

OPERATING INSTRUCTIONS

Package Analytics

**Visualization software for performance monitoring of auto ID
tunnel systems**

Part Number: 8017081
Publication: 9141446 Rev 01
Release Date: 2016-04-08

SICK
Sensor Intelligence.

Software Versions

Software / Tool	Function	Version
Package Analytics		Ver 3.0

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Getting Started Guide

Congratulations and thank you for purchasing SICK's Package Analytics! If you have purchased a SICK PC with your Package Analytics order, the software will be installed for you.

If you are providing your own Windows PC to host Package Analytics, this quick start guide will describe how to install and get started with Package Analytics software. For Linux OS PCs, contact your local SICK Technical Support for guidance.

System Versions

Package Analytics is offered in three versions, each with increasing levels of functionality, to meet varying customer needs. Your view of the Package Analytics dashboard, its included functions and system capabilities, are determined by the version of Package Analytics purchased for your facility. To upgrade your version of Package Analytics, contact your local SICK sales support.

Version	Description	Performance & Health	Database Image Archive	Solution Server
Core	Package Analytics Core provides basic features and functionality with limited database and image capability. It is designed for facilities that only require real-time information. Package Analytics Core version provides access to data and camera images for the last 300 packages processed by the system. This information is accessed from the dashboard Activity tab. It also allows you to search packages from previous sorts, using the Timeline tab.	X		
Prime	Package Analytics Prime includes the features of Package Analytics Core, and adds access to a database and image archive. It is designed for users that require a searchable database and an image archive. Package Analytics Prime includes the capability to use the dashboard to generate Charts, Queries, and Reports for current and historical data.	X	X	
PRO	Package Analytics PRO adds SICK's Solution Server feature to the system. It is designed for users that require the means to store package images for very long periods of time and/or require additional image processing capabilities.	X	X	X

Description

The components delivered with your Package Analytics system include the hardware and software components required for your version of the system. These components are installed and configured by SICK for your facility. If your software is not preinstalled by SICK, your system ships with all the components required for software installation.

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System Requirements

If you are proving your own PC to host Package Analytics, the following minimum system requires must be met prior to installation. Note that these are minimum requirements. Final hardware configuration is application dependent. Data and image storage duration is application dependent.

Network

- Gbit Ethernet Port(s). Minimum 2 but is application dependent

Operating System

- 32 & 64 bit Linux (CentOS, Red Hat, Ubuntu). Others on request
- Windows(XP, 7 - 32 and 64 bit)

Supported Browsers

- Internet Explorer, Mozilla Firefox, Google Chrome, more coming

Monitor resolution

- 1024 X 768

Software Prerequisites Provided with installation package

- Java (JDK) 1.6_43
- MySQL Server 5.1.67
- MySQL Tools 5.0.15
- Adobe Air 3.1 (Windows only)
- Flash Player 16 (instead of Air)

Note: It is not recommended to delete any existing versions of the above listed software prior to the installation of Package Analytics.

Anti-virus

- The s/w can be integrated with most anti-virus software. The following user defined ports need to be exempted
- 1935 (RTMP)
- 2008 (XML listener)
- 2009 (non-XML listener)
- 5080 (HTTP)
- 9999 (application server shutdown port)

Note: It is not recommended that automatic Windows upgrades be performed. If updates must be performed then it should not be done while the application is working. Check the application once the update is complete.

Minimum PC Hardware Guidelines

- Core or System View with no images
 - CPU: Atom 1.86 GHz (Dual Core)
 - Memory: 2GB RAM
 - Disk Space: 64GB*
 - HDD partition at least 25 GB for C:\ drive and remainder for D:\drive
 - Win 7 - 32 bit only
- Prime - System View with images
 - CPU: i5 2.7/3.3 GHz dual core processor
 - Memory: 4GB RAM
 - HDD: 1 TB*
- PRO - Solution Server:
 - CPU: i7 - 2.3/3.3 GHz quad core processor
 - Memory: 8GB RAM
 - HDD: 1TB
- Facility View:
 - CPU: i5 2.7/3.3 GHz dual core processor
 - Memory: 4GB RAM
 - HDD: 1 TB*

*Data and image storage duration is application dependent.

The minimum requirements provided should be used as a guideline. Final hardware configuration is application dependent.

Installation at a Glance

You will need:



For Package Analytics Applications

- Dedicated Windows PC* with 2 active USB ports
- **Any prior/existing version of MySQL database application must be un-installed**
- Recommend un-installing any prior/existing version(s) of JAVA, Adobe AIR and Adobe Flash Player

For Clients

- Windows PC* with 2 active USB ports
- Recommend un-installing any prior/existing version(s) of JAVA, Adobe AIR and Adobe Flash Player

* Ports are required only during installation. See *System Requirements* for supported Windows OS, browsers and PC specs



SICK labeled license USB dongle (green)

Note: the 5 digit number under the SICK logo is your license serial number. Please note this when calling SICK for technical support.



Package Analytics installation media USB dongle



For Package Analytics Applications

- At least 2 Gigabytes (GB) of free hard disk space for the Package Analytics application
- For applications with images, the hard disk has to be partitioned for storing image data. See *System Requirements* for partitioning guidelines.

For Client installation

- At least 2 Gigabytes (GB) of free hard disk space for the Package Analytics application



User account with Administrator privileges to install software



User Account Control (UAC) turned off to allow silent installation of software* (Windows 7 only)

*For information on how to find and change this setting for a user with administrator privileges, please refer to *Turn of User Account Control (UAC)* in this document.

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To Install:



1 Existing versions of Package Analytics or SVP should be un-installed.

Uninstallation of prior versions of Package Analytics will occur automatically during the install process. No action is required on your part for the uninstallation of the old software.

If you have an old version of SVP on the PC, you must manually remove it. Please refer to *Uninstall Old Version SVP* in this document.

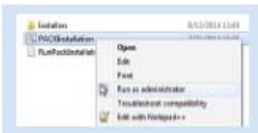
If this is a first time installation of Package Analytics, please proceed to Step 2.



2 Insert the two provided USB dongles into active USB ports on the installation PC.

Note: The green license dongle must be plugged in for Package Analytics to install. Both dongles can be safely taken out after installation is complete.

Note: The driver for the green license dongle will be installed prior to verification. Any “Driver not found” error messages upon plugging in, can be safely ignored.



3 Open the contents of the installation USB dongle, locate the item labeled **PACKInstallation** right-click, and then choose **Run as Administrator** to begin the install process.



4 Installer will first verify user privileges, software pre-requisites and license. Once your license has been verified, click **INSTALL** in the PACK Installation window when prompted. Also choose **INSTALL** on any Windows Security pop-ups.



5 Wait for the installation process to complete (it might take a few minutes).

DO NOT CLOSE any command prompt windows that may appear during installation (shown at left). When the installation process is complete, you will be prompted to reboot your PC. Click **EXIT** to close the installation window, and then reboot your PC.

Next steps:

- The document [Package Analytics Operating Instructions](#) can be found on the Package Analytics installation USB dongle.
- A default configuration has been installed. For customized configurations, refer to Chapter 13 of the [Package Analytics Operating Instructions](#).
- If you'd like to access the web dashboard from a local PC (on which the Application Server is running), use the **Package Analytics** shortcut on the desktop, to launch the dashboard in your default web browser.
- To access the web dashboard from a remote PC, refer to Chapter 2 of the [Package Analytics Operating Instructions](#) for detailed instructions on how to set up the URL. The remote PC should be located on the same network as the Application Server PC.
- To use the Adobe AIR version of the dashboard, please refer to Chapter 2 of the [Package Analytics Operating Instructions](#)

Starting the Package Analytics Dashboard

To launch Package Analytics using the Web Browser:



Double-click the Package Analytics shortcut icon on your desktop. Package Analytics opens to the default view in the system's default web browser.

Getting Help

As you start using Package Analytics, help, when you need it, is always readily available from several sources:

- The Package Analytics Operating Instructions Manual is an in-depth guide to using Package Analytics. It provides user instructions, maintenance information, and answers to frequently asked questions in a simple, easy-to-reference, format.
- **On-line Help** can be accessed using the **Help** function available from every screen, no matter where you are in the Package Analytics dashboard. The **Help** function provides a text searchable reference guide, as well as tutorial videos and SICK TechNotes¹. Using on-line help, the information you need is right at your fingertips, anytime you access the dashboard.

To access the Help function, click **Help** in the Package Analytics dashboard header.

Turn off User Account Control (UAC)

On Windows 7, the UAC can prevent silent installation of certain components of Package Analytics. To avoid any errors during installation, it is recommended to temporarily turn off UAC prior to installation. The UAC can be turned back on after installation is complete. For instructions on how to turn the UAC on or off, please refer to the appropriate Microsoft Windows help article on the web or the instructions below.

Note: *It is necessary to reboot the PC before any changes to UAC take effect. Please reboot the PC before starting the installation of Package Analytics.*

Windows 7

<http://windows.microsoft.com/en-us/windows/turn-user-account-control-on-off#1TC=windows-7>

1. Open **User Account Control Settings** by clicking the **Start** button. Then click **Control Panel**. In the search box, type **uac**, and then click **Change User Account Control Settings**.
2. Do one of the following:
 - To turn off UAC, move the slider to the **Never Notify** position, and then click **OK**. If you're prompted for an administrator password or confirmation, type the password or provide confirmation. You will need to restart your computer for UAC to be turned off
 - To turn on UAC, move the slider to **choose when you want to be notified**, and then click **OK**. If you're prompted for an administrator password or confirmation, type the password or provide confirmation.

¹ SICK tutorial videos and SICK TechNotes are limited to instruction for SICK AutoID Systems only.

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Uninstall Old Version SVP

Follow these steps only if you have an existing version of SVP on your installation PC. If this is a first time installation, please proceed to Step 2 of the Installation Instructions.

Note that if there are preexisting versions of Package Analytics on your PC, they will be uninstalled automatically with the newer software installation process.

Windows 7

1. Go to **Control Panel** → **Programs and Features**. Select the SVP Component, and then click **Uninstall**.
2. Repeat for the rest of SVP components
3. Delete the SVP directory (C:\SVP)\Windows

XP

1. Go to **Start** → **Settings** → **Control Panel** → **Add or Remove Programs**. Select the SVP Component, and then click **Remove**.
2. Repeat for the rest of SVP components
3. Delete the SVP directory (C:\SVP)

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Package Analytics

1. Overview

Package Analytics is a unique business analytics platform for sensor intelligence which collects data, including camera images, from connected auto ID systems in your facility. It aggregates this data and makes it accessible through a rich graphical user interface referred to as the Package Analytics dashboard. The dashboard is accessed from auto ID system tunnel monitors, or client PCs, and provides real-time feedback about system activity and performance for each connected system.

The Package Analytics dashboard provides you with tools to easily search and review the data. Using Package Analytics, you can assess current system performance and status as well as analyze long term trends for individual auto ID systems, or multiple connected systems in your facility.

Information provided through Package Analytics answers questions like, “What is happening right now?” Through a robust information capture and analysis solution, Package Analytics goes beyond current system activity to answer the question, “What more can the system data tell me?” Using the Package Analytics dashboard, you can access all information available about a package with a simple click of the mouse. The powerful client/server platform allows system access from anywhere you can securely access the network.

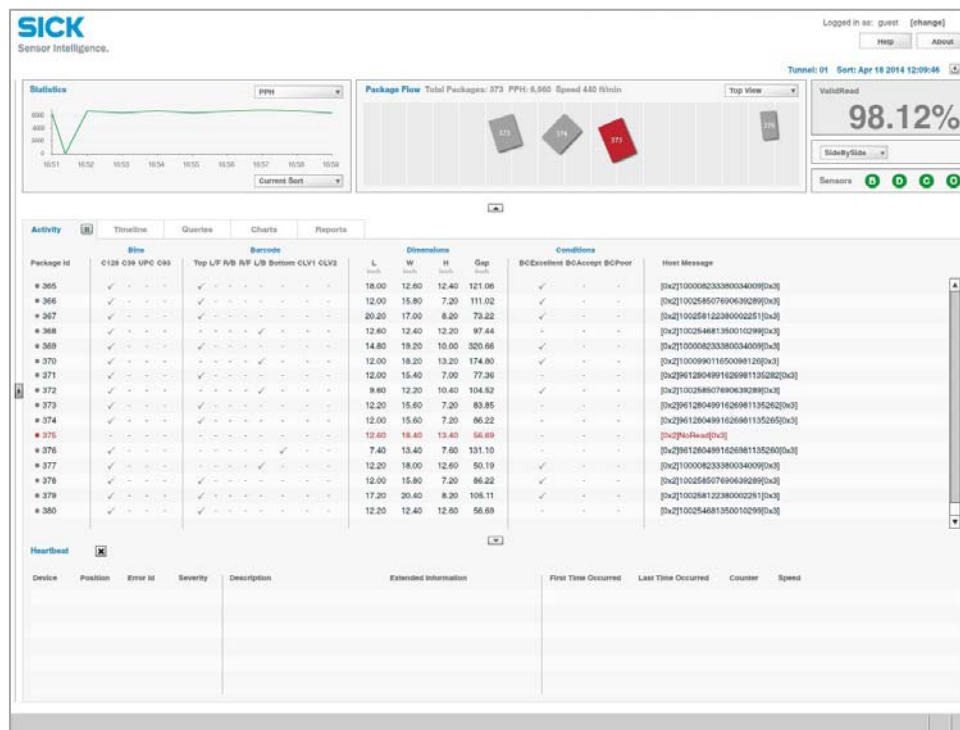


Figure 1-1: Package Analytics Dashboard

This manual describes how to use Package Analytics to access, view, and analyze data for auto ID systems in your facility.

Package Analytics

1.1 Package Analytics System Versions

Package Analytics is offered in three different product levels, in order to meet varying customer needs.

Table 1-1: System Versions

Level	Description	Realtime System Monitoring	Database Access (Days)*		Image Archive Access (Days)*			Data Analysis (Charts/Queries/Reports)	Solution Server/ROI Extraction
			30	Extended	2	30	Extended		
Core	Basic data management solution along with real time system performance monitoring	X	X		X				
Prime	True business intelligence analytical solution complete with data analysis tools providing better insight into your auto ID processes	X	X			X		X	
Pro	Platform for advanced analytical solutions proving foresight and better predictive analysis into your auto ID processes	X		X			X	X	X

1.2 System Components

Package analytics consists of several key components, which work together to provide a robust operating platform. These include:

- Intelligent sensors
- The Application Server
- The Image Server
- Client computers
- The Solution Server (Package Analytics PRO only)

1.2.1 Intelligent Sensors

Intelligent sensors are located on the auto ID system. Sensors include scanners, dimensioners, and cameras. These sensors receive XML data for each package from the individual auto ID system’s controller.

Note that, since not all sensor types are found on all systems, the information that is displayed by Package Analytics for your system may vary. Package Analytics displays only information for sensors that are installed on your system.

Package Analytics

Many intelligent sensors have two primary information streams. One is data (including heartbeats) and the other is some form of rich data, typically in the form of images. This information, along with data regarding the system's health, is sent to the facility's JAVA based Package Analytics' *Application Server*. For Package Analytics Pro, rich data is sent to the *Solution Server*, and all other data is sent to the Application Server.

1.2.2 Application Server

The Application Server is the heart of Package Analytics. All device data is collected and stored in a database here. The Application Server supports all client applications and encapsulates the database.

The Application Server synchronizes images with package data records, and supports all client application requests. All access to the database is provided through the Package Analytics dashboard interface.

Depending upon the user network, the Application Server can be located at the Auto ID system or in a centralized location like a computer room at your facility or a workstation.

1.2.3 The Image Server

The image archive is driven by an FTP server and a set of utilities that allows the user to view and manage images. This can be done real time within the current sort, or depending on the version of Package Analytics, the user can "go back in time" to view images from previous sorts. Both the FTP server and utilities are Java based.

1.2.4 Client Computers

Package Analytics' client applications are Rich Internet Applications (RIA's). They connect to the Application Server to access rich data content and provide a powerful user experience. The client applications provide for the Package Analytics dashboard, which is the user interface to the Package Analytics system.

The client computer provides a platform for the dashboard interface which provides access to current and database information stored on the application and image servers. The dashboard allows you to quickly search, view and export data obtained from the automated data collection system.

The client computer is any PC connected to the network as well as the tunnel system console itself.

Note that the client computer does not impact the sort system operation. Multiple instances of the dashboard may be running simultaneously, and independently of each other in different locations, with no impact on sort system performance.



Note: Depending on your system's configuration, the dashboard runs on either an MS Windows platform, or on a Linux platform. For this reason, dashboard screen views in your facility may vary slightly from those shown in this manual. Dashboard operational procedures described in this manual are the same for all systems, regardless of your system configuration.

Package Analytics**1.2.5 Solution Server (Package Analytics PRO only)**

PRO versions of Package Analytics include Package Analytics' powerful Solution Server.

The *Solution Server* is an application server that manages the rich data content, typically camera images or video stream, for auto id systems with cameras. The Solution Server communicates with the Application Server.

The Solution Server provides a powerful platform for vision algorithms. It is a JAVA application that utilizes the same core technologies as the Package Analytics Application Server to ensure complete integration capabilities.

The Solution Server has a unique feature called *ROI Extraction* that allows for the saving of all package images in a cost effective manner.

The ROI Extraction feature will extract, from the complete image, a high resolution Region of Interest (ROI), typically the barcode label, and then provide a thumbnail of the total image. The ROI can be used for barcode quality analysis or other activities requiring a high resolution image. The thumbnail image of the entire package can be used to identify gross anomalies like package damage, label missing or side by side conditions.

At the system level, rich data content (camera images, IP camera images) for systems with cameras, is collected by the individual system's Solution Server. Each device sends this information directly to the Solution Server over a local network via FTP. The Solution Server is the platform that manages the rich data content.

The Solution Server sends information about the images to the Package Analytics database over TCP/IP.

The Solution Server is stored on a high end PC typically located locally at each individual auto ID system. SICK can provide the Solution Server PC, or it may be provided by the customer. Review the Getting Started Guide delivered with this manual, for minimum requirements for the Solution Server PC.

Package Analytics

1.3 Package Analytics Architecture

Package Analytics allows for flexible network design and can be tailored to your specific needs. Below are a few examples of typical network architecture. Contact your SICK technical support team for additional information regarding networking options.

1.3.1 System Configuration

Figure 1-2 illustrates the system configuration for a system without cameras. In this example, data from sensors is sent to the Application Server, and stored in the Package Analytics database (Core and Prime Versions).

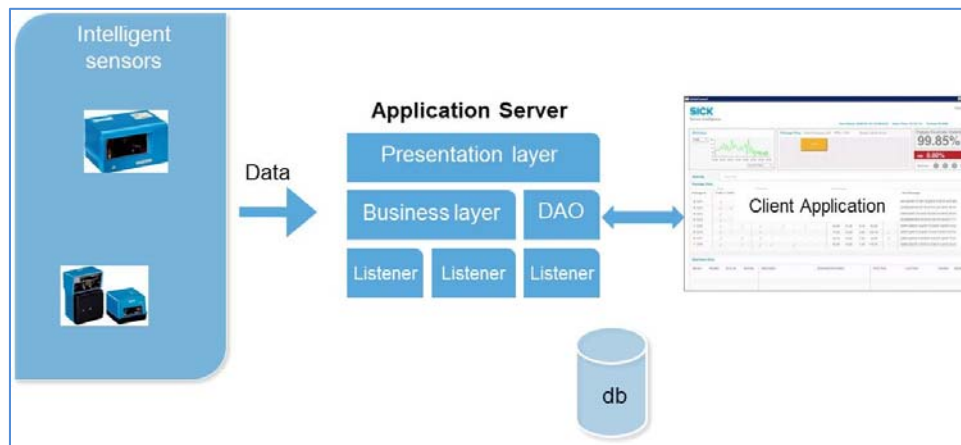


Figure 1-2: System Configuration – Core and Prime (Systems without Cameras)

In a system with cameras, such as shown in Figure 1-3, data from sensors is sent to the Application Server and stored in the Package Analytics database. Images are sent to the system’s Image Server and can be called up by the Application Server, when requested by the client application (dashboard).

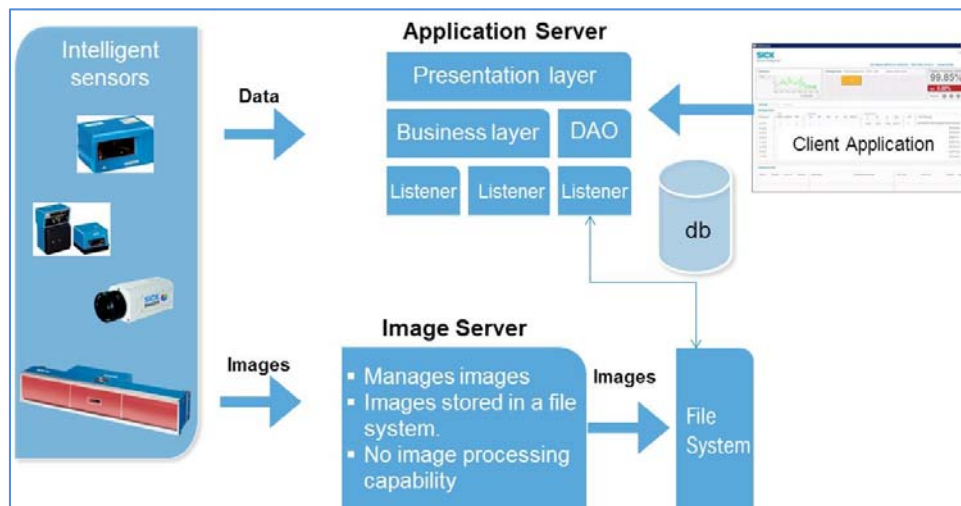


Figure 1-3: System Configuration – Core and Prime (Systems with Cameras)

Package Analytics

Figure 1-4 illustrates the system configuration for a system with a Solution Server. This is the configuration for Package Analytics Pro version. In this example, data from sensors is sent to the application server and stored in the Package Analytics database. Rich data, such as camera images or IP camera images, is collected by the system’s Solution Server. Each device sends this information directly to the Solution Server over a local network via FTP. The rich data content is managed by the Solution Server.

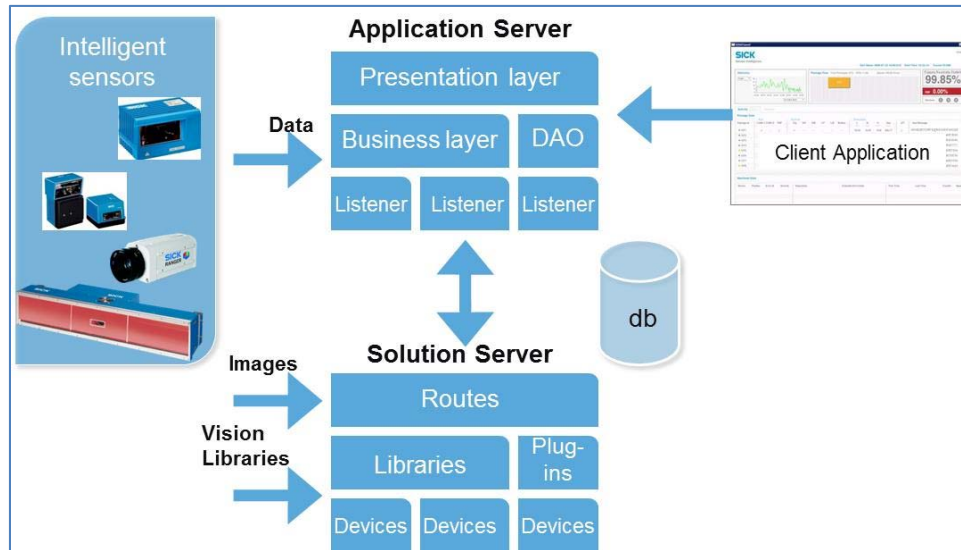


Figure 1-4: System Configuration - Pro (Systems with Cameras)

1.3.2 Network Architecture

Figure 1-5 and Figure 1-6 on the following pages show examples of a typical network architecture of the Package Analytics network for a Facility View that utilizes Package Analytics Core and Prime version, or the PRO version.

Package Analytics

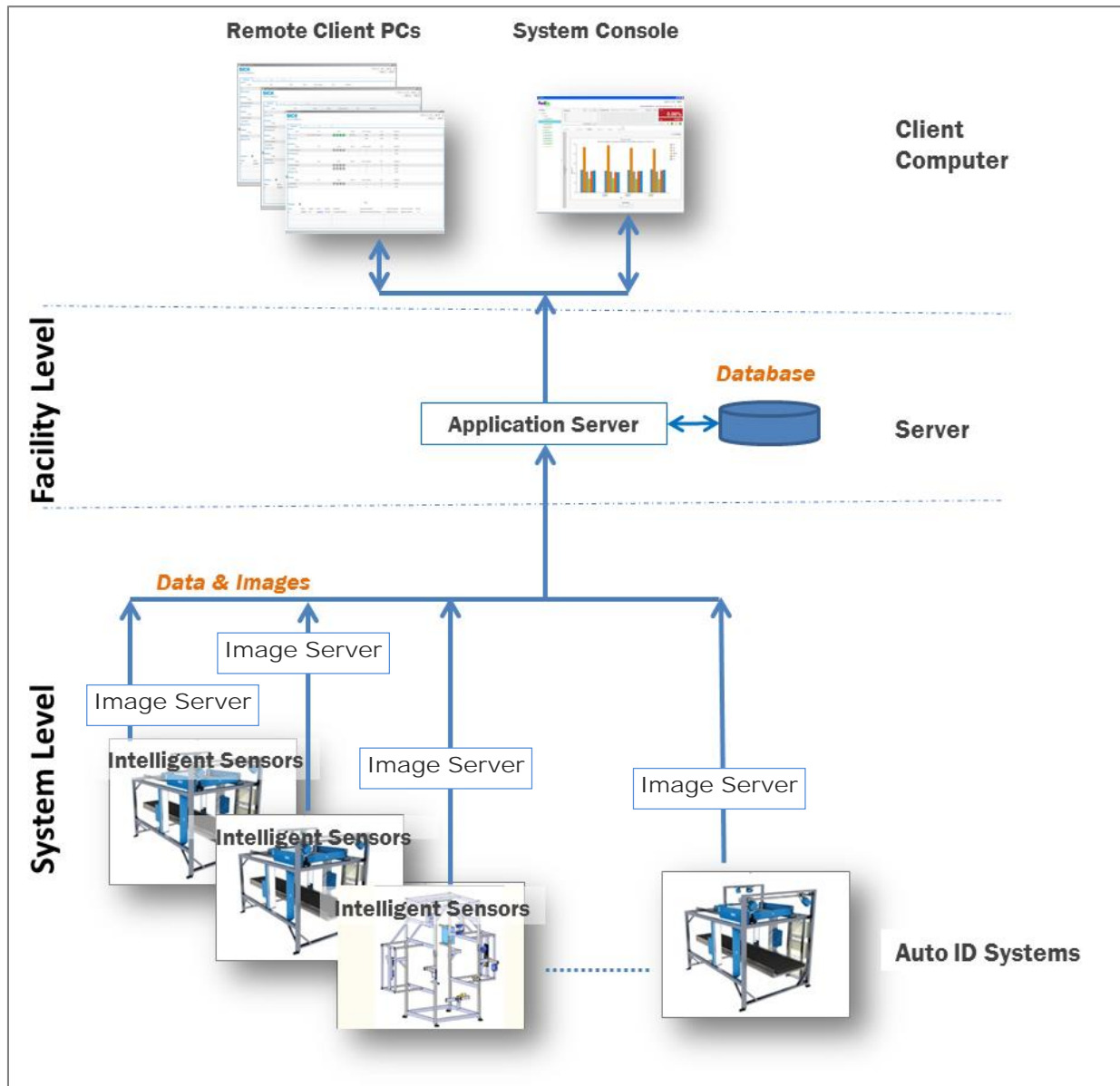


Figure 1-5: Package Analytics Network Architecture (Core and Prime Version)

Package Analytics

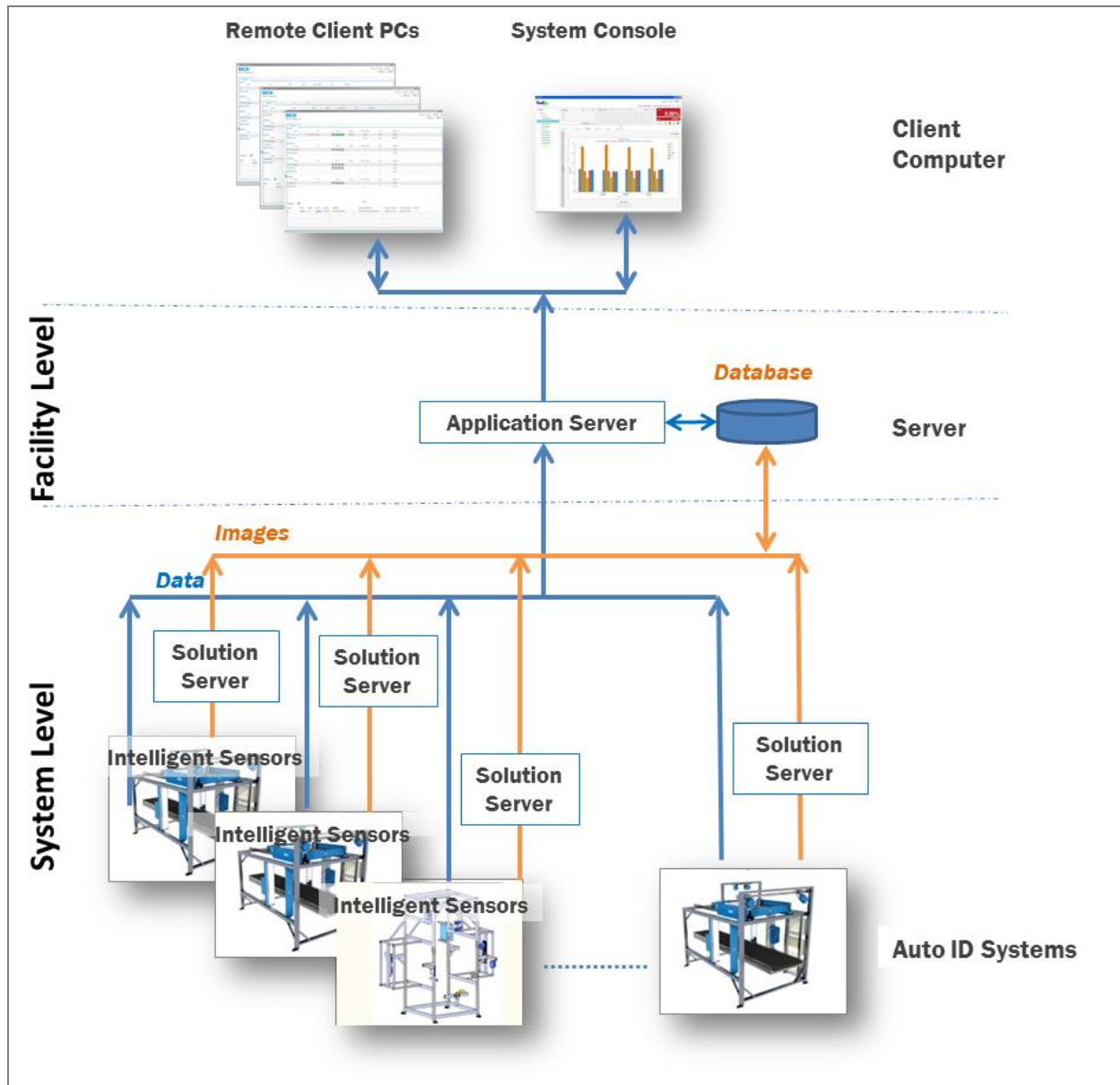


Figure 1-6: Package Analytics Network Architecture (PRO Version)

2. Using Package Analytics

The Package Analytics dashboard is the graphic user interface which provides a dynamic view of the current status of all connected auto ID systems in your facility as well as for individual auto ID systems. Depending on the version of Package Analytics installed in your facility, historical data, such as information for previous sorts can also be accessed. You can use this data to generate charts, queries, and reports for the entire facility, for a subset of systems in your facility, or for just one specific system.

This chapter describes some of the basics of using the Package Analytics dashboard.

2.1 Understanding the Dashboard Views

As described in Chapter 1, Package Analytics can be accessed from either the auto ID system console (*System View*) itself or from a remote client PC (*Facility View*). These two interfaces are operated in the same way, but have a few key differences in the type of data displayed.

- **System View:** System View is the interface for an individual auto ID system. System View enables you to see performance and health data for the associated auto ID system. Section 2.1.1 provides a detailed description of System View.
- **Facility View:** Facility View is a centralized view of all connected auto ID systems in one facility. From this view, you can view aggregate data for all connected systems. Section 2.1.2 provides a detailed description of Facility View.

Within each of these views you can choose from selection tabs, which represent the various data analysis tools available to you using Package Analytics.

Package Analytics

2.1.1 System View

On the auto ID system console, only information for the associated system is shown. From here you have access to Package Analytics to view package data for the individual system only. This view is referred to as *System View*. System View is shown in Figure 2-1.

System View is distinguished by the System Performance pane which appears at the top of every screen in this view. The System Performance pane displays a real-time graphic representation of packages as they flow through the system.

In the main body of the screen, System View tabs allow you to select from the functions and views in Package Analytics. The **Activity** tab opens by default when you access System View. It provides current performance and health data for the associated auto ID system.

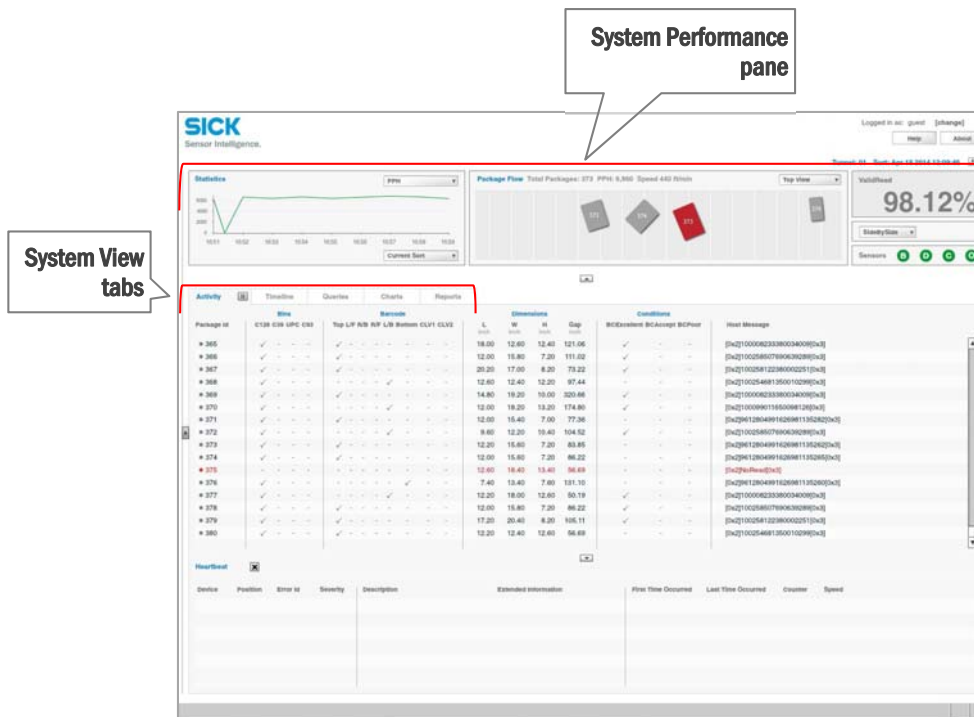


Figure 2-1: System View

Depending on the version of Package Analytics which is installed in your facility, you may also be able to access additional tabs in System View for historical data analysis. Standard System View tabs include:

- The **Activity** tab (all versions)
- The **Timeline** tab (all versions)
- The **Queries** tab (Package Analytics Prime and PRO only)
- The **Charts** tab (Package Analytics Prime and PRO only)
- The **Reports** tab (Package Analytics Prime and PRO only)

System View is described in detail in Chapter 3 of this manual.

Package Analytics

2.1.2 Facility View

From a client PC, you have access to the full depth of available information or for all connected auto ID systems in your facility. This view is referred to as *Facility View*. Facility View is shown in Figure 2-2.

The **Navigator** toolbar appears on the left side of all screens accessed in Facility View. You can use the **Navigator** to access Facility View for any connected system(s).

In the main body of the screen, Facility View tabs allow you to select from the functions and views in Package Analytics. The **Summary** tab opens by default when you open Facility View. This tab provides a centralized view of your facility’s connected auto ID systems at one glance. Additionally, in Facility View you can view aggregate system data for all systems in the facility. You can also drill down to System View for any individual system.

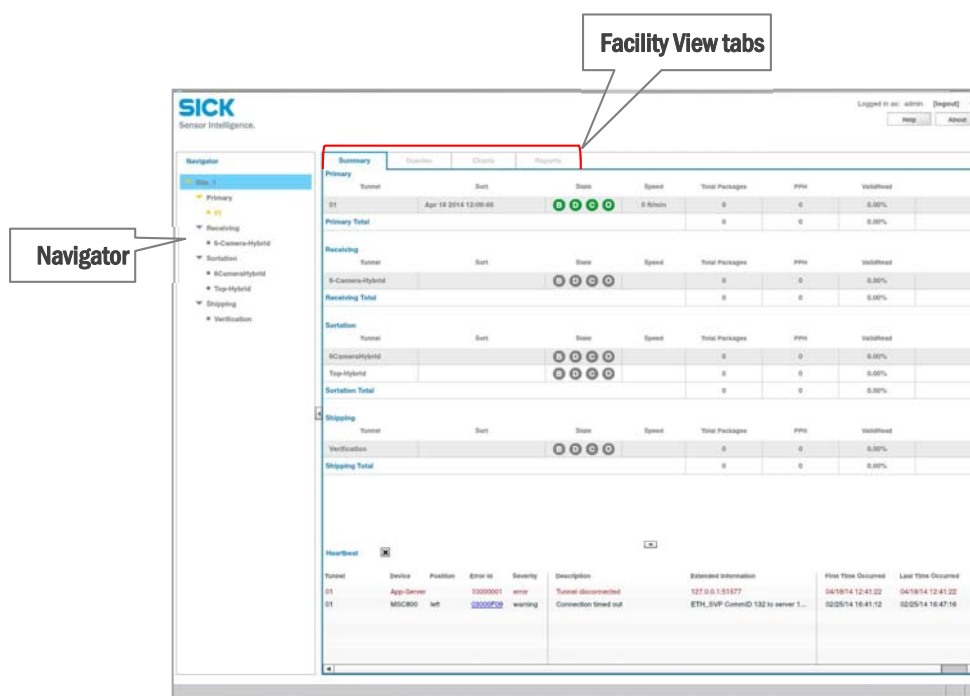


Figure 2-2: Facility View

Depending on the version of Package Analytics which is installed in your facility, you may also be able to access additional tabs in Facility View for historical data analysis. Standard Facility View tabs include:

- The **Summary** tab (all versions)
- The **Queries** tab (Prime and Pro versions only)
- The **Charts** tab (Prime and Pro versions only)
- The **Reports** tab (Prime and Pro versions only)

Facility View is described in detail in Chapter 10 of this manual.

Package Analytics

2.2 Launching Package Analytics

The web client (also referred to as the Flash client) is the default version for this release of Package Analytics. The web client can be accessed from any remote client with a browser and Adobe Flash player.


However, it is also possible to launch Package Analytics through the Adobe AIR interface. This version of the dashboard is available if installing a browser or Flash client is prohibited on your internal network for security reasons.

To launch Package Analytics using a web browser:

- Double-click the Package Analytics shortcut icon on your desktop. Package Analytics opens to the default view in the system's web browser, with the *Guest* user logged in.



Figure 2-3: Package Analytics Desktop Shortcut

 **Note:** The web client URL that is used to launch the web dashboard can be customized based on user preference to launch a specific view instead of the default. To learn more about how to customize the dashboard view, refer to Section 2.3.

To launch Package Analytics using Adobe Air:

1. Navigate to the **C:\PACK\dashboard** folder.
2. Double-click the program **syp-dashboard.exe**. Package Analytics will open to the default view in a separate application window, with the *Guest* user logged in.

2.3 Changing the Default View (Flash Client)

The Package Analytics desktop shortcut launches the web dashboard in a default view, either System View or Facility View, depending on the type of installation performed. In Facility View, the dashboard displays the **Summary** tab with the **Navigator** toolbar on the left side of the screen, listing all the tunnels connected to the central hub (Refer to Figure 2-2).

When the Flash Client is used to access the dashboard, the default view can be edited to instead display the system view for a specific tunnel that is connected to the hub. This is done by changing the URL which is used when the web browser is launched.

To edit the default dashboard URL, and create a new shortcut from your PC desktop:

1. Rename the **Package Analytics** desktop shortcut to something more descriptive, for example, "Package Analytics Default Facility". This will ensure that the original view is not replaced when the URL is customized.
2. On the Windows PC on which Package Analytics is installed, use Windows Explorer to navigate to the **C:\PACK\scripts** folder.

Package Analytics

3. Double-click the item labeled **BrowseToFlashClientSettings.bat**. This will launch a tool to edit the dashboard URL.

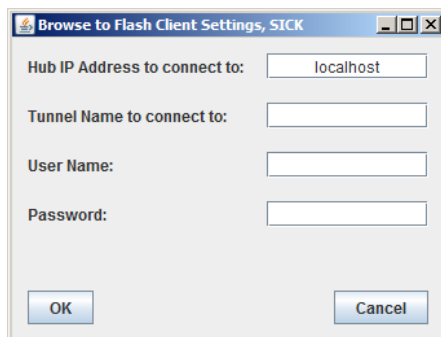


Figure 2-4: Browse to Flash Client Settings Tool

4. The **Hub IP Address to connect to** field refers to the IP address of the central hub server that you are connecting to. This is a required field.
 - a. If the tool is used at the hub system itself, the field will be populated with **localhost**, and can be left unchanged.
 - b. If the tool is used on a remote system, enter the static IP address of the hub server system on the local network.
5. The **Tunnel Name to connect to** field will be blank when launched for the first time. Enter the name of the tunnel which you would like to display by default. In Figure 2-5, the tunnel name used is **01**.
6. The **User Name** and **Password** fields are optional. They can be used to enter a specific set of user credentials to login by default. If these fields are left blank, the *Guest* user will be used as the default login when the dashboard is launched.

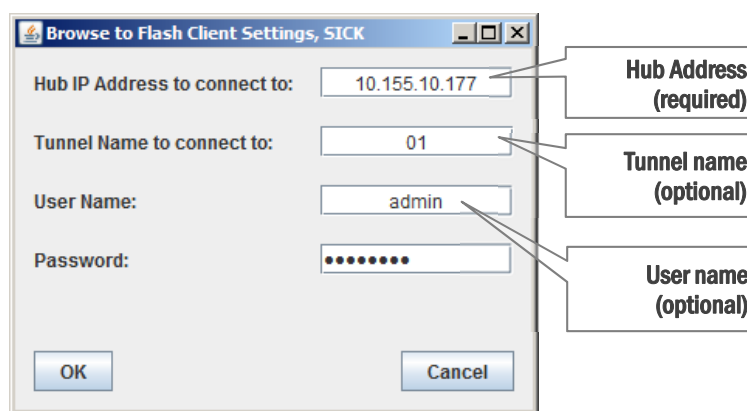


Figure 2-5: Sample Configuration of Flash Client Settings

7. Click **OK**.

Package Analytics

A new desktop shortcut labeled **Package Analytics** will be created with the specified settings. If the previous shortcut was not re-named (as described in Step 1), the new shortcut will replace the previous desktop shortcut.

This tool can be used to create as many web dashboard shortcuts as desired. To ensure that all shortcuts are preserved, rename the stock Package Analytics shortcut to something more descriptive before using the tool.

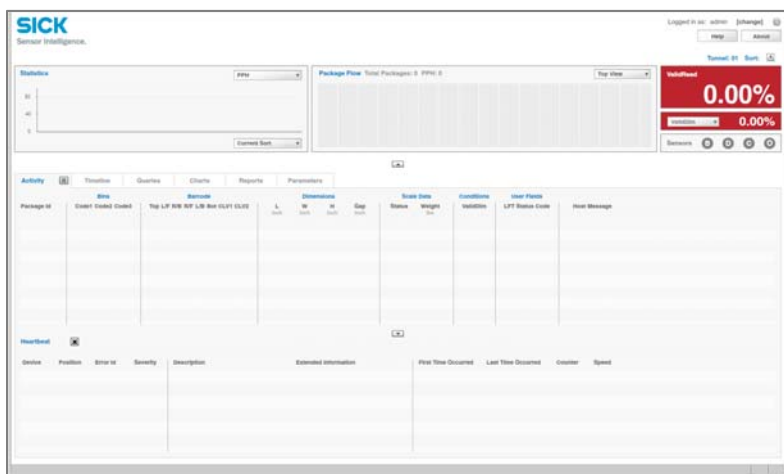


Figure 2-6: Package Analytics Web Dashboard Launched with Sample Settings

2.4 Logging In to the Package Analytics Dashboard

While the Package Analytics dashboard is running, the current user ID is displayed in the header area on every screen. The default user, *Guest*, is automatically logged in when the dashboard opens. This log in level offers access to all screens and full system functionality by default. This level of access can be customized upon request to limit the functionality by user role.

