USER MANUAL

Logistics Analytics Release 4.6.2

Visualization software for performance monitoring of auto ID Systems

Part Number: XXXX

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SICK
Sensor Intelligence.

What's New – Release 4.6.2

S. No.	Feature / Upgrade
1	Automates certificate updates via SSMS
2	Enhances API security: hides client secret in /openid/settings, clears browser sessions on OpenID logout, blocks ECDHE/CBC ciphers, sanitizes /encrypt/pemkey errors
3	Mimics RDT behavior for Heartbeat errors
4	Fixes Shift Statistics for overnight shifts, object counts, and device charts
5	Upgrades PandA dashboards with new tables/charts and improved alignment
6	Adds advanced search (by girth/longest side), multi-barcode CSV search, and long barcode fixes
7	Includes **imageURLs** in Search Results / MQTT live-feed
8	Upgrades to MySQL 8.4.5
9	Improves UI with Performance Status icons, auto-display of system status/timeline, and device name tooltips
10	Supports Epoch strings, stabilizes health status, adds OIDC role support
11	Fixes timeline/system state dependencies, System List display, and shift/barcode issues

About this Manual

The SICK Analytics Solutions documentation is composed of two separate manuals. Both manuals are available in printed/.pdf format as well as from the dashboard, using the online **Help** function.

Logistics Analytics User Manual

Learn how to use the Logistic Analytics user interface to quickly retrieve comprehensive data to support operations, maintenance, customer service, and security of your facility's data acquisition systems.

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Contents

Contents

1 LA Overview

Facility's auto identification systems have SICK Intelligent Sensors. These sensors include barcode reading devices, and dimensioners. As packages pass through the system, the sensors acquire package data and send it to the individual auto identification system's controller. This data includes package information like barcode details, package dimensions, and weight. System status information is also collected by the data acquisition system's controller. This data may include information like device faults, conveyor speed, and throughput.

All package and system status data are sent to your facility's Logistic Analytics (LA) Application Server.

LA stores and provides access to the data collected by facility's auto identification systems. The HTML5 based LA client dashboard provides a user interface to view, analyze and report on the collected data to support your facility's operations. Using LA, you can view system data, graph statistics, and more.

1.1 System Components

The SICK LA auto identification solution works together with existing key components in your facility to collect and report on system data. These are:

- The LA software
- PC/server to host LA and Media Server software
- SICK Intelligent Sensors
- Client computers
- Meta base

1.1.1 LA software

LA software receives and processes XML data sent from SICK sensors and controllers. All data sent from connected systems is stored in a database. The host PC supports the LA client dashboard requests. All user access to the database is provided through the LA dashboard.

1.1.2 PC/server host

LA software and Media Server are installed on your facility's host PC/server. All collected system data is also stored on the host PC.

1.1.3 SICK Intelligent Sensors

SICK Intelligent Sensors include scanners, and dimensioners mounted on the data acquisition system. The sensors generate package related data which is combined into an XML

Output by each individual system's controller. Many SICK Intelligent Sensors have two primary information streams. One is text-based data (including heartbeats) and the other is some form of rich data. The XML data, along with data pertaining to the system's health, is sent to the LA host PC.

1.1.4 Client computers

The client computer is any PC connected to the LA network. LA's client dashboards are HTML5 web applications. The client dashboards connect to the LA to access rich data content and provide a powerful user experience. Client computers provide a platform for the LA interface ("dashboard"), to provide access to current and database information stored on the host PC. The dashboard makes it possible to quickly search, view, and export information obtained from the auto identification solution.

1.1.5 Meta base

Meta base is a third-party tool. Once integrated with Analytics application, user can create reports and access pre-defined charts and reports from the application's logistics data.

1.2 System Architecture

The illustration below provides a visual representation of the LA system architecture and illustrates how the system components work together to provide a robust and comprehensive analytical tool for your auto ID systems. The Facility software

solution can support more complex architectures (Cluster Set-up) including High Availability. Please reach out to your Sick Sales representative to explore which architecture best fits your needs.

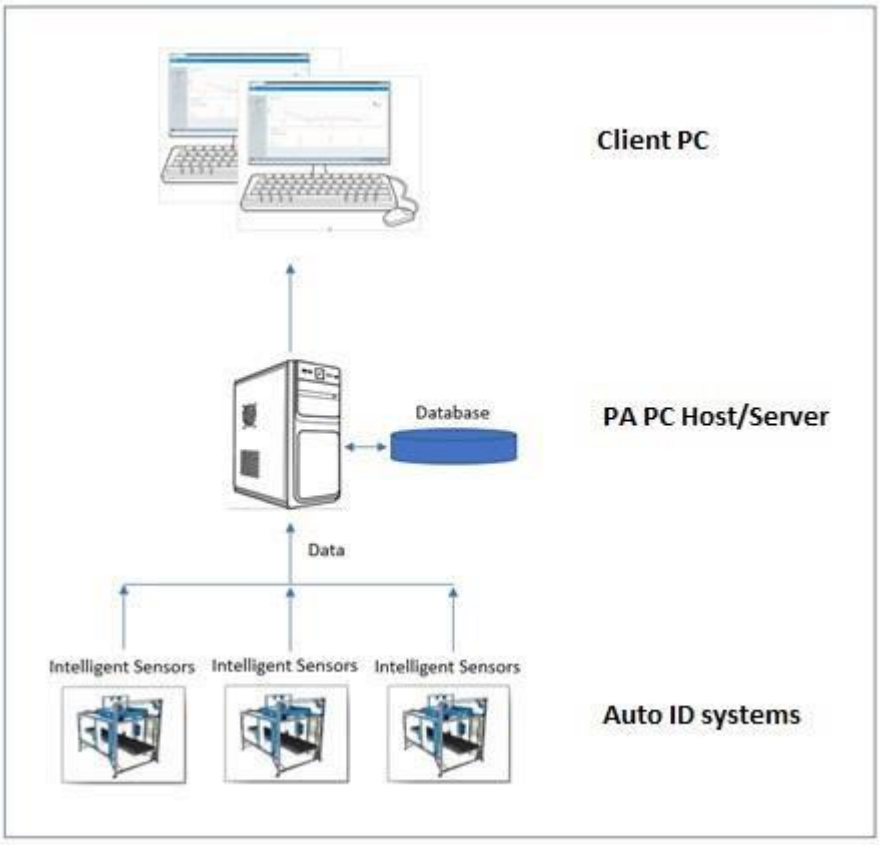


Figure 1: System Architecture

1.3 Hardware Requirements

The following minimum system hardware requirements must be met prior to installation. Note that these are minimum requirements, final hardware configuration is application dependent. Data and storage duration is also application dependent.

Operating System	Windows Server 2016 R2, Windows Server 2019, Windows Server 2022, Windows 10 Enterprise (64 bit), Windows 11 Enterprise (64 bit), Ubuntu 20.04 LTS, Ubuntu 22.04
RAM	Minimum 32 GB
Required disk space	Depends on application. Minimum 2 GB, Key factors include number of systems and sensors connected, number of packages per day, number of days for storage. **SSD storage is recommended.**
Processor	i7 Quad-Core 2.40 GHz or Better Recommended
Monitor Resolution	1920×1080, 2560×1440, 3840×2160 Recommended
Supported Browsers	Microsoft Edge Google Chrome Mozilla Firefox

Note	This software can be integrated with most anti-virus software. Certain user-defined ports need to be exempted from file scanning: 2008 (DACQ TCP Communications) 2021 (Media Server FTP) 4121 (Media Server FTPS) 3121 (Media Server SFTP) 443, 8084 (Media Server) 8080, 8081, 8085 (HTTP Communications) 7000, 8441, 8442, 8443, 8445 (HTTPS Communications) 8181 (REST & Web Socket Communications) 8406 (Database Communications) 1883 & 1885 (MQTT TCP/SSL to EA) 8086 (Maxwell Smart Bridge) 2011 & 2111 (SOPAS) 389 (LDAP) 636 (LDAPS) 3000 (Metabase Reporting HTTP) 587 (Email Notifications) 80 (SMS Notifications) 8090 (Dynamic Dashboard HTTPS) 8087, 8487 (MQTT) 1880 (Node Red) C:\Program Files\AnalyticsSolutions\jre\bin\java.exe C:\Program Files\AnalyticsSolutions\MediaServer\Windows x64\sick-bip-is.exe

	C:\Program Files\MySQL\MySQL Server 5.7\bin\mysqld.exe C:\ Program Files\AnalyticsSolutions\nssm.exe

2 LA Usage

The Logistics Analytics (LA) dashboard is designed to provide easy access to data.

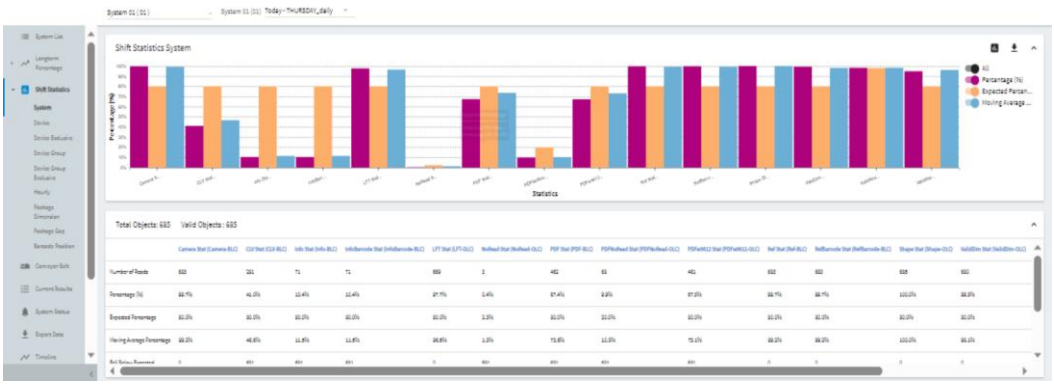


Figure 2: LA Dashboard Layout

The following components are found on all Logistics Analytics (LA) pages:

- The header bar allows you to access system help and version information.
- The context bar provides context specific information based on your page selection.
- The left navigation bar allows you to access all LA data and configuration pages.
- The data area displays the current page based on the selections you made from the navigation pane and context bar.

If Guest user account has been disabled for the application, user could be forced to login in order to view the screens.

2.1 Navigate LA

To open any page in LA, make a selection from the navigation bar. Please note that the items list below may not be available to all users due to licensing or permission restrictions.

Selection	Description

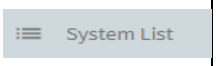
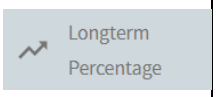
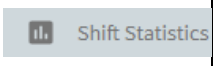
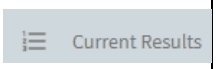
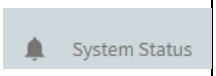
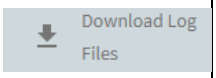
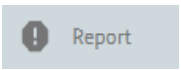
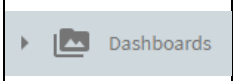
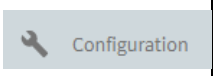
	View a full list of all LA connected systems and their status
	Access historical read rate charts over the life of the system
	Access detailed Shift charts for the current day
	See a dynamic view of package data as packages pass through the system
	View system faults and errors
	A Continuous moving strip or surface that transports objects from one place to another.
	Download Log files
	Navigates User to Meta base Reports page
	Visually view the data by configuring either FA dashboard or external dashboard
	Configure LA settings, including facility configuration, software settings, Authentication Settings, Media Server Settings and license information.

Table 1: LA Navigation Icons

2.2 Help

LA's online Help is available from any screen.

On the header, click  to know about user interface functions, data and operations.

2.3 Software Version and License Information

On the header, click 

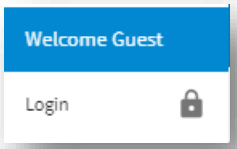
to view the installed LA software version. The **About** window opens.

Figure 3: LA About Window

2.4 Login

1. Click Login  at top right corner of the application

   It displays text **"Welcome Guest"** and a "**Login"** options.



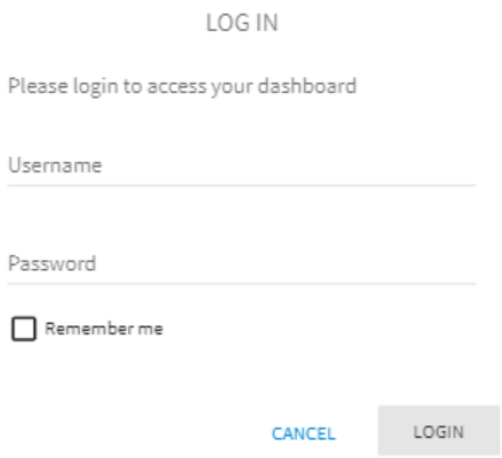
2. Click '**Login**',

   Login window appears

3. Enter valid **Username** and **Password**
4. Click the **Login** button

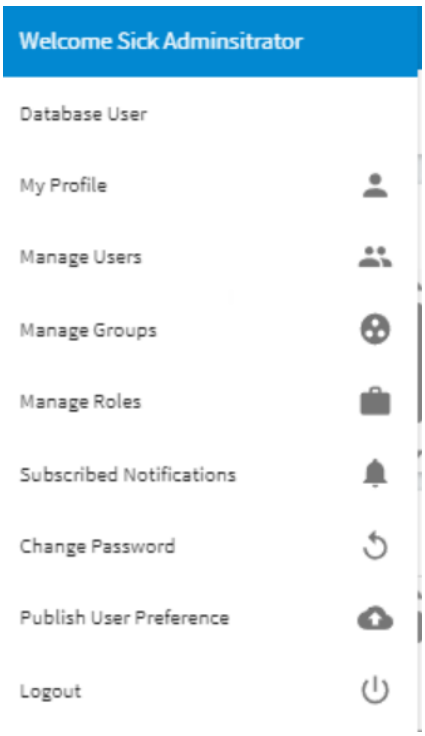
   Now, you will have the options and functionalities available based on your preferences and permissions.

If you are logged in for the very first time, you will be prompted to change your password. You can access the application only when you have updated your password.



2.5 My Profile and User Management

Once you are logged into the application, click on the profile icon AU at the top right corner. Clicking on the Icon displays text "**Welcome <<Username>>**" with **My Profile** option and a list of options based on your Role and permissions. Here you can update your profile, change your password, create/edit/delete Role, Groups and Users if you have appropriate permissions. All the Create, Edit and delete operations are accompanied by a snack bar message.



Click on My Profile option. Application will display current logged in User Profile. This page will display information about Name (First Name and Last Name), Username, Group and e-mail address.

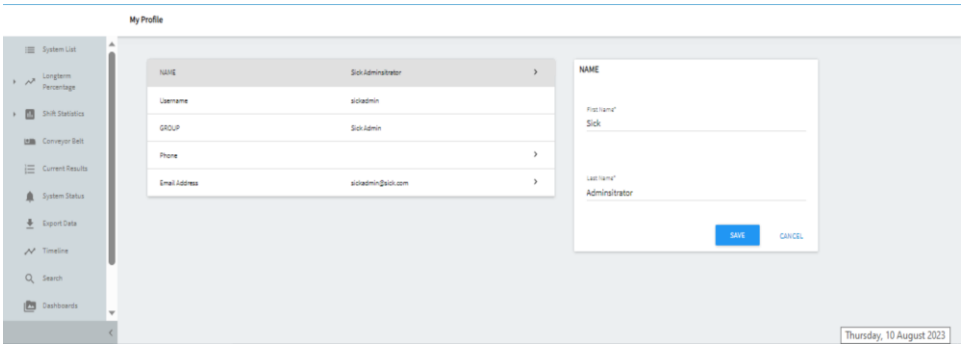


Figure 3: My Profile

You can update your First Name, Last Name and e-mail address from this screen. All other fields are non-editable.

Note: *If Active directory authentication is enabled, these fields will be disabled.*

2.6 Manage Users

Manage Users screen displays the list of Users already created. You can create and manage users if you have add/edit/delete user privileges. From this screen, you can add new user or edit, delete or reset password of existing users.

2.6.1 Add new User

1. Click **Profile** icon at the top right corner of the screen
2. Click **Manage Users** option

Application will open **Manage Users** Screen

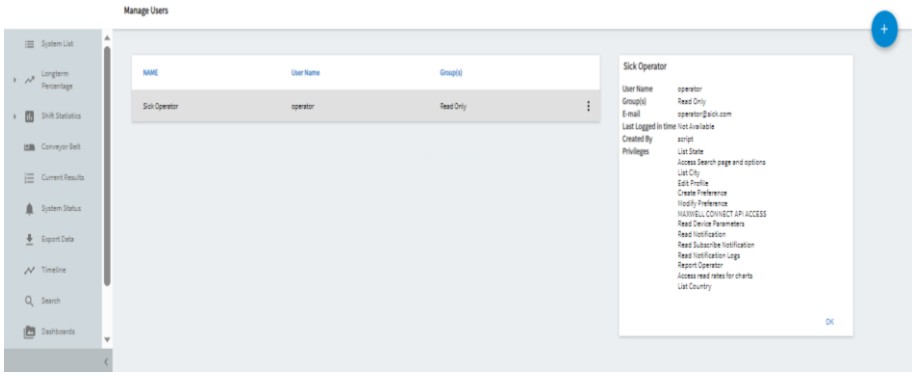


Figure 4: Manage Users

3. Click Add icon  on the **Manage Users** screen

CREATE USER window appears.

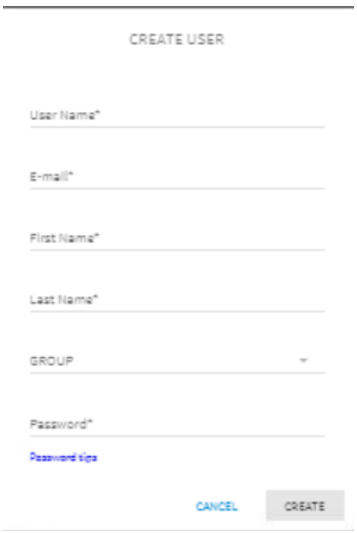


Figure 5: Create User

4. Enter **Username, E-mail, First Name, Last Name** and **Password** fields.
5. Click the **CREATE** button.

Added new user gets added to the users list.

6. Click the **CANCEL** button if the user wants to return to Manage User screen without creating the user

2.6.2 Edit User

1. Click vertical ellipsis icon ⋮ on the preferred user

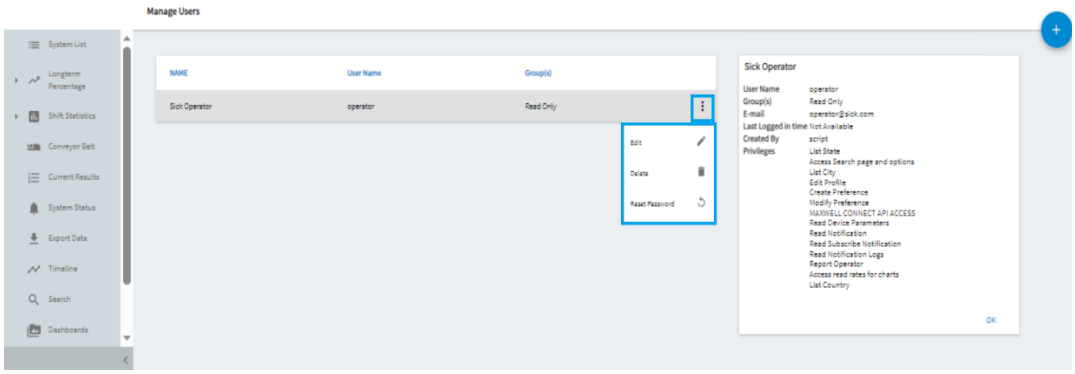


Figure 6: Edit Option

2. Click **Edit** option Edit .

EDIT USER window appears. From here you can edit the E-mail address, First name, Last name and Group of the user. Please note Username is not editable.

3. Click the **SAVE** button to save the changes or **CANCEL** button to return to Manage User screen without saving the changes

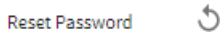
2.6.3 Delete User

1. Click on the vertical ellipsis  icon
2. Click on Delete option 

Application will open a confirmation pop-up with a CANCEL and DELETE button

3. Click the **DELETE** button to delete the user or **CANCEL** button to return to Manage User screen without deleting

2.6.4 Reset Password

1. Click vertical ellipsis icon on the Manage Users screen on the preferred user
2. Click on Reset Password 

Application will open Reset Password with two options Reset Password Manually and Generate Random Password.

3. Reset Password Manually will allow you to reset the password manually by entering the **New Password** and **Confirm New Password**.
4. **Generate Random Password** will generate a random password as shown in the image below

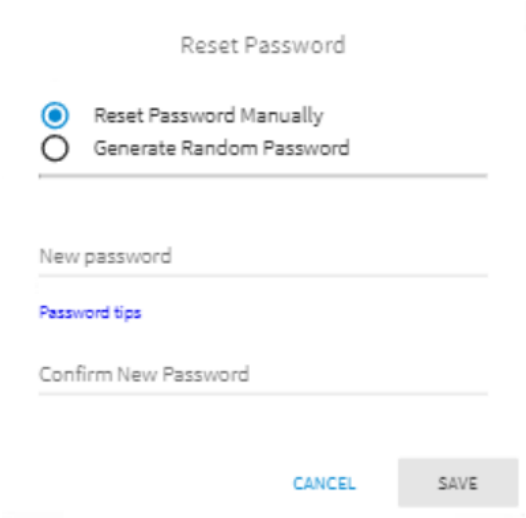


Figure 7: Reset Password Manually

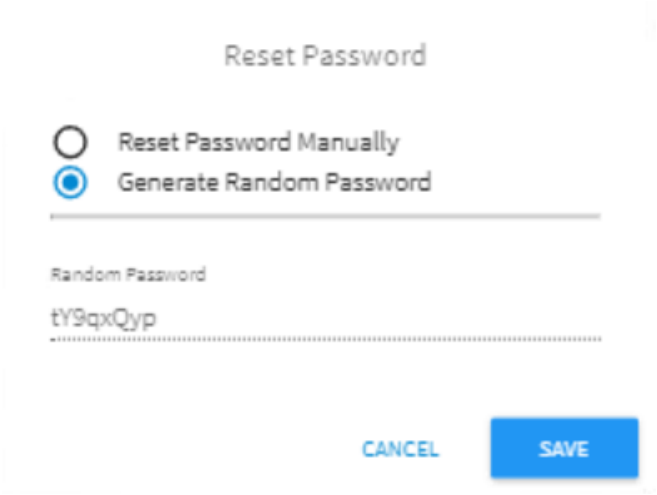


Figure 8: Generate Random Password

5. Click the **SAVE** button to save the new password or **CANCEL** button to return to Manage User screen without resetting the password.

Add/Edit/Delete User and Reset Password permission is based on the privileges assigned to your role.

2.7 Manage Groups

Groups are groupings of application users based on roles assigned to them such that all users in a group will have the same role and hence the same set of privileges. Currently one user can be part of only one group. But multiple users can be part of same group, making it easier to assign common roles to all members of that group.

Manage Group screen displays three pre-existing groups. **Read Only**, **Users (default)** and **Administrators**. You can set any of the group as Default Group. Please note that the Default Group is assigned to the newly logged in LDAP users to avoid any issues while using the basic functionalities accessible as per applied license. Default Group has read-only permissions. Default group cannot be deleted and only one group within the application can be defined as default group.

From **Manage Groups** screen, you can add a new group or edit, delete an existing group.

2.7.1 Add a new Group

1. Click on the Profile icon at the top right corner.
2. Click on the **Manage Groups** option.
3. Application will open **Manage Groups** Screen.

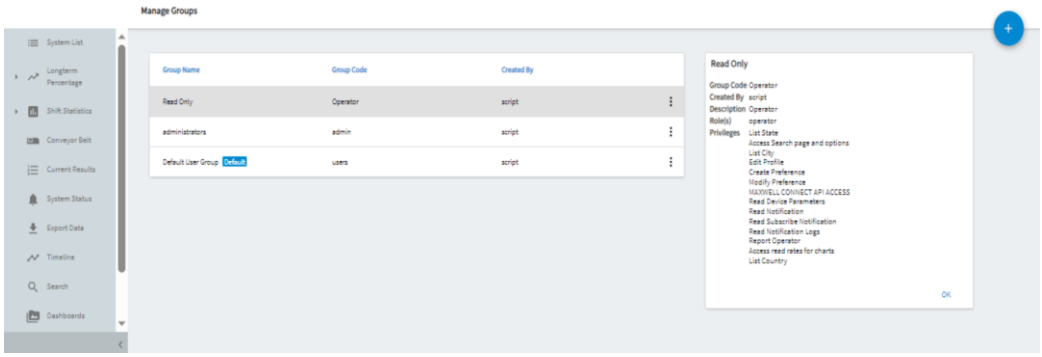


Figure 9: Manage Group

4. On the **Manage Groups** screen, click the Add icon . Application will display **CREATE GROUP** dialog box.

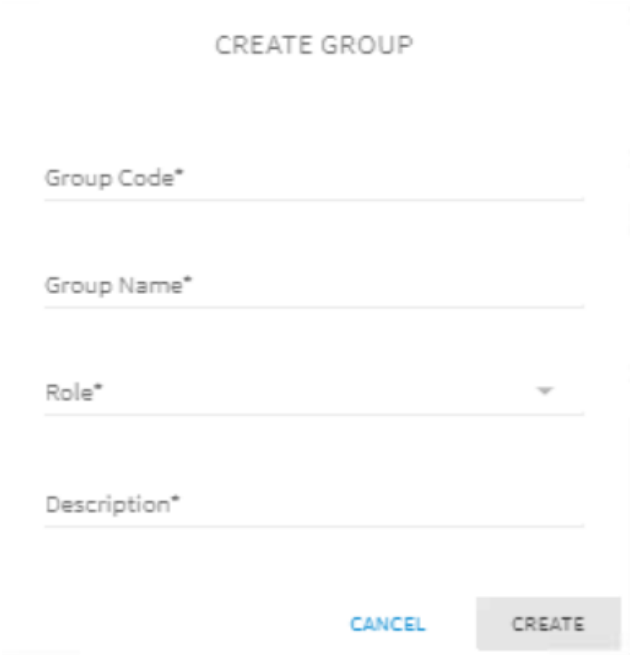


Figure 10: Create Group

5. The Role dropdown on CREATE GROUP dialog box should list all the existing roles including the DEFAULT Role. The DEFAULT role has Read-only privilege for the application.

6. All fields are mandatory. Fill in all fields and click on **CREATE** button. Clicking on **CREATE** button will create a new group and the group will get added to the group list.

7. Click **CANCEL** to return to Manage Group screen without group creation.

2.7.2 To Edit a Group

1. On the **Manage Group** screen, click on the vertical ellipsis ⋮ icon in front of the Group.

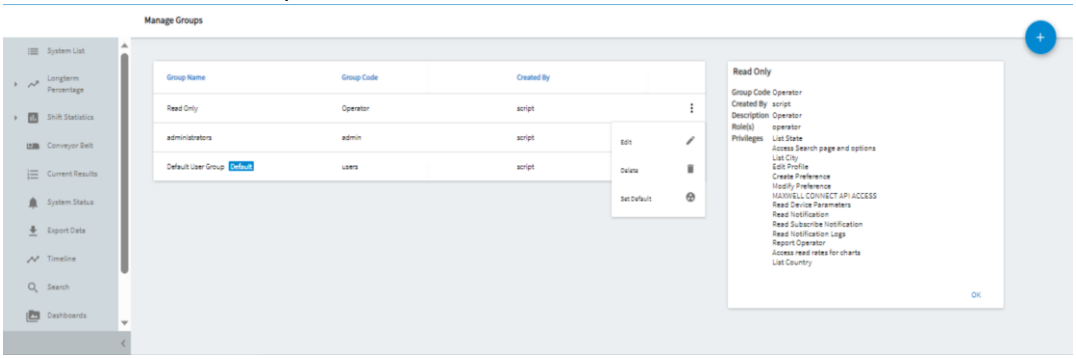


Figure 11: Edit Group

2. Click on Edit option Edit .

3. Application will open **EDIT GROUP** dialog. From here you can edit the Group Name, Role and Description. Please note Group Code is not editable.

4. Click on **SAVE** button to save the changes. Click **CANCEL** to return to Manage Group screen without saving the changes.

2.7.3 To set a Group as Default Group

1. On the **Manage Group** screen, click on the three dot icon in front of the Group which you want to set as Default Group.

2. Click on **Set Default** link Set Default
3. Application will set the selected group as **Default** group and will display a success snack bar message.

Now on clicking the three-dot icon for the current default group, the **Delete** and **Set Default** options will not be available. Note that after setting a group as the default group, delete and set default options on the menu are disabled.

2.7.4 To Delete a Group

1. On the **Manage Group** screen, click on the three dot icon in front of the User.
2. Click on Delete link Delete .
3. Application will open a confirmation pop-up with a **CANCEL** and **DELETE** button.
4. Click on **DELETE** button to delete the group. Click **CANCEL** to return to Manage Group screen without deleting.

Add/Edit/Delete Group permission is based on the privileges assigned to your role.

2.8 Manage Roles

Roles are a collection of one or more permissions (privileges) that can be assigned to one or more user groups.

Manage Roles page displays the list of Roles already created. By Default, three roles **users**, **administrators** and **read-only** will be

available as shown in the image below. Read-only role have read only privileges. They can view everything based on the License applied but cannot edit or export anything. Users role has view as well as export privileges. Administrators roles have the ability to view, export and can manage configuration and users as well. You can create and manage Roles if you have add/edit/delete role privileges. From here, you can add a new role or edit, delete an existing role.

2.8.1 To add a new Role

1. Click on the Profile icon at the top right corner.
2. Click on the Manage Roles option.
3. Application will open Manage Roles Screen.

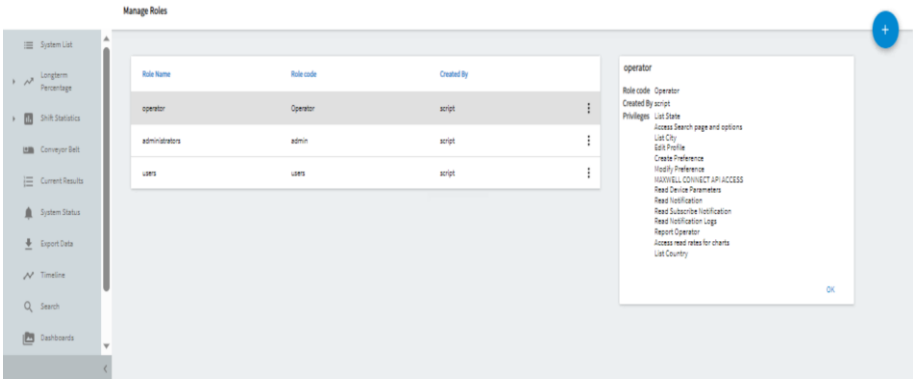


Figure 12: Manage Roles

4. On the Manage Roles screen, click the Add icon  . Application will display **CREATE ROLE** dialog box.

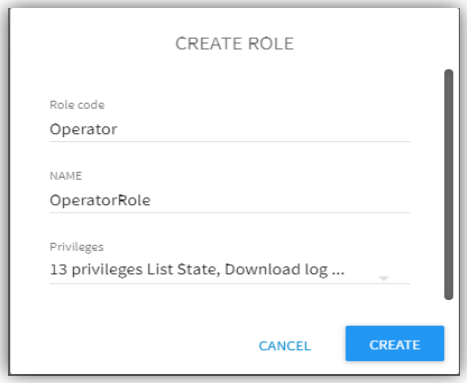


Figure 13: Create Role

5. Enter all mandatory fields and click on **CREATE** button. Clicking on **CREATE** button will create a new role.

6. Click **CANCEL** to return to Manage Role screen without role creation.

2.8.2 To Edit a Role

1. On the **Manage Role** screen, click on the three dot ⋮ icon in front of the Role.

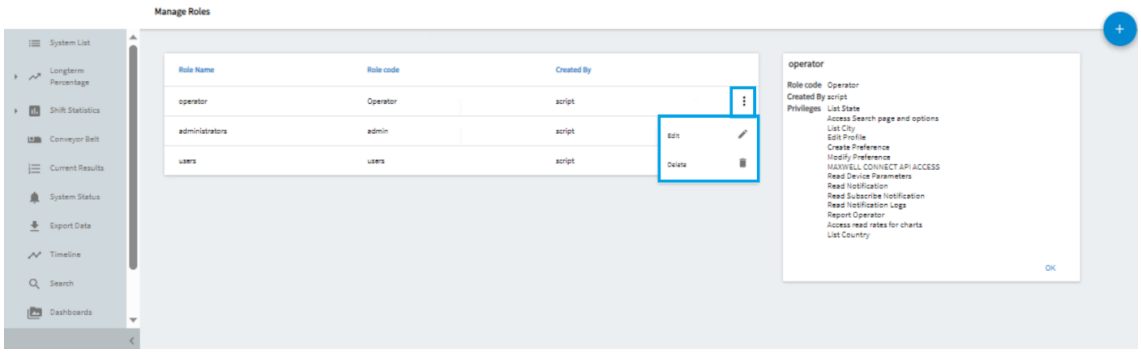


Figure 14: Edit Role

2. . Click on Edit option Edit

3. Application will open **EDIT ROLE** dialog. From here you can edit the Role Name, and Privileges. Please note Role Code is not editable.

4. Click on **SAVE** button to save the changes. Click **CANCEL** to return to Manage Role screen without saving the changes.

2.8.3 To Delete a Role

1. On the **Manage Role** screen, click on the three dot ⋮ icon in front of the User.
2. . Click on Delete link Delete
3. Application will open a confirmation pop-up with a **CANCEL** and **DELETE** button.
4. Click on **DELETE** button to delete the role. Click **CANCEL** to return to Manage Role screen without deleting.

Add/Edit/Delete Role permission is based on the privileges assigned to your role

2.9 Change Password

This option provides you a provision to change your password.

2.9.1 To change your password

1. Click on the Profile icon at the top right corner.
2. Click on the **Change Password** option.
3. Application will open **Change Password** dialog box.

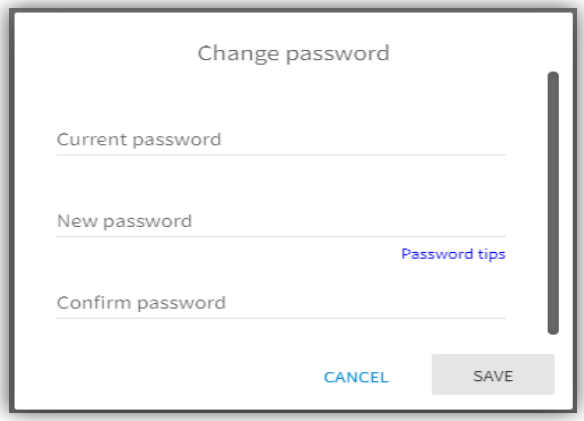


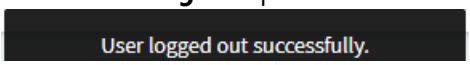
Figure 15: Change Password

4. Enter **Current password**, **New password** and **Confirm password**.
5. Click on **SAVE** button to save the changes. Click **CANCEL** to return to the previous screen without saving.

2.10 Logout

2.10.1 To Logout

1. Click on the Profile icon at the top right corner.
2. Click on the **Logout** option.



3. You will be logged out of the application and application will display a snack bar message.

2.11 Privileges

Admin, SICK Service and Operator Users are default users in the application having different privileges and permissions.

Sr. No.	Module	Privilege Name	Privilege Description	Admin	SICK Ser-vice	Operator
1	User	Create User	Gives ability to create user profile	Yes	Yes	No
2		List User	Gives ability to list all users (Except Super Admin)	Yes	Yes	Yes
3		Reset Password	Gives ability to reset password for another user (Except Super Admin)	Yes	Yes	No
4		Edit Profile	Gives ability to modify own profile details	Yes	Yes	No
5		Modify User	Gives ability to modify other user profile	Yes	Yes	No
6		Delete User	Gives ability to remove a user profile	Yes	Yes	No
7	Role	Create Role	Gives ability to create new role(s)	Yes	Yes	No
8		List Roles	Gives ability to list roles (Except Super User role)	Yes	Yes	No
9		Modify Role	Gives ability to modify an existing role(s)	Yes	Yes	No
10		Delete Role	Gives ability to permanently remove role(s) from database	Yes	Yes	No

11	Group	Create Group	Gives ability to create new group(s)	**Yes**	**Yes**	**No**
12		Modify Group	Gives ability to modify group(s)	**Yes**	**Yes**	**No**
13		Delete Group	Gives ability to permanently remove group(s) from database	**Yes**	**Yes**	**No**
14		List Group	Gives ability to get list of groups	**Yes**	**Yes**	**No**
15	Preferences	Create Preference	Gives ability to user to create/save preferences for another user	**Yes**	**Yes**	**Yes**
16		Modify Preference	Gives ability to user to modify preferences of another user	**Yes**	**Yes**	**Yes**

Table 2: Privileges

Users, **administrators** and **operator** are default roles/groups in the application having different privileges and permissions.

Sr. No.	Role / Group	Privileges
1	operator	List City Modify Device Parameters Access read rates for charts Access Search page and options Update Search Query List Global Setting List State List Group

2	users	List User List Roles List Group List logs Download log files List Global Setting List Country List State List City Show log button Show configuration Show About Info List Application Setting Read Configuration Export Configuration MAXWELL CONNECT ACCESS (If applicable) Read Device Parameters Access read rates for charts Access Search page and options Download Object Details Download Timeline Download Search Download Current Result Export Data Export Long term Data Export Shift Statistics Data
3	administrators	Create User List User Reset Password Edit Profile Modify User Delete User Create Role List Roles Modify Role Delete Role Create Group Modify Group

		Delete Group List Group Create Preference Modify Preference Disable Preference Create Global Preference Modify Global Preference Delete Global Preference Modify Setting Modify SMS Setting Modify SMTP Setting Download Media Server Logs List logs Download log files List Global Setting Modify Global Setting List Country List State List City Delete Preference Read Device Parameters Modify Device Parameters Access read rates for charts Access Search page and options Create Search Query Update Search Query Delete Search Query Download Object Details Download Timeline Download Search Download Current Result Export Data Export Long term Data Export Shift Statistics Data Reset Status Data Create Notification Delete

		Notification Modify Notification Read Notification Read Subscribe Notification Read Notification Logs Report Super Access Report Admin

Table 3: Privileges Assigned to User Roles and Groups

3 System List

From System List you can monitor all connected systems/system groups from a single screen. You can sort the table based on any of the column via Sort dropdown. You can quickly access individual system group or system status and view key system statistics at a glance.

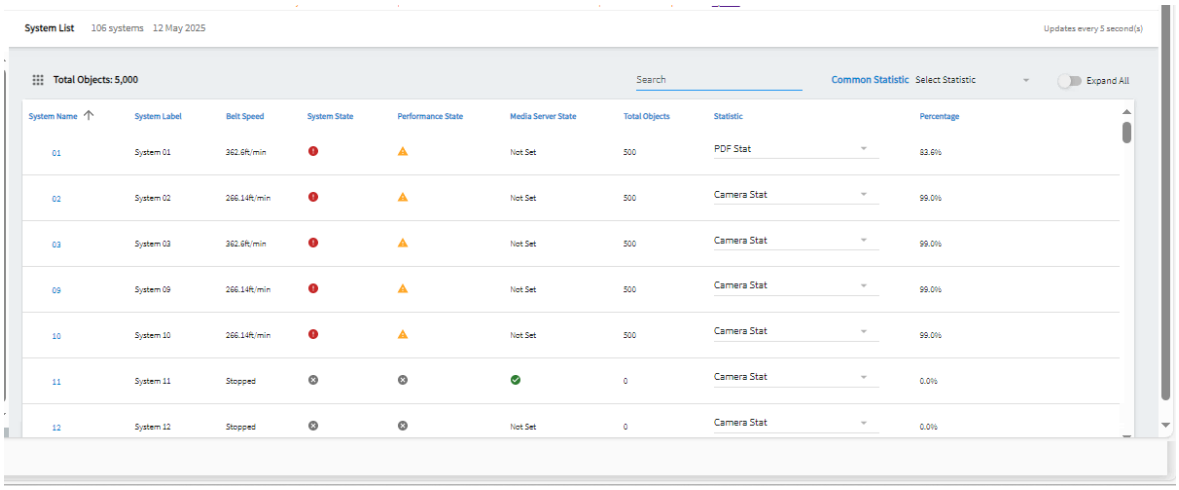


Figure 16: System List-Systems

- Clicking on the System Name link will navigate the view to Long term Read Rate chart for the System.
- Clicking on **System State** or **Performance State** navigates to the System Status page for that system.
- Turning on/off Expand All toggle button will expand/collapse the System Group. You can perform search on System/System Group/System Label in both List View/Grid View.
- Search does not work with wild card/regex matching.
- You can also sort the System List based on the available columns System Name, System Label, System State, Performance State, Belt Speed, Image Server State, Volume, Statistic and Percentage
- The context bar displays the number of connected systems in your facility and indicates the current date.

