Visual Capacity Optimization Manager
Visual Power Manager*

Web Interface User Guide

Release 6.4.1

Version 1

March 2021

* Not all features described in this document are available in Visual Power Manager Pro and Visual Power Manager Essential. VPM-Pro has a subset of the features in VCOM. VPM-Essential has a subset of the features available in VPM-Pro.

Contents

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Contact Support

For your convenience, Eaton provides one site where you can access the information that you need for our DCIM products. You can access the resources listed below by going to https://support.optimumpathinc.com.

- Online and telephone contact information for technical assistance and customer services
- Product and documentation downloads
- Other helpful resources appropriate for your product

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1. Introduction

Visual Data Center 6.0 marks the introduction of the new HTML5 web interface which provides an enhanced user experience for our users. The HTML5 redesign includes a streamlined and consistent interface to allow users to manage and monitor devices in a much more efficient way. As we progress with more releases of the application, we will include an increasing number of pages and features in the HTML5 interface while the version 5.x web interface is converted to this new technology.

1.1. HTML5 Web Interface

Please reference the Visual Data Center Converting from v5.x to v6.x document for a clear explanation of which functions of the web interface are using the updated HTML5 interface and which functions are still using the Flash interface from prior releases of the application. The Visual Data Center Converting from v5.x to v6.x document will also instruct users on where to find the HTML5 equivalent features to the previous Flash interface.

This guide will provide instructions to users for the current version of the web interface. As subsequent releases are provided, this guide will be updated to include the new instructions for the HTML5 pages.

The Web Administration User Guide provides detailed instructions to help you implement and maintain the application using the web interface of the application. A detailed review of the features and functions of the web interface are provided in the sections below.

1.2. Application Overview

The application portal lets you access a wide array of data information from several disparate sources in one consolidated interface. The power of this aggregation is the simplicity it provides to operators to monitor and control both Facilities and IT devices in the data center environment. Since this application is vendor neutral, any device can be included in the interface and monitoring capabilities.

The application provides the following features for data center operators:

- Visual Navigation and Information to multiple floorplans
- Navigation to Main Data Center floorplans or Remote IT closets
- Real-time data metrics related to any device in the system
- Historical trend analysis for metrics defined for devices
- Reporting capabilities for user, device, performance and executive reporting requirements.
- Integration to third-party software solutions. For example, Power Strip controls, IP Camera Systems, Card Access Security Systems, Other Vendor Support and Maintenance portals, third-party Monitoring applications, and more are supported.
- Complete Design management of navigation and floorplans. Administrators can assign new devices to floorplans and customize the images and menu links associated with them.
- Full featured Rack Builder. This feature permits administrators to create online graphical representations of their rack layouts. Key information related to devices and racks can then be viewed individually or at the rack level to understand the Weight, Power and physical characteristics of that rack.

- Port mapping capabilities for both power and network ports.
- Complete Administrator command of the Access Control Rights of users on the system. Floorplans, Devices and Reports are all controlled by standard User and User Group access rights in the System Administrator area of the application.

1.3. Web versus 3D Client

The application provides both a web and 3D client interface to use for performing actions and managing devices. This User Guide defines the functions which are contained in the web interface. For information on the client features please consult the related Visual Data Center 3D Client User Guide.

The following is a high-level list of functions that are available in the web interface:

- Access Rights Control – Manage user rights to view, modify, create delete certain components of the application.
- Alarms – View all alarm information for locations and devices.
- Calendar – View and manage calendar events for all devices and users in the system.
- Camera Studio – Allows users to configure and manage camera interfaces.
- Device management – Add and remove devices from the application. Update attributes and device settings.
- Device placement – Assign, remove and relocate devices on floorplans.
- Device Data Viewing – View all data related to a device including alarms, graphs, trend charts, port mappings and more.
- Discovery – Define discovery jobs which will poll networks and create devices based on network discovery.
- Firmware – Bulk upload firmware files to supported device types and models.
- Monitoring profiles – Define the data points to monitor for devices.
- Navigation Tree – Build and configure the navigation tree for all locations managed by the application. Create floorplans to assign devices to the floor.
- Network and Power Paths – Create one-line summary of the network, a power tree of a facility, or both. This feature allows logical and physical definitions.
- Port Mapping – Define and manage port connections for power and network ports.
- Project Wizard – Create work order based device actions and assign tasks to users of the application.
- Rack Building – Place devices within racks.
- Reports – View all reports related to device performance and application information.
- Root Cause | Impact Analysis – Analyzes the port connections to determine impacts and dependencies for devices connected on the power and network paths.
- Services – View and manage calendar events and warranty data for all devices in the system.
- User management – Add, modify and delete all users in the application, and reset passwords.

1.4. Accessing the Web Interface

The web interface is designed with an easy to use framework that is consistent throughout the application. The web interface can be accessed in one of two ways:

- Direct Web Access – You can type the URL directly into a browser and login with your standard user/password combination. The available functions presented to the user will be based on the user's access rights permission levels for the application instance.
- Access from 3D Client Interface – You can click the Web Interface icon on the main page of the 3D client interface to display a separate web browser window with the web interface to the application. **Note:** Since the user is already logged into the 3D client, the application will perform an encapsulated logon to the web interface with the current client user credentials

2. Login

The Web interface is a web-based portal that is accessible through a standard web browser. If you do not know the URL to access the login page for the application login, contact your company system administrator for this information. Some companies allow access to the login page from remote locations. Others restrict access to internal computing devices or allow access through the company virtual private network (VPN).

2.1. Logging In to the Application

Follow these steps to log into the application:

1. Access the URL for the application in a supported browser. The application must be accessed using the URL configured during installation. Attempting to access the application with only the IP Address will be rejected with a message to use the URL provided during installation.
2. Enter the user name in the Login field.
3. Enter your password in the Password field.
4. Choose the language to be used for labels, buttons and other strings presented in the application.
5. Select the Remember Username to automatically populate the Username field when the login page is accessed again. When the browser cache is cleared this name will be purged and users will need to fill this field in again.
6. Select the Sign In button or press Enter to Login.

If you successfully log into the application, the main portal interface appears with a series of tabs for accessing the application features.

2.2. Login Issues

There are a series of issues which could prevent a successful login to the application. This User Guide assumes that the application web server and database are functioning properly. Detailed Technical Support related to the actual processes and database is not covered in the scope of this document.

2.2.1. Incorrect User/Password Combination

If you submit the incorrect User Name and Password combination, "Username/password combination is not valid." is displayed:

Click OK to return to the login screen and try to enter the Username and Password combination again. Please note that repeated login failures will result in a locked account which will need to be unlocked by an administrator. The number of allowed failed attempts will be configured in the application.

2.2.2. Account Already Logged on System

Logins are restricted to a single concurrent logon session for each user account. If another computer has already logged on to the portal with a user and password combination, you are asked if you want that user to log out.

- Clicking the Yes button continues the login process on the current device and displays the application portal interface. The remote who user already logged in with that account will have their session terminated. In addition, no other functions are allowed against the database by that other user.
- Clicking the No button returns you to the Login prompt and lets you try to log in with a different set of login credentials.

Note: The same username can be logged into the 3D client, web interface and mobile device at the same time without forcing session terminations on those devices.

2.2.3. License Quota Overage

When logging into the web interface the application will check the system usage and compare the usage to the license quotas purchased by the customer. If there is an excessive number of licenses consumed, then the access to the web interface will be restricted to the admin account only. This user will be granted access to the web interface to purge excessive quota items or purchase additional licenses to apply to the server. Once the quota check complies, then standard login functionality is restored for all users.

2.2.4. Grace Period for Licenses

In some cases, the user will receive a warning message related to the quota usage in the application. There is a Grace Period which allows users a period of time to address quota overages prior to the system shutdown. The message will clearly indicate the amount of time remaining to address license issued before the system is locked to administrators only.

2.3. Logging Out of the Application

To log out of the session, select the Logout menu item on the Personal menu and confirm the message to log out of the application. This will return the user to the Login page of the web interface.
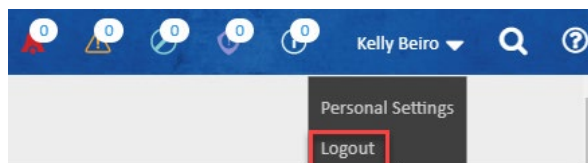
2.4. Session Timeouts

The maximum inactive login session duration is managed with a configuration setting defined on the server. Please reference the Administrative User Guide for instructions on how to access and update this setting using the vdctools command. When the maximum inactive session time has been reached

then the user will be prompted to supply the password to continue with a function. The session and page functions will be maintained, and the selected function will be executed.

Note: If the web interface has an active window opened on the browser page, then the sessions will not timeout. This feature is designed to assist with NOC users who will open and view dashboards for long periods of time with no other application access.

3. Page Layout Overview

The application page layout is designed to optimize usability and efficiency for completing common tasks and accessing information related to locations and devices. Please use this section of the documentation to review the details of the main page components to help improve your ability to navigate the features and information in the application.

Please note that the user working session is maintained in a single browser tab. New browser tabs are not automatically spawned to support the access of new information. Instead, users can easily navigate back through page history using tools provided in the application.

3.1. Components

The following components are arranged on the application interface. These components are consistently available to users throughout the working session to allow easy access to key functions and data.
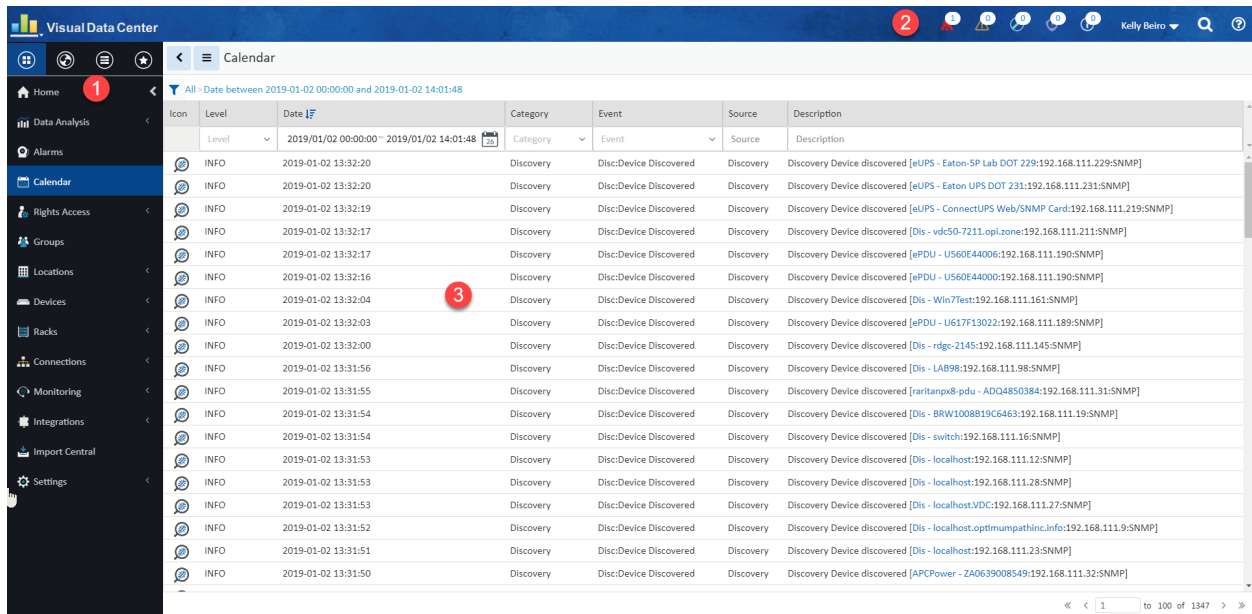
1. Navigation Panel – Used to access Feature Menus, Navigation Tree, Devices Navigator or Favorites List defined by users.
2. Banner – Alarm Indicators, User Menu, Search Widget and Help Widget are available in the Banner.
3. Content Area – displays the content associated with the Navigation Panel selection.

3.2. Navigation Panel

The Navigation Panel is the key component for users to access pages with features and data maintained in the application. Several functions are available to assist users in easily finding key content in the application.
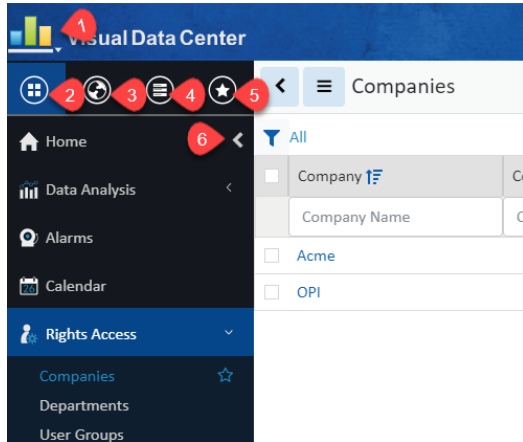
3.2.1. Application Logo

1) The application logo serves as a toggle button to fully hide or show the Navigation Menu. This action will provide full screen capability for the main data content and tables when needed by the user.

3.2.2. Feature Menus

2) Feature Menus is the default view presented to the user when logged into the application. This contains the core set of menu groups and items which are accessed by users to manage the application. Each of the Menu Groups and Menu Items is defined in detail in this User Guide.

3.2.2.1. Menu Groups

Common functions and pages are grouped together in the Feature Menus' navigation panel to facilitate access and use by the users. In some cases, the Group name serves as the only page for that group and will launch the content when selected by the user. The following Menu Groups are available in the application. **Note:** Details of Main Menu Items and the functions of each page are defined in this User Guide in other sections.

Main Menu Group	Description
Home	Default view of the application interface which shows the World Map and location navigation tree for accessing floorplan views with devices.
Data Analysis	Access to defined graphs, trend charts and report features.
Alarms	Opens the alarm panel for a detailed view of alarm conditions of devices managed in the application.

Calendar	Full audit history of devices and users managed in the application. All actions and changes to the application can be viewed in this tool.
Rights Access	Access to features needed to control rights access to locations and devices managed in the application. This feature manages all User provisioning activity for the application.
Groups	Defines Device Groups and Rack Groups in the application. These are used for rights access and reporting purposes in other parts of the application.
Devices	Central set of menu items to manage devices in the application including Firmware uploads to the devices.
Maintenance	View and manage calendar events, service and warranty data for all devices in the system.
Virtual Devices	Set of dashboards to manage virtual devices including VMware VCenter, VMware Hosts, VMware Guests, Configuration Groups and Action History.
Racks	Allows users to manage placement of devices on Racks and to manage Audit services of IT devices mounted to the Racks using the Mobile Asset Manager application.
Connections	Provides features related to port mapping and the analysis of the connected devices.
Discovery	Menu group to manage tools for discovering devices.
Monitoring	Allows users to define monitoring profiles, notification triggers and escalation actions for all data to be collected from devices.
Workflow	Tools for creating projects with tasks and generating work orders.
Integrations	Allows configuration management for integrations with third-party applications or data sources.
Import | Export	Allows user to access bulk import tools for various configuration options in the application and to view the history and audit details of these import activities.
Settings	Provides a series of system level attribute and list management capabilities for the user to define configurable options available in the application.

3.2.3. Navigation Tree

3) The Navigation tree is where you create and display all the sites managed in the application. These are visible as nodes for countries, cities, buildings, floors, areas and devices. The navigation tree is used to browse, manage and modify the nodes in the tree. **Note:** Details are located in the Navigation Tree section of this document.

3.2.4. Devices Navigator

4) The Devices Navigator provides users with an easy way to search and find devices to access the Device Central page. This feature organizes the devices based on the Device Type or the Lifecycle Status. The Search filter allows users to filter the grouped list by entering a string to use for matching against the device attributes. The search filter will execute a "contains" search against the Device Name, Asset Tag and Serial Number fields.

If user selects the device type air conditioner, the Devices Table List will be presented with a full list of all devices which match that type. If the expands the type and selects a specific device, the user will be presented with the Device Central page for that device.

3.2.5. Favorites List

5) The Favorites List provides a list of folders and shortcut links to pages defined by the user as Favorites. This Favorites List is defined individually for each user and there is no sharing of Favorites between users or groups in the application. There are two methods a user can perform to define a Favorite to this Favorites List:

- Mouse over the Feature Menu Item and click on the Star icon
- Click the Create Favorite menu item in the List Options menu
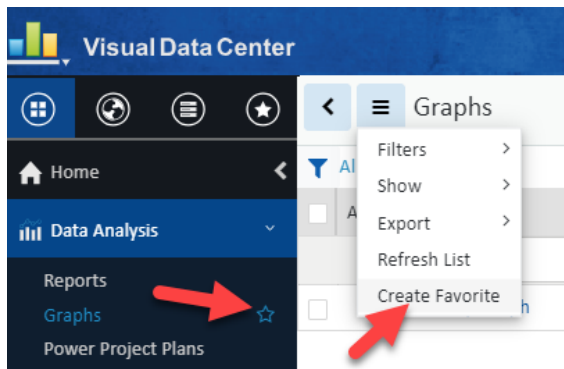
3.2.6. Minimize Button

6) The Minimize button will toggle between expanding and collapsing the display of the Navigation Panel between icon only and icon plus description views. This feature will allow users to utilize more screen space for the Content Area information and tables when needed. This feature is only available on the Main Menu view of the Navigation Panel.
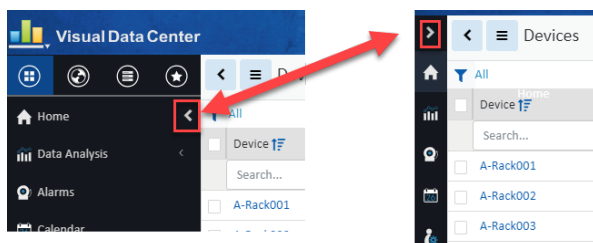
3.2.7. Main Menu Item

Under each of the Menu Groups is a series of menu items which provide users access to the specific function or information for the application. When selected, the component of the application will display the related data tables, forms, dashboards, etc. for use by the user.

For Menu Groups which have multiple Menu Items, an expand/collapse icon is available to the right of Menu Group name. This icon serves as a toggle button to expand and collapse the menu group to show the underlying menu items. Only one menu group can be expanded at a time.

3.3. Banner Functions

The Banner Widgets provide access to common features needed by the user regardless of the pages being accessed in the Main Data view. The following functions are available to the user in this part of the interface.

3.3.1. Alarm Counters

The alarm counters provide an up to date count of alarm conditions reported in the application. This set of icons is interactive, so the user can click an icon to open the Alarm panel and view only the selected alarm types. The icons in this Header Function represent the following alarm conditions:

- Red – Critical
- Yellow – Warning
- Blue – Unreachable
- Purple - Minor
- Lite Blue - Information
- Aqua - Exceptions

Data collection, thresholds and other alarm related rules are all managed in the Monitoring Main Menu Group of the Navigation Tree. The alarm counts are only related to devices and locations for which the user has access as defined in the User Rights section of the Navigation Tree.

3.3.2. Personal Menu

The Personal Menu allows users to customize their application experience with a series of options designed to tailor the behavior and views of the application based on user preferences. In addition, this menu allows users to Logout of their current session for the application.

3.3.2.1. Personal Settings

Selecting the Personal Settings menu option will present the following options for users to manage the application:

Personal Settings Item	Description
Auto Align	When set to ON users can place Racks on the floorplan and they will auto align with a nearby Rack.
Number of Generic Entries per Page	Controls the number of items to present in a list for each page. By default, this value is set to 10 for new users.
Unit	Allows the user to control the units listed for attributes and values in the application. Option available are Metrics and US (Imperial).
Location Path Display Format	Allows the user to select location path display format. Short path - Area, Floor, Building. Full Path - Area, Floor, Building, City, State, Country. Default is Short Path.
Port Mapping Default Search Option	Allows the user to set the default search option for port mapping. Default is Ports In Same Rack Only.
Rack Capacity Error Message	When set to On users will be notified about space, power and port capacity issues for racks when rackmount devices are placed into rack locations.
Navigation Tree Group	Allows the user to set the default Group By option of the navigation tree. Options are None, Building, City, Country, State.
Device Basic Information	Allows the user to select Collapse or Expand for device basic information display.
Default Selected Tile on Location Details Page	Allow the user to set the default display tile on location details page.
Default Selected Tile on Rack Details Page	Allow the user to set the default display on the device details page.
Floor View Default Layer	Allow the user to set the default display layer on the floor view page.

Following changes, users must logout and then log back into the application for these updated setting to take effect.

3.3.2.2. Notification Settings

The Notification Settings feature allows users to manage the times they will receive alarm notifications from the application to either their SMTP (Email) or SMS (Phone) addresses. This feature is useful for preventing overnight notifications from being sent to resources that work during the days.

By default, if there are no Notification Settings defined, the user will receive ALL notifications destined for their user account or user group. The following options are available for users as they define a new Notification Settings Profile:

Notification Setting Option	Description
Status	When set to ON the notification setting is enabled and notifications destined for this user will need to match the options defined in the notification profile.
Method	Defines if this rule will deliver notifications to the user SMTP (Email) or SMS (Phone) information. The Email and Phone settings are managed on the Users page in the Rights Access Main Menu Group.
Send To	Allows the user to define the Email address or Phone Number to use for delivery of the SMTP or SMS message.
Days	Defines which days the notification rule will allow the selected messages to be delivered to the user.
Time Range	Defines the time range on the selected days to allow the messages to be routed to the user.
Severity	Allows the user to manage the delivery of notification messages based on Severity. A detailed review of the alarm levels is located in the Alarms section of this document.
Event	Allows user to control whether Event based Actions will deliver emails when initiated by Calendar events which match the rule.

3.3.2.3. Password Reset

The Password Reset feature is the primary option for users to change their password for accessing the application. Users must enter their Current Password and New Password to make the change.
Note: The following rules are required for passwords created by users:

- Minimum 8 characters
- At least 1 Upper Case letter
- At least 1 Lower Case letter
- At least 1 Number

When the Confirm Password is being entered, the application will check to ensure it matches the New Password. The Change Password button will not be enabled until the New Password and Confirm Password fields are populated with compliant passwords and match.

3.3.3. Search

The Search function allows users to easily find Attributes, Devices and Cables which are defined in the application. The search field at the top of the page will allow for text entry and the system will perform
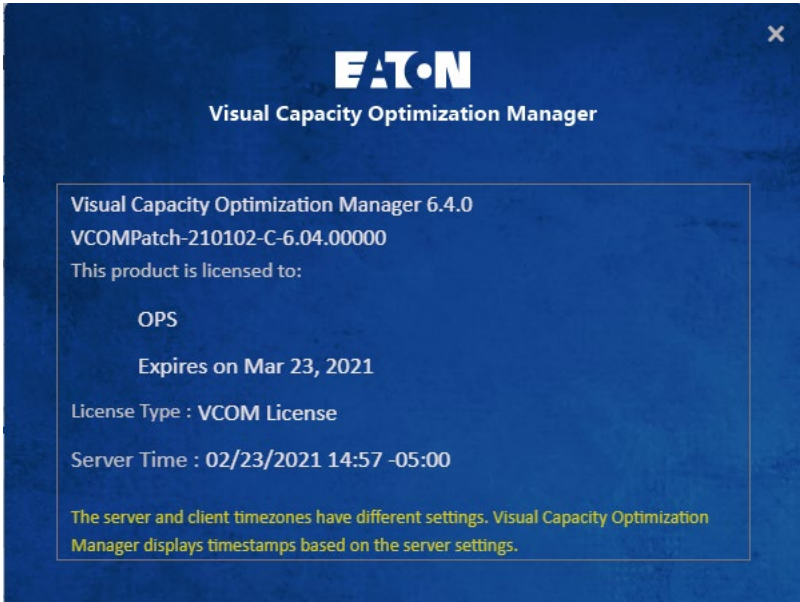
a "contains" search against defined objects in the application. Search looks in the following attributes: Device name, Asset Tag, Serial Number and IP Address.

By default, all the Search categories are enabled, but users can deselect the blue checkboxes at the top of the page to limit the search against a specific list of objects. Once run, the matching search results will be listed below the search criteria and they will be grouped based on the type of object. Click the + icon next to the object group to expand the list and view the results in the standard item list table.

The search results table behaves like all tables displaying the number or rows set for the number of generic entries per page. The pagination tool on the lower right is used to navigate through all of the results. Further filtering of the list can then be performed using the column filter fields at the top of each column to find specific items in the list which are not currently displayed.

3.3.4. Help

The Help icon serves as a toggle to show/hide the contents of the Help menu. In the Help menu, there are multiple categories of support topics available for the user to access:

Help Topic	Description
File Download	3D installation client files and bulk import templates which can be used in the application on the Import Central page.
Documentation and Videos	Links to an online repository with the documentation set and videos.
Support Portal	Link to the support portal so users can log into the portal to access more detailed Knowledgebase topics or manage support tickets.
About the Application	A window with the server's software version and licensing information.
Eaton Privacy Policy	Links to the Eaton Data Protection and Privacy Notice.
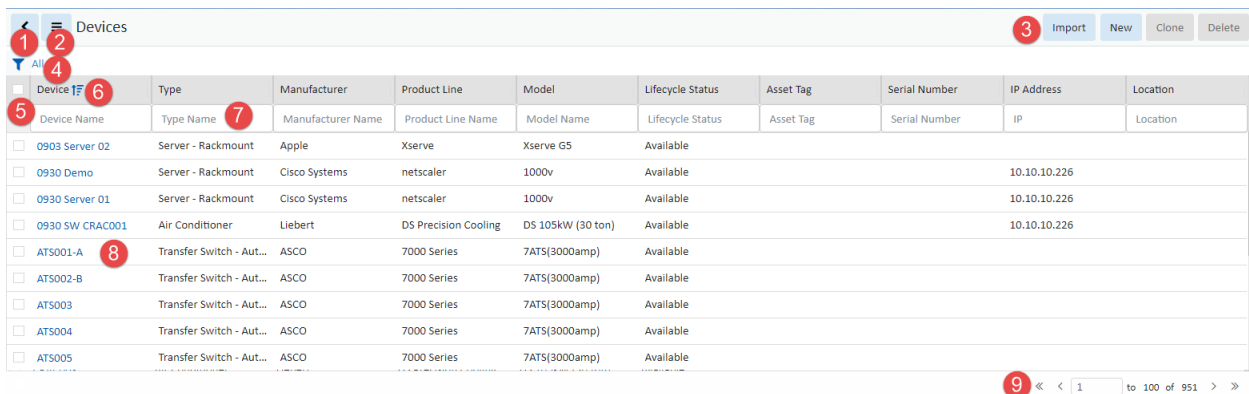
3.4. Main Data

The Main Data component of the application will display the content, dashboards, tables, forms, etc. as users choose pages from the menu items and feature icons available in the Navigation menu and Header Functions. This Main Data area has been designed to help ease the user experience for navigating the different features of the application. Some key notes related to the Main Data page are below:

- All pages are displayed in this Main Data component of the application. There are no newly spawned pages or tabs of the browser which could make navigation difficult to track.
- Standard tables and forms are used where possible, so users have a consistent user experience as they access different features. A description of the key aspects of these tables and forms is provided in the section below.
- A Back button is available to easily allow users to return to the previous pages which have been recently accessed.

3.4.1. Standard Table Features

Many of the pages and features of application result in a list of items presented to the user. These lists will be displayed in a common table format with consistent and repeatable behavior. The usability of these features is very important to master and simplify the management of data in these tables on the various pages of the application. The following table provides an overview of the features which are built into these table views:

Table Feature	Description
1 - Back Button	Allows the user to return to recent pages viewed.
2 - Table Menu	Easy access for users to manage the table. Options available on this menu are defined in this section of the user guide.
3 - Functional Buttons	Buttons related to the content provided on the page will typically be located on the top, right of the page. Specific buttons and features will be defined in the sections related to each feature.

4 - Filter Options	Allows users to define complex filters to limit the records displayed in the table. These filters can be saved and easily accessed in the Table Menu. This feature is defined in this section of the user guide.
5 - Select All Checkbox	Allows users to easily select all records in the table for bulk processing with a functional button on the page.
6 - Sort Order	Click the column heading to sort by that field. Clicking the column heading a second time will reverse the sort order of that column. An icon next to the column name will indicate which field is used for Sort Order and which direction is currently being viewed.
7 - Column Filter Fields	Allows for easy filtering of the records in the table. Strings entered in the column filter fields are used to run a "contains" search for the values in the field. Only records which match the search will be presented. Multiple column filters can be used in combination to filter the table list.
8 - Links to Objects	Some values in the table result will be represented with a hyperlink to the object. Click the hyperlink to jump to the object page to view more detail, troubleshoot, etc the object of interest.
9 - Pagination	Standard pagination tools are provided on all tables. **Note:** The number of entries per page can be set in the Personal Settings menu for each user.

3.4.1.1. Table Menu

The Table Menu options may differ on some tables based on content or allowed functions, but the following list defines the standard menu items contained in this common feature on the tables.

Table Menu Item	Description
Filter	Displays a list of saved Filter views.
Export	Allows users to export the table to a supported export file type. If the table records are filtered, the exported records will match the filtered view.
Refresh List	This action will force a full refresh of the table. If filters are applied to the table, they will remain after the Refresh List action is performed.
Create Favorite	Adds the current page to the Favorites list. User will be prompted for the Favorite name and folder. If filters are applied to the table view, they will be included in the Favorite.

3.4.1.2. Filter Options

The filter option located above the tables allows users to define simple or complex filter rules to limit the records presented in the table. These filters can then be saved and reused easily on subsequent views of the table.

As filters are defined and applied to the table, a breadcrumb is created from All records and then progresses based on the filter criteria applied in the filters. Users can click any level of the breadcrumb to easily return to a previous view of the table.

3.4.1.2.1. Creating a Simple Filter

Clicking the filter icon reveals the fields and actions available to the user to define a new filter.

- The first field will contain a list of columns presented in the table. Users can select one of the columns and define a filter for that column.
- The second field provides a list of operators to apply to the selected column. Examples of these operators are equals, contains, starts with, etc.
- The third field allows users to enter the criteria to match based on the operator defined in the second field.
- Click the Run button to execute the filter rule against the records in the table. The breadcrumb will display the filter rule applied to the table.

3.4.1.2.2. Creating a Compound Filter

If users would like to apply multiple column filter criteria with multiple levels of OR logic, they can use the following steps.

- Follow the steps in the section above to define a simple filter rule.
- Click the AND|OR options at the end of the first criteria row to show another row.
- Define filter criteria for the next column.
- Choose additional AND|OR columns to assign to the filter rule.
- Click the Run button to execute the filter rule against the records in the table. The breadcrumb will display the filter rule applied to the table.

3.4.1.2.3. Sorting Filtered Tables

When the filter icon is selected there is a row presented to the user to define the sort order of the records. Users can choose the column of the table to sort and the sort direction (Ascending or Descending) to sort the records.

To include additional sort criteria, users can select the Add Sort button at the top of the filter tool. This action will provide an additional sort option for the user to define. Several sort criteria options can be defined as needed to provide primary, secondary and other sort orders to the records presented in the table. **Note:** The first sort criteria defined, which is on the top of the sort criteria options if multiple options are defined, is the primary sort order. The second sort criteria defined is the secondary sort order, etc.

3.4.1.2.4. Saving Filter Rules

For common filter options that users will need to run repeatedly on table data, the filter rules can be saved so they can be easily generated on subsequent views of the table. Once the various filter options are fully defined, users can select the Save button at the top of the filter tool to define the filter

shortcut. This shortcut will be saved to the Filter menu located in the Table Menu at the top of the page.

