings

You are able to get power and sensor readings from devices, rack PDUs, probes, UPS units, PDUs and Cooling units. See Retrieve **Retrieve Power and Sensor Readings**.

Power and sensor readings are displayed on item pages on the Power - n Port tab and Sensor - n Port tab, respectively.

These readings are also used to calculate information on the dcTrack Web Client Dashboard, as well as on the floor map and in reports.

Readings are pulled from Power IQ when dcTrack/Power IQ integration is enabled for one or more Power IQ sites. For information on integrating dcTrack and Power IQ, see **Integrate with One or Multiple Power IQs**.

If Power IQ integration is disabled, items must be configured manually in dcTrack to get readings. See **Manually Configure dcTrack Items to Get Readings from One or More Items**.

Requirements to Get Power and Sensor Readings

How readings are retrieved and, therefore, how items sending readings are configured, depends on if you are integrated with Power IQ or using dcTrack as a standalone product.

Requirements When Using dcTrack/Power IQ Integration

If you are integrated with Power IQ, the following must be met in order to get power and sensor readings from items -

	Requirement
☐	Item Supports SNMP The item is capable of reporting data over SNMP.
☐	Power Integration Enabled You must be integrated with Power IQ. The Enable Power IQ Integration feature must be enabled on the dcTrack > Appliance Settings page.
☐	Sync Sensors and/or Get Readings Sync one or more sensor ports, and/or get readings for power ports.

	Requirement
	Sync individual ports from the item's page, or use the Get Readings function in the Web Client on the Floor Maps page to sync multiple readings at once. See **Sync Multiple Ports at the Same Time**. Note that the item must be powered on in order to get readings.

Requirements When Using dcTrack Standalone

If you are not integrated with Power IQ, you will not be able to retrieve power or sensor readings.

Note: Get Readings must be clicked in order to retrieve power readings; readings are not automatically retrieved by dcTrack.

Manually Configure dcTrack Items to Get Readings from One or More Items

Add IP Addresses and Community Strings, and Sync/Get Readings

Add IP addresses and community strings to data ports, if they are not already added.

Note: These steps demonstrate adding IP addresses and community strings to an item's data port manually. However, you can assign IP addresses and community strings to multiple items at once using the File Import. See Bulk Updating/Adding Rack PDU and Probe IP Addresses Using the File Import.

1. In the Web Client open the item's page.
2. Create power and/or sensor ports on the item, if needed. See **Creating and Managing Ports**.
3. For power readings:
   a. Open the Power - n Ports tab, enter any required information that is needed such as budgeted AMPs, name-plate watts and so on.
   b. Click Get Readings to get a new reading. Note that power readings are not real-time; you must click Get Readings to get the most current reading.
4. For sensor readings:
   a. On the Sensor-Ports tab of the item's page, provide the IP address and SNMP community string. For more information, see **Assigning IP Addresses to Data Ports and Port Teaming**.
   b. Click Sync Sensors to get a reading from the item. Note that the item must be powered on in order to get a reading from it.

To sync multiple sensor ports at the same time, for example if you bulk imported items with all required information such as an IP address and SNMP community string, see **Sync Multiple Ports at the Same Time**.

Sync Multiple Ports at the Same Time

Rather than sync ports individually, you can sync all ports at once.

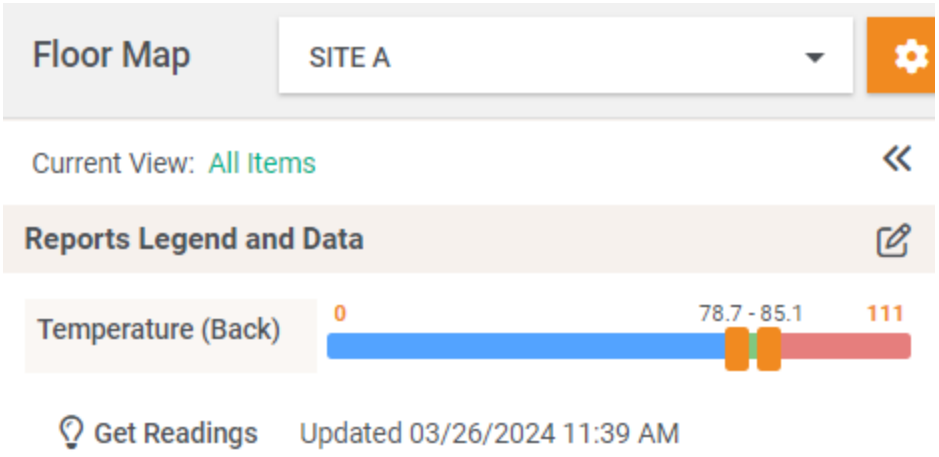
Sync All Sensor Ports when Integrated with Power IQ

If you are integrated with Power IQ, use the Get Readings feature on the Web Client floor map to sync multiple items at the same time in order to retrieve sensor and/or power information.

1. In the Web Client, click Visualization to open the Floor Maps page. Note that you must have a drawing associated with the location in order to run floor map reports.
2. Select the data center location from the Location drop-down.

The floor map for the site opens and contains the items you want to synch.

3. Select Reports.
4. Depending on the sensor or power reading, select the appropriate report "Temperature Fronts", "Temperature Backs" or "Measured Amps".
5. Click Get Readings in the "Reports Legend and Data" panel to synch all of the readings in the entire data center. The report you selected displays the readings once they are collected.



Cabinet	Back (°F)
1A	89.7
8H	N/A
1B	90.7
1C	N/A
1D	90.9
1E	90.4
1F	91.5
1G	85.6
1H	85.4
2A	85.2
2B	80.9
2C	86.7
2D	85.4
2E	87.4
2F	86.5

Sensor Integration

Sensor Integration in dcTrack version 7.0.0 has been improved to provide additional bi-directional support.

For integrated Rack PDUs, updates to Sensor Name, Cabinet and Position in dcTrack, are automatically pushed to Power IQ.

From Power IQ, in addition to pushing updates to Sensor Name to dcTrack, updates to Sensor Location and Sensor Cabinet are also pushed to dcTrack.

See the table below for Position Settings mapping.

Power IQ Position in Rack	Power IQ Height in Rack	Power IQ Door Placement	dcTrack Position
Inlet	Top	N/A	Top Front
Inlet	Middle	N/A	Mid Front
Inlet	Bottom	N/A	Bottom Front
Outlet	Top	N/A	Top Rear
Outlet	Middle	N/A	Mid Rear
Outlet	Bottom	N/A	Bottom Rear
Outside Air	N/A	N/A	X,Y,Z - Value set to 0,0,0

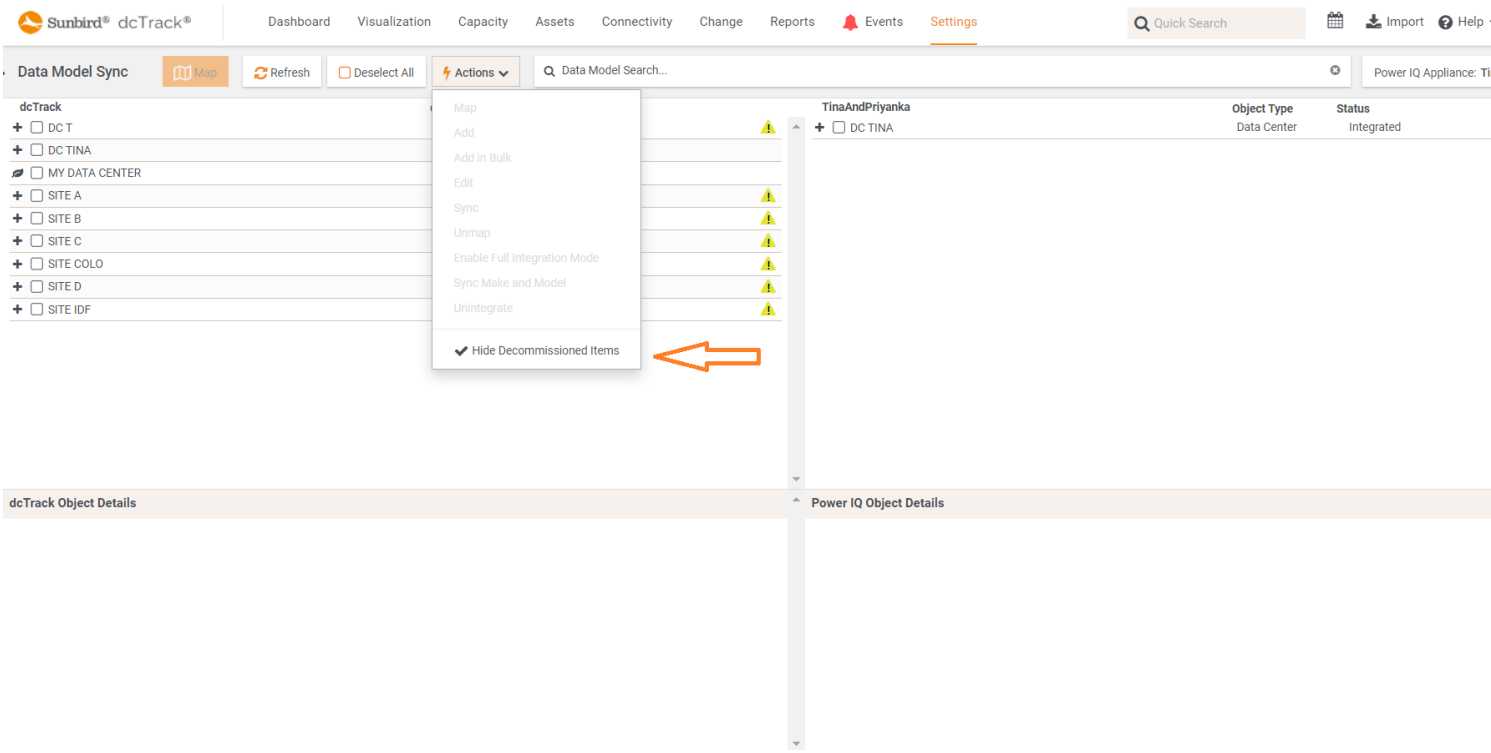
If the Cabinet of a Rack PDU Item is modified, any Sensor residing in the same Cabinet will also be moved to the new Cabinet. For example if the Rack PDU is in Cabinet 1 and has three sensors. Sensor 1 located in Cabinet 2, Sensor 2 located in Cabinet 1 and Sensor 3 also located in Cabinet 2. If the Rack PDU is moved to Cabinet 3, the In Cabinet for Sensor 2 will also be modified to Cabinet 3. The other Sensors would not be affected by the change.

Decommission Rack PDUs in dcTrack When Integrated with Power IQ

dcTrack 9.0.0 has streamlined the process of Decommissioning Items integrated with Power IQ. In dcTrack 9.0.0 and beyond integrated Rack PDUs and IT Devices can only be decommissioned from dcTrack. The items in both systems will reflect the Decommissioned status, and the Power IQ items will remain associated with the Cabinets they resided in prior to the Decommission. Sensors in Rack PDUs will also remain associated with the cabinet and externally placed sensors will retain their information. IP addresses will also no longer be removed. For additional

information on Decommissioning Items, refer to **Put Items in Storage - Decommission Item to Storage Request** or **Archive Items - Decommission Item to Archive Request**.

The Data Model Sync feature will display a new status for decommissioned Items. dcTrack items will display either "Integrated/Archived" or "Integrated/Storage" depending on how they were decommissioned and Power IQ Items will display as "Integrated/Decommissioned". If you do not want Decommissioned Items to appear at all on the Data Model Sync page, you can select the "Hide Decommissioned Items" option from the Action Menu.



Note, Items in dcTrack that are not yet integrated, will only be allowed to "Map" to a Power IQ Item if they are in the same state (Decommissioned or In Service).

Delete a Power IQ/Disable dcTrack and Power IQ Integration/Stop Synching

dcTrack allows you to:

- Delete a Power IQ

This is done on the Power IQ Integration Settings page in the Web Client

Deleting a Power IQ removes the Power IQ completely from dcTrack.

The sites associated with the Power IQ are not deleted, but the connection is broken because the IP address is no longer associated with site once the Power IQ is deleted.

- Disable Integration

Deselect the Enable Integration checkbox on the Power IQ Integration Settings page in the Web Client

This stops syncing between dcTrack and the Power IQ.

Any data you enter into dcTrack after you deselect Enable Integration for a Power IQ and save is no longer pushed to the Power IQ.

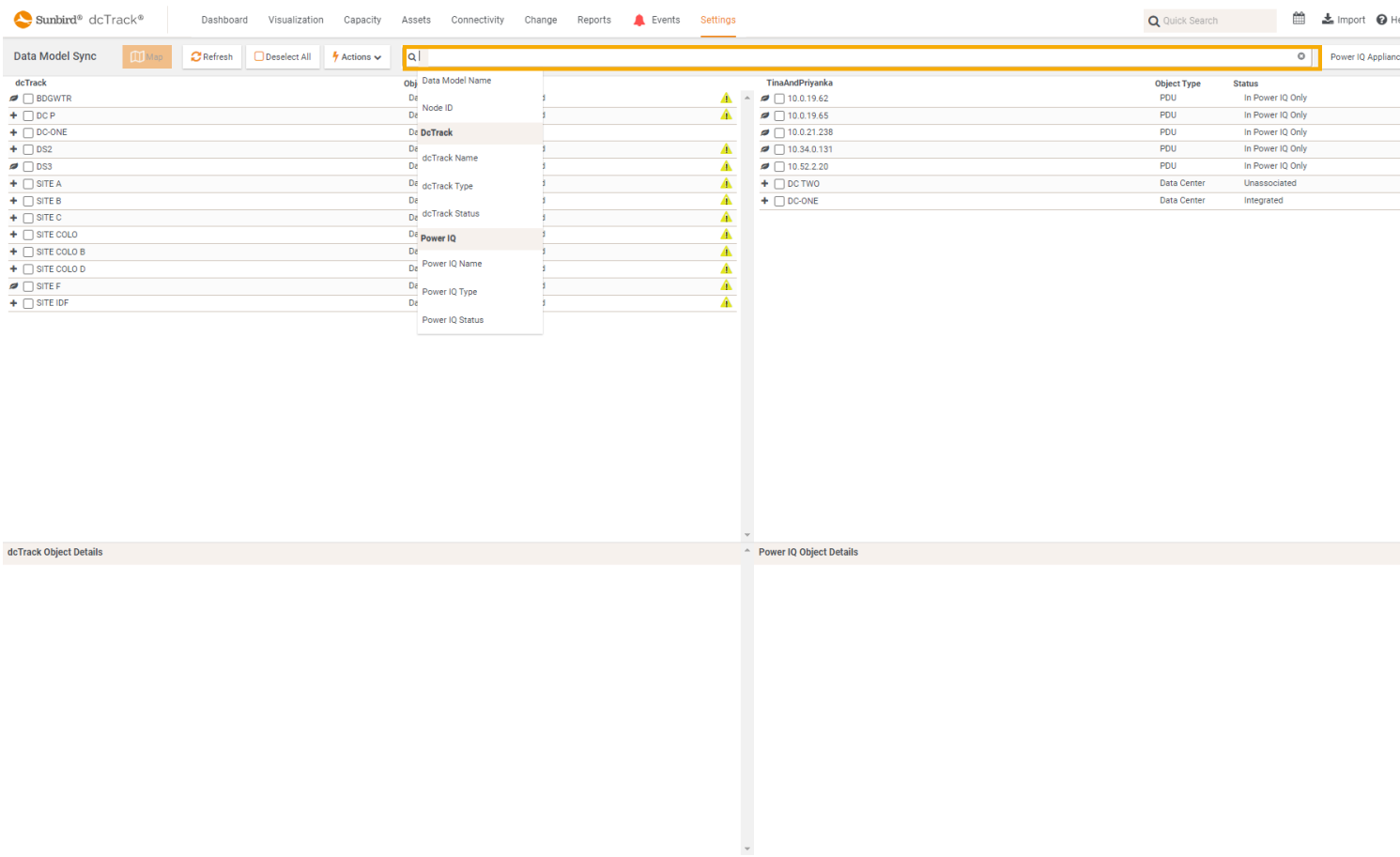
Note: When dcTrack and Power IQ are no longer integrated, data is no longer pushed to Power IQ from dcTrack. If you reestablish the integration at a later time, it is important you use the "Sync" feature to synchronize data between Power IQ and dcTrack. This ensures dcTrack and the Power IQ are in sync.

Data Model Sync

dcTrack provides a Data Model Sync feature for a consolidated view of dcTrack and Power IQ integration. The Data Model Sync feature is accessible from the Settings menu>Data Model Sync

The Data Model Sync page is organized into two tree views: dcTrack on the left and Power IQ on the right.

A Refresh button is available to update the views with the objects in the respective Enterprise Data Model (EDM) hierarchies, the object type, and integration status of the objects. To search/filter the views, click in the search bar and specify your search criteria based on the table below.



The Search feature allows you to search and filter the respective views by the following criteria:

Criteria	Description
Data Model Name	Search for objects containing the specified text in their names throughout the enterprise (both dcTrack and Power IQs).
dcTrack Name	Search for objects containing the specified text in their names throughout dcTrack.
dcTrack Type	Search for objects containing the selected type throughout dcTrack.
dcTrack (Integration) Status	Search for objects containing the selected integration status throughout dcTrack. Available statuses include the following: • Add in Bulk: For objects added from Power IQ that are incomplete and require additional configuration. Typically require assignment of make and model. Origin column in Items List will be set to Added in Bulk Incomplete for easy search and filtering of the

Criteria	Description
	list. • Added via Power IQ: For objects added from Power IQ that are incomplete and require additional configuration. Typically require assignment of make and model. • In dcTrack Only: For objects that exist in dcTrack only. • Incorrect Parent: For integrated objects for which the parent is not consistent across dcTrack and Power IQ. • Integrated: For integrated objects. • Integrated/Archived: For integrated objects that have been archived in dcTrack. • Integrated/Storage: For integrated objects that have been placed into storage in dcTrack. • Integration Error: For objects where an integration error has been detected. Will typically require unmapping and re-mapping or sync. • Unassociated: For locations that are in dcTrack and not associated with any Power IQ. • Unmapped: For objects that are currently isolated to dcTrack. • Unmapped/Archived: For objects that are currently isolated to dcTrack and have been archived in dcTrack. • Unmapped/Storage: For objects that are currently isolated to dcTrack and have been placed into storage in dcTrack.
Power IQ Name	Search for objects containing the specified text in their names throughout Power IQ.
Power IQ Type	Search for objects containing the selected type throughout Power IQ.
Power IQ (Integration) Status	Search for objects containing the selected integration status throughout Power IQ. Available statuses include the following: • Add in Bulk: For objects added from Power IQ that are incomplete and require additional configuration. Typically require assignment of make and model. Origin column in Items List will be set to Added in Bulk Incomplete for easy search and filtering of the list. • Added via Power IQ: For objects added from Power IQ that are incomplete and require additional configuration. Typically require assignment of make and model. • In Power IQ Only: For objects that exist in Power IQ only. • Incorrect Parent: For integrated objects for which the parent is not consistent across dcTrack and Power IQ. • Integrated: For integrated objects. • Integrated/Decommissioned: For integrated objects that have been decommissioned in dcTrack. When IT Devices and Rack PDU objects are decommissioned in dcTrack, their status changes to 'Incorrect Parent' because they remain associated with a Cabinet in PIQ, even though the Cabinet field in dcTrack is cleared • Integration Error: For objects where an integration error has been detected. Will typically require unmapping and re-mapping or sync.

Criteria	Description

Note: Only those object types that are common to both dcTrack and Power IQ are included in the view.

An Actions menu allows selection of available actions to take on the selected objects in the views.

Action	Description
Map	• Used to create a mapping between an object In dcTrack Only and In Power IQ Only to indicate that they are the same object. • Also used to allow integration for dcTrack objects currently Unmapped (Isolated) from Power IQ in subsequent sync operations. • The Map action will not be enabled for data centers that are in "Legacy" mode. Please read the description of the action Enable Full Integration Mode for details of switching to full integration mode.
Add	• Used to add objects that are In Power IQ Only to dcTrack. • You will be brought to the details pages for the locations or assets selected. The required data can be provided to complete and save the objects.
Add in Bulk	• Used to add objects that are In Power IQ Only to dcTrack. • Objects are added to dcTrack and can be exported from the items list to add the make and model and then to be reimported in bulk. The Origin column in the Items List will be set to Added in Bulk Incomplete for easy search and filtering of the list.
Edit	• Used to edit objects that are Added via Power IQ or Add in Bulk to dcTrack. • Objects that are added directly in Power IQ will require additional information in dcTrack. You will be brought to the details pages for the locations or assets selected where additional edits can be made.
Sync	• Used to perform a sync operation on the selected object and its children. • Can be used for objects that are Integrated, have an Incorrect Parent, or are In dcTrack Only.
Unmap	• Used to remove an existing mapping between an Integrated object in dcTrack and an object in Power IQ. Will isolate the object in dcTrack. • Also used to isolate objects in dcTrack that are In dcTrack Only or have an Incorrect Parent.
Enable Full Integration Mode	• Starting with dcTrack 6.0, dcTrack will integrate rows and aisles with Power IQ. • For customers who upgraded from a version dcTrack prior to 6.0, their data centers will be in Legacy Mode, and rows and aisles will remain unintegrated.

Action	Description
	• In order to move out of Legacy Mode into Full Integration mode, a single data center should be selected (no children) and then action Enable Full Integration mode will be enabled. • After selecting this action, the system will do analysis to determine what changes to aisles and rows are needed, both within Power IQ and dcTrack. Carefully read any warnings shown before clicking proceed. • Review the result of the changes to aisles and rows to make sure they are to your satisfaction. If so, the data center should be selected (no children) and the Sync action should be selected. This will make sure that any cabinets that are not in the proper row or aisle in Power IQ are moved to match the hierarchy in dcTrack.
Sync Make and Model	• Used to perform a sync operation on the selected object specific to the make and model of newly added items from Power IQ. • If newly discovered makes and models are not found in the Models Library, the user has the opportunity to match or add them via a wizard. • Can be used to add makes and models to the Models Library and Item Details pages of newly added assets.

A Power IQ Appliance selector allows you to select the Power IQ to be displayed in the view.

The dcTrack Object Details section provides a summary of details for the object selected in the dcTrack view.

If the object has power connections, the ports and connected to item and port are displayed below the details section.

The Power IQ Object Details section provides a summary of details for the object selected in the Power IQ view.

If the object has outlet associations, the connected to items are displayed below the details section.

Note: If there are newly discovered makes and models not currently in the Models Library that need to be matched or added, the wizard to map/add these new makes and models will display.

Syncing Power IQ and dcTrack Floor Maps - Upload Floor Maps in dcTrack

If you have integrated dcTrack with Power IQ, upload your floor map drawing files in dcTrack - do not upload them in Power IQ any longer.

When you upload your floor map drawing file to dcTrack, it is automatically pushed to Power IQ in the same way other data is when the applications are integrated.

Integrate with BMC Remedy ServiceNow and Other CMDB Systems

The CMDB Connector allows data to be exchanged between dcTrack and any other CMDB application that provides public REST APIs. The dcTrack Universal Connector and the ServiceNow Connector provide the ability to create Assets on the CMDB system which can be inserted automatically on dcTrack, additionally, the ServiceNow Connector provides the ability to create assets on dcTrack that are automatically inserted on ServiceNow. Both Connectors support bi-directional updates.

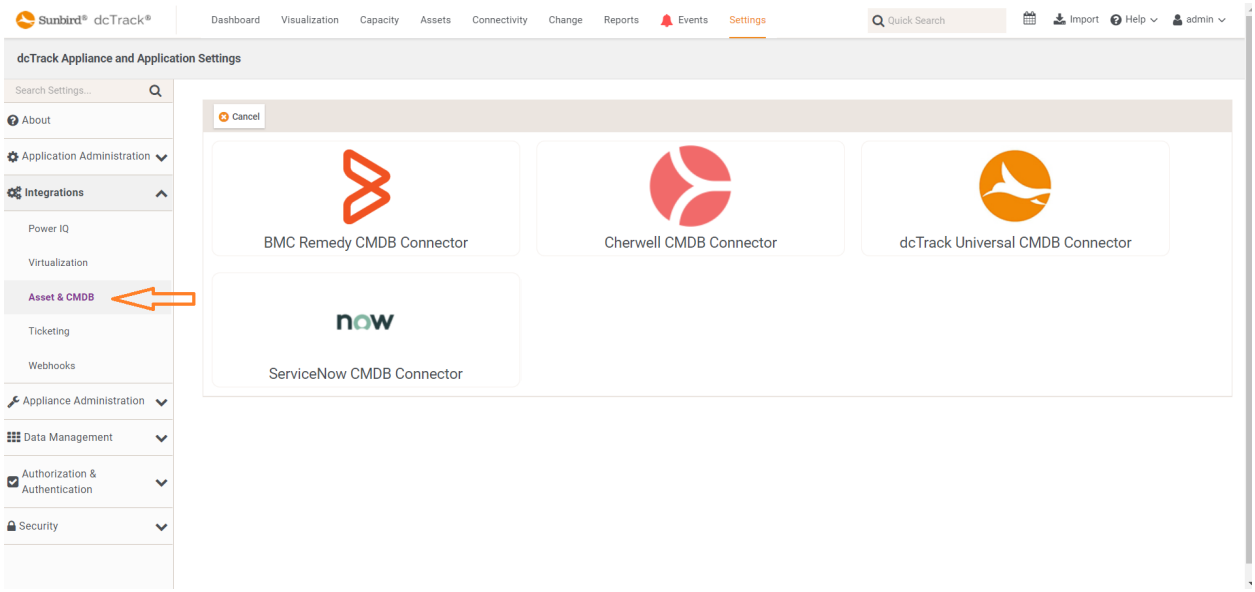
dcTrack version 7.2.0 and beyond support integrating a single ServiceNow Instance to multiple dcTracks. This is facilitated through the new certified Sunbird DCIM Connector application available through the ServiceNow Application store (see Configuring the Sunbird Connector in ServiceNow). Once the new Connector application is installed, users will be allowed to create any number of dcTrack configurations, each pointing to a different dcTrack 7.2.0 or later instance. If you chose to continue to support a one-to-one relationship between dcTrack and ServiceNow, no additional changes are required to your current configuration, however if you would like to integrate with multiple dcTracks you need only create additional configurations for each instance supplying the same few parameters to identify each dcTrack instance. When integrated with multiple dcTrack instances, the DCIM Connector application automatically associates the individual field mappings, Locations and filters specific to each dcTrack instance to the correct dcTrack.

System Administrators can configure the CMDB Connector under the Settings > dcTrack Settings > Integrations > Asset & CMDB.

Note: You must perform the following steps in each dcTrack instance you wish to integrate.

To configure the CMDB Connector:

1. Navigate to Settings > dcTrack Settings > Integrations > Asset & CMDB
2. Click the "Add" button to View the Gallery of available Connectors
3. Select the desired Connector from the Gallery. This will open the Add an Asset & CMDB Integration dialog.



4. Provide the data for the following fields:
    a. Type: The Application you are integrating with. This will be automatically populated based on the connector selected from the gallery, but can be changed in this dialog.
    b. Label: The name used to identify this connector. (Required)
    c. IP Address/Hostname: The IP Address or Hostname that should be used to establish a connection to the CMDB server. (Required)
    d. Username: A valid user name for the Service Account on the CMDB server to be used for authentication and Audit tracking on the CMDB. (Required)
    e. Password: The password associated with the Service Account in the previous field. (Required)
    f. Auto-sync Username: The valid login name of the dcTrack Service Account that will be used when logging audit records generated as a result of a pull operation on dcTrack. The minimum role required by this user is Gatekeeper. (Required)
5. Check the Enable Integration checkbox. When enabled, items will be integrated between dcTrack and the CMDB database based on the Field Mappings and Filters specified in the configuration XML.
6. Click the Save button to save your settings. This will open the Configuration section of the page.
7. In the Configuration section of the page, enter the appropriate XML required to make the API calls. This XML is used to define the field and value mappings, filters, and any other rules required to manage the data exchange between dcTrack and CMDB.
    a. You can upload an existing XML file, by clicking the Load from File button and using the browser dialog to select the XML file.
    b. You can enter the XML directly into the provided text box.
    c. To save the XML to a local file, click the Save to File button.

5. To test the connection between dcTrack and the remote server using the information supplied on the screen click the Test Connection button.
6. Click the Save icon to save the configuration. If any of the required fields are not completed, the Save button will not be enabled.

   Note: This option is only enabled if all required fields have been supplied, including the .xml file.
7. If you are integrating with ServiceNow, you must also configure the Sunbird DCIM Connector on your ServiceNow instance. Please see the help on **Configuring the DCIM Connector in ServiceNow** for additional instructions.

   Note: If integration is disabled, updates performed on dcTrack will not be pushed to the external application. Upon re-enabling integration users must save the updated records individually to trigger the push.

For more detailed instructions on Integrating dcTrack with CMDB applications, please refer to the Steps to Configure the Ticketing Connector on dcTrack guide.

For assistance configuring the dcTrack Ticketing Connector or the Sunbird DCIM Connector in ServiceNow, please contact Sunbird Technical Support at tech@sunbirddcim.com or via the Sunbird Support Portal.

Configuring the DCIM Connector in ServiceNow

The Sunbird DCIM Connector is now available as a Certified App through the ServiceNow App Store. This single connector works in conjunction with the dcTrack's CMDB connector, Ticketing Connector or both to provide all the information required to exchange Asset and Ticket data seamlessly between dcTrack and ServiceNow.

dcTrack version 9.2.0 has enhanced its CMDB integration with ServiceNow. In addition to its current ability to integrate with ServiceNow Hardware Assets, the ServiceNow Connector will now also integrate with ServiceNow CI tables. This integration supports bi-directional Inserts and Updates of mapped fields between dcTrack and ServiceNow as well as support for CI Relationships. In addition to the CI support, the ServiceNow Connector can now create missing Models on ServiceNow when a new item is pushed to ServiceNow, making it easier to normalize Models between dcTrack and ServiceNow.

For additional information, please refer to the following documents:

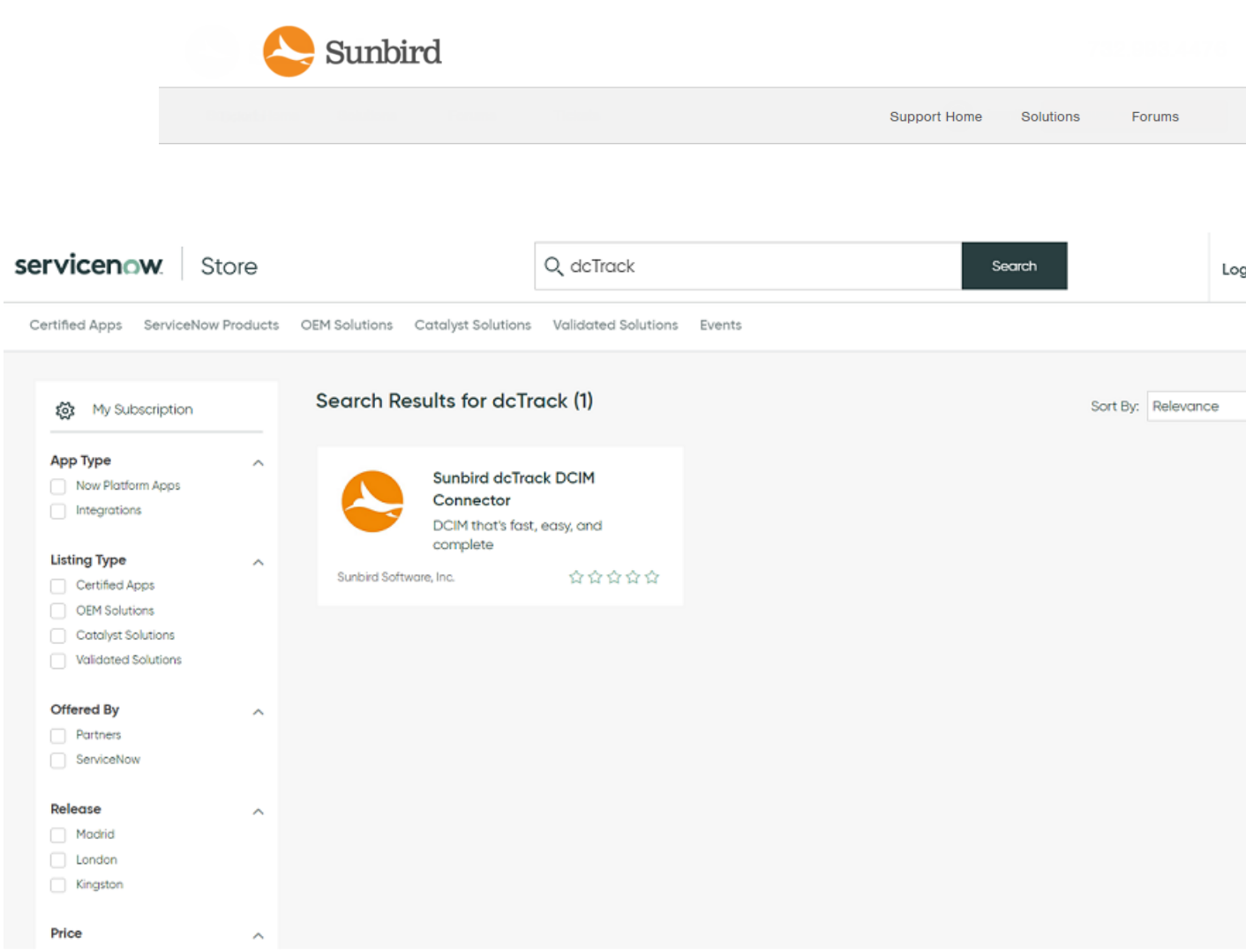
Steps to Configure the CMDB CI and Asset Connector on dcTrack - Instructions for setting up CMDB integrations

Steps To Configure the Ticketing Connector on dcTrack- Instructions for setting up Ticketing integrations

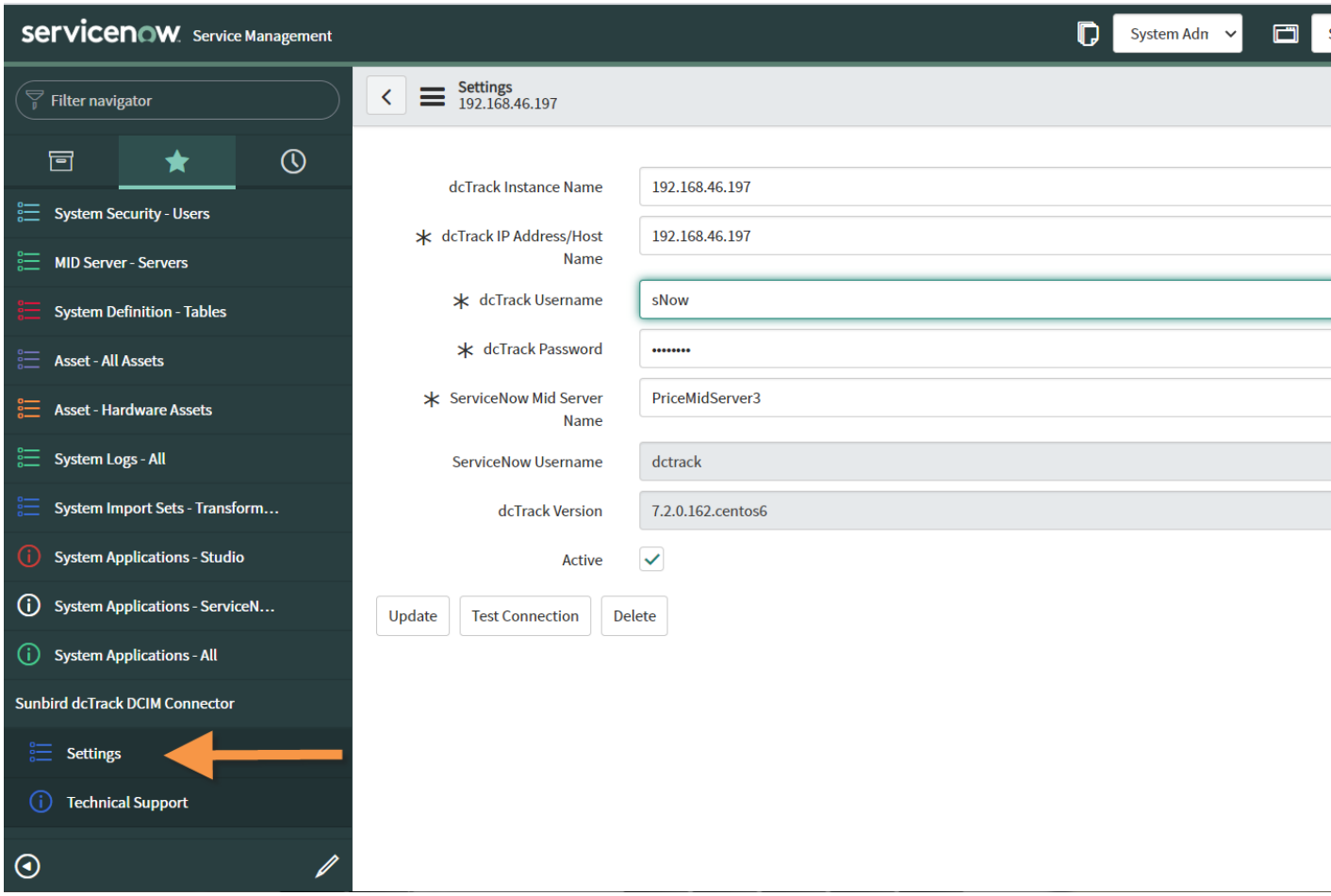
Steps To Configure the Request Connector on dcTrack- Instructions for setting up integrations triggered from dcTrack Workflow (Requests and Work Orders)

To configure the Sunbird Connector:

1. Download and Install the Sunbird dcTrack DCIM Connector.



2. Once the application is installed you can search for it by typing “dcTrack” in the ServiceNow Filter Navigator.
3. Open the application by clicking the “Settings” menu option under the “Sunbird dcTrack DCIM Connector” menu item.



4. Provide the data for the following fields:

    - dcTrack IP Address/Host Name: The IP Address or Host Name of the dcTrack instance you wish to integrate with. (Required)
    - dcTrack Username: The user name of the Service Account on dcTrack to be used for authentication. It is required that you use an account with at least the Gatekeeper role specifically designated for integration. (Required)
    - dcTrack Password: The password for the dcTrack Service Account. (Required)
    - ServiceNow Mid Server Name: If running dcTrack from a public IP Address or the Cloud, specify the name of the MID server to be used to facilitate communication and the movement of data between ServiceNow and dcTrack.
    - ServiceNow Username: The user name of the Service Account on ServiceNow that will be used for Audit tracking. (Required)
    - Active: Selector used to enable or disable the Connector.

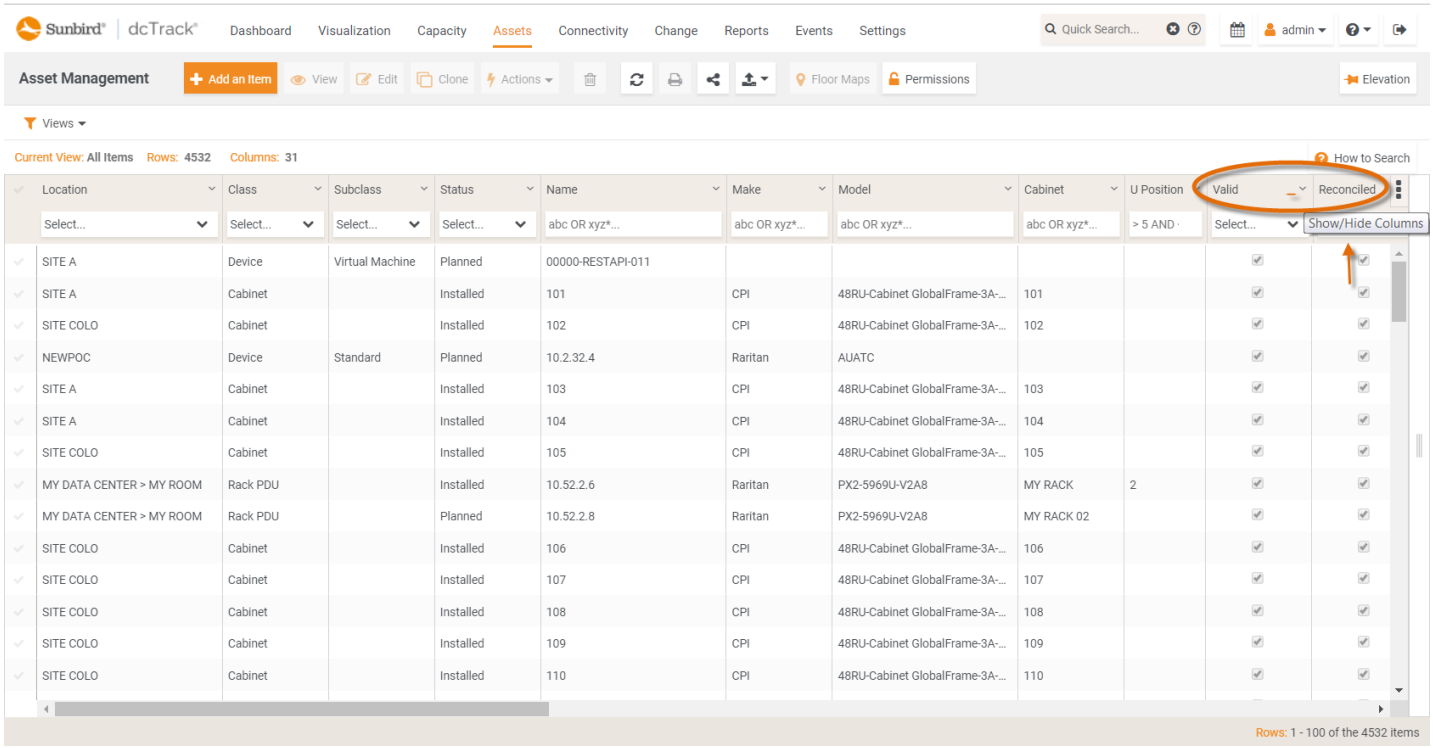
5. Once all of the required fields have been supplied, use the “Test Connection” button to verify that ServiceNow is able to communicate with dcTrack.
6. If your test connection is successful, you must click the Update button to save your settings.

Note: If integration is disabled (Active is not checked), any updates performed will not be pushed to dcTrack. Upon re-enabling integration users must save the updated records individually to trigger the push to dcTrack.

For assistance configuring the dcTrack CMDB Connector or the Sunbird DCIM Connector in ServiceNow, please contact Sunbird Technical Support at tech@sunbirddcim.com or via the Sunbird Support Portal.

Item List For Integrated Items

Two additional columns are available on the Item Details List, "Valid" and "Reconciled". These columns are not included in the default system view, but they may be selected for viewing by clicking the Show/Hide Columns icon located at the far right of the Item Detail grid.



These columns are only applicable to Integrated Items. They are set when an Item is added to dcTrack via Integration. The table below illustrates the conditions for setting these values.

Case	Valid	Reconciled	Comments
1. Exact match on every field	Yes	Yes	If dcTrack is able to validate every field with an exact match. The record is successfully added to dcTrack and no further action is required on the Item.
2. Best Match	Yes	No	If dcTrack is able to validate every field however a Best Match was used for one or more fields. The record must be reviewed and Reconciled by the User.
3. Invalid Data	No	No	If dcTrack could not validate one or more field values and could not find a Best Match, or a required field value is missing. The record must be corrected and then Reconciled.

Item Details for Integrated items

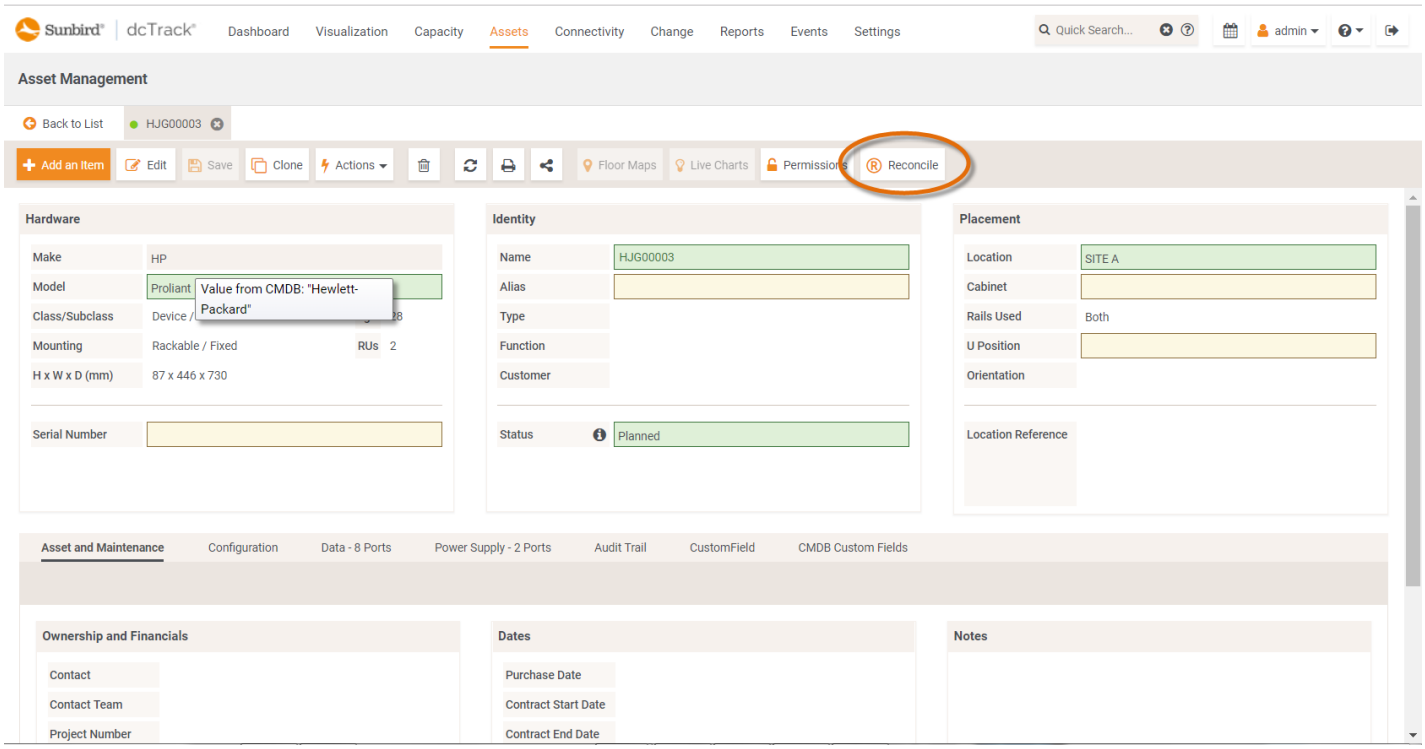
For Integrated Items that are in a "Valid" / "Reconciled" state, the item Detail page will look like any other Item. For Items that are in an "Invalid" or "Not Reconciled" state, field highlighting is used to reflect the condition of each field.

Fields highlighted Green indicate the value in the dcTrack field is an exact match with the value supplied by the integrated system.

Fields highlighted Yellow indicate dcTrack did not find a value that matches the value supplied by the integrated system exactly, but has suggested a value that is a likely match.

Fields highlighted Red indicate dcTrack was either not able to find an Exact or Best match, or the field supplied by the integrated system was blank.

Hovering over any field will display the original value supplied by the integrated system. Red highlighted fields must be corrected and saved before any further processing can occur on the Item. Yellow highlighted fields should be reviewed to ensure dcTrack's suggested value is acceptable.



Since the dcTrack Class field is optional and does not have to be mapped in the cmdb config. When pushing data to dcTrack, the following rules are applied:

1. Any Time the mapped Model exists on dcTrack, the Class will be derived from the Model
2. If the Model does not exist but the mapped Class is a valid dcTrack Class, an Incomplete record will be created using the mapped Class..
3. If the Model does not exist and the Class is either invalid or not mapped at all, an incomplete record will be created and its Class will default to "Device". When the record is corrected its Class will be updated to the Class of the specified Model.

Note: There will be some cases where the Model used to correct the record is of a Class that can not be changed from "Device". The Model used to correct the record in these cases must be one of Data Panel, Rack PDU or Probe. If the model used to update the record is not one these Classes the record will have to be deleted, the information corrected and pushed to dcTrack again.

Reconciling Valid Integrated Items

After correcting any red highlighted fields and reviewing any yellow highlighted fields, the final step is to Reconcile the Item. Reconciling indicates you have verified the field values and acknowledge the data is correct. The Reconcile button is not displayed for Items that are in a " Valid"/"Reconciled" state, and is disabled for "Invalid" Items. Once an Item has been Reconciled, all field highlighting is removed.

Note: As indicated above, processing is prohibited on "Invalid" Items. While processing is allowed on Items that are in a "Valid"/"Not Reconciled" state, it is not recommended.

Steps to Reconcile

1. Open the Item in the Item Details page.
2. If the Item is "Invalid", click the Edit button to allow editing and correct the data.
3. After the data has been corrected, click Save to save your changes.
    - Note: If the Item is "Valid" but not yet "Reconciled" you can skip steps 2 and 3.
4. Once the Item is successfully saved, the Reconcile button will become enabled.
5. Click the Reconcile button (this will enable the Save button).
6. Click the Save button to complete the transaction.

Disabled Fields

For Items integrated with CMDB, fields where "cmdb" is defined as the System of Record at the field level are disabled on the Asset Detail page. Updates to these fields must be performed from the CMDB application. This includes both Standard and Custom fields.

Note: Fields that inherit "cmdb" from the Default System of Record in the Preferences section of the CMDB configuration file are not disabled.

Integrate with BMC Remedy ServiceNow Jira and Other Ticketing Systems

dcTrack Ticketing Connectors allows data to be exchanged between dcTrack and any other Ticketing application that provides public REST APIs. The dcTrack Ticketing Connectors provide the ability to create Tickets on the external application which can be inserted automatically on dcTrack, as well as creating Tickets on dcTrack and automatically generating the Ticket on the external application. All Ticketing Connectors also support bi-directional updates with the ability to specify whether the data in each field is owned by dcTrack, the external system or both.

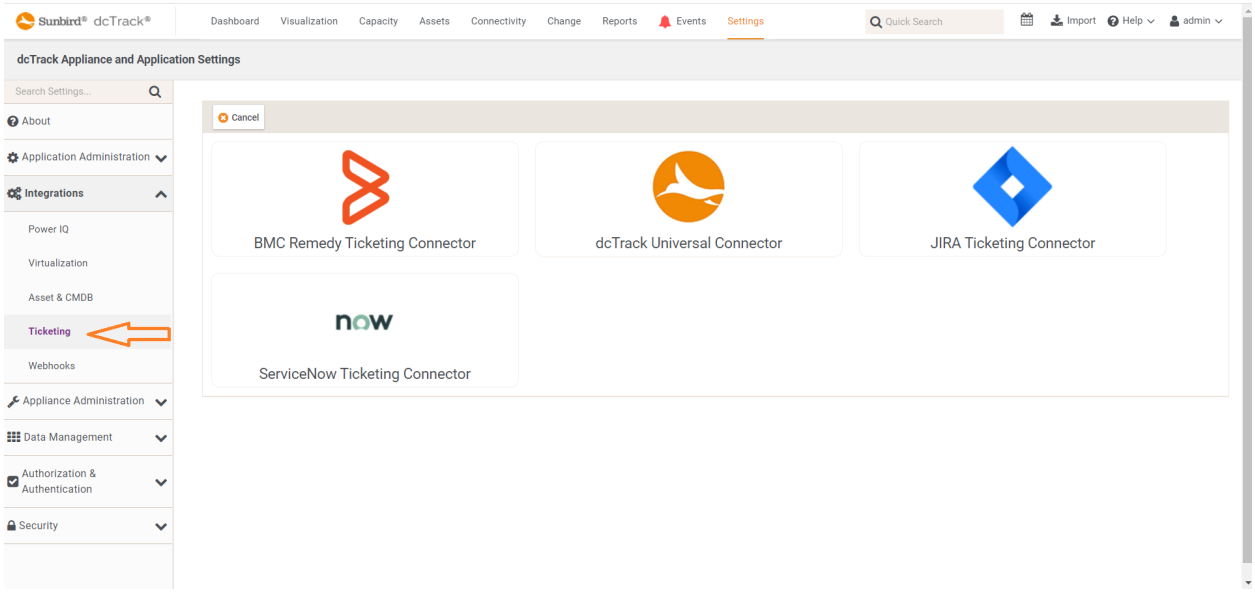
If you are integrating with ServiceNow, you must install the enhanced Sunbird DCIM connector (v1.1.0) available from the ServiceNow App Store. This new version is designed to manage both Assets and Tickets and can be configured to integrate a single ServiceNow instance with multiple dcTracks. For additional information on configuring the Connector on ServiceNow, please see Configuring the Sunbird Connector in ServiceNow.

System Administrators can configure Ticketing Connectors under the Settings > dcTrack Settings > Integrations > Ticketing.

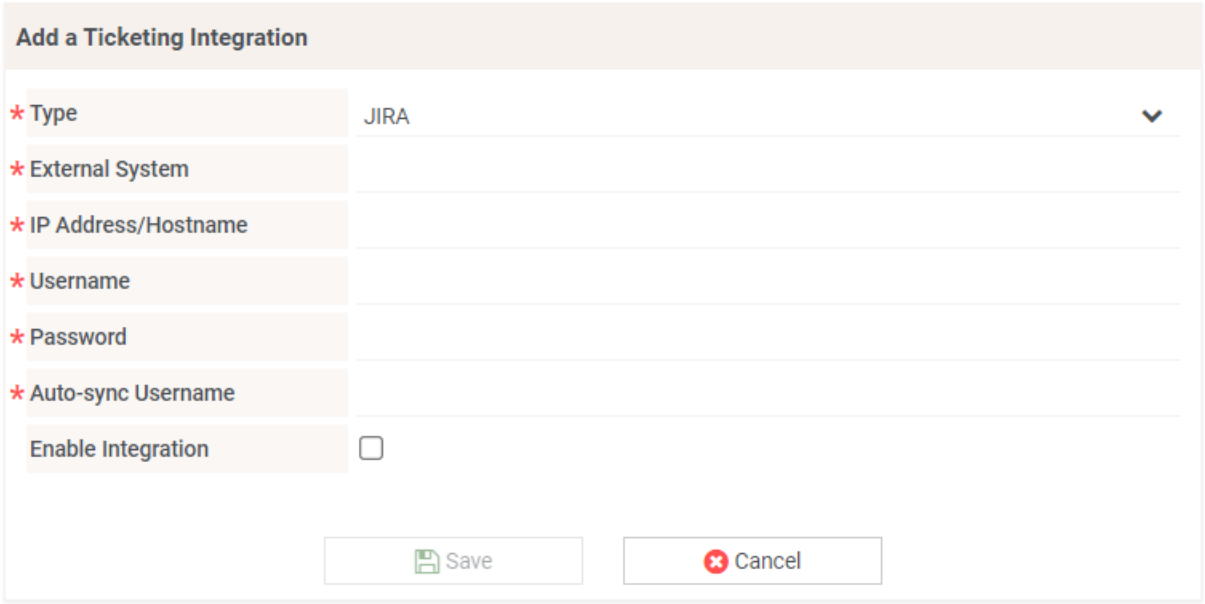
Note: You must perform the following steps in each dcTrack instance you wish to integrate.

To configure the Ticketing Connector:

1. Navigate to Settings > dcTrack Settings > Integrations > Ticketing
2. Click the "Add" button to View the Gallery of available Connectors



3. Select the desired Connector from the Gallery. This will open the Add a Ticketing Integration dialog.



4. Provide the data for the following fields:
    a. Type: The Application you are integrating with. This will be automatically populated based on the connector selected from the gallery, but can be changed in this dialog.
    b. External System: The name used to identify this connector. (Required)
    c. IP Address/Hostname: The IP Address or Hostname that should be used to establish a connection to the Ticketing application. (Required)
    d. Username: A valid user name for the Service Account on the Ticketing application to be used for authentication and Audit tracking on the external system. (Required)
    e. Password: The password associated with the Service Account in the previous field. (Required)
    f. Auto-sync Username: The valid login name of the dcTrack Service Account that will be used when logging audit records generated as a result of a pull operation on dcTrack. The minimum role required by this user is Gatekeeper. (Required)
5. Check the Enable Integration checkbox. When enabled, items will be integrated between dcTrack and the Ticketing database based on the Field Mappings and Filters specified in the configuration XML.
6. Click the Save button to save your settings. This will open the Configuration section of the page.
7. In the Configuration section of the page, enter the appropriate XML required to make the API calls. This XML is used to define the field and value mappings, filters, and any other rules required to manage the data exchange between dcTrack and the external application.
    a. You can upload an existing XML file, by clicking the Load from File button and using the browser dialog to select the XML file.
    b. You can enter the XML directly into the provided text box.
    c. To save the XML to a local file, click the Save to File button.

5. To test the connection between dcTrack and the remote server using the information supplied on the screen click the Test Connection button.
6. Click the Save icon to save the configuration. If any of the required fields are not completed, the Save button will not be enabled.

   Note: This option is only enabled if all required fields have been supplied, including the .xml file.
7. If you are integrating with ServiceNow, you must also configure the Sunbird DCIM Connector on your ServiceNow instance. Please see the help on **Configuring the DCIM Connector in ServiceNow** for additional instructions.

Note: If integration is disabled, updates performed on dcTrack will not be pushed to the external application. Upon re-enabling integration users must save the updated records individually to trigger the push.

For more detailed instructions on Integrating dcTrack with Ticketing applications, please refer to the Steps to Configure the Ticketing Connector on dcTrack guide.

For assistance configuring the dcTrack Ticketing Connector or the Sunbird DCIM Connector in ServiceNow, please contact Sunbird Technical Support at tech@sunbirddcim.com or via the Sunbird Support Portal.

Using the VMware Connector to Manage Virtual Machines

The VMware Connector in dcTrack helps users need identify and track server resources supporting VMware virtual machines. It leverages the vSphere SDK API to enable the discovery of your virtualized environment by dcTrack, including clusters, hosts, and VMs.

VMware is the system of record for integrated clusters, hosts and VMs, and synchronizing with the VM Manager will update dcTrack to reflect any changes in VMware. dcTrack also retains the history and audit log of changes.

To use the VMware Connector to manage VMs:

- Define VM Managers in dcTrack by provisioning a vCenter server or ESXi host. See **Provisioning a vCenter Server or ESXi Host**.
- Associate One or More VM Managers with Locations. See **Associating One or More VM Managers with a Location**.
- Sync your VM Managers with dcTrack using VMware Inventory Sync. See **VMware Inventory Sync**.

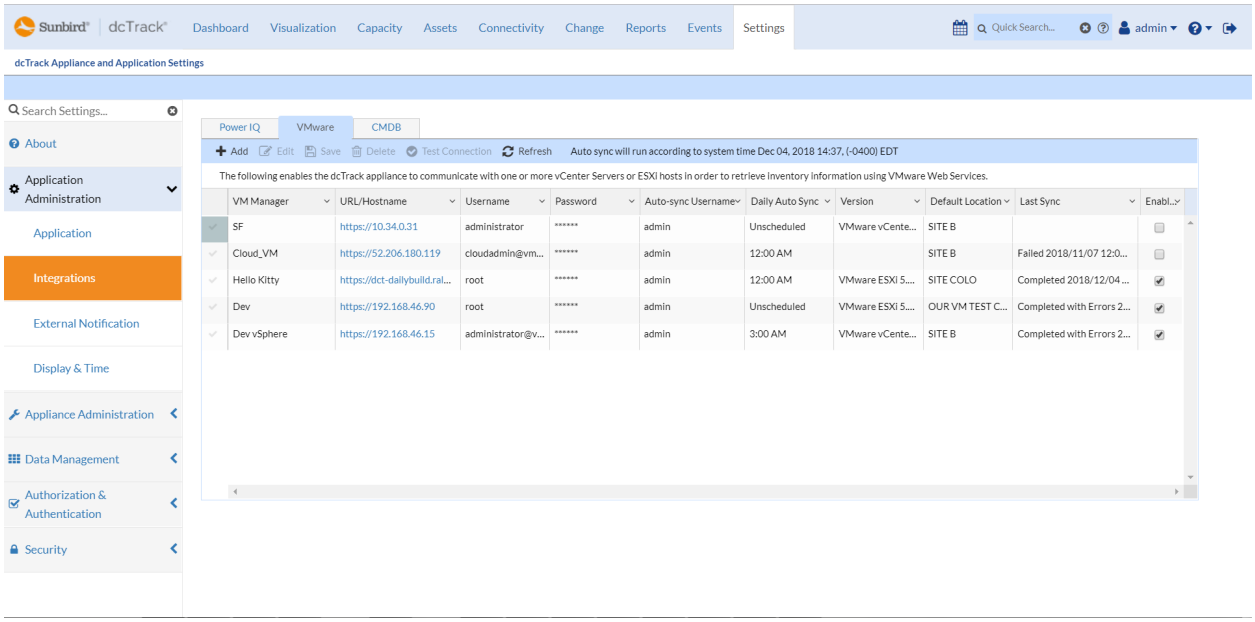
When your dcTrack database is synced to a VM Manager, you're able to view the VM Manager integration status and other virtualization attributes, such as CPU and RAM, on the Item Details pages for virtual assets.

To make it faster and easier to keep the dcTrack database updated, System Administrators can schedule a daily automatic sync. Data can also be synced on demand.

Note: If a host is not associated with a vm manager dcTrack allows users to manually maintain the list of related virtual machines/clusters. Once integrated with a vm manager, it can only be done via the integration and users will no longer be allowed to make those changes manually.

Provisioning a vCenter Server or ESXi Host

To integrate dcTrack with one or more vCenter servers or ESXi hosts, you first need to define the vCenter Servers or ESXi hosts in dcTrack. The list of associated vCenter servers and ESXi hosts can be found under the Settings tab > dcTrack Settings > Application Administration Integration > VMware sub-tab.



The VMware sub-tab displays the following information:

- VM Manager Name: Name of the VM Manager.
- URL/Hostname: The IP address or hostname of the VM Manager.
- Username: The username for accessing the VM Manager.
- Password: The password associated with the username for accessing the VM Manager.
- Autosync Username: A valid dcTrack username with the System Administrator role or above. Used for logging changes in the audit log and for role-based access control.
- Daily Auto Sync: When scheduled, will display the daily time when the auto-sync action will be run. By default, this is unscheduled.
- Version: Automatically populates with the version of the vCenter server or ESXi host.
- Default Location: Single-select dropdown list of locations the VM Manager is associated with so you can select the default location of the VM Manager.
- Last Sync: Provides the status, date, and time of the last sync action.
- Enable Integration: Check/uncheck the Enable Integration checkbox to enable integration.

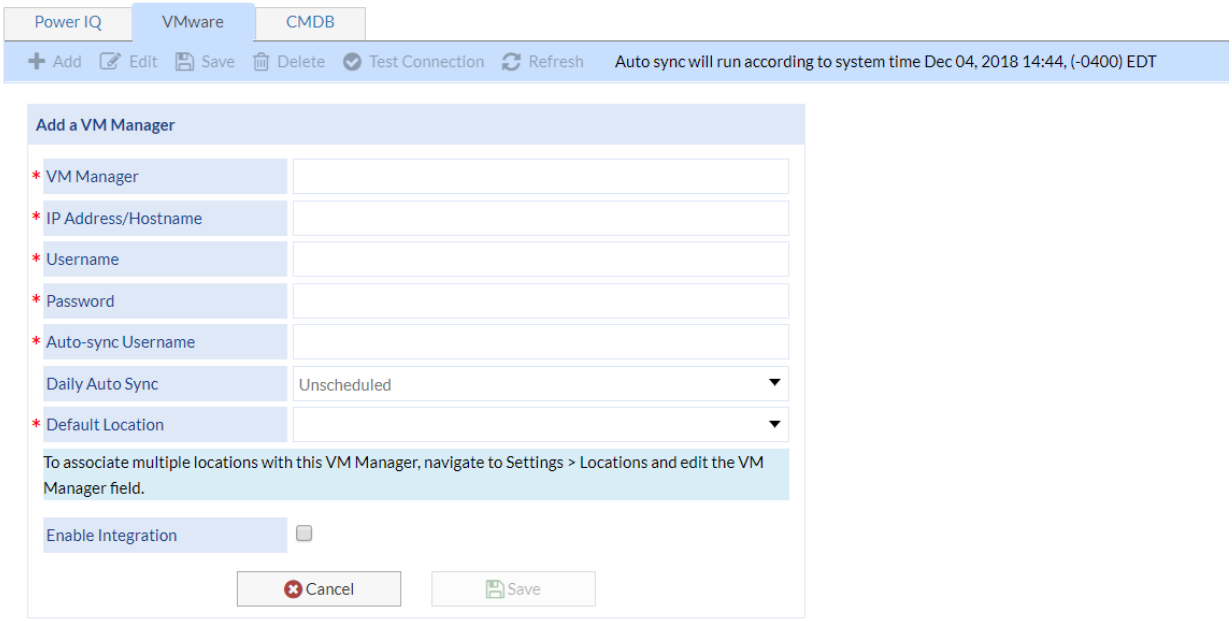
Defining a VM Manager

To define a vCenter server or ESXi host as a VM Manager:

1. Click the Settings tab > dcTrack Settings > Application Administration > Integration Settings > VMware sub-tab.
2. In the VMware sub-tab, click the Add button to add a VM Manager (vCenter Server or ESXi host).
3. Provide the following information:

    a. VM Manager Name: Name of the VM Manager. Required.
    b. URL/Hostname: The IP address or hostname of the VM Manager. Required.
    c. Username: The username for accessing the VM Manager. Required.
    d. Password: The password associated with the username for accessing the VM Manager. Required.
    e. Autosync Username: A valid dcTrack username with the System Administrator role or above. Used for logging changes in the audit log and for role-based access control. Required.
    f. Daily Auto Sync: When scheduled, will display the daily time when the auto-sync action will be run. By default, this is unscheduled. Click in the Daily Auto Sync cell to specify the time when you want the sync to run each day.
    g. Version: The version of the vCenter server or ESXi host.
    h. Default Location: Single-select dropdown of all locations with assets. When selected, it will display the default location of the VM Manager. Required.
    i. Last Sync: Provides the status, date, and time of the last sync action.
    j. Enable Integration: Check/uncheck the Enable Integration checkbox to enable integration.

4. Click the Save button to save your new VM Manager and return to the list of VM Managers.



Editing a VM Manager

To make changes to the VM Manager attributes:

1. Click the cell in the list of VM Managers that you want to edit.
2. Make your desired changes.

3. Click the Save button to save your changes.

Alternatively, view the VM Manager Details in Edit mode:

1. From the list of VM Managers, select the VM Manager you want to edit.
2. Click the Edit icon to enter Edit mode.
3. Make your desired changes.
4. Click the Save button to save your changes.

Deleting a VM Manager

To delete a VM Manager from the list of VM Managers:

1. From the list of VM Managers, select the VM Manager you want to delete.
2. Click the Delete button.

The VM Manager will be removed from the list.

Note: You can only delete one VM Manager at a time.

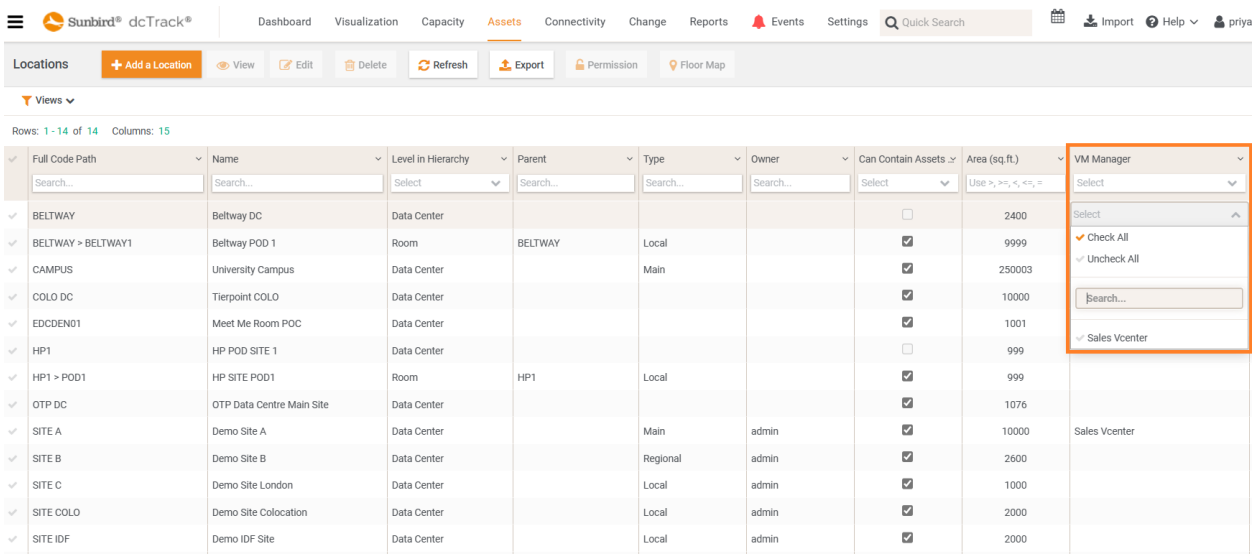
Associating One or More VM Managers with a Location

To enable dcTrack to be synchronized with your virtualization environment, you must associate at least one VM Manager with a Location in dcTrack.

System Administrators can associate a VM Manager with a Location under the Assets tab > Locations page.

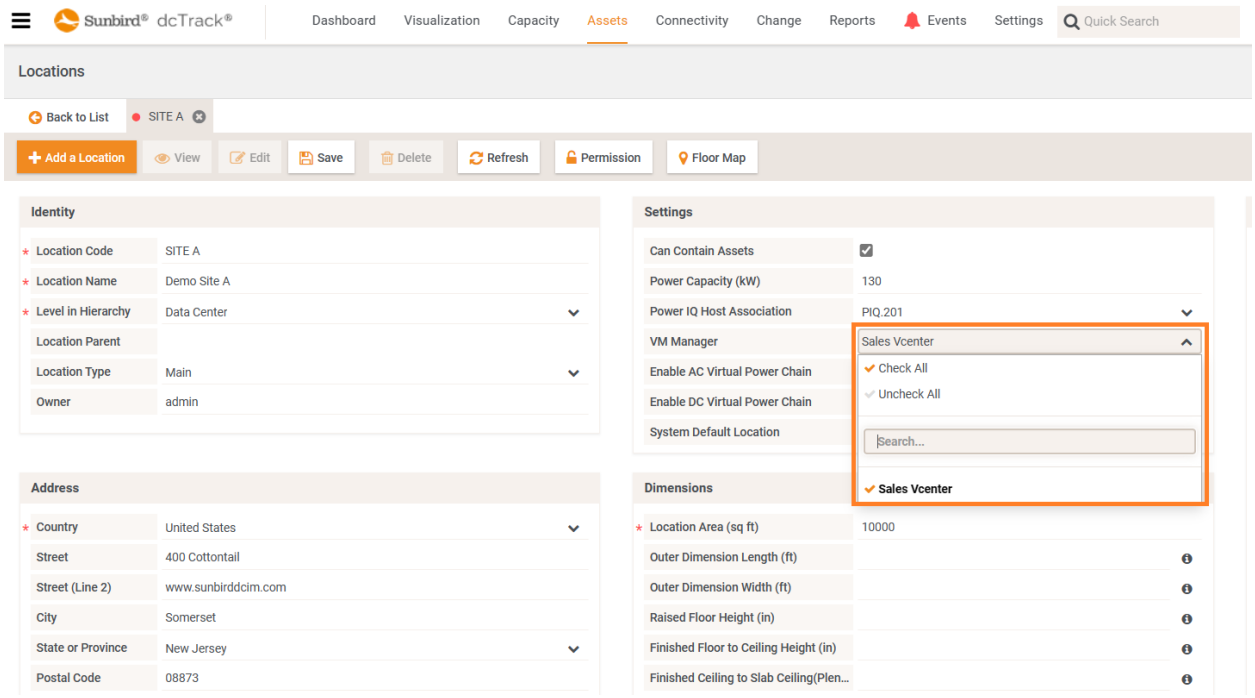
To associate a VM Manager with a Location in the Locations list:

1. In the Asset tab > Locations list, click the VM Manager cell for the Location you want to associate the VM Manager with.
2. Select your desired VM Manager from the dropdown. You can select more than one VM Manager per Location.



Alternatively, you can select a VM Manager on the Location Details page:

1. In the Asset tab > Locations list, select a Location.
2. Click the Edit link to open the Location Details page in Edit mode.
3. In the Settings panel, select your desired VM Manager from the VM Manager dropdown.

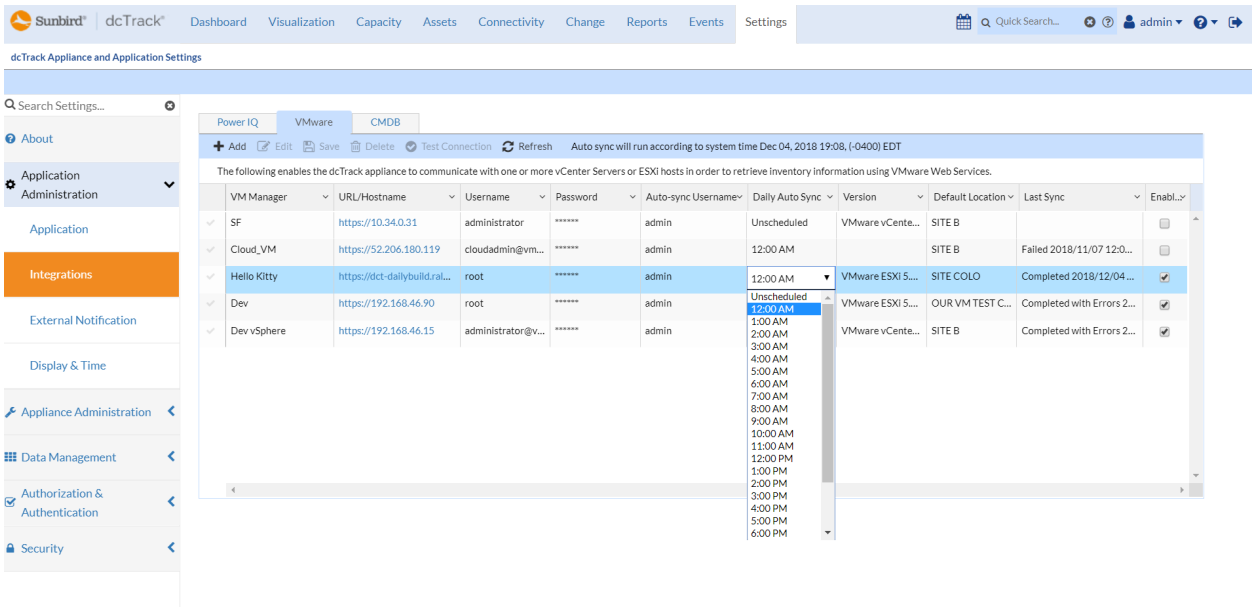


Scheduling a Daily Automatic Sync

System Administrators can schedule an automatic daily sync to keep their dcTrack databases up to date, without initiating a manual on-demand sync.

A daily sync can be scheduled for each VM Manager in the Settings tab > dcTrack Settings > Application Administration > Integrations > VMware sub-tab.

The daily sync must be scheduled for a specific VM Manager in order for the sync to occur. System Administrators can specify the hour when the sync for that VM Manager's entire asset inventory takes place by clicking the Daily Auto Sync dropdown. If the VM Manager's daily sync is set to Unscheduled, no daily sync occurs.



Locations of Assets Added During the Daily Auto-Sync

At that time, all assets managed by the VM Manager would be either updated or added. This action is independent of the default location; however, all newly discovered hosts will be added in the default location. Newly discovered VMs would be added in the same location as the associated VM host. Clusters are added without a location. The time is based on the local time zone as specified in the Appliance Settings page.

Scheduling a Daily Auto-Sync When Creating a New VM Manager

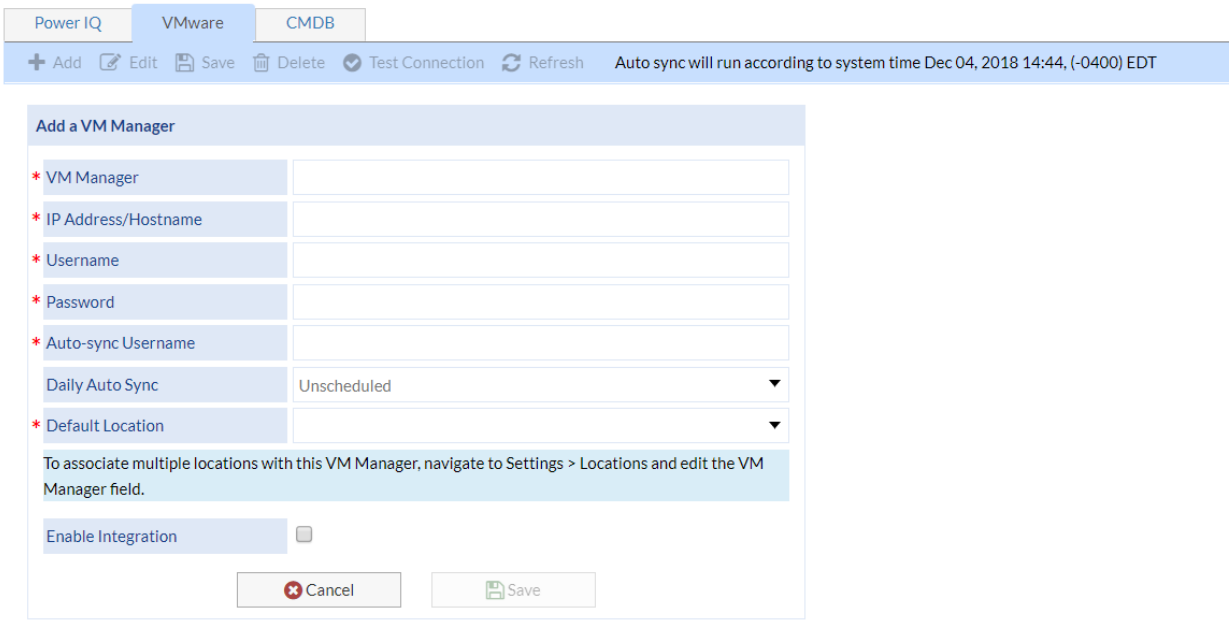
To schedule a daily auto-sync when creating a new VM Manager:

1. Click the Settings tab > dcTrack Settings > Application Administration > Integration Settings > VMware sub-tab.
2. In the VMware sub-tab, click the Add button to add a VM Manager (vCenter Server or ESXi host).
3. Provide the following information:

    a. VM Manager Name: Name of the VM Manager. Required.
    b. URL/Hostname: The IP address or hostname of the VM Manager. Required.
    c. Username: The username for accessing the VM Manager. Required.
    d. Password: The password associated with the username for accessing the VM Manager. Required.
    e. Autosync Username: A valid dcTrack username with the System Administrator role or above. Used for logging changes in the audit log and for role-based access control. Required.
    f. Daily Auto Sync: When scheduled, will display the daily time when the auto-sync action will be run. By default, this is unscheduled. Click in the Daily Auto Sync cell to specify the time when you want the sync to run each day.
    g. Version: The version of the vCenter server or ESXi host.
    h. Default Location: Single-select dropdown of all locations with assets. When selected, it will display the default location of the VM Manager. Required.

i. Last Sync: Provides the status, date, and time of the last sync action.
j. Enable Integration: Check/uncheck the Enable Integration checkbox to enable integration.

4. Click the Save button to save your new VM Manager and return to the list of VM Managers.



Scheduling a Daily Auto-Sync for an Existing VM Manager

To schedule a daily auto-sync for an existing VM Manager:

1. Click the Settings tab > dcTrack Settings > Application Administration > Integration Settings > VMware sub-tab.
2. Click in the Daily Auto Sync cell to specify from the dropdown the time when you want the sync to run each day.
3. Click the Save button to save your changes.

Alternatively, view the VM Manager Details in Edit mode:

1. Click the Settings tab > dcTrack Settings > Application Administration > Integration Settings > VMware sub-tab.
2. From the list of VM Managers, select the VM Manager you want to edit.
3. Click the Edit icon to enter Edit mode.
4. In the Daily Auto Sync field, specify from the dropdown the time when you want the sync to run each day.
5. Click the Save button to save your changes.

Unscheduling a Daily Auto-Sync

To unschedule a daily auto-sync, specify the Unscheduled option from the Daily Auto Sync dropdown:

1. Click the Settings tab > dcTrack Settings > Application Administration > Integration Settings > VMware sub-tab.
2. Click in the Daily Auto Sync cell to specify the Unscheduled option from the dropdown.
3. Click the Save button to save your changes.

Alternatively, view the VM Manager Details in Edit mode:

1. Click the Settings tab > dcTrack Settings > Application Administration > Integration Settings > VMware sub-tab.
2. From the list of VM Managers, select the VM Manager you want to edit.
3. Click the Edit icon to enter Edit mode.
4. In the Daily Auto Sync field, specify the Unscheduled option from the dropdown.
5. Click the Save button to save your changes.

VM Manager Sync Status

The status of the last sync, its date, and its time are captured in the Last Sync column in the VM Managers list in the VMware sub-tab. The VM Manager Status Update Date in the Assets tab > Items List also provides the date and time of the last status update.

Possible last sync statuses include:

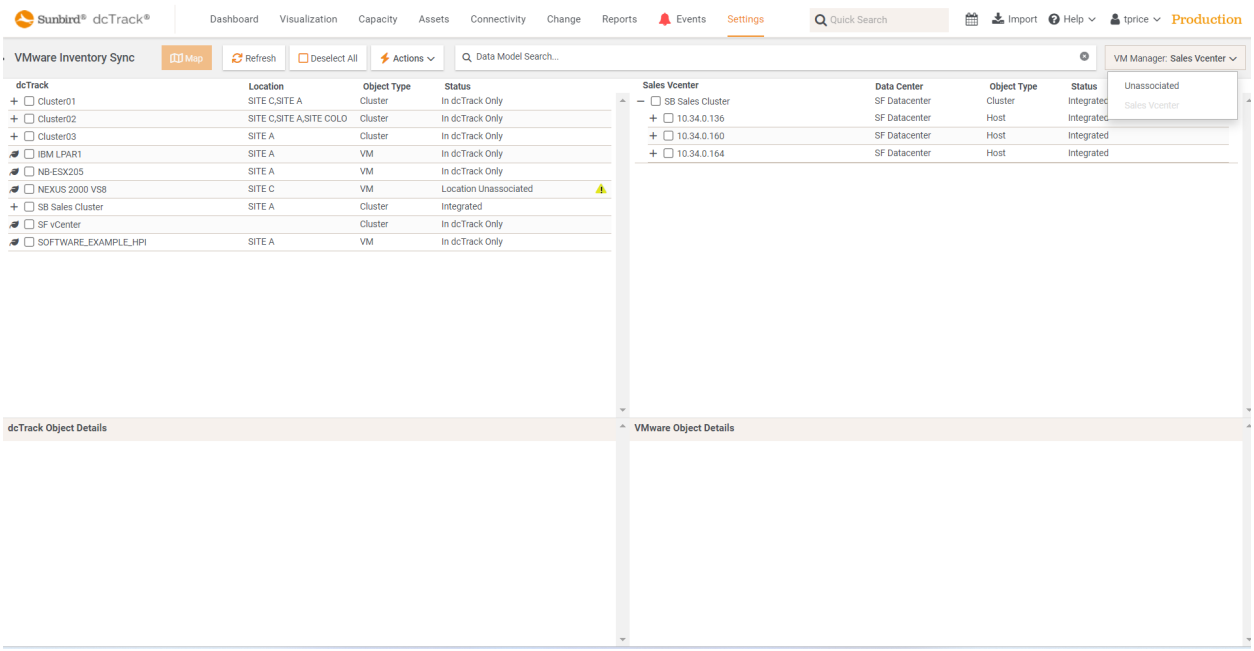
- Success: Sync completed successfully
- Failure: dcTrack could not connect to the VM Manager, experienced a database issue, or other issue that prevented the sync from completing successfully
- Completed with Errors: Sync completed with issues with syncing individual assets

More details are displayed in a tooltip when hovering over the status on the VM Managers list in the VMware sub-tab.

VMware Inventory Sync

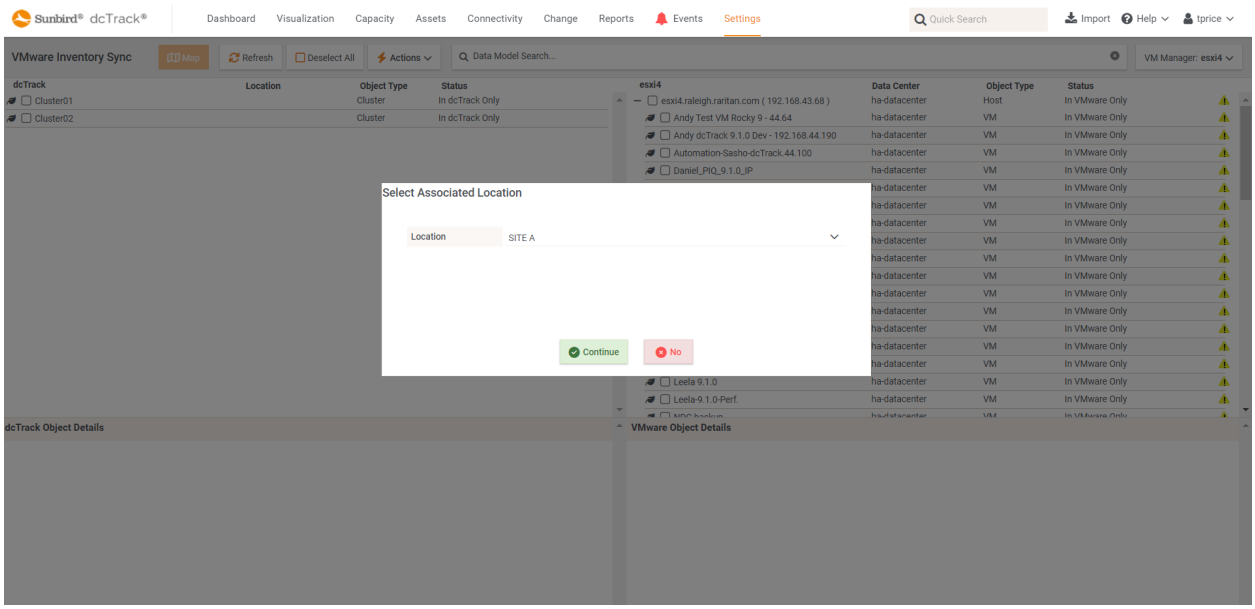
Once the VM manager is associated, you can sync its associated hosts, clusters, and VMs with dcTrack.

Access the VMware Inventory Sync page under Settings > VMware Inventory Sync. Objects in dcTrack display on the left in a tree view, and clusters, hosts, and VMs in the VM manager display on the right. Select the VM Manager that you would like to sync using the VM Manager dropdown in the right corner.

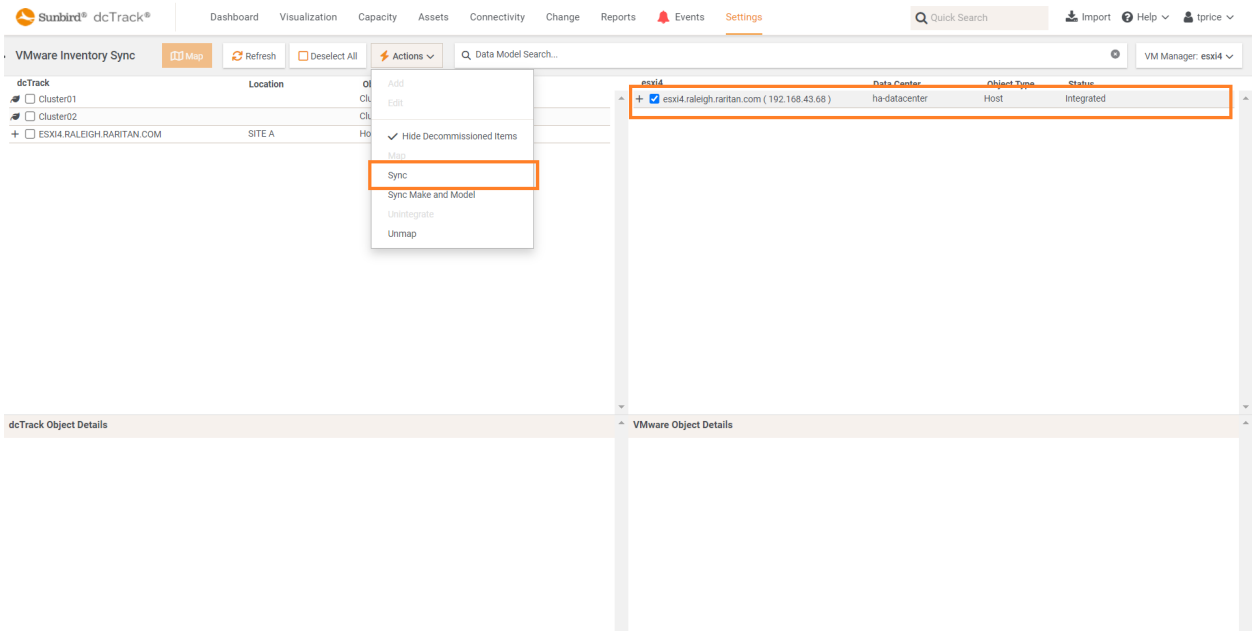


To sync a cluster, host, or VM with dcTrack, check the box(es) next to your desired objects. Then click the Actions menu > Sync.

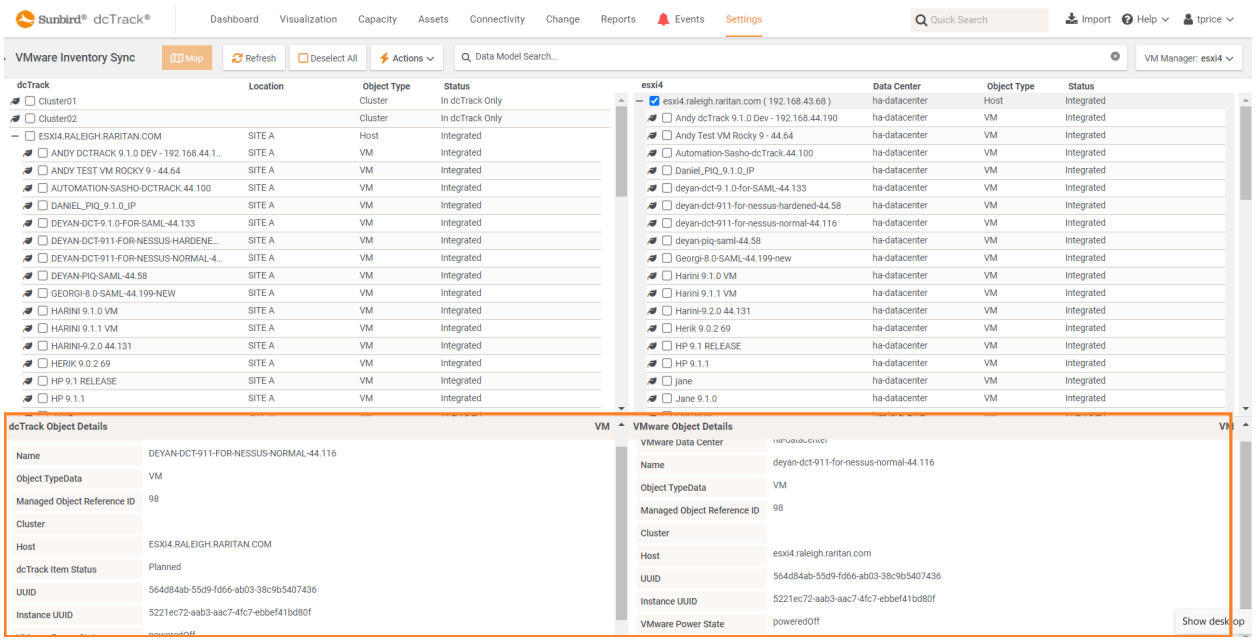
If the selected VM Manager is associated with more than one location, a popup will display prompting you to select the location where newly discovered assets will be stored. By default, the default location will be selected.



Note: If there are newly discovered makes and models not currently in the Models Library that need to be matched or added, the wizard to map/add these new makes and models will display.



The objects will populate in dcTrack, and that status of the objects in VMware will update accordingly. When an item is selected, its object details will display in the bottom left or right panel respectively.



The best practice for doing all adds and deletes via the VM infrastructure and then running the sync tool in dcTrack.

When a VM move between Hosts and Clusters within the same VM Manager, dcTrack is during the next sync. However if VM move between different VM Manager, dcTrack will not be updated, potentially requiring manual intervention to prevent duplicate items in dcTrack.

Note: When the VMware connector reports a "soap failure", it means the error originated from VMware and as such needs to be addressed by working with your VM team to troubleshoot the problem.

VMware Inventory Sync Actions

The following actions are supported by VMware Inventory Sync.

Action	Description
Add	Add an item to dcTrack from VMware.
Map	Associate an item in dcTrack to an item in VMware.
Unmap	Remove the association of an item in dcTrack from an item in VMware.
Sync	Update one or more items in dcTrack that are currently associated with VMware. Can be at any point in hierarchy to include all child objects.
Sync Make and Model	Allows the user to match/add newly discovered makes and models for the items that have been added to dcTrack. Will display a popup with the wizard to map/add models.
Unintegrate	Breaks the integration with the VM manager. The status for the selected node and its child nodes will become "In dcTrack Only".
Edit	Edit an item has been discovered in VMware and added to dcTrack. The item configuration in dcTrack is incomplete due to unknown location, make or model. Can also be done in bulk by exporting items “Added via VMware”

Note: Clusters, hosts, and VMs can also be added via item import/export.

VMware Inventory Sync Statuses

The following statuses are supported by VMware Inventory Sync:

Status	Description
Integrated	Items in dcTrack and VMware have consistent attributes and placement in hierarchy.
In VMware Only	Item does not have an associated asset in dcTrack.
In dcTrack Only	Item does not have an associated asset in VMware.
Unmapped	Item has been intentionally isolated to VMware to prevent its being added to dcTrack.
Added via VMware	Item has been discovered in VMware and added to dcTrack. The item configuration in dcTrack is incomplete due to unknown location, make or model.
Incorrect Parent in dcTrack	Item is currently associated with a different containing object in dcTrack, e.g. host is associated with an unknown cluster.
Not Found in VM Manager	Item is in dcTrack but was not found in VMware.
Location Unassociated	The VM Manager has not yet been associated to one or more locations. Go to the Assets tab > Locations and associate the VM Manager (such as VMware ESX or vCenter Server) with a location. This will enable dcTrack to be synchronized with the virtualization environment.

Initiating an On-Demand Sync from an Item Details Page

Once a VM Manager has been provisioned, associated with a location, and synced through VMware Inventory Sync, users with the appropriate permissions can initiate an on-demand sync from the Configuration sub-tab of the Item Details pages of virtual assets of the Device class and Virtual Machine subclass.

To initiate a sync for an associated VM Cluster:

1. From the Item Details page, click the Edit button to enter Edit mode.
2. Click the Configuration sub-tab.
3. Click the Sync VM Cluster button.

To initiate a sync for an associated VM Host:

1. From the Item Details page, click the Edit button to enter Edit mode.
2. Click the Configuration sub-tab.
3. Click the Sync VM Host button.

The sync progress bar will display along the bottom of the page, and a notification popup will indicate if the sync has been completed successfully.

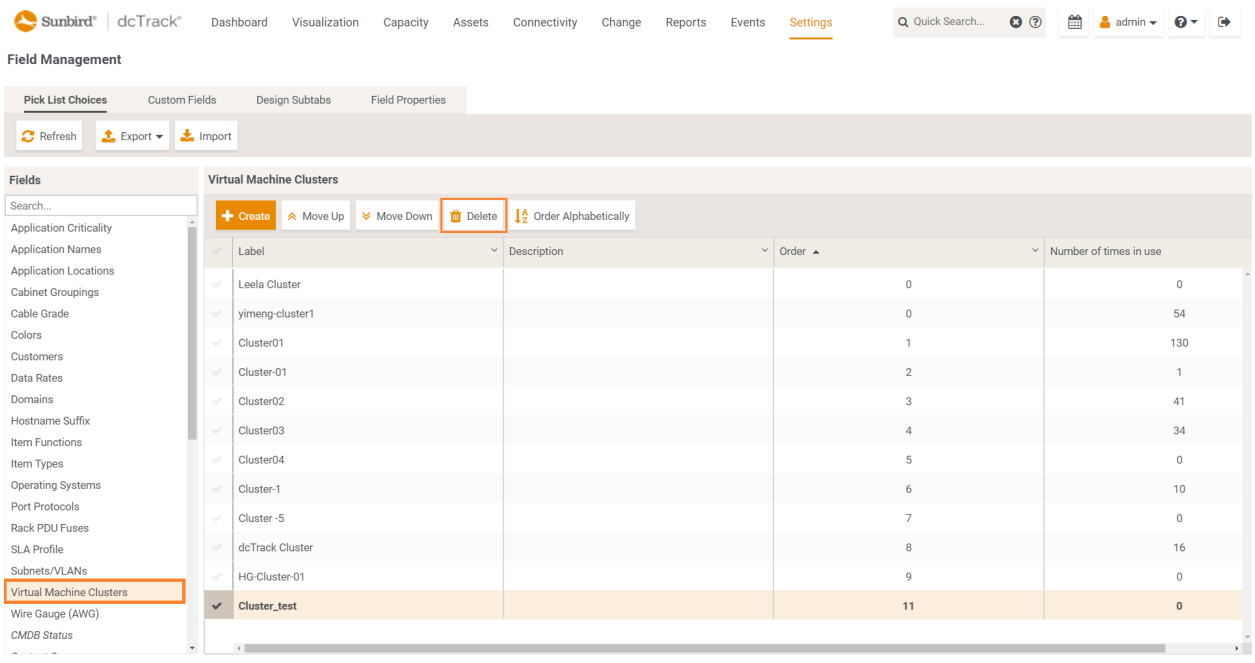
Note: For the sync to occur, the virtual asset must have a VM cluster or VM host defined in the Configuration sub-tab and it must be integrated with a VM Manager. Otherwise, the Sync VM buttons will be disabled.

Deleting VMWare Cluster from dcTrack

Deleting a VMware Cluster from dcTrack

To delete a VMware cluster from dcTrack:

1. Make sure the cluster is empty
2. Go to Setings > Field Management > Pick List Choices
3. Select Virtual Maching Cluster from the Field List
4. Select the cluster you want to delete and click the Delete button



Note: If the VMWare cluster has VMs or VM Hosts associated, the cluster can not be deleted

Steps To Integrate dcTrack and VMWare

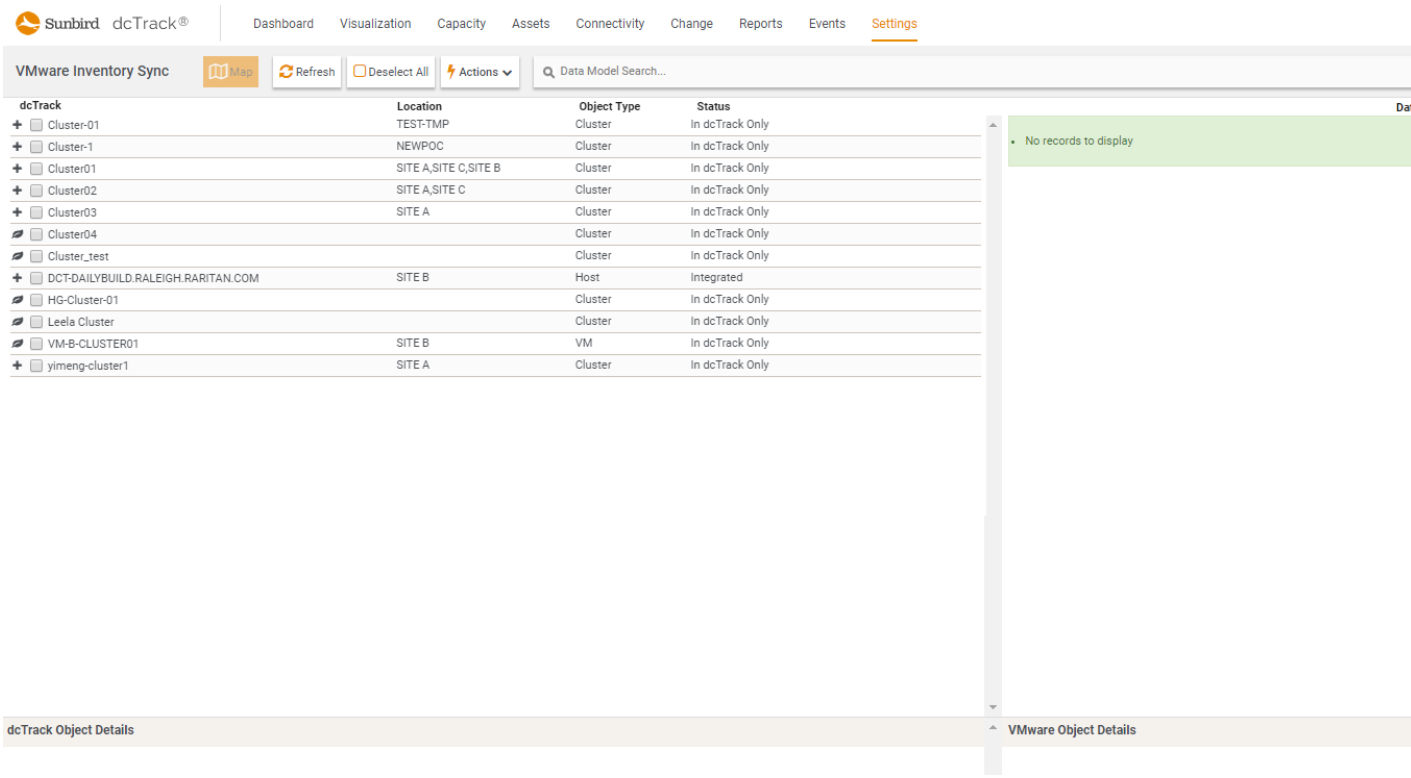
For specific instructions on how to integrate dcTrack and VMWare please refer to the documentation below that best describes your installation:

Integration with VMWare when VM Hosts exist in dcTrack

Integration with VMWare when VM Hosts do not exist in dcTrack

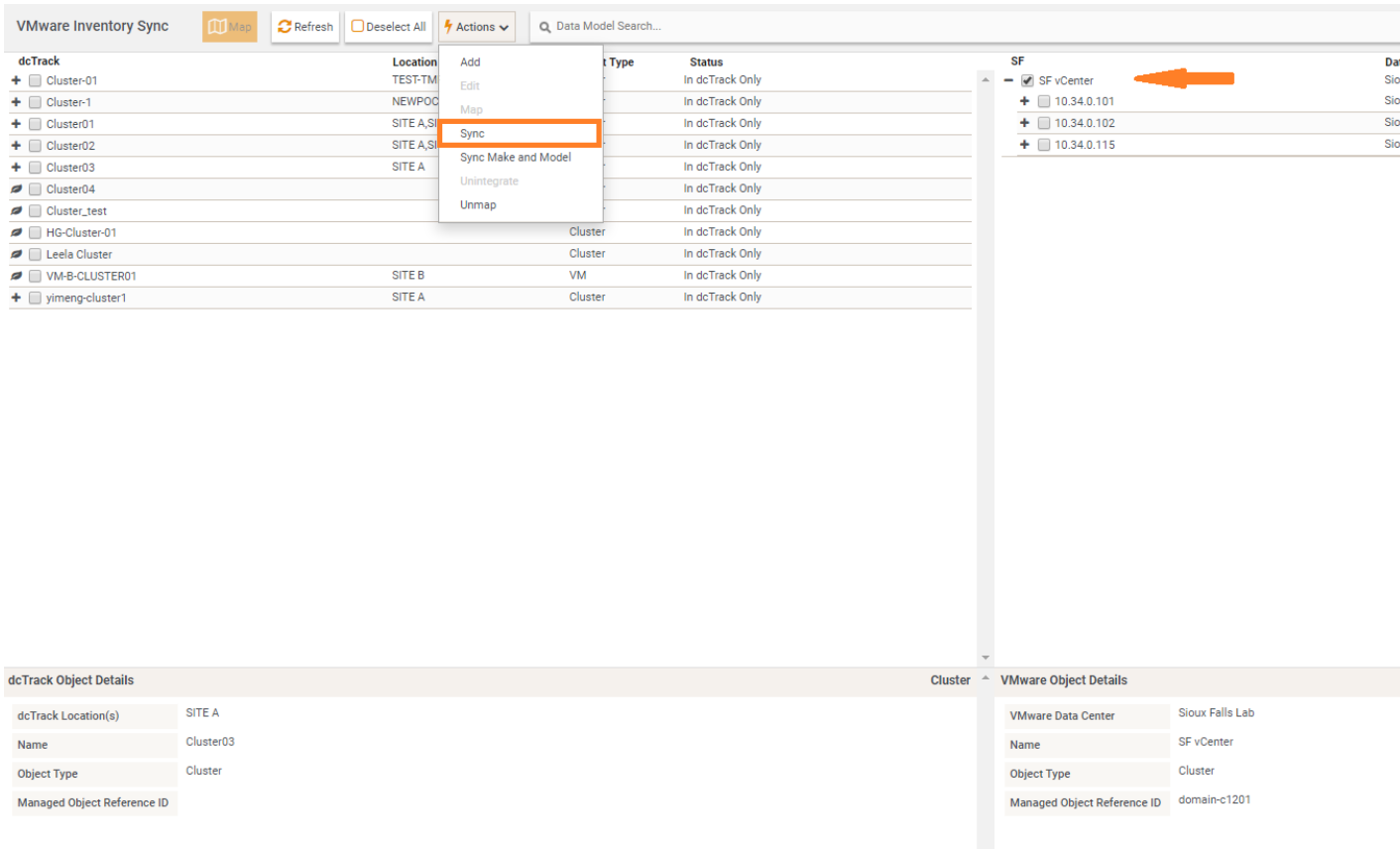
Integration with VMWare when VM Hosts do not exist in dcTrack

1. Navigate to Settings > VMWare Inventory Sync page
2. Select the vCenter from the VM Manager drop down



3. The VMWare data is loaded in the Right side panel. Since this data does not yet exist in dcTrack, all of the objects will have a status of "In VMWare Only".
4. Select the highest object in the hierarchy (usually a cluster) from the Right side panel.

5. Click on the Action Menu and select the Sync option

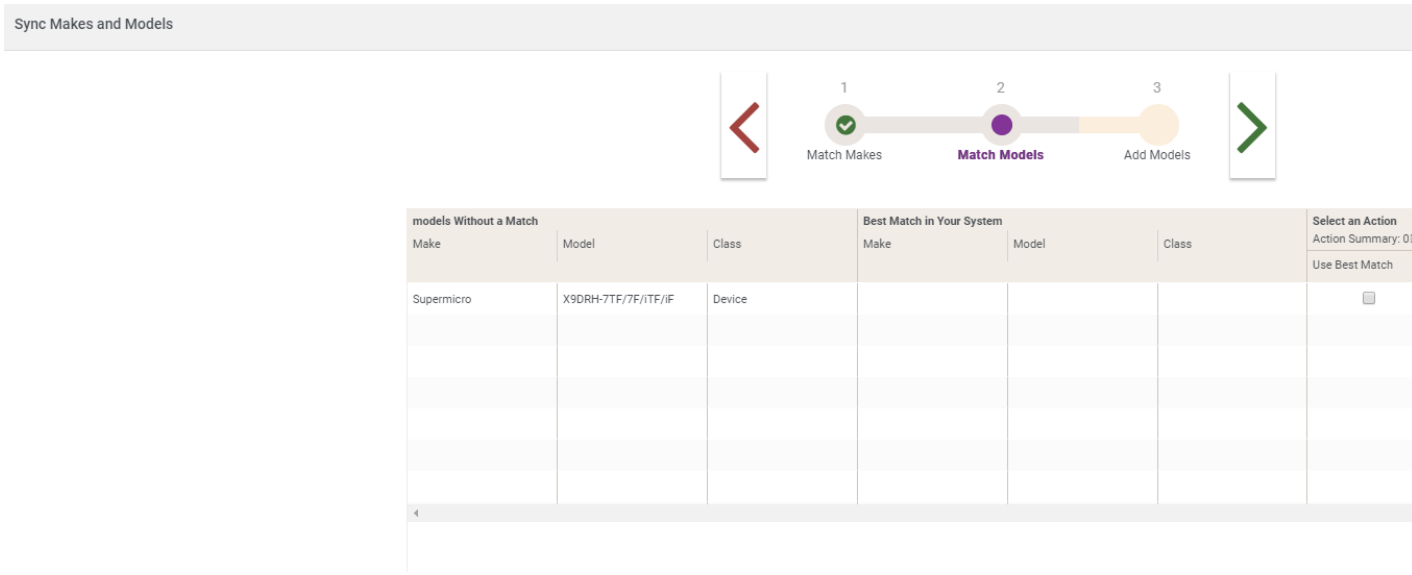


If there is more than one Cluster in your VMWare environment, you will have to perform a separate sync for each cluster.

If there are no Clusters in your VMWare environment and the highest object in the hierarchy is Host, perform the Sync function for each host.

6. The Sync Make and Model Wizard will be launched if there are VM Hosts with unknown Makes or Models. You will be presented with the best possible match in dcTrack for each unknown Make or Model. You can either use the suggested Best Match, Add the Make or Model, or skip the item completely by selcting the cor-

responding check box in the Select an Action column.



For more information on the Sync Make and Model Wizard see Matching or Adding Makes and Models with the Sync Make and Model Wizard.