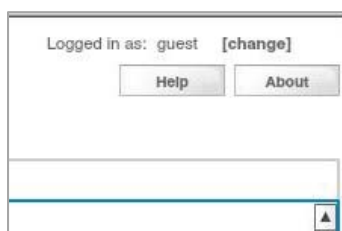


Figure 2-7: Header Area Default User (*Guest*)

2.4.1 Changing the Log-in User

While the *Guest* user offers full access to all Package Analytics features and functions, on occasions, log in at a different level may be required, for example, to perform certain system configurations.

To change the log in user:

1. In the Package Analytics header area (Figure 2-9), click **[change]**. The *Guest* user is logged out, and log in fields appear.

Package Analytics

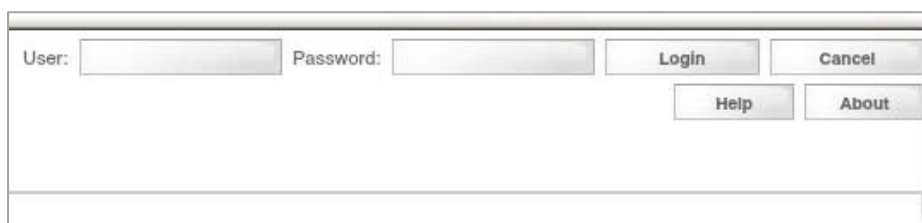


Figure 2-8: Login Fields

2. In the **User** field, type the user name, and then enter the **Password**.
3. Click **Login**.

To return to the *Guest* user, if another user is logged in:

- In the header area, click **[logout]**. Package Analytics returns to the default view, and the *Guest* user is automatically logged in.

2.5 Getting Help with Package Analytics

Package Analytics offers an extensive online help feature which includes an online version of this Package Analytics Operating Instructions manual, instructional maintenance videos, and technical service bulletins issued for SICK auto ID systems.

To access Package Analytics help from any screen:

- In the Package Analytics dashboard header area (Figure 2-8) click **Help**. The **SVP Dashboard Help** dialog shown in Figure 2-9 opens.

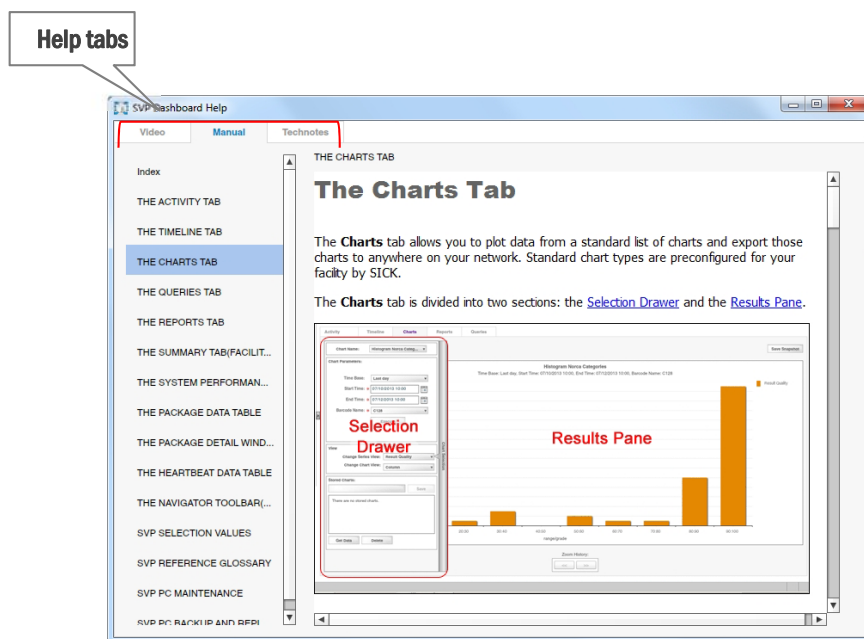


Figure 2-9: SVP Dashboard Help

Package Analytics

Using the help tabs, you can select from the following help options

Table 2-1: Help Tabs

Selection	Description
Video	Access help videos for common maintenance procedures, such as component removal and replacement <i>Note: Help videos are available for SICK auto ID systems only.</i>
Manual	Access the online Package Analytics Operating Instructions manual
Technotes	Access technical notes for your system released by SICK. These include information about maintenance and system updates. The Technotes tab is empty when the system is first installed, but will be updated over the operational lifetime of the system. <i>Note: Technotes are available for SICK auto ID systems only.</i>

2.6 Current Software Version

You can view information regarding the installed Package Analytics software release.

- In the Package Analytics dashboard header area (Figure 2-9), click **About** to display Package Analytics system information.

2.7 Sleep Mode

The Package Analytics dashboard has a sleep mode which automatically occurs after 10 minutes of user inactivity. In sleep mode, the current screen greys out, and the **Sleep Mode** dialog appears.

- To exit sleep mode click **OK**.

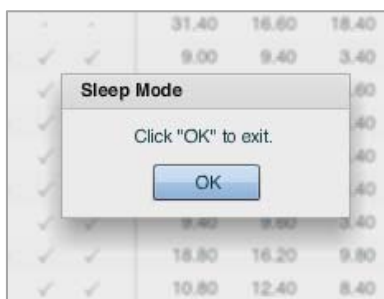


Figure 2-10: Sleep Mode

The sleep mode toggle and duration (in minutes) can be found and set in the Package Analytics dashboard Settings tool (C:\PACK\scripts\Svp-dashboardSettings.jar). The setting is off by default.

Package Analytics

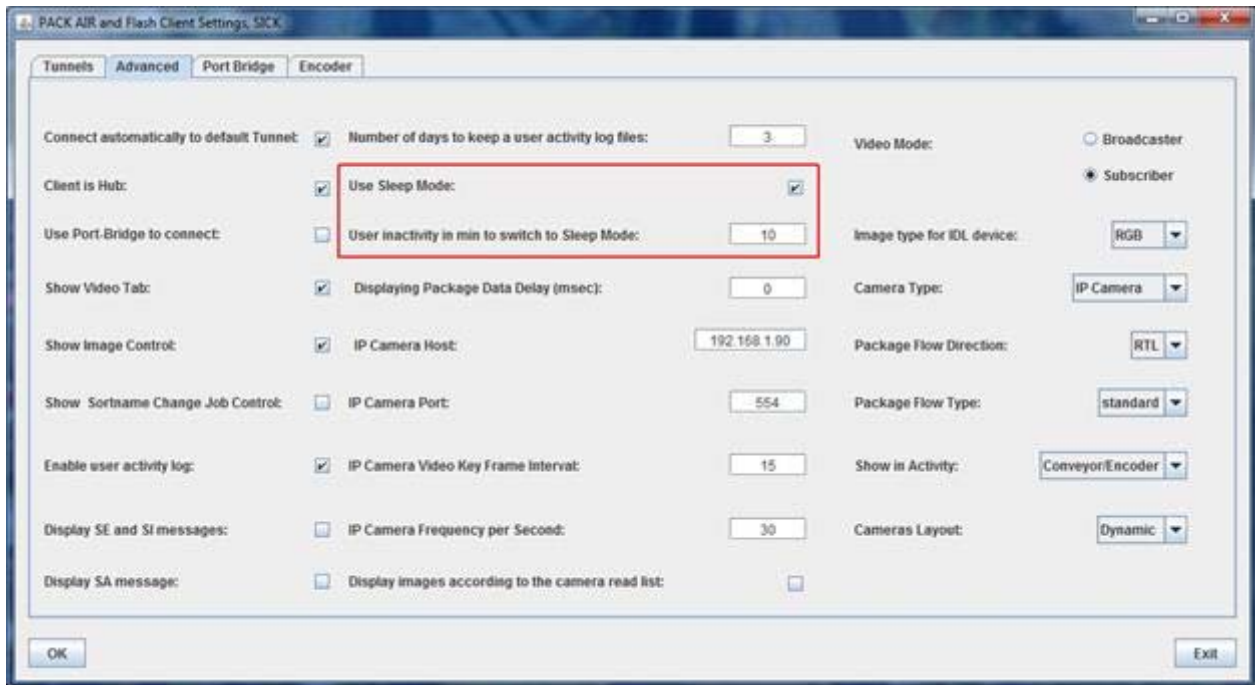


Figure 2-11: Sleep Mode Configuration

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Package Analytics

3. System View

System View is the Package Analytics dashboard visualization which is displayed on the auto ID system console or on a connected client PC. From here you have access to the Package Analytics to view performance, health, status, package detail, camera images, charts, reports and queries for an individual auto ID system.

System View provides a dynamic visualization of the current sort via the System Performance pane which appears across the top of every screen in this view. Detailed system statistics and package information for all scanned packages, including camera images (if your system has cameras), and other attributes are also available. Using the tabs in System View, you can access powerful tools to view and filter results, view, analyze and save system and package data for a single system.

3.1 Using System View

The default System View tab (the **Activity** tab) is shown in Figure 3-1. System View has three key areas:

- The header
- The System Performance pane
- System View tabs

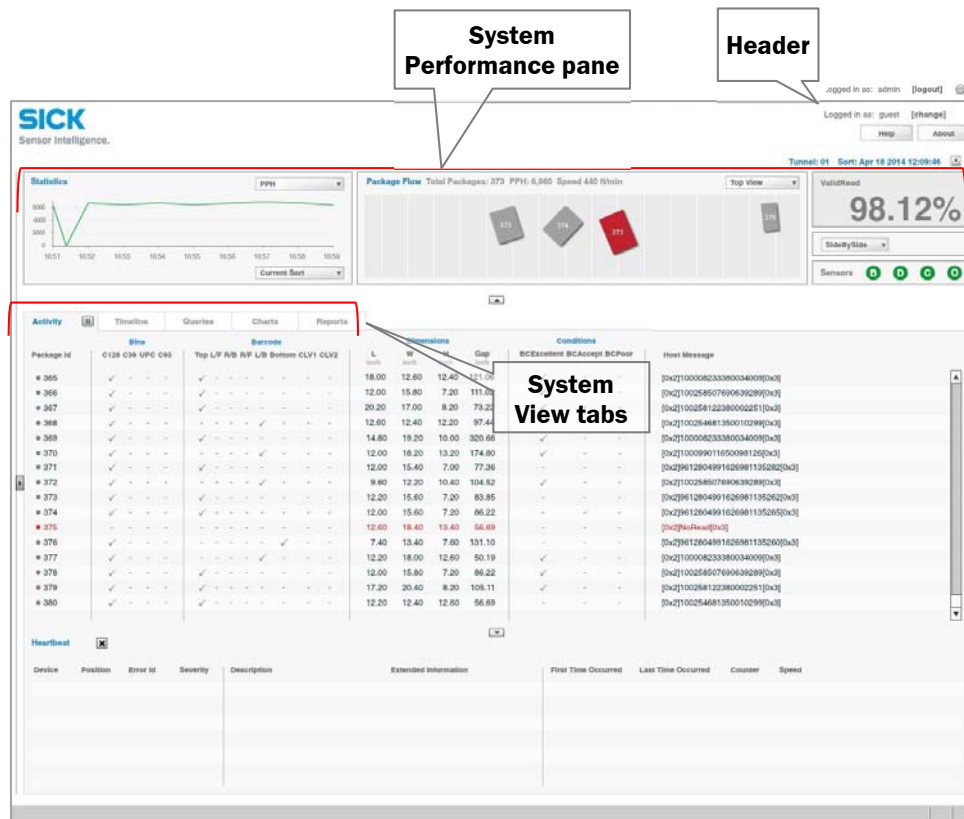


Figure 3-1: System View (Activity tab)

Package Analytics

3.2 Header

The System View header displays information about the auto ID system which is being viewed.

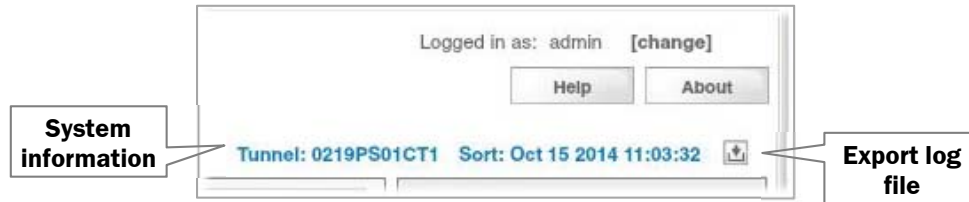



Figure 3-2: Header Information

The header provides the following information:

- **Tunnel** – Tunnel identifies the name of the auto ID system which is currently displayed in System View.
- **Sort** – Sort identifies the name of currently active sort.

 **Note:** Sort can begin in one of two ways: by receiving a start of sort message from the sort controller or by an MSC reboot. If the sort is a result of a reboot, the sort name appears with a D following the sort name. The timestamp of the start of sort represents the time that the message was received from the host or the scheduled time in the script.

3.2.1 Download Log Files

Log files, such as *App Server* and *Daily* can be used for troubleshooting purposes. They may be requested by SICK Technical Support, when assisting with system diagnostics.

To download log files:

1. Click the download server log files icon  . The **Download Log Files** dialog opens.

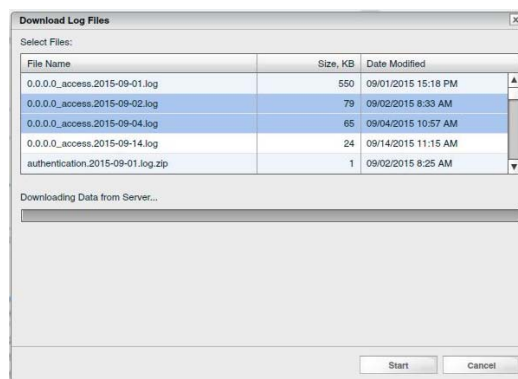


Figure 3-3: Download Log Files Dialog

2. Under **Select Files** click the log file to be exported to select it.

Package Analytics

To export multiple log files at once, use **<CTRL>** + *click* or **<SHIFT>** + *click*.

3. Click **Start** to initiate the export, and then browse to a desired destination folder and click **Save**.

3.3 System Performance Pane

A key element of System View is the *System Performance pane*, which appears at the top of each screen. It provides a real time visualization of the activity, performance and health of the auto ID system and package detail.

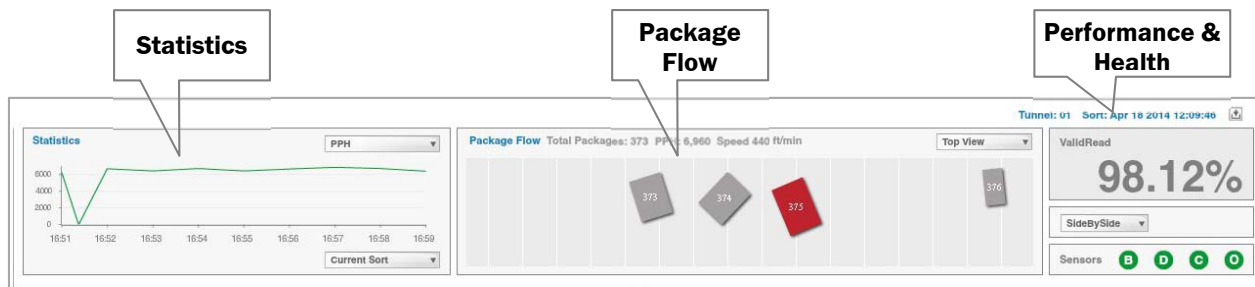


Figure 3-4: System Performance Pane

You can open/close the System Performance pane to maximize the view tab data area:

- On the bottom of the System Performance pane, click the arrow .

3.3.1 Statistics

The **Statistics** section of the System Performance pane provides a graphed view of the read rate over time for a selected *Performance Statistic*. Performance Statistics are filters for pre-defined conditions (such as *Valid Read*, or *SidebySide*).

The Performance Statistic to graph is selected from a list. Current performance of the selected statistic is indicated by a green line.

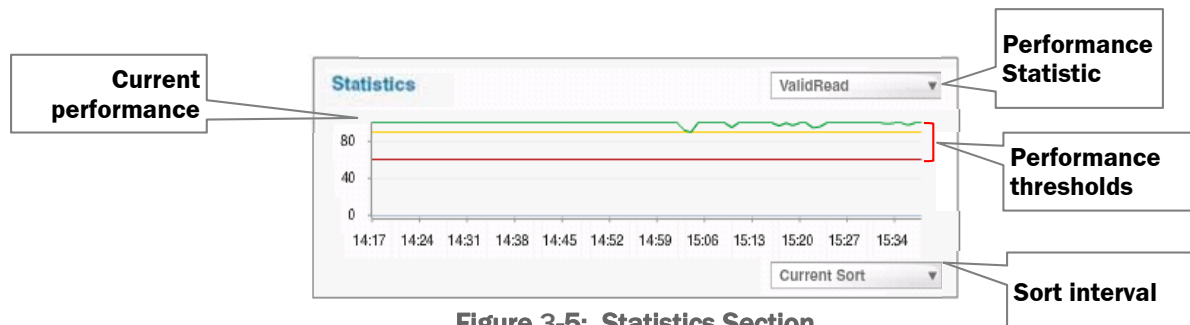


Figure 3-5: Statistics Section

Some performance statistics also have a predefined performance threshold limit. These thresholds are indicated by yellow and red lines in the graph. They help you to quickly evaluate the status of the selected statistic.

Package Analytics

If the currently selected statistic is performing within the predefined thresholds, the green line will appear above the yellow and red lines. This indicates that performance is normal for the evaluated condition. However, the green line dips below the yellow or red lines if performance does not meet expected values.



Note: Not all statistics have performance thresholds.

You can view additional information for the **Statistics** graph:

- To view statistics for a specific moment in time, point to the plotted green line on the graph.
or
to view the predefined threshold for the currently selected statistic, pointing to the ends of the threshold lines.



Figure 3-6: Statistics Screen Tip

You can modify the data displayed in the **Statistics** graph:

- Change the statistic to display by making another selection from the list (Appendix A provides a complete list of Package Analytics Performance Statistics),
or,
- Modify the time interval which is graphed, by making a selection from the interval list.

3.3.2 Package Flow

The **Package Flow** section of the System Performance pane provides a real time visualization of packages passing through the auto ID system. This view represents packages on the conveyor relative to scale. Package position, gap, and skew angle are all reflected in the visualization.

Over time, as you understand how normal package flow is depicted in this section, you can use your understanding to visualize anomalies with the package flow that could be impacting the scanning or sortation performance. For example, if the package flow is to be justified to one side and oriented, this window provides a clear visual indication if these criteria are being met.

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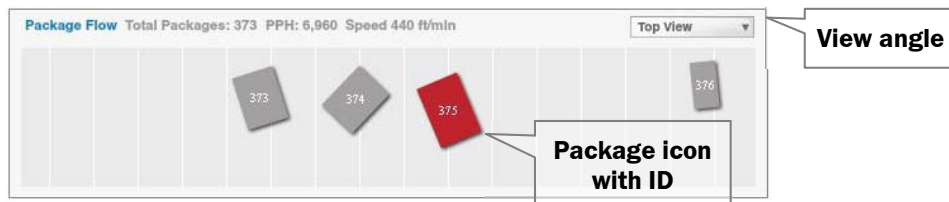


Figure 3-7: Package Flow Visualization

The **Package Flow** header displays sort information including *Total Packages* (from start of current sort), *PPH* (Packages per hour for the current sort), and *Speed* (Current conveyor speed in feet per minute).

Packages in the visualization are identified by a package ID number. Package icons are color-coded so that you can identify if certain conditions are not being met by a package. The following table describes the color indications of package icons:

Table 3-1: Package Icon Color Indication

Color	Indication
Grey	Successful barcode read
Yellow	Multiread. More than one barcode has been read on the same package. Note that this indication is a configurable default setting and may vary for your site
Red	No read

You can change the view angle of the packages by making a selection from the view angle list:

Table 3-2: View Angle Selections

Selection	Description
Top View	Shows the packages viewed from the top. This view is helpful to determine the alignment and skew angle for packages
Side View	Shows the packages viewed from the side

You can pause the Package Flow visualization for closer inspection:

- Move 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. The **Package Detail** dialog opens.

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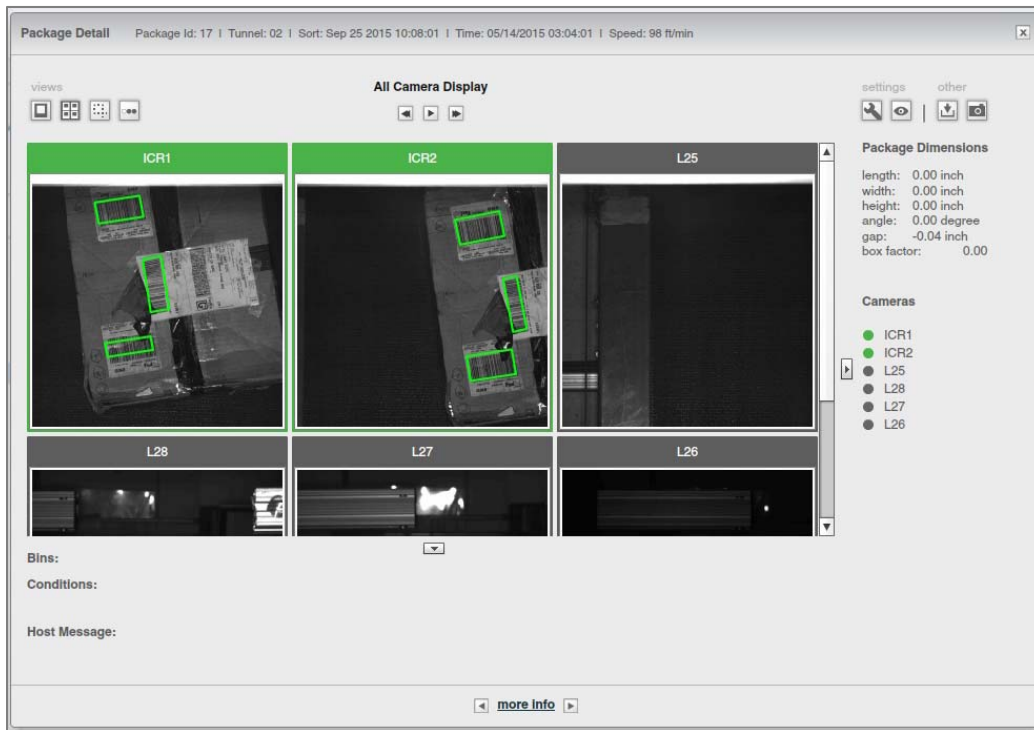


Figure 3-8: Package Detail Dialog

The **Package Detail** dialog displays package images and data for a detailed analysis and review of any specific package. A description of the **Package Detail** dialog can be found in Chapter 4.

3.3.3 Performance and Health

The Performance and Health section of the System Performance pane identifies the current health and status of the auto ID system.

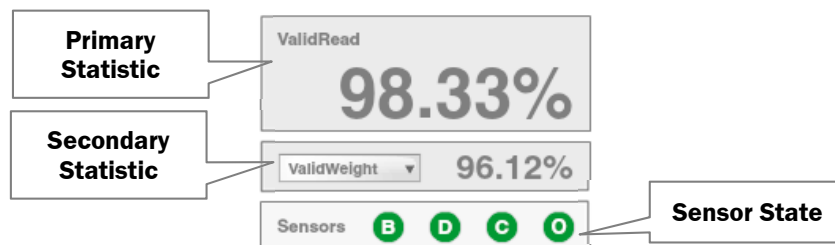


Figure 3-9: Performance and Health Section

The *Primary Statistic* is displayed in the top box of the Performance and Health section. The Primary Statistic represents the percent of all packages processed by the system which meet the statistic *ValidRead*; that is, all packages which were processed that have valid read barcode.

A configurable *Secondary Statistic* is displayed in the center box. The Secondary Statistic is a secondary key metric, and like the Primary Statistic, represents the percent of all packages which

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meet the selected Performance Statistic. The selection box allows you to change the Secondary Statistic which is displayed. Appendix A provides a complete list of Package Analytics statistics and definitions.





The background color of the Primary Statistic and Secondary Statistic areas provides a further visual indication of system performance. The background color changes dynamically according to the status of the corresponding statistic. The following table describes the indication provided by the background color.


Table 3-3: Performance and Health Section Background Colors

Color	Indication
Grey	Performance of this statistic is at expected level
Yellow	Performance of this statistic is below expectation
Red	Performance of this statistic is significantly below expectation

The sensor state provides an indicator of the status of the auto ID system’s major components which can report on their health. Four icons represent the various types of sensors on the system. The following table describes the devices represented by each icon:

Table 3-4: Sensor State Icons

Icon	Device	Description
	Barcode Device	Reflects the health of all barcode reading devices on the system. This could be ICR880/90 cameras, CLV laser scanners, or IP camera.
	Dimensioning System	Reflects the health of the dimensioning system. In addition to providing accurate dimensions of the package, this system is used to focus the ICR880/90 camera.
	System Controller	Reflects the health of the system controller.
	Other Devices	Reflects the health of any other devices on the system. This could be a stack light, safety curtain or an OEM piece of equipment such as a weigh scale.

 **Note:** Not all auto ID system components are able to report on health. Examples of system components which cannot report on their health include encoders or tachometers.

Package Analytics

You can view a list of all associated devices for each sensor state icon:

- Point to the icon. A screen tip displays the name and status of devices which are reported on for that icon.

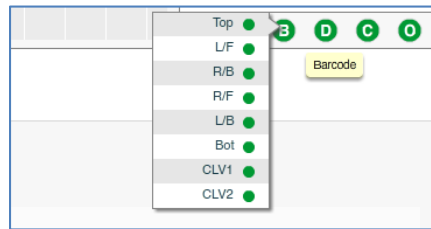


Figure 3-10: Status Icon Tool Tip

The sensor state icon color indicates the current status of each device. If the status of any system device changes, the change is indicated by the icon color. The following table the indication provided by icon colors:

Table 3-5: Sensor State Icon Color Indications

Color	Indication
Grey	System is not in use
Green	Device health is as expected
Yellow	Device warning. The system should be monitored; system performance could be impacted. Review the Heartbeat Data Table for that device (Refer to Chapter 4)
Red	Device has severe problem. System performance is impacted. Review the Heartbeat Data Table for that device (Refer to Chapter 5)

Package Analytics

3.4 System View Tabs

Using the System View tabs, you can select from the screens available in System View.



Figure 3-11: System View Tabs

The following tabs may be selected in System View:

- **Activity** tab – This is the default System View tab. Using the **Activity** tab you can find additional information about packages as they are processed through the system. Consider this tab like “peeling back the onion”. When you see something in the System Performance pane you’d like more details on, select the **Activity** tab. Chapter 5 provides a detailed description of the **Activity** tab.
- **Timeline** tab – Using the **Timeline** tab, you can connect to Package Analytics’ information and image archive tools. From this tab you can initiate searches of the Package Analytics database and image archive to collect data on specific evaluation conditions. Chapter 6 provides a detailed description of the **Timeline** tab.
- **Queries** tab – Using the **Queries** tab you can select from a list of predefined queries to filter system data by specific criteria for a selected sort. After generating a query, you can save it, for further analysis later. Chapter 7 provides a detailed description of the **Queries** tab.
- **Charts** tab – Using the **Charts** tab you can select from a list of predefined charts to view a graphical depiction of system data. After generating a chart, you can export it to share it or print it later. Chapter 8 provides a detailed description of the **Charts** tab.
- **Reports** tab – Predefined reports for selected sorts are generated using the **Reports** tab. After you have generated a report, you can save it, or export the data for review and analysis later. Chapter 9 provides a detailed description of the **Reports** tab.

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4. The Package Detail Dialog

The **Package Detail** dialog opens when you click on a package icon in **Package Flow** section of the System Performance pane or on a package in the Package Data Table (**Activity** tab and **Timeline** tab).

The **Package Detail** dialog provides information for only one package at a time. The dialog displays all images and scan data available for the current package.

4.1 Layout

The **Package Detail** header identifies the package ID, tunnel ID, time and date of the scan, and belt speed at the time of the scan.

The body of the **Package Detail** dialog is split into three main areas:

- The toolbar area (Refer to Section 4.2)
- The scan data area (Refer to Section 4.3)
- The package image area (Refer To Section 4.3)

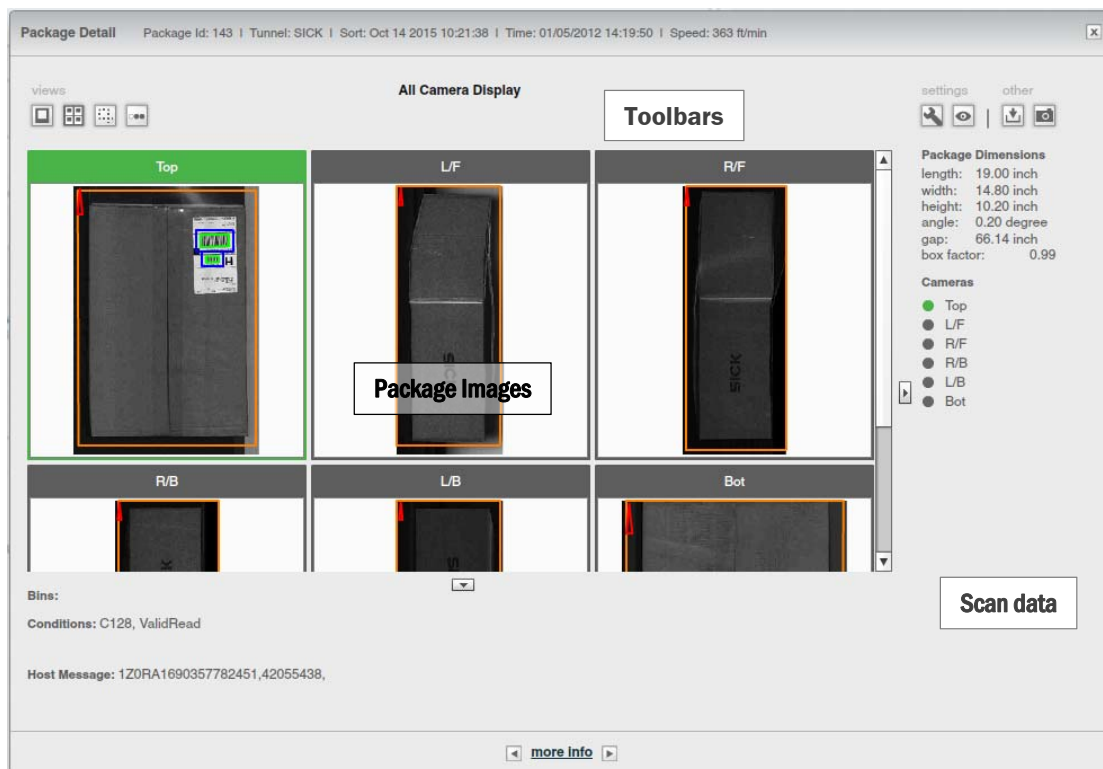

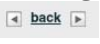


Figure 4-1: Package Detail Dialog

Package Analytics

You can view additional information about the currently displayed package such as the full barcode, NORCA data, and Evaluation Conditions:

- Click **more info**  at the bottom of the dialog. The full package host message is displayed in the **Package Detail** dialog. Click  to return to the package image.

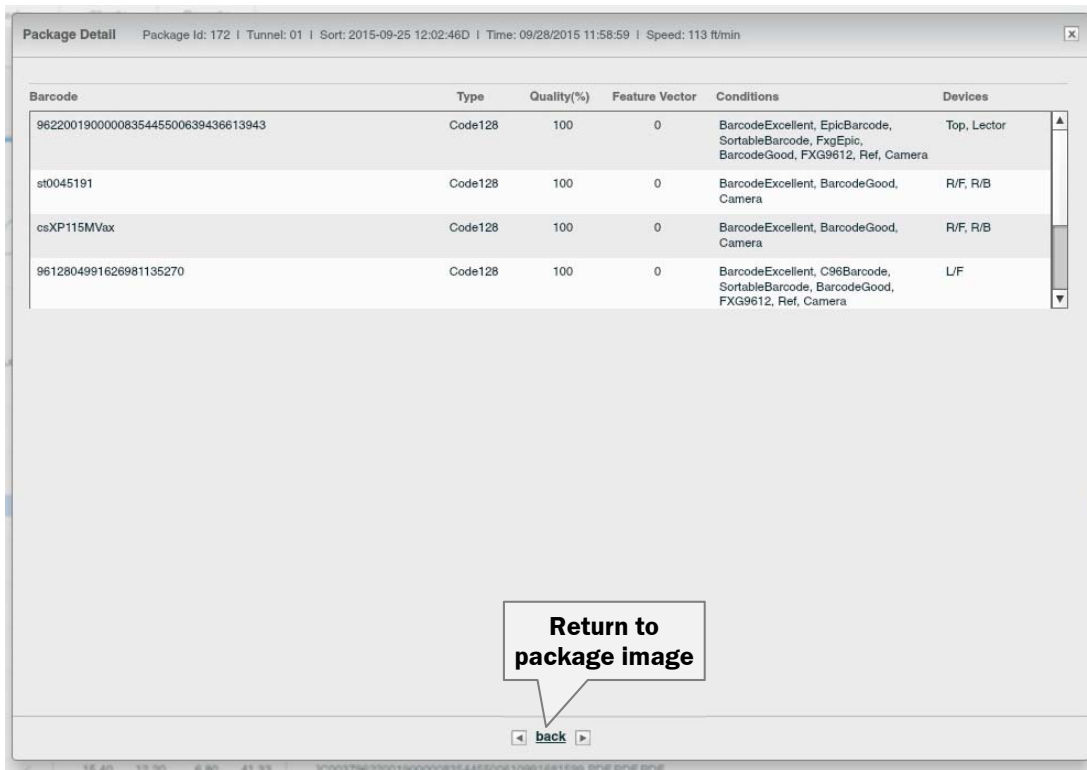




Figure 4-2: Full Host Message

You can navigate between packages to display in the **Package Detail** dialog:

- Click on the navigation icons  **more info**  at the bottom of the dialog to advance to the previous or next package.

Package Analytics

4.2 The Toolbar Area

The toolbar area includes several tool groups which allow you to change the way you view packages, and export package data. These include the **views** tools, **settings** tools and **other** tools. Navigation icons for Lector Camera images also appear in this area.

Toolbar functions are described in more detail in Section 4.4.



Figure 4-3: Toolbar Area

4.3 Scan Data Area

The area around the package image provides details of data collected during the scan.

Table 4-1: Scan Data

Selection	Description
Package Dimensions	If the system is outfitted with VMS dimensioning, displays package dimensions, skew, angle and gap.
Scale Data	For systems with scales only. Displays details of the scale status and recorded weight
Cameras	Lists tunnel devices, for example: Top – top camera L/F – left front camera R/F – right front camera R/B – right bottom camera L/B – left bottom camera Bot – bottom camera A green icon next to the device indicates which device recorded data (i.e. a barcode) for the current package.
Bins	Indicates which barcode categories were recognized for the package.
Conditions	Displays all Evaluation Conditions that were true for the package. Appendix A provides a complete list of Evaluation Conditions and their definition.
Host message	Displays a snippet of the message sent to the host. This information can be used for troubleshooting.

Package Analytics

4.4 The Package Image Area

The package image area displays thumbnail images for the current package. On systems with cameras, each package has multiple possible images which can be viewed from each device mounted on the camera tunnel.



Note: For systems without cameras, the package image area defaults to the barcode position view, and does not show the all camera view.

Several different views are available to enhance your ability to inspect and analyze the image data. The selection of how to view the image is made using the **views** toolbar over the package image area (Views are described in Section 4.4.2).

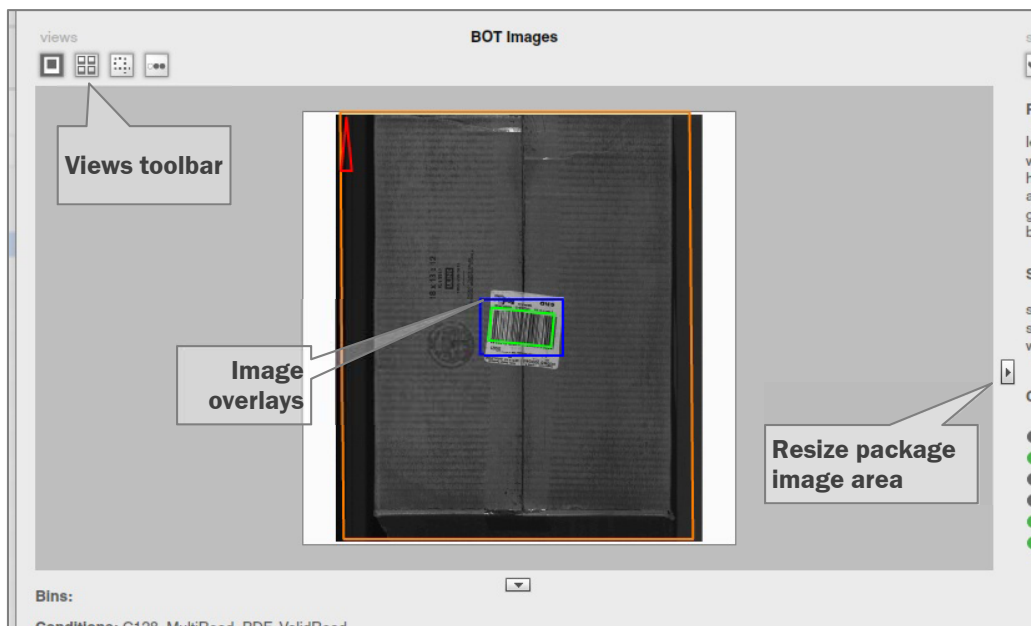




Figure 4-4: Package Image Area

Visualizations consisting of simple graphic overlays highlight areas of interest in the image. You can change which visualizations appear in the package image area:

- Click **Overlay Visualization Settings**  (Overlay visualization settings are described in Section 4.4.3).

You can resize the package image area to fill the entire dialog window:

- Click the arrow icons  at the right side and bottom of the image to expand or collapse the package image area.

Package Analytics

You can view a higher resolution version of any image in an **Image Inspector** dialog for closer inspection:

- Double-click any thumbnail image in the package image area to open the Image Inspector (The Image Inspector is described in Section 4.4.5).

4.4.1 Lector Camera Images

While most tunnel system cameras record only one image per package, some tunnel systems may include Lector cameras. Lector cameras take a series of images of an individual package as it passes through the tunnel. This means that multiple images are associated with a single camera device. Viewed in sequence, these images create a simple filmstrip animation which tracks package movement. Refer to Figure 4-5.

The **Package Detail** dialog provides tools to navigate images taken by Lector cameras in the tools area of the dialog. You can use these tools to manually advance Lector images, or automatically play the filmstrip.

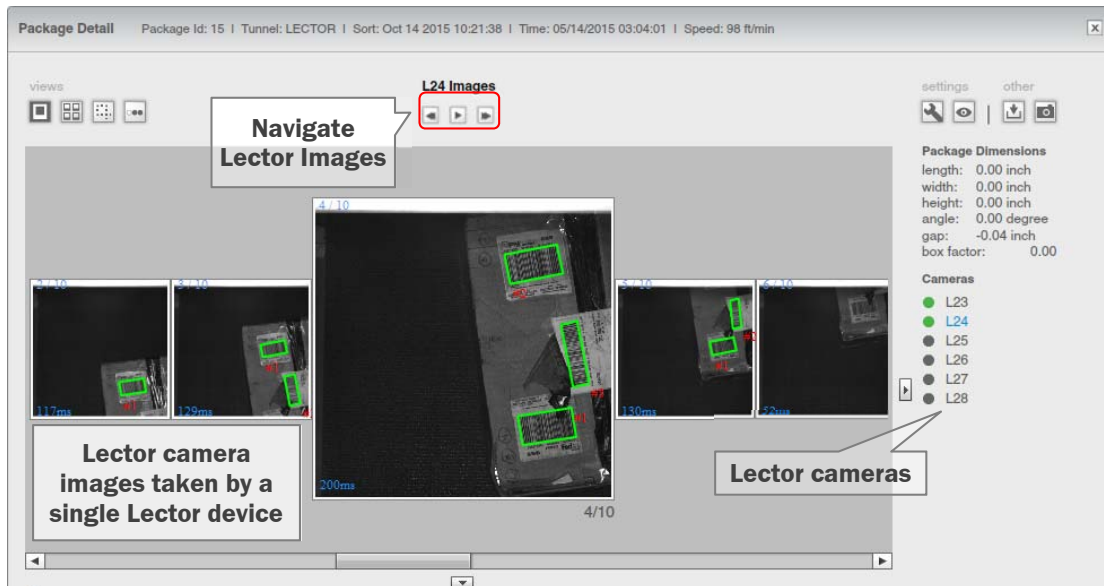


Figure 4-5: Package Detail Dialog with Lector Camera Images


4.4.2 Views Tools



The **views** tools allow you to change the way in which package images are displayed in the package image area.

View Single Camera Images



To view only images associated with a single camera, click **View Single Camera Images** .

Package Analytics

Images displayed in the package image area are from a single device. The name of the camera which recorded the image is identified at the top of the package image area and is indicated by blue text under **Cameras** in the scan data area.

You can navigate between the images for a single package taken by each device:

- In the scan data area, under the **Cameras** heading, click on the device to view. The current device is indicated by blue text, and is indicated over the package image. The corresponding device image is shown in the package image area.

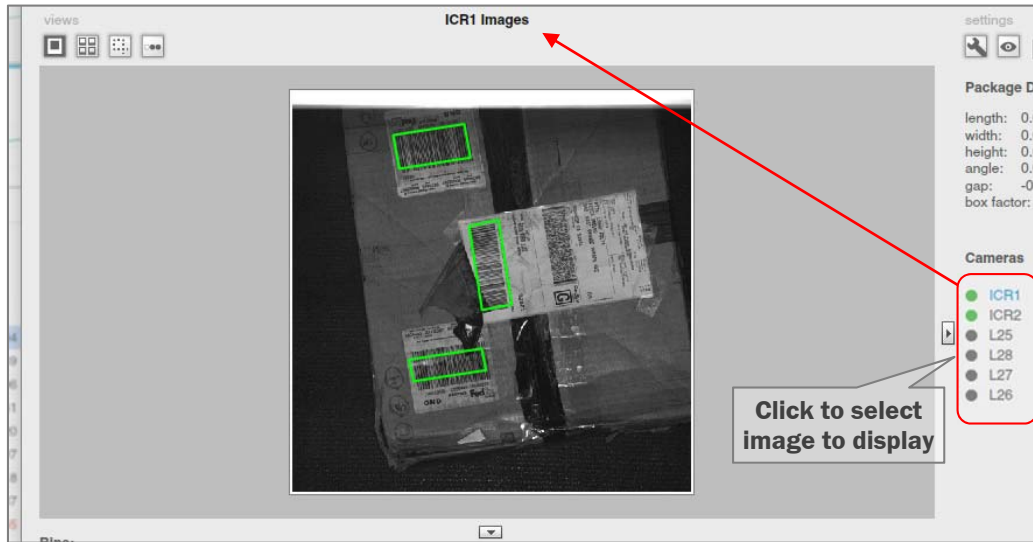




Figure 4-6: Single Camera View


Lector Camera Image in Single Camera View

When a Lector camera image is viewed in single camera view, the package image area shows thumbnails of each image associated with the camera as shown previously in Figure 4-5.

You can view Lector camera images in sequence by using the Lector image navigation buttons over the package image area:

- To automatically play each image in the sequence, toggle the play/pause button . The images will be automatically scrolled in a repeating loop, until the button is toggled again.
- To manually scroll through the images, click the previous or next buttons .

View All Cameras 

To simultaneously view images for all cameras, click **View All Cameras** . Images for all devices are displayed in the package image area. A frame around each image identifies which device recorded each image. Cameras which identified a barcode for the current package are identified by a green frame around the image.

Package Analytics

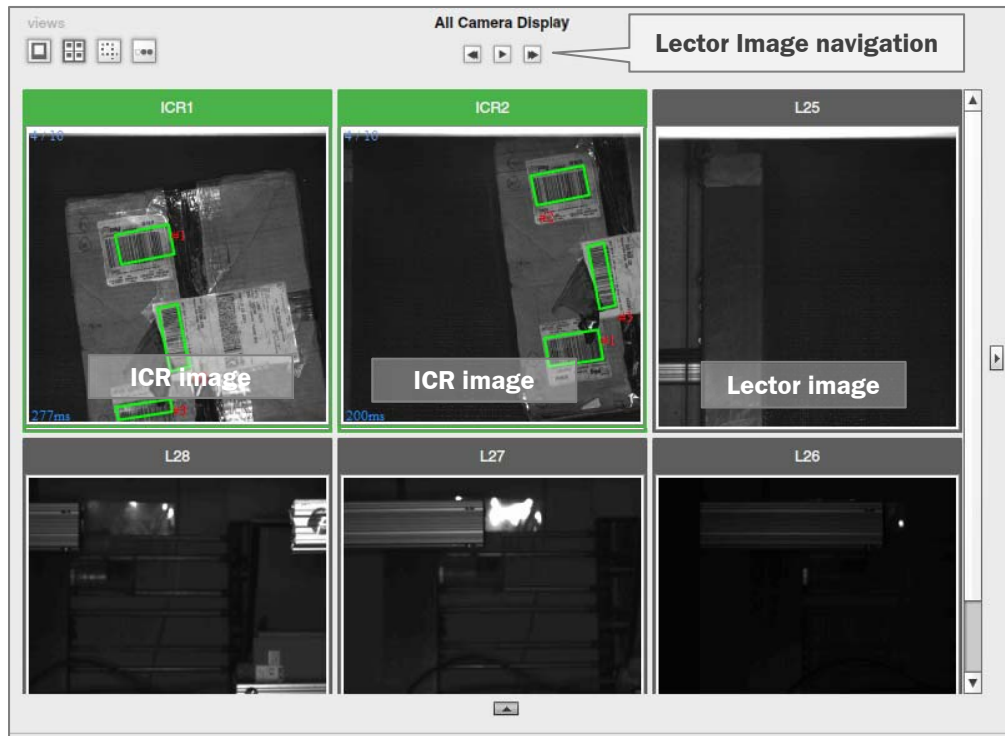


Figure 4-7: All Camera View

Lector Camera Images in All Camera View

When a tunnel system includes Lector cameras, the **Package Detail** dialog displays one thumbnail at a time in All Camera view as shown in Figure 4-7 above. You can use the Lector Image Navigation buttons to simultaneously navigate through each image for all Lector cameras.