*To connect new systems, or to make changes to the systems which appear in **System List**, refer to the LA Configuration Manual.*

- You can also change the List View to Grid View by clicking on the Grid View icon and the System List View will get updated.

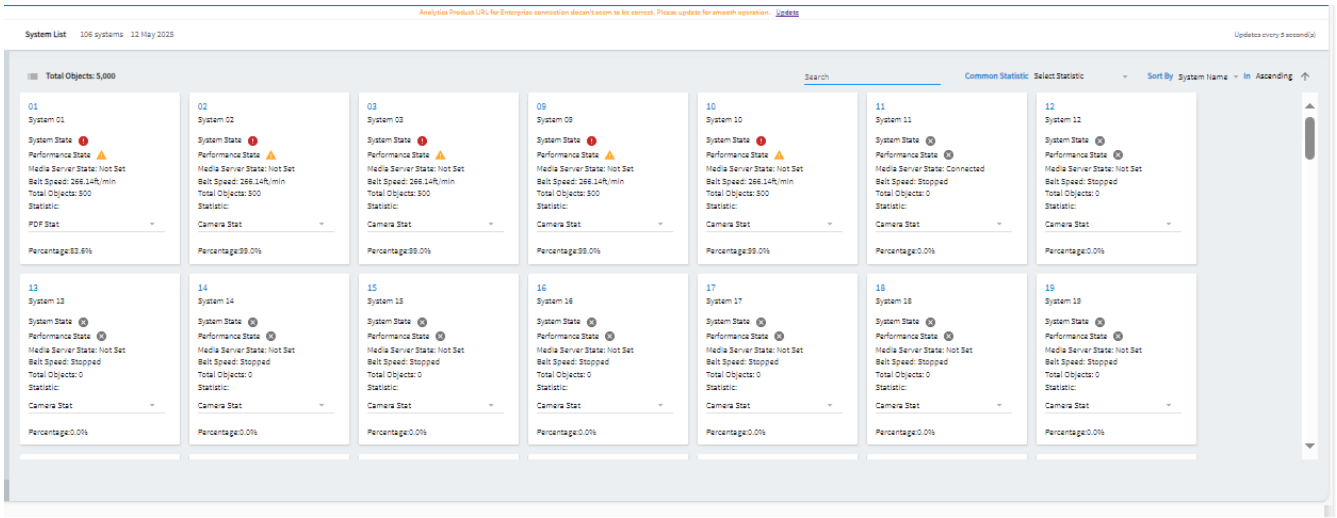


Figure 17: System List-Grid View

The following data is displayed for each system:

Column	Description
System Name	System or System Group name defined by the system controller ID. Click to open the Long Term Read Rate Overview page.
System Label	User-defined system description.
System State	Current hardware status based on heartbeat data (updated every minute). Click to open the System Status page.
Performance State	Current performance status based on aggregated statistics (updated every 60 seconds). Click to open the System Status page.
Belt Speed	Speed of the system belt, measured in feet per minute (e.g., 286.14 ft/min).
Media Server State	Status of the media server.
Total Objects	Total number of objects processed by the system.
Statistic	Type of statistic displayed.
Percentage	Percentage value for the selected statistic.

Table 4: System List Table

3.1 Switch between Tile View and List View

You can change the way system list data is displayed:

- In the context bar, click tile view  or list view  .

3.2 Change the System List Sort Order

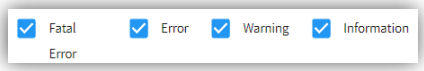
You can sort the data on 'System List' page by different sort orders:

- In Tile and List view, click System Label dropdown at the top right corner to view a list of possible sort orders. Click the arrow icon ↑ to toggle between ascending and descending sort order for the selected heading.

3.3 View System Status for Faulted Systems

You can access the **System Status** page for any system on the System List. When a system is faulted (warnings or errors), this allows you to quickly drill down for a closer inspection of the system's health and performance status.

- Click the status icon. This opens the System Status page.
- System Status page displays the Health Status and Performance Status of the System.



- On System Status page, you can select/deselect the checkbox to filter the information, warning or error.
- Clicking on RESET RESET button for Health Status will reset the Health Status.
- Clicking on RESET RESET button for Performance Status will reset the Performance Status.

Please note that RESET button is only available when user is logged into the application.

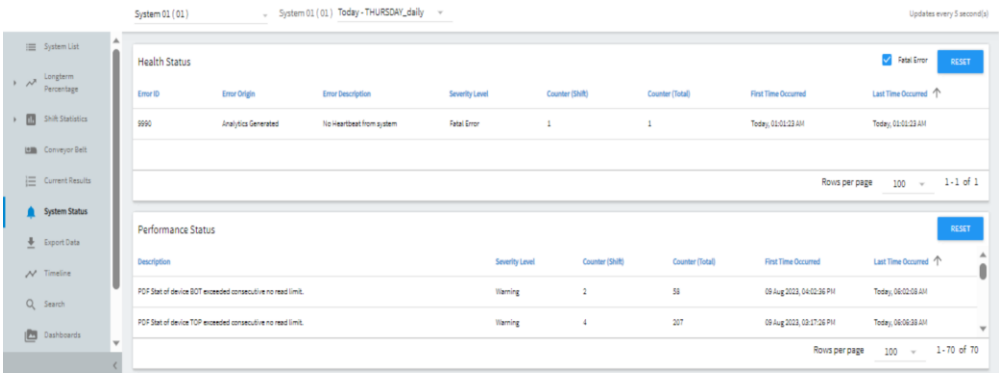


Figure 18: System Status Page

3.4 View System Historical Data

System List displays a summary of current system data. You can also access detailed historical data for a system:

- Click a system ID. This opens the Long term Read Rate **Overview** chart.

Refer to Section 0 for more information about the Long Term Read chart.

3.5 Status Icons – Description

The System List and System Status pages display status icons for System State, Performance State, and Media Server State. These icons indicate the health and performance of the system. The System Status page also shows severity levels for each entry. Below is a description of each icon and its associated status severity:

Icon	Status Severity	Description
Green Checkmark ( )	INFO	System in Use & No Errors Exist. Indicates normal operation.
Yellow Exclamation Point ( )	WARNING	Non-Critical Error(s) Exist. Indicates a non-critical issue.
Red Exclamation Point ( )	ERROR & FATAL	Critical Error(s) Exist. Indicates a critical issue requiring immediate attention.
Gray 'X' ( )	N/A	System Not in Use & No Errors.

4 Long term Read Rate

Use **Long term Read Rate** to view an analysis of a data acquisition system's historical performance and operation. Long term Read Rate charts plot one data point per day of operation. At the same time, data tables provide a numerical snapshot of the information presented in the chart. From the **Long term Read Rate** page you can also drill down in the chart to access details for data points in a 10-day window or to view Shift Statistics.

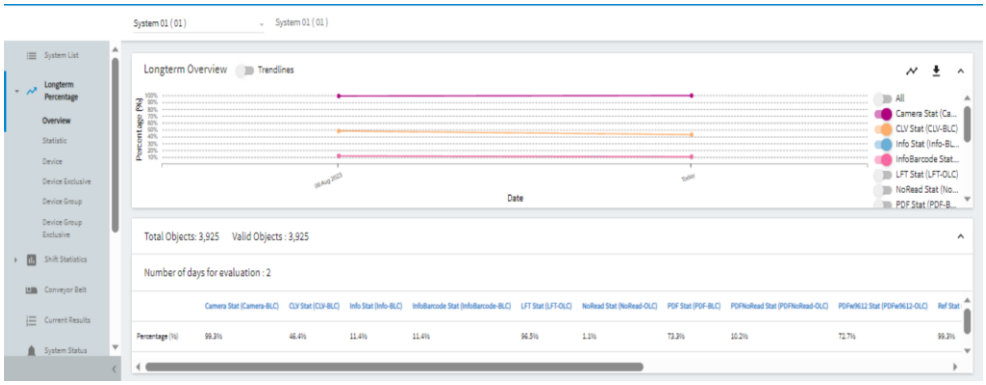


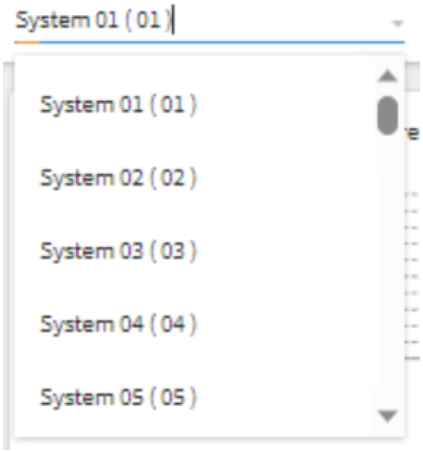
Figure 19: Long term Read Rate.

Long term Charts are available only if they are enabled from the License file

4.1 Select a System to View

You can view **Long term Read Rate** data for any Logistics Analytics connected system:

- In the context bar, select a system from the list.



4.2 Select a Long-term Percentage Chart

You can choose from the following Long-term Percentage charts in the left navigation pane to analyze:

Selection	Description

Overview	View the performance of System/System Group statistics over time. The chart plots the performance of individual statistics in a line or bar graph.
Statistic	Provides an analysis of a selected a single statistic over time with comparison to the expected and moving average of that statistic (if both are configured). To choose a statistic to analyze, make a selection from the context bar.
Device	Plots read rate by device over time for code related statistics with comparison to the expected and moving average of that device (if both are configured). To choose a device and code related statistic to analyze, make a selection from the context bar.
Device Exclusive	Plots exclusive read rate by device over time for code related statistics with comparison to the expected and moving average of that device (if both are configured). Exclusive reads are when only one device on the auto ID system reads a particular condition on a package. To choose a device and code related statistic to analyze, make a selection from the context bar.
Device Group	Plots read rate by device group over time for code related statistics, with comparison to the expected and moving average of that device group (if both are configured). To choose a device group and code related statistic to analyze, make a selection from the context bar.
Device Group Exclusive	Plots exclusive read rate by device group over time, for code related statistics, with comparison to the expected and moving average of that device group (if both are configured). Exclusive reads are when only one device group reads a particular condition on a package.

	To choose a device and code related statistic to analyze, make a selection from the context bar.
EmptyTrayStat (EmptyTray-OLC)	Empty Tray Statistic is automatically created to display more accurate statistical value

Table 5: Charts

4.3 Switch Between Bar Chart and Line Chart

You can view data as a bar chart or as a line chart:

- Click bar chart (or line chart) at the top right corner.

4.4 Expand/Collapse Chart

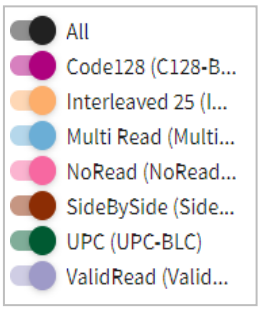
You can expand or collapse the Chart view:

- Click expand icon (or collapse icon) at the top right corner.

4.5 Modify which Legend Items are Visible on a Chart

For charts which plot multiple data types, you can show or hide legend items:

- In the chart legend, click the buttons to show or hide the data in the chart. If you are logged in, the selected statistic will be saved as user preferences.



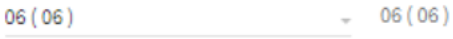
4.6 Drill Down to a 10-day Detail Window or to Shift Statistics

You can drill down to a 10-day detail window, or to the current day by clicking on any data points on the Long term Percentage charts.

- On the line or bar chart, click a data point you would like to view detail for.

The **Long-term Overview** detail screen is displayed for the data point you selected. This chart shows 10-day window (4 days prior and 5 days later to the date selected) of the data point that you clicked.

- Use the navigation icons in the context bar to navigate between dates. Click a navigation icon to view the next 10 or previous 10-day windows.



- To further drill down to Shift Statistics for the system, click a data point in the chart. This opens the **Shift Statistics System** chart.
- To return to the **Long term Read Rate** page use the navigation bar, or your browser's

back button.

4.7 Export a Chart Snapshot or Export a csv Data File

You can export a chart snapshot or export a csv data file for further analysis and sharing.

- Click the export icon  .
- To export a chart snapshot, click 

The chart is exported as a .png image file. Use your browser to open, view, and save the downloaded files.
or

To export chart data, click 

.
The data is exported and opens in a text viewer. From here you can save the file for import into other data analysis tools, such as spreadsheet software.

This option is only available for the logged in Users having appropriate permissions. Exported CSV data only includes the x and y coordinates used to plat the chart. It does not include the package data that was used to generate the coordinates.

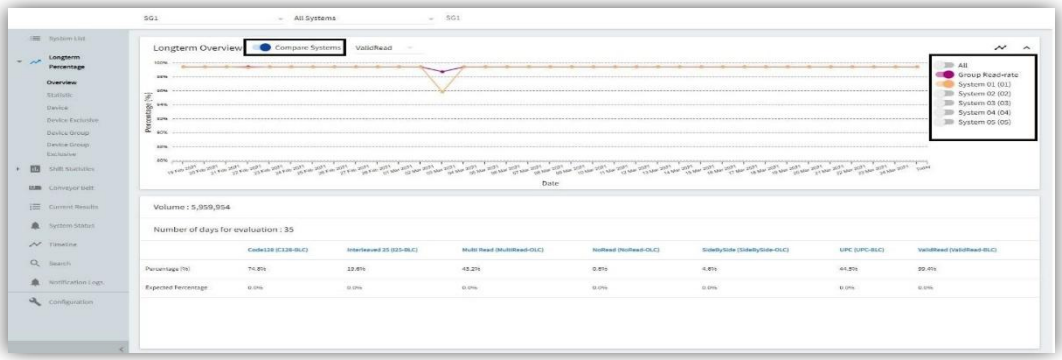
4.8 Compare Systems

You can change the view for comparing Systems and Group Average by selecting the

Compare Systems toggle button for Long term Overview and Long term Statistics chart.

Please note that **Compare Systems** toggle button is only available when Long term Over- view or Statistics chart is selected for a System Group.

Figure 20: Compare Systems



5 Shift Statistics

Use **Shift Statistics** to view a detailed analysis of a data acquisition system's performance and operation. Shift Statistics charts plot all detailed statistics for a day which you select. At the same time, data tables provide a numerical snapshot of the graphed data.

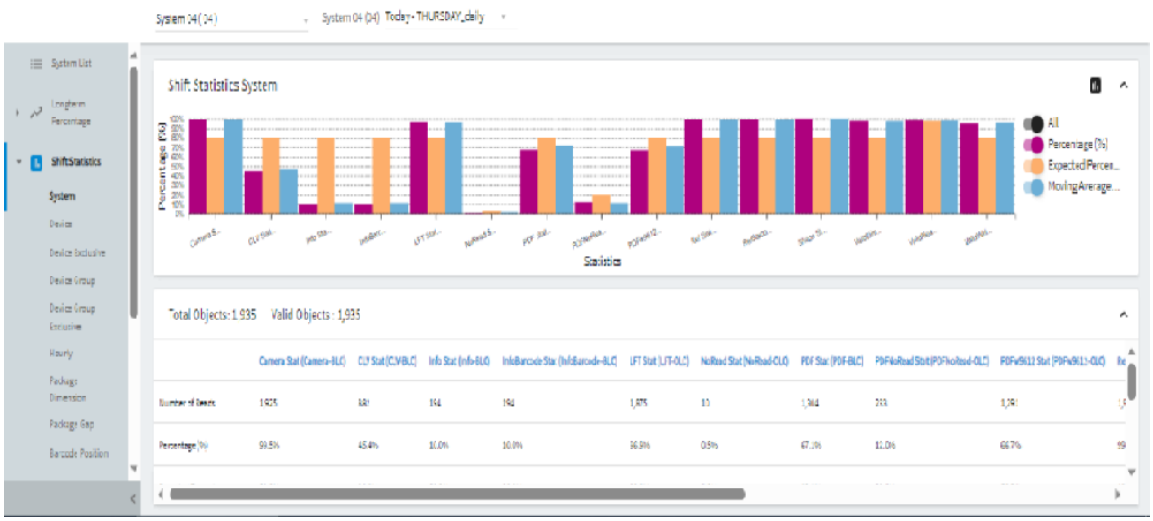


Figure 21: Shift Statistics

Shift Charts are available only if they are enabled from the License file

5.1 Select a System and Day to View

To view Shift Statistics data for any Logistics Analytics (LA) connected system on any day:

- In the context bar, select a system/system group from the list, and then select a day.

5.2 Select a Chart to View

You can choose from the following Shift Statistics charts:

Chart	Description
System	Plots read rate percentage by statistic over time Provides a detailed breakdown of system read rates by Performance Statistic.
Device	Plots read rate percentage by device over time by statistic and provides a detailed breakdown of read rates by individual device (for example, CLV1, CLV2…). To choose a statistic to analyze, make a selection from the context bar.
Device Exclusive	Plots exclusive read rate by device over time for code related statistics and provides detailed breakdown of read rates by device during the current day. Exclusive reads are when only one device reads a particular condition on a package. To choose a code related statistic to analyze, make a selection from the context bar.
Device Group	Plots read rate by device group over time for code related statistics and provides a detailed breakdown of read rates by device group during the current day. To choose a code related statistic to analyze, make a selection from the context bar.
	Plots exclusive read rate by device group over time for code related statistics for device group and provides a detailed breakdown of read rates by device group during the current day. Exclusive reads are when only device group reads a particular condition on a package. To choose a code related condition to analyze, make a selection from the context bar.

Hourly	Plots read rate over time for a statistic and provides a breakdown of the system overall read rate for every hour in the day. To choose a statistic to analyze, make a selection from the context bar.
Package Dimension	Plots the frequency of Package dimensions and provides minimum/maximum/average values for package dimensions during the current day. To choose a dimension to analyze, make a selection from the context bar.
Package Gap	Plots frequency of gaps between packages. Provides minimum/maximum/average values for package gaps during the current day.
Barcode Position	Plots the frequency of barcode positions over time for code related statistics and provides minimum/maximum/average value for three dimensional coordinates of the start-point of a barcode scan. To choose a code related statistic to analyze, make a selection form the context bar.

Table 6: Shift Charts

5.3 Switch Between Bar Chart and Line Chart

You can view data as a bar chart or as a line chart:

- Click bar chart (or line chart) at the top right corner.

5.4 Expand/Collapse Chart

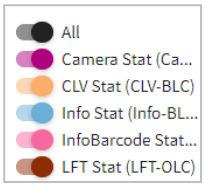
You can expand or collapse the Chart view:

- Click expand icon (or collapse icon) at the top right corner.

5.5 Modify which Legend Items are Visible on a Chart

For charts which plot multiple data types, you can show or hide legend items:

- In the chart legend, click the buttons to show or hide the data in the chart.



5.6 Export a Chart Snapshot or .csv Data File

You can export a chart snapshot, or export a .csv data file for further analysis and sharing.

- Click the export icon at the top right-hand corner.
- To export a chart snapshot, click 

.

The chart is exported as a .png image file. Use your browser to open, view, and save the downloaded files.

Or

To export chart data, click 

.

The data is exported and opens in a text viewer. From here you can save the file for import into other data analysis tools, such as spreadsheet software.

These option is only available for the logged in Users having appropriate permissions. Exported CSV data only exports the x and y coordinates used to plat the chart. It does not include the package data that was used to generate the coordinates.

6 Conveyor belt

The **Conveyor belt** page displays a conveyor view of the flow of packages. It provides a live conveyor view of packages flow. This page is available only if it is enabled from the License file.

The Package Flow section of the System Performance pane provides a real time visualization (Live View) of packages passing through the auto ID system. This visualization represents packages on the conveyor belt relative to scale, Package position, gap, direction and skew angle. Please note that the application supports Conveyor belt view only for Systems and not for System groups.

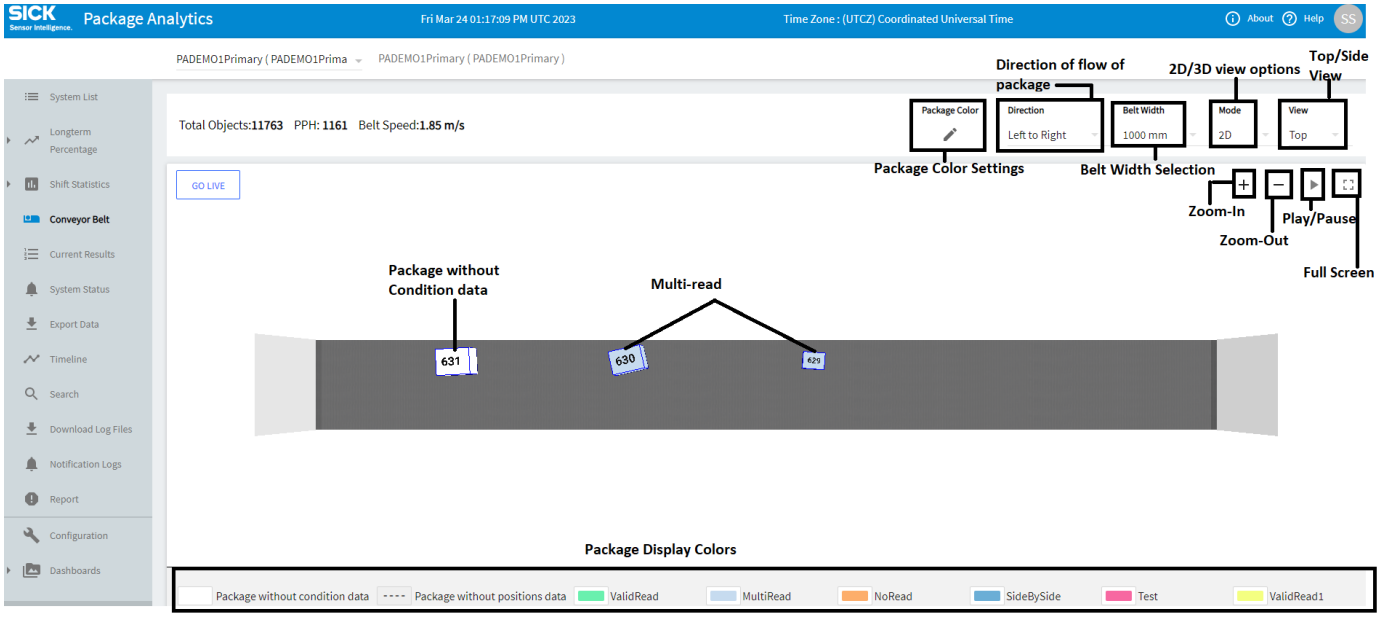
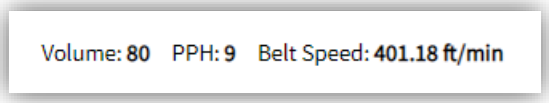


Figure 22: Conveyor Belt

Conveyor Belt page is available only if it is enabled from the License file.

Note: This feature is only available for Windows OS

The Package Flow header displays shift information including Total Packages (from start of current shift), PPH (Packages per hour for the current shift), and Speed (Current conveyor speed in feet per minute or meter/second based on the selection from the software settings).



Packages in the visualization are identified by a package ID number. Package icons are color-coded to identify if certain conditions are not being met by a package.

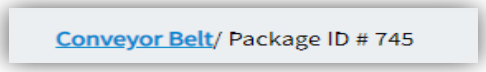
View Angle, Package Flow and Package Detail

- You can change the view angle of the packages by making a selection from the **View**

drop-down.

- You can pause the Package Flow visualization for closer inspection by moving the mouse over the Package Flow area. The visualization is paused for 5 seconds, or until the mouse is moved away, whichever occurs sooner.
- You can view details for a specific package while it is depicted in the visualization.
- In the Package Flow area click on the package icon. This will navigate you to Package Details page.
- The Package Detail page displays package images and data for a detailed analysis and review of any specific package. Refer to PandA Section
- Package Detail
- You can navigate back to Conveyor Belt View from Package Details via breadcrumbs. On returning to the conveyor view, the view resumes with the current package.

***Note**: Any packages that went through the system while you were*



on the Package Details page will not be displayed on navigating back to Conveyor belt page.

6.1 Conveyor Belt View

You can change the Package color settings, direction of flow of packages and the conveyor belt width and view from the dropdown available at the top right corner.

- **Direction** dropdown options: Left to Right, Right to Left
- **Belt Width** dropdown options: 100 cm, 125 cm, 150 cm, 175 cm
- **Mode** dropdown option: 2D, 3D
- **View** dropdown options: Top, Side

Package Color Settings: User can assign a color to each condition and select which condition's color will be displayed in case when multiple conditions are met.

When edit icon is clicked under package color, **Package Color Settings** window is displayed. It allows to take precedence over other conditions for package color display by clicking on the upward or downward arrow based on the preference. Click the **Save** button to save the settings at system level.

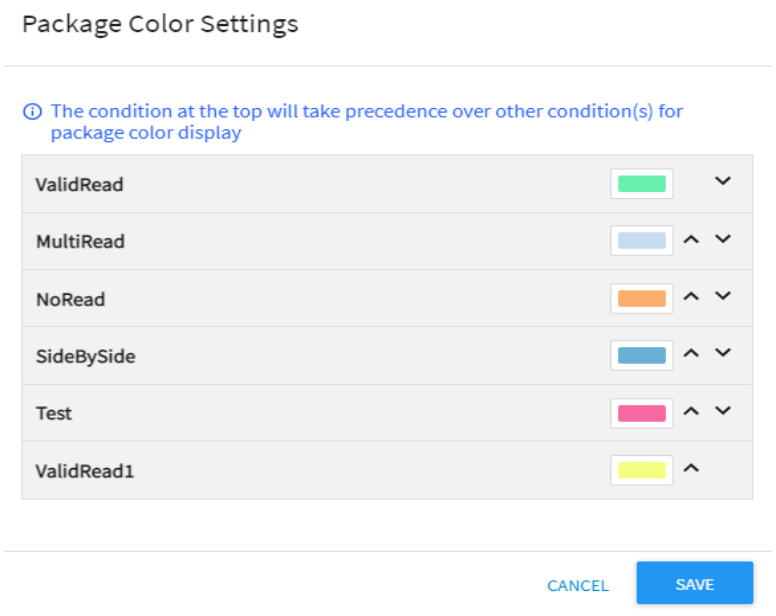


Figure 23: Package Color Display

6.2 Direction: Right to Left/ Left to Right

When Left to Right is selected from the Directions dropdown, the packages will flow in Left to Right direction.

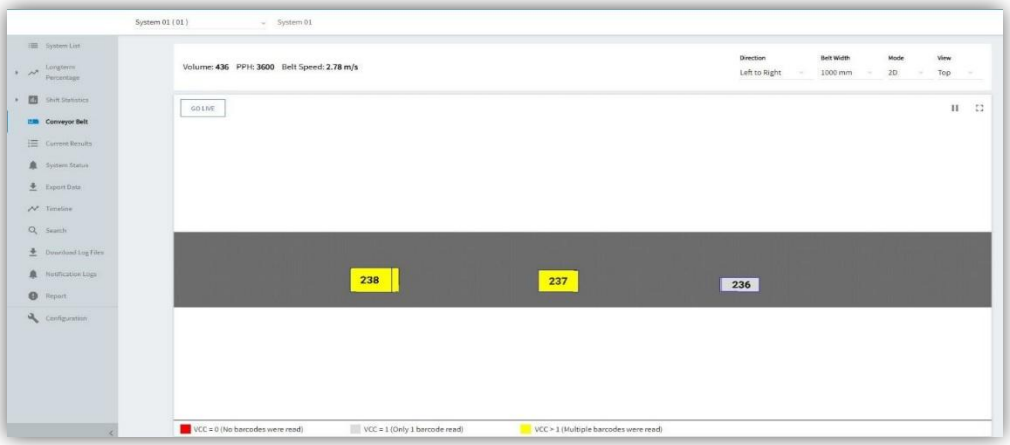


Figure 24: Left to Right

When Right to Left is selected from the Directions dropdown, the packages will flow in Right to Left direction.

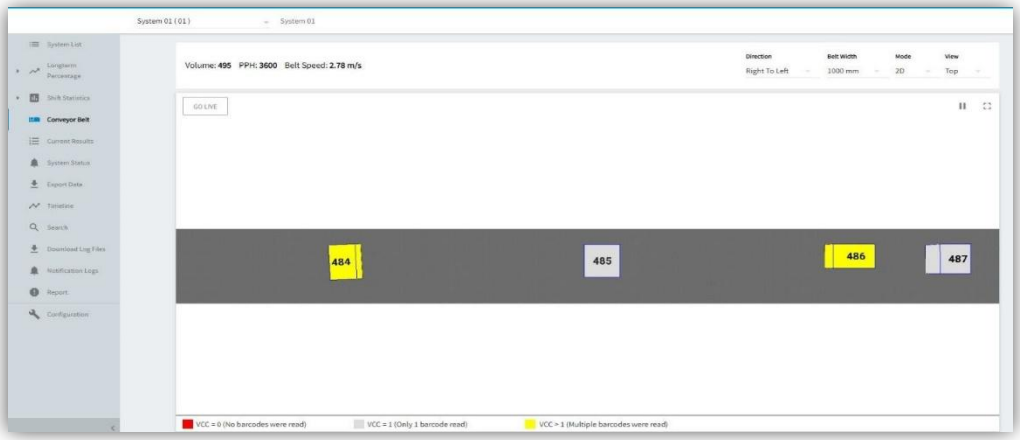


Figure 25: Right to Left

6.3 Mode: 2D Mode/ 3D Mode

When 2D Mode is selected from the Mode dropdown, the 2D View of the packages will be shown.

Figure 26: 2D Mode

When 3D Mode is selected from the Mode dropdown, the 2D view of the packages will be shown. 3D Mode only provides the Top View. The View dropdown disappears as soon as user selects 3D Mode.

Figure 27: 3D Mode

6.4 Belt Width

Belt Width can be adjusted from the Belt Width dropdown. You can select belt to be shown as 100cm, 125cm, 150cm, and 175cm. The view will be automatically updated to show the packages on the specified belt width.

Note: *The Belt Width will be displayed in mm if Metric (mm) is selected from the software settings. Similarly, if Metric (cm) is selected from the software settings, the Belt Width will be displayed in cm and*

if Imperial is selected from the Software Settings, then the Belt Width will be displayed in inches.

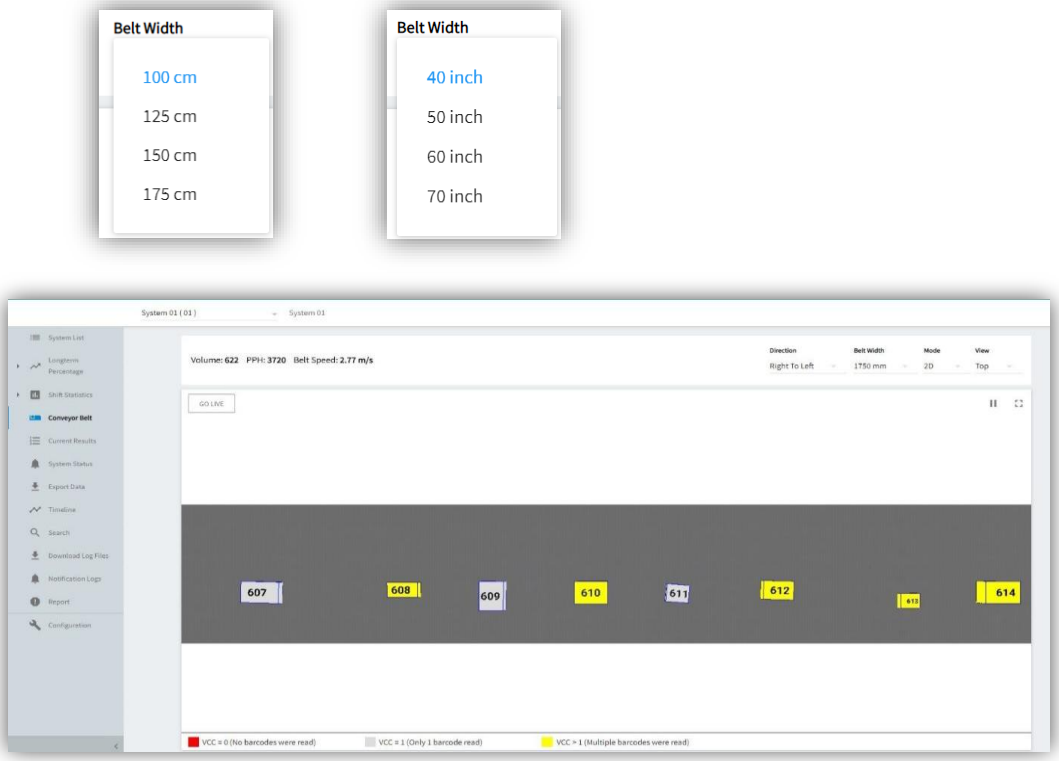


Figure 28: Belt Width

6.5 View: Top View/ Side View

On selecting **Top** option from the **View** dropdown displays the Belt and Package view from the Top angle. This view is helpful to determine the alignment and skew angle for packages.

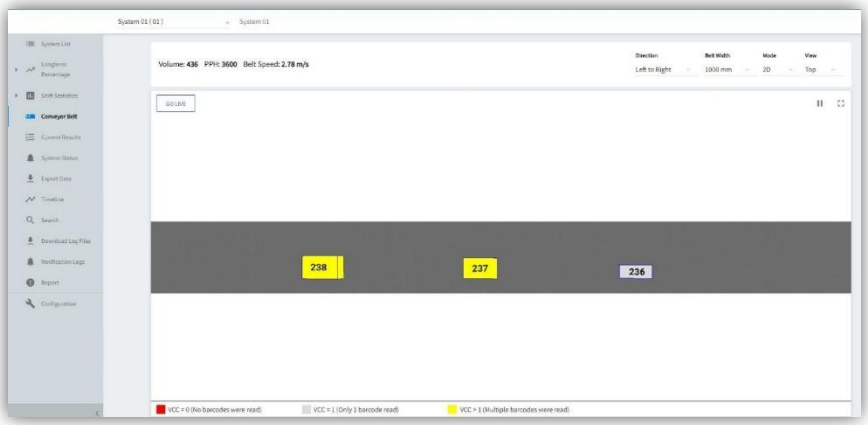
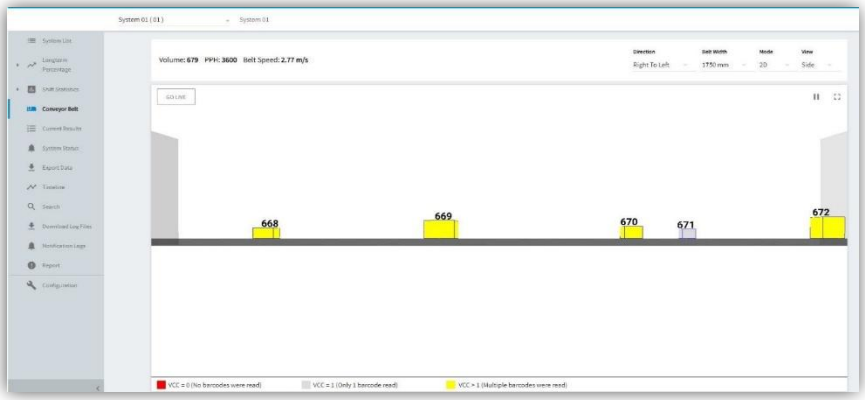


Figure 29: Top View



On selecting **Side** option from the **View** dropdown displays the Belt and package view from the Side angle.

Figure 30: Side View

6.6 Pause/Play Conveyor Belt Visualization

On clicking ⏸ in the Conveyor belt visualization will be paused and the pause icon will gets changed to Play icon ▶. Clicking on Play icon will start the conveyor belt visualization.

Figure 31: Pause/Play Conveyor Belt Visualization

6.7 Full Screen

On clicking full screen icon at the top right corner in the Conveyor belt pane expands the Conveyor belt view to Full Screen.

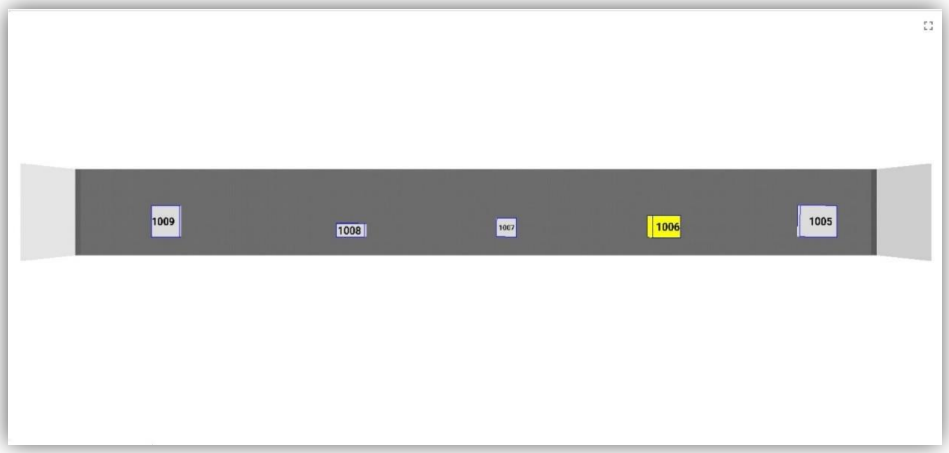


Figure 32: Full Screen

On clicking Full Screen icon again exits the Full Screen View of the Conveyor belt.

6.8 Go Live

The Go Live button is displayed at the top left-hand corner. This button only gets enabled when the objects being shown on the

conveyor view widget are behind (in timing) to the physical objects going through the system. Example is when the user pauses the conveyor view for 10 seconds, GO LIVE button gets enabled. User clicks on GO LIVE button which resets the conveyor view and the current object going through the Conveyor belt is shown in the Conveyor view.

Figure 33: Go Live

7 Current Results

The **Current Results** page provides a dynamic view of the real-time performance and health of an individual system/system group. As packages move through the system and barcodes is read, an entry is added to the Package data Activity table on this screen, providing details. Widgets at the top of the screen display system/system group performance statistics.

7.1 Widgets

Widgets provide operational statistics for the selected system/group during the current day. Widget data is cumulative from the start of the current day. Along with Belt speed and Volume widgets, the page displays Statistics widgets as well. The statistic widgets can be added or removed. A maximum of four statistics widget can be displayed. Also, if you are logged in, the selected statistic widgets will be saved as User preferences.

Figure 2-1: Widget

Widget	Description
Belt Speed	Displays the current belt speed in meters per second (**m/s**) for the selected System or System Group.
Total Objects	Displays the total number of packages processed by the selected System or System Group for the current day.
Statistics Widgets	Displays system-specific statistics, such as valid reads and barcode conditions.

Conveyor Belt View	Shows a real-time visual representation of objects moving along the conveyor. **Note:** This feature is available only when a **single system** is selected. It is not available when a **System Group** is selected as a whole.
Zoom Controls and Reset Button	Allows users to zoom in/out of the Conveyor Belt View and view reset to default. **Note:** These controls are available only when a single system is selected. They are not available when a **System Group** is selected.

7.2 System Selection Modes

7.2.1 Selecting a Single System

When a single system is selected from the System dropdown, the widgets update to display data specific to that system only.