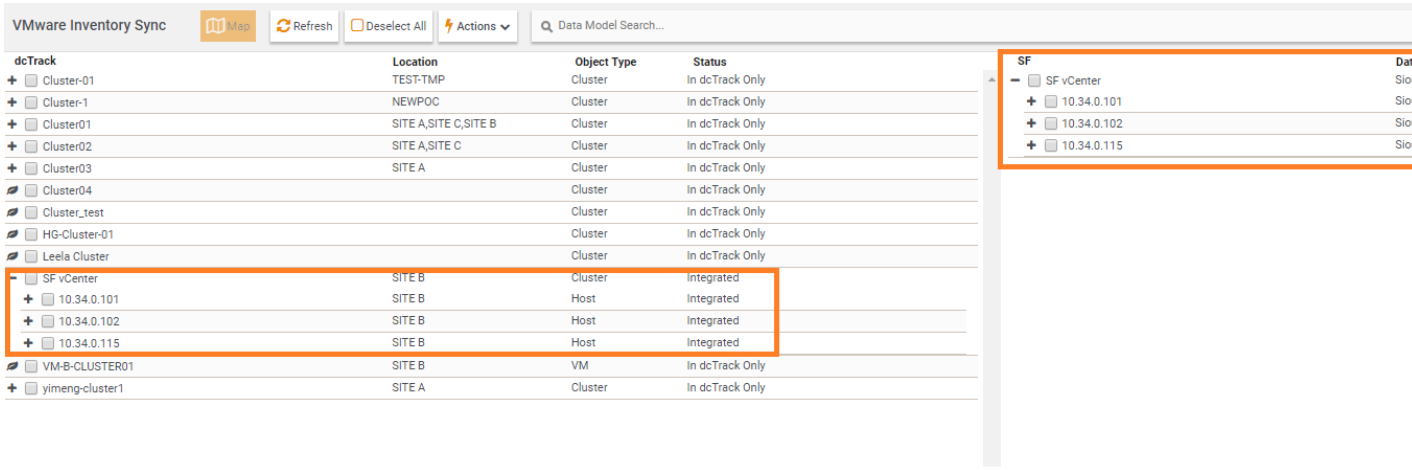
7. Once you have matched or added the Makes and Models, click on the green arrow in the Wizard progress bar to proceed.

   Note: If there are no unkown Makes and Models, the Sync Make and Model wizard is not displayed and the Sync process will begin.

8. You will be redirected to the VMWare Inventory Sync page and the process will begin. You can monitor the progress of the operation via the progress bar displayed at the bottom of the page. A message is displayed once the process is complete.

   Note: While the Sync is in progress, the buttons on the tool bar are disabled to prohibit any other Sync actions, however you may continue to perform other activities within dcTrack.

9. Once the Sync operation is completed successfully, the left and right panels will be refreshed and display the dcTrack and VMware data. The status of each sync'd object is now Integrated.



10. Once a parent object is sync'd all of its children objects are also sync'd.

Note: If a host is not associated with a vm manager dcTrack allows users to manually maintain the list of related virtual machines/clusters. Once integrated with a vm manager, it can only be done via the integration and users will no longer be allowed to make those changes manually.

Integration with VMWare when VM Hosts exist in dcTrack

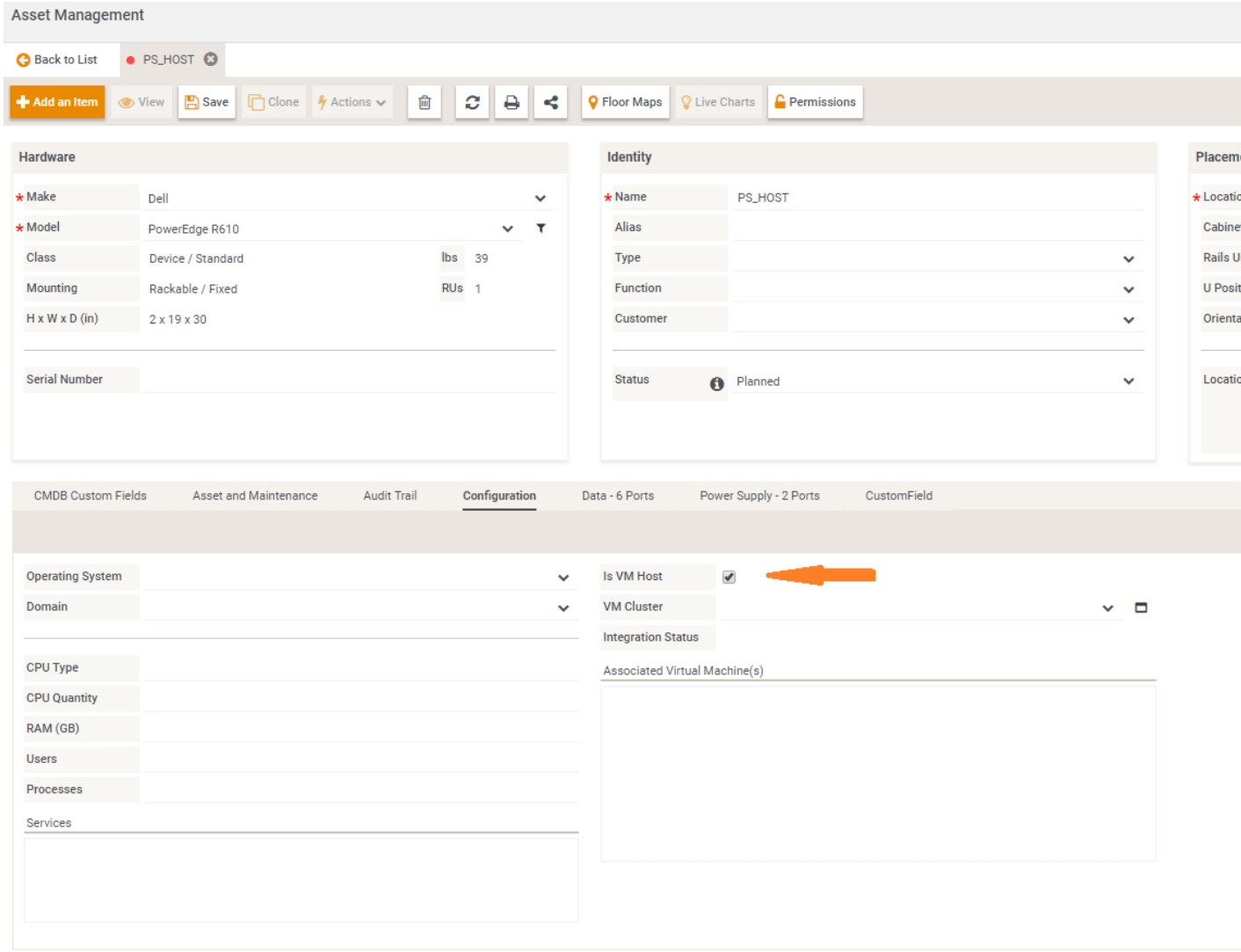
You can integrate existing dcTrack hosts to VMWare hosts by performing the Map action on the VMWare Inventory Sync page.

Before performing the Map, verify the hosts in dcTrack are marked as VM Hosts so they will appear as candidate hosts on the VMWare Inventory Sync page and therefore eligible for mapping.

In dcTrack Items belonging to the Device/Standard and Device/Blade classes can be marked as VM Hosts.

Steps to mark an Item as a VM Host

1. Navigate to the Items Detail page for the device
2. On the Configuration tab, select the Is VM Host check box

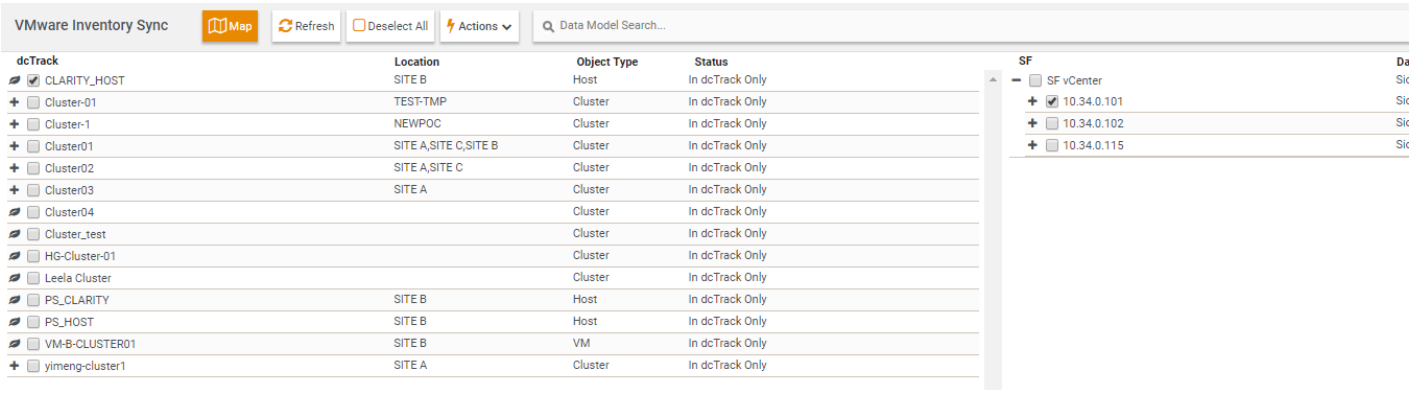


3. Click the Save button on the tool bar to save the item.

Once a device is marked as a VM Host, it will appear on the dcTrack left side panel on the VMWare Inventory Sync page and can be mapped to a host in VMWare.

Steps to Map a dcTrack host to a VMWare host

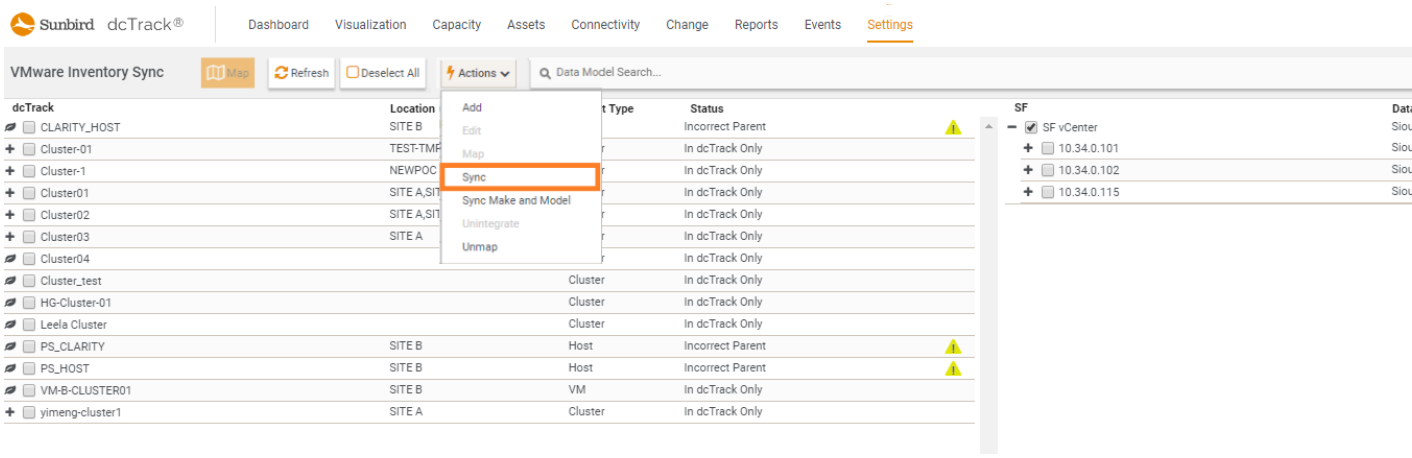
1. Navigate to Settings > VMWare Inventory Sync
2. Select the VM Manager from the VM Manager drop down list in the top right corner of the page. Since the objects in VMWare do not yet exist in dcTrack, their status will appear as In VMWare Only.
3. Select the dcTrack host from the left panel and the VMWare host from the right panel that you wish to Map and click the Map button on the tool bar.



4. Repeat step 3 for each VM host you wish to integrate.

If the hosts are associated with a Cluster in VMWare and the cluster does not exist in dcTrack, the status of the mapped hosts will appear as Incorrect Parent. The status of these hosts will be changed to Integrated when you sync the VMWare cluster, which will automatically add the cluster to dcTrack.

5. If the mapped hosts in VMWare are associated with a cluster, select the cluster and do a sync.



Once the sync operation is complete, the cluster is added and all the virtual machines that are associated with that host are pushed to dcTrack.

If the mapped hosts in VMware are not associated with a cluster you can either sync each host one at a time or schedule an auto sync for that VM manager. Scheduling auto sync will integrate the hosts that are mapped and change the status to integrated.

Note: If a host is not associated with a vm manager dcTrack allows users to manually maintain the list of related virtual machines/clusters. Once integrated with a vm manager, it can only be done via the integration and users will no longer be allowed to make those changes manually.

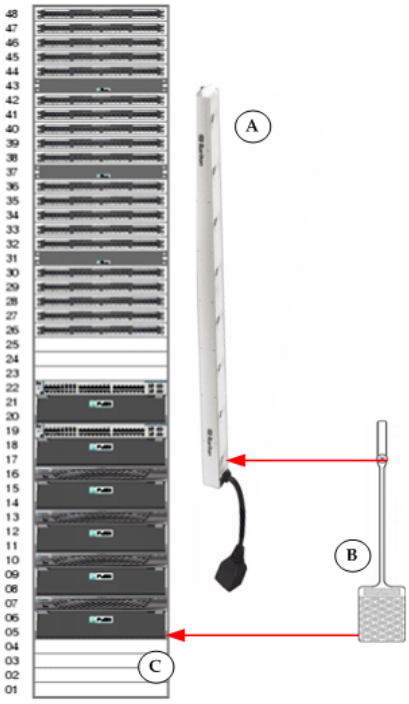
Integrate dcTrack with Asset Management Sensors

Asset Management Sensors and dcTrack

You can remotely track the locations of up to 64 IT devices in a rack via asset sensors that are connected to either a Sunbird EMX or PX2.

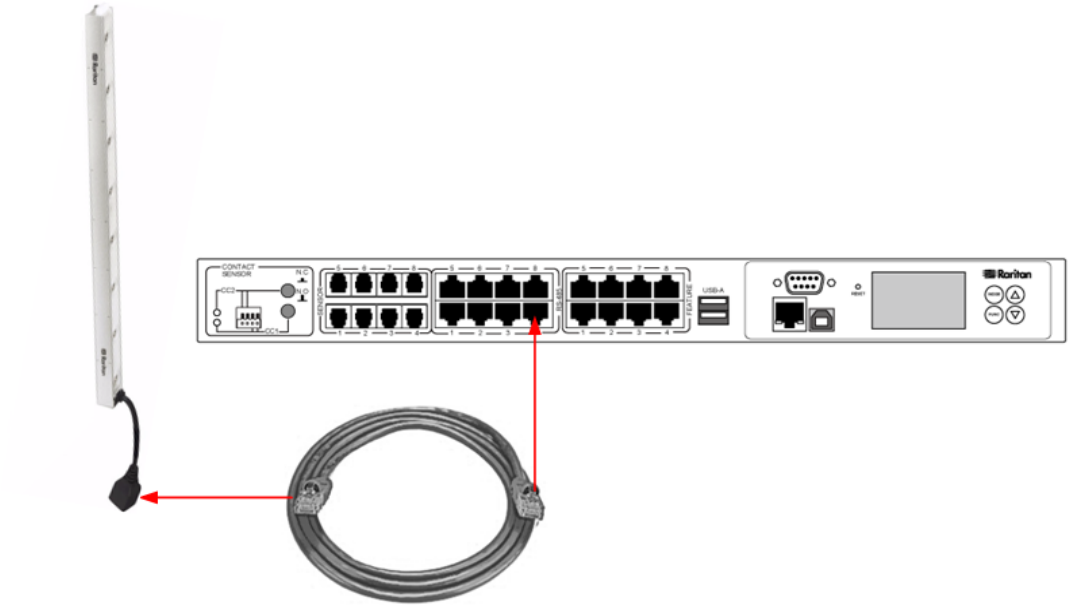
The IT devices being track are tagged with asset tags.

The asset tags use electronic IDs to identify IT device items. One end of the tag is adhered to an item and the other is plugged in to the asset sensor.



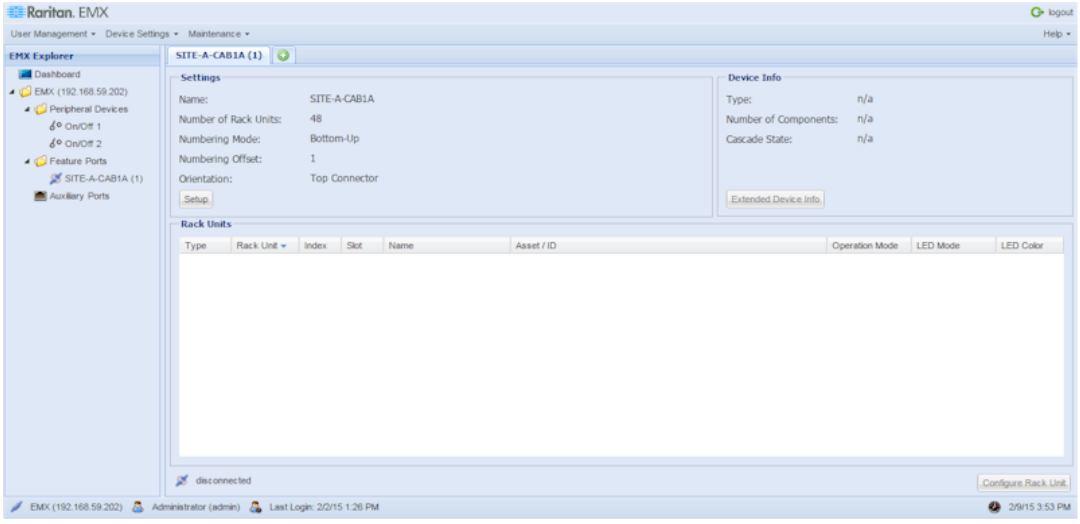
A	Asset sensor
B	Asset tag(s) for the IT device(s)
C	IT device item in a rack

The asset sensors are connected to a EMX or PX2 and configured in them.



Note: This image depicts a connection to an EMX-888 for example purposes only.

Once asset sensors are connected and configured, they transmit the asset tag ID and positioning information to the EMX or PX2.



You can add each item an asset tag is attached to dcTrack, and add the EMX or PX2 to dcTrack. If you provide SNMP information for the EMX or PX2, event information can be transmitted to dcTrack. Specifically, Power IQ detects when an asset tag is connected or disconnected from an asset strip. Power IQ then generates an connect or disconnect event.

When dcTrack polls Power IQ, the connect/disconnect events are pulled into dcTrack.

The events are displayed on the Events page in the dcTrack Web Client. For a list of the events that are monitored, see **Asset Management Sensor Event Information**.

To poll and display asset management events in dcTrack -

- The EMX or PX2 that the asset sensor is connected to must exist in dcTrack.

EMX devices are identified as probes in dcTrack; PX2 devices are identified as sensors.

- Each item connected to the asset strip via an asset tag must exist in dcTrack.

You do not need to manually enter the asset tag IDs for items that already exist in dcTrack as long as the items are in an Installed status.

Simply, plug the item's asset tag in to an asset management strip that is connected to an EMX or PX2 that exists in dcTrack. dcTrack automatically assigns the asset tag ID to the existing item.

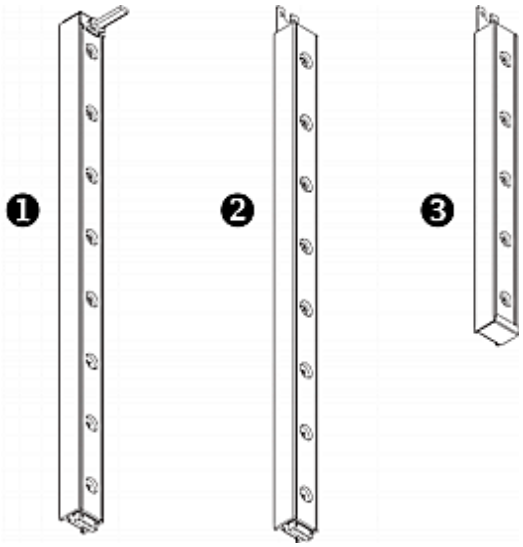
Note: If needed, the asset tag number can be overwritten.

For more details on dcTrack as well as how asset sensors work with dcTrack, contact Sunbird Professional Services and Support from the http://support.sunbirddcim.com.

Combine the Asset Sensors

If you are just beginning to use asset management sensors and have not already done so, combine the asset sensors.

Note: The following diagram illustrates some asset sensors. Note that Sunbird provides more types of asset sensors than the diagram.



Number	Item
1	8U Primary asset sensor with 8 tag ports

Number	Item
❷	8U Extension asset sensor with 8 tag ports
❸	5U "ending" Extension asset sensor with 5 tag ports

Connect Asset Management Sensors to the EMX

Connect the asset management sensor(s) to the EMX or PX2. See EMX Help or PX2 Help for details.

If you are daisy chaining asset management sensors, review Daisy-Chain Limitations of Composite Asset Sensors in EMX Help or PX2 Help.

Add the EMX or PX2 to dcTrack

Before asset sensors can be managed in dcTrack:

- They must be configured in EMX or PX2
- The EMX needs to be added to dcTrack as a probe item or the PX2 must be added as a sensor item
- The item the asset management tag is adhered to must exist in dcTrack

Note: dcTrack does not support asset management blade extension strips.

Add a single EMX or PX2 manually using the Create New Item feature.

If you have a large number of EMX or PX2 devices to add, consider using cloning or the File Import.

Add the Asset Management Tagged Items to dcTrack

If the items the asset management tags are attached to do not exist in dcTrack already, create them.

Add a single manually using the Create New Item feature.

If you have a large number of items to add, consider using cloning or the File Import.

View Asset Sensor Event Information in dcTrack

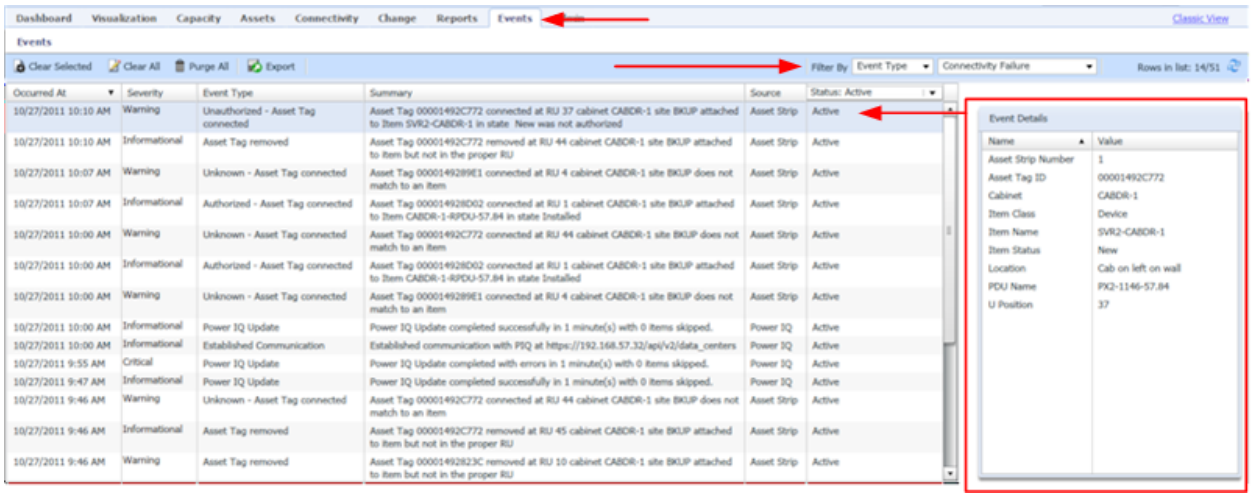
Asset sensor event information is available on the Events page in dcTrack.

In the dcTrack Web Client, select click the Events tab to open the Event page.

Use filters such as:

- Filter by Event Type = Connectivity Failure
- Filter by Source = Asset Strip

Click on a specific event in the list and the event's details are displayed in the Event Detail box on the right side of the page.



Asset Management Sensor Event Information

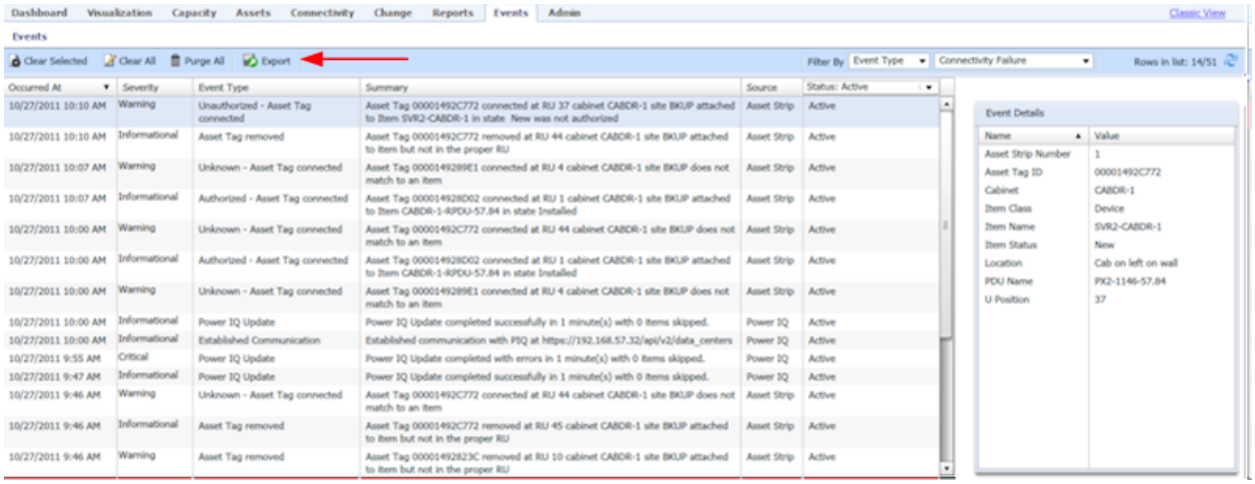
The following asset sensor management event information is captured on the Events page in the dcTrack Web Client.

Tip: Use filters to view asset sensor events.

Event	Description
Authorized - Asset Tag connected	An authorized asset tag that is attached to a device is plugged in to the correct plug on the asset sensor. It is in an Installed status and attached to the device it is expected to be attached to.
Unauthorized - Asset Tag connected	An asset tag that is attached to an item and plugged in to an asset sensor is detected. However, it is not authorized to be added because it is not marked as Approved in the dcTrack Change Control workflow.
Asset tag removed	Indicates the asset tag is unplugged from the asset sensor.
Unknown - Asset Tag connected	dcTrack found that the asset tag ID is not attached to the expected item, or that the tag was originally assigned to one item and is now assigned to a new item.

Exporting Asset Management Events

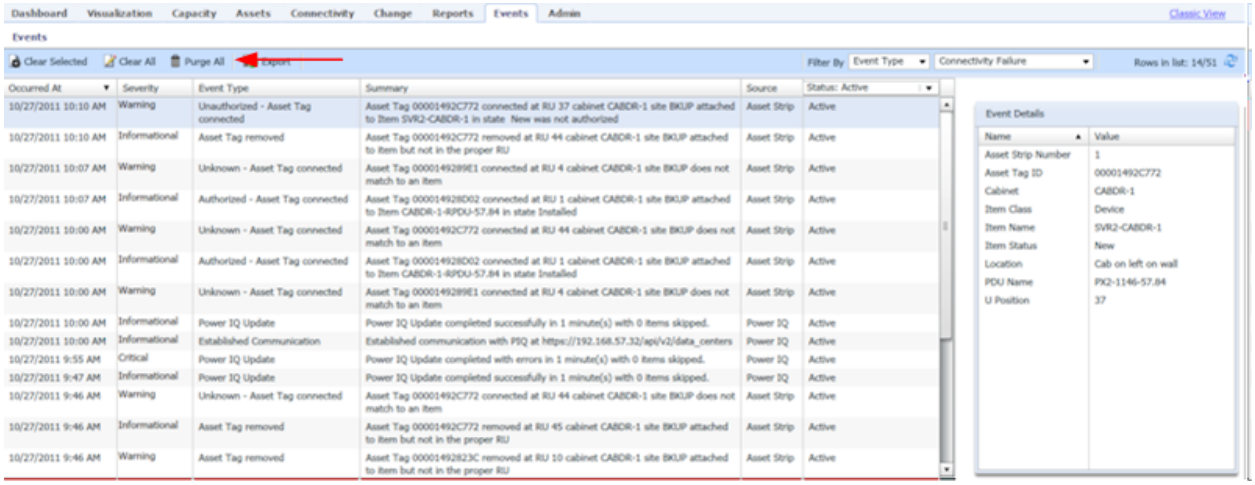
Asset management events can be exported to a .CSV file. For more information, see **Exporting Events**.



For information on specifying a save location, see **How to Specify a Default Save Location for Downloaded Files**.

Purging Asset Management Event Information

Events can be purged if you no longer need to monitor them in dcTrack. For more information, see **Purging Events**.



Unmap Integrated Items using File Import

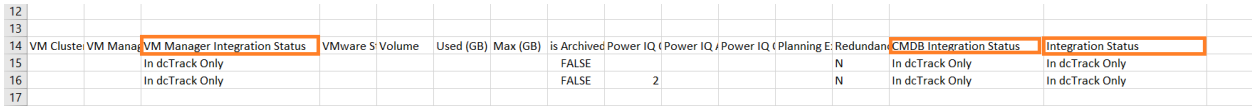
dcTrack version 9.0.0 introduced the ability to Un-map Integrated Items using File Import. This feature is designed to allow users to break the Integration for specific Items without losing the audit trail for the item. This includes CMDB

Integration, Power IQ Integration, and VMware Integration.

Every dcTrack Item has a separate Integration status for each type of supported Integration. To break a specific integration set the associated integration status to "In dcTrack Only".

Steps

1. Export the Items you want to Unmap into an Import Template
2. Edit the column for the Integration Type you want to unlink and set it to "In dcTrack Only".



12														
13														
14	VM Cluste	VM Manag	VM Manager Integration Status	VMware S	Volume	Used (GB)	Max (GB)	is Archived	Power IQ (	Power IQ (	Power IQ (	Planning E	Redundan	CMDB Integration Status	Integration Status
15			In dcTrack Only					FALSE					N	In dcTrack Only	In dcTrack Only
16			In dcTrack Only					FALSE	2				N	In dcTrack Only	In dcTrack Only
17															

3. Re-Import the file.

Note: The only valid values for the Integration Status columns are the Items current Integration Status or "In dcTrack Only".

Chapter 4:Data Export Options in dcTrack

dcTrack provides several export options. This allows you to quickly export data based on your specific needs, such as exporting data to update and re-import, and exporting data for reporting or auditing.

dcTrack 8.2.0 and later will run these exports Asynchronously.

This improvement allows users to continue working without interruption while large files are generated and downloaded. Users can execute multiple exports of different types simultaneously and monitor the progress of each individually. To view the progress of any Export, navigate to the feature where the Export was initiated. If the Export is still running the Export button displays a spinner icon. To view the progress, click the Export button again which opens a message box displaying the number of records processed so far and the number of records remaining.

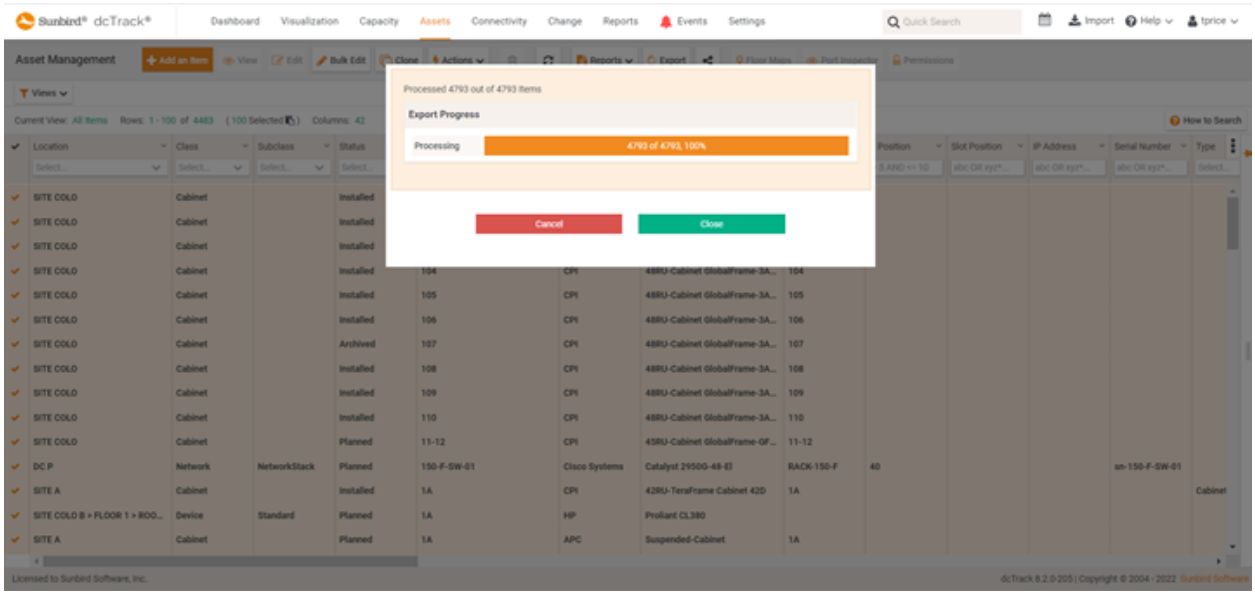
You can run multiple exports for different objects types, however you will not be allowed to start multiple exports for the same object type. For example, you can start a Circuit export while an Item export is still running, but you will not be allowed to start a second Item export.

Please note, logging out of dcTrack or closing your browser will terminate any exports in progress.

Asynchronous export is available from the following locations:

- Asset List
- Circuit List
- Request List
- Work Order List
- Events
- Locations

- Models Library List
- Custom Fields
- Pick List Choices
- Parts Custom Fields
- Parts Pick List Choices
- Parts Library List
- Project List
- Parts List
- Parts Transactions



- Export Data to Import Templates: Use this feature if you want to export data from the Items List in the Web Client to a template. You can then format the template, make changes and reimport it. For details, see **Export Data to Import Templates for Reimporting**.
- Export Data Exactly as Shown: Use this feature to export data from the Assets Items List or Connectivity Circuits List in the Web Client. You can filter and sort data using this feature so only the data you want is included. Use the data for reporting, auditing or reimporting. For details, see **Export Data from the Items List or Circuits List to a .CSV File for Reporting, Auditing and Reimports**.

For information on specifying a save location, see **How to Specify a Default Save Location for Downloaded Files**.

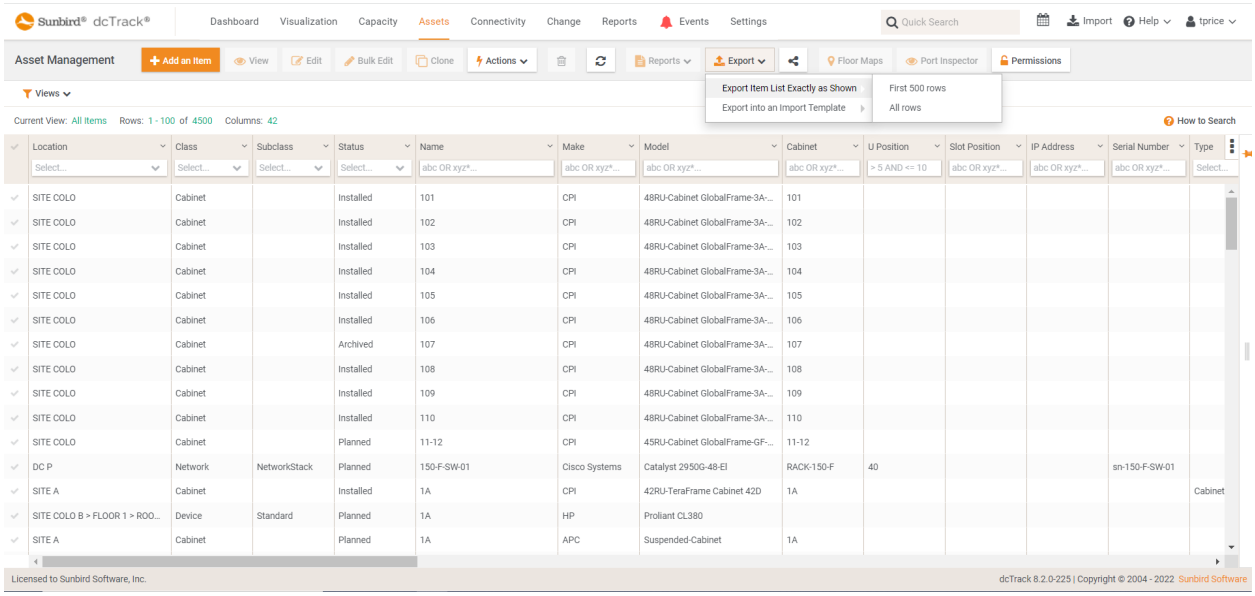
Export Data from the Items List or Circuits List to a .CSV File for Reporting, Auditing and Reimports

dcTrack provides you with the ability to export items and connections from the Items List and Circuits List, respectively. This feature is useful for exporting data to perform bulk changes such as moving items into an Installed or Storage status, bulk renaming items, auditing items and so on.

Click the Export button in the Tool Bar and select "Export Items Exactly as Shown". For the Items List, you can then select "First 500 Rows" or "All Rows". For the Circuit List, in addition to the previous two options, you can also chose to export only the rows selected in the grid.

The exported file will contain only the columns in the current view. Any filters and sorting that are applied to the list view are also applied to the export file.

For information on specifying a save location, see **How to Specify a Default Save Location for Downloaded Files**.

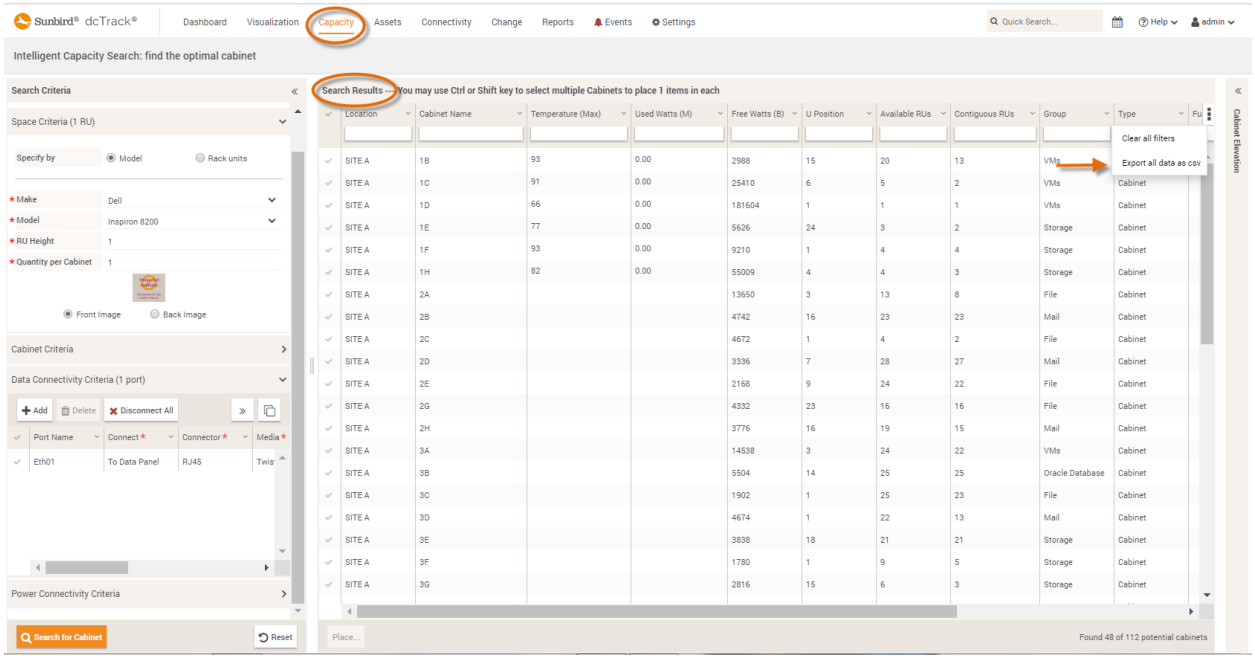


Export Results from an Intelligent Capacity Search to a .CSV File for Auditing and Reporting

After performing an Intelligent Capacity Search, cabinets that meet the parameters your specified are listed in the Results section of the Intelligent Capacity Search page. The results can then be exported to a .CSV file.

This export is useful for auditing free cabinet space, determining available ports, determining the amount of free watts per cabinet, and locating the far end connection to cabinets to name just a few.

You can sort the results in the Results list by clicking on a column header. You can also reorder the columns by clicking on them and dragging them to a new position. When you export, the sort order of the items and the order of the columns is applied in the export file.



For information on specifying a save location, see **How to Specify a Default Save Location for Downloaded Files**.

Chapter 4:Use Intelligent Capacity Search to Locate or Qualify Cabinet Space for One or More Items

Intelligent capacity search in dcTrack allows users to quickly and easily locate the optimal placement options for new options based on a range of user-provided criteria, including location, make model, RU height, cabinet attributes, and data and power connectivity. Intelligent capacity search can find space for one or more items.

Intelligent capacity search is accessible by clicking the Capacity tab in the Web Client.

Intelligent Capacity Searches are different from the Quick Item Searches on the Items List in the Web Client and the Quick Search bar in the upper right corner of the dcTrack GUI. While those searches locate specific items, Intelligent Capacity Search locates the cabinet space for the items and/or qualifies the space for the items. Qualifying the cabinet space refers to the process of determine that the space matches all criteria. If the cabinet space matches all criteria, it is qualified.

When to Use Capacity Search

Use Intelligent Capacity Search if you do not have a cabinet identified to install an item and want to quickly locate a cabinet in your data center that can accommodate it. For example, if you need to find a cabinet that can accommodate an HP DL380, you can search by the model, power requirements, and data connection requirements.

You can also use Intelligent Capacity Search when submitting a Move Item Request using the Prepare Move Item Request option. These options allow you to search for an optimal destination cabinet to move the item to if you do not have one in mind. For more information, see **Use Capacity Search to Locate a Destination Cabinet**

Note: Intelligent Capacity Search is not used for the Quick Move Item Request option since you specify the cabinet an item should be moved to. See **Using the Quick Move Item Request Option to Submit a Move Cabinet Request**

Place Items or Reserve Cabinet Space for Items

Placing items is the act of virtually adding the item to the cabinet and then submitting a request to install it.

Reserving space holds the cabinet space for the item until the reservation expires).

If you perform a make and model search, you can place the item in the cabinet immediately.

Make and Model Intelligent Capacity Search

When you perform an Intelligent Capacity Search based on make and model, dcTrack uses information such as dimensions, connectors, data port requirements, power requirements and so on to search for a cabinet capable of accommodating the item.

Intelligent Capacity Search by Model/RU

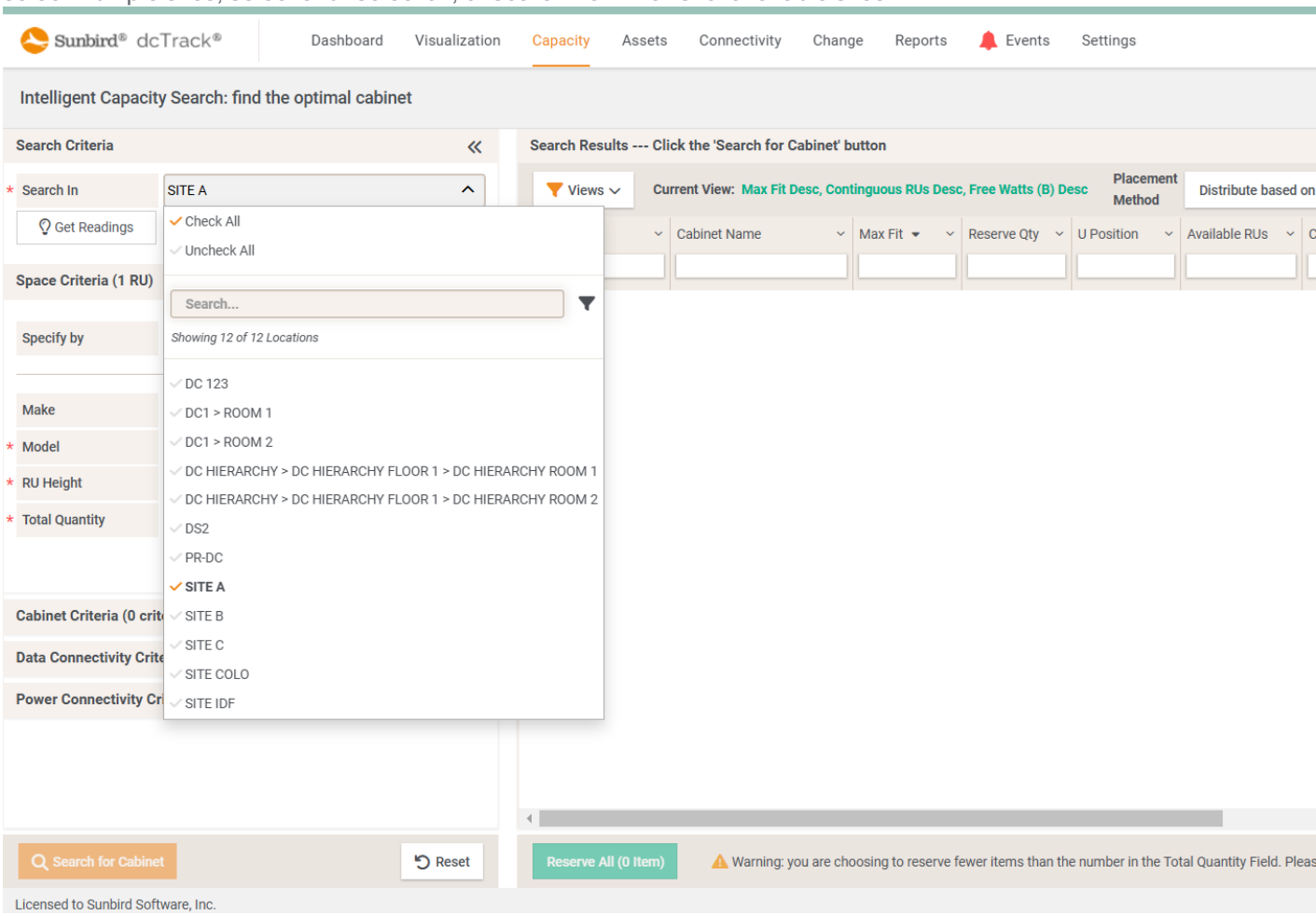
When you search by RU height, dcTrack locates cabinets that have available, contiguous rack units that can accommodate an item. In dcTrack 9.0.0 and beyond, you can also Reserve the space in the selected Cabinets.

When you perform an Intelligent Capacity Search based on make and model, dcTrack uses the Models information such as dimensions, connectors, data port requirements, power requirements and so on to search for a cabinet capable of accommodating the item

To perform an intelligent capacity search:

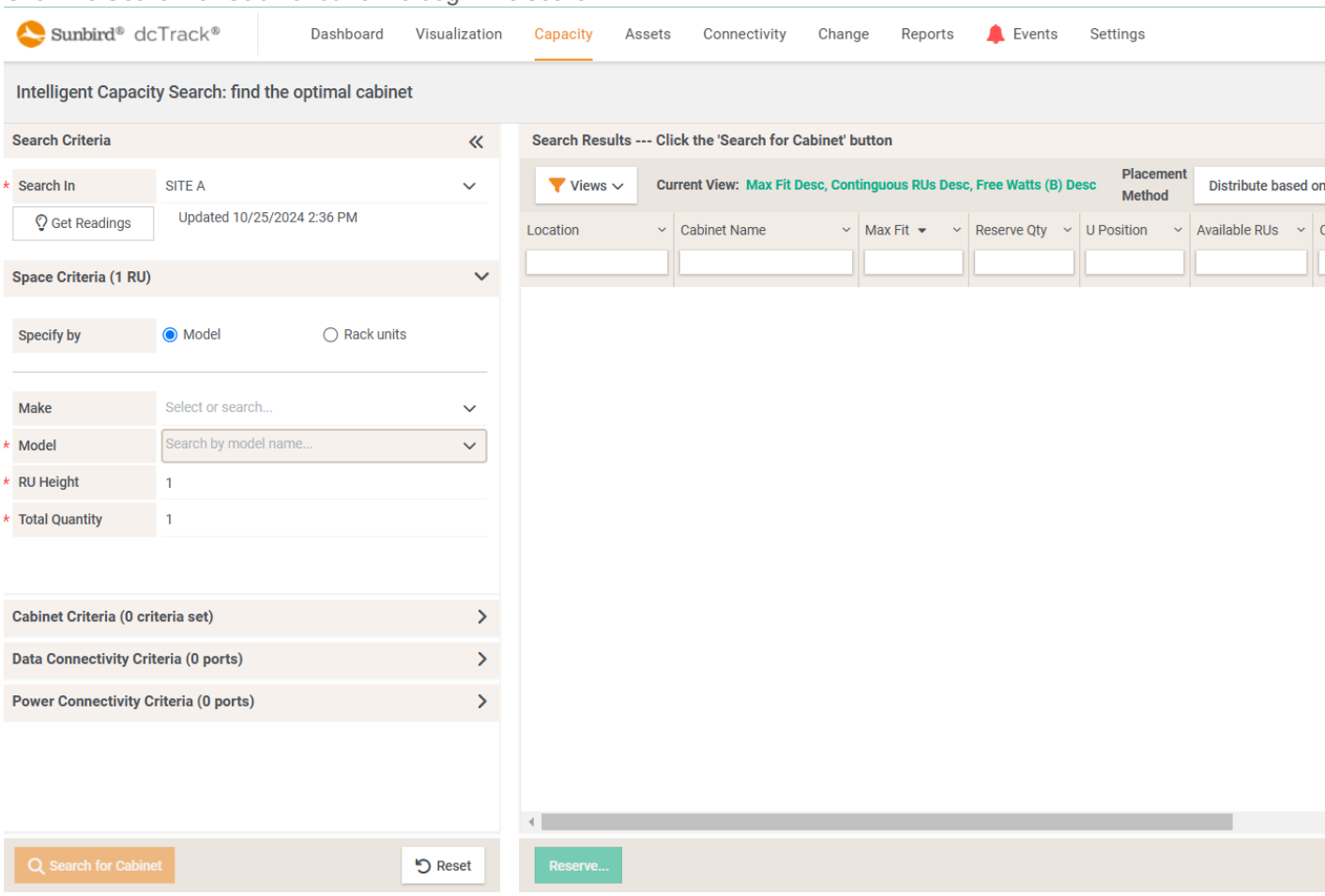
1. Navigate to the Capacity Search page from dcTrack's main menu.

2. In the Search Criteria pane "Search In" field, specify the sites that you want to search in. You can click to select multiple sites, select or unselect all, or search from the list of available sites.



3. In the Specify by field, select what you want to use when searching. "Model" (use specs in models library) RUs the number of rack units the model(s) require.
4. Depending on your selection of Model or RU:
    - For RU enter the number of Rack Units the item you are placing requires. This is the number of contiguous RUs the cabinet must have available.
    - For Model, enter the Make and Model of the Item(s) you are placing. The RU height will be automatically populated with the height of the model from the Models Library.
5. Specify the "Total Quantity" of items you will be placing. This amount should reflect the total number of items being placed, not the number of items to be placed in each Cabinet.
6. Specify the other Optional criteria to use in the search. For details on optional information see Optional Intelligent Capacit

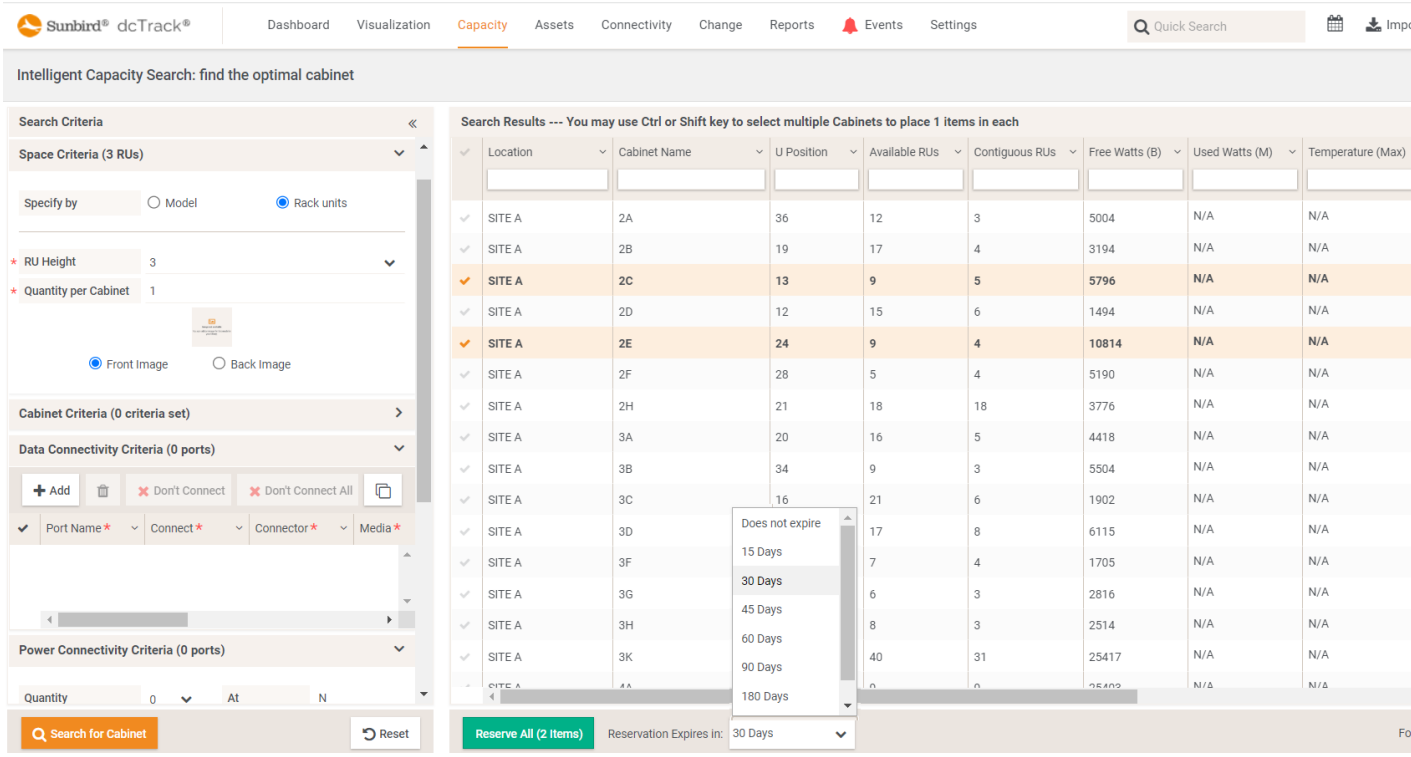
7. Click the Search for Cabinet button to begin the search



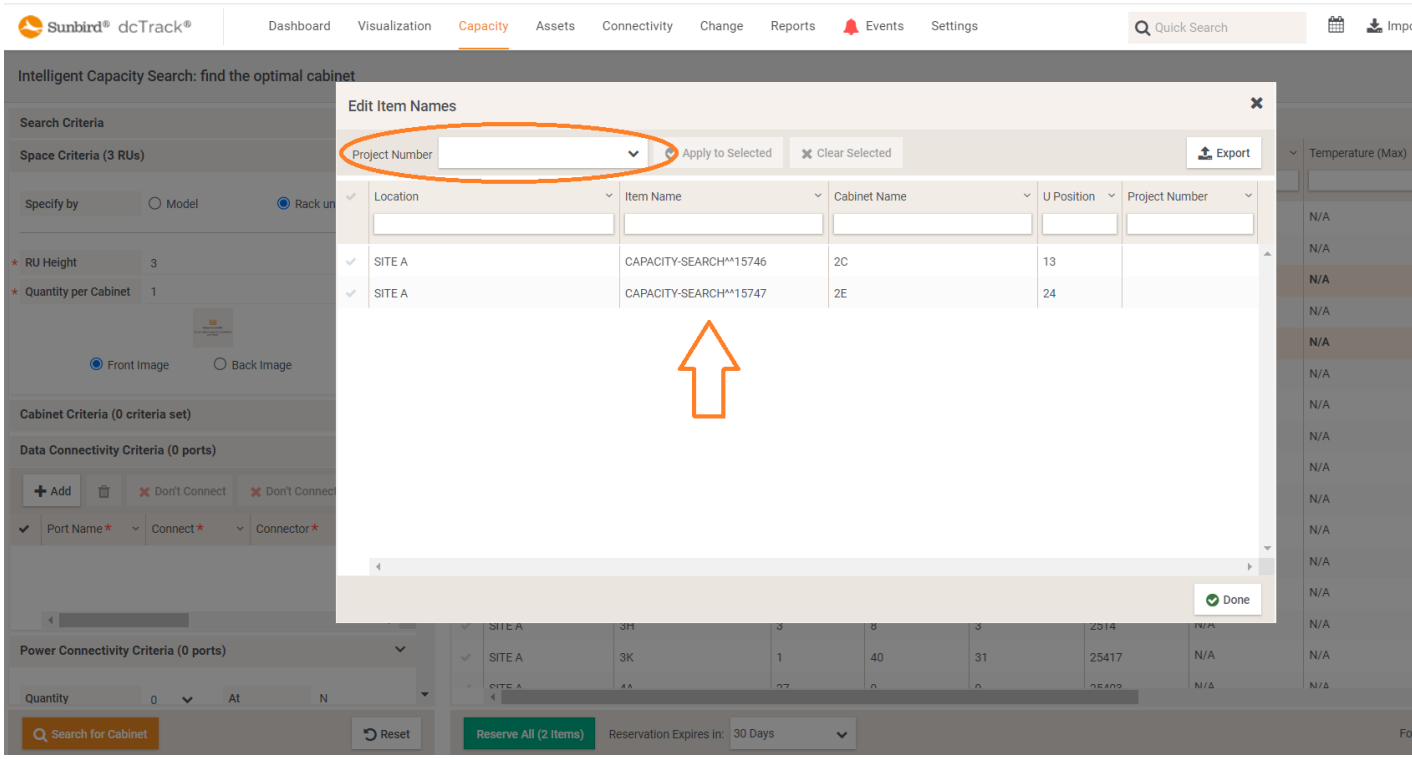
8. The search will return all of the Cabinets where the items can be placed. In addition to the Cabinet specs, the grid will list the following to assist you in selecting the optimum Item placement:
    - Max Fit - This is the maximum number of the Total Quantity that will fit in the cabinet.
    - Reserve Quantity - This is the number of items to be placed in the cabinet (this value is automatically calculated but can be overridden)
    - U Position - This is the list of available U Positions in the Cabinet.
    - Available RUs - The number of empty u positions
    - Contiguous RUs - The number of U positions that are next to each other without interruption
9. Select your preferred placement method
    - Distribute based on current list filtering and sort order - This option will select the cabinet placement as it currently exists in the list

- Distribute as evenly as possible based on list filtering. - This option will automatically evenly distribute the items among the available cabinets
- Note: If the Reserved Quantity is less than the Total Quantity, a warning message will appear at the bottom of the page
    - "Warning: you are choosing to reserve fewer items than the number in the Total Quantity Field. Please increase values in Reserve Qty column."

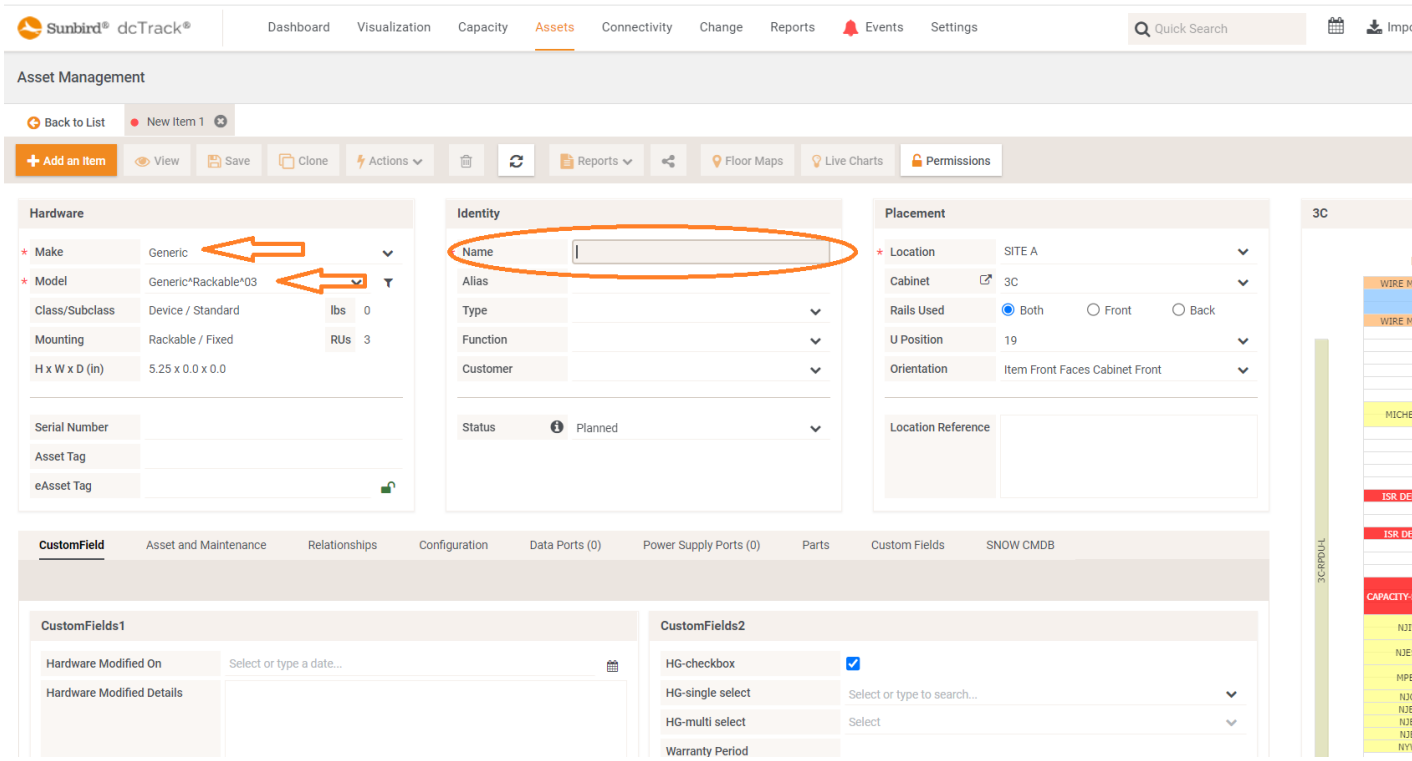
10. Click the Reserve button to reserve the space



11. If you selected multiple Cabinets you are prsented with the "Edit Item Name" dialog. Here you can specify a Project to link to this reservation, as well as edit the automatically generated Item Names.



12. If you selected only a single Cabinet, you are redirected to the New Item page where you can update the Name, Make and Model.



Note, initially the Make and Model of the Items are set to "Generic" values. You should update to the correct Make and Model as soon as that information is available.

Optional Intelligent Capacity Search Criteria

Required and optional criteria, such as cabinet information, data port information, and power information, can be applied to Intelligent Capacity Searches to initiate, refine, or expand your results.

Required criteria vary by search and are indicated by a red asterisk*.

The Search in field is a required field that indicates the location you want to search in. More than one location can be specified, and the default location is based on the system default.

Space Criteria

In the Space Criteria panel, you can specify in the Search by field whether you want to conduct a search by model or by RU height.

For searches by model, Make is a required field. After you select the desired make, you can select the model from the Model dropdown, which will automatically populate with only the models for the selected make.

The Quantity per Cabinet field specifies the number of devices of the specified make and model you want in each cabinet. This field is required if you select to search by model.

Note: For model searches, the search is based on items that mount in the rack horizontally and does not support models having blade, non-rackable, free-standing or zero-U mounting type.

For a search by RU height, the Make and Model fields will be hidden. While the RU Height field is optional for a search by model, it is required for a search by RU height. If a model is selected, the RU height is prepopulated based on data from Sunbird's Model's Library. This value can be increased but not decreased. The default value is 1 RU. If you enter a value of 0 for RU Height, the search results will include ranks with no available RUS. The Space Criteria panel title will also include text in parentheses indicating the number of RUs specified.

Cabinet Criteria

The Cabinet Group, Cabinet Type, Cabinet Function, and Cabinet Customer fields in the Cabinet Criteria panel are optional for both Model and RU Height searches. The Cabinet Criteria panel title will also include text in parentheses indicating the number of criteria set.

Data Connectivity Criteria

The Data Connectivity Criteria panel prepopulates with data from the Models Library if a model has been selected. The Data Connectivity Criteria panel title will also include text in parentheses indicating the number of ports in the grid being connected. If a Quantity per Cabinet is set, the number of ports will be multiplied by the quantity. Connections can be added, deleted, or disconnected by selecting the data connection (for Add or Delete operations) and clicking the desired action in the panel menu. Data in each column can be sorted ascending or descending.

The panel can be maximized by clicking the Maximize Data Connectivity Criteria button in upper right corner of the panel. The panel will then display as a popup.

The columns in the grid include:

- Port Name (The prefix of newly added port name is always “Eth”)
- Connect (Required. Where the specified port should connect to: To Data Panel, To Network Item, or Don't Connect)
- Connector (Required)
- Media (Required)
- Protocol (Required)
- Data Rate (Required)
- Color
- Grouping/VLAN

The Connect, Connector and Media fields are required for search. Warning messages are displayed when searching if these fields are empty. The data in these fields can be edited by clicking the desired cell in the grid and either typing the changes or selecting a different option from the dropdown.

If the Quantity per Cabinet is specified as more than one item, and the ports set to connect to the data panel, the number of free ports per item will be multiplied by the Quantity per Cabinet value to meet the search criteria.

Even if the Quantity per Cabinet is specified as more than one item, the grid will only show the number of ports for one model.

Power Connectivity Criteria

The Power Connectivity Criteria panel prepopulates with data from the Models Library once a model has been selected. The Power Connectivity Criteria panel title will also include text in parentheses indicating the number of ports in the grid being connected. If a Quantity per Cabinet is set, the number of ports will be multiplied by the quantity. Data in each column in the grid can be sorted ascending or descending and can be edited by clicking the desired cell in the grid and either typing the changes or selecting a different option from the dropdown.

Power Connectivity Criteria fields include:

- Quantity and Field Redundancy (Required)
- Nameplate Watts (Required)
- Nameplate Percentage
- Budget Watts (Required)
- Phase (Required)
- Volts (Required)
- Connector (Required)

The fields in the grid include:

- Port Name
- Connect
- Color

The Field Redundancy, Nameplate Watts, Budget Watts, Phase, Volts, Connector and Connect fields are required for search. Warning messages are displayed when searching if these fields are empty.

The Budget Watts value is pulled from the Models Library. If this field is modified, the percentage will be changed.

When you select a value for the Phase field, the contents of the Volts dropdown will change accordingly.

Note: The free watts value seen in each row of the power ports modal dialog are not necessarily additive. dcTrack groups the ports from one or more Rack PDUs by their attributes. All ports with a specific color, connector, voltage and phase are grouped together, however the Free Watts represents the Total Free Watts for the Rack PDU. If Ports fall into two groups from one Rack PDU, you will see the Free Watts value listed twice, once for each group. Their total does not represent total free, but rather the value of one of them.

Supported Item Classes and Subclasses - Intelligent Capacity Search

Support information - Intelligent Capacity Search	

Classes, subclasses and/or mounting type(s)	The Make and Model Intelligent Capacity Search supports the following item classes, subclasses and mounting types.
	Rackable and Zero-U:
	• Device items and Network items
	  ▪ Standard subclass items (switches, servers, and so on)
	  ▪ Chassis device subclass items

Support information - Intelligent Capacity Search	
	▪ Blade device subclass items ▪ Cabinets • Network items ▪ Chassis subclass items ▪ Blade subclass items ▪ Network stack subclass items • Probe items The RU Height Intelligent Capacity Search supports the following item classes, sub-classes and mounting types. • Device items ▪ Standard subclass items (switches, servers, and so on) ▪ Chassis device subclass items ▪ Blade device subclass items Note: Intelligent Capacity Search does not support power outlets.

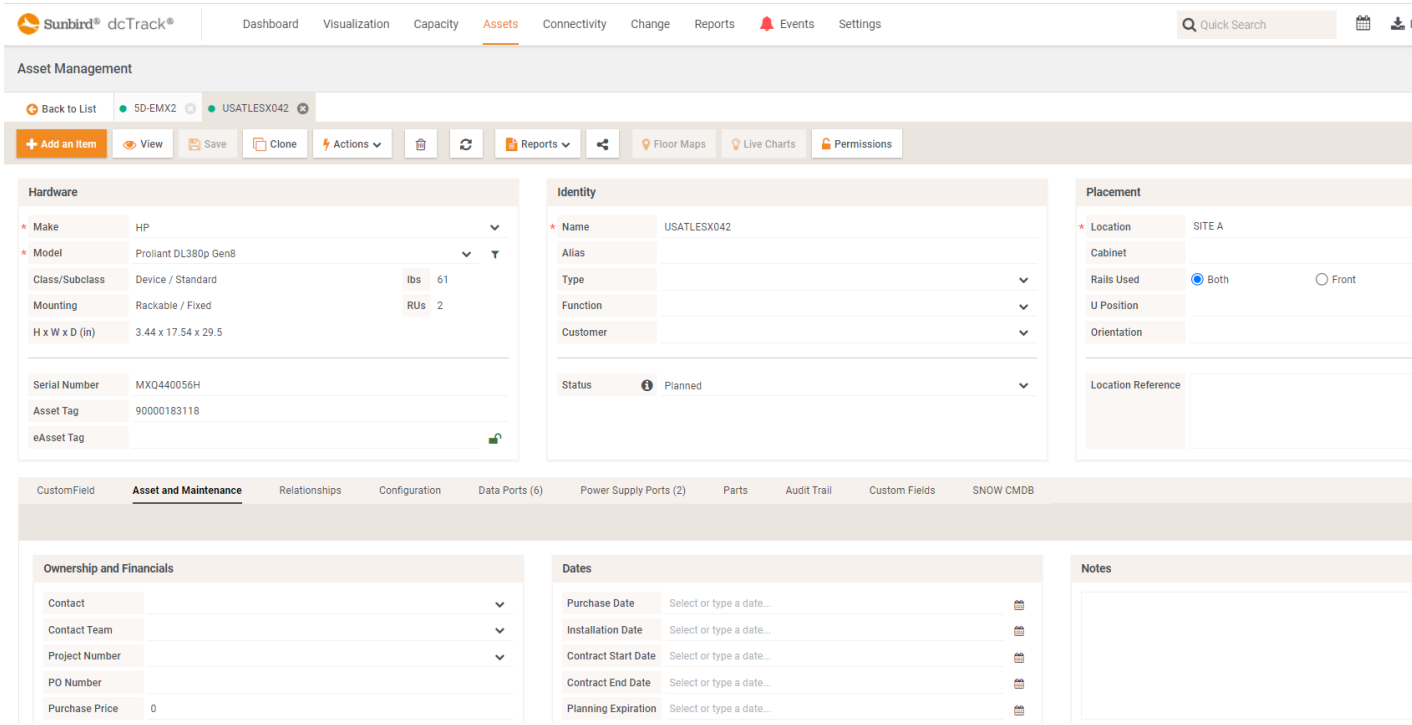
Initiate Cabinet Search for an Existing Planned Item

dcTrack version 9.0.0 introduced the ability to initiate a Cabinet search directly from the Item Detail page of an existing Planned Item. This allows users to quickly and easily locate the optimal placement options while editing an Item currently in the "Planned" status. This is useful if you do not have a cabinet identified to install an item and want to quickly locate a cabinet in your data center that can accommodate it without having to leave the Item Detail page.

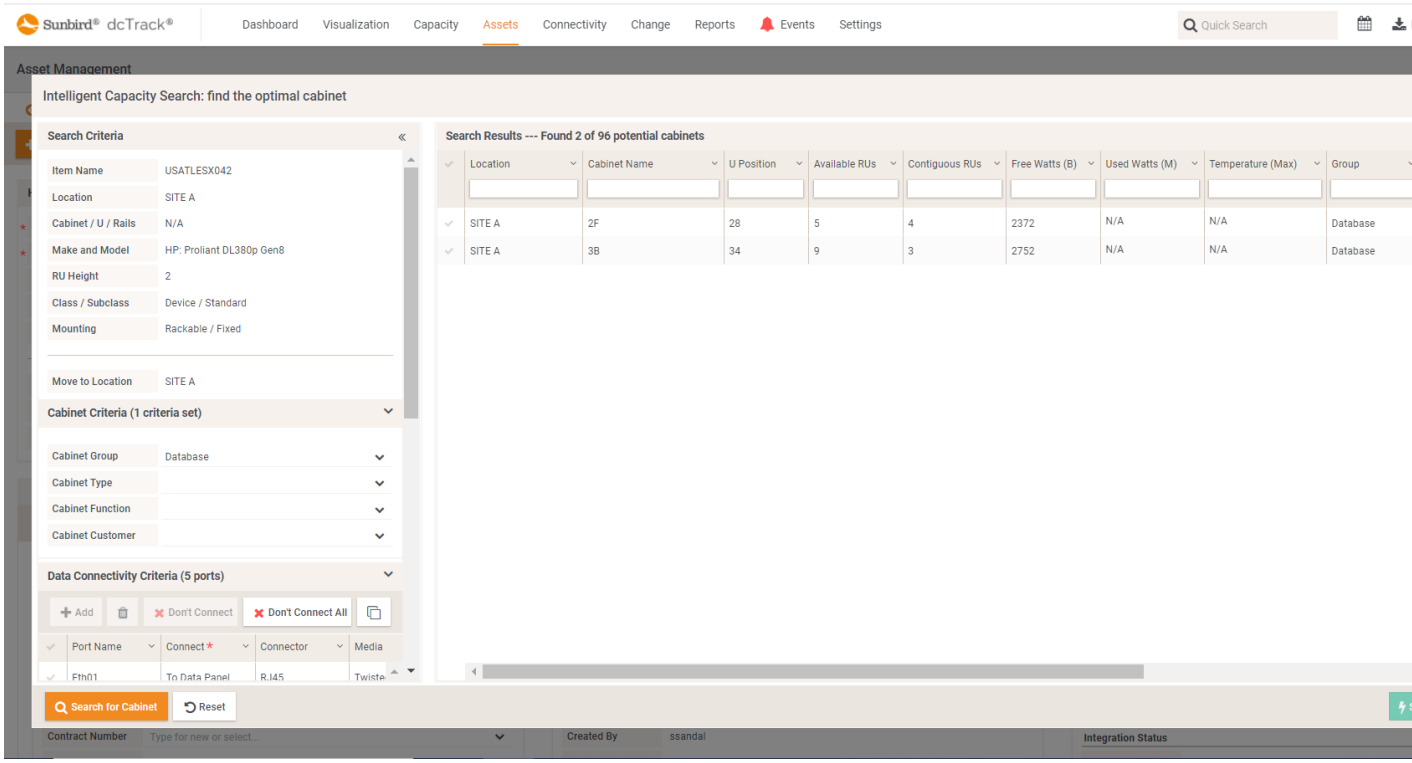
This feature is designed to work on rackable Device, Network or Probe Items that were previously saved, and is not available when adding a new Item.

Steps to initiate the search

1. Open the Item detail page of the Item you want to place.
2. Click the "Edit" button.
3. Click the Search icon to the right of the Cabinet field. Note, the search icon is not visible while in "View" mode



4. This will open the Capacity Search dialog with the search already executed



- The search criteria on the left panel displays the details for the planed item in read-only mode
- The Item's existing ports are populated in the Data and Power Connectivity section. These values can be changed.
- If the Item was not saved with a cabinet, the Cabinet Criteria field will be blank. If the Item was saved with a Cabinet, the Cabinet Criteria fields are populated based on the values that exist for that cabinet. These values can be changed.
- The Location field will default to the Location the Item is in, but can be changed. Note, if the Location is changed, the Location of the Item will also be changed.

5. If any of the Search Criteria is changed, the search results will be cleared and the "Search for Cabinet" button must be clicked to execute a new search.
6. To restore the Search Criteria to its original values, click the "Reset" button
7. Select a Cabinet and click the "Select a Cabinet" button. This will close the dialog and populate the Item's Cabinet and UPosition on the Item Detail page with the values for the selected Cabinet.

Placing Items vs. Reserving Cabinet Space for Items

Placing items is the act of virtually adding the item to the cabinet and then submitting an Install Item Request.

Reserving space holds the cabinet space for the item until the reservation expires.

If you perform a make and model Intelligent Capacity Search, you can place the item in the cabinet immediately.

If you place an item, a popup will display with a grid of all items to be placed. The name of the items will be pre-pended with "CAPACITY-SEARCH^^." The name of each item can be changed by clicking in the Item Name cell and typing in a new value. You can add a project number to the items by selecting the desired project number from the dropdown and clicking the Apply to Selected button.

Multiple cabinet rows can be selected by using the CTRL or Shift buttons. Use the CTRL button to select multiple non-consecutive rows. Use the Shift button and select the first and last rows of a consecutive set to select all the rows between and including the first and last.

Placing One or More Items

After conducting an Intelligent Capacity Search, you can place one or more items.

1. In the Search Results grid, select the item(s) you want to place.
2. Click the Place All button.
3. In the Edit Item Names popup, make your desired changes.
    a. To add a project number to one or more items, select the item(s), then select the project number from the Project Number dropdown and click the Apply to Selected button.
    b. To edit the item name, click the item name you want to change and type in the new one.
4. Click the Done icon.

Cabinet Space Reservations

Cabinet space reservations are made when an item is created in the Planned Status, assigned to a cabinet and U position and the Planning Expiration field is set to a date in the future. For details, see **Manage Cabinet Space Reservations**.

Creating items using either a Model Intelligent Capacity Search or RU Height Intelligent Capacity Search, makes the process of creating reservation easier and allows many items in various cabinets to be created with few clicks. When creating the items this way, a default Planning Expiration date is set to 30 calendar days in the future, but that can be changed before you click the Reserve button.

Search for Cabinet Space by Make and Model

When you perform an Intelligent Capacity Search based on make and model, dcTrack uses information such as dimensions, connectors, data port requirements, power requirements and so on to search for a cabinet capable of accommodating the item.

High-Level Make and Model Intelligent Capacity Search Steps

Make and model Intelligent Capacity Searches essentially require you to:

- **Define Criteria for a Make and Model Intelligent Capacity Search** and search for a cabinet
- Review Make and Model Search Results and then either:
  - **Locate a Cabinet from the Cabinet Search Result List**

Or

  - **Reset the Intelligent Capacity Search Page** and/or refine your criteria if an appropriate cabinet was not found, then perform another search

Step	Description
1	Select the site(s) in which to search for a cabinet to house the item.
2	Select the item's make and model. The RU Height is entered automatically from the Models Library.
3	Specify the quantity per cabinet. The default value is 1.
4	Select optional cabinet criteria to apply to the search. See Cabinet Criteria - Make and Model Searches.

Step	Description
5	Data port information is retrieved from the Item Models Library and entered by default if it is available. Enter the required information if it is not prepopulated. ■ Update data ports. dcTrack uses the new criteria in its search. ■ Add data ports. dcTrack includes the new data port criteria in the search. Required information must be completed if you do. See Adding a Port - RU Height Intelligent Capacity Search ■ Delete data ports you add - dcTrack excludes the data ports from the search. See Deleting a Data Port - RU Height Intelligent Capacity Search ■ Set all or some ports to be ignored when searching for a cabinet. See Setting Ports to Don't Connect - Exclude Data Ports from a Search.
6	Power information is retrieved from the Item Models Library and entered by default. Enter the required information if it is not prepopulated. If needed, update power information. See Power Connectivity Criteria - Make and Model Search.
7	Click "Search for a Cabinet".
8	A list of cabinets that meets your criteria is displayed in the Cabinet list. Continue to Step 8. See **Locate a Cabinet from the Cabinet Search Result List** Alternatively, if no cabinets meet your criteria or only partial results are found, dcTrack indicates the results. Use the information to refine your search criteria. See **Define Criteria for a Make and Model Intelligent Capacity Search**
9	Provided cabinets are available in the Cabinet list: ■ Place the item: See Placing an Item Located from a Make and Model Search. ■ Build circuits: See Building Circuits when Placing an Item.

Define Criteria for a Make and Model Intelligent Capacity Search

The following topics cover the criteria that can be updated when performing a make and model Intelligent Capacity Search in order to refine or expand the results of the search.

Locate a Cabinet from the Cabinet Search Result List

dcTrack returns a list of potential cabinets that match all or some of the required and/or optional criteria applied to the Intelligent Capacity Search feature. Results are displayed in a grid format.

The Search Results grid contains high-level information about the cabinets such as cabinet name, location, type, group and function (if any).

Columns in the grid include:

- Location: The location of the cabinet
- Cabinet Name: The name of the cabinet
- Temperature (Max): Highest temp of all sensors in the front of the cabinet based on latest readings
- Used Watts (M)
- Free Watts (B)
- U Position: Defaults to the first available RU position in the cabinet but can be updated when placing the item
- Available RUs: The available rack units in the cabinet
- Contiguous RUs: The largest contiguous U position space in the cabinet
- Group: The group of the cabinet
- Type: Cabinet
- Function: The function of the cabinet
- Data Ports: Number of available data ports in the cabinet
- Power Ports: Number of available power ports in the cabinet
- Free Watts: Amount of watts available for the item in the cabinet
- Far-end Cabinets: The far end cabinet(s) the selected cabinet is connected to (if any)

The total number of potential matches as of the specified date and time is displayed at the bottom right of the Intelligent Capacity Search page.

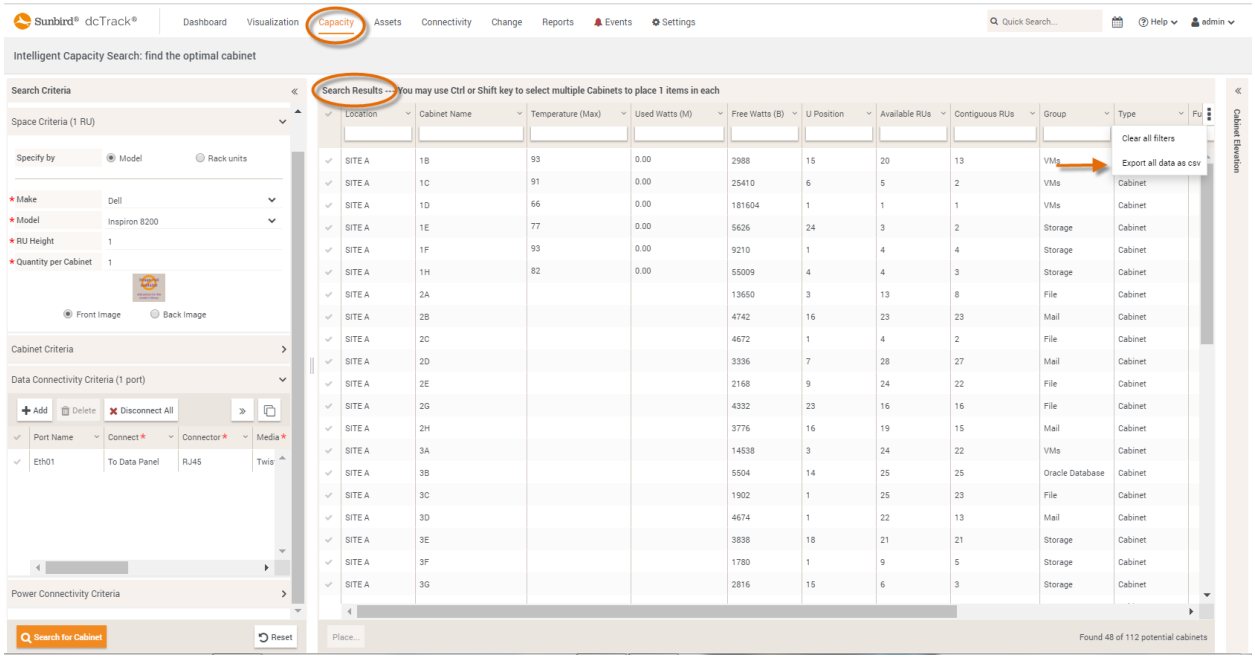
Each time you click "Search for Cabinet," the search results timestamp is updated, letting you know a new search was performed.

The total number of available cabinets may change if cabinet space becomes unavailable during the time it takes between searches.

Both Data Ports and Power Ports have an icon in their fields that, when clicked, will display a popup with a summary of the details of the ports in the specified cabinet.

Multiple cabinet rows can be selected by using the CTRL or Shift buttons. Use the CTRL button to select multiple non-consecutive rows. Use the Shift button and select the first and last rows of a consecutive set to select all the rows between and including the first and last.

You can export your results by clicking the three dot icon in the top right corner of the grid.



Search Results with a Planning Date

The Planning Date field is an optional field that can be use to filter for capacity that is available from assets that are planned to be decommissioned on or after the date. The default date is the current date. Only a single date, not a date range, can be specified.

Note: The Planning Date field will only be visible when the Apply Planned Decommissions checkbox under the Settings tab > dcTrack Settings > Appliance Settings is checked. For more information on enabling the Planned for Decommission feature, see Planning Items for Decommission.

The results of the search include the rack units that will be made available, the compatible data ports and power ports, and free watts based on the planning date. You can then reserve space or place assets for the space that is available as of the Planning Date.

Cabinet Elevation Views

If you select a cabinet, its elevation view will be displayed in the Cabinet Elevation pane. If you select multiple cabinets, the lowest row will be displayed.

Note: You must expand the Cabinet Elevation pane to view the cabinet elevation. It is hidden by default.

Partial or No Results Located from a Make and Model Search

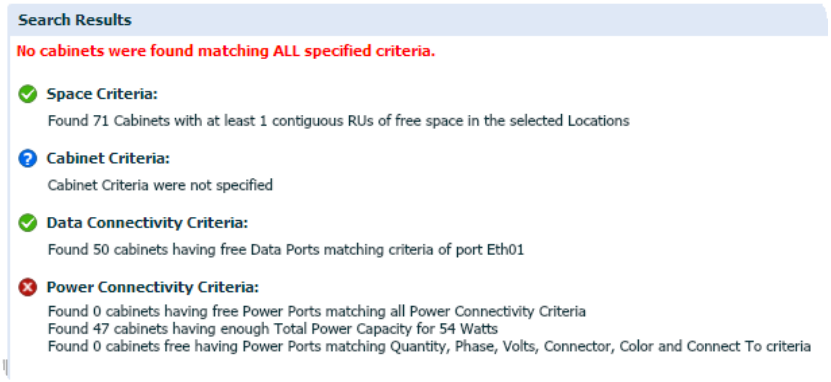
If no cabinets can accommodate the item, dcTrack® displays a message on the Capacity page letting you know.

If cabinets are found that meet some criteria but not all, dcTrack lists the criteria that are met and the number of cabinets that meet the criteria (if any).

Criteria that are not met because they were not specified as part of the search are also displayed (if any).

Use the information in the messages to refine your search criteria.

Click Reset to begin a new search, or enter/update data in the Criteria sections.



Reset the Intelligent Capacity Search Page

To reset the intelligent capacity search page, click the Reset button. The page reverts to its original, criteria and any new results are cleared.

Switching between a make and model search and RU height search by selecting their respective radio buttons also resets the page.

Search for Cabinet Space by RU Height

When you search by RU height, dcTrack locates cabinets that have available, contiguous rack units that can accommodate an item.

For example, search your data center for a cabinet that can contain a blade chassis that requires 3 RUs such as RU 31, 32 and 33.

The only requirements to perform an RU height Intelligent Capacity Search are to select the site(s) to search for a cabinet, and enter the number of contiguous RUs the cabinet must have available.

High-Level RU Height Intelligent Capacity Search Steps

RU height Intelligent Capacity Searches essentially require you to:

- Define Criteria for an RU Height Intelligent Capacity Search
- Review RU Height Search Results
  - **Locate a Cabinet from the Cabinet Search Result List**

Or

  - **Reset the Intelligent Capacity Search Page** and/or refine your criteria if an appropriate cabinet was not found, then perform another search

1. Select the site(s) in which to search for a cabinet to accommodate the item.
2. Enter the RU Height.
3. Select optional cabinet criteria to apply to the search, if needed.
4. If needed:
   - Update data ports. dcTrack uses the new criteria in its search.
   - Add data ports. dcTrack includes the new data port criteria in the search. Required information must be completed if you do. See Adding a Port - RU Height Intelligent Capacity Search
   - Delete data ports you add - dcTrack excludes the data ports from the search. See Deleting a Data Port - RU Height Intelligent Capacity Search
   - Set all or some ports to be ignored when searching for a cabinet. See Setting Ports to Don't Connect - Exclude Data Ports from a Search.
5. Enter power port information, if needed. Required information must be completed if you do.
6. Click the Search for a Cabinet button.

A list of cabinets that meets your criteria is displayed in the Cabinet list. Continue to step 8. See **Locate a Cabinet from the Cabinet Search Result List**

7. Alternatively, if no cabinets meet your criteria or only partial results are found, dcTrack indicates the results. Use the information to refine your search criteria. See Define Criteria for an RU Height Intelligent Capacity Search

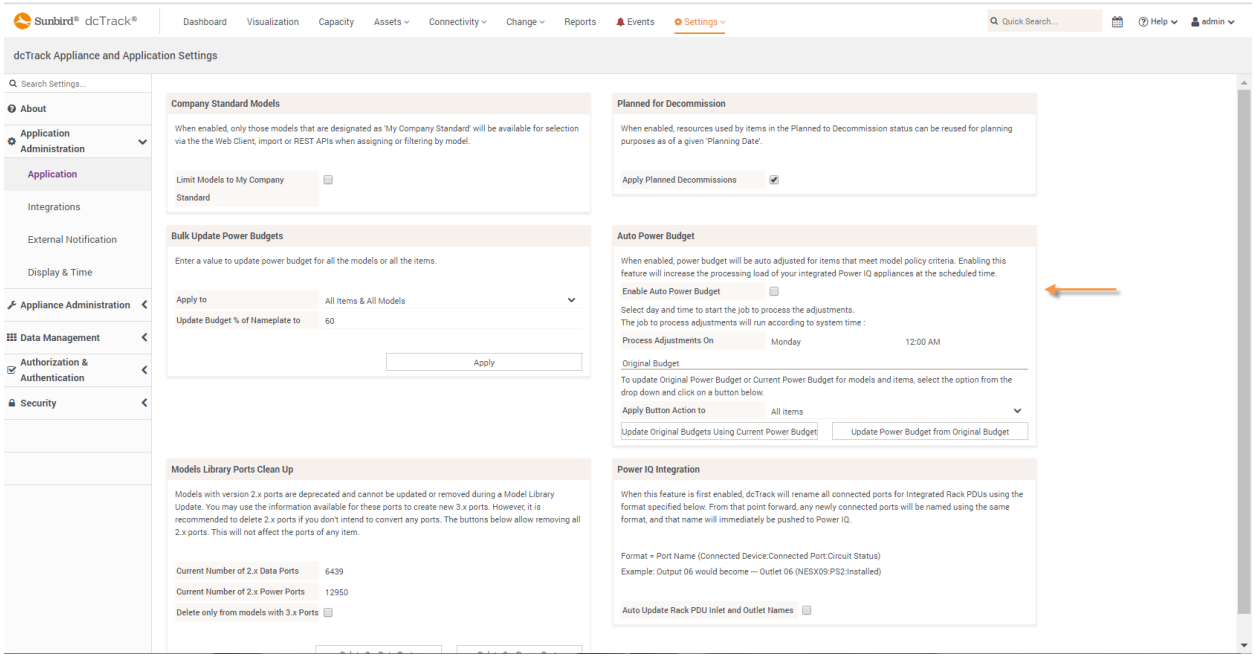
Step	Description
1	Select the site(s) in which to search for a cabinet to accommodate the item.
2	Enter the RU Height.
3	Select optional cabinet criteria to apply to the search, if needed. See Cabinet Criteria - RU Height Searches

Step	Description
4	If needed: ■ Update data ports. dcTrack uses the new criteria in its search. ■ Add data ports. dcTrack includes the new data port criteria in the search. Required information must be completed if you do. See Adding a Port - RU Height Intelligent Capacity Search ■ Delete data ports you add - dcTrack excludes the data ports from the search. See Deleting a Data Port - RU Height Intelligent Capacity Search ■ Set all or some ports to be ignored when searching for a cabinet. See Setting Ports to Don't Connect - Exclude Data Ports from a Search.
5	Enter power port information, if needed. Required information must be completed if you do. See Power Connectivity Criteria - RU Height Intelligent Capacity Search
6	Click "Search for a Cabinet".
7	A list of cabinets that meets your criteria is displayed in the Cabinet list. Continue to step 8. See **Locate a Cabinet from the Cabinet Search Result List** Alternatively, if no cabinets meet your criteria or only partial results are found, dcTrack indicates the results. Use the information to refine your search criteria.

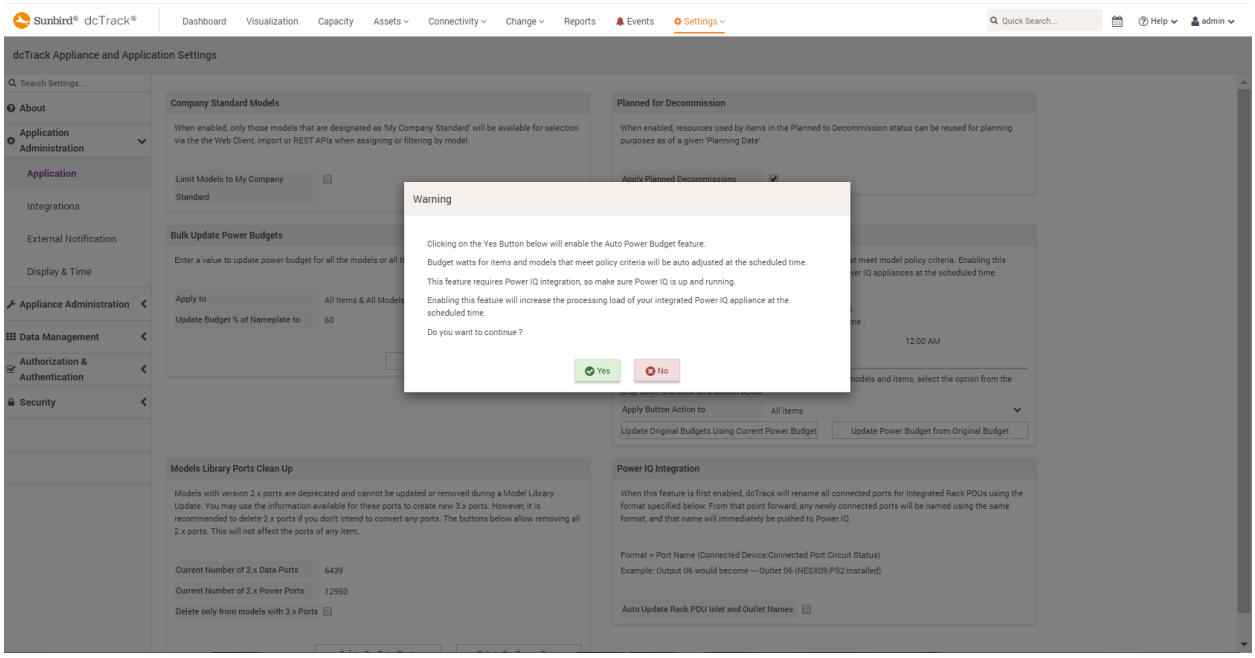
Auto Power Budget

The Auto Power Budget feature allows users to gather and use historical data accumulated by Power IQ to adjust the allocated Power Budget (Watts(B)) for Items. Factors such as Model, Item Status and Time in Service can all be considered and used to determine how this information is accumulated and applied.

To enable this feature navigate to the Settings > dcTrack Settings > Application Administration > Application page and select the "Enable Auto Power Budget" check box.



Upon checking the box you will receive a warning indicating the Budget Watts for Items and Models that meet the Policy criteria will be automatically adjusted at the scheduled time.



If you click the "No" button, you will be returned to the Application page and the feature will not be enabled. If you click the "Yes" button, you will be returned to the Application page and may now select the Day and Time you would like the job that processes the adjustments to begin.

Note: Until you create and assign policies to Models, no Items will qualify to be adjusted by this process.

This panel also provides two additional options.

Update Original Budgets using Current Power Budget

This feature will replace the Original Power value for all Models or Items, depending on your selection, with the current Budget Power (Watts(B)) value for one of the Model/Item's non optional Power Supply ports. Upon clicking this button, you will be presented with a warning describing the process and allowing you to confirm whether or not you would like to proceed. If you choose "No", you will be returned to the Application page and no adjustments will be made. If you choose "Yes", you will be returned to the Application page and dcTrack will immediately begin the process of making the adjustments.

Update Power Budget from Original Budget

This feature will immediately replace the Budget Power (Watts(B)) value of each Power Supply port for all Models or Items, depending on you selection, with the Original Power value of the Model/Item. Upon clicking this button you will be presented with a warning describing the process and allowing you to confirm whether or not you would like to proceed. If you choose "No" you will be returned to the Application page, and no adjustments will be made. If you choose "Yes", you will be returned to the Application page and dcTrack will immediately begin the process of making the adjustments.

Note: When the Budget Power (Watts(B)) value is adjusted up for a connected port, power calculations are performed to ensure the affected circuits have enough power capacity. If there is not sufficient power, the adjustment will not be made, and an Informational message will be written to the Event Log.

For additional information please refer to the section on Power Budget Policies.

Power Budget Policies

Model Policies allow users to define the exact criteria to be used for selecting, calculating and applying Adjusted Power Budget values. dcTrack allows users to create and manage any number of Policies that can be applied to different Models providing you with the ability to fashion policies that capture and reflect more accurately the actual power consumptions of specific Items.

For additional information please refer to the following documentation.

Creating Model Policies

Editing and Deleting Model Policies

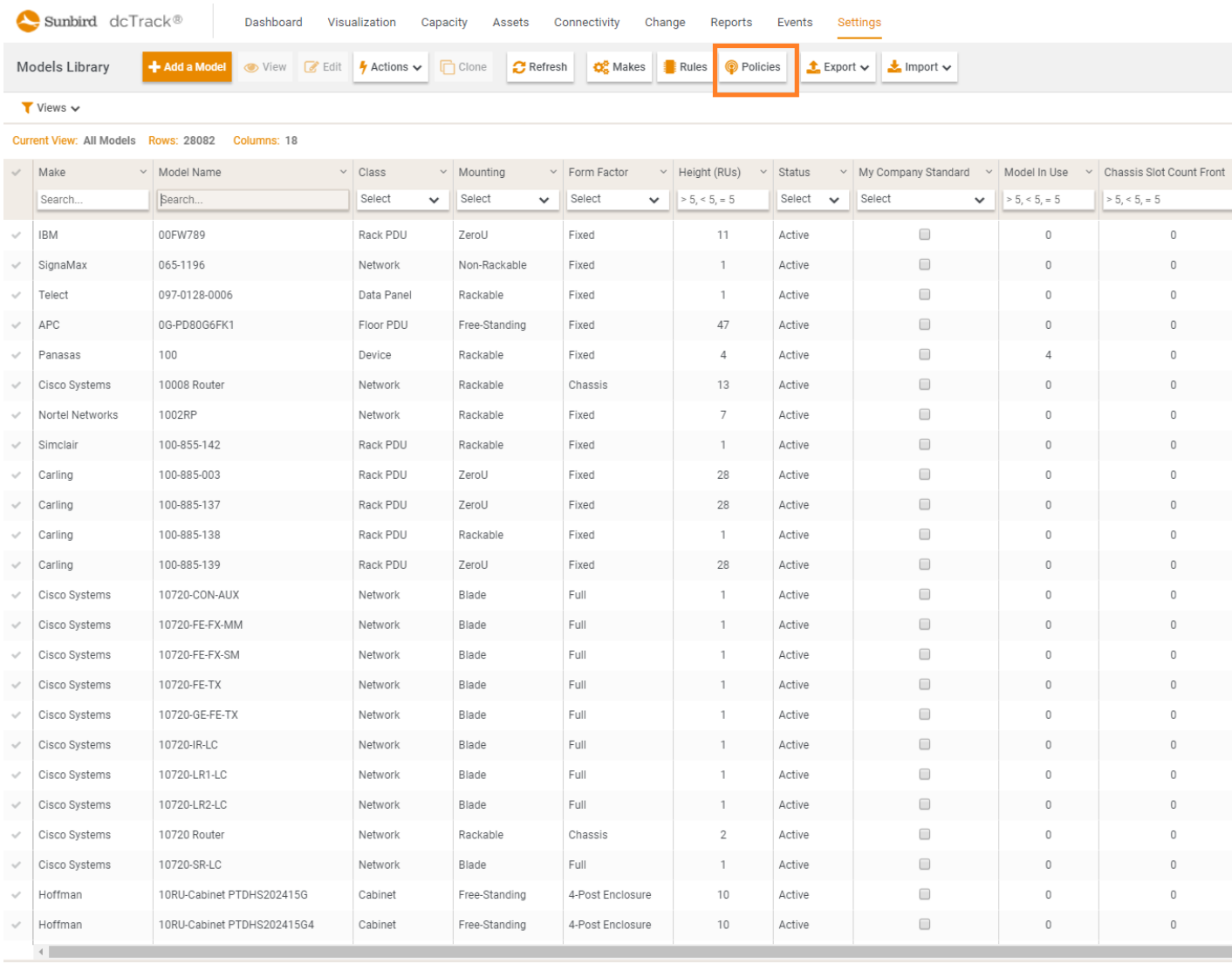
Assigning and Unassigning Model Policies

Creating a Model Policy

Model Policies can be created by any user with the System Administrator Role, or users with the "Manage Library" Auxiliary Role.

Steps to Create a Model Policy

1. Navigate to Settings > Models library
2. Click the Policies button on the Model's list tool bar



Make	Model Name	Class	Mounting	Form Factor	Height (RUs)	Status	My Company Standard	Model In Use	Chassis Slot Count Front
Search...	Search...	Select	Select	Select	> 5, < 5, = 5	Select	Select	> 5, < 5, = 5	> 5, < 5, = 5
IBM	00FW789	Rack PDU	ZeroU	Fixed	11	Active		0	0
SignaMax	065-1196	Network	Non-Rackable	Fixed	1	Active		0	0
Telect	097-0128-0006	Data Panel	Rackable	Fixed	1	Active		0	0
APC	0G-PD80G6FK1	Floor PDU	Free-Standing	Fixed	47	Active		0	0
Panasas	100	Device	Rackable	Fixed	4	Active		4	0
Cisco Systems	10008 Router	Network	Rackable	Chassis	13	Active		0	0
Nortel Networks	1002RP	Network	Rackable	Fixed	7	Active		0	0
Simclair	100-855-142	Rack PDU	Rackable	Fixed	1	Active		0	0
Carling	100-885-003	Rack PDU	ZeroU	Fixed	28	Active		0	0
Carling	100-885-137	Rack PDU	ZeroU	Fixed	28	Active		0	0
Carling	100-885-138	Rack PDU	Rackable	Fixed	1	Active		0	0
Carling	100-885-139	Rack PDU	ZeroU	Fixed	28	Active		0	0
Cisco Systems	10720-CON-AUX	Network	Blade	Full	1	Active		0	0
Cisco Systems	10720-FE-FX-MM	Network	Blade	Full	1	Active		0	0
Cisco Systems	10720-FE-FX-SM	Network	Blade	Full	1	Active		0	0
Cisco Systems	10720-FE-TX	Network	Blade	Full	1	Active		0	0
Cisco Systems	10720-GE-FE-TX	Network	Blade	Full	1	Active		0	0
Cisco Systems	10720-IR-LC	Network	Blade	Full	1	Active		0	0
Cisco Systems	10720-LR1-LC	Network	Blade	Full	1	Active		0	0
Cisco Systems	10720-LR2-LC	Network	Blade	Full	1	Active		0	0
Cisco Systems	10720 Router	Network	Rackable	Chassis	2	Active		0	0
Cisco Systems	10720-SR-LC	Network	Blade	Full	1	Active		0	0
Hoffman	10RU-Cabinet PTDHS202415G	Cabinet	Free-Standing	4-Post Enclosure	10	Active		0	0
Hoffman	10RU-Cabinet PTDHS202415G4	Cabinet	Free-Standing	4-Post Enclosure	10	Active		0	0

3. From the Manage Power Budget Policies screen, click the Create button and supply the following information in the Policy Details panel:
    a. Policy Name: Name of the Policy (Required)
    b. Period: Range for which to collect readings from Power IQ. Readings collected from the Items during this period will be used for calculating the Auto Power Budget value. (Required)

       Valid Options:

       - Past Day
       - Past Week
       - Past Month
       - Past 60 Days

- Past 90 Days
- Past Year

c. Granularity: Frequency with which readings will be polled and stored for future calculations. Options for Granularity depend on the selected option for Period. (Required)
   - Daily Period > Hourly
   - Weekly Period > Hourly, Daily
   - Monthly Period > Hourly, Daily
   - 60 day, 90 day and Yearly Periods > Hourly, Daily, Monthly

d. Statistic: Setting which determines how the readings gathered within the Granularity time frame should be aggregated to derive a single value. For example, an Average statistic for a Daily Granularity setting results in the Average of each days readings (Required)
   - Average
   - Maximum
   - Minimum

e. Summary for Items: This determines the aggregation method applied to all the readings in a given Period, Granularity and Statistic to derive a single value for each Item. For example, a Past Week Period with Daily Granularity and Maximum Statistic results in 7 Daily Maximums. Then if the Summary is set to Average, the 7 Daily Maximum readings will be Averaged to yield a single value for an Item. This value becomes the Auto Power Budget for the Item after applying the "Ignore Top and Bottom (%) and "Additional Safety Margin (%) settings. (Required)
   a. Average
   b. Maximum
   c. Minimum

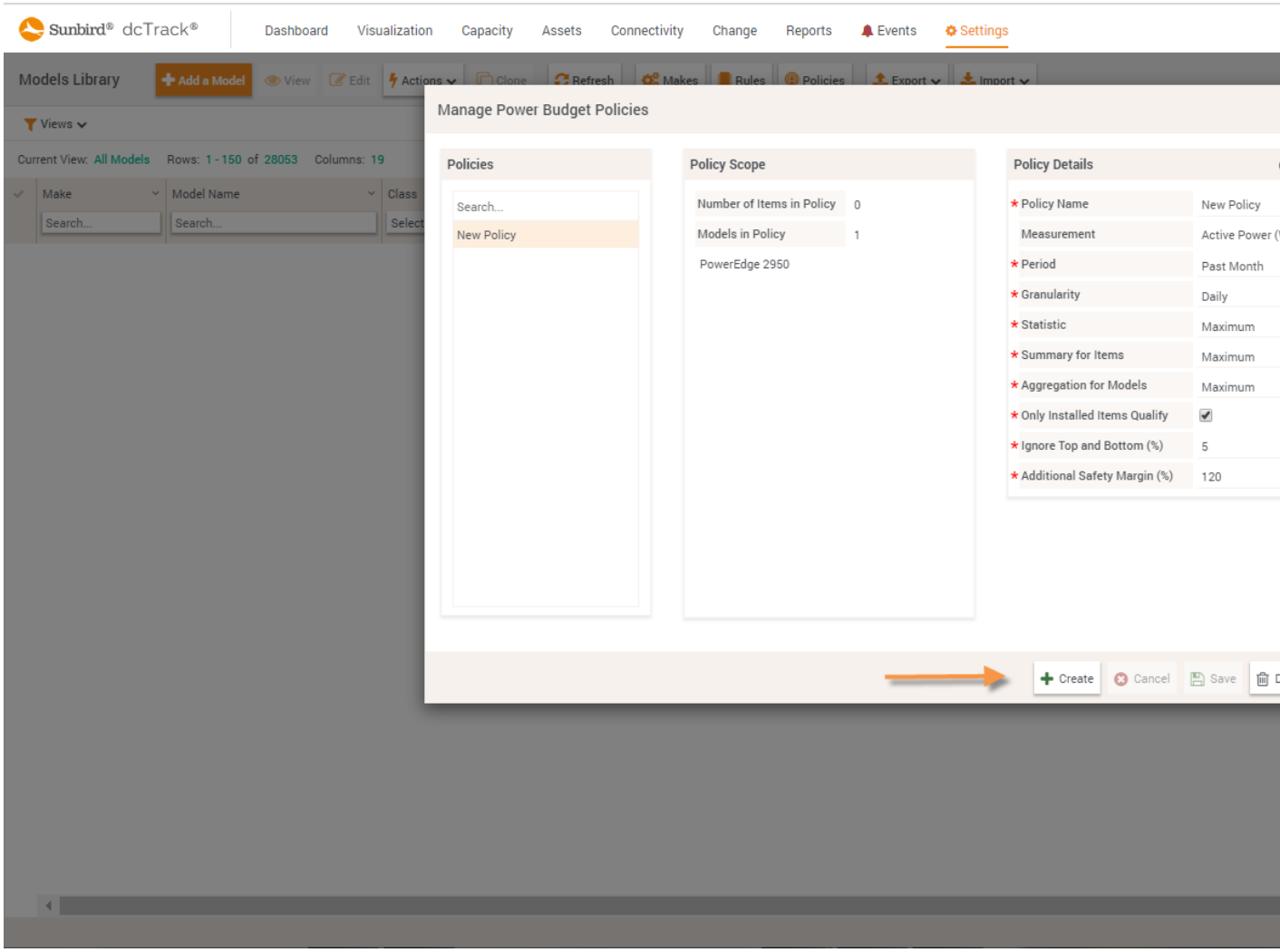
f. Aggregation for Models: This determines the aggregation method applied when calculating the Auto Power Budget value for the Model. The values that result from the "Summary for Items" setting for each Item are calculated base on this setting to yield a single value for the Model's Auto Power Budget. (Required)
   a. Average
   b. Maximum
   c. Minimum

g. Only Installed Items Qualify: If checked, only Items that have been in the Installed status for a period greater than or equal to the selected Period of the Policy will be included in the Auto Power Budget calculations. Items that have been installed for a shorter period will remain excluded until enough time passes and they qualify for a subsequent run for the Policy. If unchecked, Items in the Planned, Planned for Decomm, or Installed statuses will be included in the calculation

h. Ignore Top and Bottom(%): This setting is used to exclude extreme high and low readings before applying the "Summary for Items" and the "Aggregation for Models". For example, if this setting is 1, then the Top 1% and the Bottom 1% of Items will be excluded before aggregating the Items to calculate the Model's Auto Power Budget. (Required)
   - Range can be from 0 to 50%

i. Additional Safety Margin (%): Percentage value that will be added to the summarized value of each item. The result will be the Auto Power Budget for that item. For example, an Item's Summarized value is 105 Watts and the Additional Safety Margin (%) is set to 20%, the Auto Power Budget for the Item will be 105 x (1 + 0.2) = 126 Watts.

4. Click the Save Button to save the settings.



Complete Example:

a. Policy Name = Default
b. Period = Past Year
c. Granularity = Daily
d. Statistic = Maximum
e. Summary for Items = Average
f. Aggregation for Models = Maximum
g. Only Installed Items Qualify = Checked
h. Ignore Top and Bottom(%) = 5
i. Additional Safety Margin (%) = 15

Policy Default is assigned to Model A. Model A has 120 Items, but only 100 Items have been in the installed status for 12 months or more.