Note: The filter is only saved for the table being viewed. Other tables will have different fields and data and will maintain their own set of filter shortcuts in the Table Menu.
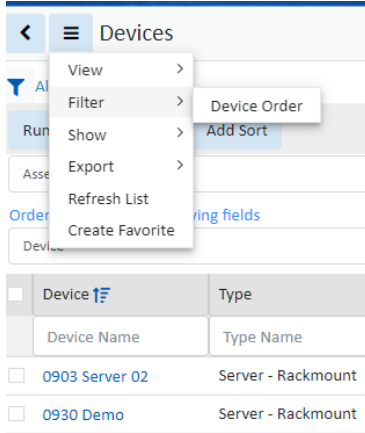
3.4.2. Search String Formats

Format	Description
String	Contains the string anywhere in the field, case insensitive
*	Wildcard
!String	Does not contain the string
String*	Starts with string
*String	Ends with string
=String	Equals exactly
!=String	Does not equal

3.5. Table Item Detail Page

When users are presented with a Table List there are typically hyperlinks to view the details of one or more items in the list. By clicking the links, users will be able to view the Table Item Detail page for the object. The detail pages can be comprised of different types of data, but the standard components of the Table Item Detail page are defined below.

Table Item Detail Feature	Description
1 - Back Button	Allows the user to return to recent pages viewed.
2 - Table Menu	Easy access for users to manage the table. Options available on this menu are defined in this section of the user guide.
3 – Functional Buttons	Buttons related to the content provided on the page will typically be located on the top, right of the page. Specific buttons and features will be defined in the sections related to each feature.
4 – Form Data	The top portion of this page typically has attributes which can be defined for the selected object.
5 – Table List Tabs	The lower portion of this page may have various Table Lists available for the user to view. If multiple table lists are available, then there will be a series of table list tabs to allow the user to change table list views.
6 – Table List	List of items related to the Table List Tab.
7 - Column Filter Row	The first row of each table list lets you enter a name to filter the column. You can enter names in multiple columns to refine the list results.

4. Home Menu Group Page

The Home Menu Group displays the home page that contains a summary of key activity in the application related to the logged in user. The following information is available for users in the Home view.

4.1. Location

Users can set a default location which will filter the information listed in the data tables on this Home page based on the chosen location. By default, the location is World, but users can choose a different location with the dropdown menu. Click the Set as Default button to set the personal settings for this feature to use the selected location on each subsequent login session.

4.2. Graphs

Items listed in the Graphs table are those related to the location specified at the top of the page.

4.3. My Workflow Items

Items listed in the My Workflow Items table are related to the Workflow activities. Tasks, Work Orders and Authorizations assigned to the user will appear in this list for easy review.

4.4. My Audits

Audits which are created by the user in the Audit Manager feature will be listed in the My Audits table. Users can easily track the status of their Audits and jump to the Audits page by clicking the icon next to the table name.

4.5. PUE

The PUE trend chart will show the PUE value for the select Location at the top of the Home page. The default trend duration is for the current day, but users can choose the calendar icon and select other predefined or custom intervals to view the historical PUE values of the selected location.

4.6. 10 Most Recent Reports

A listing of the reports which were run by the logged in user will appear in this section of the Home page. The table provides a link to the Reports page by clicking the icon next to the table title. Each report is also a hyperlink to quickly re-generate the report output to PDF format. **Note:** If the report is run from the Home page reports sections, the contents of the report will be filtered based on the original filters run in the actual reports page.

4.7. 10 Most Frequent Alarms Within the Last 24 Hours

This section will display the Alarm Triggers which have had the highest count of alarm conditions in the most recent 24-hour interval. The list of alarms will be filtered based on the Location which is defined at

the top of the Home page. The icon next to the table title will take the user to the Alarm page to investigate all Triggers and Alarms in the application.

4.8. 10 Most Recent Events

The Most Recent Events table displays the 10 most recent events from the Calendar tool of the application. The icon next to the table title will take the user to the Calendar page to view the full set of historical events tracked in the application.

5. Data Analysis Menu Group

The Data Analysis Menu Group allows users to access features which analyze the objects and data created in the application. The items available to users in this group permit the visual analysis in the forms of graphs, trend charts, etc. as well as the generation and delivery of standard reports.

5.1. Reports Menu Item

The application is provided with a set of predefined reports for common asset management and monitoring use cases along with features to allow users to tailor reports for specific users, administrative capabilities related to reports and an ad hoc report creator tool to create new device reports. You access the Reports by selecting the Reports menu item under the Data Analysis menu group.

Reports are a very important component of the overall system. Output from this feature provides a wealth of information related to the physical assets managed by the application. System operators can use this information to make decisions related to management of the overall data center infrastructure.

The Reports menu item displays a pre-defined set of reports and functions defined below. Reports can be generated in the standard PDF format for easy saving. They can also be generated in Microsoft Excel file format for managing the data outside of the application.

The availability of certain report menu functions is based on user privileges established by the administrative user. All members of the administrators' user group see five report tabs which provide specific functionality related to the Reports feature:

- Reports List – List of all available reports in the application. This list will contain a combination of Standard Reports which are provided by default with the installation as well as Custom Reports which are saved by the users.
- My Reports – List of user saved favorite reports.
- Recent Reports – List of the most recent reports which have been run by the user.
- User Defined Reports – Ad hoc report tool to create custom reports.
- Scheduled Reports – Tool to manage delivery of reports to users.

Note: Report access control is set in the User Group. Rights Access menu group > User Groups menu item > User Group.

5.1.1. Reports List

The Reports List contains the list of predefined and common reports needed to view asset and monitoring information related to the devices managed by the application. This list represents a full list of all reports a user can generate. Note that users in the administrators User Group will have rights to manage ALL reports for ALL users.

The reports in this list can originate from the following Report Categories:

- Standard Report – List of reports implemented with the installation of the product.

- Custom Report – This report is a Standard Report saved with predefined filter options.
- User Defined Report – This report is created in the User Defined Reports page of the Reports feature.
- Inherited Report - If another user shares one of their Custom reports or User Defined reports, it will also show as an Inherited Report in the report list.

5.1.1.1. Generate PDF Report Output

Click the PDF icon next to the report name to generate the report output to PDF format. **Note:** user can filter the report output with customizations prior to running the report by clicking the report name hyperlink.

5.1.1.2. Generate XLS Report Output

Click the XLS icon next to the report name to generate the report output to XLS format. **Note:** user can filter the report output with customizations prior to running the report by clicking the report name hyperlink.

5.1.1.3. Defining Favorite Reports

Click the Star icon next to the report to save the report as a favorite. The list of favorite reports can be reviewed on the My Report tab. To remove the report from the Favorites list simply click the Star icon again to toggle the report off the favorites setting.

5.1.1.4. Customizing Reports

Users have control over the output of the report by customizing user defined filters which apply to the selected report. Each report has a different set of filter controls which may be checkboxes, dropdown lists or inclusion or removal of attributes such as Locations, Device Groups, Device Types, etc. Users may create customized version of reports by following these steps:

- Click the report name hyperlink from the Reports List
- Define filter options to set criteria for the report output. **Note:** options such as Locations or Device Groups provide a checkbox to quickly include all items for that attribute. To filter based on these attributes uncheck the All checkbox, click the + icon to add items to the table and choose the Add button to select the items to be applied to this filter.
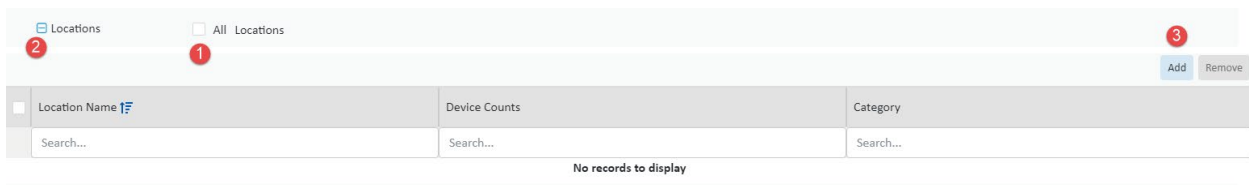
- Click the Save As button and define a name and Report Group for the Report.

5.1.1.5. Deleting Reports

Select the checkbox next to the report and click the Delete button. Multiple reports can be selected for a single Delete action. Please note that the default reports provided with the product can not be removed from the list using the Delete function. To hide these default reports from users, use the Rights Access features to limit View access to individual reports in the report list.

5.1.1.6. Report Category

All Standard and Custom reports are assigned one of the following report groups to help group reports and allow for the table filters to find reports easily.

- Alarm – Alarm summary and detail reports for devices in the application.
- Asset – Standard Asset reports.
- Capacity – Capacity information for groups of devices in the system.
- Efficiency – Performance and efficiency reports for different sets of devices.
- Metrics – Reports designed to generate specific metrics based on user criteria.
- Service – Warranty, Maintenance Schedules, and other items from the Service page.
- System – Information about Users and Groups in the system.

5.1.1.7. Alarm Reports

The list of default Alarm reports including the following:

- Alarm Detail – Displays the details for alarms including first time, last time, duration and values occurring during the date range specified.
- Alarm Summary – Displays a summary of the alarms for devices that includes number of occurrences and alarm cycles during the date range specificed.
- Current Value Detail - Provides the current value of polled data for the selected devices.

5.1.1.8. Asset Reports

The list of default Asset reports include the following:

- Asset List – Reports on all assets in the system and sorts the output by optional settings for the device.
- Cable Connection – Lists power and network cable connections for devices in the application. The report also displays the color of the Cable.
- Data Mapping List – Lists all devices that have mapped data points.
- Decommission Device List – Lists decommissioned assets in the application
- Device List By Area – Lists the devices associated with a specific area.
- Device List by Rack – Reports on all assets located within a rack and sorts the list by rack name.
- Device Port Details – Lists power and network ports defined on devices in the application.
- Device Port VLAN – Shows devices and ports grouped by VLAN definitions.
- Rack Details – Summary information for racks which are grouped by location.
- Rack Lock Summary – Summary information for rack access control devices.

- Redundancy – Lists the devices with redundant power and network redundancy.
- Relationship Summary – Provides detail on all network and power port mappings for selected devices.
- Software Application By Owner – Provides a report on software applications by Owner.
- Software Audit – Provides a list of software deployed to servers compared to counts purchased.
- Software License Compliance – Lists software installed and counts across all devices.
- UPS Battery Replacement – List UPS devices, seconds on battery and the battery last replace date within the defined date range.
- Virtual Machine – List of guests discovered by the application.
- VM Power Source - Lists rackmount UPSs and the connected VMs. Battery Replace Date and run time are shown in the report. The priority of VMs are displayed to identify the critical VMs. If a VM is in multiple Configuration Groups, the Priority is the highest one.

5.1.1.9. Capacity Reports

The list of default Capacity reports include the following:

- Blade Enclosure Capacity – Reports on the blade enclosures and the capacity information pertaining to them.
- Building Capacity – Tracks the average and peak utilization of the Generator and Main Switch devices in the system.
- Cooling Capacity – Tracks the cooling capacity of devices compared to cooling required. The required cooling is based on the total load of the building measured at the main switch devices.
- Cooling Capacity Summary – Summarizes the cooling utilization by area.
- Cooling Utilization – Shows the sum of cooling capacity for all the air conditioner and air handler units on the floor.
- Customer per PDU – Provides a list of PDU devices with customer specific information.
- Daily Customer Power Summary – Provides a list of customer information related to power data.
- Generator Capacity – Tracks the average and peak utilization of the Generator devices in the system.
- IT Redundancy – Shows which devices have redundant paths defined for network and/or power connections.
- Panel Power Summary – Summary of PDU|RPP power panels and related configurations.
- PDU Capacity – Tracks capacity power information for floor standing PDU and RPP devices.
- PDU Power Summary - Summarizes power information for floor standing PDU and RPP devices.
- Port Capacity – Lists all switches and routers with their port capacity, port usage, and utilization %. These values are based on the configurations completed in the Relationship Editor part of the application.
- Power Assignment – Provides a list of devices with their power and power utilization information.
- Project Capacity – Lists all projects and their information.
- Project Device Capacity – Lists all project devices and their information.
- Rack Amps Capacity - Shows the Amp capacity for specified racks.

- Rack Capacity – Shows the rack capacity, rack space used, and the largest contiguous space for each rack in the system. At the location level, rack capacity figures are aggregated to provide capacity information for a site. The grand total capacity is also provided so that you can see rack capacity and rack usage statistics for the company as a whole.
- Rack Power Capacity – Tracks the A and B power loads for all racks in the system.
- Rack Space – Provides a list of areas with total, used and remaining floor area designated for racks.
- Rack Unit Occupied Area – Shows the rack density by area for locations in the system.
- Rack Weight – Shows the rack weight capacity and utilization for all racks in the application.
- UPS Capacity – Tracks the average and peak utilization of the UPS devices in the system.

5.1.1.10. Efficiency Reports

The list of default Efficiency reports include the following:

- A-B Energy – Provides a summary of power based on the A or B power designation for a device. This report lets managers evaluate A versus B power consumption for each branch of the power tree. Input for the report lets you specify start and end dates and locations for the report output.
- Carbon Emissions – Provides a default CO2 output rate setting for the states in the navigation tree when you click the CO2 Rate button. By default, the application looks up the 2-letter abbreviation or full name of a state and matches it to the corresponding CO2 rate. If the State node of the navigation tree has a name that does not match one of these default state definitions, you can map the node to the appropriate state by using the CO2 Rate button. The rate and navigation node name are displayed by default. If a custom state assignment has been created, that state name appears in brackets at the end of the node name.
  - o For reference, the CO2 rates used in this application are based on the Energy Information Administration from the Department of Energy report published on April 2002. You can access the rates at this URL:
  - o http://www.eia.doe.gov/pub/oiaf/1605/cdrom/pdf/e-supdoc.pdf.
- Customer Billing Interval Comparison – Provides a way to report on day to day, week to week or month to month comparisons of power, energy or cost metrics for a department.
- Customer Connected Load – Displays Allocated Amps and KW on breaker grouped by Customer.
- Customer Power Summary – Provides a summary of customer power consumption. This information is typically tracked at the branch circuit level of a PDU device.
- Customer Rack Power – Lists racks, customer, power, energy and cost information for all racks in the application.
- Customer Server Power – List of power, energy and cost information for rackmount devices.
- Detailed Customer Energy – List of power, energy and cost for devices groups by customers and locations.
- Device Customer Energy – Summary of power, energy and cost by customer.
- Electric Costs By Rack - List racks based on location and the monthly and yearly power costs.
- Energy - Lists all devices that have a defined Energy Source attribute and provides actual kWh consumption and cost of using the device.

- Energy Source Summary – Provides energy source information for all devices.
- Environmental Summary – Provides temperature and humidity information for devices.
- Location Occupancy Summary – Summary of types of Floorspace areas and utilization.
- PDU Breaker Summary - Provides a summary of PDU breaker information.
- PDU Circuit Summary – Provides a summary of PDU circuit information.
- PUE Report – Review of key PUE data based on time duration and location.
- Rack Power Summary – Summary of power consumption and costs for racks in the application.
- Server CPU Idle – Collects and shows the CPU loads for devices under management. This information helps you understand which assets are being over/under utilized. Data for this report is collected from the Monitor Attribute table. For a device to report this data, the target member must be mapped to this monitor attribute table.
- Server Throughput – Collects and evaluates the amount of traffic in and out of network interface cards, and shows devices being utilized. This report provides a list of servers and switches and lets you see the amount of network traffic being processed by the device. Data for this report is collected from the Monitor Attribute table. For a device to report this data, the target member must be mapped to this monitor attribute table.
- Trend Chart - Trend charts for selected devices and attributes.

5.1.1.11. Metrics Reports

The list of default Metrics reports include the following:

- CUE – Carbon Usage Effectiveness
- EDF – Energy Distribution Factors
- Eff UPS – UPS System Efficiency
- ITL - IT Server Equipment Load Density
- LD – Lighting Density
- PUE – Power Usage Effectiveness
- RH – Ambient Relative Humidity
- RTI – Return Temperature Index
- TMP – Temperature Supply and Return
- ULF - UPS Load Factor

5.1.1.12. Service Reports

The list of default Service reports include the following:

- Service Events Overdue – Provides a list of all events that have not been completed on schedule, which is similar to the Services Scheduled report. The filter controls for this report and the scheduled events report are the same. The output of this report is grouped by week and sorted by day within the week grouping.
- Service Events Scheduled – Provides an easy way to query the scheduled events and view in a report format. You can define a date range to view Scheduled Services and select a specific City-Building combination to filter the report output. The report output is grouped by week and then sorted by day within the week grouping.
- Warranty Expiration – Lists all warranty expiration dates stored in the system.

5.1.1.13. System Reports

The list of default System reports include the following:

- License Compliance – Shows the device count quota being enforced by the license key and the current total of devices managed in the application.
- License Detail – Provides list of devices which are using purchased licenses.
- Sizing Report – Summary of key application metrics such as devices, pots, cables, etc.
- User Account List – Defines all users and their basic attributes in the system.
- User Group List – Defines the User Groups and the members of the user group.

5.1.2. My Reports

My Reports is a user's personal report shortcut list. This report list contains reports that are marked as a favorite by the user on the Reports List page. The Star icon next to the report name on the Reports List page is used to toggle reports on and off the My Reports list. Users have the same Actions available for reports on the My Reports list as they do for the full Report List page which are defined in the sections above.

5.1.3. Recent Reports

The Recent Reports list shows a list of recent reports that have been run by the user and the time that each report was run. Users can easily select the report from the list to view customizations, further customize or save the report. By clicking the PDF or XLS icons next to the report name, user can generate the output of the report once again.

5.1.4. User Defined Reports

The User Defined Reports feature allows users to define their own ad hoc reports by choosing fields, applying filters, sort order, grouping and math to the resulting output as needed. When the menu item is first selected users will be presented with a list of previously defined reports. Fields in the table presented for this report list include:

- Actions – User can click the PDF or XLS icon to generate report output in the selected format.
- Report – Name of the custom report.
- Report Type – There are two types of reports which can be created with the User Defined Report feature. Location Site Data allows users to report on actual, capacity and utilization data for locations. Device Data allows users to report on any attribute defined in the application related to devices.
- Report Group – Lists which group was defined to this custom report when it was saved.
- Description – Lists the description that was defined to this custom report when it was saved.

5.1.4.1. Create New Report

The New button will open the report configuration page which allows users to define standard properties of the custom report. The following properties will be defined for the custom report.

- Name – Name of the custom report. This name will be listed in the Reports List for the custom report.
- Report Type - Device Data allows users to report on any attribute defined in the application related to devices. Location Site Data allows users to report on actual, capacity and utilization data for locations.
- Report Group – List of groups which can be used to organize the reports. This list by default is the list of report groups included with the installation of the product.
- Description – Text string used to define the details included in the report.
- Row Limit – Defines the maximum number of records to return in the report output.
- Sort By – When first creating the custom report with the New function, this feature is not available. Once the report has been created, this feature allows users to choose which attribute included in the report output will act as the primary sort key for each group of records in the report. Users will select the attribute and the Ascend|Descend option to define this sort order.
- Date Range – Allows the user to select a date range for evaluating monitored data. This setting will not have an impact on standard attribute output such as Asset Tag, Serial Number, etc. If users include Temperature, Humidity or Power, for example, in their output then the Date Range will help to determine the Min, Max and Average of these data attributes for the report.

Once these fields are defined, the user will hit the Submit button and the new custom report will be added to the report list. The user can then modify the report contents and configuration using the Fields Definition and Rights Access features.

5.1.4.2. Editing Custom Reports

From the User Defined Reports list of custom reports, users can click the report name hyperlink to view the configuration page for the report. The configuration page allows users to select fields, change field order, define group by setting, filter report values, define calculated report fields and more.

5.1.4.2.1. Fields Definition

By default, the field definition list will include the Device Name field when the Device Data report type is created and will include the Location Name field when the Location Site Data report type is created. Users can then add more fields to the report and configure those fields by using the other report features.

To add more fields which are already defined in the application to the report output, choose the Add button, select the attribute to add in the Attribute field. By default, the attribute name will appear as the column title for the field in the report, but users can assign an Alias to change the column title for the selected attribute. Depending on the data type of the selected attribute (decimal, string, etc) additional information can be defined such as the number of decimals to present.

To add a new calculated attribute to the report, select the Calculated radio button when adding a new field. Define the formula to be used in the Formula section of the Add Field form by clicking the Insert Function button. Choose the attribute to be used in the calculation and apply the math functions directly in the Formula section.

In the example, below a new Calculated Attribute is created for the report which will add the A and B side Current Utilizations and divide the sum by 2. This attribute has an Alias of Average Current Util, will display 1 decimal in the report output and will show the Current Value of the calculation when the report is generated. Data in the report output will be filtered to only show records where this calculated attribute has a value of 80 or greater.

The Filters option allows users to limit the output in the report to records which only match the defined filter criteria for the attribute. For example, filters can be Temperature is greater than 80 or Asset Tag contains "POM". This is an effective way to isolate data output in the reports to focus only on relevant details for the custom report output.

Once the list of fields has been defined for the report, the following actions can be performed to further configure the output of the report data:

- Configure the sort order by defining the Sort By attribute and direction. These settings are in the top part of the user define report configuration page.
- Users can change the order of the fields in the report by using the up|down arrow icons to the left of the field name.
- Users can group records in the output by one of the defined fields. Toggle on the Group By indicator for the attribute which should provide the group category in the report. **Note**: only one attribute can provide Group By status.
- If the attribute is a value the user can define whether to use the Current Value, Min Value, Max Value or Average Value. If an option other than Current Value is used, then the setting in the top of the user defined report configuration page named Date Range will be used to determine the Min, Max or Avg value to display in the report.

5.1.4.2.2. Managing Access Rights

The Rights Access tab allows users to define which users or user groups in the application should have access to run the report. Click the Add button to be presented a list of Users and User Groups defined in

Data Analysis Menu Group

the application. Choose the users and user groups to grant access for the report and then click the Submit button.

To remove access for users simply select the user or user group to remove from the list and click the remove button.

Note: Only View access can be granted to User Defined Reports. Other users can view and run the report but the report configuration can only be updated by the user that defined the report.

Users that are granted permission to run a User Defined report defined by another user will see the report listed in their general Reports List. These reports can be set as favorites, scheduled for delivery and other standard report features.

5.1.4.2.3. Preview Custom Report

The Preview button at the top of the report is available to generate a preview of the report output. The user will be presented with an on screen display of the report output with only 20 records of data. The data contained in the preview report are actual data taken from the application database. This is a useful way to ensure the fields, order, calculations, etc are configured properly on the report.

5.1.4.2.4. Saving Custom Reports

As configuration changes are made to the custom report, users can select the Submit button at the top of the page to save the report.

5.1.4.3. Cloning Custom Reports

In some cases, users will want to make slight changes to an existing report. Instead of starting with a new, blank user defined report template, uses have two options for reusing an existing report definition:

1. On the User Defined reports list select a report and click the Clone button at the top of the page. A new entry will be added to the report list with the same name as the cloned report with a (1) appended to the end of the name.
2. In the user defined report detail configuration page, users can choose the Save As button to save the report with a different name. The new name will be added to the reports list on the User Defined Reports page.

5.1.5. Scheduled Reports

The Scheduled Report feature allows users to schedule the delivery of reports to any user of the application. The reports will be sent via email to the email address defined for the users. The email server settings are defined during the installation process and are maintained in the configuration files of the application. Destination email addresses for recipients are defined for each user when they are provisioned to the system as a user.

5.1.5.1. Creating a New Scheduled Report

On the Scheduled Report page select the New button to define the configurations for the scheduled report job. The following fields will be defined as part of this configuration:

- Task Name – Name of the scheduled delivery job to be processed.
- Run Period – Start and end date when this job should be processed.
- Run Frequency – Allows the user to control the frequency of the report delivery. Options allow the user to define Daily, Weekly, Monthly and Yearly job times.
- Run Time – Allows the user to define the time of day to run the job. Note the time defined is based on the Master server timezone. Users can define more than one time of day to generate and send the report by using the AND button to define more than one time.

Upon completion of these fields, the user will select the Submit button. This will allow the user specify which reports to run and recipients of the scheduled delivery job.

5.1.5.2. Defining Report and Recipients

Users may add one or multiple reports to the scheduled delivery job definition. Click the Add button to be presented a full list of the reports available to the user. Select the reports to be included in the job and click the Submit button.

The Recipients tab allows users to define the recipients of the delivered reports. Click the Add button to be presented a list of users and user groups. Choose the list of recipients and click the Submit button. These users will receive the selected reports based on the configurations of the scheduled delivery job

5.1.5.3. Report Delivery Details

Scheduled report delivery will be sent to the recipients via the email address configured in the Users page of the application. The recipients will receive attachments of the PDF and Excel output formats in the emails delivered to their email inbox.

5.2. Graphs Menu Item

The Graphs option allows users to assemble data in the application into dashboards using a variety of available components. These Graphs can then be associated with Monitoring Templates to apply them to multiple devices. For previously defined Graphs, users can view the data as it relates to devices in the application and make edits to the Graph definitions.

5.2.1. Graph Table List

The initial view presented when the Graphs menu item is selected is a list of defined Graphs. The table list contains the following fields:

Table List Column	Description
Actions	Runs the Graph to show actual data as configured with the components.
Name	Name of the Graph. Selecting this link will open the definition of the Graph and allow user to make edits.
Type	Shows the type of Graph defined. Options are Template or Specific Devices.
Monitoring Template	Lists the Monitoring Template associated with the Graph.
Components	Number of Graph components defined in the view.
Last Updated By	Last user to update and save the Graph.
Last Updated	Time the Graph was last updated and saved.

Table List Button	Description
New	Create a New Graph to be viewed by users.
Delete	Deletes the selected Graphs from the list.

5.2.2. Creating a Graph

To create a new Graph user can select the New button at the top of the Graph Table List page. This will present a Graph detail page which is divided into two sections. The top of the page will contain fields for standard form data to define attributes of the Graph and the bottom of the page represents the Graph canvas where components can be placed, aligned and defined to create the Graph view.

5.2.2.1. New Graph Properties

When defining a new Graph, there are properties defined with the Graph which manage where and how a user may access the Graph for viewing live data related to devices managed in the application.

Property Name	Description
Name	Name of the Graph. This will be visible at the device level so users can launch the Graph to view real time data.
Type	User can choose from two options to manage availability of the Graph: • Template – Graph will be associated with a Monitoring Template. Monitoring Templates are applied to devices defined in the Monitoring Template. Components of the Template option are only associated to an Attribute and not to a specific device. • Specific Devices – Each component of the Graph will specify the Device and Attribute of the device. These Graphs will be associated with devices that have components included in the Graph. There is no association of a Specific Device Graph with a Monitoring Template.
Monitoring Template	If Type is set to Template, then this property is used to associate the Graph to an existing Monitoring Template.
Description	Description of the graph.

5.2.2.2. New Graph Components

The Graph is comprised of one or more graphical components to display data related to a device. Graphs are accessed from the Device Central page for a selected device, so the data displayed in the Graph is related to the device from which the Graph is generated. If the Graph is based on specific devices, then the components will show the data related to the defined device and attribute combination.

The following components are available for users to add to a Graph.

5.2.2.2.1. Circular Gauge

The Circular Gauge will provide a value for a single attribute of data related to a device. The attribute must be numeric to be properly used with this component.

Property Name	Description
Label	String to be displayed on the top left of the component when viewed in a Graph.
Minimum | Maximum	The smallest and largest values to be displayed on the gauge.

5.2.2.2.2. Trend Chart

The Trend Chart displays historical time series data of one or more attributes of data related to the device. The attribute must be numeric to be properly used with this component.

Property Name	Description
Label	String to be displayed on the top, left of the component when viewed in a Graph.
Default	Default time interval to be displayed with the trend chart when viewed on a Graph. Users may change this interval by clicking the calendar icon on the trend chart component.

5.2.2.2.3. Table

The Table component allows users to present table data which is commonly reported with SNMP Table and Table Column OID attributes.

5.2.2.2.4. Number Gauge

The Number Gauge will display the device name, attribute, value and unit for the device and attribute associated to the component. The only property managed with this component is the Label which will appear on the top, left of the component when viewed in a Graph.

5.2.2.2.5. Percentage Gauge

The Percentage Gauge will show the value of the attribute compared to a minimum and maximum range defined with the graph component. A bar indicator will show the percentage of the actual value of the attribute with the defined minimum and maximum values.

Property Name	Description
Label	String to be displayed on the top, left of the component when viewed in a Graph.
Default	Default time interval to be displayed with the trend chart when viewed on a Graph. Users may change this interval by clicking the calendar icon on the trend chart component.

5.2.2.3. Adding Components to a Graph

After the Graph properties have been defined, users can click the Add Component button to create a new component on the Graph.

5.2.2.3.1. Adding a Template Component

If the Graph type is for a Template, then users will need to choose from the list of Attributes defined on the Monitoring Template. Multiple Attributes can be selected from this list to add multiple attributes to the Graph in one step. Selecting a Table attribute will only enable the Table component option. Click Next to choose the component type.

Add Component   ×

Select Attributes
This is required. You need to select one or more items.

Attribute ↓≡	Monitoring Template	Data Type	Monitor Type	Value Type	Unit
Attribute	Monitoring Template	Data Type	Monitor Type	Value Type	Unit
☐ Humidity	Tampa Bacnet	Scalar	BACNET	Decimal	%
☐ Temperature	Tampa Bacnet	Scalar	BACNET	Decimal	°F

« ‹ 1   to 2 of 2 › »

5.2.2.3.2. Adding a Specific Devices Component

When adding a component for a specific device:

- Click Add to select a device
- Click Next to select an attribute on the device
- Click Next to select the type of component desired
- Click Submit to add that component to the graph

5.2.2.4. Component Types

The following Component types can be added to the Graph.

Component	Description
Circular Gauge	Odometer style gauge which displays the actual value. A minimum and maximum value of the gauge is defined for this gauge.
Trend Chart	Historical trend chart for the values. All attributes can be added to a single chart or each value can be assigned its own single line trend chart component on the graph.
Table	Table of tabular column values. This option is only enabled when Tabular Column data attributes are selected.
Single Value	Displays the actual value and units of the selected attribute.
Utilization Gauge	Displays the actual value and percentage. The minimum and maximum values of the gauge are defined when creating this component.

5.2.2.5. Editing Components on a Graph

Each component on the graph has three icons for editing:

- ⊕ The Move Icon allows the user to drag the component to the desired location.

- ✎ The Edit Icon allows the user to modify the component using the same tools used for creating the component.

- 🗑 The Remove Icon allows the user to remove the component from the graph.

5.2.3. Graphs Reflect Alarm Level Colors

Trend Chart

Attr/Title - Single Device

Custom Title/No title? - Multiple Devices

| 1 Hour | Predict |

Device	Attribute	Last	Max	Min	Avg
Device 1	Active Power	20 kW	20 kW	20 kW	20 kW
Device 2	Active Power	35 kW	35 kW	35 kW	35 kW
Device 3	Active Power	99 kW	99 kW	99 kW	99 kW

Custom Title/No title - Multiple Devices

Table

Custom Title/Device Name - Single Device
Device Name

Chill System Enable	Chill Alarm Present	Space Min T	S01.1 H	S01.2 H
Active	Inactive	66.00 °F	42.00 °F	62.00 °F

Custom Title/No title - Multiple Device

Device	Attribute	Value	Status
Device1	Chill System Enable	Active	⊘
Device1	Chill Alarm Present	Inactive	🔔
Device1	Space Min T	66.00 °F	⊘
Device1	S01.1 H	42.00 °F	⊘
Device1	6046 Cam 1 H	62.00 °F	⚠
Device2	N03.2.H	0	⊘
Device2	S01.1	46.00 °F	⊘
Device2	7046 Cam 1 H	39.00 °F	⊘
Device2	N03.2 H	33.00 °F	⊘
Device2	S01.1 H	38.00 °F	⊘
Device2	N03.2 H	52.00 °F	⊘
Device2	8046 Cam 1 H	0	⊘

Custom Title/Device Name - Single Device
Device Name

Attribute	Value	Status
Chill System Enable	Active	⊘
Chill Alarm Present	Inactive	🔔
Space Min T	66.00 °F	⊘
S01.1 H	42.00 °F	⊘
6046 Cam 1 H	62.00 °F	⚠
N03.2.H	0	⊘
S01.1	46.00 °F	⊘
7046 Cam 1 H	39.00 °F	⊘
N03.2 H	33.00 °F	⊘
S01.1 H	38.00 °F	⊘
N03.2 H	52.00 °F	⊘
8046 Cam 1 H	0	⊘

5.3. Capacity Plans Menu Item

The Capacity Plan feature allows users to model the impact of installing devices, decommissioning devices or applying planned projects to locations managed in the application. AN analysis of key space, power and cooling metrics will be presented based on the addition or removal of devices and ports as part of the Capacity plan model.