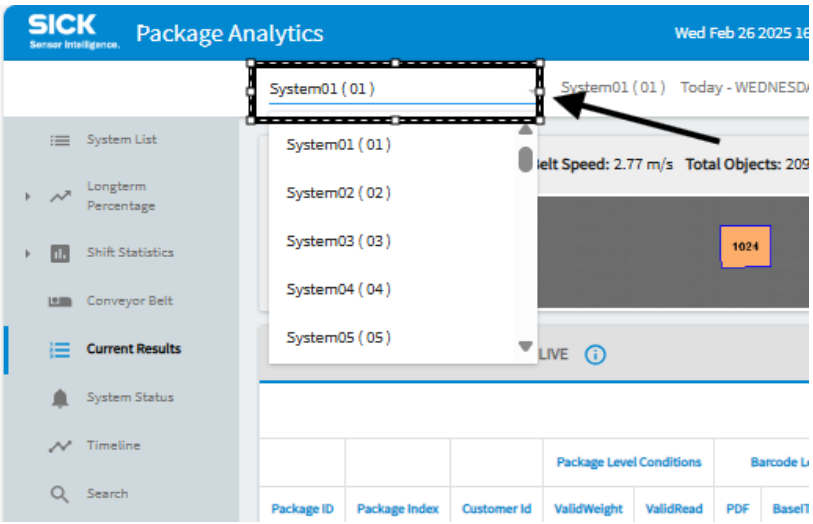


Figure 2-1: Selecting a Single System

Widgets Behavior for a Single System Selection

Figure 2-2: Widgets for a Single System Selection

- **Conveyor Belt Widget**
  - Becomes visible.
  - Packages continuously move along the conveyor belt, representing real-time package flow.
  - Each package appears as a rectangular block on the conveyor belt.
  - A Package ID (e.g., 1024, 1025, 1022) is displayed on each package for identification.
  - The size of each package block varies, reflecting its real-world physical dimensions.
  - The belt moves from left to right, and as new packages enter, older ones exit the view.
- **Total Objects Count**
  - Displays the total number of packages processed by the selected system.
- **Belt Speed**
  - Displays the real-time speed of the conveyor belt in meters per second (m/s).
- **Statistics Widgets**
  - Displays system-specific statistics, such as valid reads and barcode conditions.
  - Users can add or remove widgets using the + button.
  - The displayed values update dynamically as new packages are processed.

7.2.2 Selecting a System Group

When a System Group is selected from the dropdown, the widgets aggregate data from all systems within the group.

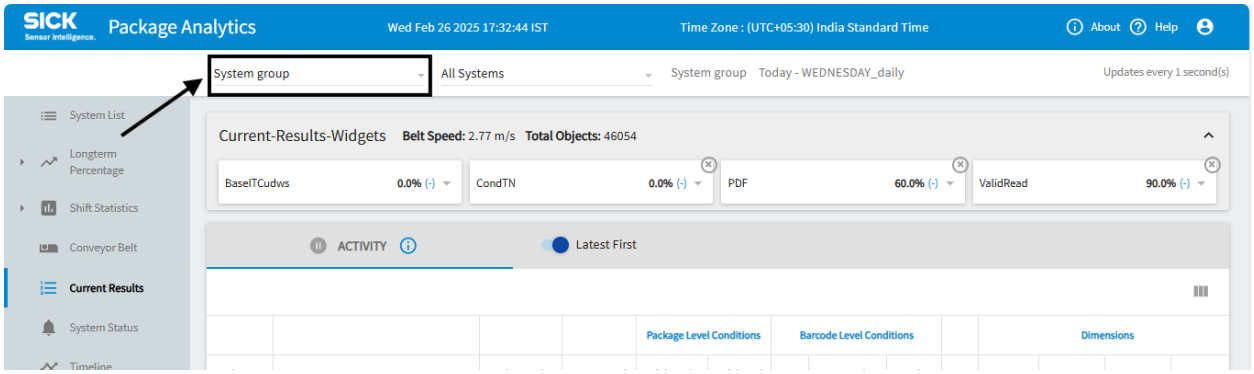


Figure 2-3: Selecting a System Group

Widgets Behavior for a System Group Selection

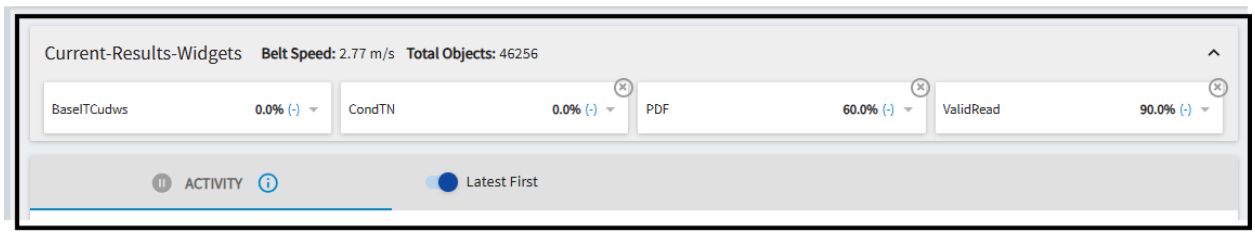


Figure 2-4: Widgets for a System Group Selection

- **Conveyor Belt Widget**
  - Not displayed (package-level visualization is disabled).
  - Belt movement is not shown.
- **Total Objects Count**
  - Displays the combined total of packages processed by all systems in the group.
- **Belt Speed**
  - Displays the average conveyor belt speed across all systems in the group.
- **Statistics Widgets**
  - Displays group-level aggregated statistics.
  - Users can add or remove widgets using the button.
  - The displayed values update dynamically as new packages are processed.

7.2.3 Selecting a Single System from a System Group

When a **single system** is selected within a **system group**, the widgets update to display data specific to that system, similar to selecting an independent system.

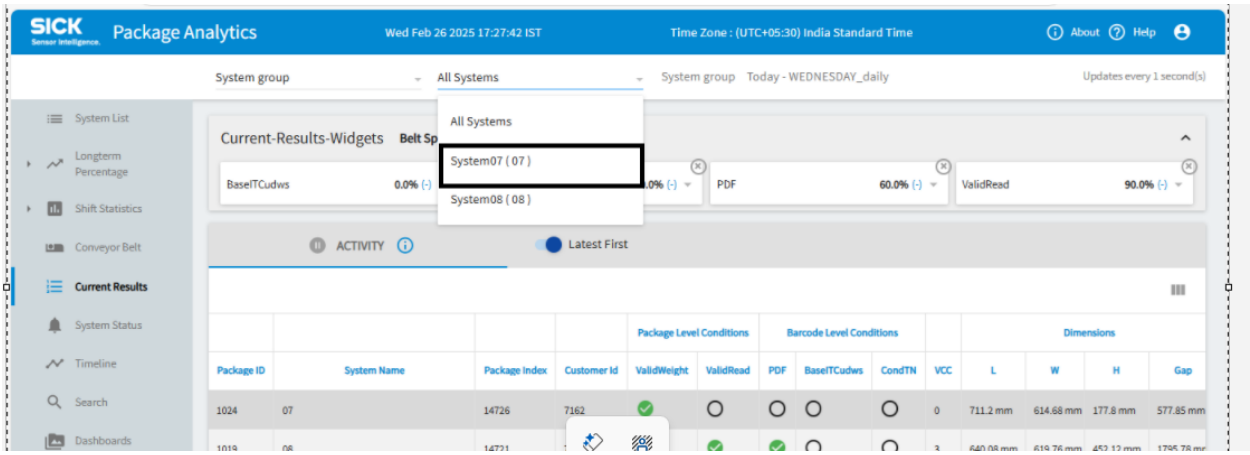


Figure 2-5: Selecting a Single System Within a Group

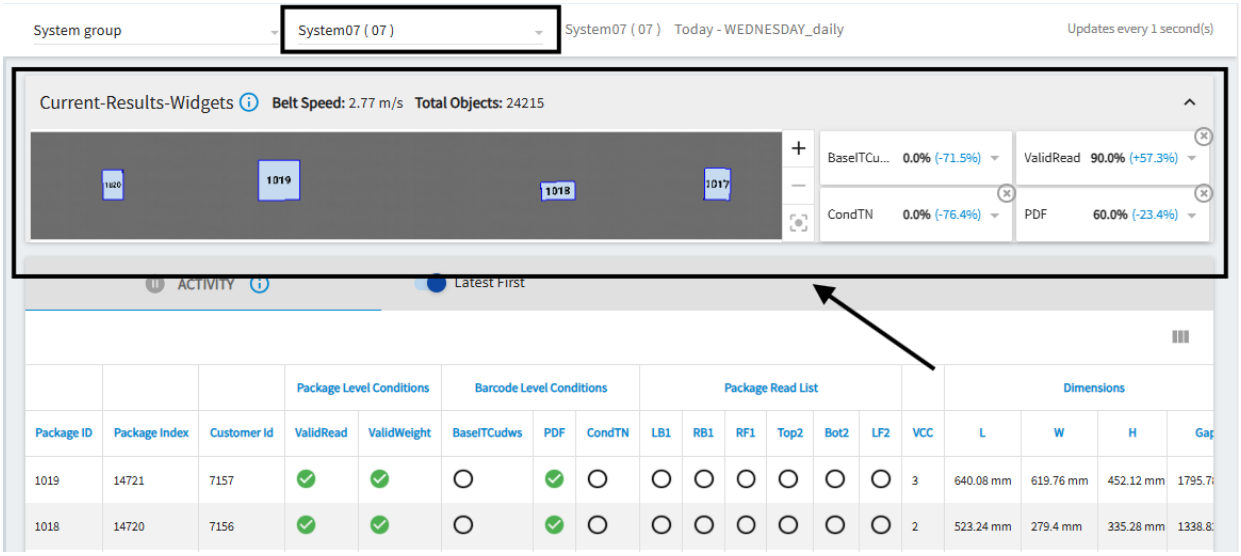


Figure 2-6: Widgets for a Single System Selected Within a Group

- **Conveyor Belt Widget**: Becomes visible, showing real-time package movement for the selected system.
- **Total Objects Count**: Displays packages processed by the selected system only.
- **Belt Speed**: Shows the real-time speed of the selected system's conveyor.
- **Statistics Widgets**: Displays system-specific data; users can add or remove widgets.

7.2.4 Interacting with Widgets

This section covers the various ways you can interact with widgets, including **Zoom and Navigation Controls**, **Adding or Removing Statistic Widgets**, and **Using Pause and Go Live** functionalities. These features are designed to help you customize your view, focus on specific data, and analyze information more effectively.

7.2.4.1 Conveyor Widget – Zoom and Navigation Controls

The Zoom and Navigation Controls in the Conveyor Widget allow you to adjust the view of the conveyor belt for better visibility and control.

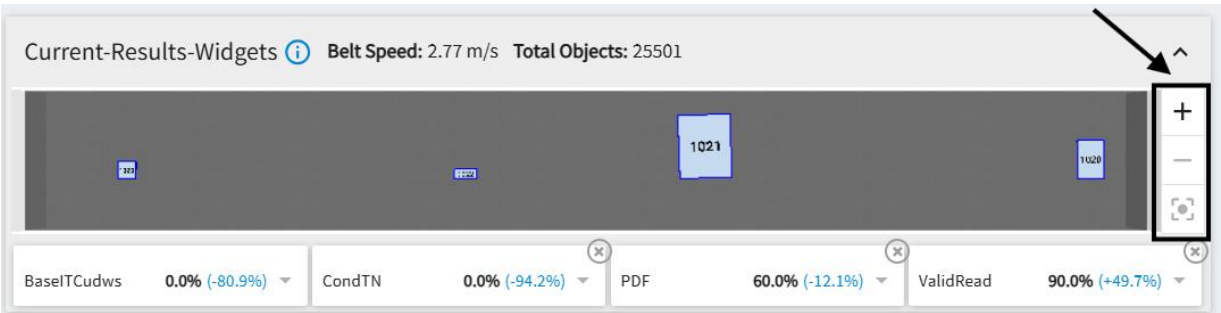


Figure 2-7. Interactive features in the Conveyor Widget

Zoom In/Out and Reset View

- Click the **+** and **–** buttons to zoom in or out of the conveyor view.
- Click the **Reset** button to restore the default zoom level.
- You can also use the **mouse wheel** or **touchpad** to zoom in and out.

Dragging and Arrow Key Navigation

1. To move the conveyor view, click and hold the **left mouse button**, then drag in any direction.
2. Alternatively, use the **arrow keys (↑, ↓, →, ←)** to shift the view horizontally or vertically.

Note: If objects move out of the visible area due to zooming, you can use either dragging **or** arrow key navigation to bring them back into view.

7.2.4.2 Adding or Removing Statistic Widgets

This feature allows you to customize your dashboard by adding or removing widgets that display relevant statistics

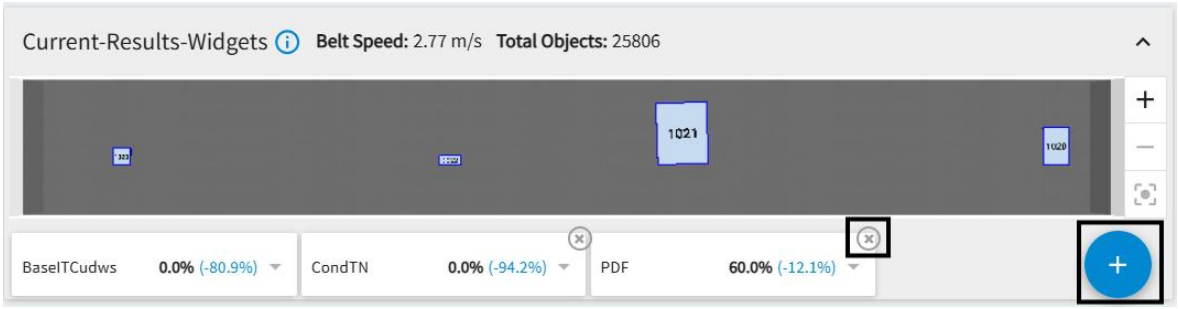
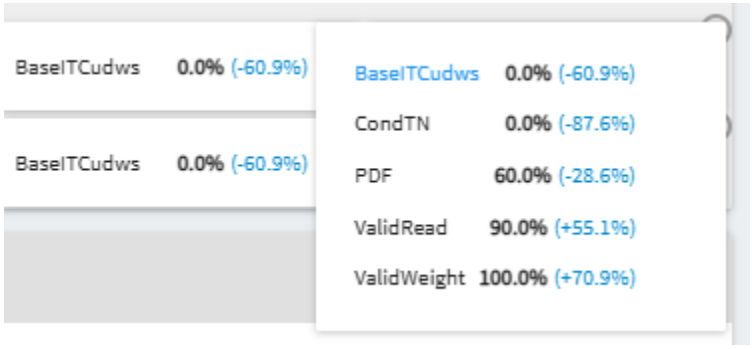


Figure 2-7: Adding or Removing Statistic Widgets

Adding a Statistic Widget

1. Click the **+** button to add a new statistics widget.
    - This will open a menu or dialog to select the type of statistic you want to display.



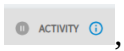
Removing a Statistic Widget

1. Click the **X** button on the widget you want to remove.
    - The widget will be immediately removed from the dashboard.

7.2.5 Using Pause and Go Live for the Package Data Table and Conveyor View

The **Pause** and **Go Live** functionalities allow you to temporarily halt live updates in the Package Data Table and Conveyor Belt View. This feature is particularly useful when you need to review specific package entries or inspect objects in detail without the distraction of real-time updates. When paused, both the conveyor view and the data table become static, enabling you to interact with individual objects (e.g., boxes or tires) and view their detailed information.

To Pause the View:

1. In the **Activity section** 

, find and click the **Pause** button.
    - Once paused, the conveyor view and the data table will freeze, stopping all live updates.

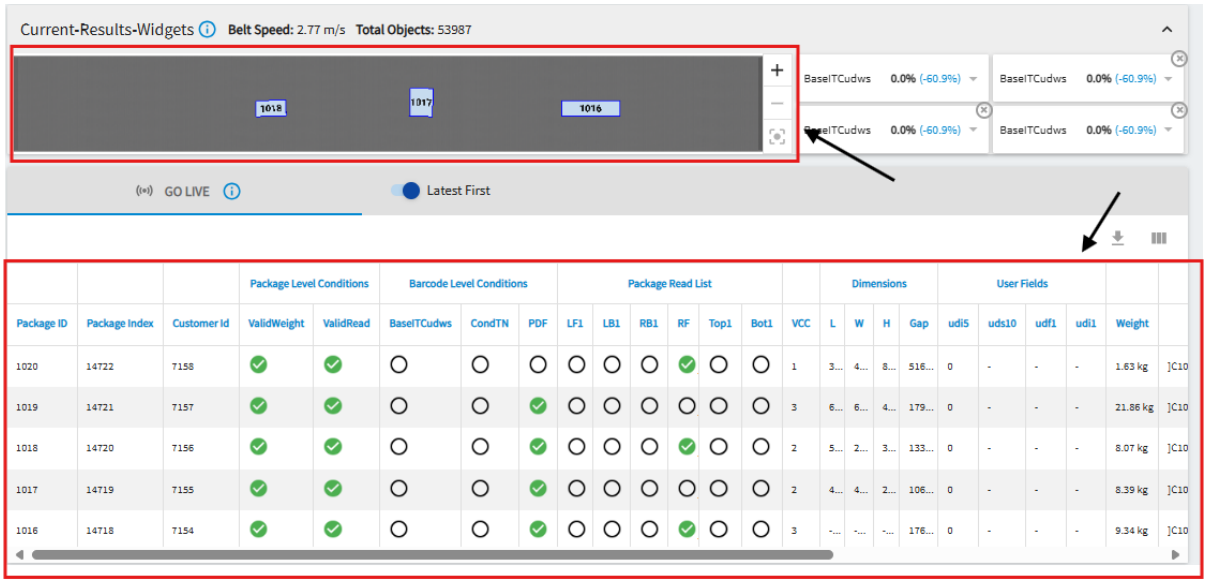


Figure 2-9: Conveyor view in paused mode with clickable objects.

2. While paused, you can click on any object (e.g., a box or tire) in the conveyor view to open its detailed information panel**.**
    - This allows you to inspect specific details without the view changing.

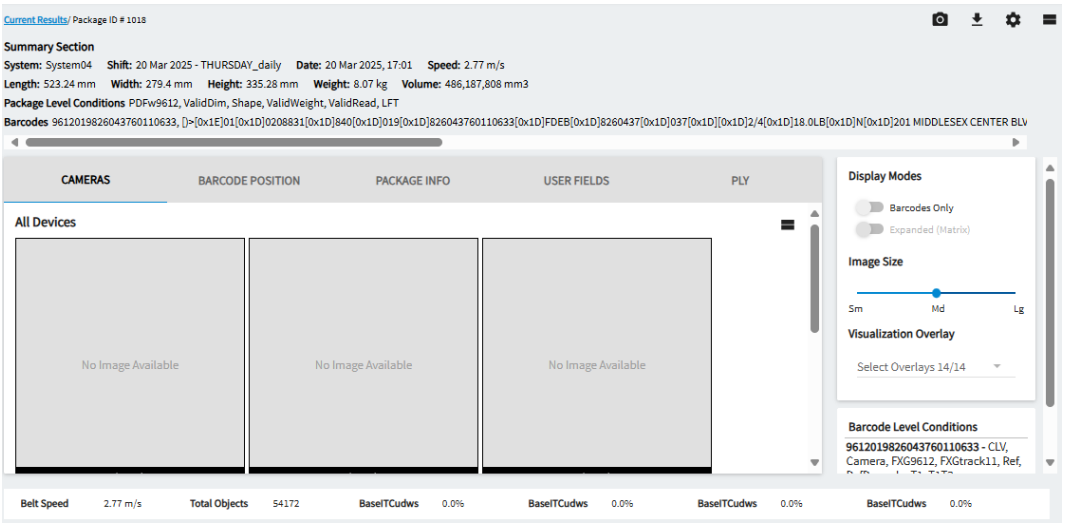
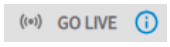
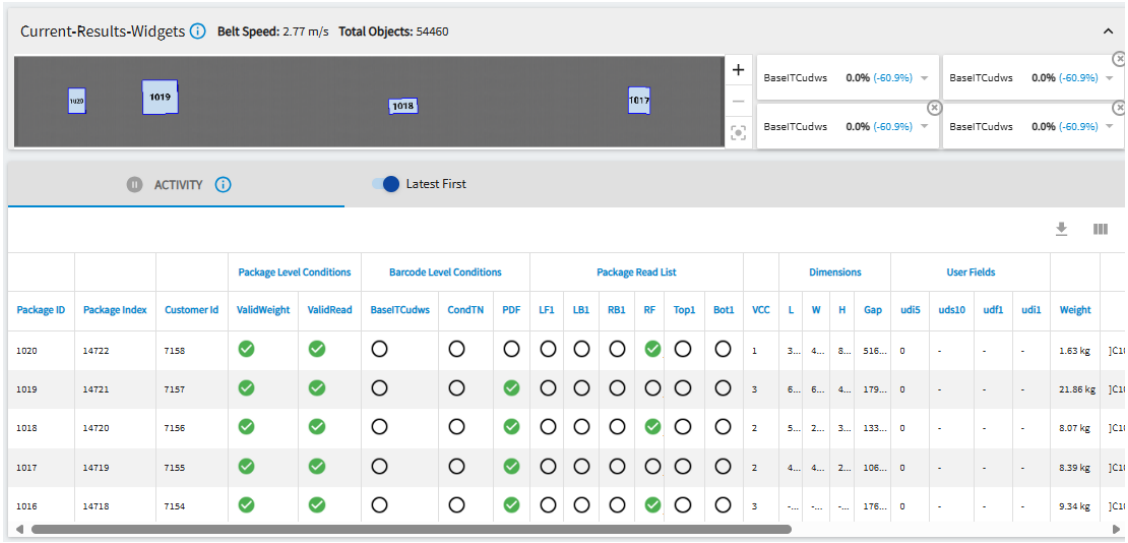


Figure 2. Conveyor view with clickable objects in paused mode.

To Go Live:

1. In the **Activity section**, click the **Go Live**  button.
    - The conveyor view and the data table will immediately update to display the most recent real-time data.



Note: When you click **Go Live**, the system skips the paused duration and updates the display with the latest data. It does not continue from where it was paused; instead, it jumps directly to the current live state.

7.3 Package Data

The package data table displays an entry/entries for each package as it is processed by the system. It shows the last 300 packages processed during the current day. Because this is a live view, the table updates continuously while you view it.

When scheduled service runs, data is generated, it displays the specific tag checked to each package. Update condition for each tag in evaluation conditions.

Figure 34: Package Data Table- System View

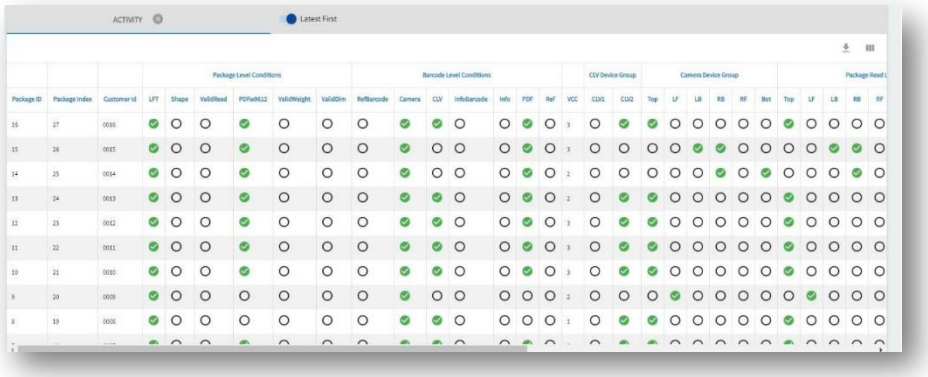


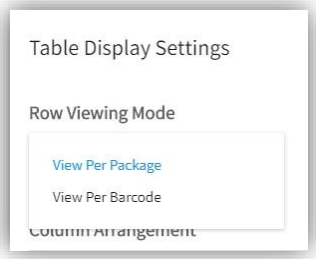
Figure 35: Package Data Table- System Group View

Items in the table are identified by Package ID. Two type of view tables are available for current results package data table:

- **View per Barcode**: A separate entry is created on the table for each barcode read on a package. When multiple barcodes are read on a package, the package may have multiple entries on the table; one entry for each barcode.

- **View per Package**: Entry in the table is for each package processed by the system. Only single entry for a package is displayed irrespective of the barcodes read in the package.

You can select the preferred view from Table display settings menu. If you are logged in, the selected view will be saved as user preferences and will be reflected on the Activity Table across the application.



The following data is displayed on the table for view per barcode:

Column	Description
Package ID	Identifier code for the current package sent from the system controller
System Name	This column is displayed only when **System Group** is selected from the dropdown with **All Systems** as selected from Systems dropdown.
Package Index	Package Index sent via controller
Customer ID	Customer Id is the Package secondary identifier code
Barcode ID	LA assigned number for per package barcode identification. This column will not be displayed if **System Group** with **All Systems** is selected.

Package Level Conditions	List of all the configured package level conditions for the system. A visual indicator is available corresponding to each package for the OLC read When **System Group** with **All Systems** is selected from the dropdown, only common Package Level Conditions for the group is displayed.
Barcode Level Conditions	List of all the configured Barcode level conditions for the system. A visual indicator is available corresponding to each package for the BLC read. When **System Group** with **All Systems** is selected from the dropdown, only common Barcode Level Conditions for the group is displayed.
Barcode Read List	List of all the configured barcode reading devices. A visual indicator is available corresponding to each package that read the barcode. This column will not be displayed if **System Group** with **All Systems** is selected.
Barcode Content	Decoded barcode content This column will not be displayed if **System Group** with **All Systems** is selected.
Code Security	Displays a cumulative average of the code security of the devices which read the code and provides a confidence rating, on a scale of 0-100, for the validity of the read. The higher the value, the greater the confidence rating. This column will not be displayed if **System Group** with **All Systems** is selected.

Barcode Position **x(xmin-xmax),y,z**	3-dimensional Cartesian coordinates of the starting point of a read barcode. For example: 290 (210-290), 202, 0 X= 290 (210-290) are the minimum and maximum values for *X*. The max value may be a negative number. This column will not be displayed if **System Group** with **All Systems** is selected.
LxWxH,Gap Dimensions	Package dimensions for systems with a dimensioner
Weight	Package weight, for systems with scales
Host Message	A snippet of the message sent to the host by the SICK controller device.
Sequence Number	Sequence Number of the Package.
Package Scan Time	Date and Time the Package was scanned.

Table 7: View per Barcode

The following data is displayed on the table for view per package:

Column	Description
Package ID	Identifier code for the current package sent from the system controller
System Name	This column is displayed only when **System Group** is selected from the dropdown with **All Systems** as selected from Systems dropdown.

Package Index	Package Index sent via controller
Customer ID	Customer Id is the Package secondary identifier code
Package Level Conditions	List of all the configured package level conditions for the system. A visual indicator is available corresponding to each package for the OLC read When **System Group** with **All Systems** is selected from the dropdown, only common Package Level Conditions for the group is displayed.
Barcode Level Conditions	List of all the configured barcode level conditions for the system. A visual indicator is available corresponding to each package for the BLC read When **System Group** with **All Systems** is selected from the dropdown, only common Barcode Level Conditions for the group is displayed.
VCC	Total valid code counts available for the package
Package Read List	List of all the configured barcode reading devices. A visual indicator is available corresponding to each package that read the barcode. This column will not be displayed if **System Group** with **All Systems** is selected.
LxWxH,Gap Dimensions	Package dimensions for systems with a dimensioner
User Fields	User defined fields read by the devices This column will not be displayed if **System Group** with **All Systems** is selected.
Weight	Package weight, for systems with scales

Host Message	A snippet of the message sent to the host by the SICK controller device.
Sequence Number	Sequence Number of the Package
Package Scan Time	Date and Time the Package was scanned.

Table 8: View Per Package

7.4 Latest First Toggle button

Latest first toggle button displays the latest package at the top of the Activity table, if selected. On deselecting the toggle button, the latest package gets added/displayed at the bottom of the current package in the Activity table.

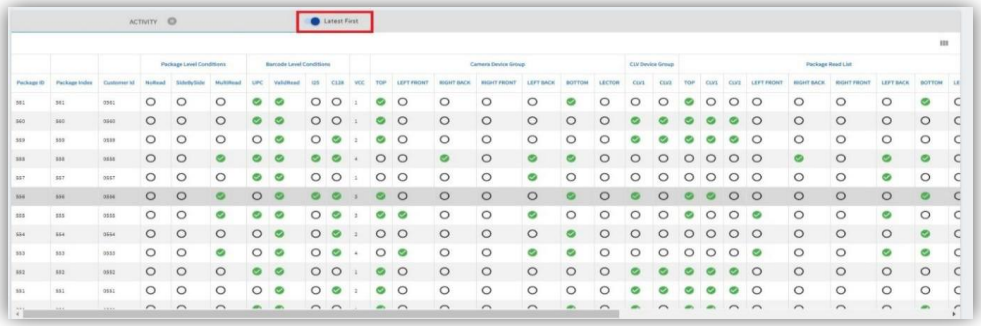


Figure 36: Latest First Toggle button

7.5 Select Default Column

You can select Default Column as **Package ID** or **Package Index** or **Customer Id** for Package data table from **Table Display Settings**.

1. Click on the icon at top right corner of the Activity table. Application will display Table Display Settings dialog box.

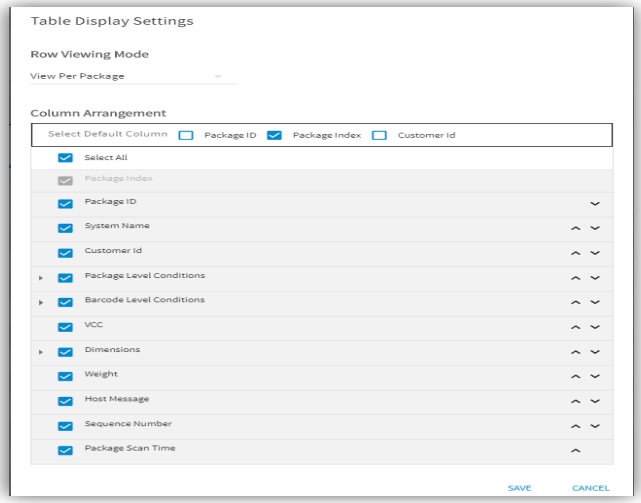
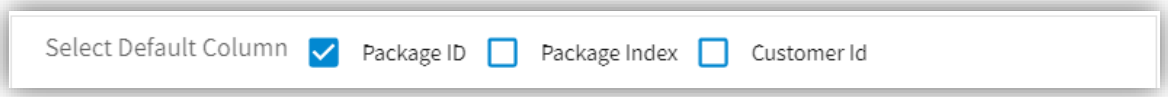


Figure 37: Package Data Table- System Group View

2. Select the Default Column on Table Display Settings dialog box.



3. Click on Save button.
4. The default column will always be displayed as the first column and cannot be moved or re-arranged.

7.6 Show or Hide Package Data Table Columns and Rearrange Columns

You can show or hide columns in the package data table, and you can rearrange the column order in the table:

1. Click the Edit Columns icon

2. In the **Column Arrangement** section, check or uncheck column headings to include (or hide). You can also select the default column to be displayed.

   The Default column is fixed. It cannot be hidden.

3. To move a column, in the **Table Display Settings** dialog, click the arrow and move the header to a new position on the list. Do this for each heading you would like to move. You can also drag and drop the columns to the desired position.

   The Default columns is fixed. It cannot be moved from its position on the Packages table.

4. When you are finished, click **Save** to apply the changes. If you are logged in to the application, these changes will be saved as user preferences. Click **Cancel** to return to **Current Results** without applying changes.

7.7 Export Data

All the available entries of the packages in the Package data table can be downloaded/exported by the user. You can open export data modal window by clicking on the  button available at the top right corner of the package data table. As package data table in the current results page only displays last 300 packages, only data of these packages is exported. Following data can be exported for the available packages in the table:

1. Package data as CSV: Package information that is parsed by the application is available in the package data table. Using Package data as CSV option, this information can be exported in as single CSV file.
2. Trace data as CSV: The exported file via *Trace data as CSV,* contains an entry for each device that read a barcode for a package.
3. Full resolution images: All the full-size images of the image capturing devices for the available packages is exported in a zip file.
4. Thumbnail images: All the thumbnail images of image capturing devices for the available packages is exported in a zip file.
5. Image metadata XML: All the image XML files of image capturing devices for the available packages is exported in a zip file.

The exported data is filtered based on the selected conditions. This feature is only available for the logged in Users having appropriate permissions

8 Dashboard

8.1 PandA Dashboard

Overview

The **PandA Dashboards**, integrated within the **Package Analytics (PA)** application, provide a comprehensive suite of monitoring tools designed to deliver real-time and historical insights into the automated labeling process in warehouse environments. The dashboards include:

- **PandA - Home: Infographics & Alarm Dashboard**: Real-time status, alarms, and package processing metrics.
- **PandA - System Statistics**: Performance metrics across all applicators and stages, including barcode scanning, package suitability, label application, and verification.
- **PandA - Applicators Overview**: Overview of operational states, performance trends, and downtime metrics for all applicators.
- **PandA - Applicators Status**: Detailed analysis of a specific applicator's operational state, performance, errors, and verification results.

Prerequisites for PandA Dashboards

To ensure optimal performance and compatibility, the following requirements must be met:

Browser Compatibility

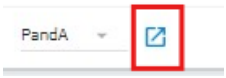
- **Chrome & Edge**:
  - Desktop version: >= 110
  - Android version: >= 110
- **Firefox**:
  - Desktop version: >= 115
  - Android version: >= 115

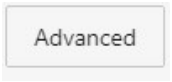
Recommended Scale and Resolution

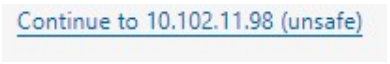
- **Windows**: Up to 100% scale
- **Resolution**: 1920 x 1080

Initial Dashboard Setup

After the initial login to the Package Analytics application, the dashboards may appear blank with no data or widgets displayed. To enable proper display, perform the following setup steps:

1. Click the 

Up-arrow icon to open the **Device Dashboard (DD)** in a new tab.
2. In the new tab, click 

Advanced, then click 

Continue to Unsafe.
3. Reload the Package Analytics application to display the dashboards correctly.

Accessing the PandA Dashboard

To access the dashboards:

1. Log in to the Package Analytics application.
2. From the **Package Analytics Navbar**, select **Dashboards**.
3. In the **Dashboards Dropdown**, choose **PandA**.
    - The **PandA - Home Dashboard** loads by default.

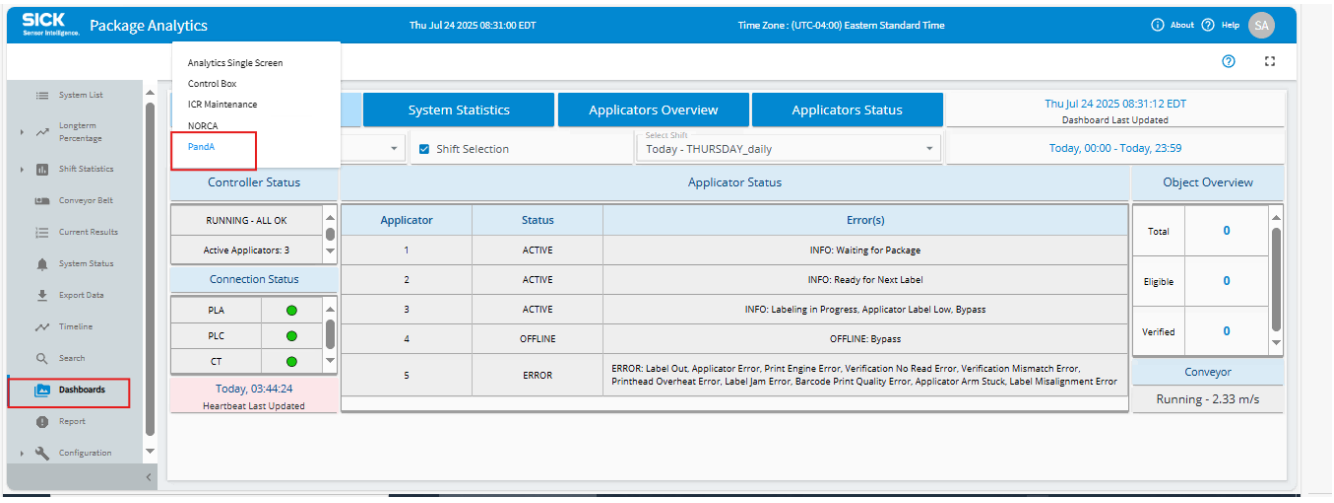


Figure 8.1: Accessing the PandA Dashboard from the Dashboards Dropdown

Common Features Across Dashboards

- **Navigation Tabs**:
  - Switch between **PandA - Home**, **PandA - System Statistics**, and **PandA - Applicator Statistics**.
- **PandA System Dropdown**:
  - Select the PandA system to monitor.
- **Time-Range Selection**:
  - Filter data using one of two options: **Shift Wise** or **Duration Wise**.
  - **To Use Shift Wise**:
    1. Ensure the **Shift Selection** checkbox is checked.
    2. Select a shift from the **Shift Dropdown** to view data for that shift.
  - **To Use Duration Wise**:
    1. Uncheck the **Shift Selection** checkbox.
    2. Select a **Duration** from the dropdown menu (values range from 1 to 30).
    3. Choose a **Duration Unit** (minutes, hours, days) to view data for a custom time range.

- **Last Updated Time**:
  - Updates every 10 seconds to display the latest data, or when selections change.
- **Field Retention**:
  - Selections are retained when switching between PandA dashboards but reset to defaults when navigating to other Package Analytics pages.

8.1 PandA - Home

The **PandA - Home Dashboard** serves as the central monitoring hub within the Package Analytics application, designed to enable quick monitoring and issue detection, providing a real-time, at-a-glance overview of the system's operational status, active alarms, and key package processing metrics. The dashboard consolidates information related to system status, connection health, applicator performance, heartbeat updates, and package processing metrics, enabling timely intervention to maintain system health and performance.

Dashboard Layout- PandA - Home

The dashboard is structured into the following key components:

1. **Control Widgets Table** – Customizes system and time-range settings.
2. **Controller Status Table** – Displays the overall controller status.
3. **Connection Status Table** – Shows the status of controller connections.
4. **Heartbeat Last Updated Table** – Indicates the timestamp of the latest heartbeat update.
5. **Applicator Status Table** – Displays the status of applicators with color-coded indicators.
6. **Object Overview Table** – Displays package processing metrics.
7. **Conveyor Status** – Shows the current operational state of the conveyor belt.

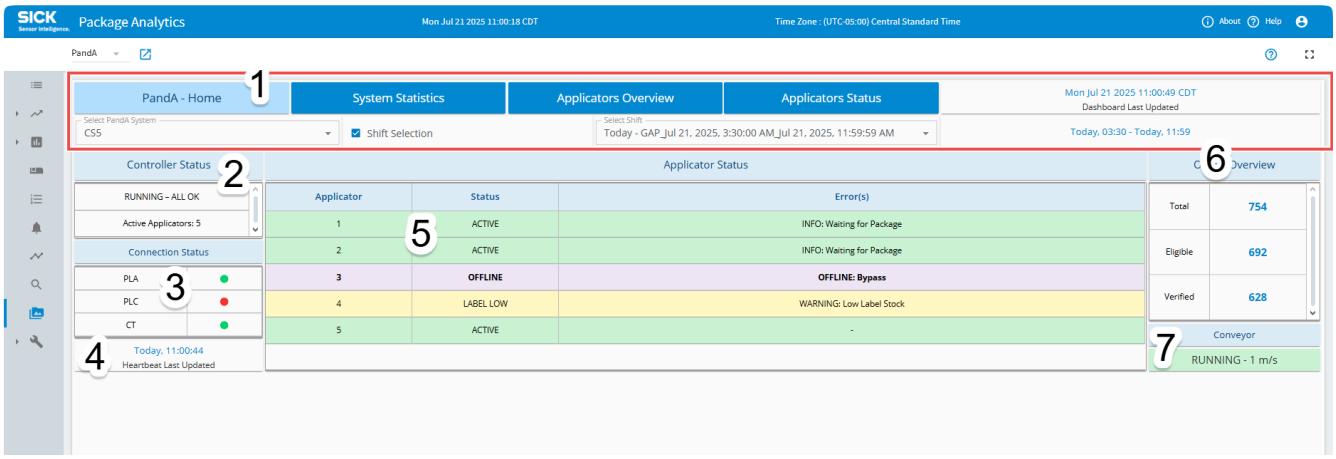


Figure 8.2: PandA - Home Dashboard

1. Control Widgets Table

This table provides the primary controls for customizing the dashboard's data display.