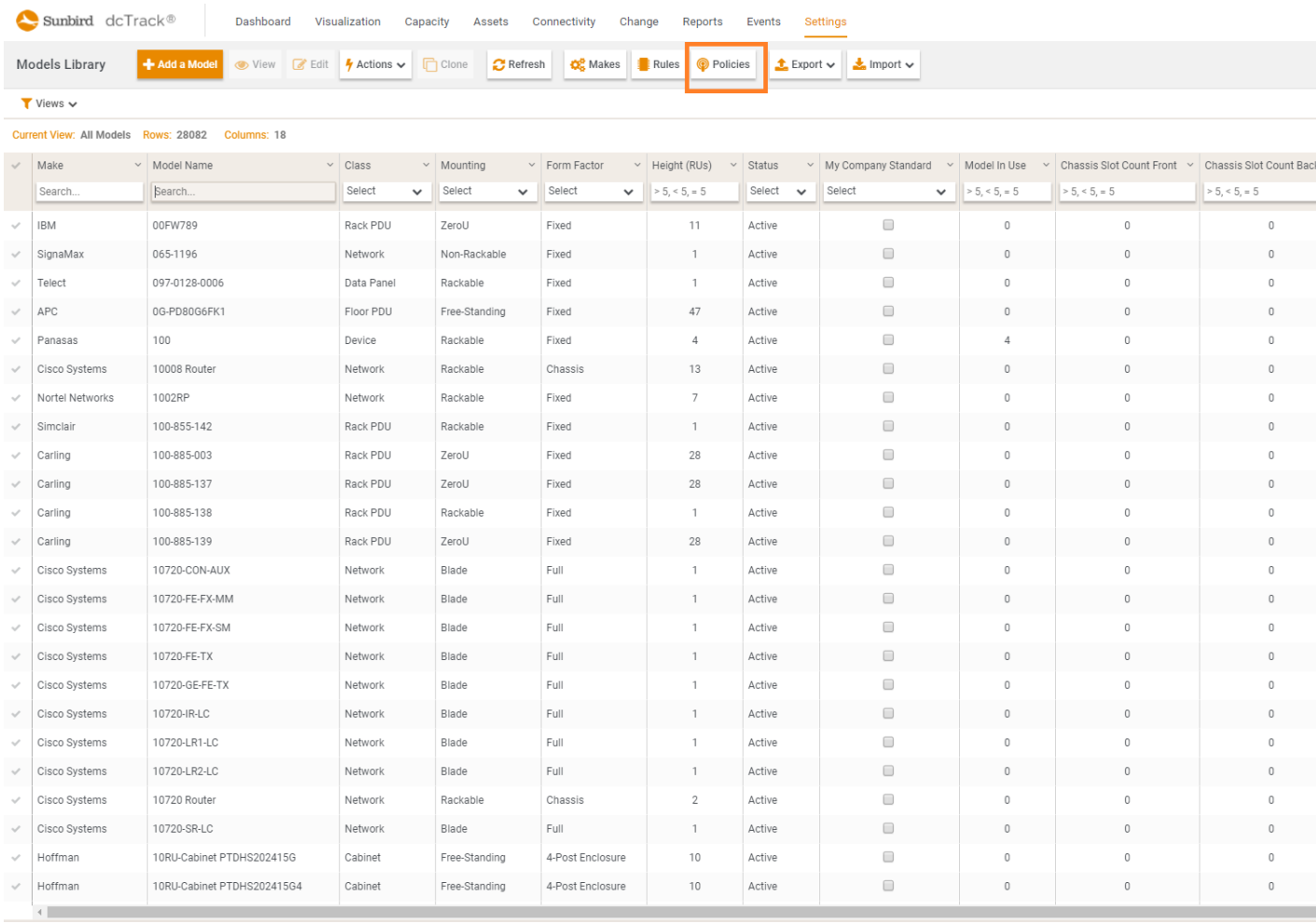
Readings for the 100 items are collected. Each Item will have 365 daily maximums. The 18 highest and lowest readings are discarded (365 X 0.05 = 18.25). 329 readings per Item remain. They are averaged per Item and multiplied by 1 plus the Additional Safety Margin (%). The result for each Item is used to set the Auto Power Budget. Then the Auto Power Budget of the 100 Items are used to calculate the Model's Auto Power Budget by first discarding the highest and lowest 5 items, leaving only 90 Item's Auto Power Budget values. The maximum of the 90 Item's Auto Power Budget is used as the Auto Power Budget for Model A.

Editing Model Policies

Model Policies can be edited by any user with the System Administrator Role, or users with the "Manage Library" Auxiliary Role.

Steps to Edit a Model Policy

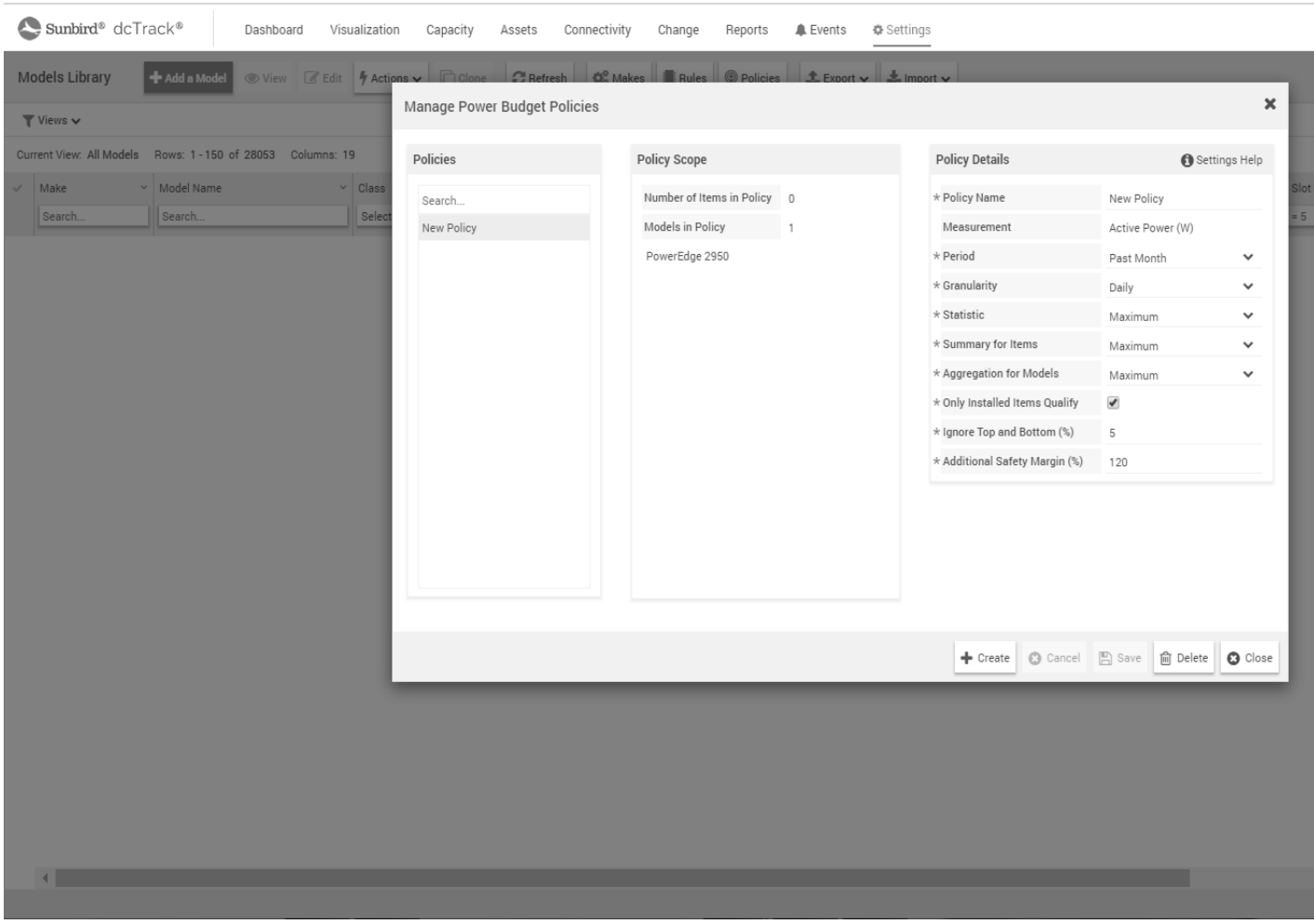
1. Navigate to Settings > Models library
2. Click the Policies button on the Model’s list tool bar



Make	Model Name	Class	Mounting	Form Factor	Height (RUs)	Status	My Company Standard	Model In Use	Chassis Slot Count Front	Chassis Slot Count Back
IBM	00FW789	Rack PDU	ZeroU	Fixed	11	Active		0	0	0
SignaMax	065-1196	Network	Non-Rackable	Fixed	1	Active		0	0	0
Telect	097-0128-0006	Data Panel	Rackable	Fixed	1	Active		0	0	0
APC	0G-PD80G6FK1	Floor PDU	Free-Standing	Fixed	47	Active		0	0	0
Panasas	100	Device	Rackable	Fixed	4	Active		4	0	0
Cisco Systems	10008 Router	Network	Rackable	Chassis	13	Active		0	0	0
Nortel Networks	1002RP	Network	Rackable	Fixed	7	Active		0	0	0
Simclair	100-855-142	Rack PDU	Rackable	Fixed	1	Active		0	0	0
Carling	100-885-003	Rack PDU	ZeroU	Fixed	28	Active		0	0	0
Carling	100-885-137	Rack PDU	ZeroU	Fixed	28	Active		0	0	0
Carling	100-885-138	Rack PDU	Rackable	Fixed	1	Active		0	0	0
Carling	100-885-139	Rack PDU	ZeroU	Fixed	28	Active		0	0	0
Cisco Systems	10720-CON-AUX	Network	Blade	Full	1	Active		0	0	0
Cisco Systems	10720-FE-FX-MM	Network	Blade	Full	1	Active		0	0	0
Cisco Systems	10720-FE-FX-SM	Network	Blade	Full	1	Active		0	0	0
Cisco Systems	10720-FE-TX	Network	Blade	Full	1	Active		0	0	0
Cisco Systems	10720-GE-FE-TX	Network	Blade	Full	1	Active		0	0	0
Cisco Systems	10720-IR-LC	Network	Blade	Full	1	Active		0	0	0
Cisco Systems	10720-LR1-LC	Network	Blade	Full	1	Active		0	0	0
Cisco Systems	10720-LR2-LC	Network	Blade	Full	1	Active		0	0	0
Cisco Systems	10720 Router	Network	Rackable	Chassis	2	Active		0	0	0
Cisco Systems	10720-SR-LC	Network	Blade	Full	1	Active		0	0	0
Hoffman	10RU-Cabinet PTDHS202415G	Cabinet	Free-Standing	4-Post Enclosure	10	Active		0	0	0
Hoffman	10RU-Cabinet PTDHS202415G4	Cabinet	Free-Standing	4-Post Enclosure	10	Active		0	0	0

3. From the Manage Power Budget Policies screen, select the Policy you wish to Edit.
4. Modify the settings you want to change. (Every field excluding the "Measurements" field in Policy Details can be modified)

5. Click the Save Button to save the settings.



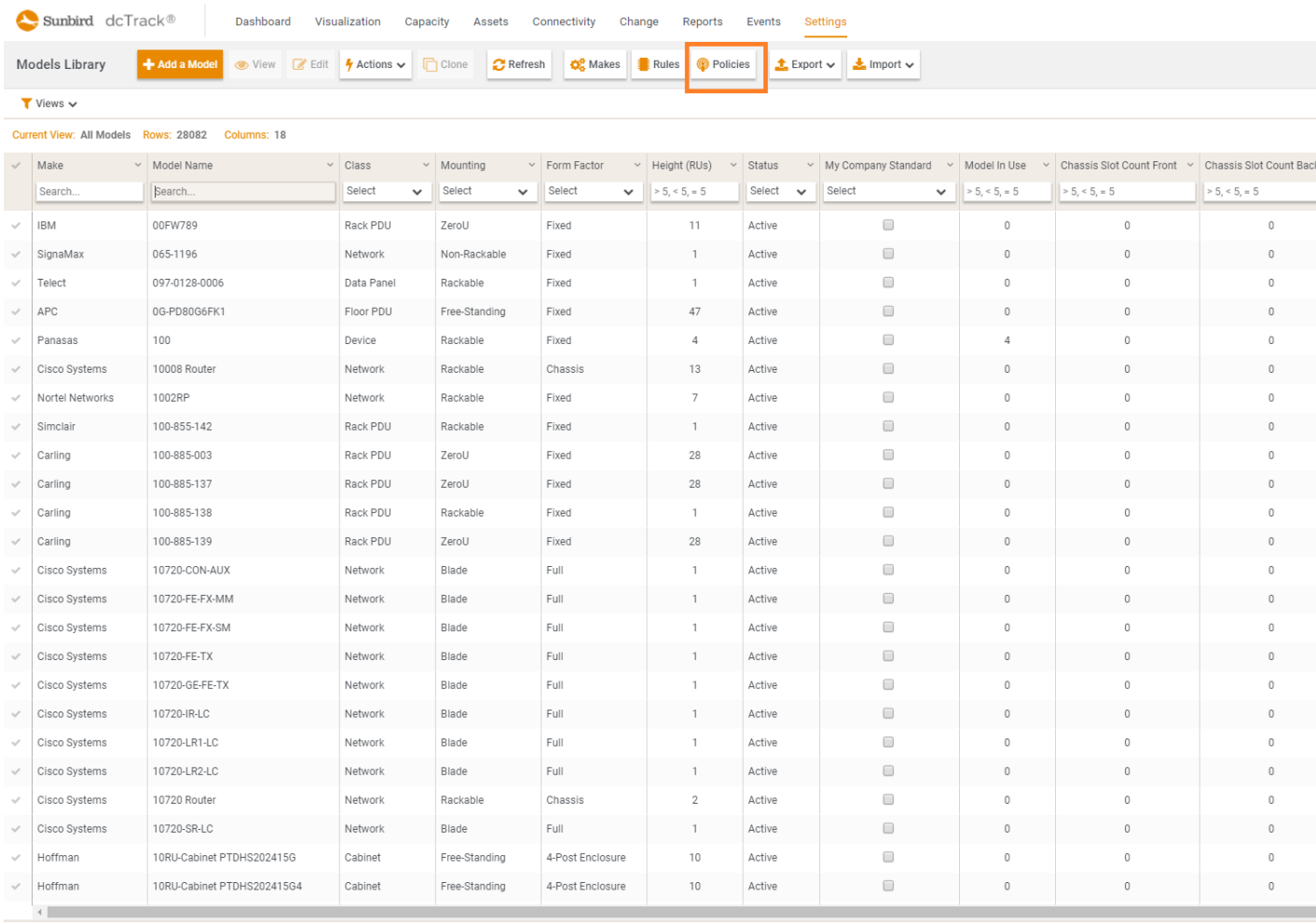
Changes made to the Policy will be applied when the next weekly Auto Power Budget job is run.

Deleting Model Policies

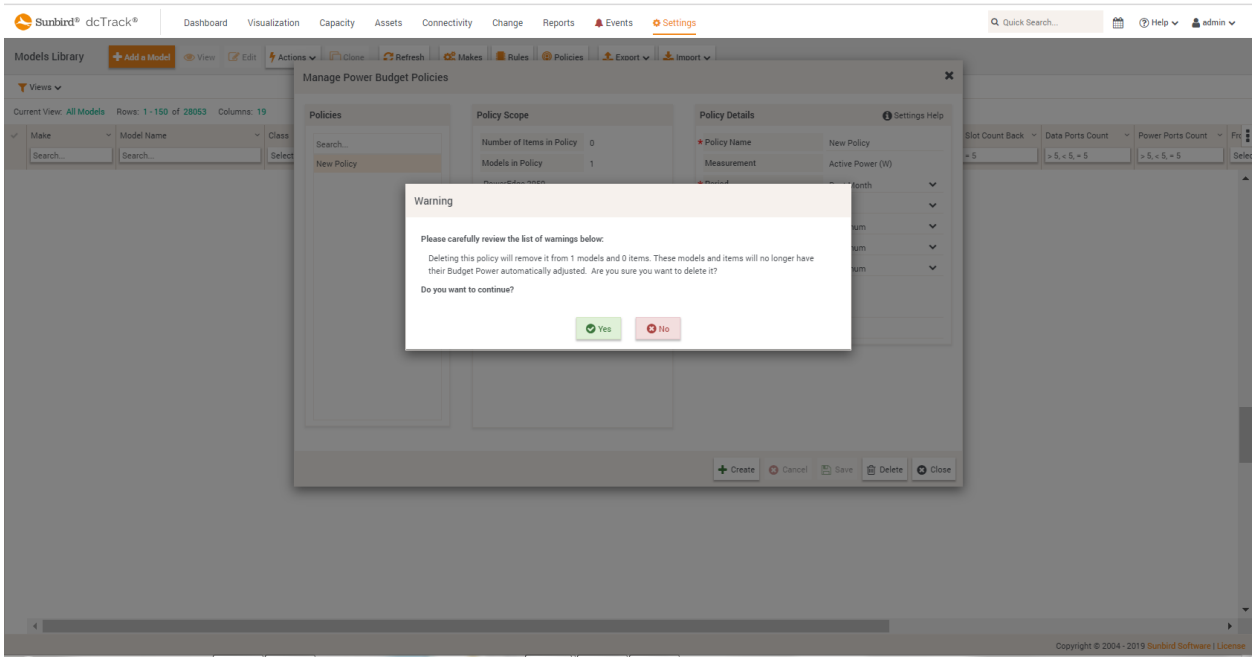
Model Policies can be deleted by any user with the System Administrator Role, or users with the "Manage Library" Auxiliary Role.

Steps to Delete a Model Policy

1. Navigate to Settings > Models library
2. Click the Policies button on the Model's list tool bar



3. From the Manage Power Budget Policies screen, select the Policy you wish to Delete.
4. Click the Delete button
5. Carefully review the warning displayed in the pop up. The warning will indicate how many Models and Items will be effected by deleting the Policy.



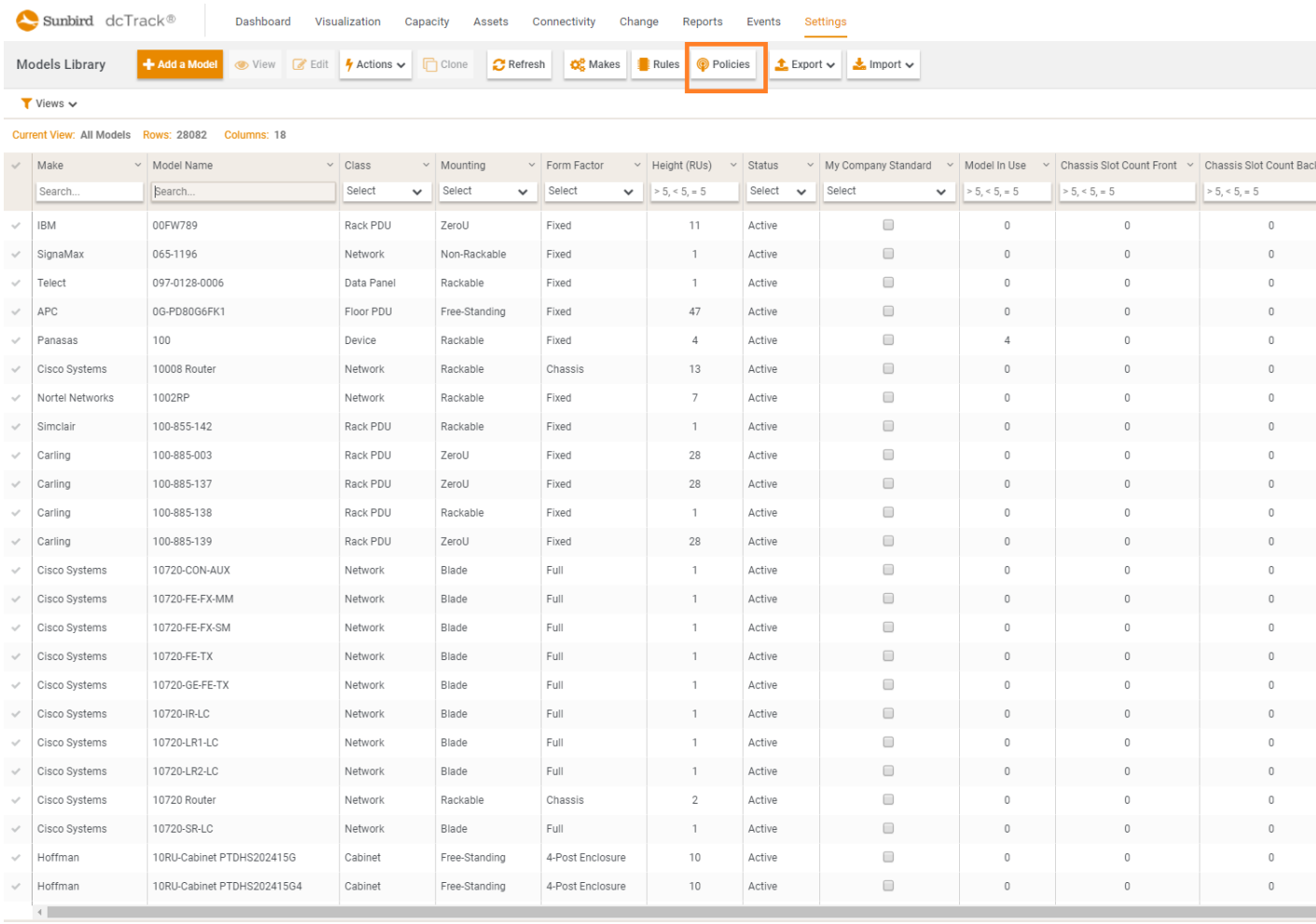
6. If you click "No" you will be returned to the Manage Power Budget Policies page and the Policy will not be deleted.
7. If you click "Yes" the Policy will be deleted. The Budget Status of any Models or Items previously assigned to the Policy will be set to "Manually Adjusted" and they will no longer be included in any Trend analysis.

Assigning Model Policies

Model Policies can be Assigned by any user with the System Administrator Role, or users with the "Manage Library" Auxiliary Role.

Steps to Assign a Model Policy

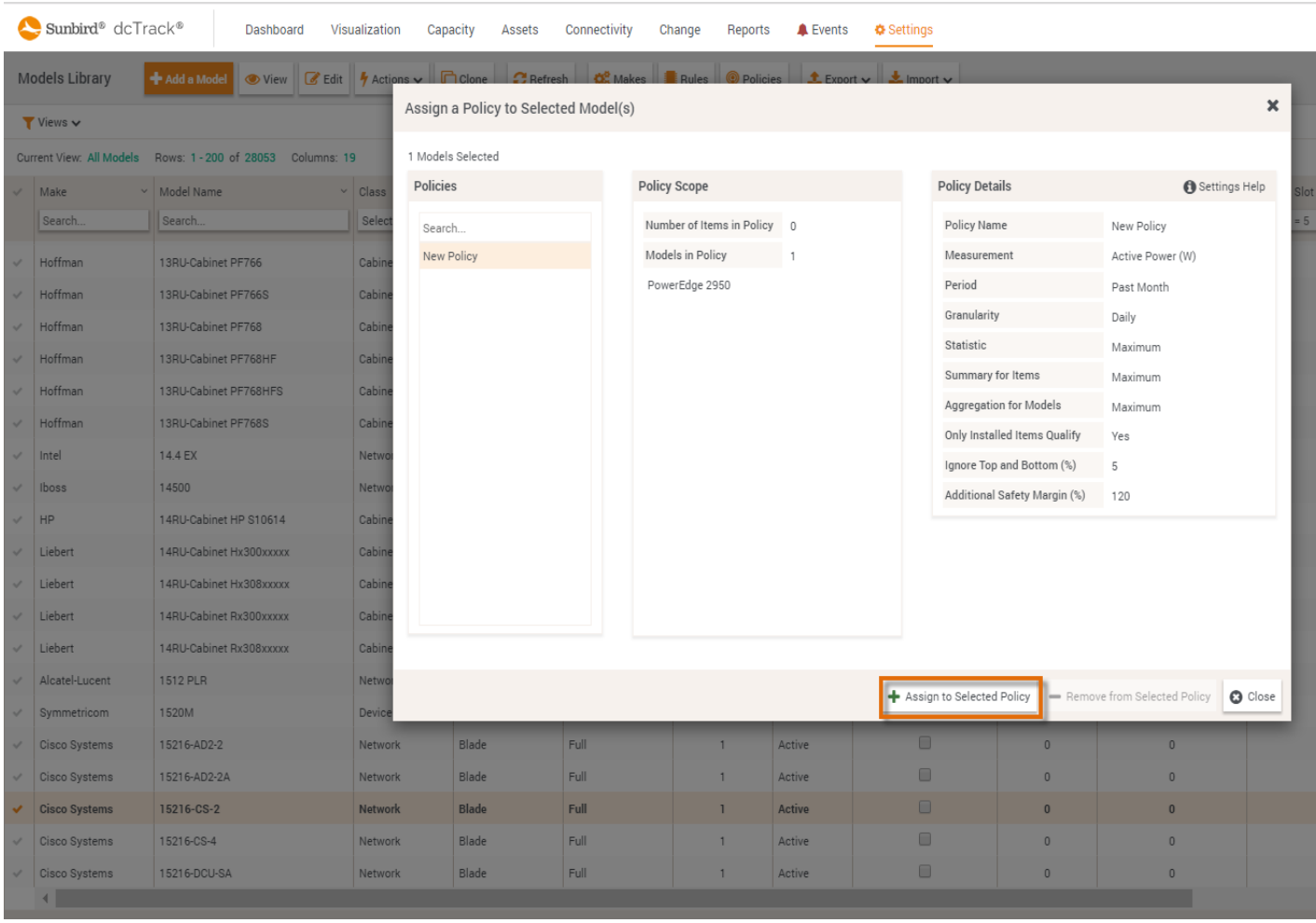
1. Navigate to Settings > Models library
2. From the Models List, select the Models you wish to assign to a Policy
3. Click the Policies button on the Model's list tool bar



Make	Model Name	Class	Mounting	Form Factor	Height (RUs)	Status	My Company Standard	Model In Use	Chassis Slot Count Front	Chassis Slot Count Back
IBM	00FW789	Rack PDU	ZeroU	Fixed	11	Active		0	0	0
SignaMax	065-1196	Network	Non-Rackable	Fixed	1	Active		0	0	0
Telect	097-0128-0006	Data Panel	Rackable	Fixed	1	Active		0	0	0
APC	0G-PD80G6FK1	Floor PDU	Free-Standing	Fixed	47	Active		0	0	0
Panasas	100	Device	Rackable	Fixed	4	Active		4	0	0
Cisco Systems	10008 Router	Network	Rackable	Chassis	13	Active		0	0	0
Nortel Networks	1002RP	Network	Rackable	Fixed	7	Active		0	0	0
Simclair	100-855-142	Rack PDU	Rackable	Fixed	1	Active		0	0	0
Carling	100-885-003	Rack PDU	ZeroU	Fixed	28	Active		0	0	0
Carling	100-885-137	Rack PDU	ZeroU	Fixed	28	Active		0	0	0
Carling	100-885-138	Rack PDU	Rackable	Fixed	1	Active		0	0	0
Carling	100-885-139	Rack PDU	ZeroU	Fixed	28	Active		0	0	0
Cisco Systems	10720-CON-AUX	Network	Blade	Full	1	Active		0	0	0
Cisco Systems	10720-FE-FX-MM	Network	Blade	Full	1	Active		0	0	0
Cisco Systems	10720-FE-FX-SM	Network	Blade	Full	1	Active		0	0	0
Cisco Systems	10720-FE-TX	Network	Blade	Full	1	Active		0	0	0
Cisco Systems	10720-GE-FE-TX	Network	Blade	Full	1	Active		0	0	0
Cisco Systems	10720-IR-LC	Network	Blade	Full	1	Active		0	0	0
Cisco Systems	10720-LR1-LC	Network	Blade	Full	1	Active		0	0	0
Cisco Systems	10720-LR2-LC	Network	Blade	Full	1	Active		0	0	0
Cisco Systems	10720 Router	Network	Rackable	Chassis	2	Active		0	0	0
Cisco Systems	10720-SR-LC	Network	Blade	Full	1	Active		0	0	0
Hoffman	10RU-Cabinet PTDHS202415G	Cabinet	Free-Standing	4-Post Enclosure	10	Active		0	0	0
Hoffman	10RU-Cabinet PTDHS202415G4	Cabinet	Free-Standing	4-Post Enclosure	10	Active		0	0	0

4. From the Assign a Policy to Selected Model(s) screen, select the Policy you wish to Assign.

5. Click the Assign to Selected Policy Button.



When a policy is assigned to a model, Policy scope will be updated to show the Number of Items using the Policy, the Number of Models using the Policy and a list of those Models.

One Policy can be assigned to multiple Models, however a Model can be assigned to only one Policy.

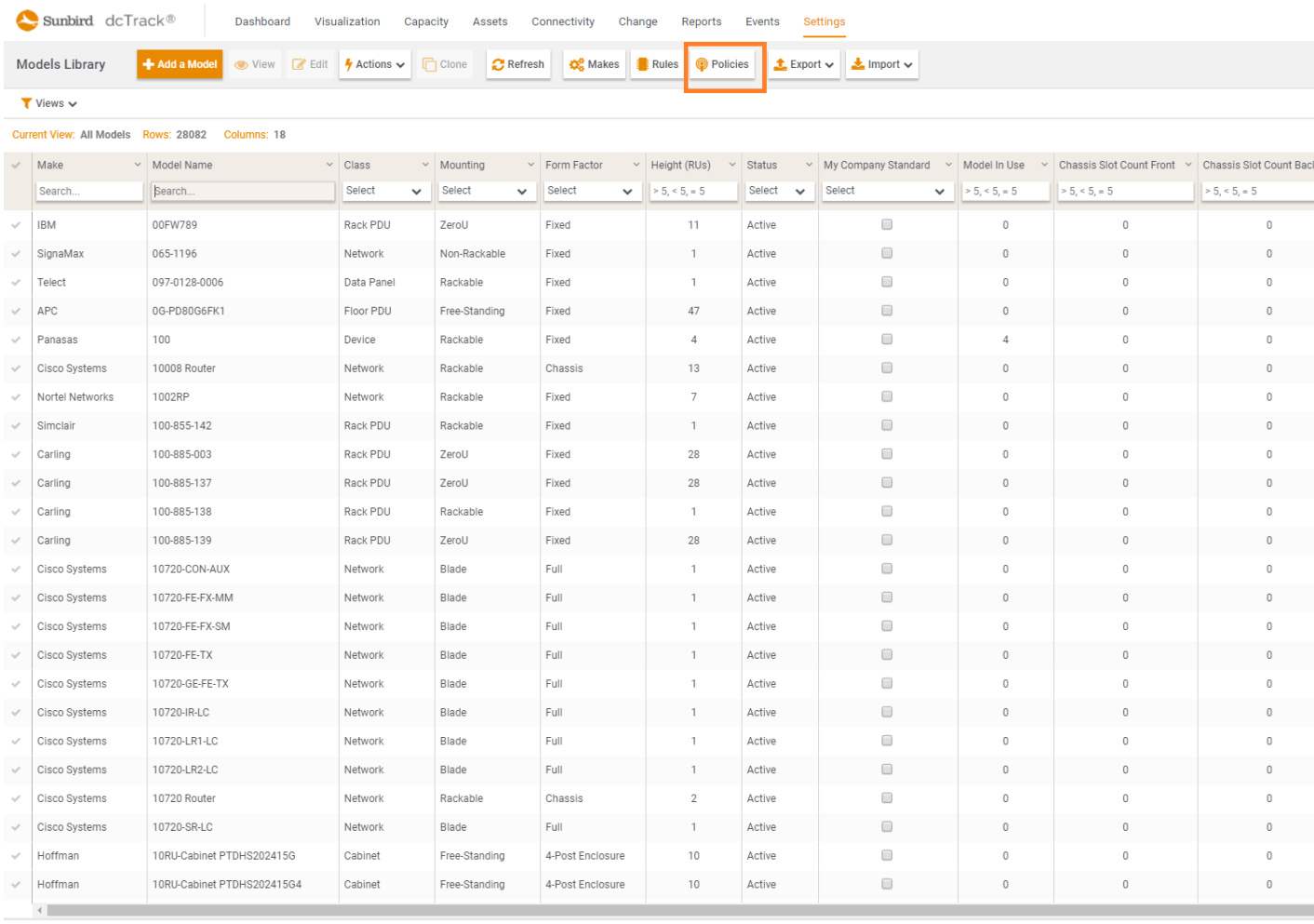
Alternatively, you can also assign a Policy to a Model by selecting a Model in the Model's List and selecting the policy from the drop down in the Policy column. By default, the Policy column is hidden in the Model List. To display the Policy column, click the Show/Hide icon and select the column.

Unassigning Model Policies

Model Policies can be Unassigned by any user with the System Administrator Role, or users with the "Manage Library" Auxiliary Role.

Steps to Unassign a Model Policy

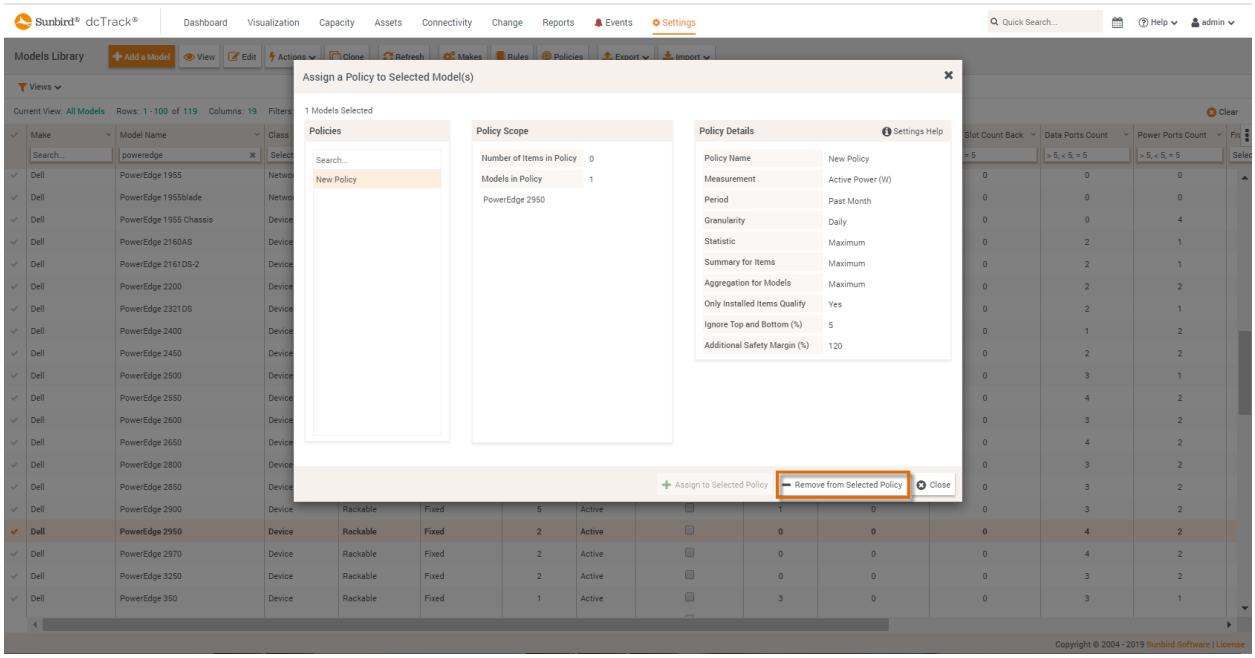
1. Navigate to Settings > Models library
2. From the Models List, select the Model(s) you wish to unassign
3. Click the Policies button on the Model's list tool bar



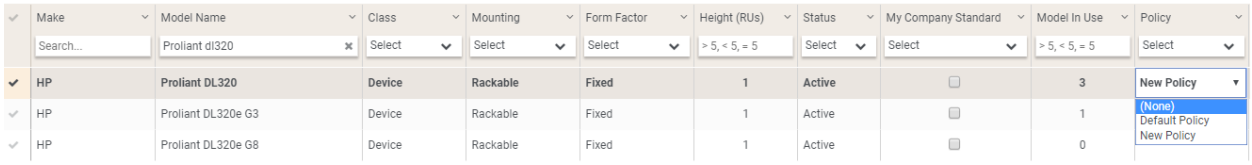
Make	Model Name	Class	Mounting	Form Factor	Height (RUs)	Status	My Company Standard	Model In Use	Chassis Slot Count Front	Chassis Slot Count Back
IBM	00FW789	Rack PDU	ZeroU	Fixed	11	Active		0	0	0
SignaMax	065-1196	Network	Non-Rackable	Fixed	1	Active		0	0	0
Telect	097-0128-0006	Data Panel	Rackable	Fixed	1	Active		0	0	0
APC	0G-PD80G6FK1	Floor PDU	Free-Standing	Fixed	47	Active		0	0	0
Panasas	100	Device	Rackable	Fixed	4	Active		4	0	0
Cisco Systems	10008 Router	Network	Rackable	Chassis	13	Active		0	0	0
Nortel Networks	1002RP	Network	Rackable	Fixed	7	Active		0	0	0
Simclair	100-855-142	Rack PDU	Rackable	Fixed	1	Active		0	0	0
Carling	100-885-003	Rack PDU	ZeroU	Fixed	28	Active		0	0	0
Carling	100-885-137	Rack PDU	ZeroU	Fixed	28	Active		0	0	0
Carling	100-885-138	Rack PDU	Rackable	Fixed	1	Active		0	0	0
Carling	100-885-139	Rack PDU	ZeroU	Fixed	28	Active		0	0	0
Cisco Systems	10720-CON-AUX	Network	Blade	Full	1	Active		0	0	0
Cisco Systems	10720-FE-FX-MM	Network	Blade	Full	1	Active		0	0	0
Cisco Systems	10720-FE-FX-SM	Network	Blade	Full	1	Active		0	0	0
Cisco Systems	10720-FE-TX	Network	Blade	Full	1	Active		0	0	0
Cisco Systems	10720-GE-FE-TX	Network	Blade	Full	1	Active		0	0	0
Cisco Systems	10720-IR-LC	Network	Blade	Full	1	Active		0	0	0
Cisco Systems	10720-LR1-LC	Network	Blade	Full	1	Active		0	0	0
Cisco Systems	10720-LR2-LC	Network	Blade	Full	1	Active		0	0	0
Cisco Systems	10720 Router	Network	Rackable	Chassis	2	Active		0	0	0
Cisco Systems	10720-SR-LC	Network	Blade	Full	1	Active		0	0	0
Hoffman	10RU-Cabinet PTDHS202415G	Cabinet	Free-Standing	4-Post Enclosure	10	Active		0	0	0
Hoffman	10RU-Cabinet PTDHS202415G4	Cabinet	Free-Standing	4-Post Enclosure	10	Active		0	0	0

4. From the Assign a Policy to Selected Model(s) screen, select the Policy the Model(s) is assigned to.

5. Click the Remove from Selected Policy button



Policies may also be Assigned and Unassigned by selecting a rowl from the Models List and selecting the Policy option from the policy column.



Power Supply Budget Status

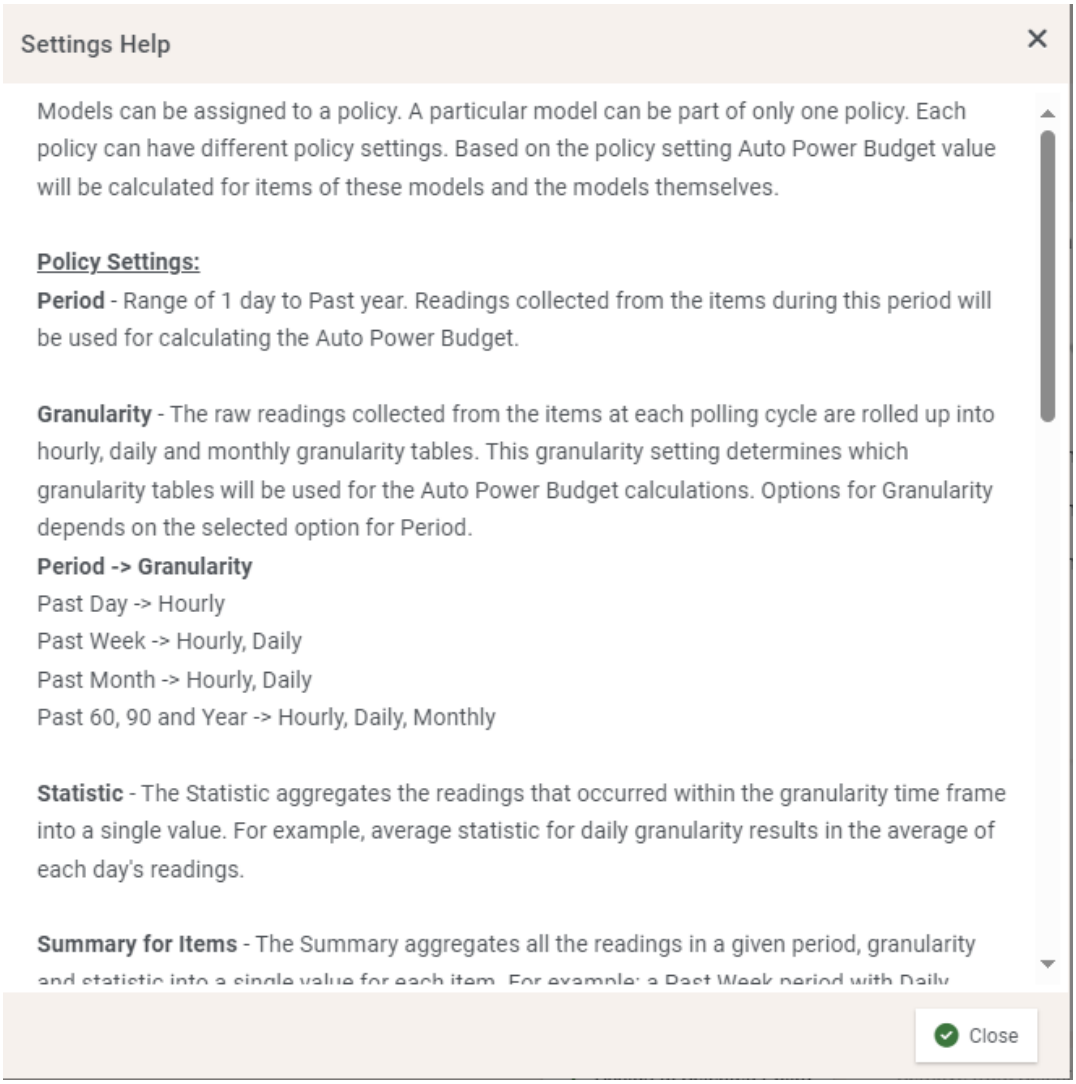
Power Supply sub tab of the Item and the Model has following fields that describe how the Budget Watt is getting updated for that item or model

1. Original Power - Read Only. When no power supply ports are created for the item or model, the value will be 0. Once the power supply ports are created, the value is set to the Watts (B) value of the power supply ports. This value does not update if the Watts (B) of the power supply ports are modified later.
2. Auto Power Budget - Check box. Checked by default if the model is assigned to a policy, otherwise it will be unchecked. You can uncheck this check box if you do not want the item or model power supply ports Watts(B) to be auto-updated.
3. Budget Status - Read Only. This field have following three values and also displays the budget% of Name-plate.

a. Default Budget - When Watts(B)/Watts(N) of the power supply port = 0.6, Budget Status is set to Default Budget(60%).

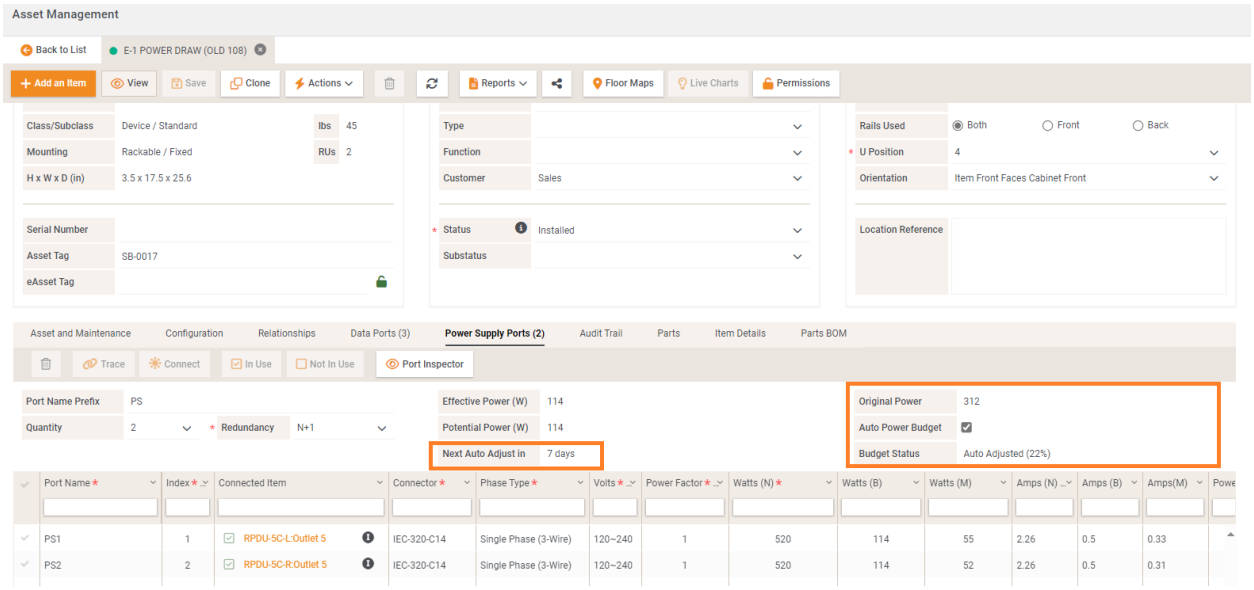
b. Auto Adjusted - When Watts(B) of the power supply port is updated by auto power budget, Budget status is set to Auto Adjusted. For auto-adjusting Watts (B) of the models, they must be assigned to a policy. For items, their Watts (B) are auto-adjusted only if they qualify according to the policy assigned to their models.

   For more details on policy setting and how auto-power budget is calculated for items and model, Go to Settings -> Model's Library -> Click Policies in the toolbar -> Click Settings help and read the description.



c. Manually Adjusted - When Watts(B) of the power supply is not auto adjusted and Watts(B)/Watts(N) value is not equal to 0.6, then Budget Status is set to Manually Adjusted.

4. Next Auto Adjust in - Read Only. This field is displayed only when the item or the model qualifies for the auto-adjustment of Watts(B). Otherwise, the field remains hidden. It shows the number of days until the next auto power budget job is scheduled to run, with values ranging from 7 down to 1.



Note: When new items or models are created, they are assigned the status 'Manually Adjusted' or 'Default Budget' based on their Watts (B) value. They do not receive the 'Auto Adjusted' status because they lack historical readings, which are required to calculate the auto-adjusted Watts (B) for an item or model

For additional information please refer to the section on Power Budget Policies.

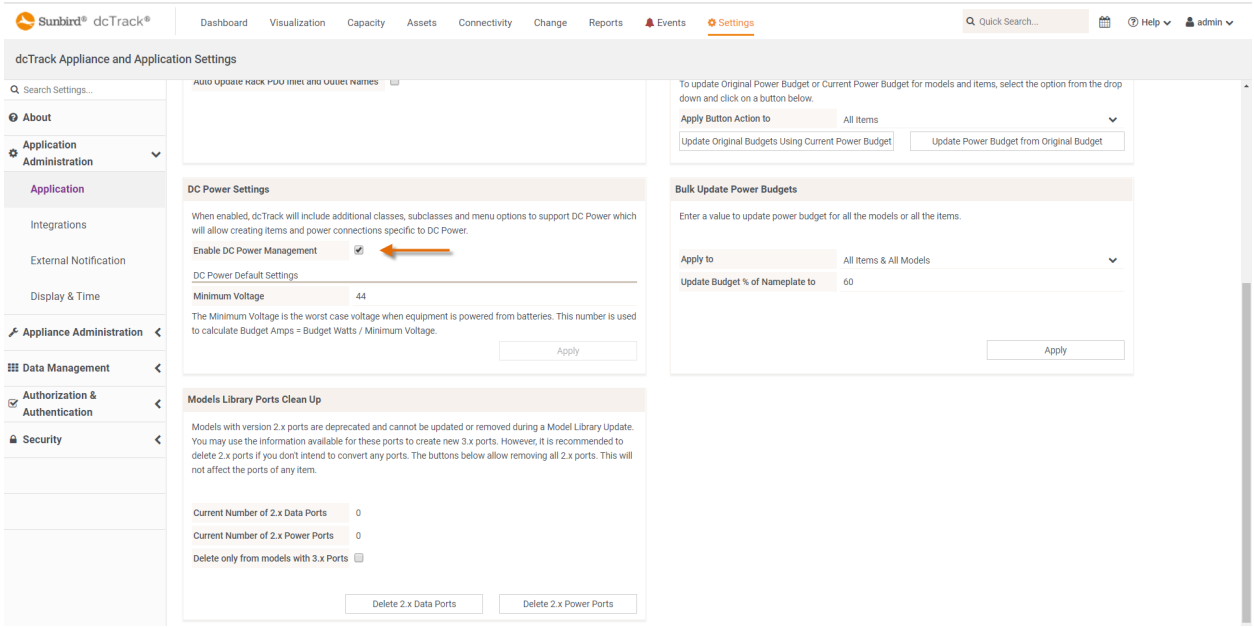
Chapter 4:Direct Current (DC Power)

dcTrack supports Direct Current Power distribution (DC Power). The DC Power feature allows you to track and manage assets that require DC Power in their Data Centers in addition to dcTrack's existing AC Power features. Both AC and DC power can be supported in a single Data Center or even a single Asset.

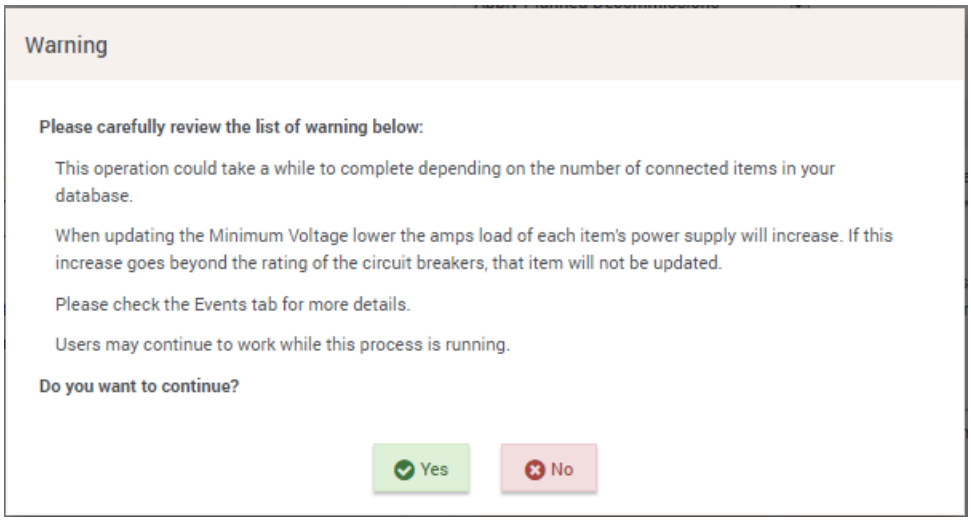
Enabling DC Power

To enable the DC Power feature:

1. Navigate to Settings > dcTrack Settings > Application Administration > Application.
2. On the DC Power Settings panel, select the "Enable DC Power Management" check box.



3. The DC Power setting is saved immediately.
4. If you change the DC Power Default setting, you must click the "Apply" button to save this setting.
5. After clicking the Apply button you will be asked to confirm your selection.



6. To cancel your selection, click the "No" button. To Apply your setting, click the "Yes" button.

Note: As indicated in the confirmation message, if the Minimum Voltage value is changed, the application of the new setting could take a while to complete. The actual time will depend on the number of connected Items in the database. Users may continue to work in dcTrack while the process is running.

When this feature is enabled, dcTrack will include Classes, Subclasses and menu options required to support DC Power.

You can also set the Minimum Voltage value on this panel. The Minimum Voltage value represents the worst case voltage when equipment is powered from batteries. This value is used to calculate Budget Amps using the formula

Budget Amps = Budget Watts / Minimum Voltage

By default, this value is set to 44 but can be changed by entering a different value and clicking the "Apply" button.

Disabling DC Power

To disable the DC Power feature:

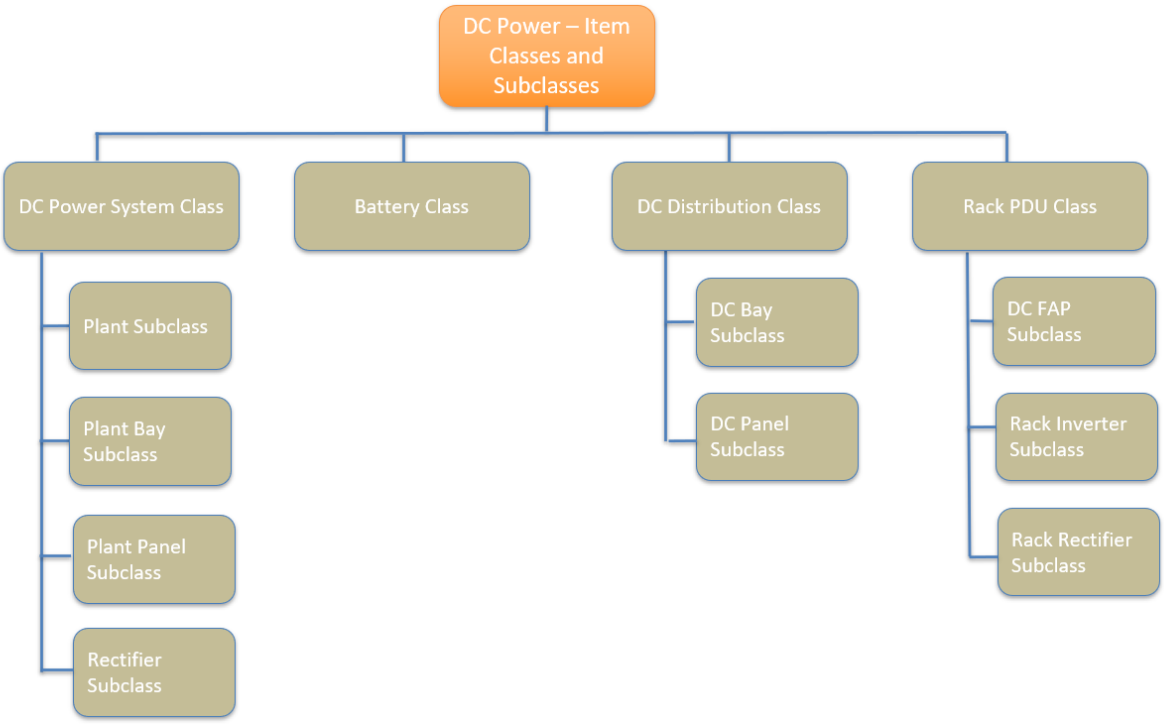
1. Navigate to Settings > dcTrack Settings > Application Administration > Application.
2. On the DC Power Settings panel, deselect the "Enable DC Power Management" check box.
3. The setting will be saved immediately.

When this feature is disabled, dcTrack will no longer display Classes, Subclasses and menu options that are specific to DC Power.

Note: You may not disable the DC Power feature if DC Power Items exist. You must first delete any DC Power Items then you can disable the feature.

DC Power Classes and Subclasses

DC Power Classes and Subclasses will appear in dcTrack when the DC Power feature is enabled.

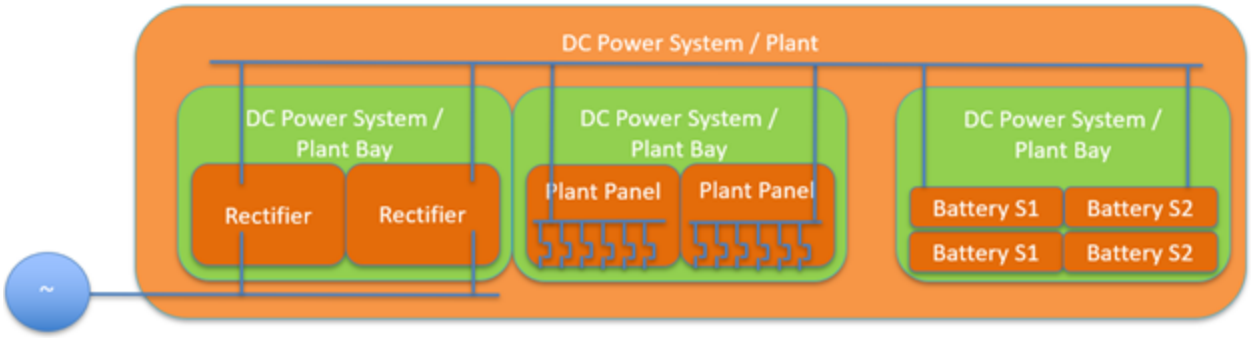


DC Power System Class

The following are the Subclasses for the DC Power System Item Class:

- The Plant Subclass Item is a logical Item that groups all of the components of the DC Power System. A Data Center is expected to have two Plant items. One for A and one for B distribution.
- The Plant Bay Subclass Item is the physical container for Rectifiers, Main Distribution Panels and Batteries. This item will behave like an IT Cabinet. It will have Rack Units and provide a Cabinet Elevation showing the physical location of Rectifiers, Panels and Batteries.
- The Rectifier Subclass item represents each Rectifier within each Plant. Rectifiers are physically placed in a Bay and their power output feeds the Plant.
- The Plant Panel Subclass item is the Main Distribution Circuit Breaker or Fuse Board. This is the Panel that will hold the breakers or fuses that feed the BDCBB/FB. They automatically

receive the output power of the collective Rectifiers via the Plant.



New Class / Subclass	Power Chain Relationship	Physical Containment Relationship
DC Power System / Plant	Groups Plant Panels, Rectifiers & Batteries	None
DC Power System / Plant Bay	None	None
DC Power System / Plant Panel	Connections from Plant and to Battery Distribution / BD Panel	Plant Bay
DC Power System / Rectifier	Connections from AC and to Plant	Plant Bay
Battery	Connections to Plant	Plant Bay

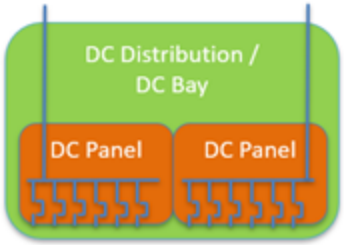
Battery Class

Battery Class Items are the individual Batteries. Each battery will belong to a String and the Plant Item will Track the String redundancy.

DC Distribution Class

Following are the Subclasses for DC Distribution Class Items:

- DC Bay subclass item are the Battery Distribution Fuse Bay (BDFB) or Battery Distribution Circuit Breaker Bay (BDCBB).
- This is the Panel that holds the Breaker that feeds the Fuse Alarm Panel inlet.



New Subclass	Power Chain Relationship	Physical Containment Relationship
DC Bay	None	None
DC Panel	Connections From DC Power System / Plant Panel and Connections to other DC Panels, DC FAPs, Rack Inverters	DC Bay

Rack PDU Subclasses for DC Power

The following are the DC Power Subclasses for Rack PDU Class Items:

- DC FAP Subclass Items represent the Fuse Alarm Panels that have Inlets and Outlets.
- Rack Inverter Subclass Items represent the Rackable Inverters which can transform a direct current (DC) into an alternating current (AC).
- Rack Rectifier Subclass Items represent the Rackable Rectifiers which can transform an alternating current (AC) into direct current (DC).

Note: Rack PDU classes also have a Subclass of AC Power, which is a specialized power strip that is used to provide additional electrical receptacles for an electrical outlet.

New Subclass	Power Chain Relationship	Physical Containment Relationship
DC FAP	Connection from Battery Distribution / DC Panel, Connections to Devices	Cabinet
Rack Inverter		Cabinet
Rack Rectifier		Cabinet

Building Power Chains for DC Power

Power infrastructure in dcTrack can be built out using the Web Client or File Import.

The high-level process for building a Power Chain for DC Power infrastructure in dcTrack is as follows:

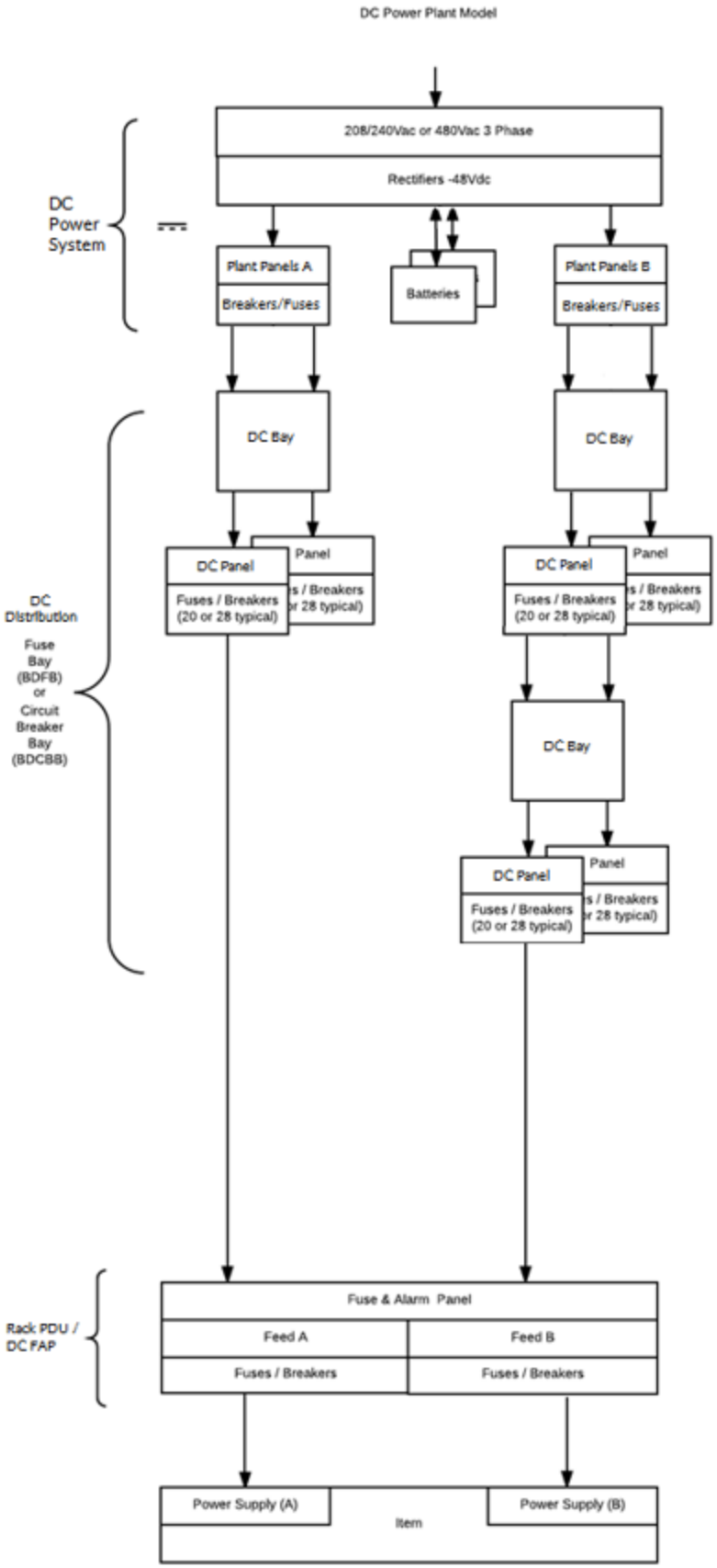
1. Create a Plant. User with the appropriate permissions can create a Plant using the "Add an Item" button on the Assets tab.

2. Create Rectifiers for a Plant. Users with the appropriate permissions can create Rectifies by clicking on the "Create Rectifier" button on the Rectifier sub-tab on a Plant's Item Detail page.
3. Create Plant Panels. User with the appropriate permissions can create Plant Panels by clicking the "Create Panel" button on the Panel sub-tab on a Plant's Item Detail page.
4. Create Plant Panel Breakers. Plant Panel Breakers must be created using the File Import feature. See Using File Import to Create Plant Panel Breakers.
5. Create DC Bays. Users with the appropriate permissions can create a DC Bays by clicking the "Add an Item" button on the Assets tab.
6. Create DC Panels. Users with the appropriate permissions can create DC Panels using the "Create Panel" button on the Panel sub-tab on a DC Bay's Item Detail page.
7. Create DC Panel Breakers. DC Panel Breakers must be created using the File Import feature. See Using File Import to Create DC Panel Breakers.

Once you have built out the DC Power Chain you can create DC Power circuits by connecting an Item's Power Supply to either a DC FAP or Rack Inverter which would then connect to a DC Panel Breaker to complete the circuit.

For details on how to build a DC Power Circuit, please refer to Building a DC Power Circuit.

The following diagram depicts an example of a DC Power Chain.


DC Power Plant Model
208/240Vac or 480Vac 3 Phase
Rectifiers -48Vdc
DC Power System
Plant Panels A
Breakers/Fuses
Batteries
Plant Panels B
Breakers/Fuses
DC Bay
DC Bay
DC Panel
Fuses / Breakers (20 or 28 typical)
Panel
DC Panel
Fuses / Breakers (20 or 28 typical)
Panel
DC Distribution
Fuse Bay (BDFB) or Circuit Breaker Bay (BDCBB)
DC Bay
DC Panel
Fuses / Breakers (20 or 28 typical)
Panel
Rack PDU / DC FAP
Fuse & Alarm Panel
Feed A
Feed B
Fuses / Breakers
Fuses / Breakers
Power Supply (A)
Item
Power Supply (B)

Steps for Creating a DC Power Chain in dcTrack

Create Plant and Rectifiers

1. From the Assets tab > Item List, click the Add an Item button. A new Item page will open in a new dcTrack tab.
2. In the New Item Page, select the Plant's make and model.
3. Assign a name to the Plant.
4. Select a Location for the Plant, if different from the one already selected in the Location drop down.
5. In the Rectifier sub-tab, select Input Volts (Vac) and Input Phase from the drop down.
6. Click on Create Rectifier button to create rectifiers for the Plant. Create Rectifier Button gets enabled only when fields Input Volts (Vac) and Input Phase are pop-ulated.
7. In Create Rectifier screen, provide the following information:
    a. Quantity - Required. Enter any number between 1-10.
    b. Rectifier Name Prefix - Required.
    c. Make - Required.
    d. Model - Required.
    e. Rating (A)
    f. Rating (Vac) (Required to connect)
    g. Phase (Required to connect)
    h. Output Volts - Required.
    i. Bay
    j. U Position
8. Click on Create Button.
9. Set the Rectifier redundancy by selecting an option from Redundancy drop down.
10. Click on Save to save the Plant.

Create Plant Panels (Web UI)

1. In the Plant Item details page -> Plant Panel sub-tab, click Create a panel button.
2. In the Create a panel screen, provide the following information:

    a. Panel Name: The name of the Panel being created. Panel Name must be unique within the Plant.

    b. No of Poles: The number of poles. Enter any value greater than 0.

c. Rating (A): Enter any value greater than 0 but less than or equal to the Plants Output Capacity value.

3. Click the Create button to save your entry

The newly created power panel will be viewable in the Power Panels sub-tab.

Create Plant Panel Breakers (File Import)

1. To create plant panel breakers select either of the following options:

   a. In the Asset Tab > Item List., click the Export button and select Download Import Template to download the import template as a CSV file.
   b. In Item list filter subclass to Plant Panel and click on Export into an Import Template > Branch Circuit Breakers to download an import template populated with the existing plant panel breakers as a CSV file.

2. Open your CSV file.

3. Follow the instructions and examples in the CSV file to add plant panel breakers.

4. In the Assets tab > File Import page, import the edited CSV file to create the breakers. You can also click on Bulk Edit button in Power Pole Breaker subtab in the Panel item details page which will take you to the file import wizard.

Create DC Bay

1. In the Assets tab > Item List, click the Add an Item button. A new Item page will open in a new dcTrack tab.

2. In the New Item Page, select the DC Bay's make and model.

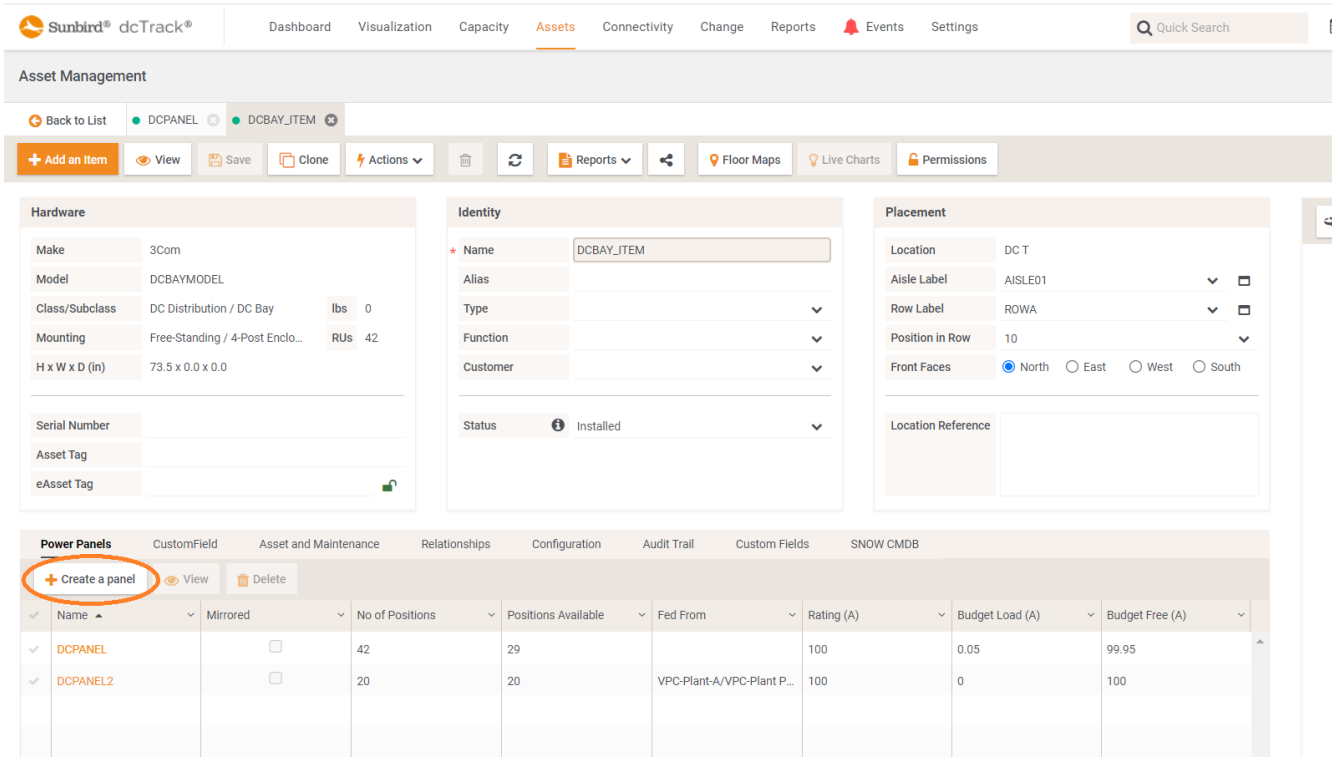
3. Assign a name to the DC Bay.

4. Select a location for the DC Bay, if different from the one already selected in the Location dropdown.

5. Click on Save button to save the item.

Create DC Panels (Web UI)

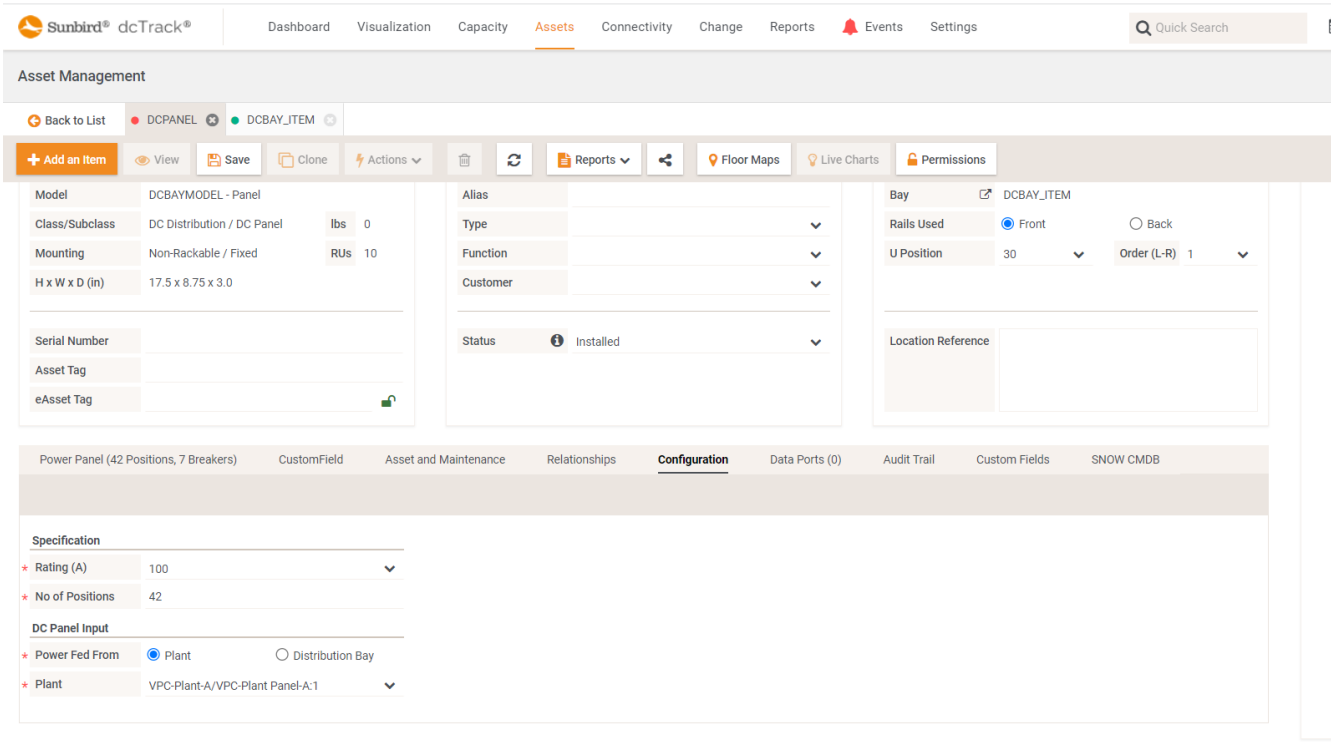
1. From a DC Bay Item Details page > Power Panels sub-tab, click the Create a panel button.



2. In the Create a panel screen, provide the following information:

   a. Panel Name: The name of the panel. Name must be unique within the DC Bay
   b. Maximum Amps: Select from the drop down. You can also enter a value in the text box if it does not exist the drop down.
   c. No of Poles: Enter a value greater than 0.
   d. Power Fed From: Select from where this DC Panel getting the power.
   e. Plant: Drop down will have the list of all the available Plant Breakers that have amps greater than or equal to the Maximum Amps selected.
   f. Distribution Bay: Drop down will have the list of all the available DC Panel Breakers that have amps greater than or equal to the Maximum Amps selected.

Panels can also be configured from the Configuration Subtab of the DC Panel Item detail page



Rating field is the Amps rated value of the panel breaker you have selected for Power Fed From field. This field is read only.

The newly created power panel will be viewable in the Power Panels sub-tab of DC Bay.

Create DC Panel Breakers (File Import)

1. To create dc panel breakers select either of the following options
    a. In the Asset Tab > Item List., click the Export button and select Download Import Template to download the import template as a CSV file.
    b. In Item list filter subclass to DC Panel and click on Export into an Import Template > Branch Circuit Breakers to download an import template populated with the existing dc panel breakers as a CSV file.
2. Open your CSV file.
3. Follow the instructions and examples in the CSV file to add dc panel breakers.
4. In the Assets tab > File Import page, import the edited CSV file to create the breakers. You can also click on Bulk Edit button in Power Pole Breaker subtab in the Panel item details page which will take you to the file import wizard.

Viewing, Creating and Deleting a Plant Panel for a Plant

Plant Panels associated with a Plant can be viewed in the Plant Panels sub-tab of the Plant's Item Detail Page.

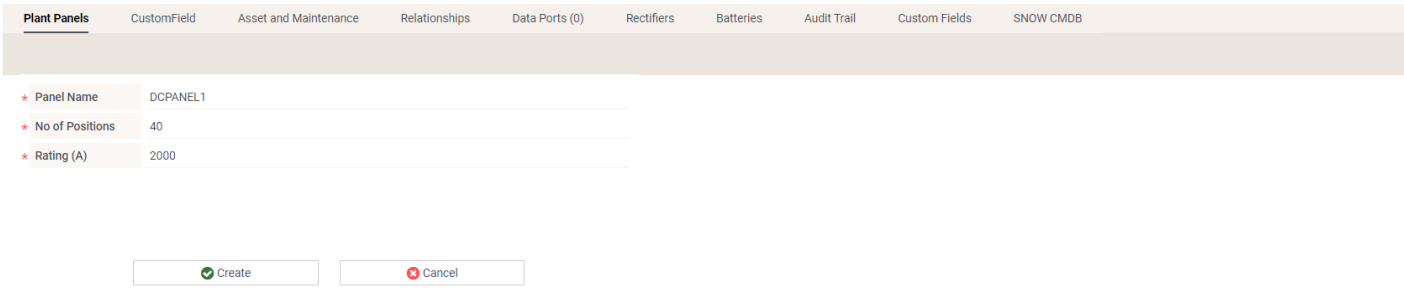
Note: You must have the appropriate permissions to view, create or delete a Plant Panel.

The following Plant Panel properties can be set in the Plant Panels sub-tab of a Plant Class Item:

- Name - Name of the Panel to be created
- No of Positions - Number of Pole Positions
- Rating (A) - Rating from the Fed From Item

Creating a Plant Panel

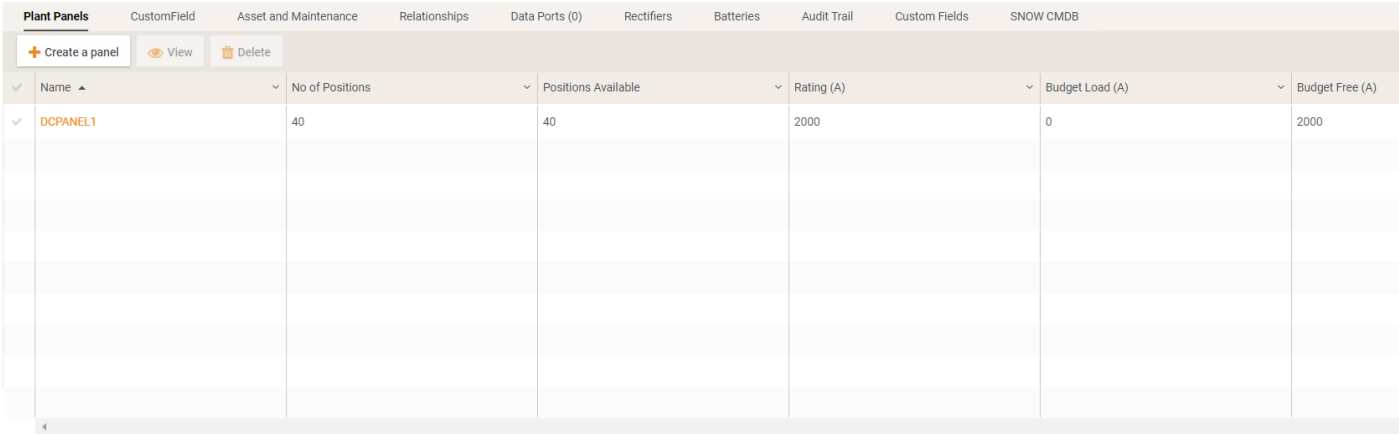
1. Navigate to the Item Detail page of a Plant Class Item.
2. On the Plant Panels sub-tab, click the "Create a Panel" button. You can not create Plant Panels using the "Add an Item" feature.
3. Provide the following details in the dialog box:
    a. Panel Name: The name of the Panel being created. Panel Name must be unique within the Plant.
    b. No. of Poles: Enter any value greater than 0.
    c. Rating (A): Enter any value greater than 0 but less than or equal to the Plants Output Capacity value.
4. Click the "Create" button to save your entry.



5. Close the dialog box

The newly created Plant Panel is viewable in the Plant Panels grid on the Plant Panels sub-tab.

Note: The Plant must be created and saved before creating its Plant Panels.



Deleting a Plant Panel

To delete a Plant panel:

1. Navigate to the Item Detail page of the Plant Class Item.
2. Click the check box to the left of the Panel(s) you want to delete.
3. Click the "Delete" button in the Plant Panel toolbar.

You can create and delete Plant Panels in bulk using file import feature. See Importing and Exporting Plant Panel and DC Panel for more details.

Creating Editing and Deleting Plant Panel Breakers

Plant Panel Layout

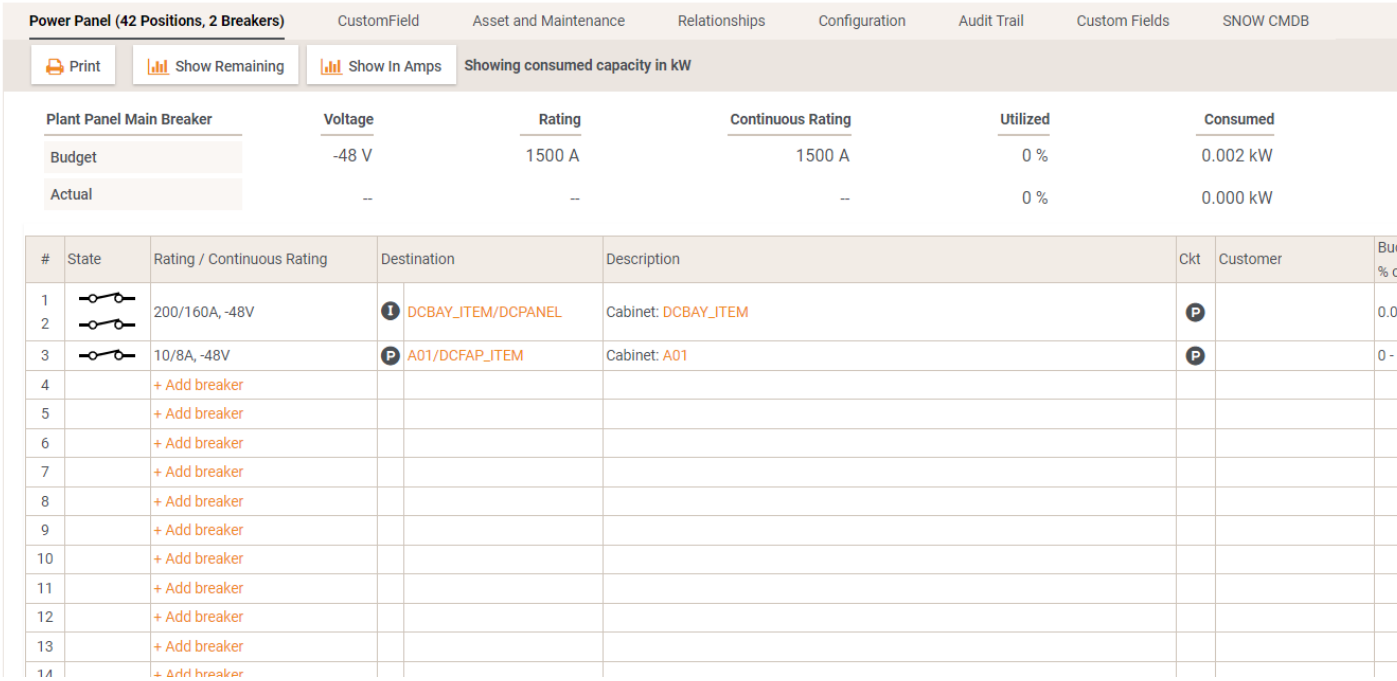
The top panel of the Plant Panel subtab displays readings for the panel. The tool bar provides several options for viewing the readings

- Print - Print the Power Panel Subtab
- Show Remaining/Show Consumption - This button can be toggled between the two options to either show remaining power or power consumed
- Show in Amps/Show in kW - This button can be toggled between the two options to either display the readings in Amps or kilowatts

The following columns are available in the grid.

- The # Poles
- State - Open Closed
- Rating/Continuous Rating - Displays the Rating, the De-Rated value and the voltage for the breaker
- Destination - This column is broken into two sections the first displays the Status P Planned I Installed. For AC Panels it is the Status of the Power Outlet. For DC Items it is the status of the connected Item. The second section displays the connector of the Power Outlet or Connector Name when connected to a Floor PDU. When the Power Outlet has multiple ports the connectors will be listed comma separated. The text "+ Add Whip" is displayed when the breaker is not connected to an outlet.
- Description - Displays the assignment type and assignment text. A caption icon will be dispalyed when there is a comment, hovering over the caption icon will display the comment text.
- For Other assignment the text entered in the comment will show in the column and not in the caption icon.
- Ckt - Circuit status when the Power Outlet is connected to equipment. When clicked you are navigated to the circuit trace. (existing functionality)

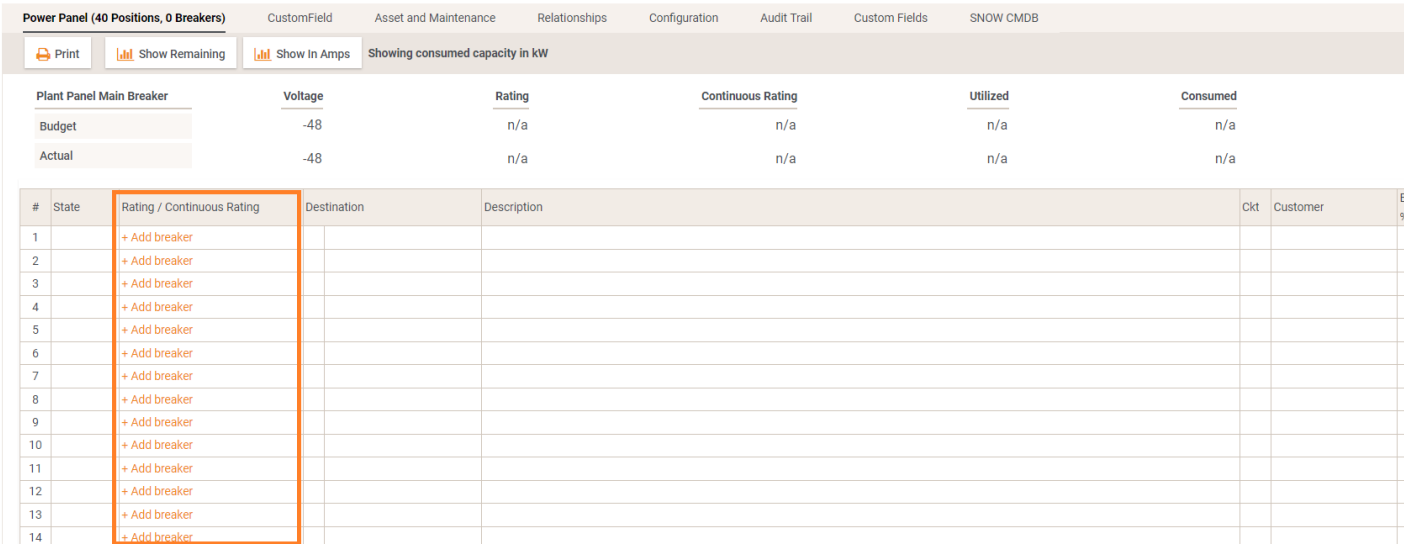
- Customer: Customer field from cabinet item for the power outlet. If customer is not assigned to cabinet, then the customer field assigned to the power outlet. In the case where there is no power outlet, the customer field will remain blank.
- Budget (kw) % of Rating: Budget: Budget value in kw or amps
- Actual (kw) % of Rating: Actual value in kw or amps



Creating/Editing Plant Panel breakers

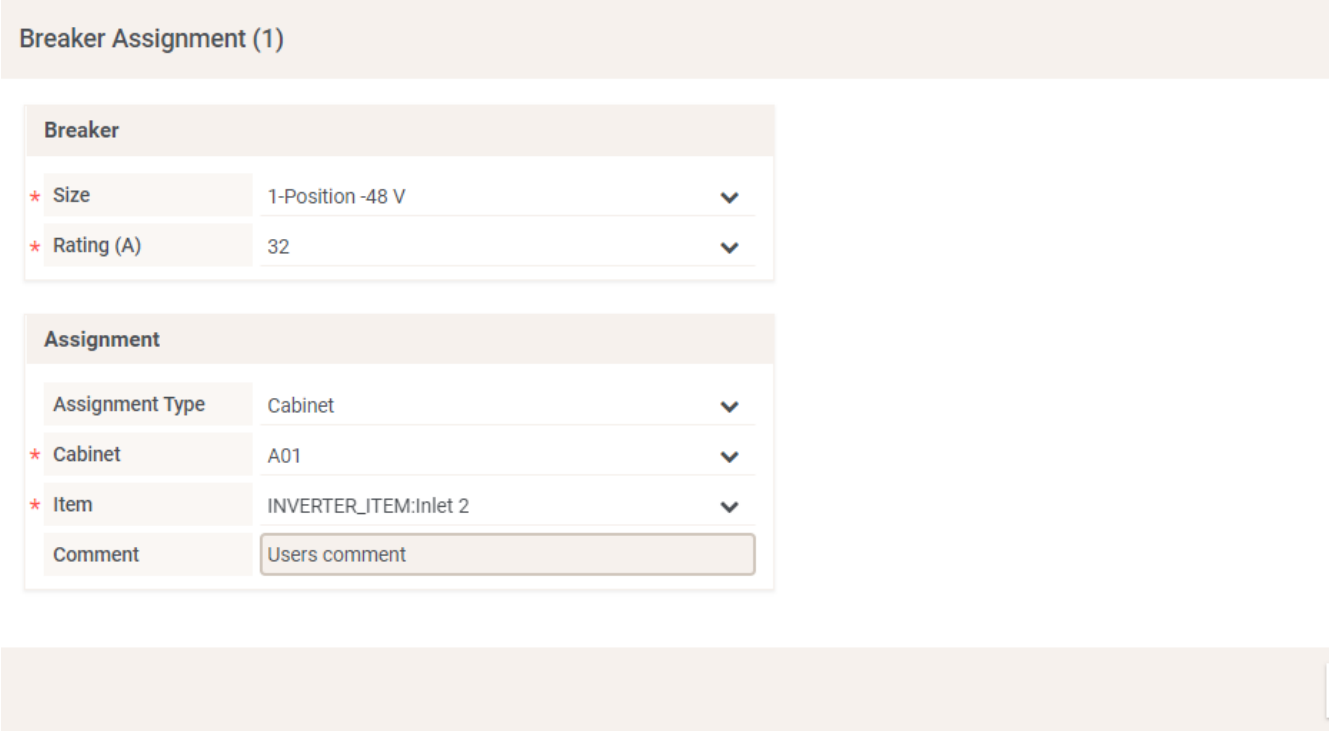
To create panel breakers:

1. Open item details page of Plant Panel in edit mode.
2. In the Power Panel sub tab, click the "+ Add breaker" text in the position you are creating the breaker for



3. Provide following information in the Breaker Assignment Dialog
   a. Size : Select the size of the breaker.
   b. Rating (A) : Select Rating Amps for the breaker. You can also enter a number if the drop down list do not have the value that you want to select.
   c. Assignment Type - Can be Cabinet, Space or Other
   d. Cabinet: Drop down list of cabinets that have free inlets or power supply ports. Available when Assignment Type is Cabinet
   e. Item: Drop down list of Items and Ports from the selected cabinet that have free Inlets (DC FAP or Rack Inverter) or a free Power Supply.
   f. Space Name: User defined Space Name used assignment type is "Space"
   g. Space ID: User defined ID (Required when Assignment type is "Space")

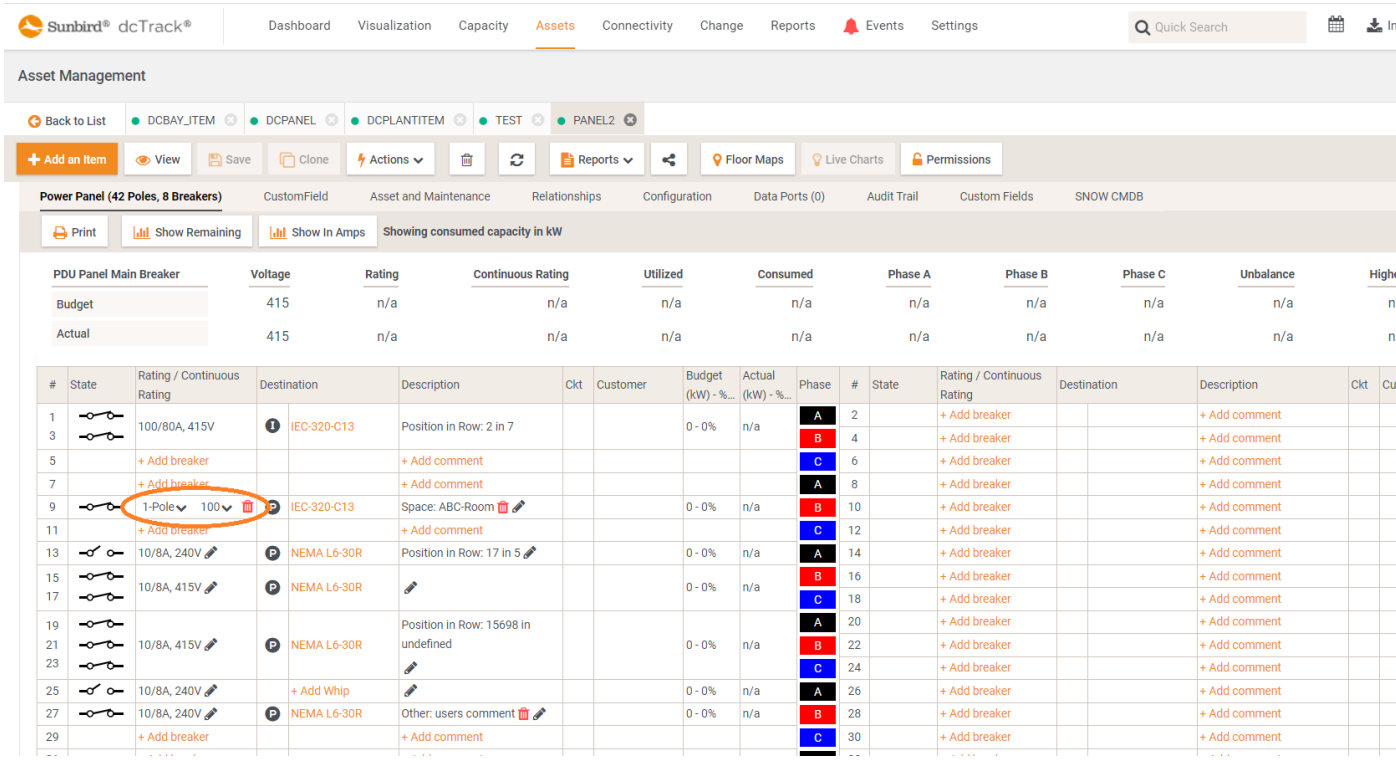
h. Comment: User supplied comments associated with the breaker



4. Click "Save" to create the breaker

Deleting Plant Panel Breakers

To delete a plant panel breaker click the pencil icon in the Rating/Continuous Rating column of the breaker to enter edit mode. Once in edit mode the delete icon is displayed in the column. Click the icon to delete the breaker.



Note : You must have the appropriate permissions to delete a power panel.

Using File Import to Create and Manage Plant Panel Breakers

Plant Panel breakers can be viewed from the Power – [x] Poles, [y] Breakers sub-tab of a Plant Panel's Item Details page.

Plant Panel Breakers can be created using the File Import feature in dcTrack.

The import template includes a step for adding Plant Breakers.

Creating Plant Panel Breakers Using CSV Import

To create Plant Panel Breakers, select either of the following options:

a. In the Assets tab > Items List, click the Export button and select Download Import Template to download the import template as a CSV file.
b. In the item list filter the subclass to Plant Panel
c. Click Export into an Import Template > Branch Circuit Breakers to download an import template populated with the existing Plant Panel breakers as a CSV file.
d. Open your CSV file.
e. Follow the instructions in the CSV file for adding Plant Panel Breakers.
f. In the Assets tab > File Import page, import the edited CSV file to create the Breakers.

Editing Plant Panel Breakers

You can edit the following fields for Plant Panel Breaker through file import with EDIT Operation.

- No of Poles
- Rated Amps
- Measured Amps

Deleting a Plant Panel Breakers

Deleting a Plant Panel Breaker can be done only through file import using the DELETE operation.

Creating Editing and Deleting a DC Panel for a DC Bay

DC Panels associated with a DC Bay can be viewed in the Power Panels sub-tab of the DC Bay Item Details page.

Note: You must have the appropriate permissions to view, create, or delete a DC Panel.

Power Panel Layout

The top panel of the Power Panel subtab displays readings for the panel. The tool bar provides several options for viewing the readings

- Print - Print the Power Panel Subtab
- Show Remaining/Show Consumption - This button can be toggled between the two options to either show remaining power or power consumed
- Show in Amps/Show in kW - This button can be toggled between the two options to either display the readings in Amps or kilowatts

The following columns are available in the grid.

- The # Poles
- State - Open Closed

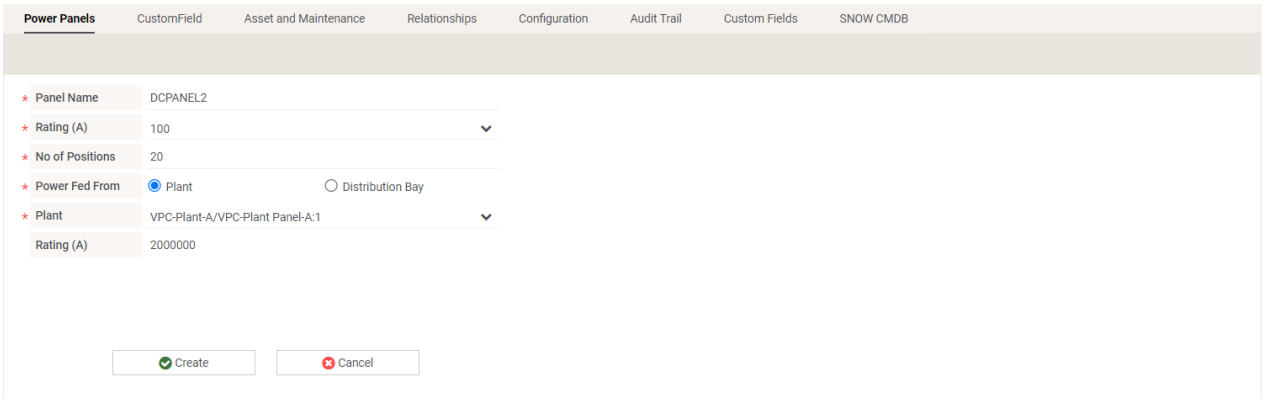
- Rating/Continuous Rating - Displays the Rating, the De-Rated value and the voltage for the breaker
- Destination - This column is broken into two sections the first displays the Status P Planned I Installed. For AC Panels it is the Status of the Power Outlet. For DC Items it is the status of the connected Item. The second section displays the connector of the Power Outlet or Connector Name when connected to a Floor PDU. When the Power Outlet has multiple ports the connectors will be listed comma separated. The text "+ Add Whip" is displayed when the breaker is not connected to an outlet.
- Description - Displays the assignment type and assignment text. A caption icon will be displayed when there is a comment, hovering over the caption icon will display the comment text.
- Ckt - Circuit status when the Power Outlet is connected to equipment. When clicked you are navigated to the circuit trace. (existing functionality)
- Customer: Customer field from cabinet item for the power outlet. If customer is not assigned to cabinet, then the customer field assigned to the power outlet. In the case where there is no power outlet, the customer field will remain blank.
- Budget (kw) % of Rating: Budget: Budget value in kw or amps
- Actual (kw) % of Rating: Actual value in kw or amps

Creating a DC Panel for a DC Bay

1. While in Edit mode on the DC Bay Item Details page > Power Panels sub-tab, click the Create a panel button.

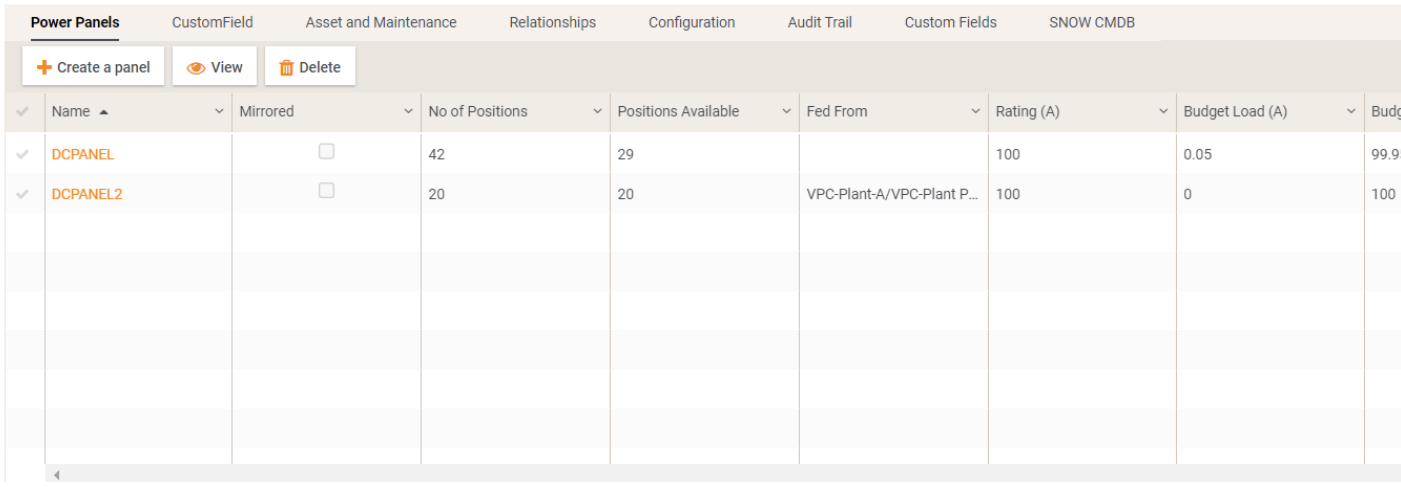
2. In the Create a panel screen, provide the following information:

a. Panel Name: The name of the panel. Name must be unique within the DC Bay
b. Rating (A): Max capacity in Amps
c. No of Positions: Number of pole positions
d. Power Fed From: Plant or Distribution
e. Plant or Distribution Bay Item and Port of either a Plant or Distribution Bay depending on Power Fed From
f. Rating (A) : Amps rated value of the panel breaker you have selected in the Power Fed From field. This field is read only.



3. Click the Create button.

The newly created DC Panel will be viewable in the Power Panels sub-tab.



Create a panel button will get disabled if the number of DC Panels created for DC Bay is equal to Max Panels value set for the DC Bay model.

To specify a value for the Max Panels, go to DC Bay model details page -> specification sub-tab and enter a value. The value must be greater than or equal to 1.

Note: You must have the appropriate permissions to create a DC Panel.

Deleting a DC Panel

To delete a DC panel, click the power panel you want to delete in the grid, and then click the Delete icon.

Note: You must have the appropriate permissions to delete a DC Panel.

You can also use file import to create and delete DC Panels in bulk. See Importing and Exporting Plant Panel and DC Panel for more details.

Creating Editing and Deleting DC Panel Breakers

Power Panel Layout

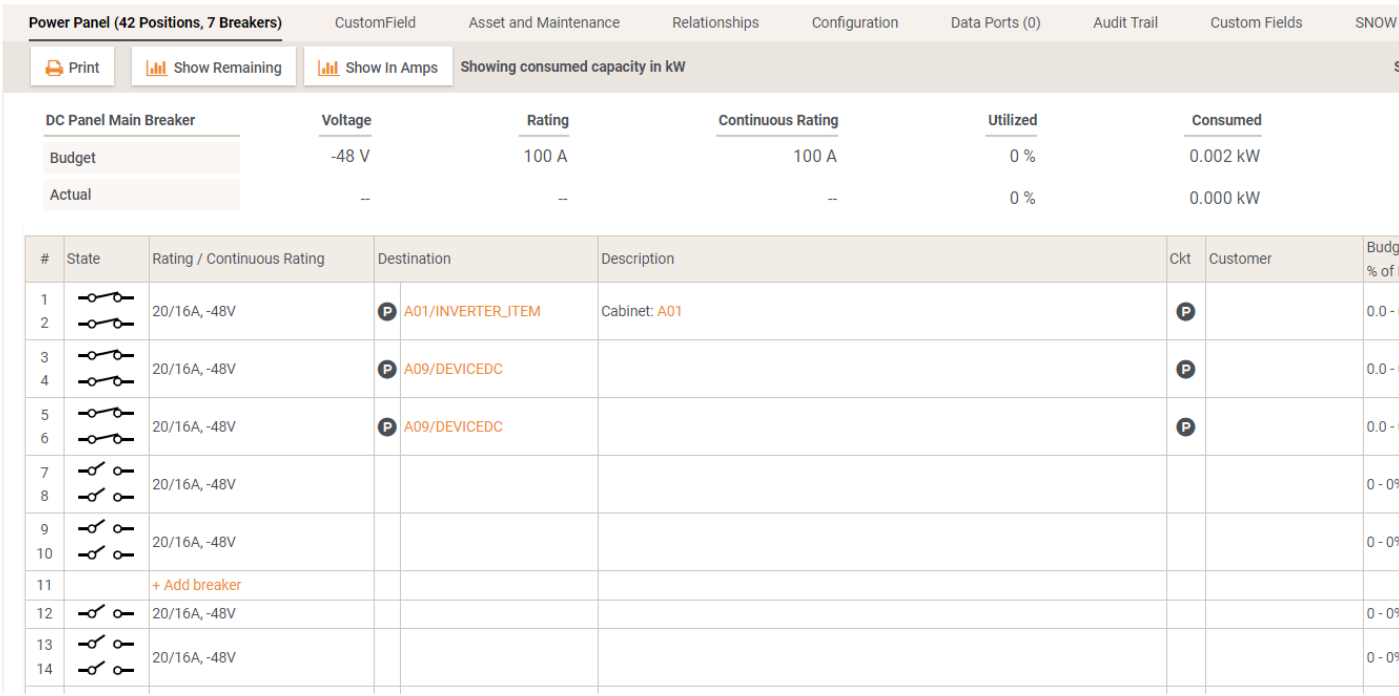
The top panel of the Power Panel subtab displays readings for the panel. The tool bar provides several options for viewing the readings

- Print - Print the Power Panel Subtab
- Show Remaining/Show Consumption - This button can be toggled between the two options to either show remaining power or power consumed
- Show in Amps/Show in kW - This button can be toggled between the two options to either display the readings in Amps or kilowatts

The following columns are available in the grid.

- The # Poles
- State - Open Closed
- Rating/Continuous Rating - Displays the Rating, the De-Rated value and the voltage for the breaker
- Destination - This column is broken into two sections the first displays the Status P Planned I Installed. For AC Panels it is the Status of the Power Outlet. For DC Items it is the status of the connected Item. The second section displays the connector of the Power Outlet or Connector Name when connected to a Floor PDU. When the Power Outlet has multiple ports the connectors will be listed comma separated. The text "+ Add Whip" is displayed when the breaker is not connected to an outlet.
- Description - Displays the assignment type and assignment text. A caption icon will be dispalyed when there is a comment, hovering over the caption icon will display the comment text.
- Ckt - Circuit status when the breaker is connected downstream to an inlet or power supply
- Customer: Customer field from cabinet item for the power outlet. If customer is not assigned to cabinet, then the customer field assigned to the power outlet. In the case where there is no power outlet, the customer field will remain blank.
- Budget (kw) % of Rating: Budget: Budget value in kw or amps

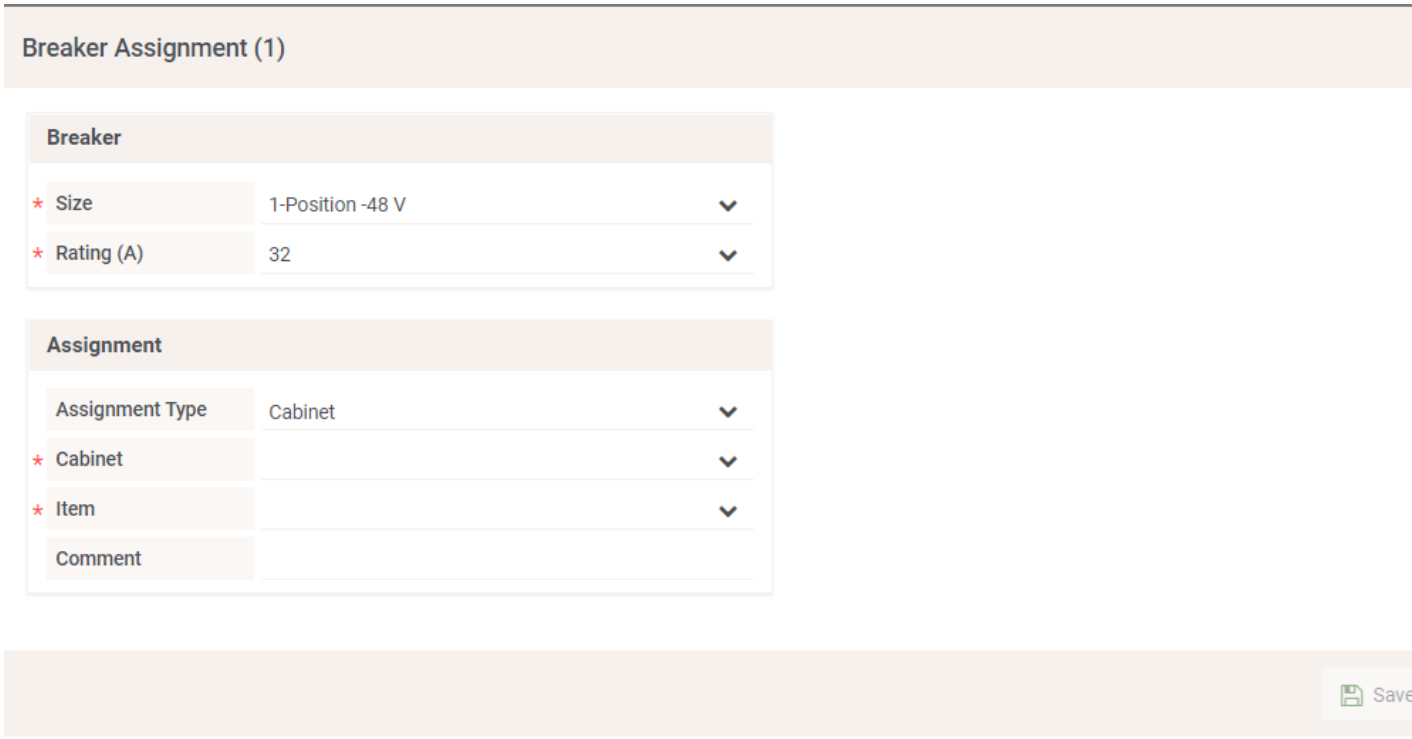
- Actual (kw) % of Rating: Actual value in kw or amps



Creating DC Panel breakers

To create panel breakers:

1. Open item details page of DC Panel in edit mode.
2. While in Edit mode click the "add breaker" hyperlink in the breaker grid to open the Breaker Assignment dialog box



3. Provide following information in the Breaker Assignment Dialog
    a. Size : Select the size of the breaker.
    b. Rating (A) : Select Rating Amps for the breaker. You can also enter a number if the drop down list do not have the value that you want to select.
    c. Assignment Type - Can be Cabinet, Space or Other
    d. Cabinet: Drop down list of cabinets that have free inlets or power supply ports. Available when Assignment Type is Cabinet
    e. Item: Drop down list of Items and Ports from the selected cabinet that have free Inlets (DC FAP or Rack Inverter) or a free Power Supply.
    f. Space Name: User defined Space Name used assignment type is "Space"
    g. Space ID: User defined ID (Required when Assignment type is "Space")
    h. Comment: User supplied comments associated with the breaker
4. All the empty pole positions without any breaker will have a text "Click here to add breaker". Click on the text to add the breaker.
5. Save the item

Editing a Breaker

Follow the steps below to edit breakers in UI.