- To automatically play each image in the filmstrip sequence, toggle the play/pause button




. All Lector images in the package image area will be automatically scrolled in a repeating loop, until the button is toggled again.

- To manually scroll through the images, click the previous or next buttons




. All Lector images in the package image area are advanced simultaneously.



Note: Lector Image navigation buttons  are present for all systems in All Camera view, even for systems without Lector cameras. However, there is no function associated with these buttons when Lector cameras are not present.

Package Analytics

View Image Overview 

To view all images for a single package, click **View Image Overview** . All package thumbnails will be grouped under headings by device as shown in Figure 4-8. When the device is a camera other than a Lector camera, a single image is shown under the device heading. When the device is a Lector camera, all images recorded by the camera are shown under the device heading. This view is helpful for visualizing the flow of a package through the system, and is mainly meant to view Lector filmstrips as they were taken.

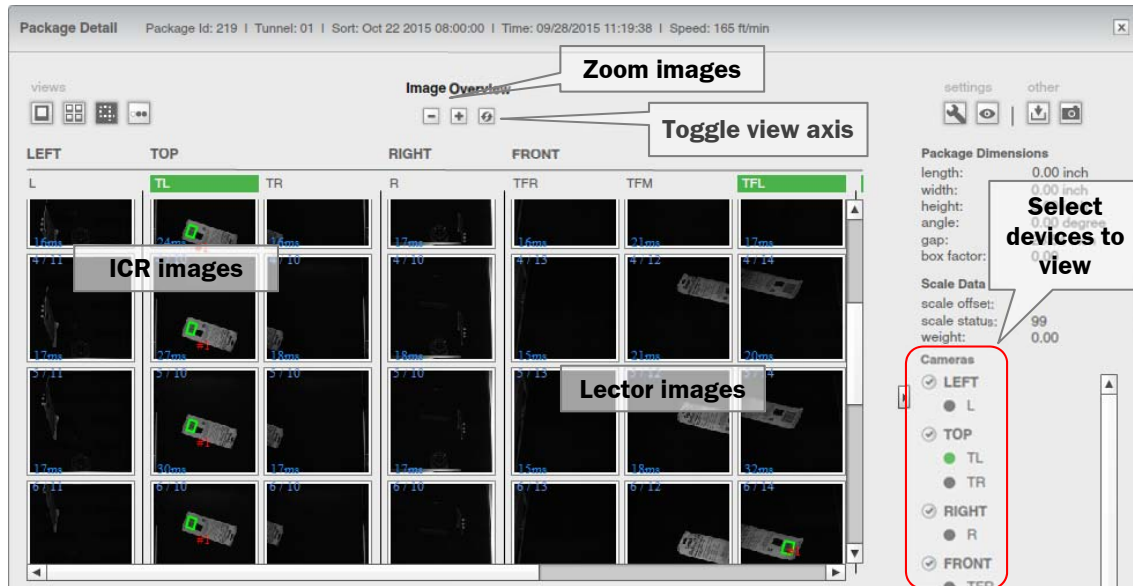



Figure 4-8: Image Overview

You can control which devices are included in the image overview:

- In the scan data area, under the **Cameras** heading, check the camera groups which you would like to view. Only the associated cameras are shown in the package image area.


You can change the zoom level of package images:

- Under the **Image Overview** heading click the zoom buttons to zoom in or out  .

You can rotate the axis of the current view:

- Click **Toggle Axis**  .

View Barcode Position 

To view a graphical representation of the package which identifies of the placement of recorded barcodes, click **View Barcode Position** .

Package Analytics

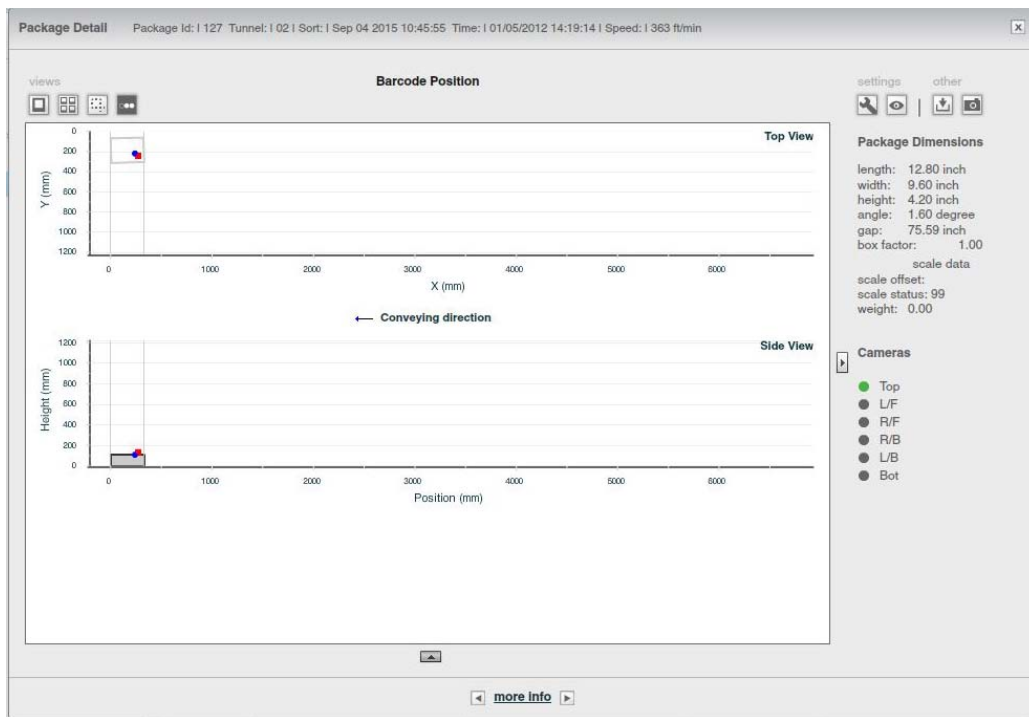


Figure 4-9: Barcode View

In this graphical representation of the package, colored icons indicate barcode positions. The icon color is an indication of the associated device type.

You can view a screen tip with additional information regarding the barcode:

- Point to a barcode icon on the package graphic.

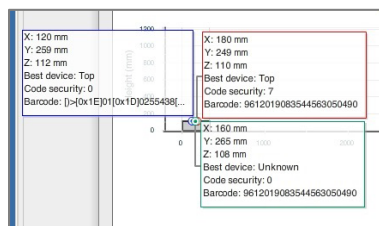

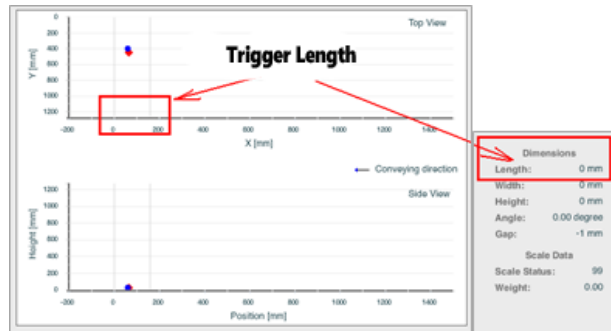


Figure 4-10: Barcode Screen Tip

Package Analytics

 **Note:** When there is no dimensioner on a system, the **Package Detail** dialog will display a trigger length in the Barcode View package image area.




The trigger length is only an approximate length calculated with the help of the photoeye sensor and belt speed data, and does not represent the true dimensions of the package. Any skew in the placement of the package on the belt will result in the trigger length being greater or less than the actual length.

4.4.3 Settings Toolbar 

The settings toolbar allows you to configure view defaults and image visualization.

Detail Viewer Settings 

To change the default view for the **Package Detail** dialog:

1. Click **Detail Viewer Settings** . The **Detail Settings** dialog opens.
2. Check the desired default options, and then click **Save** to exit and apply the changes.

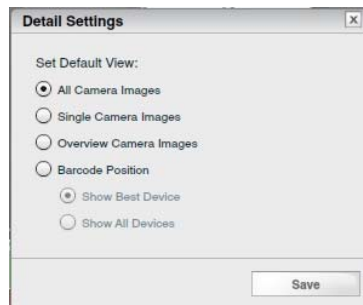


Figure 4-11: Detail Settings Dialog

Package Analytics

The following table describes the options available in the **Details Settings** dialog.


Table 4-2: Detail Settings Dialog

Selection	Description
All Camera Images	Set All Images view as the default view any time the Package Detail dialog is opened
Single Camera Image	Set Single Image view as the default view any time the Package Detail dialog is opened
Overview Camera Image	Set Image Overview as the default view any time the Package Detail dialog is opened
Barcode Position	Set barcode position view as the default view any time the Package Detail dialog is opened
Show Best Device	When Barcode Position is checked, show barcode from the best device read as the default view any time the Package Detail dialog is opened
Show All Devices	When Barcode Position is checked, show barcode from all devices as the default view any time the Package Detail dialog is opened

Overlay Visualization Settings 

Visualization settings use colored graphics in the package image to identify areas of interest.

You can configure which visualizations you would like to highlight:

1. Click **Overlay Visualization Settings** . The **Overlay Visualization Settings** dialog opens.

Note the options in this dialog depend on the type of device mounted on your tunnel. The dialog for a system with ICR cameras is shown on the left in Figure 4-12. If there are Lector cameras present the dialog will appear as shown on the right. In the event that multiple device types are present, options for all device types are shown in the dialog. Selecting options unique to any given device will not affect images for other devices.

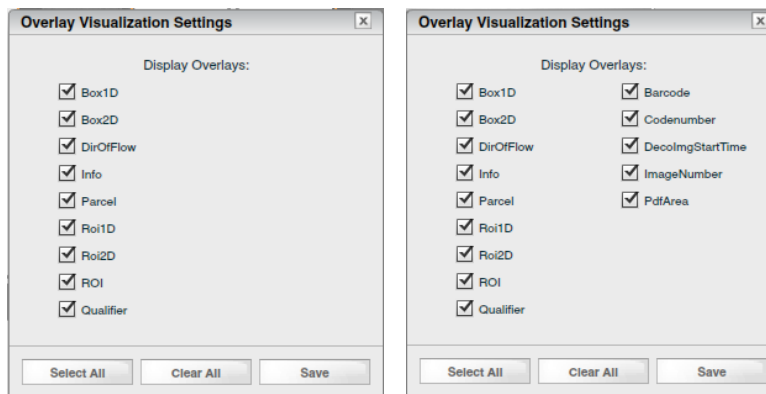


Figure 4-12: Overlay Visualization Settings ICR System (Left) and Lector/Combined System (Right)

Package Analytics

2. Check the elements to highlight in package images.
 - If you'd like all elements to be highlighted, click **Select All**.
 - To clear all highlights in the image, click **Clear All**.
3. Click **Save** to exit and apply the changes.

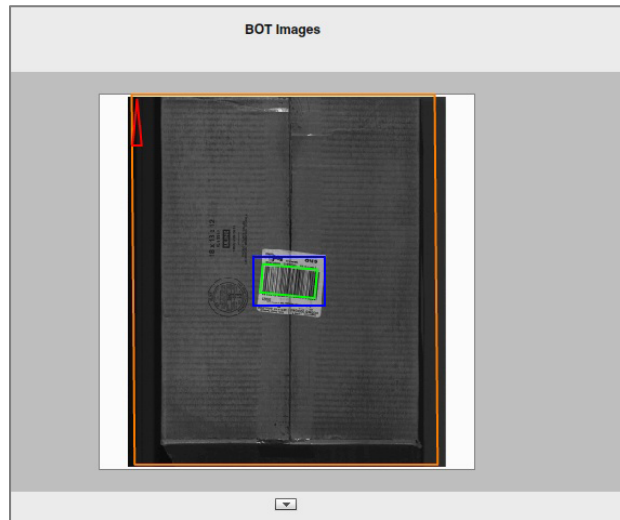


Figure 4-13: Package Image with Visualization Settings Turned On

The following table describes the elements which can be highlighted in an image:

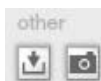
Table 4-3: Overlay Visualization Settings

Selection	Indicator	Description
BOX1D	Blue frame	Highlights 1D barcodes with a blue frame
Box2D	Blue frame	Highlights 2D barcodes with a blue frame
DirOfFlow	Red arrow	Shows which direction the frame is moving with a red arrow in top left corner
Info	Red text	Seen in <i>high resolution Image Inspector</i> only (Refer to Section 4.4.5). Identifies object ID and Device ID.
Parcel	Orange frame	Highlights the package with an orange frame
ROI1D	Green frame	Highlights with a green frame a Region of Interest that signifies a 1D barcode has been decoded
RoI2D	Green frame	Highlights with a green frame a Region of Interest that signifies a 2D barcode has been decoded
ROI	Magenta frame	Highlights with a magenta frame the area which Package Analytics has identified as a Region of Interest (ROI).

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Selection	Indicator	Description
Barcode	Green frame	Identifies a valid barcode with a green frame (Lector system)
Codenummer	Red text	A red number (for example #1, #2, #3 etc.) identifies barcode image number. This number is output by the device that took the image (currently supported only for Lector cameras), which assigns a number to each unique barcode identified. This number can also be used to identify the barcode NORCA data displayed in the high resolution Image Inspector (See Section 4.4.5).
DecolmgStartTime	Blue text	Time in milliseconds (ms) taken to decode an image (Lector systems)
Image Number	Blue text	For devices with multiple images (for example, Lector cameras) indicates in blue text which image in the current series of images, is being displayed. (Lector systems)
PDF Area	Green box	Highlights in green pdf barcodes. (Lector systems)
Qualifier	Red text	<i>Seen in high resolution Image Inspector only.</i> Several lines of text indicate NORCA barcode information. Refer to Section 4.4.5. (Lector systems)

4.4.4 Other Toolbar



Functions on the **other** toolbar allow you to export or save package data and images.

Export Package Data 

The currently selected package image, or a CSV file of the package data can be exported from Package Analytics to a file location anywhere on the network. To select the data to export and a destination location:

1. Click **Export Package Data** . The **Export Package Data** dialog opens.

Package Analytics

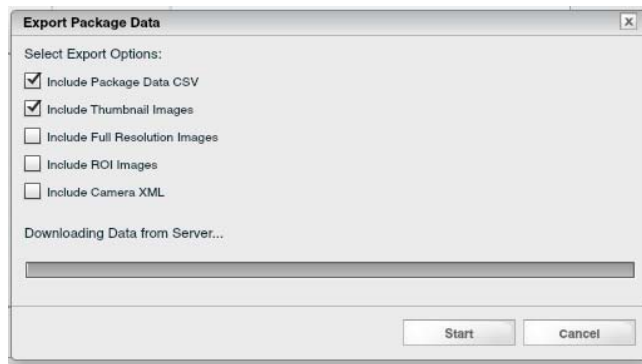


Figure 4-14: Export Package Data Dialog

2. Check the desired export options. The following details can be exported:

Table 4-4: Export Package Data


Selection	Description
Include Package Data CSV	The exported file will be saved to your selected destination as an CSV document with a file name that includes the system ID, sort, time and package ID
Include Thumbnail Images	The exported data will include low resolution thumbnail images
Include Full Resolution Images	The exported data will include full resolution images
Include ROI Images	The exported data will include ROI images
Include Camera XML	The exported data will include the camera XML file for the selected image

3. Click **Start**, and then choose a directory location for the exported file.

Save Snapshot 

You can save a snapshot of the current package detail view. Saving a snapshot allows you to store an image for later analysis or to share with others.

To save a snapshot:

- Click **Save Snapshot** , and then choose a directory location for the exported file.

4.4.5 View Higher Resolution Barcode Image in Image Inspector

It is unlikely that a full barcode label quality analysis can be conducted from the thumbnail image in the package image area. A high resolution JPEG of the image can be viewed in an image inspector,

Package Analytics

to perform a thorough analysis of package and barcode details. This feature will help you to determine why a barcode was not readable or help you locate small print or details on the label.

To view a high resolution version of the thumbnail image in the Image Inspector:

- Double-click anywhere in the ROI in the thumbnail image. The image opens in the Image Inspector. Refer to Figure 4-15.

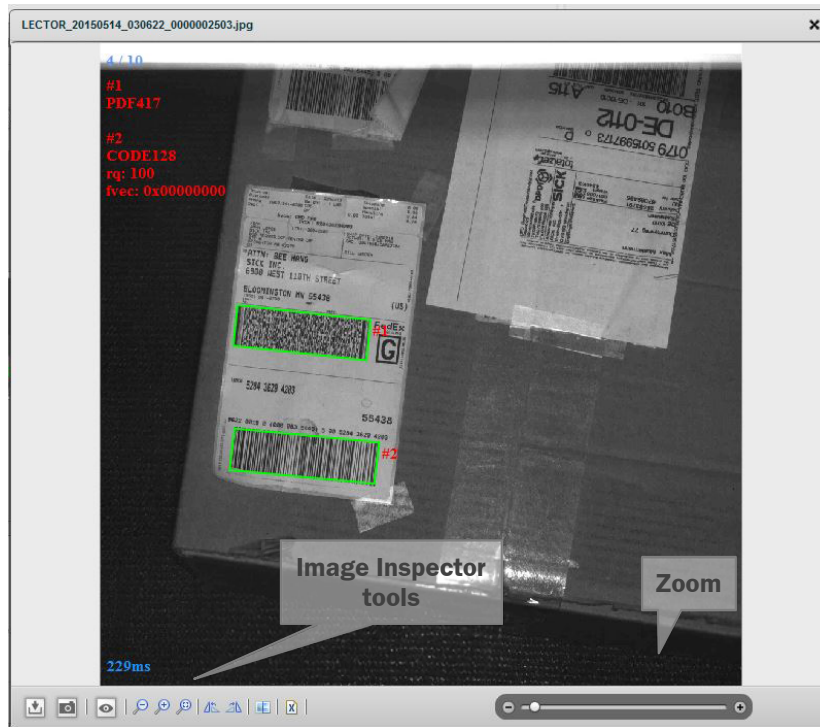





Figure 4-15: High Resolution Image in Image Inspector

The following table describes the tools available in the image inspector:

Table 4-5: Image Inspector Tools

Button	Name	Description
	Save Image	Open Export Package Data dialog to select export options
	Save Snapshot	Save snapshot of current image to a selected location
	Overlay Visualization Settings	Open Overlay Visualization Settings dialog
	Zoom Out	Zoom in to image
	Zoom In	Zoom out of image
	Show All Images	Fit image to screen

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Button	Name	Description
	Rotate Image	Rotate the image clockwise / counterclockwise
	Toggle Smooth Bitmap	Turn bitmap smoothing on or off
	View XML	Opens dialog containing xml data for current image

4.4.6 NORCA Barcode Analysis in the Image Inspector

NORCA (No Read Code quality Analysis) is a quality analysis for all read barcodes. This analysis is provided by the auto ID system's ICR8xx cameras and Lector cameras, and configured in the camera's firmware.

NORCA analysis reads all barcodes on a package, and assigns a numeric quality rating to each barcode. NORCA provides a code qualifier (A-F) according to AIM/ISO, and knowledge-based decoding attributes, for example, missing or invalid barcodes, start/stop character defects, split bars, covered codes. The ICR and Lector cameras send this data to Package Analytics to allow filtering, evaluation and visualization of barcodes.

In the Package Analytics Image Inspector, NORCA data is displayed in the visualization to support a visual inspection of a specific barcode. Red text on the left side of the visualization identifies the barcode ID# (for example #1, #2, #3) followed by up to three lines of text (depending on device type) which describe NORCA values for the associated barcode.

Figure 4-15 shows how NORCA data is displayed in the image inspector.

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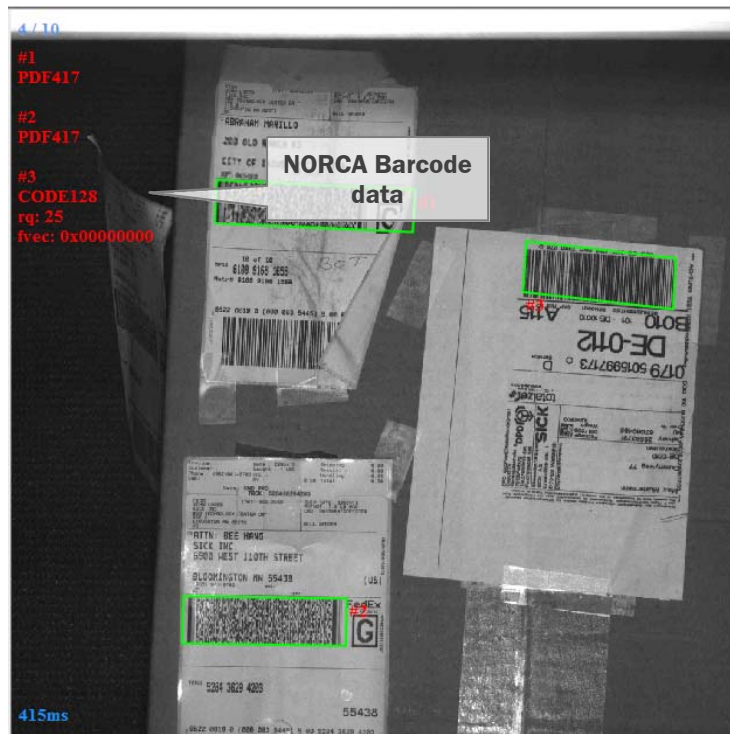


Figure 4-16: NORCA Barcode Data in Image Inspector

The following table describes the NORCA data which is displayed in the image inspector.

Package Analytics

Table 4-6: NORCA Barcode Text Overlay

Selection	Description
#3	Barcode identifier. The camera assigns a numerical value (for example #1, #2, #3 ...etc.) to each identified barcode and sends this information to Package Analytics as a barcode identifier. The identifier is displayed next to each barcode in the package thumbnails, and is used to group NORCA data under the identifier in the Image Inspector.
CODE128	Barcode type
rq: 25	Read quality. NORCA analysis results in a numeric value (0 - 100) which provides a rating of the barcode quality.
fvec: 0x00000000	<p>Feature vector. The feature vector uses a hexadecimal error code value to identify the specific problem with the associated barcode.</p> <p>The feature vector 0x00000000 indicates a barcode which has no identified issues.</p> <p>A complete list of feature vector values, and the associated error can be found in Appendix D of this manual.</p>

Package Analytics

5. The Activity Tab

The **Activity** tab provides a dynamic view of real time performance and health of the individual auto ID system, as well as package details for individual packages. As packages move through the system, they are visually represented in the System Performance pane, as described in Chapter 3. At the same time, an entry is displayed in the **Activity** tab, providing a greater level of detail for each package. The **Activity** tab is the System View default screen.

5.1 Layout

The **Activity** tab is divided into two areas of information:

- The Package Data Table
- Heartbeat Data Table

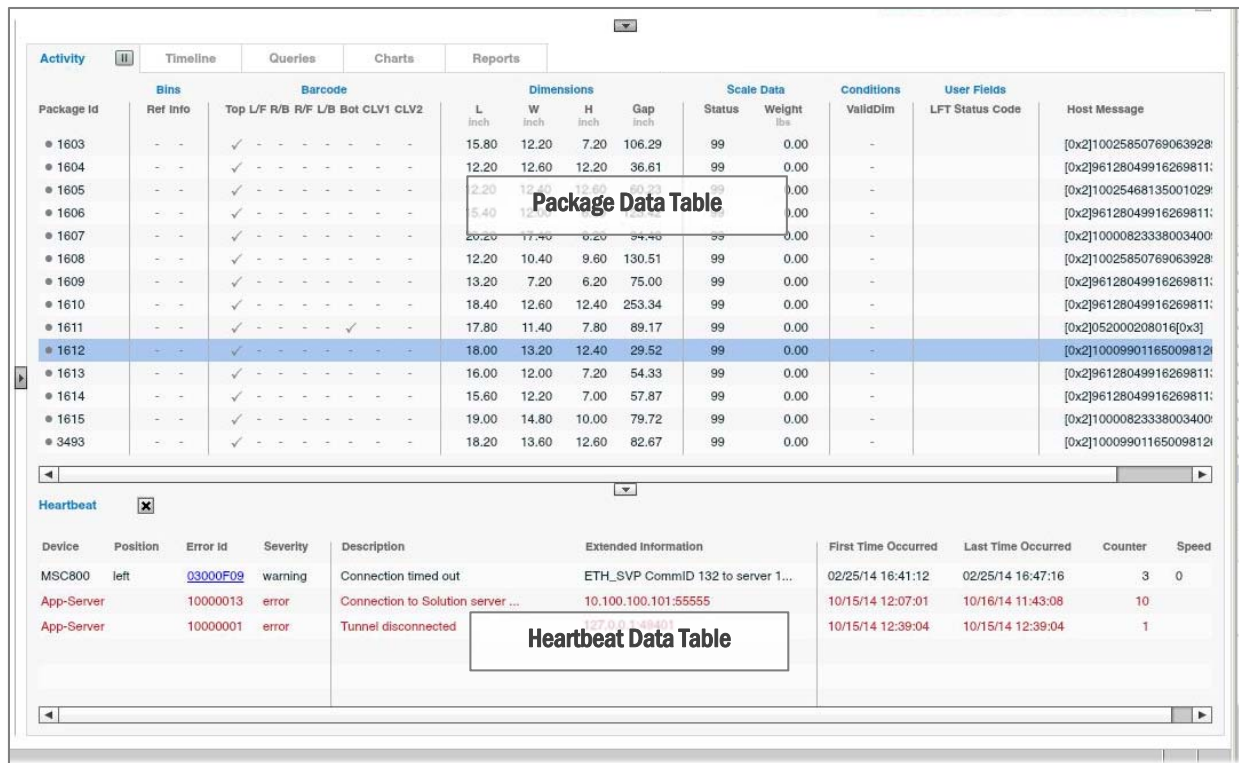


Figure 5-1: The Activity Tab

You can view additional information about the currently displayed package:

- Click **more info** at the bottom of the dialog. The full package host message is displayed in the **Package Detail** dialog.

Package Analytics

5.2 Package Data

Package details are presented in the *Package Data Table*. As packages pass through the system and are visually represented in the System Performance pane, an entry for each package is displayed in the Package Data Table. The Package Data Table represents an activity buffer, which lists the last 300 packages to have passed through the system.

The columns of the Package Data Table are determined by the type of auto ID system currently being displayed and on the configuration of your system. Appendix A provides a detailed description of the Package Data Table columns.

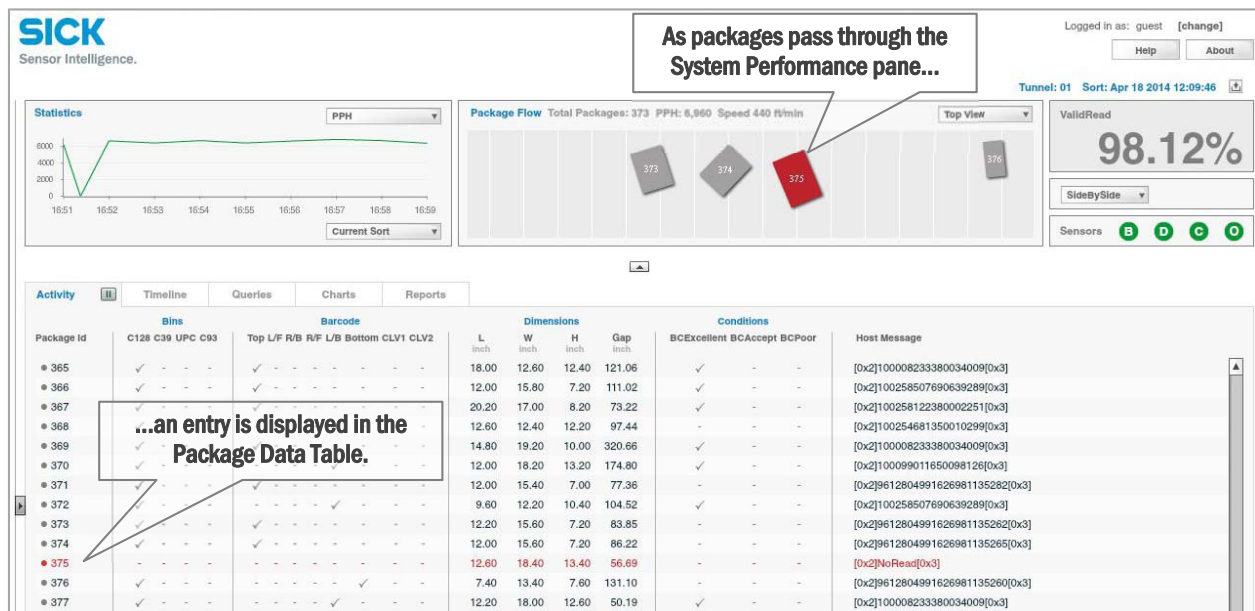



Figure 5-2: Package Data Table

You can pause the activity buffer in the Package Data Table to look more closely at an item or series of items. You will find this feature useful, as the packages move quickly through the activity buffer.

On the **Activity** tab, click the Pause/Play icon . The Package Data Table is paused until you restart it, by clicking the icon again to resume the buffer.

Entries in the Package Data Table are color coded, to indicate if a package has met certain evaluation conditions. The following indications are provided by the colored text in this window:

 **Note:** Color codes for Package Analytics are configurable upon customer request. Contact your SICK technical support team for more information.

Package Analytics

Table 5-1: Package Icon Color Indication

Color	Indication
Grey	Successful barcode read
Yellow	Multiread. More than one barcode has been read on the same package. Note that this indication is a configurable default setting and may vary for your site
Red	No read

To conduct a complete analysis of package data:

- Click on any entry in the Package Data Table. The **Package Detail** dialog is opened. A complete description of the **Package Detail** dialog is found in Chapter 4.

5.3 Heartbeat Data Table

The bottom half of the **Activity** tab consists of the *Heartbeat Data Table*. You can find additional detail for system faults in this pane. The heartbeat information is for the current system only. Heartbeat information is displayed until the data is manually cleared.

Appendix A provides a description of the data columns found in the Heartbeat Data Table.

Tunnel	Device	Position	Error Id	Severity	Description	Extended Information	First Time Occurred	Last Time Occurred
01	App-Server		10000001	error	Tunnel disconnected	127.0.0.1:51577	04/18/14 12:41:22	04/18/14 12:41:22
01	MSC800	left	03000F09	warning	Connection timed out	ETH_SVP CommID 132 to server 1...	02/25/14 16:41:12	02/25/14 16:47:16

Figure 5-3: Heartbeat Data Table

To manually clear the Heartbeat Data Table:

- Click the clear icon  at the top of the table.

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Package Analytics

6. The Timeline Tab

The **Timeline** tab allows a statistical view of a selected sort, over a selected period of time. The timeline allows you to initiate searches of the Package Analytics database and image archive to collect data on specific evaluation conditions. This allows you to efficiently manage all of the information within the database and image archive to identify specific information.

The **Timeline** tab is an efficient tool for learning to understand data and statistical patterns that indicate common system operational events. Over time, you will become accustomed to viewing the graphical data provided in the **Timeline** tab and interpreting the peaks and slopes in the current read rate line with either normal operational events or as an indication of system problems.

Associating specific package data displayed in the data table with the read rate shown in the graph will support an interpretation of the data and evaluation of system problems. By viewing images associated with a series of no-reads, you may identify, for instance, a series of damaged boxes that suggest that upstream equipment may be damaging packages, or poorly rendered barcodes that indicate that a print head on a label printer may need to be inspected.

6.1 Layout

The **Timeline** tab consists of a selection pane with a timeline slider, and the results pane.

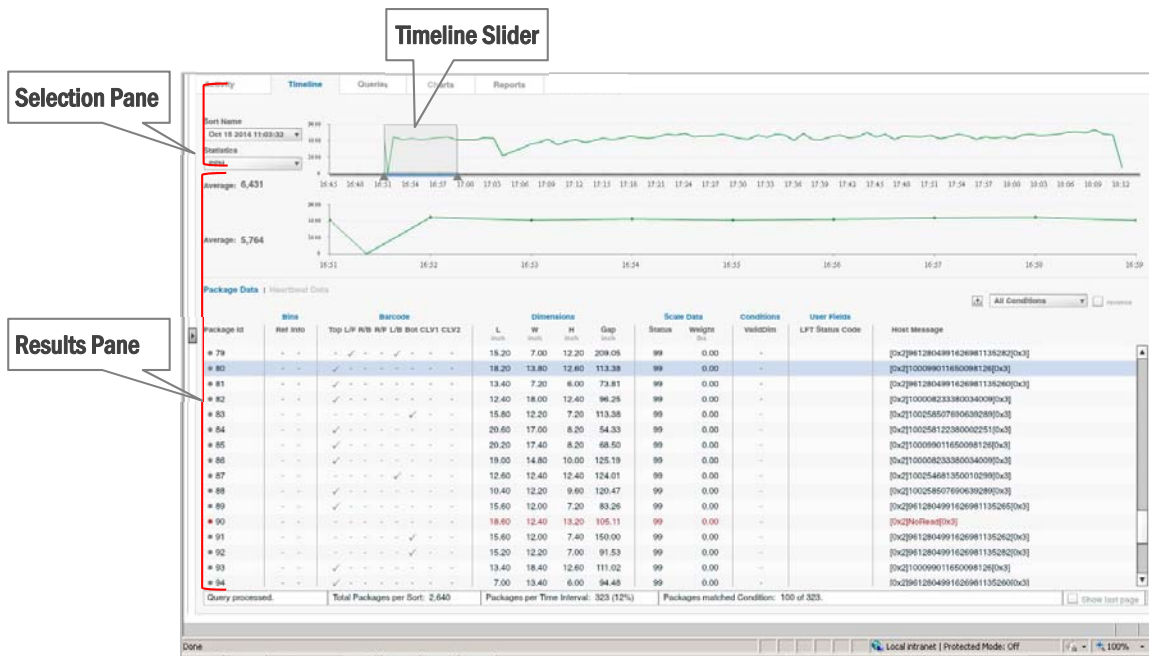


Figure 6-1: Timeline Tab

Package Analytics

6.2 Data Selection

Data to be displayed in the **Timeline** tab results pane are selected by choosing a sort and statistic from the selection pane, and then adjusting the timeline slider for the time interval to inspect.

To select a sort, statistic, and time interval to inspect (Refer to Figure 6-2):

1. In the selection pane, from the **Sort Name** list, select the sort you'd like to inspect.

From the **Statistics** list select the statistic which you'd like to include in the results. Refer to Appendix A for a description of Package Analytics Statistics.

The results in the selection pane's graph are refined to display data for the complete sort and selected statistic.

The **Average** field in the selection pane displays the average value for the selected statistic during the complete sort.

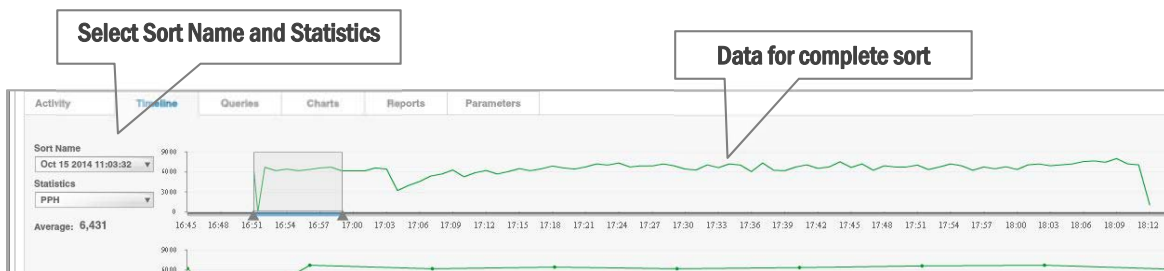


Figure 6-2: Select Sort and Statistic

2. Using the tabs on both sides of the timeline slider to adjust the timeline interval you'd like to inspect.

To drag the slider to a specific interval on the graph, point to the blue interval line on the slider, hold down the left mouse key, and move the slider to the left or right.

An expanded view of the selected interval is displayed in results pane.

The **Average** field in the results pane displays the read-rate average for the selected Statistic during the selected interval.

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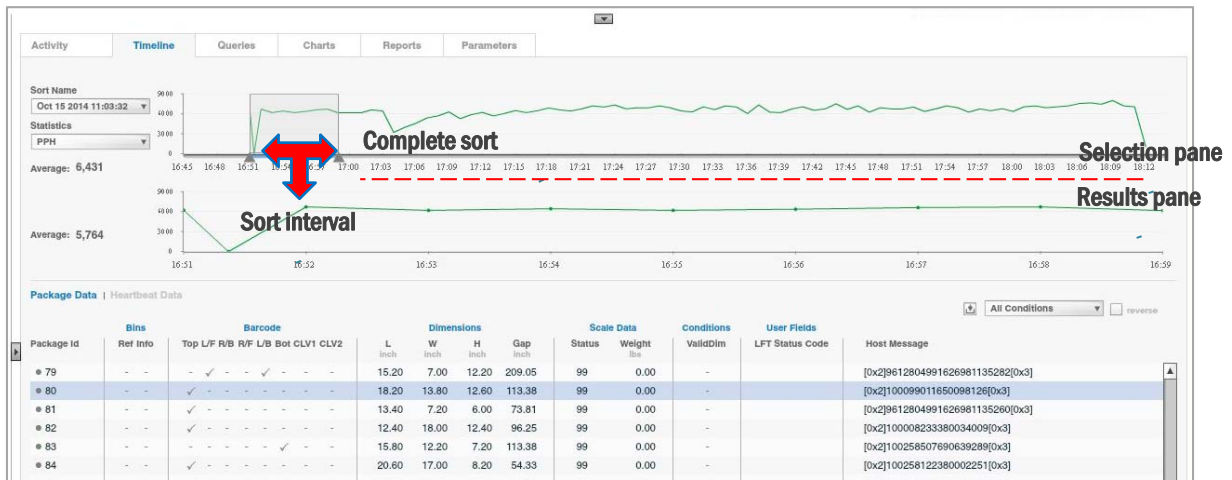


Figure 6-3: Select Sort and Statistic

The footer at the bottom of the screen provides statistics for the timeline results.

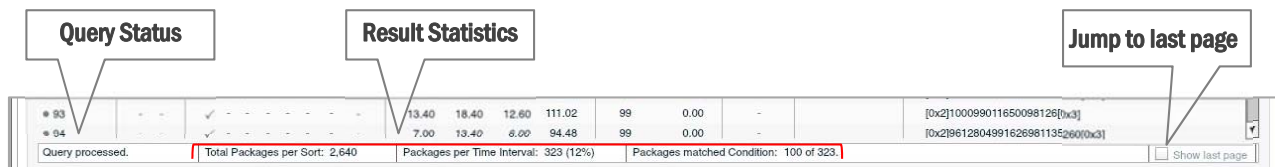


Figure 6-4: Status Bar

The results may cover several pages of data. If this is the case, you can jump to the last page of the results (to the end time value you selected on the slider) by checking **Show last page**.

6.3 Results

You can view results for package data, or you can view results as heartbeat data for the selected interval.

6.3.1 Package Data Results

Selecting **Package Data** in the results pane allows you to inspect any package included in timeline results.

To view package data for an individual package:

1. In the results pane, click **Package Data**. Results are displayed in a Package Data Table format. Refer to Appendix A for a description of the columns in the Package Data Table.
2. In the Package Data Table, click on a package to inspect. The **Package Detail** dialog opens. Refer to Chapter 5 for a description of the **Package Detail** dialog.

Package Analytics

Package Id	Bins			Barcode				Dimensions				Conditions			Host Message					
	C128	C39	UPC	C93	Top	L/F	R/B	R/F	L/B	Bottom	CLV1	CLV2	L	W	H	Gap	BCExcellent	BCAccept	BCPoor	
													inch	inch	inch	inch				
# 2	✓	-	-	-	✓	-	-	-	-	-	-	-	14.60	19.20	10.00	-1.00	✓	-	-	[0x2]100008233380034009[0x3]
# 3	✓	-	-	-	✓	-	-	-	-	-	-	-	12.40	12.40	12.60	76.18	-	-	-	[0x2]100254681350010299[0x3]
# 5	✓	-	-	-	✓	-	-	-	-	-	-	-	15.80	12.00	7.20	50.19	-	-	-	[0x2]9612804991626981135265[0x3]
# 6	✓	-	-	-	✓	-	-	-	-	-	-	-	12.20	10.40	9.60	79.13	✓	-	-	[0x2]100258507690639289[0x3]
# 7	✓	-	-	-	✓	-	-	-	-	-	-	-	18.20	13.20	12.40	93.89	✓	-	-	[0x2]100099011650098126[0x3]
# 8	✓	-	-	-	✓	-	-	-	-	-	-	-	15.40	12.20	7.20	64.37	-	-	-	[0x2]9612804991626981135262[0x3]
# 9	✓	-	-	-	✓	-	-	-	-	-	-	-	18.40	13.40	12.60	79.13	✓	-	-	[0x2]100099011650098126[0x3]

Figure 6-5: Data Results – Package Data Table

6.3.2 Heartbeat Data Results

Selecting **Heartbeat Data** in the results pane allows you to inspect heartbeat data and error information for the selected sort interval.

To view heartbeat data:

1. In the results pane, click **Heartbeat Data**. Results are displayed in a Heartbeat Data Table. Refer to Appendix A for a description of the columns in the Heartbeat Data Table.
2. For some errors, you can click the hyperlinked **Error ID** to view detailed error information for a specific error.

Device	Position	Error Id	Severity	Description	Extended Information	First Time Occurred	Last Time Occurred	Counter	Speed
MSC800	left	03000F09	warning	Connection timed out	ETH_SVP CommID 132 to server 1...	02/25/14 16:41:12	02/25/14 16:47:16	3	0

Figure 6-6: Data Results – Heartbeat Data Table

6.3.3 Filter Data Results

Information included in the results pane can be further filtered using the results filter. You can filter package data by Evaluation Condition (Refer to Appendix A for a description of all Evaluation Conditions). You can filter heartbeat data by Error Condition.



Figure 6-7: Results Filter

To include only data that meets selected criteria in the results pane:

- In the results filter, select an Evaluation Condition or an Error Condition to include. Only data that matches your selection is included in the results.

To exclude data from the results pane:

- In the results filter, select an Evaluation Condition or an Error Condition to exclude, and then check **Reverse**. Data that matches your selection is excluded from the results.

The following table describes filters for heartbeat data error conditions:


Package Analytics

Table 6-1: Heartbeat Data Error Conditions

Selection	Description
All Errors	Filters heartbeat data for all fatal warnings and errors
Info	Filters heartbeat data for messages that are sent as information only
Fatal Error	Filters heartbeat data for fatal error messages
Warning	Filters heartbeat data for devices with warning messages
Error	Filters heartbeat data for errors that may impact system performance
Debug	Filters heartbeat data for messages that are sent as debug info

6.3.4 Export Data Results

You can export the data results displayed in the Package Data Table, or Heartbeat Data Table:

1. Click the Export icon  located left of the results filter (Figure 6-7). The **Export Package Data** dialog opens.

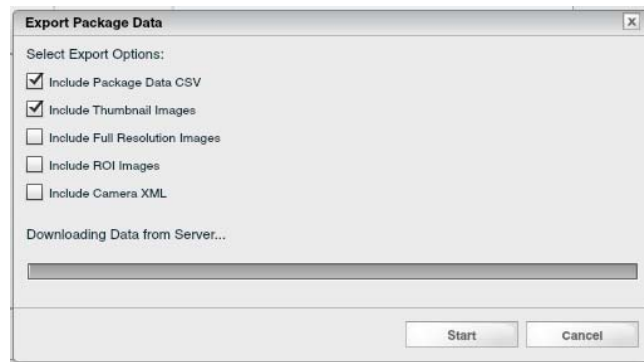


Figure 6-8: Export Package Data

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2. Check the export options you'd like to include, and then click **Start**.

Table 6-2: Export Package Data

Selection	Description
Include Package Data CSV	The exported file will be saved to your selected destination as an CSV document with a file name that includes the system ID, sort, time and package ID
Include Thumbnail Images	The exported data will include low resolution thumbnail images (For systems with camera)
Include Full Resolution Images	The exported data will include full resolution images (For systems with camera)
Include ROI Images	The exported data will include ROI images (For systems with camera)
Include Video Snapshot	The exported data will include a video snapshot (For systems with IP camera)
Include Camera XML	The exported data will include the camera XML file for the selected image (For systems with camera)

3. Browse to a directory location for the exported result, and then type a file name in the **File Name** field to export the file to the selected location and click **OK**.