Field	Description
PandA System Dropdown	Allows selection of the specific PandA system to be monitored.
Time-Range Selection	Configures the time window for the displayed data: • **Shift Wise**: Select a shift with the Shift Selection checkbox checked. • **Duration Wise**: Uncheck Shift Selection, then select a duration and unit.

Last Updated	Indicates the freshness of the displayed data. Updates automatically every 10 seconds or upon selection changes.

2. Controller Status Table

Provides a critical overview of the main system controller's operational health. It quickly indicates whether the control unit is functioning smoothly or if overarching issues are detected.

Field	Description
Overall Controller Status	Shows the controller state.
Total Active Applicators	The number of applicators currently connected and managed by the controller.
Status Message	Operational state of the controller, using standardized message keys: • RUNNING - ALL OK • RUNNING - WARNING • WAITING FOR CONVEYOR START • BYPASS • ERROR

3. Connection Status Table

Provides a clear overview of the connectivity health of various controller connections within the system.

Field	Description
Connection	Identifies the specific connection.

Status	Indicates current connection status: • **CONNECTED** – Shown with a **green filled circle ()** • **DISCONNECTED** – Shown with a **red filled circle ()**

4. Heartbeat Last Updated Table

Tracks the timeliness of system heartbeat data, crucial for monitoring component responsiveness and health.

Field	Description
Today, HH:MM: SS	Displays the exact time of the last heartbeat (e.g., "03:44:24")
Status	Displays the time of the last heartbeat update. • Updates every 15 seconds. • If the last update exceeds 60 seconds (default idle time), the background turns red, signaling a potential communication issue or an idle applicator.

5. Applicator Status Table

Displays the operational status of individual applicators with clear, color-coded indicators.

Field	Description
Applicator	The Printer/Applicator identifier.

Status	The current operational state, standardized to five fixed values: • Active (green background) • Offline (grey background) • Label Low (yellow background) • Disabled (grey background) • Error(s) (red background, bold text with comma-separated errors) Updates every 15 seconds. If heartbeat data is older than 60 seconds, the status turns grey. If a non-standard or unknown status appears (i.e., not one of the five listed above), it will be displayed as-is without any background color.

6. Object Overview Table

Displays package processing stats for performance monitoring.

Metric	Description
Total	All objects/packages entering the system.
Eligible	Packages with successful barcode scans and label data fetched (UDS5 = OK).
Verified	Packages with labels successfully verified (UDS3 = Match).

7. Conveyor Status

Displays the current operational state of the conveyor belt.

Field	Description
Running Status	Indicates whether the conveyor is currently running or stopped.
Speed	Displays the current conveyor belt speed. Updates every 10 seconds.

8.2 PandA - System Statistics Dashboard

The **PandA - System Statistics Dashboard** serves as a central analytical hub within the Package Analytics application, designed to enable trend analysis, bottleneck detection, and overall system performance evaluation, providing a comprehensive overview of performance metrics across all applicators and stages within the PandA system, including barcode scanning, package suitability, label application, and verification processes.

Dashboard Layout-System Statistics Dashboard

The dashboard is structured into the following key components:

1. **Control Widgets Table** – Customizes system and time-range settings.
2. **Custom Stats Table** – Summarizes barcode scanning and label information retrieval outcomes.
3. **Object Stats Table** – Displays package suitability and label application results.
4. **Printer/Applicator Stats Table** – Tracks package distribution across applicators.
5. **Verify Stats Table** – Reports label verification performance.
6. **Custom Stats Over Time Chart** – Visualizes trends in barcode scanning outcomes.
7. **Object Stats Over Time Chart** – Illustrates trends in package suitability and labeling.

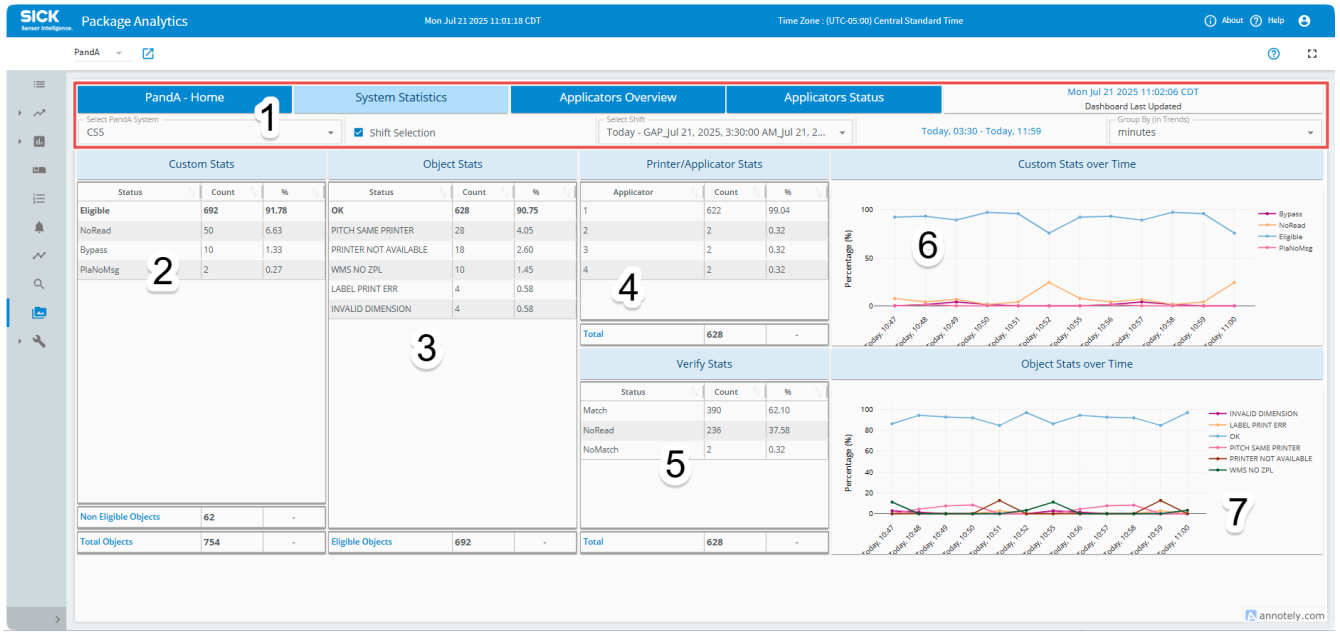


Figure 8.3: PandA - System Statistics Dashboard

1. Control Widgets Table

This table provides the primary controls for customizing the dashboard's data display.

Field	Description
PandA System Dropdown	Allows selection of the specific PandA system to be monitored (e.g., "01 - PandA System").
Time-Range Selection	Configures the time window for the displayed data: • **Shift Wise**: Select a shift with the Shift Selection checkbox checked. • **Duration Wise**: Uncheck Shift Selection, then select a duration and unit.
Group By Dropdown	Sets time intervals for charts. The available options depend on the Shift Selection checkbox and Duration Unit: 1. When Shift Selection is checked, options are: o Hours o Minutes 2. When Shift Selection is unchecked, options depend on Duration Unit: • If Duration Unit is greater than 1 day (e.g., days), options are: ▪ Hours ▪ Days • If Duration Unit is less than 1 day (e.g., hours), options are: ▪ Hours ▪ Minutes • If total duration is less than 60 minutes (e.g., 30 minutes), option is: ▪ Minutes
Last Updated Time	Indicates the freshness of the displayed data. Updates automatically every 10 seconds or upon selection changes.

2. Custom Stats Table

Provides a critical overview of the outcomes of barcode scanning and label information retrieval for all packages. It quickly indicates whether the scanning process is functioning smoothly or if issues are detected.

Field	Description
Status	A brief description reflecting the outcome of the scanning process (e.g., "NoRead," "Bypass").
Count	The number of packages with this status.
%	The percentage of total packages with this status.
Non-Eligible Objects	Displays the count of objects not suitable for further processing.
Total Objects	The total number of packages entering the system.

3. Object Stats Table

Offers a clear overview of the results of package suitability checks and label application across the system.

Field	Description
Status	Identifies the specific outcome (e.g., "OK," "INVALID DIMENSION").
Count	The number of packages with this status.
%	The percentage of total packages with this status.
Eligible Objects	The total number of packages eligible for labeling after scanning.

4. Printer/Applicator Stats Table

Displays the distribution of package processing across individual applicators within the selected time range.

Field	Description

Applicator	The Printer/Applicator identifier.
Count	The number of packages processed by the applicator.
%	The percentage of total packages processed by the applicator.
Total	Total number of labeled objects.

5. Verify Stats Table

Tracks the timeliness and accuracy of label verification data, crucial for ensuring label quality.

Field	Description
Status	Designated as the verification outcome (e.g., "Match," "NoRead").
Count	The number of packages with this status.
%	The percentage of total packages with this status.
Total	The total number of packages verified.

6. Custom Stats Over Time Chart

The Custom Stats Over Time chart shows the trends in barcode scanning and label information retrieval outcomes during the selected time range. The chart refreshes automatically based on system selection and time filters.

Field	Description
Chart Type	Line chart.
Horizontal Axis	Displays time intervals based on the selected shift or duration (e.g., minutes), determined by the Group By Dropdown setting.
Vertical Axis	Indicates the percentage of packages for each status (0%–100%).
Lines	Shows changes in each status (e.g., "NoRead," "Bypass") over time.

Color Coding	Distinct colors (e.g., red for "NoRead," orange for "Bypass") aid quick visual identification.

7. Object Stats Over Time Chart

The Object Stats Over Time chart provides a visual summary of trends in package suitability and label application outcomes. This chart helps users identify and respond to operational issues efficiently and refreshes automatically based on the selected system and time range.

Field	Description
Chart Type	Line chart.
Horizontal Axis	Displays time intervals based on the selected shift or duration (e.g., minutes), determined by the Group By Dropdown setting.
Vertical Axis	Indicates the percentage of packages for each status (0%–100%).
Lines	Shows changes in each status (e.g., "OK," "PITCH SAME PRINTER") over time.
Color Coding	Distinct colors (e.g., blue for "OK," orange for "PITCH SAME PRINTER") aid quick visual identification.

8.3 PandA - Applicators Overview Dashboard

The **PandA - Applicators Overview Dashboard** serves as a real-time monitoring hub within the Package Analytics application, designed to enhance monitoring efficiency and effective troubleshooting, providing a comprehensive overview of the operational states, performance trends, and downtime metrics for all applicators within the PandA system.

Dashboard Layout- Applicators Overview Dashboard

The dashboard is structured into the following key components:

1. **Control Widgets Table** – Customizes system and time-range settings.
2. **Active / Offline % Table** – Provides a snapshot of each applicator's operational state over the selected time range.

3. **Status Over Time Chart** – Shows the operational status of each applicator during the selected time range.
4. **Applicators Downtime Analysis Chart** – Provides a visual summary of downtime reasons for each applicator.

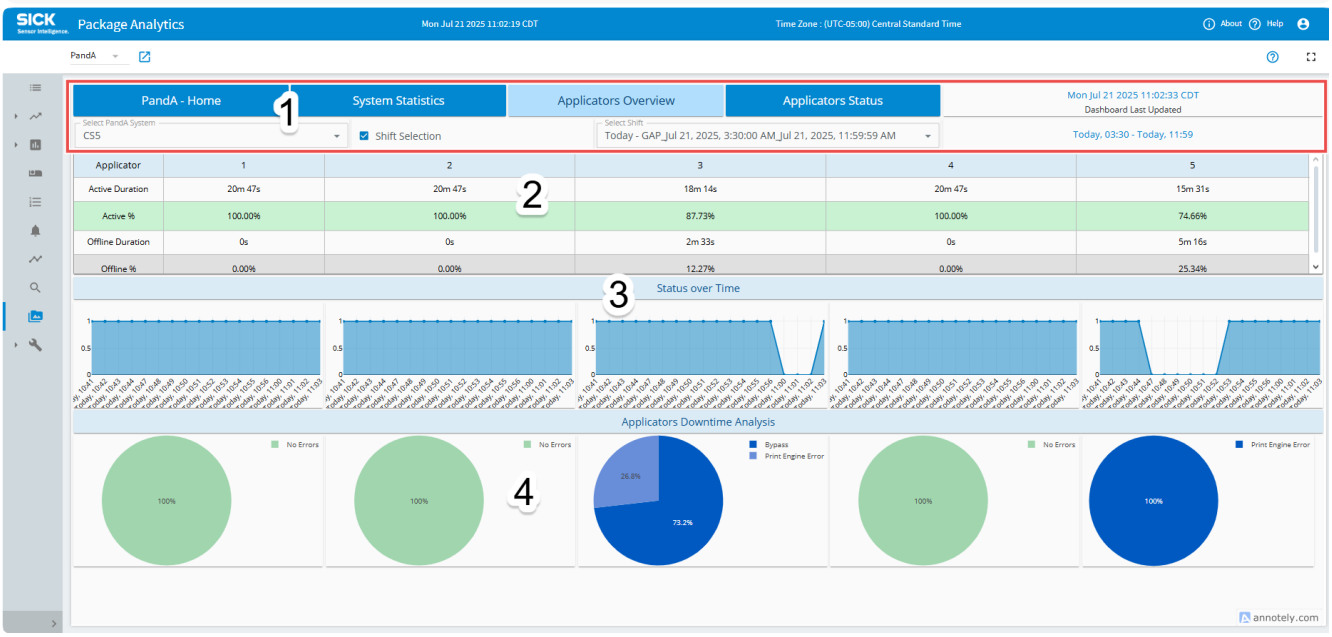


Figure 8.2: PandA - Applicators Overview Dashboard

1. Control Widgets Table

This table provides the primary controls for customizing the dashboard's data display.

Field	Description
PandA System Dropdown	Allows selection of the system to monitor.
Time-Range Selection	Configures the time window for the displayed data: • **Shift Wise**: Select a shift with the Shift Selection checkbox checked. • **Duration Wise**: Uncheck Shift Selection, then choose a duration and unit.
Last Updated Time	Refreshes every 10 seconds or upon selection changes.

2. Active / Offline % Table

This table provides a snapshot of each applicator's operational state over the selected time range, expressed in both duration and percentage.

Field	Description
Applicator	Identifiers (e.g., 1, 2, 3, etc.) representing each Printer/Applicator unit.
Active Duration	Total duration the applicator remained active during the selected time range.
Active %	Percentage of time the applicator was in the Active state.
Offline Duration	Total duration the applicator was offline during the selected time range.
Offline %	Percentage of time the applicator was in the Offline state.

3. Status Over Time Chart

The Status Over Time chart shows the operational status of each applicator during the selected time range. Each applicator displays in a separate panel to allow easy comparison. The chart refreshes automatically based on system selection and time filters.

Field	Description
Chart Type	Line chart (one panel per applicator).
(X-Axis) Horizontal Axis	Displays time intervals based on the selected shift or duration.
(Y-Axis) Vertical Axis	Indicates the applicator's status, where 0 means Active and 1 means Inactive (these are the only two states).
Line Display	Shows changes in each applicator's status over time.
Panel Layout	Each applicator displays in its own chart panel.
Color	A blue line represents the status trend throughout the selected period.

4. Applicators Downtime Analysis Chart

The Applicators Downtime Analysis chart provides a visual summary of downtime reasons for each applicator. This chart helps users identify and respond to operational issues efficiently and refreshes automatically based on the selected system and time range.

Field	Description
Chart Type	Pie chart (one chart per applicator).
Slices	Represent downtime categories like Bypass, Verification No Read Error, and No Errors (if no downtime occurred).
Labels	Display the percentage of each downtime category.

Color Coding	Distinct colors aid quick visual identification.
Panels	Each applicator displays in its own chart panel.

8.4 PandA - Applicators Status Dashboard

The **PandA – Applicators Status Dashboard** serves as a real-time monitoring hub within the Package Analytics application, designed to enable efficient monitoring and targeted troubleshooting, providing a detailed overview of the operational state, performance trends, error statistics, and verification results for a selected applicator.

Dashboard Layout- Applicators Status Dashboard

The dashboard is structured into the following key components:

1. **Control Widgets Table** – Configures system selection, applicator filter, and time range.
2. **Active / Offline % Table** – Displays the total active and offline duration of the selected applicator.
3. **Heartbeat Error Stats Table** – Shows categorized errors, counts, and durations for the applicator.
4. **Status Over Time Chart** – Displays the applicator's operational status over the selected time range.
5. **Verify Stats Over Time Chart** – Shows label verification performance metrics over time.
6. **Downtime Analysis Chart** – Illustrates a visual breakdown of downtime causes.

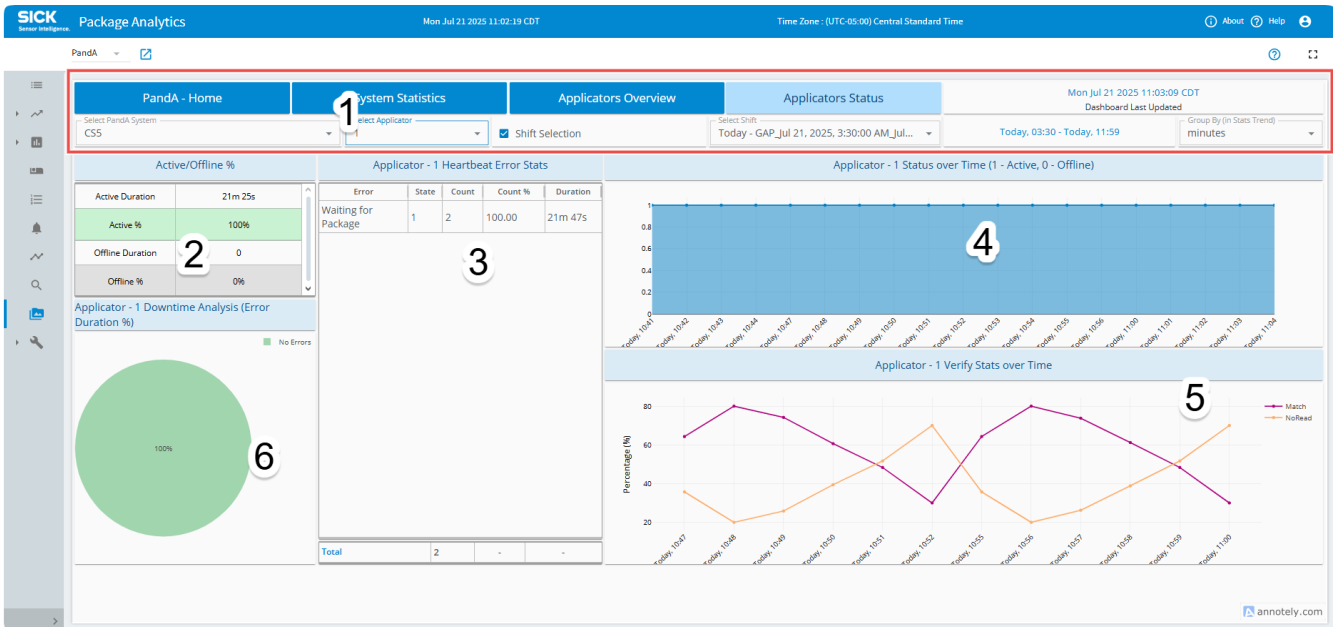


Figure 8.4: PandA - Applicators Status Dashboard

1. Control Widgets Table

This section is used to configure the system and time range for data display.

Field	Description
PandA System	Select the system to monitor.
Applicator	Choose a specific applicator to view its statistics.
Time-Range Selection	Configures the time window for the displayed data: • **Shift Wise**: Select a shift with the Shift Selection checkbox checked. • **Duration Wise**: Uncheck Shift Selection, then select a duration and unit.

Group By (Status Trend)	Sets time intervals for charts. The available options depend on the Shift Selection checkbox and Duration Unit: 1. When Shift Selection is checked, options are: o Hours o Minutes 2. When Shift Selection is unchecked, options depend on Duration Unit: • If Duration Unit is greater than 1 day (e.g., days), options are: ▪ Hours ▪ Days • If Duration Unit is less than 1 day (e.g., hours), options are: ▪ Hours ▪ Minutes • If total duration is less than 60 minutes (e.g., 30 minutes), option is: ▪ Minutes
Last Updated Time	Displays the timestamp of the most recent dashboard refresh.

2. Active / Offline % Table

This table shows the operational uptime and downtime of the selected applicator in both duration and percentage formats.

Field	Description
Active Duration	The total time the applicator was active.
Active %	The percentage of the time the applicator was active.
Offline Duration	The total time the applicator was offline.
Offline %	The percentage of the time the applicator was offline.

3. Heartbeat Error Stats Table

This table presents error statistics recorded during the selected time frame.

Field	Description
Error	The name or type of the heartbeat error.
Count	The number of occurrences of each error type.
Count %	The percentage of each error type relative to the total.
Duration	The total time each error persisted.

4. Status Over Time Chart

This chart displays the operational status of the applicator across the selected time range.

Field	Description
Chart Type	Line chart.
Horizontal Axis	Represents the selected time interval, determined by the Group By (Status Trend) setting.
Vertical Axis	Shows the applicator's operational status (e.g., active, inactive).
Panel Layout	One chart per applicator.
Line Color	A blue line represents the status trend.
Use	Use this chart to track performance and identify potential service interruptions.

5. Verify Stats Over Time Chart

This chart shows the trend of label verification outcomes over time.

Field	Description
Chart Type	Line chart.

Horizontal Axis	Time range selected for analysis, determined by the Group By (Status Trend) setting.
Vertical Axis	Percentage of successful/failed verifications.
Line Color	A blue line represents verification trend.
Use	Use this chart to evaluate the accuracy and reliability of label printing and scanning.

6. Downtime Analysis Chart

This pie chart visualizes the causes of downtime for the selected applicator.

Field	Description
Chart Type	Pie chart.
Slices	Show downtime reasons such as Bypass, Verification No Read Error, or No Errors.
Labels	Display percentage values of each downtime reason.
Color Coding	Unique color assigned to each category.
Use	Use this chart to identify error patterns and prioritize maintenance efforts.

9 Package Detail

The Package Detail page provides the detail information (such as length, width, height, bar codes) about a particular package which was received by the system. This screen can be viewed upon clicking on the package on search, timeline and current result page.

- Just below the context bar, you can find the breadcrumb “Current Results”, Click on

hyperlink to navigate back to current results/Search/Timeline page.

- Each package is uniquely identified by the Package ID which is adjacent to the bread-crumb “Current Results” or “Timeline”.
- Information about the system on which the package is received, Shift, Date and Belt speed is available below the breadcrumb “Current Results”.
- Information about Package Level Condition like Validread, ValidDim etc. is shown and also displays specific tag on each object in Cameras tab.
- The ribbon at the bottom of the screen gives the real time information about the Belt Speed, statistic Percentage and Volume of the selected system.

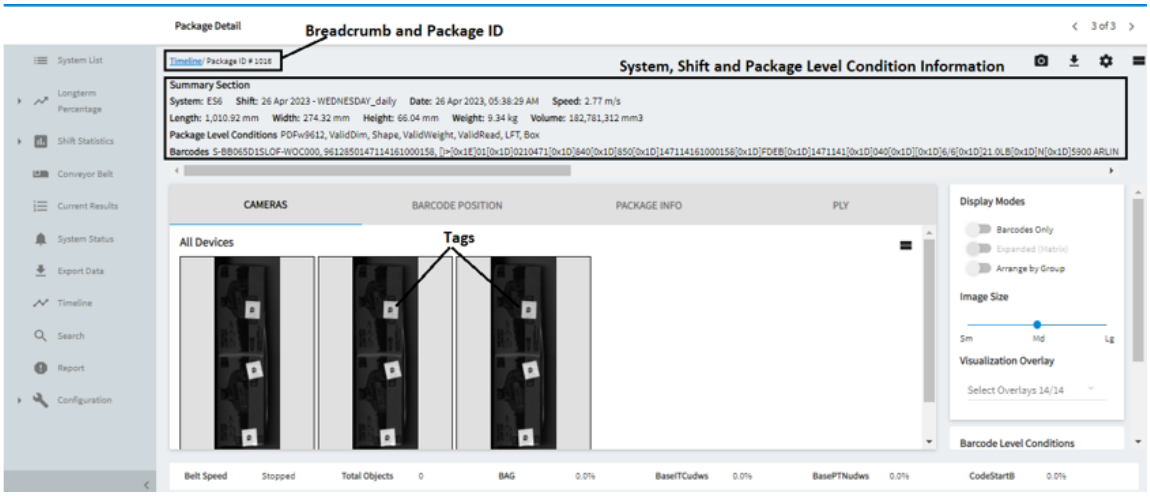


Figure 38: Package Detail

Package Details page is only available if they are enabled from the License file

- If no image is available for a device, application displays “No Image Available”

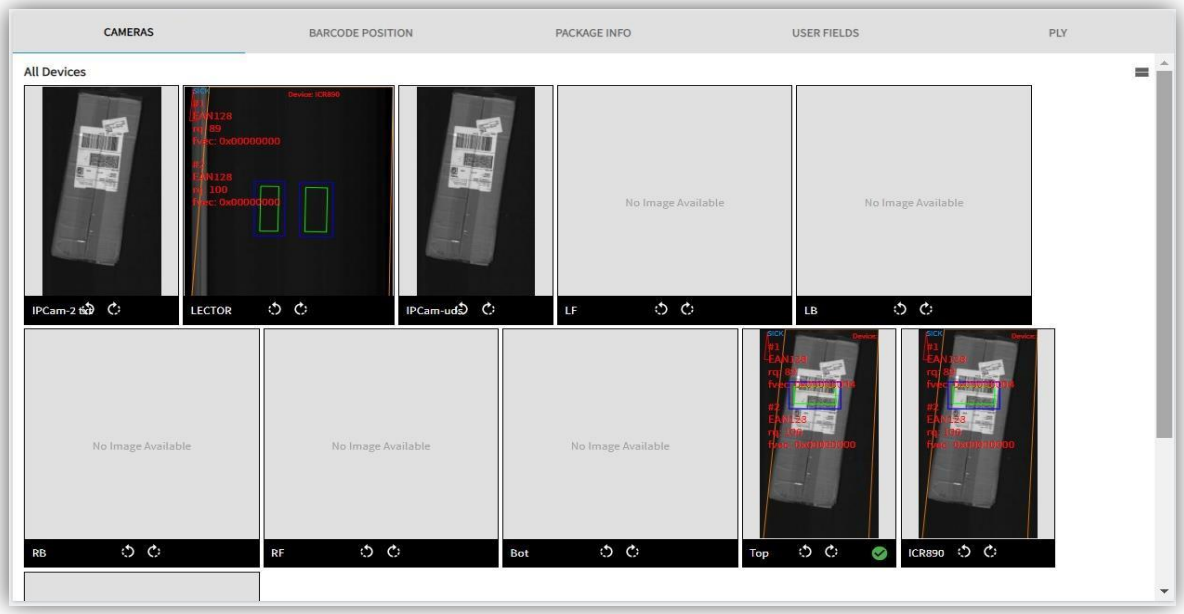


Figure 39: Image not available for a device

User can select or unselect the tabs which has to be displayed on the package details page by checking the respective checkboxes in the **Package Visibility Settings** then click the **Save** button.

For instance, if Camera is unchecked then camera tab is not visible in the package detail page. Refer to Figure 41: Selected Tabs in Package Details Page.

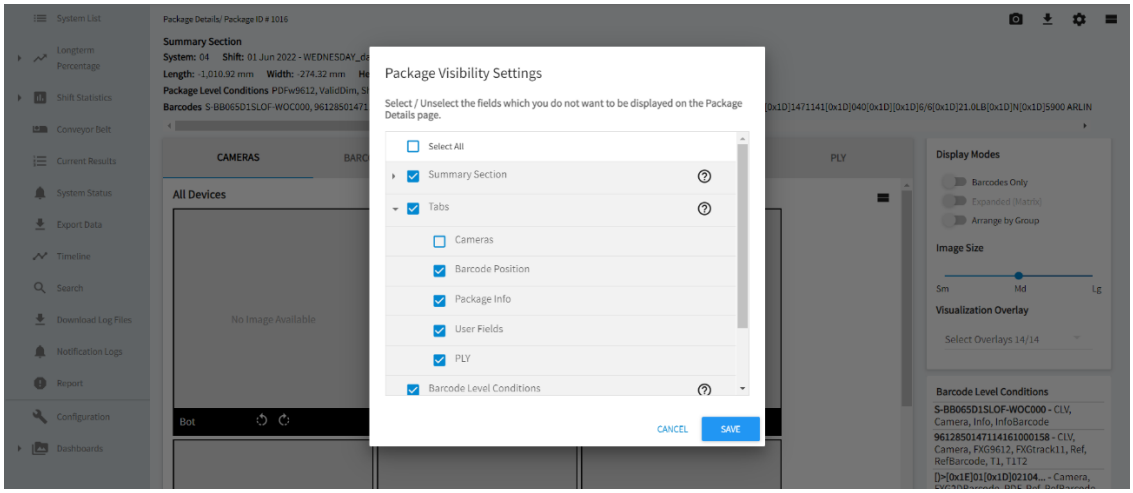


Figure 40: Package Visibility Settings

Figure 41: Selected Tabs in Package Details Page

9.1 Screenshot

This feature is available on the top right corner of the screen. Click the screenshot icon, to save the image of the current displayed window in the PNG format at the client location.

9.2 Export

All the available data of the package can be downloaded/exported by the user. You can open export data modal window by clicking on the button available on the top right corner of the screen. Following data can be exported for the available packages in the table:

- Package data as CSV: Package information that is parsed by the application is available in the package data table. Using *Package data as CSV* option, this information can be exported in as single CSV file.
- Trace data as CSV: The exported file via *Trace data as CSV,* contains an entry for each device that read a barcode for a package.
- Full resolution images: All the full-size images of the image capturing devices are exported in a zip file.
- Thumbnail images: All the thumbnail images of image capturing devices are exported in a zip file.

- Image metadata XML: All the image XML files for image capturing devices is exported in a zip file.

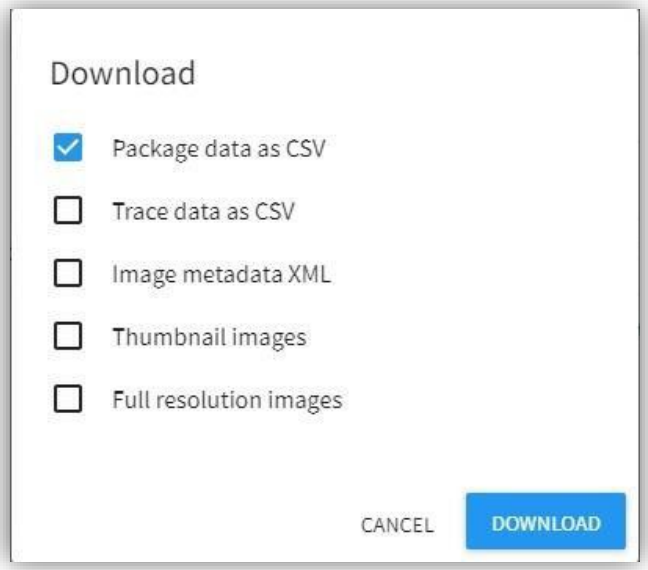
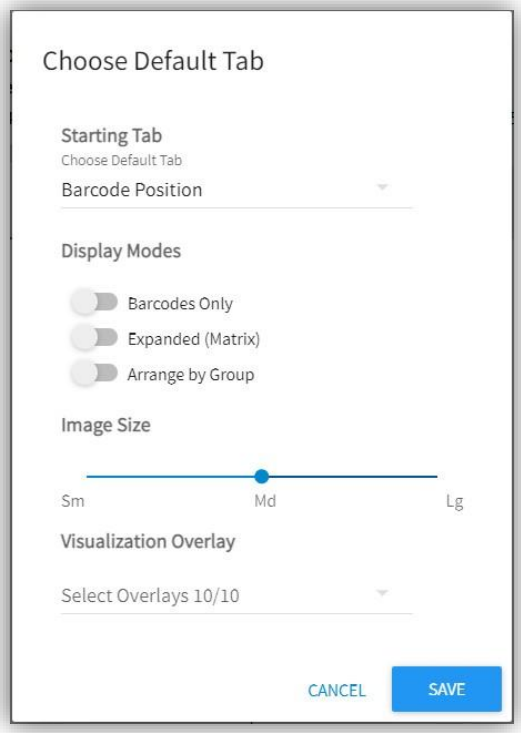


Figure 42: Download

This feature is only available for the logged in Users having appropriate permissions.

9.3 Settings

You can select the Visualization settings from the **Choose Default Tab** Settings. All the settings related to the package detail page can be set through this icon . One can save the preferences for Starting tab, Image size, Overlays visualization and display modes globally for all systems.



- **Starting Tab**: Starting Tab is the Default Tab on launching the Package details.
- Display Modes:

Barcode Only if enabled, displays the images which have the barcode captured.

Expanded (Matrix) toggle button is displayed only if Lector device is configured for the System. Lector device captures multiple images. If Expanded (Matrix) toggle button is not selected, all the images captured by the Lector device is displayed switching in every 2 seconds.

Arrange by Group toggle button if enabled, arrange the images by group

- **Image Size:** Image is displayed as small (Sm), medium(Md) or large(Lg) based on Image Size selection
- **Visualization Overlay:** Overlays are displayed based on the selection from the Visualization Overlay dropdown.

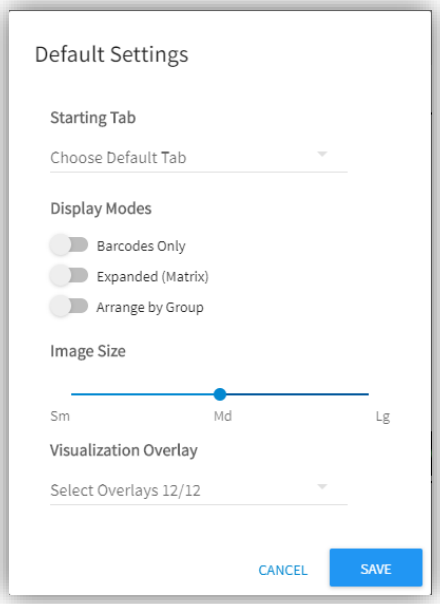
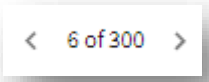


Figure 43: Default Settings

The changes saved from this modal window is reflected for all the packages globally for all systems. If you are logged in, the changes will be saved as user preferences

9.4 Move between Packages



This feature is available at the top right corner of context bar of the Package detail screen. You can move between the packages in backward and forward direction without navigating to the current results/Search/Timeline screen.

9.5 Camera Tab

All the full size and thumbnail images captured by devices such as ICR and Lector can be viewed under this tab. Click on thumbnail image, to view the Full resolution images.

Panel on the right-hand side provides options to user for different Display Modes, image sizes and Visualization Overlay. User can select/deselect the options and view images as per their preferences.

You can also rotate the images  using icons available next to device label. You can also view the images based on the Device Group (created while configuring the System and devices) by enabling the toggle button for **Arrange by Group.**

9.5.1 Display Modes

'No Image Available' message will appear if images are not available

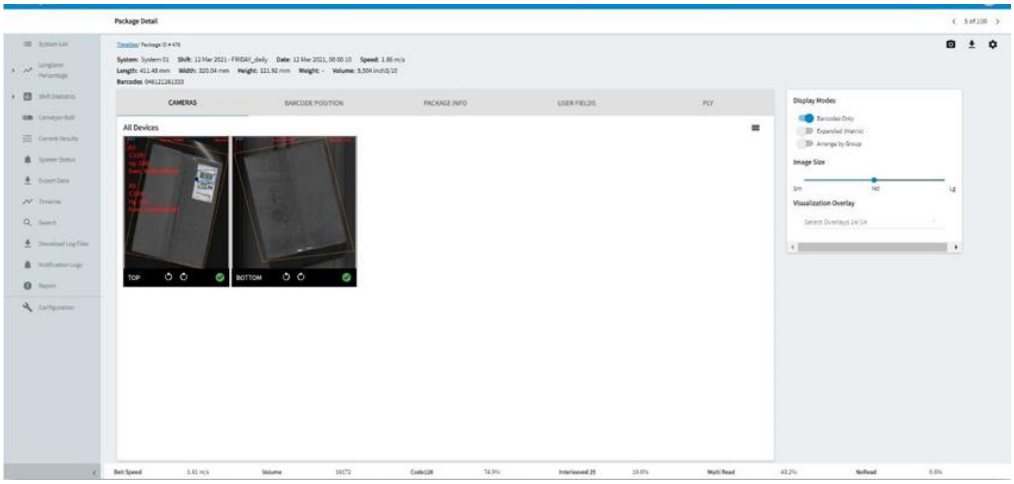


Figure 44: Camera Tab

9.5.2 Arrange Devices

You can change the order of the devices by clicking on icon at the right side of the Camera tab.

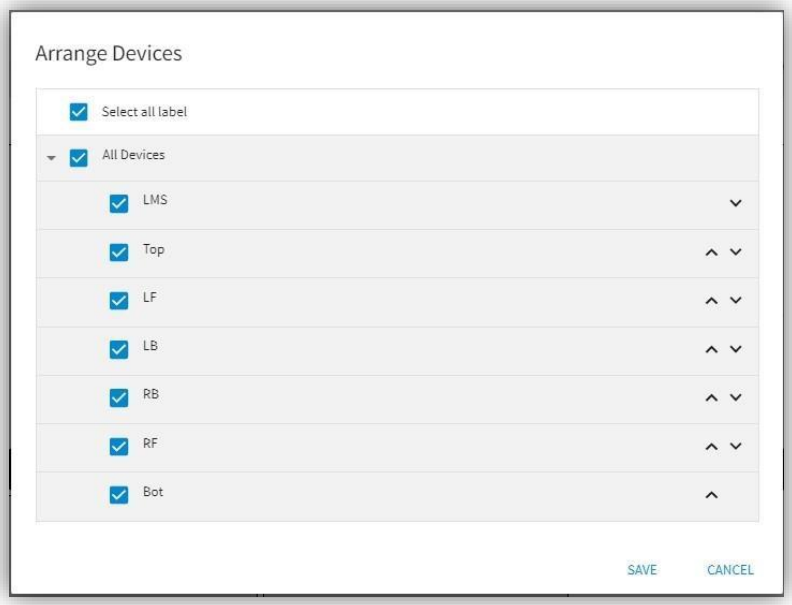


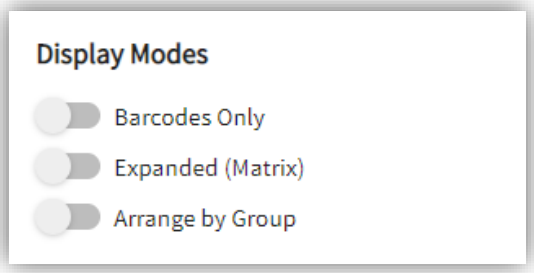
Figure 45: Arrange Devices

- To move a column in the **Arrange Devices** dialog, click the arrow and move the de- vice to a new position on the list. Do this for each device you would like to move. You can also drag and drop the device to the desired position.
- When you are finished, click **Save** to apply the changes. If you are logged in to the application, these changes will be saved as user preferences. Click **Cancel** to return to **Object Details** page without applying changes.

9.5.3 Display Modes

There are three display modes available to visualize the images i.e., Barcode Only, Expanded Mode and Arrange By Group.

You can select multiple modes for the package to view the images.



Display Modes	Description
Barcode Only	Enable this toggle button, to view images of the devices which successfully read the barcode.
Expanded Mode	This feature is only available if matrix device (like LECTOR) is configured in the system. Enable this toggle button, to view the images in the expanded mode.
Arrange By group	Enable this toggle button, to reflect the images as per the group selected. Arrange By group toggle button is only available when a device group is configured.