1. In the Edit Panel mode, click on the pencil icon in Breaker Rating column.
2. Edit breaker size and breaker rating by selecting different value from the drop down.

3. Save the item.

If the breaker is connected downstream and Circuit Status column have a value, then breaker size can not be edited. Breaker Rating can be updated, however if the selected value is smaller and not sufficient to carry the load of the circuit, an error message will show and the changes will not be saved.

Deleting a Breaker

Follow the steps below to delete breakers in UI.

1. In the Edit Panel mode, click on the pencil icon in Breaker Rating column.
2. Click on the delete icon to delete the breaker.

If the breaker is connected downstream and the Circuit Status is Planned, the breaker and the circuit it is connected to will be deleted.

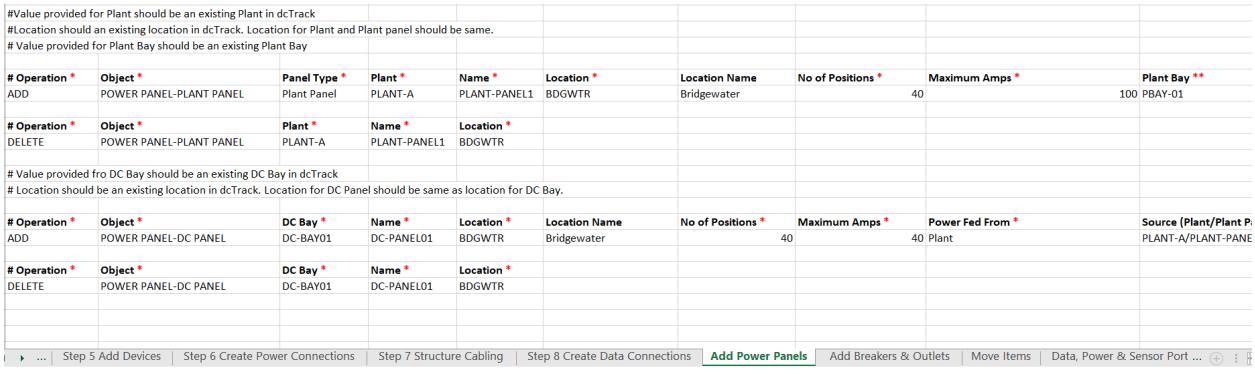
If the circuit status is installed, the breaker can not be deleted.

Importing and Exporting Plant Panel and DC Panel

dcTrack 8.1 allows you to create and manage in bulk Plant Panel and DC Panel using File Import.

Steps for import :

1. Navigate to File Import and click Main Import Template download the import template.
2. In the downloaded csv file go to Tab Power Panel.
3. Follow the instructions and examples to create an import file.
4. Import the file.



#Value provided for Plant should be an existing Plant in dcTrack
#Location should an existing location in dcTrack. Location for Plant and Plant panel should be same.
Value provided for Plant Bay should be an existing Plant Bay

# Operation *	Object *	Panel Type *	Plant *	Name *	Location *	Location Name	No of Positions *	Maximum Amps *	Plant Bay **
ADD	POWER PANEL-PLANT PANEL	Plant Panel	PLANT-A	PLANT-PANEL1	BDGWTR	Bridgewater	40	100	PBAY-01

# Operation *	Object *	Plant *	Name *	Location *
DELETE	POWER PANEL-PLANT PANEL	PLANT-A	PLANT-PANEL1	BDGWTR

Value provided fro DC Bay should be an existing DC Bay in dcTrack
Location should be an existing location in dcTrack. Location for DC Panel should be same as location for DC Bay.

# Operation *	Object *	DC Bay *	Name *	Location *	Location Name	No of Positions *	Maximum Amps *	Power Fed From *	Source (Plant/Plant P
ADD	POWER PANEL-DC PANEL	DC-BAY01	DC-PANEL01	BDGWTR	Bridgewater	40	40	Plant	PLANT-A/PLANT-PANE

# Operation *	Object *	DC Bay *	Name *	Location *
DELETE	POWER PANEL-DC PANEL	DC-BAY01	DC-PANEL01	BDGWTR

... | Step 5 Add Devices | Step 6 Create Power Connections | Step 7 Structure Cabling | Step 8 Create Data Connections | Add Power Panels | Add Breakers & Outlets | Move Items | Data, Power & Sensor Port ...

Steps for Export :

1. Navigate to Item List. Filter the list with the Panel items you want to export.
2. Export the Panel items using Export into an Import Template -> Items. You can select to export All columns or only visible columns from the item list. You can export the list exactly as seen by selecting Export -> Export Item List Exactly as Shown.

Using File Import to Create and Manage DC Panel Breakers

DC Panel breakers can be viewed from the Power – [x] Poles, [y] Breakers sub-tab of a DC Panel's Item Details page.

DC Panel breakers can be created using the File Import feature in dcTrack.

The import template includes a step to add DC Panel Breakers.

Creating DC Panel Breakers Using CSV Import

To create DC Panel Breakers, select either of the following options:

a. In the Assets tab > Items List, click the Export button and select Download Import Template to download the import template as a CSV file.
b. In the item list filter the subclass to DC Panel.
c. Click Export into an Import Template > Branch Circuit Breakers to download an import template populated with the existing dc panel breakers as a CSV file.
d. Open your CSV file.
e. Follow the instructions in the CSV file for adding DC Panel Breakers.
f. In the Assets tab > File Import page, import the edited CSV file to create the DC Panel Breakers.

Editing DC Panel Breaker

You can edit the following fields for DC Panel Breaker through file import with EDIT Operation.

- No of Poles
- Rated Amps
- Measured Amps

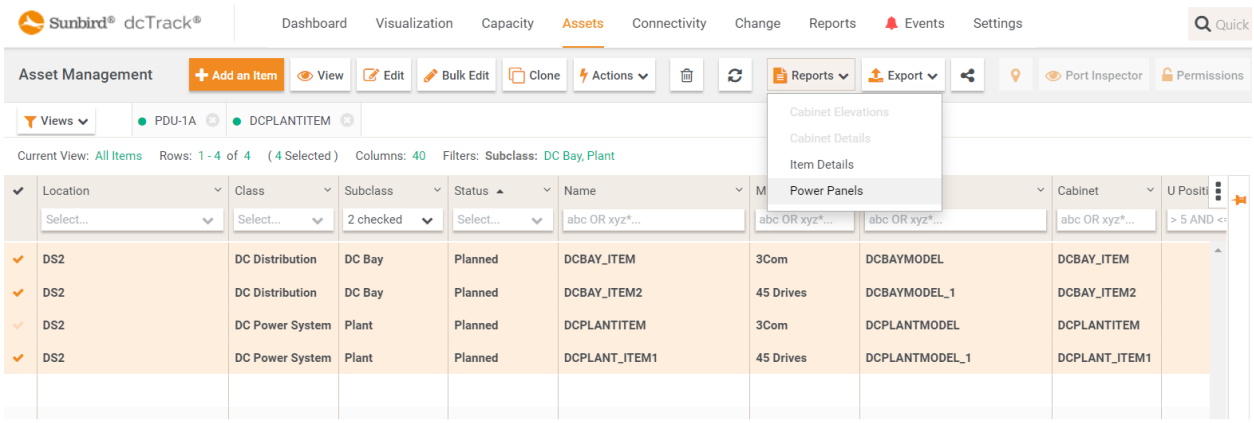
Deleting a DC Panel Breaker

Deleting a DC Panel Breaker can be done only through file import using the DELETE operation.

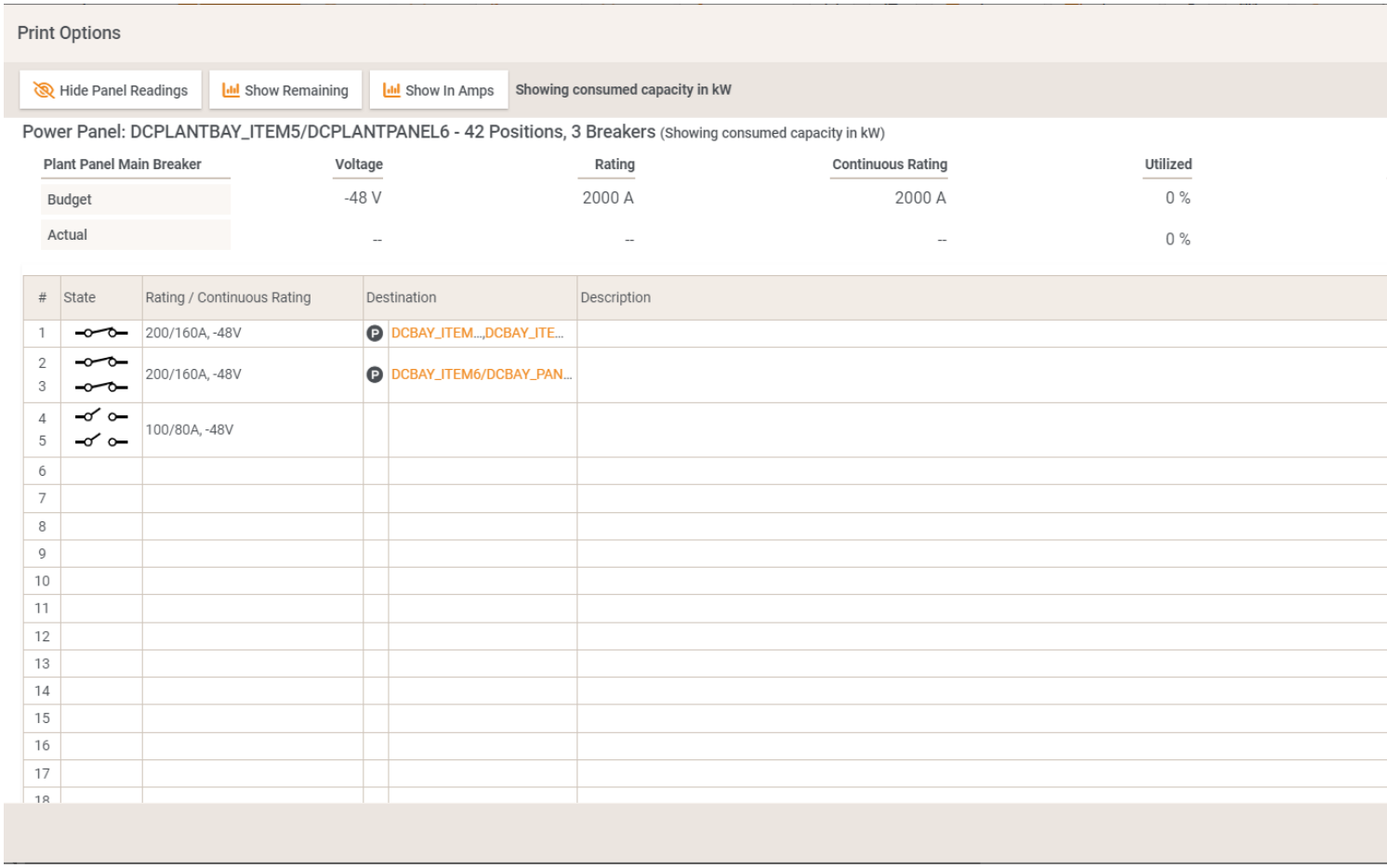
Power Panel Report DC

The following steps apply to DC Power System / Plant Panel and DC Distribution / DC Panel

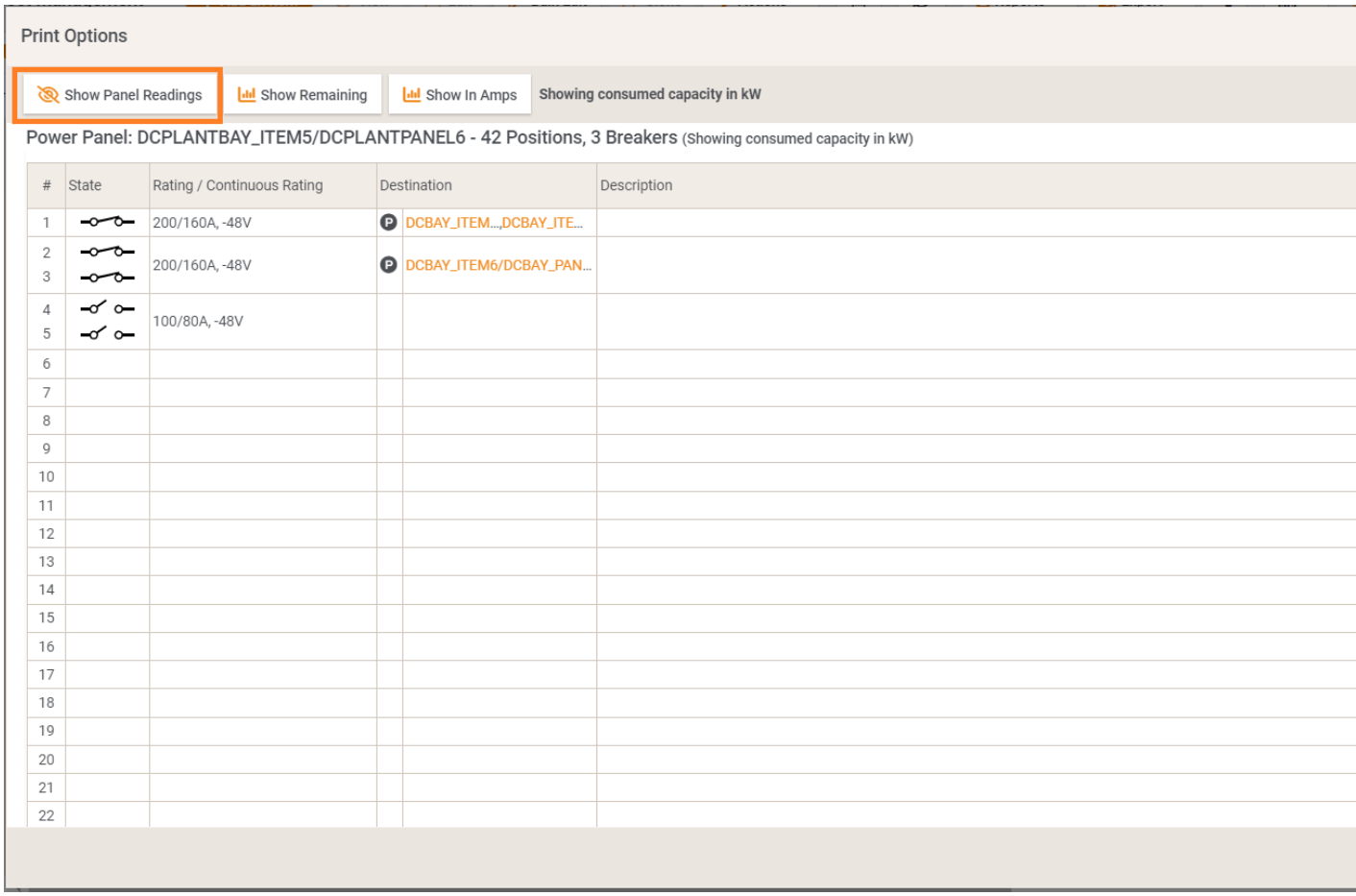
1. In the Asset List, select one or more Plant items. If you want to Print the Panel view of DC Panels as well in the same report then select DC Bay items also.



2. Click Reports -> Panel View
3. If you would like to print the Report, once rendering is complete click the Print button in the lower right side of each page of the report.



4. If you would like to exclude the Panel Level readings, click the "Hide Panel Readings" button in the tool bar. This button allows you to toggle between Hiding and Showing the Panel

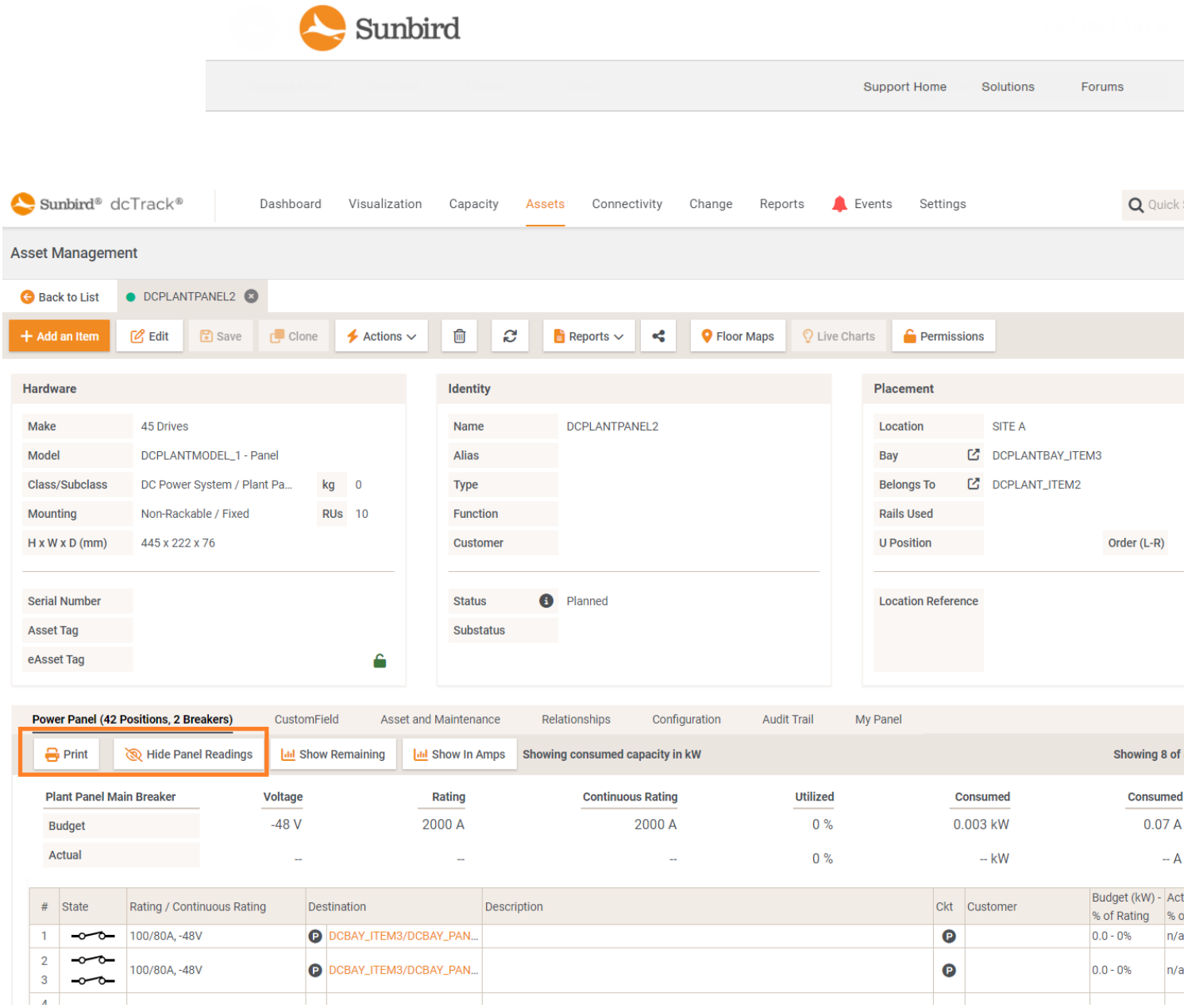


The printed report will include Panel View of all the Plant Panels and DC Panels of the Plant items and DC Bay items selected in the Asset list, and display the Panel Readings based on your previous selection.

You can also print all the Plant Panels of a single Plant item by navigating to the Plant Item details page and clicking Reports -> Panel View. This report will only include the Panel view of that Plant item and again will display or hide Panel Readings based on you previous selection.

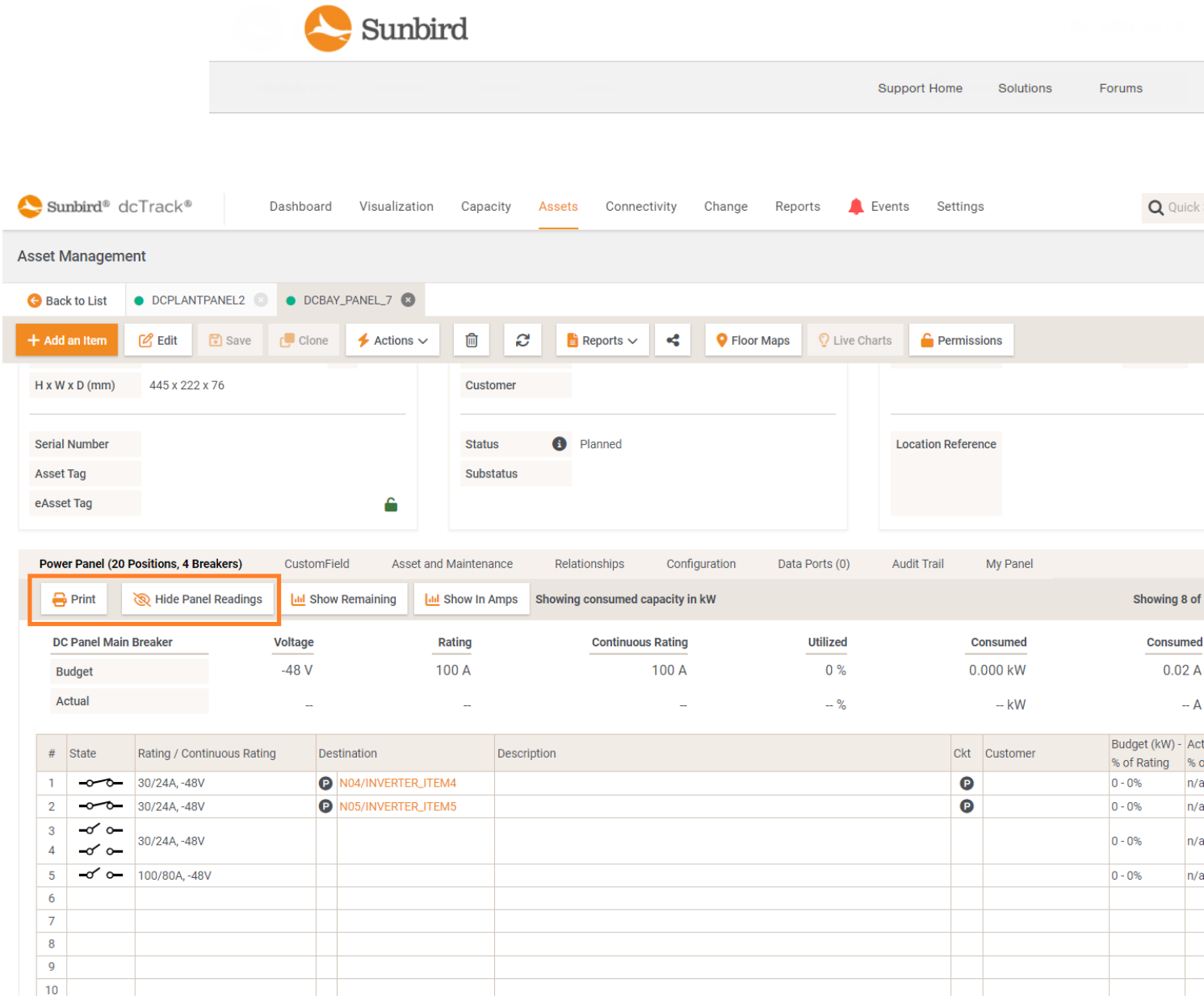
This version of the report also allows you to print of suppress the Panel Readings.

To individually print a Plant Panel view, open the item details page of Plant Panel and click Print button in the Power Panel sub tab. You can also choose to Hide or display the Panel Readings.



To print all the DC Panels of a DC Bay item, navigate to DC Bay item details page and click Reports -> Panel View. This report will only include the Panel view of that DC Bay item and display or hide the Panel Readings based on your previous selection.

To individually print DC Panel view, open the item details page of DC Panel and click Print button in the Power Panel sub tab.



Managing DC Circuits in Your Data Center

Minimum Requirements When Creating and Editing DC Power Circuits

Depending on whether it is a Complete or Partial circuit, DC Power circuits may begin with an Item having either a Power Supply Port (Phase Type Direct Current), DC FAP Input Cord or Rack Inverter Input Cord.

Partial Power Circuits will always begin with a DC FAP Input Cord or Rack Inverter Input Cord.

To complete a Partial Circuit connect the Partial Circuit to any Item that has a Power Supply Port who's Phase Type is "Direct Current".

The Power chain must be built before creating a Power circuit.

Virtual Power Chains are not supported when building DC Power circuits.

Minimum Requirements When Creating and Editing Data Circuits for DC Power Items

Data circuits for DC Power class Items can be built in the same way as AC Power Items. For complete details please see the documentation on Building a Data Circuit.

Data Circuits for DC Power Class Items may begin with a Plant, Rectifier, DC FAP or Rack Inverter class items.

Left Partial data circuits that end on a Data Panel Item can also be created when the circuit starts with a Plant, Rectifier, DC FAP or Rack Inverter class item.

Right Partial Data circuits can not be created with any DC Power Class Items.

Using File Import to Create Data and Power Connections for DC

Prerequisites

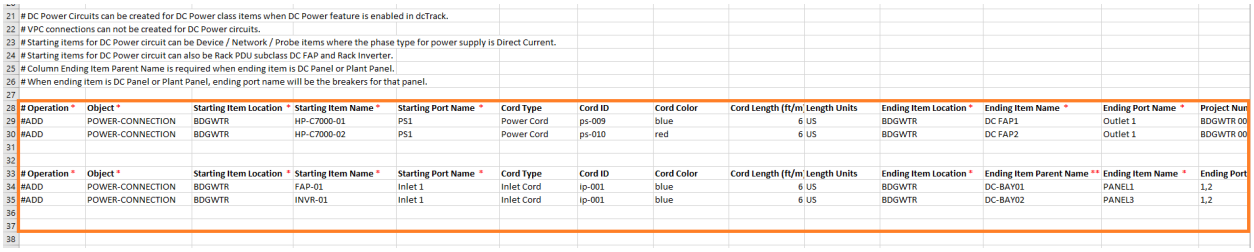
Before you can import data and power connections into dcTrack, the items used in the connections must exist. So first, import your DC FAP, devices and so on. Next add or configure ports on devices if needed. Note that you can manually add your items instead of importing them.

You must also create your DP Power Infrastructure in dcTrack. This means creating Plants, Rectifiers, Plant Panels, DC Bays, DC Panels and Panel breakers.

Please refer to How to Build Power Chain in DC for additional details.

Power Connections

Use the Create Power Connections worksheet in the Import Template to create power connections and import them into dcTrack.



21	# DC Power Circuits can be created for DC Power class items when DC Power feature is enabled in dcTrack.													
22	# VPC connections can not be created for DC Power circuits.													
23	# Starting items for DC Power circuit can be Device / Network / Probe items where the phase type for power supply is Direct Current.													
24	# Starting items for DC Power circuit can also be Rack PDU subclass DC FAP and Rack Inverter.													
25	# Column Ending Item Parent Name is required when ending item is DC Panel or Plant Panel.													
26	# When ending item is DC Panel or Plant Panel, ending port name will be the breakers for that panel.													
27														
28	# Operation *	Object *	Starting Item Location *	Starting Item Name *	Starting Port Name *	Cord Type	Cord ID	Cord Color	Cord Length (ft/m	Length Units	Ending Item Location *	Ending Item Name *	Ending Port Name *	Project Nur
29	#ADD	POWER-CONNECTION	BDGWTR	HP-C7000-01	PS1	Power Cord	ps-009	blue	6	US	BDGWTR	DC FAP1	Outlet 1	BDGWTR 00
30	#ADD	POWER-CONNECTION	BDGWTR	HP-C7000-02	PS1	Power Cord	ps-010	red	6	US	BDGWTR	DC FAP2	Outlet 1	BDGWTR 00
31														
32														
33	# Operation *	Object *	Starting Item Location *	Starting Item Name *	Starting Port Name *	Cord Type	Cord ID	Cord Color	Cord Length (ft/m	Length Units	Ending Item Location *	Ending Item Parent Name **	Ending Item Name *	Ending Port
34	#ADD	POWER-CONNECTION	BDGWTR	FAP-01	Inlet 1	Inlet Cord	ip-001	blue	6	US	BDGWTR	DC-BAY01	PANEL1	1,2
35	#ADD	POWER-CONNECTION	BDGWTR	INVR-01	Inlet 1	Inlet Cord	ip-001	blue	6	US	BDGWTR	DC-BAY02	PANEL3	1,2
36														
37														
38														

The connections between all of the items in a power chain form a complete circuit.

"Power connections" refers to a connection between a starting item, such as a Server or Switch, and an ending item that is either a DC FAP, Rack Inverter, DC Panel Breaker or Plant Panel Breaker.

It is important to designate the item's power supply port as the starting point, and a Plant Panel Breaker, DC Panel Breaker, DC FAP or Rack Invert's input power port as the ending item.

Once connected, these form the first half of a power circuit.

The remaining portion of the circuit is the upstream power connection to the power source which consists of the DC Panel, Plant Panel Breaker, Plant Panel and Rectifiers.

In the Import sheet the Starting Item for DC Power circuits can be Device, Network or Probe Items where the phase type for the power supply is Direct Current. DC FAP and Rack Inverter Input cord could also be the starting item.

In the Import sheet the Ending Item for a DC Power circuit can be a DC FAP, a Rack Inverter input cord, DC Panel Breaker or a Plant Panel Breaker. When the Ending Item is a DC Panel or Plant Panel, the column Ending Item Parent Name is required.

Performing the Import

Importing power connections follows the same basic steps when using File Import as other imports.

For a list of the requirements and/or prerequisites, as well as recommendations and examples of spreadsheets, see the worksheets in the templates.

(Optional) Verify the circuits are imported by looking them up. You can use the search and filter options on the Circuits List in the Web Client to view circuits.

You can submit Connect Requests for one or more circuits immediately after the import or at a later time.

Data Connections

You can import data connections for DC Power classes same way you import data connections for AC Power. Refer to the sample import template for examples of data connections.

Build a DC Power Circuit

Steps to build a DC Power circuit:

1. In the Web Client, click Connectivity > Add a Circuit. A New Circuit tab is opened with an empty node highlighted in blue and an Item list for selecting Items for this circuit node.
2. From the Item list below, select the item from which the circuit initiated. Required
3. Next, select the port the connection originates from. Select a port that has a phase type of “Direct Current”. dcTrack validates the port selection to make sure there are no issues. Required

   When selecting the port, from the second node onwards, you will have the option of only displaying compatible ports that are most likely to be used for building this circuit. By default, this option will be enabled, if you want to view all of the available ports for the selected item you can click the Show All Ports button in the Port List toolbar.
4. When building the first node, you can switch to building a data circuit instead of a power circuit by clicking the Power Ports button on the Port List toolbar.
5. Once you have moved on to creating a power circuit for the next node, the option to select Data Port is no longer available. To switch to building a Data circuit, click the Refresh button which will reset the circuit and bring you back to the first node.

6. To continue building the circuit click the Next Node button in the Port List toolbar and select the item and port for the next node.
7. Select the power item the device will be connected to, then select the power port. One of the following occurs:
   - If you select the outlet port for a DC FAP that is already connected upstream, the remainder of the circuit is displayed automatically.

     For example, Server ~ DC FAP ~ inlet cord ~ DC Panel ~ Plant panel ~ Rectifier Plant

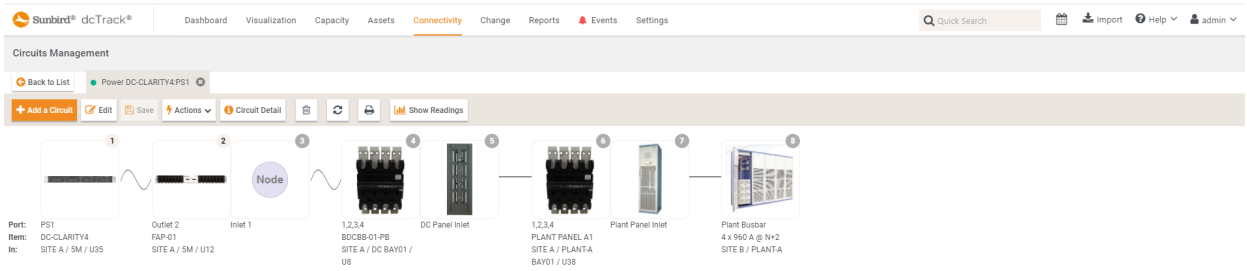
   - If the circuit is not already connected upstream, click Next Node to continue building the circuit. You will not get the option to build Virtual Power Chain when building DC Power circuits.

   If there is an issue between the node item or port you selected and the item and port of the previous node, a Caution icon (⚠) is displayed at the bottom right of the node. Click on the Caution icon to view the conflict details.

   Note: If you make changes and have already added additional nodes, the nodes that follow are deleted.

8. Click Save to save the circuit.
9. Submit a Connect Request now or later.

After the power circuit is saved, you can view the actual load and the reading for each node by clicking on the button Show Reading in the toolbar. You can also hide the readings by clicking on Hide Reading Button. For DC Circuits the reading will be in Amps by default. You can also view the readings in Watts by clicking on the Show in Watts button.



You can also build multiple power circuits in single tab. You can do this by selecting an item and selecting all the ports for that item. This will build the same number of circuits as the number of ports you have selected in single tab. Then click Next Node and select the item for the next node and so on.

dcTrack also allows you to build DC Power circuits that connect a device power supply (AC phase type) to a Rack Inverter item. Follow the steps below to build a circuit that is connected to a Rack Inverter.

1. In the Web Client, click Connectivity > Add a Circuit. A New Circuit tab is opened with an empty node highlighted in blue and an Item list for selecting Items for this circuit node.
2. From the Item list below, select the item from which the circuit is initiated. Required
3. Next, select the port the connection originates from. Select a port that has an AC phase type of “Single Phase (2-Wire)” or “Single Phase (3-Wire)”. dcTrack validates the port selection to make sure there are no issues. Required

Note: Rack Inverter Outlet ports cannot have a phase type of “Three Phase Delta” or “Three Phase Wye”. Hence you can not connect Three Phase device power supply to Rack Inverter outlet.

4. To continue building the circuit click the Next Node button in the Port List toolbar and select the item and port for the next node.
5. Select the item the device will be connected to, then select the power port. One of the following occurs:
   - If you select the outlet port for a Rack Inverter that is already connected upstream, the remainder of the circuit is displayed automatically.

     For example, Server ~ Rack Inverter ~ inlet cord~ DC Panel ~ Plant panel ~ Rectifier Plant

   - If the circuit is not already connected upstream, click Next Node to continue building the circuit. You will not get the option to build a Virtual Power Chain when building DC Power circuits.
6. Click Save to save the circuit. Submit a Connect Request now or later.

Create DC FAP Power Ports

Steps to create power ports for DC FAP in the dcTrack Web UI.

1. Select the Item from the List page and open its Detail page by double-clicking on it or clicking the Edit button on the toolbar.

2. If the record was opened in View mode (used the double click method to open), click Edit on the Detail pages toolbar.

3. Click the Power Port Subtab.

4. Click Create Ports in the Ports section of the page. The Create Ports dialog appears.

5. You must create an inlet cord before creating the first DC FAP Outlet port. To manually create an inlet cord port:

   a. Select "Inlet" from the Type drop down. Required

   b. The Port Name Prefix will default to "Inlet" but can be changed. Required

   c. Enter the number of Ports you want to create in the "Quantity" field. You can create up to four inlet cords for a DC FAP item. Required

   d. Select a connector. Once selected, an image of the connector is displayed if an image is available. Required

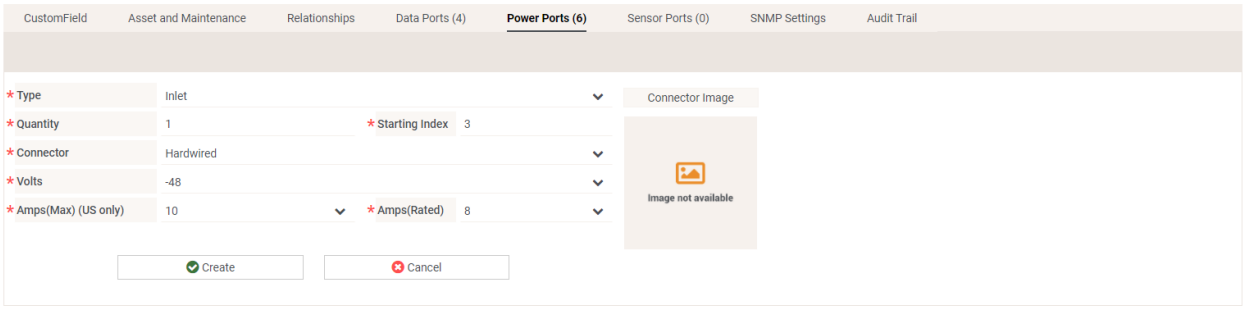
   e. Select the Volts for the Port. For DC FAP Power Ports the only option available for Volts is -48. Required.

   f. Select the Amps (Rated) for the port. The Amps (Max) are calculated and applied based on the value selected for Amps (Rated). You can also select the Amps (Max) first and Amps (Rated) are calculated and applied based on value selected for Amps (Max). Required

   g. Click the "Create" button to create the Port(s)

   h. Once all ports are created, click Close.

If the value that you want to select for Amps (rated) or Amps(Max) is not in the drop down list, you can enter the number and the ports get created with the Amps value you entered.



i. Click the "Create" button to create the Port(s)

j. Once all ports are created, click Close.

If the data center site is in the United States, the rating value is always 80% of the max. For all other countries, the max value is not applicable. The rating value determines the capacity of the port.

6. To manually create a DC FAP Outlet port:

a. Select "Rack PDU Outlet from Type drop down. Required

b. The Inlet Name will automatically default to the first Inlet Cord in the list but can be changed if multiple Cords were created. Required

c. Enter the Port Name Prefix.

d. Enter the number of Ports you want to create in the "Quantity" field. You can create up to 99 outlet ports for a DC FAP item Required

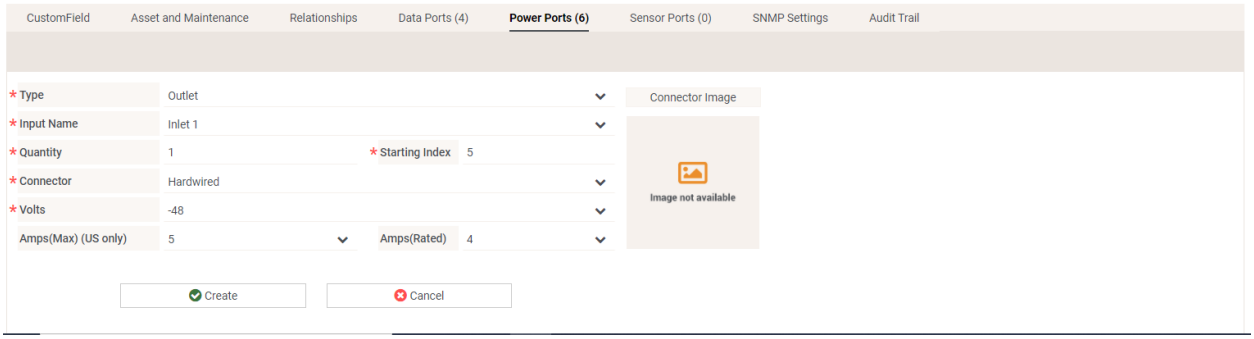
e. Select a connector. Once selected, an image of the connector is displayed if an image is available. Required

f. Select the Volts for the Port. For DC FAP Power Ports the only option available for Volts is -48. Required.

g. Select the Amps (Rated) for the port. The Amps (Max) are calculated and applied based on the value selected for Amps (Rated). You can also select the Amps (Max) first and Amps (Rated) are calculated and applied based on value selected for Amps (Max). Optional

h. Click the "Create" button to create the Port(s)

i. Once all ports are created, click Close and save the item.



If the data center site is in the United States, the rating value always 80% of the max. For all other countries, the max value is not applicable. The rating value determines the capacity of the port.

DC FAP Power Ports can also be created via File Import.

Steps to create DC FAP Power Ports via file import:

1. Download the Import Template from Export -> Download Import Template or from Help -> Import Template.
2. In the Import Template go to the tab Data, Power & Sensor Ports and follow the instructions and example in the sheet to import DC FAP Power Ports.

Edit DC FAP Power Ports

You may edit DC FAP Power Ports for Items in the following statuses:

- Planned
- Installed
- Storage
- Archived

You must have edit privileges to edit an Item's Power Port information.

The following information is editable directly in the ports list on the DC FAP's page on the Power - n Ports subtab:

- Port Name - Up to 64 characters. Port names cannot be duplicated on a device.
- To Cord
- Index – Two ports of the same type cannot have same index.
- Port Alias
- Color Code
- Connector

Note: For connected Ports, the connector can be updated to any other connector available in the drop-down list, as all DC Connectors are compatible with each other.

- Amps (R) – For connected ports when updating to a lower value, power calculation will be done to make sure, the connected circuit has enough power.
- Amps (M) – For unconnected ports
- Comments

You may also edit DC FAP Power ports via file import.

Steps to edit DC FAP Power Ports via file import:

1. Filter the item list with DC FAP items where ports need to be edited.
2. Click on Export - > Export into an Import Template -> Rack PDU Power Ports.
3. In the file edit the port fields and re-import the file.

Create Rack Inverter Power Ports

Steps to create Rack Inverter Power Ports via the Web Client.

1. Select the Item from the List page and open its Detail page by double-clicking on it or clicking the Edit button on the toolbar.

2. If the record was opened in View mode (used the double click method to open), click Edit on the Detail pages toolbar.

3. Click the Power Port Subtab.

4. Click Create Ports in the Ports section of the page. The Create Ports dialog appears.

5. You must create an inlet cord before creating the first Rack Inverter Outlet port. Rack Inverter must have DC Inlet. Second Inlet could be a DC Inlet or an AC Inlet.

To manually create an inlet cord port:

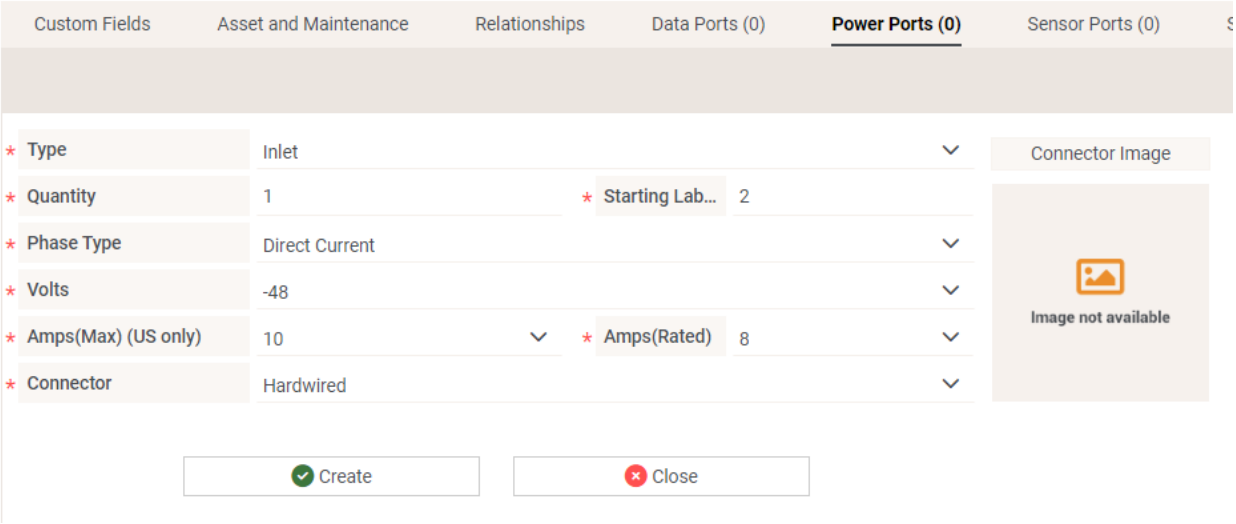
a. Select "Inlet" from the Type drop down. Required
b. The Port Name Prefix will default to "Inlet" but can be changed. Required
c. Enter the number of Ports you want to create in the "Quantity" field. You can create up to two inlet cords for a Rack Inverter item. Required
d. Select the Phase Type for the Port.
e. Select the Volts for the Port.
f. Select the Amps (Rated) for the port. The Amps (Max) are calculated and applied based on the value selected for Amps (Rated). You can also select the Amps (Max) first and Amps (Rated) are calculated and applied based on value selected for Amps (Max). Required

g. Select a connector. Once selected, an image of the connector is displayed if an image is available. Required

h. Click the "Create" button to create the Port(s)

i. Once all ports are created, click Close.

If the value that you want to select for Amps (rated) or Amps (Max) is not in the drop-down list, you can enter the number and the ports get created with the Amps value you entered. If the data center site is in the United States, the rating value is always 80% of the max. For all other countries, the max value is not applicable. The rating value determines the capacity of the port.



6. Steps to manually create a Rack Inverter Outlet port:

a. Select "Rack PDU Outlet from Type drop down. Required

b. The Inlet Name will automatically default to the first Inlet Cord in the list but can be changed if multiple Inlet Cords were created. Required

c. Enter the Port Name Prefix. By default, it is Outlet, but it can be changed.

d. Enter the number of Ports you want to create in the "Quantity" field. You can create up to 99 outlet ports for a Rack Inverter item Required

e. Select a connector. Once selected, an image of the connector is displayed if an image is available. Required

Note: Rack Inverter Outlet Ports are AC Ports, so the connectors drop down will list only AC connectors.

f. Select Phase Type. Required. Available drop-down options are Single Phase (2-Wire) and Single Phase (3-Wire).

g. Select the Volts for the Port. Available drop-down options include the list of Volts supported for Single Phase (2-Wire) and Single Phase (3-Wire). Required.

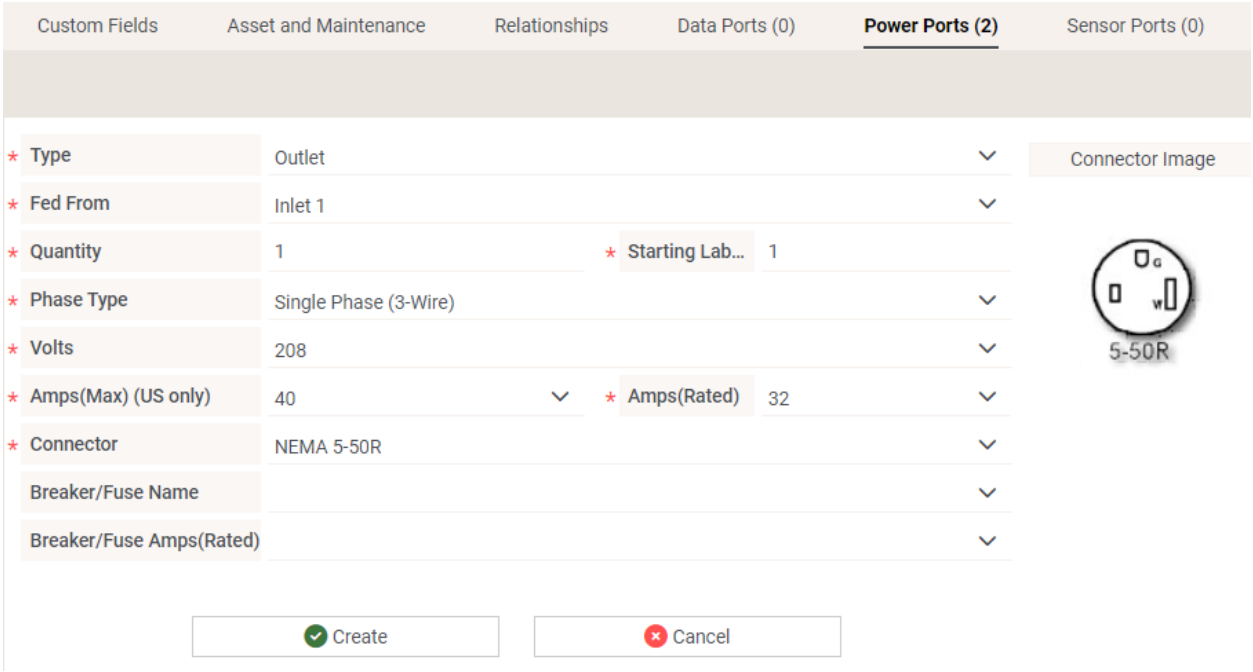
g. Select the Amps (Rated) for the port. The Amps (Max) are calculated and applied based on the value selected for Amps (Rated). You can also select the Amps (Max) first and Amps (Rated) are calculated and applied based on value selected for Amps (Max). Required.

h. Select the Breaker/Fuse Name. Optional

i. Select the Breaker/Fuse Amps (Rated). This required only when Breaker/Fuse Name is filled in.

j. Click the "Create" button to create the Port(s)

k. Once all ports are created, click Close and save the item.



If the data center site is in the United States, the rating value always 80% of the max. For all other countries, the max value is not applicable. The rating value determines the capacity of the port.

Rack Inverter Power Ports can also be created via File Import. To create Rack Inverter Power Ports via file import follow steps below.

1. Download the Import Template from Export -> Download Import Template or from Help -> Import Template.

2. In the Import Template go to the tab Data, Power & Sensor Ports and follow the instructions and example in the sheet to import Rack Inverter Power Ports.

Edit Rack Inverter Power Ports

You may edit Rack Inverter Power Ports for Items in the following statuses:

- Planned
- Installed
- Storage
- Archived

You must have edit privileges to edit an Item's Power Port information.

The following information is editable directly in the ports list on the Rack Inverter's page on the Power - n Ports subtab:

- Port Name - Up to 64 characters. Port names cannot be duplicated on a device.
- Index – Two ports of the same type cannot have same index.
- Port Alias
- Color Code
- Connector

All Outlets for Rack Inverter must feed from the same inlet.

Note: For connected DC Inlet Ports, the connector can be updated to any other connector available in the drop-down list, as all DC Connectors are compatible with each other. For connected AC Ports, the connector can be updated to the compatible AC connectors.

- Phase Type – Can be updated only for AC Inlet and Outlet Ports.
- Volts – Can be updated only for AC Inlet and Outlet Ports.
- Amps (R) – For connected ports when updating to a lower value, power calculation will be done to make sure, the connected circuit has enough power.
- CB/Fuse – Only applies to port type Rack PDU Output.
- CB/Fuse Amps (R) - Only applies to port type Rack PDU Output. For connected ports if the value is updated lower, power validation will be done to make sure circuits affected have enough power.
- Comments

You may also edit Rack Inverter Power ports via file import.

Steps to edit Rack Inverter Power Ports via file import:

1. Filter the item list with Rack Inverter items where ports need to be edited.
2. Click on Export - > Export into an Import Template -> Rack PDU Power Ports.

3. In the file edit the port fields and re-import the file.

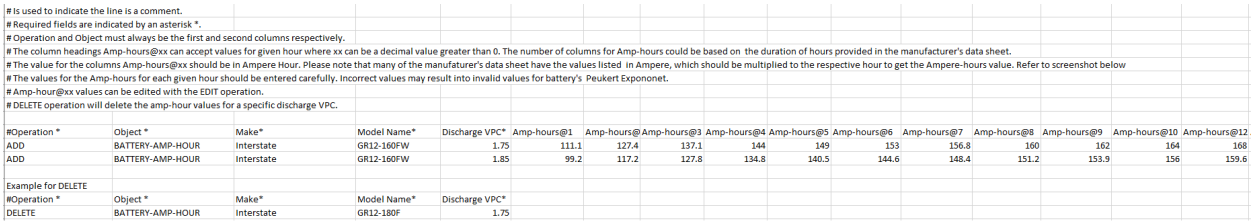
Note: If you have created more than two inlets for the rack inverter, when you attempt to edit and save it, an error message will appear saying "Rack Inverter can not have more than two Inlets, please delete the additional inlets."

Battery Amp Hour Matrix

dcTrack 8.1 introduces the ability to import one or more battery models with Amp-Hour ratings at various hours and Discharge VPC. This feature allows you to manage Battery model specification data sheet in dcTrack.

To add battery amp hour matrix

1. Go to the File import and download model template file.
2. Open the model template file and in the tab Battery Amp Hour, you will find the instructions and examples.
3. Add battery model amp-hour as per the specifications mentioned in manufacturer data sheet. The number of columns for Amp-hours could be based on the duration of hours provided in the manufacturer's data sheet.



# Is used to indicate the line is a comment.															
# Required fields are indicated by an asterisk *.															
# Operation and Object must always be the first and second columns respectively.															
# The column headings Amp-hours@xx can accept values for given hour where xx can be a decimal value greater than 0. The number of columns for Amp-hours could be based on the duration of hours provided in the manufacturer's data sheet.															
# The value for the columns Amp-hours@xx should be in Ampere Hour. Please note that many of the manufaturer's data sheet have the values listed in Ampere, which should be multiplied to the respective hour to get the Ampere-hours value. Refer to screenshot below															
# The values for the Amp-hours for each given hour should be entered carefully. Incorrect values may result into invalid values for battery's Peukert Expononet.															
# Amp-hour@xx values can be edited with the EDIT operation.															
# DELETE operation will delete the amp-hour values for a specific discharge VPC.															
#Operation *	Object *	Make*	Model Name*	Discharge VPC*	Amp-hours@1	Amp-hours@	Amp-hours@3	Amp-hours@4	Amp-hours@5	Amp-hours@6	Amp-hours@7	Amp-hours@8	Amp-hours@9	Amp-hours@10	Amp-hours@12
ADD	BATTERY-AMP-HOUR	Interstate	GR12-160FW	1.75	111.1	127.4	137.1	144	149	153	156.8	160	162	164	168
ADD	BATTERY-AMP-HOUR	Interstate	GR12-160FW	1.85	99.2	117.2	127.8	134.8	140.5	144.6	148.4	151.2	153.9	156	159.6
Example for DELETE															
#Operation *	Object *	Make*	Model Name*	Discharge VPC*											
DELETE	BATTERY-AMP-HOUR	Interstate	GR12-180F	1.75											

4. Import the file

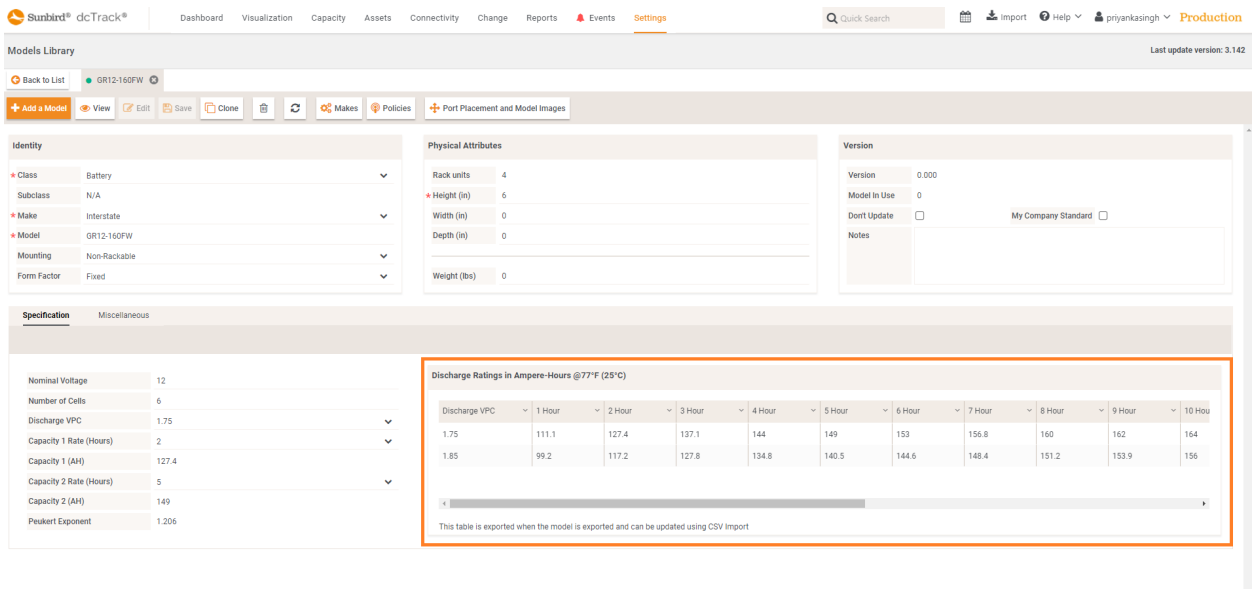
Note: Many of the manufacturer's data sheet have the values listed in Ampere, which should be multiplied to the respective hour to get the Ampere-hour s value. Incorrect values may result into incorrect value for battery's Peukert Exponent

Once the battery model amp-hour matrix are imported, the battery model details page will show this data in tabular format and following fields become drop down.

- Discharge VPC
- Capacity 1 Rate (Hours)
- Capacity 2 Rate (Hours)

Drop down values for the above fields are updated to include the data from the battery amp-hour table.

Capacity 1 (AH) and Capacity 2 (AH) fields become read only and the values are populated based on the Capacity 1 and Capacity 2 Rate (hours) selected.



If the battery model do not have Battery Amp Hour matrix added then the above fields are user entered fields and you will not see the Ampere-Hours table. Only when you enter the Ampere-Hours for the respective Discharge VPC via file import you will see the Ampere-Hours table.

Peukert Exponent

Peuket Exponent is a read only field for battery models. The value for Peukert Exponent is calculated using following formula

Peukert Exponent=(Log10(C/A)) / (Log10(B/A) - log10(D/C)) where

Capacity 1 Rate (Hours) , Value A in Peukert formula

Capacity 1 AH, Value B in Peukert formula

Capacity 2 Rate (Hours), Value C in Peukert formula

Capacity 2 AH, Value D in Peukert formula

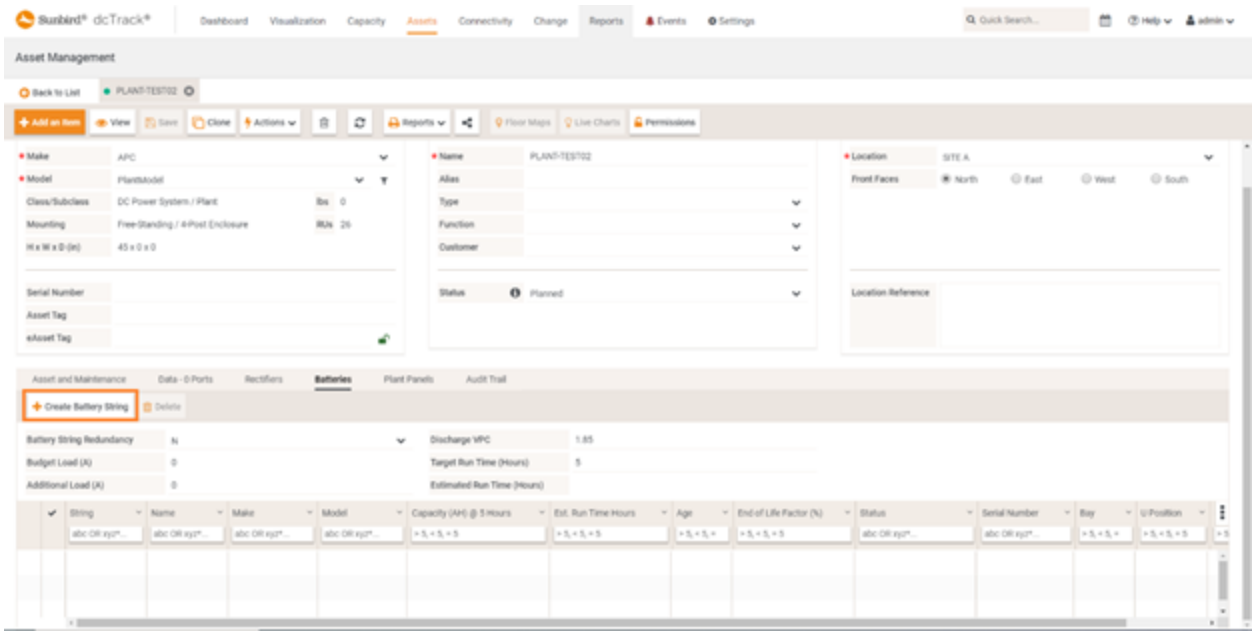
If any of the above four fields required for calculating Peukert Exponent is blank then you will get a warning message when saving the model. The model will be saved without any error.

Value for the Peukert Exponent should be > 1 and < 2 , if not the model is not saved and you will get an error message.

Creating Battery Strings for a DC Plant

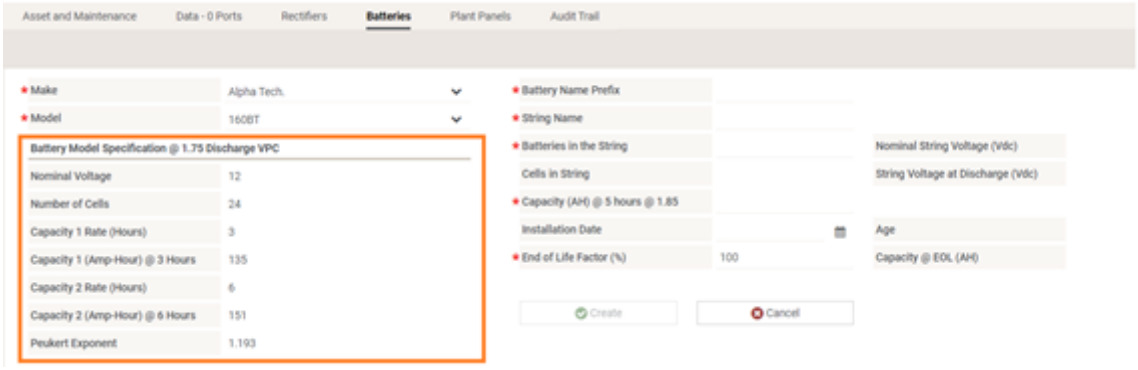
Steps to create a Battery String for a DC Plant:

1. Navigate to the Item details Page of Plant.
2. In the Edit Mode, click the Create Battery Strings button on the Batteries Subtab.



Note: Battery Models must be created in dcTrack before creating a Battery string.

3. In the Create Battery String dialog, select the Make and Model for the Battery.
4. Once the model is selected Battery Model Specification section is populated with the values from the model. The value for the Peukert Exponent is calculated based on the Battery model specification fields. These fields are read only and cannot be edited.



If the model you have selected is missing any of the Specification fields, you will not be able to create the Battery String and will receive an error message when saving the Plant Item.

5. Battery Name Prefix. Required.
6. String Name. Required

7. Batteries in the String. Required. Based on the number entered, Nominal String Voltage (Vdc), Cells in String and String Voltage at Discharge (Vdc) are calculated.
8. Capacity (AH) @ X Hours @ VPC. Required. For this field X is the value for Target Run Time Hours, and VPC is the Discharge VPC value for the Plant.

Note: If the Discharge VPC of the Battery and the Plant are equal, and Target Run Time Hours of the Plant matches one of the Capacity Rate Hours from the Models Library, the Capacity Amp-Hours field is filled from the Battery Model for the matching hour, otherwise it is left blank and the user must input this value.

9. Installation Date. Optional

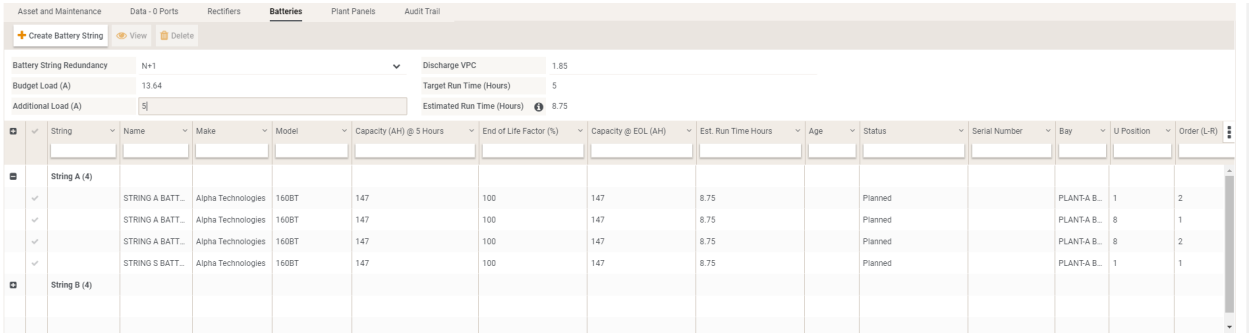
   Age is calculated in years based on the Installation date you have entered.

10. End of Life Factor (%). Required. By default, it is set to 100 but can accept any integer between 1-100.

    Capacity @ EOL (AH) is calculated based on the End of Life Factor (%)

11. Click on Create and close.

12. Save the item.



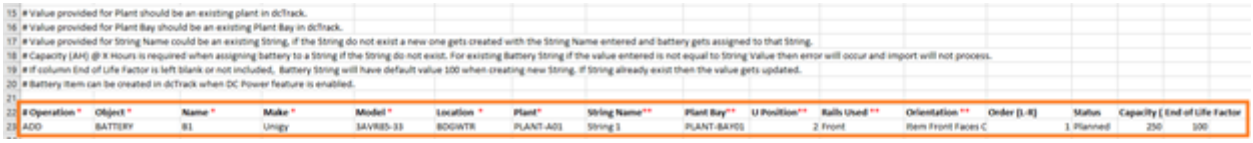
Batteries created appear in the list grouped by the Battery String. The following information can be edited inline in the list.

- Capacity (AH) @ X Hours
- End of Life Factor (%) Accepts any integer between 1-100.

Value of Capacity @ EOL (AH) and Estimated Run time Hours will be updated based on the End of Life Factor. Estimated Run Time Hours is also updated when you enter a value for Additional Load (A).

Note : Additional Load (A) value can be used to simulate additional load to determine its impact on Estimated Run Time

Battery Strings can also be created when creating Battery Items via File Import. Download the Import Template file and in the Plant or Rectifer & Battery tab, follow the instructions and examples to assign the Battery to a String when adding Batteries via File Import.

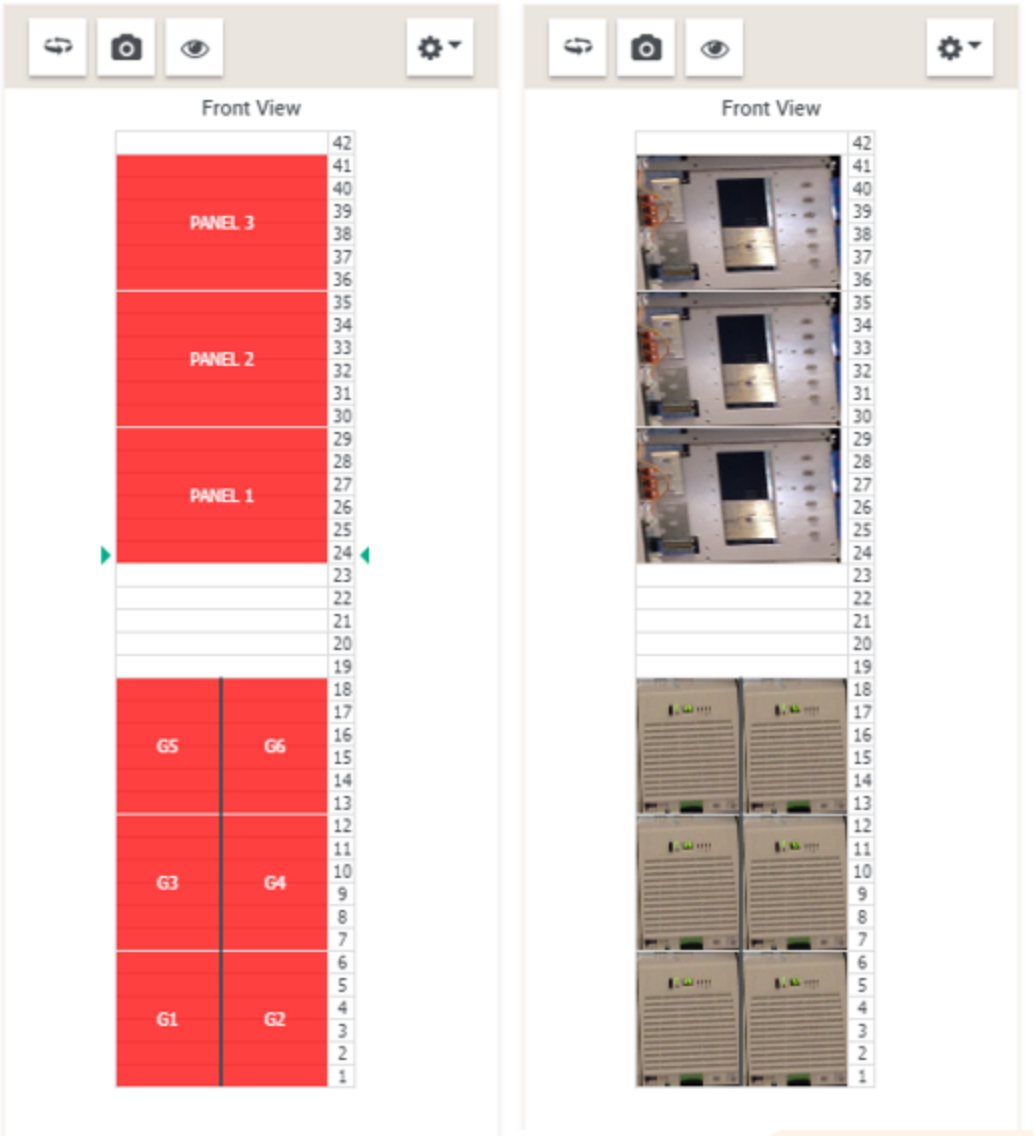


# Operation *	Object *	Name *	Make *	Model *	Location *	Plant*	String Name**	Plant Bay**	U Position**	Rails Used **	Orientation **	Order [L-R]	Status	Capacity [	End of Life Factor
ADD	BATTERY	B1	Unigy	3AVR85-33	BDGWTR	PLANT-A01	String 1	PLANT-BAY01		2 Front	Item Front Faces C	1	Planned	250	100

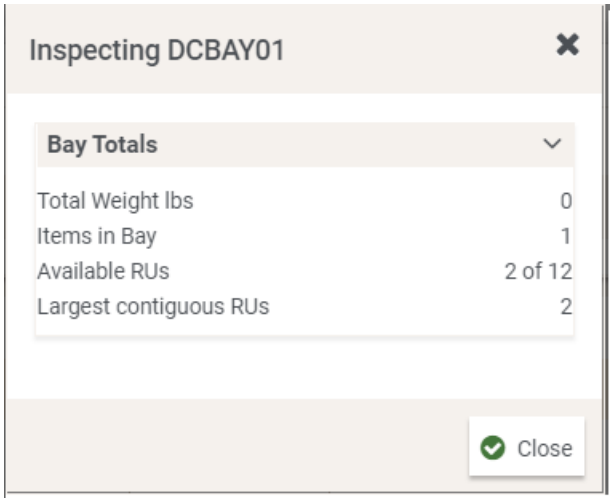
Bay Elevation

Elevation in a Plant Bay works like any IT Cabinet. Rectifiers, Plant Panels and Batteries are mounted in Plant Bays in the same way Devices are mounted in Cabinets with non-rackable mounting.

Like Plant Bay, DC Bays support Elevation views. DC Panels are mounted in DC Bays in the same way Devices are mounted in Cabinets with non-rackable mounting



You can use Bay Inspector to get the details about Bay Item totals, available RUs and weight capacity. Click the 👁 to open the Bay Inspector dialog.



Menu options and settings for Bay elevation are the same as Cabinet Elevation.

For more details on Menu options and settings for Cabinet Elevation see Use Cabinet Elevations in the Web Client.

Managing Models for Plant Panels and DC Panels

Models for Subclass Plant Panel and DC Panels are auto created when items are created for these two Subclasses.

In dcTrack you can create a Plant Panel item by clicking the "Create a Panel" button in the Plant Panels Subtab of a Plant Item. When a Plant Panel item is created, its Model is auto created using the Make and Model of the Plant. Auto created Models will have the following property values:

- RUs - 10
- Height - 17.5”
- Width - 8.75”
- Depth - 3”
- Class - DC Power System
- Subclass - Plant Panel
- Mounting - Non-Rackable
- Form Factor - Fixed

DC Panel Items are created by clicking the "Create a Panel" button on the Power Panels subtab of a DC Bay Item. When a DC Panel Item is created, its Model is auto created using the Make and Model of the DC BAY. Auto created DC Panel Models will have the following property values:

- RUs - 10
- Height - 17.5”
- Width - 8.75”
- Depth - 3”

- Class - DC Bay
- Subclass - DC Panel
- Mounting - Non-Rackable
- Form Factor - Fixed

Note: You cannot create Models for Subclass Plant Panel or DC Panel by clicking Add a Model in the Web UI or via the File Import.

Once these Models are auto created, you may not edit the Model's Class, Subclass, Make, Model, Mounting and Form Factor fields. You may edit the remaining Model fields via the Web UI or File Import.

Breaker Assignment for DC

Please refer to the topics below for additional information

See Creating Editing and Deleting DC Panel Breakers

see Creating Editing and Deleting Plant Panel Breakers

For Information on Breaker Assignment for AC please see

Breaker Assignment

Chapter 4:Derating Amps

dcTrack 7.1 gives you an option in the UI to derate amps for UPS Banks, Floor PDUs and Floor PDU Power Panels.

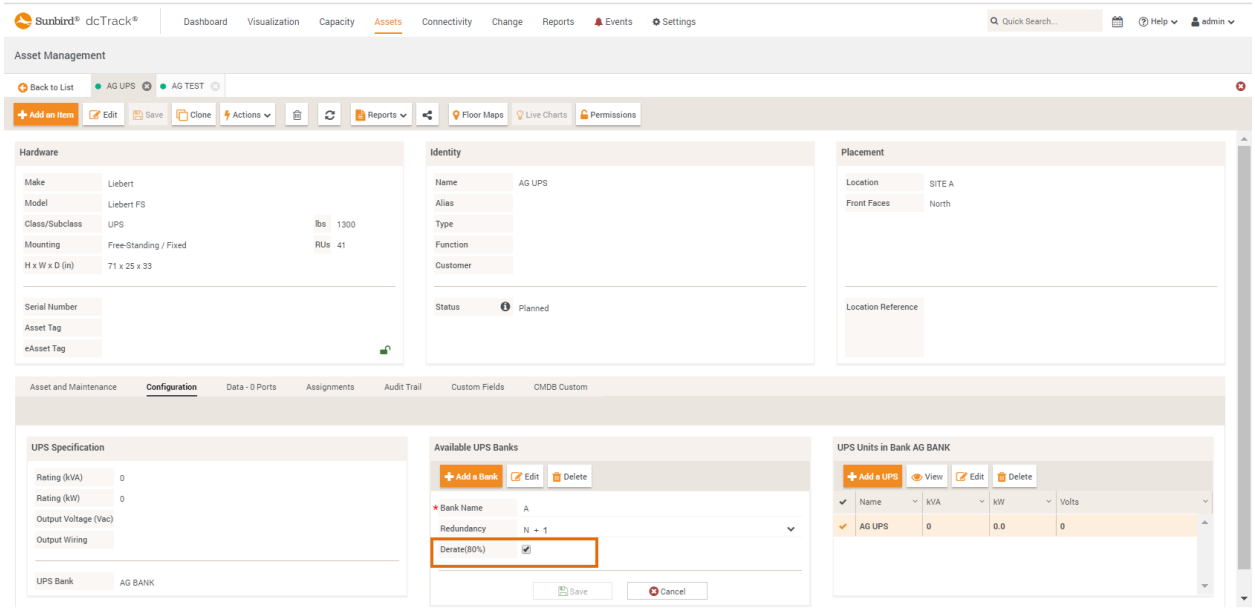
By default, the Amps for UPS Banks, Floor PDUs and Floor PDU Power Panels in U.S. data centers are derated to 80% of their actual capacity. If, however you have units that are manufactured to operate at 100% of their capacity, you now have the option to not derate those units.

UPS Bank

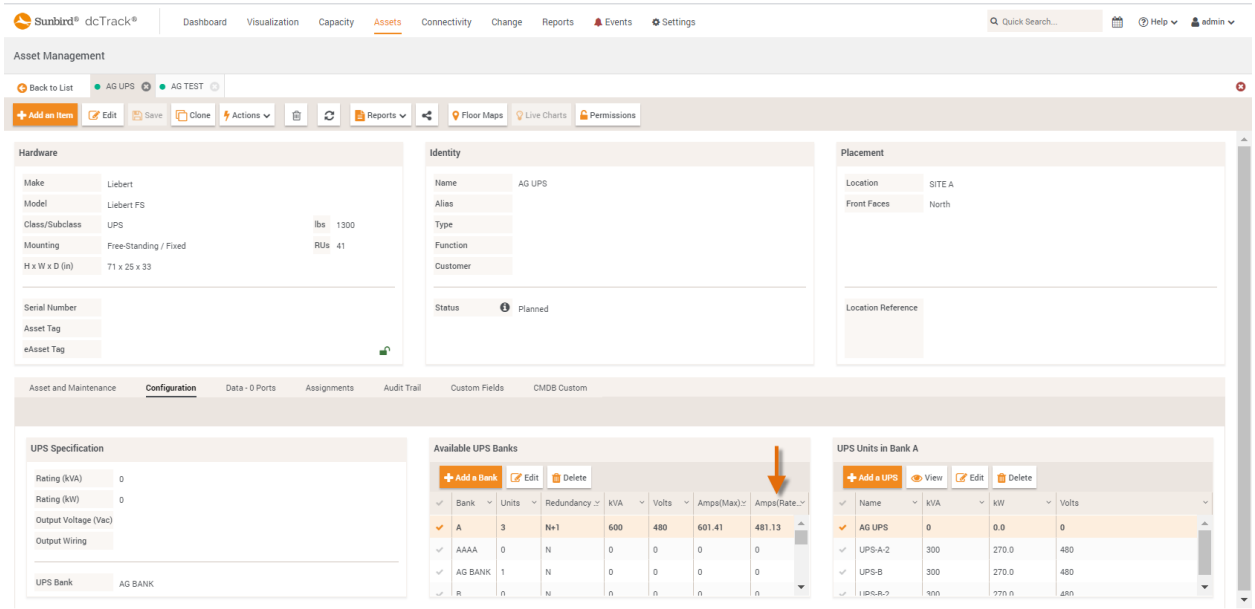
Steps to derate UPS Bank Amps

1. Navigate to the Item Detail page of the UPS Bank and click the Configuration subtab.
2. Select the UPS Bank from the Available UPS Banks panel and click the Edit button
3. Check the Derate(80%) check box

4. Click Save to save the setting



Notice, the Amps(Rated) value for the UPS Bank is derated by 80% of the Amps(Max) value.



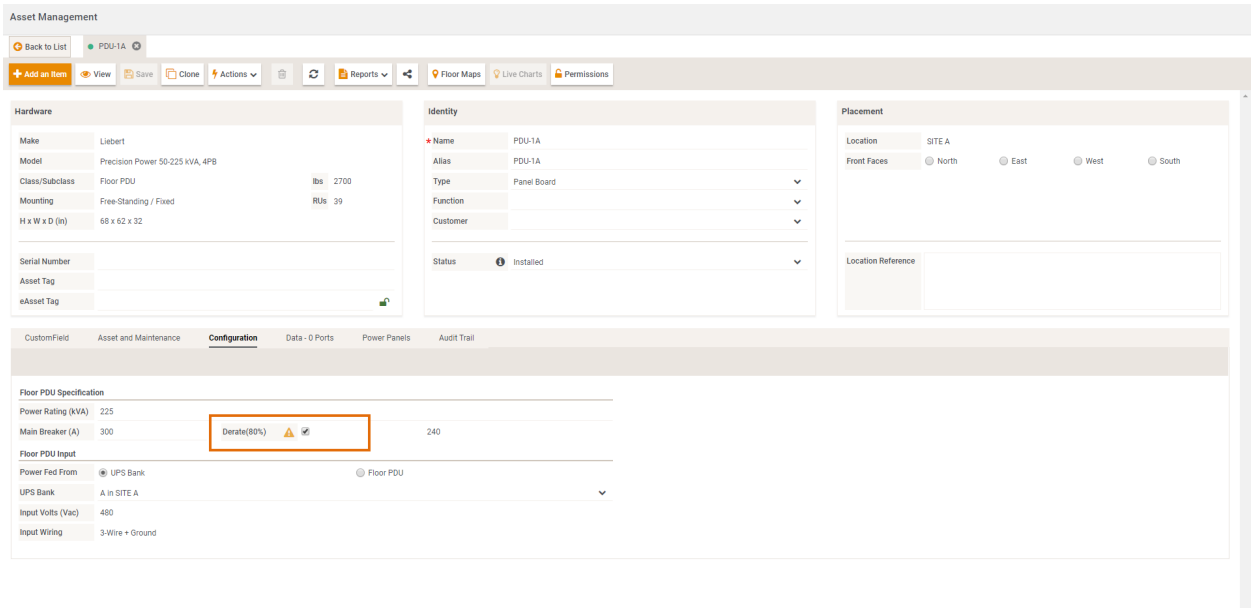
By default, all of the UPS Banks that are located in Data Centers who's country is listed as the United States will have this field checked. If you have UPS Banks that are manufactured to operate up to 100% of their rating and do not require derating, you can uncheck this field.

For Data Centers who's country is listed as something other than the United States, this Derate field will be unchecked by default, however, you can edit the Item and check this option if you wish to derate the amps of the UPS Bank to 80%.

Floor PDU

Steps to derate Floor PDU Amps

1. Navigate to the Item Detail page of the UPS Bank and click the Configuration subtab.
2. Click the Items Edit button to enter edit mode.
3. Check the Derate(80%) check box
4. Click Save to save the setting



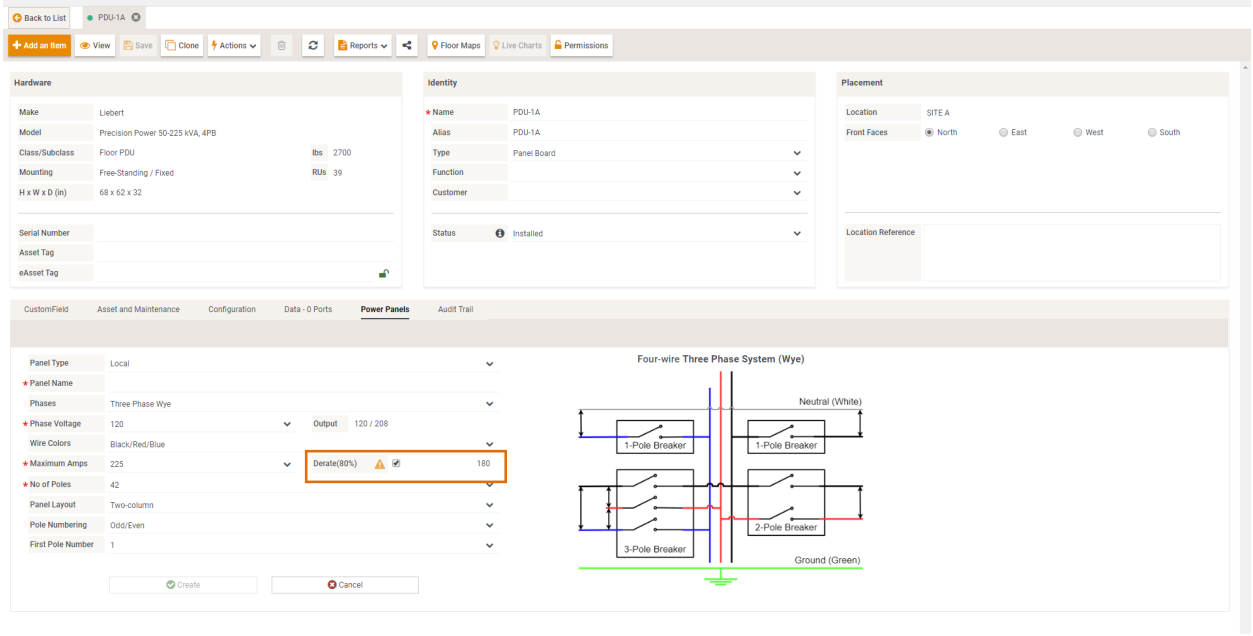
By default, all of the Floor PDUs that are located in Data Centers who's country is listed as the United States will have this field checked. If you have Floor PDUs that are manufactured to operate up to 100% of their rating and do not require derating, you can uncheck this field.

For Data Centers who's country is listed as something other than the United States, this Derate field will be unchecked by default however, you can edit the Item and check this option if you wish to derate the amps of the Floor PDU to 80%.

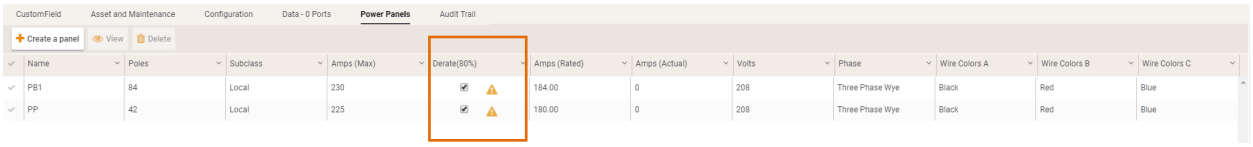
Floor PDU Power Panels

You can derate Floor PDU Power Panels while creating them by selecting the Derate (80%) check box. The derated value will be displayed in a read only field next to the

check box.



Amps for save Power Panels can be derated by selecting the Derate(80%) check box.



By default, all of the Floor PDU Power Panels that are located in Data Centers who's country is listed as the United States will have this field checked. If you have Floor PDU Power Panels that are manufactured to operate up to 100% of their rating and do not require derating, you can uncheck this field.

For Data Centers who's country is listed as something other than the United States, this Derate field will be unchecked by default however, you can edit the Item and check this option if you wish to derate the amps of the Floor PDU Power Panels to 80%.

Chapter 4:Creating and Managing Ports

dcTrack items in the Sunbird Models Library file have ports already defined for them. This means you are not required to create ports for items.

However, should you need to create additional ports or edit or delete data, power or sensor ports, do so in the Web Client directly on the item's page.

Create power ports for Device, Network, and Probe class items in the Web Client.

Port Index Numbering and Port Naming

dcTrack uses the port index number to identify ports on a device; it does not use the port name.

Assign your ports the correct port index in your import spreadsheet to ensure accuracy.

If needed, reference the Item Models Library or the make's documentation for the port index order of the device.

If port index names and port index numbers are out of sync, dcTrack cannot identify the correct port on a device. This becomes an issue when assigning IP addresses to ports, syncing devices between dcTrack and Power IQ, and so on.

If the port index number is not provided for a device, the port's default index number is assigned based on the order it is created.

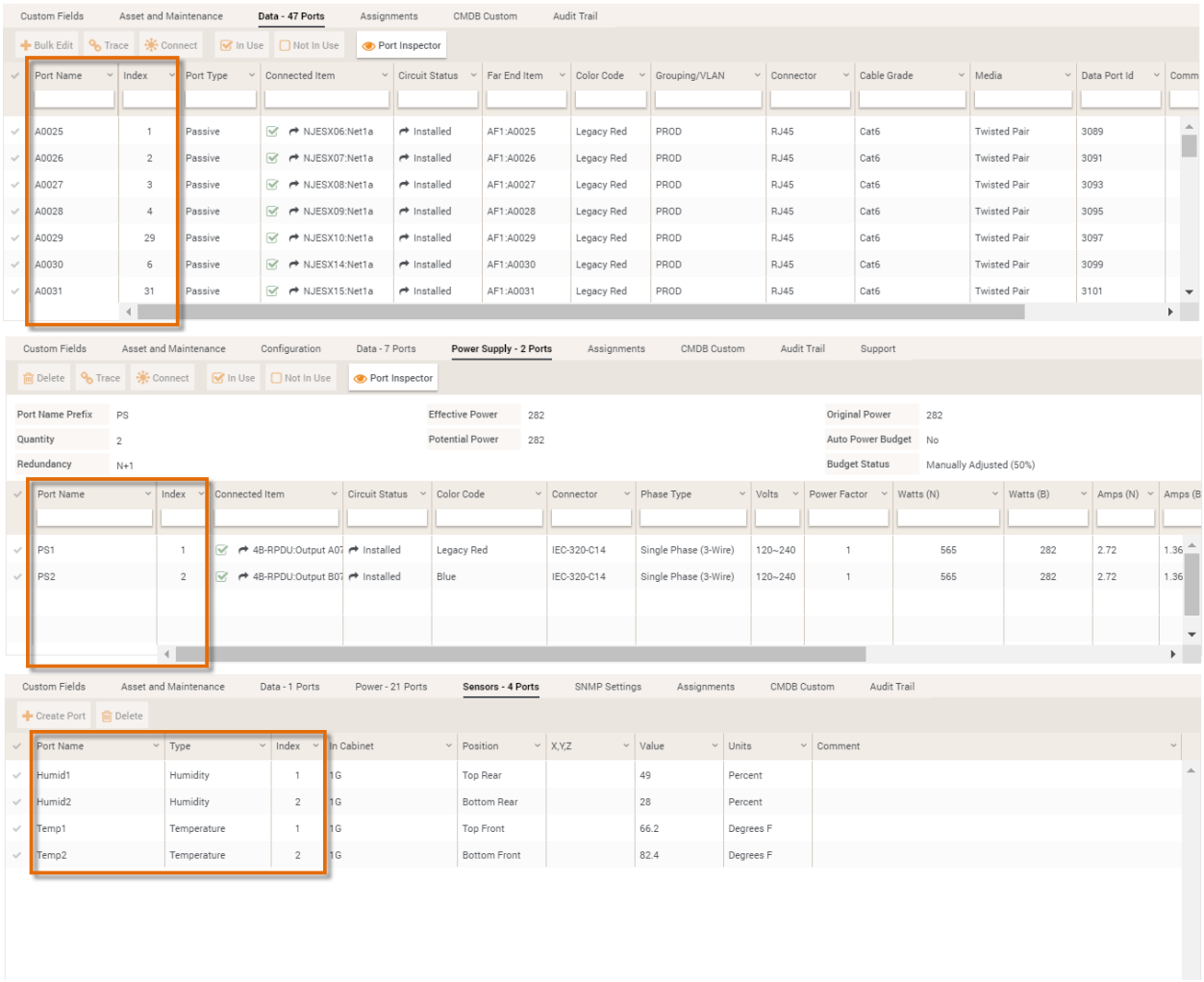
For example, if you create three physical data ports for a device but do not assign each port an index number, the data ports are assigned index numbers of 1, 2 and 3 in the order they are created on the device.

Note: This applies to all port creation methods - manually creating ports in the Web Client, creating ports when importing items using the File Import, and creating ports using an API.

When creating ports on devices, follow these rules:

- No two ports of the same type can have the same index number. This means:
  - Each physical, logical or virtual data port index number must be unique
  - Each sensor port index number must be unique
  - Each power supply port index number must be unique
- A port index number cannot be 0.
- Devices cannot have more than 98 power supply ports, so power port index numbers can only be numbered 1-98.

For example:



If port index numbers are out of sync for any reason, you can manually update the index numbering for data ports and sensor ports on the Data - N Ports tab and Sensor - N Ports tab of the item's page in the Web Client.

You can use the Item Models Library to verify the port index numbers used for devices.

Create Power Ports (Web Client)

Create power ports for Device, Network, and Probe class items in the Web Client.

Power ports are created by increasing the number of ports on the device.

Create a power port for items in the following statuses:

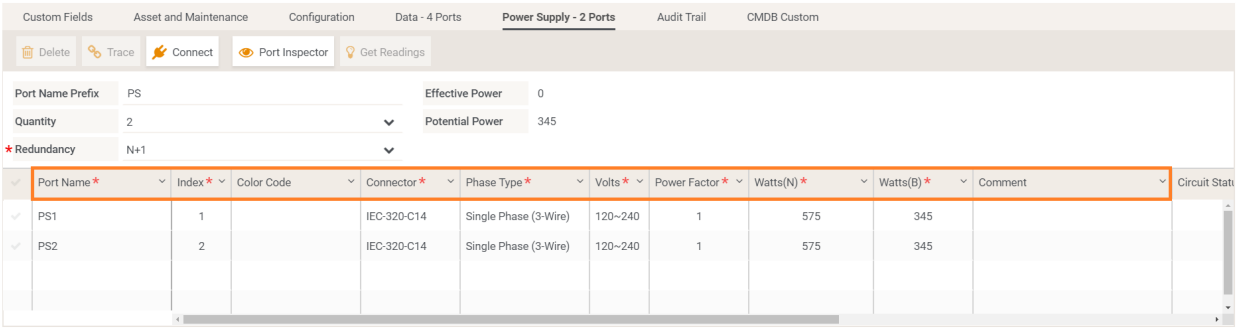
- Planned
- Installed

- Powered-off
- Off-Site
- Storage
- Archived

To create a power port:

1. In the Web Client, click Assets > Items List.
2. Click on the Power Supply- n Ports tab on the Create New Item page, or open an existing item's page in edit mode.
3. Click Edit to enter Edit mode for the Item
4. Enter the Port Name Prefix - Port Names will be created with this prefix plus the Index
5. Quantity - create new power ports, up to 98 maximum
6. Redundancy - select the power redundancy, if needed.

For example, one port = N (no redundancy), one port and one redundant port is N+1, one port and two redundant ports is N+2, and so on.



7. Click Save at the top of the item's page.

After Creating a Power Port

Build power circuits

See **Build a "Normal" Power Circuit** and **Build a Partial Power Circuits**.

Edit a Power Port (Web Client)

Edits made to one power port are made to all power ports of the same type on the item.

Edit a power port for items in the following statuses:

- Planned
- Installed
- Powered-off
- Off-Site
- Storage
- Archived

You must have edit privileges to edit an item's power port information.

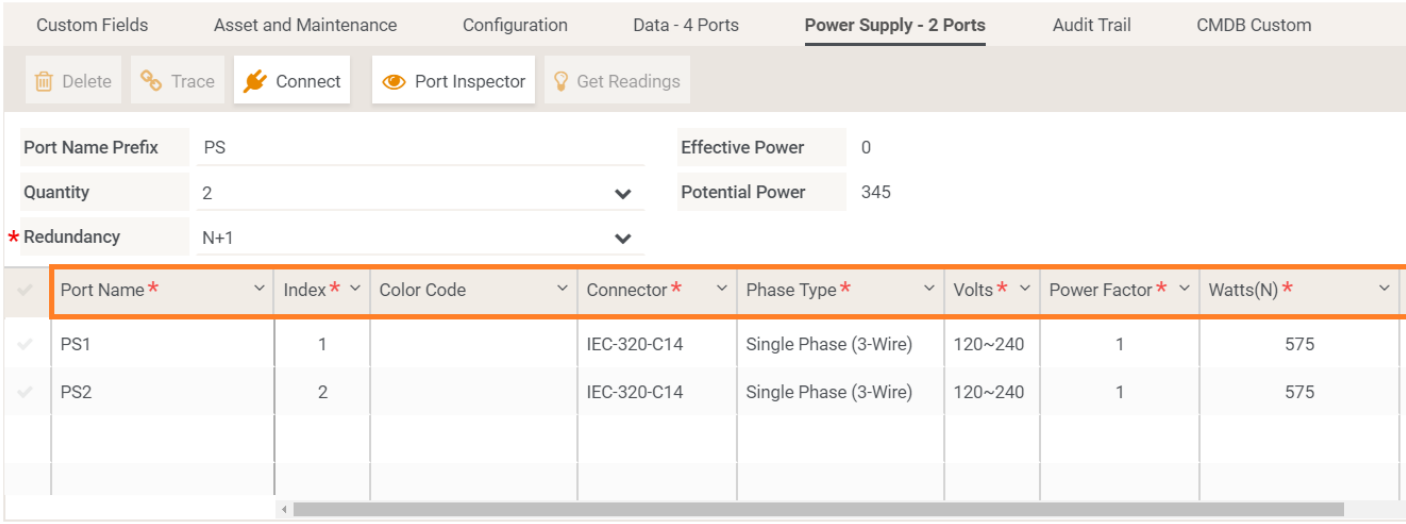
To edit power port information on an item's page:

1. In the Web Client, click Assets > Items List.
2. Open an existing item's page in edit mode.

Directly update any of these fields in the port list on the Port - n Port tab:

- Power Port Name - up to 64 characters. Port names cannot be duplicated on a device.
- Index - editable. Two ports cannot have the same index number.
- Color Code
- Connector - For connected ports, must be compatible with the connector of the port it is connected to.
- Phase Type - For connected ports, Single Phase 2-Wire can be updated to Single Phase 3-Wire and vice versa. Three Phase Wye can be update to Three Phase Delta and vice versa.
- Volts - For connected ports, when updating the Volts value, validation will be done to match phase type and match volts of the connected port.
- Watts (Nameplate)
- Watts (Budgeted) - Can be updated to a value less than or equal to Watts (Nameplate).
- Power Factor
- Comments - up to 500 characters

3. Click Save at the top of the item's page.



Remove Power Ports (Web Client)

Power ports are removed by decreasing the number of ports on a device.

You cannot remove power ports that are connected as part of a circuit, so you cannot decrease the number of power ports below the number of connected ports.

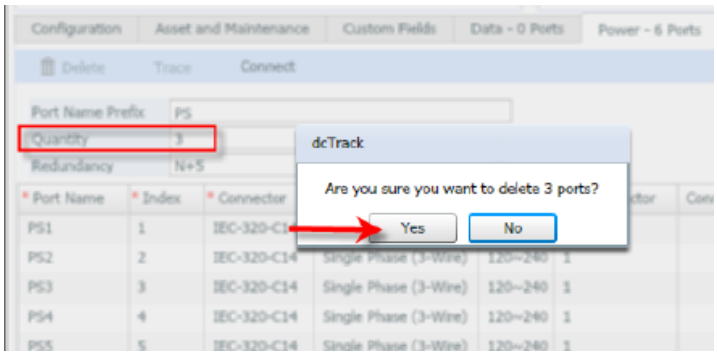
For example, if you have 3 power ports and 2 of them are being used, you cannot decrease the number of ports to 1.

Remove a power port for items in the following statuses:

- Planned
- Installed
- Powered-off
- Off-Site
- Storage
- Archived

To remove power ports:

1. In the Web Client, click Assets > Items List.
2. Open an existing item's page in edit mode.
3. Click on the Power - n Ports tab.
4. From the Quantity drop-down, select a lower number of ports.
5. Click Yes to confirm.



6. Redundancy - update the redundancy, if needed.
7. Click Save at the top of the item's page.

Delete Power Ports (Web Client)

Delete a power port for items in the following statuses:

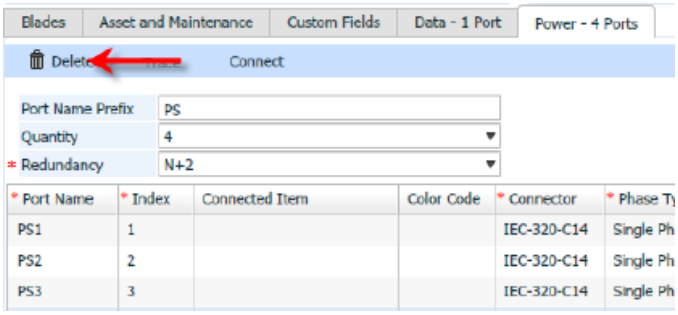
- Planned
- Installed
- Powered-off
- Off-Site
- Storage
- Archived

You must have edit privileges to delete ports.

A connected power port cannot be deleted, so the Delete icon on the Port tab is disabled.

To delete a power port:

1. In the Web Client, click Assets > Items List.
2. Open an existing item's page in edit mode.
3. Click on the Power - n Ports tab.
4. Click on the port or ports you want to delete. Use Ctrl + click to select multiple ports at once.
5. Click Delete on the Power - n Ports tab.



Connect to a New Power Circuit Page (Web Client)

Create a new data circuit using the selected port as the first node by clicking on the port name on the Power - n Ports tab on an item's page.

Select a single port to start building one circuit, or use Ctrl + click to select multiple ports start building several, then click Connect.

The New Power Circuit page(s) open under the Connectivity tab.

The first node is the item you connected from, and the Node 2 dialog opens automatically so you can begin building your circuit.

For more information on building circuits, see Building New Circuits for Items.

Trace a Power Port Circuit

See **Trace a Power Port Circuit from the Power Port Tab (Web Client)**.

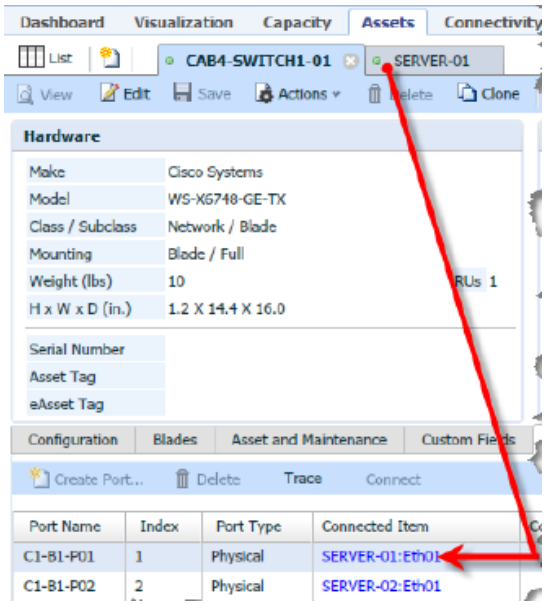
Access a Connected Item's Page from the Power Port Tab

The Connected Item is the item connected to the power port.

Once an item is connected, the connected item's name becomes a link to that item's page.

Access this link from the Power - n Ports tab under the Connected Item column.

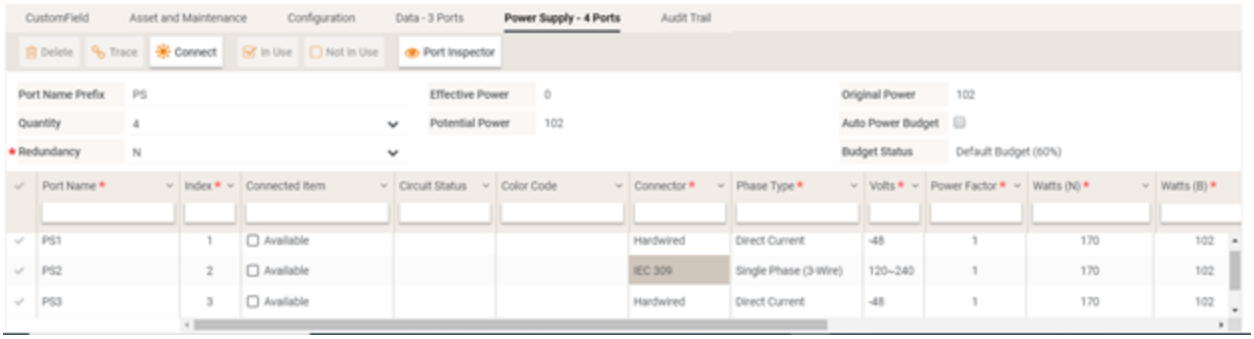
You must have View access and above to perform this function.



Items With Different Power Supply Properties

In dcTrack 7.1 it is possible to support Item and Model Power Supplies who's Ports require a different Phase Type, Connector, Volts and Power Factor.

When changing the Phase Type the Volt drop down will be updated base on the Phase Type selected.



Note : You no longer need to check the Optional field when Item or Model Power Supply Ports have different Phase Yype, Connector, Volts or Power Factor.

Values for Watts(N) and Watts(B) should be same for all the power supplies.

Create a Data Port (Web Client)

Create a data port on an item in the Web Client manually, or using a template of an existing port.

Create data ports when you create Device, Network, UPS, Floor PDU, Rack PDU, HVAC and Probe class items, or add them to existing items.

Alternatively, apply a Data Port Template instead of creating the port.

See **Apply a Data Port Template to an Item (Web Client)** and **Create a Data Port Template (Web Client)**.

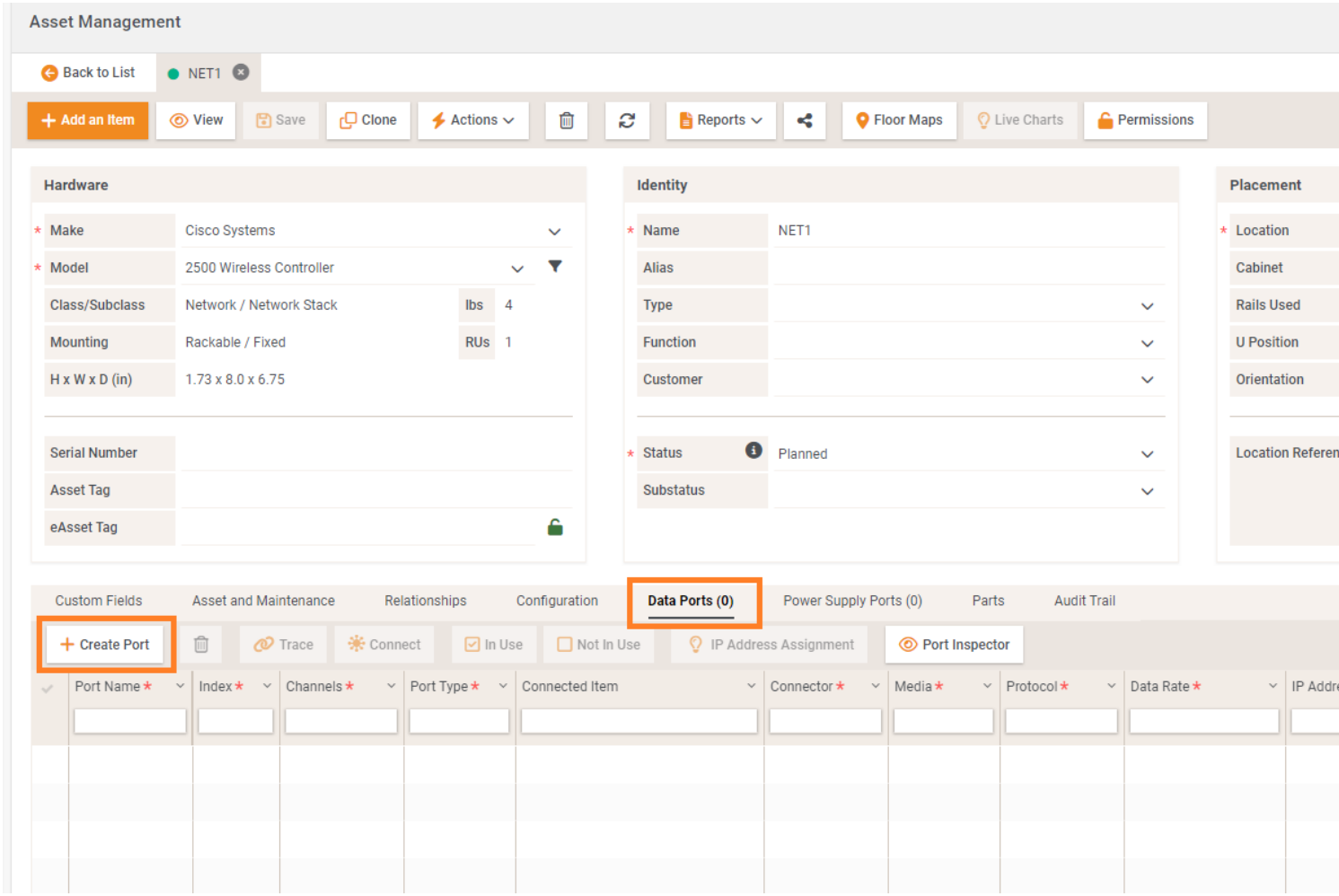
Create a data port for items in the following statuses:

- Planned
- Installed
- Powered-off
- Off-Site
- Storage
- Archived

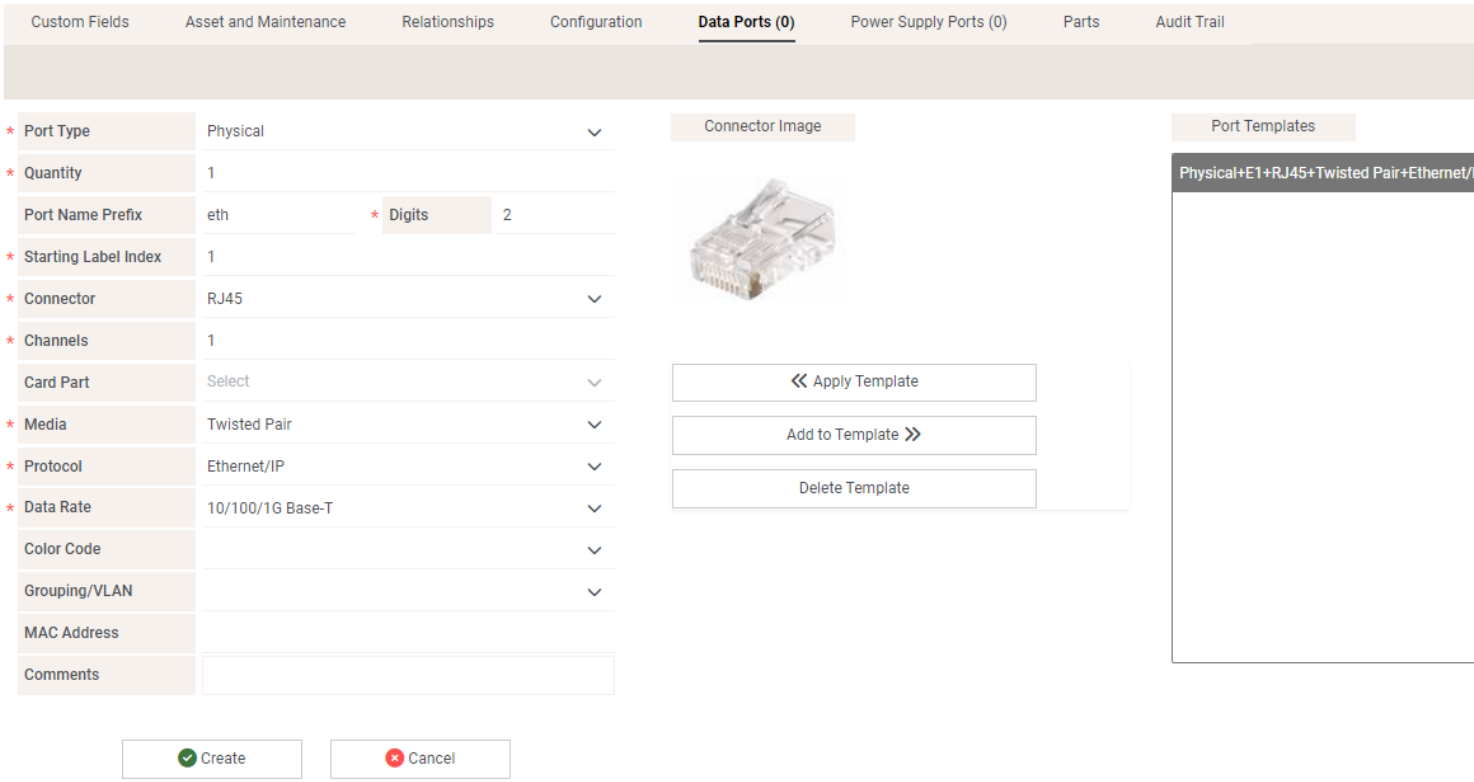
You must have edit privileges to create a port.