Package Analytics

7. The Queries Tab

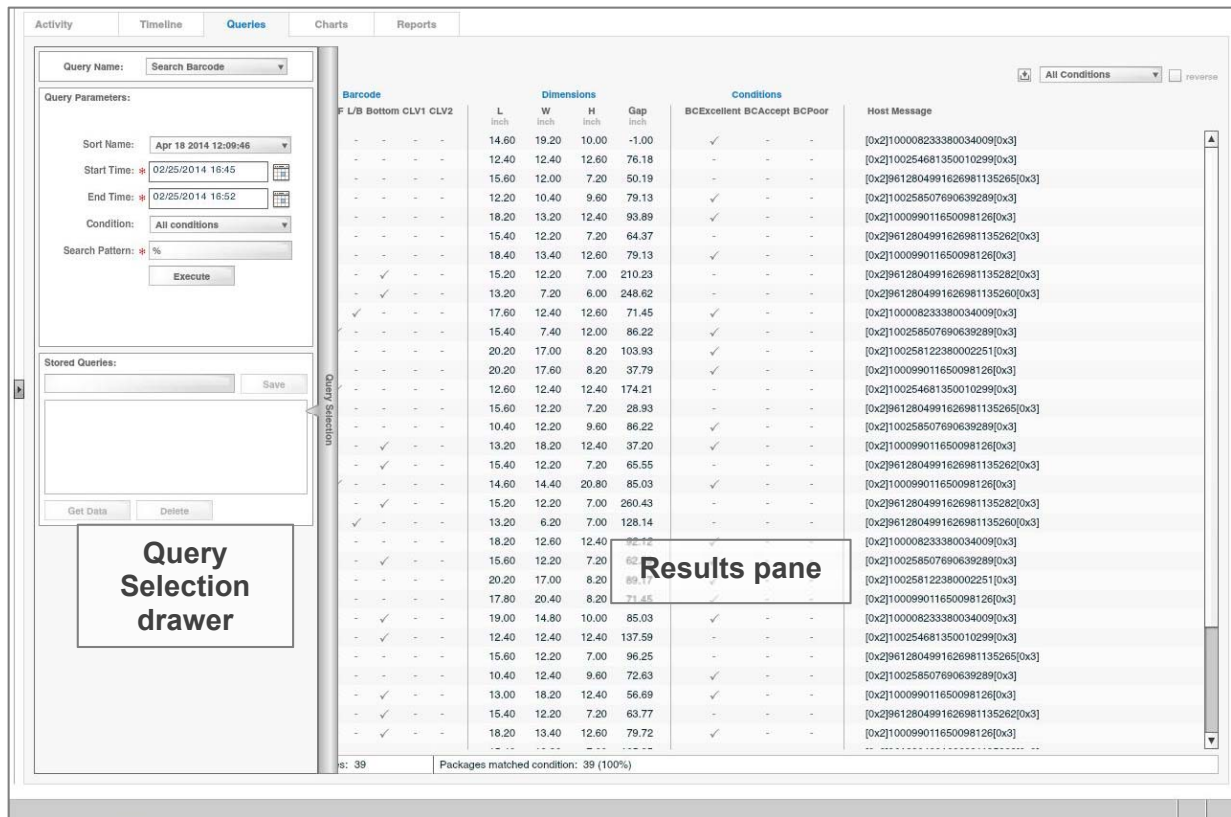
The **Queries** tab allows you to conduct detailed and specific searches of all packages processed by connected auto ID systems. You can query current and historical data for an individual system using System View or aggregate data for multiple auto ID systems in your facility, using Facility View.

 **Note:** A quick visual guide to generating a query is provided in flowchart format in Section 7.6.

7.1 Layout

The **Queries** tab contains two main areas:

- The **Query Selection** drawer
- The results pane



The screenshot displays the 'Queries' tab interface. On the left is the 'Query Selection drawer' containing a 'Query Name' dropdown set to 'Search Barcode', 'Query Parameters' (Sort Name, Start/End Time, Condition, Search Pattern), and 'Stored Queries' section. On the right is the 'Results pane' showing a table of query results. The table has columns for Barcode, Dimensions (L, W, H, Gap), Conditions (BCExcellent, BCAccept, BCPoor), and Host Message. A status bar at the bottom indicates '39 Packages matched condition: 39 (100%)'.


Barcode	Dimensions				Conditions			Host Message
F L/B Bottom CLV1 CLV2	L Inch	W Inch	H Inch	Gap Inch	BCExcellent	BCAccept	BCPoor	
- - - - -	14.60	19.20	10.00	-1.00	✓	-	-	[0x2]100008233380034009[0x3]
- - - - -	12.40	12.40	12.60	76.18	-	-	-	[0x2]100254681350010299[0x3]
- - - - -	15.60	12.00	7.20	50.19	-	-	-	[0x2]9612804991626981135265[0x3]
- - - - -	12.20	10.40	9.60	79.13	✓	-	-	[0x2]100258507690639289[0x3]
- - - - -	18.20	13.20	12.40	93.89	✓	-	-	[0x2]100099011650098126[0x3]
- - - - -	15.40	12.20	7.20	64.37	-	-	-	[0x2]9612804991626981135262[0x3]
- - - - -	18.40	13.40	12.60	79.13	✓	-	-	[0x2]100099011650098126[0x3]
- - - - -	15.20	12.20	7.00	210.23	-	-	-	[0x2]9612804991626981135262[0x3]
- - - - -	13.20	7.20	6.00	248.62	-	-	-	[0x2]9612804991626981135260[0x3]
✓ - - - -	17.60	12.40	12.60	71.45	✓	-	-	[0x2]100008233380034009[0x3]
- - - - -	15.40	7.40	12.00	86.22	✓	-	-	[0x2]100258507690639289[0x3]
- - - - -	20.20	17.00	8.20	103.93	✓	-	-	[0x2]100258122380002251[0x3]
- - - - -	20.20	17.60	8.20	37.79	✓	-	-	[0x2]100099011650098126[0x3]
- - - - -	12.60	12.40	12.40	174.21	-	-	-	[0x2]100254681350010299[0x3]
- - - - -	15.60	12.20	7.20	28.93	-	-	-	[0x2]9612804991626981135265[0x3]
- - - - -	10.40	12.20	9.60	86.22	✓	-	-	[0x2]100258507690639289[0x3]
- - - - -	13.20	18.20	12.40	37.20	-	-	-	[0x2]100099011650098126[0x3]
- - - - -	15.40	12.20	7.20	65.55	-	-	-	[0x2]9612804991626981135262[0x3]
- - - - -	14.60	14.40	20.80	85.03	✓	-	-	[0x2]100099011650098126[0x3]
- - - - -	15.20	12.20	7.00	260.43	-	-	-	[0x2]9612804991626981135262[0x3]
✓ - - - -	13.20	6.20	7.00	128.14	-	-	-	[0x2]9612804991626981135260[0x3]
- - - - -	18.20	12.60	12.40	82.12	-	-	-	[0x2]100008233380034009[0x3]
- - - - -	15.60	12.20	7.20	62.79	-	-	-	[0x2]100258507690639289[0x3]
- - - - -	20.20	17.00	8.20	89.17	-	-	-	[0x2]100258122380002251[0x3]
- - - - -	17.80	20.40	8.20	71.45	✓	-	-	[0x2]100099011650098126[0x3]
- - - - -	19.00	14.80	10.00	85.03	✓	-	-	[0x2]100008233380034009[0x3]
- - - - -	12.40	12.40	12.40	137.59	-	-	-	[0x2]100254681350010299[0x3]
- - - - -	15.60	12.20	7.00	96.25	-	-	-	[0x2]9612804991626981135265[0x3]
- - - - -	10.40	12.40	9.60	72.63	✓	-	-	[0x2]100258507690639289[0x3]
- - - - -	13.00	18.20	12.40	56.69	✓	-	-	[0x2]100099011650098126[0x3]
- - - - -	15.40	12.20	7.20	63.77	-	-	-	[0x2]9612804991626981135262[0x3]
- - - - -	18.20	13.40	12.60	79.72	✓	-	-	[0x2]100099011650098126[0x3]

Figure 7-1: Queries Tab

Package Analytics

7.2 Query Selection Drawer

The desired query type and all query parameters are chosen in the **Query Selection** drawer. The selection drawer may be either “opened” or “closed” by clicking on the bar at the edge of the drawer. It is open by default when you access the **Queries** tab, and closed automatically when you generate a query.

 **Note:** The **Queries** tab may be accessed either from System View or Facility View. Options shown in the selection drawer depend on the view which was used to access the **Queries** tab.

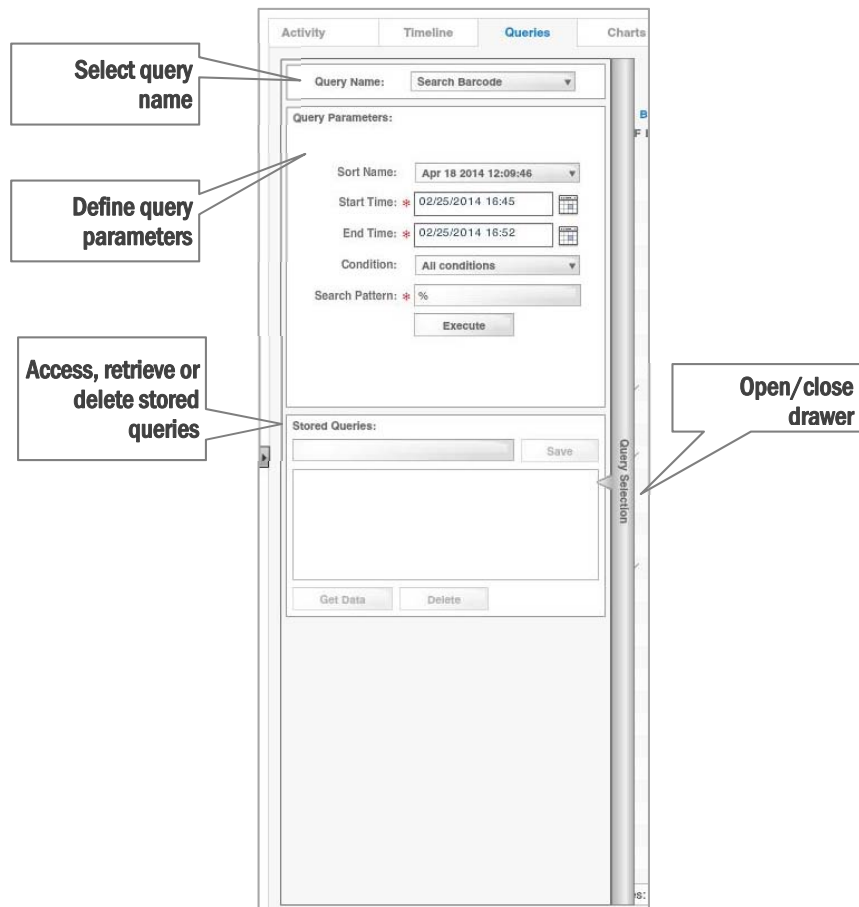


Figure 7-2: Selection Drawer (System View)

Package Analytics

7.3 Running a Query

To run a query:

1. Open the **Query Selection** drawer if it is not already open.
2. From the **Query Name** list, select the name of the query you'd like to generate (Refer to Section 7.3.1).
3. Under the **Query Parameters** heading, set the parameters for the **Query Name** you selected in Step 2 (Refer to Section 7.3.2).
4. Click **Execute** to generate the query (Refer to Section 7.3.3). The selection drawer closes, and query results appear in the results pane.

7.3.1 Select a Query Name

Query types have been predefined for Package Analytics. By selecting a query name from the **Query Selection** drawer, you can create queries for various package attributes.

The queries which appear in the **Query Name** list depend on whether you are viewing the **Queries** tab from Facility View or System View, and on your system's configuration.

Refer to Appendix A for a list of query names and descriptions.

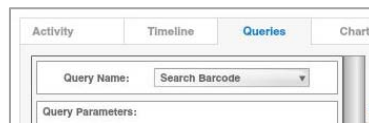


Figure 7-3: Select Query Name

7.3.2 Define Query Parameters

Query parameters define the scope of the data which is to be searched to generate the query. After selecting a query name, you set the desired parameters by making selections under the **Query Parameters** heading.

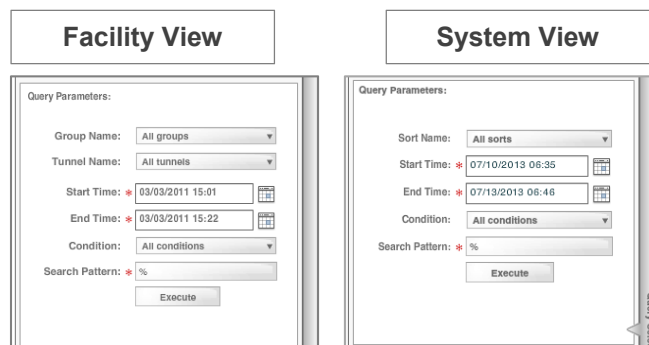


Figure 7-4: Query Parameters

Package Analytics

Note that the parameter selections change dynamically depending on the **Query Name** you selected, and whether you are viewing the **Queries** tab from Facility View or System View. Table 7-1 describes the **Query Parameter** selections.




 **Note:** A red asterisk * next to a **Query Parameters** field indicates a required data field. A value must be entered in this field before a query can be generated.

Table 7-1: Query Parameter Selections

Query Parameter	Facility View	System View	Description
Sort Name	X		Select the sort to generate the query from, or select <i>All Sorts</i> .
Group Name	X		Select the sort group (such as <i>Primary</i> or <i>Secondary</i>) for which you would like the query to be generated. Note: Groups displayed in the Group Name list are limited by the current Navigator selection. If you do not see the group you are looking for in the Group Name list, open the Navigator , and then click the Facility Name. Now in the Query Selection drawer make your selection in the Group Name list.
Tunnel Name	X		Check the system IDs (tunnel name) to include in your results, or select <i>All Tunnels</i> to include results for all systems in the list. Note: You can generate queries for either an individual auto ID system, or for all connected systems in the group or facility. It is not possible to generate queries for selected multiple systems.
Start Time and End Time	X	X	To manually configure the Start Time and End Time for the query, click  . <ul style="list-style-type: none"> To change the date to start or end the query, scroll to the desired month, and then click the desired date. To change the time of day to start or end the query, type the desired time into the Time field, using an HH:MM format 
Other Parameter Selections	X	X	Depending on the Query Name selected, additional fields may be required under the Parameters heading. Refer to Appendix A for a list of query names and additional parameters.

Package Analytics

7.3.3 Execute the Query

When you have made the desired selections from **Query Name** and **Query Parameters**, click **Execute** to generate the query. The selection drawer closes to maximize the view of the results pane. Results may take a few moments.

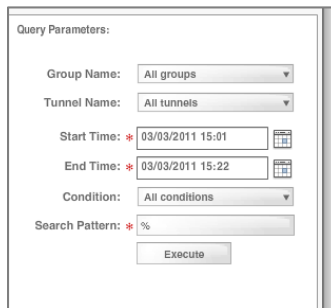


Figure 7-5: Execute the Query

7.4 Query Results

Query results are displayed in a Package Data Table in the results pane. Refer to Appendix A for a description of the Package Data Table columns.

Package ID	Rins	Barcode	Dimensions	Conditions	Host Message
	C128 C39 UPC C93	Top L/F AB R/F L/B Bottom CLV1 CLV2	L W H Gap mm mm mm mm	BCExcellent BCAccept BCPoor	
# 2	✓ - - -	✓ - - - - -	14.80 19.20 10.00 -1.00	✓ - - -	[x2]10000823380034009[x3]
# 3	✓ - - -	✓ - - - - -	12.40 12.40 12.60 76.18	- - - -	[x2]100254681350010299[x3]
# 5	✓ - - -	✓ - - - - -	15.60 12.00 7.20 50.19	- - - -	[x2]9612804991620681135265[x3]
# 6	✓ - - -	✓ - - - - -	12.20 10.40 9.40 79.13	✓ - - -	[x2]100258507690639289[x3]
# 7	✓ - - -	✓ - - - - -	16.20 13.20 12.40 93.89	✓ - - -	[x2]10009901165009812[x3]
# 8	✓ - - -	✓ - - - - -	15.40 12.20 7.20 64.37	- - - -	[x2]9612804991620681135262[x3]
# 9	✓ - - -	✓ - - - - -	16.40 13.40 12.60 79.13	✓ - - -	[x2]10009901165009812[x3]
# 10	✓ - - -	✓ - - - - -	18.20 12.20 7.00 210.23	- - - -	[x2]9612804991620681135262[x3]
# 11	✓ - - -	✓ - - - - -	13.20 7.20 6.00 248.62	- - - -	[x2]9612804991620681135260[x3]
# 12	✓ - - -	✓ - - - - -	17.60 12.40 12.60 71.45	✓ - - -	[x2]10000823380034009[x3]
# 13	✓ - - -	✓ - - - - -	15.40 7.40 12.00 86.22	✓ - - -	[x2]100258507690639289[x3]
# 14	✓ - - -	✓ - - - - -	20.20 17.00 8.20 103.93	✓ - - -	[x2]100258122380002251[x3]
# 15	✓ - - -	✓ - - - - -	20.20 17.60 8.20 37.79	✓ - - -	[x2]10009901165009812[x3]
# 17	✓ - - -	✓ - - - - -	12.60 12.40 12.40 174.21	- - - -	[x2]100254681350010299[x3]
# 19	✓ - - -	✓ - - - - -	15.60 12.20 7.20 28.90	- - - -	[x2]9612804991620681135266[x3]
# 20	✓ - - -	✓ - - - - -	16.40 12.20 9.40 86.22	✓ - - -	[x2]100258507690639289[x3]
# 21	✓ - - -	✓ - - - - -	13.20 18.20 12.40 37.20	✓ - - -	[x2]10009901165009812[x3]
# 22	✓ - - -	✓ - - - - -	15.40 12.20 7.20 65.55	- - - -	[x2]9612804991620681135262[x3]
# 23	✓ - - -	✓ - - - - -	14.80 14.40 20.80 85.03	- - - -	[x2]10009901165009812[x3]
# 24	✓ - - -	✓ - - - - -	15.20 12.20 7.00 260.43	- - - -	[x2]9612804991620681135262[x3]
# 25	✓ - - -	✓ - - - - -	13.20 6.20 7.00 128.14	- - - -	[x2]9612804991620681135260[x3]
# 26	✓ - - -	✓ - - - - -	16.20 12.60 12.40 92.12	- - - -	[x2]10000823380034009[x3]
# 27	✓ - - -	✓ - - - - -	18.60 12.20 7.20 62.59	✓ - - -	[x2]100258507690639289[x3]
# 28	✓ - - -	✓ - - - - -	20.20 17.00 8.20 89.17	✓ - - -	[x2]100258122380002251[x3]
# 29	✓ - - -	✓ - - - - -	17.80 20.40 8.20 71.45	✓ - - -	[x2]10009901165009812[x3]
# 30	✓ - - -	✓ - - - - -	19.00 14.80 10.00 85.03	✓ - - -	[x2]10000823380034009[x3]
# 31	✓ - - -	✓ - - - - -	12.40 12.40 12.40 137.59	- - - -	[x2]100284881350010299[x3]
# 33	✓ - - -	✓ - - - - -	15.80 12.20 7.00 96.25	- - - -	[x2]9612804991620681135265[x3]
# 34	✓ - - -	✓ - - - - -	10.40 12.40 9.60 72.63	✓ - - -	[x2]100258507690639289[x3]
# 35	✓ - - -	✓ - - - - -	13.00 18.20 12.40 56.69	✓ - - -	[x2]10009901165009812[x3]
# 36	✓ - - -	✓ - - - - -	18.40 12.20 7.20 63.77	- - - -	[x2]9612804991620681135262[x3]
# 37	✓ - - -	✓ - - - - -	16.20 13.40 12.60 79.72	✓ - - -	[x2]10009901165009812[x3]

Figure 7-6 Query Results

Package Analytics

You can view all details stored for a selected package:

- In the results pane Package Data Table, click a package to inspect. The **Package Detail** dialog opens. Refer to Chapter 4 for more information about the **Package Detail** dialog.

7.4.1 Filter Query Results

Information included in the results pane can be further filtered using the results filter. You can filter package data by Evaluation Condition (Refer to Appendix A for a description of all Evaluation Conditions).



Figure 7-7: Results Filter

To include only data that meets selected Evaluation Condition criteria in the results pane:

- In the results filter, select an Evaluation Condition to include. Only data that matches your selection is included in the results.

To exclude data from the results pane:

- In the results filter, select an Evaluation Condition to exclude, and then check **Reverse**. Data that matches your selection is excluded from the results.

7.4.2 Export Query Results

You can export query results to your local PC:

1. In the results pane, click the export icon  (Refer to Figure 7-8). The **Export Package Data** dialog opens.

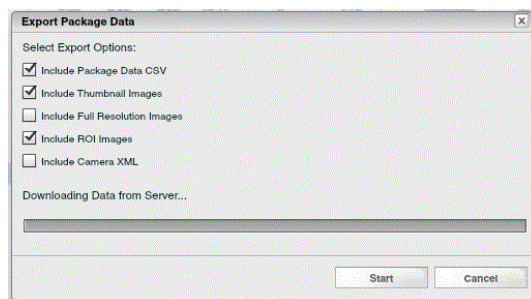


Figure 7-8: Export Package Data

2. Check the export options, and then click **Start**. You will be prompted to navigate to a desired directory location and enter a file name for the exported file.

Package Analytics

7.5 Store Query / Access Saved Queries

You can store a query to the Package Analytics network, access, or delete a previously stored query.

To save the current query so that it can be accessed and viewed by anyone on the Package Analytics network:

- In the selection drawer, under the **Stored Queries** heading, type a name for the query, and then click **Save**. The query will be added to the list of stored queries.

To access a previously stored query:

- Under the **Stored Queries** heading, click the query to select it, and then click **Get Data**. The selection drawer will be closed, and the selected query will be displayed in the results pane.

To delete a stored query:

- Under the **Stored Queries** heading, click the query to select it, and then click **Delete**.

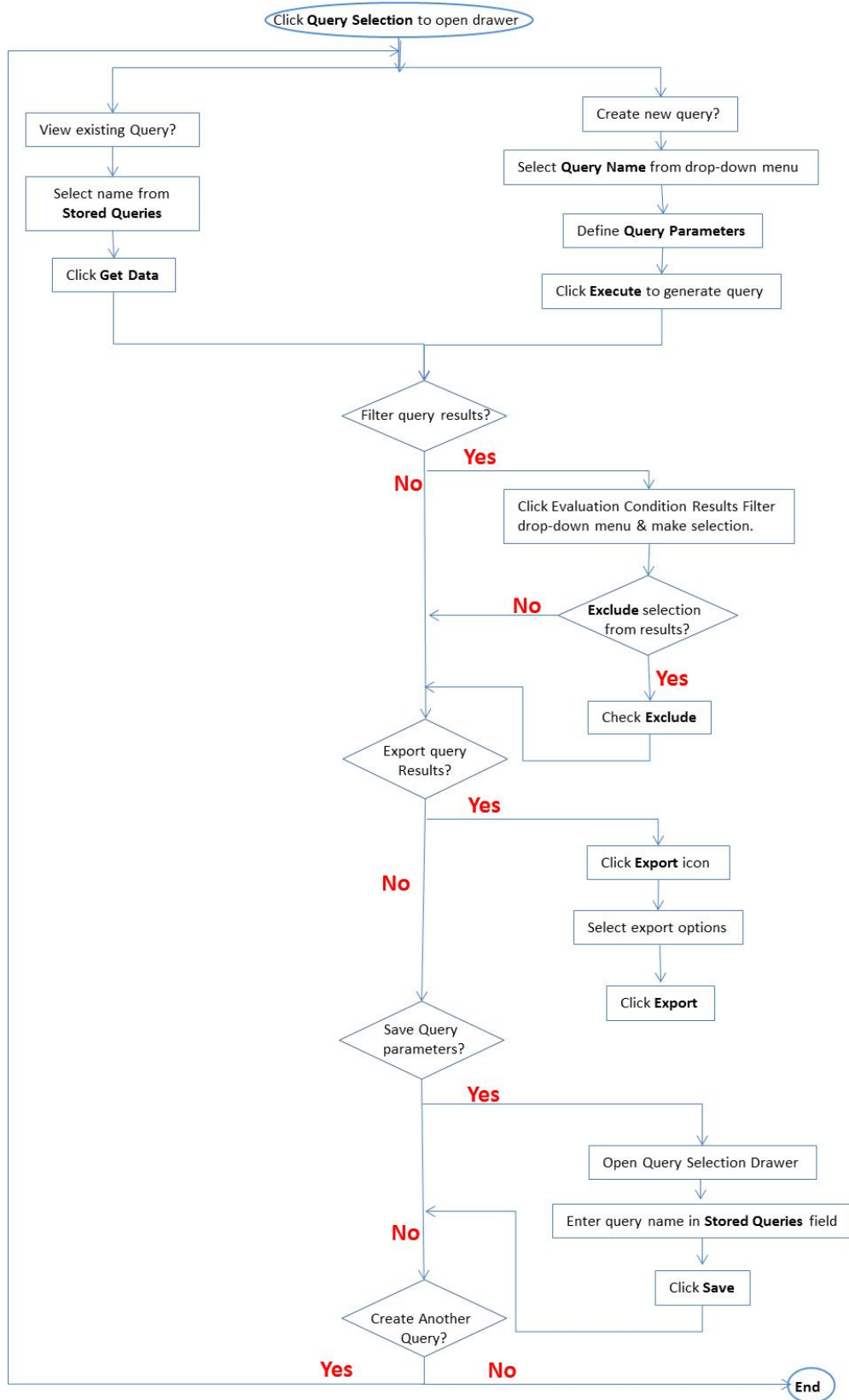


Figure 7-9: Stored Queries

7.6 Process Flowchart: Generating a Query from the Queries Tab

The flowchart on the following page provides a visual illustration of how to generate a query from the queries tab.

Package Analytics



8. The Charts Tab

The **Charts** tab allows you to select a dataset to be plotted in a chart. You can chart current and historical data for an individual system using System View or aggregate data for multiple connected auto ID systems in your facility, using Facility View.

 **Note:** A quick visual guide to generating a chart is provided in flowchart format in Section 8.6.

8.1 Layout

The **Charts** tab contains two main areas:

- The **Chart Selection** drawer
- The results pane

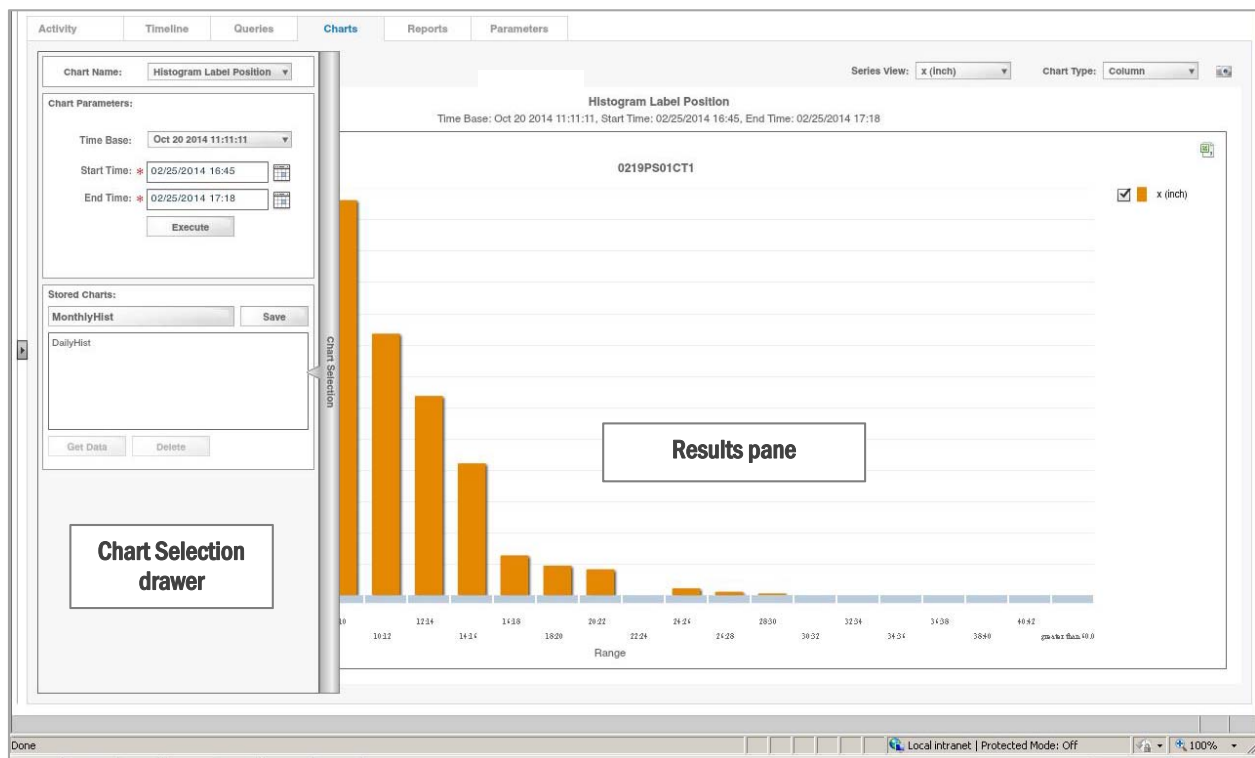


Figure 8-1: Charts Tab (System View)

Package Analytics

8.2 Chart Selection Drawer

The desired chart and parameters are chosen in the **Chart Selection** drawer. The selection drawer may be either “opened” or “closed” by clicking on the bar at the edge of the drawer. It is open by default when you access the **Charts** tab, and closed automatically when you generate a chart.



Note: The **Charts** tab may be accessed either from System View or Facility View. Options in the selection drawer depend on which view was used to access the **Charts** tab.

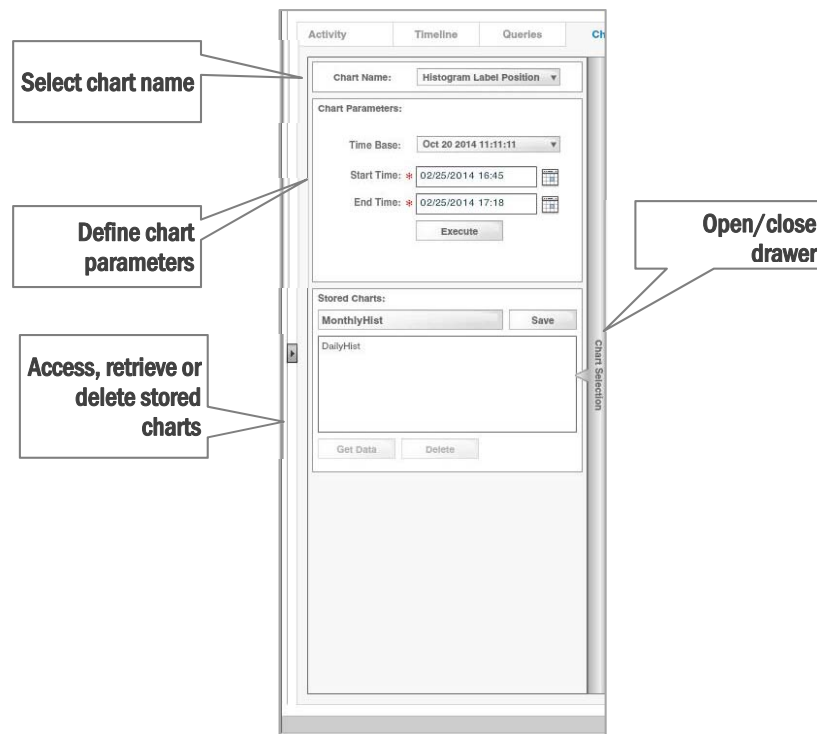


Figure 8-2: Chart Selection Drawer (System View)

8.3 Generating a Chart

To generate a chart in either System View or Facility View:

1. Open the **Chart Selection** drawer if it is not already open (Section 8.2).
2. From the **Chart Name** list, select the name of the chart you’d like to generate (Section 8.3.1).
3. Under the **Chart Parameters** heading, set the parameters for the **Chart Name** you selected in Step 2 (Section 8.3.2).
4. Click **Execute** to generate the chart. The selection drawer closes, and chart results appear in the results pane.

Package Analytics

8.3.1 Select a Chart Name

Chart names identify the available chart types which have been predefined for Package Analytics. By selecting a chart name from the **Chart Selection** drawer, you can create charts for various package attributes.

The charts which appear in the **Chart Name** list, depend on whether you are viewing the **Charts** tab from Facility View or System View, and on your system’s configuration. Refer to Appendix A for a list of chart names and descriptions.



Figure 8-3: Select a Chart Name

8.3.2 Define Chart Parameters

Chart parameters define the scope of the data which is to be searched to generate the chart. After selecting a chart name, you choose the desired parameters by making selections under the **Chart Parameters** heading.

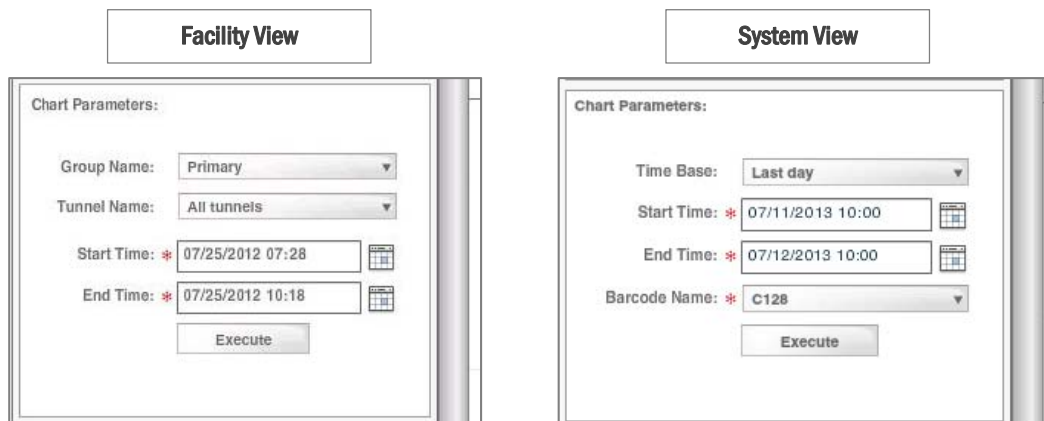





Figure 8-4: Chart Parameters

The parameter selections depend on the **Chart Name** you selected, and whether you are viewing the **Charts** tab from Facility View or System View. Table 8-1 describes the parameter selections

 **Note:** A red asterisk * next to a **Chart Parameters** field indicates required data fields. A value must be entered in these fields before a chart can be generated.

Package Analytics

Table 8-1: Chart Parameter Selections

Chart Parameter		Facility View	System View	Description
Group Name		X		<p>Select the sort group (such as <i>Primary</i> or <i>Secondary</i>) for which you would like the chart to be generated.</p> <p>Note: Groups displayed in the Group Name list are limited by the current Navigator selection. If you do not see the group you are looking for in the Group Name list, open the Navigator, and then click the Facility Name. Now in the Chart Selection drawer make your selection in the Group Name list.</p>
Tunnel Name		X		<p>Check the system IDs (tunnel name) to include in your results, or select <i>All Tunnels</i> to include results for all systems in the list.</p>
Time Base (Select charts only)			X	<p>Making a selection from the Time Base list automatically updates the Start Time and End Time fields, so that those values are set for you.</p> <ul style="list-style-type: none"> <i>Last Day</i>: Enters the time for previous day's sort into the Start Time and End Time fields. The sort time for the <i>Last Day</i> begins and ends at a time which is preconfigured for your facility. <i>Sort Name</i>: Enters the time for the selected sort into the Start Time and End Time fields.
Start Time and End Time		X	X	<p>To manually configure the Start Time and End Time for the chart, click .</p> <ul style="list-style-type: none"> To change the date to start or end the chart, scroll to the desired month, and then click the desired date. To change the time of day to start or end the chart, type the desired time into the Time field, using an HH:MM format .

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Chart Parameter		Facility View	System View	Description
Statistics (Select charts only)		X	X	Check the Statistics to include. You can choose as many statistics as you would like to include, but you must check at least one statistic. Note: In Facility View, if you have selected All groups from the Group Name list, the Statistics heading shows only the label undefined and you will see an error message when you run the chart. This is because it is not possible to query conditions for more than one sort group at a time. To generate a chart, first select a single sort group in the Group Name list, and then check the Statistics to include.
Condition (Select charts only)		X	X	Check the Conditions to include. You can choose as many conditions as you would like to include, but you must check at least one condition. Note: In Facility View, if you have selected All groups from the Group Name list, the Condition heading shows only the label undefined and you will see an error message when you run the chart. This is because it is not possible to query conditions for more than one sort group at a time. To generate a chart, first select a single sort group in the Group Name list, and then check the Conditions to include.
Other Parameter Selections		X	X	Depending on the Chart Name selected, additional fields may appear under the Parameters heading.

8.3.3 Generate the Chart

When you have made the desired selections from the **Chart Name** list, and the **Chart Parameters**, click **Execute** to generate the chart. The selection drawer closes to maximize the view of the results pane. Chart results may take several moments. A progress dialog appears in the results pane.

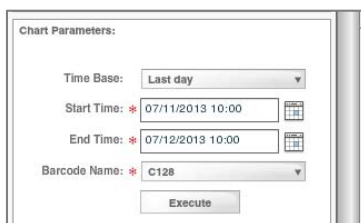


Figure 8-5: Generate the Chart


Package Analytics

8.4 Chart Results

When a chart has been generated, the selection drawer closes, and the chart is displayed in the results pane. If you generated the chart from Facility View, results for each auto ID system appear in a chart gallery.

8.4.1 Chart Gallery (Facility View Only)

If you generate charts from Facility View, and selected multiple systems from the **Tunnel Name** field, Package Analytics generates a separate chart for each system selected. All the charts appear in the in a results gallery, and you can use the scroll bars to scroll through the results.

 **Note:** Each system is represented individually by its own chart. Package Analytics does not aggregate chart data for multiple systems.

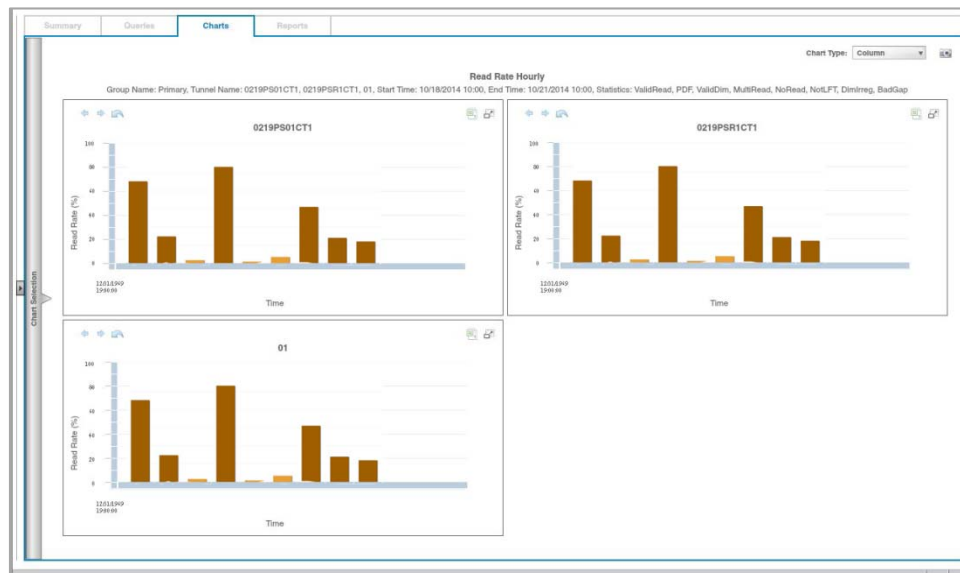




Figure 8-6: Chart Gallery

To maximize any individual chart in the results gallery to full pane view:

- At the top right corner of the chart, click **Maximize**  .

To restore the gallery view from the full pane view,

- At the top right corner of the chart, click **Restore**  .

Package Analytics

8.4.2 Viewing Chart Results

Once your chart has been generated, you have several options to modify, inspect, and save the chart.

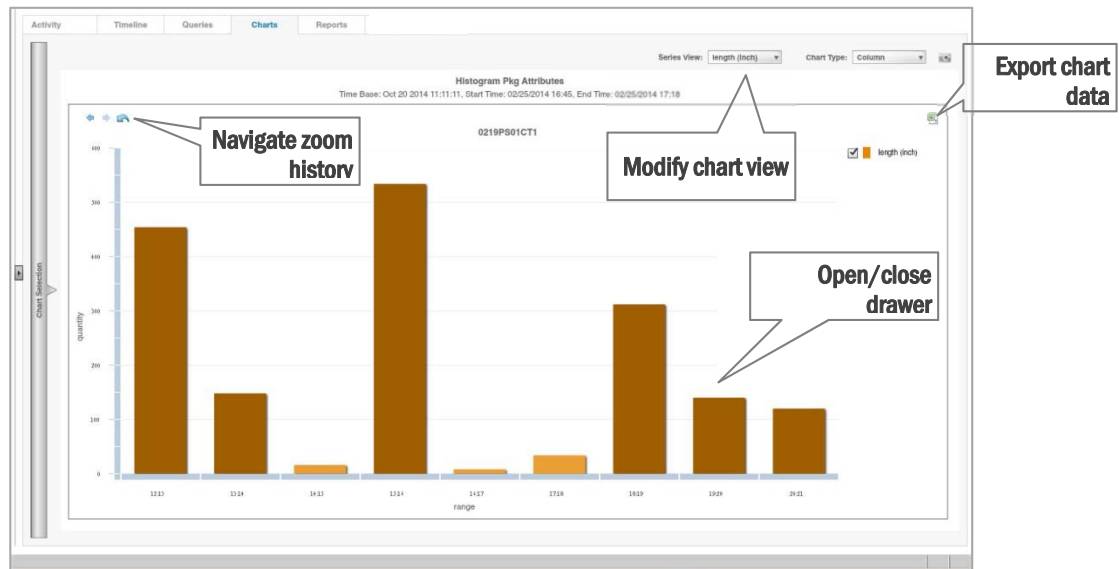


Figure 8-7: Chart Results

You can view a screen tip displaying statistics for various data points in the chart:

- Using your mouse, point to chart results.

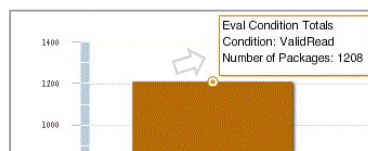


Figure 8-8: Screen Tip

You can zoom in on desired data for a closer inspection of a specific set of data:

- Drag your mouse over the area to zoom. The zoomed view is shown in the results pane, and is also saved in a zoom history. To navigate between saved zoom views, or reset to the original view, use the **Zoom History** arrows.



Figure 8-9: Zoom History

Package Analytics


You can save a snapshot of the current view:

- Click **Save Snapshot**, browse to the directory location where you would like the snapshot to be stored, and then click **Save**.



Figure 8-10: Save Snapshot

Saved snapshots are stored in a .png format.

 **Note:** The **Save Snapshot** function is similar to the **Stored Chart** option described in Section 8.5. However, using **Save Snapshot** you save an image of the chart only to the local PC. Saved snapshots are not available to other users from the Package Analytics dashboard

To save a chart to the Package Analytics server, and make it available through the Package Analytics dashboard, use the **Stored Charts** option in the **Chart Selection** drawer (See Section 8.5).

Once a chart has been generated, you can change how you view the data.

1. Make the desired selections from the **Series View** and **Chart Type** lists. Note that the options available depend on the type of chart which has been generated.

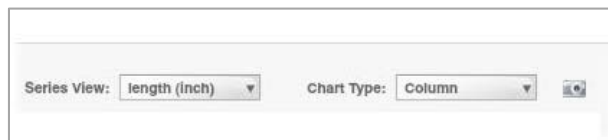


Figure 8-11: View Options

The following table describes the selections for viewing data:


Table 8-2: Chart View Selections

Selection	Description
Series View (Select charts only)	Select the data type which is used to generate the chart series (y-axis value).
Chart Type	Select from the available chart types listed for the current chart.

Package Analytics

8.5 Stored Charts (System View Only)

In System View, you can store a chart, access or delete a previously stored chart. Storing a chart using the selection drawer's **Stored Charts** heading saves the chart to the Package Analytics server, and makes the chart available to anyone on the Package Analytics dashboard.

 **Note:** The **Stored Chart** option is similar to the **Save Snapshot** function described in Section 8.4. However, using the **Stored Chart** option, you save the chart to the Package Analytics network, making it available from the dashboard.

To store the current chart:

- In the selection drawer, under the **Stored Charts** heading, type a chart name, and then click **Save**. The new chart will be added to the list of stored charts.

To access a previously stored chart:

- In the list of stored charts, click the chart to select it, and then click **Get Data**. The selection drawer will be closed, and the selected chart will be generated based on the saved parameters and statistics and then displayed in the results pane.

To delete a stored chart:

- In the list of stored charts, click the chart to select it, and then click **Delete**.