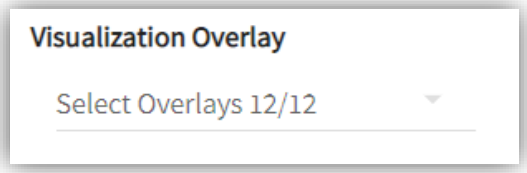
Table 9: Display Modes

9.5.4 Image Size

The image can be viewed depending upon the different sizes i.e., small, Medium and large.

By default, Medium is selected as the image size.

9.5.5 Overlays



Different types of overlays can be visualized using this feature. You can multi-select the overlays from the context menu and the appropriate behavior can be observed on the image.

Eight different Overlays can be visualized if only non- matrix device is configured, and Twelve different Overlays can be visualized if both matrix and non- matrix devices are configured in the system.

9.6 Barcode Position tab

Barcode Position Page is a graphical representation of the barcodes associated with the package.

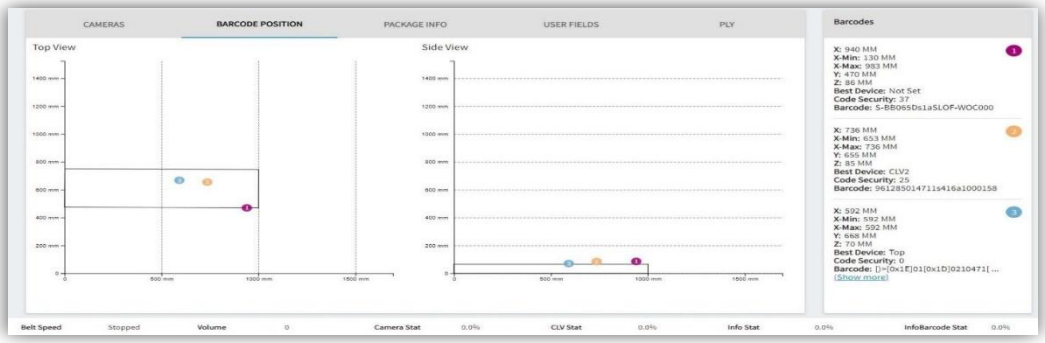


Figure 46: Barcode Position Tab

The graph depicts the position at which the barcodes are positioned on the package from the top view and side view. The barcodes are labelled with the numbers and its information can be analyzed from the right panel.

Click on the number radical 1 on the graph to highlight corresponding information on the Barcode Panel.

9.6.1 RHS Panel: Barcode

This Panel provides the information about the barcode co-ordinates, best device and name of the barcode and code security. Each barcode is labelled with number which provides information related to each barcode that is plotted on the graph.

Click on the number 1 radical to highlight the corresponding barcode on the graph.

9.7 Package Info tab

As the name suggests, this tab provides the detailed information related to the package (packages) such as dimension of the package, Box factor, Host message, Angle, Gap and conditions.

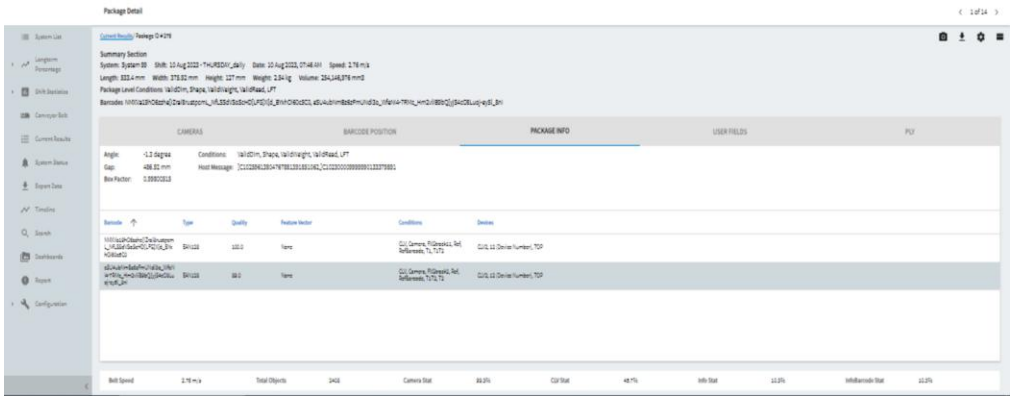


Figure 47: Package Info Tab

The Following information is displayed on this table:

Column:	Description

Barcode	List of the barcodes per package.
Type	Type of the barcode
Quality	It is the measure of readability of the barcode.
Feature Vector	Represents the reason why the barcode was not read properly.
Conditions	Conditions which are read by the barcode.
Devices	Devices which successfully read the barcode.

Table 10: Package Info

9.7.1 Change the Column Sorting of the data table

You can sort by any column heading.

- Click a column heading to sort by any value. Click heading again to toggle between the ascending ↑ and descending ↓ sort order for the particular column.

9.8 User Fields (UDF)

This page gives the information about the different types of the User defined fields. This *User fields* tab will only appear if a user defined field has been configured for the system via Facility Configuration.

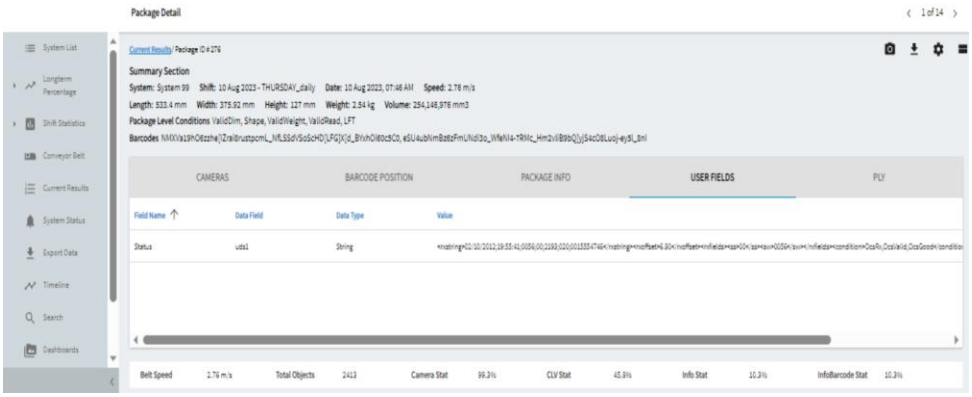


Figure 48: User Defined Tab

The data table on this page consist of the following columns:

Column	Description
Field Name	Describe about the name of the user defined field
Data Field	Combination of the index and type of the user field (udf).
Data Type	Describe about the type of the udf i.e., integer, float, and string
Value	Displays the value of the udf configured.

Table 11: User Defined Tab

9.8.1 Change the Column Sorting of the data table

You can sort by any column heading.

- Click a column heading to sort by any value. Click heading again to toggle between the ascending and descending sort order for the particular column.

9.9 PLY tab

This tab displays PLY data which is a 3D Data format captured by LMS devices. To dis- play PLY data LMS device should be configured within the System.

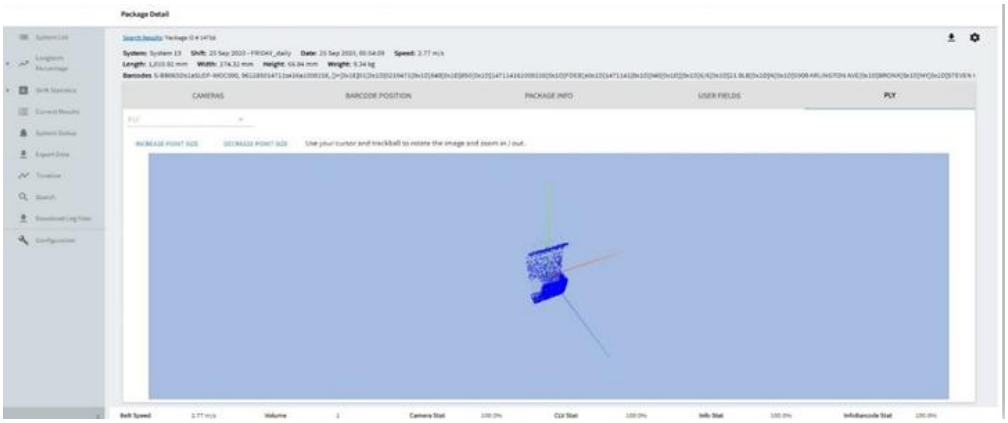


Figure 49: PLY Tab

User can rotate the image and zoom in / out using mouse cursor and the trackball. Un- der PLY tab, at the top of the screen, a dropdown listing all the LMS devices is available along with buttons for **Increase Point Size** and **Decrease Point Size**. Load time displays the time taken to load the PLY data.

On clicking **Increase Point Size**, application increases the data point size for the 3D Images as shown in the image below. You can click the button multiple times to keep on increasing the size of the data point. Similarly, you can click on **Decrease Point Size button to decrease the size of data points.**

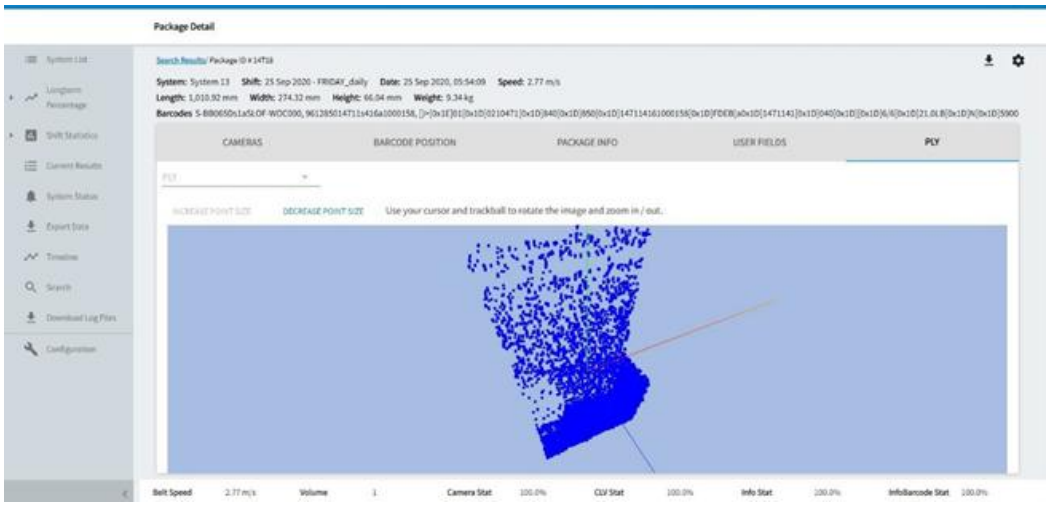


Figure 50: Increased Point Size

10 System Status

The **System Status** screen provides a complete view of all performance and health indications for an individual system. Use **System Status** to monitor a system, review error and fault conditions, and to troubleshoot system performance.

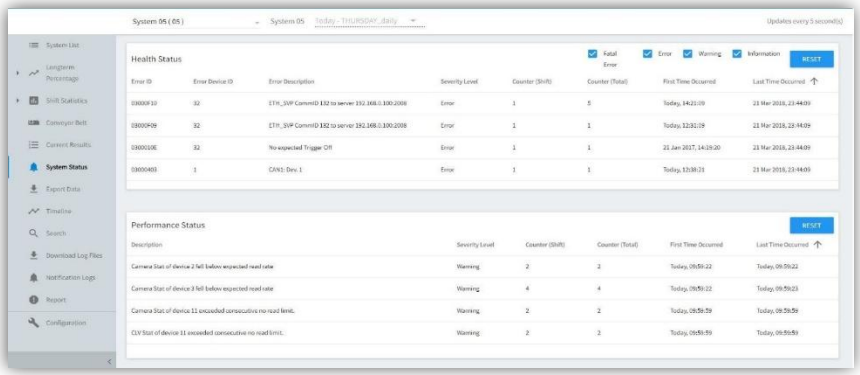


Figure 51: System Status

System Status page is only available if it is enabled from License

10.1 Select a System and Day to View

You can select the system and day to view:

- In the context bar, select a system from the list, and then select a day to view.

10.2 Health Status

LA continuously monitors system devices for warnings or faults which indicate potential problems with system performance. All device status messages are listed on the Health Status table:

Column	Description
Error ID	Error code associated with the message
Error Device ID	ID of device that generated the message

Error Description	Long description of generated error from the system controller
Severity Level	Indicates the severity of the message: *Warning:* Device is operational but there are conditions which require attention. System performance may be affected. In this release, all system performance related events are classified as warnings based on the definition. Future releases may add more severity levels.
Counter (Total)	Number of times this condition has occurred since the system has been in operation. This number can be reset to 0 if the SICK controller is reset/power cycled. If this occurs, the Counter (Total) could be less than the Counter (Shift) below.
Counter (Shift)	Number of times this condition has occurred during the current day (shift)
First Time Occurred	Date and time of the first occurrence of this condition
Last Time Occurred	Date and time of the most recent occurrence of this condition

Table 12: Health Status

10.2.1 Filter health status messages by severity

When there is at least one event of each type in a heartbeat status message, you can select which types of messages you'd like to view. If no errors have occurred so far, the error selector will not appear.

- Check the type of status message you'd like to view.

Information	Be advised of an event. Non-critical. Performance not necessarily impacted.
Warning	Device is operational but there are conditions which require attention. System performance may be affected.
Error	Device is in a faulted state. System performance will be affected until the fault is corrected.

The list of severity filters is dynamically generated from the incoming health data of the SICK controller. There may be more severity levels than the ones described in the table above.

10.2.2 Change the sort order of the data table

You can sort **Health Status** by any column heading:

- Click a column heading to sort by that value. Click the heading again to toggle between ascending and descending sort order for the selected heading.

10.2.3 Reset Health Status

You can reset the Health Status by clicking on the RESET button.

10.3 Performance Status

PA continuously monitors key system statistics to ensure that they fall within predefined performance thresholds. When any statistic falls outside of the performance threshold, a message is displayed in the Performance Status table.

Column	Description
Description	Indicates the system statistic which is outside the performance threshold

Severity Level	Indicates the severity of the message: *Warning:* System is operational but there are conditions which require attention. System performance may be affected. All system performance related events are classified as warnings based on the definition.
Counter (Total)	Number of times this condition has occurred since the system has been in operation
Counter (Shift)	Number of times this condition has occurred during the current day (shift)
First Time Occurred	Date and time of first occurrence of this condition
Last Time Occurred	Date and time of most recent occurrence of this condition

Table 13: Performance Status

10.3.1 Change the sort order of the data table

You can sort **Performance Status** by any column heading:

- Click a column heading to sort by that value. Click the heading again to toggle between ascending and descending sort order for the selected heading.

10.3.2 Reset Performance Status

You can reset the Performance Status by clicking on the RESET button.

11 Export Data

Package information that is parsed by the application is available in the package data table. All the available entries of the packages/packages in the Package data table can be downloaded/ exported by the user as a csv file. Please note that User should not export more than 40,000 records at a time as exporting a larger dataset will have a performance impact on the application.

This feature is only available for the logged in Users having Export Data permissions. If you are not logged in or you do not have enough permission, launching Export Data page will display a message "You do not have enough permission to access this functionality. Please login or contact your SICK Administrator for updating permission."

11.1 Overview

To launch the **Export Data** page:

- In the left navigation pane, click Export Data .
- The **Export Data** page is displayed with filtering option, an EXPORT EXPORT and a CLEAR button CLEAR .

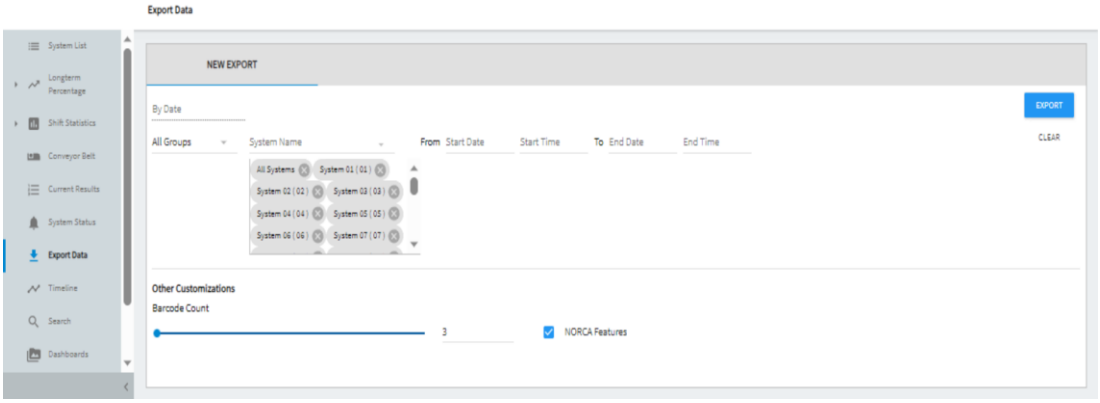


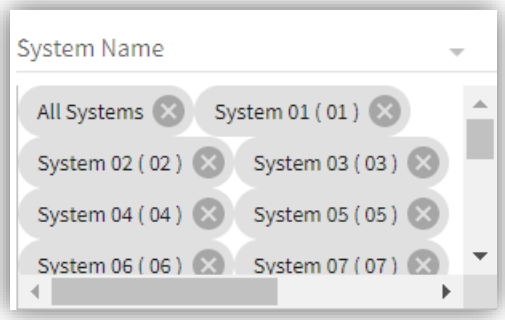
Figure 52: Export Data Page

- The export can be performed based on Date criteria only. By default, "By Date" option

is selected from the dropdown and is disabled.

- You can filter and export the data based on Groups, Systems, Start Date and End Date.
- Groups dropdown lists all the available System Groups in the application. This is not a required field. You can select the group if you want to export data for systems in a specific group.

- Systems field lists all the available System in the application. This is not a required field. You can select All Systems or a specific System by removing all the other systems by clicking on the cross icon. If you have selected a particular group, only the systems of the selected Group will be listed under the Systems dropdown.



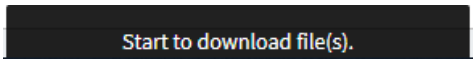
Start Date and Start Time, End Date and End Time are the required fields.

11.2 Export Data:

To Export the Dat, Refer to Figure 52: Export Data Page:

- Select the Groups and Systems (Not Required).
- Select Start Date and Start Time.

- Select End Date and End Time.
- Hit 'Export' button.
- Application will display a snack bar message "Start to download file(s)".



Application will display a snack bar message

- Once the download is completed, application will show a snack bar message "Download completed".

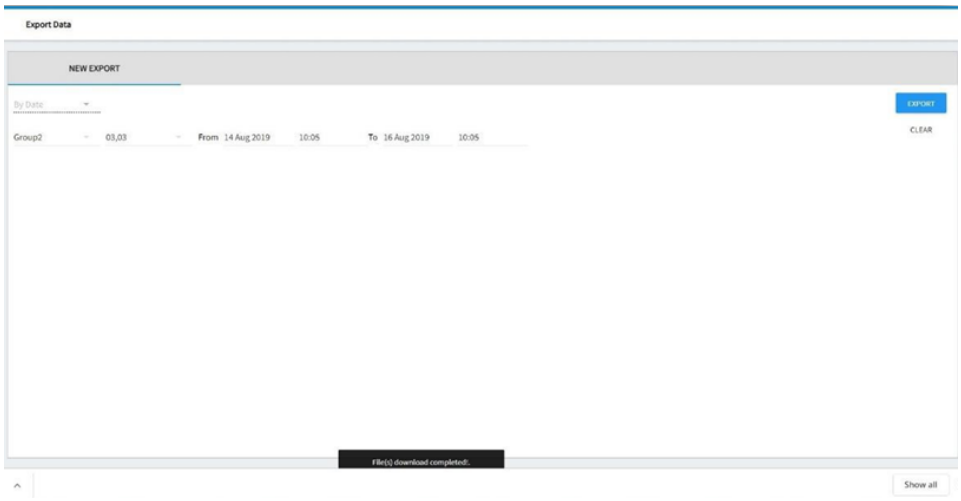


Figure 53: File Downloaded

- The exported file will be downloaded and saved to your default download folder.
- The naming convention of the exported file will be export-date, time.zip. Example export-8-14-2019, 10-09-19 AM.zip
- The zip file contains PackageData.csv file. Extract the zip file and open the csv file.
- The exported CSV contains all the information about the package which includes System Group, Systems, Start Date, End Date, System Name, Package Index, Date Added, VCC, SEQNB, Filename, Belt Speed, Length, Width, Height, Weight, Angle, Gap, Poly, Box Factor, Device Names, Udfs, Conditions, Host Message, Barcode Code, Barcode Type, Barcode Conditions.

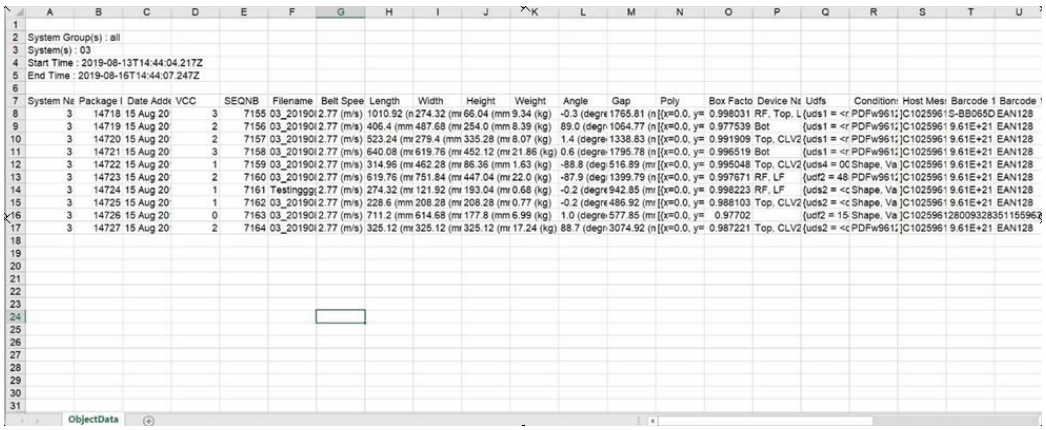


Figure 54: Exported File

12 Timeline

The **Timeline** page is a graphical/tabular representation of system data for a certain shift, representing its health/performance over a course of time. This page/view provides information about the object data, heartbeat data and overall percentage of a statistic based on the shift and system/system group selection.

Figure 55: Timeline Page-System View

Timeline is only enabled if it is enabled from License.

12.1 Select a System/System Group and shift to View

The timeline data can be viewed for the selected system and shift.
To select a system to view:

- In the context bar, select a system/system group from the list.

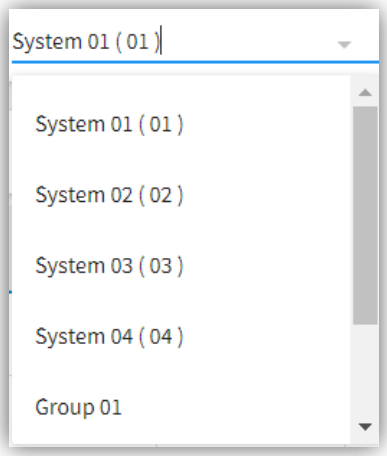


Figure 56: System/ System Group List

To select a shift to view:

- In the context bar, select the shift from the list.

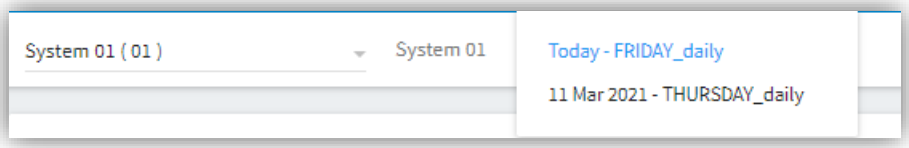
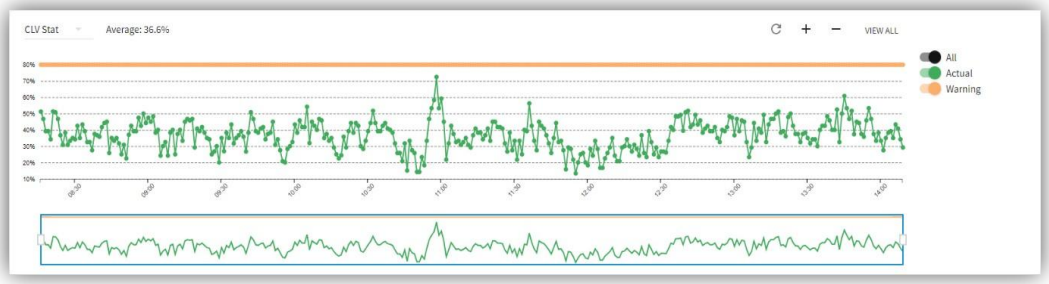


Figure 57: Shift Dropdown

12.2 Timeline Chart View

This chart is a pictorial representation of the percentage of the selected statistic. Over the time, the percentage of a statistic may fluctuate depending on the packages being received and the

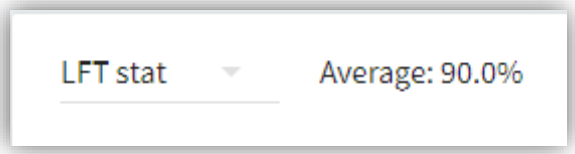


efficiency of a system to read the associated statistic's condition.

Figure 58: Timeline Chart

12.3 Condition Dropdown

The chart data depends on the selected condition form the context menu. The selected evaluation conditions average is displayed next to the context menu. If you are logged into the application, changing the selected condition stat will be saved as user preference.



You can configure the Evaluation condition via Facility Configuration. For detailed steps, please refer Configuration manual, Facility Configuration section.

12.4 Modifying legend items in the chart

Timeline chart is plotted with multiple data (Actual and Expected read rate), you can show or hide legend items:

- In the chart legend, click the buttons to show or hide the data in the chart.

12.5 Timeline slider widget

This widget is available just below the timeline chart and displays the zoomed-in chart data for the selected area. User can slide the ends of this widget or drag the selected frame to refine the data. The chart data is zoomed in as per the selected frame. Effective data (Chart, Package and Heartbeat data) is displayed in the timeline as per the frame selection.

12.6 Timeline toolbar

Timeline data can be updated/modified using timeline toolbar located above the timeline chart.

- Reload : This button refreshes the timeline with updated timeline chart, package and heartbeat data. Reload button is useful to view updated results in the current shift.

- Zoom in ＋: This button zooms into the visible timeline chart. The package and heartbeat data are updated as per the zoomed in area.
- Zoom out －: This button zooms out of the visible timeline chart. The package and heartbeat data are updated as per the zoomed-out area.
- View all: This button allows the user to view complete timeline chart. View all is a one clicks button for displaying complete data of the visible timeline chart.
- Expand/Collapse Chart ^ : You can expand or collapse the Chart view by clicking on the expand/collapse icon at the top right corner.

12.7 Data Tables

These tables are available just below the timeline chart. They represent the data from the selected timeframe. Two type of data tables are available:

- Object data table
- Heartbeat table

12.8 Object Data Tables

The object data table displays entry of each object processed by the system for the selected timeframe. Each object is represented by a unique object ID.

The object data table displays columns based on the common conditions between the Object Level conditions and Barcode Level conditions.

Object Tagging: Images are tagged in media server application using App engine application inference calculation. These tags are retrieved from media server and assigned to objects in LA application as conditions while creating evaluation conditions for each system. Assigned tag is checked for each object can be viewed in the object data table.

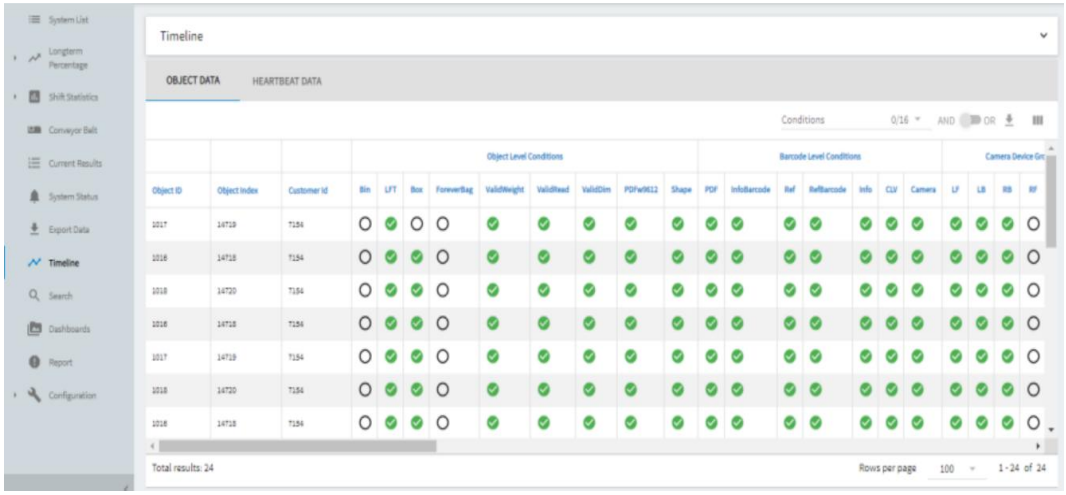


Figure 59: Object Data Table

The following data is displayed on the table:

Column	Description
Object ID	Identifier code for the object sent from the system controller
Object Index	Object Index sent via controller
Customer ID	Customer Id is the object secondary identifier code
Object Level Conditions	List of all the configured object level conditions for the system. A visual indicator is available corresponding to each package for the OLC read
Barcode Level Conditions	List of all the configured barcode level conditions for the system. A visual indicator is available corresponding to each package for the BLC read

Tags	All tags columns are displayed and are checked against related object

Table 14: Object data table

12.9 Show or Hide Package Data Table Columns and Rearrange Columns

You can show or hide columns in the package data table, and you can rearrange the column order in the table:

- Click the Table Display Settings icon .
- In the **Table Display Settings** dialog, check or uncheck column headings to include (or hide). You can also select any one column as **Default Column** from the **Package ID**, **Package Index** and **Customer Id** options.

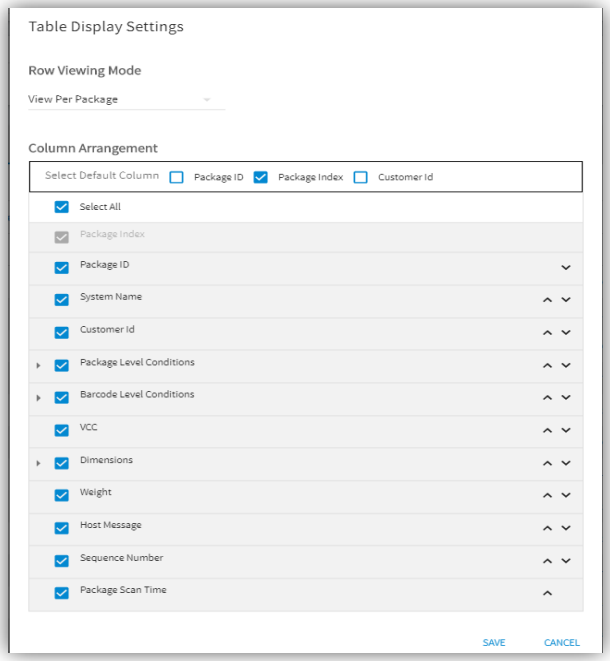


Figure 60: Table Display Settings

The Default column is fixed. It cannot be hidden.

- To move a column, in the **Table Display Settings** dialog, click the arrow keys move the header to a new position on the list. Do this for each heading you would like to move. You can also drag and drop the columns to the desired position.

The Default column is fixed. It cannot be moved from its position on the Package table.

- Publish table preferences to other systems or system groups by clicking on '**Publish to other Systems/System Groups**" button. Publish to other Systems/System Groups window appears, select the preferred system or system group by clicking on respective checkbox and click the **Close** button.
- When you are finished, click **Save** to apply the changes. If you are logged into the application, the changes will be saved as user preference. Click **Cancel** to return to **Timeline** without applying changes.
- The changes done to **Table Display Settings** are saved as User Preferences and are applicable to **Search Results** and **Current Results** pages as well

12.10 Change the Package data Sort Order

Data in the package data table can be sorted by clicking on the header. Click on the heading to toggle between ascending and descending sort order for the selected heading. The table data can be sorted based on package Id, VCC, dimensions and weight.

12.11 Display rows per page

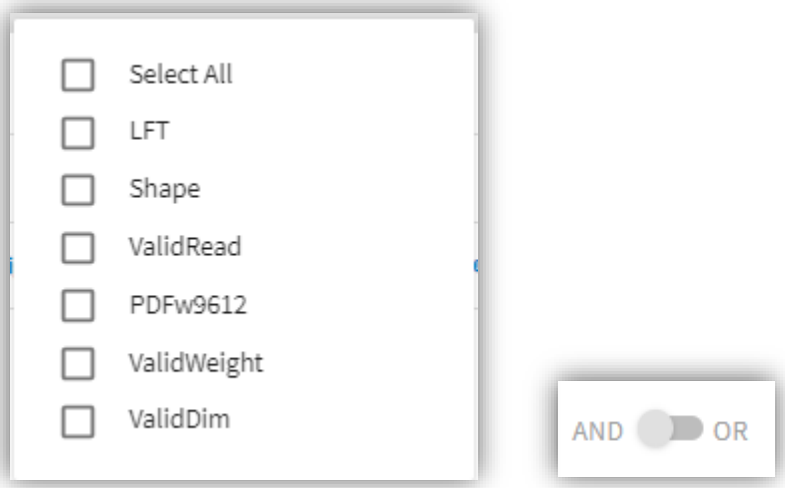
Package data is displayed in page format for the selected shift/ timeframe. User has the option to view 10, 25, 100 or 300 rows/packages per page based on the selection from the context menu available at the bottom of the package data table. User can move between the pages by clicking the < and > arrow keys.

12.12 Filtering data based on conditions read

Data available in package data table of timeline can be filtered based on the package level condition read. This filter can be found above

package data table. All the package level conditions configured for the selected system is available in this filter.

Filtering of the package based on the selected conditions can done with two logical operations, AND and OR. This filtering logic can be selected from the toggle button available next to the condition filter. For toggle selected as AND, only those packages that were read for all the selected conditions are filtered. For OR toggle, all the packages that were read for any of the selected conditions are filtered.



12.13 Export Data in Package Data Tab

All the available data of the packages in the package data table can be downloaded/exported by the user. You can open export data modal window by clicking on the button available above the package data table**. Please note that the exports should be limited to 40,000 records at a time as exporting a larger dataset will have a performance impact on the application.** Also, if the user is trying to **export images**, the action should be **limited to 100 records**.

Following data can be exported for the available packages in the table:

- **Package data as CSV**: Package information that is parsed by the application is available in the package data table. Using Package

data as CSV option, this information can be exported in as single CSV file.

- **Trace data as CSV**: The exported file via Trace data as CSV, contains an entry for each device that read a barcode for a package.
- **Full resolution images**: All the full-size images of the image capturing devices are ex- ported in a zip file.

Exporting Full Size images takes approx.8- 10 minutes to export 100 images of 500 KB

- **Thumbnail images**: All the thumbnail images of image capturing devices are exported in a zip file.
- **Image metadata XML**: All the image XML files for image capturing devices is exported in a zip file.
- **Other Customizations:** Customize bar count by scrolling bar and check NORCA features checkbox to download norca features.

The exported data is filtered based on the selected conditions. This feature is only available for the logged in Users having appropriate permissions.

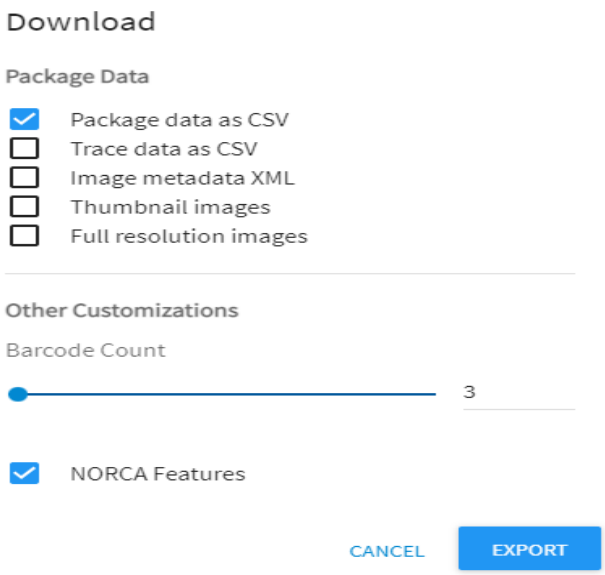


Figure 61: Download

12.14 Heartbeat Data table

Heartbeat data table lists all the instances of system device warnings or faults which indicate potential problems with system performance based on System/System Group selection.

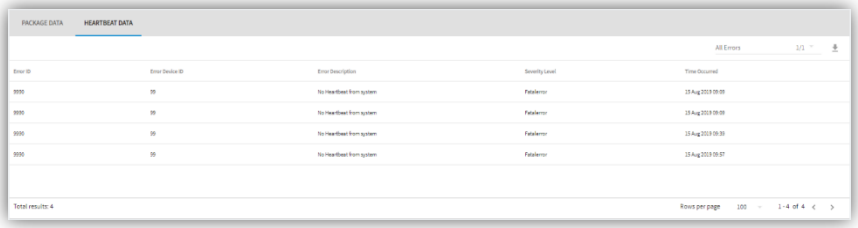


Figure 62: Heartbeat data table- System View

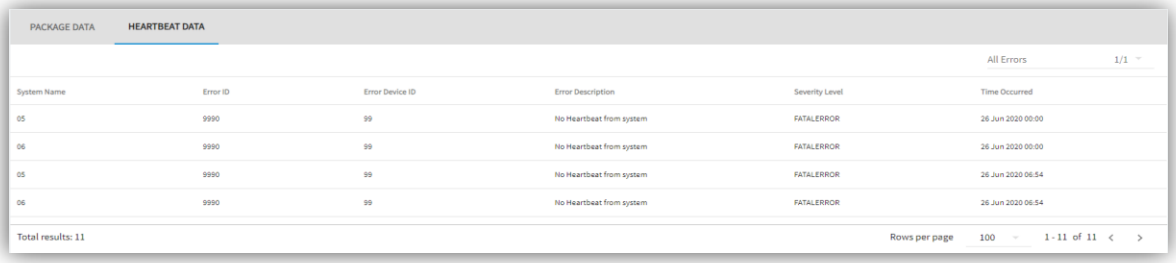


Figure 63: Heartbeat data table- System Group View

The following data is displayed on the table:

Column	Description
System Name	This column is displayed when System Group with All Systems is selected from the dropdown.
Error ID	Error code associated with the message
Error Device ID	ID of device that generated the message
Error Description	Long description of generated error from the system controller
Severity Level	Indicates the severity of the message.
Time Occurred	Date and time of the occurrence of the condition

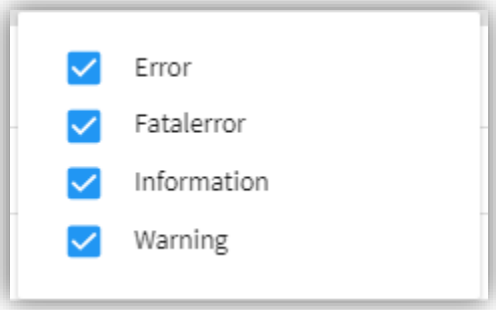
Table 15: Heartbeat Table

12.15 Change Heartbeat data Sort Order

Data in the heartbeat data table can be sorted by clicking on the header. Click on the heading to toggle between ascending and descending sort order for the selected heading.

12.16 Filter Heartbeat data by severity

Heartbeat data can be filtered based on the severity of the heartbeat instances. All the severities of these instances are available in the context menu above the heartbeat table. Data of the checked severities from this context menu is visible in this table.