To create a data port:

1. In the Web Client, click Assets > Items List.
2. Click on the Data - n Ports tab on the Create New Item page, or open an existing item's page in edit mode.
3. Click Create Port.



The create port fields appear.

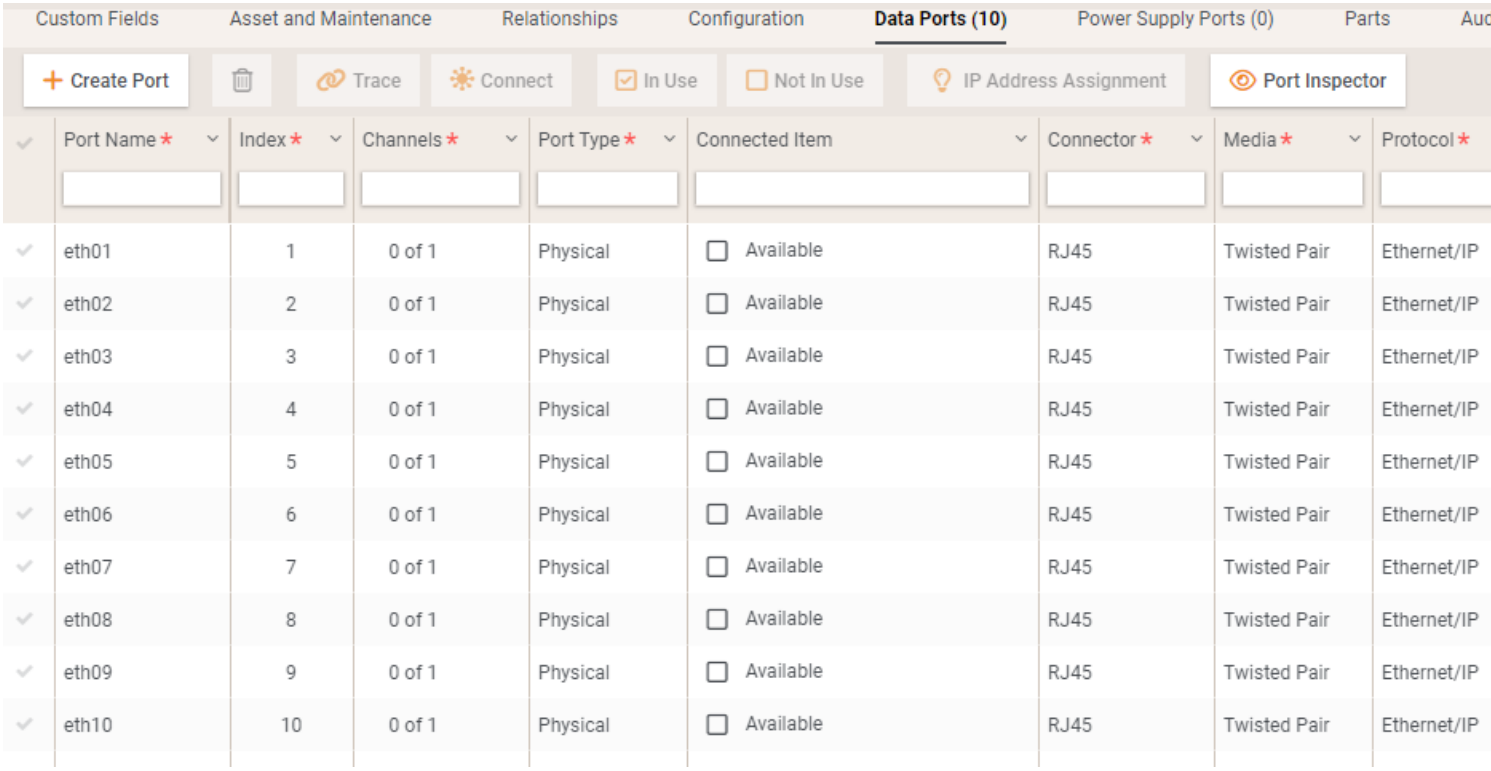


4. Select the Port Type:
   - Physical - applies to all supported item classes
   - Logical - applies to blades
   - Virtual - applies to virtual machines
5. Quantity - total number of ports to create. Up to 288 physical ports, and 1 virtual or 1 logical port for network blades
6. Port Name Prefix - update the prefix of the port name, use up to 64 characters. dcTrack numbers ports sequentially. Port names must be unique. If port names are duplicated, you cannot save.
7. Start Label Index - the default value is the next available index which is 1 greater than the highest existing index. You can enter any numeric value greater than 1. Port indexes must be unique, so if the value you enter exists, you will be prompted to provide a different value.
8. Connector - required for Physical data port types only
9. Channels - number of channels for the port. The default value is 1.
10. Card Part - Card Part assigned to be assigned to the port.
11. Media - applies to Physical ports only
12. Protocol - protocol used by the port to make a connection
13. Data Rate - data rate specified for the port
14. Color Code - applied to the port
15. Grouping/VLAN - applies to the port
16. MAC Address - up to 64 character

17. Comments - up to 500 characters
18. Click Create.

The new data ports are displayed on the item page, and the number in the Data - N Port tab is updated.

dcTrack uses the port index number to identify the port; it does not use the port name. For information on port indexing and possible impacts, see **Port Index Numbering and Port Naming**.



Port Name *	Index *	Channels *	Port Type *	Connected Item	Connector *	Media *	Protocol *
eth01	1	0 of 1	Physical	Available	RJ45	Twisted Pair	Ethernet/IP
eth02	2	0 of 1	Physical	Available	RJ45	Twisted Pair	Ethernet/IP
eth03	3	0 of 1	Physical	Available	RJ45	Twisted Pair	Ethernet/IP
eth04	4	0 of 1	Physical	Available	RJ45	Twisted Pair	Ethernet/IP
eth05	5	0 of 1	Physical	Available	RJ45	Twisted Pair	Ethernet/IP
eth06	6	0 of 1	Physical	Available	RJ45	Twisted Pair	Ethernet/IP
eth07	7	0 of 1	Physical	Available	RJ45	Twisted Pair	Ethernet/IP
eth08	8	0 of 1	Physical	Available	RJ45	Twisted Pair	Ethernet/IP
eth09	9	0 of 1	Physical	Available	RJ45	Twisted Pair	Ethernet/IP
eth10	10	0 of 1	Physical	Available	RJ45	Twisted Pair	Ethernet/IP

15. Click Save at the top of the item's page to add the ports.
16. For next steps, see **After Creating Data Ports**.

After Creating Data Ports

- Create a Data Port Template based on the port (Optional). See **Create a Data Port Template (Web Client)**.
- Place the ports on the item. See Port Placement Options.

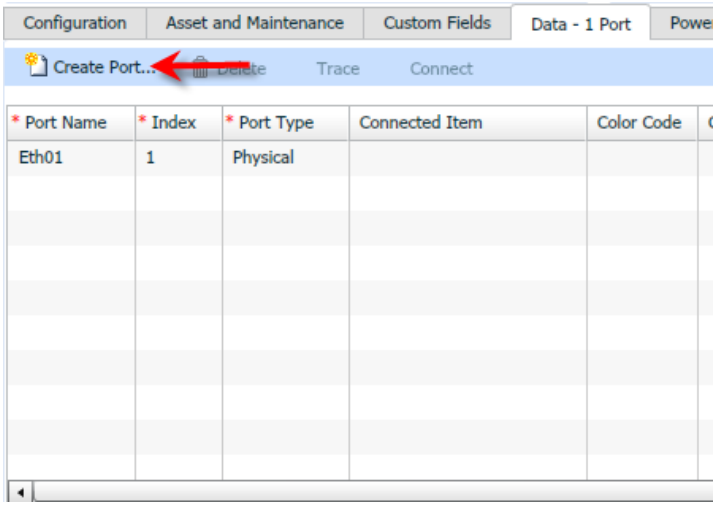
Apply a Data Port Template to an Item (Web Client)

Instead of entering data port information manually, apply a Data Port Template.

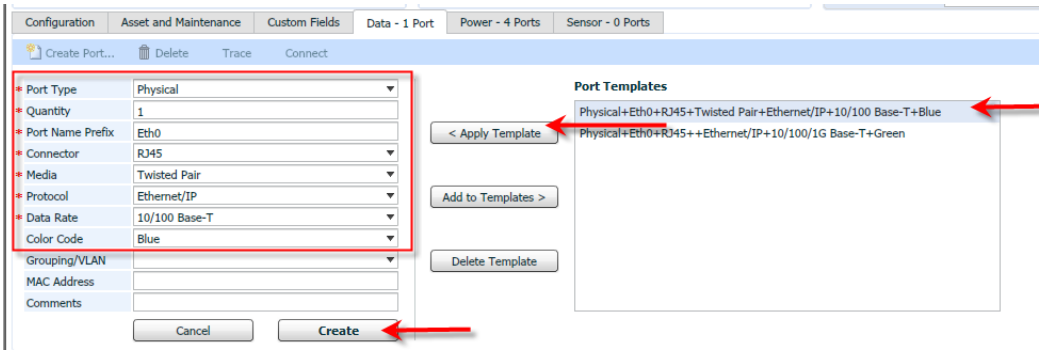
Templates are created when a data port is originally created. See **Create a Data Port Template (Web Client)**.

To apply a Data Port Template when creating a port:

1. Click on the Data - n Ports tab on the Create New Item page, or an item's page in edit mode.
2. Click Create Port.



The create port fields appear.



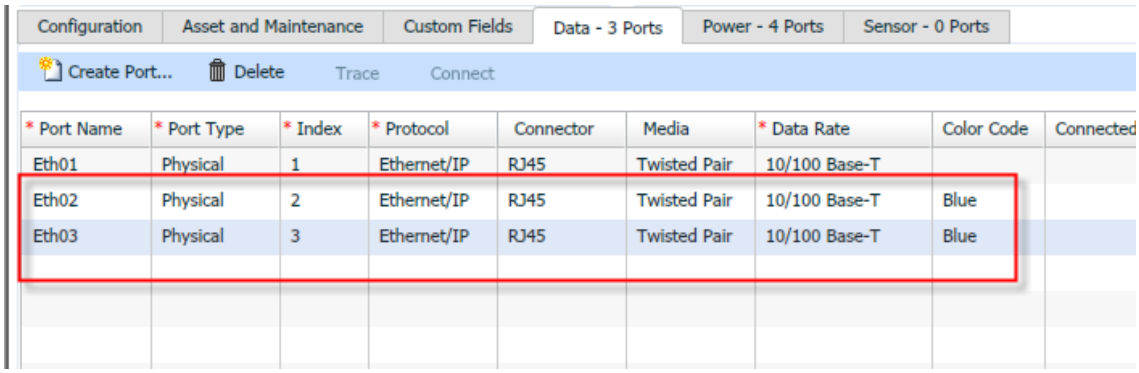
3. From the Port Template box, click on the port template you want to apply.
4. Click Apply Template.

The port fields are populated with the exception of Quantity, MAC Address and Comments fields. Update them as needed.

- If desired, create a new template based on this template by clicking 'Add to Templates'.

5. Click Create.

The new data ports are displayed on the item page, and the number in the Data Port tab is updated.



6. Click Save at the top of the item's page to save the new ports to the item.

Create a Data Port Template (Web Client)

Create a data port, save its configuration as a template, then apply to other data ports on Device, Network, UPS, Floor PDU, Rack PDU, HVAC and Probe class items.

Templates are available across sites.

You must have edit privileges to create a template.

Create templates from the same classes of items in the same statuses as you can to create data ports.

To create a port template:

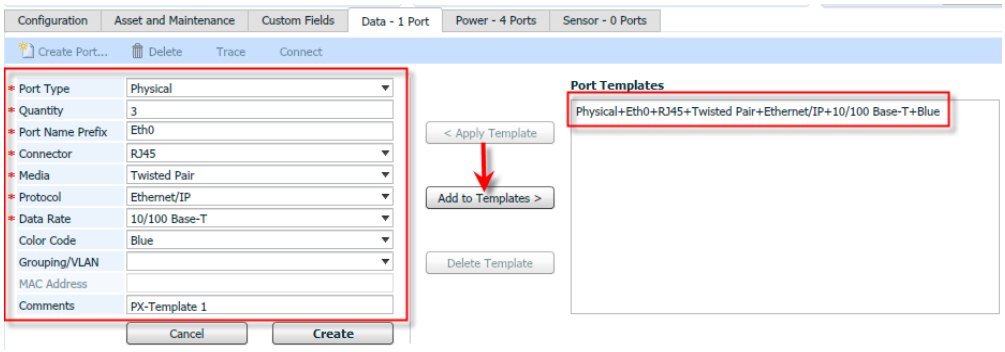
1. Create a data port for an item. See **Create a Data Port (Web Client)**.
2. Enter Type, Protocol and Data Rate at a minimum to create a template.
3. Click 'Add to Templates'.

The data port configuration is saved as template.

All elements of the configuration with the exception of Quantity, MAC Address and Comments are displayed in the Port Templates box.

Note: The index number in the port name is 0, for example Eth0, so numbering restarts when the template is applied to another port.

Note: Templates cannot be edited. They must be deleted and recreated.



Rack PDU Data Ports (Web Client)

Create, edit, and delete rack PDU data ports like all others.

Trace rack PDU data circuit connections, and start new data circuit connections directly from the Data - n Port tab on an item's page by clicking the Connections icon.

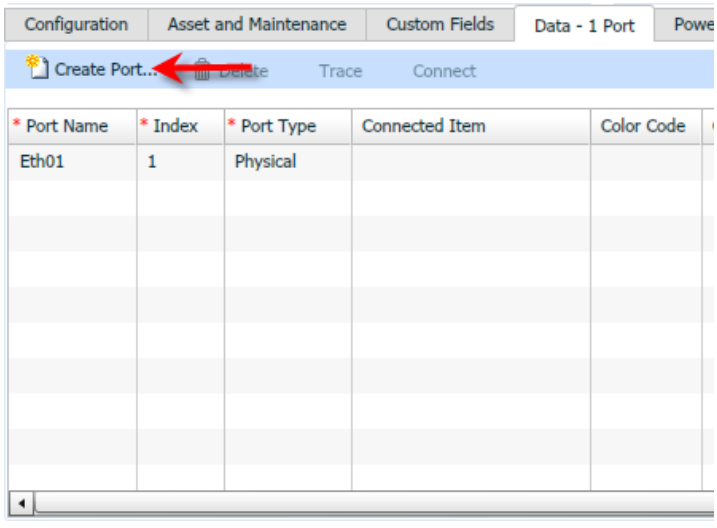
For details on these functions, see **Data Ports**.

Delete a Data Port Template (Web Client)

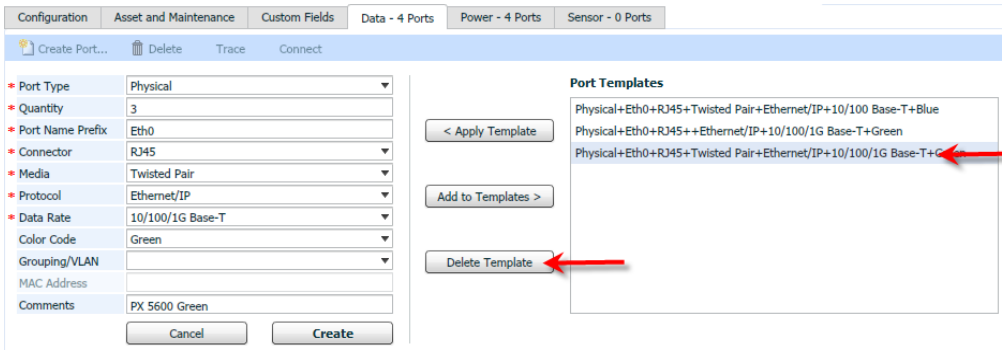
If a template is applied to a data port, the data port is not affected when the template is deleted.

To delete a template:

1. Click on the Data - n Ports tab on the Create New Item page, or an item's page in edit mode.
2. Click Create Port.



The create port fields appear.



3. In the Port Template box, click on the template you want to delete, then click Delete Template.

The template is deleted. Note that clicking Cancel does not cancel the deletion.

Edit a Data Port (Web Client)

Edit a data port for items in the following statuses:

- Planned
- Installed
- Powered-off
- Off-Site
- Storage
- Archived

You must have edit privileges to edit an item's data port information.

To edit data port information on an item's page:

1. In the Web Client, click Assets > Items List.
2. Open an existing item's page in edit mode.

Directly update any of these fields in the port list on the Data - n Port tab:

- Port Type - port types cannot be change to a type that does not apply to the item.

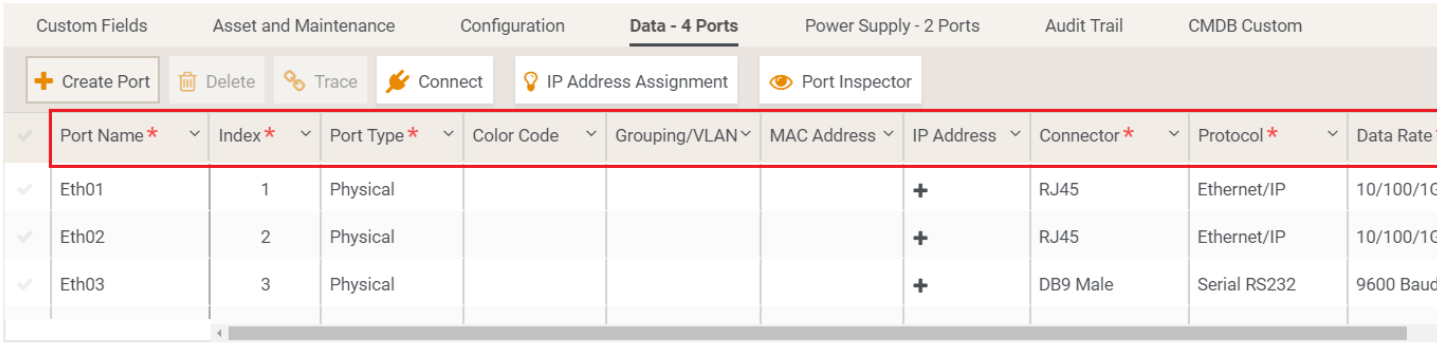
For example, a rack PDU's port type cannot be changed from Physical to Virtual.

Data Port Name - up to 64 characters. Port names cannot be duplicated on a device.

- Index - editable. Logical and physical blades can have duplicate port index numbers, but ports on the same device cannot.
- Channels - Cannot be updated if ports are connected.
- Color Code

- Connector - required for Physical ports only - for connected ports, must be compatible with the connector of the port it is connected to.
- Media - required for Physical ports only - cannot be updated if ports are connected
- Protocol
- Data Rate
- Grouping/VLAN
- MAC Address - up to 64 characters
- SNMP Community
- Comments - up to 500 characters

3. Click Save at the top of the item's page.



Delete a Data Port (Web Client)

Delete a data port for items in the following statuses:

- Planned
- Installed
- Powered-off
- Off-Site
- Storage
- Archived

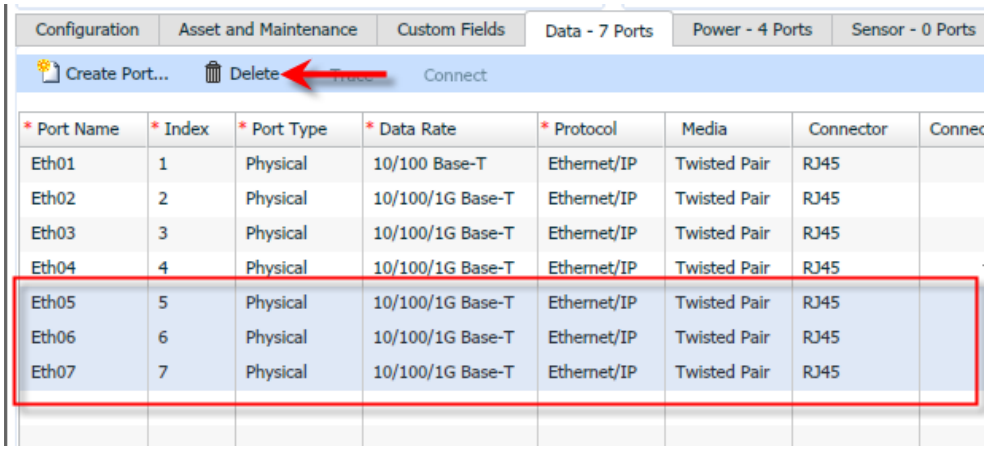
You must have edit privileges to delete ports.

A connected data port cannot be deleted, so the Delete icon on the Port tab is disabled.

To delete a data port:

1. In the Web Client, click Assets > Items List.

2. Open an existing item's page in edit mode.
3. Click on the Data - n Ports tab.
4. Click on the port or ports you want to delete. Use Ctrl + click to select multiple ports at once.
5. Click Delete on the Data - n Ports tab.



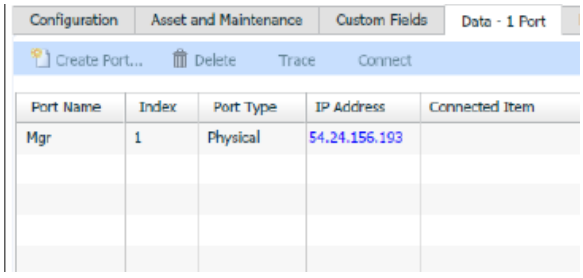
6. Click Save at the top of the item's page to save the changes to the item.

Note: To undo a delete port, before saving the page, click Refresh at the top of the page and select Yes when prompted not to save your changes. The port is restored, but keep in mind that any other changes you made to the item before the save are lost.

Connect to a Server via a Data Port IP Address (Web Client)

After a valid IP address is assigned to an item's data port, it is displayed on the item's page on the Data - n Ports tab under the IP Address column.

If the link is active, click on it to link to the server.

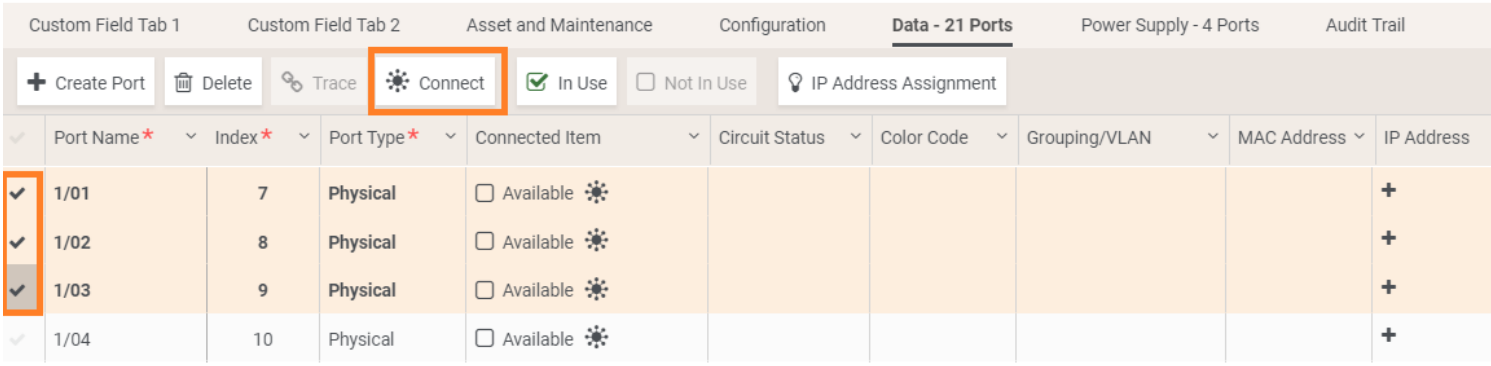


If the server is found and provides a web interface, it opens in a secondary browser window.

Connect to a New Data Circuit Page (Web Client)

Create a new data circuit using the selected port as the first node by clicking on the port name on the Data - n Ports tab on an item's page.

Select a single port to start building one circuit, or use Ctrl + click to select multiple ports start building several, then click Connect.

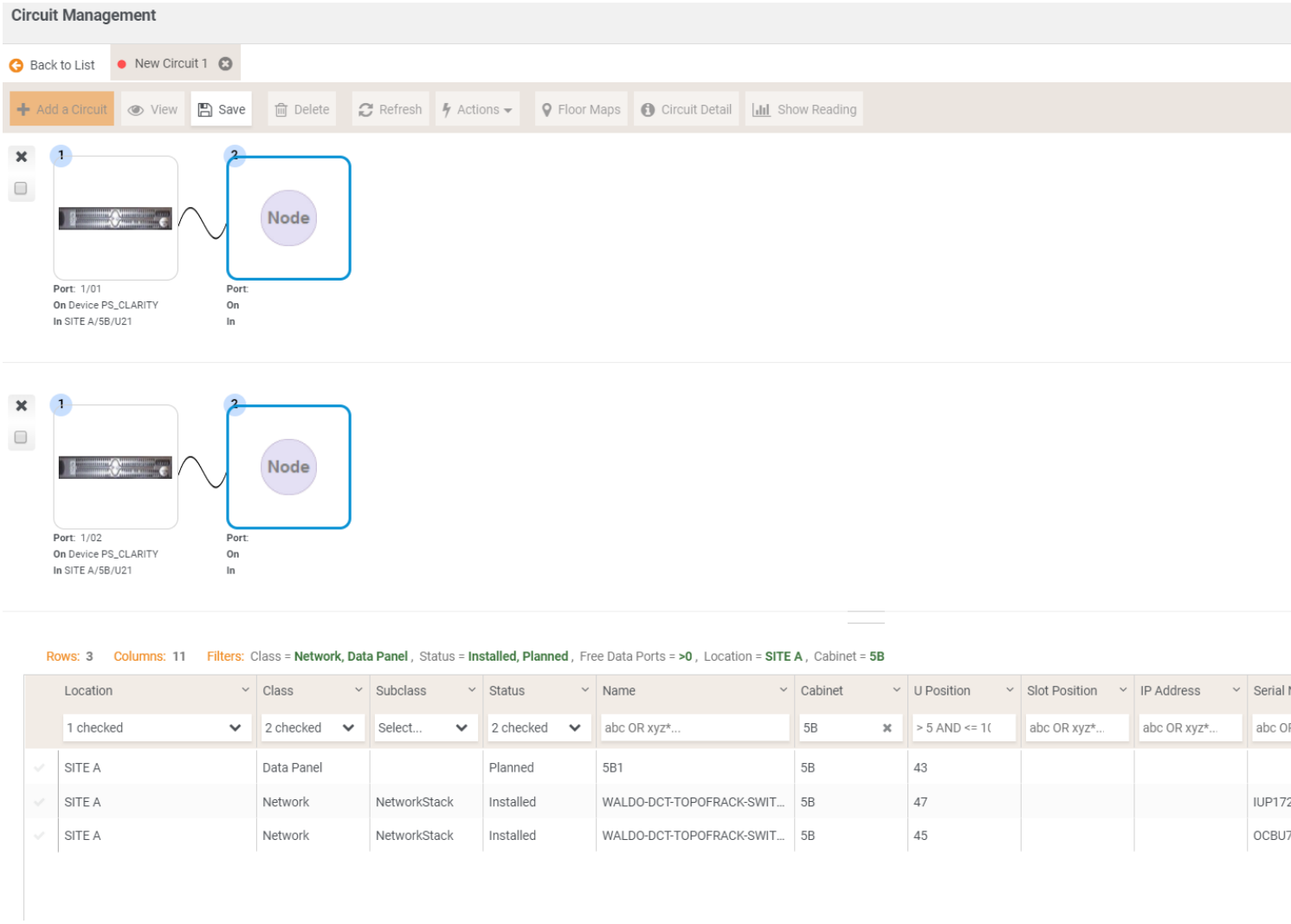


The New Data Circuit page opens under the Connectivity tab.

When you select multiple ports and click Connect, you can build the circuits in single tab.

The first Node is the item you connected from, and Node 2 is highlighted in blue. You can select the item for this node from the item list below and build your circuit.

For more information on building circuits, see Build Data and Power Circuits.



Access a Connected Item's Page from the Data Port Tab

The 'connected item' is the item connected to the data port.

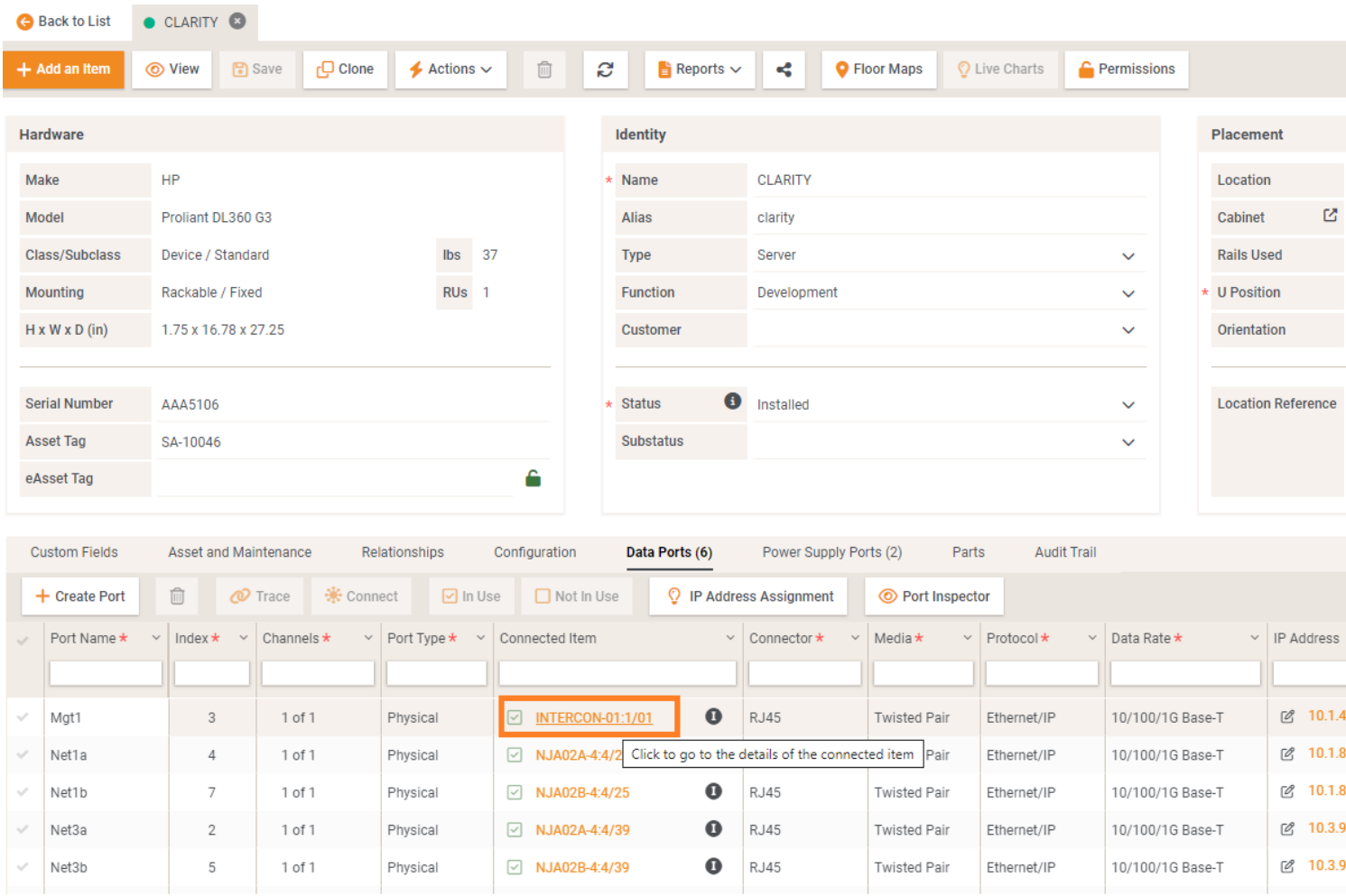
Once an item is connected, the connected item's name becomes a link to that item's page.

Access this link from the Data - n Ports tab under the Connected Item column.

This column also have an icon next to the Connected Item link which implies the status of the circuit

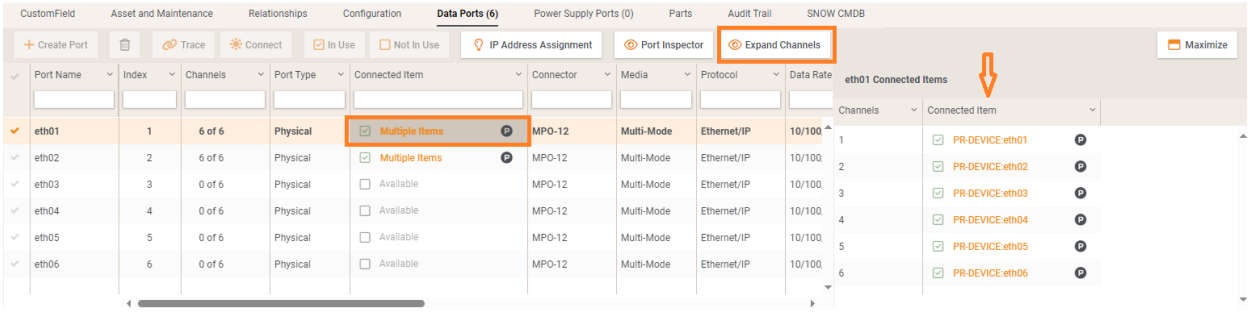
Icon I is for Installed circuits and P is for Planned circuits.

You must have View access and above to perform this function.



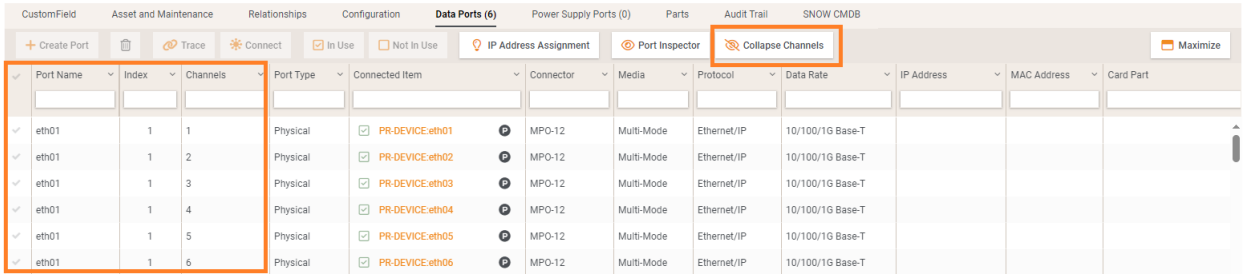
If the port has multiple channels, the same port may connect to multiple items. In that case, the connected item link text will say 'Multiple Items'. When this link text is clicked the connected items for that port will show at the right in the Port List. Each connected item is linked to it's item details page and it also have an icon which implies the status of the Circuit.

When the link text 'Multiple Items' is clicked again, the Connected Items list on the right disappears and port list returns to normal mode.



The Port List toolbar includes an Expand Channels button, which appears only if at least one port in the list has multiple channels. If all ports are single-channel, this button remains hidden.

Clicking Expand Channels expands the port list to display one row per channel. For example, a port with 6 channels will show 6 rows, one for each channel. The button label 'Expand Channel' changes to 'Collapse Channel' and clicking it again will collapse the port list.

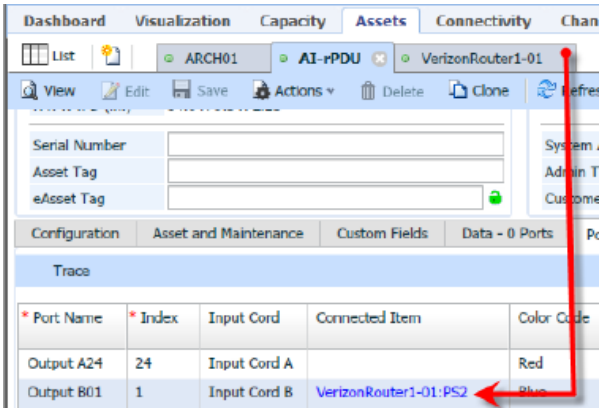


Trace a Data Port Circuit

See **Trace a Data Port Circuit from the Data Port Tab (Web Client)**.

Access a Connected Item's Page from a Rack PDU Page

Use links in the Connected Item column on the Power and Data tabs to access the item pages of the devices connected to the rack PDU.



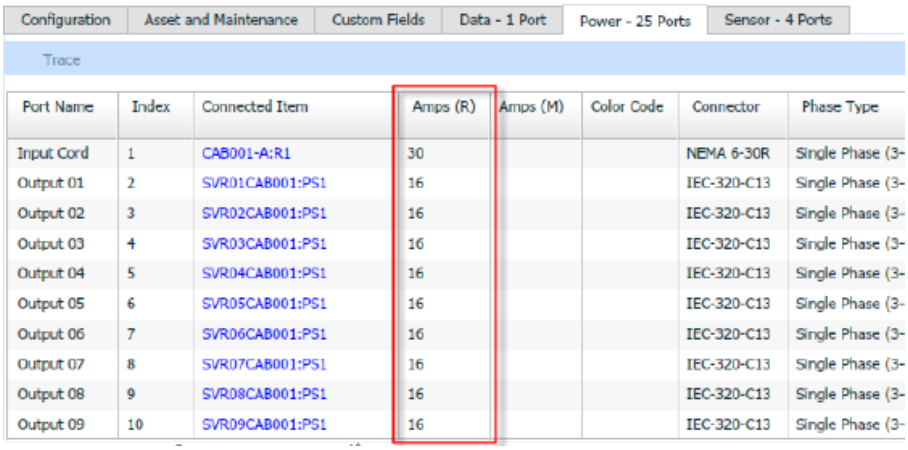
For more information, see **Access a Connected Item's Page from the Data Port Tab** and **Access a Connected Item's Page from the Power Port Tab** .

Amps (R) - Amps Rack PDUs

Amp readings for rack PDUs are displayed on the Power - n Ports tab of a rack PDU's item page in the Web Client.

Users with View access and above can access an item's page and view the readings.

Readings are available once devices are connected to a port on the rack PDU, and are powered up.



Port Name	Index	Connected Item	Amps (R)	Amps (M)	Color Code	Connector	Phase Type
Input Cord	1	CAB001-A:R1	30			NEMA 6-30R	Single Phase (3-
Output 01	2	SVR01CAB001:PS1	16			IEC-320-C13	Single Phase (3-
Output 02	3	SVR02CAB001:PS1	16			IEC-320-C13	Single Phase (3-
Output 03	4	SVR03CAB001:PS1	16			IEC-320-C13	Single Phase (3-
Output 04	5	SVR04CAB001:PS1	16			IEC-320-C13	Single Phase (3-
Output 05	6	SVR05CAB001:PS1	16			IEC-320-C13	Single Phase (3-
Output 06	7	SVR06CAB001:PS1	16			IEC-320-C13	Single Phase (3-
Output 07	8	SVR07CAB001:PS1	16			IEC-320-C13	Single Phase (3-
Output 08	9	SVR08CAB001:PS1	16			IEC-320-C13	Single Phase (3-
Output 09	10	SVR09CAB001:PS1	16			IEC-320-C13	Single Phase (3-

Edit a Power Port on a Rack PDU

Power Ports for Rack PDU AC Power, Rack Transfer Switch and Rack UPS can be edited.

Edit a power port for items in the following statuses:

- Planned
- Installed
- Powered-off
- Off-Site
- Storage

You must have edit privileges to edit an item's power port information.

The following rack PDU information is editable directly in the ports list on the rack PDU's page on the Power - n Ports tab:

- Port Name - Up to 64 characters. Port names cannot be duplicated on a device.
- Index – Two ports of the same type cannot have same index.
- Color Code
- Connector - For connected ports, must be compatible with the connector of the port it is connected to.
- Phase Type
- Volts - For connected ports, when updating the Volts value, Phase Type and Volts must match the connected port

- CB/Fuse Amps(R) - Only applies to Port Type Rack PDU Output.
- CB/Fuse - Only applies to port type Rack PDU Output.
- Comments

For details on editing, see **Edit a Power Port (Web Client)**.

Rack PDU Power Ports (Web Client)

View rack PDU-specific power data, edit certain rack PDU power port information, and access the page of a device connected to a rack PDU.

- **Create Rack PDU Power Ports** and **Edit a Power Port on a Rack PDU**.
- Create, edit, delete and sync sensors on rack PDUs. See **Creating Sensor Ports for Rack PDUs and Probes (Web Client)**.

For details, see:

- **Power Ports**
- **Edit a Power Port on a Rack PDU**
- **Access a Connected Item's Page from a Rack PDU Page**

Power IQ Integration Enabled to Retrieve Sensor Readings

When Power IQ Integration is enabled in dcTrack, sensor readings are retrieved automatically from items.

Readings are also retrieved for asset strips attached to PX devices being managed by dcTrack, since PX devices are added to dcTrack as probes.

Once Power IQ Integration is enabled, sensor ports cannot be created or deleted in dcTrack.

Sensors are detected by dcTrack once added and connected, and readings are pulled from the Power IQ side of the application.

Some sensor information can be edited on the sensor sub-tab on the item pages in the Web Client.

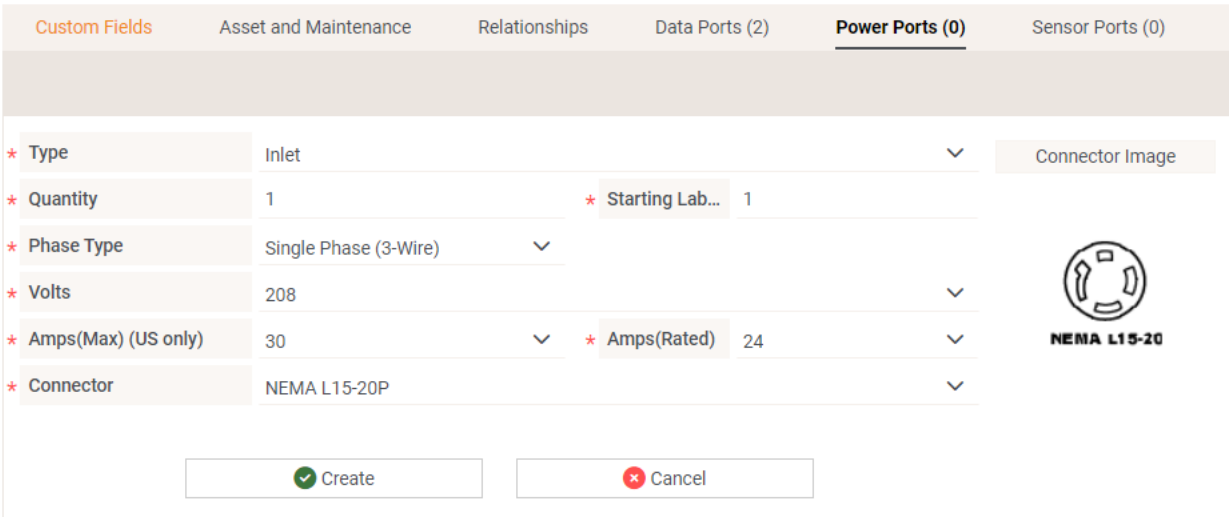
See **Edit Sensor Ports (Web Client)**.

Note: Do not disable Power IQ Integration to create or delete sensor port information.

Create Rack PDU Power Ports

Create rack PDU power ports in the dcTrack Web UI.

1. Select the Item from the List page and open its Detail page by double-clicking on it or clicking the Edit button on the toolbar.
2. If the record was opened in View mode (used the double click method to open), click Edit on the Detail pages toolbar.
3. Click the Power Port Subtab.
4. Click Create Ports in the Ports section of the page. The Create Ports dialog appears.
5. You must create an input cord before creating the first Rack PDU Output port. To manually create an input cord port:
   a. Select "Inlet" from the Type drop down. Required. You can create up to 4 Inlets for a Rack PDU. Required
   b. Enter the number of Ports you want to create in the "Quantity" field. Required
   c. Select the Phase Type for the input cord (that is, for the rack PDU). Required
   d. Select the Volts and Amps (Rated) for the port. The Amps (Max) are calculated and applied based on these values. Required
   e. Select a connector. Once selected, an image of the connector is displayed if an image is available. Required
   f. Click the "Create" button to create the Port(s)



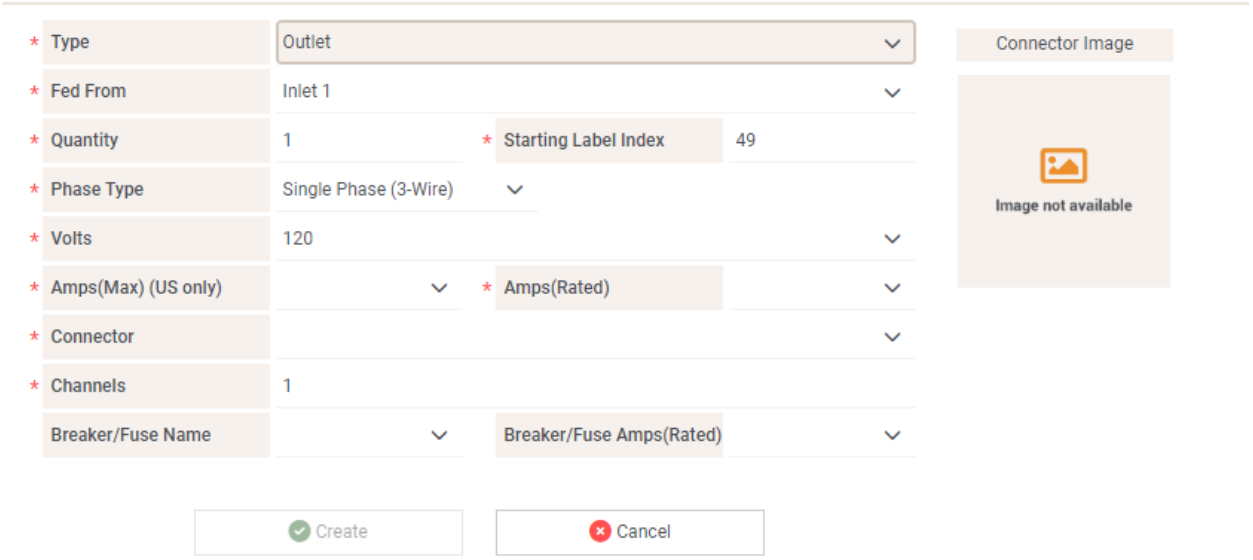
   a.
   b. Once all ports are created, click Close.

If the data center site is in the United States, the rating value is always 80% of the max. For all other countries, the max value is not applicable. The rating value determines the capacity of the port.

6. To manually create a Rack PDU Output port:
   a. Select "Outlet" from Type drop down. Required
   b. The Input Name will automatically default to the first Input Cord in the list but can be changed if multiple Input Cords were created. Required
   c. The Port Name Prefix will default to "Output" but can be changed
   d. Enter the number of Ports you want to create in the "Quantity" field. Required
   e. Select a connector. Once selected, an image of the connector is displayed if an image is available. Required
   f. Enter the number of Channels. Required. By default the Channels value of Connector is populated.

g. Select the Phase Type for the receptacle. Required
   - If the input cord is 3-phase, you must also select the phase leg that indicates the phase or phases the receptacle is wired to.

h. Select the Volts and Amps (Rated) for the port. The Amps (Max) are calculated and applied based on these values. Required
i. Select the Breaker/Fuse Name. Optional
j. Select the Breaker/Fuse Amps (Rated). Optional
k. Click the "Create" button to create the Port(s)



l. Once all ports are created, click Close.

Follow the same steps mentioned above to create Power Ports for Rack UPS.

If the data center site is in the United States, the rating value always 80% of the max. For all other countries, the max value is not applicable. The rating value determines the capacity of the port.

7. To manually create a data port/comm port:
   a. See **Create a Data Port (Web Client)**.
8. To manually create a temperature or humidity port:
   a. See **Create Sensor Ports for Sensors in Cabinets (Web Client)**.
10. Click Port Inspector to open the dialog containing the front and rear view of the device you are adding the port to. From this dialog, you can define the location of the ports on the equipment. For more details on this function, see Port Placement Options in online help.

Rack PDU Power Ports (Web Client)

View rack PDU-specific power data, edit certain rack PDU power port information, and access the page of a device connected to a rack PDU.

- **Create Rack PDU Power Ports** and **Edit a Power Port on a Rack PDU**.
- Create, edit, delete and sync sensors on rack PDUs. See **Creating Sensor Ports for Rack PDUs and Probes (Web Client)**.

For details, see:

- **Power Ports**
- **Edit a Power Port on a Rack PDU**
- **Access a Connected Item's Page from a Rack PDU Page**

Edit a Power Port on a Rack PDU

Power Ports for Rack PDU AC Power, Rack Transfer Switch and Rack UPS can be edited.

Edit a power port for items in the following statuses:

- Planned
- Installed
- Powered-off
- Off-Site
- Storage

You must have edit privileges to edit an item's power port information.

The following rack PDU information is editable directly in the ports list on the rack PDU's page on the Power - n Ports tab:

- Port Name - Up to 64 characters. Port names cannot be duplicated on a device.
- Index - Two ports of the same type cannot have same index.
- Color Code
- Connector - For connected ports, must be compatible with the connector of the port it is connected to.
- Phase Type
- Volts - For connected ports, when updating the Volts value, Phase Type and Volts must match the connected port

- CB/Fuse Amps(R) - Only applies to Port Type Rack PDU Output.
- CB/Fuse - Only applies to port type Rack PDU Output.
- Comments

For details on editing, see **Edit a Power Port (Web Client)**.

Create Rack Transfer Switch Power Ports

Steps to create Rack Transfer Switch Power Ports.

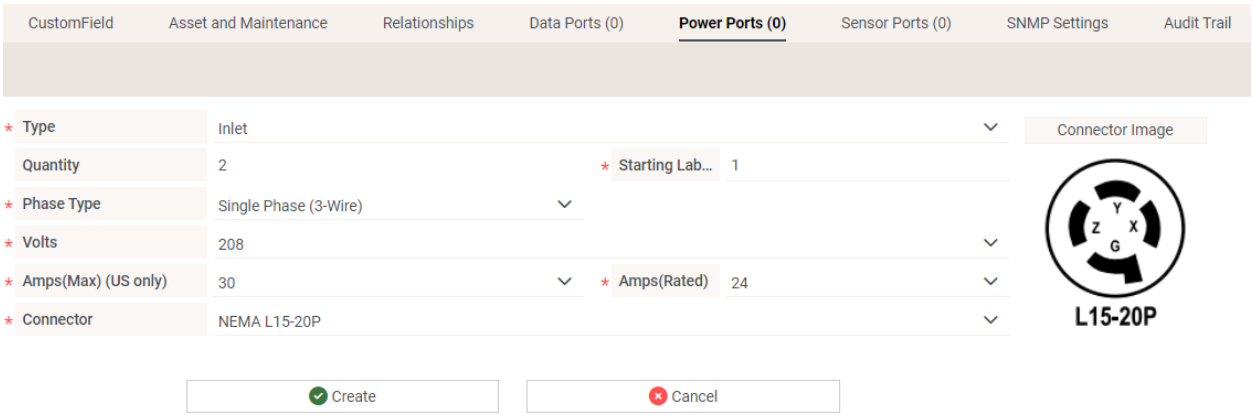
1. Select the Item from the List page and open its Detail page by double-clicking on it or clicking the Edit button on the toolbar.
2. If the record was opened in View mode (used the double click method to open), click Edit on the Detail pages toolbar.
3. Click the Power Port Subtab.
4. Click Create Ports in the Ports section of the page. The Create Ports dialog appears.
5. You must create inlets before creating the first Rack Transfer Switch Outlet port.

   To manually create an inlet cord port:

   a. Select "Inlet" from the Type drop down. Required
   b. The Port Name Prefix will default to "Inlet" but can be changed. Required

      Number of Inlets for a Rack Transfer Switch must be 0 or 2. Quantity field is read only.
   c. Select the Phase Type.
   d. Select the Volts.
   e. Select the Amps (Rated) for the ports. The Amps (Max) are calculated and applied based on the value selected for Amps (Rated). You can also select the Amps (Max) first and Amps (Rated) are calculated and applied based on value selected for Amps (Max). Required
   f. Select a connector. Once selected, an image of the connector is displayed if an image is available. Required
   g. Click the "Create" button to create the Port(s)
   h. Once all ports are created, click Close.

   If the value that you want to select for Amps (rated) or Amps (Max) is not in the drop-down list, you can enter the number and the ports get created with the Amps value you entered. If the data center site is in the United States, the rating value is always 80% of the max. For all other countries, the max value is not applicable. The rating value determines the capacity of the port.



6. Steps to manually create a Rack Transfer Switch Outlet port:

    a. Select Outlet from Type drop down. Required

    b. Select the Fed From. Fed From drop down have third option, Transfer Switch in addition to the two Inlets. By default Transfer Switch will be selected. Required

    c. Enter the Port Name Prefix. By default, it is Outlet, but it can be changed.

    d. Enter the number of Ports you want to create in the "Quantity" field. You can create up to 99 outlet ports for a Rack Inverter item Required

    e. Select a connector. Once selected, an image of the connector is displayed if an image is available. Required

    f. Select Phase Type. Required. Available drop-down options are Single Phase (2-Wire) and Single Phase (3-Wire).

    g. Select the Volts for the Port. Available drop-down options include the list of Volts supported for Single Phase (2-Wire) and Single Phase (3-Wire). Required.

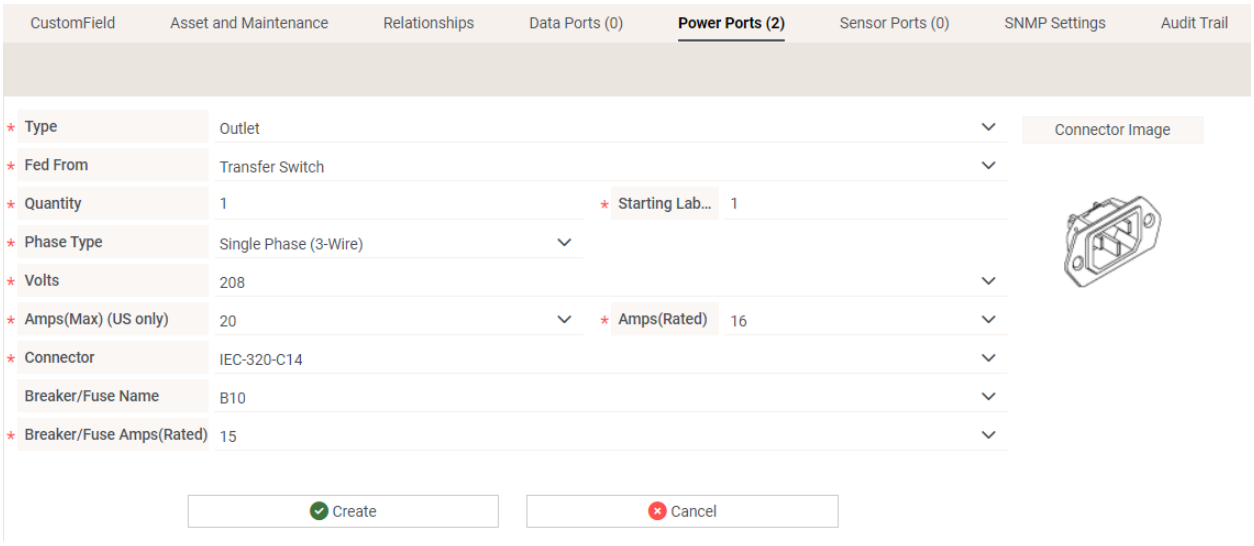
    g. Select the Amps (Rated) for the port. The Amps (Max) are calculated and applied based on the value selected for Amps (Rated). You can also select the Amps (Max) first and Amps (Rated) are calculated and applied based on value selected for Amps (Max). Required.

    h. Select the Breaker/Fuse Name. Optional

    i. Select the Breaker/Fuse Amps (Rated). This required only when Breaker/Fuse Name is filled in.

    j. Click the "Create" button to create the Port(s)

    k. Once all ports are created, click Close and save the item.



If the data center site is in the United States, the rating value always 80% of the max. For all other countries, the max value is not applicable. The rating value determines the capacity of the port.

Rack Transfer Switch Power Ports can also be created via File Import. To create Rack Transfer Switch Power Ports via file import follow steps below.

1. Download the Import Template from Export -> Download Import Template or from Help -> Import Template.

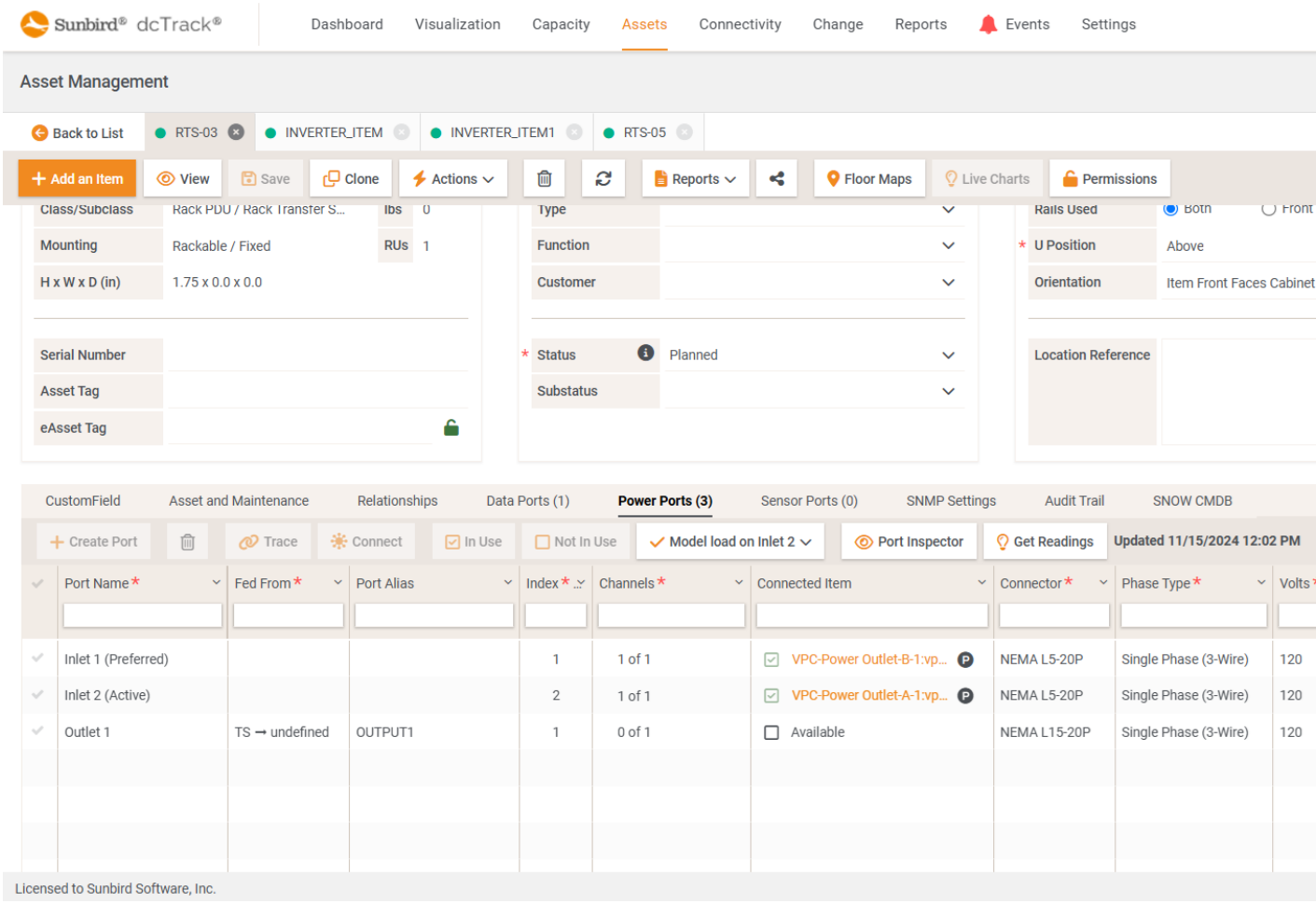
2. In the Import Template go to the tab Data, Power & Sensor Ports and follow the instructions.

Inlet Switch for Rack Transfer Switch

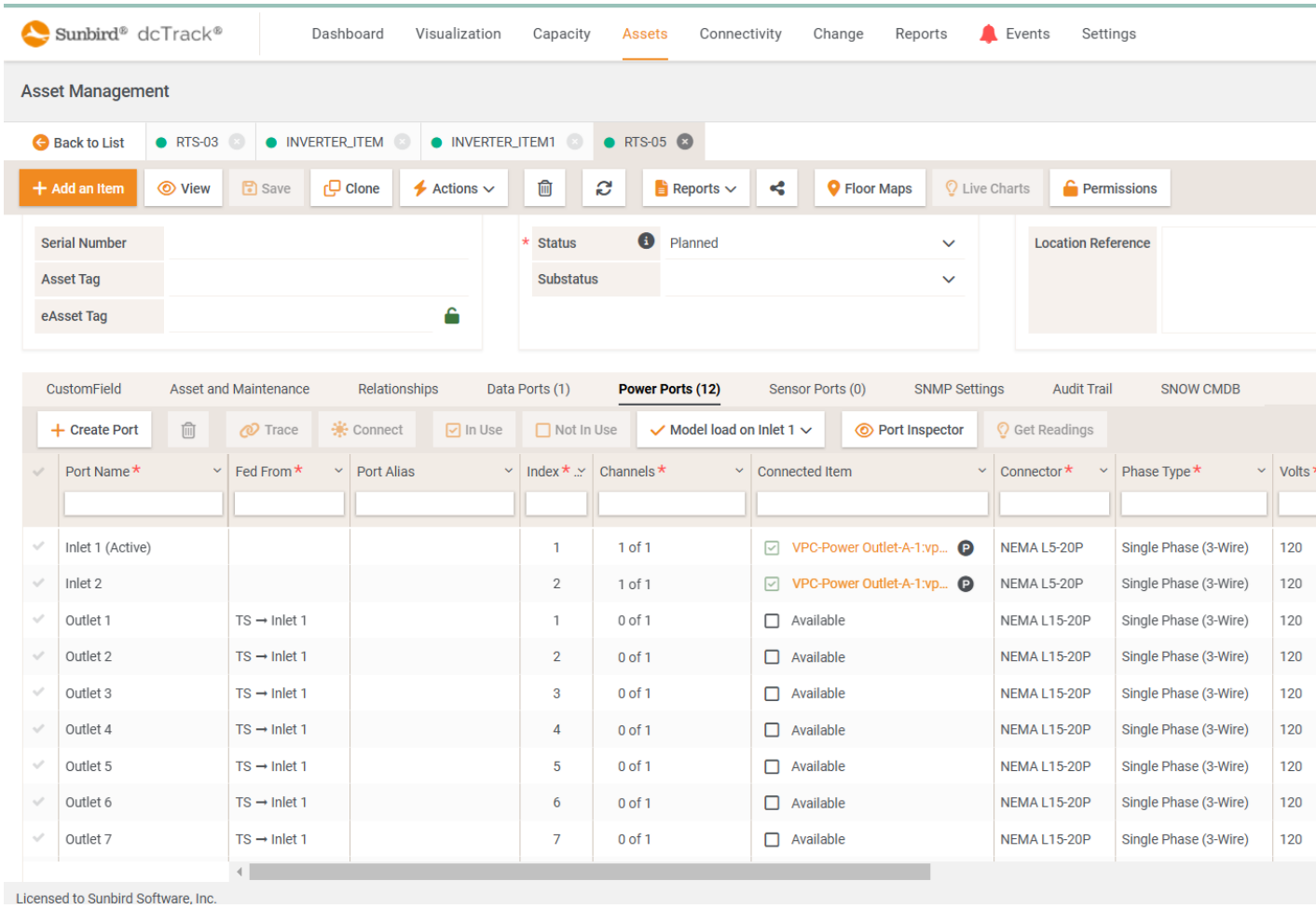
dcTrack allows you to track the Active and Preferred status for Rack Transfer Switch (RTS) Inlets. For integrated RTS, the status is retrieved from Power IQ . For non integrated RTS, the Active status can be set manually.

While in Edit mode, you can switch the load for both integrated and non-integrated RTS, however if integrated with Power IQ, the next refresh from Power IQ will reset the Active status to once again match the status from Power IQ.

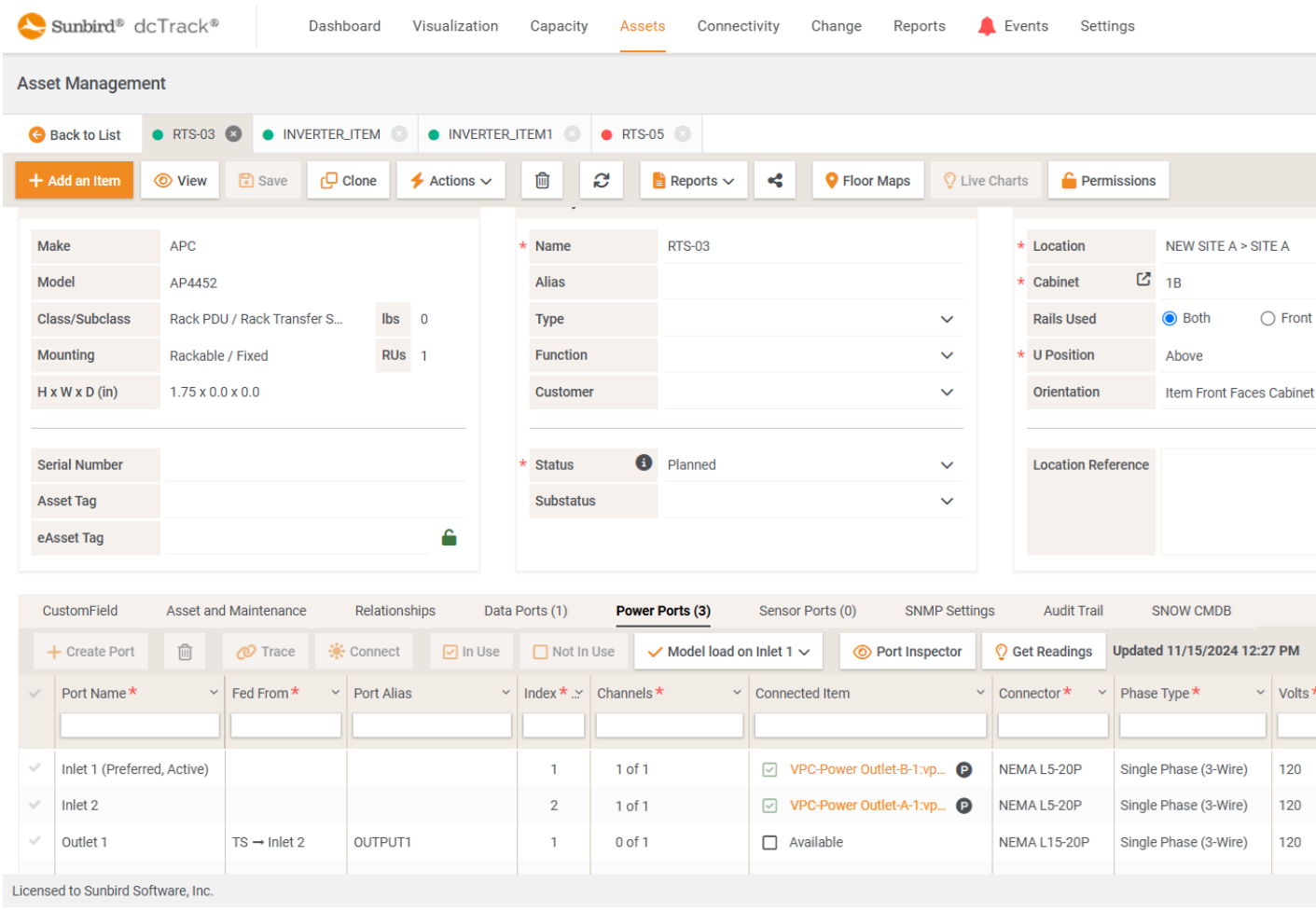
The Preferred and Active state will appear beside each port name for integrated RTS.



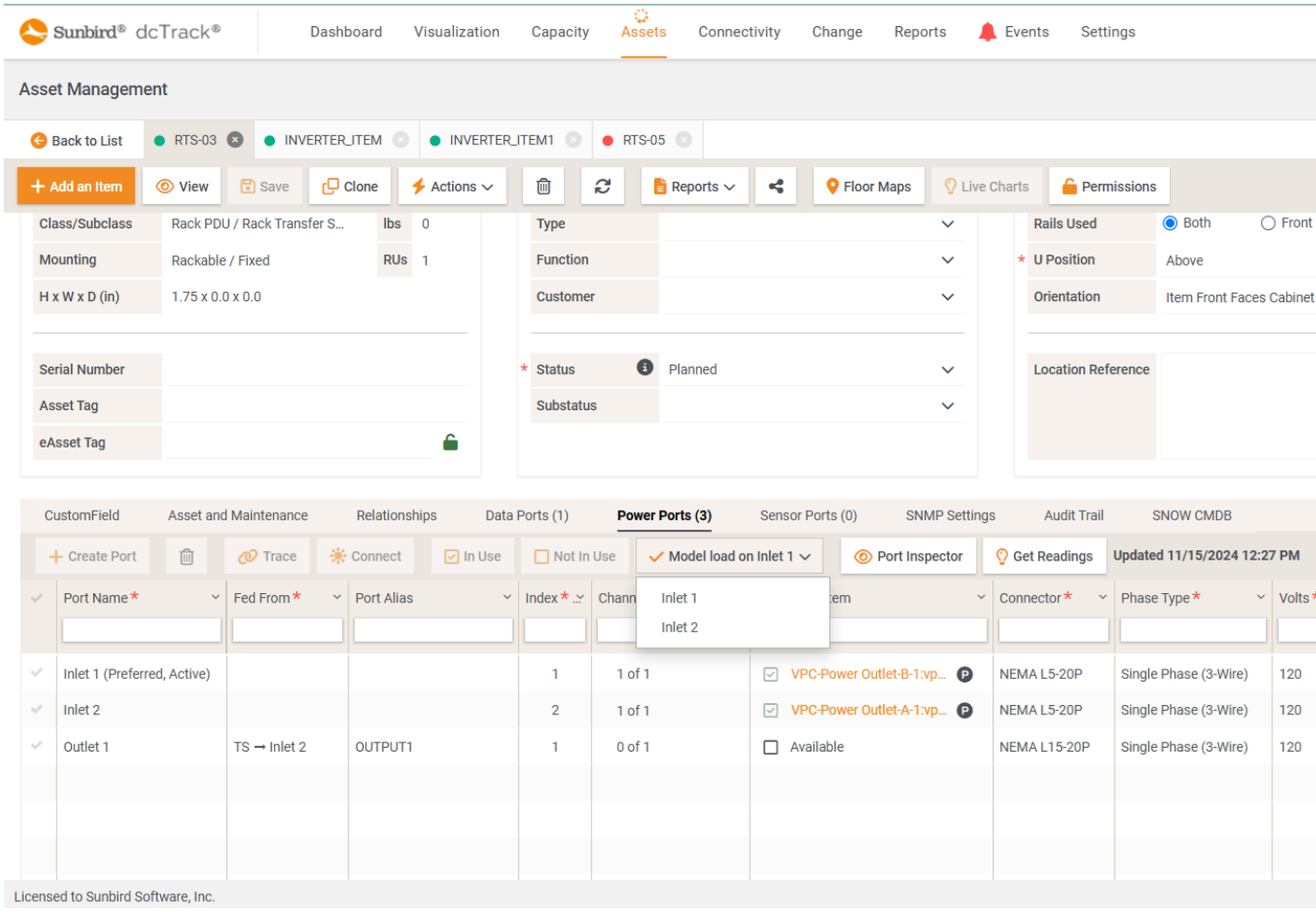
For non integrated RTS only the Active status is displayed and will also appear beside the port name.



A single integrated RTS inlet can also be both Preferred and Active.

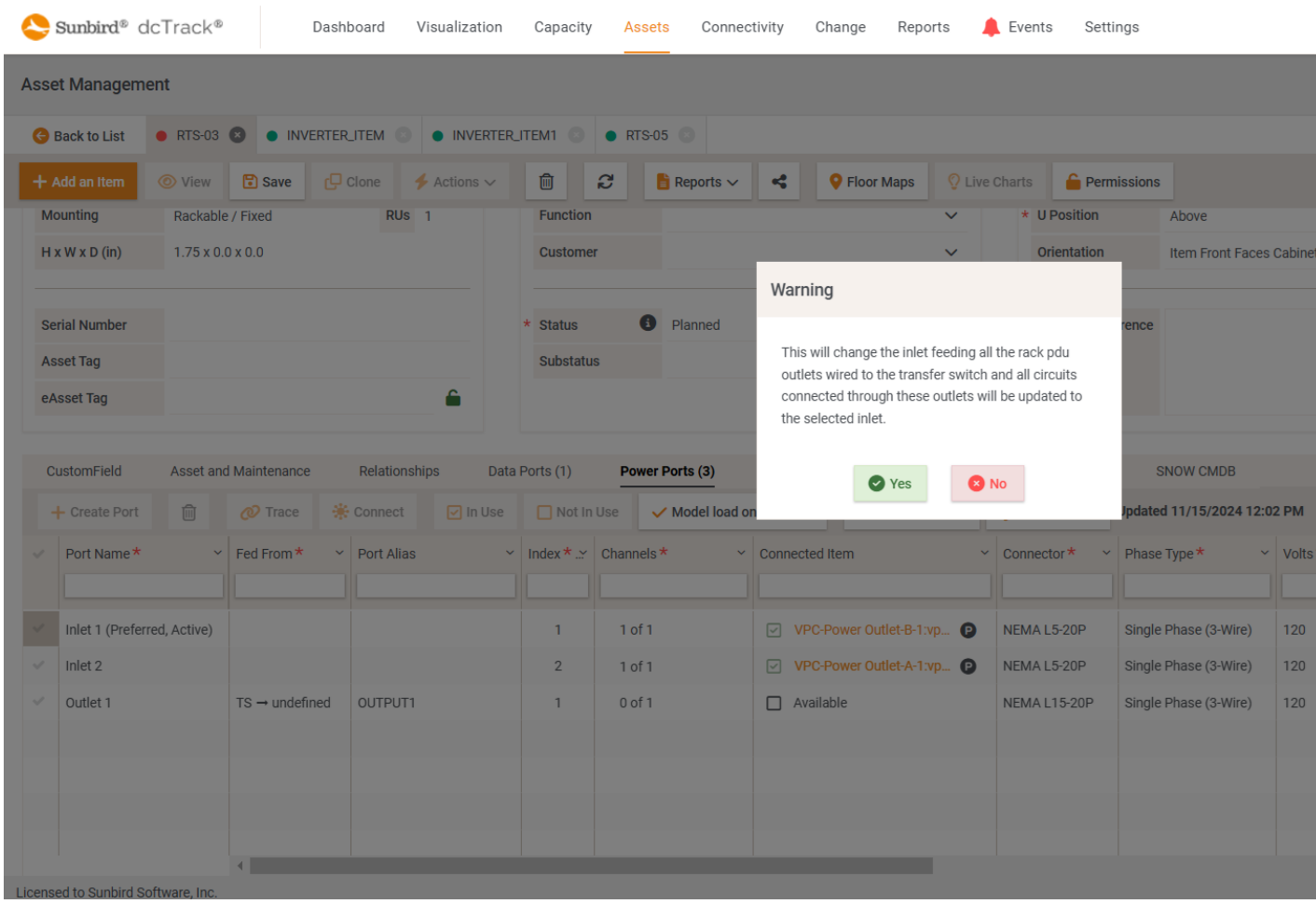


The load can only be modeled on connected Inlets. If the load is manually switched to a disconnected inlet it will automatically revert back to the connected Inlet. To modify the Active inlet, select the Inlet from the "Model Load on Inlet" drop down. Note, only connected Inlets are enabled in the drop down.



When switching from one connected Inlet to another, upon saving you will receive a message indicating "

> "This will change the inlet feeding all the rack pdu outlets wired to the transfer switch and all circuits connected through these outlets will be updated to the selected inlet."

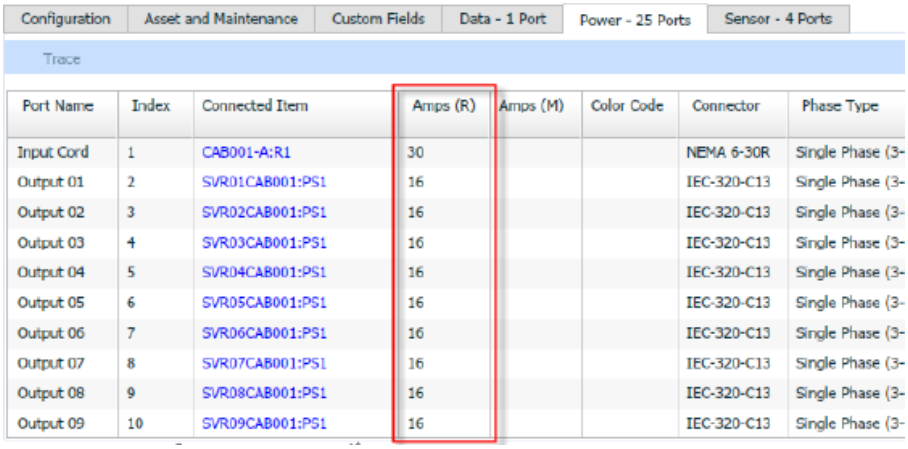


Amps (R) - Amps Rack PDUs

Amp readings for rack PDUs are displayed on the Power - n Ports tab of a rack PDU's item page in the Web Client.

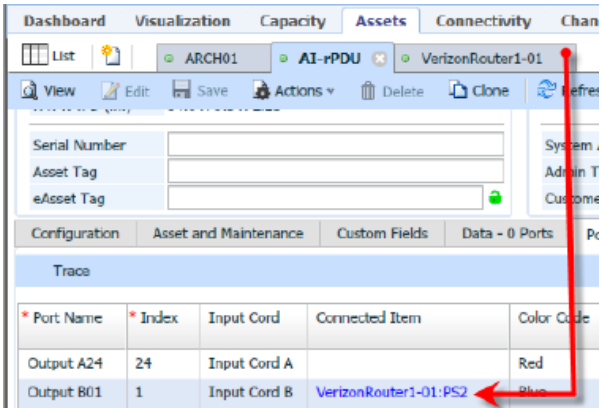
Users with View access and above can access an item's page and view the readings.

Readings are available once devices are connected to a port on the rack PDU, and are powered up.



Access a Connected Item's Page from a Rack PDU Page

Use links in the Connected Item column on the Power and Data tabs to access the item pages of the devices connected to the rack PDU.



For more information, see **Access a Connected Item's Page from the Data Port Tab** and **Access a Connected Item's Page from the Power Port Tab** .

Creating Sensor Ports for Rack PDUs and Probes (Web Client)

Create sensor ports for rack PDUs and probes in the Web Client when you create a new item, or add ports to existing items.

Create a sensor port for items in the following statuses:

- Planned

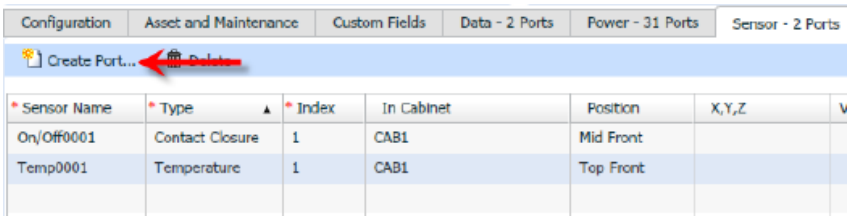
- Installed
- Powered-off
- Off-Site
- Storage
- Archived

Create Sensor Ports for Sensors in Cabinets (Web Client)

Note: If the Create Port icon is not displayed, Power IQ Integration is enabled and is being used to retrieve asset strip and/or sensor readings. Sensor ports cannot be created while Power IQ Integration is enabled.

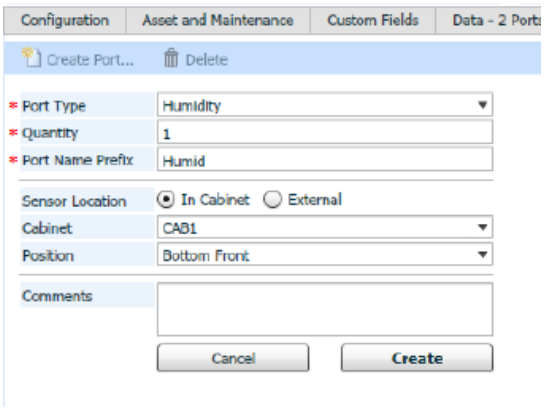
To create a sensor port for sensors in a cabinet:

1. In the Web Client, click Assets > Items List.
2. Click on the Sensor - n Ports tab on the Create New Item page, or open an existing item's page in edit mode.
3. Click Create Port.



The create sensor fields appear.

4. Port Type - sensor port type Required:
   - Temperature
   - Humidity
   - Asset Strip - only one asset strip sensor port is supported per cabinet
   - Air Flow
   - Air Pressure
   - Contact Closure - status of either on or off
5. Quantity - up to 9999 ports Required
   - Port Name Prefix - the sensor port name, up to 64 characters. Each port name must be unique. Defaults to type + nnnn Required

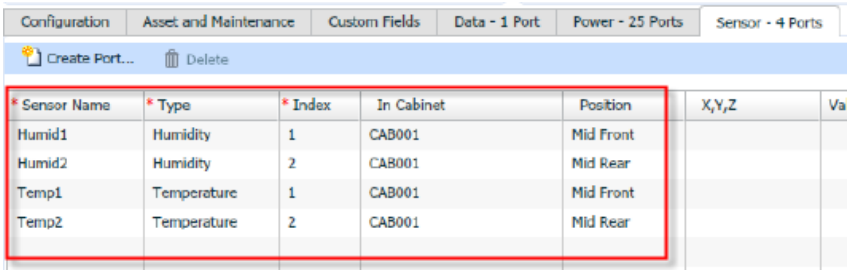


6. Sensor Location - leave selected to create in cabinet sensors.

To create external sensors, see **Create Sensor Ports for Sensors Outside of Cabinets (Web Client)**.

7. Cabinet - the cabinet the sensor is located in/on
8. Position - the sensor's position in/on the cabinet
9. Comments - up to 500 characters
10. Click Create. The Sensor port is added to the item.

The new port is displayed on the list on Sensor - n Ports tab.



Create Sensor Ports for Sensors Outside of Cabinets (Web Client)

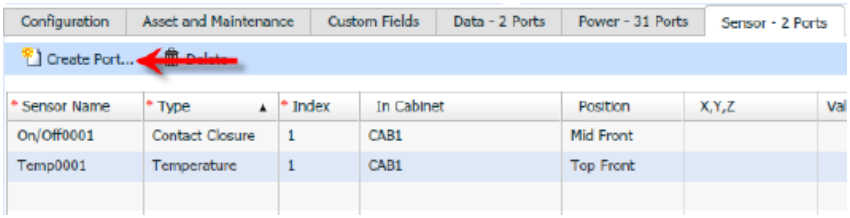
Create ports for sensors that are not contained in cabinets, such as sensors mounted on the ceiling, wall and so on. The sensor is then plugged in to a sensor port on a rack PDU in a cabinet.

Note: If the Create Port icon is not displayed, Power IQ Integration is enabled and is being used to retrieve asset strip and/or sensor readings. Sensor ports cannot be created while Power IQ Integration is enabled.

To create a sensor port for sensors outside a cabinet:

1. In the Web Client, click Assets > Items List.

2. Click on the Sensor - n Ports tab on the Create New Item page, or open an existing item's page in edit mode.
3. Click Create Port.



The create sensor fields appear.

4. Port Type - sensor port type Required:
   - Temperature
   - Humidity
   - Asset Strip - only one asset strip sensor port is supported per cabinet
   - Air Flow
   - Air Pressure
   - Contact Closure - status of either on or off
5. Quantity - up to 9999 ports Required
   - Port Name Prefix - the sensor port name, up to 64 characters. Each port name must be unique. Defaults to type + nnnn Required
6. Select External.
7. Enter the sensor's position in the data center using the X,Y,Z coordinate fields. Optional.

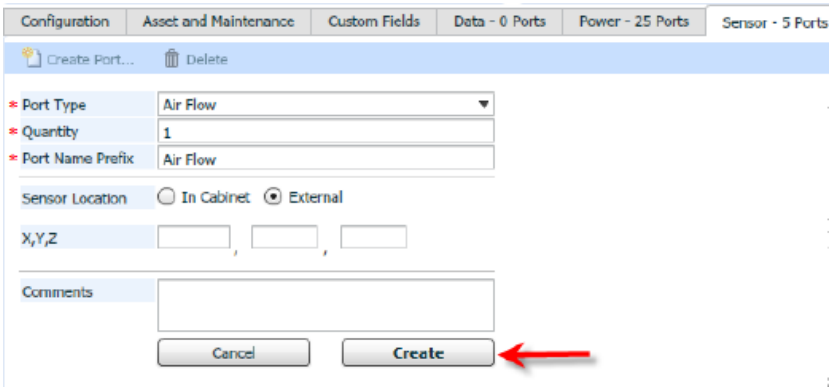
The X,Y coordinators indicate the sensor's position on the data center floor, and the Z coordinate indicates the sensor's height off the data center floor.

Access the location's floor map and hover your mouse over the area the sensor is located to get its approximate X,Y coordinates.

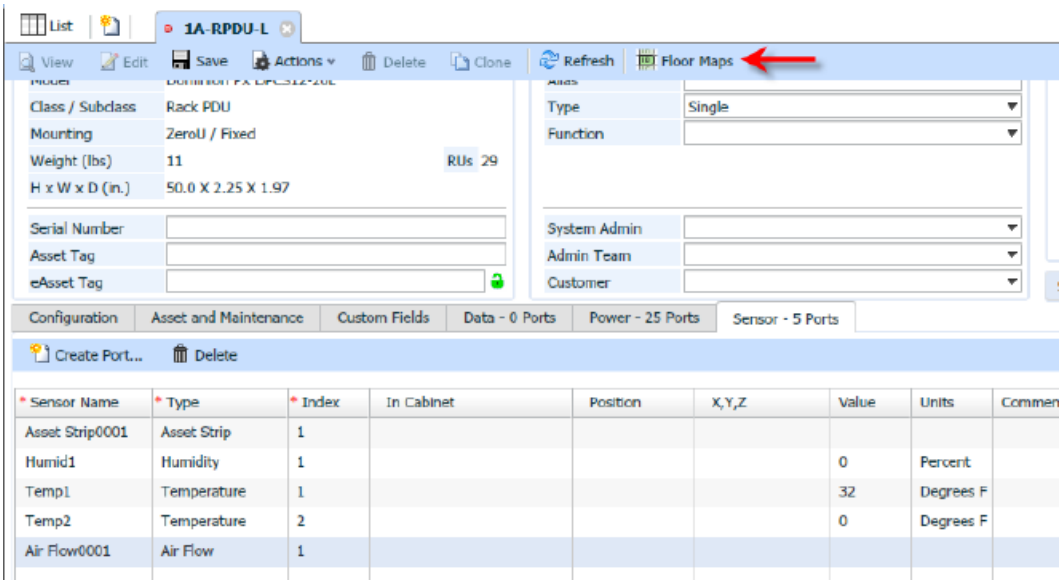
Enter the Z coordinate based on your knowledge.

To access the floor map from the item's page:

   a. On the Create Sensor Port page, click Create to save the sensor information entered so far.



b. Next, click Floor Maps at the top of the item page.



The Floor Maps page opens under the Visualization tab, and displays the floor map the sensor is located on.

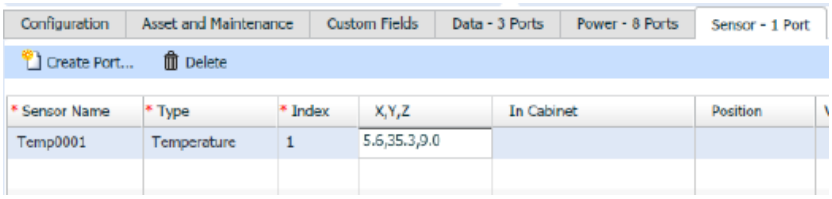
c. Hover your mouse over the area the sensor is located on the floor map, and note the X,Y coordinates that appear at the bottom of the page.

d. Click the Assets tab to return to the item's page.

8. In the Sensor - n Ports tab, click on the X,Y,Z field of the sensor.

9. Enter the X, Y cabinet coordinates from the floor map, then enter the sensor's distance from the cabinet as the Z coordinate. Separate each coordinate with a comma, but no spaces.

For example, 5.6,35.3,9.0



10. Click Save at the top of the item's page.

Assigning IP Addresses to Data Ports and Port Teaming

Provided you have edit privileges to an item in dcTrack, you can assign IP addresses to data ports.

Specifically, you can:

- Assign a unique IP address to an individual port

The IP address is specific to the one port.

- Assign multiple IP addresses to the same port

dcTrack also supports port teaming.

Port teaming allows you to assign the same IP address to multiple ports on the same Port Team. You can then manage each port together via the single IP address, or manage each port individually via the single IP address.

Note: dcTrack uses the term "port teaming" to refer to this practice. However, this practice is also referred to as link aggregation, port trunking, link bundling, Ethernet bonding, network bonding, NIC bonding and NIC teaming.

IP addresses are assigned to item data ports in the Web Client on an item's page while it is in Edit mode from the Data - Ports tab via a IP Address Assignments dialog.

IP addresses are assigned to ports in one of two ways:

- Select Available IP Addresses for the Selected Subnet.
- Enter the IP Address Information.

Prerequisites

In order to assign an IP address, the item must be added to and saved in dcTrack, and at least one data port must exist for it. If there are no data ports, there is nothing to assign an IP address to.

Items in the Item Models Library have their data ports already predefined for them, but you can create data ports for items, if needed. See **Creating and Managing Ports**.

Supported IP Address Internet Protocol

IPv4 addresses are supported by dcTrack.

Supported Item Classes

Items in the following classes can have IP addresses assigned to them or port teams created for them:

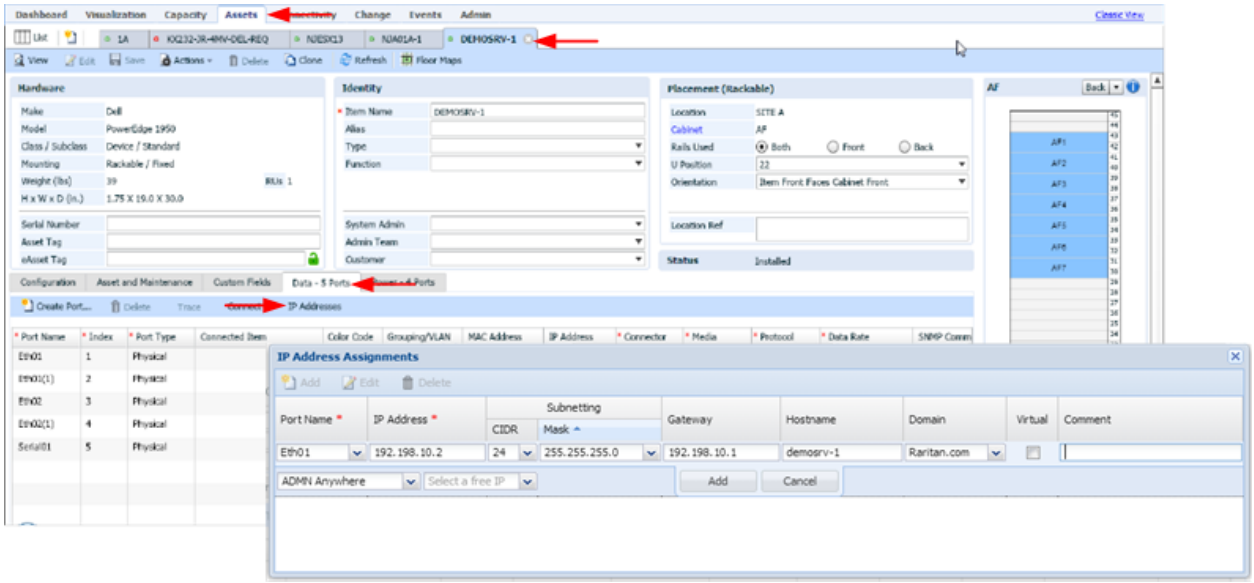
- Device items

- Network items
- UPS units
- Floor PDUs
- Rack PDUs
- Cooling units
- Probes

Supported Statuses

To assign an IP address or set up a port team, the item must be in one of the following statuses:

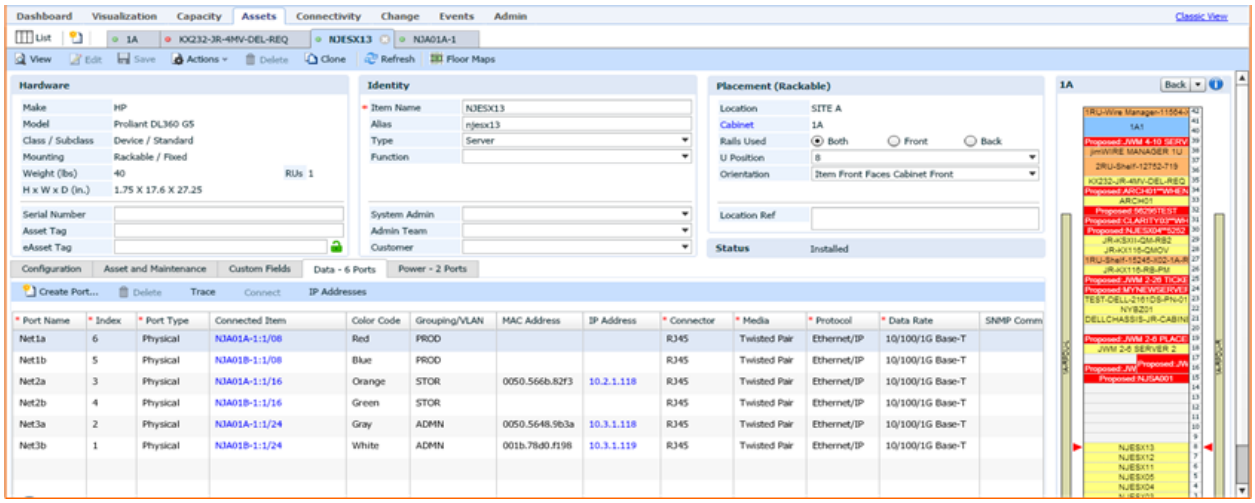
- Planned
- Installed
- Powered-off
- Off-site
- Storage
- Archived



Assign IP addresses or create port teams when you add an item and configure its ports, or at a later time.

Once assigned, the IP address can be edited or deleted. For impacts of editing and deleting, see **Impacts of Editing and Deleting IP Addresses Assigned to Item Data Ports**.

Refer to each topic for edit or delete impacts, if any.



Assign Multiple IP Addresses to the Same Port

dcTrack allows you to assign multiple IP addresses to the same data port.

The data port is assigned a primary IP address.

Each additional IP address that is assigned to the port is designated as a 'virtual' IP address, meaning it is not the port's primary IP address.

Virtual IP addresses are used for tracking purposes only in dcTrack.

You can assign the primary address to the port before or after a virtual address.

Use one of the following methods to assign an address to an individual field:

- Select Available IP Addresses for the Selected Subnet

Or

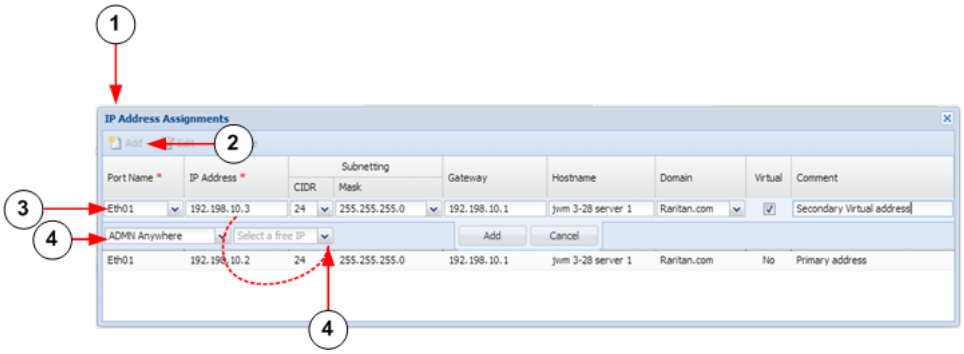
- Enter the IP Address Information

To assign multiple addresses to the same port:

1. Open the IP Address Assignment dialog if you do not have it open.
2. Click the Add icon at the top left of the dialog.
3. From the Port drop-down, select the same port as the port you assigned the primary address to.
4. Select or enter the IP address to assign as the virtual address.

dcTrack validates the IP address at this point.

Warnings icons are displayed next to the IP address field and Gateway field if the IP address is used as a Gateway address for a port.



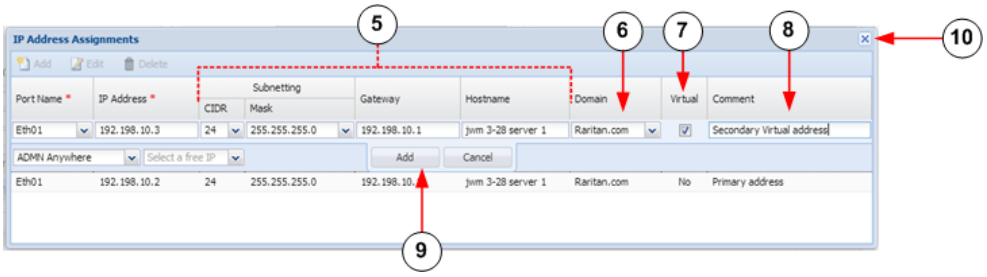
5. Select a new IP address or use the address you selected.

The CIDR (Classless Inter-Domain Routing), Mask, Gateway and Hostname fields are all populated automatically but can be edited if needed.

6. Select the domain the IP address belongs to.
7. Click the Virtual checkbox and complete any remaining fields as needed or required.
8. Enter any comments as needed.
9. Click the Add button at the bottom of the dialog.

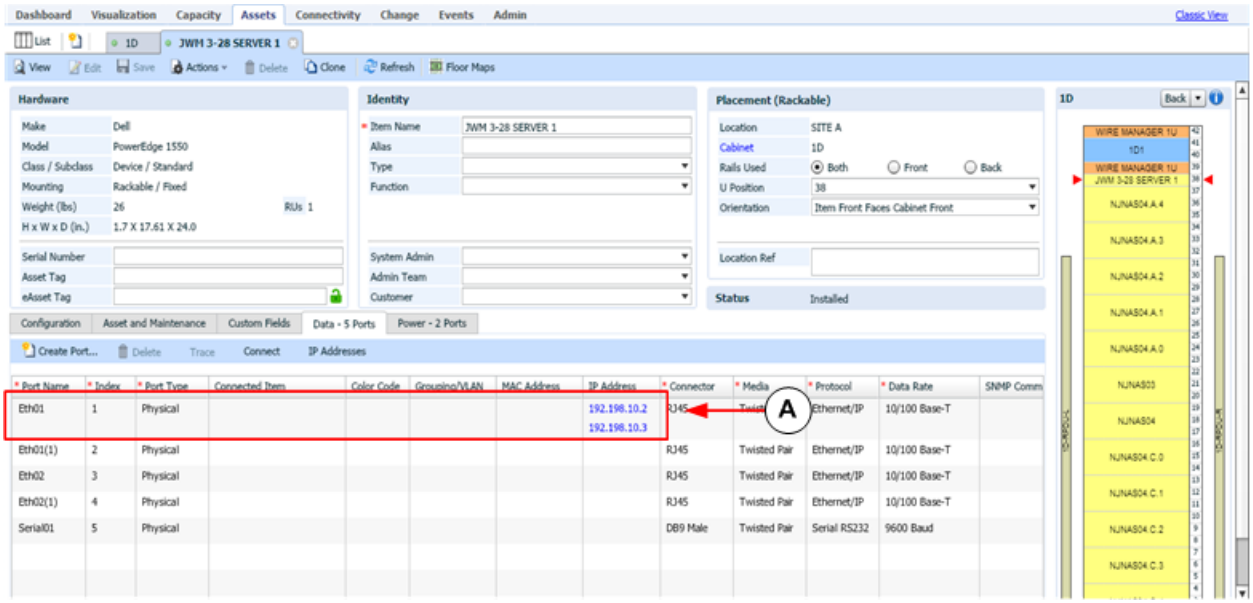
The secondary, virtual IP address is added. "Yes" is displayed under the Virtual column to indicate it is a virtual address.

10. Close the dialog or continue adding IP addresses.



11. The CIDR (Classless Inter-Domain Routing), Mask, Gateway and Hostname fields are all populated automatically but can be edited if needed.
12. Select the domain the IP address belongs to.
13. Click the Virtual checkbox and complete any remaining fields as needed or required.
14. Enter any comments as needed.
15. Click the Add button at the bottom of the dialog.
16. The secondary, virtual IP address is added. "Yes" is displayed under the Virtual column to indicate it is a virtual address.

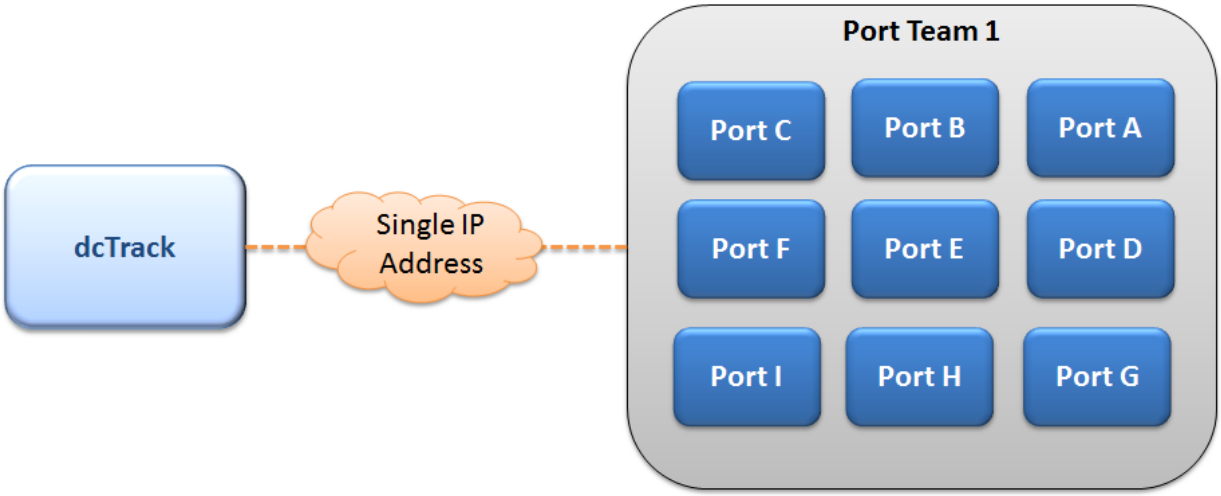
17. Close the dialog or continue adding IP addresses. The multiple addresses are listed on the Data - Ports tab on the item's page.



Assign the Same IP Address to Multiple Ports on the Same Port Team and Manage Them Together

dcTrack allows you to link multiple ports together by assigning the same IP address to each port. dcTrack then manages all of the ports on the port team through the same IP address.

You can link multiple ports on the same item and multiple ports on different items to form a port team.



This practice differs from port teams consisting of individual ports with the same IP address.

In that case, an IP address is duplicated. It is then a distinct IP address that is assigned to another port.

dcTrack recognizes each duplicated IP address as a specific to the data port it is assigned to and manages each IP address separately. For more information, see **Assign the Same IP Addresses to Multiple Ports on a Port Team but Manage Them Separately**.

When you edit the IP address, the edit affects all ports on the port team.

If you delete an IP address from a port, the port is removed from the port team - it is not deleted.

If you haven't already done so, assign the initial IP address to the initial port by doing one of the following:

- Select Available IP Addresses for the Selected Subnet
- Enter the IP Address Information

To assign the same IP address to different ports on a port team and manage them together:

1. Locate the item with the data port you want to assign the IP address to and manage on the port team. Open it in edit mode.

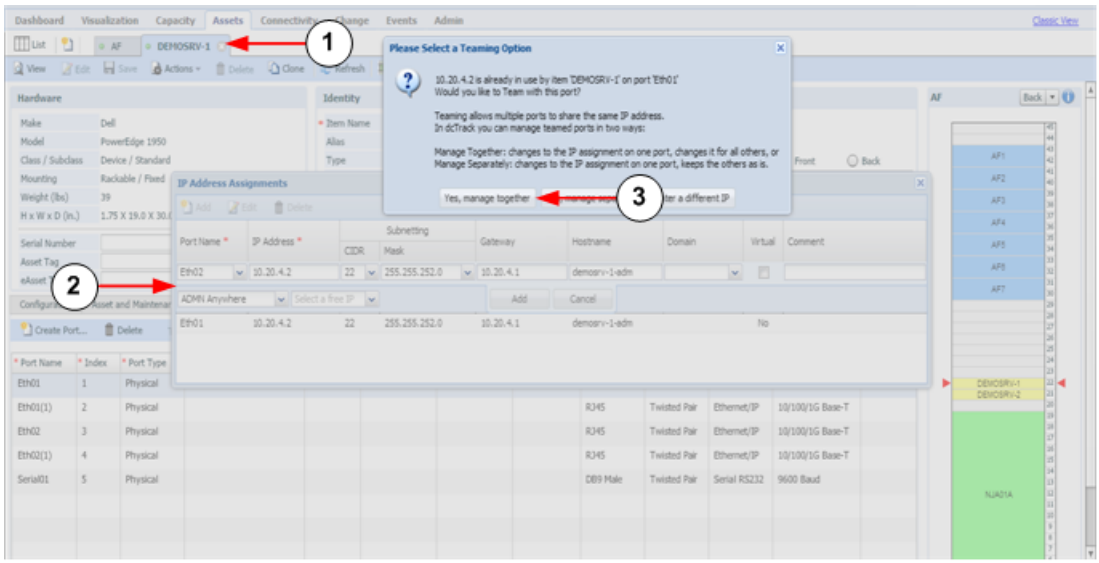
The port can be on the same item or it can be a port on another item.

2. Follow the steps for entering the IP address manually - Enter the IP Address Information.
3. Once you have added the duplicate IP address to the data port, click Add at the bottom of the dialog.

dcTrack lets you know the port is in use already and prompts you on how to proceed.

4. Select "Yes, manage together" to add the port to the port team and manage it along with the other ports via the same IP address.

Continue adding ports as needed.

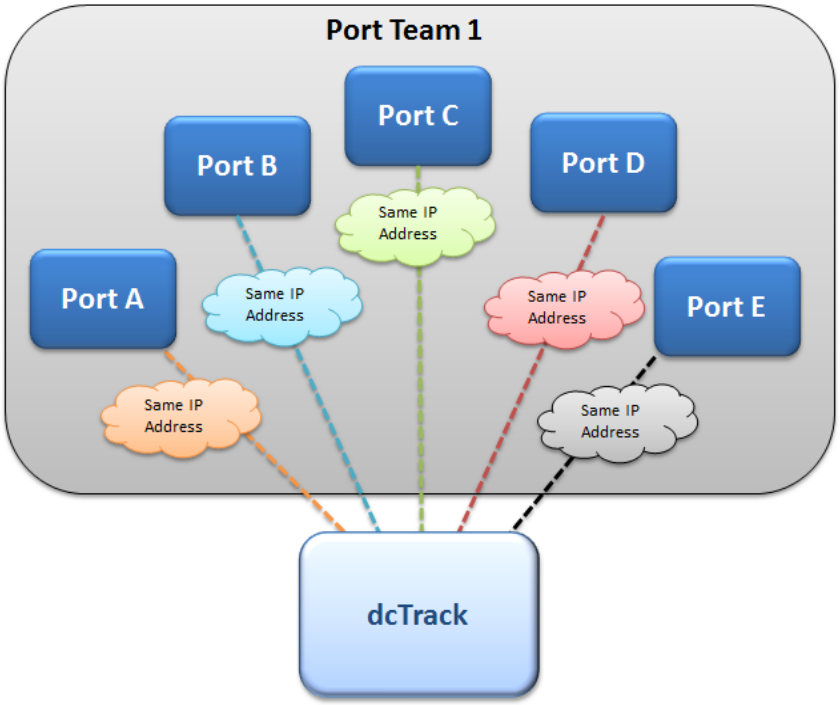


Assign the Same IP Addresses to Multiple Ports on a Port Team but Manage Them Separately

dcTrack allows you to create port teams where each port is assigned the same IP address but each IP address is managed separately.

So if you make a change to one port, the change does not affect the other ports on the team.

The ports can be on the same item or different items.



This is different than teaming the ports by applying the same IP address to the ports in the team and managing the ports through the same IP address. For more details on port teaming, see **Assign the Same IP Address to Multiple Ports on the Same Port Team and Manage Them Together**.

Any changes you make to a duplicated IP address for a specific port affects only that IP address for that port - the other IP addresses that are assigned to different ports are not affected by the changes.

If you delete a duplicated IP address from a port, its duplicates are not deleted from the ports they are assigned to.

If you haven't already done so, assign the initial IP address to the initial port by doing one of the following:

- Select Available IP Addresses for the Selected Subnet.
- Enter the IP Address Information.

To assign the same IP address to different ports on a port team but manage them separately:

1. Locate the item with the data port you want to assign the IP address to and open it in edit mode.

The port can be on the same item or it can be a port on another item.