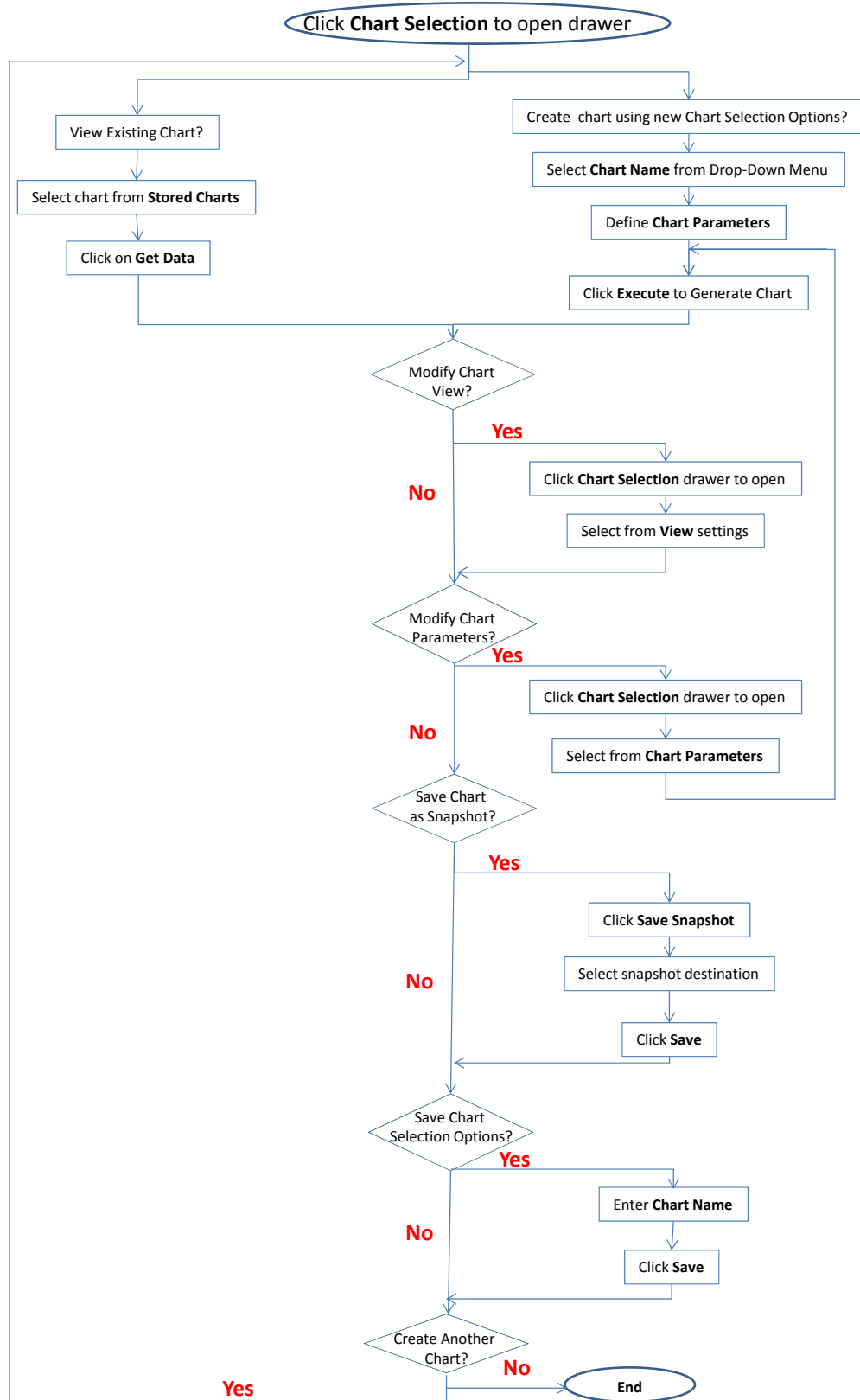


Figure 8-12: Stored Charts

8.6 Process Flowchart: Generating a Chart from the Charts Tab

The flowchart on the following page provides a visual illustration of how to generate a chart from the charts tab.

Package Analytics



9. The Reports Tab

From the **Reports** tab you can select from predefined reports to create from a specified range of dates for all sorts or from a single selected sort. The report is stored in a *.csv format to a user-specified location. From here it can be opened using a text reader such as Notepad, or imported into MS Excel.

You can generate reports for current and historical data for an individual system using System View or aggregate data for multiple connected auto ID systems using Facility View.



Note: A quick visual guide to generating a report is provided in flowchart format in Section 9.4.

9.1 Layout

The **Reports** tab contains two main areas:

- The **Report Selection** drawer
- The results pane

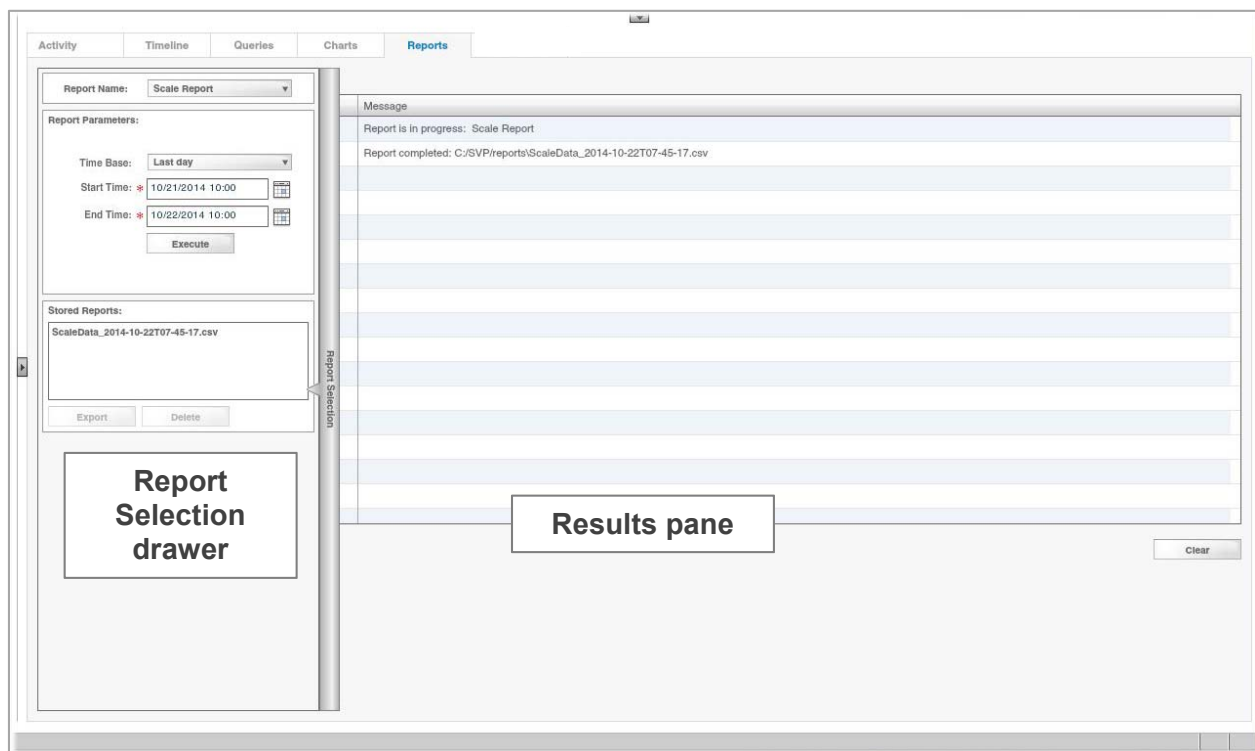



Figure 9-1: Reports Tab (System View)

Package Analytics

9.2 Report Selection Drawer

The desired report and parameters are chosen from the **Report Selection** drawer. The selection drawer may be either “opened” or “closed” by clicking on the bar at the edge of the drawer. It is open by default when you access the **Reports** tab, and closed automatically when you generate a report.

 **Note:** The **Reports** tab may be accessed either from System View or Facility View. Options in the selection drawer depend on which view was used to access the **Reports** tab.

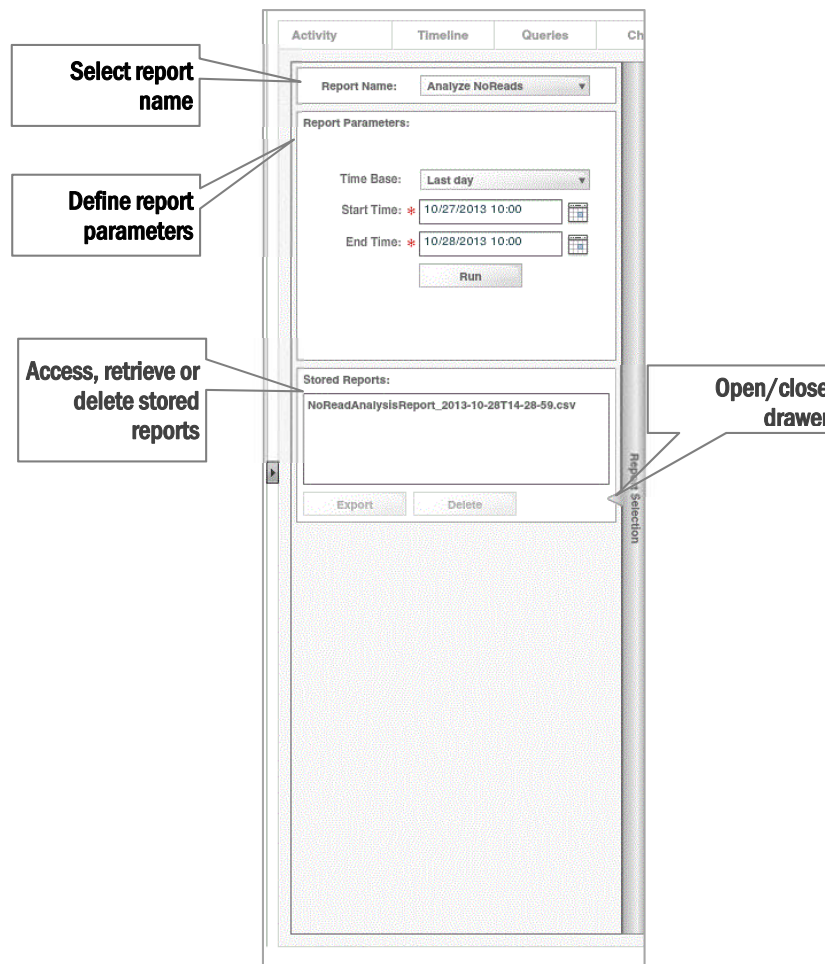


Figure 9-2: Selection Drawer (System View)

Package Analytics

9.3 Run a Report

To run a report:

1. Open the **Report Selection** drawer if it is not already open.
2. From the **Report Name** list, select the name of the report you'd like to generate (Section 9.3.1).
3. Under the **Report Parameters** heading, set the parameters for the **Report Name** you selected in Step 2 (Section 9.3.2).
4. Click **Run** to generate the report (Section 9.3.3). The selection drawer closes, and report results appear in the results pane.

9.3.1 Select a Report Name

Report types have been predefined for Package Analytics. By selecting a report name, you can create reports for various package attributes.

To select the type of report you would like to generate:

- Make a selection from the **Report Name** list.



Figure 9-3: Report Name List

Appendix A contains a list of report names and descriptions.

9.3.2 Define Report Parameters

Report parameters define the scope of the data which is to be searched to generate the report. After selecting a report name, you can choose the desired report parameters by making selections under the **Report Parameters** heading.

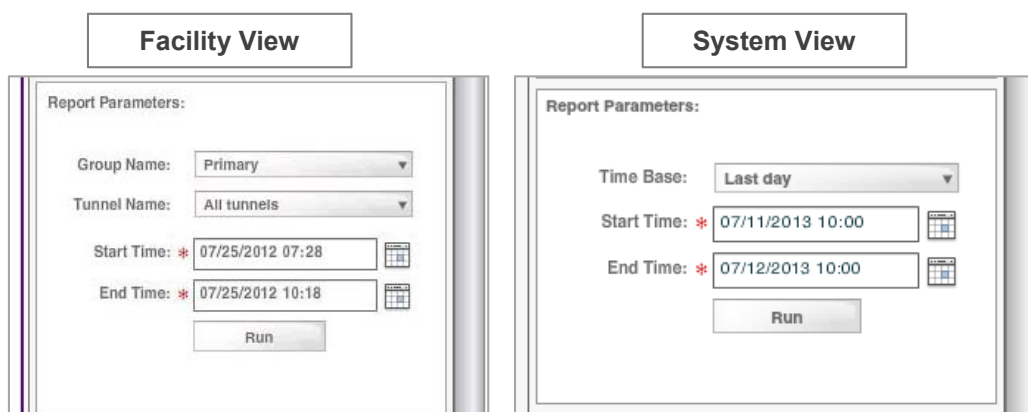


Figure 9-4: Report Parameters

Package Analytics

The parameter selections depend on the Report Name you selected, and on whether you are viewing the Reports tab from Facility View or System View.

Table 9-1 describes the parameter selections.





Note: A red asterisk * next to a **Report Parameters** field indicates a required data field. A value must be entered in this field before a report can be generated.

Table 9-1: Report Parameter Selections

Report Parameter	Facility View	System View	Description
Sort Name		X	Select the sort which you would like the report to be generated from, or select <i>All Sorts</i> .
Group Name	X		Select the sort group (such as <i>Primary</i> or <i>Secondary</i>) for which you would like the report to be generated. Note: Groups displayed in the Group Name list are limited by the current Navigator selection. If you do not see the group you are looking for in the Group Name list, open the Navigator , and then click the Facility Name. Now in the Report Selection drawer make your selection in the Group Name list.
Tunnel Name	X		Select the system ID (tunnel name) to include in your results, or select <i>All Tunnels</i> to include results for all systems in the list. Note: You can run a report for an individual system, or for all systems in the group. It is not possible to run a report for select multiple systems in the group.
Include Individual (Select reports only)	X		Check to include a report breakdown by system as well as by group.
Errors Only (Select reports only)	X	X	Check to include only heartbeat errors (Warnings will not be included)

Package Analytics

Report Parameter	Facility View	System View	Description
Time Base		X	<p>Making a selection from the Time Base list automatically updates the Start Time and End Time fields, so that those values are set for you.</p> <ul style="list-style-type: none"> • <i>Last Day</i>: Enters the time for previous day's sort into the Start Time and End Time fields. The sort time for the <i>Last Day</i> begins and ends at a time which is preconfigured for your facility. • <i>Sort Name</i>: Enters the time for the selected sort into the Start Time and End Time fields.
Start Time and End Time	X	X	<p>To manually configure the Start Time and End Time for the report, click .</p> <ul style="list-style-type: none"> • To change the date to start or end the report, scroll to the desired month, and then click the desired date. • To change the time of day to start or end the report, type the desired time into the Time field, using an HH:MM format .
Release Point (Select Reports only)	X	X	Enter the desired release point

Package Analytics

9.3.3 Run the Report

When you have made the desired selections from the **Report Name** list, and the **Report Parameters**, click **Run** to generate the report. The selection drawer closes to maximize the view of the results pane. Report results may take several moments.

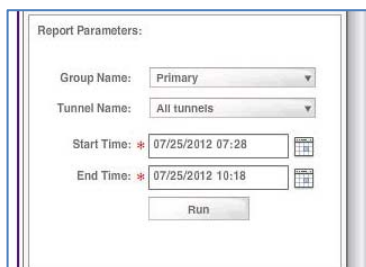


Figure 9-5: Run the Report

While the report is being run, a status message appears in the results pane. When the report is complete, the status message updates to **Report completed** followed by the network location of the stored results as shown in Figure 9-6. The new report is added to the top of the **Stored Reports** list in the selection drawer. The report is saved to the Package Analytics server, and can be exported by anyone on the Package Analytics network.

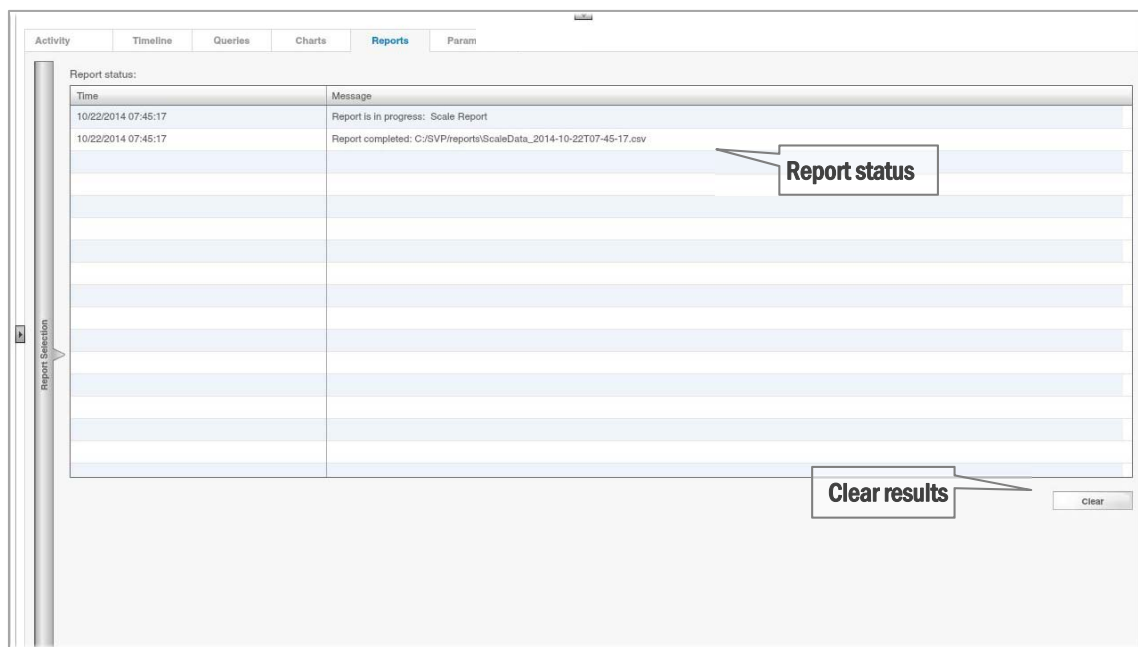


Figure 9-6: Report Results

To view the report you must export the report using the report **Export** function (Section 9.3.4). After exporting the report, you can open the file from the saved location using a text editor.

To clear the report from the results pane:

Package Analytics

- Click **Clear**. The results pane is cleared of all entries. However, the report is not deleted from the Package Analytics server, and can still be accessed from the **Stored Reports** heading.

9.3.4 Stored Reports

You can access a stored report to export it to the local PC for review, or you can delete a previously stored report.



Figure 9-7: Stored Reports

To access a stored report:

1. Under the **Stored Reports:** heading, click the report to select it, and then click **Export**.
2. In the **Export Report File** dialog, click **Browse**.

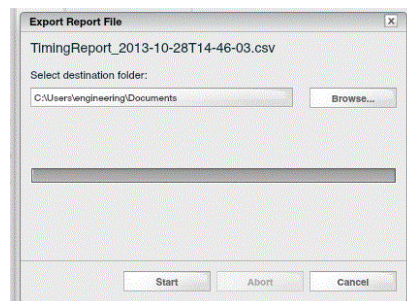


Figure 9-8: Export Report File

3. Select a directory destination, and then click **OK**.
4. Click **Start** to begin the report export. This may take a few moments.

The report is exported in a .csv format. You can open the file from the saved location using Notepad, MS Excel, or other text editor.

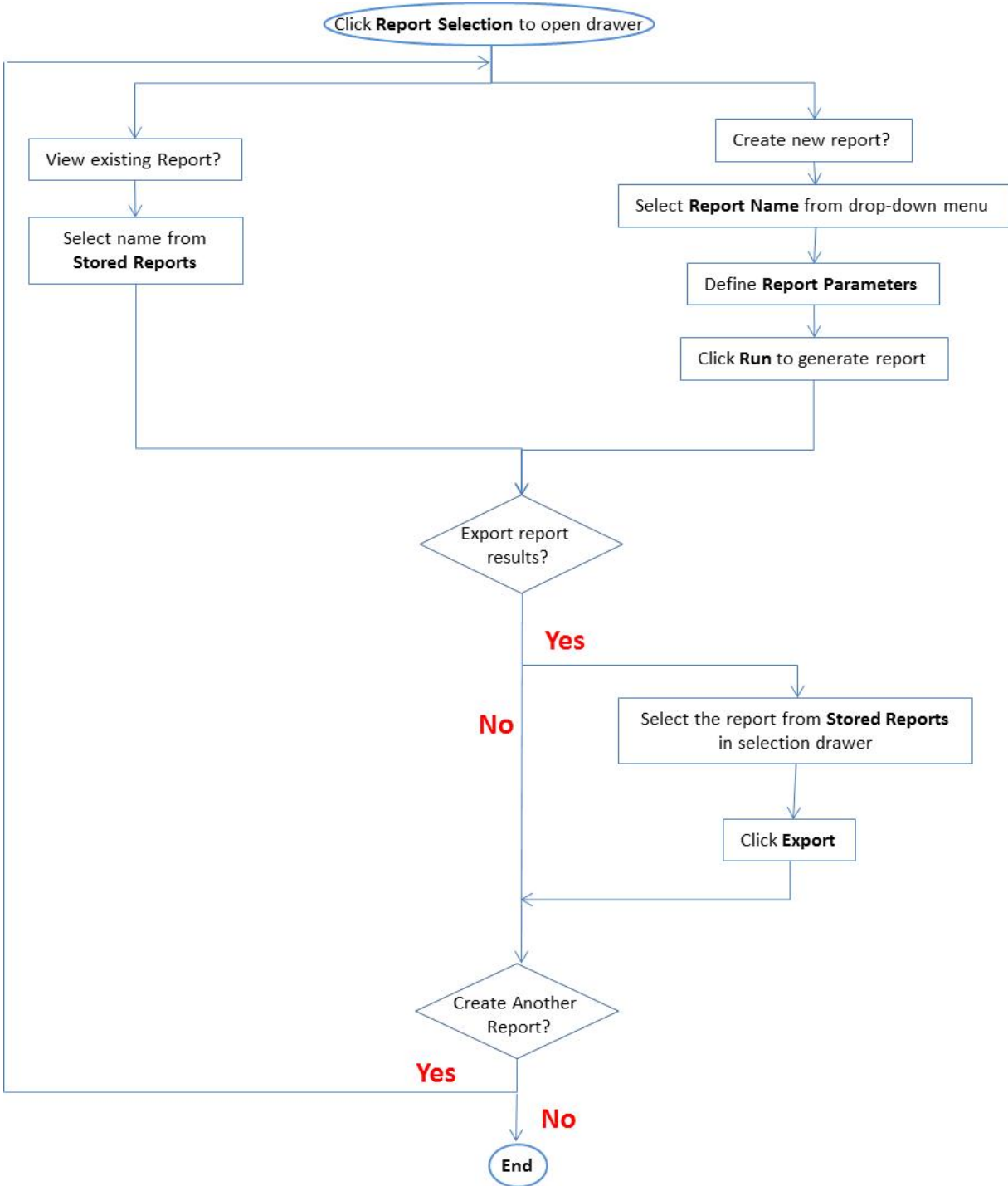
To delete a stored report:

- In the **Stored Reports** list, click the report to select it, and then click **Delete**. The report is deleted from the Package Analytics server.

9.4 Process Flowchart: Generating a Report from the Reports Tab

The flowchart on the following page provides a visual illustration of how to generate a report from the reports tab.

Package Analytics



Package Analytics

10. Facility View

Facility View is the Package Analytics system visualization which is displayed on a client PC. From Facility View you have access to detailed information including summary data, charts, reports and queries for an individual Package Analytics network facility. Using Facility View, you can view this data for all connected systems in the facility.

From its default tab, the **Summary** tab, Facility View provides you with an overview of all connected auto ID systems. Color-coded information allows you to quickly identify systems which are not operating at expected performance levels, and isolate the probable cause for any problems. In addition, you can use Facility View to access System View for any individual auto ID system.

Using Facility View, you have access to the full range of Package Analytics data for every connected auto ID system in the facility.

10.1 Using Facility View

The default Facility View tab (the **Summary** tab) is shown in Figure 10-1. Facility View has two key areas:

- The Navigator toolbar
- The Facility View tabs

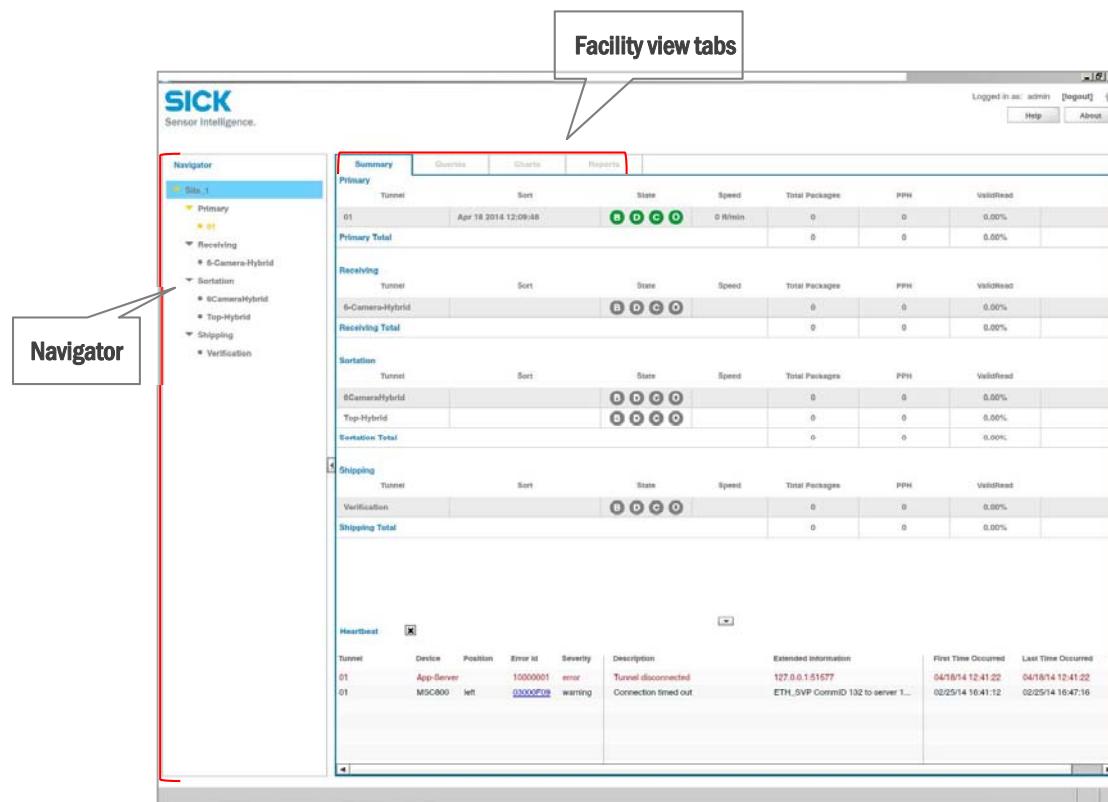


Figure 10-1: Facility View

Package Analytics

10.2 The Navigator Toolbar

A key feature of Facility View, the **Navigator** is displayed on the left side of the screen. This toolbar allows you to navigate to information for any connected auto ID system in the current facility.

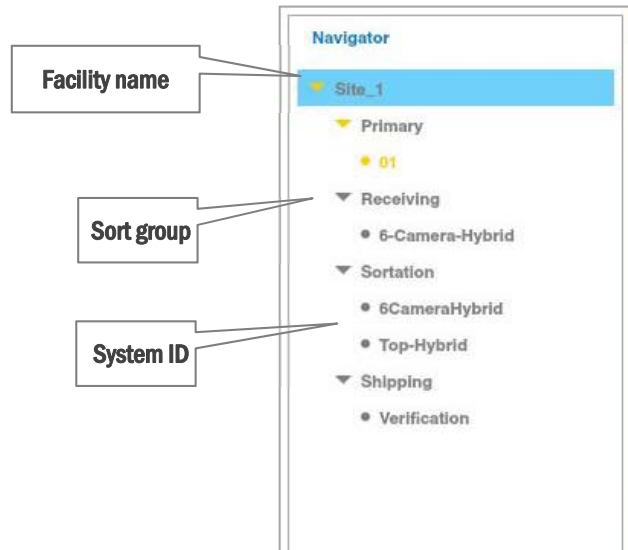


Figure 10-2: The Navigator Toolbar

The facility name is identified at the top of the **Navigator**. Underneath the facility name, the **Navigator** lists sort groups for the facility's systems, such as *Primary* and *Secondary*. Underneath each group is a complete list of each associated system ID.

By clicking on an item in the **Navigator**, you can switch between **Facility View** and **System View**.

To access Facility View to view summary data of all of the facility's connected systems:

- In the **Navigator**, click the facility name, or sort group (such as *Primary* or *Secondary*).
Facility View for the selected facility or group is displayed.

Package Analytics

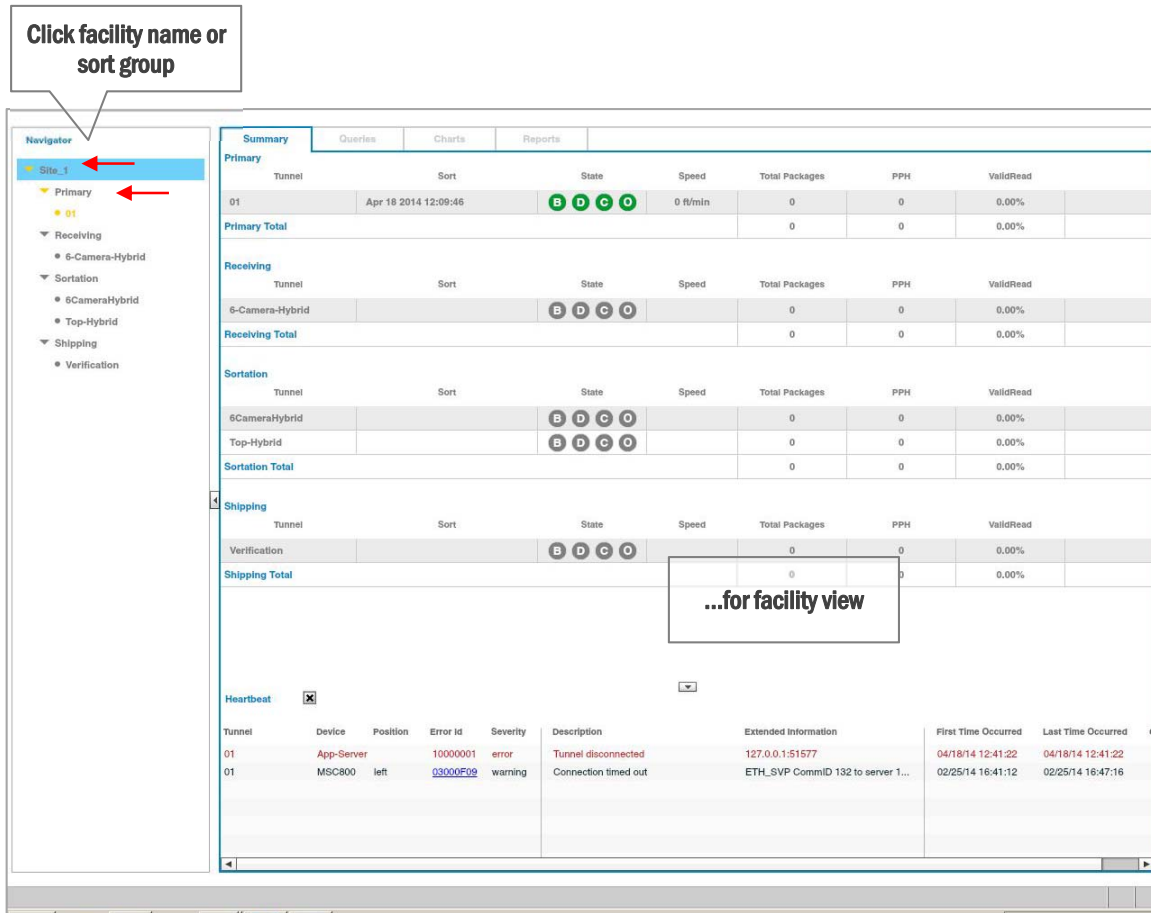


Figure 10-3: Using Navigator to Access Facility View

To access System View for details about any individual system:

- In the **Navigator**, click the system ID.
System View for the selected system is shown in the results pane.

Package Analytics

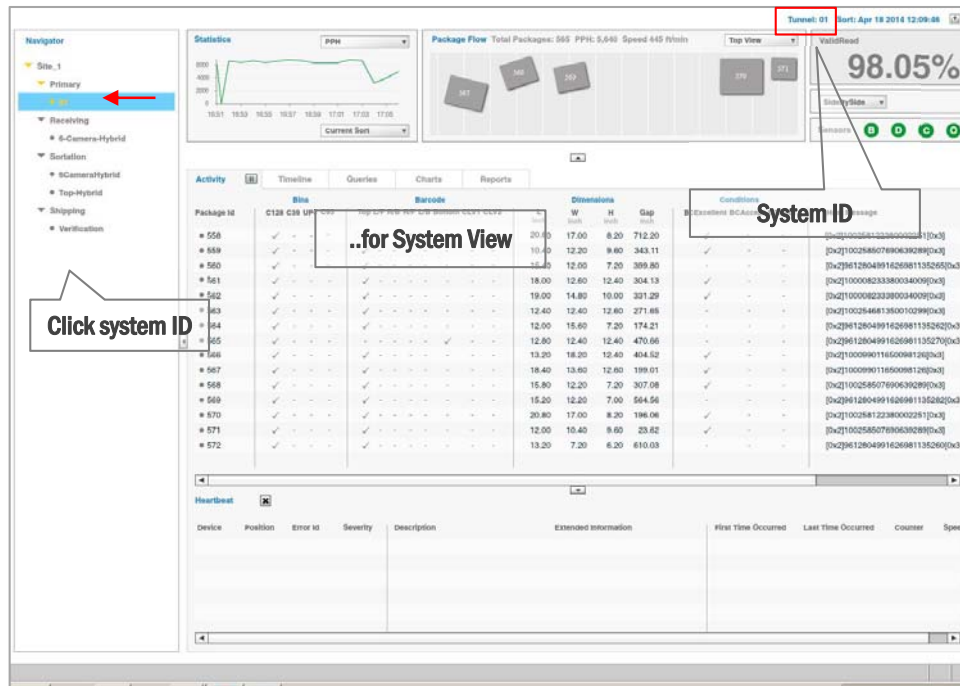



Figure 10-4: Using Navigator to Access System View

The **Navigator** may be hidden in order to maximize the results pane for an unobstructed view. To hide or unhide the **Navigator**, click the arrow .

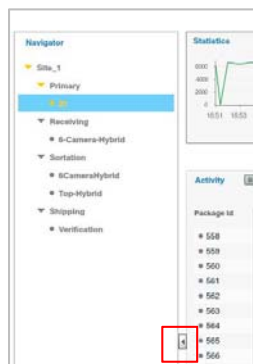


Figure 10-5: Hide/Unhide the Navigator

Package Analytics

10.3 Facility View Tabs

If you have made a Facility View selection from the **Navigator** (Facility name, or logical sort group, like *Primary* or *Secondary*), the results pane displays Facility View tabs for your selection.



Figure 10-6: Facility View Tabs

The following tabs are displayed in Facility View:

- **The Summary tab** – displays a summary of the status of each connected auto ID system in the facility at a glance. This is the Facility View default screen. The **Summary** tab is described in Chapter 11.
- **The Queries tab** – allows you to select from a list of predefined queries to filter system data by specific criteria for all connected auto ID systems in the facility. The **Queries** tab is described in Chapter 7.
- **The Charts tab** – allows you to select from a list of predefined charts to view aggregate system data for all connected auto ID systems in the facility. The **Charts** tab is described in Chapter 8.
- **The Reports tab** – allows you to select from a list of predefined reports for all connected auto ID systems in the facility. The **Reports** tab is described in Chapter 9.

If you have selected an individual system ID from the **Navigator**, System View is displayed in the results pane. You can navigate through the System View tabs as described in Chapter 3.

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Package Analytics

11. The Summary Tab

The Facility View **Summary** tab provides a summary of the status of every connected auto ID system in the facility. The simple grid layout of this tab provides you with a quick understanding of the current status of every system at one glance.

The **Summary** tab is divided into two main areas:

- The system status pane
- The Heartbeat Data Table

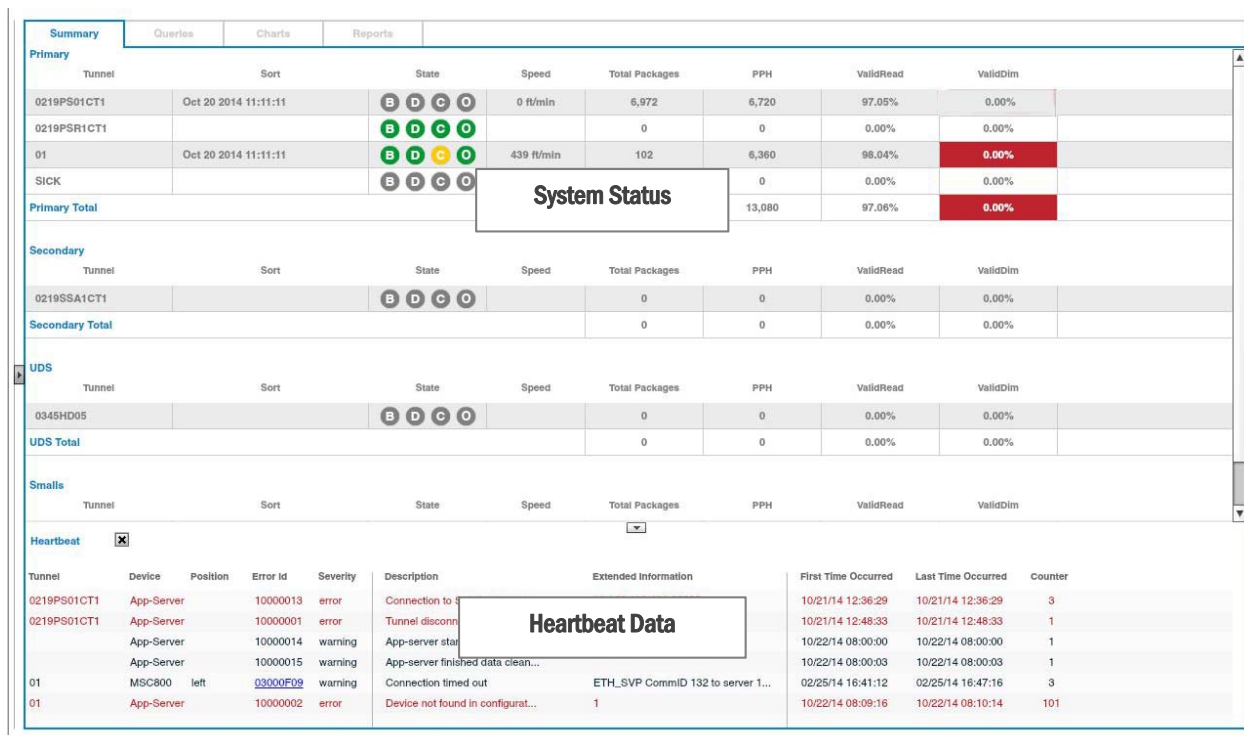



Figure 11-1: The Summary Tab

 **Note:** The **Summary** tab is not available from the system console. This is because the Package Analytics dashboard at the system is limited to data for that system only (System View).

Package Analytics

11.1 System Status

The system status pane is divided into sort groups (such as *Primary* and *Secondary*) and lists each auto ID system under its respective heading.

Data for each system is displayed in a table across the system status pane.

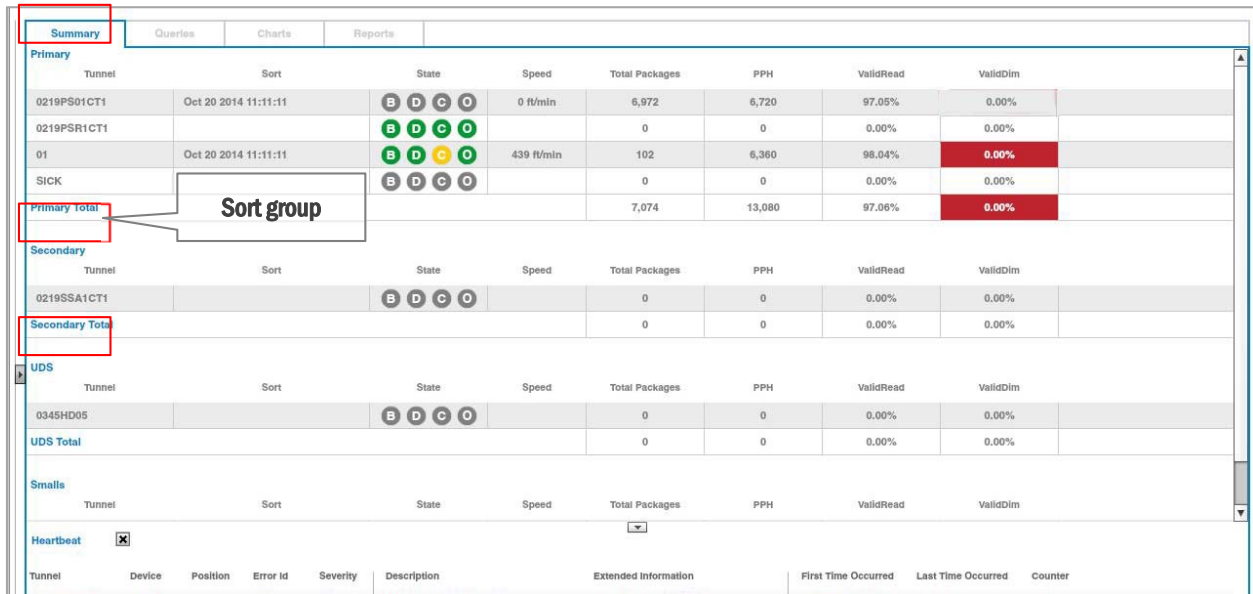


Figure 11-2: System Status Panes

The icons in the **State** column in the system status pane provide a color-coded visualization of the health status of the auto ID system’s major sensor components. If any of the sensors are faulted, this state is indicated by a yellow or red icon.

0219PS06CT1	Jul 05 2013 07:43:34	B D C O	240 ft/n
PS06Test	2011-11-28T12:00:00 Day	B D C O	





Figure 11-3: Status Icons

To view a list of devices associated with a sensor, point to the icon in the **State** column. This opens a screen tip which lists all associated devices and reports their current state.

Package Analytics

The following table provides a description of the columns in the system status table:

Table 11-1: System Status Table

Column	Description
Tunnel	System (tunnel) ID
Sort	Name of current sort. If no sort is currently in progress this field is blank.
State	<p>Indicates the state of each tunnel sensor:</p> <ul style="list-style-type: none">  Barcode scanner  Dimmer  Controller  Other <p>Icons are color-coded to provide an indication of the current sensor status: Grey – system is not in use –verified indicator Green –normal state Yellow – sensor or device warning Red – severe problem Point to a State icon to view a list of associated devices and their status.</p>
Speed	Current conveyor speed in feet /minute
Total Packages	Number of packages scanned during the current sort
PPH	Packages per hour (PPH) for the current sort
ValidRead	Read rate statistic for ValidRead packages. (Primary Statistic)
ValidDim	Read rate statistic for valid dimensions (Secondary Statistic)

To open System View for any connected auto ID system from the **Summary** tab:

- Click on the system in the system status pane.
 - or*
 - Click on the system in the **Navigator**.
- System View opens for the selected system. You can return to Facility View using the **Navigator**.

Package Analytics

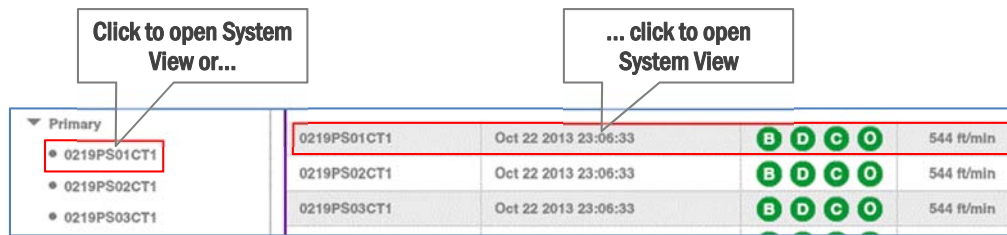



Figure 11-4: Opening System View

To maximize the view of the system status pane:

- At the bottom of the system status pane, click the arrow  .

11.2 Heartbeat Data Table

The Heartbeat Data Table provides additional details for faults shown in the system status pane. Heartbeat information is listed only for systems which show a fault as indicated by the **State** column in the system status pane. Faults are shown in a Heartbeat Data Table. The *Tunnel* column in the Heartbeat Data Table identifies each error with a specific system.

Appendix A provides a detailed description of the columns in the Heartbeat Data Table.