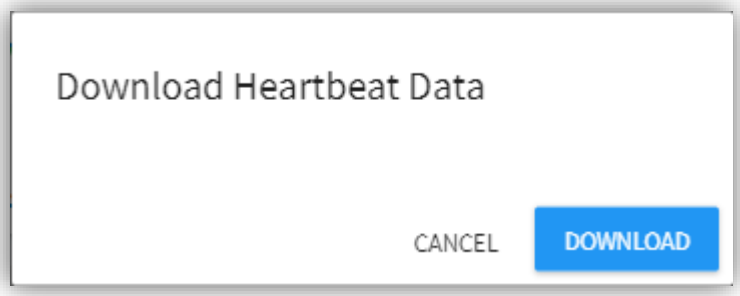
The list of severity filters is dynamically generated from the incoming health data of the SICK controller.

12.17 Display rows per page

Heartbeat data is displayed in page format for the selected shift/ timeframe. User has the option to view 10, 25, 100 or 300 rows/heartbeat instances per page based on the selection from the context menu available at the bottom of the heartbeat data table. User can move between the pages by clicking on the < and > arrow keys.

12.18 Export Data in Heartbeat Tab

User has the option to download the heartbeat data for the selected timeframe. The downloaded file is a CSV file. This data can be downloaded by clicking button in the heartbeat table.



The exported data is filtered based on the selected severities. This feature is only available for the logged in Users having appropriate permissions.

13 Search

On Search' page, you will have two tabs. 'NEW SEARCH' and 'SAVED QUERY DEFINITION'. The selected tab will be shown as underlined in blue. The default selected tab is 'NEW SEARCH'

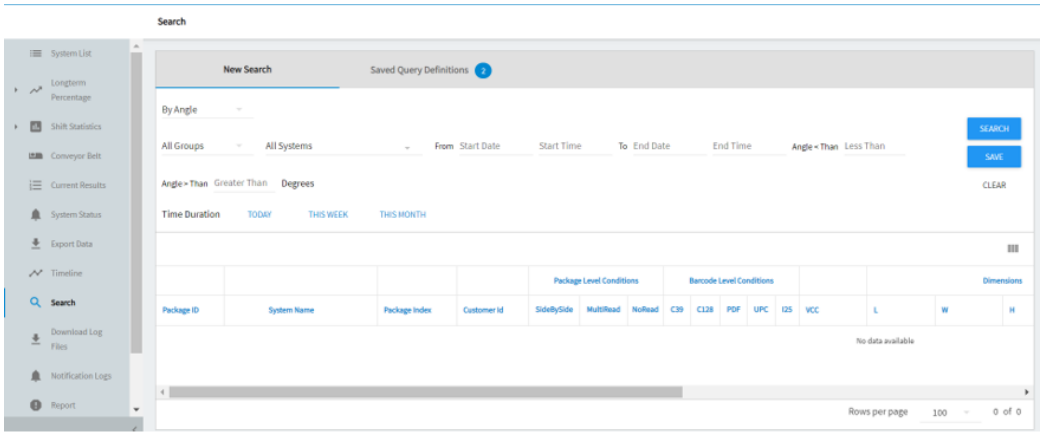


Figure 64: New Search Page-1

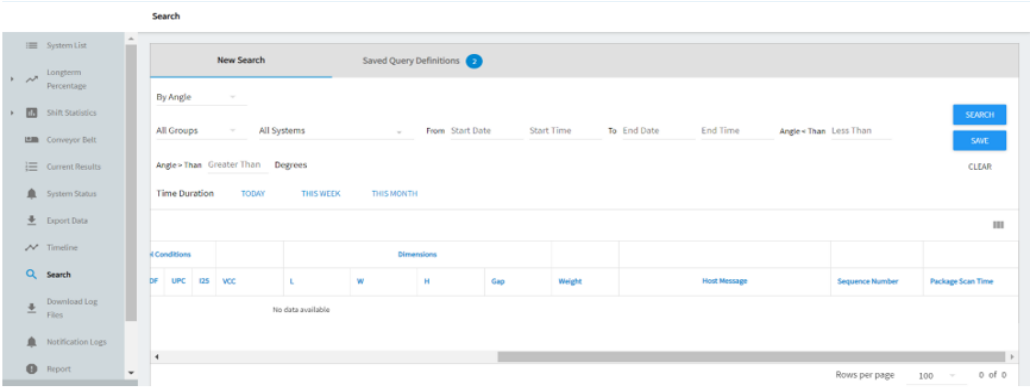


Figure 65: New Search Page-2

The '**NEW SEARCH**' screen allows user to perform search on Packages based on different Search Types. By Default, '**By Angle'** option is selected from the '**Search Type'** in Context menu. Each Search Type has different set of Search Parameters. Also, there is an option for **Time Duration** having **TODAY**, **THIS WEEK** and **THIS MONTH** links available. The **Time Duration** allows users to quickly view data for **present day**, **present week** and **present month** Clicking on the option for Time Duration will populate the Date and Time field. Example: on selecting **THIS WEEK** option the date and time fields for **From** and **To** fields will get populated. The **Start Date** field will be populated as the start date of current week and the **Start Time** as 00:00. The **End Date** field will get populated as the current date and the End Time as the Current time.

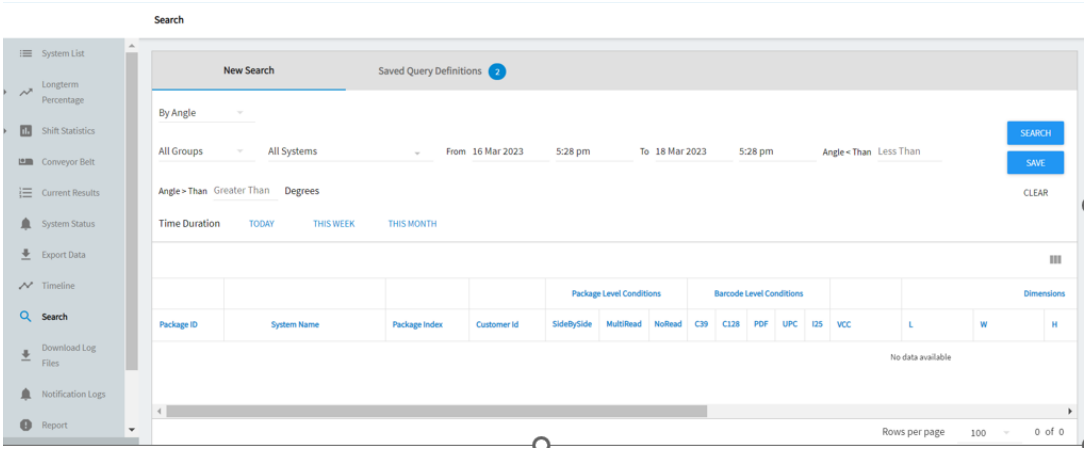


Figure 66: Date Populated

On entering all the mandatory fields and clicking **SEARCH** button displays the search results.

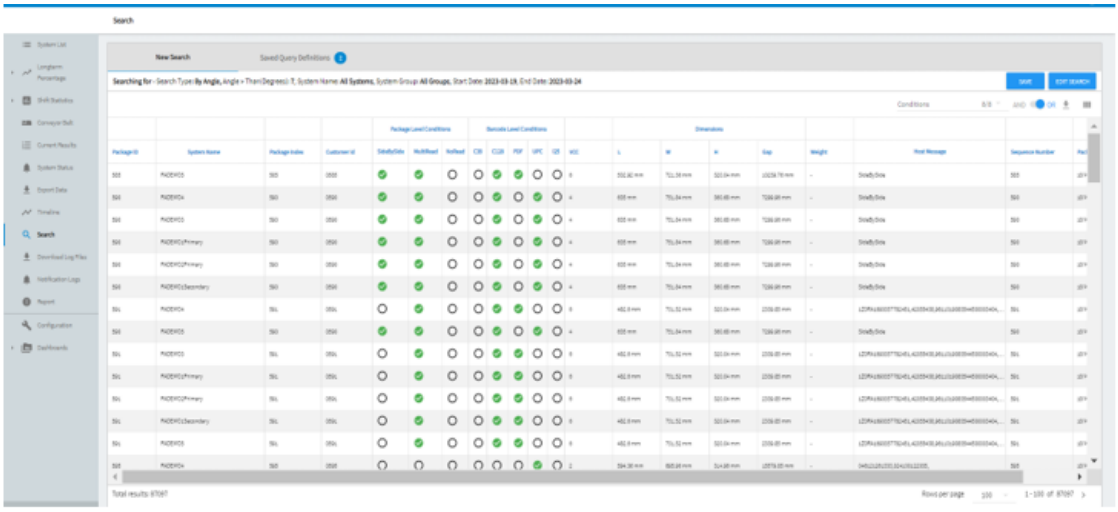


Figure 67: Search

13.1 Search Types

You can select the different Search Type in the Context menu. All Search Type have different Search Parameters.

Search Type	Search Parameters	Description
By Angle	Start date & time End date & time Angle less than Angle greater than	This Search option will search and display all the Packages with angle matching the specified range. The min and max angle value should range from 180 to 180.
By Barcode	Start date & time End date & time Search pattern, Single barcode (text input) or multiple barcodes (CSV upload)	This Search option will search and display all the Packages with barcode content matching the Search pattern. Select "Single" to enter a barcode in the text input, or "Multiple" to upload a CSV file via the BROWSE button (no header row). The interface displays the number of barcodes entered (e.g., "6 Barcodes entered"). Note: Including a header in the CSV will affect search

		results, as barcodes can include any characters.
By Box Factor	Start date & time End date & time Min value Max value	This Search option will search and display all the Packages with Box Factor matching the specified range. The min and max value for Box Factor should be between 0-1
By Conditions	Start date & time End date & time Select Condition	This Search option will search, and display based on the common conditions with a basic search on whole facility.
By Customer ID	Start date & time End date & time Customer ID Search pattern	This Search option will search and display all the Packages with Custom Id matching the Search pattern.
By Date	Start date & time End date & time	This Search option will search and display all the Packages pushed between the specified date range.
By Dimensions	Start date & time End date & time Length min & max Height min & max Width min & max	This Search option will search and display all the Packages with the specified Search parameters for Date, Length, Width, Height

By Gap	Start date & time End date & time Min & Max (for selected unit)	This Search option will search and display all the Packages with the specified Package Gap value in the Search pattern.
By NORCA	Start date & time End date & time	This Search option will search and display the selected NORCA features.
By No Reads	Start date & time End date & time	This Search option will search and display all the packages with NoReads (where verified code count is Zero) within the specified Date.
By Package ID	Start date & time End date & time Search pattern	This Search option will search and display all the Packages with the specified Package ID value in the Search results.
By Package Index	Start date & time End date & time Search pattern	This Search option will search and display all the Packages with the specified Package Index value in the Search results.
By Sequence Number	Start date & time End date & time Search pattern	This Search option will search and display all the Packages with the specified Sequence Number value in the Search results.
By Unassigned Package	Start date & time End date & time	This Search option will search and display all the Unassigned Packages (Package Index -100) within the specified date.

By User Defined Fields	Start date & time End date & time Search pattern	This Search option will search and display all packages with the User Field (UDF) value within the specified date.
By Girth/Longest Side	Start date & time, End date & time, Barcode Pattern, Condition, UDF-Error Code, Girth, Longest Side.	This Search option will search and display packages based on specified **Girth** or **Longest Side** values, with optional filtering by **Barcode Pattern**, **Condition**, or **UDF-Error Code**. At least one of Barcode Pattern, Condition, UDF-Error Code, Girth, or Longest Side is required. **Girth** is determined by the formula: Longest Side + 2 × (Width + Height). Values for Girth and Longest Side are accepted with up to **two decimal places**. **Note:** *By Girth/Longest Side is licensed. This option is available only if permitted in the license file. Users must be logged in with appropriate permissions to access the By Girth/Longest Side search type.*

Table 16: Search Type

Search and Search Type options are Licensed. These options are available if they are permitted in the License file.

13.2 Search Buttons

The 'Search' page displays buttons for '**Search**', '**Save**' and '**Clear**'.

13.2.1.1 Search Button

- Select the Search Type, enter search parameters and click the SEARCH ' button. Search results will be displayed based on the Search Criteria.

- Save Button SAVE
- On clicking save button, you will be prompted with a dialog box to create saved query. Please note that you need to be logged in to save a query.
- For more details, please refer Saved Query section
- Clear Button CLEAR
- Clear Button clears all the Search parameters.

Clicking on 'Clear' button only clears the Search parameters and not the Search Results

13.3 Search Toolbar

Search toolbar will provide you with the *Export* option and *Table Display Settings*. On clicking the Export Icon, application will display a 'Download' Dialog Box.

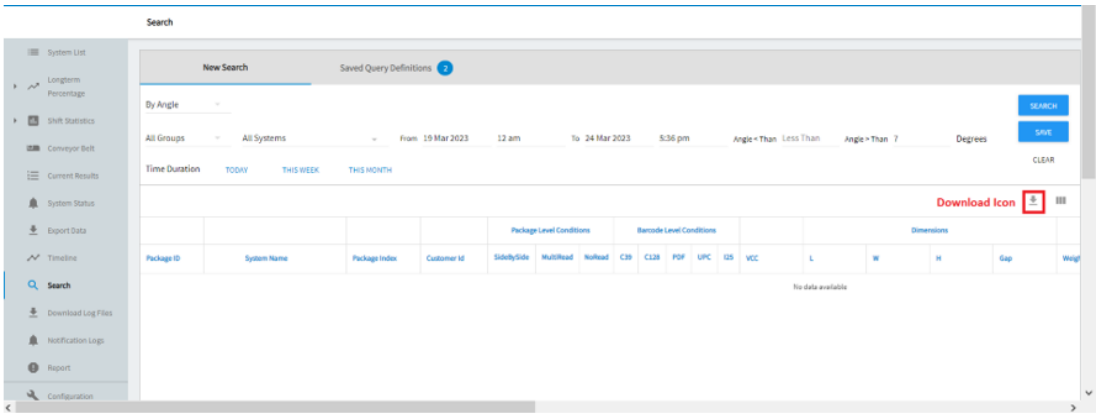


Figure 68: Download Icon

13.4 Export Data

All the available data of the packages in the package data table can be downloaded/exported by the user. You can open export data modal window by clicking on the button available above the package data table. **Please note that the exports should be limited to 40,000 records at a time as exporting a larger dataset will have a performance impact on the application**. Also, if the user is trying to **export images**, the export should be **limited to 100 records**.

Following data can be exported for the available packages in the table:

- **Package data as CSV**: Package information that is parsed by the application is available in the package data table. Using Package data as CSV option, this information can be exported in as single CSV file.
- **Trace data as CSV**: The exported file via Trace data as CSV, contains an entry for each device that read a barcode for a package.
- **Full resolution images**: All the full-size images of the image capturing devices are exported in a zip file.
- **Thumbnail images**: All the thumbnail images of image capturing devices are exported in a zip file.
- **Image metadata XML**: All the image XML files for image capturing devices is exported in a zip file.
- **Other Customizations:** Customize bar count by scrolling bar and check NORCA features checkbox to download norca features.

The exported data is filtered based on the selected conditions. This feature is only available for the logged in Users having appropriate permissions.

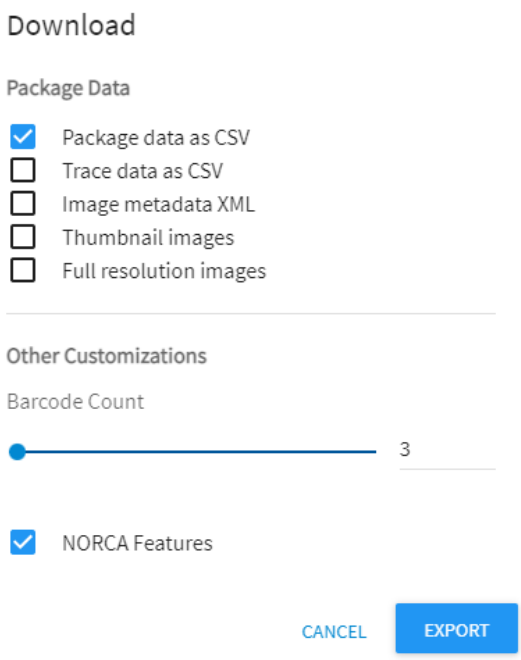


Figure 69: Download Data

13.5 Search Results Table

On entering the search criteria and clicking on **Search** button, application displays the Search Results table.

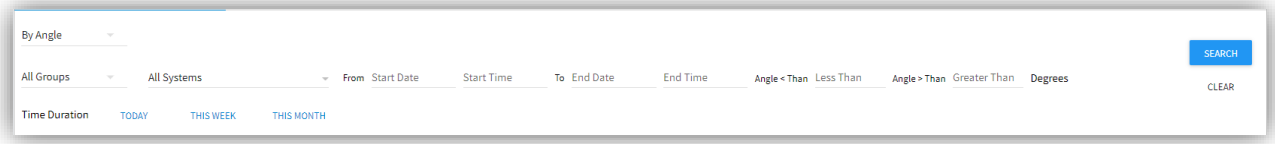


Figure 70: Search Criteria

The Search Results table will display all the Search Results. The table contains the same columns as the current results table when searched for a specific System.

All Systems Search will display common columns only which includes the information of System Name, Package ID, Dimensions and Host Message.

13.5.1 Perform Search on all Systems

Select All Groups or any specific group from the **All-Groups** dropdown and then select All Systems option from the **All Systems** dropdown. Enter other search criteria's and click on **Search** button.

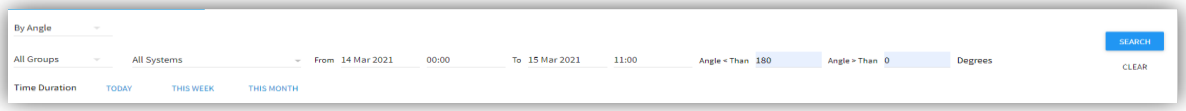


Figure 71: All Systems Search

Application will search and display objects in the Search Results table based on the Search Criteria. When searched for all systems, only the common columns will be displayed.

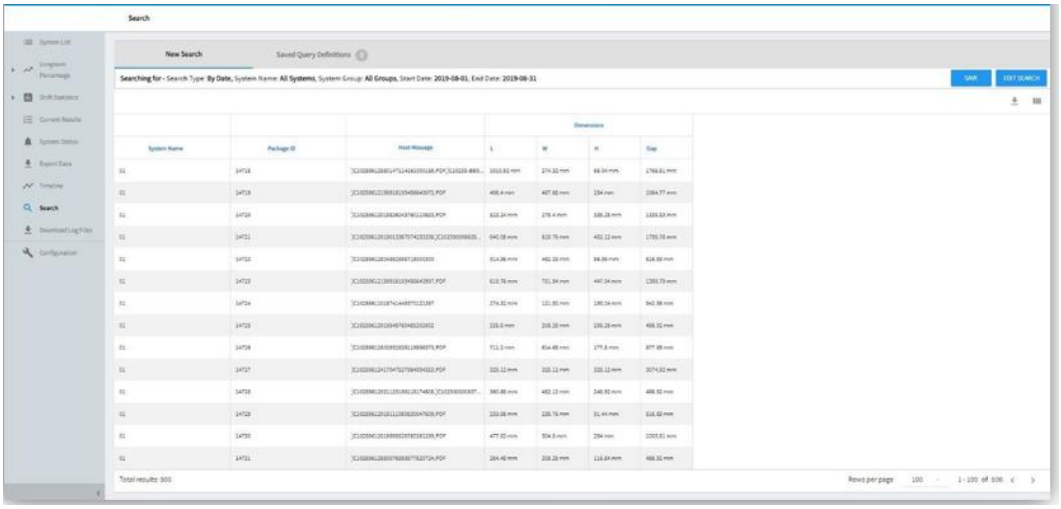


Figure 72: Perform Search on all systems

13.5.2 Perform Search on specific System

Select All Groups or any specific group from the **All Groups** dropdown and then select any System from the **All Systems** dropdown. Enter other search criteria's and click on **Search** button.

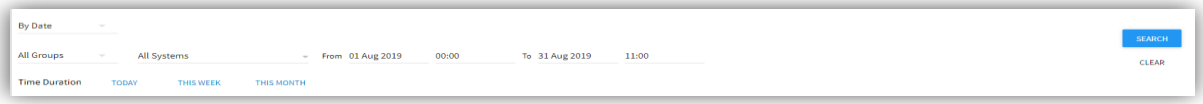


Figure 73: Search Specific System

When searched for a specific system, the search table will contain the same columns as on the Current results table.

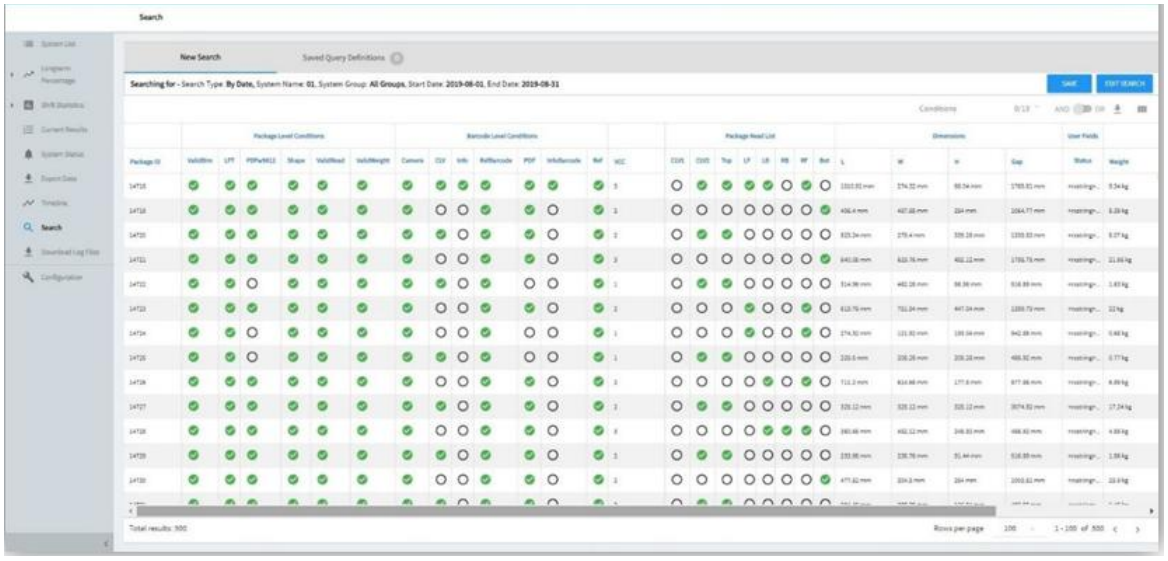


Figure 74: Perform Search on a specific systems

13.5.3 Perform Search on a System Group

When searched for a specific system group, the search table will contain the same columns as on the Current results table. The user preferences are associated with the System Group. Any table display settings for a specific system group search will be saved as User Preferences and only those columns will be displayed which are associated with the System Group.

Figure 75: Specific System Group Search

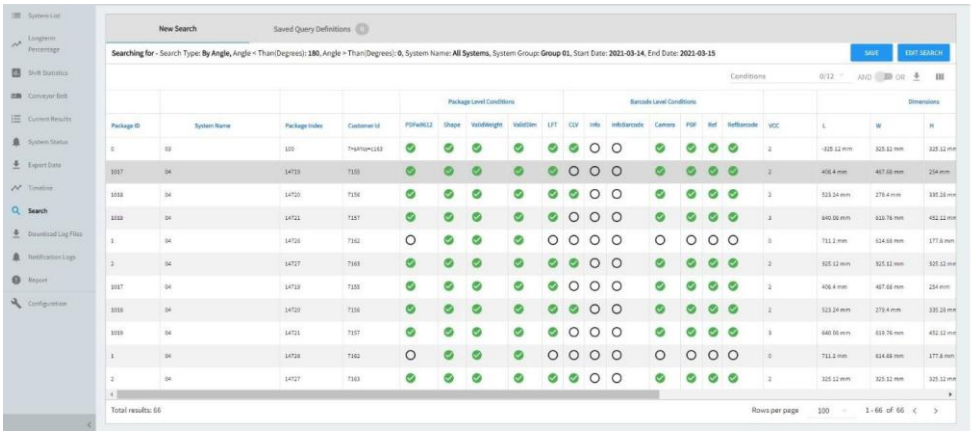


Figure 76: Perform Search on a System Group

13.6 Show or Hide Package Data Table Columns and Rearrange Columns

You can show or hide columns in the Search Results table, and you can rearrange the column order in the table:

- Click the Table Display Settings icon .
- In the **Table Display Settings** dialog, check or uncheck column headings to include (or hide). You can also select any one column as Default Column from the **Package ID**, **Package Index** and **Customer Id** options.

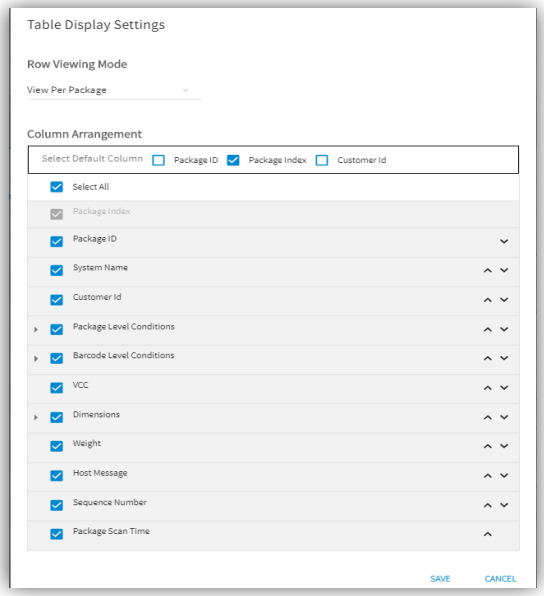


Figure 77: Table Display Settings

The Default column is fixed. It cannot be hidden.

- To move a column, in the **Table Display Settings** dialog, click the arrow keys move the header to a new position on the list. You can also drag and drop the device to the desired position. Do this for each heading you would like to move

  The Default columns is fixed. It cannot be moved from its position on the Package table.

- When you are finished, click **Save** to apply the changes. If you are logged into the application, the changes will be saved as user

preferences. Click **Cancel** to return to **Search Results** without applying changes.

- The changes done to Table Display Settings are saved as User Preferences and are applicable to Search Results, Current Results and Timeline pages as well.

13.7 Change the Package data Sort Order

Data in the package data table can be sorted by clicking on the header. Click on the heading to toggle between ascending and descending sort order for the selected heading. The table data can be sorted based on package Id, VCC, dimensions and weight.

Downwards ↓ arrow shows sorting in Descending order.

Upwards ↑ arrow shows sorting in ascending order.

13.8 Display rows per page

Pagination bar at the bottom of the page shows total results and pagination options. User has the option to view 10, 25, 100 or 300 rows/instances per page based on the selection from the context menu available at the bottom of the Search Results table. User can move

between the pages by clicking on the > and < arrow keys.

13.9 Saved Query

You can create saved queries to perform search later. Please note that you need to be logged in to save a query.

- Navigate to 'New Search' page.
- Select 'Search Type' and enter search parameters. Entering search parameters are not mandatory.

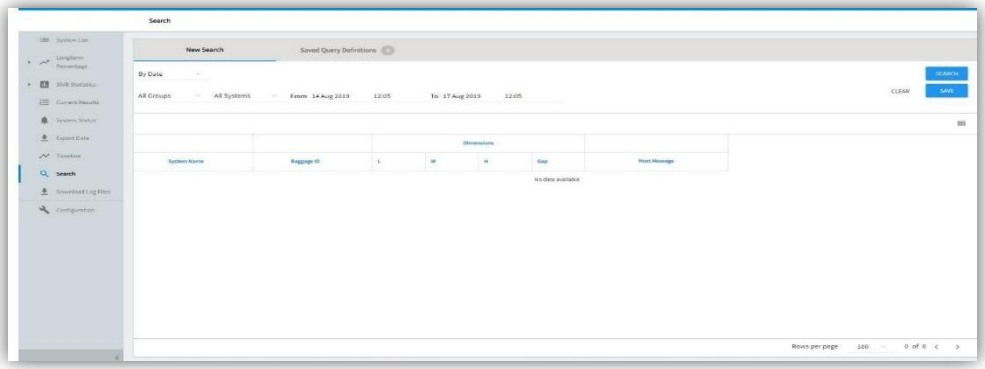


Figure 78: Create Saved Query

- Click on 'Save' button  .
- You will be prompted with a dialog box to enter the name of the saved query and a toggle button to create the saved query as private.
- Enter the name by which you want to save the query. Select 'Private Only' if you want to create a private saved query.
- Click on 'SAVE' button. The saved query will get created and you can view the list of your saved queries under 'SAVED SEARCH DEFINITIONS' tab.

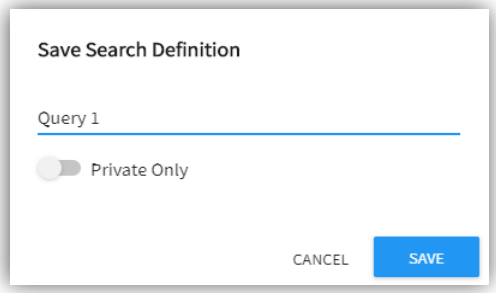


Figure 79: Save Search

13.9.1 Execute a Saved Query

On Search page, there are two tabs 'NEW SEARCH' and 'SAVED QUERY DEFINITION'. All

the saved queries are listed on 'SAVED QUERY DEFINITION' page.

You cannot view Private saved queries created by other users.

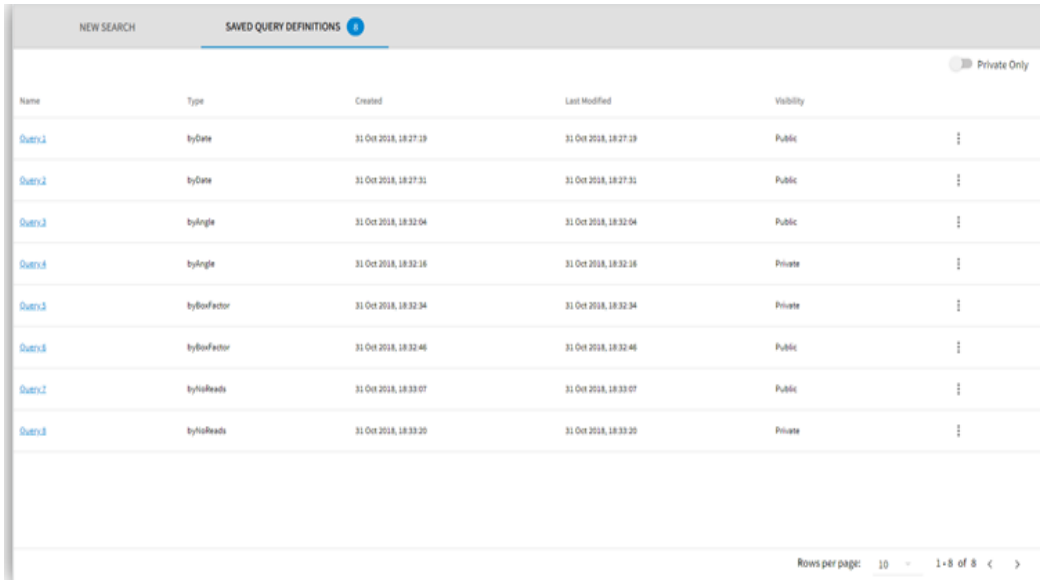
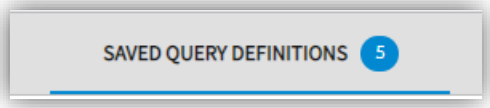


Figure 80: Saved Query

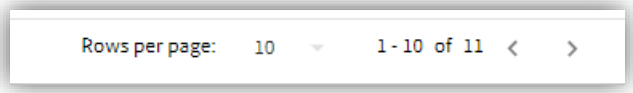
The no. of saved query is displayed next to the tab header.



On selecting a saved query by clicking on the saved query name, you will be automatically navigated to 'NEW SEARCH' tab. Also, the appropriate search definition will be selected. On clicking the 'SEARCH' button, the search for selected saved query will be executed and the search results will get populated in the 'Search Results' area.

13.9.2 Display Rows Per Page

Pagination bar at the bottom of the page shows total no. of saved queries and pagination options. User has the option to view 10, 25, 100 or 300 rows/instances per page based on the selection from the context menu available at the bottom of the Saved Query Definition page. You can move between the pages by clicking on the < and > arrow keys.

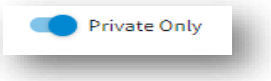


13.9.3 Private Filter

On 'SAVED QUERY DEFINITION' page, all the public and private queries are listed. There is a 'Private Only' toggle button at the top right corner of the page. On clicking the toggle button, it turns blue and 'Private Only' filter is on. Now, you can see only the private queries created by you on the 'SAVED QUERY DEFINITION' page. Switching off the 'Private Only' filter will again list all the public and private queries.

13.9.4 Private Filter ON/OFF

When 'Private Only' filter is on, the pagination bar will automatically get updated to show the total no. of Private saved queries. Turning off the toggle will update the pagination to total saved query.



14 Download Log Files

The application Log files can be selected and downloaded in order to investigate any issue with application or services. This can be done from Download Log Files page.

This feature is only available for the logged in Users having Download Log Files permission. If you are not logged in or you do not have enough permission, launching Download Log Files page will display a message "You do not have enough permission to access this functionality. Please login or contact your SICK Administrator for updating permission."

14.1 Overview

To launch the **Download Log Files** page:

- In the left navigation pane, click Download Log Files
- The **Download Log File** page is displayed listing all the log files and checkboxes to select the files for download.

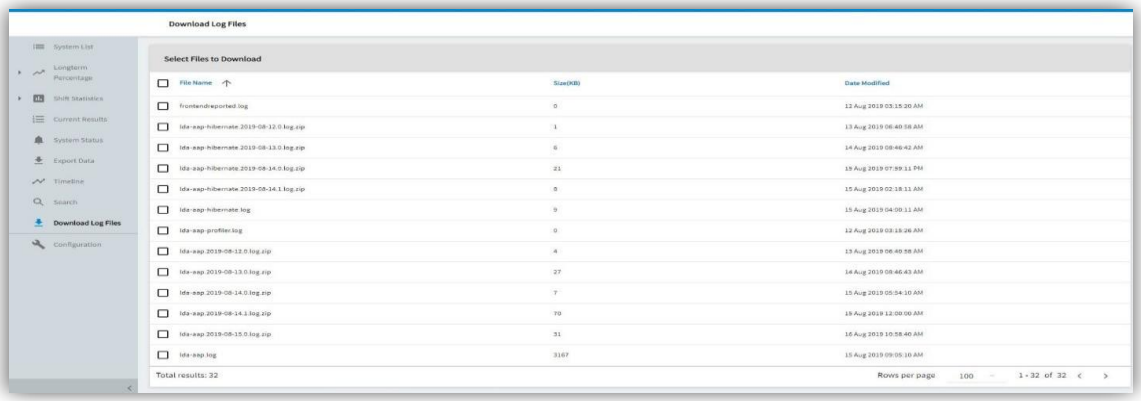


Figure 81: Download Log Files Page

- This page list the files with their File Name, Size and Date Modified.
- The bottom of the page shows the Total results. You can select the no. of files you can view on one page by 'Row per page' option.
- You can navigate to next and previous pages by clicking > and < options at the bottom of the page.

14.2 Download Log Files:

To download the log files:

- Select the files for download.

- As soon as you will select the files for Download, the DOWNLOAD  and CANCEL  button will appear.

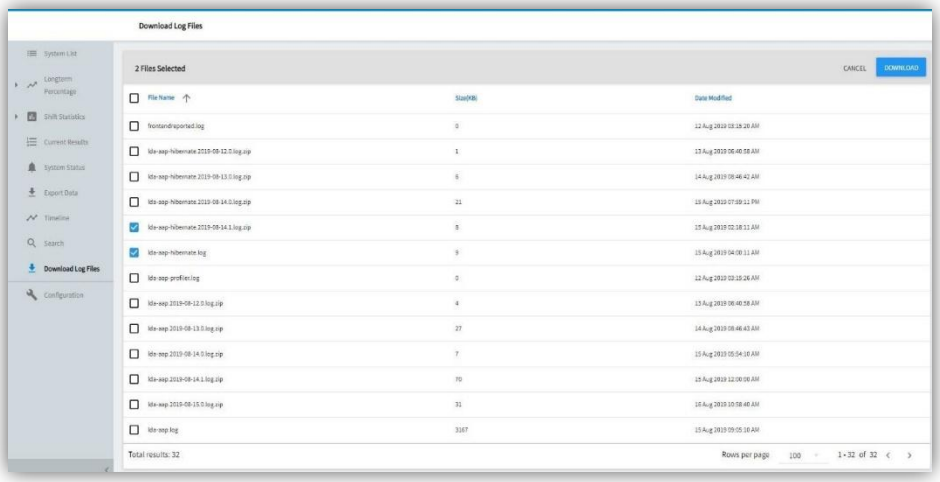


Figure 82: Download button

- Clicking on CANCEL button will deselect the log file and the DOWNLOAD and CANCEL button will disappear.
- Clicking on DOWNLOAD button will download the log file. The downloaded logs will be saved to your default download folder.

Download Log Files page is Licensed. This options are only available if it is permitted from the License file.

15 Reports

This section covers creating and accessing reports from your logistics data. For this, LA uses the integrated capabilities of Meta base, a third-party analytics tool. This section is integrated with a third-party analytics tool called Meta base. Clicking on Report link in left navigation pane will take you to the Meta base installed on your system. You can also create your own reports if you have privileges and can start analyzing your data by generating different reports from this module.

Please note that this is a licensed feature and is only available if it is enabled from the License.

This feature is only available for the logged in Users having Reports permission. If you are not logged in or you do not have enough permission, Reports option will not be available.

For Meta base User guide, please refer following link:

https://www.metabase.com/docs/latest/users-guide/start.html

15.1 Overview

To launch the **Reports** page:

- In the left navigation pane, click Report .

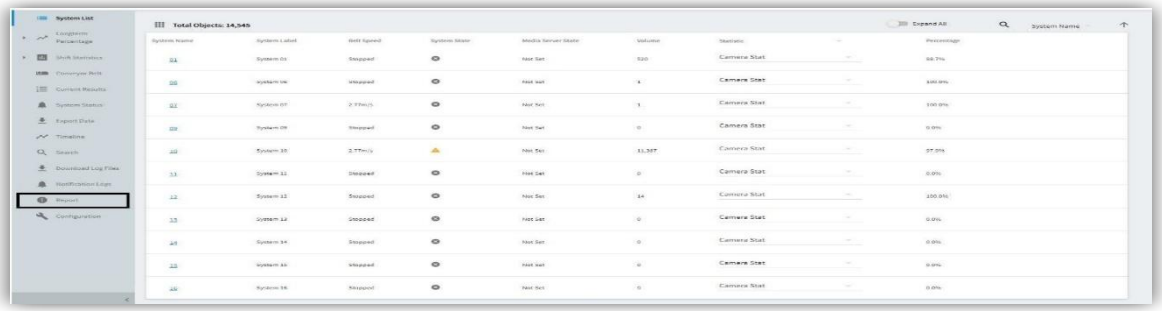


Figure 83: Report Option

- Application will launch the **Meta base** homepage in a new tab.