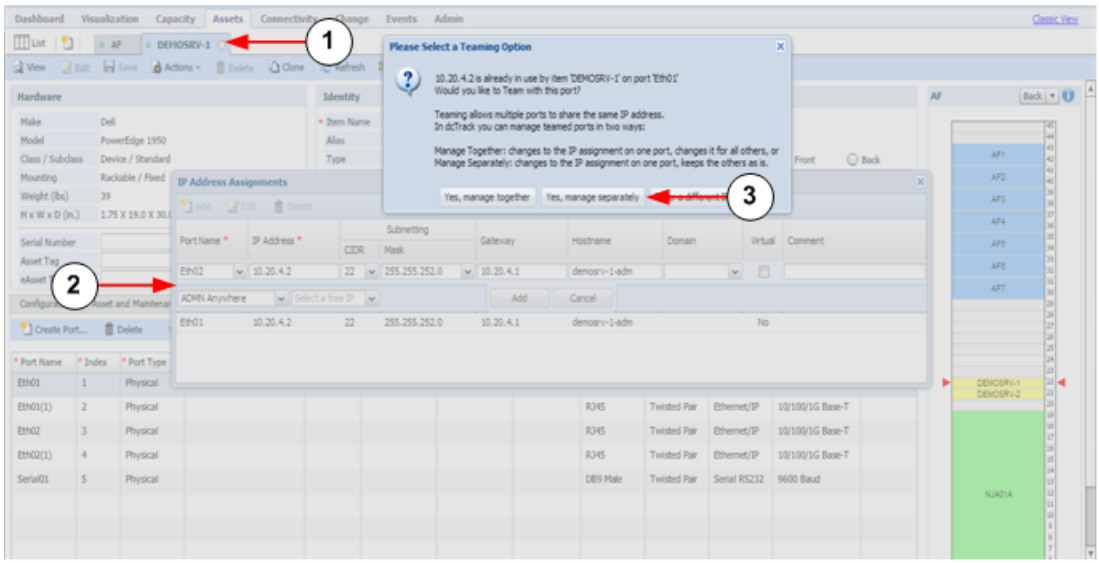
Follow the steps for entering the IP address manually - Enter the IP Address Information.

2. Once you have added the IP address to the data port, click Add at the bottom of the dialog.

dcTrack lets you know the port is in use already and prompts you on how to proceed.

3. Select "Yes, manage separately".

Continue adding the same IP address to other ports as needed.



IP Teaming via File Import

IP teaming is supported on import and export of items or data ports via CSV. Two modes are supported for teaming IP addresses via file import and export:

- Separate mode: The IP addresses can be edited independently on each data port
- Together mode: The IP addresses are managed as a group, such that an edit to an IP address on one of the data ports is propagated to all data ports in the team

You can specify the IP teaming mode when you add an IP address and that IP address is already in use by another item or port.

When you add an IP address and that IP address is already in use by another item or data port, you'll see a warning that the IP address is already in use. You will need to check the Proceed on Warning box for your edits to executed and saved.

Note: Once the teaming mode is specified and the teamed IP address is in use, you cannot change the IP teaming mode.

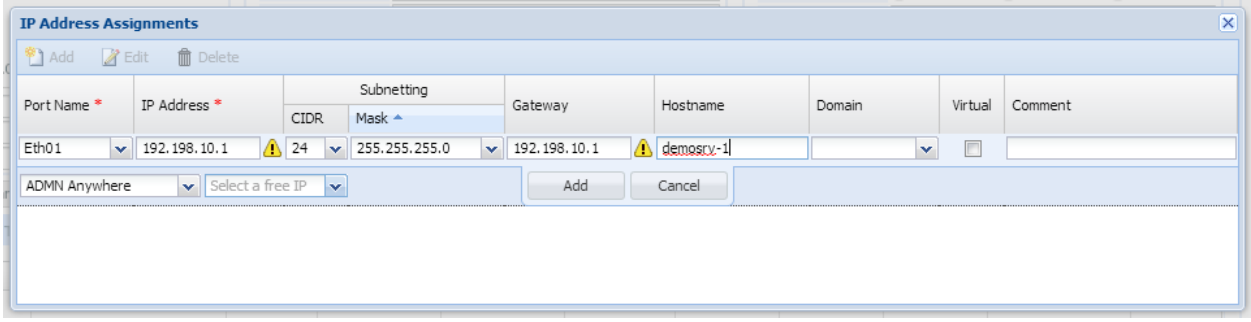
Note: Rack PDUs can be imported into dcTrack with teamed IP addresses only if teamed in Together mode with a proxy index.

IP Address Validation Checks when Assigning IP Addresses to Ports

dcTrack validates the IP address you assign to a port.

Specifically, dcTrack checks for:

- Subnet Gateway IP addresses
  - dcTrack warns you if the IP address is identified as the Gateway IP address for another item's data port.
  - dcTrack warns you if the IP address you assign does not belong to a defined subnet.
  - Cancel assigning the IP address or continue with assigning the IP address to the data port. dcTrack does not prevent you from assigning the address.



- Duplicate IP addresses/port IP addresses already assigned to a port or port team

dcTrack warns you if the IP address is already assigned by another data port on the same item or another item. Do one of the following:

  - "Enter a different IP"

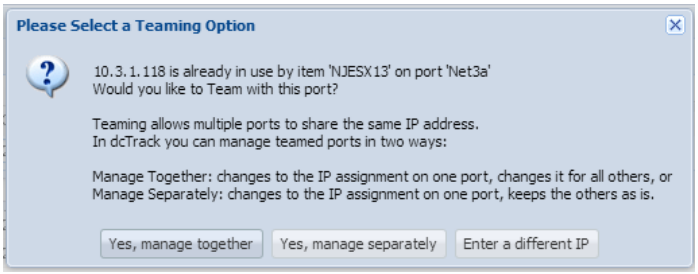
See Assign a Unique IP Address to an Individual Port.

  - "Yes, manage together"

See **Assign the Same IP Address to Multiple Ports on the Same Port Team and Manage Them Together**.

  - "Yes, manage separately"

See **Assign the Same IP Addresses to Multiple Ports on a Port Team but Manage Them Separately**.



Impacts of Editing and Deleting IP Addresses Assigned to Item Data Ports

Following are impacts if you edit or delete IP addresses that are already assigned to data ports.

These edits and deletions refer to actions performed:

- In the Web Client on the IP Address Assignments dialog accessed by clicking IP Address on the Data - Ports tab of an item's page while it is in Edit mode

Editing an IP address may result in:

- Updating the IP address for all ports on a port team that are sharing the same IP address
- Deleting the association between a data port and IP address
- Making the IP address available for selection from the IP Address Subnets list
- Cause an update to a Power IQ IP address (when update IP address is supported in Power IQ)
- Cause a deletion or add of a Power IQ IP address (when update IP address is supported in Power IQ, such IP Address with Proxy Index)
- Updating the IP address of ports on a team that share the same IP

Deleting an IP address may result in:

- Deleting the association between a data port and IP address
- Making the IP address available for selection from the IP Address Subnets list
- Cause a deletion in Power IQ IP (when update IP address is supported in Power IQ, such IP Address with Proxy Index)

Edit Sensor Ports (Web Client)

Edit a sensor port for items in the following statuses:

- Planned
- Installed
- Powered-off
- Off-Site
- Storage
- Archived

You must have edit privileges to edit an item's sensor port information.

To edit sensor port information on an item's page:

1. In the Web Client, click Assets > Items List.
2. Open an existing item's page in edit mode.

Directly update any of these fields in the port list on the Sensor - n Port tab:

- Port Type - port types cannot be change to a type that does not apply to the item.

For example, a rack PDU's port type cannot be changed from Physical to Virtual.

Sensor Port Name - up to 64 characters. Port names cannot be duplicated on a device.

- Index - editable. Two of the same type ports cannot have the same index, but different type ports can.

For example, you cannot have two Humidity ports with Index 3, but you can have a Humidity port 3 and Temperature port 3

- Cabinet
- Position
- Comments - up to 500 characters

3. Click Save at the top of the item's page.

Delete Sensor Ports (Web Client)

Note: If the Delete icon is not displayed, Power IQ Integration is enabled to retrieve asset strip and/or sensor readings. Sensor ports cannot be deleted while Power IQ Integration is enabled.

Delete a sensor port for items in the following statuses:

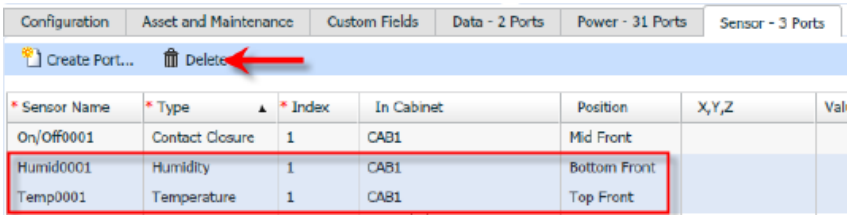
- Planned
- Installed
- Powered-off
- Off-Site
- Storage
- Archived

You must have edit privileges to delete ports.

A connected sensor port cannot be deleted, so the Delete icon on the Port tab is disabled.

To delete a sensor port:

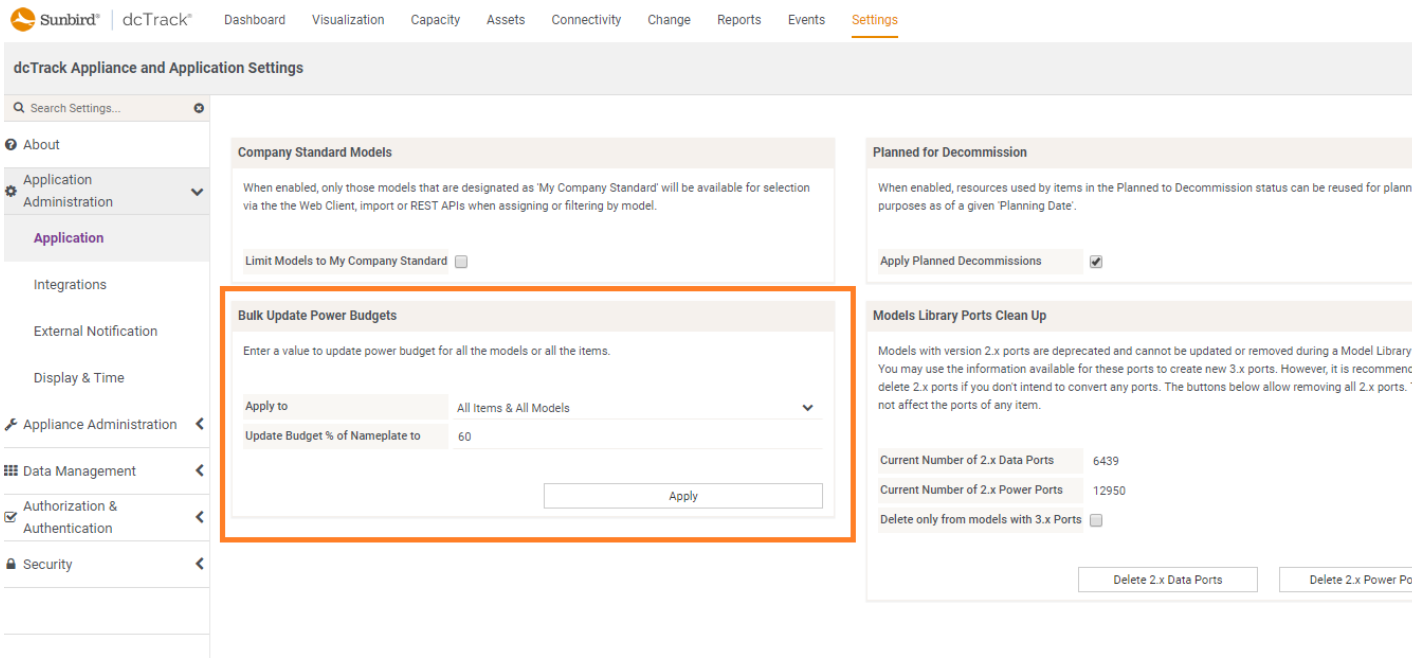
1. In the Web Client, click Assets > Items List.
2. Open an existing item's page in edit mode.
3. Click on the Sensor - n Ports tab.
4. Click on the port or ports you want to delete. Use Ctrl + click to select multiple ports at once.
5. Click Delete on the Sensor - n Ports tab.



6. Click Save at the top of the item's page.

Bulk Update Power Budget

1. To update power budget for items and models in bulk, navigate to Settings -> dcTrack Settings -> Application Administration -> Application -> Bulk Update Power Budgets
2. Select the Apply to option. Options available are All Items, All Models, All Items & All Models
3. Enter the percentage value in Update Budget % of Nameplate to. Accepted values are 1-100.
4. Click on the button Apply



For each Item and Model, Watts(B)will be calculated from percentage of existing Watts(N).

In Sunbird's Model Library the default value of Watts(B) is 60% of Watts(N).

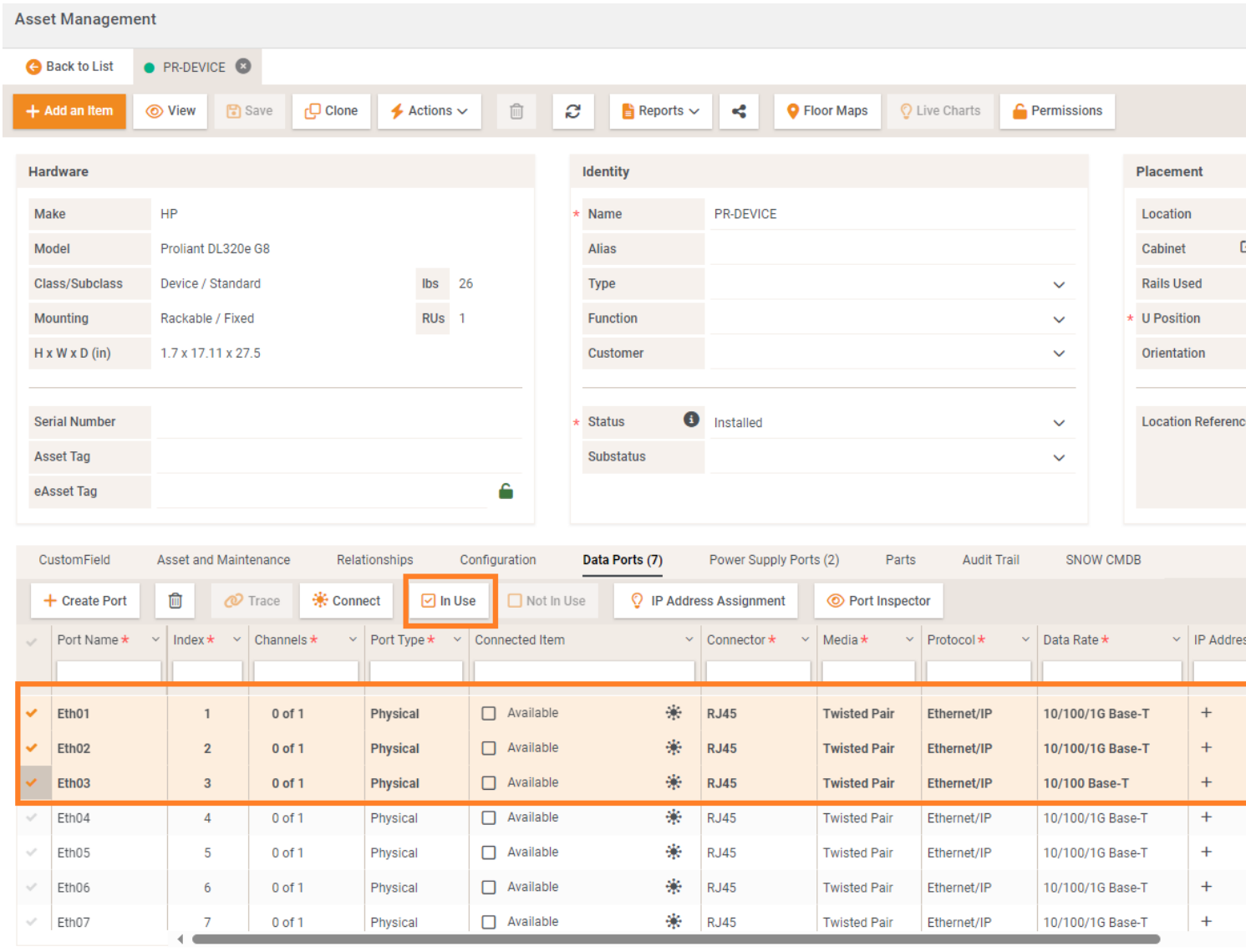
Marking Ports in Use without building circuits

The item ports can be marked “In Use” without connecting the port. Once the ports are marked “In Use” they are no longer available for connection and they do not show in the port list when you are building a circuit.

This is done through the Web UI and File Import and is applicable to Data Ports, Power Supply Ports and Rack PDU Power Ports.

Steps to mark ports “In Use” through web UI

1. Open Item details screen in edit mode
2. In the ports sub tab, select the ports you want to mark “In Use”
3. Click on the button “In Use” in the toolbar.
4. Click Save
5. Connected Item column for these ports will change from “Available” to “In Use”



Note: Only Item Ports that are available can be marked “In Use”. If a port has multiple channels and is marked as "In Use," none of its channels will be available for connection. Conversely, if any channel is connected, the port

cannot be marked as "In Use."

These ports can be made available for connections later by marking them “Not In Use”. To make ports available again, select the ports and click “Not In Use” in the port subtab toolbar and save the item.

Ports can also be marked “In Use” or “Not In Use” through File Import. To make ports available or unavailable through File Import, export the items into the Port Import Template file. In the exported csv file, specify TRUE or FALSE in the “In Use” column.

- TRUE indicates that ports are marked In Use and cannot be connected.
- FALSE indicates that ports are not in use and will be treated as unused ports.

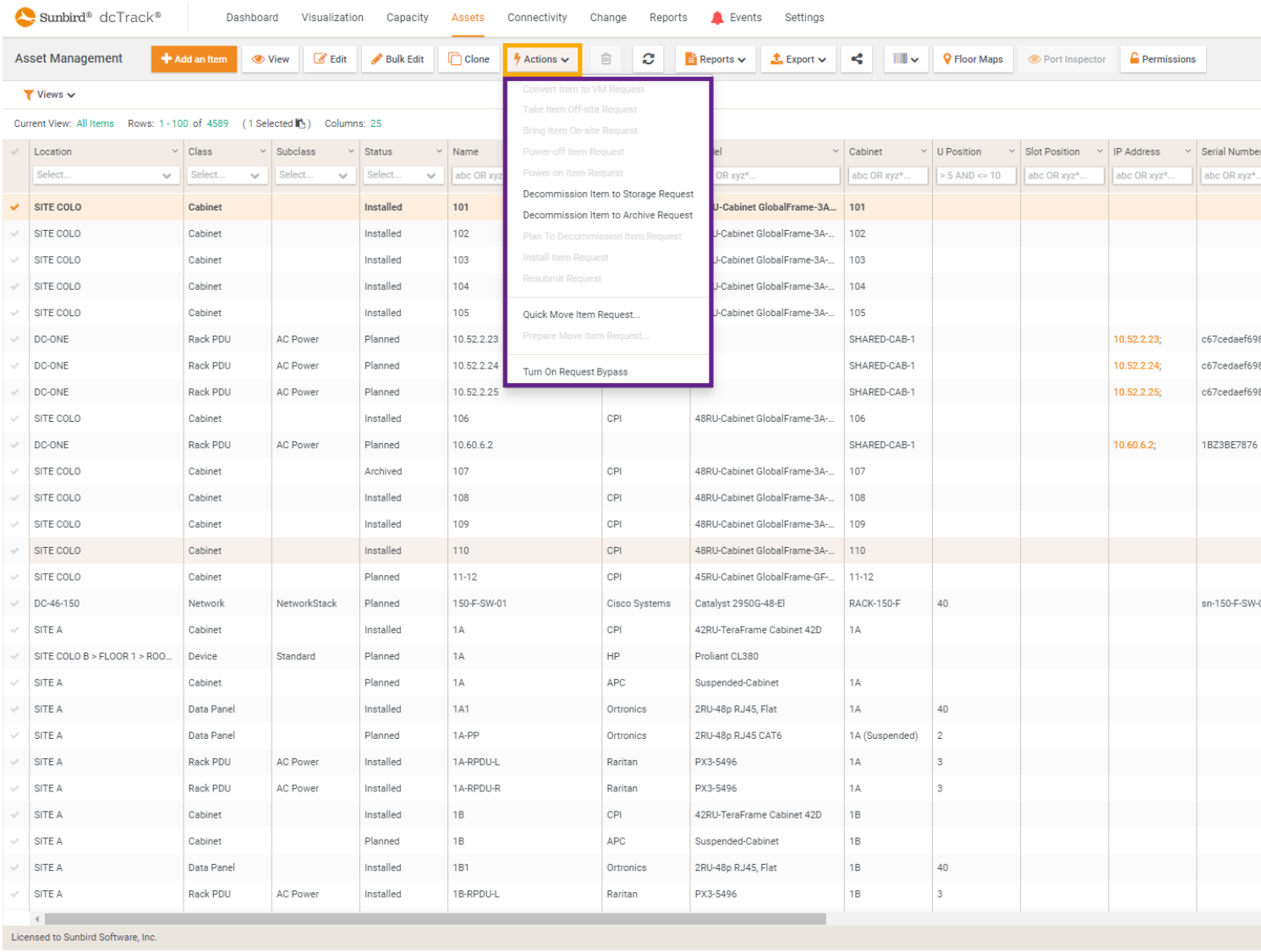
18	#Operatio	Object *	Item Locatio	Item Nam	Port Nam	New Port	Index	Port Type	In Use	Color Cod	Grouping/	MAC Addr	IP Addres	IP Teamin	Connec
19	EDIT	DATA-POI	SITE A	PS_CLARI	'1/01		7	Physical	TRUE						RJ45
20	EDIT	DATA-POI	SITE A	PS_CLARI	'1/02		8	Physical	TRUE						RJ45
21	EDIT	DATA-POI	SITE A	PS_CLARI	'1/03		9	Physical							RJ45
22	EDIT	DATA-POI	SITE A	PS_CLARI	'1/04		10	Physical							RJ45
23	EDIT	DATA-POI	SITE A	PS_CLARI	'1/05		16	Physical							RJ45

Chapter 4:Requests and Work Orders

Requests, or action requests, are submitted in dcTrack when a physical action must be performed for an item or circuit in a data center.

For example, submitting an Install Item Request to install a new item, submitting a Decommission Item to Storage Request to decommission an item to storage, submitting a Connect Request to create a new power circuit, and so on.

Requests are applied by selecting the Actions menu for both items and circuits.



Once a request is submitted, it enters the dcTrack Change Control workflow where it is then processed.

When Request Bypass is enabled, all item action requests that are submitted are processed by dcTrack immediately.

When Request Bypass is disabled, item action requests move through each step of the Change Control workflow and must be approved or reject manually.

Requests are displayed on the Requests List page as they move through the Change Control workflow.

Accessing the Request Page

The Request List page is accessed via Change > Requests.

Requests can be processed individually or multiple requests can be processed at once.

Linked Requests

All requests for converting an item and disconnecting data/comm ports and power ports are linked together. This means they can be approved by approving any of the associated requests.

If there are several requests to decommission items and disconnect data ports and power port connections, these requests are linked together. Therefore, all requests can be approved at once by approving any one of the associated requests.

Request Numbers

All requests are assigned a request number, which resets to 00001 each year.

The first two digits of the number represent the year the request was made. The next five digits are the serial number of the request.

For example: 1300024

- 13 = the year 2013
- 00024 = the serial number of the request

When two requests are associated with each other, they have the same request number and a distinguishing suffix.

A related request is assigned a request number that includes a suffix consisting of a dash followed by a two-digit serial number starting at 01 to identify the related request.

For example: 1300024-01 and 1300025-01

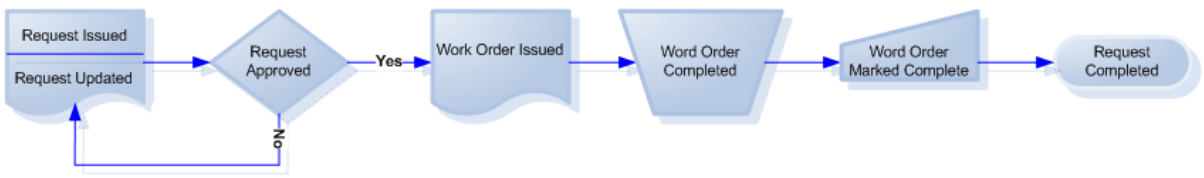
When a single connection is moved, the existing port is disconnected and the new port is connected, which results in a disconnect and a reconnect request pair. Such a disconnect request is given the suffix -DX and the reconnect request is given the suffix -RX.

Request Workflow

Once an action request is issued for an item, it moves through the following stages of the Change Control workflow.

The request moves through each stage of the workflow automatically if you are working in Request Bypass or manually if Request Bypass is disabled.

For more information on Request Bypass and manual change control, see **Request Bypass and Manual Change Control**.



Request	Description
Request is submitted or resubmitted by a user if it is rejected	A user submits a request for an item from the Actions menu in the Web Client, or resubmits a request that was previously rejected. The item is in a Planned status if it is new, or remains in its current status when a request is resubmitted. For example, an item is created and is in a Planned status when an Install Item Request is submitted for it.
Request approved or rejected	The request is either approved (Successful) or rejected (Failed). Note: When a request for the item is approved, the item cannot be edited until the request is marked as Complete.
Work order is issued	After the request is approved, a work order is generated to perform the actual task requested, such as installing an item, moving an item and so on.
Work order is completed	The work order action is performed. The request is completed in the data center. For example, the server is installed
Work order is marked as Complete in dcTrack	Once the action is completed in the data center, the work order is marked as Completed.
Request is completed and marked as Complete in dcTrack	Once the work order is marked as Completed, the request is marked as Completed and the item is moved into its new status. For example, an item moves from Planned to Installed once its Install Item Request is marked as Complete.

Request Processing Stages

Each request's current stage in the request workflow is displayed in the Request Stage column of the Requests List page in the Web Client.

When you click on a request, its current stage is identified in the Request Stage in the Details panel as well.

The current stage of the request, along with the additional stages the request must go through and the sequence of those stages, is displayed in Request Task Status tab on the Request Details page.

Move Item Request Requests and Sub-Requests

dcTrack assigns a request number to the Move Item Request.

Sub-request numbers are assigned to connections or blades associated with the Move Item Request (if applicable).

For example, the Move Item Request number 1004 can have a Recreate Connection sub-request 1004-01 associated with it.

Item Request Processing During a Move Cabinet Request

dcTrack allows you to perform a Move Item Request for a cabinet even when there are pending requests for the items in the cabinet.

For example, you can submit an Install Item Request for a server in a cabinet and then submit a Move Item Request for the cabinet. The cabinet move is allowed to proceed even though there is an outstanding Install Item Request for the server.

Pending requests can be completed before or after the Move Item Request for the cabinet is completed.

When you submit a Move Item Request for a cabinet, a message indicates that a request is outstanding for an item.

When you submit a request for an item in the cabinet when there is a Move Item Request pending for the cabinet, a message indicates that a request is outstanding for the cabinet.

For information on cabinet move requests, see **Move Item Requests for Cabinets**.

Following is a list of the item requests and additional impacts, if any, when the request is submitted and you perform a Move Item Request for a cabinet.

Request	Required Behavior
Install Item Request	If the item is installed before the cabinet move: • All power circuits in a Planned status or Installed status remain connected. • All data circuits in a Planned status are disconnected and deleted when the Work Order is marked Complete or the request is successfully processed. If the item is installed after the cabinet move, new connections are created to the designated location/item/port after the cabinet is moved.
Power-off Item Request	The item is moved to a Powered-off status independent of the item's location.
Power-on Item Request	The item is moved to a Powered-on status independent of the item's location.
Take Item Off-site Request	If the Take Item Off-site Request Work Order is marked Complete and existing connections are retained. The item is only moved to the cabinet once the item is brought back on-site.
Bring Item On-site Request	If the Bring Item On-site Request Work Order is marked Complete, the item's connections are retained.

Request	Required Behavior
Decommission Item to Storage Request	If a Decommission Item to Storage Request is submitted for the cabinet, all connections are disconnected. If there is an item with a pending Move Item Request in the cabinet and a Decommission Item to Storage Request is submitted for the cabinet, the item's connections are disconnected.
Decommission Item to Archive Request	If a Decommission Item to Archive Request is submitted for the cabinet, all connections are disconnected. If there is an item with a pending Move Item Request in the cabinet and a Decommission Item to Archive Request is submitted for the cabinet, the item's connections are disconnected.
Move Item Request	• All power circuits in a Planned status or Installed status remain connected. • All data circuits in a Planned status are disconnected and deleted when the Work Order is marked Complete or the request is successfully processed.
Convert Item to VM Request	The item is converted and all connections are disconnected before the cabinet is moved.

Identify a Request's Current Stage

At any time, you can access the Requests List under the Change tab in the Web Client to find out a request's current stage in the Change Control workflow.

On the Requests List, you can view the Request Stage under the Request Stage column.

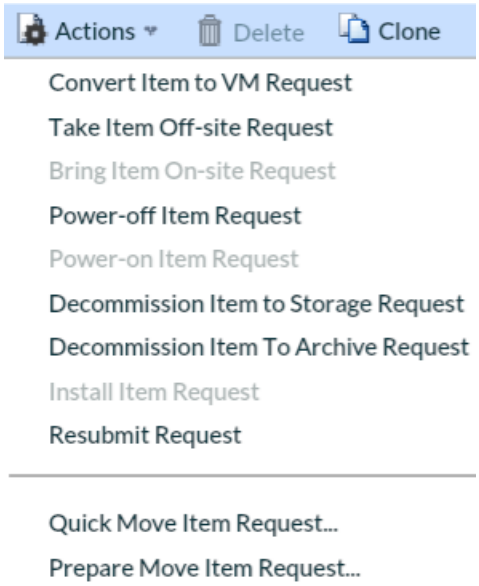
On a Request Details page, this information is available in the Request Stage Field in the Details section. You can find more information on the task associated with each stage in the Request Task Status tab.

For more on stages, see **Lifecycles, Statuses, Action Requests, Change Control Workflow and Stages**.

For more on the request workflow, see **Request Workflow**.

Create Requests by Submitting Item Requests

To create a request for an item in dcTrack, you need to submit a request through the Actions menu on the Items list or on any Item Details page. Disallowed requests are grayed out and will be in accessible. For more information, see **Request Workflow** and **Asset Lifecycle and Workflow**.



Move Item Requests

dcTrack provides two Move Item Request options: Quick Move Item Request and Prepare Move Item Request.

- Move rackable, device items and rackable, network items using Quick Move Item Request and Prepare Move Item Request.
- Move cabinets using Quick Move Item Request
- Prepare Move Item Request cannot be used to move cabinets.
- Use Quick Move Item Request when you know:
  - the location you want to move an item to
  - the cabinet you want to move an item to
  - the location you want to move a cabinet and/or its items to
- Use Prepare Move Item Request:
  - When you know the cabinet you want to move an item to but need to qualify the cabinet before you move the item to it, or
  - When you do not know the cabinet you want to move the item to and need to locate one that can accommodate the item

For details on using these move options with cabinets and items, see **Move Item Requests for Cabinets**.

Asset Lifecycle and Workflow

In dcTrack, an asset or item passes through specific states that correspond to its lifecycle stage. Assets and items in dcTrack can fall under one of the following lifecycle states:

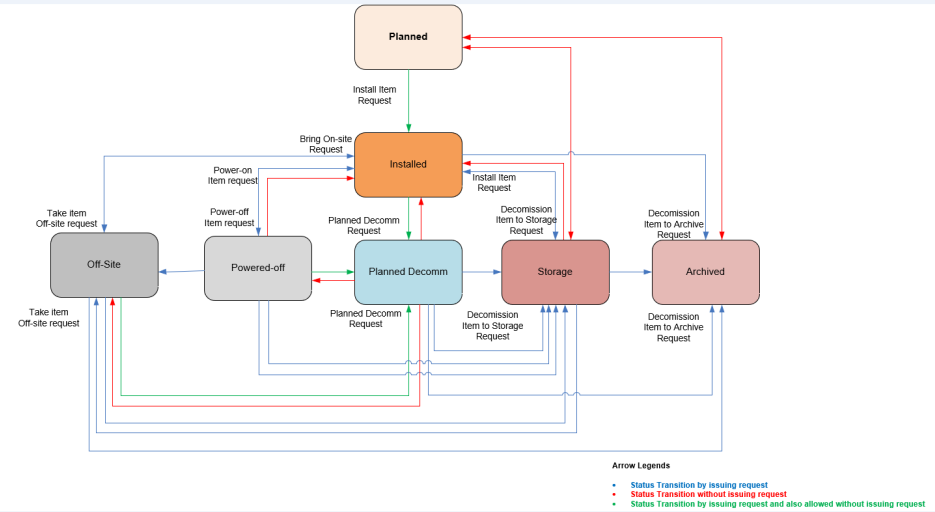
- Planned
- Installed
  - Powered Off
  - Off Site
- Planned Decomm
- Storage
- Archived

Note: Powered Off and Off Site are sub-states of Installed. An asset that is Installed but not Powered Off is considered to be Powered On.

You transition assets from one state to the next by issuing requests. For example, you transition an asset from the Planned state to the Installed state by issuing a request for the asset to be installed. If the request is approved, a work order is issued to complete the request.

There are also transitions that are allowed directly from the Status drop down list while editing an Item that do not require you to issue a Request and proceed through the workflow process.

Following diagram describes all the state transitions that are allowed in dcTrack either by issuing a request or directly from the status drop down list while editing an item



Initial Asset States and State Transitions

In dcTrack when an asset is created it is set to Planned Status be default. It can also be set to following statuses upon creation.

1. Planned
2. Installed
3. Storage
4. Archived

The transitions that are allowed directly from the Status drop down list while editing an Item that do not require you to issue a Request and proceed through the workflow process.

The following table outlines these transitions.

Transition	Applies To
Planned -> Installed	All Classes
Planned -> Archived	All Classes
Planned -> Storage	All Classes except: Data Panel • Power Outlet • Floor PDU • UPS • HVAC • VM
Installed -> Planned Decomm.	All Clases except: • Cabinet • Device/Blade Server • Network/Blade • Probe • Data Panel • Power Outlet • Floor PDU • UPS • HVAC • VM
Storage -> Planned	All Classes except: • Data Panel • Power Outlet • Floor PDU

Transition	Applies To
	• UPS • HVAC • VM
Storage -> Installed	All Classes except: • Data Panel • Power Outlet • Floor PDU • UPS • HVAC • VM
Archived -> Planned	All Classes
Powered Off -> Installed	All Classes except: • Cabinet • Rack PDU • Probe • Data Panel • Power Outlet • Floor PDU • UPS • HVAC
Powered Off -> Planned Decomm.	All Classes except: • Cabinet • Rack PDU • Probe • Data Panel • Power Outlet • Floor PDU • UPS • HVAC
Off Site -> Planned Decomm.	All Classes except: • Cabinet • Network/NetworkStack • Network/Chassis • Rack PDU • Probe

Transition	Applies To
	• Data Panel • Power Outlet • Floor PDU • UPS • HVAC • VM
Planned Decomm. -> Installed	All Classes except: Cabinet Device/Blade Server Network/Blade Probe Data Panel Power Outlet Floor PDU UPS HVAC VM
Planned Decomm. -> Powered Off	All Classes except: • Cabinet • Device/Blade Server • Network/Blade • Rack PDU • Probe • Data Panel • Power Outlet • Floor PDU • UPS • HVAC • VM
Planned Decomm. -> Off Site	All Classes except: • Cabinet • Device/Blade Server • Network/Blade • Network/NetworkStack • Network/Chassis

Transition	Applies To
	• Rack PDU • Probe • Data Panel • Power Outlet • Floor PDU • UPS • HVAC • VM

Move Item Requests for Rackable, Device and Network Class Items

Submit a Move Item Request when you want to move rackable, device class items and rackable, network class items from one cabinet to another cabinet in the same data center location, or to another data center location.

You can move items from one cabinet to another by using one of the following options:

- Quick Move Item Request option
- Prepare Move Item Request option
- Use MOVE operation in file import
- Dragging-and-dropping items from one cabinet to another in item list cabinet elevation

Move Item Requests are not required to move an item from one position to another position within the same cabinet. Instead, simply edit an item's U position in a cabinet by:

- Selecting a new position from the U Position drop-down

Or

- Dragging-and-dropping an item in a cabinet elevation to move it to a new position within the cabinet

See **Change an Item's U Position in a Cabinet**

Note: You must have Edit privileges to the item and there must be space available to accommodate the item in the cabinet.

However, you can submit a Move Item Request if you are using dcTrack's Change Control workflow and want to track a move within a cabinet.

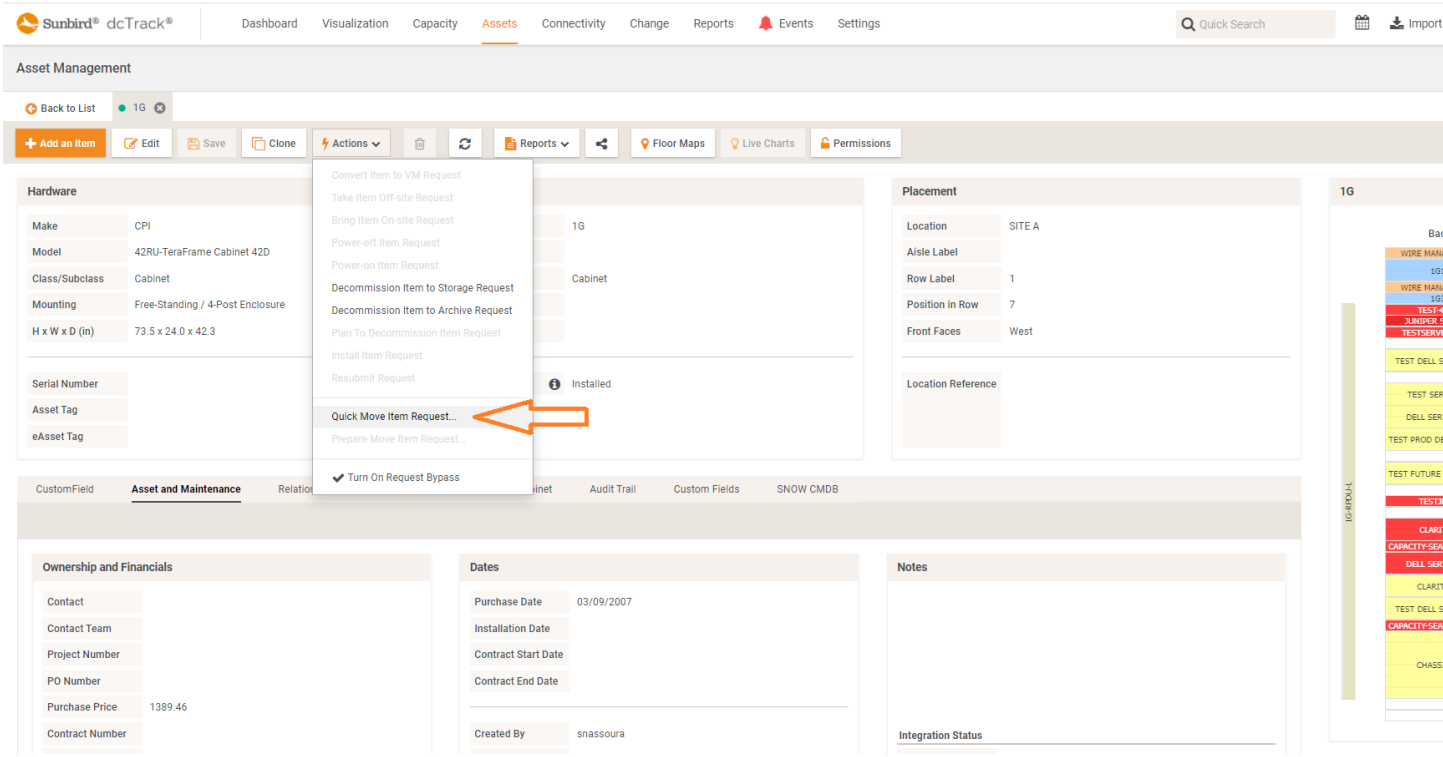
Move Item Requests for Blade Servers and Blades

Blade Server and Blade Move Item Request Support	
Supported Move Item Requests	You are able to submit Quick Move Item Requests to: • Move blade servers (device items) to chassis located in other cabinets in the same location or a different location • Move blades (network items) to chassis located in other cabinets in the same location or a different location
Privileges	You must have edit access to the blade chassis and blade server or blade.
Pending requests	dcTrack notifies you when the blade chassis, blade server, or blade has a pending request. You are able to proceed with the Move Item Request regardless.
Supported classes	• Device class items (blade servers) • Network class items (blades) • Device class chassis (hold both device blades servers and network blades)
Supported statuses destination cabinet	The destination cabinet containing the chassis must be in an Installed status. The parent and child must be in the same status. This means the blade must be in the same status as the chassis you are moving the blade to. For example, you can move an Installed blade into an Installed chassis, a Planned blade into a Planned chassis and so on.
Placement options	Cabinets that can accommodate the blade chassis are the only cabinets that are listed as options to move the chassis to. Chassis that can house the blade(s) are the only chassis that are listed as options to move the blade(s) to.
Status upon move	• When a Move Item Request is completed, the blade chassis and/or blade is in the same status as it was prior to the move. For example, if it is in an Installed status prior to the move, it is an Installed status when the move is completed.
Connections	• Physical data port connections are disconnected when blades are moved from a blade chassis. • Logical data connections within the chassis remain intact when blade chassis and blades are moved together. • Power connections are disconnected. • Planned circuits are deleted.

Blade Server and Blade Move Item Request Support	
	• Installed and Powered-off circuits are disconnected and must be recreated after the move.
IP addresses	• IP addresses assigned to ports remain when the blade is moved to a chassis in the same location. • IP addresses assigned to ports are deleted when the blade is moved to a chassis in a different location.

Using the Quick Move Item Request Option to Submit a Move Cabinet Request

1. In the Web Client, from the Items List under the Assets tab, select the cabinet you want to move, or select the cabinet and double-click on it to open its item page.
2. Click on the Actions menu.
3. Select the Quick Move Item Request option.



4. A new Item Detail page opens for the move cabinet. The page opens in Edit mode.

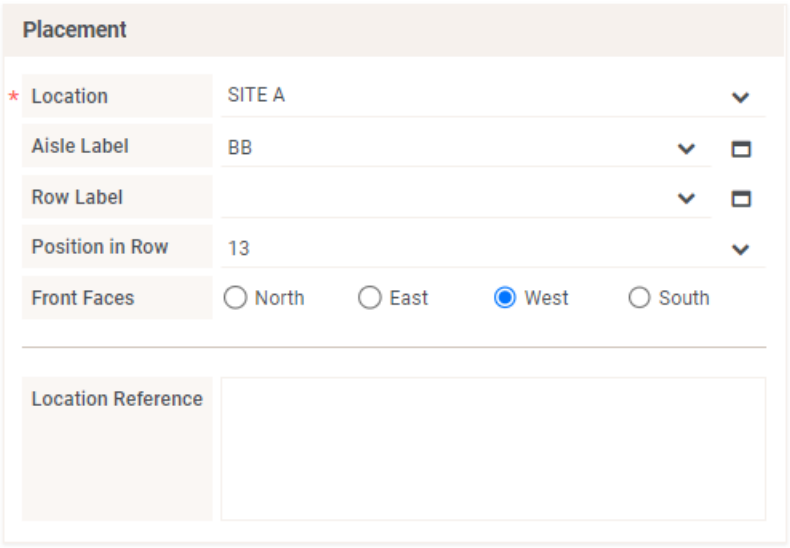
The page contains all of the information from the cabinet.

The cabinet name is the same but includes "^^WHEN-MOVED".

All of the items within the cabinet are displayed in the elevation.

5. Enter the move information by making changes to the Placement (Cabinet) information on the page:

   - Location
   - Aisle Label
   - Row Label
   - Position in Row
   - Front Faces

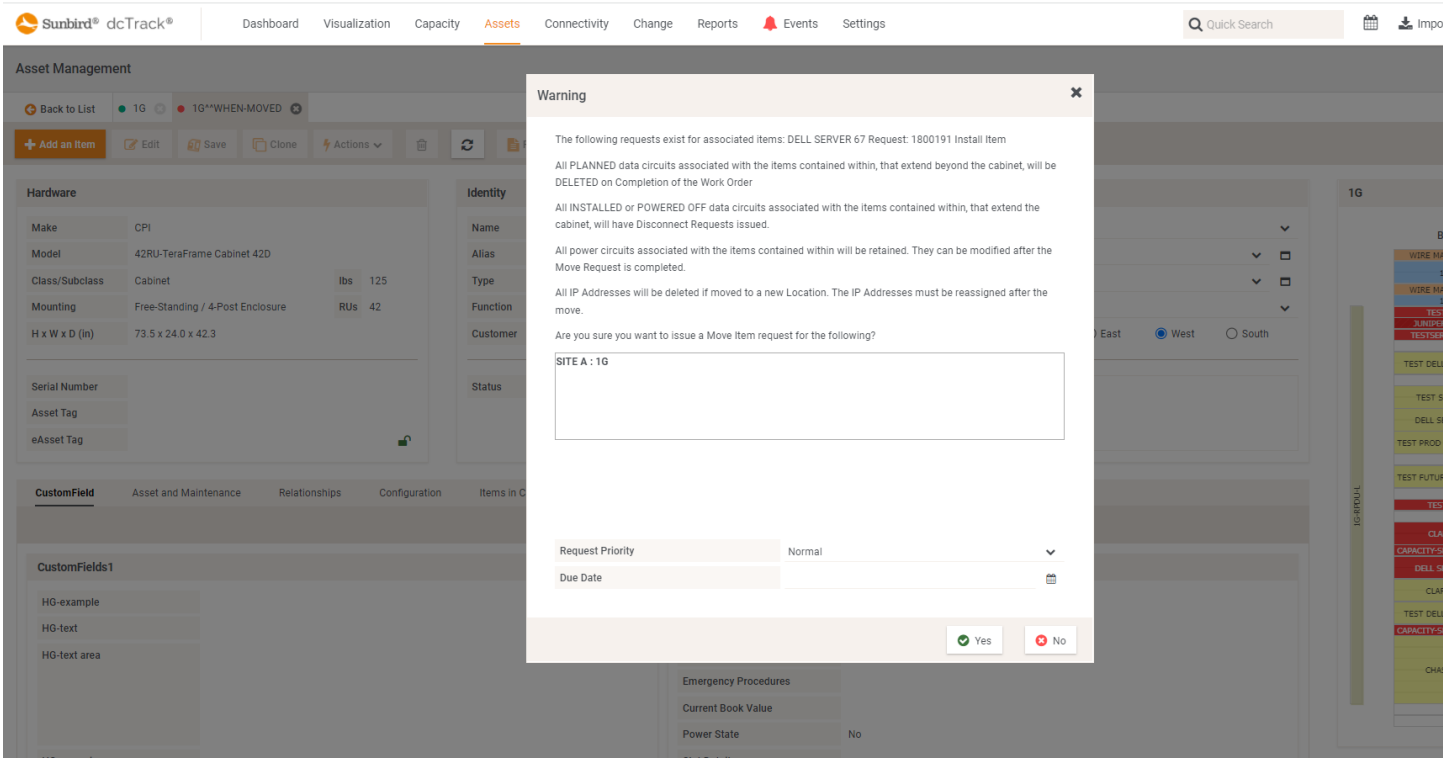


Note: The Status field will reflect the Planned status. This is not editable.

6. Click Save to begin the Move Item Request process.

If any of the items in the cabinet have outstanding requests, you are notified. You can proceed with the move or stop the move.

7. A dialog displays the request's progress.



Note: You can close the Request dialog while the request(s) is being processed.

Note: The images show processing a request when working in Request Bypass.

The status of the request/sub-requests and the request number/sub-request numbers are displayed in the dialog once they are submitted/processed successfully.

9. Close the dialog once a 'success' message is displayed, or you receive an error notification.

Move Item Request processing varies based on if you are working in Request Bypass or Change Control workflow.

The cabinet is moved and is in an Installed status.

All of the items are moved along with the cabinet except for power outlets, items above and below the cabinet, and data panels connected to external infrastructure items.

Items are in the status they were in before they were moved.

Power connections from the items in the cabinet to the rack PDU(s) in the cabinet are retained; no further action is required.

Power connections outside the cabinet are retained and can now be connected to a new outlet. For details, see **Build Power Circuits**.

Submitting Move Item Requests for Multiple Items at Once

A Move Item Request cannot be submitted for multiple items or cabinets at the same time.

Move Item Requests for Cabinets

Submit a Quick Move Item Request when you want to move a cabinet or a cabinet and its contents from one place in a data center to another, or from one location to another location.

For example:

- Submit a Quick Move Item Request to move a cabinet and its items from a staging area to the data center floor.
- Submit a Quick Move Item Request to move a cabinet and its contents to a new a data center during an expansion.

Prepare Move Item Requests do not apply to cabinets. Quick Move Item Requests are supported for cabinets and supported item classes in cabinets.

Processing Item Requests Separate from Cabinet Requests

dcTrack allows you to perform a Move Item Request for a cabinet even when there are pending requests for the items in the cabinet.

For example, you can submit an Install Item Request for a server in a cabinet and then submit a Move Item Request for the cabinet. The cabinet move is allowed to proceed even though there is an outstanding Install Item Request for the server.

Pending requests can be completed before or after the Move Item Request for the cabinet is completed.

When you submit a Move Item Request for a cabinet, a message indicates that a request is outstanding for an item.

When you submit a request for an item in the cabinet when there is a Move Item Request pending for the cabinet, a message indicates that a request is outstanding for the cabinet.

For details on the item requests and additional impacts, if any, when the request is submitted and you perform a Move Item Request for a cabinet, see **Move Item Request Requests and Sub-Requests**.

Impacts of a Cabinet Move

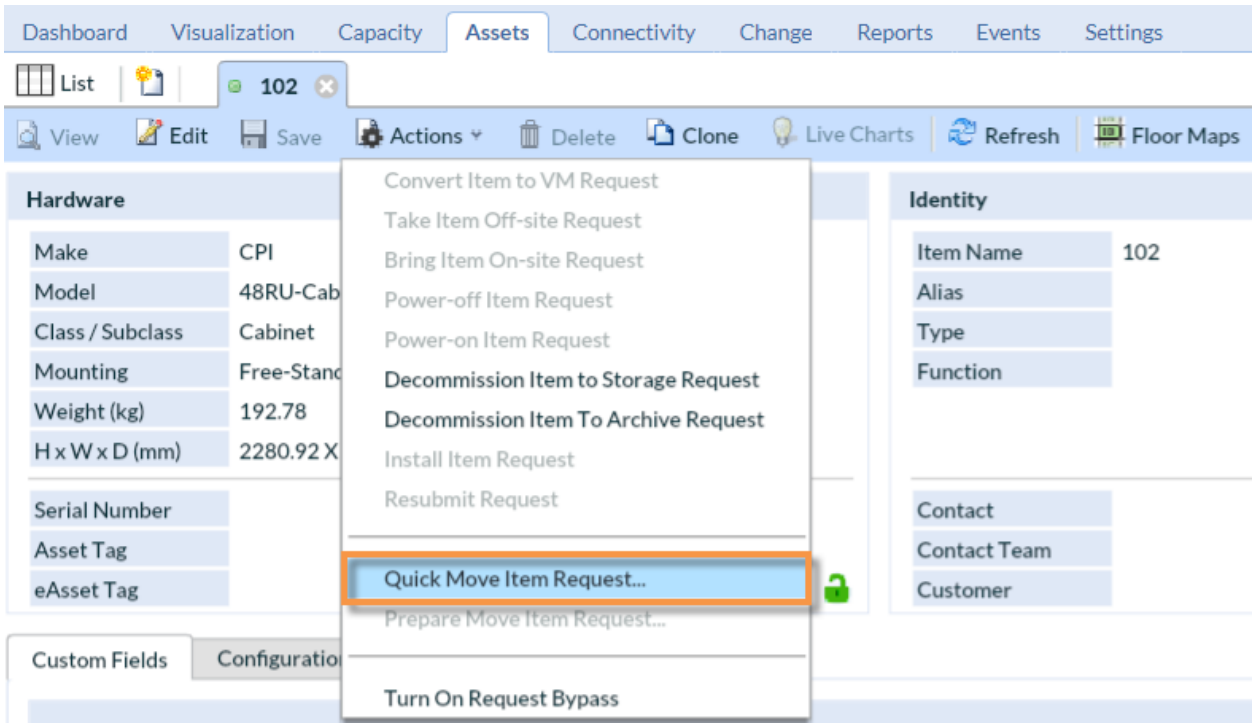
When a Move Item Request is submitted for a cabinet, the following may occur:

Item	Impact
Items within the cabinet	All items in a cabinet are moved along with the cabinet with the exception of: • Power outlets • Items above and below the cabinet • Data panels with connections to infrastructure cabling external to the cabinet. Data panels without infrastructure connections or with connections to items in the same cabinet are moved along with the cabinet. They connections to the items in the cabinet remain intact. Data panels with fan-out connections to network switches within the cabinet are moved with the cabinet. The connections from the data panel to the items in the cabinet remain intact; they are not disconnected like external connections. If a data panel is used for connections to infrastructure external to the cabinet and connections to network switches within the cabinet, the data panel is removed from the cabinet and put into a Planned status. The connections to the network switch are disconnected. Item location information is automatically changed for each item in the cabinet.
Infrastructure data panels	Infrastructure data panels are removed from the cabinet once the request Work Order is marked Complete. The data panels are changed to a status of Planned. Items in the cabinet are disconnected from the data panel since it is removed from the cabinet.
Installed data and sensor port connections	Data circuits starting and ending within the cabinet are retained on move. For example, connections to network switches contained in the same cabinet, associations to temperature sensors contained in the same cabinet, and so on. Disconnect requests are automatically issued for data and sensor circuits ending outside the cabinet when the Move Item Request is submitted for the cabinet. For example, data connections to data panels located outside of the cabinet are disconnected, associations to sensors located in a different cabinet are disconnected, and so on.
Installed power port connections	Power circuits are retained on move. This allows the rack PDU inlet connections to be changed to the power outlet ports at the new location when the move is completed. Each connection from the items in the cabinet to the rack PDU within the cabinet are retained.
Planned power circuits	All power circuits in a Planned status or Installed status remain connected.
Planned data circuits	All data circuits in a Planned status are disconnected and deleted when the Work Order is marked Complete or the request is successfully processed.

Item	Impact
Managed IP Addresses	If moved within the same Location, IP Addresses remain unchanged. If moved to a different Location, IP Addresses are deleted.
UnManaged IP Addresses	Ip Addresses remain unchanged.
Request and/or Work Order	A single Move Item Request is issued for the cabinet and all of the items in the cabinet. The items in the cabinet are identified in the Move Item Request and/order Work Order.
WHEN-MOVED cabinet	The details of the Move Cabinet Item request are available by viewing the Item Details for the <cabinet item name>^^WHEN-MOVED; this is available until the request is completed.
Work Order	A single Work Order is issued for the cabinet and all of the items in the cabinet. The same statuses that were applied to the cabinet and the items in the cabinet are applied once the Move Item Request Work Order is marked Complete.
Audit trail	The Move Item Request details for the cabinet and for each item are captured in the audit trail individually.

Using the Quick Move Item Request Option to Submit a Move Cabinet Request

1. In the Web Client, from the Items List under the Assets tab, select the cabinet you want to move, or select the cabinet and double-click on it to open its item page.
2. Click on the Actions menu.
3. Select the Quick Move Item Request option.



4. A cabinet page opens for the move cabinet. The page opens in Edit mode.

The page contains all of the information from the cabinet.

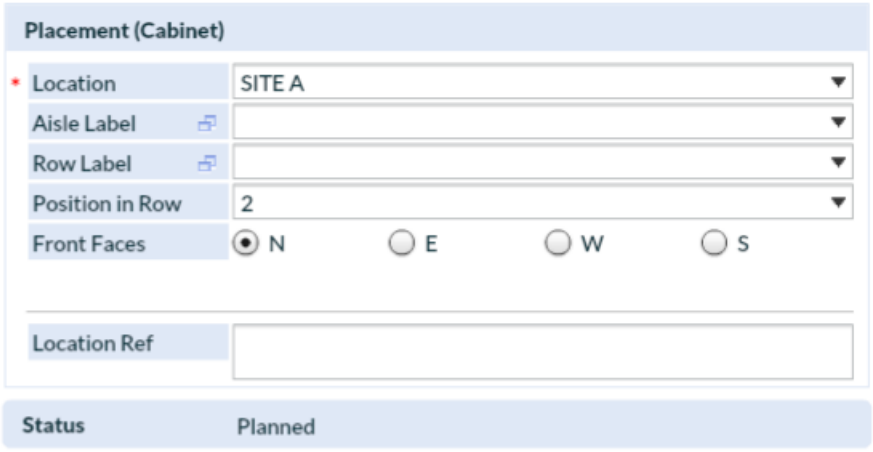
The cabinet name is the same but includes "^^WHEN-MOVED".

All of the items within the cabinet are displayed in the elevation.

5. Enter the move information by making changes to the Placement (Cabinet) information on the page:

   - Location
   - Aisle Label
   - Row Label
   - Position in Row

- Front Faces



Note: The Status field will reflect the Planned status. This is not editable.

6. Click Save to begin the Move Item Request process.

You are prompted to confirm you want to proceed.

7. Select Yes to proceed with the move, or No to cancel the move.

If any of the items in the cabinet have outstanding requests, you are notified. You can proceed with the move or stop the move.

8. A dialog displays the request's progress.

Note: You can close the Request dialog while the request(s) is being processed.

Note: The images show processing a request when working in Request Bypass.

The status of the request/sub-requests and the request number/sub-request numbers are displayed in the dialog once they are submitted/processed successfully.

9. Close the dialog once a 'success' message is displayed, or you receive an error notification.

Move Item Request processing varies based on if you are working in Request Bypass or Change Control workflow.

The cabinet is moved and is in an Installed status.

All of the items are moved along with the cabinet except for power outlets, items above and below the cabinet, and data panels connected to external infrastructure items.

Items are in the status they were in before they were moved.

Power connections from the items in the cabinet to the rack PDU(s) in the cabinet are retained; no further action is required.

Power connections outside the cabinet are retained and can now be connected to a new outlet. For details, see **Build Power Circuits**.

Using the Prepare Move Item Request Option to Submit a Move Item Request

Submit a Prepare Move Item Request if you want to use dcTrack's® Intelligent Capacity Search to:

- Search for an optimal destination cabinet to move the item to when you do not have one in mind.

See **Use Capacity Search to Locate a Destination Cabinet**

Consider using the Quick Move Item Request option if you know the destination cabinet and do not need to qualify it before submitting the Move Item Request. See **Using the Quick Move Item Request Option to Submit a Move Cabinet Request**

Use a Quick Move Item Request for cabinet moves. Prepare Move Item Requests are not used for cabinets.

Prepare Move Item Requests do not apply to cabinets since the purpose of a Prepare Move Item Request is to use Intelligent Capacity Search to qualify a cabinet in order to ensure it can accommodate an item or locate a cabinet to accommodate an item.

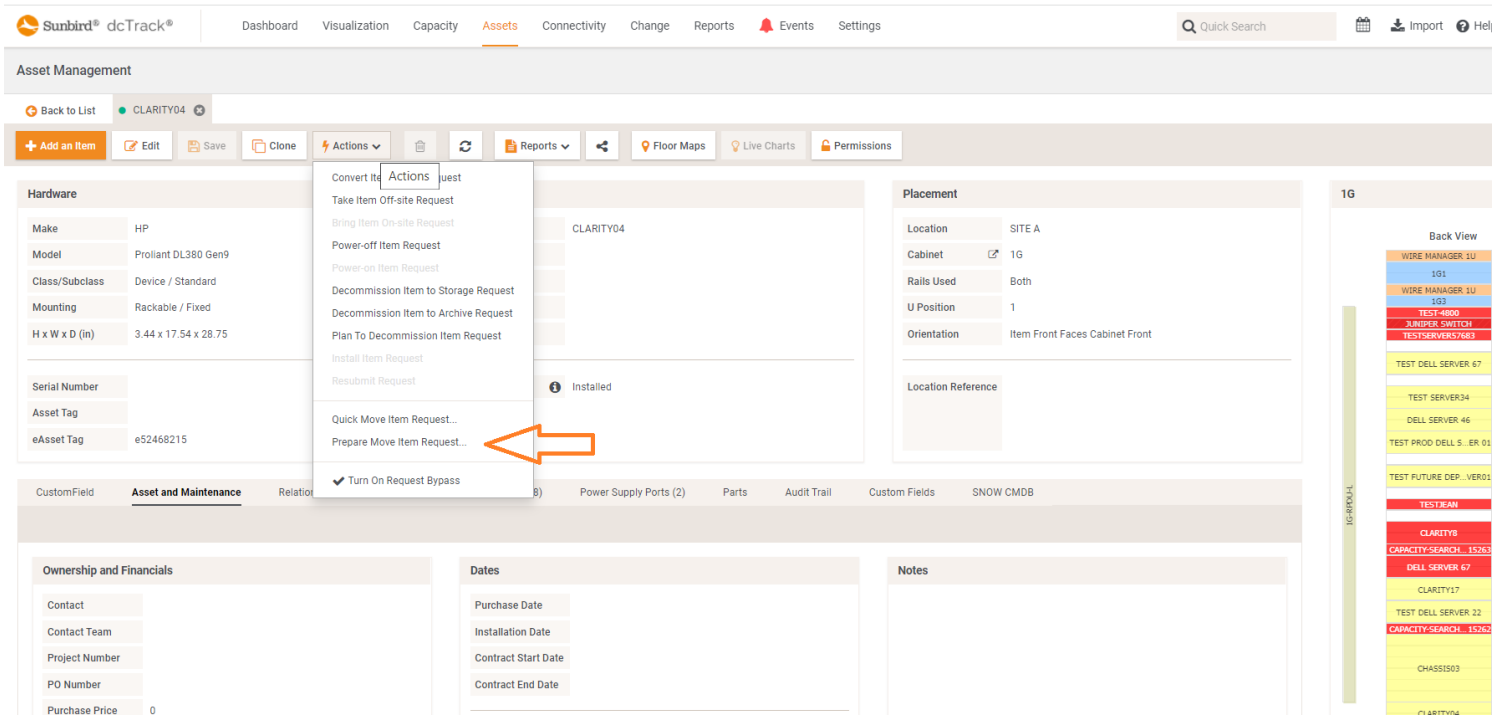
Note: The Item List Action "Prepare Move Item Request" no longer re-directs to the Capacity tab but instead opens in a dialog containing the same content that was displayed in the Capacity tab for the move.

Use Capacity Search to Locate a Destination Cabinet

dcTrack uses Intelligent Capacity Search to locate a destination cabinet for an item based on the item's criteria, such as cabinet type, data and power connection requirements, contiguous rack unit requirements and so on.

After selecting Prepare Move Item Request from the Actions menu, the Intelligent Capacity Search dialog opens and the results of the search are displayed.

1. Select the item you want to move on the Items List page or open the item's page.
2. Select Prepare Move Item Request from the Actions menu. The Intelligent Capacity Search dialog opens.

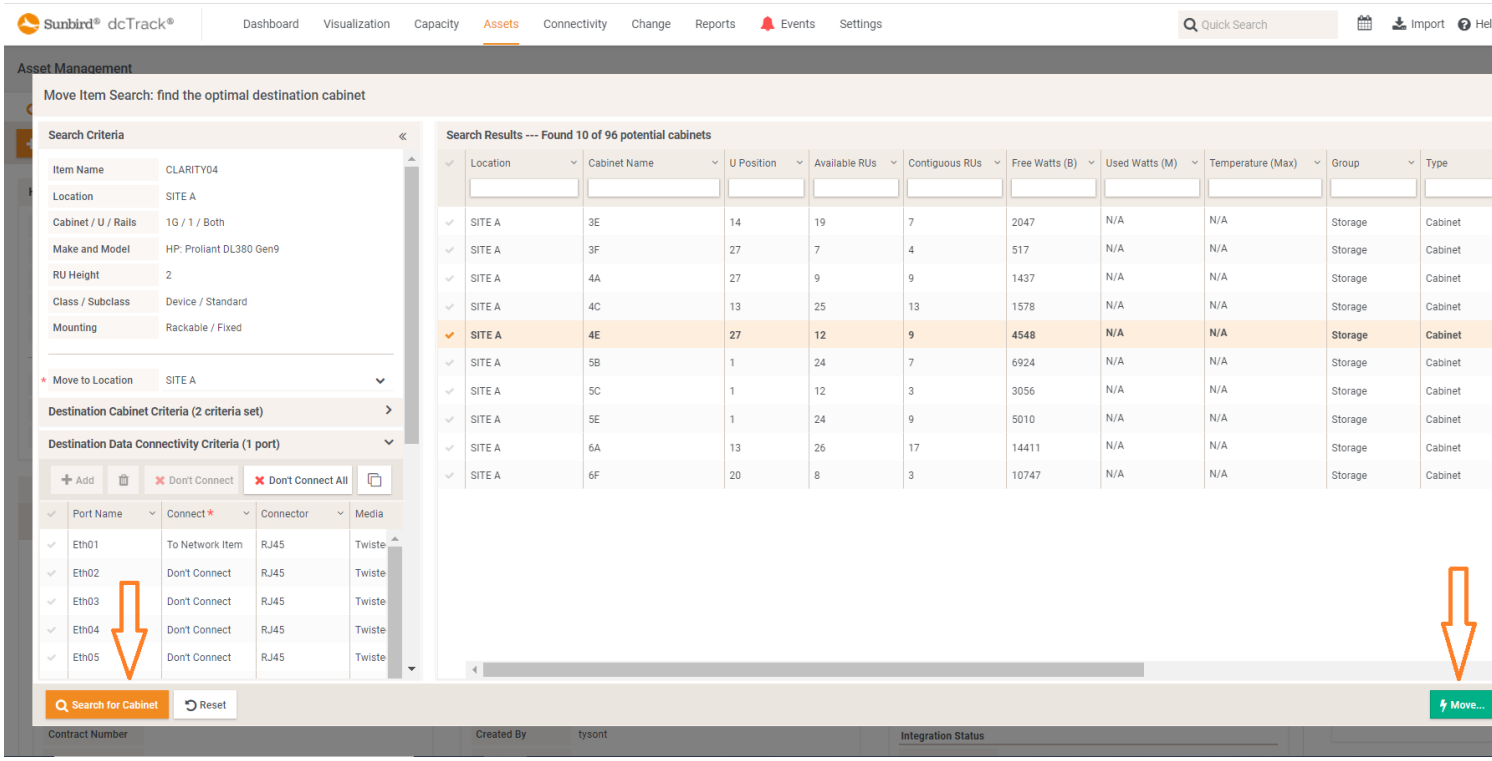


If destination cabinets are found that meet the item's criteria, they are listed in the Search Results section of the dialog.

3. Select a cabinet from the list.

Alternatively, update the destination search criteria and perform a new search by clicking the "Search for Cabinet" button

4. Once you have selected a Cabinet, click "Move..." at the bottom of the page.

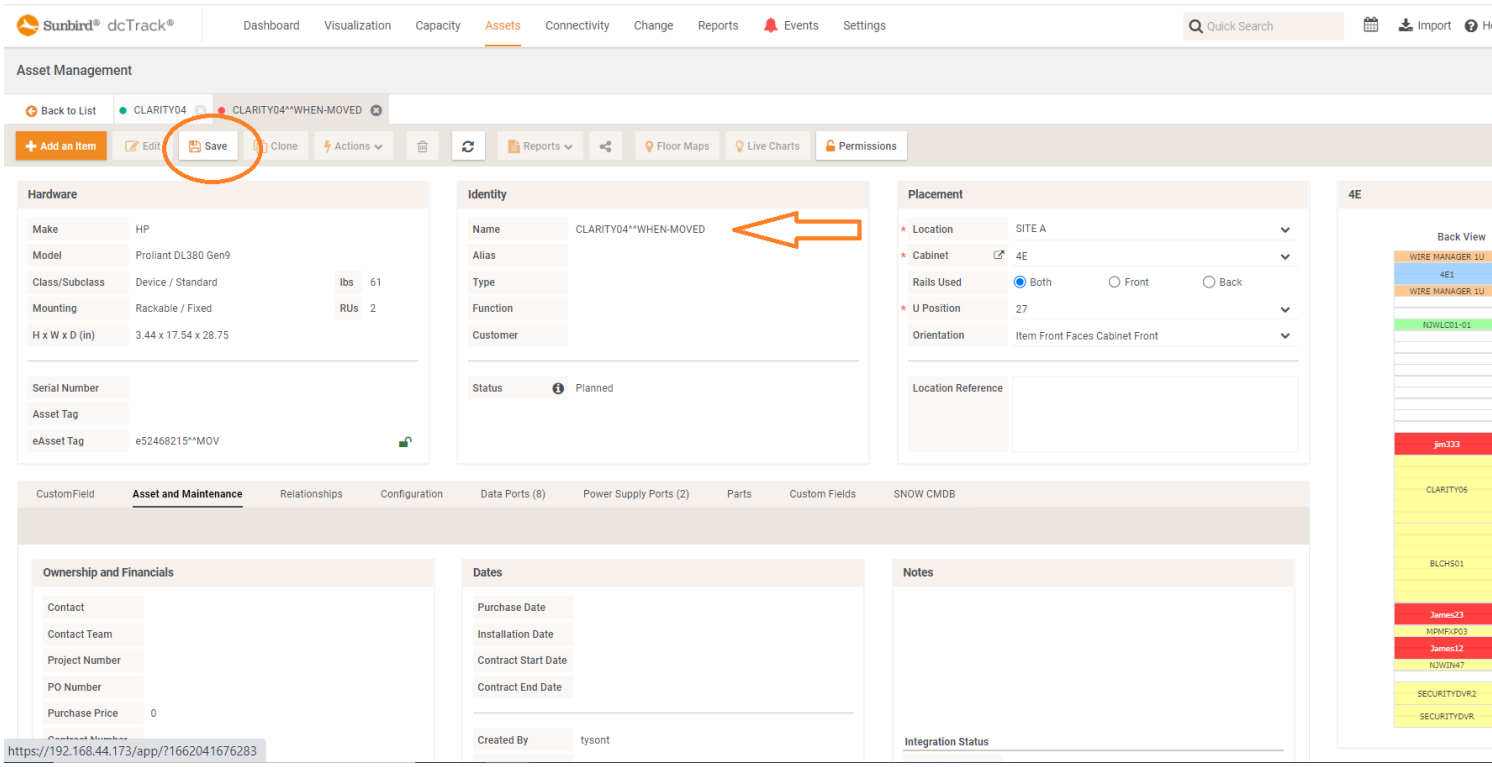


5. An item page opens containing the pending move item's information.

The pending move item name includes "WHEN-MOVED".

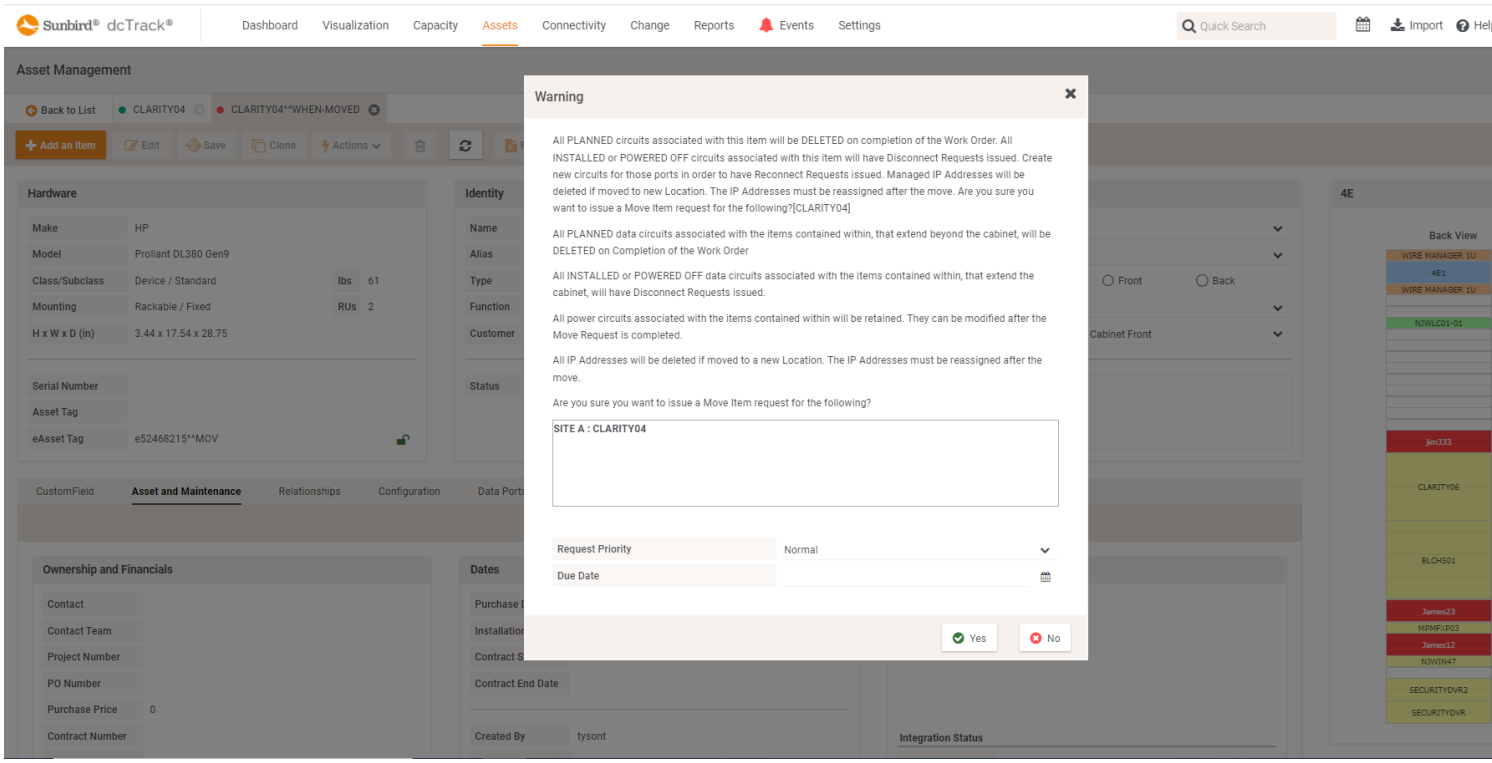
All of the information is the same unless you edited it.

6. Click Save to submit the request.

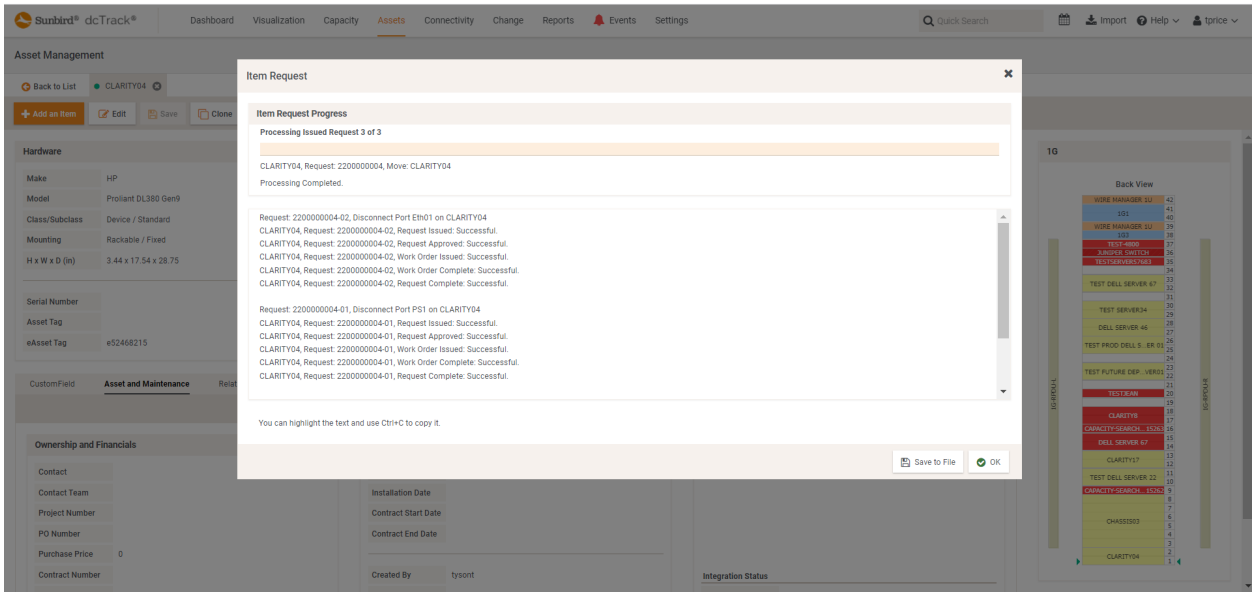


You are presented with a dialog box explaining the results of Move and prompted to confirm you want to proceed.

7. Select Yes to proceed with the move, or No to cancel the move.



8. A dialog displays the request's progress.



Note: You can close the Request dialog while the request(s) is being processed.

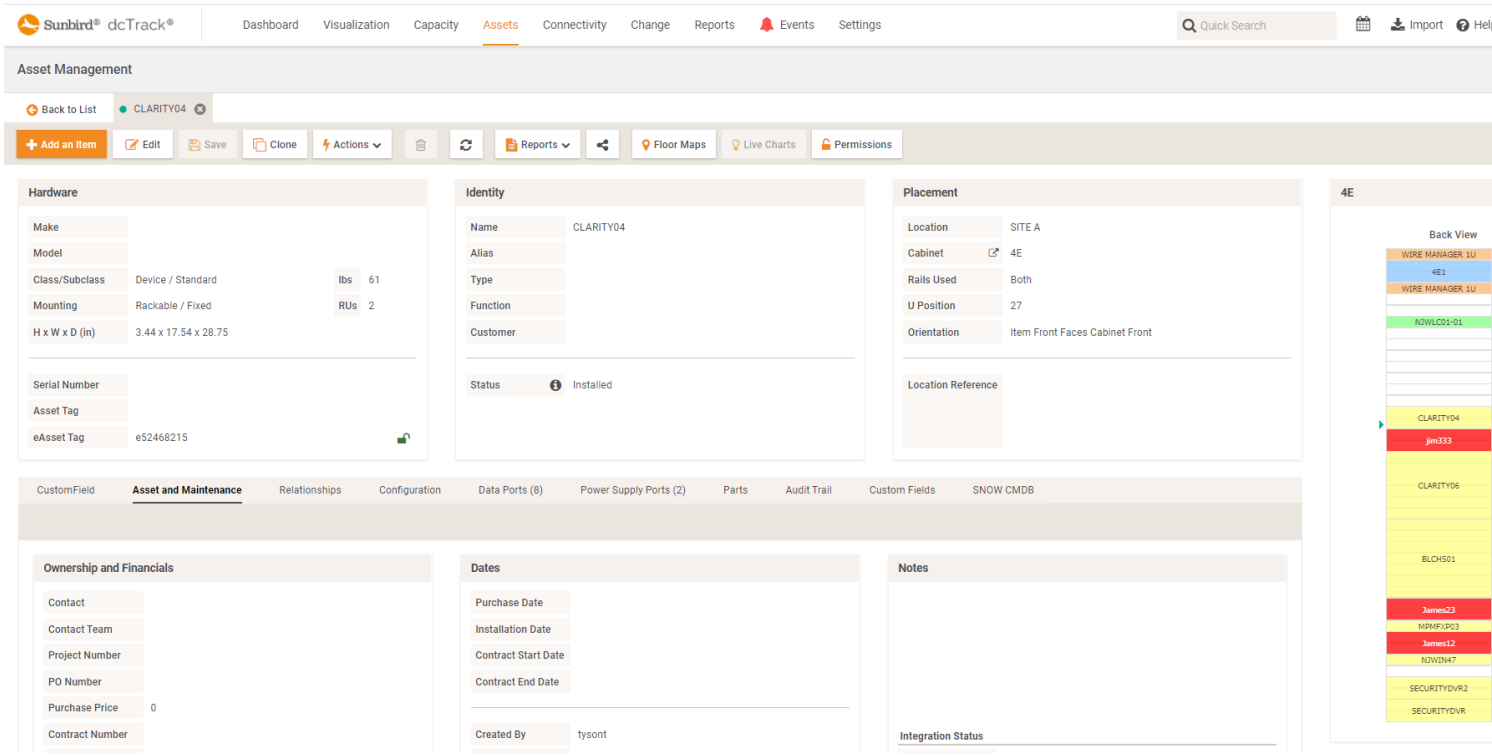
Note: The images show processing a request when working in Request Bypass.

Move Item Request processing varies based on if you are working in Request Bypass or Change Control workflow. For information on the Change Control workflow process and Request Bypass, see **Request Bypass and Manual Change Control**.

The status of the request/sub-requests and the request number/sub-request numbers are displayed in the dialog once they are submitted/processed successfully.

Move Item Request processing varies based on if you are working in Request Bypass or Change Control workflow.

9. Close the dialog once a 'success' message is displayed, or you receive an error notification.
10. The "WHEN-MOVED" replaces the original Item and the original Item is deleted.



Prepare Move Item Request - Intelligent Capacity Search Results

After a Prepare Move Item Request is initiated, dcTrack displays the results of the search.

When cabinets are found that meet all of the criteria, they are listed in a table.

If cabinets are found that meet some criteria but not all, dcTrack displays that information in the results area. Details such as what criteria were and were not met are provided (for example, not enough power was available to accommodate the item).

dcTrack lists the number of cabinets that meet each of the criteria (if any).

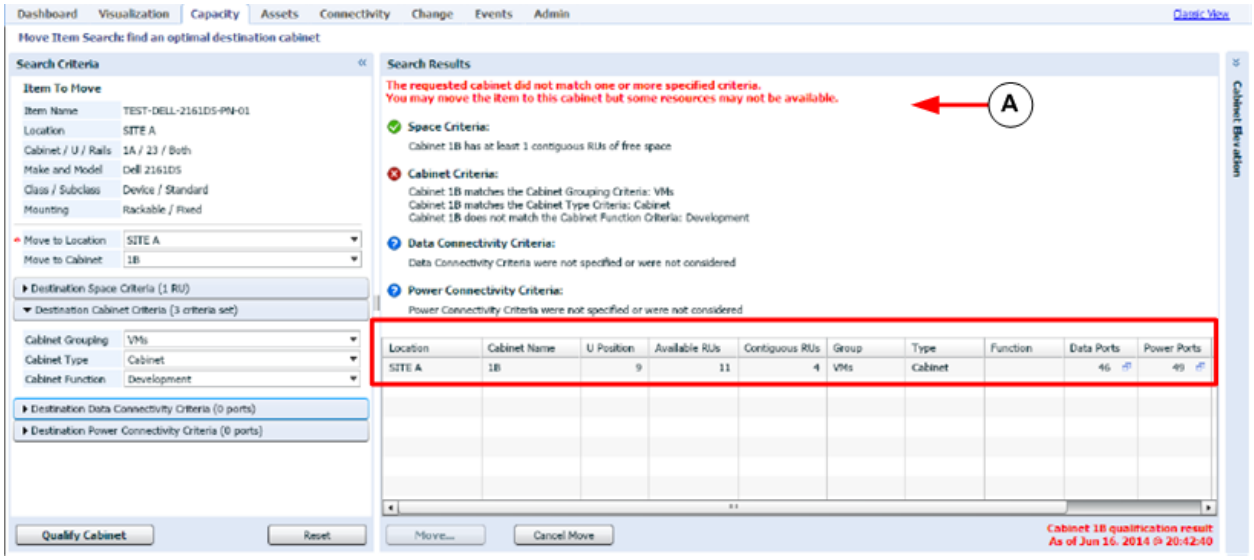
Icons are used in the message to indicate level to which each criteria were met, if they were met at all.

Capacity search result criteria indicators	
	Cabinets exist that meet the specified criteria.
	No cabinets exist that meet the specified criteria.
	The specified criteria was not defined for any cabinets at the location.
	Cabinets exist that meet some of the criteria, but no single cabinet meets all of the criteria.

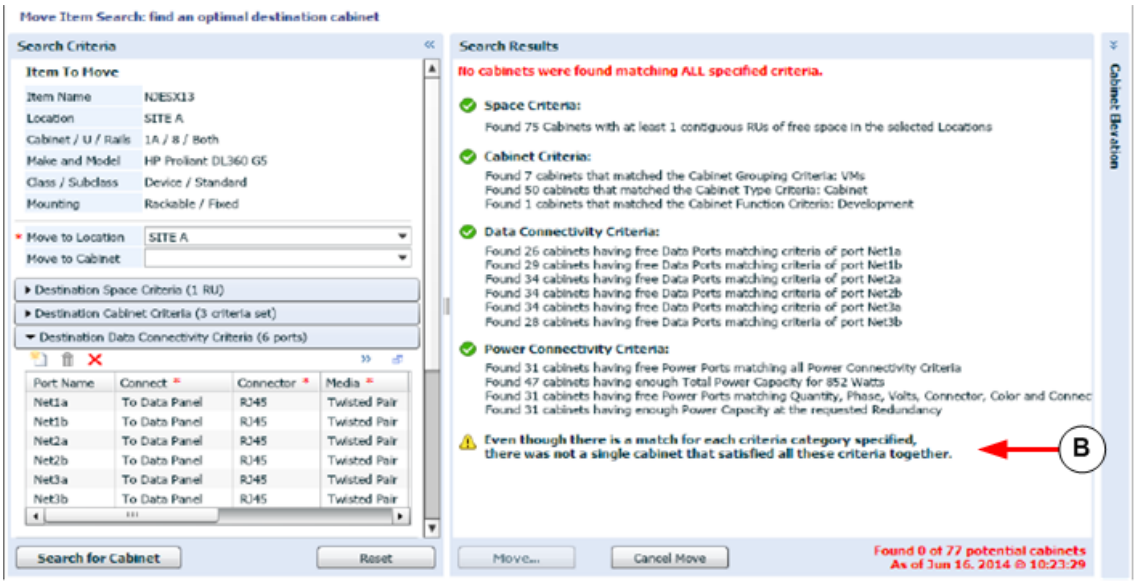
When you receive these results, you can:

- Cancel the Prepare Move Item Request.
- Update the destination cabinet criteria and click "Search for Cabinet" to attempt to locate a cabinet.
- If you are qualifying a specific cabinet, you can select the cabinet and submit a Move Item Request even if none of the criteria are met.

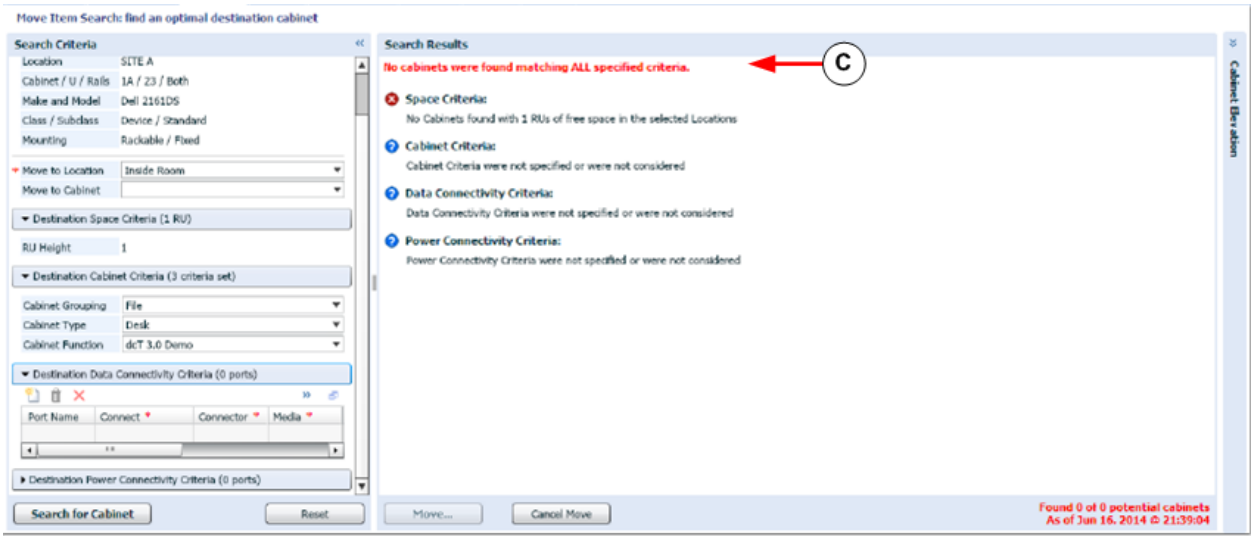
Cabinets exist that meet some of the criteria but not all.



Cabinets exist that meet the criteria, but no single cabinet meets all of the criteria.



No cabinets meet all of the criteria and/or the criteria were not defined for the cabinets so cannot be said to be met.



Resubmit Move Item Requests

You can resubmit a Move Item Request for a cabinet or item as long as the request is still in one of the following stages:

- Request Issued
- Request Updated
- Request Rejected

Delete a Pending Move Item

A pending move item is created when the Move Item Request is submitted. Pending move items are identified by "WHEN-MOVED" as part of their name.

This pending item can be deleted as long as the request has not been approved/marked as Request Complete.

The Move Item Request and sub-requests, if any, are deleted when the pending item is deleted.

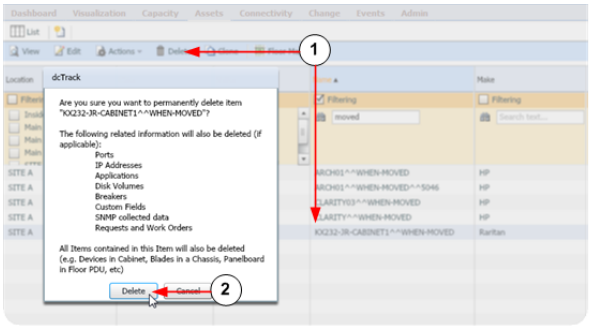
Deleting the pending item does not delete the original item. All original connections remain intact with except Planned connections, which are deleted as soon as a Move Item Request is submitted.

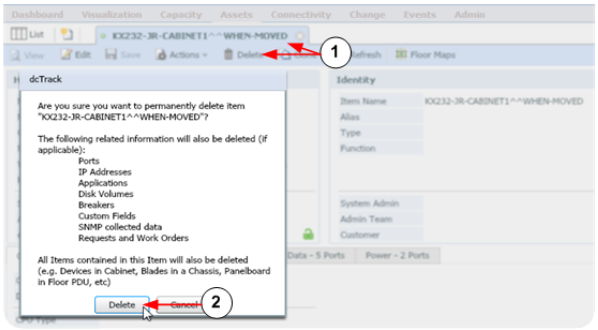
The cabinet space reserved for the pending item is made available once the pending item is deleted.

Note: Working in Request Bypass, the option to delete a pending item does not apply since the request is automatically processed.

To delete a pending move item in the Web Client, do one of the following:

1. Select the pending "WHEN-MOVED" item from the Items List page and then click Delete.
2. Open the item's page and click the Delete icon.
3. Click Delete to confirm when prompted.





Update a Pending Move Item's Information

Updating a pending "WHEN-MOVED" item's information regenerates the Move Item Request, and the status of the request is moved to Request Updated on the Requests page.

If a pending "WHEN-MOVED" item is updated, a new request number is assigned to the updated request and new sub-request numbers are assigned to sub-requests (if applicable).

If you change the cabinet for the pending item, dcTrack does not qualify the cabinet to ensure it can accommodate the item.

1. In the Web Client, select the item and open it in Edit mode.
2. Make updates to the placement information. If changing cabinets, click OK to close the warning.
3. Save the updates.
4. Close the Request status dialog once the submit process completes.

Cancel a Move Item Request by Closing the "WHEN-MOVED" Page

After submitting a Prepare Move Item Request, then selecting a cabinet from the Intelligent Capacity Search page and clicking "Move" to begin the submit Move Item Request process, the item's "WHEN-MOVED" page opens in a new tab.

Closing the page without saving cancels the request.

Cancel a Pending Move Item Request

A pending Move Item Request can be deleted as long as the request has not been approved/marked as Request Complete. Sub-requests, if any, associated with the Move Item Request are also deleted.

The pending item, identified by "WHEN-MOVED" as part of its name and created when the request was submitted, is deleted automatically.

Additionally, the cabinet space reserved for the pending move item is made available.

Note: When working in Request Bypass, the option to delete a pending Move Item Request does not apply since the request is automatically processed.

1. In the Web Client, click the Change tab > Requests to open the Requests page.
2. Select the request from the list.
3. Click the Actions menu > Cancel Request.

Moving Items Off Site and Back On Site - Take Item Off-site Request and Bring Item On-site Request

When you need to take an item offsite temporarily but will bring it back onsite at a later date, submit a Take Item Off-site Request.

A Bring Item On-site Request is submitted to have items that were moved temporarily off-site returned.

For example, submit a Take Item Off-site Request to have a switch removed from the data center and sent to an off-site location for maintenance, then submit a Bring Item On-site Request once it is returned.

When you take an item off site, it remains intact in the application so it can be easily reestablished once the item is back on-site.

When needed, select Take Item Off-site Request or Bring Item On-site Request from the Actions menu to submit the request, and select Yes when prompted to confirm.

The Off Site state applies to:

Items In powered off or storage state.

Rackable Items only.

Class: Device - Subclass: Standard, Blade Chassis and Blade Server

For more information on requests and the Actions menu, see **Item Action Request Types**.

If Request Bypass is enabled, the request is processed immediately. If Request Bypass is disabled, the request is submitted to the Change Control workflow and processed.

Converting an Item to a Virtual Machine - Convert Item to VM Request

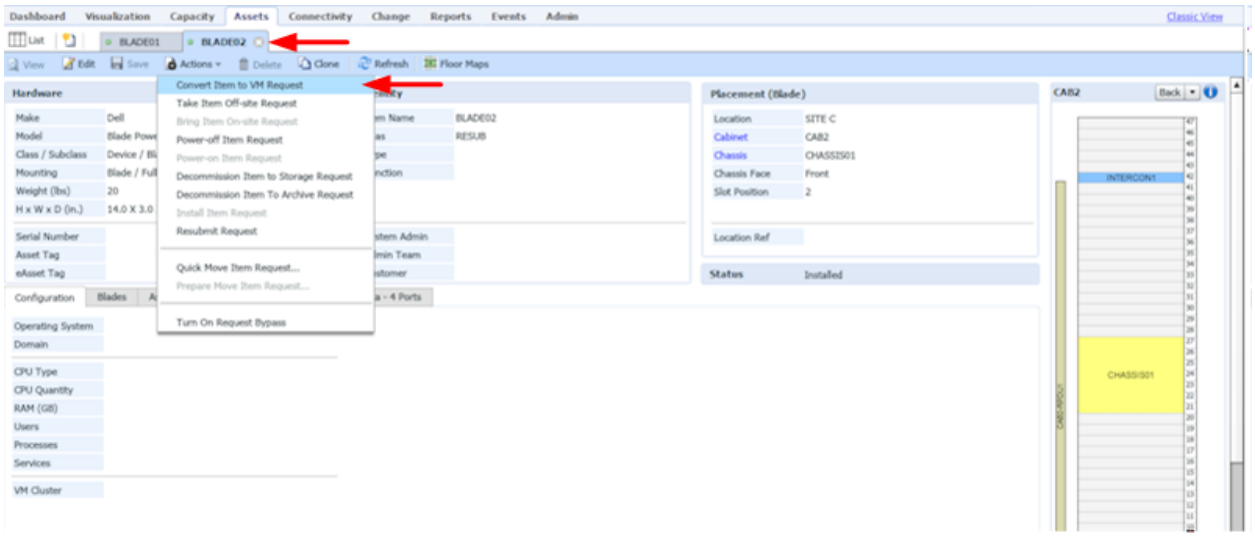
Any standard, rackable device or standard, blade server can be converted to a virtual machine as long as the device is in a status of Planned, Powered-off or Off-site.

To convert an item to virtual machine.

1. Open the item's page opens.
2. While the item is in a Planned status, it can be converted to a virtual machine simply by deleting the make and model, then selecting the VM checkbox.

Once the item has been placed in another status, an action to issue a request to convert the item to a VM is needed.

1. Click the Actions menu > Convert Item to VM Request.
2. Click Yes when prompted to confirm you want to convert the item to a virtual machine.
3. Click OK on the Item Request message that confirms your request was submitted.

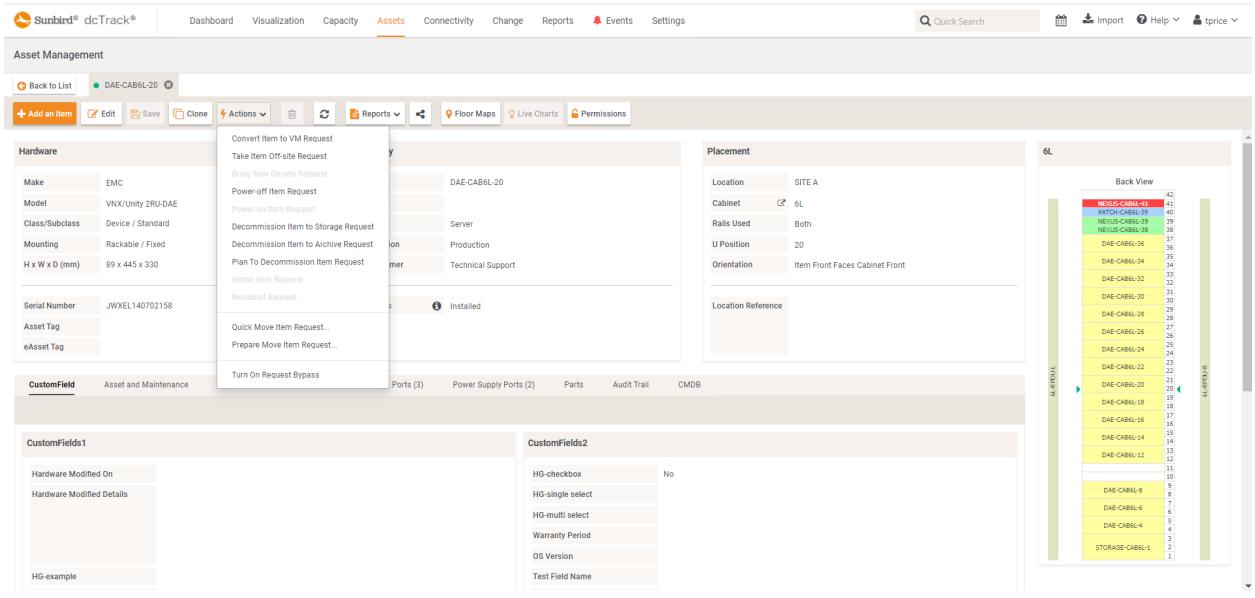


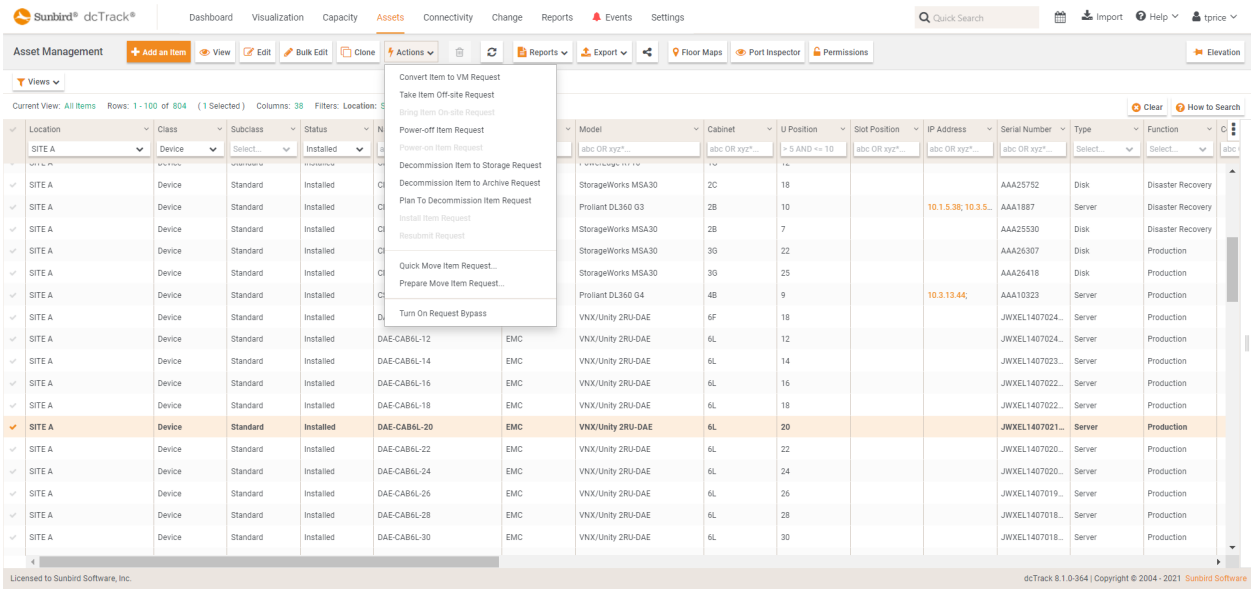
Power Items On and Off - Power-on Item Request and Power-off Item Request

Once a device is in an Installed status, it is considered to be powered on.

You can issue requests to turn devices in the data center on and off as needed. For example, issue a power off request for a server.

When applicable, Power-off Item Request from the Actions menu to submit the request, and select Yes when prompted to confirm.





For more information on requests and the Actions menu, see **Item Action Request Types**.

If Request Bypass is enabled, the request is processed immediately. If Request Bypass is disabled, the request is submitted to the Change Control workflow and processed.

For more information on Request Bypass and Change Control workflow, see dcTrack Change Management Workflow - Change Control and Request Bypass.

Select the device and then select Power-on Item Request from the Actions menu to submit the power on request, when needed. Once the item is powered back on, the connections are powered back on as well.

If a device is powered on, the Power-on Item Request is disabled in the Actions menu. Alternatively, if the device is powered off, the Power-off Item Request is disabled in the Actions menu.

When an item is powered off, the item's connections remain but are considered to be powered off as well.

The Powered Off State applies to Installed Items whose Class is:

Device (Rackable)- Standard, Blade Chassis and Blade Server

Network - Chassis and NetworkStack

Probe

Put Items in Storage - Decommission Item to Storage Request

Note: Before submitting a Decommission Item to Storage Request for a rack PDU if you are integrated with Power IQ, review **Decommission Rack PDUs in dcTrack When Integrated with Power IQ**.

You must follow a different process to decommission rack PDUs.

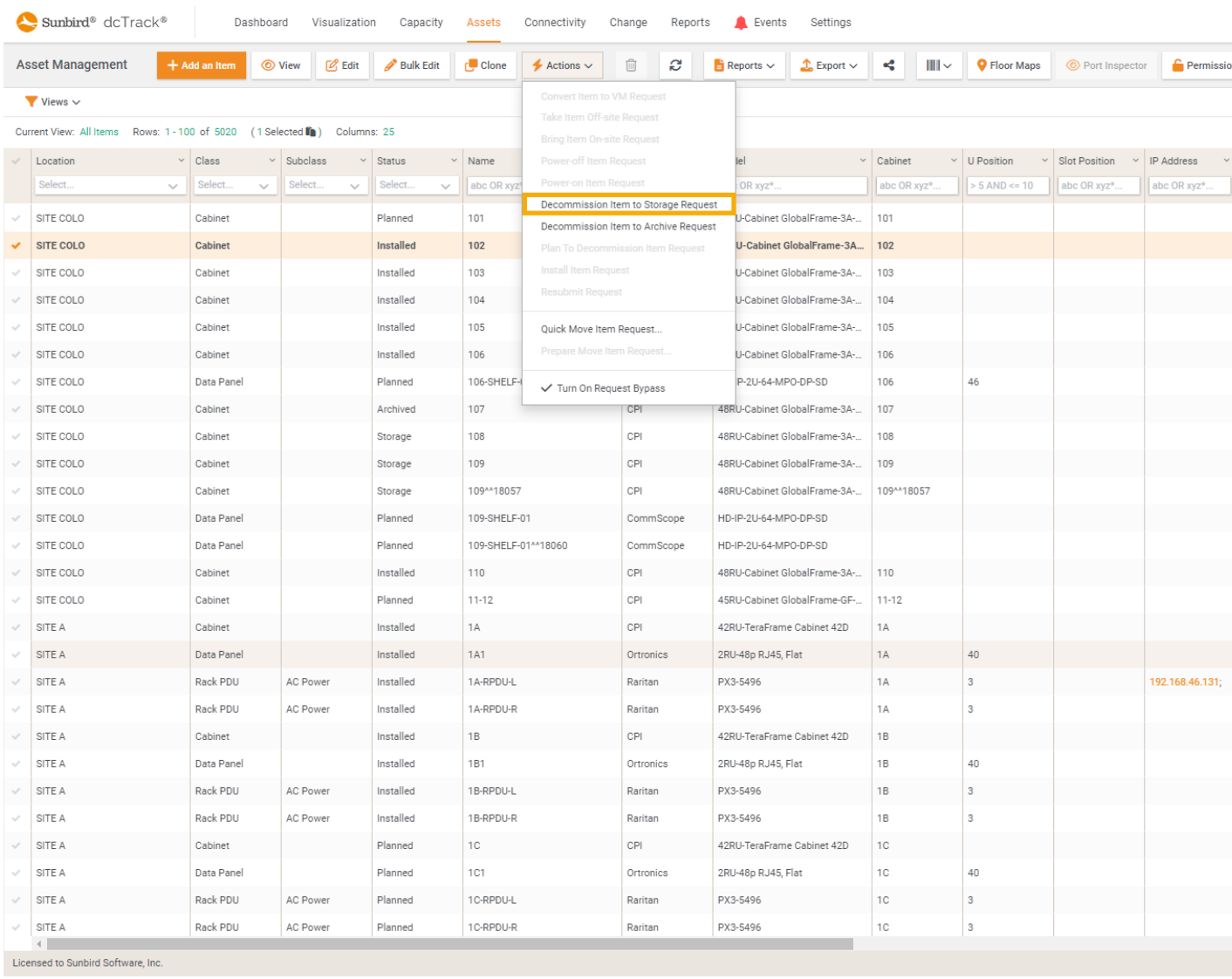
Decommissioning an item to storage means that the item is temporarily in an off-site location, but it remains in inventory and will be returned. For example, you may decommission a server to storage but bring it back at a later date for a new purpose.

Decommissioning an item to storage is also an alternative to deleting an item that is no longer in a Planned status, or an item you do not want to purge from the application.

To decommission more than one item at the same time, use Ctrl + Click or Ctrl + Shift commands to select items on the Items List.

To decommission an item t o storage:

1. Mouse-over Assets and select Items to display the Items list.
2. From the Items list, select the items you want to decommission.
3. Click Actions to expand the Actions menu.
4. From the Actions menu, select Decommission Item to Storage Request to submit the Decommission Item to Storage Request.



5. Select Yes when prompted to confirm.
6. If the selected item is a cabinet, the following apply:
7. All items in the cabinet are decommissioned.
8. All Data Panels are removed from the Cabinet and set to a Planned Status: When the cabinet has Data Panels, the Cabinet and U position for the data panels are cleared and the status is set to Planned.
9. All Power Outlets assigned to the Cabinet are unassigned and left in place: When the Cabinet has Power Outlets, the Cabinet and U Pos are cleared, but the Row and Position In Row remain. The statuses of the Power Outlet do not change after the cabinet is decommissioned.
10. The following check-box options are available if the item to be decommissioned is a cabinets:

a. **Keep items mounted in the Cabinet**: When checked and the decommissioned item is a cabinet, the Cabinet and U Position of each Item in the Cabinet are retained (not cleared). When un-checked and the decommissioned item is a cabinet, the U Position of each item in the cabinet is cleared. For items integrated with Power IQ, the cabinet field of items that are decommissioned is retained, so that the historical readings of those items remain with the cabinet.
b. **Keep Rack PDUs mounted in the cabinet**: When checked, the cabinet and U Position fields of any rack PDUs are retained (not cleared). When unchecked, the cabinet field remains unchanged, but the U position is cleared.
c. **Keep Data Connections that are within the Cabinet**: When checked, all (both Planned and Installed) data connections that do not extend outside of the cabinet are retained. Planned data connections that extend outside of the cabinet are deleted. Installed data connections that extend outside of the Cabinet have Disconnect Requests issued.
d. **Keep Power Connections that are within the Cabinet**: When checked, all (both Planned and Installed) power connections that do not extend outside of the cabinet are retained. Planned power connections that extend outside of the cabinet are deleted. Installed power connections that extend outside of the cabinet have Disconnect Requests issued. When un-checked, all planned power connections (both within and outside the cabinet) are deleted.
    a. i. A connection between an item's power supply and a Rack PDU outlet where both the item and Rack PDU are in the decommissioned cabinet is considered a connections within the cabinet.
    ii. A connection between an item's power supply and a power outlet is considered outside the cabinet.
    iii. A connection between a Rack PDU's inlet and the power outlet is technically outside the cabinet, however it remain intact to avoid orphaning the connections to the Rack PDU outlets, therefore, the connection of the inlet of the Rack PDU are modified to connect to a VPC outlet instead.
    iv. When there are multiple Rack PDUs in the cabinet, all Rack PDUs are sorted by name, then connected to VPCs, if the corresponding VPC is enabled for the location. Otherwise, it will behave as if the Keep Power Connection option is not checked. When we say the corresponding VPC is enabled, it means if the Rack PDU is AC Power, Rack Transfer Switch, Rack UPS, Rack Rectifier subclass, then AC VPC has to be on and if the Rack PDU is DC FAP then DC VPC has to be on. And if the subclass is Rack Invertor or a combination of the other classes, both AC and DC VPC has to be on.
    b. Regarding Power:
e. When un-checked, all Planned Power Connections (both within the Cabinet and outside the Cabinet) should be deleted. All Installed Power Connections should have Disconnect Requests issued. (Existing Behavior)

    Note: The check-box options are not available options when updating an item's statuses via the status drop-down (with the Manage Item Status role). See the table below for more information.

11. If the decommissioned item is a Chassis, the following checkbox option is available: Keep Blades mounted in the Chassis.

The check-box options in the Decommision to Storage feature are not options when updating items statuses via the status dropdown (with the Manage Item Status role)

The following table outlines the default behavior of these options when items are archived via the item status drop-down:

Option	Default State	Default Behavior
Keep Blades mounted in the Chassis	False	dcTrack will remove all blades from the chassis.
Keep items mounted in the Cabinet	False	dcTrack will remove items from the cabinet
Keep Rack PDUs mounted in the Cabinet	False	dcTrack will remove items from cabinet
Keep Data Connections that are within the Cabinet	False	dcTrack will remove all connections, inside and outside of cabinets/chassis
Keep Power Connections that are within the Cabinet	False	dcTrack will remove all connections, inside and outside of cabinets/chassis

For more information on requests and the Actions menu, see **Item Action Request Types**.