5.3.1. Managing Capacity Plans

When users first access the Capacity Plan page, they are presented a list of previously defined Capacity Plans which have been created and saved in the application. Users can add a New Capacity Plan to the list by clicking the New button on the top of the page and completing the Name and Location fields.

- Name is the name of the Capacity plan configuration to analyze.
- Location defines the node of the location navigation tree to use for analyzing the capacity plan configuration. To analyze capacity impact for all locations in the application select the World node. To analyze capacity impact for a single area then select the Area name from the list.

To delete plans from the list, select one or more with the checkbox and click the Delete button.

5.3.2. Modifying Capacity Plans

There are three primary ways to define devices and ports which are applied to the defined Capacity Plan. These options are New Devices, Existing Devices and Projects. Each option provides specific capabilities for users to include Install, Move, Decommission, Port Connect and Port Disconnect functions against the location defined in the plan.

5.3.2.1. New Devices

The New Devices option allows users to include devices which are not created in the application device list to the capacity plan model. Users can select the Add and Remove buttons to define the new devices to include in the capacity plan analysis.

When the Add button is selected the user is presented with a list of eligible Models from the full Model database which can be added to the capacity plan. Users will click the checkbox next to the model name, define the number of devices instances to add for the selected model and optionally define the Energy Type, A-B Side and Power setting for the devices. **Note**: The default Power setting is set to the nameplate Power settings for the selected model.

After adding or removing devices from the model the Submit button will commit the changes to the capacity plan.

5.3.2.2. Existing Devices

The Existing Devices option allows users to either Install devices which are not in the selected location or Decommission devices from the selected location. Using the Add button, the device list presented to the user when this option is selected shows all devices defined in the application. The Action field will indicate if the device would be added to the capacity plan (Install) or if the device will be removed from

the capacity plan (Decommission). Users can optionally define the Energy Tyoe and A-B Side settings for the devices as they are added to the capacity plan.Projects

The Projects option allows users to add and remove defined projects in the Workflow feature to the capacity plan. The project may include multiple actions including install, move, decommission, port connect, and port connect. Using the Add and Remove buttons projects will be added or removed from the capacity plan. Actions defined within the selected projects will be applied as part of the Capacity Plan analysis.

5.3.3. Analyze Plan Results

After the New Devices, Existing Devices and/or Projects are applied to the Capacity Plan, users can hit the Analyze button to generate a table of metrics to evaluate the impact of the capacity plan to the selected location node. The Analysis Report will have the following columns of data:

- Current Value – Represents the current value of the metric for the selected location BEFORE applying the devices and projects included with the Capacity Plan.
- Modeled Value – Represents the future value of the metric for the selected location AFTER applying the devices and project included with the Capacity Plan.
- Raw Change – Calculation of the raw data value difference in the Modeled and Current values.
- % Change – Calculation of the percentage difference in the Modeled and Current values.

5.3.4. Export Capacity Plan Results

Users can Export the Analysis Report table and calculations to Excel by using the main menu icon next to the report tile. Click the report icon and then select the Export – Excel menu options to download the report to an Excel file. This export will allow users to manage and further evaluate the data using the Excel spreadsheet functions.

5.4. Power Project Plans Menu Item

Power Project Plans assist users in determining the overall power and rack unit requirements for a list of devices. By leveraging the expansive model library, users can model power and rack space consumption by adding multiple quantities of selected models to a power project plan. This tool is commonly used to define rack and power distribution needs for racks.

The initial view presented when the Power Project Plans menu item is selected is a list of defined project plans. The table list contains the following fields:
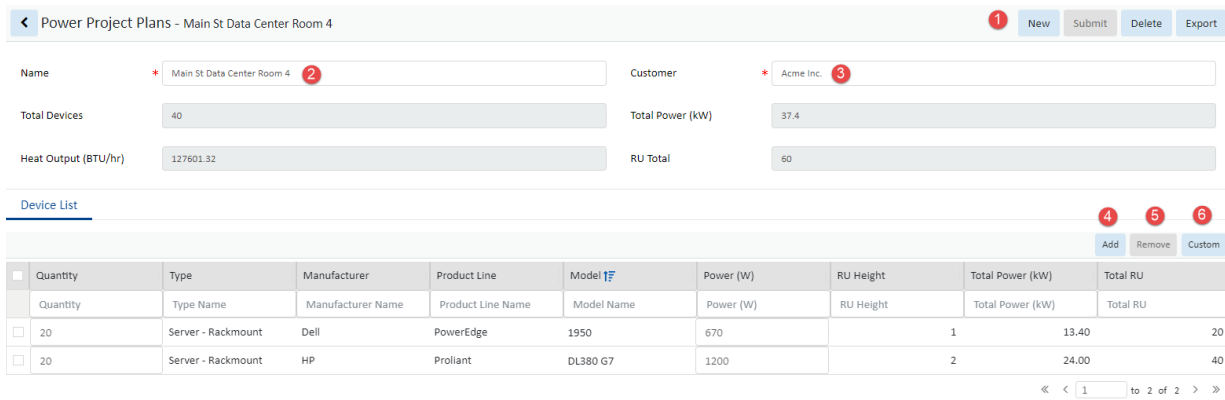
Table List Column	Description
Name	Name of the power project plan – click to view details and edit the plan
Customer	User defined customer name for power plan
Total Devices	Total number of devices identified in the project
Power (kW)	Total power needs for all of the devices in kW
Heat Output (BTU/hr)	Total heat output for all of the devices in BTUs per hour
RU Total	Total number of rack units for the devices identified in the project
Creator	Username of the person who created the plan
Create Date	Date the plan was created

Modify Date	Date the plan was last modified
Table List Button	**Description**
New	Create a New power project plan
Delete	Deletes the selected power project plans from the list

Note: Users can only view power project plans they have created. The admin user can see all power project plans.

5.4.1. Creating a New Power Project Plan

Select the New button and a new Power Project Plan form is opened. The following screen is presented to the user with the functions defined below.

1. The buttons on the upper right perform the following tasks:
   a. New - Opens a form to create a new project
   b. Submit - Submit the currently viewed project to the main project list
   c. Submit & New - Submits the current project and opens a blank form for a new project
   d. Export - Exports the current project to an Excel spreadsheet
2. Name - Enter the name for the power project plan
3. Customer - Enter the name of the customer
4. Add - Opens a window where devices can be selected from the full set of models supported in the power project tool. Selected models along with the defined quantity will be added to the power project plan detail table.
   a. Filter the list to find the desired devices
   b. Select the check box to choose the device and set the quantity. By default, the quantity is set to 1.
   c. Click Submit to add the devices to the device list in the project
   Note: The Power setting can be edited on the device. In some cases, the power reading for the model in the model library may be based on a high-performance power supply, but other power supply options may exist.
   d. Close will close the window without adding devices to the list

5. Remove - Deletes entries from the table where the check box is selected
6. Custom – Adds a new record to the table which allows the user to define a model which is not found in the model library. Users can assign attributes to this custom model as needed to accommodate device requirements.
   a. Please submit a model request to add this model to the application. This will allow all users to leverage the model list for this model once it is updated in the application.
   b. Fields are not mandatory. The values assigned to the new custom entry will be used only if they are defined.

Data Analysis Menu Group

6. Alarms

The initial view presented when the Alarms group menu item is selected is a list of current alarms.

By default, the alarm list is filtered for all alarms where the Severity does not include normal. The table can be custom filtered using the column filter fields or the filter option.

The table list contains the following fields:

Table List Column	Description
Ack	Icon which indicates if the alarm has been acknowledged by a user.
Severity	Shows the color-coded severity of the alarm. Green (Normal), Yellow (Warning) and Red (Critical).
Expansion Triangle	Click on the triangle next to the Severity label expands the alarm's details showing each of the Trigger/Attributes
Alarm Source	The device that is manifesting the alarm. This is a link that will open the device details page.
Trigger/Attribute	Name of the Trigger defined for the device.
Rules	Specific rules included in the Trigger definition.
Details	Information about the data which triggered the alarm.
Last Updated	Timestamp of last data collection.
Location	Location where the device exists
Actions	Two icons are listed in the Actions section. One icon provides a history of the Device or alarm Trigger. The other icon allows users to post a comment to the alarm.
Table List Button	**Description**
Acknowledge	Acknowledging an alarm will prevent further escalation of the alarm notifications if multiple levels of escalation are defined in the alarm notification rules. Users can select the checkbox next to the device or data point and click the Acknowledge button to Acknowledge the alarm. The Alarm LED will maintain its color indicating the severity of the alarm but will have an embedded "A" over the LED to indicate the alarm has been acknowledged. **Note:** The Acknowledged status will be maintained until the alarm is either Cleared or naturally returns to a Normal condition.
Clear	Clears the alarm. **Note:** If the device is still in an alarmed stated during the next polling cycle, the alarm condition will return.

7. Calendar

The initial view presented when the Calendar group menu item is selected is a list of all events for the current day. The user can define complex filters to retrieve data regarding specific types of events during a period and/or related to specific devices or users. The table list contains the following fields:

Table List Column	Description
Icon	Helps identify the event activity
Level	Indicates the event level. Options include Critical, Info, Minor, Normal, Recovery, Unmonitored, Unreachable and Warning.
Date	The timestamp for the event
Category	Indicates the event category. Options include Alarm, Devices, Discovery, Graphs, Location, Monitor, Project, Service, System, User and Warranty.
Event	Indicates what type of event is being reported.
Source	Indicates the source of the event. For example, the source Web is reported when items are manually created. Devices created through an import report the source as Import Central.
Description	Specific details about the event including the user and device names.

8. Rights Access Menu Group

A key component to any implementation is the management of the users and access control rights they have within the system. The Rights Access Menu Group lets administrators manage detailed access controls for all users created in the system. These controls relate to all devices, locations, reports, and other components of the instance.

8.1. Companies Menu Item

The Companies menu item in the Rights Access menu group lets administrators manage multiple companies in the same instance. When users are created, a company designation is required to allow controls for reports and access rights to be applied at the company level.

- To add a new company, click the New button and complete the fields shown in the main portion of the screen.
- To delete a company, select the checkbox next to the company in the list and click the Delete button.

The initial view presented when the Companies menu item is selected is a list of current companies. The table list contains the following fields:

Table List Column	Description
Company	Company name in the list is also a link to open the form with additional details about the company
Country	The country where the company is located
State	The state or province where the company is located
City	The city where the company is located
Zip	The company's zip code
Phone	The company's phone number
Fax	The company's fax number
Email	A general email address for the company
Table List Button	Description
New	Presents a form for creating a new Company
Delete	Deletes the selected Company from the list

8.1.1. Companies Function Tiles

Clicking a Company name in the initial table of Companies will present a page with function tiles and data related to that Company. The function tiles for Companies are defined in the sections below.

8.1.1.1. Attributes

The Attributes tile provides a form with fields to define standard information related to the Company. The form contains the following fields:

Form Field Name	Description
Name	Company name
Alias	Alternative name to be used instead of the Company Name. This field can be helpful if the application user has codes or other references for a company in another system.
Address 1	First part of the building address for the Company.
Address 2	Second part of the building address for the Company, if needed.
Country	The country where the company is located
State	The state or province where the company is located
City	The city where the company is located
Zip	The company's zip code
Phone	The company's phone number
Fax	The company's fax number
Email	A general email address for the company
Description	Description of the Company for reference.
Password Expiration Days	Sets the default Password Expiration Days for a new user created which is assigned to the Company.
Footer for Reports	Footer displayed on report output when generated by a user which belongs to the Company.
Logo	Logo to display on reports generated by a user which belongs to the Company.
Form Button	Description
New	Presents a form for creating a new Company
Submit	Saves changes made to the form.
Delete	Deletes the selected Company from the list

8.1.1.2. Departments

The Departments function tile provides a list of Departments which belong to the Company. This page also allows for users to manage the Department list with Add, Modify and Delete functions. The table list presented to the user on this function tile contains the following fields:

Table List Column	Description
Department	Department name
Company	Name of the Company to which the Department belongs.
Contact Name	Name of the primary contact in the Department.
Contact Phone	Phone Number of the primary contact in the Department.
Contact Fax	Fax number of the primary contact in the Department.
Contact Email	Email address of the primary contact in the Department.
Description	Description of the Department for reference.
Table List Button	Description
New	Presents a form for creating a new Department
Delete	Deletes the selected Department from the list

8.1.1.3. Dashboard

The Dashboard function tile provides detail on power, space and environmental metrics for devices and locations assigned to the Company. The Dashboard page is organized with summary data at the top in the colored areas followed by a separate section of department specific power, space and cooling data for each Department which belongs to the Company.

The summary data adds the following metrics for each Department which belongs to the Company and presents them in the colored areas:

Summary Data Element	Description
Breakers Provisioned	Total number of Breakers created on PDU or RPP devices which are assigned to the Company.
Circuits Provisioned	Total number of Circuits which belong to Breakers created on PDU or RPP devices which are assigned to the Company.
Current Rated	Sum of the Current Rated value for all Breakers created on PDU or RPP devices which are assigned to the Company.
Current Derated	Sum of the Current Derated value for all Breakers created on PDU or RPP devices which are assigned to the Company.

The Department specific information contains the following summary data:

Power Data Element	Description
Breakers Provisioned	Total number of Breakers created on PDU or RPP devices which are assigned to the Department.
Circuits Provisioned	Total number of Circuits which belong to Breakers created on PDU or RPP devices which are assigned to the Department.
Current Rated	Sum of the Current Rated value for all Breakers created on PDU or RPP devices which are assigned to the Department.
Current Derated	Sum of the Current Derated value for all Breakers created on PDU or RPP devices which are assigned to the Department.

Each Breaker which is created and is assigned to the Department is listed in the table below this department summary power information.

Space Data Element	Description
Total Area	Sum of all Areas which are defined in the Navigation tree and are assigned to the Department.

Environment Data Element	Description
Sensor Name	Name of sensor device which is assigned to a Department of the Company.
Location	Location in Navigation Tree where the sensor has been placed on a floorplan.
Rack	Device on which the sensor has been placed or attached.
Height	Height off the ground where the sensor is mounted to a device or rack.
Temperature	Temperature value reported by the sensor.
Humidity	Humidity value reported by the sensor.

8.1.1.4. Devices

The Devices function tile provides an asset list of all devices created in the application which have been assigned to a Department which belongs to the Company. The table list provides the standard set of asset fields for the devices.

8.2. Departments Menu Item

The Departments menu item in the Rights Access menu group lets users manage and report on devices, based on the departments that own them. Each device is assigned to a department on the Device Tab, and the options available for this assignment are based on the departments added to this list. In addition, a department setting is assigned to all users added to the system.

- To add a new department, click the New button and complete the fields shown in the main portion of the screen.
- To delete a department, select the checkbox next to the company in the list and click the Delete button.

The initial view presented when the Departments menu item is selected is a list of current departments. The table list contains the following fields:

Table List Column	Description
Department name	Department name in the list is also a link to open the form with additional details about the department
Company	The company to which the department belongs
Contact Name	A contact name within the company
Contact Phone	A phone number for the contact
Contact Email	An email address for the contact
Description	Additional information about the company
Table List Button	Description
New	Presents a form for creating a new Department
Delete	Deletes the selected Department from the list
Submit & New	Increases efficiency when creating a number of departments sequentially by creating a new form with existing values and presenting a blank new form.

8.2.1. Departments Function Tiles

Clicking a Department name in the initial table of Departments will present a page with function tiles and data related to that Department. The function tiles for Departments are defined in the sections below.

8.2.1.1. Attributes

The Attributes tile provides a form with fields to define standard information related to the Department. The form contains the following fields:

Form Field Name	Description
Name	Company name
Alias	Alternative name to be used instead of the Company Name. This field can be helpful if the application user has codes or other references for a company in another system.
Company	Name of the Company to which the Department belongs.
Contact Name	Name of the primary contact in the Department.
Contact Phone	Phone Number of the primary contact in the Department.
Contact Fax	Fax number of the primary contact in the Department.
Contact Email	Email address of the primary contact in the Department.
Electricity Price	Price per kWh for any Breaker devices which are created and assigned to this Department. This rate can be overridden by defining a different electricity price at the Breaker device.
Description	Description of the Department for reference.
Form Button	Description
View Company	Link to view the Company page
New	Presents a form for creating a new Department
Submit	Saves changes made to the form.
Delete	Deletes the selected Department from the list

Rights Access Menu Group

8.2.1.2. Dashboard

The Dashboard function tile provides detail on power, space and environmental metrics for devices and locations assigned to the Department. The summary data adds the following metrics for each Breaker device which belongs to the Department:

Power Data Element	Description
Breakers Provisioned	Total number of Breakers created on PDU or RPP devices which are assigned to the Department.
Circuits Provisioned	Total number of Circuits which belong to Breakers created on PDU or RPP devices which are assigned to the Department.
Current Rated	Sum of the Current Rated value for all Breakers created on PDU or RPP devices which are assigned to the Department.
Current Derated	Sum of the Current Derated value for all Breakers created on PDU or RPP devices which are assigned to the Department.

Following the summary power data is a table which lists each of the Breaker devices created which are assigned to the Department.

Space Data Element	Description
Total Area	Sum of all Areas which are defined in the Navigation tree and are assigned to the Department.

Environment Data Element	Description
Sensor Name	Name of sensor device which is assigned to the Department.
Location	Location in Navigation Tree where the sensor has been placed on a floorplan.
Rack	Device on which the sensor has been placed or attached.
Height	Height off the ground where the sensor is mounted to a device or rack.
Temperature	Temperature value reported by the sensor.
Humidity	Humidity value reported by the sensor.

8.2.1.3. Devices

The Devices function tile provides an asset list of all devices created in the application which have been assigned to the Department. The table list provides the standard set of asset fields for the devices.

8.2.1.4. Area

The Area function tile allows users to add areas to be assigned to departments and displays the areas assigned to the department along with rack and power information for each area.

8.3. User Groups Menu Item

User Groups are the central location for access rights control definition and are the primary location for managing all Privileges to all components of the platform. **Note:** Users inherit their rights access based on their membership in a User Group. If a user belongs to multiple groups, they will have effective rights that represent a superset of the individual User Group rights. Properly defining User Groups helps ensure that administrators have a flexible mechanism for managing all access control rights for all users in the system.

Two system User Groups are installed within the system by default: Administrators and Public. The Administrators user group has rights to ALL components of the application, and this access right cannot be modified. Administrators should add only super-administrators of the platform to this group since they will inherit rights to all parts of the system.

All users in the platform are assigned to the Public user group by default, and this group membership cannot be removed. Any access rights granted to the Public User Group are automatically granted to ALL users in the system. This feature provides an easy way for administrators to grant rights to certain parts of the system to all users without editing all User Groups individually.

- To add a new user group, click the New button and complete the fields shown in the main portion of the screen.
- To delete a user group, select the checkbox next to the company in the list and click the Delete button.

8.3.1. User Groups List

The initial view presented when the User Groups menu item is selected is a list of current user groups. The table list contains the following fields:

Table List Column	Description
Group Name	Group name in the list is also a link to open the form where group rights access is configured.
Users	Number of users in the group.
Description	Description of the group.
Table List Button	Description
New	Presents a form for creating a new Group.
Delete	Deletes the selected Group from the list.

Rights Access Menu Group

8.3.2. User Group Form

Selecting an existing group or the New button presents the User Groups form. The User Group form has static fields in the top section followed by tabs that present their own lists related to the group.

Fields	Description
Name	Name of the group.
Description	Information about the group.
Table List Buttons	Description
New	Presents a form for creating a new Group.
Submit	Creates the new group with information from form.
Submit & New	Increases efficiency when creating a number of groups sequentially by creating a new form with existing values and presenting a blank new form.
⤊ ⤋	These buttons collapse and expand the upper area of the form to provide more space for the tables.

8.3.2.1. Users Tab

The initial view presented when the Users Tab is selected is a list of current members of the current User Group. The table list contains the following fields:

Users Tab List Column	
User Name	Name of the user is also a link to open the form with additional details about the user.
User Group	List of groups to which the user belongs.
Company	Company to which the user belongs.
Departments	Departments to which the user belongs.
User List Buttons	
Add	Adds user to group. Check users to be added from list and click Submit to save. Close, closes the window and does not save.
Remove	Removes user from the group.

8.3.2.2. Components Tab

The initial view presented when the Components Tab is selected is a list of System Components and Rights Access levels for the current User Group. The table list contains the following fields:

Components Tab List Column	
System Component	A list of all the Menu Groups and Menu Items.
Rights Access	Check boxes to assign rights access levels for each component.
User List Option	
Check All	Checks all the Rights Access check boxes, providing full access to everything.

8.3.2.3. Locations Tab

The initial view presented when the Locations Tab is selected is a list of locations from the navigation tree and Rights Access levels for the current User Group. The table list contains the following fields:

Locations Tab List Column	
Location	Hierarchical list of location nodes.
Rights Access	Checkboxes to assign rights access levels for each location.

Please note the following rules for selecting rights on the Location page:

- View selection will be inherited to nodes up the navigation tree. For example, if you choose View for a Floor, then View rights will be automatically granted for Country, State, City and Building related to the Floor selection.
- View rights granted to a floor will automatically grant View rights to Areas within the floor. Users can turn off Area view rights if they are not needed.
- Edit rights for Areas are managed by granting Edit rights to the floor. There is no explicit option to grant Edit rights to an individual Area.
- Edit rights are not inherited to other nodes of the navigation tree with the exception of Areas inherit from the Floor.

8.3.2.4. Groups Tab

The initial view presented when the Groups Tab is selected is a list of Device Groups, Rack Groups and Rights Access levels for the current Group. The table list contains the following fields:

Locations Tab List Column	
Group Name	Name of the group is also a link to open the form with additional details about the group.
Category	Displays if it is a Device Group or Rack Group.
Devices	Lists the number of devices in the group. Device Name filter in the filter bar allows you to enter a Device Name and it will filter to show only the groups to which that device belongs.
Access	Check boxes to assign rights access to Device and Rack Groups for the current User Group.

8.3.2.5. Devices Tab

The initial view presented when the Devices Tab is selected is a list of Devices that correspond to the Device and Rack Group selected for the current User Group. The table list contains the following fields:

Devices Tab List Column	
Device Name	Name of the device is also a link to open the form with additional details about the device.
Device Group	Displays the device groups to which the device belongs.
Lifecycle Status	Displays the device's lifecycle - Operational, Available, etc.
Rights Access	Displays the Rights Access for the device by the current User Group. The values cannot be changed. The values are controlled in the Groups tab at the Device Group level.

8.3.2.6. Reports Tab

The initial view presented when the Reports Tab is selected is a list of the Standard Reports and Rights Access levels for the current Group. The table list contains the following fields:

Reports Tab List Column	
Report Name	Name of the report.
Rights Access	Check boxes to assign rights access to Reports for the current User Group.

8.3.2.7. Floor Layers Tab

The initial view presented when the Reports Tab is selected is a list of the Standard Reports and Rights Access levels for the current Group. The table list contains the following fields:

Floor Layers Tab List Column	
Layer Name	Name of the floor layer.
Rights Access	Check boxes to assign rights access to Floor Layers for the current User Group.

8.4. Users Menu Item

The initial view presented when the Users menu item is selected is a list of current users. The table list contains the following fields:

Users List Column	Description
User Name	Name of the user is also a link to open the form with additional details about the user.
First Name	Displays user first name.
Middle Name	Displays user middle name.
Last Name	Displays user last name.
Company	Company to which the user belongs.
Department	Departments to which the user belongs.
Phone Number	Displays phone number.
Email	Displays email address.
Description	Displays description.
Table List Button	**Description**
New	Presents a form for creating a new User.
Delete	Deletes the selected User from the system.

8.4.1. User Form

Selecting an existing user or the New button presents the User form. The User form has static fields in the top section followed by tabs that present their own lists related to the user.

Fields	Description
User Name	Login user name.
First Name	Displays user first name.
Middle Name	Displays user middle name.
Last Name	Displays user last name.
Company	Company to which the user belongs.
Department	Departments to which the user belongs.
Description	Displays description.
Phone Number	Displays phone number.
Email	Displays email address.
Password	Enter or reset a password for the user. It is not displayed.
Confirm Password	Re-enter the password for the user. It is not displayed. You will get an error if it does not match.
Require change to password Checkbox	Check the box to require change to password after the first login.
Password Expiration Date	Displays when the password will expire. Linked to Password Expiration Days in the Settings menu group, System Settings menu item.
Account Expiration Date	Displays the date that the account will expire.
Table List Buttons	**Description**
New	Presents a form for creating a new Group.
Submit	Creates the new group with information from form. Submit also saves changes to an existing user's form.
Submit & New	Increases efficiency when creating a number of users sequentially by creating a new form with existing values and presenting a blank new form.
Delete	Delete the checked user from the list or the user who's form is open.
⯅ ⯆	These buttons collapse and expand the upper area of the form to provide more space for the tables.

8.4.1.1. User Groups Tab

The initial view presented when the User Groups Tab is selected is a list of system user groups.

Group – Lets administrators assign User Group membership to a user. All access control rights for a user are inherited based on the User Groups to which they belong. All users are members of the Public group by default, and this setting cannot be changed.

You can manage User Group membership by selecting User Groups from the group lists and selecting the Add or Remove buttons as needed. You can select multiple User Groups by using the Shift or Ctrl shortcut keys.

- Check the box next to the groups where you want to add the User and click Submit to save.

The table list contains the following fields:

User Group Tab List Column	
Group Name	Name of the group is also a link to open the form with additional details about the group.
Users	Lists the number of users in the group
Description	Displays description of the group.

8.4.1.2. Components Tab

The initial view presented when the Components Tab is selected is a list of System Components and Rights Access levels for the current User based on the User Groups to which they belong. These cannot be edited here. The table list contains the following fields:

Components Tab List Column	
System Component	A list of all the Menu Groups and Menu Items.
Rights Access	Check boxes displaying the user's rights access levels for each component.

8.4.1.3. Locations Tab

The initial view presented when the Locations Tab is selected is a list of locations from the navigation tree and Rights Access levels for the current User based on the User Groups to which they belong. These cannot be edited here. The table list contains the following fields:

Locations Tab List Column	
Location	Hierarchical list of location nodes.
Rights Access	Check boxes indicate the rights access for the current user. View rights indicate the user will be able to view the node in location lists and can view location level data. Edit rights allow users to update settings for the location, create subnodes on the location and place devices to the location if it is a Floor or Area.

8.4.1.4. Groups Tab

The initial view presented when the Groups Tab is selected is a list of Device Groups, Rack Groups and Rights Access levels for the current User based on the User Groups to which they belong. These cannot be edited here. The table list contains the following fields:

Locations Tab List Column	
Group Name	Name of the group is also a link to open the form with additional details about the group.
Category	Displays if it is a Device Group or Rack Group.
Devices	Lists the number of devices in the group. Device Name filter in the filter bar allows you to enter a Device Name and it will filter to show only the groups to which that device belongs.
Access	Check boxes indicate the rights access for the current user.

8.4.1.5. Devices Tab

The initial view presented when the Devices Tab is selected is a list of Devices that correspond to the Device and Rack Group selected for the current User based on the User Groups to which they belong. These cannot be edited here. The table list contains the following fields:

Devices Tab List Column	
Device Name	Name of the device is also a link to open the form with additional details about the device.
Device Group	Displays the device groups to which the device belongs.
Lifecycle Status	Displays the device's lifecycle - Operational, Available, etc.
Rights Access	Check boxes indicate the rights access for the current user.

8.4.1.6. Reports Tab

The initial view presented when the Reports Tab is selected is a list of the Standard Reports and Rights Access levels for the current User based on the User Groups to which they belong. These cannot be edited here. The table list contains the following fields:

Reports Tab List Column	
Report Name	Name of the report.
Rights Access	Check boxes indicate the rights access for the current user.

8.4.1.7. Floor Layers Tab

The initial view presented when the Reports Tab is selected is a list of the Standard Reports and Rights Access levels for the current Group. The table list contains the following fields:

Reports Tab List Column	
Report Name	Name of the report.
Rights Access	Check boxes to assign rights access to Reports for the current User Group.

8.5. Owners Menu Item

The Owner attribute serves the purpose of allowing users to track the ownership of devices and projects. On this page Owners can be created and devices can be bulk assigned to them for tracking. An owner must be created before it can be associated with a device on the device's form.
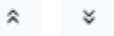
The initial view presented when the Owners menu item is selected is a list of current owners. The table list contains the following fields:

Table List Column	Description
Owner Name	Displays owner name.
Phone Number	Displays phone number.
Email	Displays email address.
Devices	Displays the number of devices belonging to the owner. The Device Name filter in the filter bar allows you to enter a Device Name and it will filter to show only the owner to which that device belongs.

Projects	Displays the number of project belonging to the owner. The Projects filter in the filter bar allows you to enter a Project Name and it will filter to show only the owner to which that project belongs.
Table List Button	**Description**
New	Presents a form for creating a new Owner.
Delete	Deletes the selected Owner from the system.

8.5.1. Owners Form

Selecting an existing owner or the New button presents the Owner form. The Owner form has static fields in the top section followed by tabs that present their own lists related to the owner.

Fields	**Description**
Name	Owner name.
Phone Number	Displays phone number.
Email	Displays email address.
Description	Displays a description of the owner.
Table List Buttons	**Description**
New	Presents a form for creating a new Owner.
Submit	Creates the new owner with information from form. Submit also saves changes to an existing owner's form.
Submit & New	Increases efficiency when creating a number of owners sequentially by creating a new form with existing values and presenting a blank new form.
Delete	Delete the checked owner from the list or the owner who's form is open.
⌃ ⌄	These buttons collapse and expand the upper area of the form to provide more space for the tables.

8.5.1.1. Devices Tab

The initial view presented when the Devices Tab is selected is a list of Devices that belong to the current owner. Users can add and remove devices. The table list contains the following fields:

Devices Tab List Column	
Device Name	Name of the device is also a link to open the form with additional details about the device.
Type	Displays the device's type name.
Manufacturer	Displays the device's manufacturer name.
Product Line	Displays the device's product line name.
Model	Displays the device's model name.
Lifecycle Status	Displays the device's lifecycle status - Available or Operational
Description	Displays the device's description.
Table List Buttons	**Description**
Add	Presents the list of devices and users check the box to bulk assign them the current owner, click Submit to assign or Close.
Remove	Removes the association between the selected devices and the owner.

8.5.1.2. Projects Tab

The initial view presented when the Project Tab is selected is a list of Project that belong to the current owner. The table list contains the following fields:

Projects Tab List Column	
Project Name	Displays the name of the project.
Project Number	Displays the number assigned to the project.
Status	Displays the project department.
Start Date	Displays the project start date. Filter bar allows user to enter a start date and end date range which filters for projects with a start date is in that range.
End Date	Displays the project end date. Filter bar allows user to enter a start date and end date range which filters for projects with a start date is in that range.

8.6. Current Users Menu Item

The Current Users menu item lets administrators see who is actively using the application. The IP Address, Login Time, and Last Active timestamps are displayed for all currently connected users to the system.

You can terminate User sessions by selecting the check box in the Select column and clicking the Terminate button. Users are notified that their session is terminated and are returned to the login screen.

The initial view presented when the Current Users menu item is selected is a list of current users. The table list contains the following fields:

Table List Column	Description
User	Displays user's login name.
First Name	Displays user's first name.
Last Name	Displays user's last name.
Email	Displays user's email address.
Phone	Displays user's phone number.
IP Address	Displays user's IP address.
Login Time	Displays the time the user logged in. Filter bar allows user to enter a start date and end date range which filters for users with a login date is in that range.
Last Active	Displays when the user was last active on the system. Filter bar allows user to enter a start date and end date range which filters for users with a last active date is in that range.
Table List Button	Description
Terminate	Ends the session for the selected user and forces them back to the login prompt.