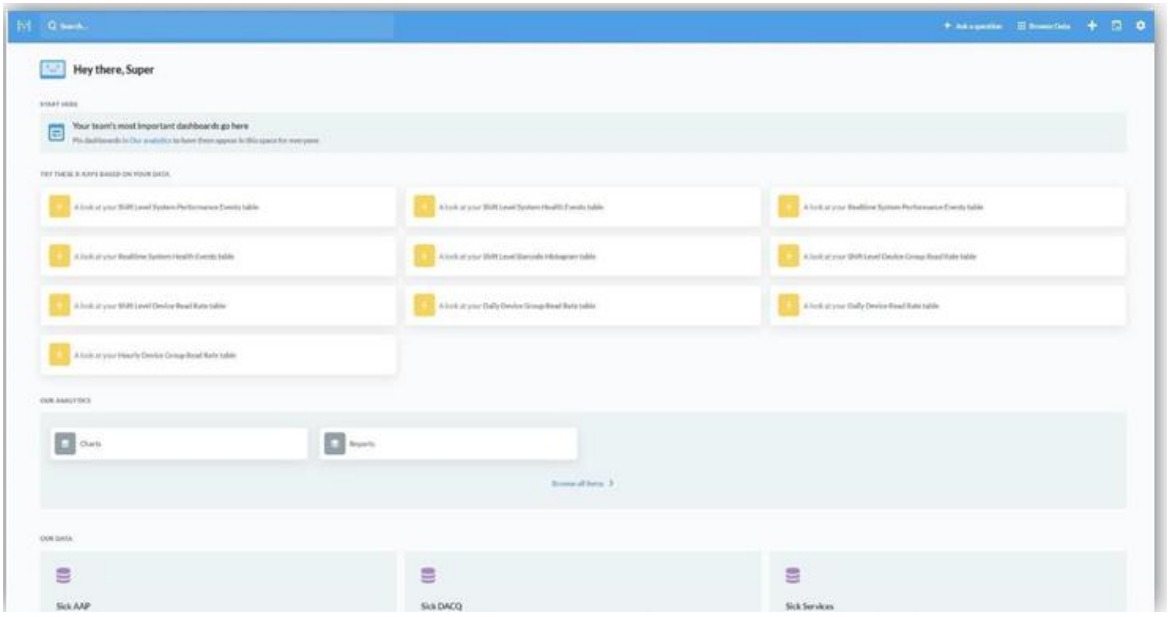


Figure 84: Meta base page

- This is the Meta base Homepage. You will be logged in as a user having privileges based on the Logistics Analytics application user.
- The Dashboard will display three sections: TRY THESE X-RAYS BASED ON YOUR DATA, OUR ANALYTICS and OUR DATA sections.
- TRY THESE X-RAYS BASED ON YOUR DATA section will display charts and reports based on existing tables. This allows user to explore their data in Meta base in general.
- OUR ANALYTICS shows options for Charts and Reports where you can view your application's pre-defined charts and reports. You can also create your reports if you have appropriate permissions.
- OUR DATA displays AAP, DACQ and SERVICES database.

Meta base tab will get automatically closed if User is Logged out from Facility Application.

15.2 User and their Privileges

Super, Admin and Operator users have different privileges for Meta base.

- **Super user**: This group have full access to all of the features of Meta base. They can add/remove database, add/remove/edit users, dashboards and can create their own questions in Meta base.
- **Admin user**: This group have the ability to create/modify/delete and run reports within meta base. Also, user with Admin privileges has the ability to save those reports into Dashboard/Collection.
- **Operator user**: Operator user have read-only access to the Dashboard/Collection. They can only run and export the reports within Meta base. This group does not have the option to create/modify/delete reports.

15.3 TRY THESE X-RAYS BASED ON YOUR DATA

X-Rays provide fast and easy way to get automatic insights and explorations of your data.

- Click on the Report you want to view.

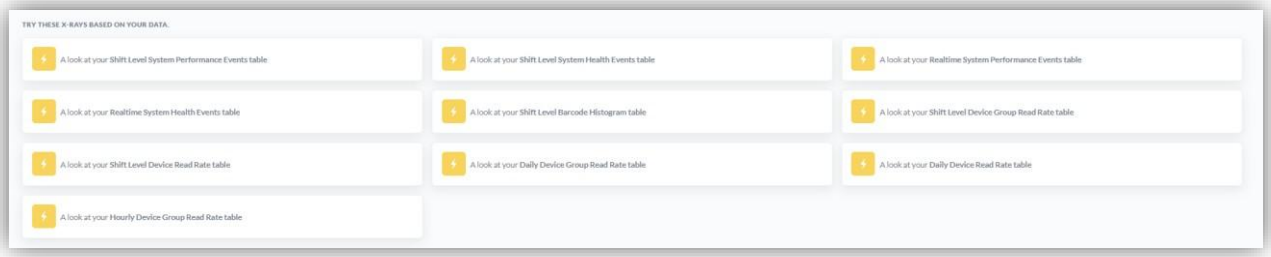


Figure 85: X-Rays

- It will open up the charts and reports based on your data.

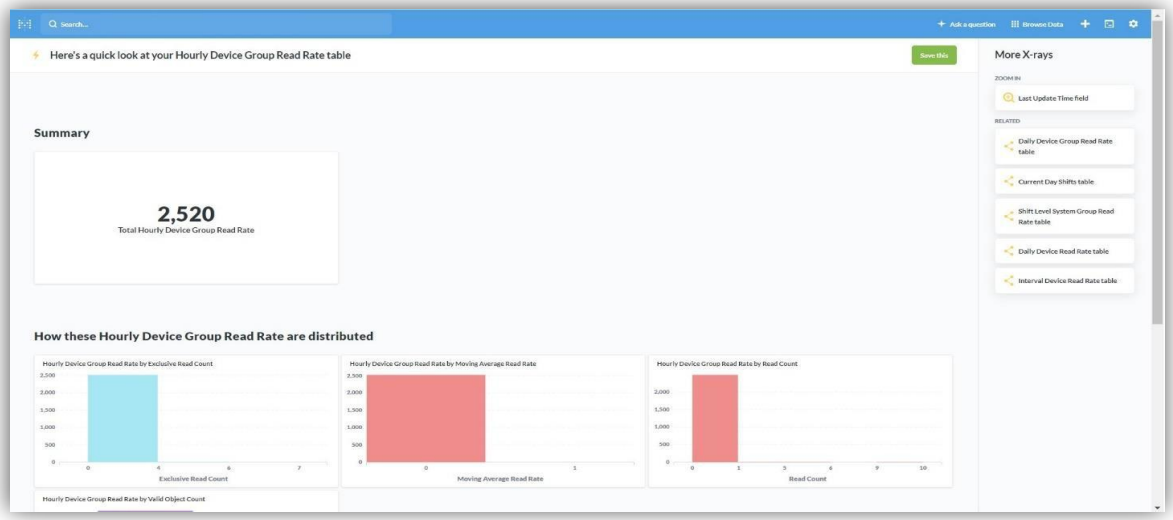


Figure 86: X-Ray Report

For more details: please refer Meta base User guide https://www.metabase.com/docs/lat- est/users-guide/start.html

15.4 OUR Analytics-Charts:

Our Analytics provides option to view pre-defined Charts and Reports. To view Charts:

- Click on the Charts option.

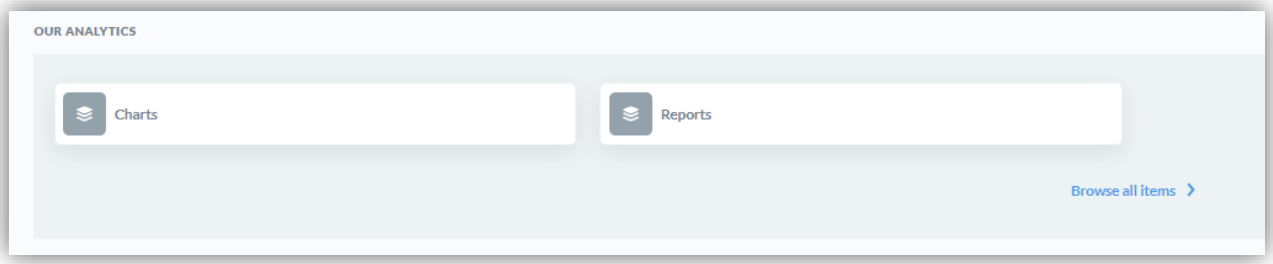


Figure 87: Our Analytics

- It will list all the predefined charts. Please Refer Charts and Reports for details.

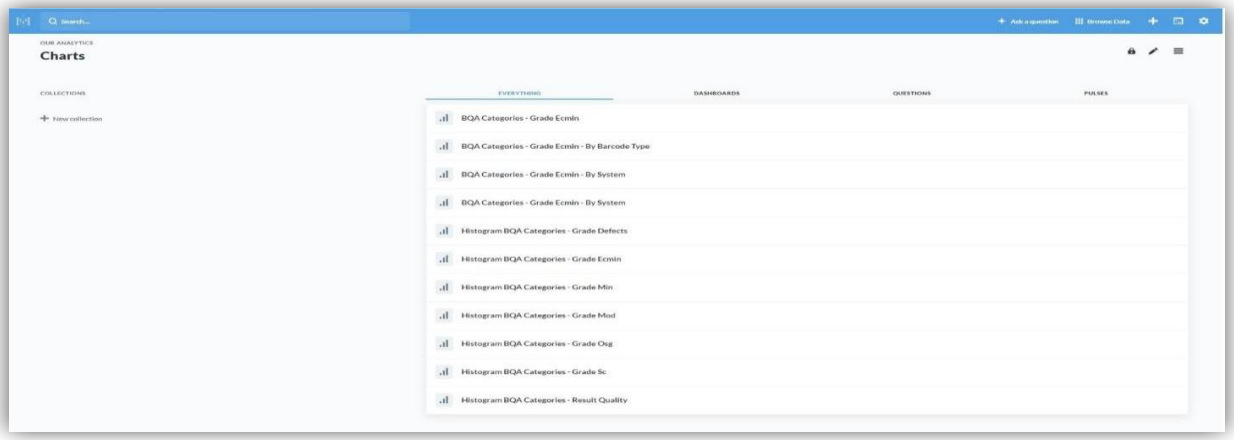


Figure 88: Our Analytics-Charts

- Click on any of the listed chart to view the Chart data. For example: Click on BQA Categories - Grade Ecmin.
- Application will open BQA Categories-Grade Ecmin chart page. Provide Start date and End date and other required filters.
- Click on Play icon/button.
- Application will generate chart based on the provided parameters as shown in the image below:

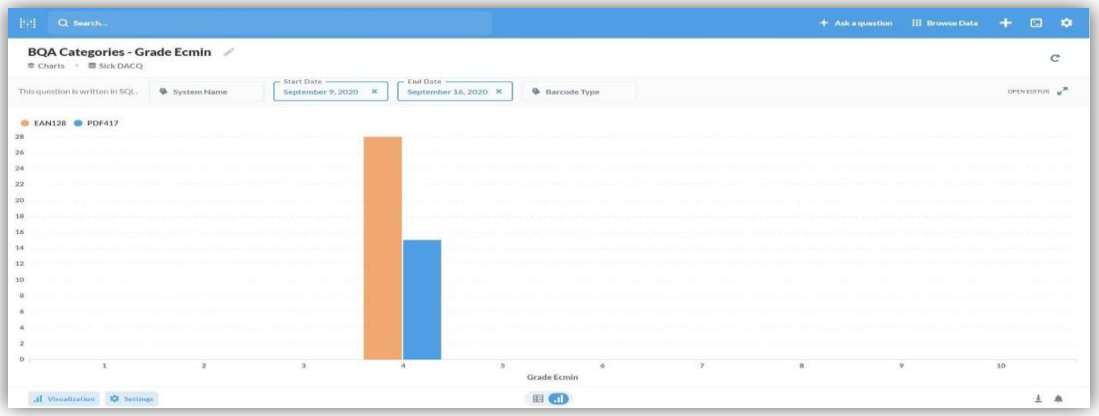


Figure 89: Grade Ecmin Chart

15.5 OUR Analytics-Reports:

To view Reports:

- Click on the Reports option.

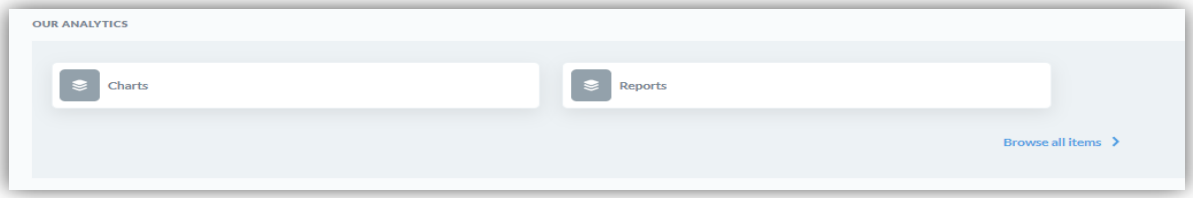


Figure 90: Our Analytics

- It will list all the predefined reports. Please Refer Charts and Reports for details.

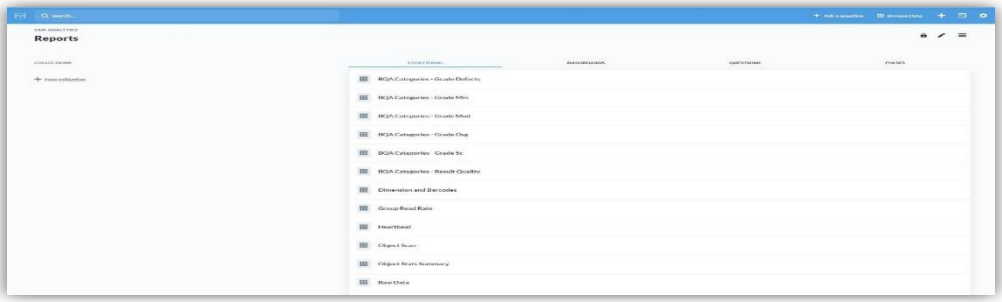


Figure 91: Our Analytics- Reports

- Click on any of the listed reports to view the Report data.

15.6 OUR Data

This section displays the list of Analytics application database which are connected to Meta base i.e., SICK DACQ, SICK AAP and SICK SERVICES database.

SICK DACQ database is critical component of analytics. DACQ database stores incoming data from the client.

SICK AAP database stores and aggregates the data in its own tables at an interval of per minute, per hour, per shift and per day.

All the data that is published from DACQ and AAP is sent to services to display on the dashboard. All the configuration of the facility goes to SICK Services database tables.

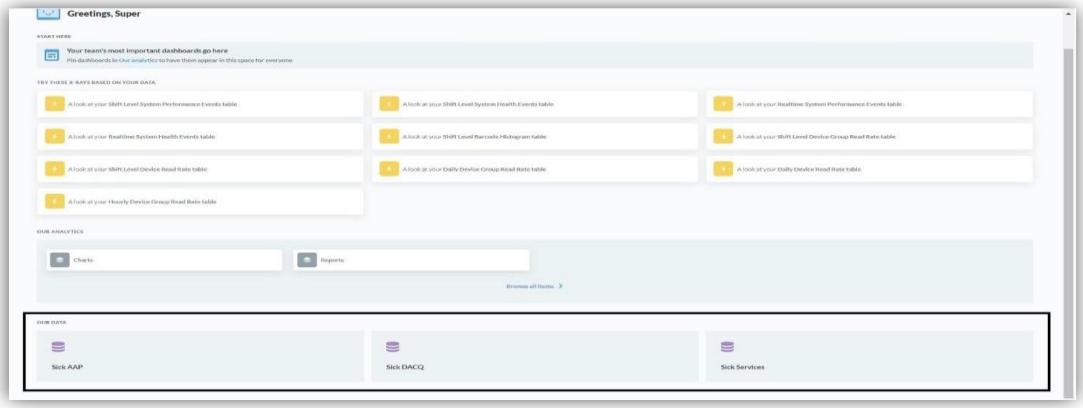


Figure 92: Our Data Section

For more details, please refer https://www.metabase.com/docs/latest/getting- started.html

15.7 Add/Create Reports

To create a Report:

- Click on the settings **Ask a Question** option at the top right corner.

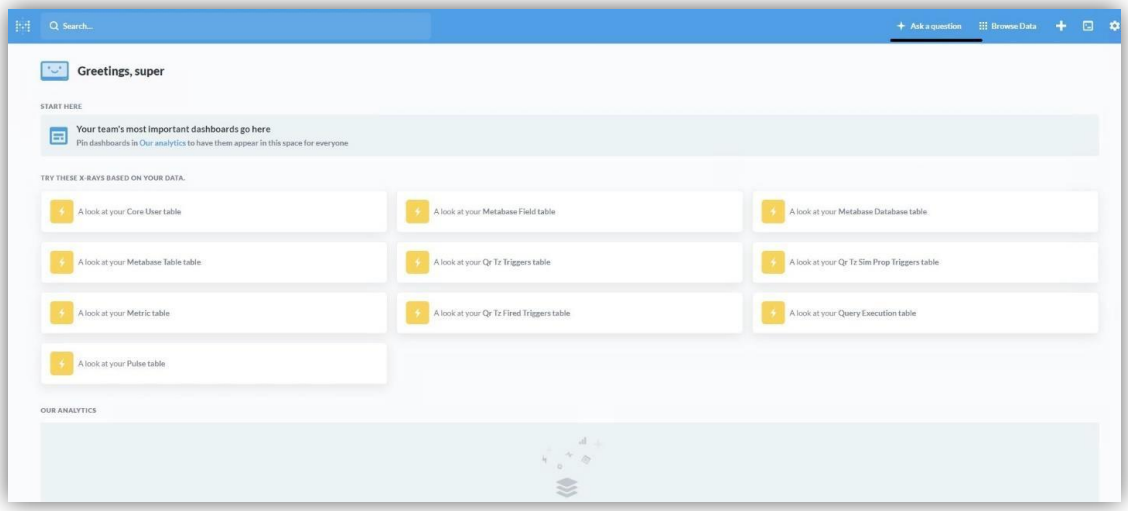


Figure 93: Ask a Question

- App will navigate you to New Question page. Select any option. To show the flow in this example, we use the **Custom question** option.

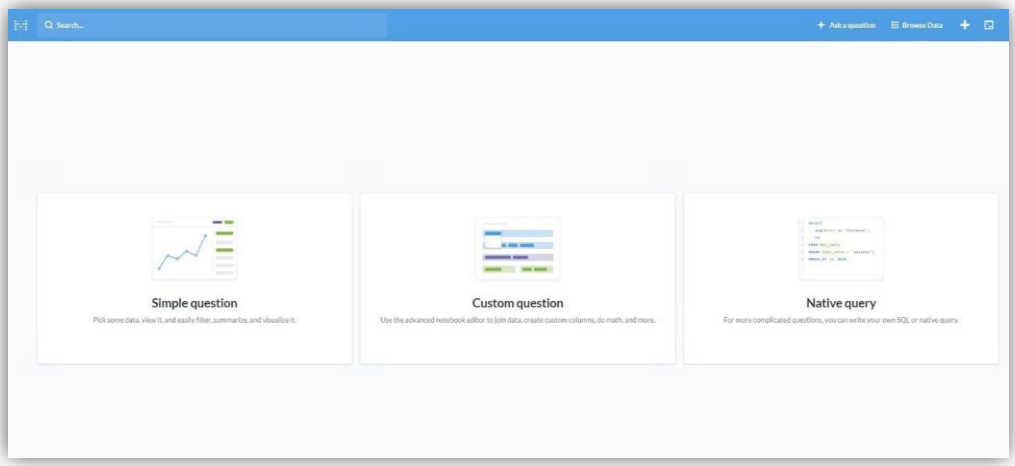


Figure 94: Question Options

- Application will take you to **Pick your starting data** screen to select the Database with which you want to generate report.

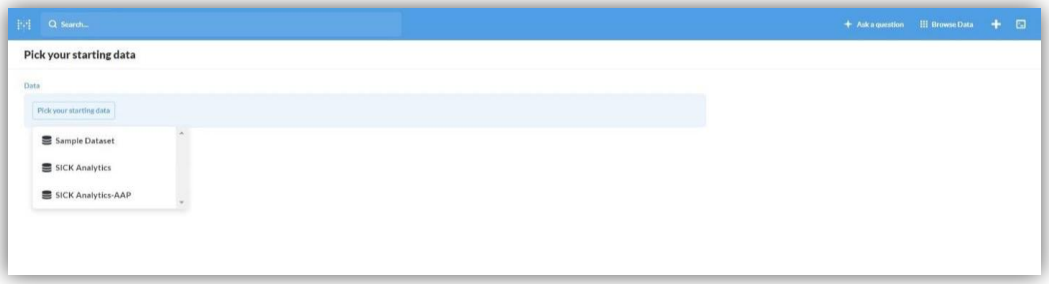


Figure 95: Pick your Starting Data

- Select database.
- Application will list all the tables of the selected database.

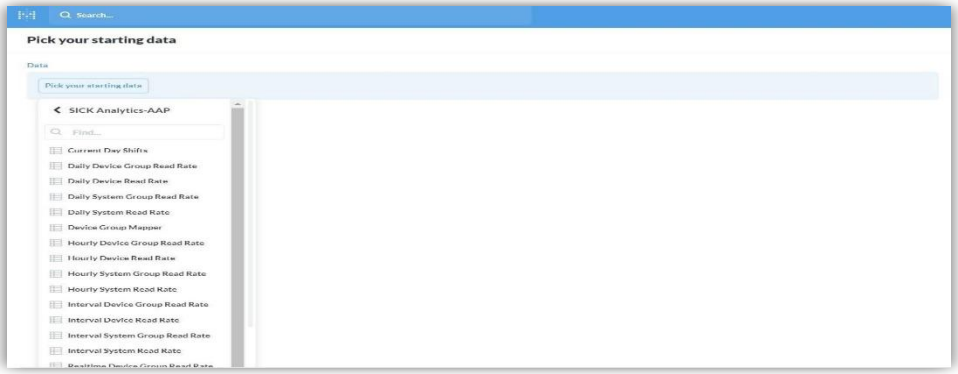


Figure 96: List of Tables

- Select the table you want to work with.

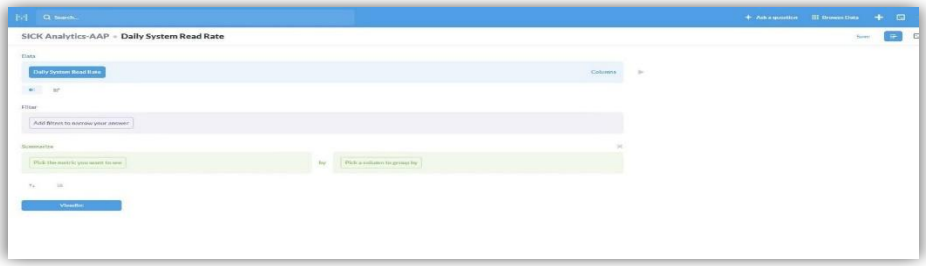


Figure 97: Selected Table

- Application will now provide options to apply filters and sorting to generate Report.

- Add Filter (Optional).

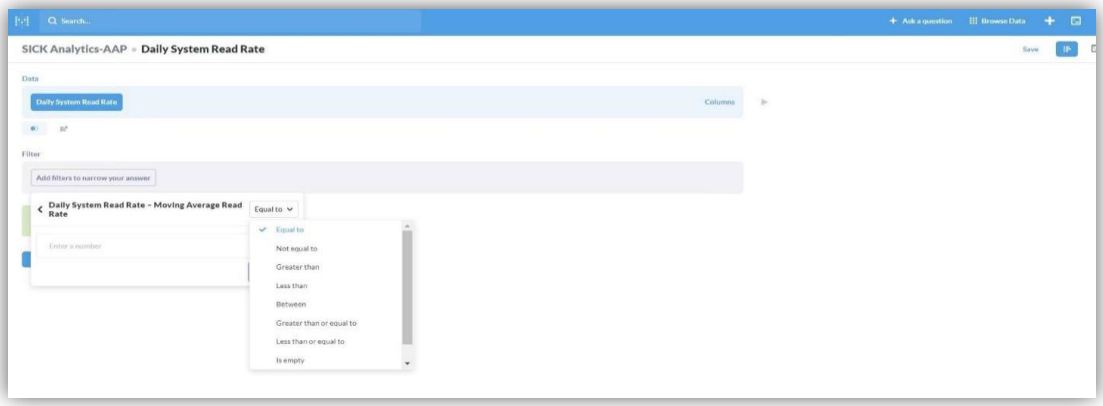


Figure 98: Apply Filter and Sorting

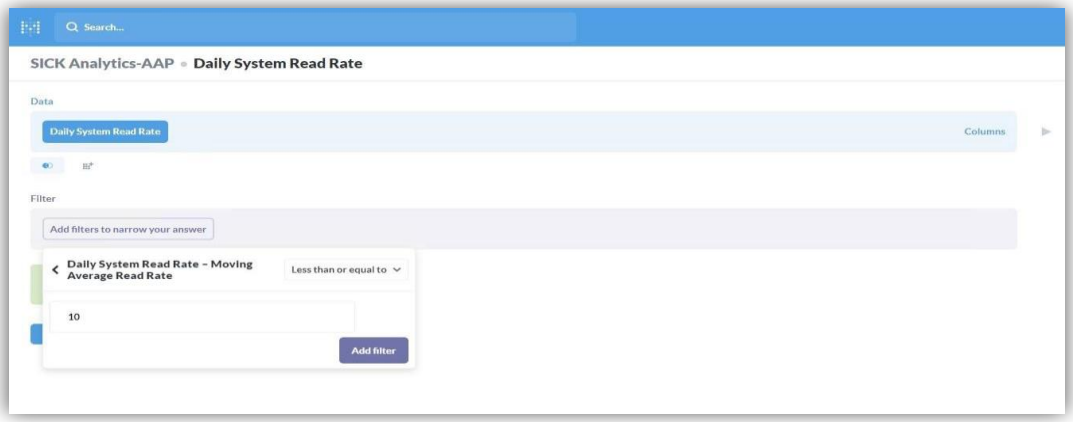


Figure 99: Add Filter

- Add Sorting and Row Limit (Optional).

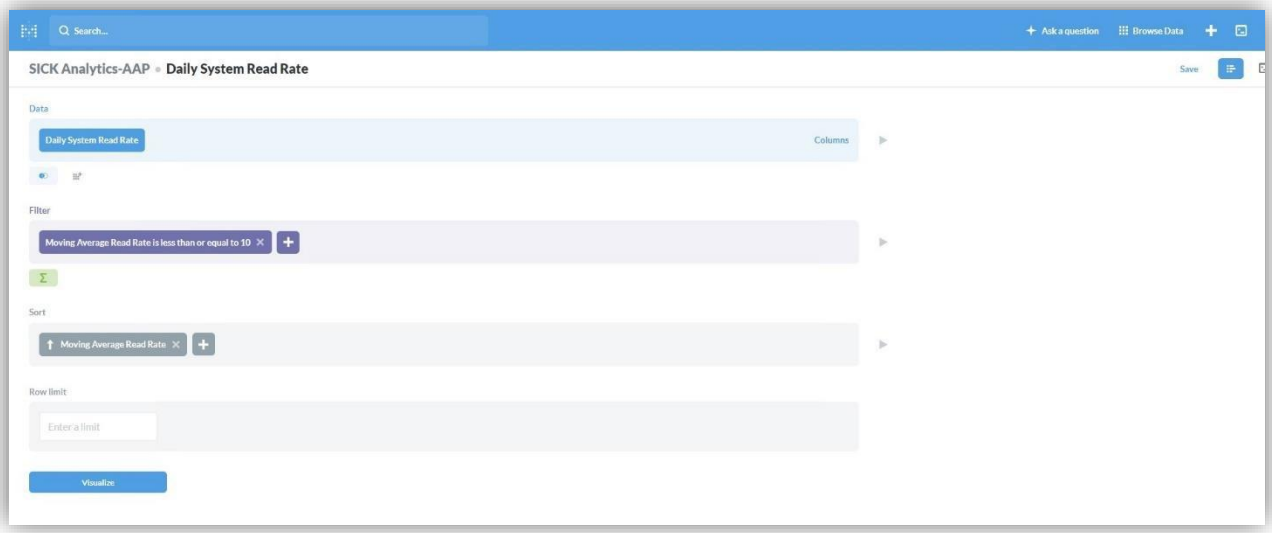


Figure 100: Add Sorting

- Hit **Visualize** button. The Report is generated.

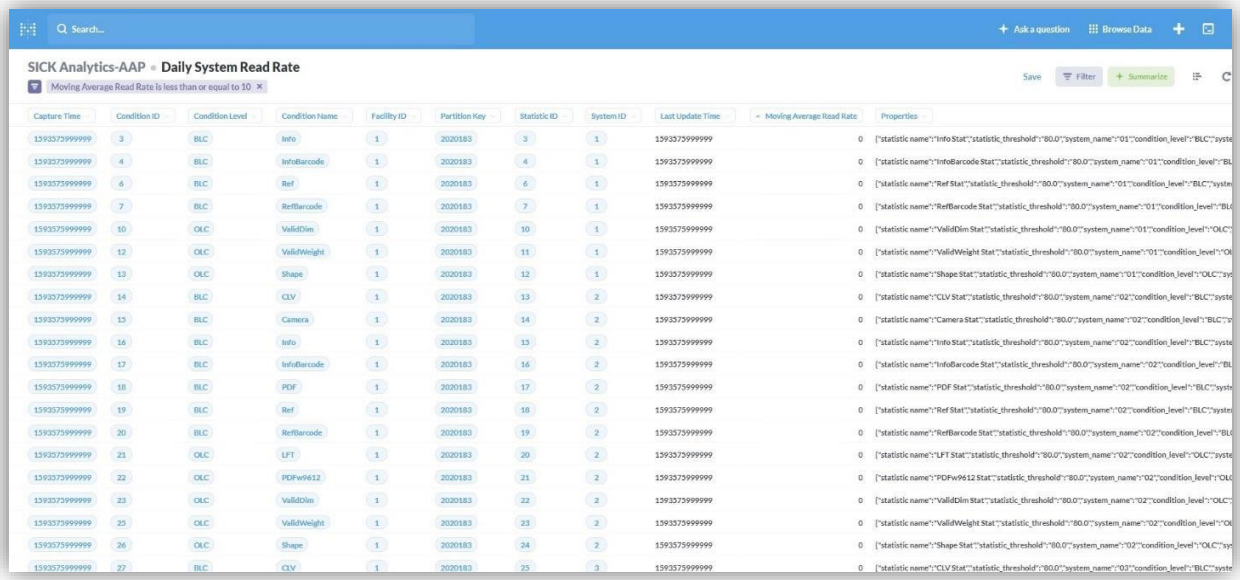


Figure 101: Visualize

- You can also apply Sorting and other operations on the Reports column by clicking on the column and selecting the Ascending/Descending option and other options like Sum, Avg, Filter etc. For more details, please refer Meta base User Guide https://www.metabase.com/docs/latest/users-guide/start.html

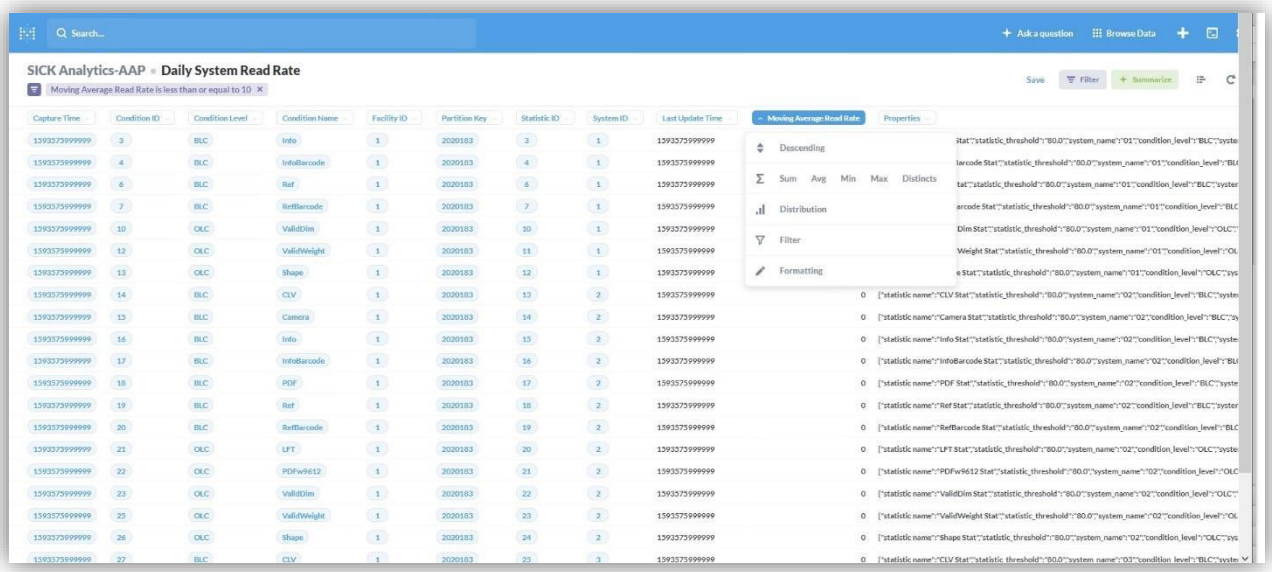


Figure 102: Sorting on Reports

- Click on **Save** button at the top right corner to save the report. It will open a **Save question** confirmation dialog box.
- Click on **Save** button on the **Save question** dialog box.

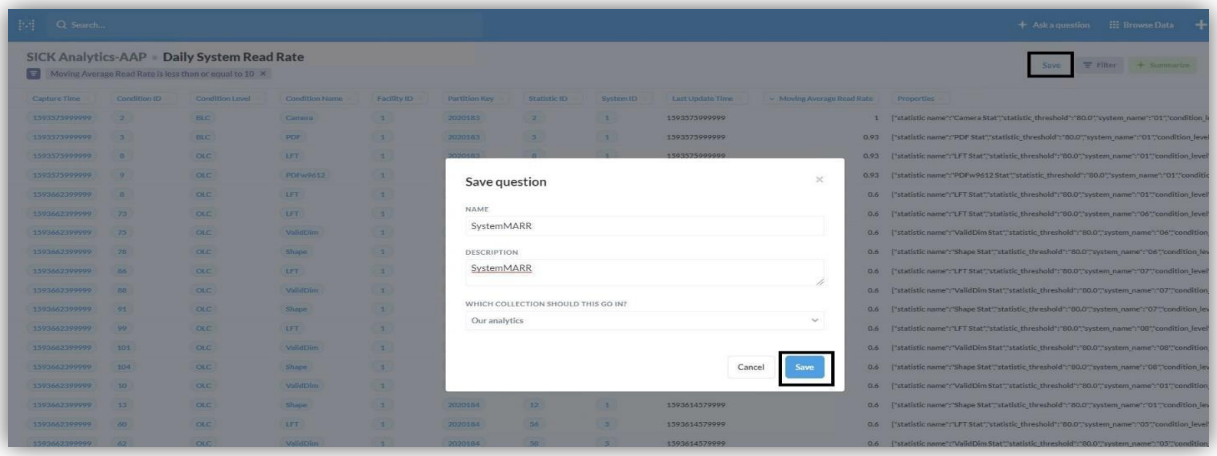


Figure 103: Save Reports

- You can add this report to a dashboard by clicking **Yes, Please!** button on **Add this to a dashboard** dialog.

- Click on **Yes, Please!** button. Application will provide you an option to add a new dashboard.

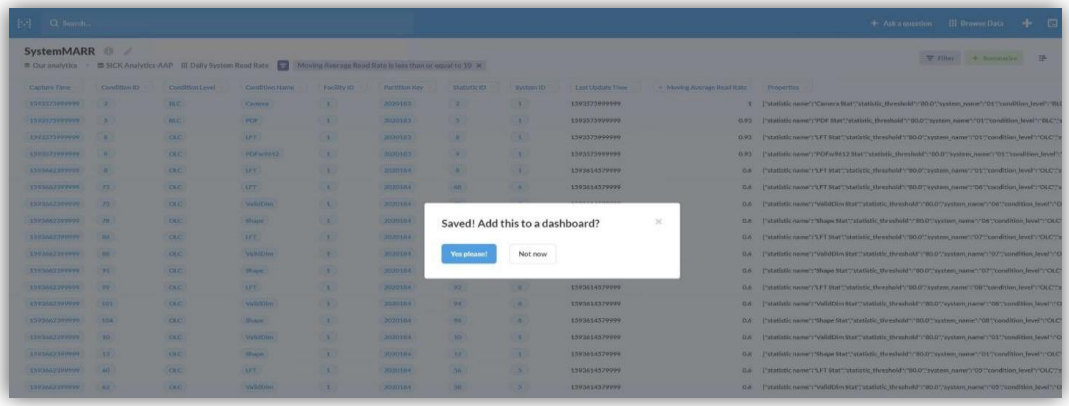


Figure 104: Add to Dashboard

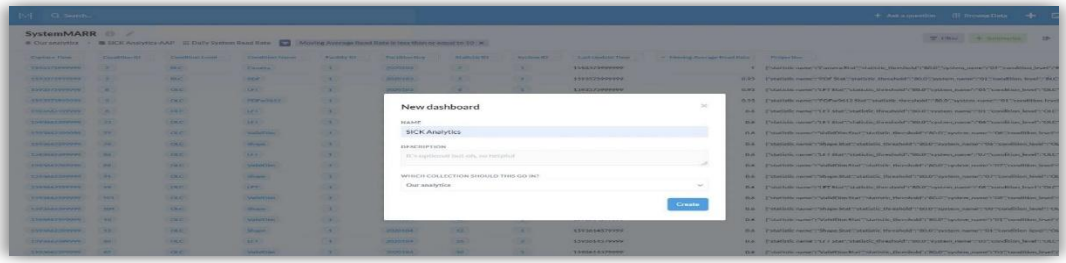


Figure 105: Create Dashboard

- Enter all details and hit **Create** button.
- This will create a new dashboard and add the report to the newly created dashboard.

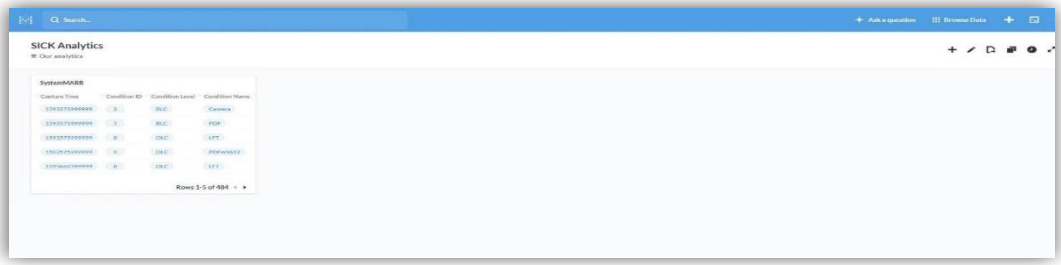


Figure 106: Dashboard Created

- Similarly, you can add different reports and dashboard to your Meta base application.
- You can also create reports by executing SQL queries.
- For more details, please refer https://www.metabase.com/docs/latest/getting- started.html

16 Notification Logs

Analytics software now lets you set up notifications to monitor performance, health and summary events. Clicking on the **Notification Logs** link from the left navigation pane will take you to the Notification Logs screen. This page will display the logs of all the notifications sent and their status. The status will be displayed as FAILED if there is a notification failure and notification was not received by the service provider. Application will display the notification as COMPLETE if the notification was successfully sent to the service provider.

You can configure Notification from Notification Configuration screen. Please refer Configuration manual to set-up Notification Configuration.

Notification Logs is a licensed feature and is available only if it is enabled from the License file.

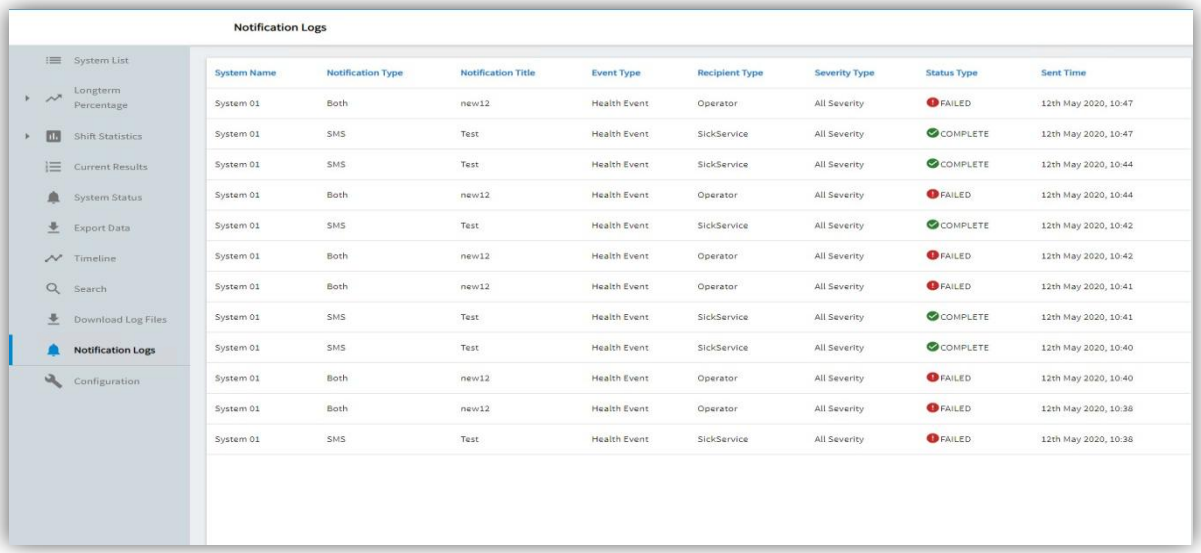
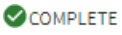


Figure 107: Notification Logs

This feature is only available for the logged in Users having appropriate permissions.