Tunnel	Device	Position	Error Id	Severity	Description	Extended Information	First Time Occurred	Last Time Occurred	Counter
0219PS01CT1	App-Server		10000013	error	Connection to Solution server ...	10.100.100.101:55555	10/21/14 12:36:29	10/21/14 12:36:29	3
0219PS01CT1	App-Server		10000001	error	Tunnel disconnected	127.0.0.1:49772	10/21/14 12:48:33	10/21/14 12:48:33	1
	App-Server		10000014	warning	App-server started data cleanu...		10/22/14 08:00:00	10/22/14 08:00:00	1
	App-Server		10000015	warning	App-server finished data clean...		10/22/14 08:00:03	10/22/14 08:00:03	1
01	MSC800	left	03000FD9	warning	Connection timed out	ETH_SVP CommID 132 to server 1...	02/25/14 16:41:12	02/25/14 16:47:16	3
01	App-Server		10000002	error	Device not found in configurat...	1	10/22/14 08:09:16	10/22/14 08:10:14	101

Figure 11-5: Tunnel Heartbeat Information

To clear all errors from the Heartbeat Data Table:

- At the top of the Heartbeat Data Table, click the clear  icon.

12. Package Analytics Maintenance

This section describes hardware maintenance as well as the automated scripts which perform software maintenance procedures.

12.1 Hardware Maintenance

12.1.1 PC Maintenance

Package Analytics will run on a PC that can be either local to the SICK Auto ID system or remote in an IT server room or control room. If you have purchased a PC Kit from SICK, the PC will be pre-configured for your application and installed by SICK Service Technicians. The SICK-provided PC requires minimal maintenance to ensure proper functionality.

SICK has maintained a PC product line that keeps up with changing PC technologies. There are three styles of PC hardware from SICK. Each requires minimal preventive maintenance.

This section describes the SICK PC product line, and the maintenance required (if any) for each PC.

12.1.2 PC Option 1: Quad Core: Air Cooled (Sold in United States Only)

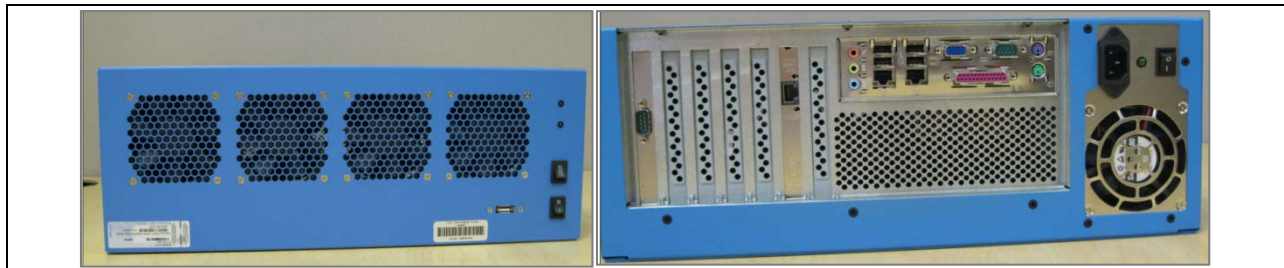


Figure 12-1: PC Front View without Filter (Left) and Rear View (Right)

Quad Core PC Filter Maintenance

The PC filter should be cleaned on a regular basis. It is recommended that the filter be cleaned no less than once per month. More frequent cleaning may be required depending on the environment that the PC is running in. Failure to properly maintain the PC filter could cause the PC to overheat and eventually fail.

1. Visually inspect the PC filter for dirt and grime. If there is dirt and grime buildup, the filter needs to be cleaned.

Package Analytics

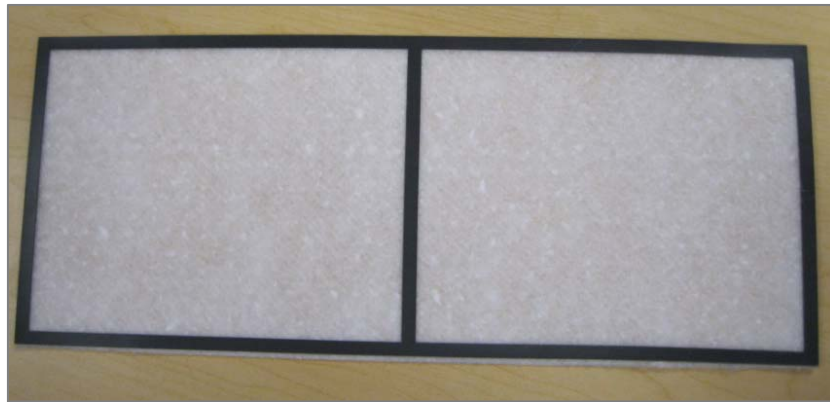


Figure 12-2: PC Filter

2. Remove the filter by peeling it back from the PC.



Note: The PC should not be run without a filter attached for more than a few minutes of at a time. Attach the spare filter provided with the PC kit if the original filter cannot be immediately replaced.

3. Inspect the filter for wear and tear. Replace the filter if there are signs of wear or damage.
4. Briskly shake out or vacuum (both sides) of the filter removing the excessive dirt build-up.
5. When the filter is free of dirt, reattach it by aligning and pressing the magnets against the front of the PC covering the air intake window. Align the filter as shown in Figure 12-3).



Figure 12-3: PC Front View with Filter Attached



Note: It is not recommended that you clean the filter with water or detergent. Over time this will cause the filter to degrade.

Package Analytics

Quad Core PC Replacement Parts

Use the following part numbers for ordering replacement parts for your Quad Core PC kit.

PC Replacement Parts for PC Option 1		
Part #	Description	Notes
2049804	Display, LCD, 17in, Shielded Screen	Commercially available equivalent can be used
6038556	Mouse, PS/2 Optical, 2 Button, scroll	Commercially available equivalent can be used
6038557	Keyboard, PS/2 US-English	Commercially available equivalent can be used
6038558	Keyboard Cover, Flexible	Commercially available equivalent can be used
5322424	Filter White Mesh, Monitoring PC	This filter has been specifically designed for this PC. Use of non- approved filters could cause damage to the PC and could void the warranty.

12.1.3 PC Option 2: Fanless PCs

SICK offers two fanless PC styles to fit specific application requirements These fanless PC's are rated up to 55 C ambient temperatures and require no preventive maintenance.

ATOM Processor Fanless PCs

The cost effective ATOM processor for fanless PCs are ideal for System View Core/Prime, without images.

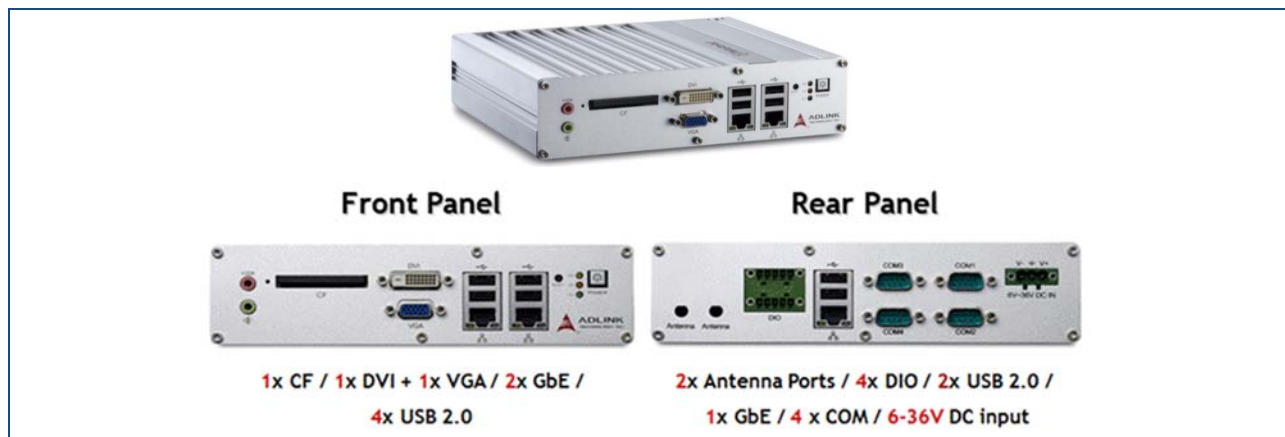


Figure 12-4: ATOM Processor Fanless PC

Package Analytics

MXE-5400 Series Fanless PC

The MXE-5400 Series PC features easy maintenance and high flexibility.

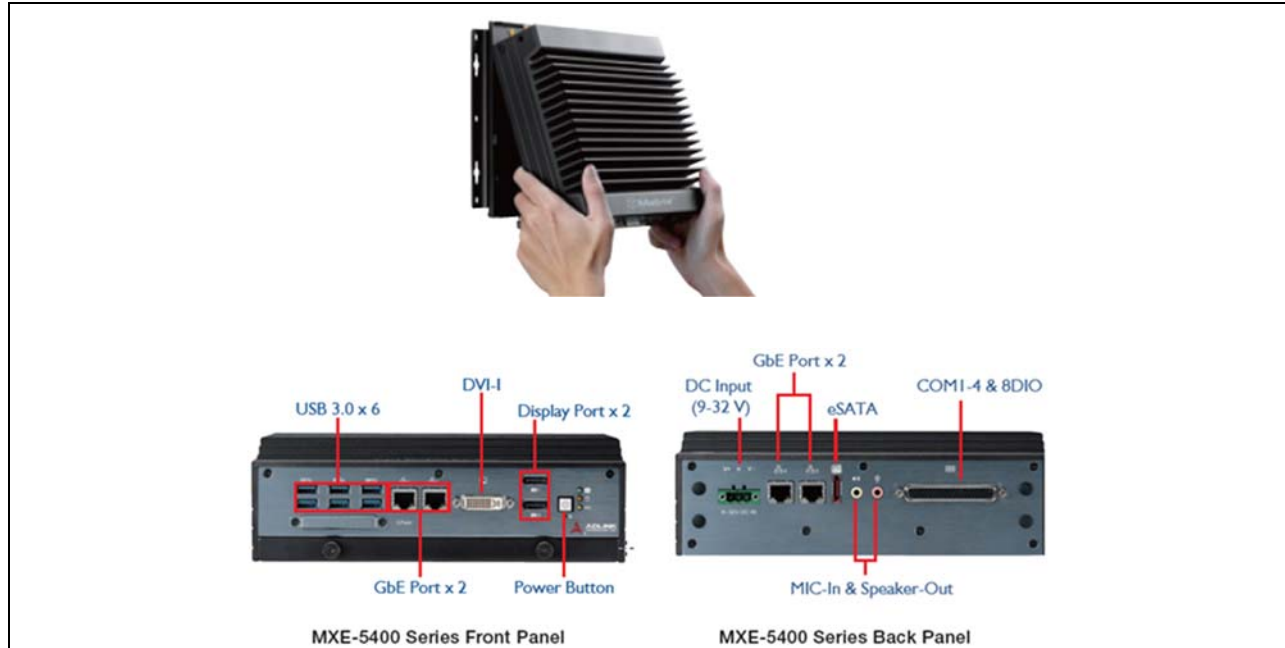


Figure 12-5: MXE-5400 Series Fanless PC

12.1.4 PC Option 3: High Temperature/ Large Storage Option

For applications where ambient temperature rises above 55°C, SICK offers a PC rugged enough to handle those environments.

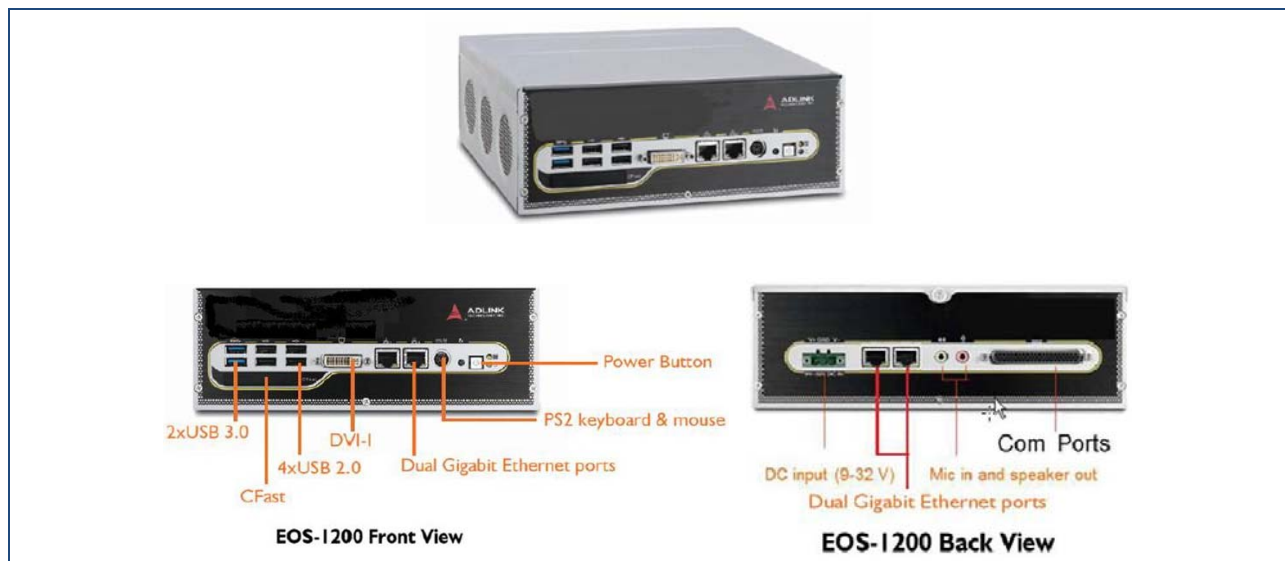


Figure 12-6: PC Option 3 High Temperature/ Large Storage Option

Package Analytics**Hi Temperature / Large Storage Option PC Filter Replacement**

1. Open the top cover, using thumbscrews.



Figure 12-7: PC Option 3 Filter Replacement

2. Remove and replace the hot swappable filter for easy replacement.



Figure 12-8: Filter Replacement

12.2 PC Replacement

The following procedure describes how to remove and replace the PC should this become necessary. This procedure refers to any of the PC options.

12.2.1 Cloning Plug

In the event that the PC needs to be replaced, you will need to create a backup of the PC to the cloning plug (USB drive). You will use the cloning plug called PACK-CLONE or SVP-CLONE to restore Package Analytics on the new (replacement) PC. Figure 12-9 shows the location of the cloning plug on the PC.

Any USB dongle can be used but it must be named PACK-CLONE or SVP-CLONE.

Package Analytics

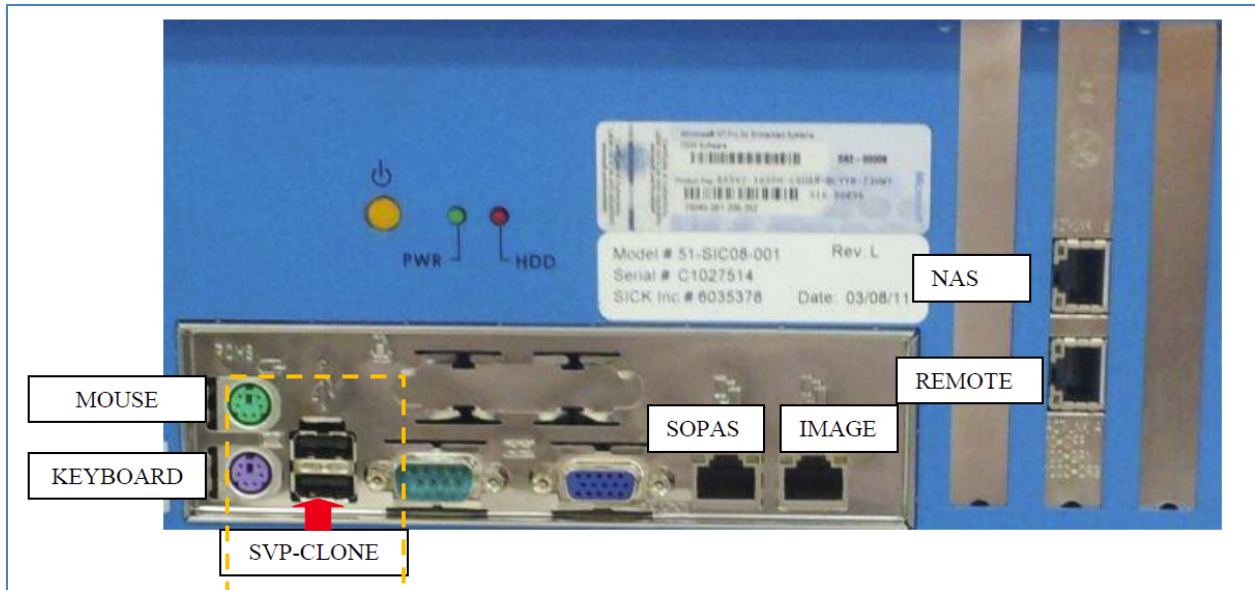


Figure 12-9: Cloning Plug Location

12.2.2 PC Backup and Restore (LINUX-based Systems)

Backup Procedure (LINUX)

1. Login to the PC as the user **engineering**.
2. Insert the PACK-CLONE cloning plug into the PC. Wait for the **PACK-CLONE** desktop icon to appear.



Figure 12-10: Windows Desktop Icon

3. Navigate to `/home/engineering/SPV/scripts`. Run **RUNSVP Backup.sh** to start backup.

Package Analytics

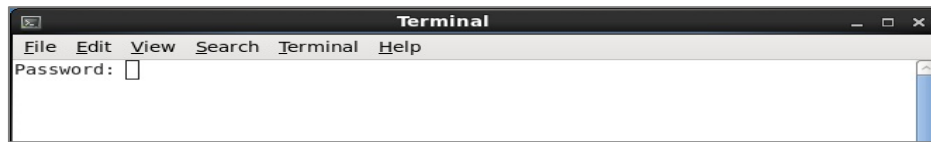


Figure 12-11: Enter Password

4. Enter the root password.
5. Ensure the backup procedure is performed with no error messages.

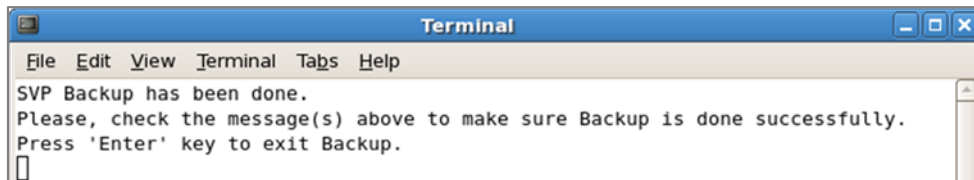


Figure 12-12: Windows Desktop SVP-Clone Icon

6. Press the <Enter> key to exit the backup process.
7. The Backup_YYYY-mm-dd directory should have been created on the USB drive.

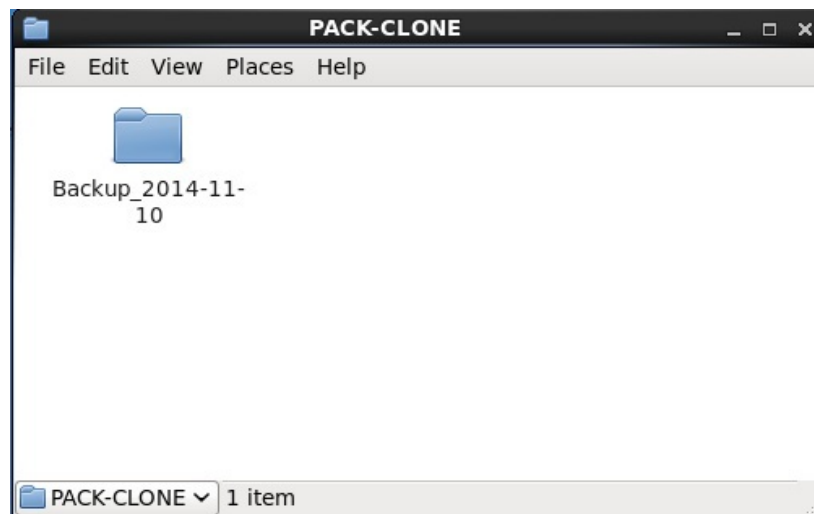
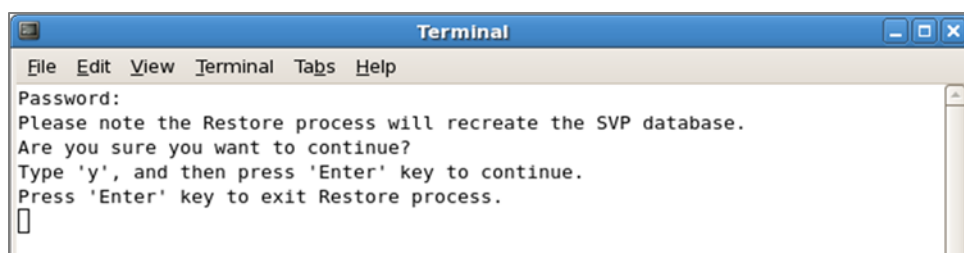


Figure 12-13: Backup Directory on USB

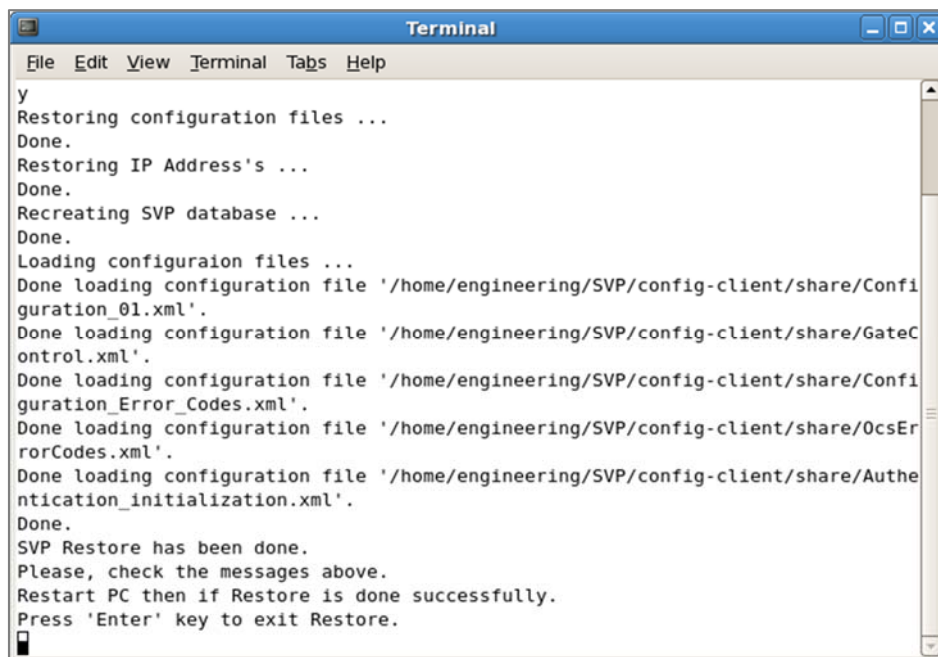
8. You are now ready to restore Package Analytics to the replacement PC. Follow the PC removal steps in Section 12.2.4 and 12.2.4 to remove the old PC and mount the replacement PC. Then proceed to the restore procedure which follows.

Package Analytics**Restore Procedure**

1. Login to the PC as the user engineering.
2. Insert the PACK-CLONE or SVP-CLONE USB drive with the Backup directory from the machine to be replaced into PC.
3. Navigate to /home/engineering/PACK/scripts. Run **RUNSVPRestore.sh** to start the restore process.
4. Type the current PC root user password when prompted.
5. At the prompt Please note the restore process will recreate the Package Analytics database. Are you sure you want to continue? type y and press the <**Enter**> key to continue the restore process.

**Figure 12-14: Enter Password and Confirm**

6. Ensure that the restore is completed with no error messages.

**Figure 12-15: Restore Process**

7. Type the <**Enter**> key to exit the restore process.
8. Restart the PC.

Package Analytics

12.2.3 PC Backup and Restore (Windows-based Systems)

Backup Procedure

1. Insert the PACK-CLONE USB drive into the USB drive into the PC (Refer to Figure 12-9). Wait for the **PACK-CLONE** desktop icon to appear under **My Computer**.
2. Navigate to the **C:\PACK\scripts** folder and double click the item labeled **SVPBackup.bat** to start backup.

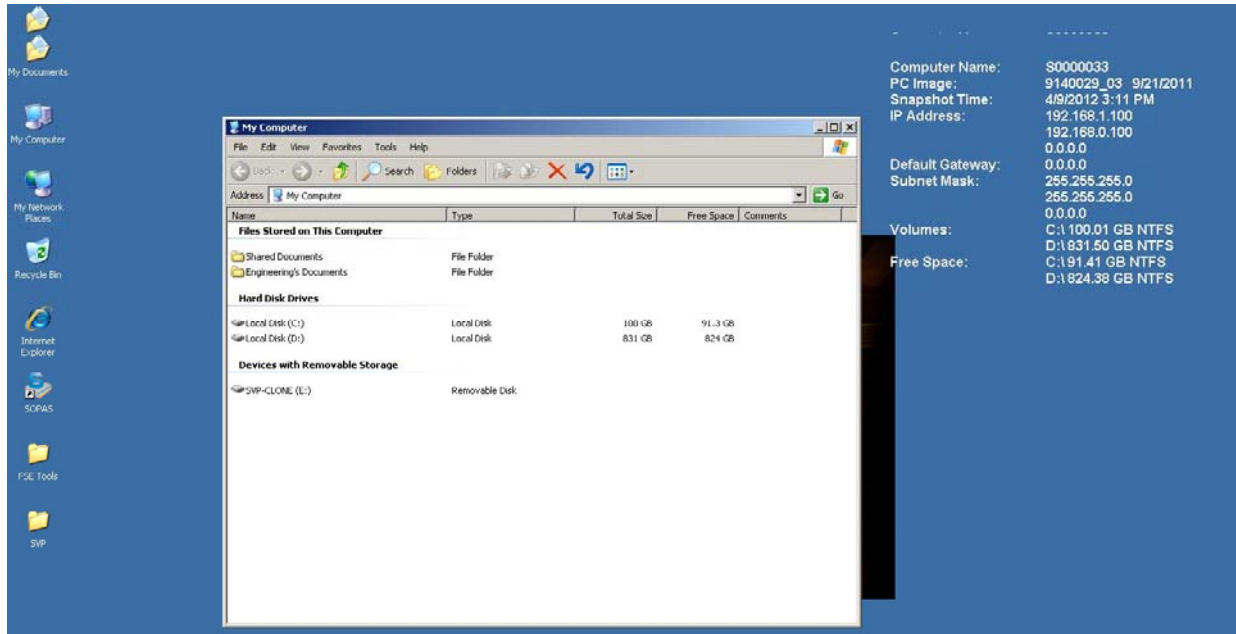


Figure 12-16: SVPBackup.bat

3. Ensure the backup procedure is done with no error messages.

```

C:\Windows\system32\cmd.exe
C:\SUP\scripts>set SUPScriptsInstallPath=C:\SUP\scripts\
C:\SUP\scripts>cd "C:\SUP\scripts\"
C:\SUP\scripts>"C:\Program Files (x86)\Java\jdk1.6.0_43\bin\java" -jar SvpBackup.jar
SUP Backup has been done.
Please, check the message(s) above to make sure Backup is done successfully.
Press 'Enter' key to exit Backup.

```

Figure 12-17: Successful Backup Confirmation

4. Press the **<Enter>** key to exit the backup process.
5. The Backup_YYYY-mm-dd directory should have been created on the USB drive.

Package Analytics

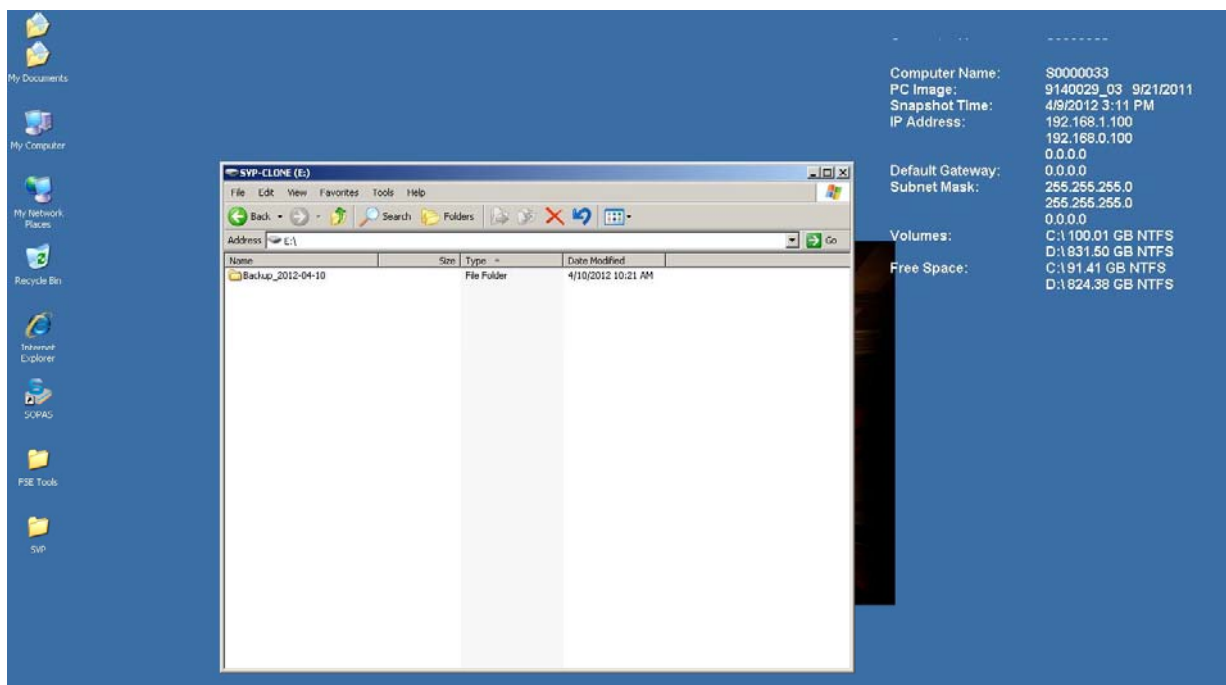


Figure 12-18: Backup Directory

6. You are now ready to restore Package Analytics to the replacement PC. Follow the PC removal steps in Section 12.2.4 and 12.2.4 to remove the old PC and mount the replacement PC. Then proceed to the restore procedure which follows.

Restore Procedure

1. Insert the SVP-Cloning plug into the USB drive containing the backup directory into the replacement PC.
2. Navigate to the C:\PACK\scripts folder and double click the item labeled SVPRestore.bat to start the restore process.

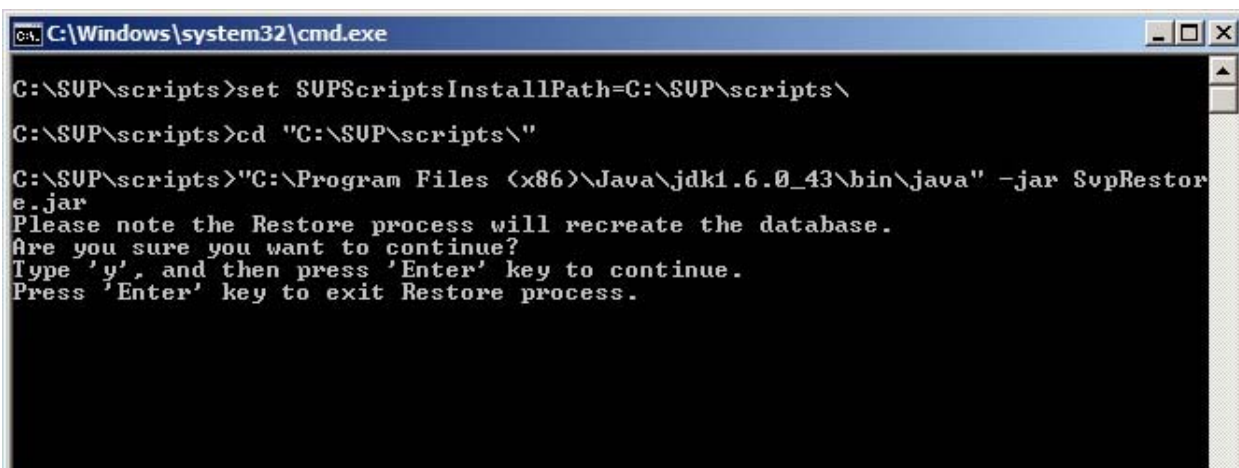
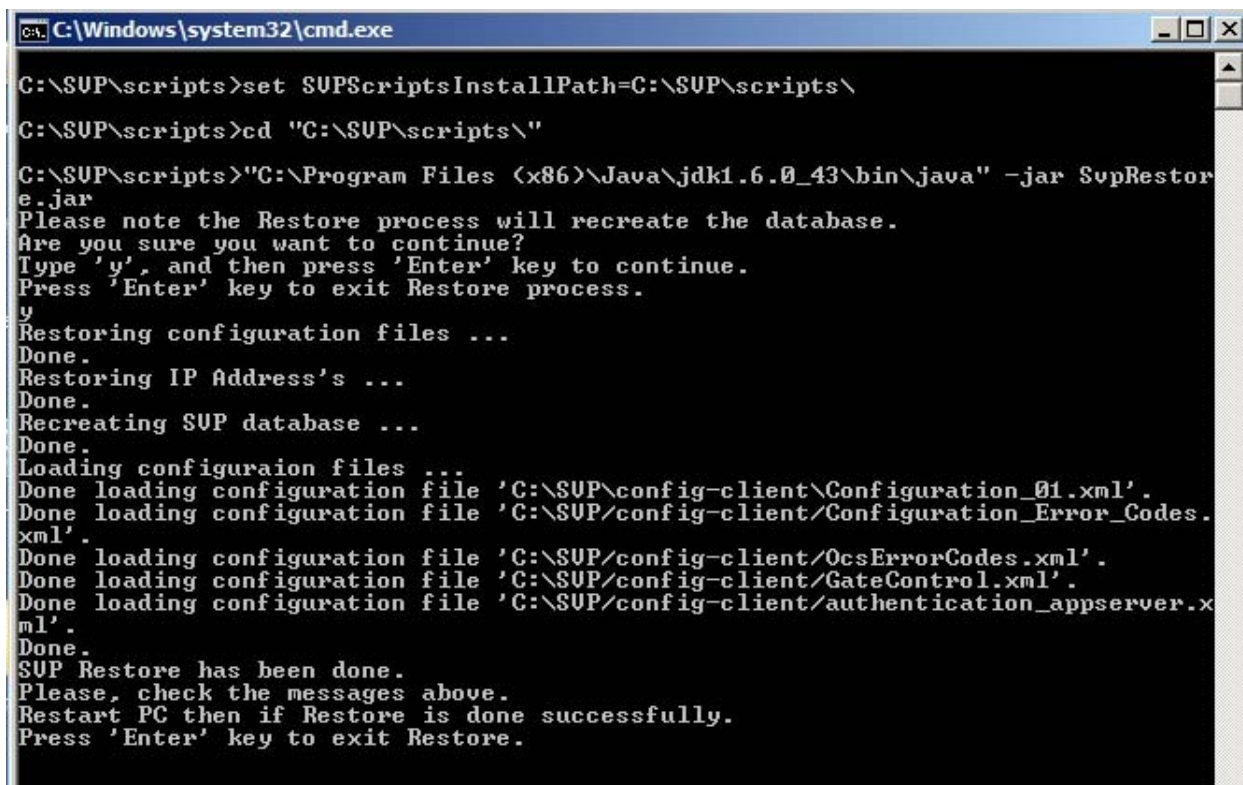


Figure 12-19: Backup Directory

Package Analytics

- At the prompt **Please note the restore process will recreate the SVP database. Are you sure you want to continue?**, type y and press the <Enter> key to continue the restore process.



```
C:\Windows\system32\cmd.exe
C:\SUP\scripts>set SUPScriptsInstallPath=C:\SUP\scripts\
C:\SUP\scripts>cd "C:\SUP\scripts\"
C:\SUP\scripts>"C:\Program Files (x86)\Java\jdk1.6.0_43\bin\java" -jar SupRestore.jar
Please note the Restore process will recreate the database.
Are you sure you want to continue?
Type 'y', and then press 'Enter' key to continue.
Press 'Enter' key to exit Restore process.
y
Restoring configuration files ...
Done.
Restoring IP Address's ...
Done.
Recreating SVP database ...
Done.
Loading configuraion files ...
Done loading configuration file 'C:\SUP\config-client\Configuration_01.xml'.
Done loading configuration file 'C:\SUP\config-client/Configuration_Error_Codes.xml'.
Done loading configuration file 'C:\SUP\config-client/OcsErrorCodes.xml'.
Done loading configuration file 'C:\SUP\config-client/GateControl.xml'.
Done loading configuration file 'C:\SUP\config-client/authentication_appserver.xml'.
Done.
SVP Restore has been done.
Please, check the messages above.
Restart PC then if Restore is done successfully.
Press 'Enter' key to exit Restore.
```

Figure 12-20: Backup Directory

- Type the <Enter> key to exit the restore process.
- Restart the PC.

12.2.4 Remove a PC

- Shut down the PC to be replaced.
- Remove the PACK-CLONE USB drive from the USB port. It will be needed to configure the new spare PC.
- Remove the power cord, keyboard, and mouse and Ethernet cables.
- Remove the faulty PC from the frame.

12.2.1 Install Replacement PC

- Mount the replacement PC to the frame.
- Attach the keyboard, mouse and Ethernet cables to the new controller.
- Attach the power cord. The PC should automatically start up. If not, then press the yellow power switch just above the keyboard and mouse connection.

Package Analytics

12.3 Automated Scripts

While no regular operator procedures are required to maintain the system software, Package Analytics utilizes several script and utility files for maintenance and clean-up purposes. These scripts are setup by SICK and will run periodically to maintain the PC. The scripts run automatically and no intervention is required for maintenance.

This section describes the utility scripts for informational purposes.

12.3.1 Daily.bat Script

The *daily.bat* script runs once per day as a scheduled task on each windows PC or as a crontab job on Linux. The *daily.bat* script should be scheduled to run during a known downtime period for the facility. The script performs the following operations:

- Deletes all X hours old (default value is 48 hrs) full resolution images from the designated directory.
- Deletes all X days old (default value is 9 days) thumbnail images from the image directory
- Deletes all X days old (default value is 10) zipped log files from the designated directory
- Zips the log files listed below:
 - C:\PACK\app-server\Log\red5.log
 - C:\PACK\app-server\Log\error.log
 - C:\PACK\app-server\Log\access.log
 - C:\PACK\app-server\Log\configuration.log
 - C:\PACK\app-server\Log\xmlparser.log
 - C:\PACK\app-server\Log\filemonitor.log
 - C:\PACK\app-server\Log\cleanup.log
 - C:\PACK\app-server\Log\authentication.log
 - C:\PACK\image-server\res\log*.log
 - C:\PACK\scripts\DailyLog.txt
 - C:\PACK\app-server\Log\SVP-server.log
 - C:\PACK\app-server\Log\socket.log
 - C:\PACK\scripts\checkDriveLog.txt

The zip file name is Logs_<Date>.zip, for example: Logs_06012009.zip. Then the zip file is moved to the designated directory (default path is C:\PACK\sick-server\log).

- Restarts the Package Analytics App server, image-server and dashboard, if configured to do so.

12.3.2 CheckDrive.bat Script

The *CheckDrive.bat* script runs daily as a scheduled task on each PC before the Daily scheduled task. The *CheckDrive.bat* script verifies that the hard drive saves images correctly. It performs the following operations:

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- Copies a file with a known size (approx. 1 Mb) to the hard drive(s) where the images are located.
- The saving of the file process is monitored for how long it takes to complete.
- If the process “times-out”, the script automatically initiates a PC reboot.
- During reboot, the PC will perform its own check drive process and fix any corrupt sectors on the hard drive.

12.3.3 Settings**SVPSettings.jar**

The *SVPSettings.jar* utility is the GUI to set/change parameters in configuration files for the Package Analytics application. It parses configuration files and sets values into the GUI. A user can change settings and save updated configuration files.

The utility will validate the new settings before saving the configuration file.

SVPLoadConfigurationFiles.jar

The *SVPLoadConfigurationFiles.jar* utility is the GUI used to load the configuration files for the Package Analytics application. After making changes or setting up the configuration file with the *SVPSettings.jar* tool, this tool is needed to load the modified configuration files into the application. The application server must be running in order to load the configuration files into the application. This tool has an information box that will confirm the files were loaded successfully.

SVP-dashboardSettings.jar

The *SVP-dashboardSettings.jar* utility is the GUI used to set/change client parameters in configuration files for the Package Analytics Dashboard on that system. It parses configuration files and sets values in the GUI. A user can change the client settings, and then save updated configuration files.

The utility will validate the new settings before saving the configuration file.

Image-serverSettings.jar

The *Image-serverSettings.jar* utility is the GUI to set/change parameters in configuration files for the FTP image server. It parses configuration files and sets values in the GUI. A user can change any settings, and then save updated configuration files.

The utility should make some settings validation before the configuration files saving.

BrowseToFlashClientSettings.jar

The *BrowseToFlashClientSettings.jar* utility is a GUI that creates a shortcut on the desktop for the Package Analytics Flash Client. This tool also sets the IP address of the application server, the tunnel name the client connects to and assigns the username and password the Flash Client will use to log in to the Package Analytics Dashboard when the Flash Client is launched.

This utility will not validate settings before closing.

12.3.4 Maintenance

SVPMaintenance.jar

The *SVPMaintenance.jar* utility performs requested maintenance and report operations:

- Configuration file back up
- Configuration file restore
- Database backup
- Database restore

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13. Troubleshooting

This section describes troubleshooting potential difficulties that may arise during your experience with Package Analytics. If this section does not provide the answer please contact your local SICK support team.

13.1 Dashboard

If the client cannot connect to the Application Server the message shown in Figure 13-1 may be displayed.

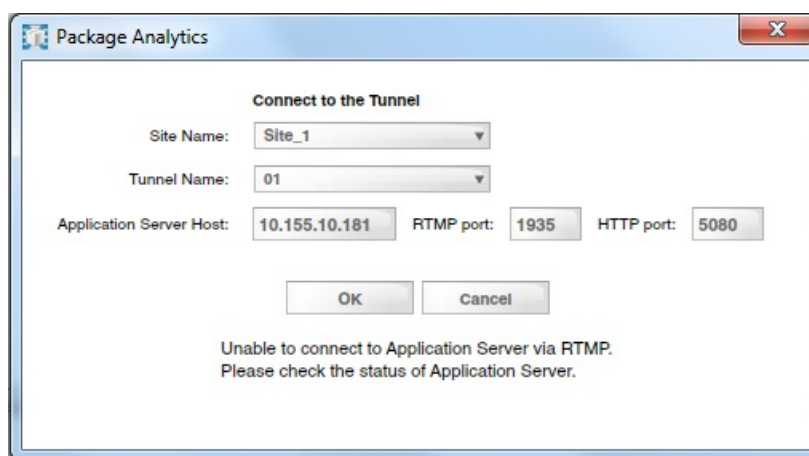


Figure 13-1: Package Analytics Dashboard Client

To troubleshoot this dialog:

- In the message window, confirm **Tunnel Name** matches the tunnel the client is connecting to and the **Application Server Host** is the IP address of where the application server is running. If these are not correct:
 1. Navigate to the **C:\SVP\scripts** folder
 2. Open **Svp-dashboardSettings.jar**.
 3. Select the **Tunnels** tab. The **Package Analytics Client Settings** tool opens.

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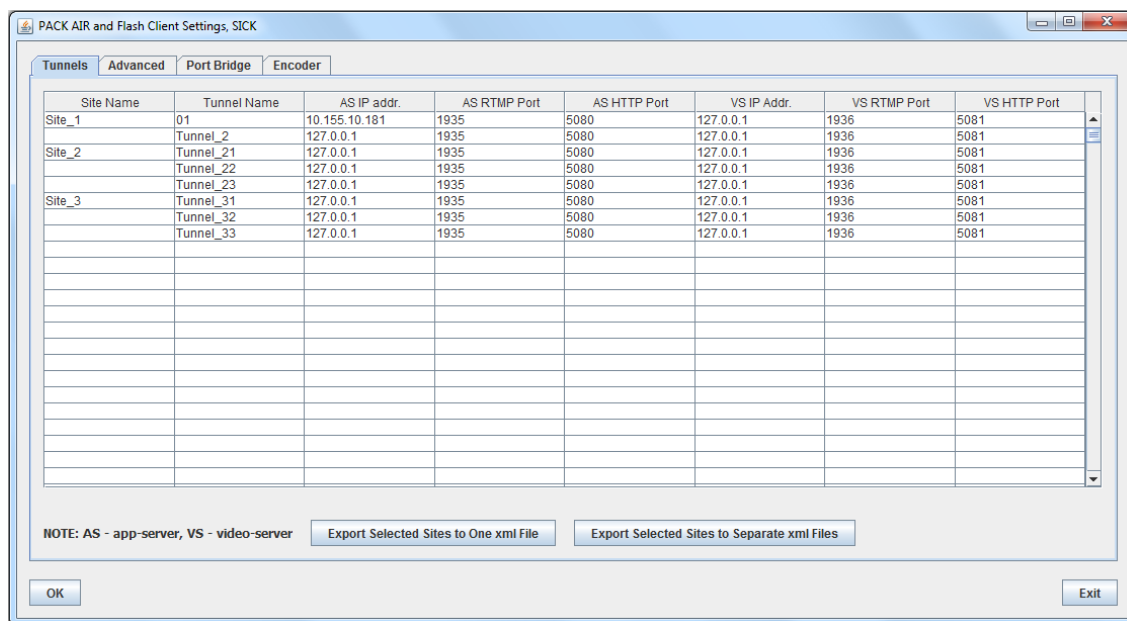


Figure 13-2: SPV-dashboardsettings.jar

4. Under the *AS IP Addr.* Column, enter the tunnel name and IP address of the application server.

- Ensure the application server is running. If the application server is running on the same PC as the client, restart the PC if possible. The Package Analytics application starts when the PC powers on. If you are unable to restart the PC, navigate to the SVP directory and run **StartPack.bat**. This will kill all instances of Package Analytics and restart the application.
- If the dashboard client is trying to connect from a remote PC then make sure the application server is running at the IP address for **Application Server Host** (Refer to Figure 13-1). Confirm the IP address matches the location of the application server. Make sure the IP address is on the same network; try to ping IP address to confirm.
- If using the Flash Client through a web browser, clear the cache and restart the web browser.