9. Groups Menu Group

The Groups feature allows users to define Device Groups, Rack Groups and Camera Groups to help manage user rights access and dashboard views for devices.

Note: Devices that do not have a device group setting can be managed only by users in the administrators group. Other users can only view and manage devices where they have explicitly been granted rights to the device's Device Group in their User Group rights access settings.

Device Groups let administrators manage rights access to all devices created in the application. Grouping several devices together in a device group lets administrators assign create, modify, delete, and view rights to these groups. These access rights are managed in the User Groups menu item under the Rights Access menu group.

Rack Groups are available to allow users to access Rack Group dashboard views and easily track power, space and cooling information related to racks. These dashboards are accessed when users select a Rack device in the navigation tree. The rack group name is shown in parentheses next to the rack name and a Rack Group button is available to view the Rack Group dashboard. The setting for the Rack Group can be defined at the group by adding a device to the group or at the device by adding the group to the device.

Camera Groups allow users to configure multi camera views in the Camera Studio feature of the application. Cameras which belong to the same Camera Group can be viewed in a single camera dashboard.

The initial view presented when the Groups menu group is selected is a list of current groups. The table list contains the following fields:

Table List Column	Description
Group Name	The group name in the list is also a link to open the form with additional details about the group
Category	Displays if this is a Device Group or Rack Group
Devices	Displays the number of devices belonging to the group. The Device Name filter in the filter bar allows you to enter a Device Name and it will filter to show only the groups to which that device belongs.
Description	Displays the text in the group's description

Table List Button	Description
New	Presents a form for creating a new group
Delete	Deletes the selected group from the list

Groups Menu Group

9.1.1. Devices Tab

The Devices Tab displays a list of Devices that correspond to the current Camera, Device or Rack Group. The table list contains the following fields:

Devices Tab List Column	
Device Name	Name of the device is also a link to open the form with additional details about the device.
Type	Displays the device's type name.
Manufacturer	Displays the device's manufacturer name.
Product Line	Displays the device's product line name.
Model	Displays the device's model name.
Lifecycle Status	Displays the device's lifecycle status - Available or Operational
Description	Displays the device's description.
Table List Buttons	**Description**
Add	Presents the list of devices and users check the box to bulk assign them the current group, click Submit to assign or Close.
Remove	Removes the association between the selected devices and the group.

10. Devices Menu Group

The Devices Menu Group contains menu items for creating, deleting and managing devices.

10.1. Devices Menu Item

The Devices Menu Item displays a list of all the devices in the system. The table list contains the following fields:

Table List Column	
Device Name	Name of the device is also a link to open the Device Central panel that contains the device's attributes list, function tiles and monitoring details.
Type	Displays the device's type name.
Manufacturer	Displays the device's manufacturer name.
Product Line	Displays the device's product line name.
Model	Displays the device's model name.
Lifecycle Status	Displays the device's lifecycle status - Available or Operational
Asset Tag	Displays the contents of the Asset Tag attribute.
Serial Number	Displays the contents of the Serial Number attribute.
IP Address	Displays the contents of the IP Address attribute.
Location	Displays the location where the device has been placed.
Table List Buttons	**Description**
Import	Presents the Import Wizard for bulk loading of devices. For further instructions see the Import Central section.
New	Presents the form for creating a new device.
Clone	Duplicates the selected devices.
Delete	Deletes the selected devices from the system.

10.1.1. Managing Device Table Fields

A Settings icon ⚙ can be found at the bottom, left of the Device Table. Selecting this icon opens a list of Attributes which can be selected and re-ordered for the Device Table. The list of Attributes on the left are available to add to the Device Table. The list of Attributes on right are Attributes currently defined in the Device Table. The following actions can be taken with this list of Attributes:

- Add Attributes to the Device Table – Select the checkbox next to the Attribute in the list on the left and click Submit.
- Remove Attributes from the Device Table – Click the Delete icon next to the Attribute on the list on the right.
- Change Order of Attributes on Device Table – Click the Up | DOWN arrow icons next to the Attribute in the list on the right to set the order of Attributes in the Device Table.

Note: A horizontal scroll bar will be added if too many fields are selected to fit on the page.

Devices Menu Group

10.1.2. Exporting Devices

Exporting devices is useful for making bulk changes or as a method of identifying the syntax for creating spreadsheets for bulk importing. Exporting devices is done using the Export option from the Devices table list menu.

1. Filter the device list so it displays the list of items you wish to export
2. Click on the table filter button, select Export > Excel
3. The Excel file will be in your Downloads folder
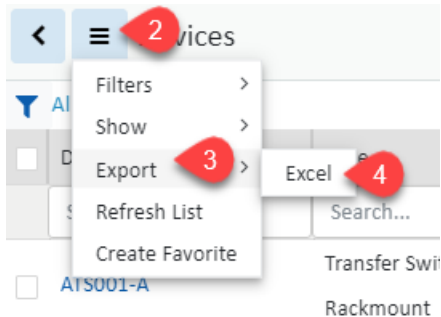
10.1.3. Device Form

Selecting the New button presents the New Device form. The New Device form has static fields on the left section and a groups table for associating the device with rack and user groups.

Fields	Description
Name	Device name
Quantity	Number of devices to be created
Type	Enter the device's type name.
Manufacturer	Select the device's manufacturer name.
Product Line	Select the device's product line name.
Model	Select the device's model name.
Lifecycle	Select Available or Procurement
Owner	Select an owner
Department	Select a department
Energy Device Type	Select Energy Device Type - see list below for a description of options.
Energy Data Source	Select Energy Data Source - - see list below for a description of options.
Description	Enter user defined description for device.
Group Table List Columns	Description
Group Name	User Group name
Category	Displays if it is a device or rack group
Devices	Displays the number of devices belonging to the group. The Device Name filter in the filter bar allows you to enter a Device Name and it will filter to show only the groups to which that device belongs.
Description	Displays the text in the group's description field.
Table List Buttons	Description
New	Presents a form for creating a new device.
Submit	Creates the new device with information from form. Submit also saves changes to an existing device's form.
Submit & New	Increases efficiency when creating a number of devices sequentially by creating a new device with existing values and presenting a blank new form.

Devices Menu Group

10.1.3.1. Energy Settings for Reporting

Energy settings are used to define how certain power attributes should be reported in the reporting system. Several options for defining Energy provide a flexible way to control how values are aggregated and reported. **Note:** Energy settings defined at the Model level are inherited by default on all created devices based on that model. However, these settings can be overridden at the device level.

Energy Type – Each device is assigned an Energy category which allows the application to group similar devices for reporting. These categories allow for a series of data center efficiency metrics to be calculated. The options for this setting are as follows:
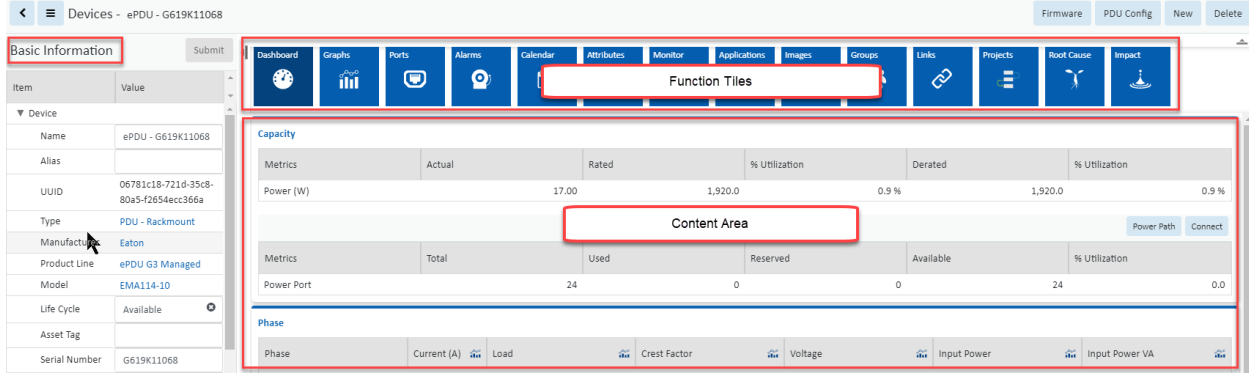
- Energy Monitor – This value is a monitoring probe that collects energy data from devices.
- Energy Source – This value defines the amount of power delivered to the facility. For efficiency purposes, this value allows us to understand the total power consumed at the facility and will inform users of how efficiently power is being delivered to end devices.
- Energy Transport – All devices used to deliver power form the source to the end devices fall into this category. For example, PDU, UPS, switch gear and other similar devices will deliver power thru the facility to the end devices.
- IT Device – This value is the target of the power provided to the facility. For example, servers, storage and network gear would typically be assigned this category.
- Non-IT Device – In some instances, computers, monitors and other IT devices are located in the data center but are not the end user IT devices which the data center is designed to support. An example of a Non-IT device would be the system administrator's computer which is located in a cube within the data center facility.
- IT Cooling Device – This value is any type of cooling device used in the data center. This device is tracked separate from other facility devices to better understand the impact that cooling power consumption has on the data center and allows for cooling specific efficiency calculations.
- Non-IT Cooling Device – In some instances there are cooling devices which serve locations other than the Data Center which are served by the data center power source. These devices are also tracked separately to improve the accuracy of the efficiency calculations used for the data center facility.

Energy Source – Defines where the values should be collected to report on Energy attributes. Available options are as follows:

- Monitor – Use values collected from monitoring probes to calculate energy for the device.
- Static – Use the nameplate attributes defined in static attributes for the device.
- None (or null) – Do not include this device in Energy reporting.

10.1.4. Device Central for Existing Devices

When a device name link is selected in the Devices Menu Item list or any other device list, the user is presented with the Device Central device page.

Device Central initially displays the areas detailed below and the content area that changes as function tiles are selected.

10.1.4.1. Basic Information

The Basic Information attributes list contains some editable fields, links to Type, Manufacturer, Product Line, Model, Floor, Area and Rack. Use the ◁| button to hide/show the Basic Information attributes list.

10.1.4.1.1. Decommissioning Devices

Devices can be decommissioned throughout the application:

- In the basic information area, the Life Cycle field can be changed to Decommissioned.
- Devices can be decommissioned in bulk with the Life Cycle attribute in the import spreadsheet.
- The rack manager page has a Decommission icon to decommission selected devices.
- The rack view pages on the navigation tree have a Decommission button to decommission selected devices.

10.1.4.2. Buttons on Upper Right

The buttons on the upper right corner include a New and Delete button and then other features depending on the type of device selected. The View On Floor button appears when a device is operational with a location.

10.1.4.3. Function Tiles

When a Function Tile is selected the data for the specific device is displayed.

10.1.4.3.1. Dashboard Function Tile

Displays the enhanced dashboard for some device types or the Real-time monitoring data for others. Dashboards report device conditions and can provide device controls. For details regarding the

enhanced dashboards for specific device types please refer to the [Device Dashboards](#) section of this document. Devices with enhance dashboards include:

- PDUs - Floor and Rackmount
- Racks
- Rack Groups
- UPSs Rackmount
- Servers
- Switches
- Access Control Devices (cabinet locks)

10.1.4.3.2. View in Rack Function Tile

For rack mounted devices a view in rack function tile is available. When selected the rack page displayed has the rack image and access to rack management functions. See the floor [Racks Function Tile](#) section to details.

10.1.4.3.3. Graphs Function Tile

Displays the graphs associated with the device. Most devices include a Real-time Monitoring Data graph that can be played to view the real-time monitoring table. See the Graphs section for details on creating graphs. Click the play button to see the graph with the device's monitored data.

Actions	Name ↑≡	Type
	Search...	Search...
▶	Real-time Monitoring Data	Specific Devices
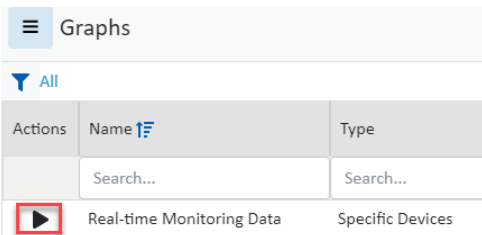
10.1.4.3.3.1. Tabular Data

When the value for a data source is tabular, a table icon is shown in the value column. Selecting the icon will display the relevant table with the individual values in the corresponding rows. In cases where the value is reported over time there will be an associated trend chart accessed via the trend chart icon.

Actions	Attribute ↑≡	Data Source	Value	Unit
	Search...	Search...	Search...	Search...
	Input Phase Name	Rackmount PDU Eaton	⊞	
	Input Power	Rackmount PDU Eaton	⊞	W
📈	Input Power L1-2-3	Rackmount PDU Eaton	17.00	W
	Input Power VA	Rackmount PDU Eaton	⊞	VA
📈	Input Power VA L1-2-3	Rackmount PDU Eaton	0.03	kVA
	Input Voltage	Rackmount PDU Eaton	⊞	V
	Outlet Control Off Cmd	Rackmount PDU Eaton	⊞	
	Outlet Control On Cmd	Rackmount PDU Eaton	⊞	
	Outlet Control Reboot Cmd	Rackmount PDU Eaton	⊞	
	Outlet Current	Rackmount PDU Eaton	⊞	A
	Outlet Energy	Rackmount PDU Eaton	⊞	W·h
	Outlet ID	Rackmount PDU Eaton	⊞	
	Outlet Name	Rackmount PDU Eaton	⊞	
	Outlet Power	Rackmount PDU Eaton	⊞	W

Data   ✕

Outlet Name	Outlet Power	
Outlet A1		0.00W
Outlet A2		0.00W
Outlet A3		0.00W
Outlet A4		0.00W
Outlet A5		0.00W
Outlet A6		0.00W
Outlet A7		0.00W
Outlet A8		0.00W
Outlet A9		0.00W
Outlet A10		0.00W

10.1.4.3.4. Ports Function Tile

10.1.4.3.4.1. Port Management Buttons
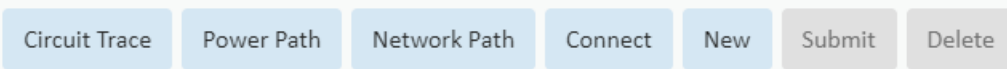
The buttons on the upper right area of the Ports tab provide the following functions:

- **Circuit Trace** displays a detailed flow chart for the selected port
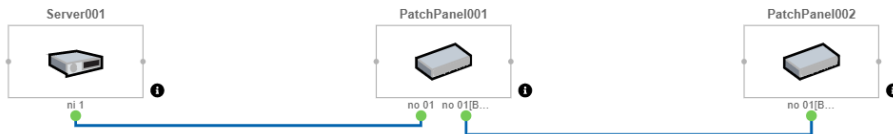
- **Power Path** displays the power flow chart for the device
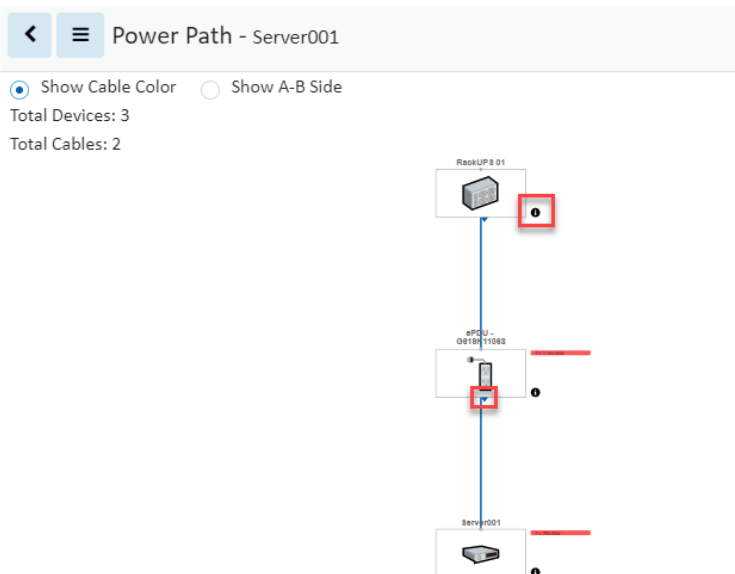
Note: Each node has an "i" information icon and when clicked it will show node details including buttons to show the power and network path for that device.

Note: A triangle at the base of a node indicates it has additional connections. Clicking on the triangle expands the flow chart to include the nodes additional connections.
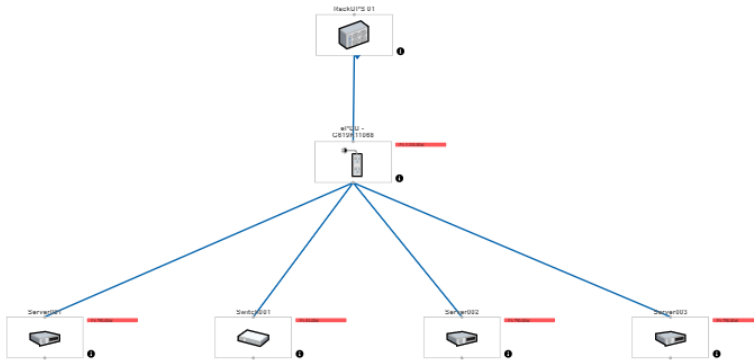
- **Network Path** displays the network flow chart for the device

- **Connect** opens the port mapping page with the source filtered for the device
- **New** allows the user to create new ports for the device
- **Submit** becomes available when any changes have been made and will save them when selected
- **Delete** becomes available when the selected port can be deleted. Some ports defined in the model cannot be deleted and when selected they will not activate the delete button

10.1.4.3.4.2. Definition Tab

Displays and manages the ports list for the device.

10.1.4.3.4.3. Connections Tab

Displays a list of the connected and reserved ports with details and cable information.

10.1.4.3.5. Alarms Function Tile

Displays the alarm table list filtered for the device. See the Alarms section for details.

10.1.4.3.6. Traps Function Tile

Displays the traps associated with the device.

10.1.4.3.7. Calendar Function Tile

Displays the calendar log for filtered for the device. See the Calendar section for details.

10.1.4.3.8. Attributes Function Tile

Displays the list of attributes designated for the device in the device's model. Users can edit existing attributes and add/remove attributes from the system's attribute list to the device list with the Add button. If a desired attribute is not available then users can create new attributes with the Attribute Manager. See the Attribute Manager section for additional details.

10.1.4.3.9. Monitor Function Tile: Configuring Device for Monitoring

Displays the monitoring settings for the device.

10.1.4.3.9.1. Monitoring Config Tab

Regardless of the protocol to be configured, the following monitoring attributes are defined for the device.

1. **IP Address** - Defines the IP address of the device providing the data for the device.
   Note: If gateways or aggregators are used to provide data, use the IP Address of these devices and not the end device.
2. **Probe** - Determines which probe engine will be the primary source for collecting the raw data from the device.
3. **Probe Interval** - Defines the probe interval for the polling engine to use to collect data from the device. By default, this is set to 60 seconds.
   Note: If this setting is changed then the historical trend data will be reset, and all previous collected trend data will no longer be available. Please use caution when changing this setting.

4. **Retries** - If selected, the polling engine retries a polling attempt that did not respond during the timeout period. If the specified number of retry attempts also fails to get a response from the device, the probe stops trying for a response on this polling attempt.
5. **Timeout (sec)** - Defines the period of time in which the polling engine considers the device to be unreachable for a specific polling attempt if no response is received from the target device.
6. **Monitored** - Switch indicates if the device should be actively polled for data if monitor configuration is provided.
7. **Profile ID** - Enter the VDC UUID for the device to have it included in the Eaton Predict Pulse synchronization.
8. **Protocol List** – Any available protocols to be used for a device are listed in the column.
9. **Protocol Configuration** - The configuration requirements for the selected protocol are listed and often filled with default values. These should review and updated as needed for the current environment.

   Note: For SNMP Traps the Trap Community string is the last attribute in the SNMP Protocol configuration list.

10.1.4.3.9.2. Monitoring Templates Tab

Displays the list of monitoring templates assigned to the device and manages which templates are active. Use the Add button to assign additional templates to the device.

10.1.4.3.9.3. Attributes Tab

Displays the list of monitored attributes with the configuration details.

10.1.4.3.9.4. Triggers Tab

Displays the list of associated triggers with high level details.

10.1.4.3.9.5. Actions Tab

Displays the list of associated actions with high level details.

Devices Menu Group

10.1.4.3.10. Applications Function Tile

Displays the list of applications that have been manually associated with the device. Applications are managed by the Setting Menu Group > Applications Menu Item. See the Applications Menu Item section for details.

10.1.4.3.11. Images Function Tile

Displays the images associated with the device's model.

10.1.4.3.12. Groups Function Tile

Displays the list of device groups associated with the device and allows the user to add more group associations.

10.1.4.3.13. Links Function Tile

Displays existing links and allows the user to associate a URL or local file to the device.

10.1.4.3.14. Projects Function Tile

Displays any project information associated with the device.

10.1.4.3.15. Root Cause Function Tile

Displays an indented hierarchical view of devices that are upstream from the selected device shown at the bottom of the table. You can use this tool to find out which upstream device(s) are tied to a particular device and which devices are affected.

- Network button will display the network connections upstream.
- Power button will display the power connections upstream.
- The left most button will change between Network Path and Power Path to show the respective full path when selected.

10.1.4.3.16. Impact Function Tile

Displays an indented hierarchical view of devices that are downstream from the selected device shown at the top of the table. You can use this tool to find out which downstream device(s) are tied to a particular device and which devices are affected.

- Network button will display the network connections downstream.
- Power button will display the power connections downstream.

The left most button will change between Network Path and Power Path to show the respective full path when selected.

10.1.4.3.17. Services Function Tile

Displays the device's service Schedules, Calendar and Service History records on separate tabs for the current device.

10.1.4.3.18. Warranty Function Tile

Displays and allows editing of the warranty information for the current device.

10.1.4.3.19. Peripherals Function Tile

Users can manually add devices to indicate that they are associated with the current device.

10.1.4.3.20. Rack Device Function Tiles and Features

These items are available in device central when the device is a rack.

10.1.4.3.20.1. Rack Group Function Tile

The Rack Group function tile is only available with racks and only active if the rack belongs to a rack group. Selecting the tile displays the Rack Group dashboard. For details see the Rack Group Dashboard section of this document.

10.1.4.3.20.2. Devices Function Tile

The Devices function tile is only available with racks. The Devices page displays details about the devices mounted in the rack.

10.1.4.3.20.3. Capacity Function Tile

The Capacity function tile is only available with racks. The capacity page displays RU & Weight, RU Fragmentation, Port and Power summary tables and the list of mounted IT devices within the rack.

10.1.4.3.20.4. Manage Rack Button
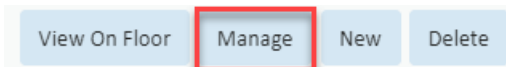
The Manage button opens the rack manager page for the selected rack. For details see the Rack Manager Menu Item section.

10.1.4.3.20.5. Rack View Tab

When the device is a rack the area that normally contains basic information has two tabs.

- View tab - displays the image of the rack.

- Data tab - displays the rack's basic information.
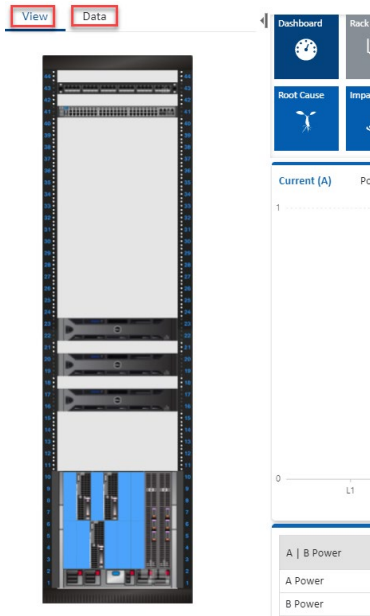
10.1.4.3.21. Floor PDU Device Function Tiles and Features

These items are available in device central when the device is a floor mounted PDU.

10.1.4.3.21.1. Panels Function Tile

Selecting the tile displays the list of previously created panels. Use the New button to create a new panel or the Delete button to remove an existing panel. For details see the Branch Circuit Monitoring section of this document.

10.1.4.3.21.2. Breakers Function Tile

Selecting the tile displays the list of previously created breakers. Use the New button to create a new breaker or the Delete button to remove an existing breaker. For details see the Branch Circuit Monitoring section of this document.

10.1.4.3.21.3. Circuits Function Tile

Selecting the tile displays the list of previously created circuits. Use the New button to create a new circuit or the Delete button to remove an existing circuit. For details see the Branch Circuit Monitoring section of this document.
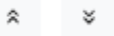
10.2. Types Menu Item

The Types Menu Item displays a list of all the device Types in the system. The table list contains the following fields:

Table List Column	Description
Type	Displays the type name. The type name is also a link to the type's form.
Icon	Displays a representative icon for the type.
Manufacturer	Displays the number of manufactures with models of the type. The Manufacturer Name filter in the filter bar allows you to enter a Manufacturer Name and it will filter to show only the types which have models for that manufacturer.
Product Line	Displays the number of product lines with models of the type. The Product Line Name filter in the filter bar allows you to enter a Product Line Name and it will filter to show only the types which have models for that product line.
Model	Displays the number of models of the type. The Model Name filter in the filter bar allows you to enter a Model Name and it will filter to show only the types which have that model.
Device	Displays the number of devices in the database belonging to the type. The Device Name filter in the filter bar allows you to enter a Device Name and it will filter to show only the types with device names that match the filter.
Description	Displays the text from the type's description field.

10.2.1. Types Form

Selecting an existing type presents the Types form. The Types form has static fields in the top section, the icon associated with the type followed by tabs that present their own lists related to the type.

Fields	Description
Name	Displays the name of the type.
UUID	Displays the unique identification string for the type.
Description	Displays the text from the type's description field.
Table List Buttons	**Description**
Submit	If a form field is editable the Submit button becomes active and is used to update the form.
⏶ ⏷	These buttons collapse and expand the upper area of the form to provide more space for the tables.

10.2.1.1. Attributes Tab

The initial view presented when the Attributes Tab is selected is a list of attributes for the device Type.

List Column	
Attribute	Attribute name is also a link to the attribute's form.
Category	Displays the attribute's category. Options are Capacity, Common, Electrical/Power, Environmental, Global, Location, Network, Port, Rack or Server.
Attribute Type	Displays if the attribute is System or Custom.
Description	Displays the text from the attribute's description field.
User List Buttons	

Add	Adds attributes to the type. Check attributes to be added from list and click Submit to add to list. Close, closes the window and does not save. Click Submit on the type form to save.
Remove	Removes attribute from the list. Click Submit on the type form to save.

10.2.1.2. Manufacturers Tab

The initial view presented when the Manufacturers Tab is selected is a list of manufacturers of devices of the current Type.

List Column	
Manufacturer	Manufacturer name is also a link to the manufacturer's form.
Type	Displays the number of devices of the current type for the manufacturer in the database.
Product Line	Displays the number of product lines of the current type for the manufacturer in the database.
Model	Displays the number of models of the current type for the manufacturer in the database.
Device	Displays the number of devices of the current type for the manufacturer in the database.
Description	Displays the text from the attribute's description field.

10.2.1.3. Product Lines Tab

List Column	
Product Line	Displays the product lines for the type.
Type	Displays the type.
Manufacturer	Displays the manufacturers name.
Model	Displays the number of models in the product line. The Model Name filter in the filter bar allows you to enter a Model Name and it will filter to show only the product lines which have that model.
Device	Displays the number of devices in the system. The Device Name filter in the filter bar allows you to enter a Device Name and it will filter to show only the product lines with device names that match the filter.
Description	Displays the text from the description field.

10.2.1.4. Models Tab

The initial view presented when the Models Tab is selected is a list of all the models of the current Type.

List Column	
Model	Displays the model name. The model name is also a link to the model's form.
Type	Displays the model's type.
Manufacturer	Displays the model's manufacturer.
Product Line	Displays the model's product line.
Device	Displays the quantity of devices in the database using that model.
Description	Displays the text from the model's description field.

10.2.1.5. Devices Tab

The initial view presented when the Devices Tab is selected is a list of all the devices of the current Type.

List Column	
Device	Displays the device name. The device name is also a link to the device's form.
Type	Displays the device's type.
Manufacturer	Displays the device's manufacturer.
Product Line	Displays the device's product line.
Model	Displays the device's model.
Lifecycle Status	Displays the device's lifecycle status. Options include Operational, Available, Procurement and Reserved Procurement.
Device Group	Display's the device groups to which the device belongs.
Description	Displays the text from the device's description field.

10.3. Manufacturers Menu Item

The Manufacturers Menu Item displays a list of all the manufacturers in the system. The table list contains the following fields:

Table List Column	Description
Manufacturer	Displays the name of manufactures. The manufacturer name is also a link to the manufacturer's form.
Type	Displays the number of device types that manufacturer has in the system. The Type Name filter in the filter bar allows you to enter a type and it will filter to show only the manufactures which have models of that type.
Product Line	Displays the number of product lines for the manufacturer. The Product Line Name filter in the filter bar allows you to enter a Product Line Name and it will filter to show only the manufacturers which have models for that product line.
Model	Displays the number of models of the type. The Model Name filter in the filter bar allows you to enter a Model Name and it will filter to show only the types which have that model.
Device	Displays the number of devices in the database belonging to the type. The Device Name filter in the filter bar allows you to enter a Device Name and it will filter to show only the types with device names that match the filter.
Description	Displays the text from the type's description field.
Table List Button	Description
New	Presents a form for creating a new manufacturer.
Delete	Deletes the selected manufacturer from the system.

10.3.1. Manufacturers Form

Selecting an existing manufacturer presents the Manufacturers form. The Manufacturers form has static fields in the top section followed by tabs that present their own lists related to the manufacturer.

Fields	Description
Name	Displays the name of the manufacturer.
Address	Displays the address of the manufacturer.
Contact Information	Displays the contact information for the manufacturer.
Phone	Displays the phone number for the manufacturer.
Fax	Displays the fax number for the manufacturer.

Email Address	Displays an email address for the manufacturer.
Web URL	Displays the URL for the manufacturer.
Description	Displays the description for the manufacturer.
Table List Buttons	**Description**
New	Displays an empty manufacturer form to create a new manufacturer.
Submit	If a form field is editable the Submit button becomes active and is used to update the form.
Delete	Deletes the current form.
⩔ ⩢	These buttons collapse and expand the upper area of the form to provide more space for the tables.

10.3.1.1. Types Tab

List Column	**Description**
Type	Displays the type name. The type name is also a link to the type's form.
Manufacturer	Displays the number of manufacturers with models of the type. The Manufacturer Name filter in the filter bar allows you to enter a Manufacturer Name and it will filter to show only the types which have models for that manufacturer.
Product Line	Displays the number of product lines with models of the type. The Product Line Name filter in the filter bar allows you to enter a Product Line Name and it will filter to show only the types which have models for that product line.
Model	Displays the number of models of the type. The Model Name filter in the filter bar allows you to enter a Model Name and it will filter to show only the types which have that model.
Device	Displays the number of devices in the database belonging to the type. The Device Name filter in the filter bar allows you to enter a Device Name and it will filter to show only the types with device names that match the filter.
Description	Displays the text from the type's description field.

10.3.1.2. Product Lines Tab

List Column	
Product Line	Displays the product lines for the manufacturer.
Type	??
Manufacturer	Displays the manufacturers name.
Model	Displays the number of models in the product line. The Model Name filter in the filter bar allows you to enter a Model Name and it will filter to show only the product lines which have that model.
Device	Displays the number of devices in the system. The Device Name filter in the filter bar allows you to enter a Device Name and it will filter to show only the product lines with device names that match the filter.
Description	Displays the text from the description field.

10.3.1.3. Models Tab

The initial view presented when the Models Tab is selected is a list of all the models of the current Type.

List Column	
Model	Displays the model name. The model name is also a link to the model's form.

Type	Displays the model's type.
Manufacturer	Displays the model's manufacturer.
Product Line	Displays the model's product line.
Device	Displays the quantity of devices in the database using that model.
Description	Displays the text from the model's description field.