If Request Bypass is enabled, the request is processed immediately. If Request Bypass is disabled, the request is submitted to the Change Control workflow and processed.

For more information on Request Bypass and Change Control workflow, see **Enable or Disable Request Bypass (Change Control Workflow Options)**.

Alternatively, change the item's status to from the Status drop-down on the item's page (provided you have privileges to do so).

Archive Items - Decommission Item to Archive Request

Important: Before submitting a <archived> for a rack PDU if you are integrated with Power IQ, review **Decommission Rack PDUs in dcTrack When Integrated with Power IQ**.

You must follow a different process to decommission rack PDUs.

Before you begin, review What Does it Mean to Delete, Store, Archive or Purge Items.

Archiving an item allows you to purge it from dcTrack completely, if you choose to do so, unlike decommissioning the item to storage.

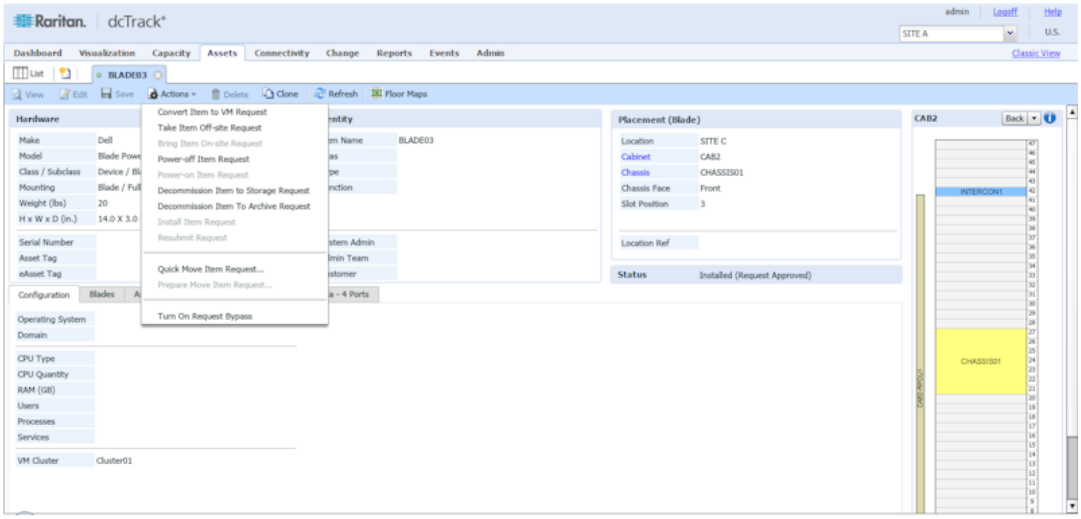
Marking an item as archived indicates that the item has been removed from inventory and disposed of.

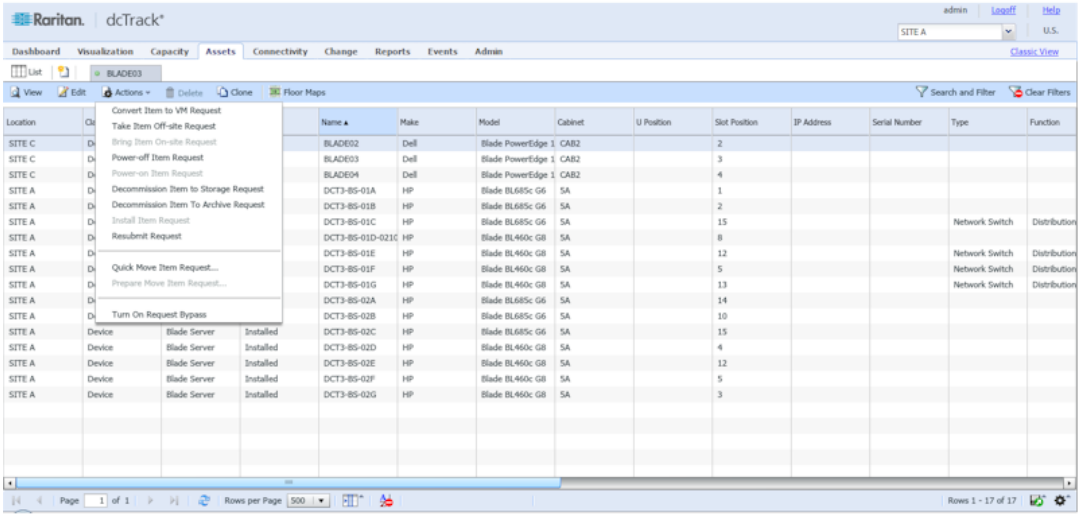
Since you cannot delete items that are in an Installed status, decommission them to an Archived state in order to delete them. You can then purge the items from dcTrack if needed.

Once an item is in an Installed state, it cannot be delete from the item's page or in the Item List page in the Web Client. However, you can submit a request to archive the item.

Note: Cabinets with an Archived status are not counted towards used dcTrack licenses.

To do this, Select <archived> from the Actions menu to submit the request, and select Yes when prompted to confirm.





For more information on requests and the Actions menu, see **Item Action Request Types**.

If Request Bypass is enabled, the request is processed immediately. If Request Bypass is disabled, the request is submitted to the Change Control workflow and processed.

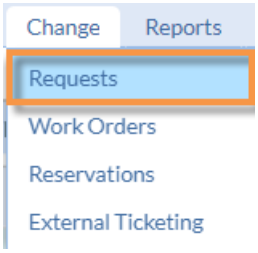
For more information on Request Bypass and Change Control workflow, see dcTrack Change Management Workflow - Change Control and Request Bypass.

Alternatively, change the item's status to from the Status drop-down on the item's page provided you have privileges to do so.

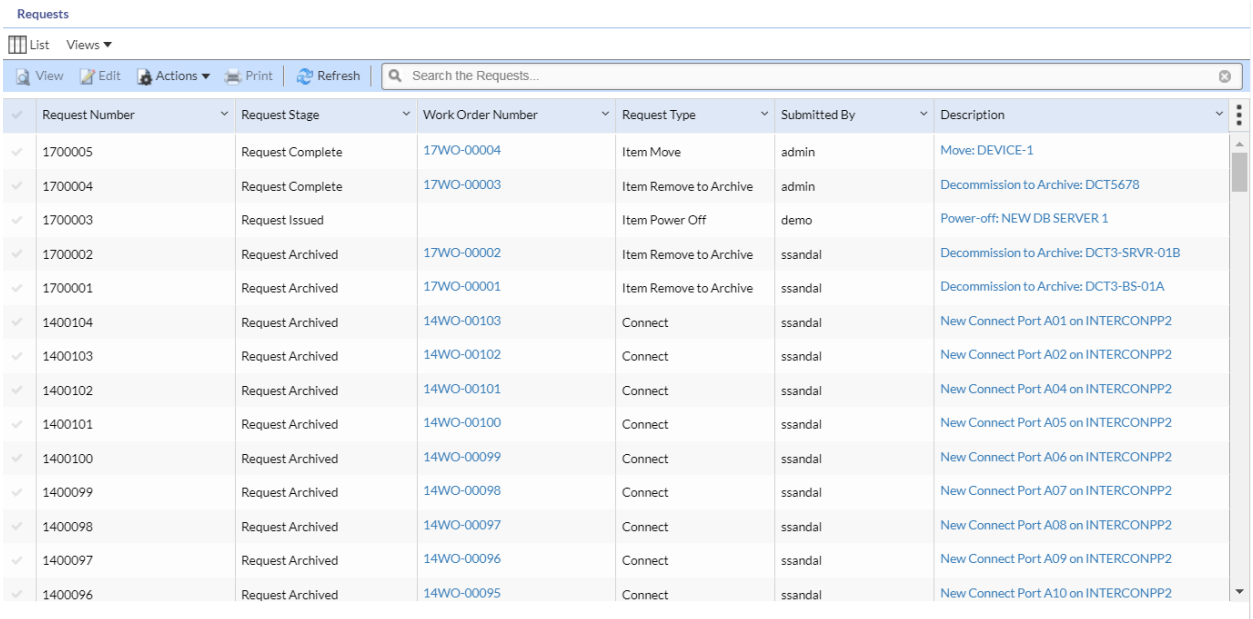
View Requests

Requests can be viewed in the Requests List in the Web Client.

In the Web Client, select the Change tab > Requests.



The Requests List will display. You can sort and filter the request list by request stage, type, work order number, item name, and other columns as well as hide, show, and reorder columns. You can also save your filtered views and set a view as your default.

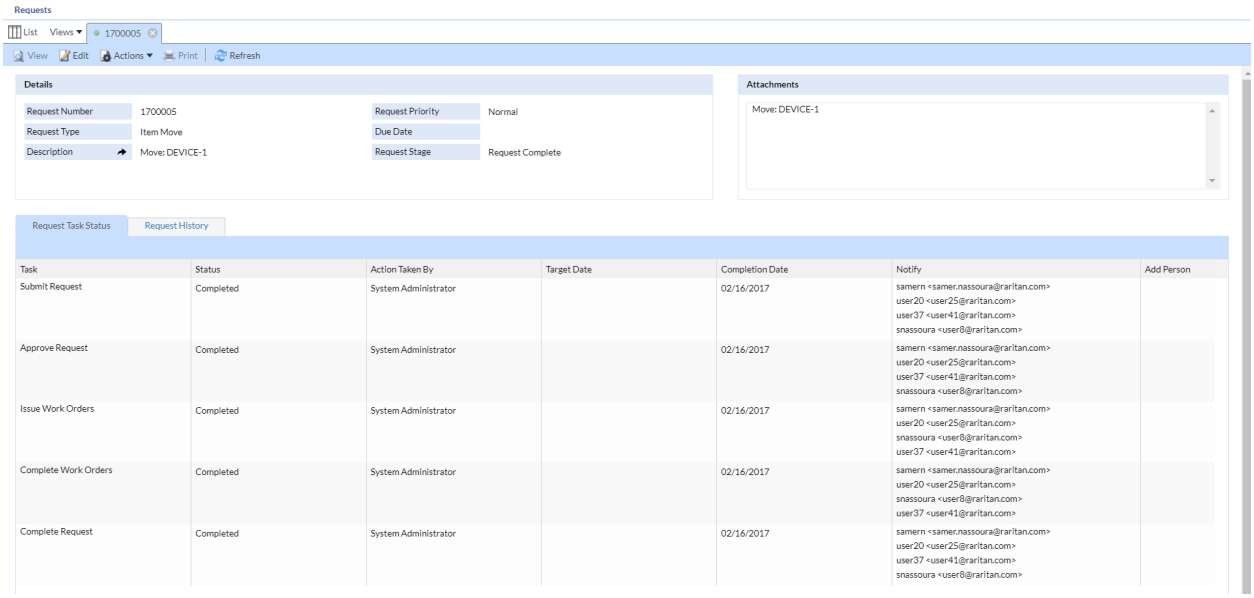


Request Number	Request Stage	Work Order Number	Request Type	Submitted By	Description
1700005	Request Complete	17WO-00004	Item Move	admin	Move: DEVICE-1
1700004	Request Complete	17WO-00003	Item Remove to Archive	admin	Decommission to Archive: DCT5678
1700003	Request Issued		Item Power Off	demo	Power-off: NEW DB SERVER 1
1700002	Request Archived	17WO-00002	Item Remove to Archive	ssandal	Decommission to Archive: DCT3-SRVR-01B
1700001	Request Archived	17WO-00001	Item Remove to Archive	ssandal	Decommission to Archive: DCT3-BS-01A
1400104	Request Archived	14WO-00103	Connect	ssandal	New Connect Port A01 on INTERCONPP2
1400103	Request Archived	14WO-00102	Connect	ssandal	New Connect Port A02 on INTERCONPP2
1400102	Request Archived	14WO-00101	Connect	ssandal	New Connect Port A04 on INTERCONPP2
1400101	Request Archived	14WO-00100	Connect	ssandal	New Connect Port A05 on INTERCONPP2
1400100	Request Archived	14WO-00099	Connect	ssandal	New Connect Port A06 on INTERCONPP2
1400099	Request Archived	14WO-00098	Connect	ssandal	New Connect Port A07 on INTERCONPP2
1400098	Request Archived	14WO-00097	Connect	ssandal	New Connect Port A08 on INTERCONPP2
1400097	Request Archived	14WO-00096	Connect	ssandal	New Connect Port A09 on INTERCONPP2
1400096	Request Archived	14WO-00095	Connect	ssandal	New Connect Port A10 on INTERCONPP2

Click on a Request to view its Details page. In Edit mode on the Request Details page, users with the appropriate permissions can edit the request due date, priority, designate who will be notified for a request task and what the notification email body will contain. Users also are able to view the Request Task Status, and complete various actions for the request (such as approving a request and marking it complete).

The Request Task Status tab provides details on the status of each task in the request workflow. Note that you can specify who is notified as each task is completed in this tab.

The Request History tab is automatically updated as each task is initiated and can be a point of future reference if you ever need to refer to the request and task notifications at a later date.



Linked Requests

When sub-requests, such as Disconnect requests for data and power connections accompany another request such as a Move Item Request, the requests are linked.

When the Move Item Request is submitted, the Disconnect requests are automatically generated and submitted for the data and power connections.

The Disconnect requests are linked to the Move Item Request and all requests are approved or rejected at the same time.

The work order to captures both the Move Item Request and the Disconnect requests.

Linked requests can be identified by their request numbers.

Request Numbers

All requests are assigned a request number, which resets to 00001 each year.

The first two digits of the number represent the year the request was made. The next five digits are the serial number of the request.

For example: 1300024

- 13 = the year 2013

- 00024 = the serial number of the request

When two requests are associated with each other, they have the same request number and a distinguishing suffix.

A related request is assigned a request number that includes a suffix consisting of a dash followed by a two-digit serial number starting at 01 to identify the related request.

For example: 1300024-01 and 1300025-01

When a single connection is moved, the existing port is disconnected and the new port is connected, which results in a disconnect and a reconnect request pair. Such a disconnect request is given the suffix -DX and the reconnect request is given the suffix -RX.

Approve or Reject Requests

Note: If you are working in Request Bypass, dcTrack automatically processes the request and either approves or rejects it.

Note: You must have the appropriate permissions to accept or reject requests.

If Request Bypass is disabled, manually approve or reject requests from the Web Client.

Approve or reject one request at a time, or all requests at one time.

To manually approve a request:

1. In the Web Client, select the Change tab > Requests.
2. Select the request(s) to be approved. Alternatively, you can approve an individual request by clicking on it to go to its Details page, and then proceeding to Step 3.
3. Select the Actions menu > Approve Request. The Item Request popup displays a progress bar and indicate when the approval is complete. Click the OK button to exit the popup.

An email is sent to the request submitter notifying them the request has been approved.

On the Requests List, the Request Stage column will update to show the request has been approved. On the Request Details page, the request stage at the top of the page and the request workflow task status and history at the bottom of page is updated to indicate the request's status as Request Approved.

A work order can now be created for the request. See **Create a Work Order**.

To reject a request:

1. In the Web Client, select the Change tab > Requests.
2. Select the request(s) to be approved. Alternatively, you can approve an individual request by clicking on it to go to its Details page, and then proceeding to Step 3.
3. Select Actions > Reject Request.

An email is sent to the requester notifying them the request has been rejected.

On the Requests List, the Request Stage column will update to show the request has been rejected. On the Request Details page, the request stage at the top of the page and the request workflow history at the bottom of page is updated to indicate the request's status as Rejected.

Resubmit Requests

The resubmit request features is useful when working in Request Bypass or manual change control.

You can resubmit a request for a single item or multiple items from the Actions menu on the Items List or the Requests List. You can resubmit a request for a single item from the Item Details page or the Request Details Page.

To resubmit a request:

- Select Resubmit Request from the Actions menu to resubmit the same request for an item.

When to Use the Resubmit Request Feature

- A request you submitted for an item is rejected

The resubmit request feature allows you make required changes to the item and then resubmit the request.

For example, if an Install Item Request for a server is rejected because the requested installation date cannot be met, edit the server's installation date, then resubmit the request.

- A request is not approved when it is automatically processed by dcTrack Request Bypass

If you are working in Request Bypass and an original request is not approved during the automatic review process, you can use the resubmit function instead of submitting a new request.

For example, if you submit an Install Item Request for multiple items at once from the Items List in the Web Client and one of the items is not approved, you can make changes to the item and then resubmit a request for it. The other items that are correct are processed and approved.

For more information and a list of reasons requests fail validation in Request Bypass, see **Request Bypass Validation Errors**.

- An item is already in an Installed status and you need to edit the item's information without submitting a new action request type for it

In this case, you make changes to the item's information, save the changes, then resubmit the same request.

For example, if you need to change an Installed item's name, you can edit the item name, save the changes, then resubmit the Install Item Request.

Resubmit Request Rules

- If an item's information is edited after a request is submitted for it, the same request type can be resubmitted or a new request type can be submitted.
- You cannot resubmit a request for an item that currently has a request pending.

For example, if a Take Item Off-site Request is pending for an item, and you attempt to submit a Power-off Item Request, dcTrack does not allow you to submit the Power-off Item Request.

The pending request's number and a description of the pending request is provided in the message.

You can resubmit a request for all request types. You can resubmit a Move Item Request for a cabinet or item as long as the request is still in one of the following stages:

- Request Issued
- Request Updated
- Request Rejected

Cancel Requests

To delete a request:

1. In the Web Client, select the Change tab > Requests.
2. Select the request(s) you want to delete.
3. Click the Actions menu> Cancel Request.

Alternatively, you can cancel a request from its Details page by clicking Actions > Cancel Requests.

Mark a Request as Complete

Once the actual request has been completed (for example a server has been installed or removed from the data center), it can be marked as complete.

To mark a request as complete:

1. Select the Change tab > Requests.
2. Click on the request(s) to mark as complete.
3. Select the Actions menu > Mark Request as Complete.

You can also mark a request complete from the Request Details page by:

- Selecting the Actions menu > Mark Request as Complete
- Clicking the Complete Task button under the Complete Request task in the Request Task Status tab in Edit mode at the bottom of the page.

Once a request is marked as Complete, its status will be updated in the Requests list, the Request Stage field in the Details panel on the Request Details page, the Request Task Status tab, and the Request History tab.

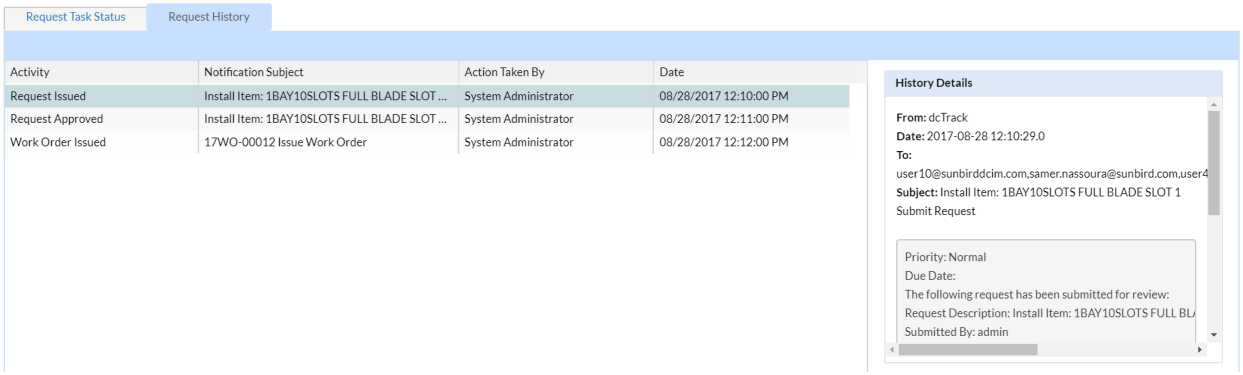
View a Request's History

A request's history can be viewed on the request's Details page. This is useful for item auditing purposes and for cases where you need to refer back to activities specific to this request, including work orders issued for the request.

In the Change tab > Requests, click the request whose history you want to view.

On the Request Details page, click the Request History tab. The left panel displays the Activity, Email Notification Subject, User who took the action, and date and time. The right panel displays the History Details for a specific activity.

Click on the row corresponding to a specific activity to view its History Details in the right History Details panel.



Archive a Request or View an Archived Request

Requests can be archived only if they are in the Request Completed stage.

To archive a request:

1. In the Web Client, select the Change tab > Requests.
2. Click on the request.
3. Select Actions > Archive Request.

To view archived requests:

1. In the Web Client, select the Change tab > Requests.
2. Select the request.
3. Select View from the Request tool bar or simply double click the Request

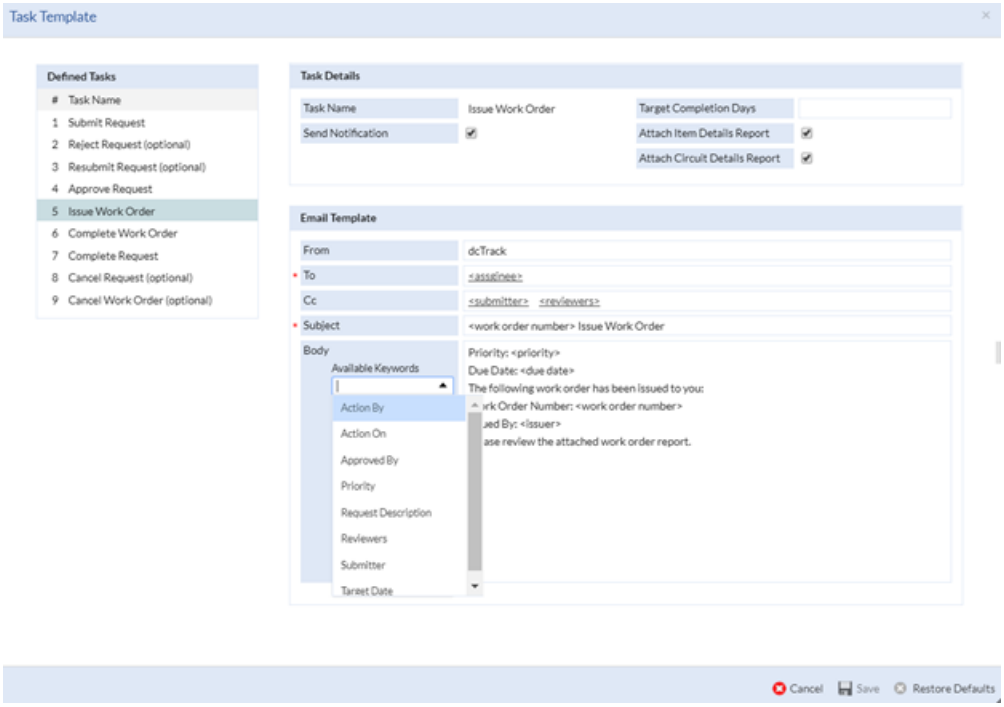
Configuring the Task Template

Each stage in the request lifecycle has an associated task (Submit Request, Approve Request, Issue a Work Order, etc.) As each task is initiated, email notifications can be sent to the appropriate parties.

To edit a default notification, you configure the task template under the Change tab > Configure Task Template.

Select the task you want to edit from the list of Defined Tasks, and then make your changes in the right panel.

Note that you can also choose from the available keywords, which are customization tokens denoted by angle brackets (for example, <priority>) that can be inserted into the template and then replaced with the appropriate data when sent.



Create a Work Order

A work order contains the information necessary to physically carryout a request in the data center. Work orders are generated from one or more requests.

Once a request is approved, a work order is generated for it automatically if you are working in Request Bypass. If Request Bypass is disabled, you must manually create the work order.

Note: The actions you can take with Work Orders depend on your role's privileges. See **Work Order Permissions by Role**.

Note: A request much be approved before a work order can be manually created for it.

To manually issue a work order:

1. In the Web Client, select the Change tab > Requests.
2. Click on the request you want to issue a work order for.
3. Select Actions > Create Work Order. You will automatically be taken to the Work Order Details page.
4. Click the Edit button to enter Edit mode.
5. Provide the following information:
   a. Priority: Low, Normal, High, Urgent. The default is Normal. Optional.
   b. Due Date. Optional.
   c. Assigned To: The person to send the work order to. This is usually the person assigned to complete the work order task. Click the Add icon to open the Issue Work Order Notifications dialog and select the person to send the work order to.
   d. Requests to Include in the work order.

6. Click the Issue Work Order button in the Details panel or click the Actions menu > Issue Work Order. The work order is sent to the person(s) selected.

Note: The Work Order Number and Work Order Status are generated by the system and cannot be edited.

Work Order Permissions by Role

What you are permitted to do with Work Orders is based on your role. The following table summarizes the default privileges.

Note: In dcTrack 5.2 and later, the Manager and Member roles have been consolidated under the Operator role.

Role	Work Order Permission
System Administrator	Can view, assign, and approve all Requests and mark them Complete.
Gatekeeper	Can view, assign, and approve Requests and mark them Complete (based on locally assigned permissions).
Operator	Can view Requests and Work Orders and mark Work Orders Complete (based on locally assigned permissions).
Viewer	Can view Requests and Work Orders but cannot mark Work Orders Complete.

Work Order Numbers

Work order numbers track a work order as it moves through the dcTrack Change Control workflow.

Work order numbers are generated by dcTrack automatically when the work order is initially generated or issued.

Work orders appear on the Work Order page, in the work order preview, on the work order printout and so on.

Work order numbers consist of:

- The first two digits of the number represent the year the work order was generated.
- The next three characters are always WO- to distinguish the number from a request number.
- The next five digits are a serial number starting at 00001 each year.

For example: 14WO-00006 where

- 14 = the year 2014
- WO = work order

- 00006 = the work order serial number

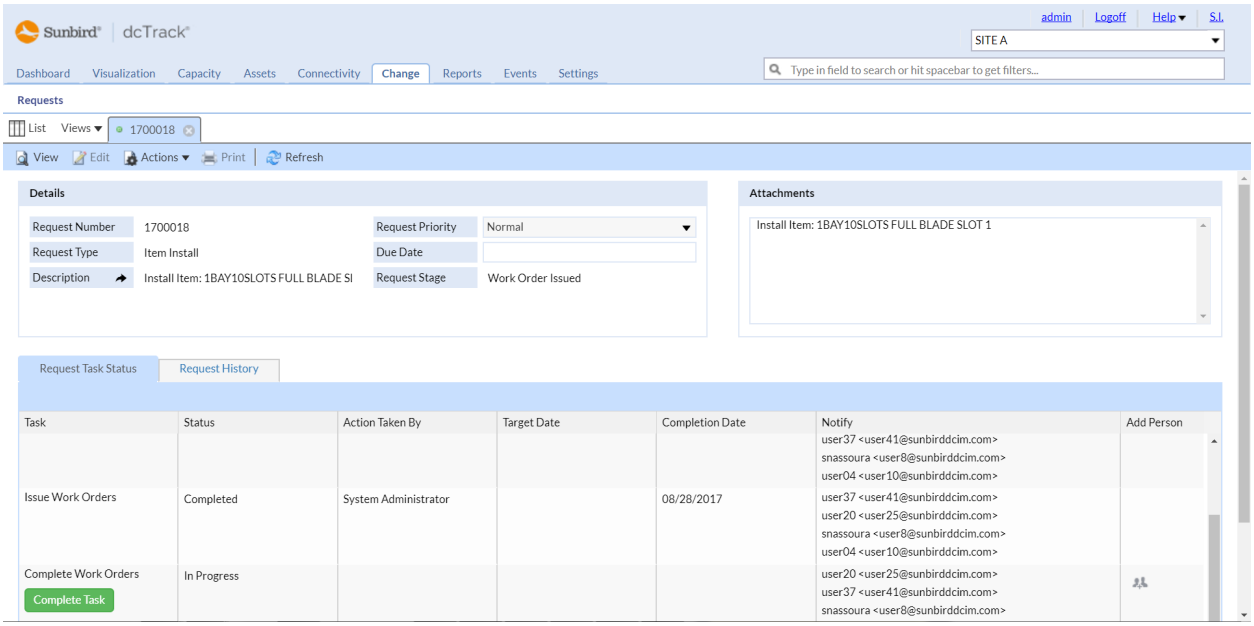
If the suffix-X is part of the work order number, that means a Connect or Disconnect Work Order is included.

Edit a Work Order

You can edit the details of a work order that has not been issued on the Work Order Details page.

1. In the Change Tab > Requests, select the work order that you want to edit from the Requests List.
2. Click the Edit button or double-click the work order and click the Edit button on the Work Order Details page to enter Edit mode.
3. In Edit mode on the Work Order Details page, make your edits.
4. Click the Issue Work Order button or select the Actions menu > Issue Work Order to issue your edited work order.

Note: In Edit mode, you can edit the Request Priority and Due Date, issue the work order or mark the work order complete, and change the requests to include in the work order. The work order number and status are generated by the system and cannot be edited.



Note: Work orders that have been completed cannot be edited.

View and Print Work Orders

Once an action request is submitted and approved, a work order is generated to perform the action in the data center. A work order contains the information necessary to physically complete the work required for one or more requests in the data center.

If a work order is generated for you, you are notified via email.

View the work order and/or print the work order if you want a hardcopy of it.

You can view the Work Order List by selecting the Change tab > Work Orders. Additionally, you can sort and filter the list by work order number, status, and other parameters as well as hide, show, and reorder columns, and then create and save your own filtered views to see just the work orders that matter to you.

Click on a Work Order to view its Details page. On the Work Order Details page in Edit mode, you can set the priority and due date, view requests associated with the work order and add or remove additional requests to include in the work order.

To view work orders:

1. In the Web Client, select the Change tab > Work Orders. This opens a list of all work orders you are allowed to view.
2. Click the work order you want to view.
3. Double-click the work order

To print work orders:

1. In the Web Client, select the Change tab > Work Orders.
2. Click on the work order you want to print.
3. Click the Print icon to Print the work order.

Export Connection Work Orders

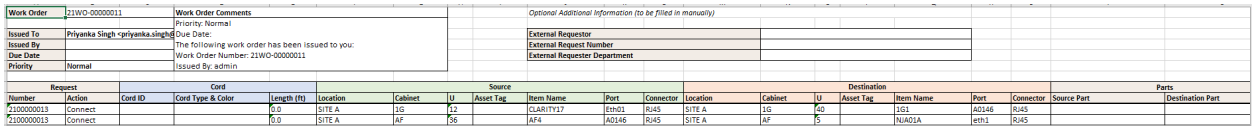
The work orders that include Connect and Disconnect requests can be exported in excel format.

To export connection work orders click on the Export button in Work Order details page. An excel file will be downloaded that will include all the connect and disconnect requests associated with the work order.

The exported file is color formatted excel file and have a section for optional additional information that is left blank to be filled manually.

The column headers in the exported file will be in the language set in user preference setting.

Note: Export button will be enabled only for the work orders that have connect or disconnect requests.



Work Order	21WO-00000011	Work Order Comments	Optional Additional Information (to be filled in manually)
		Priority: Normal	
Issued To	Priyanka Singh <priyanka.singh@	Due Date:	External Requestor
Issued By		The following work order has been issued to you:	External Request Number
Due Date		Work Order Number: 21WO-00000011	External Requester Department
Priority	Normal	Issued By: admin	

Request		Cord			Source							Destination						Parts	
Number	Action	Cord ID	Cord Type & Color	Length (ft)	Location	Cabinet	U	Asset Tag	Item Name	Port	Connector	Location	Cabinet	U	Asset Tag	Item Name	Port	Connector	Source Part	Destination Part
2100000013	Connect			0.0	SITE A	1G	12		CLARITY17	Eth01	RJ45	SITE A	1G	40		1G1	A0146	RJ45		
2100000013	Connect			0.0	SITE A	AF	56		AF4	A0146	RJ45	SITE A	AF	5		NUA01A	eth1	RJ45		

Mark Work Orders Complete

Completing a work order means the action that prompted the work order to be generated is completed, such as installing a server, creating a data or power connection and so on.

Once a work order has been completed, it can be closed by marking it Complete in dcTrack.

Once it is marked as complete, a notification is sent to the Gatekeeper so they can mark the request as Complete. See **Mark a Request as Complete**.

To mark a work order as complete:

1. In the Web Client, select the Change tab > Work Orders.
2. Double-click on the work order you want to mark as complete to open it.
3. Click the Actions menu > Mark Work Order Complete.

You can also mark a work order as complete through either of the following methods

- On the Work Orders List, select the work orders you want to mark as complete and select the Actions menu > Mark Work Order as Complete
- On the Work Order Details page, click the Complete Work Order button in the Details panel
- On the Requests page in Edit mode, click the Complete Task button under Complete Work Orders in the Request Task Status tab

Once a work order is marked as Complete, its status will be updated in the Work Orders list and in the Details panel on the Work Order Details page. The Work Order History tab, the Request Task Status tab, and the Request History tab also will be updated.

Archive Work Orders

Once they are marked as complete, you can archive work orders.

To archive work orders:

1. In the Web Client, select the Change tab > Work Orders.
2. Click on the work order(s) you want to archive.
3. Select Actions > Archive Work Order.

Note: A Work Order cannot be archived until it has been completed.

To view archived work orders:

1. In the Web Client, select the Change tab > Work Orders.
2. In the search bar, filter by Status: Work Order Archived.
3. The Work Orders List will populate with archived work orders.

Request Bypass and Manual Change Control

The only difference between Request Bypass and manual change control is that Request Bypass is an automated validation process while Change Control workflow requires you to manually manage requests.

For information on what a request is, see **Lifecycles, Statuses, Action Requests, Change Control Workflow and Stages**.

Request Bypass

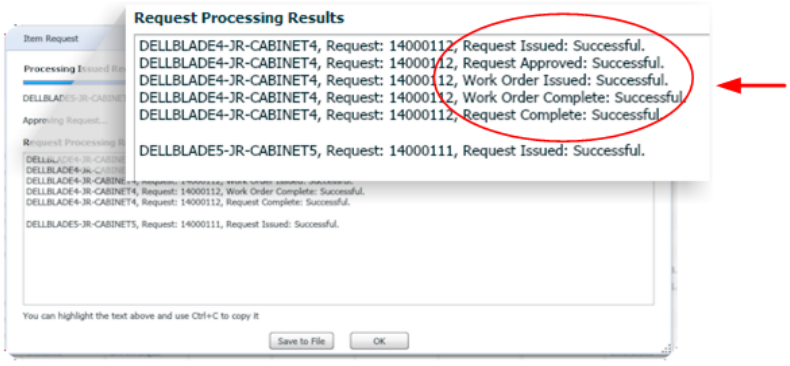
When Request Bypass is enabled, all item action requests that are submitted are processed by dcTrack immediately.

Note: Request Bypass is enabled by default for System Administrators. See **Default Request Bypass and Manual Change Control Modes**.

As the request is being processed, an Item Request dialog is displayed. If multiple requests are submitted at once, for example if you are moving multiple blades, the requests are processed individually but at the same time, and are displayed in the same dialog.

The status of the request as it is validated in each stage of the Change Control workflow is displayed in real-time in the dialog.

Successful indicates that the request passed validation for the stage; failed indicates the request did not pass validation.



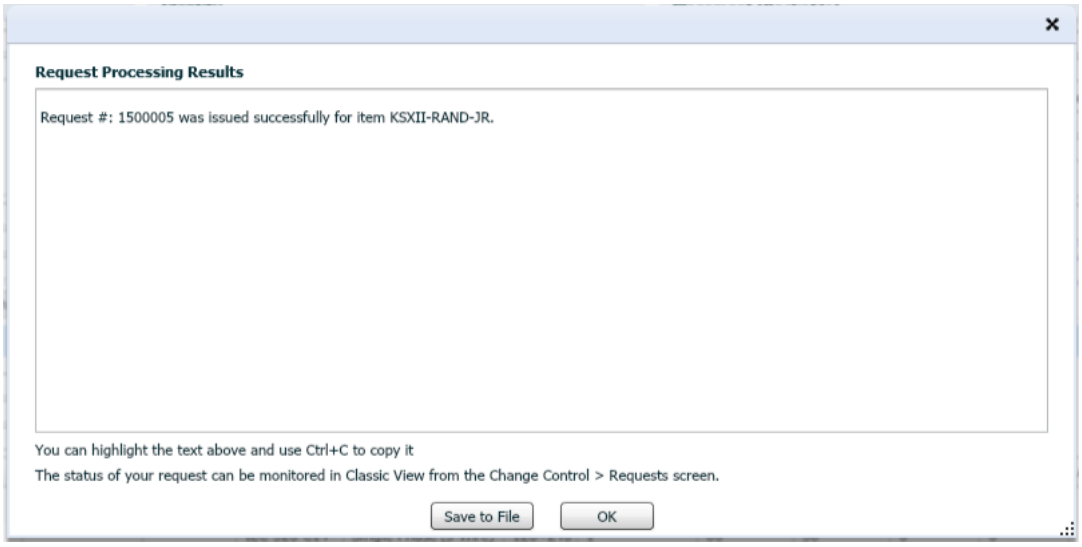
At the end of the process, the request is Approved if the request passed each stage of the validation, or Rejected if it did not.

The request's full history is still tracked by dcTrack and work orders are created even when Request Bypass is enabled. Additionally, requests are assigned request numbers and sub-request numbers.

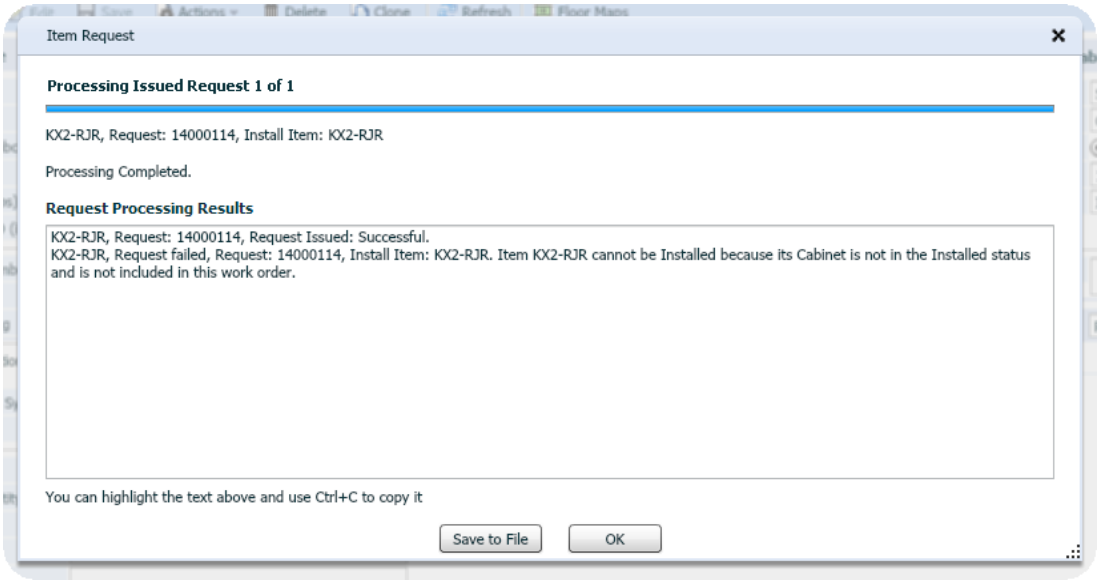
Manual Change Control

When Request Bypass is disabled, item action requests move through each step of the Change Control workflow and must be approved or reject manually.

After the initial action request is submitted, a confirmation that the request was submitted successfully is displayed.



Alternatively, if the request failed, the dialog details the error that caused the failure. For more information on possible request errors, see **Request Bypass Validation Errors**.



Either the System Administrator or a another user with the appropriate access manages the process by reviewing the request, approving/rejecting the request, generating a Work Order to perform the action associated with the request, and so on. For a description of the steps, see **Request Workflow**.

When to Use Request Bypass

Use Request Bypass instead of manual change control if you do not want to manually process each request through each stage of the dcTrack Change Control workflow.

This is especially useful if, for example, your internal change management process does not require more than one person to approve requests.

Item Action Request Types

Provided you have privileges to do so, you can submit one of the following item action requests for an item. These requests are submitted from the Action menu on the Items List or an item's page.

Request	Description
Convert Item to VM Request	Initiates a request to convert the item to a virtual machine. When you convert a device to a virtual machine, the device's connections, power ports, disk volumes, and Mac and IP addresses are impacted.
Take Item Off-site Request	Initiates a request to remove the item from the data center to an off-site location. When you take an item off site, the connections you have created for it in dcTrack remain intact in the application. This allows you to reestablish those connections once the item is back on-site.
Bring Item On-site Request	Initiates a request to bring the item from an off-site location back on-site to the data center location.
Power-off Item Request	Initiates a request to power off an item. When an item is powered off, the item's connections remain but are considered to be powered off as well.
Power-on Item Request	Initiates a request to turn an item on. Once the item is powered back on, the connections are powered back on as well.
Decommission Item to Storage Request	Initiates a request to decommission and store the item.
Decommission Item to Archive Request	Initiates a request to decommission and archive the item.
Install Item Request	Initiates a request to install the item in the data center.
Quick Move Item Request and Prepare Move Item Request	dcTrack provides two Move Item Request options - Quick Move Item Request and Prepare Move Item Request. Move rackable, device items and rackable, network items using Quick Move Item Request and Prepare Move Item Request.

Request	Description
	Move cabinets using Quick Move Item Request; Prepare Move Item Request cannot be used to move cabinets. Use Quick Move Item Request when you know - ■ the location you want to move an item to ■ the cabinet you want to move an item to ■ the location you want to move a cabinet and/or its items to Use Prepare Move Item Request - ■ when you know the cabinet you want to move an item to but need to qualify the cabinet before you move the item to it, or ■ when you do not know the cabinet you want to move the item to and need to locate one that can accommodate the item
Resubmit Request	Initiates a request to resubmit the item if it was rejected by the Gatekeeper Resubmit request applies to the following requests: ■ Install Item Request ■ Convert Item to VM Request ■ Take Item Off-site Request ■ Bring Item On-site Request ■ Decommission Item to Storage Request ■ Decommission Item to Archive Request ■ Power-off Item Request ■ Power-on Item Request

Circuit Action Request Types

Circuit action requests are submitted in dcTrack when a physical action must be performed for a data or power circuit in a data center. Specifically, a Connect Request or Disconnect Request is submitted.

Requests are submitted in the Web Client by selecting a circuit on the Circuits List and then submitting a request from the Actions menu, or from the circuit's page by selecting a request from the Actions menu.

You can select multiple connections from the Circuits List and submit a request for them at the same time.

Default Request Bypass and Manual Change Control Modes

Action Menu Request Bypass Mode Default

By default, the Actions menu in the Web Client contains an option that allows System Administrators to turn Request Bypass on and off.

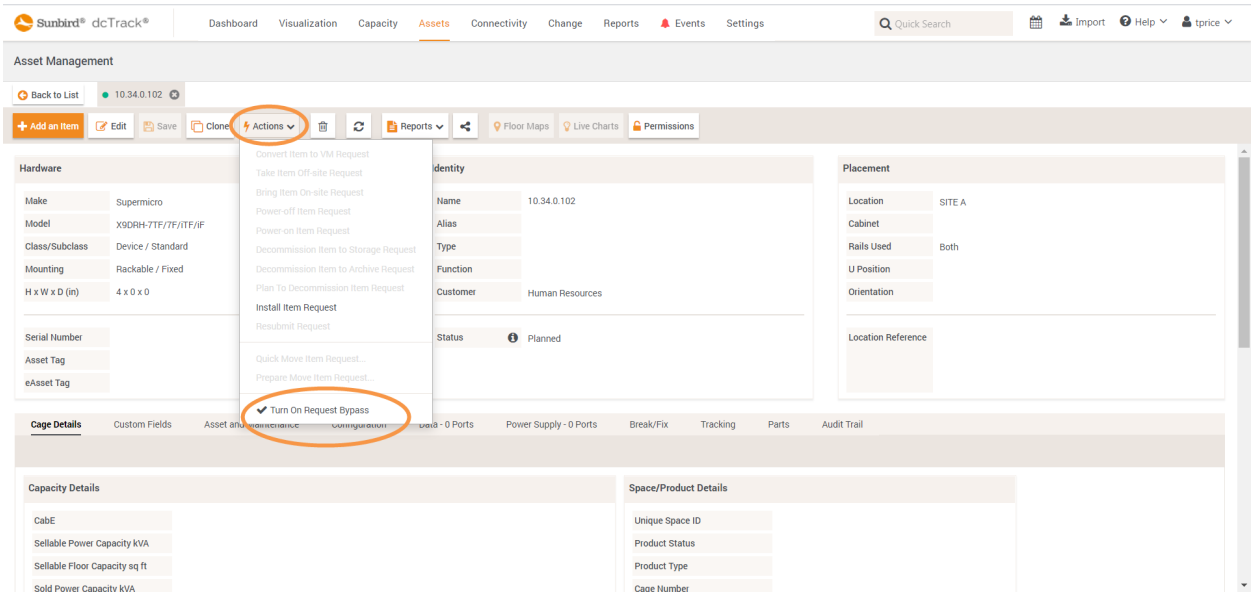
Only System Administrators and users with the Request Bypass role can see this option.

This allows users to move between Request Bypass and manual change control for different requests as needed. See Turn Request Bypass On or Off from the Web Client Actions Menu.

Impacts of Enabling and Disabling Request Bypass from the Actions Menu in the Web Client

When you enable or disable Request Bypass in the Web Client from the Actions menu:

- The Request Bypass setting is applied to both items and connections regardless of whether you changed the setting from Assets or Connectivity.
- The new setting becomes the default until the next time you change it, even after you log off and log back on.
- The new setting is applied throughout the Web Client.

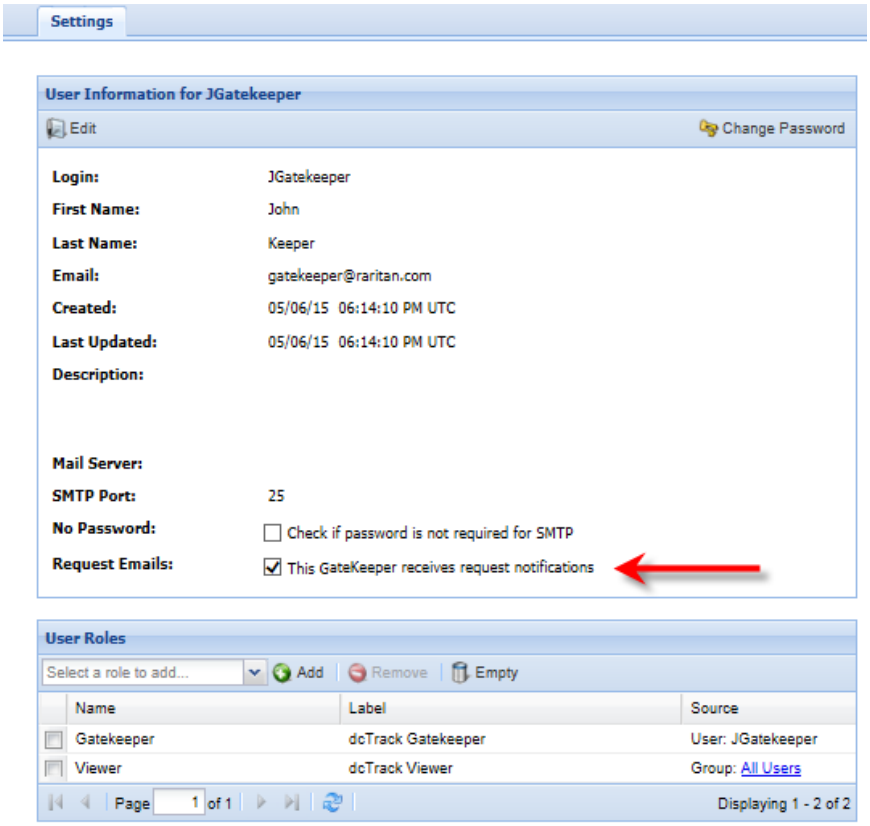


Email Notifications for Action Requests

Email notifications are sent when Request Bypass is disabled and you are working in manual change control.

Emails notify a Gatekeeper that an action request is submitted for an item or circuit. They can then review the request and either approve or reject the request.

Email notifications for requests are sent automatically to Gatekeepers as long as the feature is enabled for them. See **Enable Request Email Notifications for Gatekeepers**.



Request Bypass Validation Errors

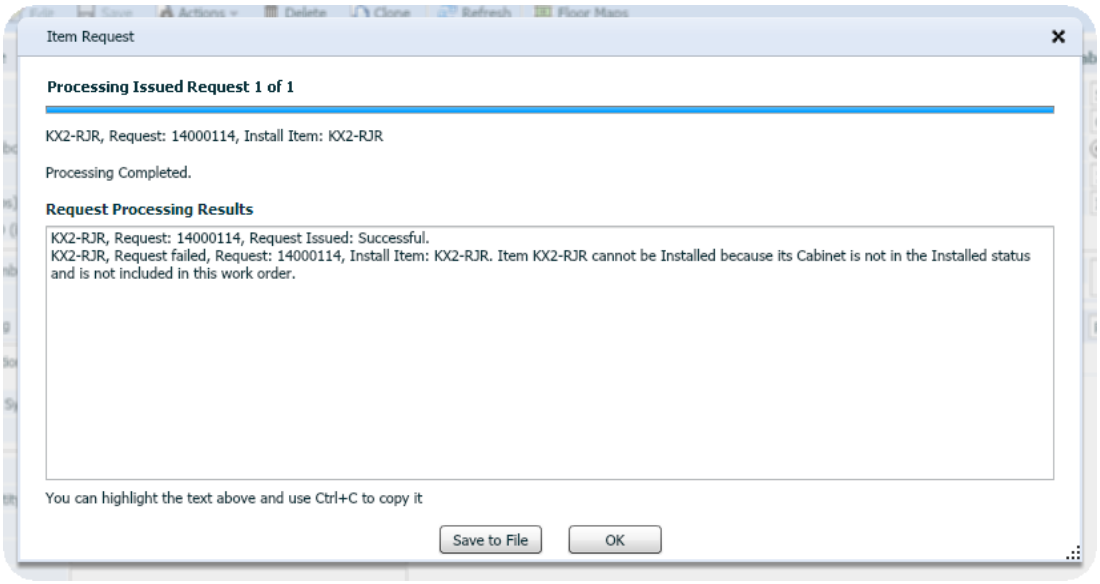
The reasons Request Bypass validation errors occur depend on the request.

For example:

- You submit an Install Item Request for a server.

However, the cabinet you are attempting to install the server in is not in an Installed status as required.

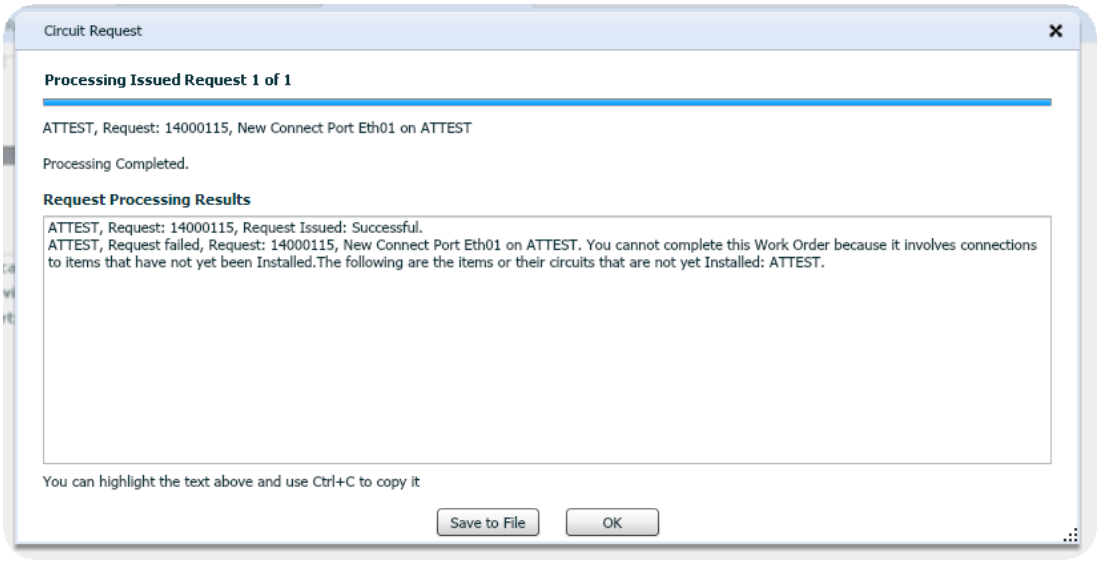
Validation fails and a message is displayed that indicates what caused the error.



- You submit a Connect Request for a circuit.

However, a data panel that is part of circuit has not been installed.

Validation fails and a message is displayed that indicates what caused the error.



If multiple requests were submitted and multiple issues were found, they are listed individually in the Request dialog.

Review the reason the request could not be processed, correct the issue or issues, then resubmit the request or create a new request.

Request Bypass Failure Validation Reasons

An item request may fail Request Bypass validation for one of the following errors:

Request Failure Reason	Description
User permission not valid.	Each time a request is submitted, your permission to the submit the request for the item is validated.
The item's parent is not in an Installed status.	When submitting one of the following requests, the item's parent item must be in an Installed status: • Install Item Request • Move Item Request • Bring Item On-site Request • Power-on Item Request If the parent item is not in an installed status, it must be submitted along with the item so it is moved into an Installed status.
Item's Placement Information is missing.	When submitting one of the following requests for an item, you must provide the item's Placement Information, such as Location, Cabinet, U Position and so on, on its Item page in the Web Client: • Install Item Request • Move Item Request • Bring Item On-site Request • Power-on Item Request
Child is not in the same status as the parent item.	When submitting one of the following requests for a parent item, all of its child items must be in the same status or be submitted as part of the same request: • Take Item Off-site Request • Power-off Item Request • Decommission Item to Storage Request • Decommission Item to Archive Request
Circuit install request	In order to submit an Install Item Request for a circuit, the item the circuit is associated with

Request Failure Reason	Description
cannot be submitted.	must be in an Installed status or must be submitted as part of the Install Item Request. Parent and child items, such as chassis and blades, must all be in an Installed status in order to submit an Install Item Request for a circuit.

List of Request Bypass Validation Errors

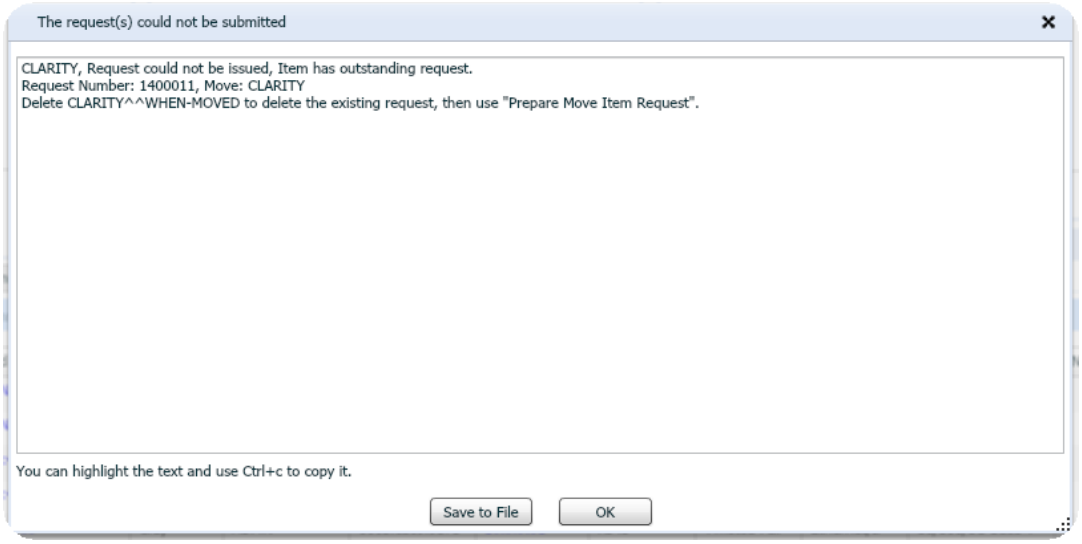
An item request may fail Request Bypass validation for one of the following errors:

Request error	Reason
User permission not valid.	Each time a request is submitted, your permission to the submit the request for the item is validated.
The item's parent is not in an Installed status.	When submitting one of the following requests, the item's parent item must be in an Installed status: • Install Item Request • Move Item Request • Bring Item On-site Request • Power-on Item Request If the parent item is not in an installed status, it must be submitted along with the item so it is moved into an Installed status.
Item's Placement Information is missing.	When submitting one of the following requests for an item, you must provide the item's Placement Information, such as Location, Cabinet, U Position and so on, on its Item page in the Web Client: • Install Item Request • Move Item Request • Bring Item On-site Request • Power-on Item Request

Request error	Reason
Child is not in the same status as the parent item.	When submitting one of the following requests for a parent item, all of its child items must be in the same status or be submitted as part of the same request: • Take Item Off-site Request • Power-off Item Request • Decommission Item to Storage Request • Decommission Item to Archive Request
Circuit install request cannot be submitted.	In order to submit an Install Item Request for a circuit, the item the circuit is associated with must be in an Installed status or must be submitted as part of the Install Item Request. Parent and child items, such as chassis and blades, must all be in an Installed status in order to submit an Install Item Request for a circuit.

Pending Request Error

If there is an outstanding, pending request for an item or connection, the request cannot be processed and dcTrack generates an error.



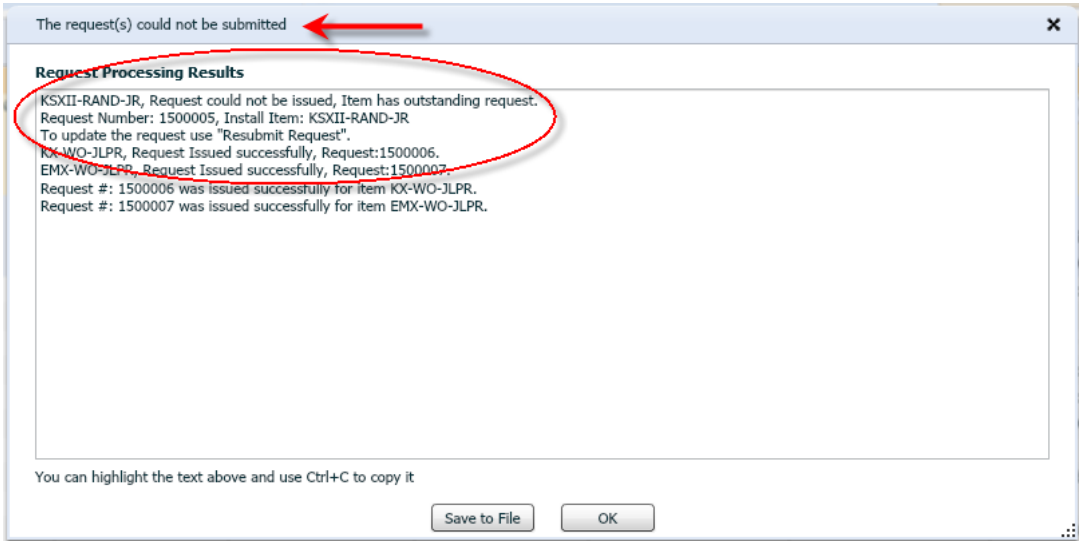
If you receive this error, you can:

- Wait for the pending request to be processed.

- Delete the pending request and resubmit the new request.

A pending request can be deleted on the Requests page as long as it is not in an Approved/Work Order Complete status.

If you are processing multiple requests at the same time, all correct requests are processed and any items with pending requests are not processed. Requests that were not processed are indicated by dcTrack.



Enable or Disable Request Bypass (Change Control Workflow Options)

Change control is dcTrack's change management workflow process. Change control tracks and manages items through each individual step of their lifecycle in dcTrack.

dcTrack allows you to work in Request Bypass or manual change control.

The only difference between Request Bypass and manual change control is that Request Bypass is an automated validation process.

By default, Request Bypass is enabled for Gatekeepers and it is disabled for all other users.

However, System Administrators can disable the feature for Gatekeepers.

For more details, **Request Bypass and Manual Change Control** and **Lifecycles, Statuses, Action Requests, Change Control Workflow and Stages**.

When users are assigned a change control related task, such as Gatekeepers reviewing a request or users viewing and printing a work order assigned to them, they are notified via email.

Therefore, each user's email must exist in dcTrack and dcTrack must be able to access the email client.

See **Enable Request Email Notifications for Gatekeepers**

Determine Who Handles Requests and Work Orders

A user's dcTrack role determines their Change Control workflow privileges such as approving requests, issuing Work Orders based on requests, and rejecting requests.

The table below summarizes the relevant roles and privileges.

Role	Permission
System Administrator	Submit, cancel, and approve Requests and Work Orders and mark them Complete. Also can enable and disable Request Bypass.
Gatekeeper	Submit, cancel, and approve Requests and Work Orders and mark them Complete
Operator	Submit and cancel Requests and mark Work Orders complete
Viewer	View Requests and Work Orders
Request Bypass	Enable and disable Request Bypass when processing requests

Note: The Request Bypass role is an auxiliary functional role that can be assigned in addition to another role.

Plan Items for Decommission

The Planned for Decommission feature allows users to indicate a date when items will be decommissioned and to make use of the resources that will become available when those items with the Planned for Decommission status are decommissioned.

Once an item has a status of Planned for Decommission, its rack units, data connection resources, and power connection resources, will be included in the pool of resources available for planning the deployment of new assets based on the date the items are planned for decommissioned and the date that you are planning for.

An item that is Planned for Decommission is assigned a Planned Decomm. Date, which is the date that you are expecting to decommission the item.

The Planning Date is a future date that is used to apply Planned for Decommission item resources to asset management and capacity calculations globally throughout dcTrack. If the Planning Date is after an item's Planned Decomm. Date, then that item's resources will be available for planning new deployments, even if the item has not yet been commissioned.

For example, you want to replace several aging, basic PDUs with new intelligent rack PDUs. You plan to decommission the basic PDUs on April 15. You expect the iPDUs to be installed on April 30. For each basic PDU, you issue a Plan to Decommission Item Request and assign a Planned Decomm. Date of April 15. You create assets in dcTrack for the iPDUs and, with a Planning Date of April 30, plan to place the new iPDUs into the same physical space that the basic PDUs are occupying. At this point, the basic PDUs are Planned for Decommission, and the iPDUs are Planned items making use of the basic PDUs' Planned for Decommission resources. Once the basic

PDUs are decommissioned, the iPDUs will display in their same U positions, even if the basic PDUs are decommissioned on a date following April 15.

You can also set an item's status directly to Plan for Decommission on its Item Details page.

Supported Classes/Subclasses/Mountings

- Device / Standard - Free Standing
- Device / Standard - Rackable
- Device / Standard - Non-rackable
- Device / Blade Chassis - Rackable
- Device / Blade Chassis - Free-Standing
- Device / Blade Server - Blade
- Network / NetworkStack - Free Standing
- Network / NetworkStack - Rackable
- Network / NetworkStack - Non-rackable
- Network / Chassis - Rackable
- Network / Chassis - Free Standing
- Rack PDU / AC Power - Rackable
- Rack PDU / AC Power - Zero U
- Rack PDU / AC Power - Non-racklable
- Rack PDU / DC FAP
- Rack PDU / Rack Inverter
- Rack PDU / Rack UPS - Rackable
- Rack PDU / Rack UPS - Zero U
- Rack PDU / Rack UPS - Non-rackable
- Rack PDU / Rack Transfer Switch - Rackable
- Rack PDU / Rack Transfer Switch - Zero U
- Rack PDU / Rack Transfer Switch - Non-rackable
- Rack PDU / Rack Converter - Rackable
- Rack PDU / Rack Converter - Zero U
- Rack PDU / Rack Converter -Non-rackable
- Rack PDU / Rack Rectifier - Rackable
- Rack PDU / Rack Rectifier - Zero U
- Rack PDU / Rack Rectifier - Non-rackable
- Data Panel / Patch Enclosure - Rackable

Unsupported Classes/Subclasses/Mountings

- Cabinet
- Network / Blade - Blade
- Probe - Rackable
- Probe - Zero U
- Probe - Non-rackable
- Data Panel - Rackable
- Data Panel - Zero U
- Data Panel - Non-rackable
- Power Outlet / Whip Outlet
- Power Outlet / Busway Outlet
- Floor PDU
- UPS
- VM
- DC Power System / Plant
- DC Power System / Plant Bay
- DC Power System / Plant Panel
- DC Power System / Rectifer
- DC Distribution / DC Bay
- DC Distribution / DC Panel
- Battery
- Power Source / Generator
- Power Source / Fuel Tank
- Power Source / Utility Feed
- HVAC / Cooling Zone
- HVAC / Cooling Unit
- HVAC / Heat Rejection
- AC Distribution / AC Bay
- AC Distribution / Switch
- AC Distribution / UPS Bank
- AC Distribution / Load Device
- AC Distribution / Other Device

- AC Distribution / Power Panel - Free-standing
- AC Distribution / Power Panel - Rackable
- AC Distribution / Transformer - Free-standing
- AC Distribution / Transformer - Rackable
- Floor PDU / RPP Bay - Free-Standing
- Data Panel / Cassette - Blade

Note: Users can only use Planned for Decommission resources if they have the appropriate privileges.

Note: The dashboard widgets are excluded from incorporating Planned for Decommission changes.

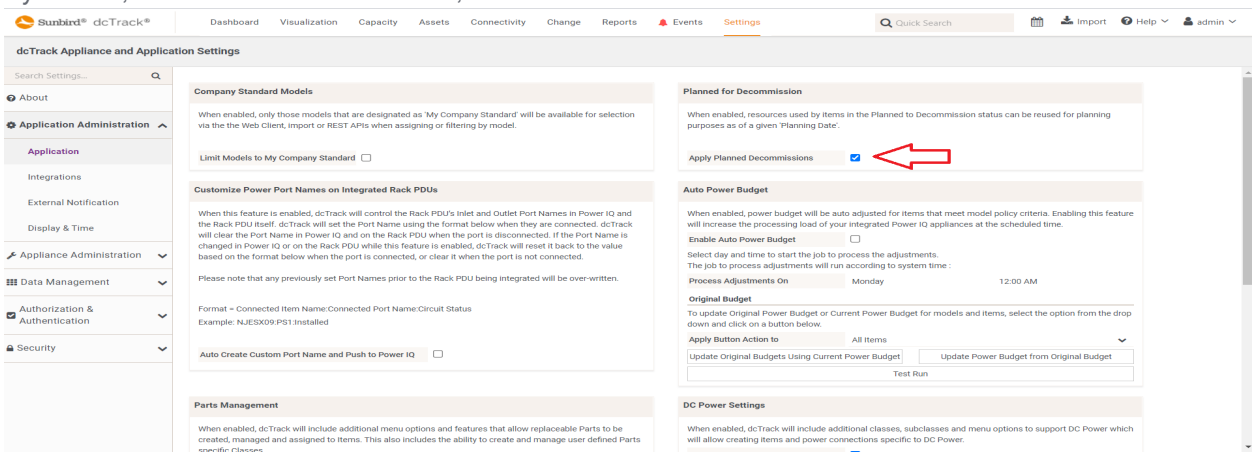
Note: In the item audit trail, the "System Process" user indicates changes made in dcTrack as part of an internal system process. For example: the System Process user may update an item's status to Archived as necessary for planning items for decommission.

Enabling/Disabling the Planned for Decommission Feature

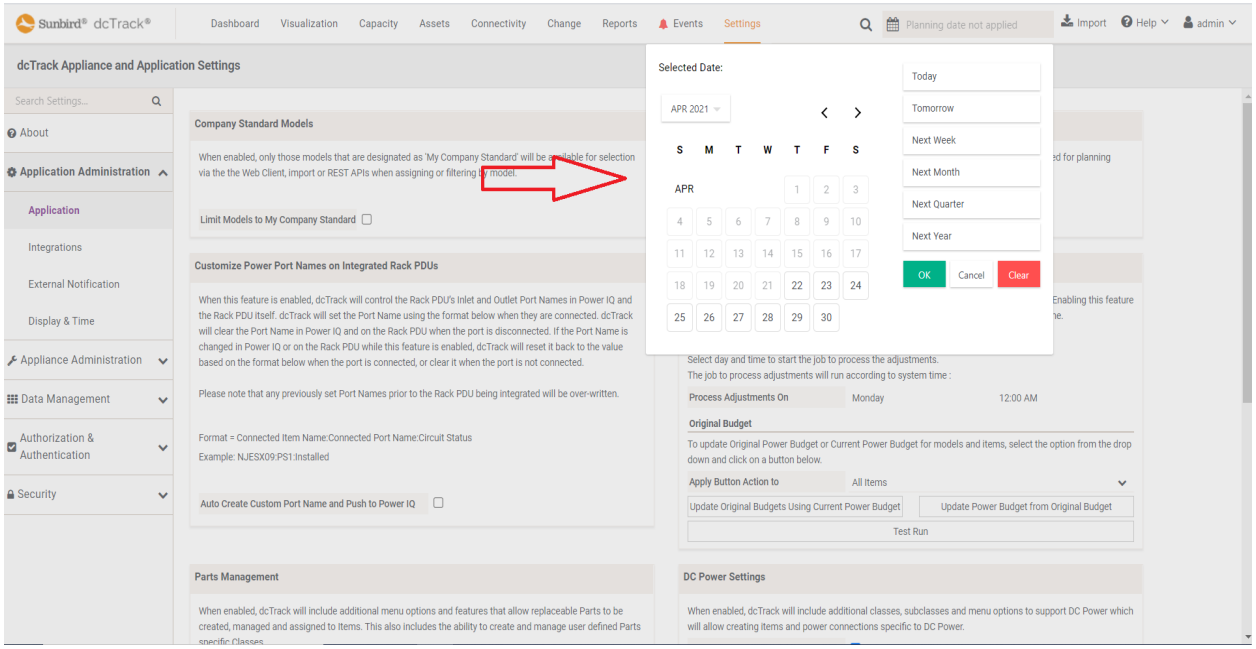
To use the Planned for Decommission feature, you must first enable it. By default, this feature is turned off. Only System Administrators can enable or disable the Planned for Decommission feature.

To enable the Planned for Decommission feature:

1. In the Settings tab, select dcTrack Settings.
2. In the Application Settings tab under dcTrack Settings, check the Apply Planned Decommissions checkbox. By default, this checkbox is unchecked, so the feature is disabled.



3. When the Apply Planned Decommissions checkbox is checked, the Planning Date selector will appear in the upper right corner of the dcTrack Web Client GUI.



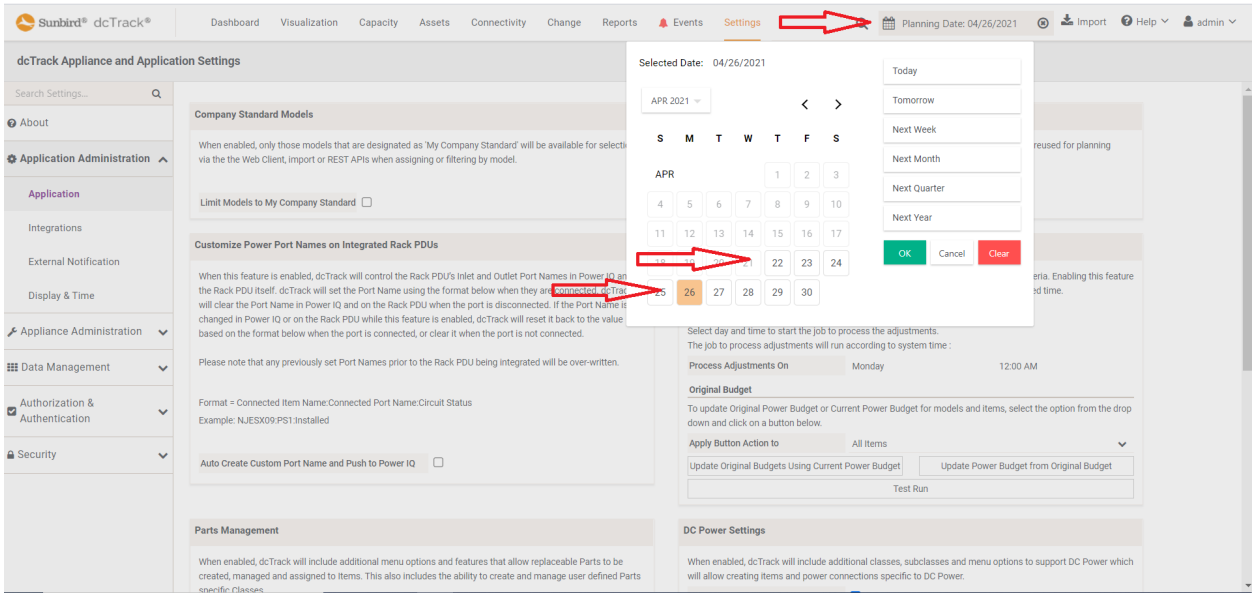
Note: If the Apply Planned Decommissions checkbox is checked/unchecked while a user is logged in, the dcTrack Web Client will update accordingly. Notably, users may or may not be able to specify a Planning Date, and the data shown on various pages may change as a result.

Selecting a Planning Date

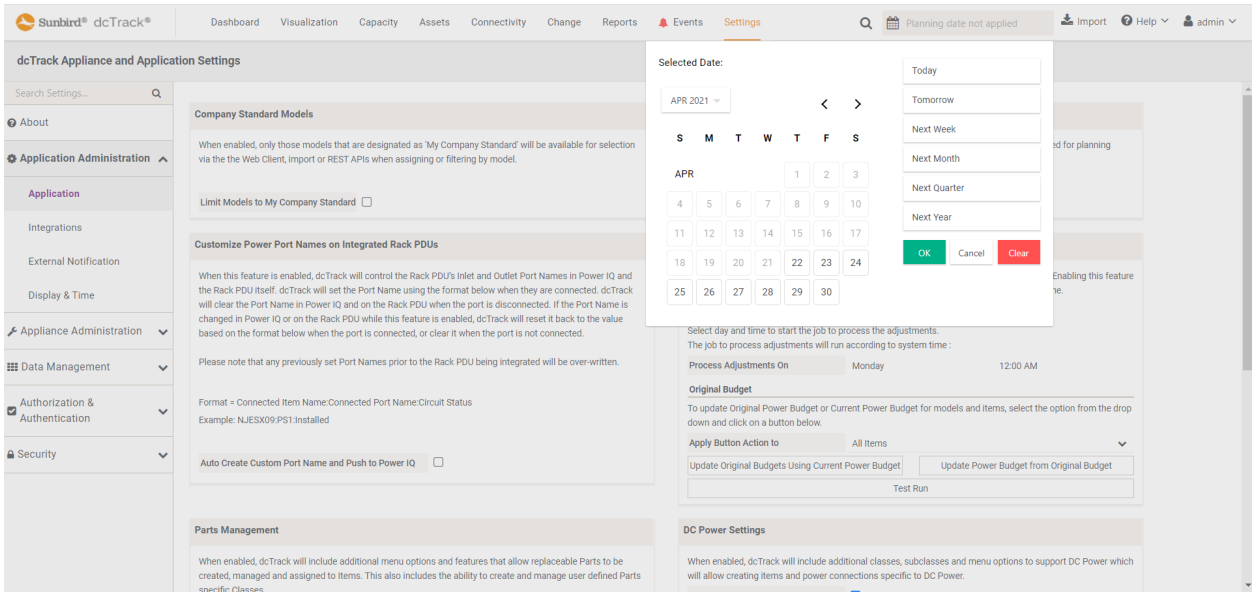
The Planning Date is the date that a user wants to plan for. It is used to apply the Planned to Decommission status of assets to resource and capacity calculations globally throughout dcTrack. This date is set using the Planning Date selector in the upper right corner of the dcTrack Web Client GUI. You must set the Planning Date to use the Planned for Decommission feature.

Note: The Planning Date selector is only available when the Applied Planned Decommissions checkbox is checked under the Settings tab > dcTrack Settings > Application Settings.

To select a date, click the Planning Date selector and click on the date you want to use as your Planning Date. Today's date is the first date available for selection, and the date you select is highlighted in orange as well as indicated in the Planning Date header. Clicking the "Ok" button will set the Planning Date to today's date.



When a Planning Date is selected, the Planning Date selector displays a “Planning Date:[DATE]” message. When no Planning Date is selected, the Planning Date selector displays a “Planning Date not applied” message.

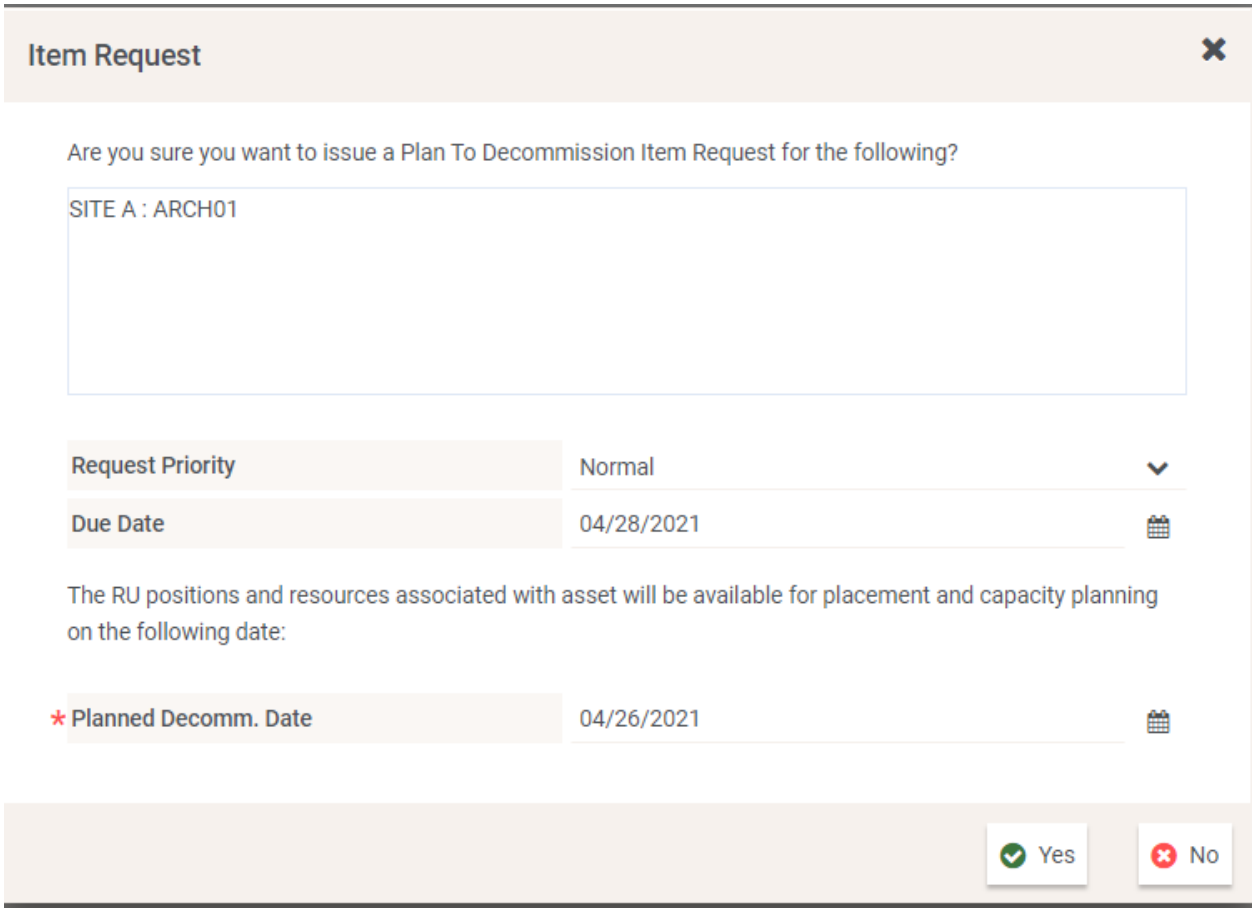


Submitting a Plan for Decommission Item Request

System Administrators and Gatekeepers can transition an installed item to the Planned for Decommission state through a change request or by changing the status to Plan for Decommission directly on the item’s Details page.

The Planned for Decommission date can be used to filter results when searching for capacity from assets that are planned to be decommissioned.

When you submit a Plan for Decommission Item request, a confirmation popup will display to confirm your request. A Planned Decomm. Date for the item is required, although the Priority and Due Date fields are optional.



Although a request can be made for an item to be Planned for Decommission, no action is taken to issue work orders at the time the item is in the Planned for Decommission state, until a Decommission to Storage or Decommission to Archive request is submitted.

The item can be returned to the Installed state by cancelling the request or setting its Status to Installed on the item's Details page.

To submit a Plan to Decommission request for an item from the Asset Management list:

1. In the Assets tab, click the item you want to request to be Planned to Decommission.
2. Click the Actions menu > Plan to Decommission Item Request. An Item Request popup will display.
3. In the Item Request popup, set the following:
    a. Priority: Low, Normal, High, Urgent (Optional)
    b. Due Date (Optional)
    c. Planned (Required; the default is today's date)
4. Click the Yes button.
5. On the success confirmation screen, highlight the text and use Ctrl+C to copy the text into the text file of your choice, or click the OK button to exit.

To submit a Plan to Decommission request for an item from the Item Details page:

1. In the Assets tab, double-click the item you want to request to be Planned to Decommission. The item's Details page displays.
2. Click the Actions menu > Plan to Decommission Item Request. An Item Request popup will display.
3. In the Item Request popup, set the following:
    a. Priority: Low, Normal, High, Urgent (Optional)
    b. Due Date (Optional)
    c. Planned (Required; the default is today's date)
4. Click the Yes button.
5. On the success confirmation screen, highlight the text and use Ctrl+C to copy the text into the text file of your choice, or click the OK button to exit.

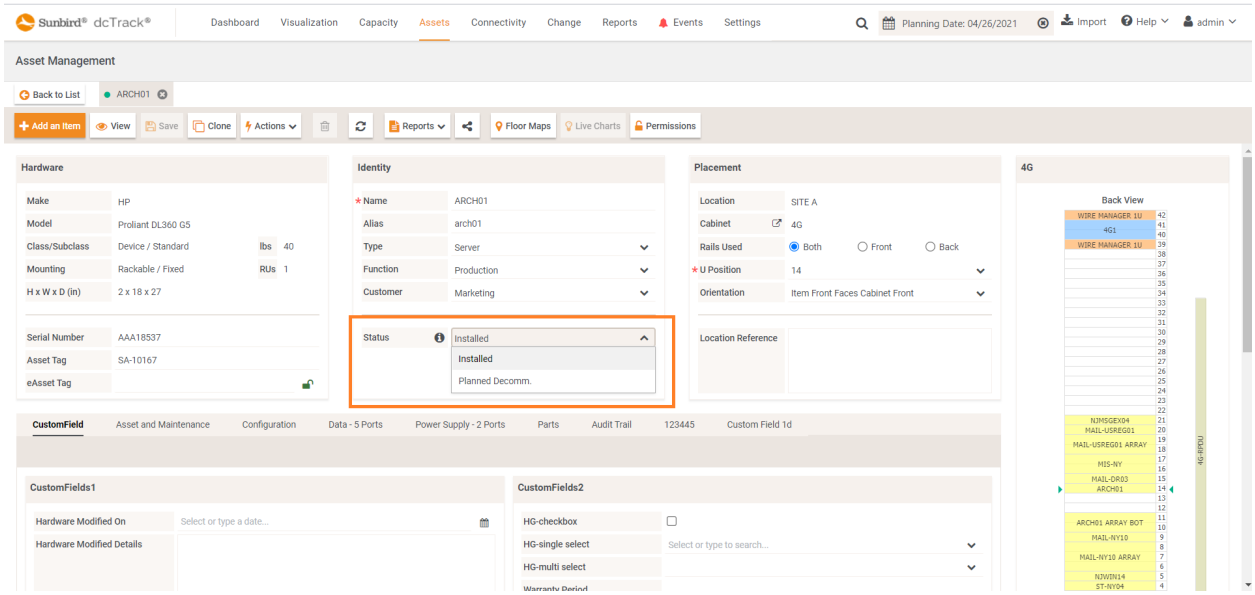
Note: The Plan to Decommission Item Request is only available when the item is the appropriate state that allows the transition: Installed, Powered-Off or Off-Site.

There is no work order for this request; when a Plan to Decommission Item Request is issued, the item will transition automatically through Work Order Issued and Work Order Completed stages.

The Plan to Decommission state applies to rackable, non-rackable, and zero-U device, network, probe, and rack PDU classes.

Setting an Item's Status to Be Planned for Decommission

System Administrators and Gatekeepers can transition an installed item to the Planned for Decommission state by changing the status to Plan for Decommission directly on the item's Details page.



To set an item's as status as Plan for Decommission:

1. In the Assets tab, double-click the item you want to request to be Planned to Decommission. The item's Details page displays.

2. On the Item Details page, click the Edit icon to enable Edit mode.
3. In Edit mode, in the Identity section, set the Status field to Planned Decomm. via the Status dropdown.
4. Click the Save button. An Item Request popup will display.

6. In the Item Request popup, set the following:

    a. Priority: Low, Normal, High, Urgent (Optional)
    b. Due Date (Optional)
    c. Planned (Required; the default is today's date)

7. Click the Yes button.
8. On the success confirmation screen, highlight the text and use Ctrl+C to copy the text into the text file of your choice, or click the OK button to exit.

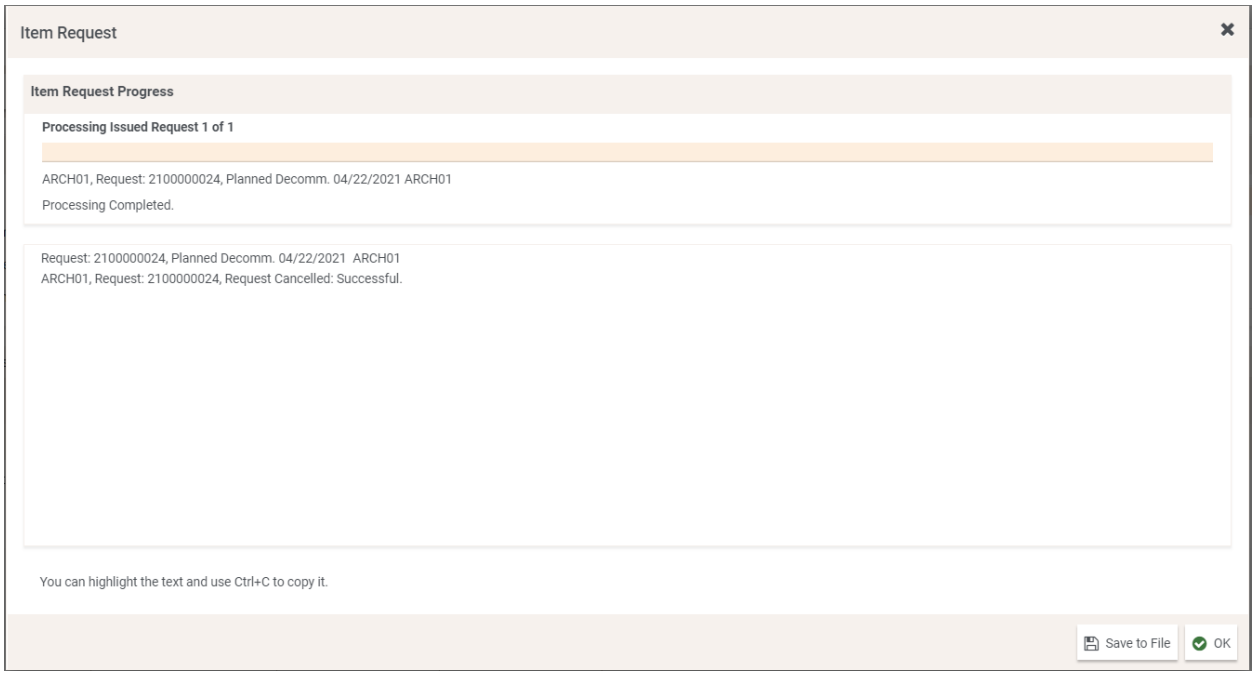
Note: When using File Import to set an item's status to Planned for Decommissioned a Planning Date will have to be provided to assign an asset to a U position currently occupied by a Planned to Decommission item.

Cancelling a Plan to Decommission Request

A Plan to Decommission Item Request can be cancelled by cancelling the request if one is issued. The item can also be returned to the Installed state by setting the status to Installed on the item's Details page. Only System Administrators and Gatekeepers can change the item's status on the item's Details page.

Note: Cancelling the Plan to Decommission Item Request and reverting the item to the Installed state may affect other items if those items were planned to be moved into the Planned to Decommission item's capacity. The items will have their U positions, slot positions, chassis, and cabinet associations cleared.

A Cancel Planned for Decommission confirmation popup will be displayed if a Plan to Decommission item is reverted to the Installed state. The popup will indicate the item reverting to the Installed state and the items that may be affected by having their cabinet, chassis, U, or slot positions cleared.



To cancel a Planned for Decommission Item Request by cancelling the request on the Requests List:

1. Under the Change tab, select Requests.
2. On the Requests List, select the request you want to cancel.
3. In the Actions menu on the Requests List, select Cancel Request.
4. When the Item Request has been processed, highlight the text and use Ctrl+C to copy the text into the text file of your choice, or click the OK button to exit.

To cancel a Planned for Decommission Item Request by cancelling the request on the Request Details page:

1. Under the Change tab, select Requests.
2. On the Requests List, double-click the request you want to cancel. The Request Details page opens.
3. In the Actions menu on the Request Details page, select Cancel Request.
4. When the Item Request has been processed, highlight the text and use Ctrl+C to copy the text into the text file of your choice, or click the OK button to exit.

To cancel a Planned for Decommission Item Request by reverting the item's status to Installed:

1. In the Assets tab, double-click the item whose status you want to revert. The item's Details page displays.
2. On the Item Details page, click the Edit icon to enable Edit mode.
3. In Edit mode, in the Identity section, set the Status field to Installed. via the Status dropdown.
4. Click the Save button. An Cancel Planned for Decommission confirmation popup will display.
5. In the Cancel Planned for Decommission confirmation popup, review the information and click the Yes button.
6. On the success confirmation screen, highlight the text and use Ctrl+C to copy the text into the text file of your choice, or click the OK button to exit.

Using File Import/Export to Update Planned for Decommission Status and Dates

File import/export can be used to specify the Planned for Decommission status, Planned Decomm. Date, and Planning date.

File export supports the Planned Decomm. status, Planned Decomm. Date, and Planning Date. However, file import only supports the Planned status with the Planning Date.

Note: File import/export of the Planned for Decommission Status and associated dates is only available when the Apply Planned Decommissions checkbox under the Settings tab > dcTrack Settings > Appliance Settings is checked.

Planned for Decommission Resource Availability

The Planned for Decommission feature can affect how resources are display throughout dcTrack.

3D Floor Map and Cabinet Elevations

When the feature is enabled and a Planning Date is selected, the floor map Items List is filtered to show items as of the Planning Date selected.

Cabinet elevation views in the floor map only will show the contents of the cabinet consistent with the Planning Date, with all items that are Planned for Decommission on or before the Planning Date not shown. All Planned items that are making use of U positions available on or before the Planning Date are shown in their respective places in the elevation.

Some floor map reports reflect the data as of the selected Planning Date, while others display data without the selected Planning Date applied. For more information, see Web Client Floor Map Reports.

Item List and Item Details Pages

The Items List on the Asset tab includes columns for Planning Date and Planned Decomm Dates. Date ranges can be selected for both columns.

The options to show or hide columns include Planned Decomm. Status, Planned Decomm. Date, and Planning Date. The Planned Decomm. Date and Planning Date columns are not shown by default; they are only displayed when the Apply Planned Decommissions checkbox under the Settings tab > dcTrack Settings > Appliance Settings is checked.

On the Item Details pages, the Planned Decomm. status is available for certain items in the Status dropdown in the Identity panel. The Placement panel fields may also make use of Planned for Decommission resources.

Intelligent Capacity Search

The Planning Date field is an optional field for Intelligent Capacity Searches that can be used to filter for capacity that is available from assets that are planned to be decommissioned on or after the date. The default date is the current date. Only a single date, not a date range, can be specified.

When a Planning Date is selected, the Planning Date in the Intelligent Capacity Search panel is automatically included.

The search results are displayed as of the selected Planning Date.

For more information, see Use Intelligent Capacity Search to Locate or Qualify Cabinet Space for One or More Items.

Requests and Work Orders

The request type Plan to Decommission Item Request is available. An item that is Planned for Decommission can be returned to the Installed state by cancelling the request if a request has been issued.

For more information, see Submitting a Plan to Decommission Item Request.

Integration with Power IQ

Items that make use of Planned for Decommission resources are not mapped to or available to be integrated with Power IQ until they are installed in the cabinet.

If an item is already integrated with Power IQ and then moved to a U position that is already filled with a Planned for Decommissioned item, the item will remain integrated.

When the Planned for Decommissioned item is decommissioned, the item will no longer be isolated from Power IQ.

If a Planned for Decommission Item Request is cancelled, the item will lose the U position and will no longer be isolated from Power IQ; however, it will not be mapped.

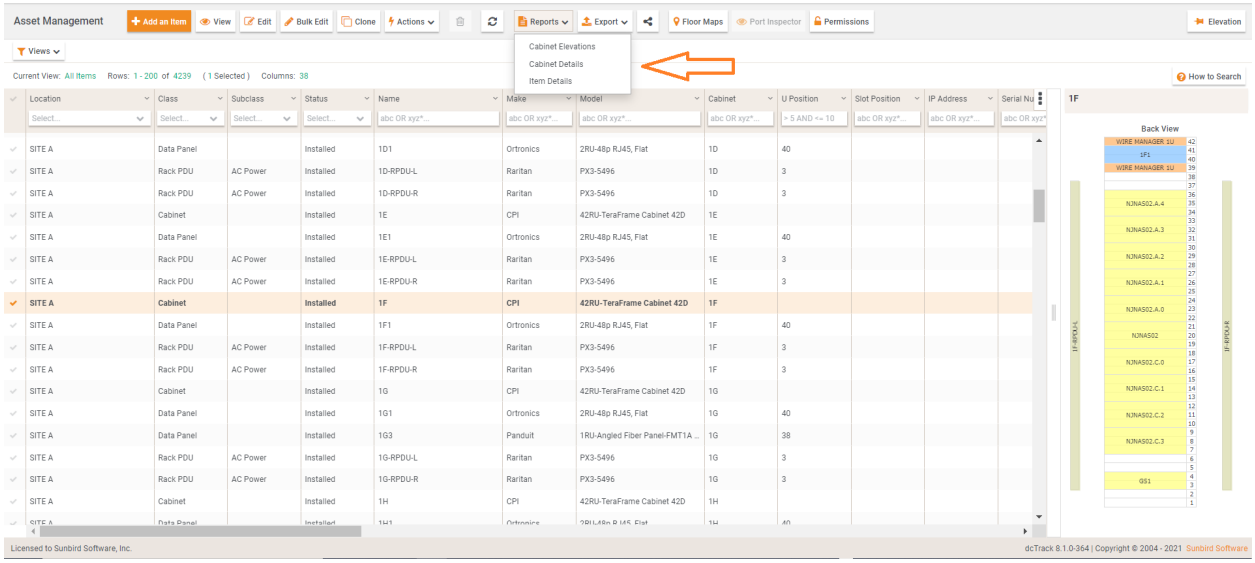
Chapter 4:Use Reports for Planning, Auditing and Inventory

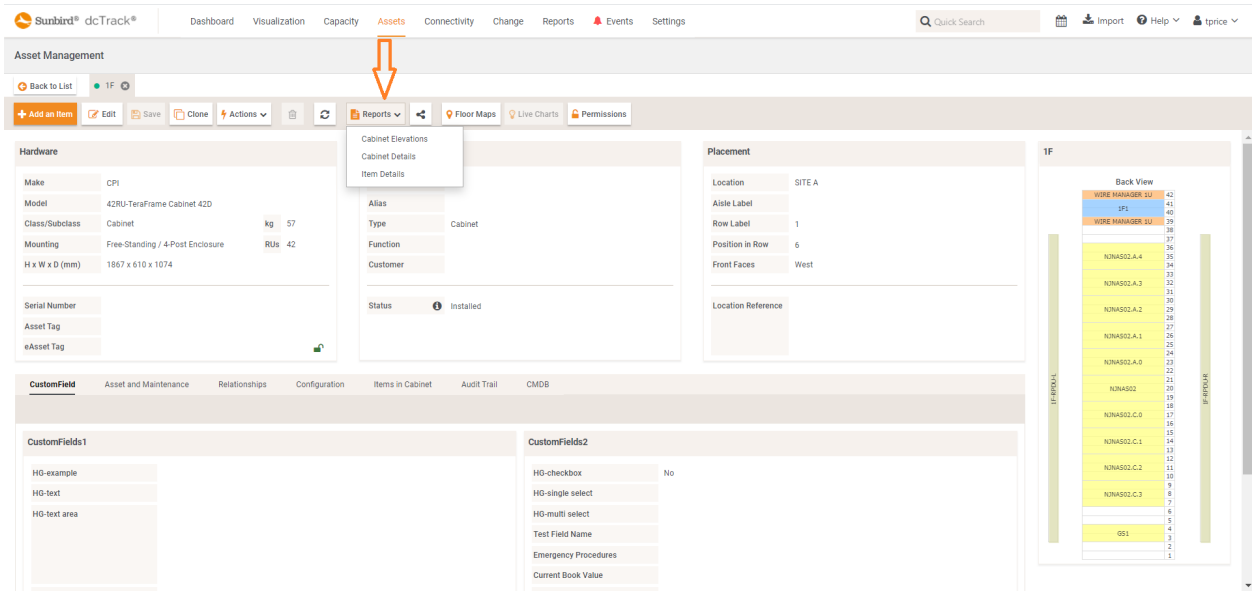
Various reports are available in the dcTrack Web Client that help you with data center capacity planning, auditing and inventory.

Web Client Reports

Web Client Report Descriptions

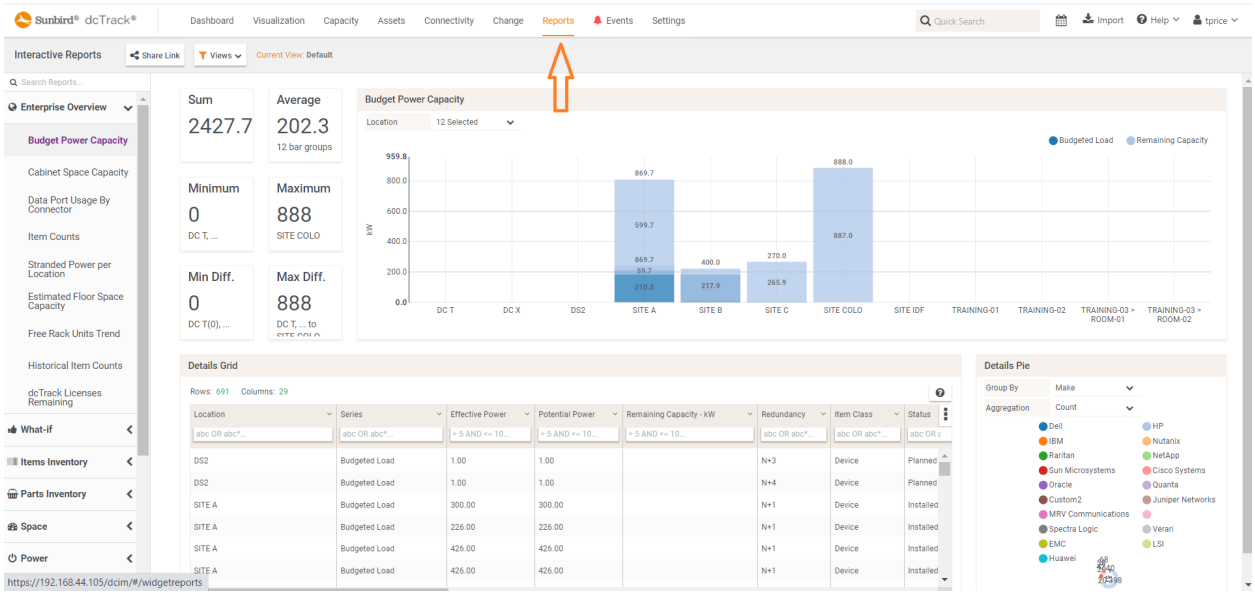
The PDF reports mentioned above are accessible from the Reports button on both the Item List Page and Item Detail Page.





Please note the report menu options are context sensitive and are enabled based on the selected Class of the Item.

The Reports button available on the Main Toolbar will automatically redirect you to the dcTrack Dashboard and Widgets page.



Application Reports

Use the Reports Menu on the Asset List tool bar to easily access the:

- **Cabinet Elevation Report**
- **Cabinet Detail Report**

- **Item Detail Report**
- Power Panel Report

These reports are useful for auditing data center items, capacity planning, and so on.

For example:

- For auditing purposes, customize a Cabinet Elevation report to review what items are contained in specific cabinets
- For capacity planning, filter a Cabinet Detail report to display only cabinets in a specific row
- When doing an audit of items currently installed in the data center, customize an Item Detail report to contain only items in an Installed status

Steps to generate a report:

1. Select the Items you wish to report on from the Asset List
2. Click the Report button on the Asset List tool bar
3. Click on a report option in the menu to open the Print Options Dialog.
4. Set the report parameters.
5. Click the Run Report button

Reports may also be run for a single Item by clicking the Report button on the Item Detail Page tool bar.

Cabinet Elevation Report

The Cabinet Elevation report contains elevation views of the cabinets being managed in dcTrack.

Access the Cabinet Elevation report by selecting Reports > Cabinet Elevation from the Asset List tool bar or the Asset Detail tool bar in the Web Client.

You may use all of the filtering features available on the Item List to select only those Items you are interested in reporting. You must select at least one cabinet to enable the Report button.

Checking the Select All Icon selects all of the cabinets listed in the Item List. Deselect the Icon to deselect all cabinets.

Use Ctrl + click or Ctrl + Shift + click to select multiple cabinets in the list. Deselect a cabinet by clicking on it.

The elevations use the same color-coding and labeling as the elevations displayed on the various pages in dcTrack.

For an example of this report, see dcTrack Reports List **Sample Cabinet Elevation Report**.

Specify the cabinet view. This determines how each cabinet's contents are displayed in the elevations that appear in the report -

- Front: Only the front view for each cabinet is displayed
- Back: Only the back view for each cabinet is displayed
- Front and Back: Both a front view and back view of each cabinet is displayed. The views are displayed side-by-side.

- Text: The contents of the cabinet are displayed as text. Text is the default elevation view. Color coding is used to identify the items in the cabinet. and the current status of each item
- Image: The contents of the cabinet are displayed as images. An image of the item must be available in the Item Models Library. Items that do not have images are displayed as Text.

Specify the number of cabinets that are displayed on a single page of the report.

Up to 99 cabinets can be displayed on a single page.

Click the Run Report button to run the report.

Note: This does not apply to the Cabinet Detail report.

Cabinet Detail Report

Access the Cabinet Detail report by selecting Reports > Cabinet Detail in the Web Client.

Like the Cabinet Elevations report, this report contains either a text-based or visual representation of the Cabinet Elevations of the cabinets being managed in dcTrack.

This report includes additional cabinet details such as the make, model, size, weight, and so on.

The elevations use the same color-coding and labeling as the elevations displayed on the various pages in dcTrack.

With the exception of specifying the number of cabinets per page, this report uses the same filters as the **Cabinet Elevation Report**.

For an example of this report, see **Sample Cabinet Details Report**.

Item Detail Report

This report displays either text-based representations of items or, when available, images of the items being managed in dcTrack.

This report includes additional device details such as the make, model, and so on.

The elevations use the same color-coding and labeling as the elevations displayed on the various pages in dcTrack.

Configure the contents of the report using the filters provided and specifying the various criteria.

With the exception of specifying cabinets per page, all of the same functions apply as described for the **Cabinet Elevation Report**.

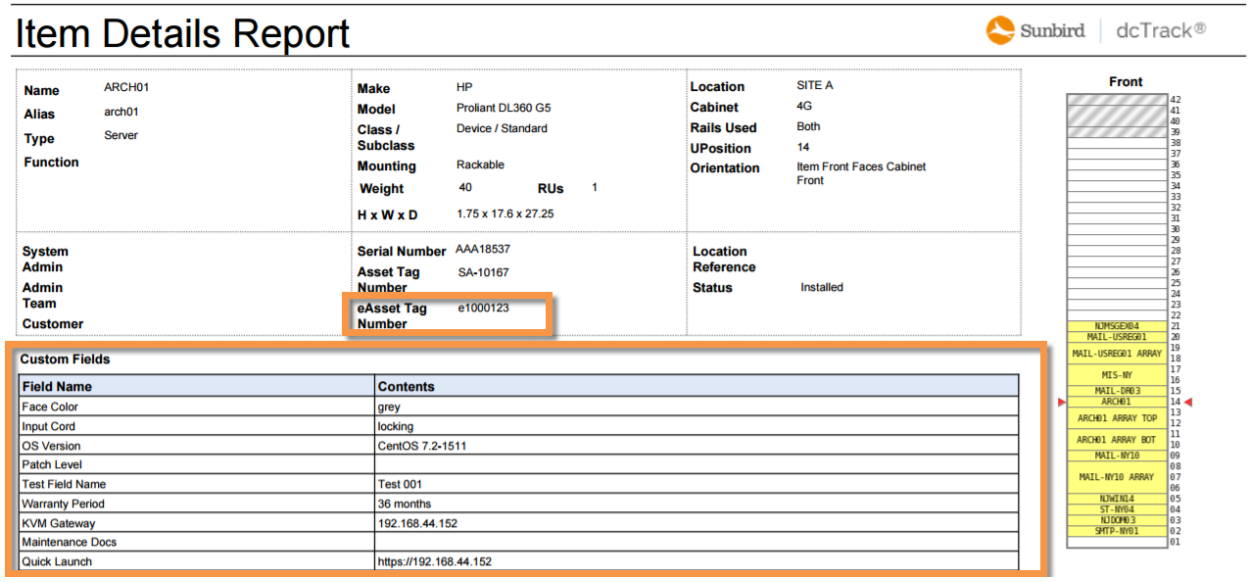
You can also:

- Specify one or more classes of items to display.
- Specify one or more item statuses. Only items with those statuses are included displayed.
- Filter the report by item name to display only the items you want.

- Filter the report by cabinet to display only items that are contained in one or more specific cabinets.

For an example of this report, see **Sample Item Details Report**.

In dcTrack 5.2, the Item Details report has been updated to include the eAsset Tag Number data and a section for custom fields.



Item Details Report

Sunbird | dcTrack®

Name	ARCH01	Make	HP	Location	SITE A
Alias	arch01	Model	Proliant DL360 G5	Cabinet	4G
Type	Server	Class / Subclass	Device / Standard	Rails Used	Both
Function		Mounting	Rackable	UPosition	14
		Weight	40 RUs 1	Orientation	Item Front Faces Cabinet Front
		H x W x D	1.75 x 17.6 x 27.25		
System Admin		Serial Number	AAA18537	Location Reference	
Admin Team		Asset Tag Number	SA-10167	Status	Installed
Customer		eAsset Tag Number	e1000123		

Front

NJMSGEN04
MAIL-USREG01
MAIL-USREG01 ARRAY
MIS-NY
MAIL-DR03
ARCH01
ARCH01 ARRAY TOP
ARCH01 ARRAY BOT
MAIL-NY10
MAIL-NY10 ARRAY
NJWIN14
ST-NY04
NJDOM03
SMTP-NY01

Custom Fields

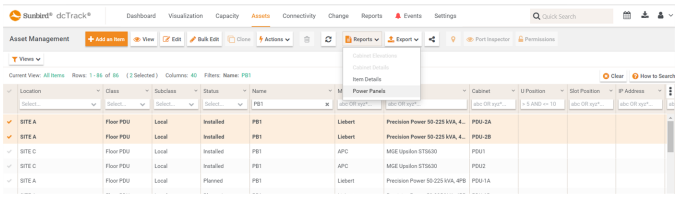
Field Name	Contents
Face Color	grey
Input Cord	locking
OS Version	CentOS 7.2-1511
Patch Level	
Test Field Name	Test 001
Warranty Period	36 months
KVM Gateway	192.168.44.152
Maintenance Docs	
Quick Launch	https://192.168.44.152

Power Panel Report

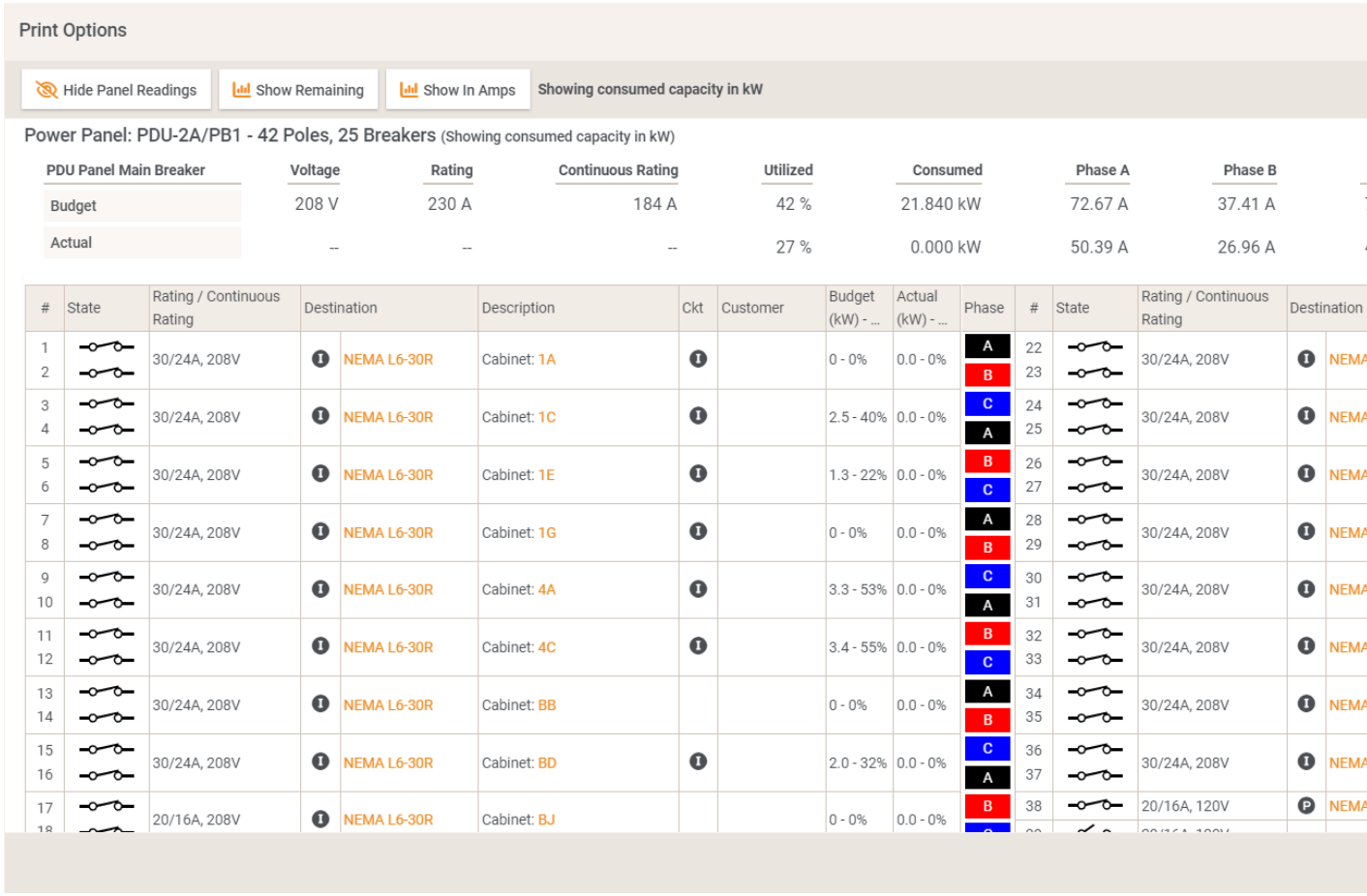
dcTrack allows you to print Panel Views for multiple Power Panels.