If the dashboard still does not connect please contact your local SICK technical support

13.2 Image is Not Available

In the Package Analytics dashboard, under the **Activity** tab, check heartbeat messages for any camera errors. Check the image archive to see the image exists. Make sure the drive is not full. Verify that the Image Server is running. In **SVPSettings.jar** (Figure 13-1), select the **Server** tab, and confirm that the correct image server or solution server is being used. Reboot the PC to restart the Package Analytics application, or navigate to the SVP directory and run **StartPack.bat**. This will kill all instances of Package Analytics and restart the application.

Package Analytics**13.3 Hard Drive Full**

Verify the Daily Cleanup script is running and completing successfully as a schedule task or crontab job. If the daily cleanup is running properly and deleting images, then the amount of space for the images is insufficient for the number of images being saved. Adjust the settings for how long to save images or increase the hard drive space.

13.4 Clean Up

Package Analytics has several scheduled tasks and clean ups it performs automatically, to keep the application and database operating at optimal performance. These automated scripts are scheduled and set during the installation of the software but must be adjusted according to the planned daily downtime of the facility.

Refer to Chapter 12 for a more detailed description of automated scripts.

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14. Customizing Package Analytics

14.1 Change Default View (Web/Flash Client URL)

The Package Analytics desktop shortcut launches the web dashboard in a default view, either System View or Facility View, depending on the type of installation performed.

In Facility View, the dashboard displays the **Summary** tab with the **Navigator** toolbar on the left side of the screen, listing all the tunnels connected to the central hub (Refer to Figure 14-1). This is the default dashboard view.

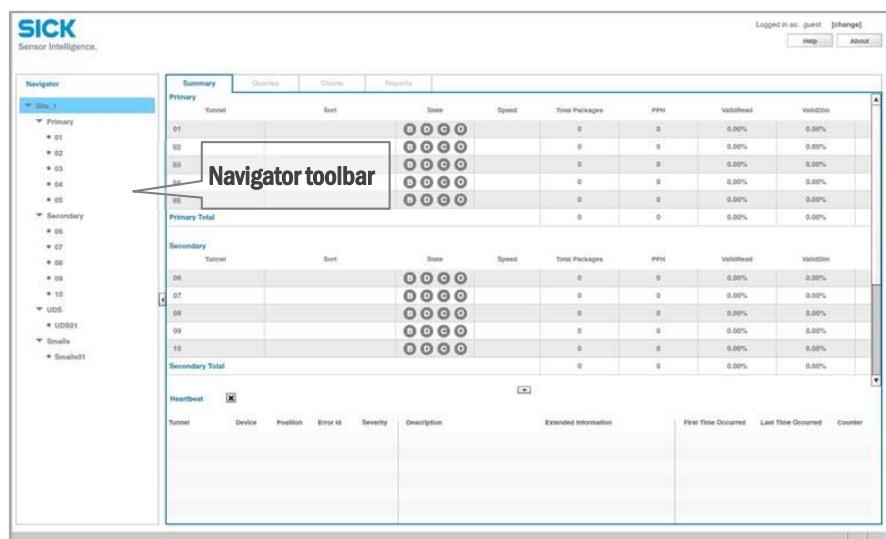


Figure 14-1: Package Analytics Web Dashboard Default View

When the Flash Client is used to access the dashboard, the default view can be edited to instead display the system view for a specific tunnel that is connected to the hub. This is done, by changing the URL which is used, when the web browser is launched.

To edit the default dashboard URL:

1. Rename the **Package Analytics** desktop shortcut to something more descriptive, for example, "Package Analytics Default Facility". This will ensure that the original view is not replaced when the URL is customized.
2. On the Windows PC on which Package Analytics is installed, use Windows Explorer to navigate to the **C:\SVP\scripts** folder.
3. Double-click the item labeled **BrowseToFlashClientSettings.bat**. This will launch a tool to edit the dashboard URL.

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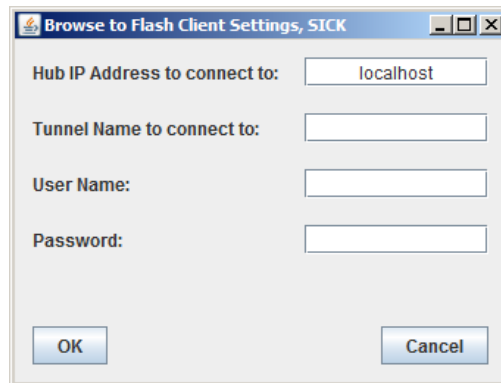


Figure 14-2: Browse to Flash Client Settings Tool

4. The **Hub IP Address to connect to** field refers to the IP address of the central hub server that you are connecting to. This is a required field.
 - a. If the tool is used at the hub system itself, the field will be populated with **localhost**, and can be left unchanged.
 - b. If the tool is used on a remote system, enter the static IP address of the hub server system on the local network.
5. The **Tunnel Name to connect to** field will be blank when launched for the first time. Enter the id (name) of the tunnel to display by default. In Figure 14-3, the tunnel id used is **01**.
6. The **User Name** and **Password** fields are optional. They can be used to enter a specific set of user credentials to login by default. If these fields are left blank, the *Guest* user will be used.

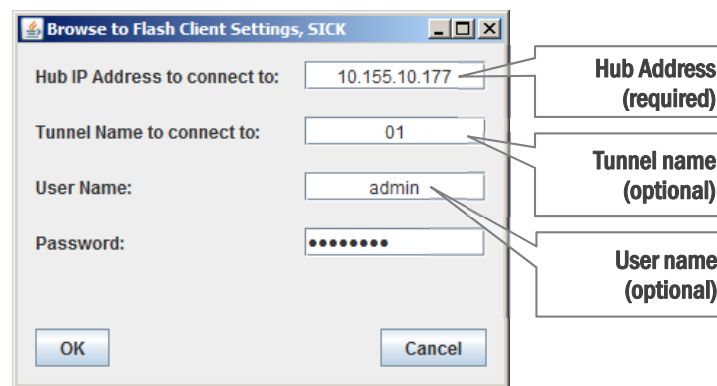


Figure 14-3: Sample Configuration of Flash Client Settings

7. Click **OK**.

A new desktop shortcut labeled **Package Analytics** will be created with the specified settings. If the previous shortcut was not re-named (as described in Step 1), the new shortcut will replace the previous desktop shortcut.

This tool can be used to create as many web dashboard shortcuts as desired. To ensure that all shortcuts are preserved, rename the stock Package Analytics shortcut to something more descriptive before using the tool.

Package Analytics

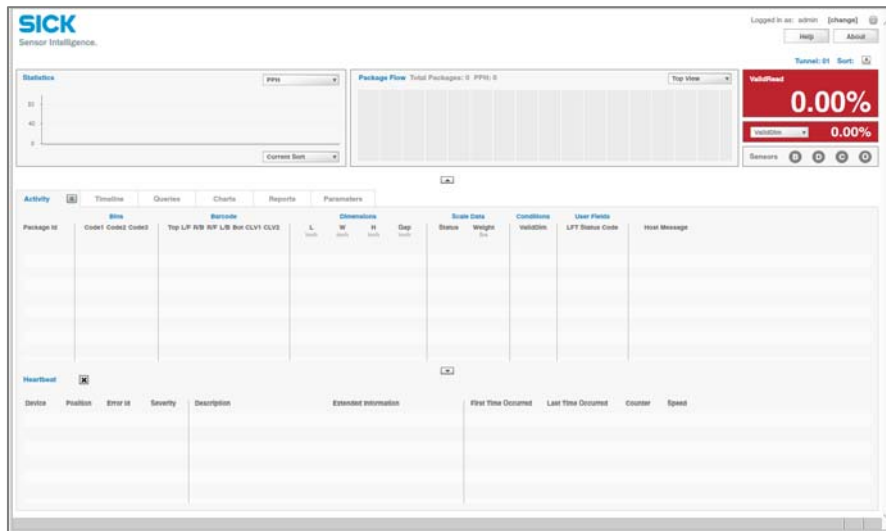


Figure 14-4: Package Analytics Web Dashboard Launched with Sample Settings

14.2 Custom Configuration Files

When Package Analytics is installed on a system, a default configuration file is loaded into the database. This file contains important information about the structure of the system being used – hubs, tunnels and the types of devices on each tunnel. The default configuration contains a collection of the most commonly used systems and devices organized into *Primary* and *Secondary* groups. This, however, might not be the best configuration for every end-user. A tool included in the Package Analytics installation will enable you to find and load a configuration file that is best suited to your needs.

Apart from the default configuration file, the Package Analytics installation also contains a folder of configurations for some commonly used systems organized by device type. To access this folder, navigate to **C:\SVP\config-client** on the Windows PC on which Package Analytics is installed. The folders contain commonly used configurations for each device type.

Refer to Figure 14-5.

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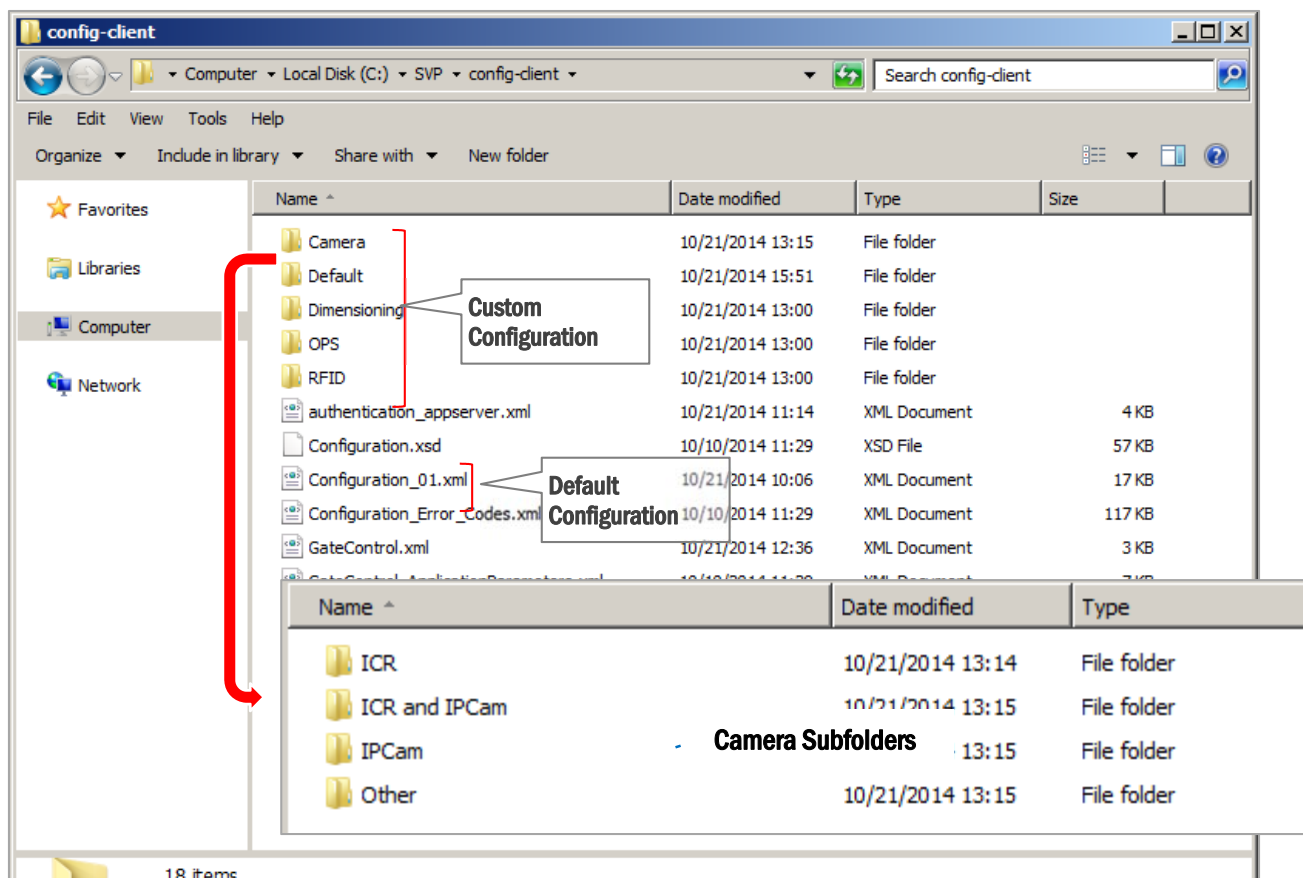


Figure 14-5: Config-Clients Folder and Camera Subfolders

The table which follows describes the folders in the C:\SVP\config-client directory.

Table 14-1: Config-Client Custom Configuration Folders

Folder	Description
Camera	For tunnels that have ICR cameras, Lectors, IP cameras, or a combination of these. The subfolder contain configuration files specific to the device type.
Default	Contains a copy of the default configuration files loaded at the time of installation. In the event that there is a need to return to the initial system configuration, an original version of these files can be found here.
Dimensioning	For tunnels with dimension sensors installed
OPS	Omni Portal Systems
RFID	For tunnels with radio frequency identification systems (coming soon)

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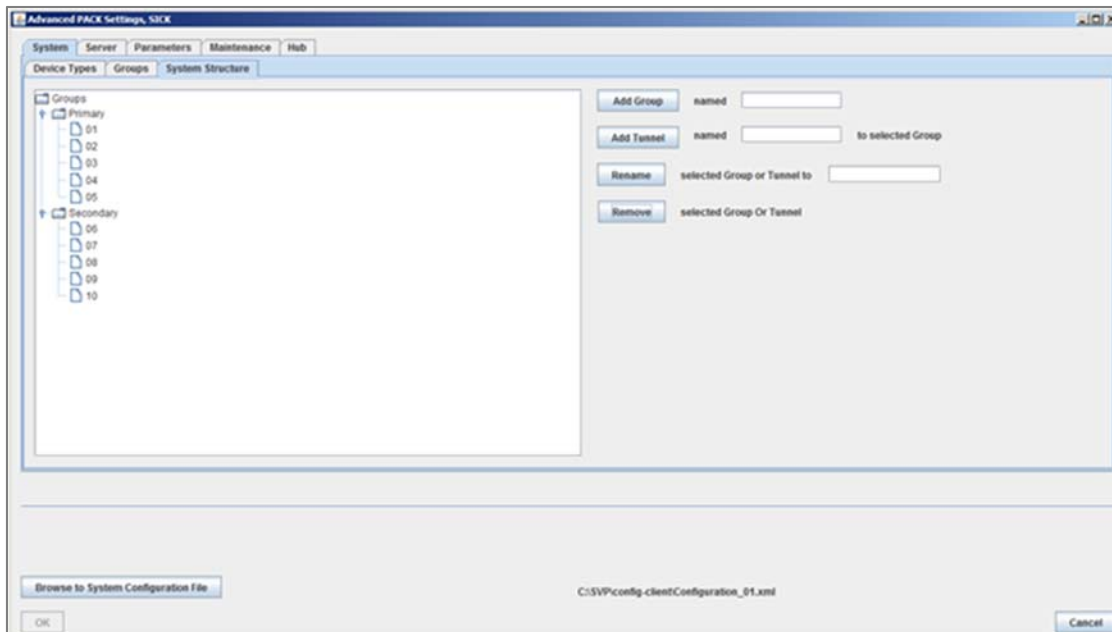


Figure 14-7: System Structure View of Custom Configuration

To view the types and number of devices included in a configuration file:

- In the **Advanced PACK Settings** tool, select the **System** tab, and then select the **Groups** tab.

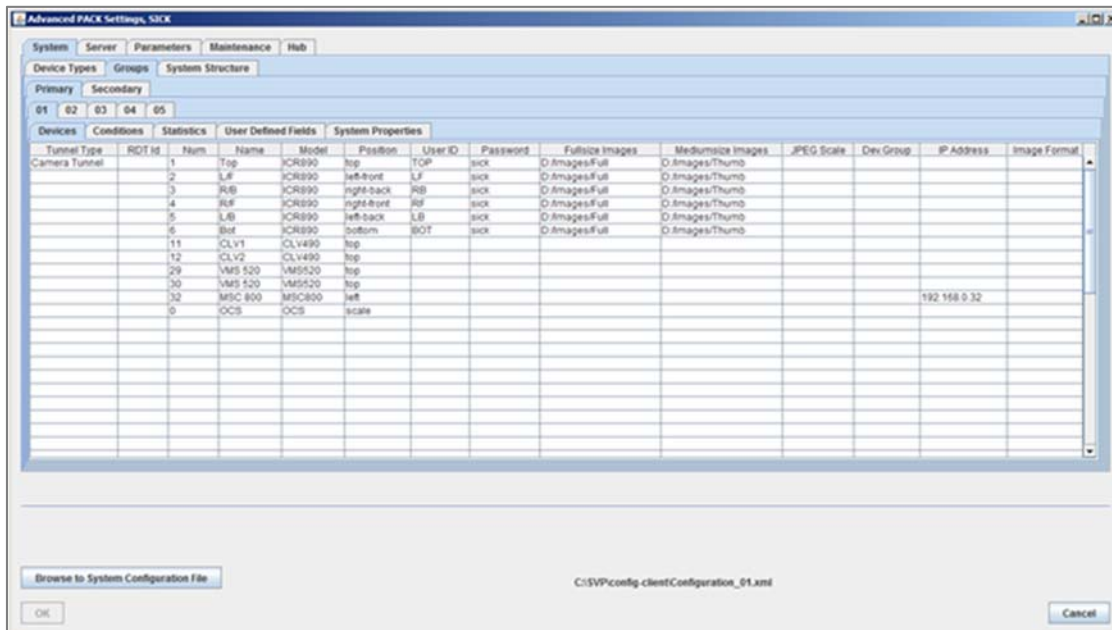


Figure 14-8: Groups View of Custom Configuration

For help with using the Advanced PACK Settings tool, please contact your local SICK technical support.



Note: Adding /Changing/Removing conditions and statistics. One of the features in the global release of Package Analytics is the ability to make changes to the system configuration file without needing to recreate the full database while loading. However, there are certain caveats when the changes apply to the conditions and statistics. Adding a condition to the configuration means statistics are available only from time of adding. The relevant statistics will not be calculated for historical data.

- Removing a condition removes historical data associated with that condition/statistic.
- Modifying a condition means that historical data associated with that condition/statistic is removed and new statistics are available from time of modification.

14.2.2 Load a Custom Configuration

Once you have viewed and modified a custom configuration file to suit your needs, the configuration must be loaded into the database for the changes to take effect.

To load a custom configuration:

1. On the Windows PC on which Package Analytics is installed, use Windows Explorer to navigate to the **C:\SVP\scripts** folder.
2. Double-click the item labeled **SvpLoadConfigurationFiles.jar**. The **Load Configuration Files** tool is opened.

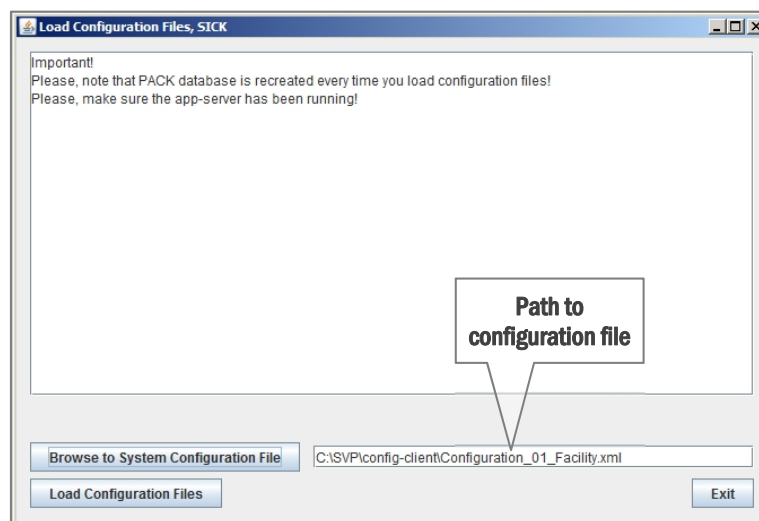


Figure 14-9: Load Configuration Files Tool

3. The path to the configuration file on startup should be the same as the configuration last edited using the **Advanced PACK Settings** tool. If it is not, click **Browse to System Configuration File** to navigate to the root-level **config-client** folder and choose the custom configuration to load.

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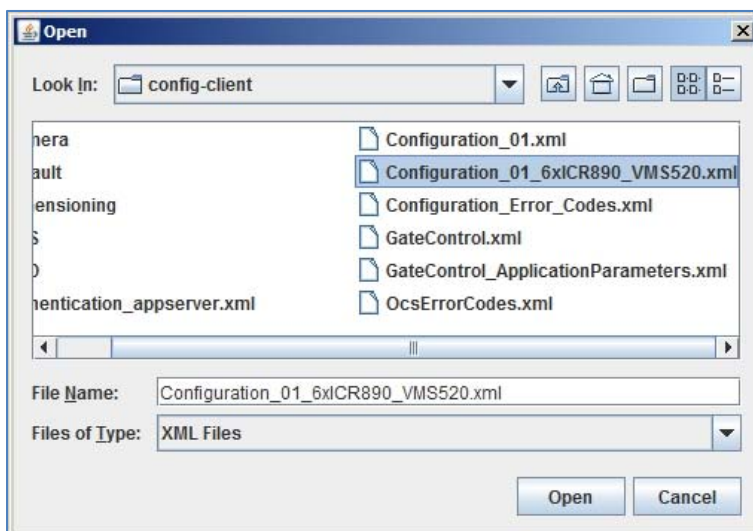


Figure 14-10: Browse to Custom Configuration

4. After selecting the configuration file, click **Load Configuration Files** and wait for the process to complete.

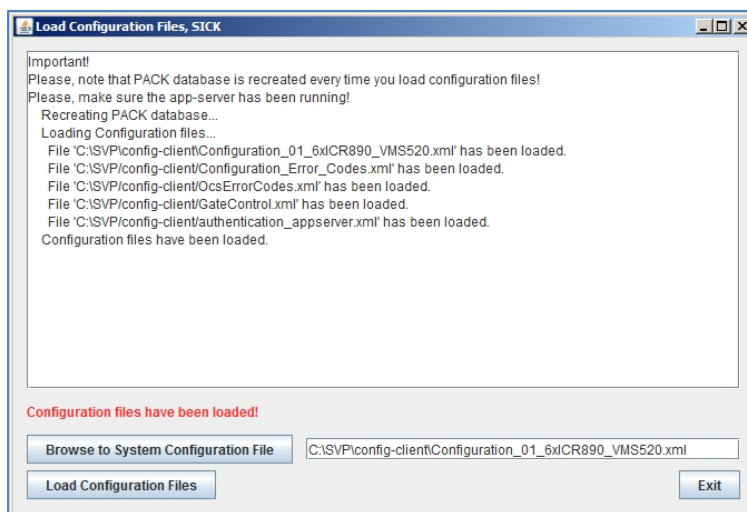


Figure 14-11: Completed Loading Configuration

When the configuration file is done loading, refresh or re-load the Package Analytics dashboard window to view the changes.

To customize configurations further, or if the provided list of custom configurations is not suitable for your system, please contact your local SICK technical support for help.

15. Glossary

Activity tab	In System View, the default screen, which provides a dynamic interface displaying package details as packages are processed through the auto ID system as well as status information for the system devices and sensors.
Application Server (App Server)	Java-based server which collects auto ID system data via an XML file from the system controller and stores in a MySQL data. The App server is typically located in the computer room of a Package Analytics connected facility.
auto ID system	In a sort processing facility, all systems which are part of the process of automatic data collection and identification including camera / scan tunnels and scales. Auto ID systems are sometimes also referred to as <i>System</i> or <i>Tunnel</i> .
Charts tab	The Package Analytics dashboard screen which allows you to select from preconfigured chart types to generate and analyze data. The Charts tab is available from System View and Facility View, but offers different levels of data from each view, depending on how the tab was accessed.
Condition Statistic dashboard	See <i>Package Analytics Statistics</i> In Package Analytics, the dashboard is the user interface which provides for real-time monitoring of auto ID systems and provides access to current and historical system data, including package details. The dashboard consists of two separate views offering two tiers of data analysis: System View and Facility View.
Evaluation Condition	Evaluation Conditions define the condition that a selected Package Analytics Statistic is to be evaluated against. Evaluation Conditions are set in the auto ID system's MSC. Packages are tagged by the MSC if they have a specific evaluation condition. Then these messages are sent to Package Analytics and reflected in the dashboard. Unlike Condition Statistics, Evaluation Conditions are not necessarily performance conditions. For example, the Evaluation Condition <i>MultiRead</i> means a box had multiple barcodes on it, so the MSC flags this information and it is reflected in the dashboard. However, <i>MultiRead</i> is not a measurement of system performance such as the statistic <i>ValidRead</i> .
Facility View	Facility View offers a summary of <u>all systems connected to Package Analytics in a single facility</u> . Facility View allows analysis for operational improvements and reporting across all of the facility's connected systems. From Facility View, the operator can also drill down to System View for any individual system.
Flash client	See <i>Web client</i>
ICR	SICK's Image Code Reader used for finding and detecting barcodes

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Image Server	FTP server which includes a set of utilities that allow the user to view and manage images.
Lector camera	While most auto ID system cameras record only one image per package, Lector cameras take a series of images of an individual package as it passes through the tunnel. This means that multiple images are associated with a single camera device. Viewed in sequence, these images create a simple animation (or filmstrip) which tracks package movement.
MSC	SICK auto ID system controller
NORCA	No Read Cause Analysis. A quality analysis for all readable and non-readabel barcodes and 2D codes. This analysis is provided by for the auto ID system's ICR8xx cameras, and configured in the ICR's firmware. NORCA data is sent to Package Analytics to allow filtering, evaluation and visualization of barcodes.
Package Analytics	<p>Package Analytics is a unique business analytics platform for sensor intelligence which collects data, including camera images, from connected auto ID systems in your facility. It aggregates this data into a searchable database, and stores it for long periods of time.</p> <p>Package Analytics consists of the hardware and software used to collect, monitor and interface with the collected data. The Package Analytics dashboard is the graphic user interface to the system accessed from a connected computer in the facility, or at the auto id system itself.</p>
Package Analytics Statistics	<p>Filters for pre-defined conditions or devices, such as <i>ValidRead</i> or <i>PDF Barcode</i>. Package Analytics Statistics allow you to filter the data you'd like to view by limiting it to the value or device which you select.</p> <p>Package Analytics Statistics are often referred to as "performance statistics" or "condition statistics".</p>
Package Data Table	<p>In the Package Analytics dashboard, the data table which itemizes package information in columns organized by the package ID. The Package Data Table allows you to view processing details for any individual package which has passed through the system. The Package Data Table appears on the Activity tab and Timeline tab.</p> <p>Appendix A provides a complete list of the data columns in the Package Data Table.</p>
Package Detail dialog	In the Package Analytics dashboard, the dialog accessed by clicking on a package in the Package Data Table or System Performance pane. The Package Detail pane provides thumbnail images of the selected packages for inspection, as well as all information stored with that package.
Performance Statistic	See <i>Package Analytics Statistics</i> .

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- Primary Statistic** The Primary Statistic is a performance statistic which has been predefined for your network, and is often displayed on Package Analytics dashboard screens as a key measurement of your facility's or system's performance. The Primary Statistic represents a warning threshold for your facility's or system status.
- See also *Secondary Statistic*.
- Queries tab** In the Package Analytics dashboard, the screen which allows you to select from preconfigured query types to generate and analyze data. The **Queries** tab is available from System View and Facility View, but offers different levels of data from each view, depending on how the tab was accessed.
- Reports tab** In the Package Analytics dashboard, the screen which allows you to select from preconfigured report types to generate and analyze data. The **Reports** tab is available from System View and Facility View but offers different levels of data from each view, depending on how the tab was accessed.
- ROI** Region of Interest. A region identified by Package Analytics as an area containing a barcode
- Secondary Statistic** The Secondary Statistic is a performance statistic which has been predefined for your network, and is often displayed on Package Analytics dashboard screens as a secondary key measurement of your facility's or system's performance. The Secondary Statistic represents a warning threshold for your facility's or system status.
- See also *Primary Statistic*.
- Solution Server** The Solution Server is the platform for SICK's unique vision processing algorithms which provide Barcode Quality Analysis, OCR for human readable text, pattern match and partial decode. Rich data content, (camera images, IP camera video stream) for systems with cameras, is collected by each individual system and sent directly to the Solution Server over a local area network via FTP. The Solution Server is usually located at each system.
- system** See *auto ID system*
- System Performance pane** In System View, the System Performance pane appears at the top of every screen, and provides an effective visual interface to view the current status of the auto system as packages are being processed.
- System View** In the Package Analytics dashboard, the interface to an individual auto ID system, such as a camera tunnel. System View offers detailed insight into the system performance, health and statistics including no-read analysis and operational improvement. Detailed information about the individual auto ID system or any one package processed by that system can be accessed from System View.
- Timeline tab** The Package Analytics dashboard screen which allows you to access system and package historical data from any selected time frame. The **Timeline** tab is available only from System View.

Package Analytics**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 packages, such as a camera tunnel.

See also *auto ID system*.

web client

The client program, which is used to launch Package Analytics. The Web client opens the dashboard using your default web browser.

The web client is the default version for this release of Package Analytics.

The web client is sometimes referred to as the *Flash client*.

Package Analytics

Appendix A: Package Analytics Statistics & Selection Values

Certain values appear in the Package Analytics dashboard in drop-down boxes, selection fields, and in data tables throughout the interface. This appendix provides description of possible Package Analytics dashboard selection values.



Note: differences exist for individual facilities, and individual auto ID systems. The lists below describe the various conditions, statistics, charts, queries and reports that are included by default in an installation of Package Analytics. It is possible to add more items or modify existing items for individual facilities, and as such, the definitions may not be applicable in those cases.

A.1 Package Analytics Statistics

In Package Analytics, *Statistics* are filters for pre-defined conditions. When using the dashboard, these selections may be used to filter data to narrow your search by the named Statistic.

Because Statistics vary according to your system configuration and facility, you may not see all the Statistics listed in the table below when you access Package Analytics.

Table A-1: Statistics

Statistic	Description
BadGap	Measured gap between packages is outside the minimum application criteria
MultiRead	Multiple sortable barcodes and multiple T2 barcodes have been read or no sortable barcodes but multiple T2 barcodes have been read
NoRead	Packages that did not have a ValidRead or a MultiRead
PDF	Packages with PDF barcodes
PPH	Packages Per Hour
SideBySide	Only packages that identified by the auto ID system as a side by side are evaluated
Total Packages	
ValidDim	Packages considered to have valid dimensions by the dimensioners
ValidRead	Packages with a T1 or T2 or an EPIC barcode, and which are not a multi-read

Package Analytics

A.2 Evaluation Conditions

Evaluation Conditions are set in the MSC, which tags packages that have a specific condition. The MSC sends these messages to Package Analytics, and they are reflected in the dashboard interface. Evaluation Conditions define the condition that a selected Package Analytic *Statistic* is to be evaluated against.

Because Evaluation Conditions vary according to your system configuration and facility, you may not see all the Evaluation Conditions listed in the table below when you access Package Analytics.

Table A-2: Evaluation Conditions

Selection	Description
1D	Packages with a 1D barcode
2D	Packages with a 2D barcode
BarcodeExcellent	
BarcodeGood	
BarcodePoor	
Code1	Placeholder condition for packages with a user defined barcode type
Code1Excellent	
Code1Good	
Code1Poor	
Code2	Placeholder condition for packages with a user defined barcode type
Code2Excellent	
Code2Good	
Code2Poor	
Code3	Placeholder condition for packages with a user defined barcode type
Code3Excellent	
Code3Good	
Code3Poor	
Gap	Measured gap between packages
Info	
MultiRead	Packages with multiple sortable barcodes and multiple T2 barcodes have been read
NoRead	Packages that did not have a ValidRead or a MultiRead
PDF	Packages with a PDF barcode
Ref	Packages with a T1, T2, PDF, Delcon, IMPB barcode
Sbs	Packages flagged because they meet side-by-side threshold conditions
DimTooBig	Package flagged because one dimension(L,W,H) is greater than the maximum dimension parameter set

Package Analytics

Selection	Description
DimTooSmall	Package flagged because one dimension(L,W,H) is smaller than the minimum dimension parameter set
Unassigned	Barcode read with no object to associate with
ValidDim	Packages with all dimensions (L,W,H) within the minimum and maximum dimensions parameters set
ValidRead	Packages with a valid barcode, and which are not a multi-read

Package Analytics

A.3 Package Data Table

In Facility View and System View, the **Package Data table** provides information for package detail presented in a grid format. Each package which passes through the system is displayed as an entry in the Package Data table.

Because of differences in individual system configuration, you may not see all the data columns listed in the table below in the Package Data Table.

Table A-3: Package Data Table Column Definitions

Selection	Description
Package ID	Indicates the package identifier code. This ID number corresponds to the package ID shown on the package image in the Package Flow Window.
Bins	Lists key barcode categories, identified as “bins”. Ref - A checkmark indicates that the barcode type was read for the respective package Info - A checkmark indicates that the checked barcode type was read for the respective package
Barcode	All barcode reading components in the auto ID system are listed as sub-headings under the Barcode heading. A checkmark indicates that the checked component read a barcode. Barcode reading components depend on your system’s configuration. Possible components are: Top - top-read camera L/F - left-front camera R/B - right-bottom camera R/F - right-front camera L/B - left-bottom camera Bot - bottom camera CLV1 - CLV laser scanner 1 CLV2 - CLV laser scanner 2 IPCam - IP Camera
Dimensions	Shows package dimensions and product gap in inches. If these values are not available, zeros are used.
Conditions	A check indicates Evaluation Conditions that were met by package.
Host Message	A snippet of the package message sent to the host

Package Analytics

A.4 Heartbeat Data Table

In Facility View and System View, the **Heartbeat Data table** provides additional detail for system faults. The table which follows describes the columns in the Heartbeat Data table.

Table A-4: Heartbeat Data Table Column Definitions

Selection	Description
Device	Identification of the device that has an error
Position	Specific location of suspect device
Error ID	Specific error code being reported by the device. An Error ID which is in blue underlined text is hyperlinked to a dialog providing more error details.
Severity	Impact to system performance. Severity levels are: Info – Be advised of an event. Non critical. Performance not necessarily impacted Warning – System should be monitored more frequently. System performance could be impacted Error – issues require attention. System performance impacted
Description	Short description of error
Extended Information	Further description of error
First time occurred	Specific time error was first reported
Last time occurred	Last occurrence of error reported
Counter	Number of times error occurred in this instance
Speed	Speed of conveyor at the time error occurred

Package Analytics

A.5 Chart Types

When generating a chart from the **Charts** tab, you will have to make a selection for the chart type under the **Chart Name** heading in the selection drawer. Certain chart types also require that you choose from additional parameters under the **Parameters** heading in the selection drawer.

Chart types and additional required chart parameters for each chart are shown in the table which follows. Note that chart types are predefined for your facility. The table below provides a list of the most common charts; however the charts installed on your system may vary.

Table A-5: Chart Name

Selection	Facility View	System View	Description	Additional Parameters
Condition Counts	X	X	Select from multiple conditions to create a column chart that plots the number of total packages <i>Note: If you select more than one condition from the Chart Parameters heading, then Package Analytics will create a chart for each condition.</i>	Conditions: check to indicate which conditions to include in the results.
Condition per minute	X	X	Select from multiple conditions to create a chart that plots the number of total packages matching the selected conditions, displayed per-minute over a selected time frame.	Conditions: check to indicate which conditions to include in the results.
Condition Perc per minute	X	X	Select from multiple conditions to create a chart that plots the percentage of total packages matching the selected conditions, displayed per-minute over a selected time frame.	Conditions: check to indicate which conditions to include in the results.
Condition percentages	X		Select from multiple conditions to create a column chart that plots the percentage of total packages matching the selected conditions.	Conditions: check to indicate which conditions to include in the results.
Detailed Read Rate	X	X	Select from multiple statistics to create a line chart of the read rate percentages matching the selected statistics, over a chosen time interval.	Statistics: check to indicate which statistics to include in the results.

Package Analytics

Selection	Facility View	System View	Description	Additional Parameters
<p>Detailed Solo Read Rate</p>	<p>X</p>	<p>X</p>	<p>Create a line chart of the solo read rate percentages matching the selected barcode types, over a chosen time interval.</p>	<p>Check to indicate which barcode types to include in the results.</p> <p><i>Note: The Detailed Solo Read Rate chart is <u>barcode specific</u>. Not all items under the Conditions or Statistics heading apply to this chart.</i></p> <p><i>Only barcode specific conditions or statistics will generate a chart with meaningful results. If you select anything else, they will be shown in the legend, but will not be graphed in the chart.</i></p>
<p>Hist. Solo Read Rate</p>		<p>X</p>	<p>Creates a histogram chart of the solo read rate percentages matching the selected barcode types, broken down by individual devices on the system. Note that the chart displays results for one barcode type at a time. To view the results for the other selected barcode types, use the 'Series View' dropdown at the top of the chart.</p>	<p>Check to indicate which barcode types to include in the results.</p> <p><i>Note: The Hist. Solo Read Rate chart is <u>barcode specific</u>. Not all statistics under the Statistics heading apply to this chart.</i></p> <p><i>Only the following statistics generate a chart with meaningful results: Ref, Code1, Code2, and Code3. If you select any other statistics, they will be shown in the legend, but will not be graphed in the chart.</i></p>

Package Analytics

Selection	Facility View	System View	Description	Additional Parameters
Hist. Solo Read Rate Dev. Group		X	Creates a histogram chart of the solo read rate percentages matching the selected barcode types, broken down by any defined groups on the system. Note that the chart displays results for one barcode type at a time. To view the results for the other selected barcode types, use the 'Series View' dropdown at the top of the chart.	<p>Check to indicate which barcode types to include in the results.</p> <p><i>Note: The Hist. Solo Read Rate Dev. Group chart is <u>barcode specific</u>. Not all conditions under the Conditions heading apply to this chart.</i></p> <p><i>Only the following statistics generate a chart with meaningful results: Ref, Code1, Code2, and Code3. If you select any other statistics, they will be shown in the legend, but will not be graphed in the chart.</i></p>
Histogram BQA Categories		X	Graphs the NORCA values for barcodes.	Barcode Name
Histogram Code Quality	X	X	Creates a histogram chart of the barcode quality for selected barcode types. Note that the chart displays results for one barcode type at a time. To view the results for the other selected barcode types, use the 'Series View' dropdown at the top of the chart.	<p>Check to indicate which barcode types to include in the results.</p> <p><i>Note: The Detailed Solo Read Rate chart is <u>barcode specific</u>. Not all items under the Conditions or Statistics heading apply to this chart.</i></p> <p><i>Only barcode specific conditions or statistics will generate a chart with meaningful results. If you select anything else, they will be shown in the legend, but will not be graphed in the chart.</i></p>
Histogram Code Security	X	X	Provides the number of valid reads of a particular barcode by device. This chart is used primarily for laser scanner troubleshooting.	

Package Analytics

Selection	Facility View	System View	Description	Additional Parameters
Histogram Label Position	X	X	Graphs the distribution of x, y and z co-ordinates of the barcode label position. Note that the chart displays results for one co-ordinate at a time. To view the results for the other co-ordinates, use the 'Series View' dropdown at the top of the chart.	
Histogram Pkg Attributes		X	Provides a histogram of various package attributes including length, width, height, angle, gap, box factor and box volume.	
Histogram Read Rate		X	Creates a histogram chart of the read percentages matching the selected barcode types, broken down by individual devices on the system. Note that the chart displays results for one barcode type at a time. To view the results for the other selected barcode types, use the 'Series View' dropdown at the top of the chart.	<p>Check to indicate which barcode types to include in the results.</p> <p><i>Note: The Detailed Solo Read Rate chart is <u>barcode specific</u>. Not all items under the Conditions or Statistics heading apply to this chart.</i></p> <p><i>Only barcode specific conditions or statistics will generate a chart with meaningful results. If you select anything else, they will be shown in the legend, but will not be graphed in the chart.</i></p>

Package Analytics

Selection	Facility View	System View	Description	Additional Parameters
<p>Histogram symbol Contrast</p>	<p>X</p>	<p>X</p>	<p>Creates a histogram chart of the symbol contrast for selected barcode types. Note that the chart displays results for one barcode type at a time. To view the results for the other selected barcode types, use the 'Series View' dropdown at the top of the chart.</p>	<p>Check to indicate which barcode types to include in the results.</p> <p><i>Note: The Detailed Solo Read Rate chart is <u>barcode specific</u>. Not all items under the Conditions or Statistics heading apply to this chart.</i></p> <p><i>Only barcode specific conditions or statistics will generate a chart with meaningful results. If you select anything else, they will be shown in the legend, but will not be graphed in the chart.</i></p>
<p>Read Rate Daily</p>	<p>X</p>	<p>X</p>	<p>Graphs the read-rate for each selected evaluation condition for each one day increment during the selected timeframe</p>	<p>Check to indicate which barcode types to include in the results.</p> <p><i>Note: The Detailed Solo Read Rate chart is <u>barcode specific</u>. Not all items under the Conditions or Statistics heading apply to this chart.</i></p> <p><i>Only barcode specific conditions or statistics will generate a chart with meaningful results. If you select anything else, they will be shown in the legend, but will not be graphed in the chart.</i></p>

Package Analytics

Selection	Facility View	System View	Description	Additional Parameters
Read Rate Hourly	X	X	Graphs the read-rate for each selected evaluation condition for each one hour increment during the selected time interval.	<p>Check to indicate which barcode types to include in the results.</p> <p><i>Note: The Detailed Solo Read Rate chart is <u>barcode specific</u>. Not all items under the Conditions or Statistics heading apply to this chart.</i></p> <p><i>Only barcode specific conditions or statistics will generate a chart with meaningful results. If you select anything else, they will be shown in the legend, but will not be graphed in the chart.</i></p>
Solo Read Rate Daily	X	X	Creates a column chart of the solo read rate percentages matching the selected barcode types, over a chosen time interval, grouped by days.	<p>Check to indicate which barcode types to include in the results.</p> <p><i>Note: The Detailed Solo Read Rate chart is <u>barcode specific</u>. Not all items under the Conditions or Statistics heading apply to this chart.</i></p> <p><i>Only barcode specific conditions or statistics will generate a chart with meaningful results. If you select anything else, they will be shown in the legend, but will not be graphed in the chart.</i></p>

Package Analytics

Selection	Facility View	System View	Description	Additional Parameters
<p>Solo Read Rate Hourly</p>	<p>X</p>	<p>X</p>	<p>Creates a column chart of the solo read rate percentages matching the selected barcode types, over a chosen time interval, grouped by hours.</p>	<p>Check to indicate which barcode types to include in the results.</p> <p><i>Note: The Detailed Solo Read Rate chart is <u>barcode specific</u>. Not all items under the Conditions or Statistics heading apply to this chart.</i></p> <p><i>Only barcode specific conditions or statistics will generate a chart with meaningful results. If you select anything else, they will be shown in the legend, but will not be graphed in the chart.</i></p>
<p>Tunnels PPH Sum Per Minute</p>	<p>X</p>		<p>Plots the sum of all an auto ID system's packages throughput per hour over a timeline per minute. In essence, this graph is an average of packages per hour, and graphed each minute.</p> <p>This chart is useful for understanding how many packages are going through the facility at a given time. It provides a graphical illustration of what times the facility is running more packages and which times are busier than others.</p>	

Package Analytics

A.6 Report Types

When generating a report from the **Reports** tab, you will have to make a selection for the report type under the **Report Name** heading in the selection drawer. Certain reports also require that you select additional parameters under the **Parameters** heading in the selection drawer.

Report types and additional required report parameters for each are shown in the table which follows.

Note that report types are predefined for your facility. The table below provides a list of the most common reports however the reports installed on your system may vary.

Table A-6: Report Name

Selection	Facility View	System View	Description	Additional Parameters
Analyze No Reads		X	Lists all no reads for a selected time or sort	
BQA Categories Report		X	Provides Barcode Quality report based on ISO/IEC 15416 guidelines	
Dimensioning Report	X	X	Provides a count for packages with specific dimension characteristics, such as too short, side by side, too long, etc.	
Dimensions and Barcodes	X	X	Includes all barcodes and their respective dimensions (LxWxH), as well as volume, gap, angles, symbology etc.	
Heartbeat Report	X	X	Shows all heartbeat messages, warnings and errors that are sent from the auto ID system's MSC. To view only error messages (no warnings), check Errors Only under the Report Parameters heading.	<i>Errors only:</i> Check to include only heartbeat errors in the results
Induction Group Read Rate		X		
Package Stats Summary	X	X	Provides a tunnel by tunnel summary of the statistics that are calculated. Displays results in number of packages and as a percentage of the total.	