10.3.1.4. Devices Tab

The initial view presented when the Devices Tab is selected is a list of all the devices of the current Type.

List Column	
Device	Displays the device name. The device name is also a link to the device's form.
Type	Displays the device's type.
Manufacturer	Displays the device's manufacturer.
Product Line	Displays the device's product line.
Model	Displays the device's model.
Lifecycle Status	Displays the device's lifecycle status. Options include Operational, Available, Procurement and Reserved Procurement.
Device Group	Display's the device groups to which the device belongs.
Description	Displays the text from the device's description field.

10.4. Product Lines Menu Item

The Product Lines Menu Item displays a list of all the product lines in the system. The table list contains the following fields:

Table List Column	Description
Product Line	Displays the product lines available in the system. The product line name is also a link to the product line's form.
Type	Displays the number of device types that product line has in the system.
Manufacturer	Displays the name of the manufacturer.
Model	Displays the number of models in the product line.
Device	Displays the number of devices in the database belonging to the product line.
Description	Displays the text from the type's description field.
Table List Button	Description
New	Presents a form for creating a new manufacturer.
Delete	Deletes the selected manufacturer from the system.

10.4.1. Product Lines Form

Selecting an existing product line presents the Product Lines form. The Product Lines form has static fields in the top section followed by tabs that present their own lists related to the product line.

Fields	Description
Name	Displays the name of the product line.
Manufacturer	Displays the manufacturer of the product line.
Decription	Displays the description of the manufacturer.
Table List Buttons	Description

New	Displays an empty product line form to create a new product line.
Submit	If a form field is editable the Submit button becomes active and is used to update the form.
Delete	Deletes the current form.
☆ ☆	These buttons collapse and expand the upper area of the form to provide more space for the tables.

10.4.1.1. Types Tab

List Column	Description
Type	Displays the type name. The type name is also a link to the type's form.
Manufacturer	Displays the number of manufacturers with models of the type. The Manufacturer Name filter in the filter bar allows you to enter a Manufacturer Name and it will filter to show only the types which have models for that manufacturer.
Product Line	Displays the number of product lines with models of the type. The Product Line Name filter in the filter bar allows you to enter a Product Line Name and it will filter to show only the types which have models for that product line.
Model	Displays the number of models of the type. The Model Name filter in the filter bar allows you to enter a Model Name and it will filter to show only the types which have that model.
Device	Displays the number of devices in the database belonging to the type. The Device Name filter in the filter bar allows you to enter a Device Name and it will filter to show only the types with device names that match the filter.
Description	Displays the text from the type's description field.

10.4.1.2. Models Tab

The initial view presented when the Models Tab is selected is a list of all the models of the current Product Line.

List Column	
Model	Displays the model name. The model name is also a link to the model's form.
Type	Displays the model's type.
Manufacturer	Displays the model's manufacturer.
Product Line	Displays the model's product line.
Device	Displays the quantity of devices in the database using that model.
Description	Displays the text from the model's description field.

10.4.1.3. Devices Tab

The initial view presented when the Devices Tab is selected is a list of all the devices of the current Product Line.

List Column	
Device	Displays the device name. The device name is also a link to the device's form.
Type	Displays the device's type.
Manufacturer	Displays the device's manufacturer.
Product Line	Displays the device's product line.
Model	Displays the device's model.

Lifecycle Status	Displays the device's lifecycle status. Options include Operational, Available, Procurement and Reserved Procurement.
Device Group	Display's the device groups to which the device belongs.
Description	Displays the text from the device's description field.

10.5. Models Menu Item

The Models Menu Item displays a list of all the models in the system. The table list contains the following fields:

Table List Column	Description
Model	Displays the models available in the system. The model name is also a link to the model's form.
Category	Displays the model's category.
Type	Displays the model's type.
Manufacturer	Displays the model's manufacturer.
Product Line	Displays the model's product line.
Device	Displays the number of devices in the database based on the model.
Description	Displays the text from the model's description field.
Table List Button	**Description**
Import	Takes you to the Import Wizard to import model packages.
New	Presents a form for creating a new model.
Clone	Clones the selected model to a new model appended with a number in parenthesis (1).
Delete	Deletes the selected model from the system.

10.5.1. Model Form

Selecting an existing model presents the Models form. The Models form has static fields in the top section followed by tabs that present their own lists related to the model.

Fields	Description
Model	Displays the name of the model.
UUID	Displays the model's unique identifier in the database.
Energy Type	Select Energy Type from drop-down list that includes: Energy Monitor, Energy Source, Energy Transport, IT Cooling Devices, IT Device, Lighting, Non-IT Cooling Device.
Energy Source	Select Energy Source from drop-down list that includes: Monitor, None, Static.
Type	Displays the model's type.
Manufacturer	Displays the model's manufacturer.
Product Line	Displays the model's product line.
Description	Displays the description for the model.
Table List Buttons	**Description**
New	Displays an empty model form to create a new model.
Submit	If a form field is edited the Submit button becomes active and is used to update the form.
Delete	Deletes the current form.
⌃ ⌄	These buttons collapse and expand the upper area of the form to provide more space for the tables.

10.5.1.1. Attributes Tab

The initial view presented when the Attributes Tab is selected is a list of attributes for the model.

List Column	
Attribute	Attribute name is also a link to the attribute's form.
Category	Displays the attribute's category. Options are Capacity, Common, Electrical/Power, Environmental, Global, Location, Network, Port, Rack or Server.
Value	Displays the value for the attribute.
Unit	Displays the unit of the value.
User List Buttons	
Add	Adds attributes to the model. Check attributes to be added from list and click Submit to add to list. Close, closes the window and does not save. Click Submit on the type form to save.
Remove	Removes attribute from the list. Click Submit on the type form to save.

10.5.1.2. Images Tab

The initial view presented when the Images Tab is select displays the front, rear, left, right, top and bottom images for the model.

10.5.1.3. Links Tab

The initial view presented when the Links Tab is selected is a list of links associated with the model.

List Column	
Label	Display's the label for the link.
Link Type	Displays the link type as either a Local File or a URL.
Content	The actual path to the file or the URL.
User List Buttons	
New	Displays an empty form to create a new link.
Deletes	Deletes the selected links from the list.

10.5.1.4. Devices Tab

The initial view presented when the Devices Tab is selected is a list of all the devices based on the current model.

List Column	
Device	Displays the device name. The device name is also a link to the device's form.
Type	Displays the device's type.
Manufacturer	Displays the device's manufacturer.
Product Line	Displays the device's product line.
Model	Displays the device's model.
Lifecycle Status	Displays the device's lifecycle status. Options include Operational, Available, Procurement and Reserved Procurement.
Device Group	Display's the device groups to which the device belongs.
Description	Displays the text from the device's description field.
User List Buttons	
New	Displays a form to create a new device based on the current model.

Deletes	Deletes the selected device from the list.

10.5.1.5. Ports Tab

The initial view presented when the Ports Tab is selected is a list of all the ports on the current model.

List Column	
Port Number	Displays a list of the port numbers on the current model.
Port Name	Displays the port name for each port on the current model.
Port Type	Displays the port type for each port on the current model.
Description	Displays the text from the port's description field.
User List Buttons	
New	Displays a form to create a new port for the current model.
Deletes	Deletes the selected port from the list.

10.5.1.6. Associated Model Tab

The initial view presented when the Associated Model Tab is selected is a list of all models associated with the current model.

Table List Column	Description
Model	Displays the name of the associated model. The model name is also a link to the model's form.
Type	Displays the model's type.
Manufacturer	Displays the model's manufacturer.
Product Line	Displays the model's product line.
Device	Displays the number of devices in the database based on the model.
Description	Displays the text from the model's description field.

10.6. Manage Menu Item

The Manage feature allows users to maintain a library of firmware files to upload to one or many devices and allows for the bulk configuration of device attributes for supported devices. The features in this menu will only work for devices created in the application which are also configured with monitoring settings. The application must be able to communicate with the end devices to manage the firmware and configuration changes.

The Manage page contains three separate tabs which allow for the following actions:

- Upload Jobs Tab – Users can upload firmware or bulk configuration change files to supported devices.
- Library Tab – Users manage the library of firmware files available to use with the supported devices.
- Configuration Tab - Users can perform bulk password resets for supported devices.

10.6.1. Upload Jobs Tab

The Upload Jobs page will display a list of all jobs and related job information which have been defined in the past. Clicking the Import Type link for the job will present the summary information and error messages, if applicable, for the job process. User can remove jobs from the job list by clicking the checkbox and selecting the Clear button at the top of the page.

Users can define new jobs by clicking the New button at the top of the page. The Import Type is Device Firmware.

10.6.1.1. Device Firmware Upload

For this type of upload job, users will define the Manufacturer from the supported manufacturer dropdown list and choose the Device Type from the list of supported device types. When these are selected a list of devices in the application which meet the choices will be presented in the device list table. **Note**: If the device is not configured with monitoring settings, the checkbox for that device will be disabled. Devices must be monitored in the application in order for this feature to support the device.

Using the Search filters at the top of the columns, users can easily find the devices to select for the firmware upload job. A Select All checkbox can be found in the column headings to simplify bulk device selection. When devices are selected, choose the Next button at the top of the page.

Based on the Manufacturer and Device Type selected in the previous step, a list of supporting firmware files which have been loaded to Library will be presented to the user. Select a file from the list and hit the Next button at the top of the page. In order for the application to successfully upload the firmware file to the device, the user must enter an Admin user and password to enable the file transfer.

Note: The user and password must be the same for all selected devices or the upload job will fail.

Once the password is defined, the user is presented the job summary page. This page is fully documented in the Import Central section of this user documentation. Users will be able to quickly view success/failure results of the upload job and access details of failures if they are reported.

10.6.2. Library

The Library is a file repository for firmware files to be uploaded to devices when defining a firmware upload job. Users can add and remove files from the library using the Add and Remove buttons at the top of the page. When adding files to the library, users will define which device type is supported by the file and the version of the file upload. These attributes will help with searching the library for the correct files when an upload job is being defined.

10.6.3. Configuration Tab
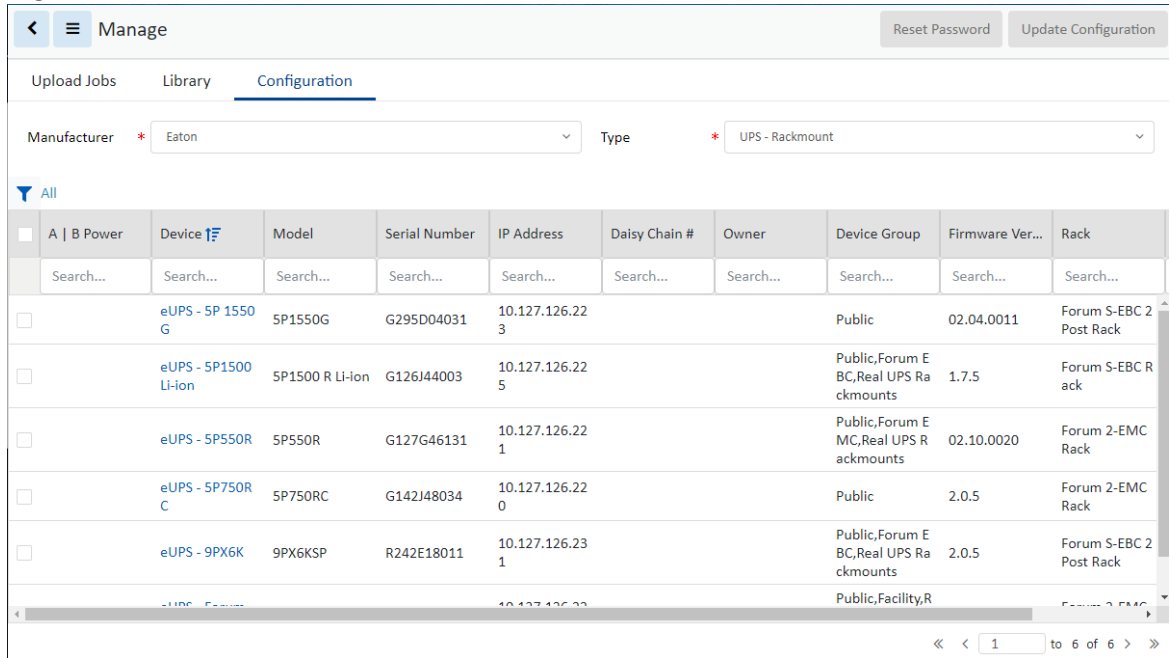
This function works with Eaton rackmount UPSs with Eaton M2 Gigabit Network cards. Follow the steps below to configure the rackmount UPSs.

1. From the Devices menu group, Select the Manage menu item and then Select the Configuration tab

Devices Menu Group

2. From the Manufacturer pull-down menu select Eaton and from the Type pull-down menu select UPS – Rackmount. The results table will display the UPS rackmount devices with Eaton M2 Gigabit network cards.

3. Select the UPS devices in the list you want to bulk configure. The configuration of the UPS that you FIRST select in the list will load in the next screen and be the main UPS configuration that you will push out to the following selection of network cards. Once the devices are selected hit the Update Configuration button in the top right-hand corner of the screen.

4. You will need to authenticate with the network cards, and they all must have the same username and password. For the Passphrase field, this can be any string of letters and numbers you desire, but it must be no shorter than 8 characters. The passphrase is used as a security field to encrypt the data and does not need to be the same each time.

5. A pop-up box will open with all the objects of the UPS network card you first chose from the previous list. Click the check boxes of the network card objects you wish to push out to all of the other UPS device network cards. You can click on the triangles to open the objects and review or change. You can change any of the objects you wish to configure in the box on the right-hand side. Select Submit to push the configuration to your UPS network cards.
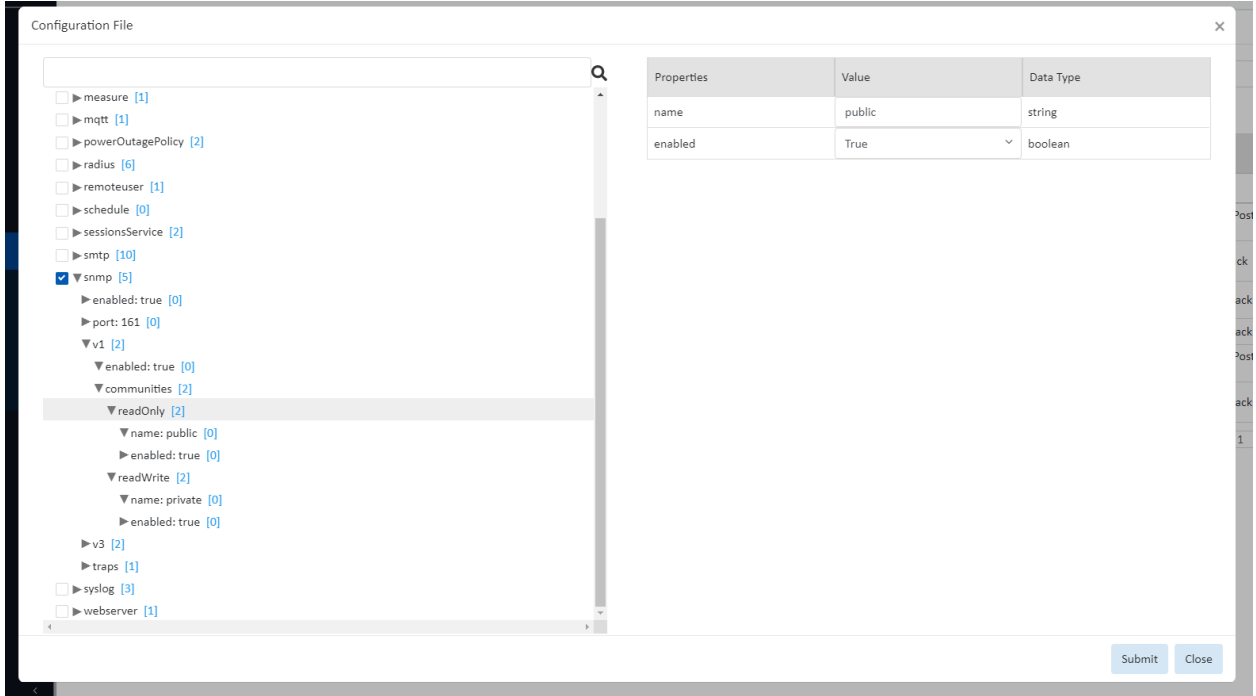
6. After the card pushes the configuration you will see a screen showing if the pushes were successful or failed and to which devices.

Devices Menu Group
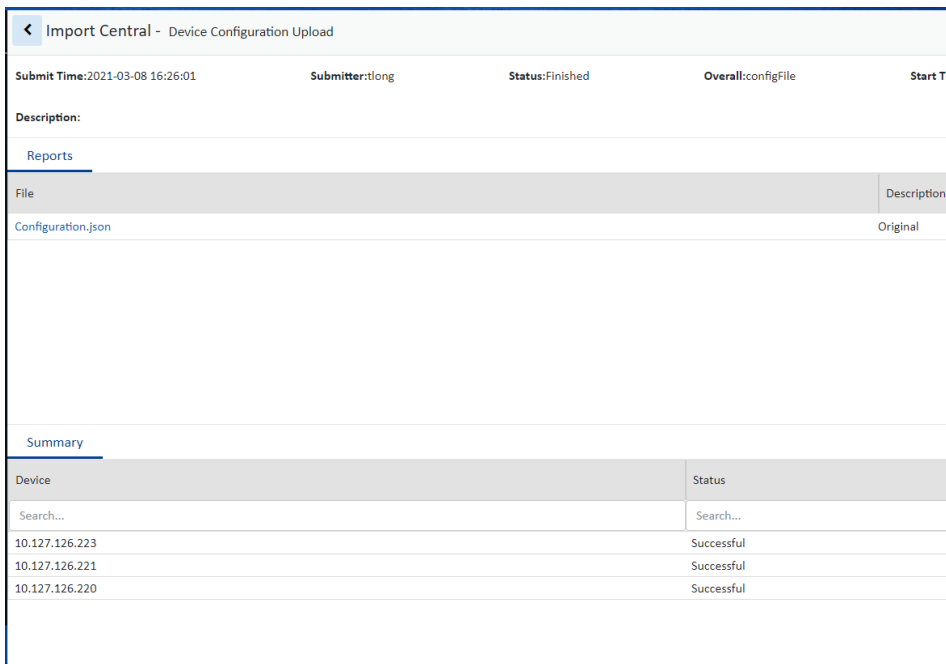
10.6.3.1. Important Notes on Bulk Configuration Features

- This version only supports the M2 communication card and the M2 Industrial Gateway communication card from Eaton. The Eaton MS communication card is not supported in this release.
- View the Import | Export page to see specific details on errors which have occurred.
- The Upload Configuration process will restart the communications card on the UPS Rackmount device. There will be a 2-3 minute restart time until the card is reachable via the web again.

10.6.4. Reset Password

For the Reset Password function, users will define the Manufacturer from the supported manufacturer dropdown list and choose the Device Type from the list of supported device types. When these are selected a list of devices in the application which meet the choices will be presented in the device list table. **Note:** If the device is not configured with monitoring settings, the checkbox for that device will be disabled. Devices must be monitored in the application in order for this feature to support the device.

Using the Search filters at the top of the columns, users can easily find the devices to select for the firmware upload job. A Select All checkbox can be found in the column headings to simplify bulk device selection. When devices are selected, choose the Reset Password button at the top of the page.

Enter the admin username, current admin user password and then provide the new password and password confirmation fields. Click OK to process the password changes for all selected devices. The Import Wizard page will report the status as the Password Reset list is processed. Each device will report a success or failure message in the Summary column of this page.

11. Maintenance Menu Group

The Maintenance Menu Group contains menu items for managing the Service and Warranty functions.

11.1. Calendar Menu Item

Displays all the services events including historical and future service events. By default, it displays today's service events. Users can add and remove records.

11.2. Service Schedules Menu Item

User can view, modify, delete and create new services schedules for devices and bulk export/import service schedules. User can view list of defined service schedules and view service schedules by device. Click on a schedule name to edit. Create new service schedule with the New button. Select schedules from the list and delete them.

11.2.1. Devices Tab

Displays a list of the devices with scheduled service events.

11.2.2. Schedules Tab

Displays a list of the scheduled service events.

11.3. Service History Menu Item

Displays a list of all the service records in the system for the date range specified.

11.4. Warranty Menu Item

Displays a list of all devices with warranty information.

12. Virtual Devices Menu Group

The Virtual Devices Menu Group contains menu items with dashboards for viewing virtual machines linked via VCenter.

To populate the dashboard users must first use the Discovery tool to link to their instance of VCenter (see the Discovery section for more details).

Once VCenter is discovered and linked:

- The VMware Hosts and Guests are visible from within the application
- The Virtual Devices Menu Group dashboards display virtual device details
- Virtual devices can be controlled by actions triggered by alarm conditions and traps (see Actions section for more details)

Note: Performing actions on your company's virtual machines can be dangerous. Please contact support to discuss your use of the virtual device tools before proceeding with configuration.

12.1. VMware VCenter Menu Item

The VMware VCenter Menu Item dashboard displays information tiles reporting VCenter statistics at a glance including the number of Hosts, Guests and Clusters, CPU, Memory and Storage use. Tabs for Clusters, Hosts and Guest display details for each of those items and selecting the item name provides additional details.

12.2. VMware Hosts Menu Item

The VMware Hosts Menu Item displays the list of VM hosts with details including IP, Cluster, Guests, Connect Status, Power Status, CPU, Memory, Storage, Uptime, Version and Device. Selecting the host name opens a dashboard with the details of the guests on that host.

12.3. VMware Guests Menu Item

The VMware Guests Menu Item displays the list of VM Guests with details including IP, Host, Cluster, Connect Status, Power Status, CPU, Memory, Storage, Uptime and VMware Tool. Selecting the guest name opens a dashboard with basic information and capacity graphs.

12.4. Configuration Groups Menu Item

The Configuration Group Menu Item displays the list of configuration groups with their priority level, the number of guests and a user defined description. Selecting the configuration group name displays the group page and allows editing.

When creating a new configuration group users assign a priority to identify the importance of each group in relationship to the others when actions are performed. Value of 0 has the highest priority and value 1000 is the lowest.

12.5. Action History Menu Item

The Action History Menu Item displays a list of the triggered actions and if they succeeded or failed.
Each row can be expanded to display the details and commands of each action.

13. Racks Menu Group

The Racks Menu Group contains menu items for rack building and audit management which are important features for helping to manage devices mounted into racks.

13.1. Rack Manager Menu Item

The Rack Manager Menu Item allows users to manage devices within the rack and to view rack detail and capacity information. The rack building function is a key asset management feature of the application and the graphical, drag and drop features provide intuitive methods to manage rack-mounted devices. **Note:** Data in the tables can be selected and copied to be used in other fields or applications with standard Windows copy and paste shortcuts.

On the Rack Manager page there are the following key areas of the page for the user to manage and view devices and data:

- Racks List Tab
- Devices List Tab
- Model List Tab
- Rack View
- Rack Capacity Table
- Properties Table

13.1.1. Racks List Tab

This part of the page will list Rack devices managed in the application based on search and filter criteria. Entering text to the search bar above the list will filter the Racks list using "contains" search logic for the Device Name of the Rack. The * character is a wildcard character in the search list. Additional filter options are available by clicking the filter icon next to the Search bar above the Rack List.

Users can select one or more racks in the list using the checkbox next to the rack name. This will add the selected racks to the Racks View area on the page. To remove a rack from the Rack View simply uncheck the checkbox next to the Rack Name. Racks will appear in the Rack View area in the order they are selected in the Racks list. The first rack selected will be on the far left of the Rack View area and the last rack selected will be on the far right of the Rack View area.

If multiple Racks need to be selected in the same Rack Group, then users can toggle the Racks list to a list of Rack Groups by selecting the Rack Group radio button at the top of the list. Racks in the selected

Rack Group will be displayed in the Rack Manager.
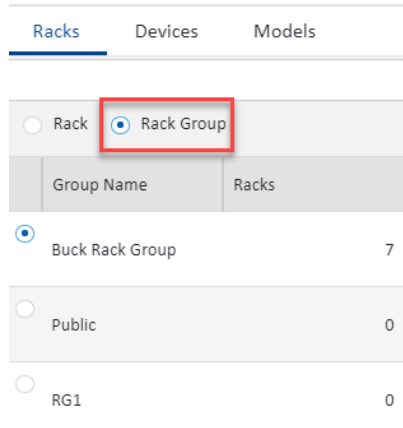
13.1.2. Devices List Tab

This part of the page will list all non-Rack devices managed in the application based on search and filter criteria. This list represents devices which have already been created and are in the Devices list. Entering text to the search bar above the list will filter the Devices list using "contains" search logic for the Device Name of the Rack. The * character is a wildcard character in the search list. Additional filter options are available by clicking the filter icon next to the Search bar above the Device List. Radio buttons are available to easily filter the list for All Devices, Available devices only or a list of devices in the currently selected racks.

13.1.3. Models List Tab

The Models List is used to create devices based on a model. In this use case, the device has not already been created in the application so a user can create the device and mount the device into the rack with a single action. The Model List contains a full list of all non-Rack models.

Entering text to the search bar above the list will filter the Models list using "contains" search logic for the Device Name of the Rack The * character is a wildcard character in the search list. Additional filter options are available by clicking the filter icon next to the Search bar above the Model List.

13.1.4. Rack View

When one or more racks are selected from the Rack list the rack images and views of the mounted devices will be presented to the user. The order of racks on the screen will match the order in which the racks are selected in the Rack List. Users can reorder the racks in the Rack View by using the up|down arrow icons in the Capacity table to drag and drop the racks within the list. The following features are provided on the rack view portion of the page:

- Pan Rack Images – Right click the mouse and drag the racks.

- Zoom Rack Images – Use the mouse scroll wheel to zoom into the racks to view details of devices.
- Rotate Rack Images – Users can rotate 3D views of the racks by using the left mouse button and moving the mouse.
- Selecting Racks – Racks can be selected to allow users to perform an action on the rack such as changing views. Users can select a rack by using a single click of the left mouse button. This will highlight the rack with a red outline. Multiple Racks can be selected by holding the Ctrl key and clicking subsequent racks with the left mouse button. Each selected rack will be outlined with the red lines.
  - When clicking the rack be sure not to click a device within the rack. Selecting a rackmount device will not select the entire rack.
- Icon Bar – There are several functions which can be performed in the Rack View with the icons presented on the toolbar. The following actions are supported with the toolbar:

Toolbar Icon	Description
Reset View	Resets the 3D orientation view of all the racks to a 2D view.
Layers	By default, device images are presented in the Rack View. The Layers icon allows users to toggle from the Device Image to the Device Name.
View	The View icon allows users to change views of the selected racks. For example to view the Rear of racks users can select one or more racks and choose the View-Rear option from the list.
Full Screen	Toggles the view of the Rack Manager from Full Screen to the default view.
Snap RU	Snap RU allows users to manage the granularity of the U Position when assigning devices to Racks. By default, Snap RU is on and forces devices into the full U position (ie 5.0, 6.0, 7.0, etc). If the Snap RU is off, users can assign devices into the partial U positions ie 5.0, 5.1, 5.2, 6.0, 6.1, etc).
Select All Racks	Selects all of the racks displayed in the Rack View.
Flip Horizontal	If a Rack is selected then the selected Racks will rotate between Front, Left , Rear and Right views. If a rackmount device is selected, the device will toggle between front and rear views of the device.
Flip Vertical	If a Rack is selected then the selected Racks will rotate between Front, Left , Rear and Right views. If a rackmount device is selected, the device will rotate vertically while maintaining the same front or rear view within the rack.
Remove	Users can select devices mounted to the rack and then click the Remove button. This action removes the devices from the Racks but does not Delete them from the application.
Hide Racks	Hide Rack Group	Selected Racks will be removed from the Rack View and deselected in the Rack List. If a Rack Group is being viewed this icon will change name and can be used to hide the racks which belong to the selected Rack Group.
Decommission	Changes the Lifecycle Status of the selected rackmount devices to Decommission status.
Save	Saves all changes made to the racks.
Front Devices	This toggle button allows users to show or hide devices which are mounted to the front of the rack.
Rear Devices	This toggle button allows users to show or hide devices which are mounted to the rear of the rack.

13.1.5. Rack Capacity Table

The Rack Capacity Table provides details of the space, power and cable metrics for the selected racks. The order of the racks in the table list is determined by the order the racks are checked in the Rack List. Metrics listed in the table represent the configurations of the racks including unsaved install and decommission actions performed in Rack Manager. Metrics in this table will update with each device install or decommission action performed by the users.

13.1.6. Properties Table

The Properties table is located on the right side of the page. When a rack or device is selected in the Rack View, the properties able will update with relevant asset information for the selected device. Users can show or hide the Properties table using the expand/collapse icon located in the top, left of the table.

At the bottom of the Properties table an image of the selected device in the Devices List will be displayed to the users. If the device needs to be rotated vertically prior to mounting into the rack, users can rotate the devices using this image window and then mount the device to the rack. This rotate feature will also work for selected devices which are already mounted into the rack.

13.1.7. Adding Devices to Rack

There are three methods which can be performed by users to install devices to a Rack. In all cases, the Rack View must be set based on the desired side of the rack to which you want to mount the device. For example, to place devices on the rear of the rack, the rack must be set to Rear View prior to assigning the device. As devices are being mounted to the target rack, the Current Rack, Current View and Current U Pos data on the toolbar will display the details of where the device will be assigned if the device is placed in that location. The device is mounted to the rack when the mouse cursor is released as part of the drag and drop action.

13.1.7.1. Devices List Installs

Find devices to place into the rack using the Device List feature. Drag and drop the device from the list onto the rack in an available position. A red indicator will appear if the device is overlapping existing devices and is not able to be assigned the position. An orange indicator will appear if the device can successfully be assigned the position.

13.1.7.2. Models List Installs

Find the model of the device to be created and mounted into the rack by using the Models list. Drag and drop the model to the available position on the rack. A New Device form will be presented to allow the user to define key device attributes for the newly created device.

13.1.7.3. Graphical Device Moves

When users have more than one rack selected and in the Rack View, they can drag and drop devices from one rack to the other rack graphically. Click and drag a device from one rack onto the other rack to assign the device a new location. This method can also be used to reposition a device within the same rack if needed.

13.1.8. Removing Devices from Rack

Devices can be removed from a rack position by single clicking the device in the rack and then clicking the Remove icon in the toolbar. Please make sure to hit the save button prior to navigating to a new node of the navigation tree to save the changes. **Note:** This action does not remove the device from the device list. The device will change its device status from Operational to Available.

To fully Decommission a device, select a device in the rack and click the Decommission icon at the top of the Rack View.

13.1.9. Print Rack Configurations

A PDF report can be generated for all of the selected racks by choosing the main menu option for Export – PDF. The selected racks will be documented with each rack view and a full list of all devices with relevant information in a single PDF document.

13.2. Audit Manager

The Audit Manager Menu Item displays a list of all the audits in the system. Audits are performed to validate and update the assets which are mounted into racks in the locations being managed with the application. Audits can be defined for floors, areas, rows of racks, individual racks, etc. The table list contains the following fields:

Devices Tab List Column	
Status	Displays the status of the audit.
Audit Name	Displays the user defined named of the audit.
# Racks	Displays the number of racks included in the audit.
% Complete	Displays the progress of the audit.
Created By	Displays the name of the user that created the audit.
Created	Displays the date the audit was created.
Start Date	Displays the date the audit was started.
Completion Date	Displays the date the audit was completed.
Actions	Displays icons 🗋 🗔 🗑 to produce an audit report PDF, export audit details to excel and delete the audit.
Table List Buttons	**Description**
New	Presents the form for creating a new audit.

13.2.1. Audit Form

Selecting the New button presents the Audit form. The Audit form has a static fields in the top section followed by tabs that present their own lists related to the model.

Fields	Description
Name	Audit name is also a link to the audit form with details.
Table List Buttons	**Description**
New	Presents a form for creating a new audit.
Submit	Creates the new audit with information from form. Submit also saves changes to an existing audit's form.
Submit & New	Increases efficiency when creating a number of audits sequentially by creating a new audit with existing values and presenting a blank new form.