These steps apply to AC Distribution / Power Panel, Floor PDU / Local or Remote panels

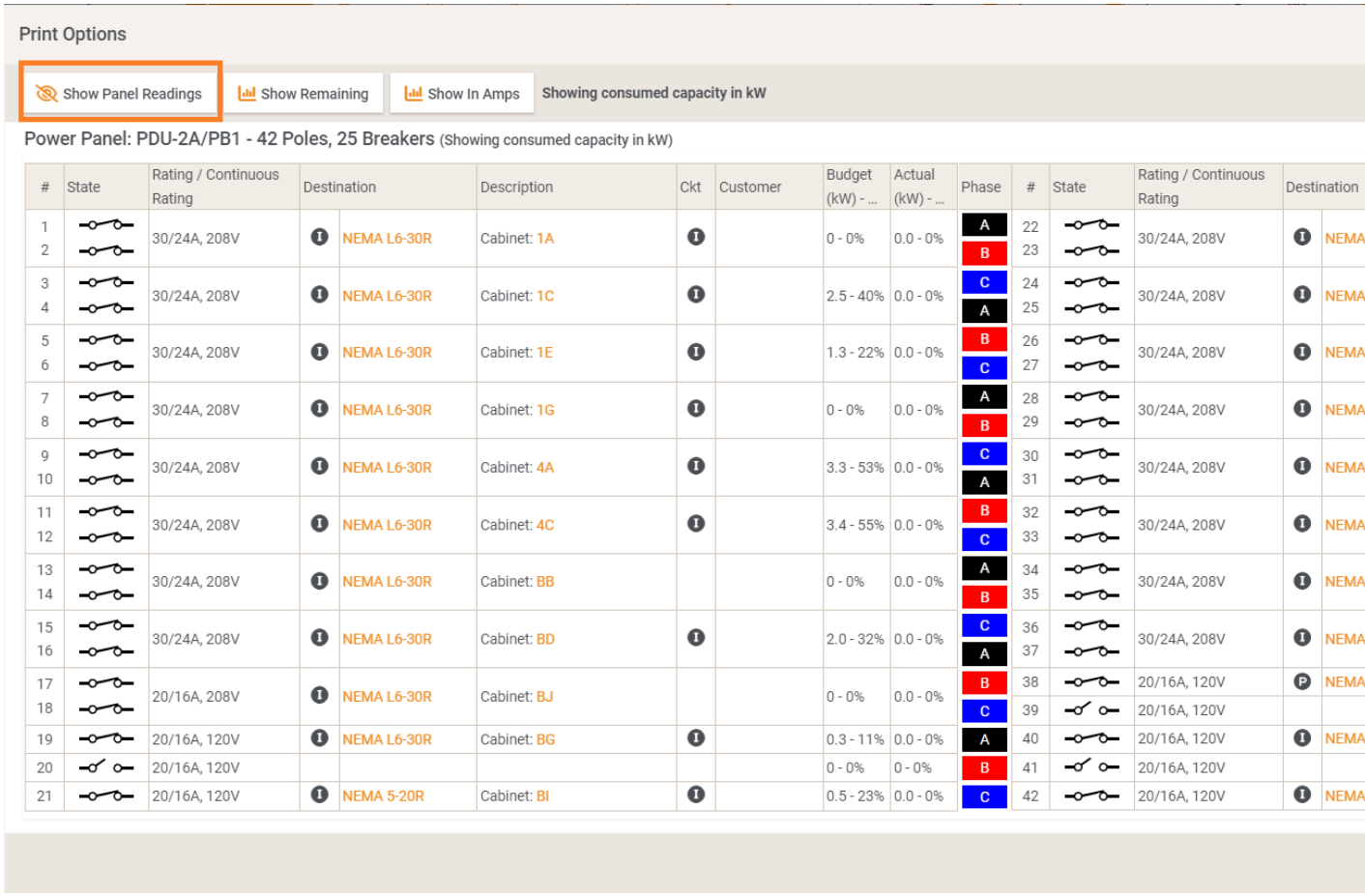
1. In the Asset list, select the Power Panels that you want to print.
2. Click Report -> Power Panel



3. If you would like to print the Report, once rendering is complete click the Print button in the lower right side of each page of the report.



4. If you would like to exclude the Panel Level readings, click the "Hide Panel Readings" button in the tool bar. This button allows you to toggle between Hiding and Showing the Panel



#	State	Rating / Continuous Rating	Destination	Description	Ckt	Customer	Budget (kW) - ...	Actual (kW) - ...	Phase	#	State	Rating / Continuous Rating	Destination
1		30/24A, 208V	NEMA L6-30R	Cabinet: 1A			0 - 0%	0.0 - 0%	A	22		30/24A, 208V	NEMA
2									B	23			
3		30/24A, 208V	NEMA L6-30R	Cabinet: 1C			2.5 - 40%	0.0 - 0%	C	24		30/24A, 208V	NEMA
4									A	25			
5		30/24A, 208V	NEMA L6-30R	Cabinet: 1E			1.3 - 22%	0.0 - 0%	B	26		30/24A, 208V	NEMA
6									C	27			
7		30/24A, 208V	NEMA L6-30R	Cabinet: 1G			0 - 0%	0.0 - 0%	A	28		30/24A, 208V	NEMA
8									B	29			
9		30/24A, 208V	NEMA L6-30R	Cabinet: 4A			3.3 - 53%	0.0 - 0%	C	30		30/24A, 208V	NEMA
10									A	31			
11		30/24A, 208V	NEMA L6-30R	Cabinet: 4C			3.4 - 55%	0.0 - 0%	B	32		30/24A, 208V	NEMA
12									C	33			
13		30/24A, 208V	NEMA L6-30R	Cabinet: BB			0 - 0%	0.0 - 0%	A	34		30/24A, 208V	NEMA
14									B	35			
15		30/24A, 208V	NEMA L6-30R	Cabinet: BD			2.0 - 32%	0.0 - 0%	C	36		30/24A, 208V	NEMA
16									A	37			
17		20/16A, 208V	NEMA L6-30R	Cabinet: BJ			0 - 0%	0.0 - 0%	B	38		20/16A, 120V	NEMA
18									C	39		20/16A, 120V	
19		20/16A, 120V	NEMA L6-30R	Cabinet: BG			0.3 - 11%	0.0 - 0%	A	40		20/16A, 120V	NEMA
20		20/16A, 120V					0 - 0%	0 - 0%	B	41		20/16A, 120V	
21		20/16A, 120V	NEMA 5-20R	Cabinet: BI			0.5 - 23%	0.0 - 0%	C	42		20/16A, 120V	NEMA

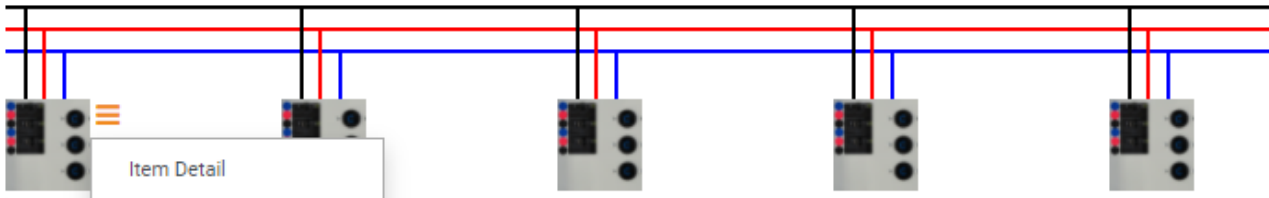
To print Panel view for Busway Tap Boxes follow the steps below

1. Open a Busway item details page.
2. In the Power Tap Boxes sub tab, hover over the Tap Box image and click the hamburger icon.

Power Tap Boxes (6) CustomField Asset and Maintenance Relationships Data Ports (0) Audit Trail

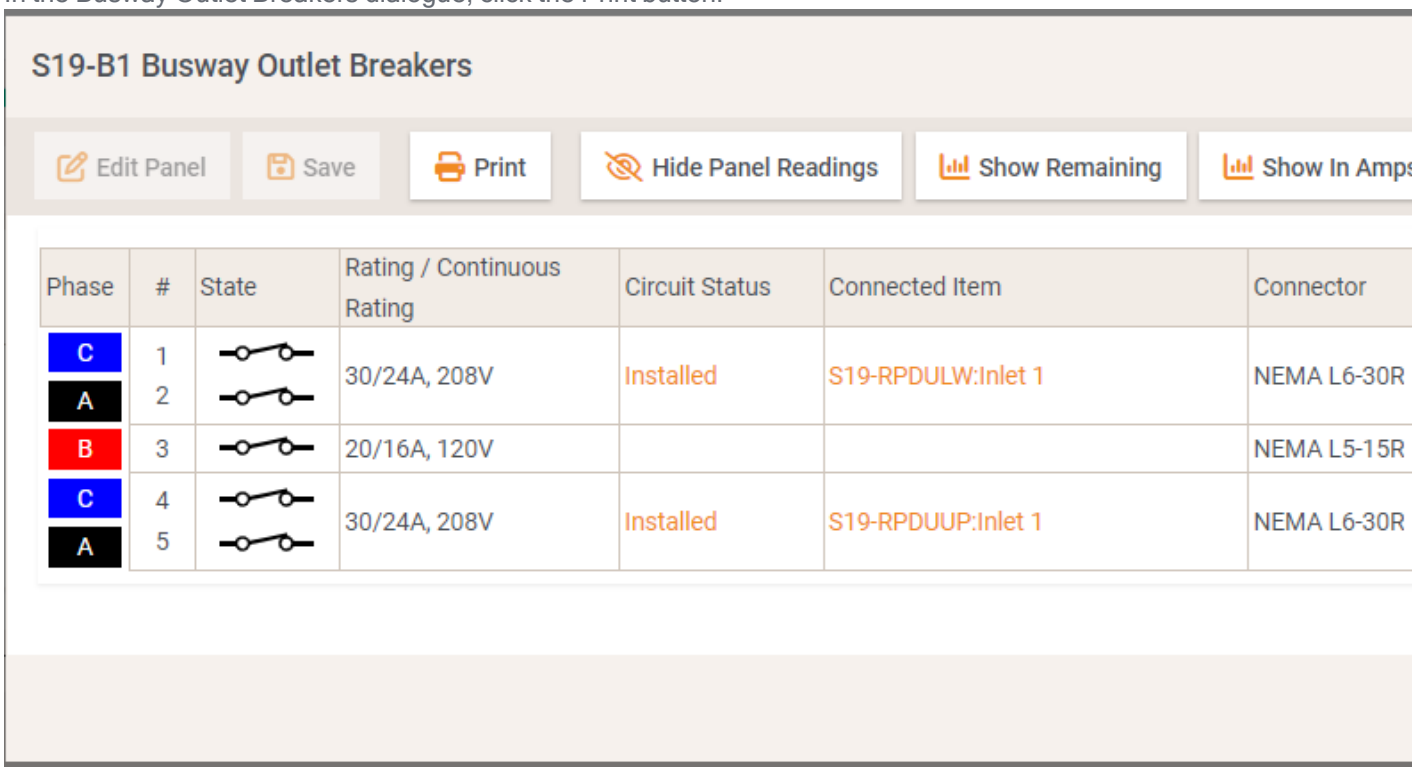
Show Remaining Show Empty Positions

Busway Main Breaker	Voltage	Rating	Continuous Rating	Consumed
Budget	208 V	225 A	180 A	0.43 %
Actual	--	--	--	0 %



Position in Row	1		6	7	8
Cabinet			S06	S07	S08
Tapbox	BUS01	S05-A1	S06-A1	S07-A1	S08-A1
Budget (kW)	0.00 [0.0%]	6.88 [46.3%]	5.43 [36.5%]	1.58 [10.6%]	2.99 [20.1%]
Actual (kW)	0.00 [0.0%]	0.00 [0.0%]	0.00 [0.0%]	0.00 [0.0%]	0.00 [0.0%]

3. Click Panel View from the menu.
4. In the Busway Outlet Breakers dialogue, click the Print button.



5. The display of Panel Readings can be toggled using the "Hide Panel Readings" button.

Run, View and Print Application Reports

1. Open a report by clicking on the Reports tab, then selecting a report from the options.

The report's page opens.

2. Select the location or locations you want to include in the report.

Once the location(s) are selected, only cabinets within the selected location are displayed. If not cabinets exist for the location, no data are available for the report.

The filters and settings you can apply to the report depend on the report type.

For details on each filter and setting, see:

- **Cabinet Elevation Report**
- **Cabinet Detail Report**
- **Item Detail Report**

3. Once you have set your filters, select the report contents such as the cabinets or items to include in the report.
4. Click on a single criteria.
   - Use Ctrl+Click to select multiple, individual criteria from grid on the page.
   - Use Ctrl+Shift to select multiple, concurrent criteria.
5. Check the Select All checkbox to select all criteria.
6. Click Run Report to generate the report.

Note: The icon is disabled until one or more criteria are selected in the grid.

A new tab or new window opens depending on your browser settings, and the report begins to generate.

The time it takes to generate a report depends on the amount of data in the report and the report settings, such as the including images vs. text.

A progress bar displays as the report generates.

7. Click Cancel to stop generating the report.

Once a report is generated, it opens in PDF view in your browser.

Note: Your browser settings determine if the report opens in a new tab or window. If nothing happens, make sure that your browser allows popups from the dcTrack Web Client URL.

8. Hover your mouse in the lower right of the report to display report controls.
   - Size the report within the browser, if needed.
   - Navigate the report pages.
   - Zoom in and out.
   - Save the report, if needed.
   - Print the report, if needed.
   - Set print options as needed.
9. Exit the report by clicking the Close icon in the upper right of the report window.

Save Application Report Settings/Views

You use filters to customize the information contain in the Web Client reports.

If there is specific data you run a report on consistently, you can save the settings so they are your new default.

The next time you log in to dcTrack and open the report view, the same filters and settings are applied.

The saved settings apply only to the individual report, so you must save settings for each report separately.

Settings are specific to you and do not affect other users.

Filter your report and then click Save at the top of the report.

Note: You are not prompted to confirm and a confirmation is not displayed.

The filters and settings you can apply depend on the report type.

Clicking Clear clears all of the filters and settings applied to the report.

Reports

The following reports are available in dcTrack

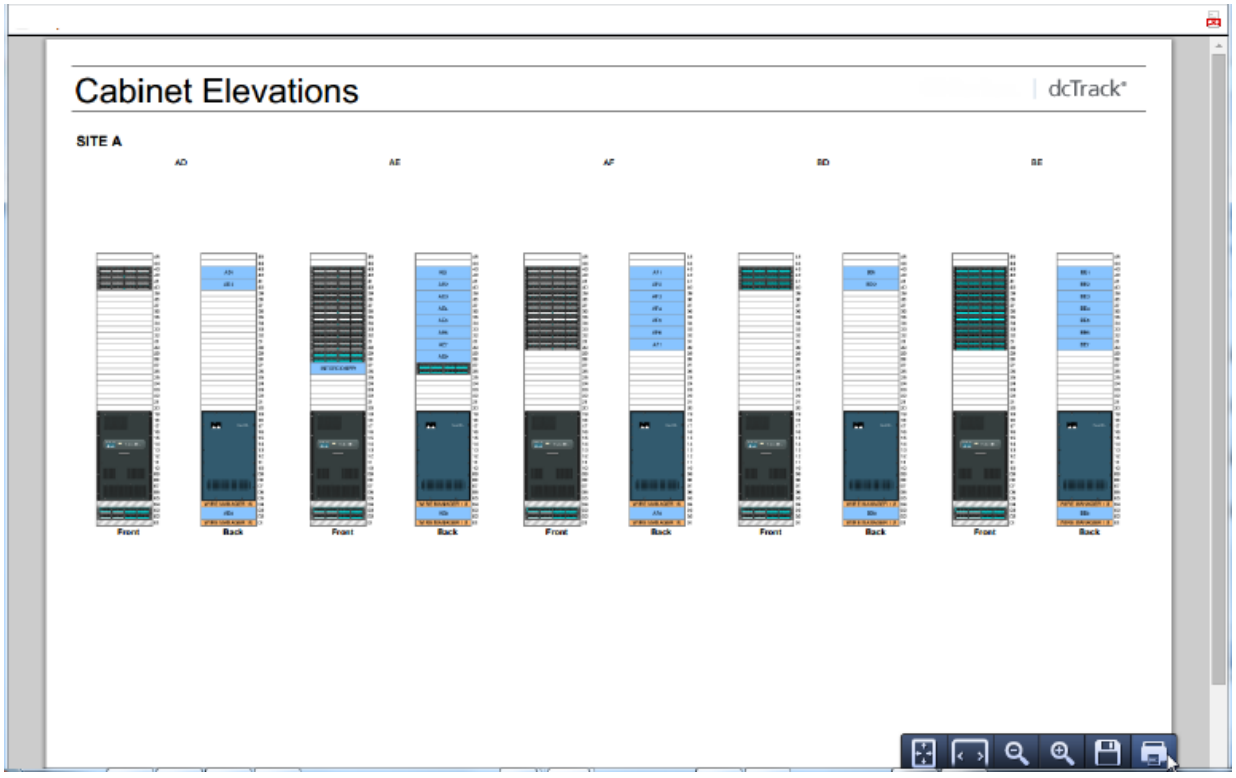
These reports are accessible by selecting the Reports tab on the Item List tool bar.

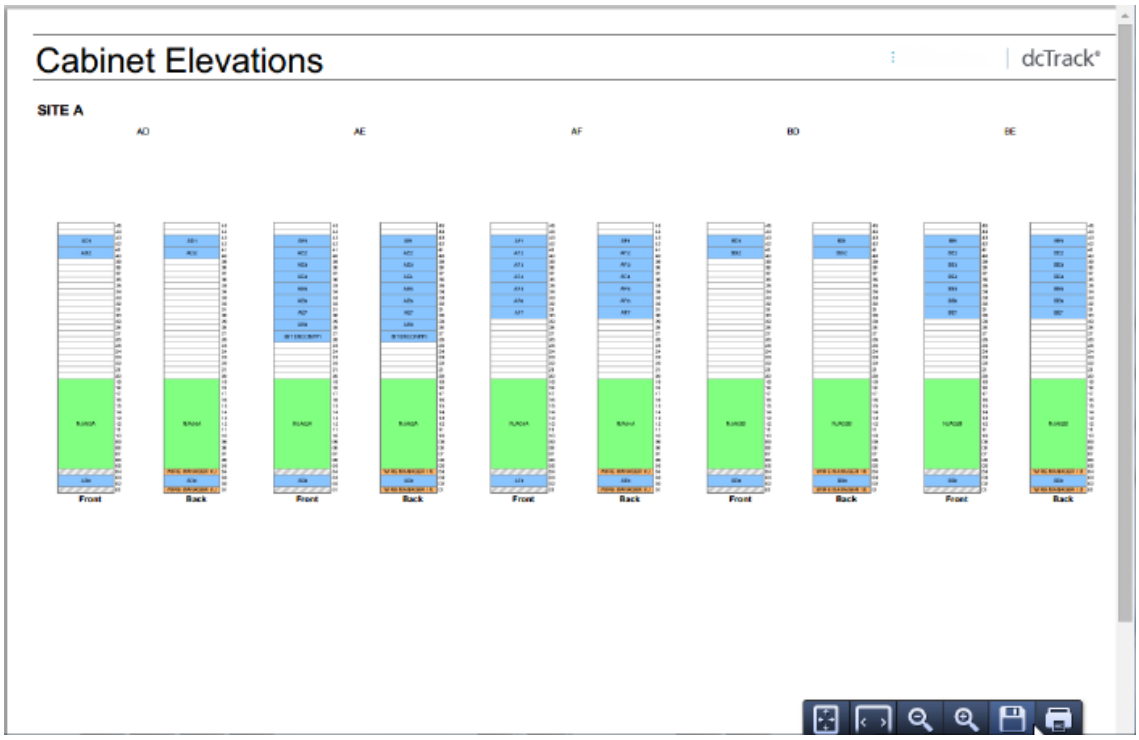
- Data, such as item names and serial numbers, is not truncated.
- The chassis that each blade belongs to is identified in the elevations.
- Item Details reports include cabinet elevations.
- Various filters can be applied to the reports based on the content.

Each report can be printed or saved locally.

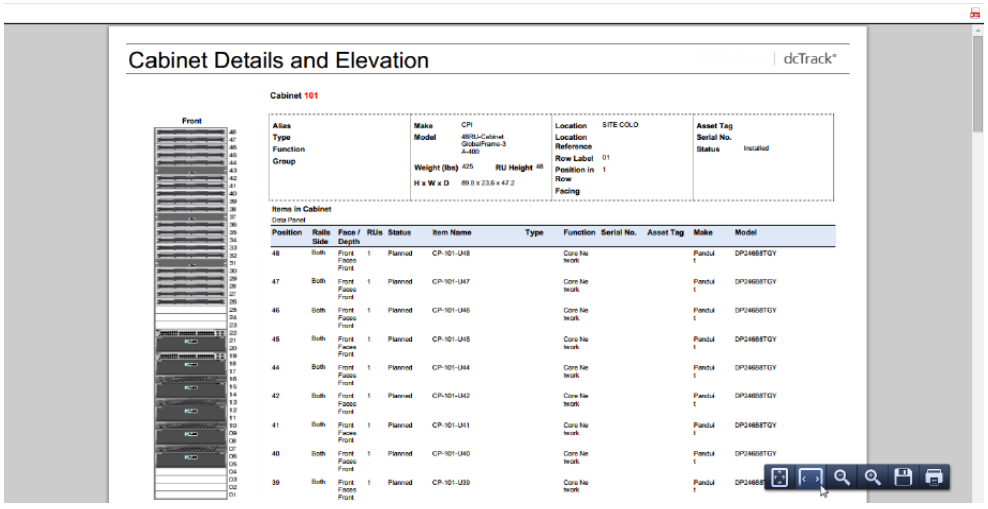
Report Name	Description
Cabinet Elevations Report	Contains elevation views of the cabinets being managed in dcTrack.
Cabinet Detail Report	This report provides either a text-based or visual representation of the Cabinet Elevation of the cabinets being managed in dcTrack. This report includes additional cabinet details, including cabinet elevation, a listing of items in the cabinet organized by item class and sorted by position in the cabinet and a summary of the item details.
Item Detail Report	This report displays either text-based representations of items or, when available, images of the items being managed in dcTrack. This report includes additional device details, such as the make and model, as well as a list of power and data connections identifying far end item and port.
Power Panel Report	This report includes the Panel view of multiple Power Panels. You can select one ore more Power Panels from the item list or select one or more Floor PDU items from the Asset List and get single report for multiple Power Panels. This report also applies to DC Objects (Plant Panel and DC Panel).

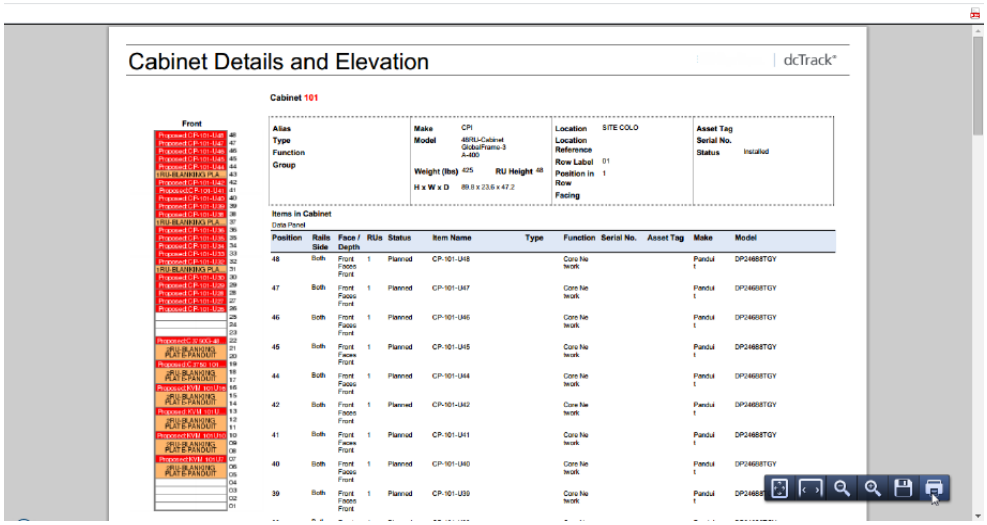
Sample Cabinet Elevation Report



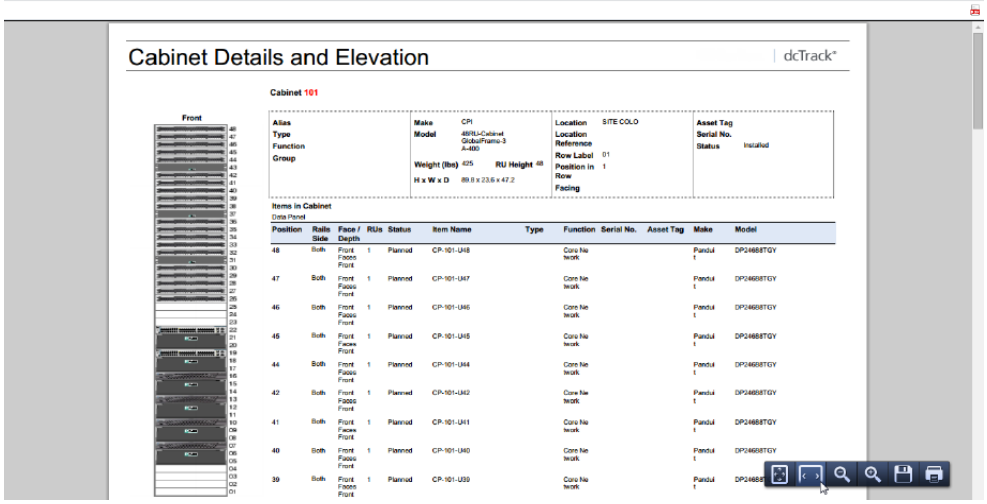


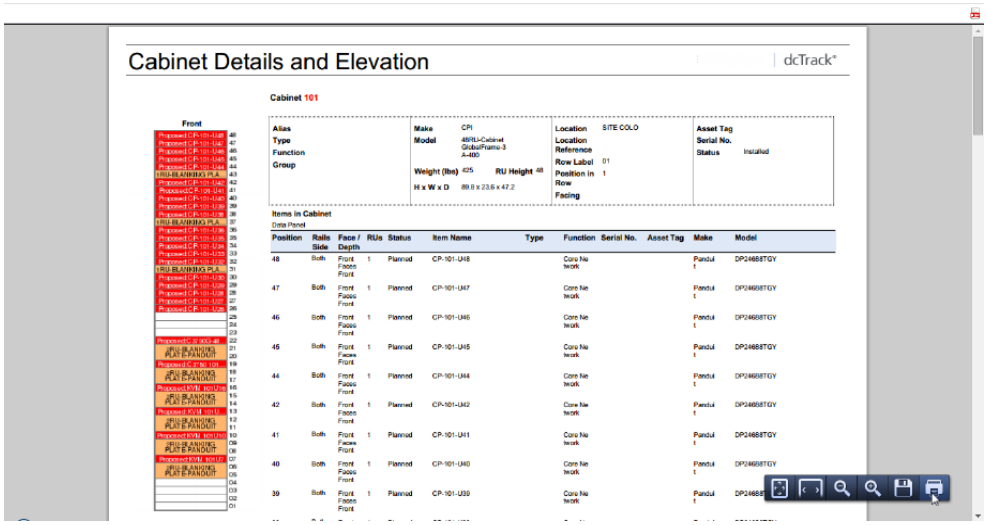
Sample Cabinet Details Report



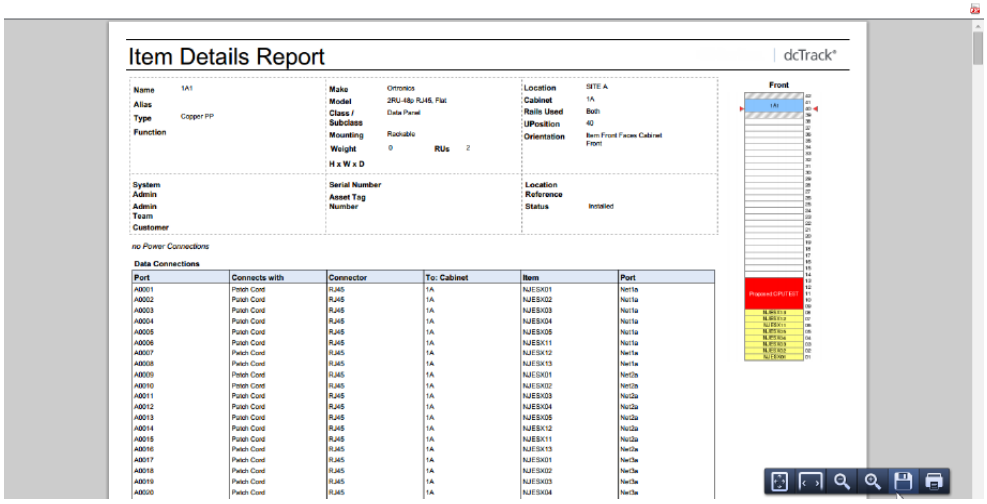


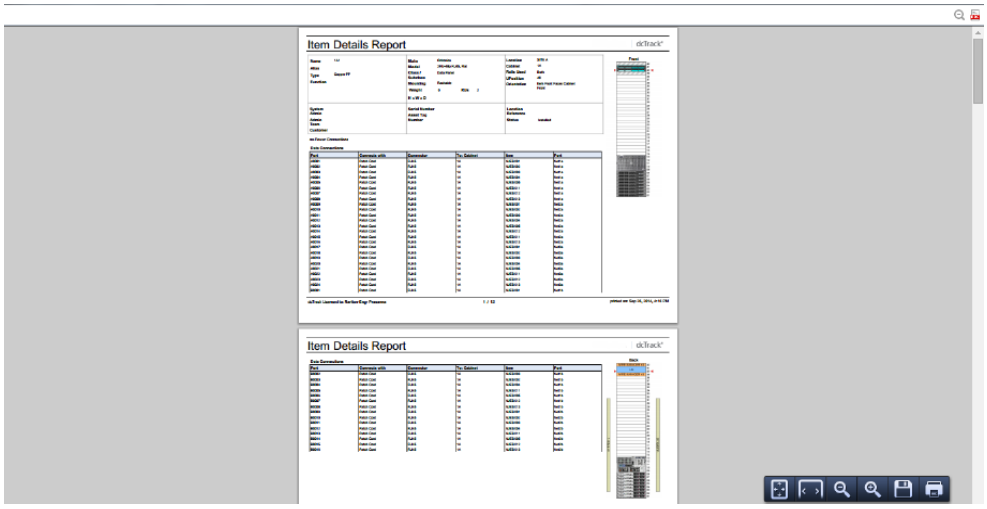
Sample Cabinet Details Report





Sample Item Details Report





Chapter 4:Retrieve Power and Sensor Readings

Data center data and readings are viewed and retrieved in various places in the dcTrack Web Client.

Data and readings are provided in the dcTrack interface and/or report format.

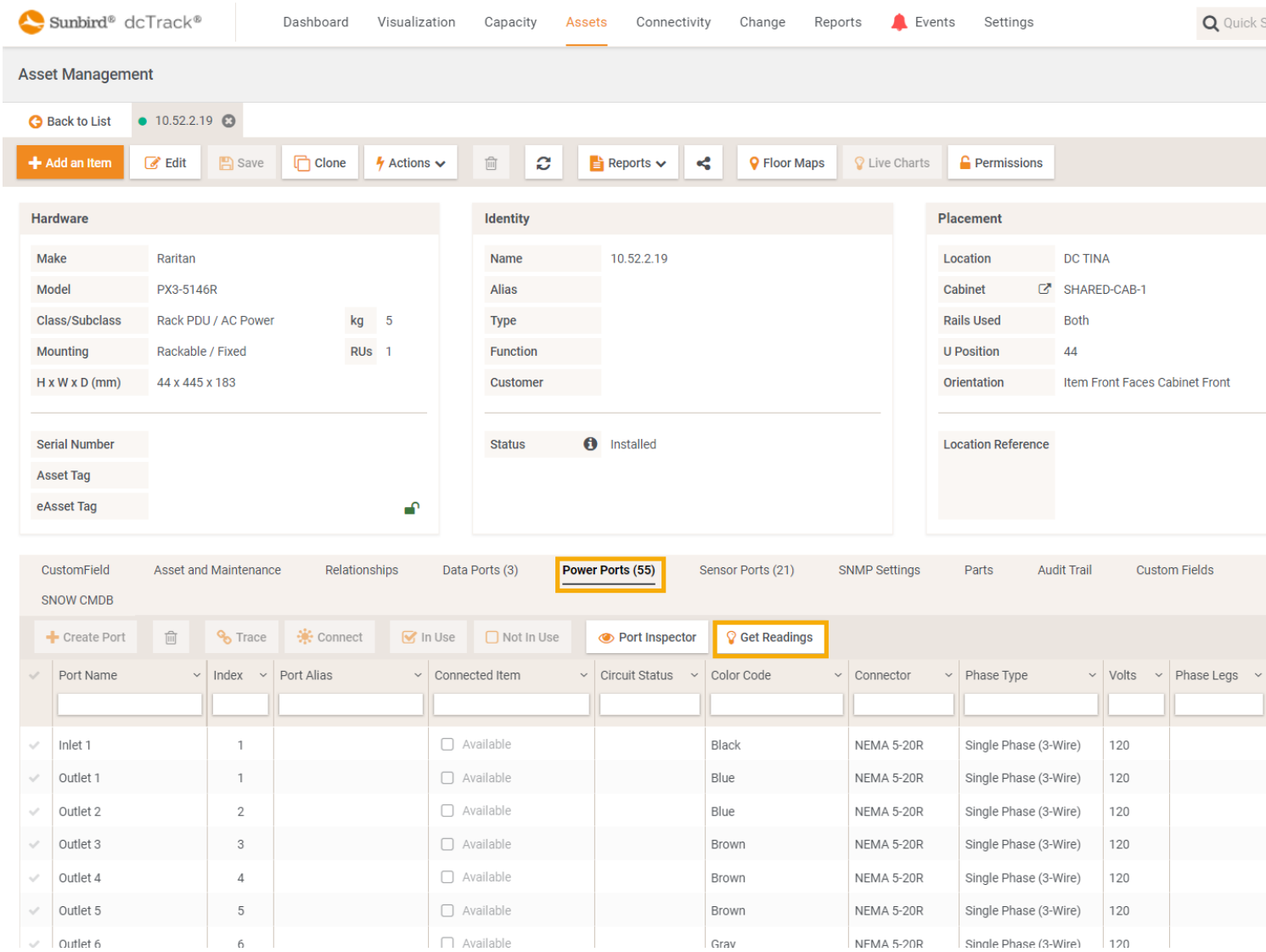
All users with View privileges can view data center data and readings.

In order to get power and sensor readings:

- The device the readings are pulled from must either be from a Power IQ® device, or from rack PDU that has had an SNMP MIB configured to pull readings from it.
- The device must be capable of reporting data over SNMP
- Power IQ Integration must enabled in dcTrack if dcTrack and Power IQ are integrated.

The Get Readings button is not visible if the function is not enabled.

- The device must have power and/or sensor ports, and an IP address and SNMP community string must be assigned to them
- Get Readings must be clicked in order to retrieve AMP readings. Readings are not automatically retrieved by dcTrack.
- You can access the Get Readings button in the Power Ports Tab of a Rack PDU

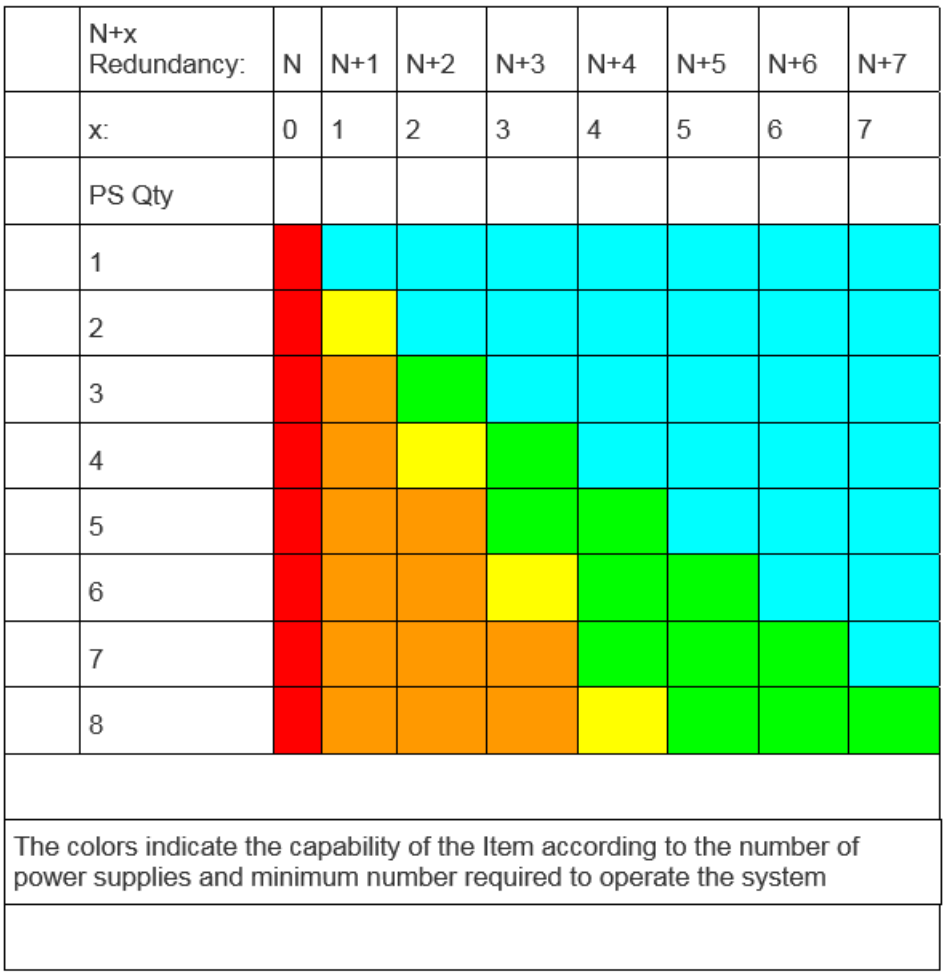


Readings - Definitions

- **Effective Power** - This reading accounts for the number of non-redundant power supplies connected to the item. It is the sum of all non-optional and connected power supplies' budget watts minus the redundant supplies budget watts.
- **Original Power** - When items are created, dcTrack stores the original potential power value. The Original Power field is used to store the Potential Power value that is used to revert the auto adjusted Budget Power value.
- **Potential Power** - Same as effective power but takes into account all the power supplies of the item, not just connected ones. It is the sum of all non-optional power supplies' budget watts minus the redundant supplies budget watts.
- Redundant supplies - This is the number after the 'N +' in the power supply redundancy.

Power Supply Redundancy Report Legend

Color Legend for the N+x Column in the Power Supply Redundancy Report



Color	Description
No Redundancy	A failure in either one of the power supplies or the one of the power sources will shut down this system
Power Supply Redundancy	A failure in one of the power supplies will not shut down the system regardless of how they are connected to the power sources

Color	Description
	(Redundant Power Supplies is less than half the total power supplies)
Power Source Redundancy	A failure in one of the power sources will not shut down the system regardless of how they are connected to the power sources
	(Redundant Power Supplies is half the total power supplies)
Supply & Source Redundancy	A failure in one of the power supplies AND one of the power sources will not shut down the system
	(Redundant Power Supplies is more than half the total power supplies)
Redundancy is incorrect	N+x value is invalid for the number of power supplies or N+x value is not selected at all

Color Legend explanation for the Item Name column in the Power Supply Redundancy Report

The colors indicate the redundancy level of the item based on how its power supplies are connected to the power chain

Color	Description
N/A	
Not Connected Redundancy	Redundant power supply not connected, or connected to the same source
Circuit Redundancy	Redundant power supplies connected to different circuits that lead back to the same power source
Power Source Redundancy	Redundant power supplies connected to different circuits that lead back to different power sources

View Power and Sensor Readings on dcTrack Dashboards

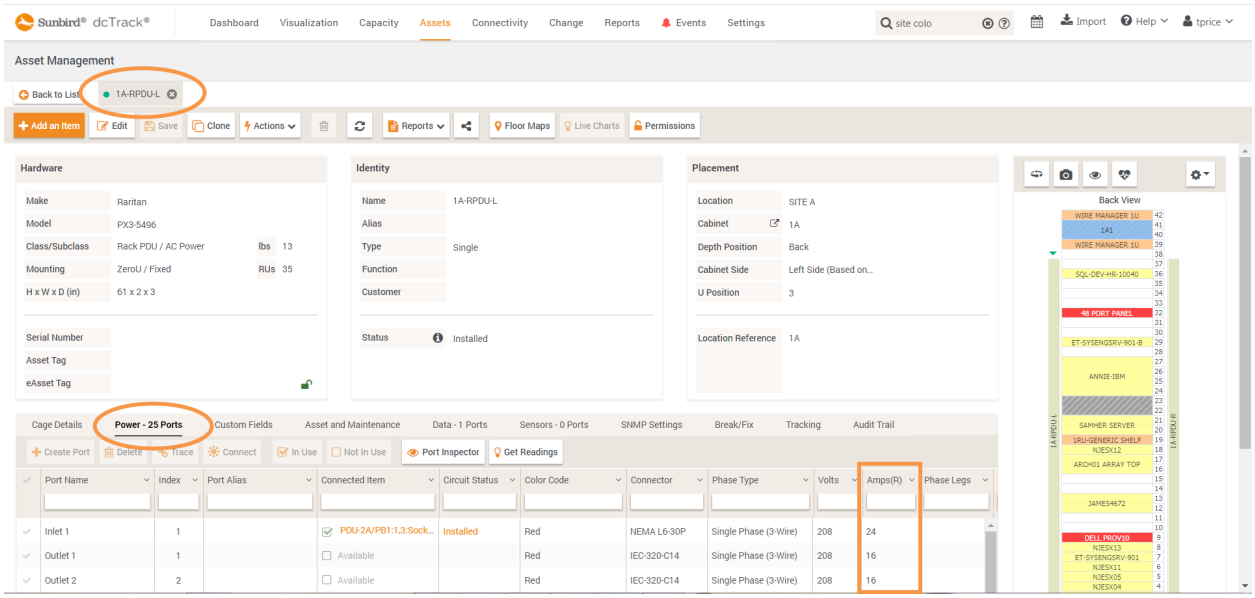
High-level power and sensor readings are available on the Web Client Dashboard.

View Power and Sensor Readings on Item Pages

An item's power and sensor readings are displayed in the Web Client on an individual item's page.

Specifically, power readings are displayed on the Power - n Port tab of an item's page, and sensor readings are displayed on the Sensor - n Port tabs of each item's page.

For example:



For information on configuring items to retrieve readings, see **Configure and Synch Items to Get Power and Sensor Readings**.

Reading or data		Description
A	Item Effective Power Budget reading	This reading accounts for the number of non-redundant power supplies connected to the item. This reading is also available on the Items tab of cabinet item pages.

Reading or data		Description
B	Amp readings	These readings are always visible and real-time. • Amps (B) - Budgeted Amps

Reading or data		Description
		dcTrack calculates the budgeted Amps based on what the rack PDU is connected to. Single-phase calculation: (Watts / PF) / Volts connected at) Three-phase calculation: (Watts / PF) / (Volts x square root (3)) • Amps (N) - Nameplate Amps dcTrack calculates the nameplate Amps using the volts from the outlet the power supply is connected to. Single-phase calculation: (Watts / PF) / Volts connected at) Three-phase calculation: (Watts / PF) / (Volts x square root (3)) • Amps (M) - Measured Amps Measured Amps are used to calculate Budgeted Amps. Measured Amps are real-time power readings from Power IQ, or from rack PDUs using the SNMP MIB.

Get Real-Time Readings from Item Power Ports

Readings for integrated items are refreshed based on the Readings Refresh Interval defined on the PIQ integration configuration page. Once the Interval is set, Readings are automatically refreshed when accessing the "Item Detail", "Circuit Trace", "Floor Maps" and "Dashboard Widgets" pages provided the existing readings are older than the specified interval. This interval is also considered when requesting readings manually (clicking the Get Readings button). For example, if the refresh interval is set to 10 minutes, and the last reading for an item was 11:00, readings for that item could not be refreshed again until 11:10 even if the Get Readings button is clicked. The time of the last reading is displayed in the tool bar for convenience, so you can determine when the next retrieval can be performed.

The Get Readings button is only displayed if the item is integrated with Power IQ and the integration is enabled.

Users with View privileges and above can access an item's page and retrieve power readings.

When Power IQ Integration is enabled, creation and deletion of ports is not applicable.

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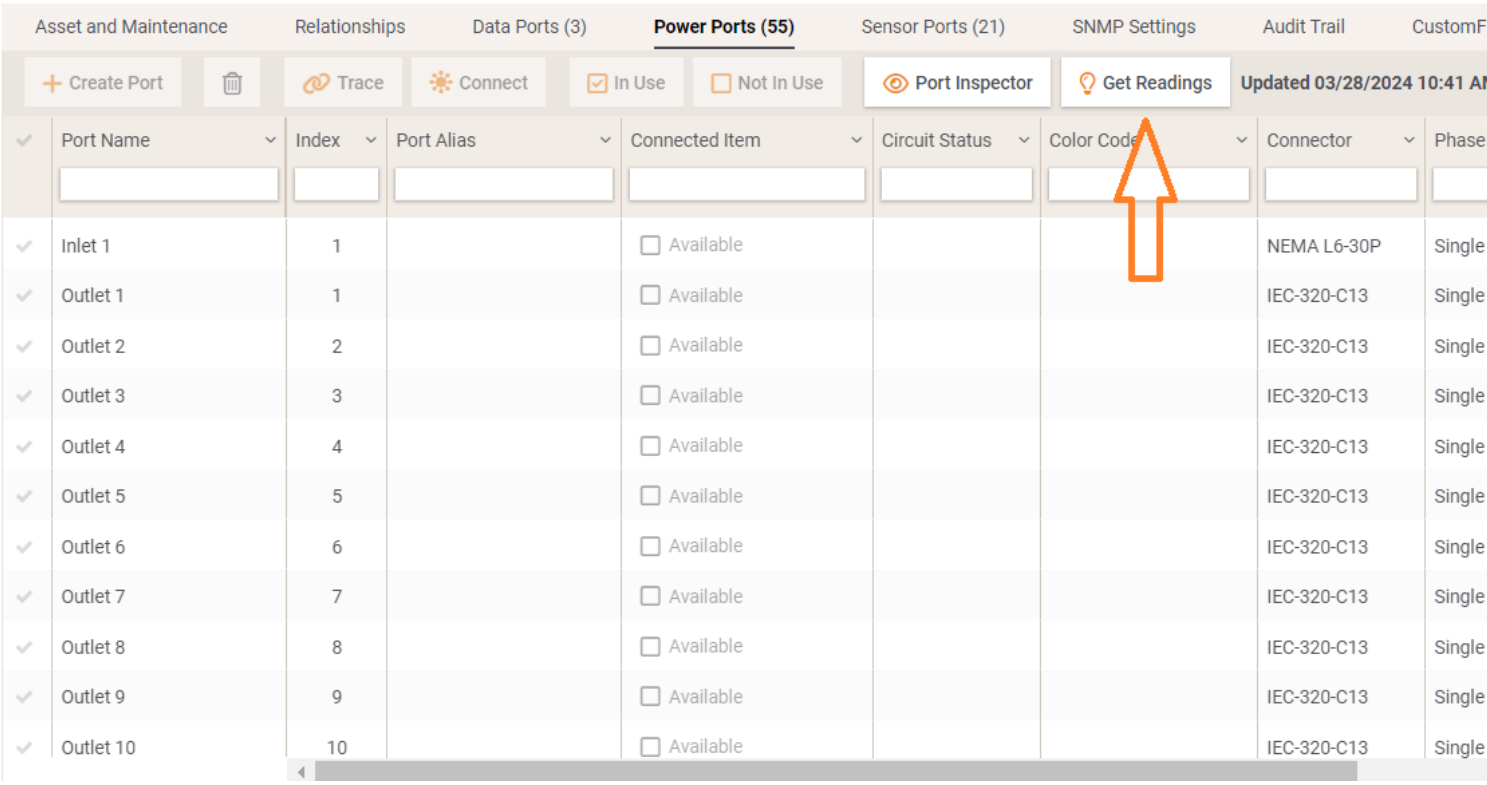


Get Sensor Readings from Item Sensor Ports (Sync Sensors)

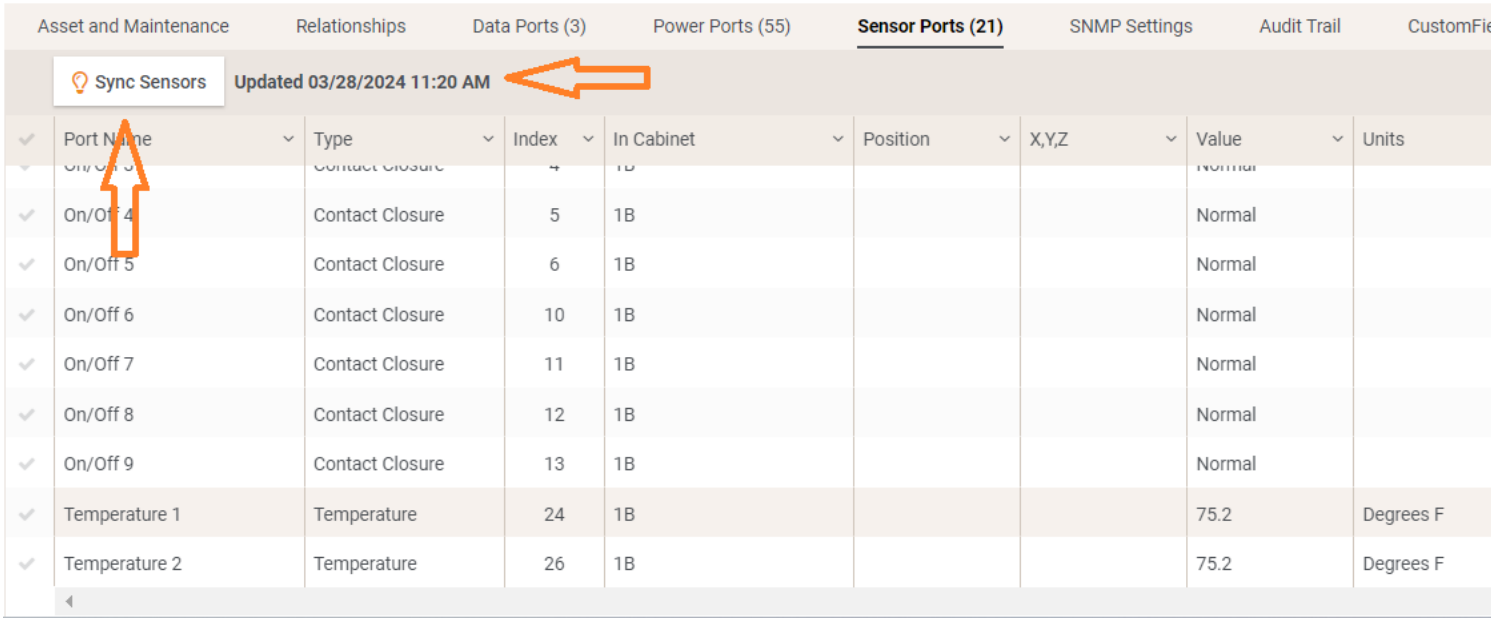
Readings for integrated items are refreshed based on the Readings Refresh Interval defined on the PIQ integration configuration page. Once the Interval is set, Readings are automatically refreshed when accessing the "Item Detail", "Circuit Trace", "Floor Maps" and "Dashboard Widgets" pages provided the existing readings are older than the specified interval. This interval is also considered when requesting readings manually (clicking the Sync Sensors button). For example, if the refresh interval is set to 10 minutes, and the last reading for an item was 11:00, readings for that item could not be refreshed again until 11:10 even if the Sync Sensors button is clicked. The time of the last reading is displayed in the tool bar for convenience, so you can determine when the next retrieval can be performed.

Readings are retrieved for Environmental sensors and asset strips attached to PX device managed by dcTrack since these devices are added to dcTrack as probes. The Sync Sensors button is only displayed if the item is integrated with Power IQ and the integration is enabled.

Users with View privileges and above can access an item's page and retrieve sensor information. Sensor information includes sensor readings, and an updated list of sensors if any were added or removed.

You cannot create or delete sensor ports when Power IQ Integration is enabled, but you can edit sensor information.

When Power IQ Integration is enabled, creation and deletion of sensor ports is not applicable.



Sync Sensor - Sensor Readings (Web Client)

When you perform a Sync Sensor, sensor readings are displayed in the Value column of the Sensor - n Port tab of the item's page.

For example, the temperature in Celsius or Fahrenheit, and so on.

The measurement units used are the application default.

The column remains blank if it is not available.

A notification message is displayed if an event for the asset management has occurred.

Asset management events are also recorded in the event log. View events by clicking on the Events tab in the Web Client.

Sync Sensor - Asset Management Strip Events (Web Client)

Readings from asset management strips are also retrieved via sensor ports since they are connected to dcTrack through either a Raritan EMX or Raritan PX, which are recognized by dcTrack as a rack PDU and probe, respectively.

For more information on how asset management strips work with dcTrack and how they are configured, see **Integrate dcTrack with Asset Management Sensors** .

When you perform a Sync Sensor, 'Available' is displayed in the Value column of the Sensor - n Port tab of the item's page if the asset management strip is available. The column remains blank if it is not available.

A notification message is displayed if an event for the asset management strip has occurred.

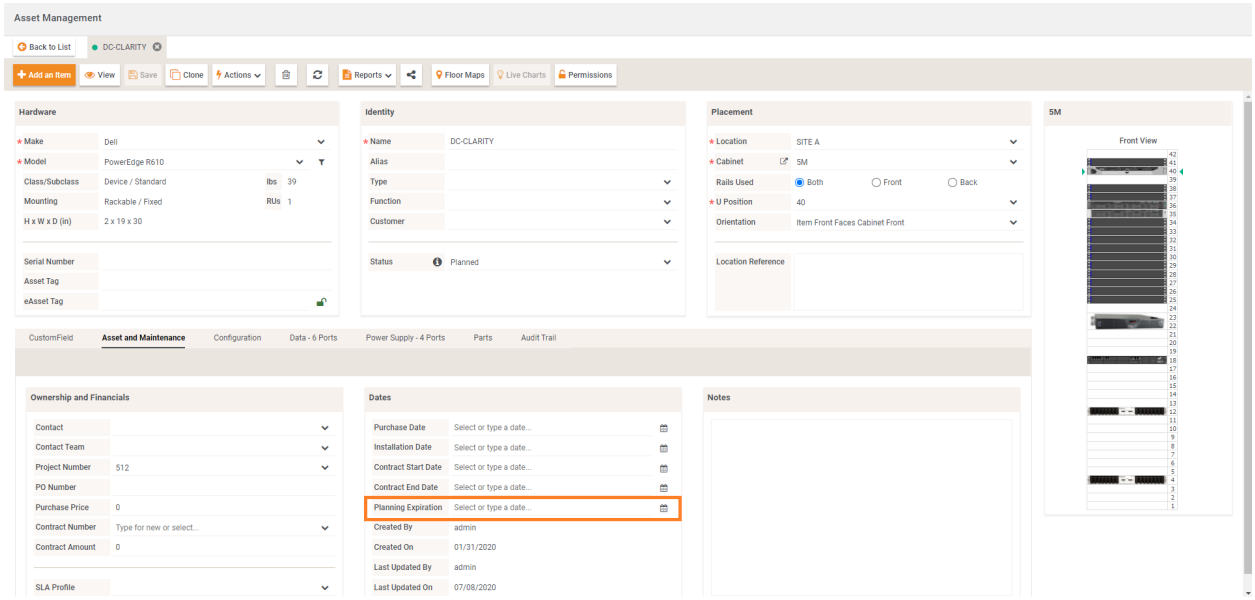
Asset management strip events are also recorded in the event log. View events by clicking on the Events tab in the Web Client.

Chapter 4:Manage Cabinet Space Reservations

In dcTrack, you can set an expiration date for planned items.

This is helpful when you want to reserve cabinet space in dcTrack and set an expiration date beyond which, if the item is not Installed the cabinet space is cleared.

The item field Planning Expiration applies only to items in Planned and Archived status and is where you can set the expiration date.



To set Expiration Date for Planned Items, open Item in edit mode and in the Asset & Maintenance subtab select a date for Planning Expiration.

For Planned Items, Planning Expiration can be set to future date including current date.

On the day of Planning Expiration date, the item status will change to Archived and the placement fields like Cabinet, U Positions, Slot Position (for Blade server) are cleared and logged in Audit Trail. This will happen automatically and will not require manual intervention.

Planning Expiration can also be set for Items with Archived Status. However, for Archived Items Planning Expiration can only be set to Past date excluding current date.

The new field Planning Expiration is also added to Item list and included in import template for bulk update.

Note: Planning Expiration field is a standard item field which is only visible when item is in Planned or Archived Status. This field will be hidden when items is in a status other than Planned or Archived.

Chapter 4:Manage Application Events - Review, Export, Clear and Purge dcTrack, Power IQ and AMS Events

Access the Events page by clicking on the Events menu in the dcTrack Web Client. This page contains a list of events and event details regarding dcTrack, as well as Power IQ and asset sensor information if you are using them as part of your dcTrack configuration.

When you click on an event, the details are displayed in the Event Details section on the right side of the page.

The information on the Events page can be sorted by clicking on a column header, and filtered by selecting from the Filter By drop-downs. You can also filter by status by selecting from the Status drop-down in the Status column.

Clicking Refresh accesses updated events that have been added, modified or deleted by other users. It also performs periodic polling of Power IQ for asset management related events or from user initiated operations. For details on asset management event information, see **Asset Management Sensor Event Information**.

Note: dcTrack stores a maximum of 100k events in a circular buffer removing the oldest entries first when 100k is hit.

Exporting Events

dcTrack allows you to export the information on the Events page to a CSV file.

If you filter the information and export it to a CSV, only the filtered information is contained in the file. For example, if you filter the page to only display Cleared events and then export the data, only Cleared events are contained in the file.

The event details displayed in the Event details section of the page and all of the information displayed in the table are included in the export.

To export Events page information to a CSV file:

1. In the Web Client, click on Events. The Events page opens.
2. Click Export to CSV on the Events page and save the exported file to a location of your choice.

For information on specifying a save location, see **How to Specify a Default Save Location for Downloaded Files**.

Clearing Events

Once an event is resolved or no longer relevant, you can remove the event from dcTrack® by marking it as cleared. Use Ctrl+click to select more than one event.

To clear an event:

1. In the Web Client, click on Events. The Events page opens.
2. Click on the event you want to clear and then click Clear Selected, or click Clear All to clear all of the events at once. The status is changed to Cleared.

Purging Events

Events marked as Cleared can be purged as needed.

Note: Once purged, the event is deleted from the application and cannot be restored.

To purge an event:

1. In the Web Client, click on Events. The Events page opens.
2. Click on the event and then click Purge Selected to purge the selected event only, or click Purge All to purge all events at once.
3. Click Yes when prompted to confirm. The event is deleted from the application.

Power IQ Data Model

The Power IQ® data model is relevant to dcTrack users who are integrating an existing dcTrack with Power IQ.

From the top of the hierarchy to the bottom:

- DATA_CENTER: The data center object type. This object has no parent.
- FLOOR: The floor object type. This object can only have a DATA_CENTER as a parent.
- ROOM: The room object type. This object can have a DATA_CENTER or FLOOR as a parent.
- AISLE: The aisle object type. This object can have a DATA_CENTER, FLOOR, or ROOM as a parent.
- ROW: The row object type. This object can have a DATA_CENTER, FLOOR, ROOM, or AISLE as a parent.
- RACK: The rack object type. This object can have a DATA_CENTER, FLOOR, ROOM, AISLE, or ROW as a parent.
- DEVICE: The IT Device object type. This object can only have a RACK as a parent.
- DOOR: The door object type. This object can have a DATA CENTER, FLOOR, ROOM, AISLE, ROW, or RACK as a parent.

These objects represent PDUs and sensors:

- PDU: The PDU object type. This object represents all types of PDUs in Power IQ, including Rack PDUs, Rack Transfer Switches, Cooling Units, Floor PDUs, Floor UPS, Power Panels, and Standalone Meters. This object can have a DATA_CENTER, FLOOR, ROOM, AISLE, ROW, or RACK as a parent.
- SENSOR: The sensor object type. This object can have a DATA_CENTER, FLOOR, ROOM, AISLE, ROW, or RACK as a parent.

Chapter 4:dcTrack System Requirements

Virtual Machine Requirements and Recommendations

Requirements

- Your dcTrack virtual machine must be given priority.
- Configure your hypervisor so that all required resources are available on the dcTrack virtual machine at all times.
- For VMware users: Note that manipulating ESXi settings or changing the priority of other virtual machines running on the same ESXi host may impact the ESXi scheduling policy. If this happens, resources may be diverted from the dcTrack virtual machine, which may result in poor performance or dcTrack malfunctioning.
- To optimize 3D Visualization you should also include a Graphics Card with a minimum of 2GB RAM that supports at least 1280 x 960 resolution, and the Client RAM should be at least 16GB.

Note: dcTrack supports VMware Version 5.0 and higher.

VM Host Recommendations

VMware host configuration recommendations for dcTrack:

Number of Cabinets	RAM (GB)	CPU (Cores)	Datastore (GB)	Rocky Linux	VMware	Linux	Microsoft
Up to 50	8	4	200 or more	64-Bit	ESX/ESXi	KVM	Hyper-V
51 to 750	16	8	200 or more	64-Bit	ESX/ESXi	KVM	Hyper-V
751 to 1500	32	16	200 or more	64-Bit	ESX/ESXi	KVM	Hyper-V
1501 to 3000	64	24	250 or more	64-Bit	ESX/ESXi	KVM	Hyper-V
3001 to 3500	96	24	300 or more	64-Bit	ESX/ESXi	KVM	Hyper-V
3501 to 5000	128	32	300 or more	64-Bit	ESX/ESXi	KVM	Hyper-V
5001 to 15000	192	48	300 or more	64-Bit	ESX/ESXi	KVM	Hyper-V
15001 to 30000	256	64	500 or more	64-Bit	ESX/ESXi	KVM	Hyper-V

Note1: For most modern CPUs, one CPU will be considered two cores. dcTrack diagnostics report includes the amount of CPUs/cores detected by the appliance.

Note2: For customers with over 30,000 cabinets, please discuss with your Sunbird representative to get the appropriate sizing recommendation.

Note3: An additional 3GB of space may be needed to upload the ISO so it can be installed. Alternatively, the ISO can be installed directly from the DVD.

Note4: For Data Bases 5GB or larger, please contact Professional Services and Support from the http://support.sunbirddcim.com.

Required TCP Ports

The following TCP ports are required to be open when building your virtual machine:

- 443 - HTTPS (secure channel)

This port must be open in order to access the dcTrack login page.

Optional TCP Ports

Leaving the following TCP ports open is optional.

If you do not leave these ports open, note the requirements and/or limitations indicated here.

- 22 - SSH

It is not necessary to have the SSH port open since SSH functionality is available directly on the virtual machine console.

If port 22 is not open, however, SSH cannot be used to access dcTrack to perform diagnostic operations of any kind.

- 5432 - Postgres DB

Port 5432 must be open in order to connect via ODBC

- 514 - TCP

Port 514 is required to forward system logs.

- 161 - TCP

Port 161 is required for SNMP discovery.

- 25, 465, 587 - SMTP

Email SMTP connectivity requires the appropriate port(s) be open. These may vary based on your organization.

- 123 - UDP

This port must be open for NTP time sync to work.

Optional Software

AutoCAD® 2013 (and earlier) or Microsoft Visio®

If you are planning on linking objects in a floor map drawing file with items in dcTrack, use either AutoCAD® 2012 (and earlier) or Microsoft Visio® to create the drawing files.

Drawing File Templates

Sunbird offers AutoCAD and Microsoft Visio drawing file templates you can download. Use the templates to create drawing file renderings of your data center.

Note: Both AutoCAD and Microsoft Visio drawings must be saved as .DWG files in order to upload them to dcTrack.

Download templates from the DCIM Support site at http://support.sunbirddcim.com.

Recommended Browser Font Settings

Sunbird recommends using default browser font settings (11 px).

Customizing the default settings overrides the Web Client's font settings. Display problems may occur with font settings later than 12 px.

License Requirements

dcTrack is licensed based on the number of cabinets maintained by the application.

Contact Sunbird Professional Services and Support for additional information on obtaining a license for dcTrack. Professional Services and Support can be contacted through the http://support.sunbirddcim.com.

Number of Support User Accounts and Concurrent Users

You can create as many user accounts as needed.

dcTrack supports up to 80 (eighty) concurrent users, meaning up to 80 users can use the application at the same time.

Supported Units of Measure and Currency

Units of measure can be either US or SI (metric) measurements. U.S. settings are the default.

Measurement settings are applied on a per user basis.

The selected measurement units apply to all measurements captured throughout the dcTrack Web Client such as cabinet height, item weight, and so on.

To configure measurement settings, see **Define a User's Default Unit of Measure**.

For currency, dcTrack uses US Dollars.

Chapter 4:Item and Connection Statuses

A status is applied to each item and circuit in dcTrack.

The status that is applied is based on the last action request associated with the circuit or item. For example, when an item is added it is in a Planned status. After an Install Item Request is submitted for the item and the request is processed and approved, the item moves into an Installed status.

The same applies to circuits but different statuses are applied to them. Circuits are in a Planned status when they are created. Once a Connect Request is submitted and then approved, the circuit moves into an Installed status. Alternatively, if a Power-off Item Request is processed, the item's circuit is moved into a Powered-off status.

Item Statuses

Item status	Description
Planned	The item that has been added and saved to dcTrack but is not yet installed. A request may or may not have been issued for the item.
Installed	The item that is installed and is in use.
Powered-off	The item that is installed but is not in use.
Storage	Designates that the item is at a storage location, but remains in the inventory.
Off-Site	Designates that the item is temporarily in an off-site location.
Archived	Indicates that the item has been removed from inventory and disposed of. Since you cannot delete items that are in an Installed status, decommission them to an Archived state in order to delete them. You can then purge the items from dcTrack if needed.

Note: The statuses applied to circuits differ from those applied to items.

Circuit Statuses

Circuit status	Description
Planned	A circuit that has been added and saved to dcTrack, but has not yet been installed. A request may or may not have been issued.
Installed	A circuit is installed and is in use.
Powered-off	A circuit is installed but the item is powered off.

Statuses by Item Class, Subclass and Mounting

This table contains information on items and the statuses that are applicable to them. For example, you can submit a request to install a server device that is in the Planned state. Once installed, a status of Installed is applied to it.

The statuses that are applicable to an item vary based on the item's class, subclass, and mounting.

Class	Subclass	Mounting	Planned	Installed	Powered-off	Off-site	Storage	Archived	Planned Decomm	Convert Item to VM	Notes
Cabinet		Free-Standing	x	x			x	x			
		Suspended	x	x			x	x			
	Container	Free-Standing	x	x			x	x			
Device	Standard	Free-Standing	x	x	x	x	x	x	x	x	Supported for Models.
		Rackable	x	x	x	x	x	x	x	x	
		Non-Rackable	x	x	x	x	x	x	x	x	

Class	Sub-class	Mounting	Planned	Installed	Powered-off	Off-site	Storage	Archived	Planned Decomm	Convert Item to VM	Notes
		ZeroU									ZeroU not supported for items
	Blade Chassis	Free-Standing									Free-standing not supported for items
		Rackable	x	x	x	x	x	x	x		
	Blade Server	Blade	x	x	x	x	x	x		x	
	VM		x	x	x			x			
Network	NetworkStack	Free-Standing	x	x	x		x	x	x		Supported for Models. On Road-

Class	Sub-class	Mounting	Planned	Installed	Powered-off	Off-site	Storage	Archived	Planned Decomm	Convert Item to VM	Notes
											map to support for Item
		Rackable	x	x	x		x	x	x		
		Non-Rackable	x	x	x		x	x	x		
		ZeroU	x	x	x		x	x	x		
	Chassis	Free-Standing									Free-standing not supported
		Rackable	x	x	x		x	x	x		
	Blade	Blade	x	x	x	x	x	x			
Data Panel		Rackable	x	x				x			
		Non-Rackable	x	x				x			

Class	Sub-class	Mounting	Planned	Installed	Powered-off	Off-site	Storage	Archived	Planned Decomm	Convert Item to VM	Notes
		ZeroU	x	x				x			
Rack PDU	AC Power	Rackable	x	x			x	x	x		
		Non-Rackable	x	x			x	x	x		
		ZeroU	x	x			x	x	x		
	DC FAP	Rackable	x	x			x	x	x		
		Non-Rackable	x	x			x	x	x		
		ZeroU	x	x			x	x	x		
	Rack Inverter	Rackable	x	x			x	x	x		
		Non-Rackable	x	x			x	x	x		
		ZeroU	x	x			x	x	x		
Probe		Rackable	x	x	x		x	x	x		
		Non-Rack-	x	x	x		x	x	x		

Class	Sub-class	Mounting	Planned	Installed	Powered-off	Off-site	Storage	Archived	Planned Decomm	Convert Item to VM	Notes
		able									
		ZeroU	x	x	x		x	x	x		
Power Outlet	Whip Outlet	Non-Rackable	x	x				x			
	Busway Outlet	Busway	x	x				x			
Floor PDU		Free-Standing	x	x				x			
	Local	Free-Standing	x	x				x			
	Remote	Free-Standing	x	x				x			
	Busway	Free-Standing	x	x				x			
UPS		Free-Standing	x	x				x			
DC Power Sys-	Plant	Free-Standing	x	x				x			

Class	Sub-class	Mounting	Planned	Installed	Powered-off	Off-site	Storage	Archived	Planned Decomm	Convert Item to VM	Notes
tem	Plant Bay	Free-Standing	x	x			x	x			
	Plant Panel	Free-Standing	x	x			x	x			
	Rectifier	Non-Rackable	x	x			x	x			
DC Distribution	DC Bay	Free-Standing	x	x			x	x			
	DC Panel	Free-Standing	x	x			x	x			
Battery		Non-Rackable	x	x			x	x			
Power Source	Generator	Free-Standing	x	x			x	x			
	Utility Feed	Free-Standing	x	x				x			
	Fuel	Free-	x	x				x			

Class	Sub-class	Mounting	Planned	Installed	Powered-off	Off-site	Storage	Archived	Planned Decomm	Convert Item to VM	Notes
	Tank	Standing									
AC Distribution	Switch	Free-Standing	x	x				x			
	UPS Bank	Free-Standing	x	x				x			
	AC Bay	Free-Standing	x	x			x	x			
	Load Device	Non-Rackable	x	x			x	x			
	Other Device	Non-Rackable	x	x			x	x			
	Power Panel	Rackable	x	x			x	x			
	Power Panel	Free-Standing	x	x			x	x			
	Transformer	Rackable	x	x			x	x			
	Trans-	Free-	x	x			x	x			

Class	Subclass	Mounting	Planned	Installed	Powered-off	Off-site	Storage	Archived	Planned Decomm	Convert Item to VM	Notes
	former	Standing									
HVAC	Cooling Zone	Free-Standing		x							
	Cooling Unit	Free-Standing	x	x				x			
	Heat Rejection	Free-Standing	x	x				x			
Passive	Standard	Rackable									
	Blanking Plate	Rackable									
	Shelf	Rackable									
Perforated Tiles											

Chapter 4:Item Audit Trail

Action	Description
See **View an Item's Audit Trail**	• Class • Item ID • Item Name • Action • Field • Old Value • New Value • Changed By • Changed On
See **View a Request's History**	• History for a specific request for an item

Chapter 4:dcTrack ODBC View Tables and Sample Queries

See dcTrack ODBC View Tables and Sample Queries in the dcTrack REST API and External Ticketing Web Services API Online Help or the PDF version of the help.

Support and Help Resources

Professional Services and Support and Training

Technical support, training, contact information, information about the dcTrack Quick Start service and more are located on the DCIM Support website at http://support.sunbirddcim.com, as well.

End User Online Help

Contact Documentation directly with any questions or feedback related to the online help or user guides. Email us attech@sunbirddcim.com.

Note: Feedback via this method is for online help content only and not for technical support, sales, website or product information.

You also can submit a ticket through the Sunbird Support Portal at http://support.sunbirddcim.com/support/tickets/new.

Troubleshooting Online Help Issues

Online Help Search Field/Menu/Icons Do Not Load in Microsoft Internet Explorer

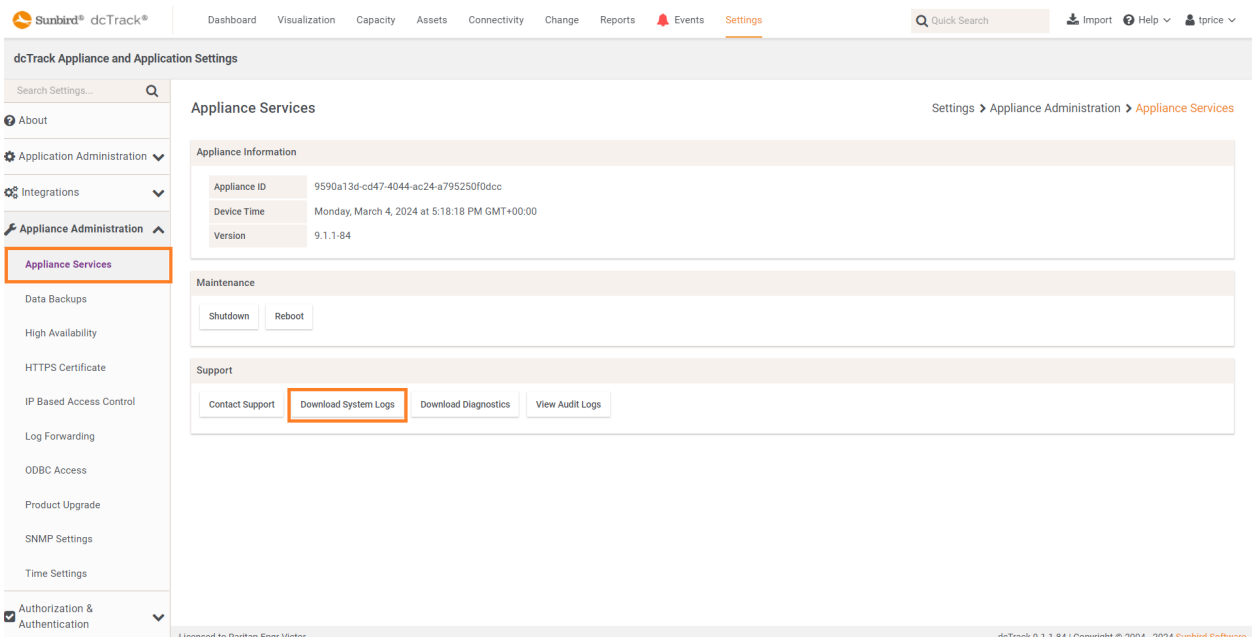
Microsoft Internet Explorer®, mostly commonly Microsoft Internet Explorer 10 (IE10), may not load the dcTrack search field, menus, and or email, feedback and home icons.

If this occurs, switching to Compatibility View in Microsoft Internet Explorer generally fixes the problem.

How to Download System Logs in dcTrack

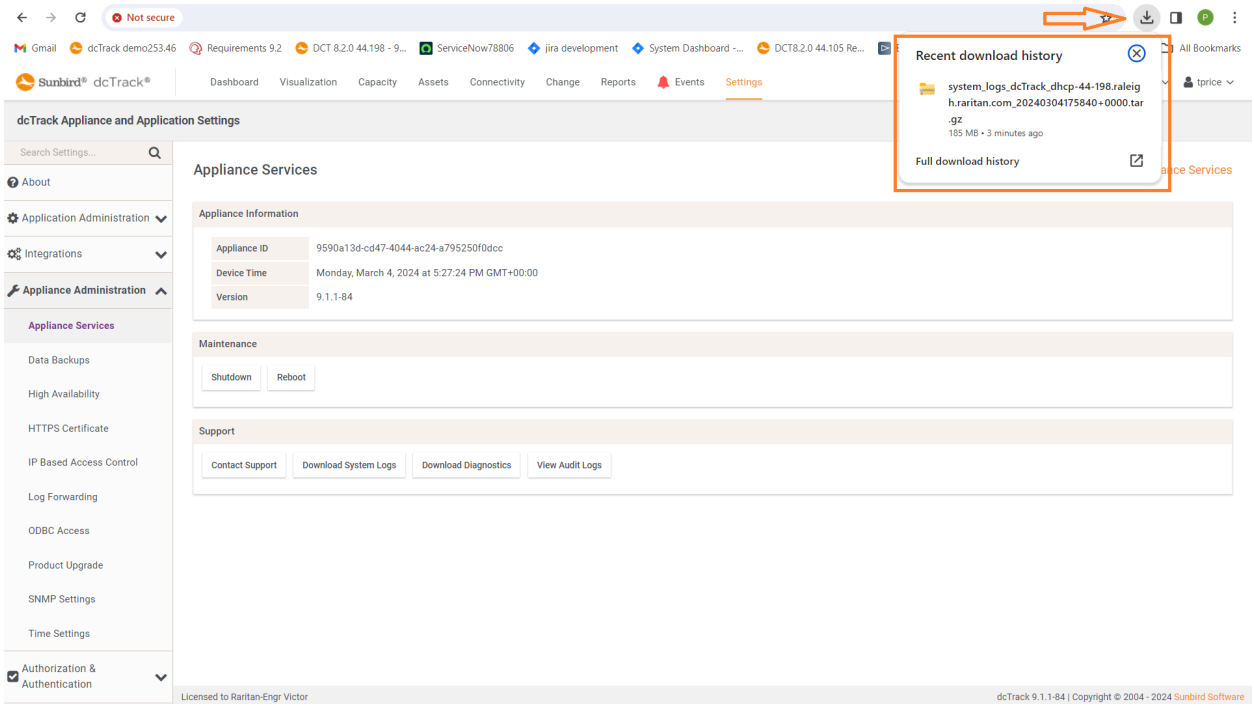
When you submit an issue to Sunbird Technical Support, you may be asked to provide system logs. Your system logs provide additional details about your issue and helps the Sunbird Technical Support team to resolve your issue faster, particularly for escalated issues.

1. In dcTrack, navigate to Settings > Appliance Settings.



2. On the Appliance Settings page, click the Download System Logs button

3.The logs will be generated and placed in your download directory.



For information on specifying a save location, see **How to Specify a Default Save Location for Downloaded Files**.

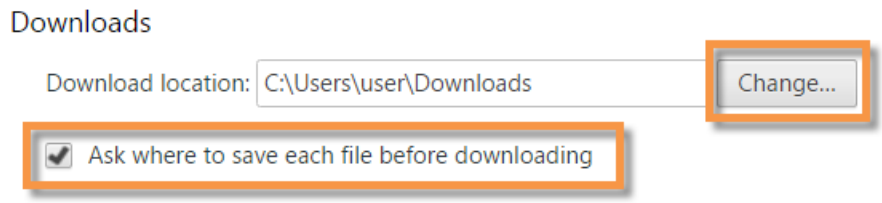
How to Specify a Default Save Location for Downloaded Files

When exporting a CSV file or downloading a dashboard widget, you may want to specify the default location where the file is saved.

Specify a Save File Location for Google Chrome

1. In your Chrome browser, go to Menu > Settings or type **chrome://settings** into your address bar.
2. On the Settings page, click **Show advanced settings...** to display the full list of available settings.
3. On the Settings page under Downloads, click the **Change** button to select a new default download location.

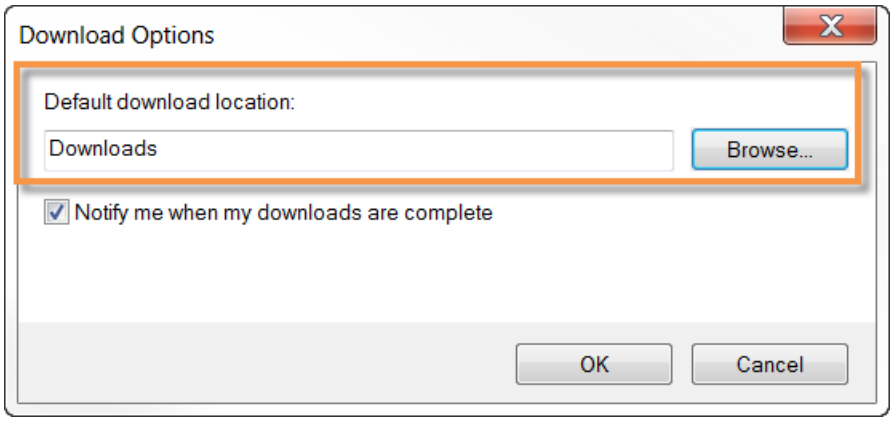
*Note: Check the **Ask where to save each file before downloading** checkbox to specify the location each time you download a file.*



Your changes are automatically saved.

Specify a Save File Location for Internet Explorer

1. In your Internet Explorer browser, click the Gear icon > View Downloads or click CTRL+J.
2. In the View Downloads window, click the **Options** link.
3. In the Download Options dialog, click the **Browse...** button to select your desired location.



4. Click the OK button to save your changes.

Field Mapping Values

Overview

Item Top Panels Mappings

Asset and Maintenance Subtab Mappings

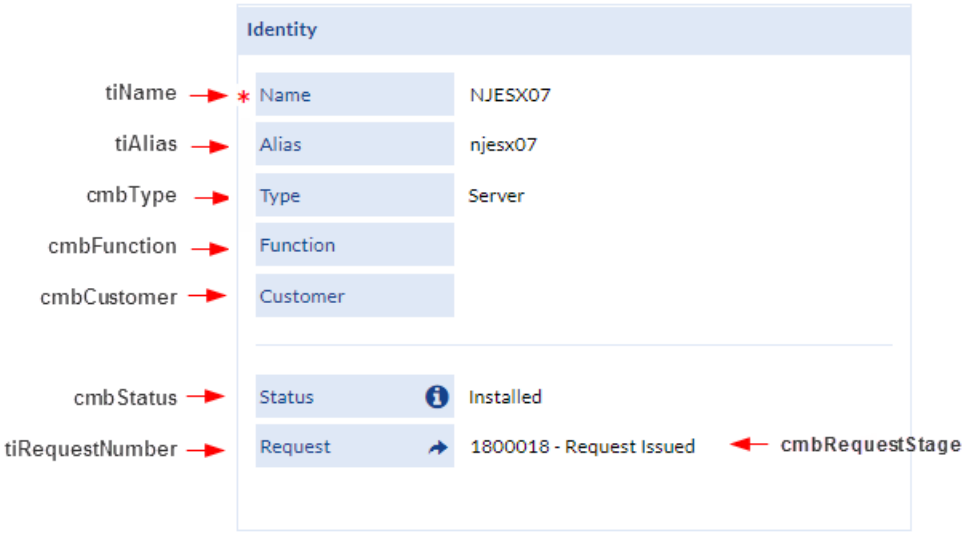
Overview

This section contains the dcTrack field names that should be used in the CMDB config.xml when mapping fields to either ServiceNow or Remedy for CMDB integration. These field names should be used whenever you are specifying a value for <dcimFieldId> elements.

The section topics correspond to the Web Client panels and sub-tabs found on the Asset Detail screen. Each contains images and labels to help you to discern the correct name to use for each field label.

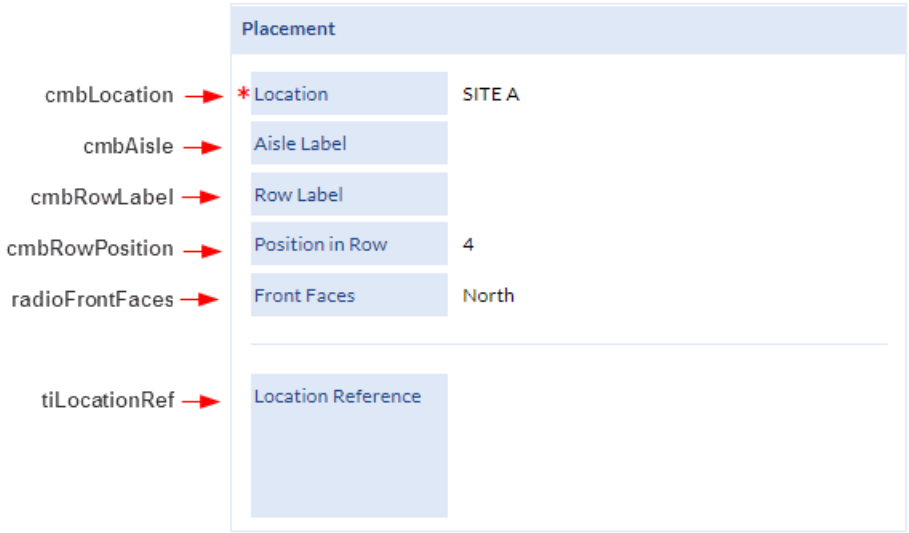
Item Top Panels Mappings

Asset Detail Identity Panel



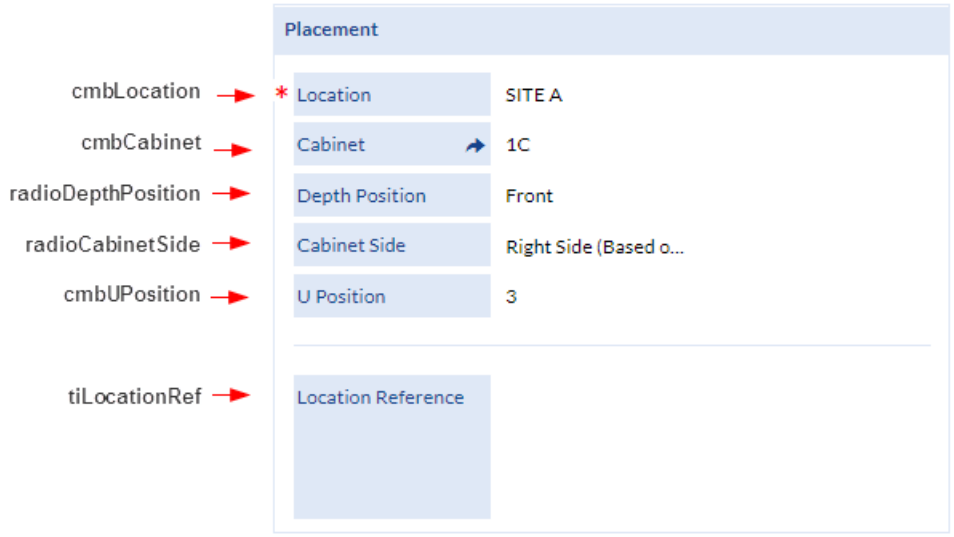
The Placement Panel fields displayed in the Web will vary depending on the Class, Subclass and Mounting for an Item. Field names however will be consistent across all Items.

Asset Detail Placement Panel



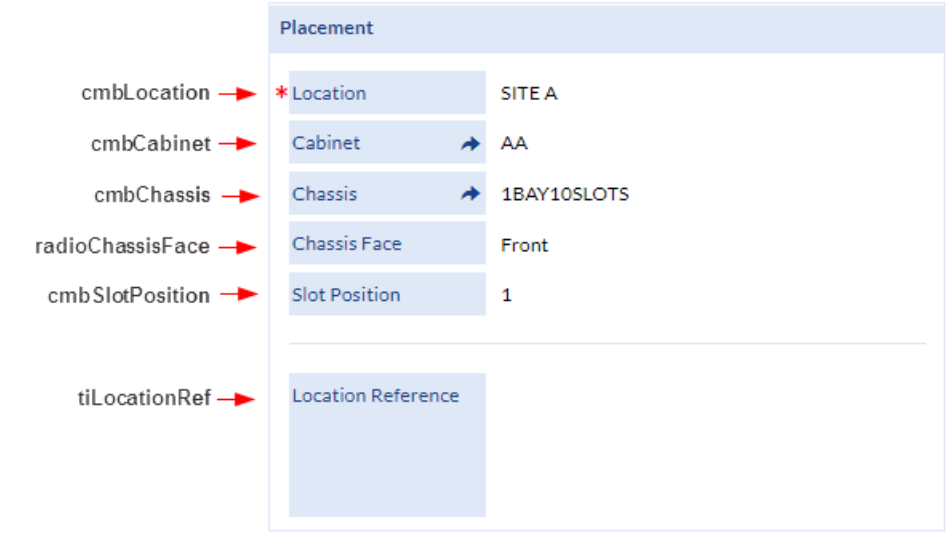
Item class	Subclass	Mount
Device	Standard	Free-sta
Cabinet Cabinet	NA Container	Free-sta Free-sta
Network	Network Stack	Free-sta

Asset Detail Placement Panel



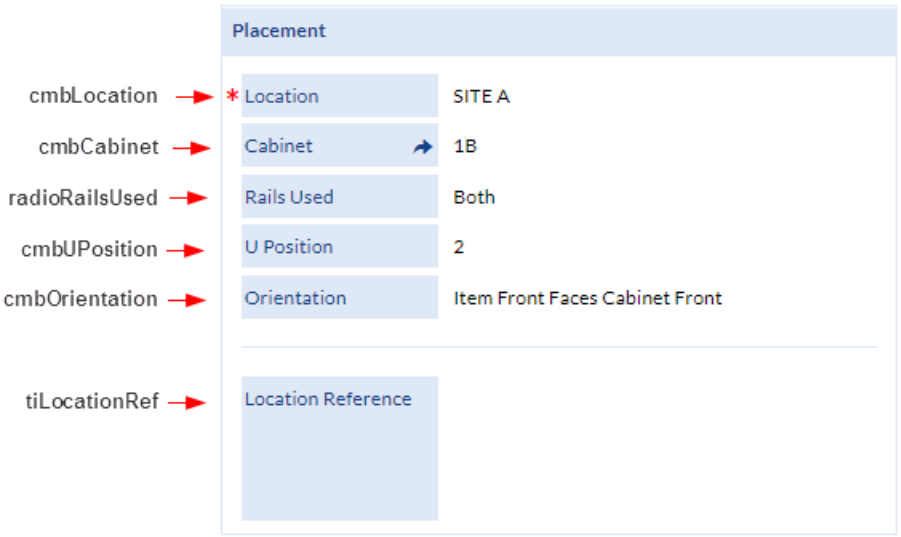
Item class	Subclass	Mount
Device	Standard	ZeroU
Network	Network Stack	ZeroU
Data Panel	NA	ZeroU
Rack PDU	NA	ZeroU
Probe PDU	NA	ZeroU

Asset Detail Placement Panel

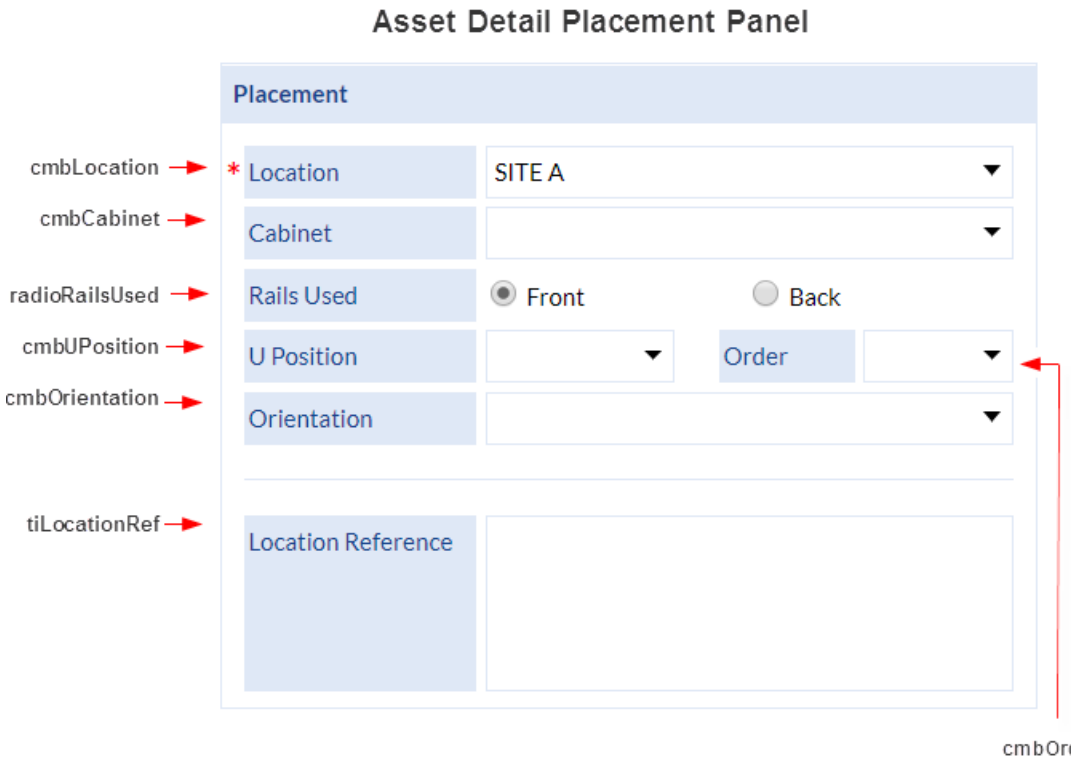


Item class	Subclass	Mountin
Device	Blade Server	Blade
Network	Blade	Blade

Asset Detail Placement Panel

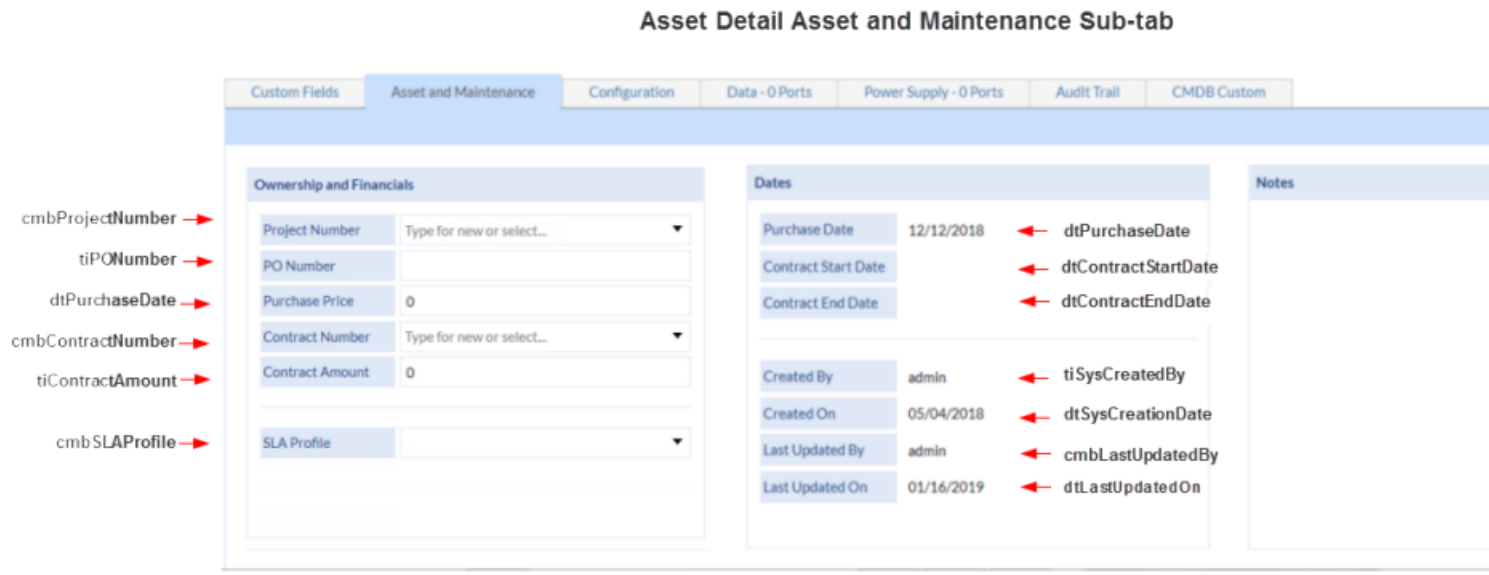


Item class	Subclass	Mounti
Device	Standard	Rackable
Device	Blade Chassis	Rackable
Network	Chassis	Rackable
Network	Network Stack	Rackable
Data Panel	NA	Rackable
Rack PDU	NA	Rackable
Probe PDU	NA	Rackable

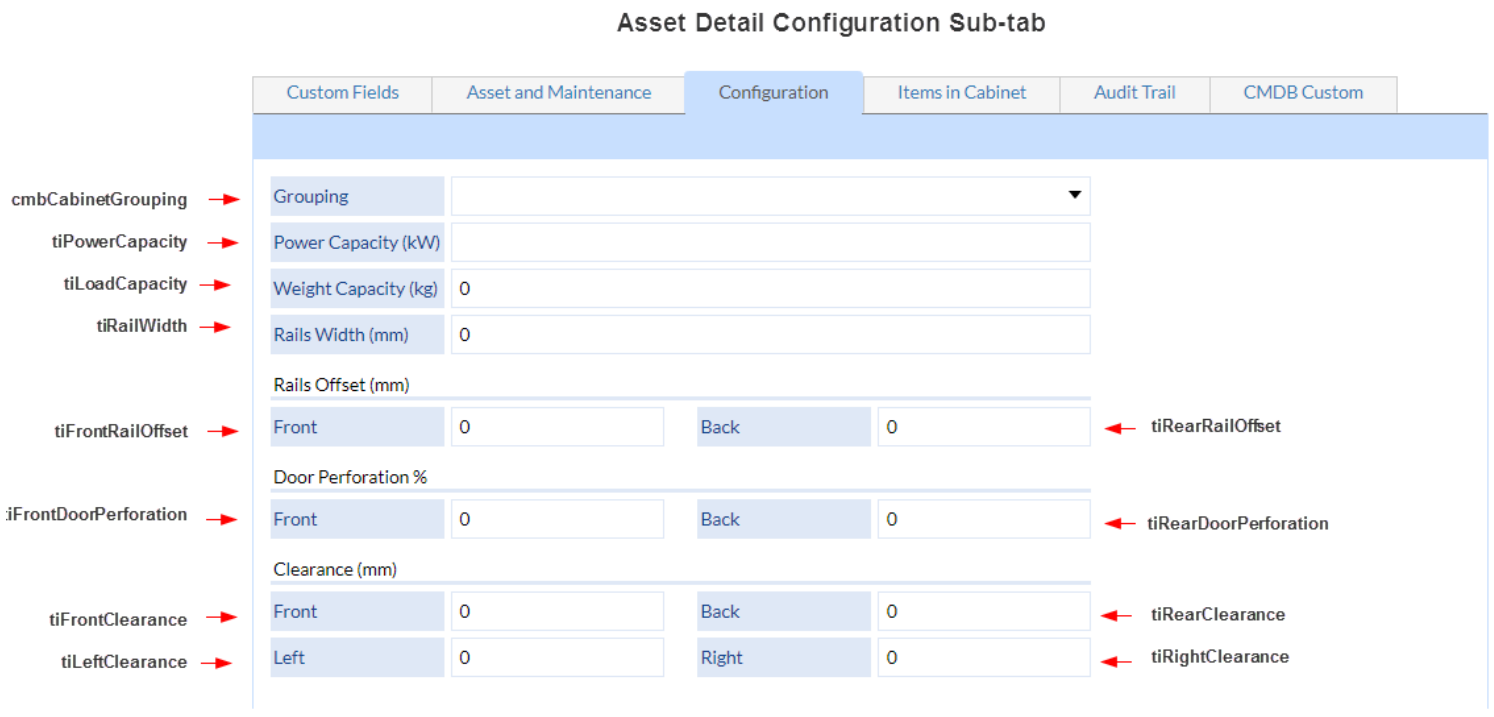


Item class	Subclass
Device	Standard
Network	Network Stack
Data Panel	NA
Rack PDU	NA
Probe PDU	NA

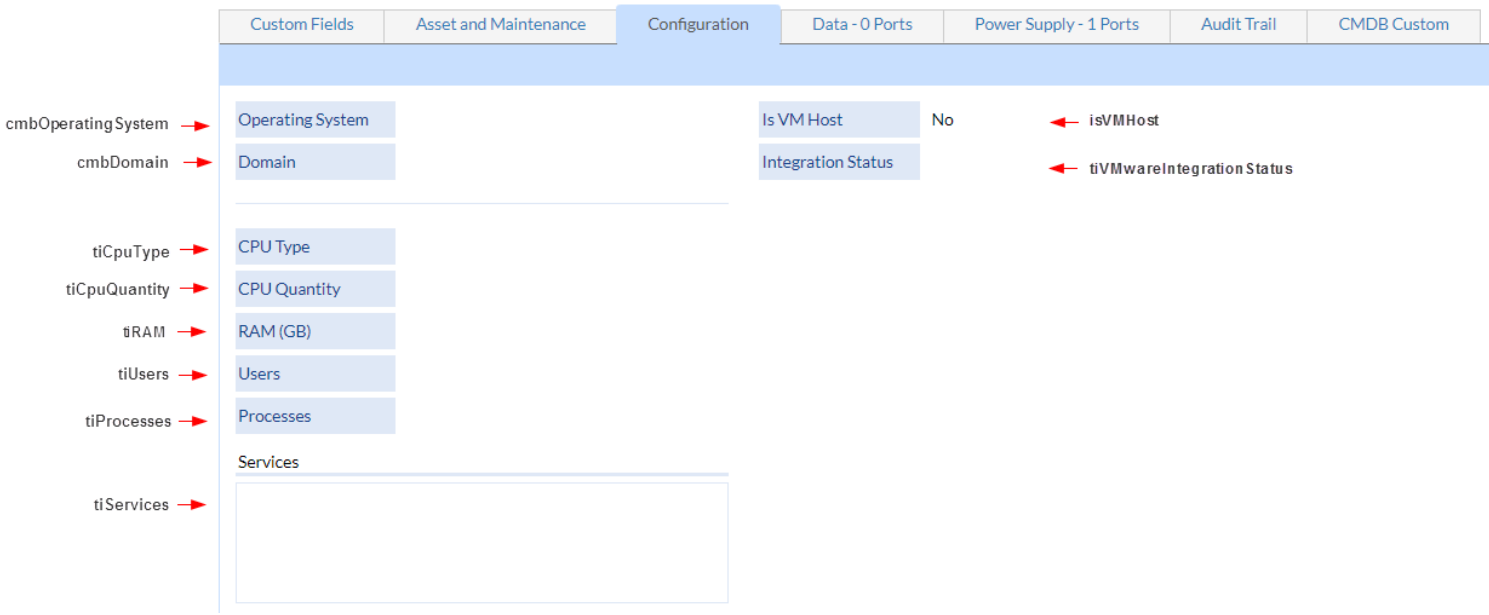
Asset and Maintenance Subtab Mappings



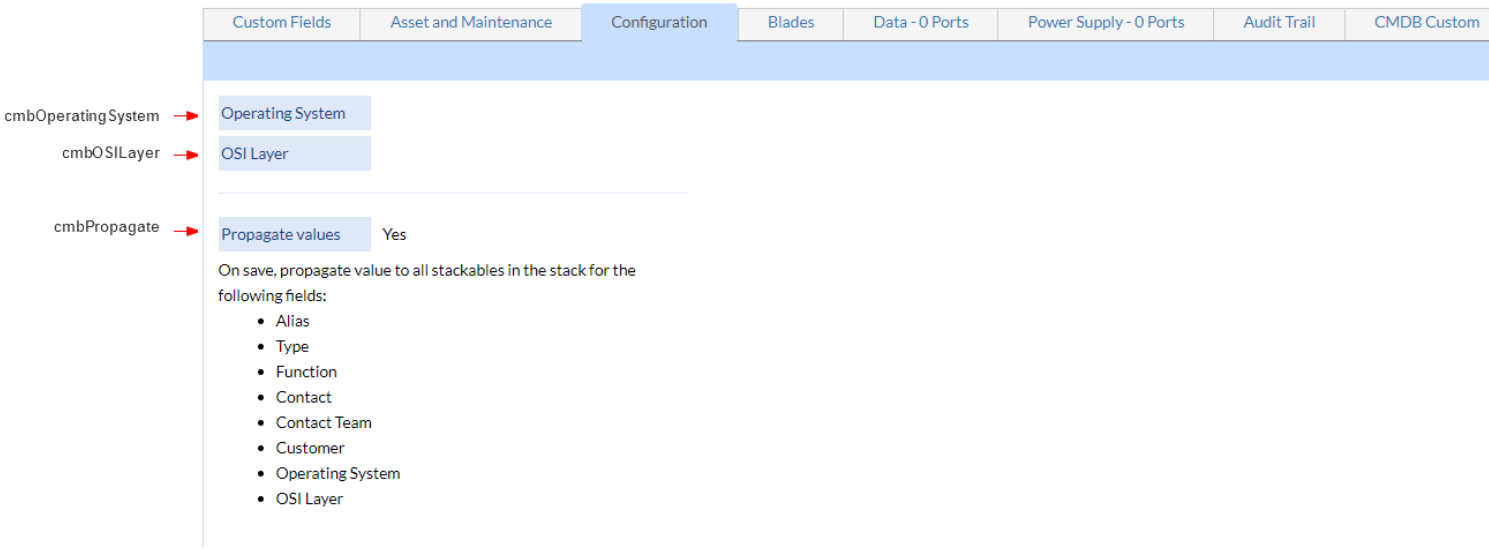
Configuration Subtab Mappings

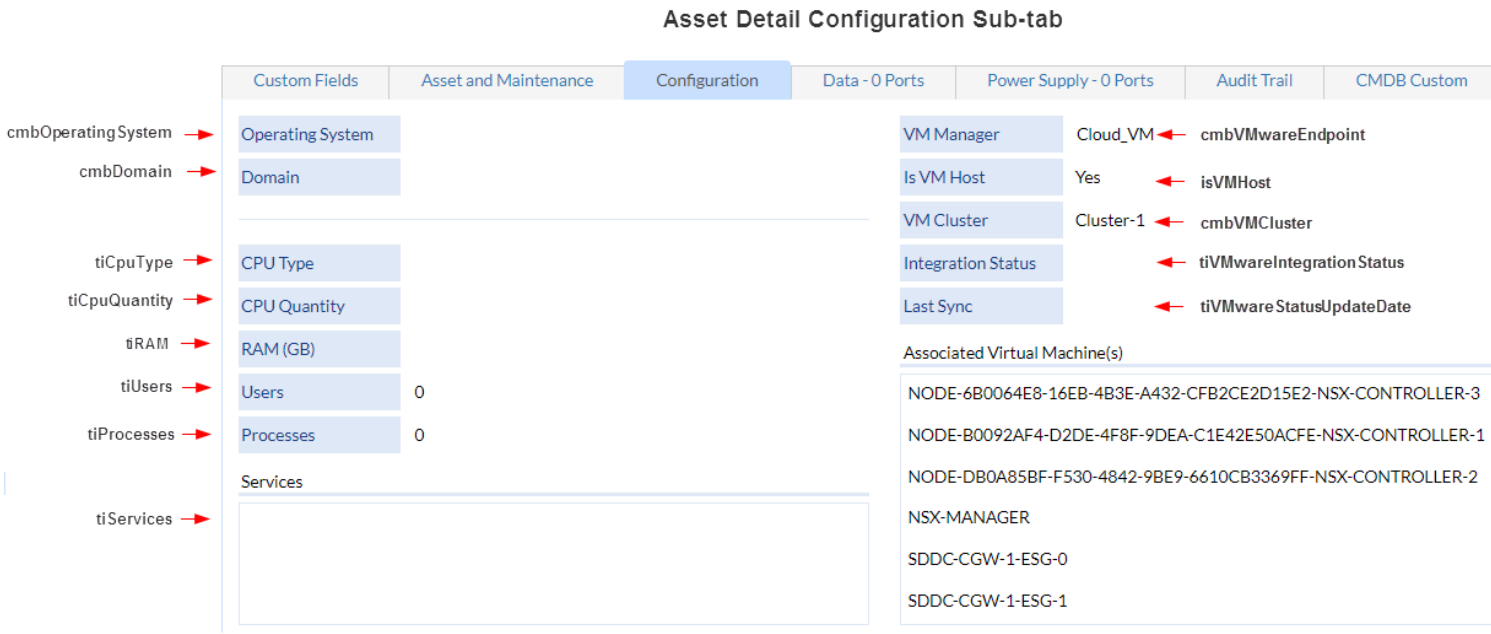


Asset Detail Configuration Sub-tab



Asset Detail Configuration Sub-tab




Asset Detail Configuration Sub-tab
Custom Fields
Asset and Maintenance
Configuration
Data - 0 Ports
Power Supply - 0 Ports
Audit Trail
CMDB Custom
cmbOperating System
Operating System
cmbDomain
Domain
tiCpuType
CPU Type
tiCpuQuantity
CPU Quantity
tiRAM
RAM (GB)
tiUsers
Users
0
tiProcesses
Processes
0
Services
tiServices
VM Manager
Cloud_VM
cmbVMwareEndpoint
Is VM Host
Yes
isVMHost
VM Cluster
Cluster-1
cmbVMCluster
Integration Status
tiVMwareIntegrationStatus
Last Sync
tiVMwareStatusUpdateDate
Associated Virtual Machine(s)
NODE-6B0064E8-16EB-4B3E-A432-CFB2CE2D15E2-NSX-CONTROLLER-3
NODE-B0092AF4-D2DE-4F8F-9DEA-C1E42E50ACFE-NSX-CONTROLLER-1
NODE-DB0A85BF-F530-4842-9BE9-6610CB3369FF-NSX-CONTROLLER-2
NSX-MANAGER
SDDC-CGW-1-ESG-0
SDDC-CGW-1-ESG-1

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