16.1 Notification Logs Details

Column Name	Description
System Name	System Name for which notification is generated
Notification Type	Notification Type: Email/SMS/Both
Notification Title	The Title of the notification which was set while configuring the notification
Event Type	Displays the Event Type of the Notification i.e., Performance Event/ Health Event/ Summary Event
Recipient Type	Recipient Group.
Severity Type	Displays the Severity Type of the Notification i.e. All Severity/ Fatal Error/ Error/ Warning/ Information
Status Type	The Status FAILED or COMPLETE will be based on whether your service provider successfully received the notification or not.  If there was an issue sending the notification to the Service provider, then the Status will be marked as Failed. 
Column Name	**Description**

	If the notification was successfully sent to the Service provider, then the Status will be marked as Complete. However, status COMPLETE does not mean that you have/will receive the notification.
Sent Time	Time at which the notification sent to the service provider.

Table 17: Notification Logs Table

16.2 Reasons for Notification Failure

1. Server configuration issue.
2. Sender's Phone number or email address does not work/exist.
3. Any SMS/e-mails limit by the service provider has been exceeded. In this case, the Status will be shown as **COMPLETE,** but you will not receive the notifications.

17 Glossary

code related condition	Evaluation Conditions which are code related monitor conditions for individual barcodes. For example, a code related condition may monitor if a barcode is a 2D barcode type. Because a package may have multiple barcodes, it is possible for a code related condition to have multiple outcomes for one any one package. See also *package related conditions*
Intelligent Sensor	Intelligent Sensors are devices which collected data and send to a central controller. These sensors include barcode scanners, dimensions, and cameras, among others. Also referred to as *devices*
LA	Logistics Analytics
auto ID system	All SICK systems which are part of the process of automatic data collection and identification for package processing, for example, camera tunnels, and scan systems. Auto ID systems may consist of a network of data collection components, such as cameras, laser scanners, dimensioners, and scales, which work together to provide data on packages being processed through the system.
Device	In LA, a system component which collects analytical data which is transmitted to LA. Devices include CLVs, ICRs, MSC/SIMs Also referred to as *Intelligent Sensor*
device group	A logical grouping of devices, for example all CLVs or all ICRs. In LA devices may be grouped in order to enable collective reporting and analysis of the group.
Evaluation Condition	In Evaluation Conditions are set in the SICK System Controller, which tags packages that meet criteria for a designated condition, for example, no read, or valid read. See also *Performance Statistic*.

Device [Group] Exclusive	Refers to exclusive reads, when only one device [group] has read a particular condition on a package
ICR	SICK's Image Code Reader, used for finding and detecting barcodes.
MAC	The system Media Access Controller (MAC) is a unique computer ID. It is used by LA to secure your software license to a physical computer.
NORCA	No Read Code Analysis. A quality analysis for all readable and non-readable barcodes and 2D codes. This analysis is provided by for the auto ID system's Lector cameras and configured in the camera firmware. NORCA data is sent to LA to allow filtering, evaluation, and visualization of barcodes
Package	In LA, packages are items that are scanned by auto ID systems for data points, such as barcodes, weight, dimensions, and more.
package index	Identifier code for the current package sent from the system controller
package related condition	Evaluation Conditions which are package related conditions evaluate conditions at the package level. For example, ValidDim or ValidWeight return a single outcome for any given package (e.g., ValidDim= yes or Valid- Dim= no). See also *code related condition*.
Performance Statistic	In LA Performance Statistics are filters for pre-defined conditions or devices. Statistics represent a count of how many packages meet the requirements for a certain Evaluation Condition. See also *Evaluation Condition*.
read cycle	One read cycle is equivalent to the complete processing of an individual package, including the transmission of data from all system devices that recorded data for the package, to the SICK System Controller
System	See auto ID system

Tunnel	An auto ID system which is configured as a tunnel system, with one or more reading devices mounted to a framework above, below, and to the side of tires, such as a camera tunnel. See also auto ID system.
User Preference	Settings that can be customized for a particular user
web client	The client program which is used to launch LA. The web client opens the LA user interface using the Chrome browser by default.
Long term Read Rate	LA screens which provide a graphical analysis of your facility's auto ID systems historical performance and operation.
moving average rate	The moving average rate is a succession of averages derived from the entered number of days. It helps smooth out fluctuations in the Primary Statistic read rate, and is an indicator of the current trend
Current Results	LA screens which provide a dynamic view of the real-time performance and heartbeat of an individual system. As packages move through the system and barcodes are read, an entry is added to the package data table on this screen, providing details.
Media Server	Images captured by the image capturing devices(ICR, Lector and IP cams) of the auto ID systems are stored in remote PC/server host where Media server is running.
client computer	The client computer is any PC connected to the LA network. LA's client applications are Rich Internet Applications (RIA). The client applications connect to the LA Application Server to access rich data content and provide a powerful user experience.

18 Appendix A: Meta base Charts and Reports

Meta base Charts

Sr. No.	Category	Chart Name	Description
1	BQA Categories	BQA Categories - Grade Ecmin	Grade Ecmin Chart
2		BQA Categories - Grade Ecmin - By Barcode Type	Grade Ecmin Chart by Barcode Type
3		BQA Categories - Grade Ecmin - By System	Grade Ecmin Chart by System
4	Histogram BQA Categories	Histogram BQA Categories - Grade Defects	Histogram Graph for Grade Defects Parameter
5		Histogram BQA Categories - Grade Ecmin	Histogram Graph for Edge Contrast mini-mum Parameter
6		Histogram BQA Categories - Grade Min	Histogram Graph for Grade Min Parameter
7		Histogram BQA Categories - Grade Mod	Histogram Graph for Grade Modulation Parameter
8		Histogram BQA Categories - Grade Osg	Histogram Graph for Grade Osg Parameter
9		Histogram BQA Categories - Grade Sc	Histogram Graph for Symbol contrast Parameter
10		Histogram BQA Categories - Result Quality	Histogram Graph for Result Quality parameter

Table 18: Meta base Charts

Meta base Reports

Sr. No.	Category	Report Name	Description
1	BQA Categories	BQA Categories - Grade Defects	This BQA Category report returns the Grade defects and its count based on System name and Barcode Type.
		BQA Categories - Grade Min	This BQA Category report returns the Grade Min and count based on System name and Barcode Type.
		BQA Categories - Grade Mod	This BQA Category report returns the Grade Modulation and count based on System name and Barcode Type.
		BQA Categories - Grade Osg	This BQA Category report returns the Grade Osg and count based on System name and Barcode Type
2		BQA Categories - Grade Sc	This BQA Category report returns the Grade Symbol Contrast and count based on System name and Barcode Type.
3		BQA Categories - Result Quality	This BQA Category report returns the Result Quality and count based on System name and Barcode Type.
4	Others	Dimension and Bar-codes	Dimensions and Barcodes report returns the details of dimensions and barcodes of an object.
5		Group Read Rate	Group Read Rate report shows the read rate based on System Group. You can apply filter on System Group Id and Condition Name.
6		Heartbeat	Heartbeat report shows the errors and warning report. You can apply filter on System Name and error State.
7		Object Scan	Object Scan report returns the details of first scan, last scan, scan count along with barcode data.
8		Object Stats Summary	Object Stats Summary returns the details of read rate and read count based on the condition.

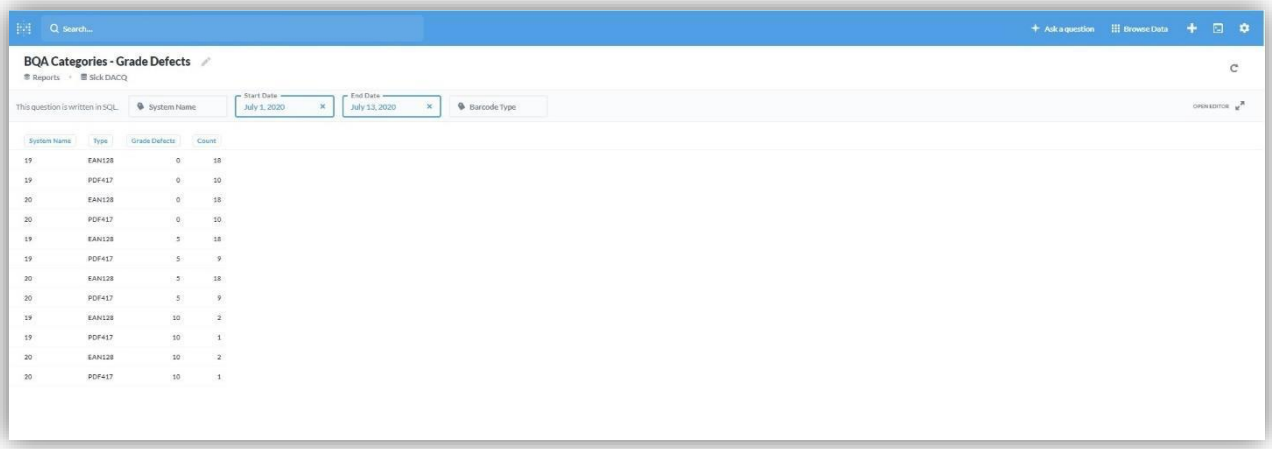
		Raw Data	This report returns raw data which includes details like acquired time, angle belt speed etc.
9		Read Rate	Read Rate displays a report of Read Rate based on conditions.
10		Solo Read Rate	This is Solo Read Rate report based on device and Conditions.

Table 19: Meta base Reports

19 Appendix B: Meta base Reports Details

19.1 BQA Categories – Grade Defects

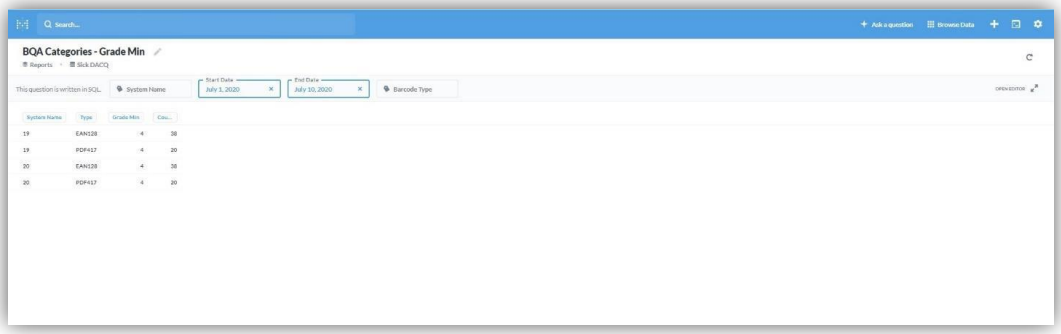
This BQA Category report returns the Grade defects and its count based on System name and Barcode Type. You can also apply filter on System Name and Barcode Type to refine your report. Start Date is mandatory to generate this report. End Date is not mandatory. If End date is not provided, the Report will display data until the current day/time.



Appendix B 1: BQA Categories – Grade Defects

19.2 BQA Categories – Grade Min

This BQA Category report returns the Grade Min and count based on System name and Barcode Type. You can also apply filter on System Name and Barcode Type to refine your report. Start Date is mandatory to generate this report. End Date is not mandatory. If End date is not provided, the Report will display data until the current day/time.



Appendix B 2: BQA Categories – Grade Min

19.3 BQA Categories – Grade Mod

This BQA Category report returns the Grade Mod and count based on System name and Barcode Type. You can also apply filter on System Name and Barcode Type to refine your report. Start Date is mandatory to generate this report. End Date is not mandatory. If End date is not provided, the Report will display data until the current day/time.

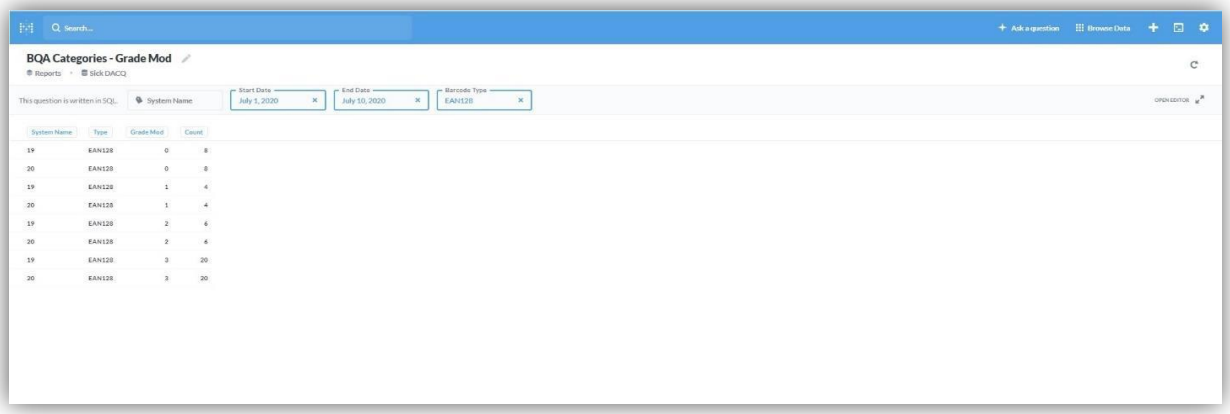
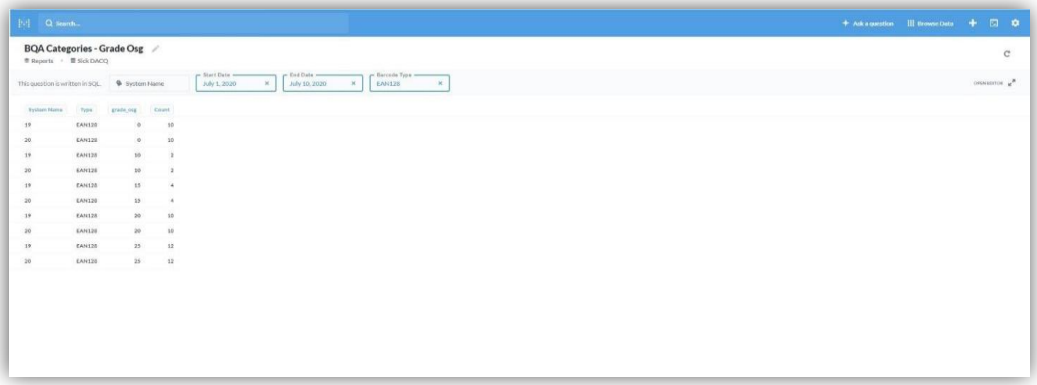


Figure 108: BQA Categories – Grade Mod

19.4 BQA Categories – Grade Osg

This BQA Category report returns the Grade Osg and count based on System name and Barcode Type. You can also apply filter on System Name and Barcode Type to refine your report. Start Date is mandatory to generate this report. End Date is not mandatory. If End date is not provided, the Report will display data until the current day/time.



Appendix B 3: BQA Categories – Grade Osg

19.5 BQA Categories – Grade Sc

This BQA Category report returns the Grade Sc and count based on System name and Barcode Type. You can also apply filter on System Name and Barcode Type to refine your report. Start Date is mandatory to generate this report. End Date is not mandatory. If End date is not provided, the Report will display data until the current day/time.

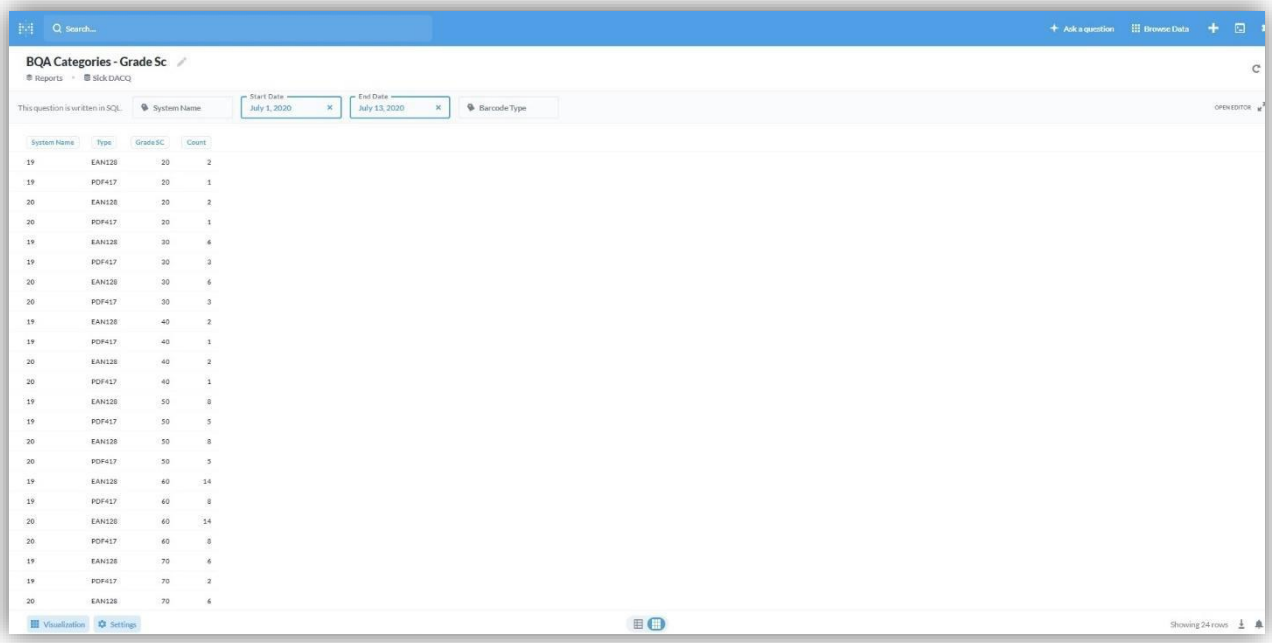
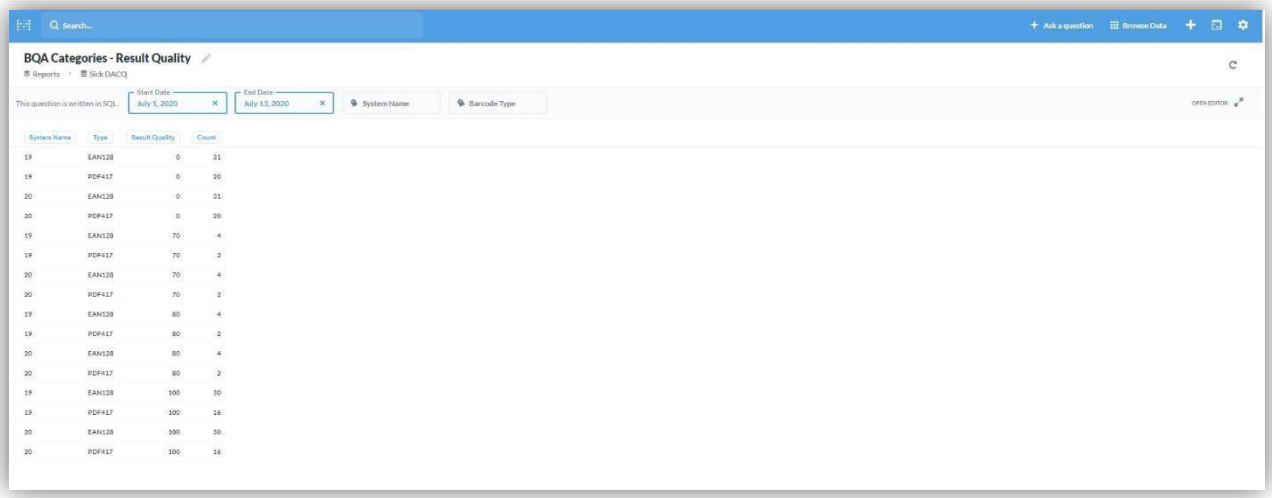


Figure 109: BQA Categories – Grade Sc

19.6 BQA Categories – Result Quality

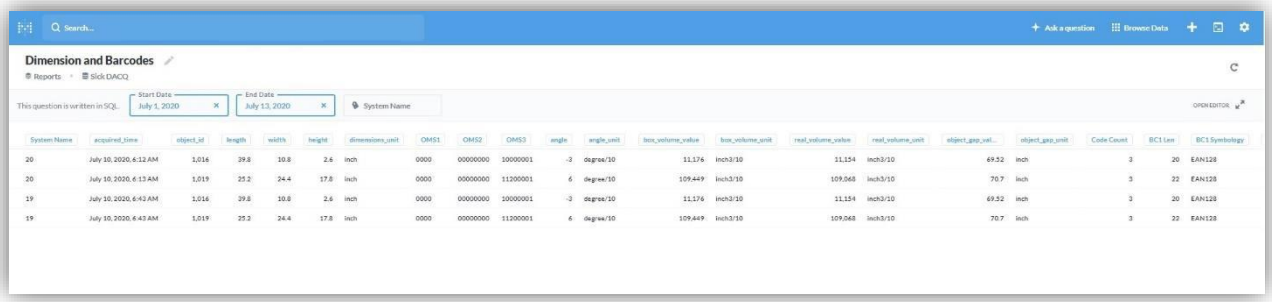
This BQA Category report returns the Result Quality and count based on System name and Barcode Type. You can also apply filter on System Name and Barcode Type to refine your report. Start Date is mandatory to generate this report. End Date is not mandatory. If End date is not provided, the Report will display data until the current day/time.



Appendix B 4: BQA Categories – Result Quality

19.7 Dimensions and Barcodes

Dimensions and Barcodes report returns the details of dimensions and barcodes of an object. You can also apply filter on System Name to refine your report. Start Date is mandatory to generate this report. End Date is not mandatory. If End date is not provided, the Report will display data until the current day/time.



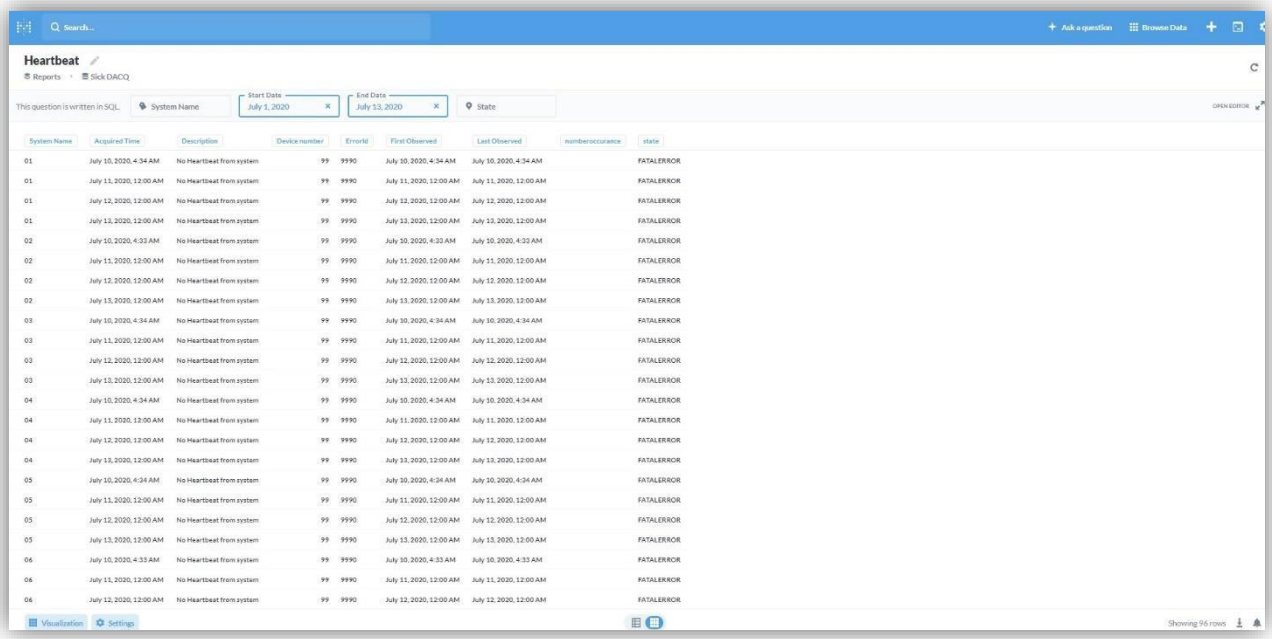
Appendix B 5: Dimensions and Barcodes

19.8 Group Read Rate

Group Read Rate report shows the read rate based on System Group. You can apply filter on **System Group Id** and **Condition Name**. Start Date is mandatory to generate this report. End Date is not mandatory. If End date is not provided, the Report will display data until the current day/time.

19.9 Heartbeat

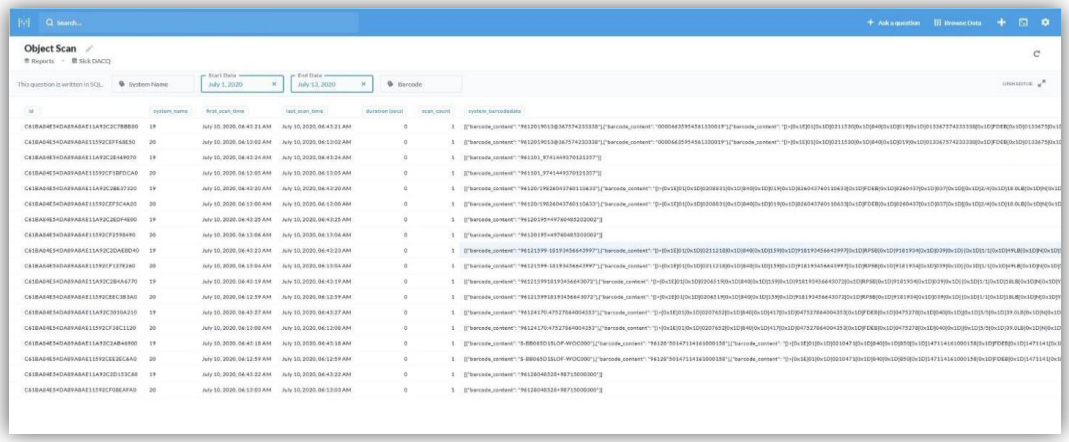
Heartbeat report shows the errors and warning report. You can apply filter on **System Name** and error **State**. Start Date is mandatory to generate this report. End Date is not mandatory. If End date is not provided, the Report will display data until the current day/time.



Appendix B 6: Heartbeat

19.10 Object Scan

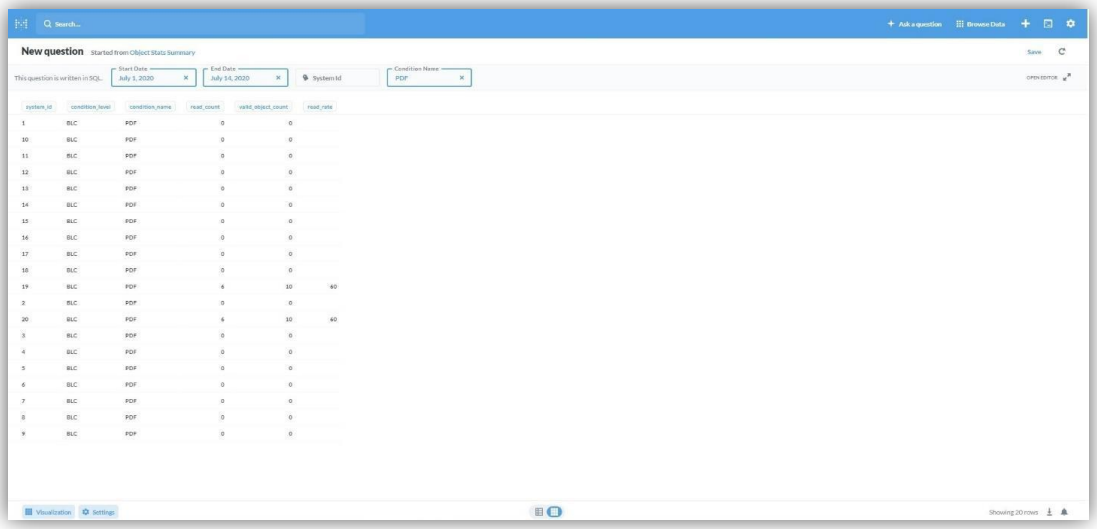
Object Scan report returns the details of first scan, last scan, scan count along with barcode data. You can apply filter on **System Name** and **Barcode**. Start Date is mandatory to generate this report. End Date is not mandatory. If End date is not provided, the Report will display data until the current day/time.



Appendix B 7: Object Scan

19.11 Object Stats Summary

Object Stats Summary returns the details of read rate and read count based on the condition. You can apply filter on **System Name** and **Condition Name**. Start Date is mandatory to generate this report. End Date is not mandatory. If End date is not provided, the Report will display data until the current day/time.



Appendix B 8: Object Stats Summary

19.12 Raw Data

This report returns raw data which includes details like

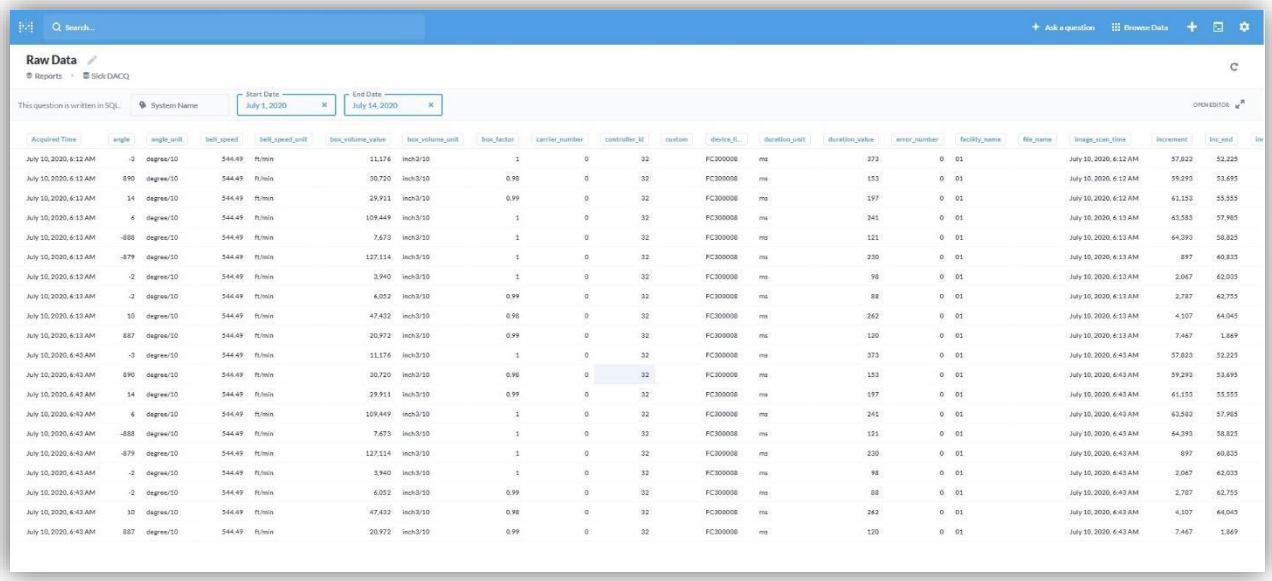
- Acquired Time
- angle

- angle_unit
- belt_speed
- belt_speed_unit
- box_volume_value
- box_volume_unit
- box_factor
- carrier_number
- controller_id
- custom
- device_list
- duration_unit
- duration_value
- error_number
- facility_name
- file_name
- image_scan_time
- increment
- inc_end
- inc_start
- io_state
- legal_for_trade_flag
- legal_for_trade_status
- measuring_state_1
- measuring_state_2
- measuring_state_3
- msc_scan_time
- object_dimensions_unit

- object_gap_unit
- object_gap_value
- object_height
- object_hostmessage
- object_id
- object_index
- object_length
- object_scan_time
- object_secondary_id
- object_weight_unit
- object_weight_value
- object_width
- polygon_info
- real_volume_unit
- real_volume_value
- scale_data_status
- seqnb
- sorter_state
- sorter_state_speed_unit
- sorter_state_speed_value
- sort_name
- sort_session
- system_name
- token_id
- transport_velocity_unit
- transport_velocity_value
- trigger_length_unit

- trigger_length_value
- vcc

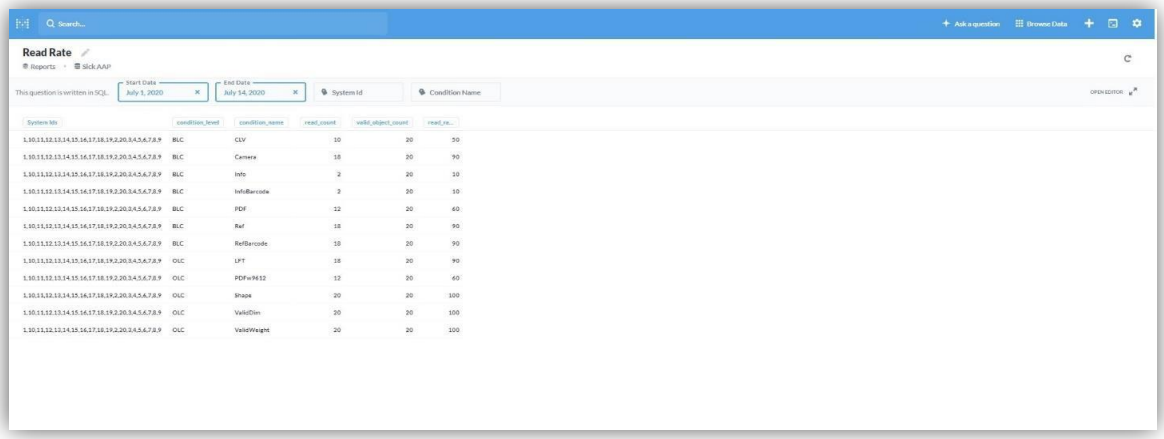
You can apply filter on **System Name**. Start Date is mandatory to generate this report. End Date is not mandatory. If End date is not provided, the Report will display data until the current day/time.



Appendix B 9: Raw Data

19.13 Read Rate

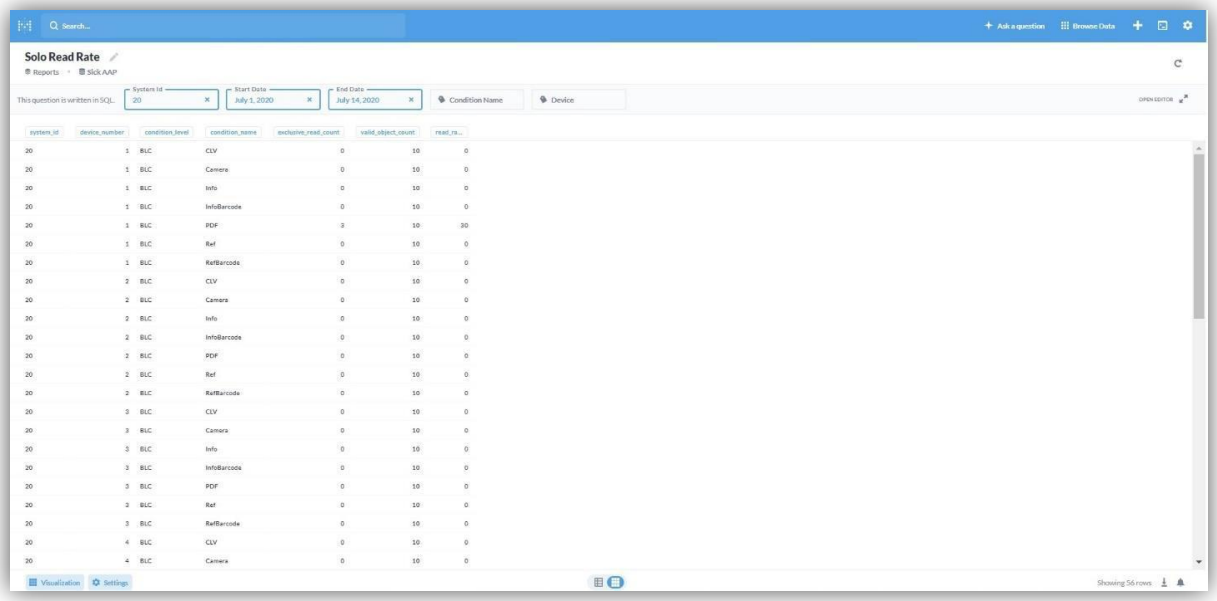
Read Rate displays a report of Read Rate based on conditions. You can apply filter on **System Id** and **Condition Name**. Start Date is mandatory to generate this report. End Date is not mandatory. If End date is not provided, the Report will display data until the current day/time.



Appendix B 10: Read Rate

19.14 Solo Read Rate

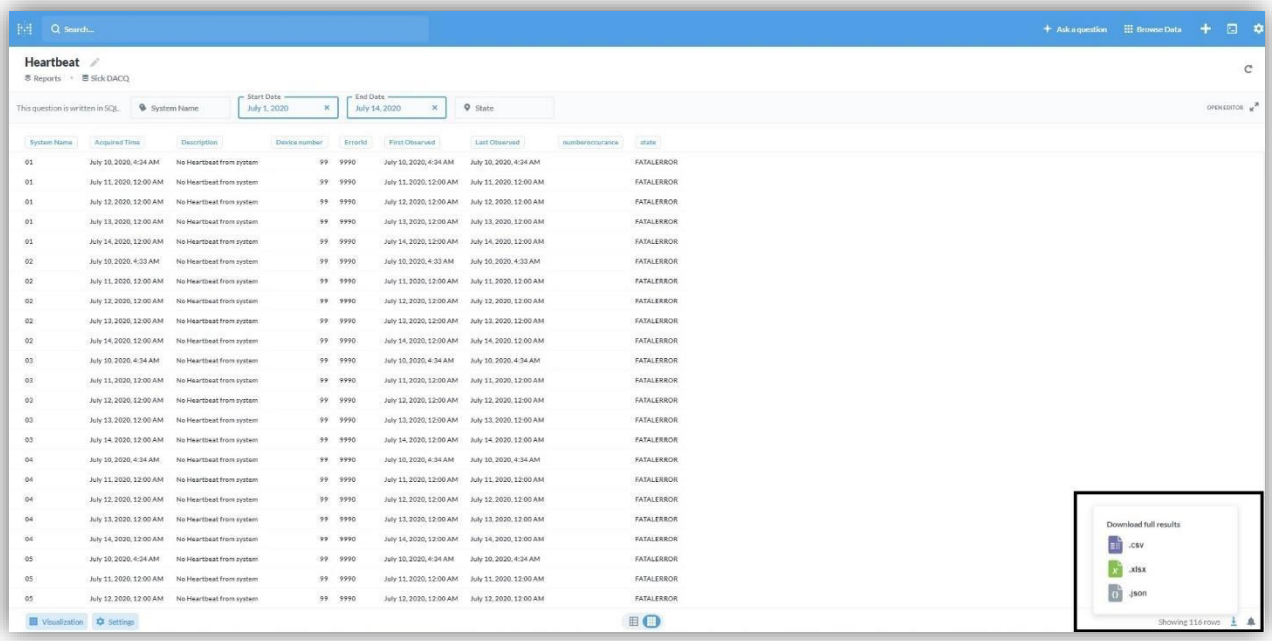
This is Solo Read Rate report based on device and Conditions. You can apply filter on **System Id** and **Condition Name** and **Device**. Start Date is mandatory to generate this report. End Date is not mandatory. If End date is not provided, the Report will display data until the current day/time.



Appendix B 11: Solo Read Rate

19.15 Download Results/Reports:

You can also download the reports in .csv, .xlsx and. json format by clicking on the download icon at the bottom right corner.



Appendix B 12: Download Results/Reports