13.2.1.1. Racks Tab

The initial view presented when the Racks Tab is selected is a list of racks to be included in the audit.

List Column	
Name	Displays the name of the rack.
Model	Displays the rack's model name.
Product Line	Displays the rack's product line.
Manufacturer	Displays the rack's manufacturer.
Serial Number	Displays the rack's serial number.
Asset Tag	Displays the rack's asset tag.
Groups	Displays the names of the groups to which the rack belongs.
Location	Displays the racks location.
User List Buttons	
Add	Add displays a table list of available racks to add to the audit. Click the check boxes to select racks to be added to the audit. Click Submit to save the selected racks to the list of racks for the audit. Close, closes the window and does not save.
Remove	Removes the selected rack from the rack list.

13.2.2. Executing an Audit

Please refer to the Mobile Audit Manager documentation for instructions on how to execute an audit.

14. Connections Menu Group

The Connections Menu Group contains menu items for port mapping between devices.

14.1. Cables Menu Item

The Cables Menu Item displays a list of existing cable connections available for editing and disconnecting.

List Column	
Cable Name	Displays the name of the cable. The field can be edited directly in the list.
Status	Displays if the status is Operational or Reserved.
Type	Displays cable type.
Source Device	Displays the name of the source device.
Source Port	Displays the port name on the source device.
Destination Device	Displays the name of the destination device.
Destination Port	Displays the port name on the destination device.
Color	Displays the cable color. Color can be changed directly in the list.
Serial Number	Displays cable's serial number. The field can be edited directly in the list.
Length	Displays the length specified for the cable. The field can be edited directly in the list.
Description	Enter user defined description.
Action	Edit icon opens the cable's form for editing.
Page Buttons	
Submit	Saves any changes made to the editable fields.
Disconnect	Disconnects the selected cable.

14.2. Port Mapping Menu Item

The Port Mapping Menu Item allows users to create mappings between power ports and network ports using the port mapping feature. If a device does not have an appropriate port listed, ports can be added in device central by through the Ports function tile for the device.

The port mapping feature page is divided into two sections. The left section for specifying the first device port and the right section for the second device port. Both tables are empty to start. Using the search fields in the second row of the right table, sort for the first device.

Toggle the triangle next to the device name to show and hide the available ports.

Left Table Fields and Options	
Total Selected	Displays the number of ports selected in the table.
Port Category	Filters what ports are listed for the device. Options are All, Copper Port, Fiber Port, Power Port or Storage Port.
Side	Specifies that the ports listed are on the Frontside or the Backside of the device.
List Column	
Device	Displays device name.
Port Name	Displays port name.
Port Status	Displays port status.
Port Type	Displays port type.
Speed (MB/s)	Displays port speed.
VLAN	Displays the port's VLAN information.
Device Type	Displays device type.
Asset Tag	Displays device's asset tag information.
Serial Number	Displays device's serial number.
IP Address	Displays device's IP address.
Owner	Displays device
Groups	Displays the group to which the device belongs.
Rack	Displays the rack where the device is placed.
Location	Displays the device's location.
Page Buttons	
Connect	Connects the ports selected and opens the New Cable form where cable details can be specified. Submit makes the connection.
Reserve	Opens the New Cable form where cable details can be specified. Submit will reserve the ports for future connection.
Cables	Opens the cable list showing all connections in the system.
◀ ▶	These icons collapse and expand the area of the page to provide more space for the tables.
Right Table Fields and Options	
Location Filter Drop-Down Menu	Filters the table device list to show ports in All locations, Same Area, Same Floor or Same Rack. The default is Same Rack and can be changed in the user's personal setting.
Side	Specifies that the ports listed are on the Frontside or the Backside of the device.
List Column	
Device	Displays device name.
Port Name	Displays port name.
Port Status	Displays port status.
Port Type	Displays port type.
Speed (MB/s)	Displays port speed.
VLAN	Displays the port's VLAN information.
Device Type	Displays device type.
Asset Tag	Displays device's asset tag information.
Serial Number	Displays device's serial number.
IP Address	Displays device's IP address.
Owner	Displays device
Groups	Displays the group to which the device belongs.
Rack	Displays the rack where the device is placed.
Location	Displays the device's location.

14.2.1. Cable Form

The cable form contains all the details for a connection.

Fields	Description
Name	The default cable name contains the connected devices and port names. User can edit the cable name.
Type	Displays the cable type.
UUID	Displays the database unique identifier for the cable.
Description	Enter user defined description for device.
Direction Arrow	Arrow between fields designates which is the source device and which is the consumer.
Attributes List Buttons	**Description**
Add	Adds additional attributes to the attribute list.
Remove	Removes the selected attribute from the list.
Attributes List Column	**Description**
Attribute	Displays the attribute name.
Category	Displays the attribute category.
Value	Displays the value for the attribute.
Unit	Displays the unit for the value of the attribute.
Attributes	**Description**
Cable Tier ID	Identifies the cable tray where the cable will flow.
Color	Specifies the color of the cable.
Lengths	Specifies the length of the cable.
Price	Specifies the cable cost per inch.
Serial Number	Specifies the serial number of the cable
Wire Current Capacity	Specifics the cable capacity in amps (A).
Wire Diameter	Specifies the cable diameter in mm^2.
Wire Gauge	Specifies the cable gauge in AWG.

Note: The following attributes can be added to the list: Duplex Patch Cord, Duplex Position, MTP Patch Cord, Number of Cores, Project Number and Sensor Unit. Custom attributes can be created in the attributes manager and designated for use with cables and they will appear in the add attributes list.

15. Discovery Menu Group

The Discovery Menu Item displays the information tiles associated with discovery and several tabs of associated lists including the Jobs Manager Tab list of all the discovery jobs in the system. Discovery allows users to define and manage the auto discovery feature of the application. This feature will poll defined IP ranges and allow users to decide if devices found are added to the device list with full monitored capabilities or as manage-only devices which can be placed in racks and used in port mapping.

15.1. Discovery Information Tiles

The Discovery Information Tiles show the status of various discovery tasks.

15.1.1. Discovery Status Tile

Indicates the running state of the discovery service. Users can Stop and Start the process using the icons. The text will indicate how long the discovery process has been running.
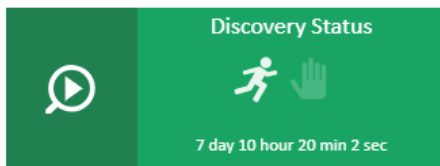
15.1.2. Discovery Agents Tile

Displays the number of agents (probes) deployed and hovering over the number provides the name and status for each agent. A green LED shows the agents are running and a red LED indicates a problem.
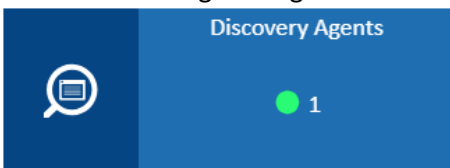
15.1.3. Discovery Process Tile

Shows a raw count of the IP addresses defined and remaining to be polled by the discovery service and indicates the progress of the current discovery process against the defined IP ranges.
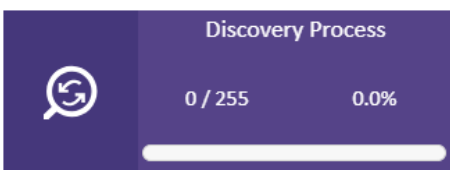
15.1.4. Jobs Manager Tile

Indicates the number of defined discovery jobs and how many of the those are active. The list of discovery jobs is displayed in the Jobs Manager tab.

15.1.5. Devices Tile

Indicates the number of matched and unmatched devices discovered by the discovery process.
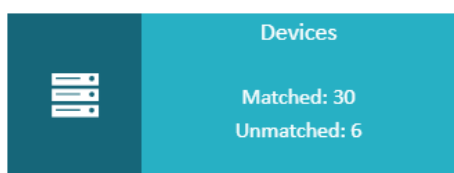
15.2. Jobs Manager Tab

The initial view presented when the Jobs Manager Tab is selected is a list of existing discovery jobs.

List Column	
Active	Determines if the discovery job is included in the discovery process or omitted from the list of jobs processed in the discovery process.
Job Name	Name of the discovery job. This name is referred to when devices are discovered by the discovery process.
IP From	The starting IP address in the range of addresses to be polled for devices.
IP To	The last IP address in the range of addresses to be polled for devices.
Frequency	Displays the frequency the defined job is included in the discovery service. Options are Once, Minute, Hourly Daily. **Note:** The discovery service is processing many different jobs, so the setting may not be exact as the discovery job picks up jobs on a scheduled routine as other jobs are finished.
IP Exclusion	Displays the IP address to be excluded from the range of addresses being polled by the discovery job.
Current Status	Displays the status of the discovery job.
Last Run Time	Displays the last time the discovery job was executed.
Total # of Runs	Displays the total number of times the discovery job was executed.
Total # of Discovered Devices	Displays the total number of devices discovered by the discovery job.
Agent	Displays the name of the agent (probe) used by the discovery job.
List Buttons	
Import	Imports discovery jobs from spreadsheet.
Export	Exports discovery jobs to spreadsheet.
New	Opens a New Discovery Job Form to create a new job.
Delete	Deletes the selected discovery jobs.

15.2.1. Discovery Job Form

Selecting an existing discovery job or selecting the new button presents the Discovery Job form. The form has static fields on the top section and tabs for SNMP Configuration, RF Code Configuration, VMware Configuration and IP Exclusion along the middle.

Fields	Description
Active	This switch toggles to activate and deactivate the job.
Job Name	Name of the discovery job. This name is referred to when devices are discovered by the discovery process.
IP From	The starting IP address in the range of addresses to be polled for devices.
IP To	The last IP address in the range of addresses to be polled for devices.
Stop at First Match	Check box to halt the discovery job as soon as it discovers the first device.
Frequency	Displays the frequency the defined job is included in the discovery service. Options are Once, Minute, Hourly Daily. **Note:** The discovery service is processing many different jobs, so the setting may not be exact as the discovery job picks up jobs on a scheduled routine as other jobs are finished.
Agent	Select the probe to be used from the pull-down menu.
Description	Enter user defined description for discovery job.
Table List Buttons	Description
New	Presents a form for creating a new discovery job.
Submit	Creates the new discovery job with information from the form. Submit also saves changes to an existing discovery job form.
Submit & New	On the New Discovery Job form this option Increases efficiency when creating a number of discovery jobs sequentially by creating a new job with existing values and presenting a blank new form.

15.2.1.1. New Discovery Job Form: SNMP Configuration Tab

The initial view presented when the SNMP Configuration Tab is selected is a list of SNMP configuration parameters to be used by the discovery job to communicate with devices to be discovered.

Table List Column	Description
SNMP Versions V1, V2, V3	User can select one or all of the version options. If multiple versions are selected then the discovery service will attempt to contact devices using all options to establish a connection and collect data.
Port	Port to be used for SNMP communications. The default is 161.
Read	Specify the community read string. This string is required.
Write	Specify the community write string. This string is not required since we do not write to the device.
Username	Username for V3 protocol.
Password	Password for V3 protocol.
Auth Protocol	Specify the authorization protocol. Options include: MD5, SHA.
Privacy Password	Specify the privacy password.
Privacy Protocol	Specify the privacy protocol. Options include: AES, DES.
Security Level	Specify the security level. Options include: noAuthNoPriv, authNoPriv, authPriv.
Context	SNMP V3 configuration setting.
Table List Button	Description
New	Adds a row to the table where you can enter another set of configuration parameters.

Delete	Deletes the selected configuration from the list.

15.2.1.2. New Discovery Job Form: RF Code Configuration Tab

The initial view presented when the RF Code Configuration Tab is selected is a list of RF Code configuration parameters to be used by the discovery job to communicate with devices to be discovered.

Table List Column	Description
User Name	User Name for RF Code communications to the Zone Manager software.
Password	Password for RF Code communications to the Zone Manager software.
Port	Port to be used for RF Code communications.
Table List Button	**Description**
New	Adds a row to the table where you can enter another set of configuration parameters.
Delete	Deletes the selected configuration from the list.

15.2.1.3. New Discovery Job Form: VMware Configuration Tab

The VMware Configuration Tab is where users link to a VCenter instance and establish connections to the VMware Hosts and Guests. Once the application discovers the VCenter instance using the IP address, username and password the link is established and the dashboards in the Virtual Devices menu group will display information.

Table List Column	Description
User Name	User Name for VCenter.
Password	Password for VCenter.
Table List Button	**Description**
New	Adds a row to the table where you can enter another set of configuration parameters.
Delete	Deletes the selected configuration from the list.

15.2.1.4. New Discovery Job Form: IP Exclusion Tab

The initial view presented when the IP Exclusion Tab is selected is a list of IP ranges to be excluded from the discovery job defined IP range. The IP ranges will be excluded from the discovery search.

Table List Column	Description
Lower Bound	The starting IP address in the range of IP addresses to be excluded from polling.
Upper Bound	The ending IP address in the range of IP addresses to be excluded from polling.
Table List Button	**Description**
New	Adds a row to the table where you can enter the lower and upper bound IP addresses to be excluded.
Delete	Deletes the selected exclusion range from the list.

15.3. Devices Tab

The initial view presented when the Devices Tab is selected is a list of discovered devices. On the left above the table are check boxes which will sort the device list. The List Buttons on the right perform actions on the selected devices.

Sort Option Check Boxes	
Matched Devices	Checking this box displays the discovered devices that were matched to a model in the application database. The 🖥 icon in the row indicates that the device is matched to a model.
Unmatched Devices	Checking this box displays the discovered devices that were *not* matched to a model in the application database. There is no icon in the row. Users may Assign the Unmatched device to a model or they may Hide the device from the discovery results.
Hidden Devices	Checking this box displays the discovered devices that were marked as hidden with the Hide button. The 🔕 in the row indicates that the device is hidden. Users must Show the device before they can add the device to the Device list.
Inactive Job Devices	Checking this box displays the discovered devices that were found by a currently inactive discovery job.
Exception Devices	Checking this box displays the discovered devices that were found to have the same name as an existing device but with a different model to that existing device.
Note: If all the boxes are selected the list shows all devices. The icons, or lack thereof indicate the device's status.	
List Column	
Status	Displays the discovered device's status. Options are: Managed, Monitored, Unmanaged and Exception. See definitions below.
Device Name	Displays the discovered device's name.
IP Address	Displays the device's IP address.
Description	Displays the description retrieved from the device.
Type	Displays the device's type if it can be retrieved from the device.
Manufacturer	Displays the device's manufacturer.
Model	Displays the model the device was matched to during discovery.
MAC	Displays the MAC address for the device.
Job Name	Displays the name of the discovery job that found the device.
Protocol	Displays the protocol used to communicate with the device.
Agent	Displays the name of the agent (probe) used by the discovery job that found the device.
Discovered Time	Displays the time the device was discovered.
Actions	The first icon ⇥ initiates an SNMP walk of the device. When the second icon is blue ⬇ it indicates that the SNMP walk is completed and clicking the icon will download the walk file to your computer. This file can be submitted to the support team along with a model request to create a model for the unmatched device.
List Buttons	
Assign Model	Clicking the button will present a window which lists all models from the master model library. Users can search and filter the list to find the match for the discovered devices and then users hit the Submit button to make updates to the selected devices. **Note:** Once a model has been defined for an Unmatched device it will be identified as a matched device.
Manage Devices	Opens a form where the selected devices can be created in the application devices list. **Monitored switch:**

	• **On:** The device can be configured for data collection included by the probe monitoring engine and will be added to the application device list. • **Off:** The device will be added to the application device list without monitoring. **Device Group Assignment:** Select the device groups for the device
Hide	Hides the selected devices from the list.
Show	Shows a previously hidden device.

15.3.1. Device Status Defined

The following are the possible values for status in the discovery device tab list.

- Managed - discovered devices which have the same UUID or same serial number and model name of existing devices, the devices are not monitored.
- Monitored - discovered devices which have same UUID or same serial number and model name of existing devices, and the devices are monitored.
- Unmanaged - discovered devices which do not exist (they do not match existing devices UUID or devices with the same serial number or model name).
- Exception - there are three conditions that will designate the device is an exception
    - The existing device model is different from the discovered device but they have the same serial number or device name.
    - There are multiple devices that match the discovered device's name or serial number.
    - Existing device is monitored with conflicting monitoring templates or data attributes.

15.4. Logs Tab

The initial view presented when the Logs Tab is selected is a list of the discovery events.

Table List Column	Description
Date	The date of the event.
Event	Text indicating the nature of the event.
Description	Details about the event.

16. Monitoring Menu Group

The Monitoring Menu Group provides important tools for users to configure data collection from target devices, configure alarm thresholds and define actions to take when defined events occur. Topics defined in these Menu Items are core to the purpose of the application and are critical to the operation of the application.

Given the complexity of supporting a diverse set of target devices, communication protocols, customer network configurations, etc. The following list represents key aspects of the monitoring capabilities of the application and requirements for it to function properly.

- The Probe server is the part of the application which communicates with target devices and collects data from the device.
- In some cases, the Probe server resides on the same server as the main application database and in other cases the Probe server may be on a dedicated physical or virtual server.
- The application supports several protocols to communicate with devices. The basic configuration options for these protocols is defined below, but other literature outside of this document can be reviewed to fully understand how these protocols function.
- The Probe server must have network access on required ports to communicate with target devices. If the network is not properly configured, then the application will not be able to collect data from devices.
- The Probe server will process the data collection jobs defined in the application.

16.1. General Overview

The processes associated with monitoring represent the more complex and important features of the application. The following overview defines the workflow for properly configuring and activating monitoring for devices in the application.

- Raw data is collected from target devices using one of several supported communications protocols. Detailed data point configurations of these raw data points are defined in Monitoring Templates using the Attributes feature.
- Raw data collected from the target devices is mapped to application Attributes. A long list of available Attributes is included in the application, but users may create custom Attributes if needed. By using this mapping mechanism, users are able to normalize data collected from many different types of devices in different locations.
- Key reporting aspects of the application are based on the application Attributes. Reports, Graphs, Trend Charts and more all use data from the Attributes to present data and calculate key capacity and utilization metrics.
- Triggers are defined to indicate Alarm conditions. A Trigger may consist of one or more conditions related to data for a device, location or template. Active Triggers can be reviewed on the Alarm page in the application.

- Actions allow users to initiate an action based on a Trigger. Configurations within the Actions feature provide controls on what to do when a Trigger occurs, how frequently to perform actions, what to do when the Trigger returns to a Normal condition and more. An example action is sending an email to a specific user when certain trigger conditions are in effect.

16.2. Monitoring Templates Menu Item

The Monitor Templates Menu Item displays a list of all the monitoring templates in the system. The table list contains the following fields:

Table List Column	
Template Name	Name of the template is also a link to open the Monitoring Templates form that contains the details for that template.
Category	Displays the template's category.
Attributes	Displays the number of monitored attributes in the template.
Triggers	Displays the number of triggers defined in the template.
Graphs	Displays the number of graphs defined in the template.
Last Updated By	Display the name of the user who last updated the template.
Last Updated	Displays the date the template was last updated.
Table List Buttons	Description
Import	Users can create a monitoring template by importing from a spreadsheet.
New	Presents the form for creating a new monitoring template.
Clone	Duplicates the selected monitoring template.
Delete	Deletes the selected monitoring template from the system.

16.2.1. Importing Monitoring Templates

Selecting the Import button presents the Import Wizard with the import type set to Monitoring Templates. The Download Template button will download a blank monitoring template spreadsheet. Proceed with the import wizard as described in the Import Wizard section.

The monitoring template has two tabs:

- Template tab - contains the data point configuration details.

- Template Write tab - contains the ability to import write actions to SNMP and Modbus data points.

16.2.2. Exporting Monitoring Templates

Monitoring templates can be exported using the Export > Excel from the table list menu.

1. Select the Monitoring Templates menu item.
2. Filter the template list to display the template you wish to export.
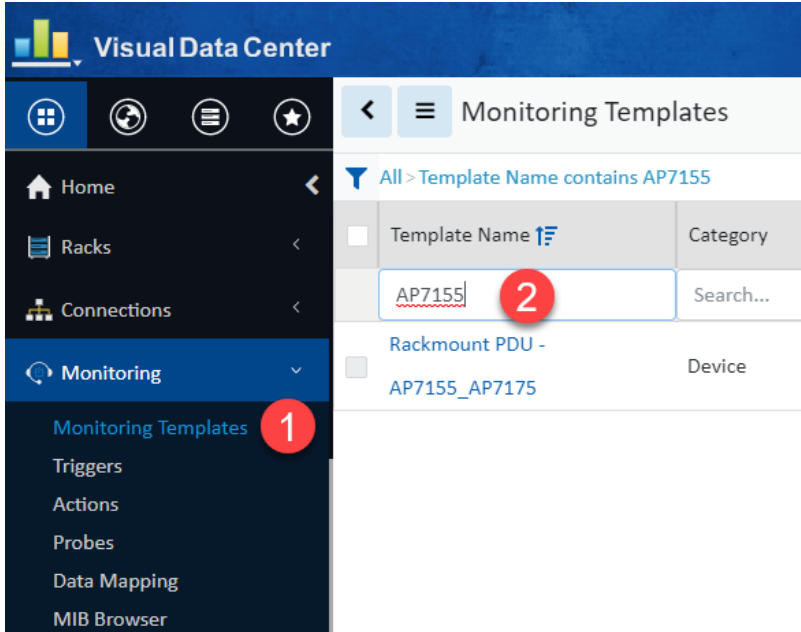
3. From the table menu select Export > Excel.
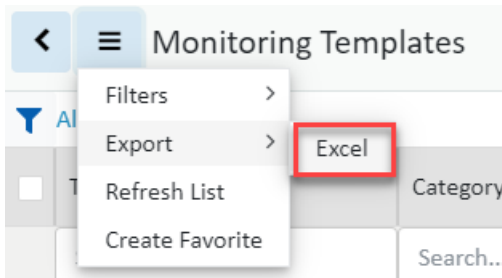
4. A row in the spreadsheet contains the name of the monitoring template, the attribute and it's associated data point configuration settings.
   Note: To create a new monitoring template leave the template UUID blank and provide a new template name. The attributes UUIDs and Names can be copied from an existing template or looked up on the Settings menu group > Attribute Manager menu item page.

		Template				Attributes							SNMP		Modbus			Bacnet	
ID	Name	Category	Description	ID	Name	Alias	Display Column	Unit	Data Type	Monitor Type	Enum Value	Status	OID	Register	Register Type	Register Length	Object Instance #	Object Identifier	Property Identifier
caad853!	Rackmount PDU - AP7155_AP7175	Device		64242d64-37	Active Power			Watt	Scalar	SNMP		Enable	(.1.3.6.1.4.1.318.1.1.12.1.16.0)						
caad853!	Rackmount PDU - AP7155_AP7175	Device		151f3eb2-dc	Device Name				Scalar	SNMP		Enable	(.1.3.6.1.4.1.318.1.1.12.1.1.0)						
caad853!	Rackmount PDU - AP7155_AP7175	Device		7cb79186-26	Firmware Version				Scalar	SNMP		Enable	(.1.3.6.1.4.1.318.1.1.12.1.3.0)						
caad853!	Rackmount PDU - AP7155_AP7175	Device		330ee565-a;	Hardware Revision				Scalar	SNMP		Enable	(.1.3.6.1.4.1.318.1.1.12.1.2.0)						
caad853!	Rackmount PDU - AP7155_AP7175	Device		58bac7a0-9!	Input Current			Amps	Tabular Column	SNMP		Enable	(.1.3.6.1.4.1.318.1.1.12.2.3.1.1.2)/10						
caad853!	Rackmount PDU - AP7155_AP7175	Device		b129128-bf	Input Number of Phases				Scalar	SNMP		Enable	(.1.3.6.1.4.1.318.1.1.12.1.9.0)						
caad853!	Rackmount PDU - AP7155_AP7175	Device		8147e938-ec	Input Phase Name				Tabular Column	SNMP	1:Phase L1:#688C	Enable	(.1.3.6.1.4.1.318.1.1.12.2.3.1.1.4)						
caad853!	Rackmount PDU - AP7155_AP7175	Device		66e777bb-cc	Model Name				Scalar	SNMP		Enable	(.1.3.6.1.4.1.318.1.1.12.1.5.0)						
caad853!	Rackmount PDU - AP7155_AP7175	Device		57fc5403-9d;	Near Overload Phase Threshold				Tabular Column	SNMP		Enable	(.1.3.6.1.4.1.318.1.1.12.2.1.1.3)						
caad853!	Rackmount PDU - AP7155_AP7175	Device		54f28e57-82	Number of Breakers				Scalar	SNMP		Enable	(.1.3.6.1.4.1.318.1.1.12.1.10.0)						
caad853!	Rackmount PDU - AP7155_AP7175	Device		57f0a2c1-9a	Overload Phase Threshold				Tabular Column	SNMP		Enable	(.1.3.6.1.4.1.318.1.1.12.2.1.1.4)						
caad853!	Rackmount PDU - AP7155_AP7175	Device		f56a47c2-9ff	Phase Alarm				Tabular Column	SNMP	1:No Load Alarm	Enable	(.1.3.6.1.4.1.318.1.1.12.2.2.1.1.5)						
caad853!	Rackmount PDU - AP7155_AP7175	Device		be490833-f0	Serial Number				Scalar	SNMP		Enable	(.1.3.6.1.4.1.318.1.1.12.1.6.0)						

16.2.3. Monitoring Templates Form

Selecting new or an existing monitoring templates presents the Monitoring Templates form. The Monitoring Templates form has static fields in the top section followed by tabs that present their own lists related to the monitoring template.

Fields	Description
Trap Template Checkbox	On when the template contains Traps and Off when the template contains data points.
Name	Displays the name of the monitoring template.
Category	Displays the template's category.
Description	Displays the text for the monitoring template description field.
Table List Buttons	**Description**
New	Opens a form for creating a new monitoring template.
Submit	If any form fields are edited or new data has been added the Submit button becomes active and is used to update the form.
Delete	Deletes the current monitoring template.
⌃ ⌄	These buttons collapse and expand the upper area of the form to provide more space for the tables.

16.2.3.1. Attributes Tab

The initial view presented when the Attributes Tab is selected is a list of monitored attributes for the monitoring template. A monitored attribute is a device attributed that is linked to a corresponding data point on a device.

List Column	
Attribute	Attribute name is also a link to the attribute's monitoring configuration form.
Alias	Displays the alias for the attribute.
Data Type	Displays the data type for the attribute.
Monitor Type	Displays the monitoring protocol for the attribute.
Parameters/Formula	Displays the data point identifying parameters and the formula to be applied on the returned values.
Value Type	Displays the value type for the returned values.
Unit	Displays the unit of measure for the returned values.
Status	Displays if the attribute monitoring is on or off.
User List Buttons	
Add	Add opens form to add a monitored attribute to the list.
Remove	Removes attribute from the list. Click Submit to save the changes to the monitoring template form.

16.2.3.1.1. Add Attribute Form

The Add Attribute form allows users to add monitored attributes and contains the fields for configuring the monitoring parameters.

Fields	Description
Add Attribute from MIB	Check box to add attribute from MIB. If selected, the user is prompted to browse for a MIB file and then a list of data points from the MIB can be mapped to existing attributes.
Attribute	Select attribute from the attributes list. Choose the New button to create a new Attribute to the list.
Alias	Create an alternate name for the attribute.
Data Type	Set the data type to Scalar or Tabular Column.
Monitor Type	Set the monitoring communication protocol. Options include: SNMP, SNMP Trap, MODBUS, BACNET, IPMI, Data Mapping, Calculated, APC Rack Access, Flat File, HTTP/XML, API Input, OPC, OPC UA.
Parameters	Presents the required parameters for the selected monitor type. Enter identifier between curly brackets and add formula after right bracket. Example: Register **{102}/100** - value returned divided by 100. Example: OID **{.1.3.6.1.4.1.29640.1.4.0}/2**- value returned divided by 2.
Write Parameters	Allows users to enable manual controls to set values for the attribute in the device dashboard.
Value Type	Displays the value type. For example: Decimal, Enum, etc.
Unit	Set the unit value for the returned values. For example: percent, Farenheit, etc.
Status	Displays if the attribute monitoring is on or off.
Buttons	**Description**
Submit & New	Increases efficiency when adding a number of attributes sequentially by adding a new attribute with existing values and presenting a blank new form.
Submit	If any form fields are edited or new data has been added the Submit button becomes active and is used to add a new attribute or update the existing form.
Cancel	Closes the add attribute form without saving.

16.2.3.1.2. Defining User Control for Attributes

Using the Write Parameters options in the Add Attribute form, users can define controls which will allow user defined values to be set for attributes in the device dashboards. This capability is only available for SNMP and Modbus attributes. The control feature is implemented with the following steps:

- Select the Add button to define a new option for user defined controls. A new entry is added to the table.
- If the attribute being updated is SNMP, then these fields will be defined:
  - Choose the Control Type from these selections:
    - Action – Allows user to choose an item in a dropdown list to write a value to a device.
    - Text Input – Allows user to enter a value to be written to the device.
  - Attribute – Choose the Attribute which will be used for this write action. The list of available Attributes will be limited to Attributes defined in the current monitoring template.

- o Action Name – Name of the menu item on the Device dashboard which will initiate this write action. This field is only enabled with the Action Control Type.
    - o Value – Value to be written to the selected Attribute. This field is only enabled with the Action Control Type.
  - If the attribute is Modbus, then these fields will be defined:
    - o Register – Defines the Modbus register which will be updated on the device dashboard when a user defines a value to write to the device.
    - o Register Type – Defines the Modbus Register Type for the register to be updated.
    - o Register Length – Defines the Modbus Register Length for the register to be updated.

When these configurations are completed, the option for a user to use the writable action is on the device Real-time Monitoring Data graph. If the Control Type is set to Action, there will be dropdown list next to the attribute in the Actions column with the Writable Parameters options defined for the attribute. Choose the item from the list to initiate the set value controls for devices. If the Control Type is set to Text Input, the Value field will be enabled for user input to define the value for the Attribute.

Note: Users must have Control rights to the device in order to have access to the Actions menu and the Text Input features on this dashboard.

16.2.3.2. Triggers Tab

The initial view presented when the Triggers Tab is selected is a list of triggers configured for the monitoring template.

List Column	
Trigger Name	Trigger Name is also a link to the trigger's configuration form.
Severity	Displays the alarm level for the trigger.
Rules	Displays the rule details.
Status	Displays if the trigger is on or off.
User List Buttons	
New	New opens form to create a trigger.
Delete	Remove the selected trigger from the monitoring template.

16.2.3.2.1. New Trigger Form

The New Trigger form allows users to add triggers that can contain complex rules for generating alarms. The form contains fields and a rules generator.

Fields	Description
Name	Sets the name of the trigger.
Severity	Set the level of the alarm to Critical, Warning, Minor or Information.
Type	Because this new trigger is created in the template the type is automatically set to Template.
Min Time On (s)	Sets the minimum time that a condition(s) must exist to trigger the alarm.
Min Time Off (s)	Sets the minimum time that a condition(s) is in a normal state before changing the status back to normal.
Rules	Rule building area: - Select a monitored attribute from the first pull-down menu

	- Select the operation from the pull-down menu (equal to, does not equal, greater than, less than, greater than or equal to, less than or equal to or between)
	- Enter a value that works with the operation to evaluate the incoming monitored data point value
	- Use AND and OR to add more conditions to the rule
Description	User defined description of the rule.
Status	Displays if the trigger is on or off.
Buttons	**Description**
New	New opens a form to create a trigger.
Submit	If any form fields are edited or new data has been added the Submit button becomes active and is used to add a new trigger or update the existing form.
Submit & New	Increases efficiency when adding a number of triggers sequentially by adding a new trigger with existing values and presenting a blank new form.

16.2.3.3. Graphs Tab

The initial view presented when the Graphs Tab is selected is a list of graphs configured for the monitoring template.