Package Analytics

Selection	Facility View	System View	Description	Additional Parameters
RAW Data Report	X	X	For a chosen time-frame, provides a full data dump of all the package data stored in the database.	
Read Rate Report	X	X	Details the system read rate performance over the desired time frame	<i>Include Individual:</i> Check to include a report breakdown by system as well as by group.
Solo Read Rate	X	X	Details the contribution of individual barcode device read rates	
Trace Data		X		

Package Analytics

A.7 Query Types

When generating a query from the **Queries** tab, you will have to make a selection for the query type under the **Query Name** heading in the selection drawer. Certain queries also require that you select additional parameters under the **Parameters** heading in the selection drawer.

Query types and additional required parameters for each are shown in the table which follows.

Note that query types are predefined for your facility. The table below provides a list of the most common queries however the queries installed on your system may vary.

Table A-7: Query Name

Selection	Description	Additional Parameters
Search Barcode	Query searches only barcode data	<p>Condition: (optional) You can limit your query to a specific Evaluation Condition. In this case, your query will search only packages that meet the selected condition for inclusion in your results.</p> <p>Search Pattern: enter the complete barcode or barcode mask you would like to search for. Wildcard characters “%” and “_” are allowed. A wildcard character is a character that may be substituted for any of a defined subset of all possible characters:</p> <ul style="list-style-type: none"> • A percent (%) may be used to specify any character or multiple characters in its position. For example, searching for the expression “25%9” would yield results which contain expressions such as “25<u>8</u>9”, “25<u>6</u>379”, or “254444<u>9</u>” • An underscore (_) matches any single character in its position. For example, searching for the expression 25_9 would yield results with contain expressions such as “25<u>3</u>9, 25<u>8</u>9 or 25<u>9</u>9
Search By Angle	Query searches only angle data	Angle </> Than: Enter angle values for the packages you would like included in the results
Search By Box Factor	Query searches only box factor data	Min/Max Value: Enter measurement values for the box factors you would like included in the results

Package Analytics

Selection	Description	Additional Parameters
Search By Dimensions	Query searches only dimensions data	<p>Unit: Select measurement unit type</p> <p>Min/Max Length/Height/Width: Enter measurement values for the packages you would like included in the results</p>
Search By Gap	Query searches only gap data	<p>Unit: Select measurement unit type</p> <p>Min/Max Value: Enter measurement values for the package gaps you would like included in the results</p>
Search No Reads	Query searches only no read packages	
Search Unassigned Objects	Query searches only unassigned objects	

Appendix B: Frequently Asked Questions

This section provides step-by-step procedures for tasks commonly performed with Package Analytics. For more information, please refer to the indicated sections of this manual.

B.1 How do I Start the Package Analytics Dashboard?

B.1.1 Start Package Analytics in a Web Browser

In most instances, Package Analytics will already be running on the system monitor or client computer. If not, double-click the **Package Analytics** shortcut icon on the PC Desktop to launch Package Analytics.

Package Analytics opens to the default view, with the *Guest* user logged in.

B.1.2 Start Package Analytics in Adobe Air

To launch Package Analytics using Adobe Air:

1. On the Windows PC from which Package Analytics is installed, use Windows Explorer to navigate to the **C:\SVP\dashboard** folder.
2. Double-click the program **svp-dashboard.exe**. Package Analytics will open to the default view in a separate application window, with the *Guest* user logged in.

The Package Analytics desktop shortcut launches the web dashboard in a default view, either System View or Facility View, depending on the type of installation performed.

Package Analytics

B.2 How do I View a Package Image?

You can view images of packages from the current sort or from a previous sort. The following sections describe how access the **Package Detail** dialog to view all details for an individual package.

B.2.1 View images From the Current Sort

Images from the *current* sort can be accessed from the **Activity** tab:

1. In System View, click the **Activity** tab.
2. Click a package on the Package Data Table. The **Package Detail** dialog is opened for the selected item.

Package Id	Blins			Barcode				Dimensions				Conditions			Host Message				
	C128	C93	UPC	Top	L/F	R/B	R/F	L/B	Bottom	CLV1	CLV2	L	W	H		Gap	BCExcellent	BCAccept	BCPoor
1276	✓	-	-	✓	-	-	-	-	-	-	-	19.20	14.80	10.00	64.37	✓	-	-	[0x2]10000823380034009[0x3]
1277	✓	-	-	✓	-	-	-	-	-	-	-	18.40	13.40	12.60	56.10	✓	-	-	[0x2]100099011650098126[0x3]
1278	✓	-	-	✓	-	-	-	-	-	-	-	15.80	12.20	7.20	149.40	✓	-	-	[0x2]100258507690639289[0x3]
1279	✓	-	-	✓	-	-	-	-	-	-	-	12.40	12.60	12.20	45.47	-	-	-	[0x2]9612804991626981135270[0x3]
1280	✓	-	-	✓	-	-	-	-	-	-	-	13.20	7.20	6.20	54.92	-	-	-	[0x2]9612804991626981135260[0x3]
1281	✓	-	-	✓	-	-	-	-	-	-	-	15.40	12.20	7.20	142.91	-	-	-	[0x2]9612804991626981135262[0x3]
1282	✓	-	-	✓	-	-	-	-	-	-	-	12.20	12.40	12.60	135.82	-	-	-	[0x2]100254681350010299[0x3]
1283	✓	-	-	✓	-	-	-	-	-	-	-	18.00	12.60	12.40	281.69	-	-	-	[0x2]9612804991626981135222[0x3]

Figure B-1: Activity Tab – Package Data Table

Package Analytics

B.2.2 View Images from a Previous Sort

You can access images from a *previous* sort from the **Timeline** tab:

3. In System View, click the **Timeline** tab.
4. In the **Sort Name** list, select the desired sort, and then make a selection from the **Statistic** list to narrow down results to a desired statistic.
5. In the graph at the top of the screen, adjust the timeline slider to fit the desired time interval, using the arrow tabs. If you don't know the specific period of the sort, open the slider to cover the complete sort.

The results for the selected time interval are displayed in The Package Data Table below the timeline.

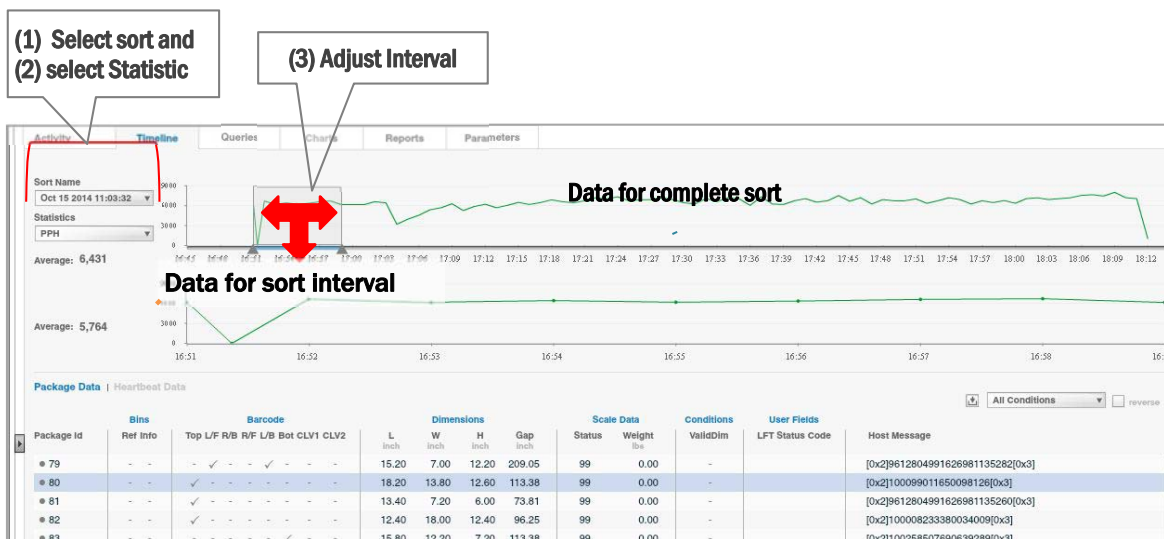


Figure B-2: Select Sort and Statistic

6. Click an entry in the Package Data Table. The **Package Detail** dialog opens for the selected package.

14734	✓	-	✓	-	-	✓	✓	-	-	-	19.40	10.20	15.60	20.35	NR	NR	PDF
-------	---	---	---	---	---	---	---	---	---	---	-------	-------	-------	-------	----	----	-----

Figure B-3: Timeline Tab – Select a Package

Package Analytics


B.2.3. Viewing Images in the Package Detail Dialog

The image that opens in the **Package Detail** dialog is a thumbnail image, good for verifying gross issues such as the question “*Is there a label present?*” or “*Is this a side by side?*”.

The Region of Interest (ROI) is identified with a magenta highlight. The ROI indicates an area in which Package Analytics has identified a barcode. Other highlights may also be visible on this image to indicate barcode types.



Note: If no visual highlights appear on the image or if no magenta ROI highlight is visible, this setting may be turned off in the **Detail Viewer Settings** dialog. You can turn highlights on by doing the following:

1. In the **Package Detail** dialog toolbox, click **Overlay Visualization Settings** . The **Overlay Visualization Settings** dialog opens.
2. Check ROI.
3. Check any other elements you'd like to highlight in the package image.
4. Click **Save** to exit and apply the changes. The **Overlay Visualization Settings** dialog closes, and the elements you selected are highlighted in the image thumbnail.

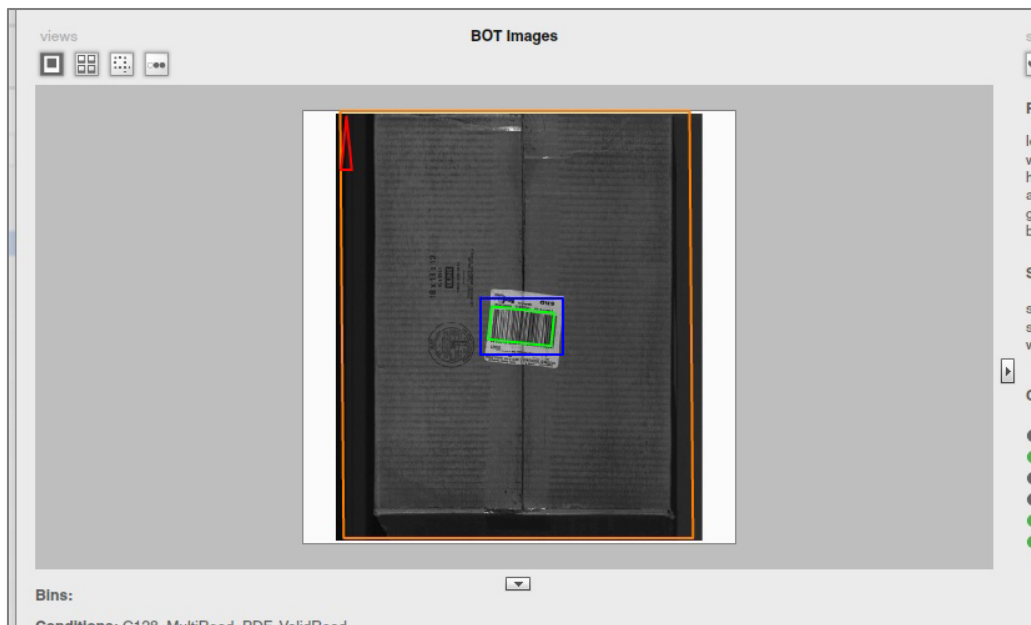


Figure B-4: Package Image Area – Single Image View

Package Analytics

B.3 How do I Look up Packages that Meet a Specific Condition?

You can use the **Timeline** tab to look up packages that meet a specific condition.

1. In System View, click the **Timeline** tab.
2. In the **Sort Name** list, select the desired sort, and then make a selection from the **Statistic** list to narrow down results to a desired statistic.
3. In the graph at the top of the screen, adjust the timeline slider to fit the desired time interval, using the arrow tabs. If you don't know the specific period of the sort, open the slider to cover the complete sort.

The results for the selected time interval are displayed in The Package Data Table below the timeline.

4. Filter the results further by Evaluation Condition. Evaluation Conditions define the condition that a selected Statistic is to be evaluated against.
 - a. In the results pane **Evaluation Conditions** list, select the condition you would like to include,
 - or
 - b. Select a *condition*, and then check **Reverse** to *exclude* a condition from the results. The Package Data Table is refreshed to display the new results.

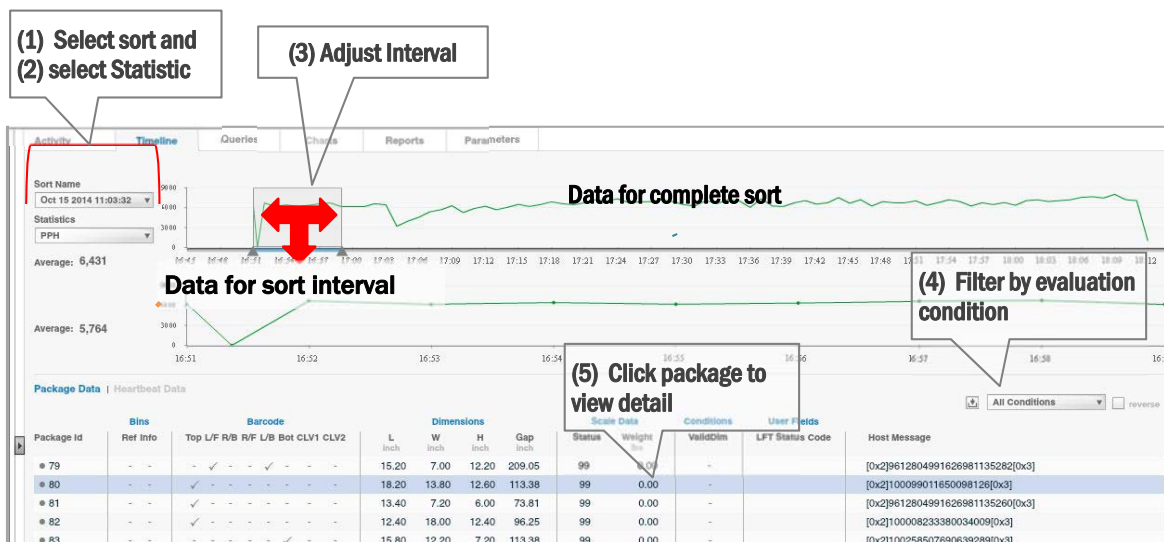


Figure B-5: Look Up Packages that Meet a Certain Condition

5. Click on an item in the Package Data Table to open the **Package Detail** dialog and view the item's full details.

Package Analytics

B.4 How do I search for a Specific Barcode Number or Pattern?

You can use the **Queries** tab to search for a specific barcode number or pattern.

1. In System View or Facility View, click the **Queries** tab, and ensure the selection drawer is open.

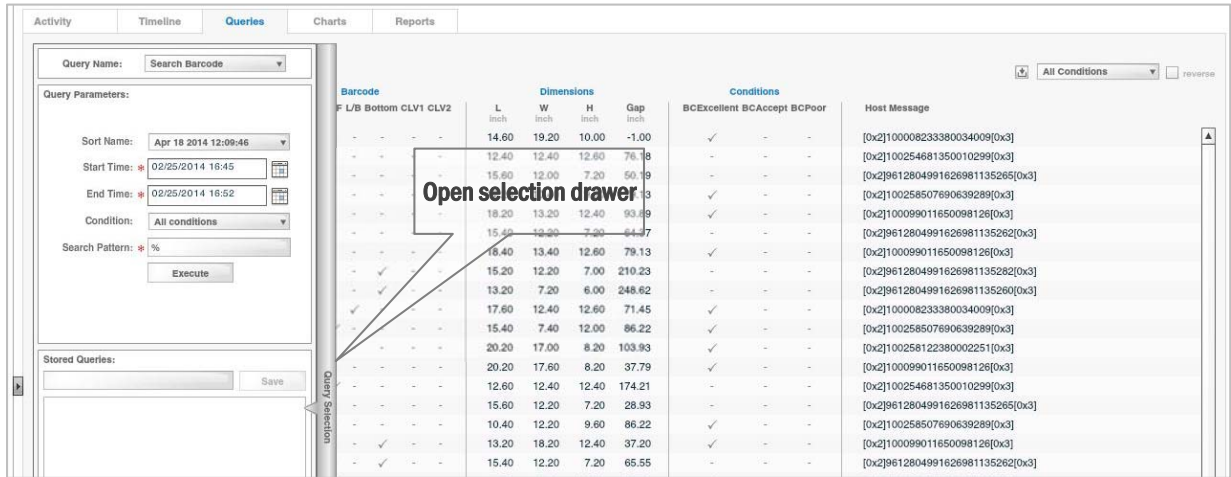


Figure B-6: Open Selection Drawer

2. In the selection drawer, from the **Query Name** list, select *Search Barcode*.

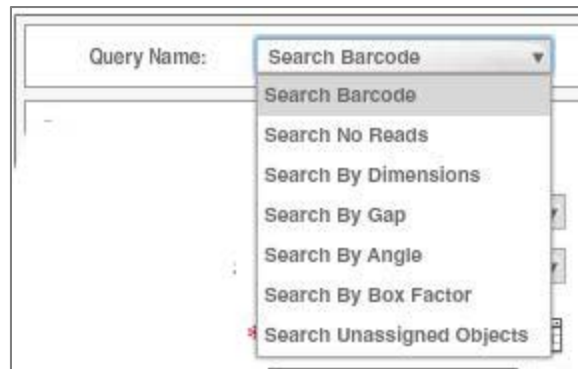


Figure B-7: Select Query Name

Package Analytics

3. In the **Query Parameters** section:

The figure shows two side-by-side screenshots of the 'Query Parameters' dialog box. The left screenshot is labeled 'Facility View' and shows fields for Group Name (All groups), Tunnel Name (All tunnels), Start Time (03/03/2011 15:01), End Time (03/03/2011 15:22), Condition (All conditions), and Search Pattern (%). The right screenshot is labeled 'System View' and shows fields for Sort Name (All sorts), Start Time (07/10/2013 06:35), End Time (07/13/2013 06:46), Condition (All conditions), and Search Pattern (%). Both screenshots have an 'Execute' button at the bottom.

Figure B-8: Select Query Parameters

- (System View) Select the appropriate **Sort Name** (or select **All Sorts**) you want to search or
(Facility View) Select a **Group Name** and **Tunnel Name** to search
- Select the **Start Time** and **End Time** you want to search.
- Select a specific **Condition** to search if desired.
- In the **Search Pattern** field enter a barcode number or pattern.
- Click **Execute** to start the search.

The selection drawer closes, and once the query is complete, a list of packages that meet the search criteria will be provided in the results pane. Click on a package to view the **Package Detail** dialog for the selected item.

Package Analytics

B.5 How do I Create a Chart Based on Package Attributes?

You can use the **Charts** tab to create a chart based on package attributes.

1. Click on the **Charts** tab and ensure the selection drawer is open.

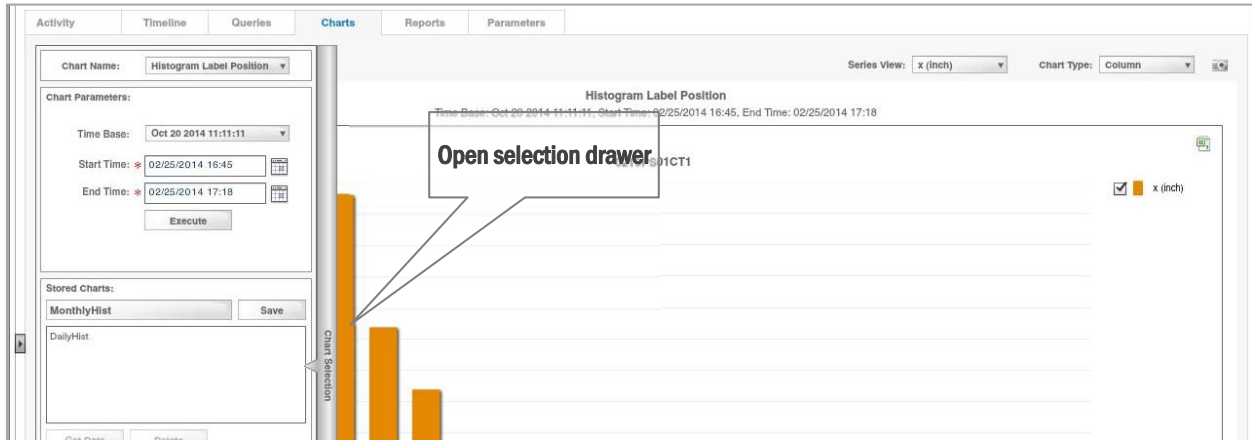


Figure B-9: Charts Tab

2. In the **Chart Name** list, select the chart type you'd like to generate.

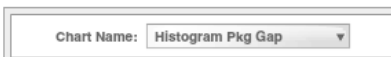


Figure B-10: Select Chart Name

3. In the **Chart Parameters** section:

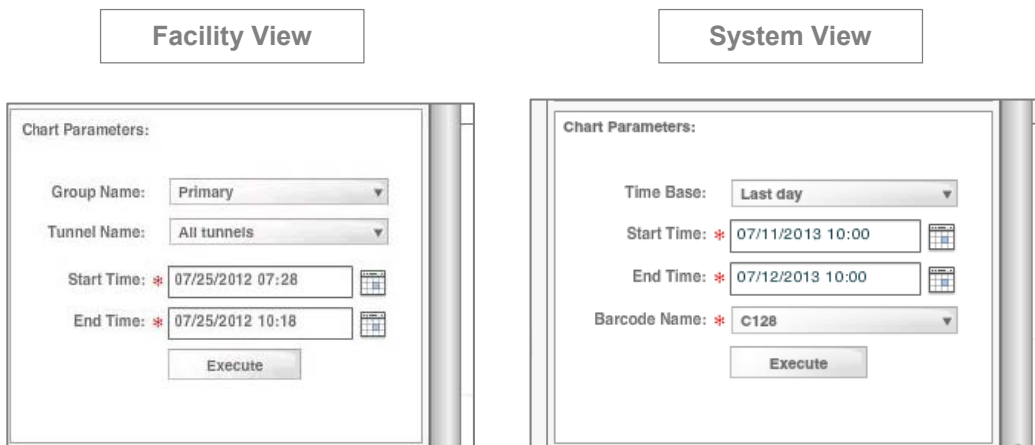


Figure B-11: Select Chart Parameters

- a. (System View) Select a **Time Base** (or select **All sorts**) you want to create the chart from. Setting the time base automatically fills in the **Start Time** and **End Time** values.
- or
- b. (Facility View) Select the **Group Name** and **Tunnel Name** (or select **All tunnels**)

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- c. Modify the **Start Time** and **End Time**, if you like.
- d. Depending on the *chart* type selected, you may see options to check desired Performance Statistics under the **Statistics** heading.
- e. Click **Execute** to *create* the chart.

The selection drawer will close, and once the chart is complete, a graph of packages that meet the parameters you set will be displayed. The chart can be saved or exported as described in Chapter 8.

B.6 How Do I Export NoRead Images?

You can export package data and camera images from Package Analytics to the following locations:

- Directory on the Package Analytics PC
- To an external device such as a USB drive or external hard drive
- To a network location

First find packages which were NoReads:

1. In System View, click the **Timeline** tab.
2. In the **Sort Name** list, select the desired sort, and then make a selection from the **Statistic** list to narrow down results to a desired statistic.
3. Open the timeline slider by clicking on the slider’s tabbed arrows. Expand the window to the desired timeframe you want to search. Opening it up over the entire graph includes the complete sort in the interval.
4. In the results pane, in the Evaluation **Condition** list, select **NoRead**. Package Analytics will query only packages that were a no read to display in the results pane.

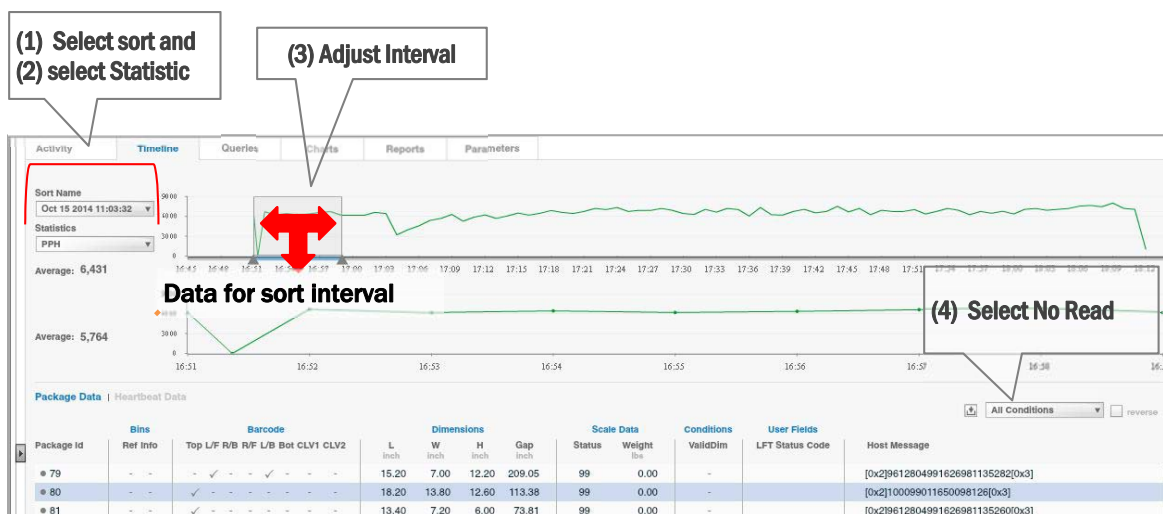



Figure B-12: Find NoRead Images

Now export the NoRead images package data

You can export package data and camera images from an individual package from the list you generated in the **Timeline** tab, or you can export the first 100 consecutive packages from the list.

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To Export an Individual Package from the Package Data Table:

1. In the Package Data Table click on a package to open it in the **Package Detail** dialog.
2. In the toolbox, click **Export Package Data** . The **Export Package Data** dialog opens.
 - a. Check the desired export options.

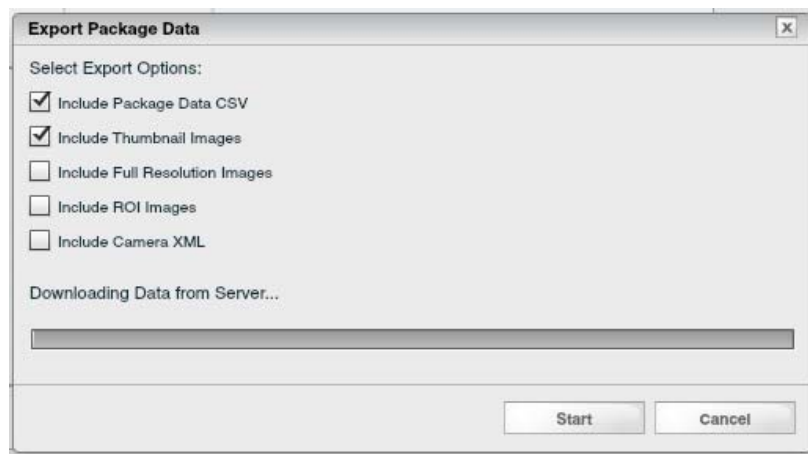


Figure B-13: Export Package Data

- b. Click **Start**. You will be prompted to choose a directory location and a type a file name for the exported file.



Note: Individual package data and images from the last 300 packages to pass through the system can be located and exported using the **Activity** tab Package Data Table.

To Export the First 100 Consecutive Images from the Timeline Tab Package Data Table:

1. Use the **Timeline** tab execute a search for NoReads or other supported Evaluation Condition (Refer to B.6)
2. In the **Timeline** tab results pane, click Export Package Data.
The **Export Package Data** dialog opens.



Figure B-14: Export Package Data

3. In the **Export Package Data** dialog, select the export options you'd like to include, and then click **Start** to store the data in a desired location.

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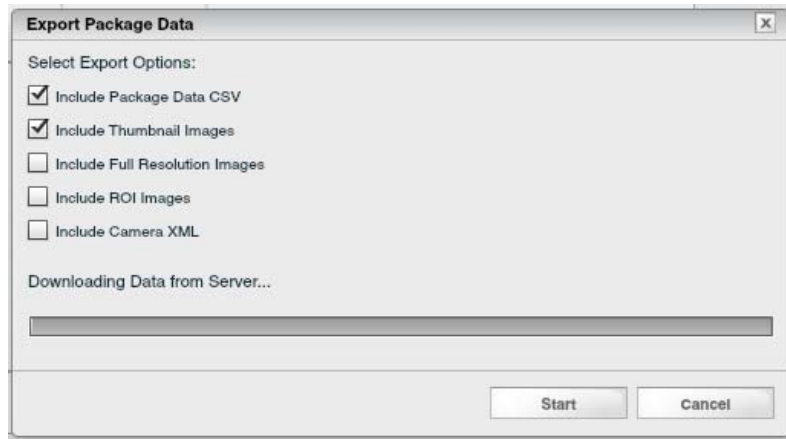



Figure B-15: Export Package Data

 **Note:** *If you choose to export the information to an external device, you can make the connection to this device via USB connection on the Package Analytics PC.*

Package Analytics

B.7 How do I Use Package Analytics to Troubleshoot the System?

The following procedures are some basic tips for troubleshooting your system using Package Analytics. SICK technical support should be contacted once these steps are completed.

1. Check the system read rate. A drop in read rate performance could indicate a device performance issue. Use the **Statistics** section in the System Performance pane to see performance over time (Chapter 3 provides more information regarding the System Performance pane).

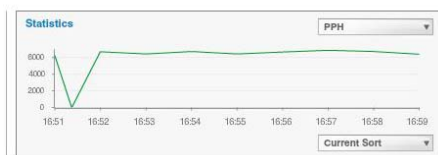


Figure B-16: Statistics Graph in System Performance Window

2. Check the health status of the system by looking at the **Sensor** state icons in the Performance and Health section of the System Performance pane.

Green status indicates all major system components are reporting a healthy state

- Grey state indicates system not in use
- Yellow or red status indicates a potential problem

Point to yellow or red icons. A screen tip appears, displaying a list of associated components. Components that have yellow or red icons are reporting an error.



Figure B-17: Sensor State Icons

3. Review the **Activity** tab Heartbeat Data Table. This table provides details for the error which is being reported (Chapter 4 of this manual provides more information regarding the Heartbeat Data Table).

Refer to the auto ID system’s maintenance and troubleshooting manual for further details.

Tunnel	Device	Position	Error Id	Severity	Description	Extended Information	First Time Occurred	Last Time Occurred
01	App-Server		10000001	error	Tunnel disconnected	127.0.0.1:51577	04/18/14 12:41:22	04/18/14 12:41:22
01	MSC800	left	03000F09	warning	Connection timed out	ETH_SVP CommID 132 to server 1...	02/25/14 16:41:12	02/25/14 16:47:16

Figure B-18: Heartbeat Data Table

4. Monitor the System Performance pane to see if a stable belt speed is being reported in Package Analytics. If you do not have belt speed or have variations in belt speed, this may indicate an issue with the encoder.

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Refer to the auto ID system’s maintenance and troubleshooting manual for further details.

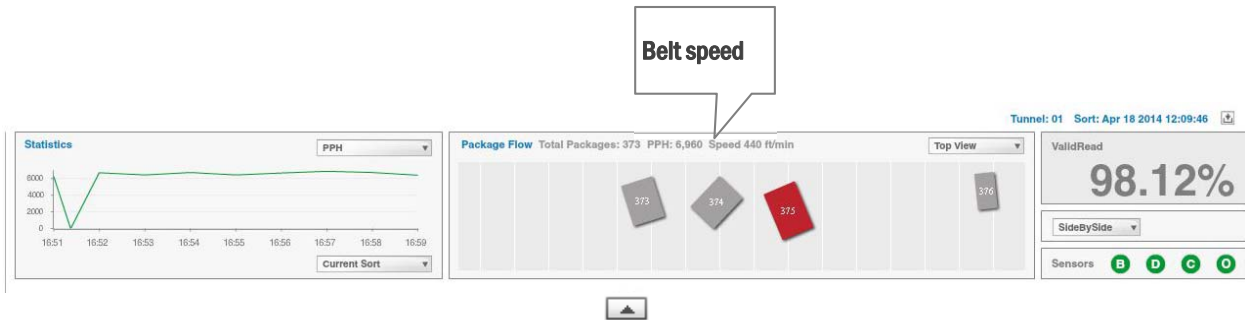


Figure B-19: System Performance pane

5. Check camera images by accessing **the Package Detail** dialog.

Packages not centered or cut off in the **Package Detail** dialog image could indicate a timing issue. This problem could be the result of bad trigger, bad encoder or bad dimensions.

Images should be in focus. There are several causes for out of focus. Package Analytics can be used to quickly rule out one obvious problem - bad dimensions for camera focus. Check the **Activity** tab Package Data Table to make sure dimensions are being reported. No dimensions being reported could indicate a problem with the VMS system.

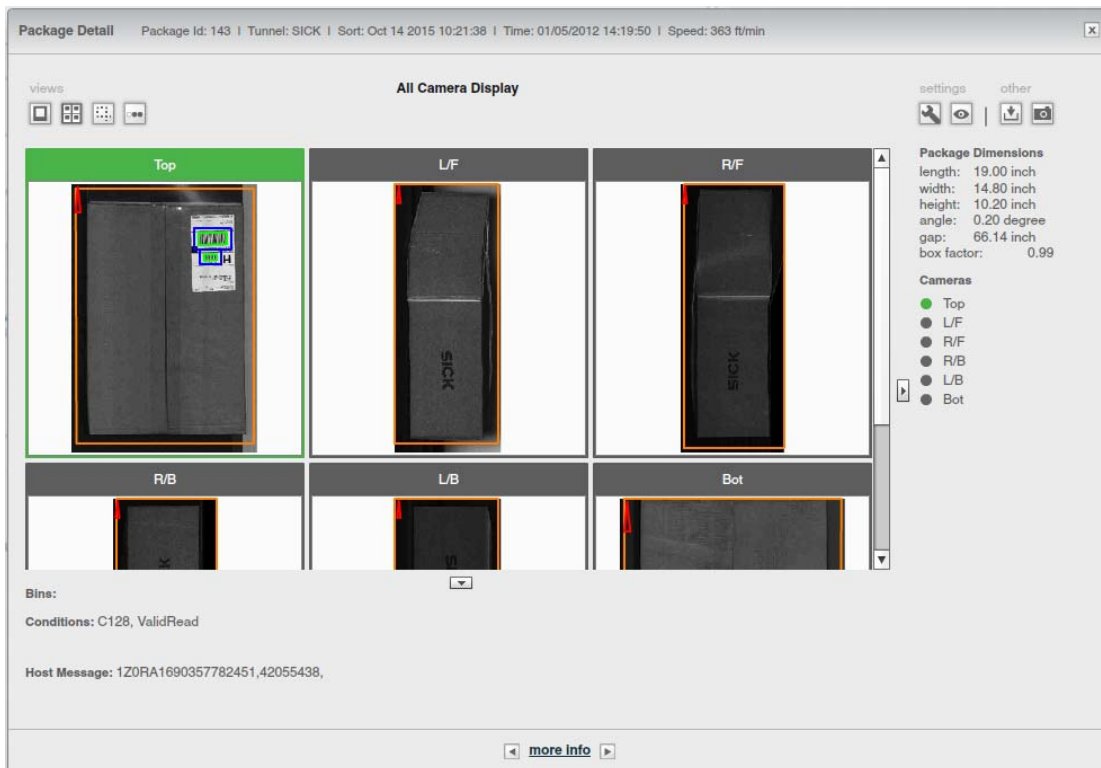


Figure B-20: Package Detail Dialog

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The screenshot shows a software interface with a menu bar (Activity, Timeline, Queries, Charts, Reports) and a data table. The table has columns for Package Id, Bins (C128, C39, UPC, C93), Barcode (Top L/F, R/B, R/F, L/B, Bottom, CLV1, CLV2), Dimensions (L, W, H, Gap in inches), Conditions (BCExcellent, BCAccept, BCPoor), and Host Message. The Dimensions columns are highlighted with a red box.

Package Id	Bins				Barcode							Dimensions				Conditions			Host Message	
	C128	C39	UPC	C93	Top	L/F	R/B	R/F	L/B	Bottom	CLV1	CLV2	L inches	W inches	H inches	Gap inches	BCExcellent	BCAccept		BCPoor
1276	✓	-	-	-	✓	-	-	-	-	-	-	-	19.20	14.80	10.00	64.37	✓	-	-	[0x2]100008233380034009[0x3]
1277	✓	-	-	-	✓	-	-	-	-	-	-	-	18.40	13.40	12.60	56.10	✓	-	-	[0x2]100099011650098126[0x3]
1278	✓	-	-	-	✓	-	-	-	-	-	-	-	15.80	12.20	7.20	149.40	✓	-	-	[0x2]100258507690639289[0x3]
1279	✓	-	-	-	✓	-	-	-	-	-	-	-	12.40	12.60	12.20	45.47	-	-	-	[0x2]9612804991626981135270[0x3]
1280	✓	-	-	-	✓	-	-	-	-	-	-	-	13.20	7.20	6.20	54.92	-	-	-	[0x2]9612804991626981135260[0x3]
1281	✓	-	-	-	✓	-	-	-	-	-	-	-	15.40	12.20	7.20	142.91	-	-	-	[0x2]9612804991626981135260[0x3]

Figure B-21: Package Data Table-Dimensions

6. If dimensions are being reported, verify they are correct.
 - a. Run a package with known dimensions through the tunnel.
 - b. Check the box dimensions recorded in Package Analytics to ensure that proper dimensions are being calculated by the system.

Refer to the auto ID system’s maintenance and troubleshooting manual for further details.

Appendix C: IP Cam Manual

The Axis P13 Network camera manual can be found on the Access Communications website:

http://www.axis.com/files/manuals/um_p1353_60302_en_1505.pdf.

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Appendix D: NORCA Barcode Analysis

NORCA (No Read Code quality Analysis) is a quality analysis for all read barcodes. This analysis is provided by the auto ID system's ICR8xx and Lector cameras, and configured in the camera's firmware.

NORCA analysis reads all barcodes on a package, and assigns a quality value (0% - 100 %) to each barcode. NORCA also provides a code qualifier according to AIM/ISO, and knowledge-based decoding attributes, for example, missing or invalid barcodes, start/stop character defects, split bars, covered codes. The ICR sends this data to Package Analytics to allow filtering, evaluation and visualization of barcodes.

In Package Analytics, NORCA barcode data can be viewed by filtering for NORCA-specific Evaluation Conditions. In addition, NORCA data is displayed in the Image Inspector visualization as described in Chapter 4 of this manual.

The table which follows provides a description of NORCA Feature Vector codes which may be displayed in the Image Inspector. A review of a barcode's Feature Vector code can identify specific problems which exist for a specific barcode.

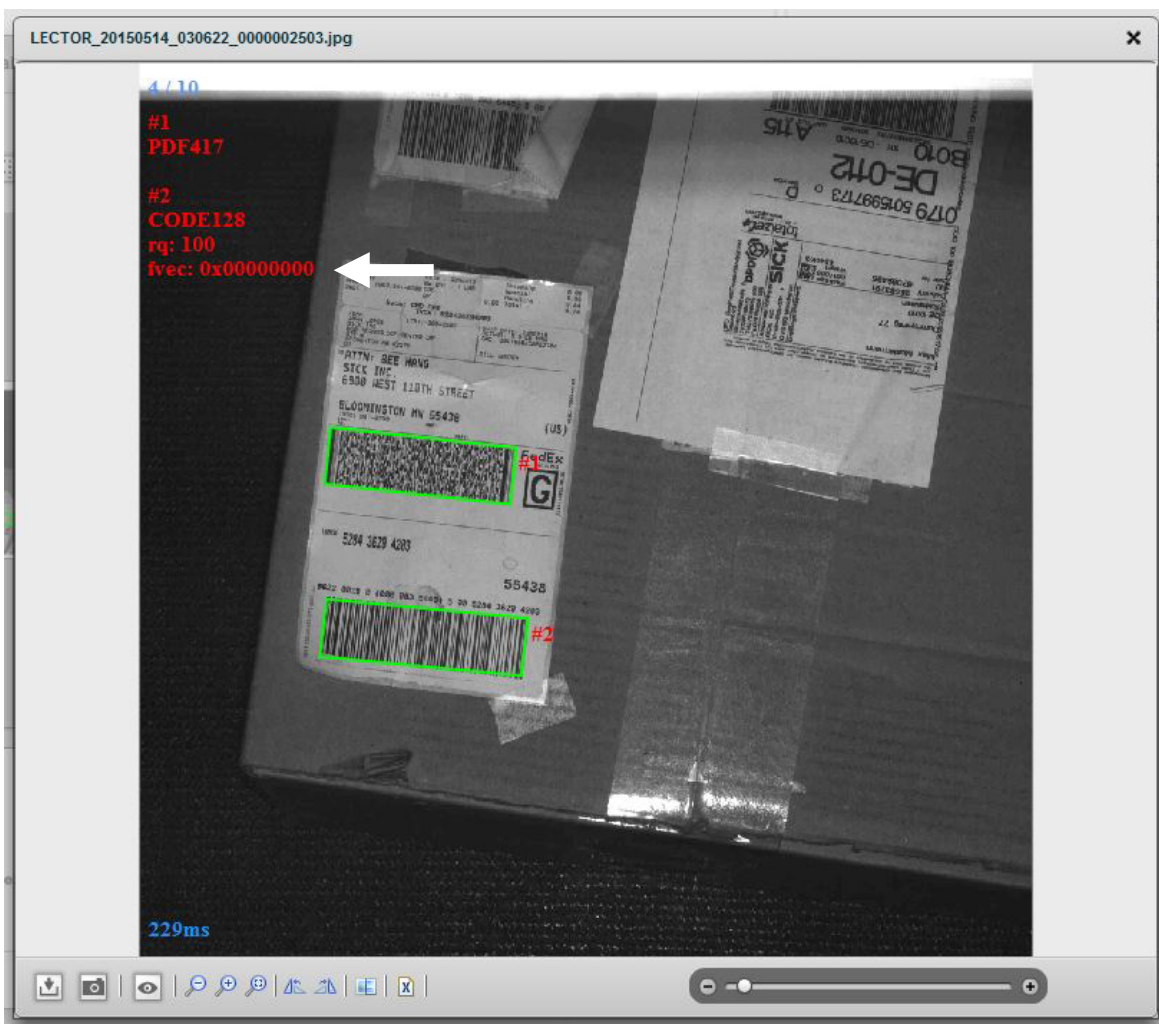


Figure D-1: Feature Vector Code in Image Inspector

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Table D-1: NORCA Analysis Feature Vector Codes for 1D barcodes

Feature Vector	Value	Description
QFVID_START_CHARACTER_CORRECTED	0x00000001	The start symbol for this character has been corrected.
QFVID_STOP_CHARACTER_CORRECTED	0x00000002	The stop symbol for this character has been corrected.
QFVID_SINGLE_ERROR_CORRECTED	0x00000004	A single error has been corrected.
QFVID_BUFFER_DECODING_FAILED	0x00000100	The final decoding failed.
QFVID_CHECKSUM_CHECK_FAILED	0x00000200	The checksum check failed.
QFVID_START_CHARACTER_CHECK_FAILED	0x00000400	The start character for this symbol is invalid.
QFVID_STOP_CHARACTER_CHECK_FAILED	0x00000800	The stop character for this symbol is invalid.
QFVID_LENGTH_CHECK_FAILED	0x00001000	The length for this symbol is invalid.
QFVID_SINGLE_ERROR_CORRECTION_FAILED	0x00002000	The error correction for this symbol failed.
QFVID_RESULT_CONVERSION_FAILED	0x00004000	An internal character set conversion failed.
QFVID_INACTIVE_SYMBOL_TYPE	0x00008000	Decoder for this symbol is not activated.
QFVID_MISSING_SUPPLEMENT	0x00010000	Supplement for EAN/UPC and RSS is missing.
QFVID_SPLIT_BARS_DETECTED	0x01000000	Split bars were detected for this symbol.
QFVID_FRAGMENT_MERGED	0x02000000	This result consists of a merge of two buffers.
QFVID_UNKNOWN_FAILURE	0x80000000	An unknown error occurred.

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Table D-2: NORCA Analysis Feature Vector Codes for 2D barcodes

Feature Vector	Value	Description
QFV2D_SCHEME_DECODING_ERROR	0x00000100	The symbol's scheme decoding failed.
QFV2D_CHECKSUM_CHECK_FAILED	0x00000200	A checksum function check failed.
QFV2D_ERROR_CORRECTION_FAILED	0x00000400	The maximum error correction capability is exceeded.
QFV2D_SYMBOL_SIZE_CHECK_FAILED	0x00000800	A symbol is decoded with invalid symbol size.
QFV2D_SYMBOL_DECODING_FAILED	0x00001000	The internal result decoding failed.
QFV2D_INVALID_MODE	0x00002000	The symbol is decoded with an invalid mode.
QFV2D_PARTIAL_RESULT	0x01000000	The symbol result is a partial result.
QFV2D_UNKNOWN_FAILURE	0x80000000	An unknown error occurred.

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