List Column	
Name	Name is also a link to the graph's configuration form.
Type	Displays the type of graph.
Components	Displays the number of components in the graph.
Description	Displays the user defined description.
Last Updated By	Displays the name of the user that last updated the graph.
Last Updated	Displays the date of the last update.
User List Buttons	
New	New opens form to create a new graph.
Delete	Remove the selected graph from the monitoring template.

16.2.3.3.1. New Graphs Form

The New Graphs form allows users to configure new graphs that can contain multiple graphic components for displaying monitored data points. The form contains fields and a graphic display area. The graphic display area will show various counters and gauges as defined in the Graph Component Wizard.

Fields	**Description**
Name	Sets the name of the graph.
Type	The Type indicates at what level the graph was created. Options include Specific Devices and Template.
Monitoring Template	Identifies the monitoring template where this graph will be included.
Description	User defined description.
Buttons	**Description**
Preview	Previews the current graph.
Clear	Removes all the graph components.
Add Component	Initiates a Graph Component Wizard. (see below)

16.2.3.3.1.1. Add Graph Component Wizard

The user clicks on the Add Component button and wizard prompts the user to select the monitored attribute to be represented by a graph component. **Note:** Only select more than one attribute if they are going to be shown in a trend chart.

In the next window:

- Select an attribute to be represented by the graphic
- From Show as select gauge, graph, table, string or capacity thermometer for the graphic
- Enter a Label for the graphic
- Depending on the graphic selected there may be other options:
    - o The gauge requires a minimum and maximum value
    - o The trend chart requires a time block
    - o The thermometer requires a minimum and maximum
- Click Submit and the component is added to the graphic display area

16.2.3.3.2. Managing the Graphic Display Area

The component positioning and size can be modified in the graphic display area. Each component contains icons for setting position and size.

- A) Click and drag the cross hairs icon to move the component to a new position
- B) Click the edit icon modify the component configuration
- C) Click the trashcan icon to remove the component
- D) Click the light gray triangle in the lower right corner of the component window and drag to resize
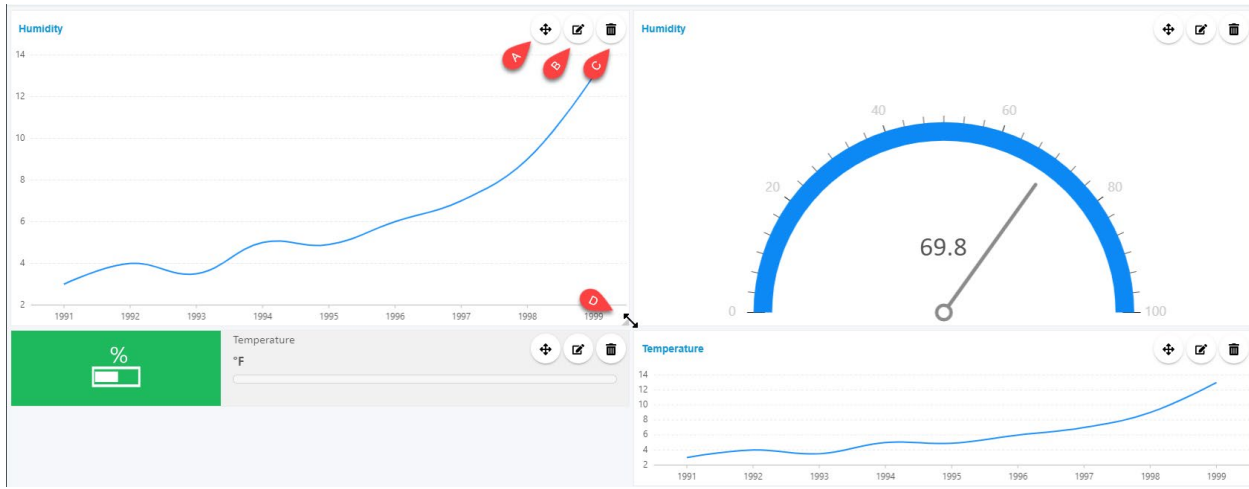
16.2.3.4. Applied Rules Tab

The initial view presented when the Applied Rules Tab is selected is a summary of where the monitoring template will be applied.

The template can be applied at the Type, Product Line, Model and Device level.

Clicking on the **+** sign next to Types, Product Lines, Models and Devices displays a table list of the respective elements affected by the template.

This example shows the monitoring template is only applied at the devices level to 3 devices:

When the table list is displayed for either Type, Product Line, Model and Device, two buttons are now available:

- **Add** button opens a window listing all of the elements of that kind in the system. Here the user can use the check boxes to select the elements. Submit adds the selected items to the monitoring template and Close exits without adding.

- **Remove** button deletes the selected elements from the monitoring template.

16.3. Triggers Menu Item

The initial view presented when the Triggers Menu Item is selected is a list of triggers in the system.

List Column	
Trigger Name	Trigger Name is also a link to the trigger's configuration form.
Severity	Displays the alarm level for the trigger.
Type	Displays the trigger's type which can be Template, Rack Group, Device or Location.
Trigger Source	Displays the specific source where the trigger is applied.
Status	Displays if the trigger is on or off.
User List Buttons	
New	New opens form to create a trigger.
Delete	Remove the selected trigger from the system.

16.3.1. New Trigger Form

The Trigger form allows users to add triggers that can contain complex rules for generating alarms. The form contains fields and a rules generator.

Fields	Description
Name	Sets the name of the trigger.
Severity	Set the level of the alarm to Critical, Warning, Minor or Information.
Type	Set the trigger's type which can be Template, Rack Group, Device or Location.
Min Time On (s)	Sets the minimum time that a condition(s) must exist to trigger the alarm.
Min Time Off (s)	Sets the minimum time that a condition(s) is in a normal state before changing the status back to normal.
Rules	Rule building area where the user can define complex conditions see the Rule Building section.
Description	User defined description of the trigger.

Status	Displays if the trigger is on or off.
Buttons	**Description**
New	New opens a form to create a trigger.
Submit	If any form fields are edited or new data has been added the Submit button becomes active and is used to add a new trigger or update the existing form.
Submit & New	Increases efficiency when adding a number of triggers sequentially by adding a new trigger with existing values and presenting a blank new form.

16.3.1.1. Rule Building

Building rules in the trigger is done in the rule building area.

- The user will build a condition statement using one or more phrases
- A phrase consists of a monitored attribute, an operation and a value for evaluation
- The phrases are strung together with AND and OR to define the exact condition that should trigger an alarm
- The condition statement can have multiple groupings of phrases for alternative complex conditions.

The graphic below illustrates the following steps for creating a rule:

1. Select a monitored attribute from the list.
2. Choose an operation. The options are:
   a. equal to
   b. does not equal
   c. greater than
   d. less than
   e. greater than or equal to
   f. less than or equal to
   g. between
   h. percent comparison allows users to compare two attributes and trigger when the percentage meets the defined criteria.
3. Enter a value that works with the operation to evaluate the incoming monitored data point value.
4. The unit information is automatically inherited from the selected monitored attribute.
5. Define the relationship between the current phrase and the next phrase with AND or OR.
6. Use X to remove a phrase.
7. "All of those conditions must be met" - identifies the first grouping of phrases in the rule.
8. The OR button at the top of the rule building area adds an either/or function and the text "OR all of these conditions must be met" between the first grouping of phrases and the next.

16.4. Actions Menu Item

The initial view presented when the Action Menu Item is selected is a list of actions in the system.

List Column	
Action Name	Action Name is also a link to the actions's configuration form.
Conditions	Displays the source conditions for the action.
Operations	Displays the operations within the action.
Status	Displays if the action is on or off.
User List Buttons	
New	New opens form to create a trigger.
Delete	Remove the selected trigger from the system.

16.4.1. New Action Form - Notification Detail

The Action form allows users to add actions that can contain complex conditions for implementing an action such as an email notification. The form contains fields and a conditions generator.

Fields	Description
Name	Sets the name of the action.
Source	Allows user to define if the Action is based on a Trigger or an Event in the Calendar.
Conditions	Condition building area where the user can define complex conditions, see the Condition Building section.
Default step duration	Sets the default step time in minutes. The default is applied to each of the Operations. **Note**: This option is only visible when the Source is Trigger.
Buttons	Description
New	New opens a form to create a action.
Submit	If any form fields are edited or new data has been added the Submit button becomes active and is used to add a new action or update the existing form.

16.4.1.1. Condition Building

Building conditions in the action is done in the conditions building area.

- The user will build a condition statement using one or more phrases
- A phrase consists of level, an operation and a corresponding level item
- The phrases are strung together with AND and OR to define the exact condition that should prompt an action
- The condition statement can have multiple groupings of phrases for alternative complex conditions.

The graphic below illustrates the following steps for creating a rule:

1. Select a level from the list: Template, Trigger or Trigger Severity .
2. Choose an operation. The options are:
    a. is
    b. is not
3. Select an item
    a. If Template is selected, then the list of templates in the system is shown
    b. If Trigger is selected, then a list of triggers in the system is shown
    c. If Trigger Severity is selected, then the list of alarm levels is shown
4. Define the relationship between the current phrase and the next phrase with AND or OR.
5. Use X to remove a phrase.
6. "All of those conditions must be met" - identifies the first grouping of phrases in the rule.
7. The OR button at the top of the rule building area ads and either/or function and the text "OR all of these conditions must be met" between the first grouping of phrases and the next .

16.4.1.2. Event Based Actions

When the Source of the Action is set to Event, users will be presented with a list of Calendar events which will initiate the Operations defined in the rule.

16.4.1.3. Operations Tab

The initial view presented when the Operations Tab is selected is a list of operations in the action.

List Column	
Step	Displays the step number.
Operation Type	Displays the type of operation.
Detail	Displays the details of the operation.
Start In	Displays at what point after the conditions are met the operation will be initiated.
Duration	Displays the length of time for the operation.
Action	Clicking the pencil icon opens the operation's form for editing.
User List Buttons	
New	New opens form to create an action.
Delete	Remove the selected action from the system.

16.4.1.3.1. New Operation Form

The New Operation form allows users to add operations that can send notification messages or traps.

Fields	Description
Step	Sets the step range for the operation.
Step Duration	Set the length of the step, in minutes.
Operation Type	Sets the Operation Type to Send Message, Custom Scripts, Forward Alarm, Forward Trap or Virtual Device Command*.
Send to User Groups	Set the user groups to receive the notification message from the drop-down menu. Use the ⊕ to add more user groups or the ✖ to delete a user group.
Send to Users	Set the users to receive the notification from the drop-down menu. Select email or SMS for message delivery mechanism. Use the ⊕ to add more users or the ✖ to delete a user. **Note:** Users can control their message delivery in the Personal Menu > Personal Settings > Notification Settings.
Use Default Message	Check box is currently on by default and cannot be changed.
Subject	Displays message subject variables.
Message	Displays message content variables.
Destination Host	If Send Trap is selected, sets trap destination host IP address.
Destination Port	If Send Trap is selected, set trap destination port on host.
Buttons	**Description**
Save	Saves the settings or changes.
Cancel	Closes the form without saving any changes.

#	Commands	Rules
1	Guest – Power On	Only a power off/suspend/shutdown guest can be powered on
2	Guest – Power Off	Only a power on/suspend guest can be powered off
3	Guest – Suspend	Only a power on guest can be suspended
4	Guest – Shutdown	Only a power on guest with VMtool running can be shutdown
5	Guest - Migrate	A guest can only be migrated in the same cluster
6	Host - Shutdown	Only a host which has no vCenter installed and no VDC installed can be shutdown
7	Host - Shutdown VMs Then Host	All guests are shutdown at the same time, after all guests are shutdown, the host will be shutdown. If there are any errors on guests, it will skip this error and continue shutdown the host.
8	Host - Enter Maintenance Mode	Only a power on host with all vms power off can enter maintenance mode
9	Host - Exit Maintenance Mode	Only a maintenance mode host can enter maintenance mode
10	Host - Enter Maintenance Mode Then Shutdown	If there are any errors enter maintenance mode, the action will be ended with error
11	Host - Enter Standby Mode	
12	Host - Exit Standby Mode	
13	Cluster - Shutdown	Shutdown cluster will shutdown all guests in the cluster first, then hosts. All guests will be shutdown at the same time. Users can add priority for VMs shutdown in the cluster by creating Configuration Group.

Additional Virtual Command Notes:

- If a guest/host has vCenter/VDC installed, the commands will not be executed.
- If there are more than 1 VM is selected for a guest operation, the commands will be executed on the VMs at the same time. Any errors occur on single VM will not affect other VMs.
- If there are more than 1 host is selected for a host operation, the commands will be executed on the hosts at the same time. Any errors occur on single host will not affect other VMs.
- Per Shutdown VMs Then Host, if there are any errors occur on shutdown VMs, then the action will be ended with error. The host will be shutdown.
- Per Enter Maintenance Mode Then Shutdown, if there are any errors occur on enter maintenance mode, then the action will be ended with error. The host will be shutdown.
- Each command has a timeout set by users, the result will be timeout if there are no results back after the timeout time.
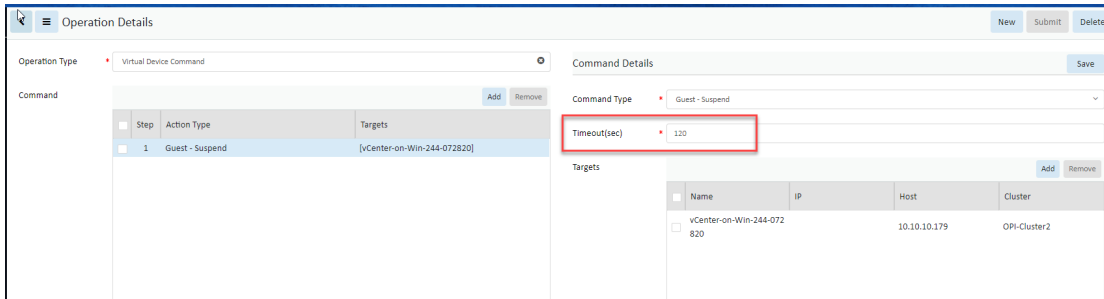
- The Priority allows users to add configuration groups for Cluster – Shutdown to shutdown VMs by order. If Priority is empty, then all VMs in the cluster will be shutdown at the same time.
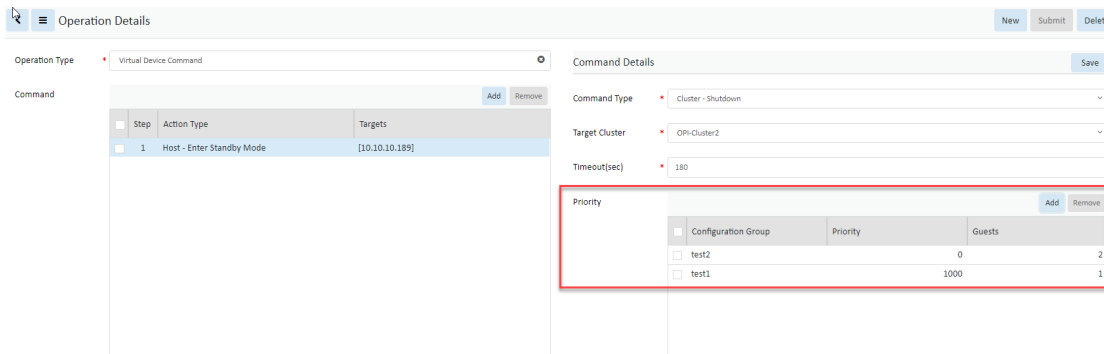
- Only guests can be added in configuration groups. A guest can be added in multiple groups and the highest priority will be used in this case. Priority value is smaller, the priority is higher. Priority=0 means VDC cannot shutdown the VMs in the group.
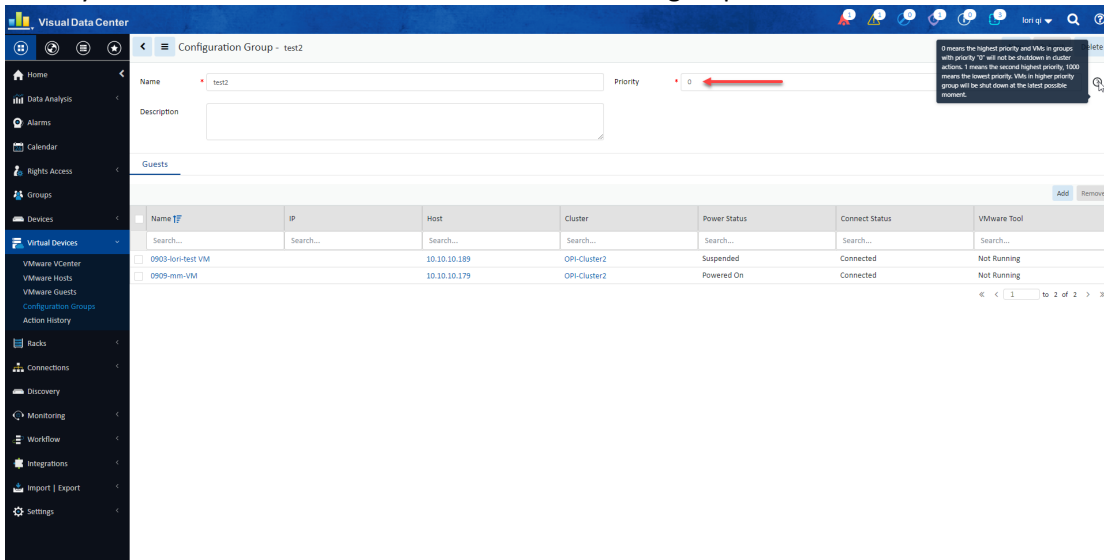
- It supports Linkage control in actions. Users can add more than 1 command in an operation and the commands will be executed by the steps.

16.4.1.4. Recovery Operations Tab

The initial view presented when the Recovery Operations Tab is selected is a list of operations in the recovery operation. Recovery operations occur when alarm conditions return to normal.

List Column	
Operation Type	Displays the type of operation.
Detail	Displays the details of the operation.
Action	Clicking the pencil icon opens the operation's form for editing.
User List Buttons	
New	New opens form to create an action.
Delete	Remove the selected action from the system.

16.4.1.4.1. New Recovery Operation Form

The New Recovery Operation form allows users to add recovery operations that can send notification messages or traps.

Fields	Description
Operation Type	Sets the Operation Type to Send Message, Custom Scripts, Forward Alarm, Forward Trap, or Notify all involved.
Send to User Groups	Set the user groups to receive the notification message from the drop-down menu. Use the ⊕ to add more user groups or the ✖ to delete a user group.
Send to Users	Set the users to receive the notification from the drop-down menu. Select email or SMS for message delivery mechanism. Use the ⊕ to add more users or the ✖ to delete a user. **Note:** Users can control their message delivery in the Personal Menu > Personal Settings > Notification Settings.
Use Default Message	Check box is currently on by default and cannot be changed.
Subject	Displays message subject variables.
Message	Displays message content variables.
Destination Host	If Send Trap is selected, sets trap destination host IP address.
Destination Port	If Send Trap is selected, set trap destination port on host.
Buttons	**Description**
Save	Saves the settings or changes.
Cancel	Closes the form without saving any changes.

16.4.1.5. Applied Rules Tab

The initial view presented when the Applied Rules Tab is selected is a summary of where the action will be applied.

The action can be applied at the Type, Product Line, Model and Device level.

Clicking on the **+** sign next to Types, Product Lines, Models and Devices displays a table list of the respective elements affected by the action.

This example shows the action is only applied at the devices level to 3 devices:

When the table list is displayed for either Type, Product Line, Model and Device, two buttons are now available:

- **Add** button opens a window listing all of the elements of that kind in the system. Here the user can use the check boxes to select the elements. Submit adds the selected items to the monitoring template and Close exits without adding.

- **Remove** button deletes the selected elements from the monitoring template.

16.5. Traps Menu Item

Displays all the Trap Matched and Trap Unmatched events for all devices in the specified date range.

List Column	
Date	Displays the date of the event. In the filter row the date range can be specified. The default is today's date.
Event	Displays the type of event. Trap Matched or Trap Unmatched.
Description	Displays details for the event.

16.6. Probes Menu Item

The initial view presented when the Probes Menu Item is selected is a list of probes in the system.

List Column	
Probe	Probe name is also a link to the probe's form.
Status	Displays the probe's current status.
IP Address	Displays the probe's IP address.
Running Time	Displays the length of time the probe has been running.
Device Count	Displays the number of devices configured for the probe.
Active Devices	Displays the number of devices actively being monitored.
Thread Count	Displays total thread count.
Active Threads	Displays number of active threads.

16.6.1. Probe Form

The Probe form displays configuration information for the probe and allows users to remove devices from the probe. The probe is configured during installation and the fields are read only.

Fields	Description

Probe	Displays probe name.
Status	Displays the probe's current status.
IP Address	Displays the probe's IP address.
Running Time	Displays the length of time the probe has been running.
Device Count	Displays the number of devices configured for the probe.
Active Devices	Displays the number of devices actively being monitored.
Thread Count	Displays total thread count.
Active Threads	Displays number of active threads.
Buttons	**Description**
Remove	Removes selected device from list and turns off monitoring at the device.
List Column	
Device	Device name is also a link to the device form.
Last status	Displays status at last probe interval.
Probe Attempts	Displays the number of probe attempts to contact device.
Probe Success	Displays the number of successful probe attempts.
Recent Missed	Displays the number of times the device did not respond in the past hour.
Missed Count	Displays total failed probe attempts.
Interval (ms)(Avg/Max/Min)	Displays the average, maximum and minimum probe interval in milliseconds.
Response (ms) (Avg/Max/Min)	Displays the average, maximum and minimum response from devices in milliseconds.

16.7. Data Mapping Menu Item

The Data Mapping feature allows you to map the monitored data points from one device (the From Device) to another (the To Device).

For Example:

- A rack does not typically have any way to monitor its temperature directly.
- A sensor mounted on the rack would indicate the rack's temperature (the sensor is the From Device).
- Data Mapping allows the user to map the temperature from the sensor to a temperature attribute on the rack (the rack is the To Device).
- Then when the rack is viewed it has a temperature value.

16.7.1. Before Data Mapping

Before you can map data between devices both devices must have associated monitoring templates.

- **From Device:** The device that has actual data points that can be monitored would have a normal monitoring template.
- **To Device:** The device that will indirectly receive the monitored data will also need a monitoring template.
  - o The template for the To Device will identify the monitored attributes but the Data Type will be set to Data Mapping.

Attribute ⬆⬇	Alias	Data Type	Monitor Type
Search...	Search...	Search...	Search...
☐ Humidity		Scalar	Data Mapping
☐ Temperature		Scalar	Data Mapping

    o   The Monitor Configuration for the device should have the monitoring template status set to active.

	Template Name ⬆⬇	Attributes	Triggers	Template Source	Graphs	Last Updated By	Last Updated	Status
	Search...	Search...	Search...	Search...	Search...	Search...		
☐	Rack Kelly	2	0	Device: Rack015	0	kelly	2019-02-12 14:51:00 EST	🔵

    o   After Mapping the device's Real-time Monitoring Data will show the mapped attributes and identify the Data Source as the From Device [Monitoring Template: Monitored Attribute]. In the image below the *To Device* is Rack015 and the *From Device* is CRAC001 using monitoring template Tampa Backnet and monitored attribute Temperature.

◀ ≡ Devices - Rack015									

Basic Information   Submit

Item	Value
▼ Device	
Name	Rack015
UUID	0baaebf0-f1b9-419c-ba58-e17516c23962
Type	Rack
Manufacturer	Wright Line
Product Line	Paramount Enclosures
Model	44U-2442
Lifecycle	Available ✕
Asset Tag	
Serial Number	

Rack Manager | Alarm History | Monitor | Attributes | Graphs | Ports | Calendar | Applications | Images
Groups | Capacity | Mounted Devices

Real-time Monitoring Data

▼ All

Actions	Attribute ⬆⬇	Data Source	Value	Unit	Last Updated
	Search...	Search...	Search...	Search...	Start dat
📊	Humidity	CRAC001[Tampa Bacnet : Humidity]	66.00	%	2019-02-12 16
📊	Temperature	CRAC001[Tampa Bacnet : Temperature]	66.00	°F	2019-02-12 16

16.7.2. Data Mapping Steps

The initial view presented when selecting the Data Mapping Menu Item is the work area for mapping From Devices to To Devices and the list of Mapped Data attributes in the system.

1. Select the From Device from the list of all devices
    a. The list of monitored attributes in the device's monitoring template is shown
2. Select the To Device from the list of all devices
    a. The list of data mapping attributes from the device's monitoring template is shown
3. For the From Device check the attribute that will provide information
4. For the To Device check the attribute that will receive information
5. Click Submit to map
6. The mapped information is added to the Mapped Data table list

List Column	
Device	From Device name and link to device's form.
Type	From Device type.
Model	From Device model.
Attribute	From Device attribute that is mapped to To Device.
Device	To Device name and link to the device's form.
Type	To Device type.
Model	To Device model.
Attribute	To Device attribute that is mapped to From Device.
Buttons	
Submit	Saves the attribute mapped From Device to To Device.
Delete	Deletes the selected row from the Mapped Data list and cancels the mapping.

16.8. MIB Browser Menu Item

A MIB is a formatted text file that lists all of the data objects used by a device. The file lists the OIDs (object identifiers) that correspond to specific data points. When configuring monitoring for a device using the SNMP protocol you must have the OIDs for the data points you wish to monitor.

The application has a self-contained MIB Browser that lets you view MIB files in the system and use them to SNMP walk a device to determine which OIDs to use.

The initial view presented when the MIB Browser Menu Item is selected is the SNMP connection configuration fields and a list of MIB files uploaded to the system.

Fields	Description
Probe	Allows the user to select the probe that will be used for the MIB walk.
Version	Allows the user to select the SNMP version to be used. Options are SNMP_VERSION_1, SNMP_VERSION_2C and SNMP_VERSION_3.
Security Level	Allows the user to select the SNMP Version 3 security level to be used. Options are noAuthNoPriv, authNoPrive and authPriv.
Auth Protocol	Allows the users to select the SNMP Version 3 authorization protocol. Options are MD5 or SHA.
Privacy Password	Display and enter the privacy password fpr SNMP Version 3.
IP Address	Display and enter the IP address of the device to be walked.
Protocol	Display and enter the select the protocol. Options are UDB or TCP.
Set Community	Display and enter the set community string.
Password	Display and enter the Password for SNMP Version 3.
Privacy Protocol	Display and enter privacy protocol for SNMP Version 3. Options are DES and AES.
Port	Display and enter the port for connecting to the device.
Get Community	Display and enter the get community string.
User Name	Display and enter the user name for SNMP Version 3.
Context	For SNMP Version 3.
Unit	Display and set the value to replace the unit variable in an OID.
Buttons	Description
Upload File	Used to upload MIB to the MIB Files list.
Delete	Deletes the selected MIB file from the list.
List Column	
File Name	MIB file name is also a link to the MIB's list of OIDs.
Description	Displays user defined description.
Create By	Displays the name of the user that uploaded the MIB.
Created	Displays the date the MIB file was uploaded.

16.8.1. SNMP Walk

An SNMP walk tests the connectivity to a device and helps determine which OIDs (object identifier) should be used to reach the desired data points for monitoring.

16.8.1.1. Uploading a MIB

Acquire a MIB for the device to be monitored. These can typically be found at the device manufacturer's web site. Upload the MIB to the application.

1. Click he Upload File button
2. Navigate to the MIB file
3. Click OK to upload and add the MIB to the list
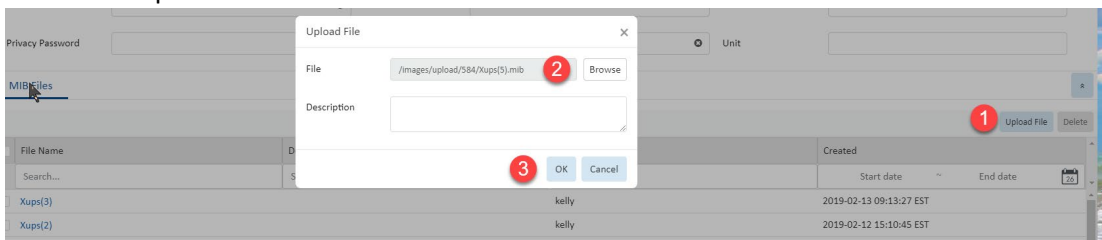
16.8.1.2. SNMP Walk Steps

Determine which SNMP protocol version is appropriate for your device and proceed.

1. Select the SNMP version
   a. If the device uses SNMP version 3 then you will also need information for all of the fields noted as specific to version 3 in the fields table above.
2. Enter the IP address for the device
3. Set the port number, by default it is the standard SNMP port of 161
4. Set the Get Community string, by default it is set to public
5. Click on the MIB name to be used and then select the desired MIB section
   a. The MIB is a hierarchy of folders with OIDs for various functions
   b. If you are unsure which one to select, select private to explore everything
6. Click on the Walk button to initiate the SNMP walk

7. The walk results are displayed in a table

Name/OID	Value	Type
.1.3.6.1.4.1.534.1.1.1.0	EATON	OctetString
.1.3.6.1.4.1.534.1.1.2.0	Eaton 5PX 1000	OctetString
.1.3.6.1.4.1.534.1.1.3.0	INV: 10	OctetString
.1.3.6.1.4.1.534.1.1.4.0	0	Integer
.1.3.6.1.4.1.534.1.2.1.0	2212	Integer
.1.3.6.1.4.1.534.1.2.2.0	52	Integer
.1.3.6.1.4.1.534.1.2.3.0	0	Integer
.1.3.6.1.4.1.534.1.2.4.0	100	Integer
.1.3.6.1.4.1.534.1.2.5.0	4	Integer
.1.3.6.1.4.1.534.1.2.6.0		OctetString
.1.3.6.1.4.1.534.1.3.1.0	599	Integer
.1.3.6.1.4.1.534.1.3.2.0	26	Counter32

17. Workflow Menu Group

The Workflow Menu Group provides important tools for users to create and manage projects and associated activities.

17.1. My Activity Menu Item

The My Activity Menu Item displays a series of tables showing the current user's open workflow assigned activities.

17.1.1. My Workflow Items

List of all workflow items assigned to the user.

Table List Column	
Status	Current status of the item for example, Pending Approval.
Project Name	Displays the name of the project to which the item belongs.
Project Number	Displays the number of the project to which the item belongs.
Name	Displays the name of the item to be acted upon.
Type	Displays the type of the item.

17.1.2. My Projects

List of projects created by the user.

Table List Column	
Name	Displays the name of the project.
Project Number	Displays the project number.
Status	Displays the current status of the project.
Tasks	Displays the number of tasks in the project.
Work Orders	Displays the number of work orders in the project.
Start Date	Displays the project start date.
End Date	Displays the project end date.

17.1.3. My Tasks

Lists of tasks assigned to user for approval.

Table List Column	
Name	Name of the task.
Task Status	Displays the task status.
Actions	Displays the number and kind of actions in the task.
Project Name	Displays the name of the project.
Project Number	Displays the project number.
Project Status	Displays the current status of the project.
Created Date	Displays the date the task was created.

17.1.4. My Work Orders

List of work orders assigned to the user.

Table List Column	
Work Order	Displays the name of the work order.
Work Order Number	Displays the work order number.
Status	Displays the current status of the work order.
Assigned To	Displays who is assigned to the work order.
Project Name	Displays the name of the project.
Project Number	Displays the project number.
Start Date	Displays the work order start date.

17.1.5. My Events

List of the events related to projects for the current user.

Table List Column	
Icon	Displays icon indicating the type of activity.
Level	Displays the level of the logged activity. Options include: Critical, Exception, Inactive, Info, Minor, Normal, Recovery, Unmonitored, Unreachable and Warning.
Date	Displays the date of the activity.
Category	Displays the category of the activity. Options include: Alarm, Device, Discovery, Graphs, Location, Monitor, Project, Service, System, User and Warranty. Here you will only see Project category items.
Event	Displays the project related event name. Examples are Project Approved, Task Created, etc.
Source	Display the name of the user who last updated the template.
Description	Displays the activity details.

17.2. Projects Menu Item

The Project feature is an asset-provisioning and management tool that lets project managers do the following:

- Create a project
- Provision the installing, moving, adding and decommissioning of devices
- Provision network and power cable connections
- Reserve space in racks and on the floor
- Create work orders that summarize the project components
- Send out project work orders

The Projects Menu Item displays a list of all the projects in the system. The table list contains the following fields:

Table List Column	
Name	Name of the project is also a link to open the Project form that contains the details for that project.
Project Number	Displays the number the user has assigned to the project.
Status	Displays the project status.
Tasks	Displays the number of tasks in the project.
Work Orders	Displays the number of pending and completed work orders.
Start Date	Displays the start date for the project.
End Date	Displays the end date for the project.
Created By	Displays the date the project was create.
Completion Date	Displays the date the final work order associated with the project is completed.
Table List Buttons	**Description**
New	Presents the form for creating a new project.
Delete	Deletes the selected project from the system.

17.2.1. New Project Form
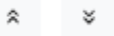
Selecting new presents the New Project form. The New Project form has static fields in the top section and once submitted it converts to the Project form.

Fields	Description
Project Name	Enter the name for the new project.
Project Number	Enter the number for the new project.
Owner	Select an owner from the list of existing owners. Owners are created in the rights access menu group, owner menu item.
Department	Select a department from the list of existing departments.
Start Date	Project start date.
End Date	Project end date.
Expired After End Date	Checking the box will cause the project to expire after its end date regardless of its status.
Table List Buttons	**Description**
New	Opens a form for creating a new project.
Submit	Saves the form's contents, creates the project and opens the project's form page.
Submit & New	Saves the form's content, creates the project and presents a new project form.

17.2.2. Project Form

Selecting an existing project presents the Project form. The Project form has static fields in the top section followed by tabs that present their own lists related to the project.

Fields	Description
Project Name	Enter the name for the new project.
Project Number	Enter the number for the new project.
Department	Select a department from the list of existing departments.
Start Date	Project start date.
End Date	Project end date.

Expired After End Date	Checking the box will cause the project to expire after its end date regardless of its status.
Table List Buttons	**Description**
New	Opens a form for creating a new project.
Approve	Approves the project.
Submit	Saves the changes to the project.
Submit for Approval	Submits the project for approval by specified users.
Delete	Deletes the current project.
⟰ ⟱	These buttons collapse and expand the upper area of the form to provide more space for the tables.

17.2.2.1. Tasks Tab

The initial view presented when the Tasks Tab is selected is a list of tasks for the current project and its actions. A task is a way to categorize actions. Actions types include installing a new device, installing an existing device, moving a device, decommissioning a device, adding a port connection and disconnecting a port. A task is a grouping of any combination of these types of actions.

Tasks are created from within a project. When you create a new task or open an existing task you enter the tasks feature page. For task feature details please refer to the Tasks Menu Item section of this document. For step-by-step instructions to add actions to a task start at the Add Actions to Tasks section of Steps for Creating and Completing a Project section of this document.

List Column	
Task	Task's name is also a link to the task's form.
Actions	Displays the type of each action in the task.
Details	Displays details about the action, device name, etc.
Device Type	Displays the device type.
Model	Displays the device model.
IP	Displays the device IP address.
Serial Number	Displays the device serial number.
Plan Result	Displays the destination planned for the device.
List Buttons	
New	New opens form to add a new task.
Delete	Removes the selected task from the list.

17.2.2.1.1. New Task Form
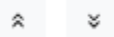
The New Task form allows users to create a new task. When the new task form is submitted the task form is opened. Please refer to the Task Form section of this document for additional details. For step-by-step instructions to create tasks start at the Create Tasks section of Steps for Creating and Completing a Project section of this document.

Fields	**Description**
Task	Enter a name for the task.
Project Name	Automatically filled with current project name.
Project Number	Automatically filled with current project number.

Buttons	Description
New	Opens a new task form.
Submit	Creates the new task with existing values in the form.
Submit & New	Increases efficiency when adding a number of tasks sequentially by adding a new task with existing values and presenting a blank new form.

17.2.2.2. Work Orders Tab

Work orders are generated after the project and actions are approved. For step-by-step instructions to create workorders start at the Create Work Order section of Steps for Creating and Completing a Project section of this document.

List Column	
Work Order	Work Order name is also a link to the work order's form. The type of the actions in the work order are also listed in this column under the work order name.
Work Order Number	Displays the automatically generated work order number.
Details	Displays details of the action, device name, etc.
Assigned To	Displays the username of the person assigned the action.
Escalate To	Displays the username of the person to whom the action will be escalated after the designated SLA days.
SLA (Days)	Displays the number of days to escalation for each action.
Status	Displays the status of the work order and each action.
Submit Time	Displays the start date and end date for the work order.
List Buttons	
New	New opens form to add a new work order.
Submit for Deploy	Submits the selected work order for deployment.
Start	Starts the SLA counter for the selected action.
Stop	Stops the SLA counter for the selected action.
Reject	Rejects the selected task and its actions or rejects the selected individual action.
Complete	Completes the selected task and its actions or rejects the selected individual action.
Delete	Deletes the selected item.
⌃ ⌄	These buttons collapse and expand the upper area of the form to provide more space for the tables.

17.2.2.3. Approvals Tab (Project)

The Approvals Tab displays the list of those users and/or user groups designated as approvers or watchers. The list of project approvers must be defined. A project must be approved before you can begin to plan the task actions.

For step-by-step instructions on how to define approves and approve projects start at the Define Project Approvers section of Steps for Creating and Completing a Project section of this document.

List Column	
Type	Displays if the record is for an approver or a watcher.
Category	Displays if the approver/watcher is an individual user or a user group.
Name	Displays the name of the user or user group.
Status	Displays "approved" next to the user or user group that approved the project.
Descriptions	Displays details about the approval.

List Buttons	
Add	Add opens the form to select approvers and watchers.
Delete	Deletes the selected approver/watcher from the approvals list.
⟰ ⟱	These buttons collapse and expand the upper area of the form to provide more space for the tables.

17.2.2.4. Comments Tab

The Comments Tab presents a list of comments posted labeled with the username and a time stamp. Comments cannot be edited or deleted.

17.3. Tasks Menu Item

The initial view presented when the Tasks Menu Item is selected is a list of all the tasks for all the projects in the system. Tasks are created from within a project on the tasks tab.

List Column	
Task	Task's name is also a link to the task's form.
Task Status	Displays the status of the task.
Actions	Displays a list of the action types in the task with the number of each of those types.
Project Name	Displays the name of the task's associated project. The project name is also a link to open the Project form that contains the details for that project.
Project Number	Displays the number assigned to the project.
Project Status	Displays the project status.
Created By	Displays the name of the user that created the project.
Created Date	Displays the date that the project was created.

17.3.1. Task Form

The Task Form is where users can add actions, approvals and comments to the task.

Fields	Description
Task	Displays task name.
Project Name	Displays current project name.
Project Number	Displays current project number.
Buttons	Description
New	Opens a new task form.
Submit	Saves changes to the existing form.
Delete	Deletes the selected task.

17.3.1.1. Actions Tab

The Actions Tab is where users can add actions to a task. For step-by-step instructions to add actions to tasks start at the Add Actions to Tasks section of Steps for Creating and Completing a Project section of this document.

List Column	
Action	Displays the type of action.
Details	Displays details about the action, device name, etc.
Device Type	Displays the device type.
Model	Displays the device model.
IP	Displays the device IP address.
Serial Number	Displays the device serial number.
Plan Result	Displays the destination planned for the device.
List Buttons	
Add Action	Opens form to add new action.
Import	Opens browser to select file for import.
Export	Exports the task's action list to a spreadsheet
Delete	Removes the selected action from the list.

17.3.1.1.1. Add Action Button: Manage Devices

Click on the Add Action button and select Manage Devices:

- Action Type: Install New Device presents the list of models.
  - Select model checkbox, enter quantity and name for device and click submit to add action.
- Action Type: Install Existing Device presents a list of existing available devices.
  - Select device checkbox and click submit to add action.
- Action Type: Move Device presents a list of existing operational devices.
  - Select device checkbox and click submit to add action.
- Action Type: Decommission Device presents a list of existing available and operational devices.
  - Select device checkbox and click submit to add action.

17.3.1.1.2. Add Action Button: Port Connect

When users Click on the Add Action button and select Port Connect, the Port Mapping feature is presented, and cable connections can be specified. For port mapping details please see the Port Mapping Menu Item section under the Connections menu group.

Note: When creating a port connect within a task action the only available option is the Reserve button to reserve the ports.

17.3.1.1.3. Add Action Button: Port Disconnect

When users Click on the Add Action button and select Port Disconnect, the Cables list is presented, and cable connections can be disconnected.

For cable management details please see the Cables Menu Item section under the Connections menu group.

17.3.1.2. Approvals Tab (Task)

The list of those who can approve the task and those designated for escalation if the approver fails to approve in the designated SLA (Days) time frame. For step-by-step instructions to approve tasks start at the Define the Task Approvers section of Steps for Creating and Completing a Project section of this document.

List Column	
Assigned To	Displays the username of the person assigned to approve the task.
Escalate To	Displays the username of the person to whom the task approval will be escalated after the designated SLA days.
SLA (Days)	Displays the number of days to escalation of the task approval.
Status	Displays the status of the approval.
On Time	Displays if the approval is on time or not.
Descriptions	Displays the associated descriptions.
List Buttons	
Add	Opens the Add Approvals form where the user can select who is assigned to approve the task, whom the approval is escalated to and the number of SLA (Days) to escalation .
Delete	Removes the selected approver or watcher from the list.

17.3.1.3. Comments Tab

The Comments Tab presents a list of comments posted labeled with the username and a time stamp. Comments cannot be edited or deleted.

17.4. Steps for Creating and Completing a Project
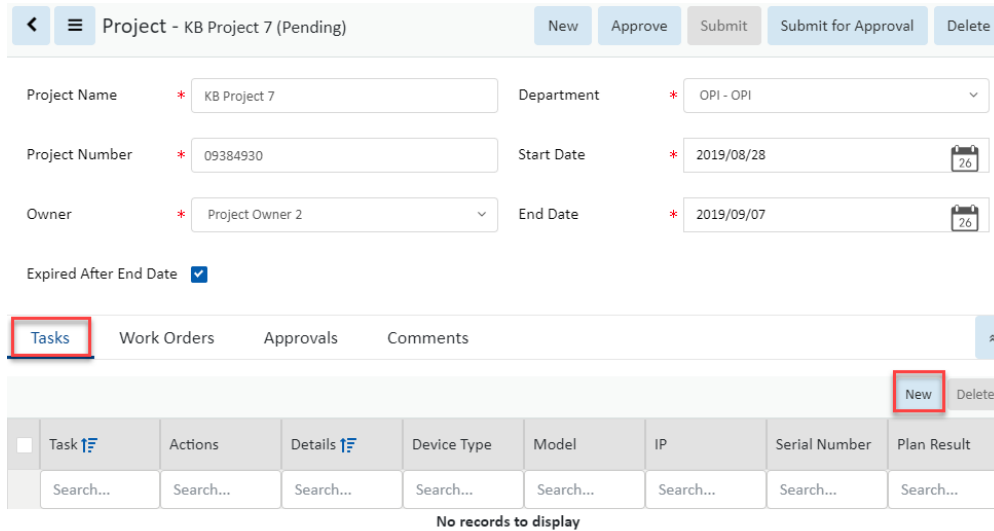
17.4.1. Create Project

1. From the Workflow Menu Group select the Projects Menu Item
2. Click on the New button

3. Fill out the New Project form and Click the Submit button

17.4.2. Create Tasks

1. In the Project form select the Tasks tab
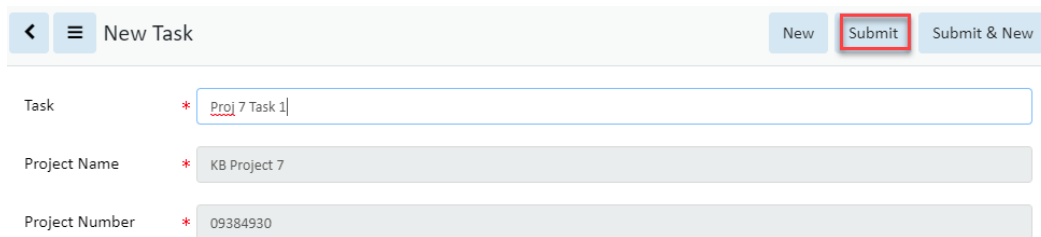
2. Click on the New button above the tasks table list
3. Fill out the New Task form and Click the Submit button
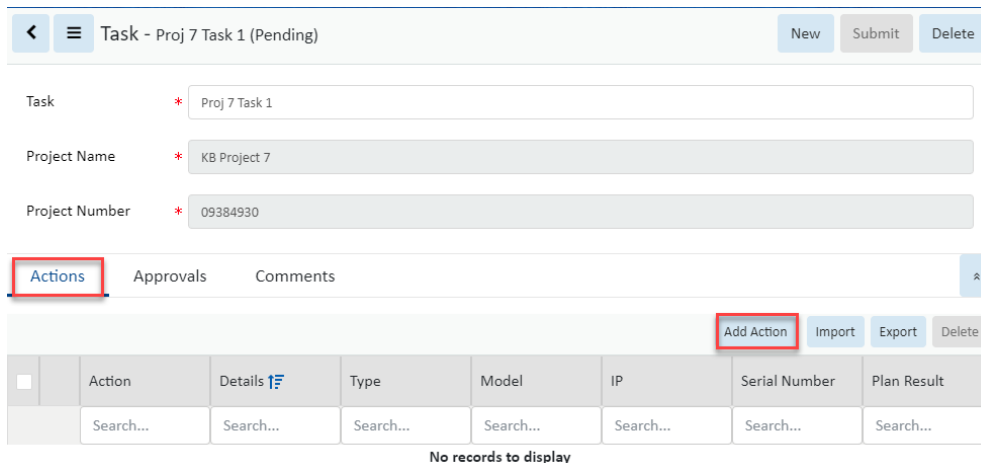
17.4.3. Add Actions to Tasks

1. In the Task form select the Actions tab
2. Click on the Add Action button above the actions table list

3. Select type of action to add then specify the details in the subsequent window
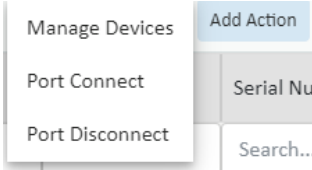
a. Add Action - Manage Devices - Install New Device
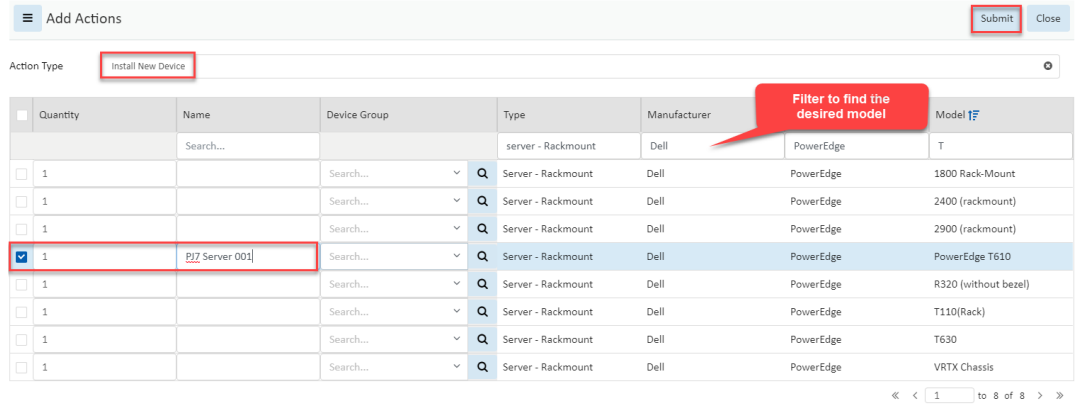
   i. Set the Action Type to Install New Device
   ii. Filter the models list to locate and select the model for the device to be installed
   iii. Enter a name for the new device (if the quantity is greater than 1 each subsequent device will have a number appended to the name)
   iv. Click the Submit button to add the action to the task

b. Add Action - Manage Devices - Install Existing Device
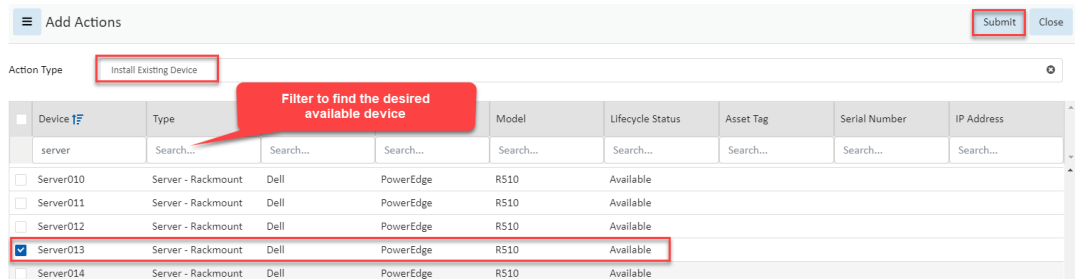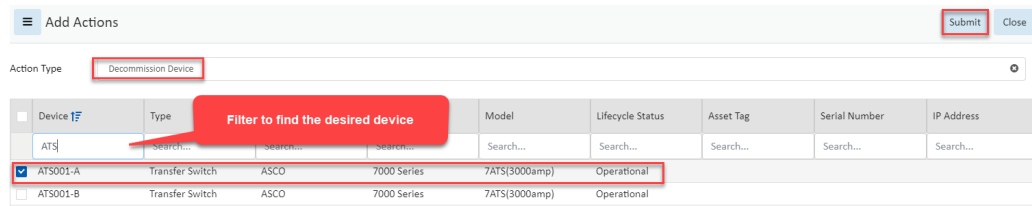
   i. Set the Action Type to Install Existing Device
   ii. Filter the device list to locate and select the device to be installed
   iii. Click the Submit button to add the action to the task

c. Add Action - Manage Devices - Move Device
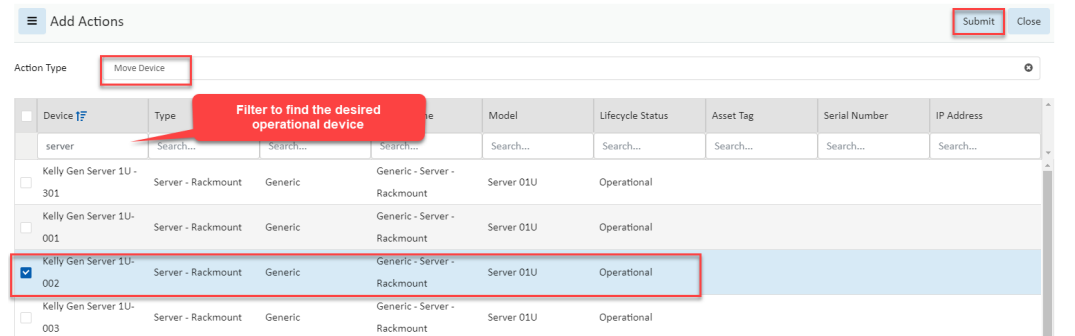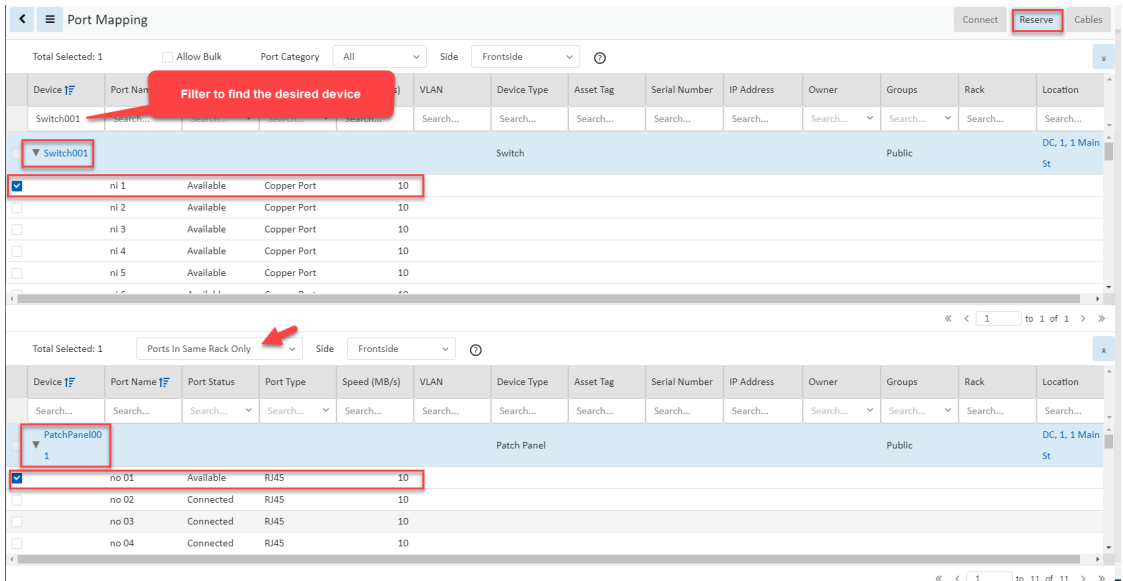
   i. Set the Action Type to Move Device

ii.   Filter the device list to locate and select the device to be moved

iii.   Click the Submit button to add the action to the task

d.   Add Action - Manage Devices - Decommission Device

i.   Set the Action Type to Decommission Device

ii.   Filter the device list to locate the device to be decommissioned

iii.   Click the Submit button to add the action to the task

e.   Add Action - Port Connect to create power and network connections between devices
Opens the Port Mapping page with only the Reserve button active. For more details on all the port mapping options go to the Port Mapping Menu Item section of this document.

i.   In the upper table, filter to find the desired source device

ii.   Click the triangle by the device name to expand and show the device ports

iii.   Check the box next to the port to be connected

iv.   The lower table will automatically list the devices with appropriate ports in the same rack as the device in the upper table

   1.   The user can change the lower table list to show Ports in Same Area Only, Ports in Same Floor Only or All Locations

v.   Click the triangle by the destination device name to expand and show the device ports

vi.   Check the box next to an available port

vii.   Click on the Reserve button on the upper right of the page

viii.   A New Cables window will open listing the cables/connections to be reserved, add or change information in the fields, confirm that all are correct and Click the Submit button add the action to the task

f. Add Action - Port Disconnect to disconnect existing port connections from the cables list

i. Filter to find the desired cable connection
ii. Check the box next to the cable to be disconnected
iii. Click the Disconnect button to add the action to the task
iv. Click the Back To Project Button to return to the project

17.4.4. Define Project Approvers

1. On the project page select the Approvals tab

2. Click on the Add button

3. Click the check box to select users who will be approving the project
4. Click the Submit button to add the selected users to the project approvals list
   Submit Project for Approval

17.4.5. Submit the Project for Approval

1. On the project page Click the Submit for Approval button
   c. The project status changes to Pending Approval
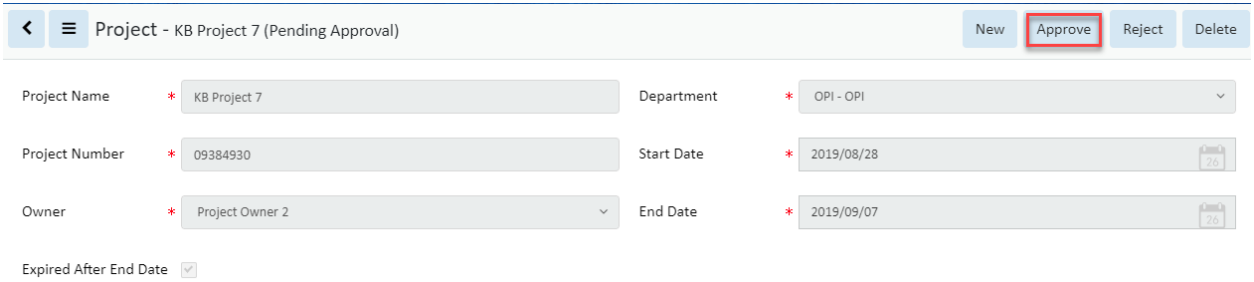
17.4.6. Approve Project

The project pending approval is now listed in the My Workflow Items on the My Activity page for each user designated for approvals.

1. Click on the project name to open the project page
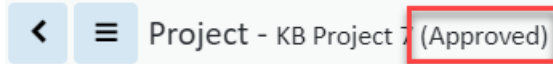
2. Click on the Approve button to approve the project
   a. The project status is changed to Approved
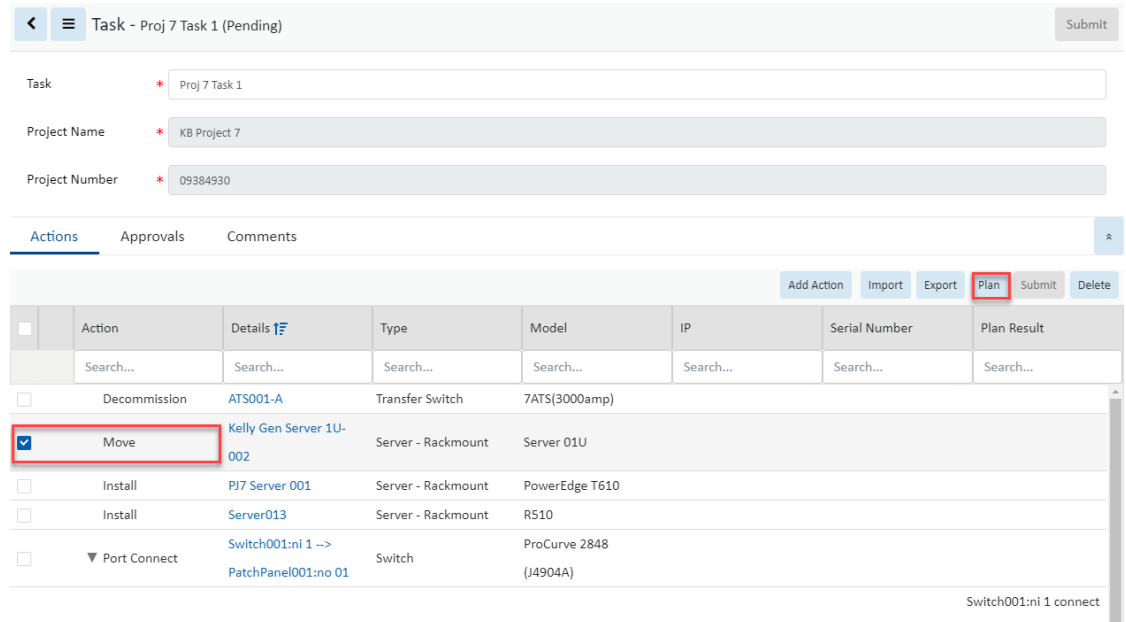
   b. **Note:** If additional actions are added after project has been approved the project status will change back to pending.

17.4.7. Plan the Actions

Actions to move or install devices require planning before they can be submitted. The planning activity determines the device's destination. The plan window allows users to specify destination criteria and the system will find a location. Once the system location is found the user can manually edit the plan if another location is desired.

Note: The space utilized by a blanking panel may or may not be considered available depending on the value of the attribute U Blocker.

1. From within a project Select a task's name to open the task.
   a. The task opens with the actions tab selected and the list of actions visible.

2. Check the box next to an action. If the action needs to be planned before submitting the Plan button is visible.
3. Click the Plan button
4. Configure the plan window to identify where the device in the action should be placed. The system will find a spot for the device within the designated destination.

a. If port connections will be involved, specify the ports needed
b. Select one of the 5 options for the destination type
    i. When Location is selected the user can select the building, floor or area
    ii. When Rack Group is selected the user can select the group
    iii. When Rack Row is selected the user can select the row
    iv. When Enclosure is selected the user can select the enclosure
c. Select the destination subset
5. Click the Save button

	Action	Details ↑⇅	Type	Model	IP	Serial Number	Plan Result
	Search...	Search...	Search...	Search...	Search...	Search...	Search...
☐	Decommission	ATS001-A	Transfer Switch	7ATS(3000amp)			
☐	▼ Move	Kelly Gen Server 1U-002	Server - Rackmount	Server 01U			Details... ✗
☐	Install Equipment						Kelly Gen Server 1U-002 install to Jarrett - Rack071 Rack U: 13.0

a. When the plan is complete (Operation Successful) the location is shown in the Plan Result column

6. Click on the Details link to manually set the destination

7. Check the box next to the destination and select the U Position from the available pull-down
8. Click Submit to save the selection
9. Click Close to return to the task
10. Continue planning until all of the actions that require planning are completed.

17.4.8. Submit the Actions

Once actions are planned, they can be submitted to the task for eventual task approval.

1. Check the box by each action and Click the Submit button

a. Actions will have a flag icon indicating that they have been submitted

17.4.9. Define the Task Approvers

Individual tasks within the project need to be approved but first the approvers for each task need to be selected.

1. From within a task Select the Approvals tab
2. Click the Add button
3. Click on the Assigned To pull-down menu to select a user or user group for approval
4. Click on the Escalate To pull-down menu to select a user or user group if the approval needs escalation
5. Set the number of SLA (Days) for the escalation
6. Click the Save button

17.4.10. Submit Task for Approval

Once the approvers have been selected the Submit for Approval button is available on the task.
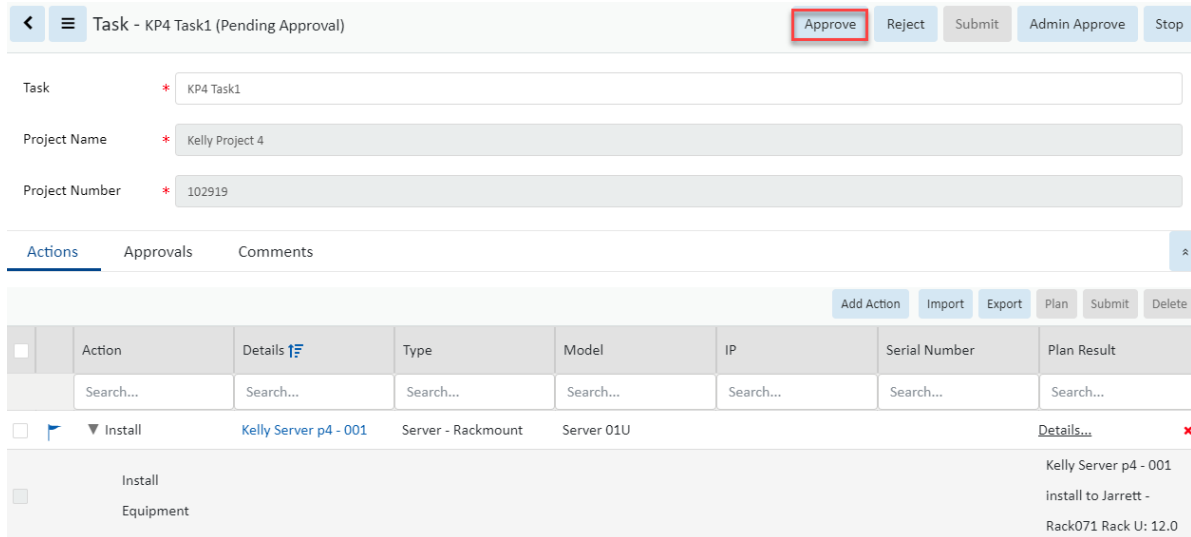
1. From within the task Click the Submit for Approval button
   a. If the current user is a member of the Administrators user group the Admin Approve button is available.
   b. The Admin Approve button approves the task immediately

17.4.11. Approve Task

The tasks pending approval are now listed in the My Workflow Items for the project creator on the My Activity page. The task approvers will have the tasks pending approval in their My Tasks list on their My Activity page.

1. From the My Activity page list Click the Task Name to open the task

2. Click on the Approve button
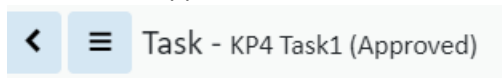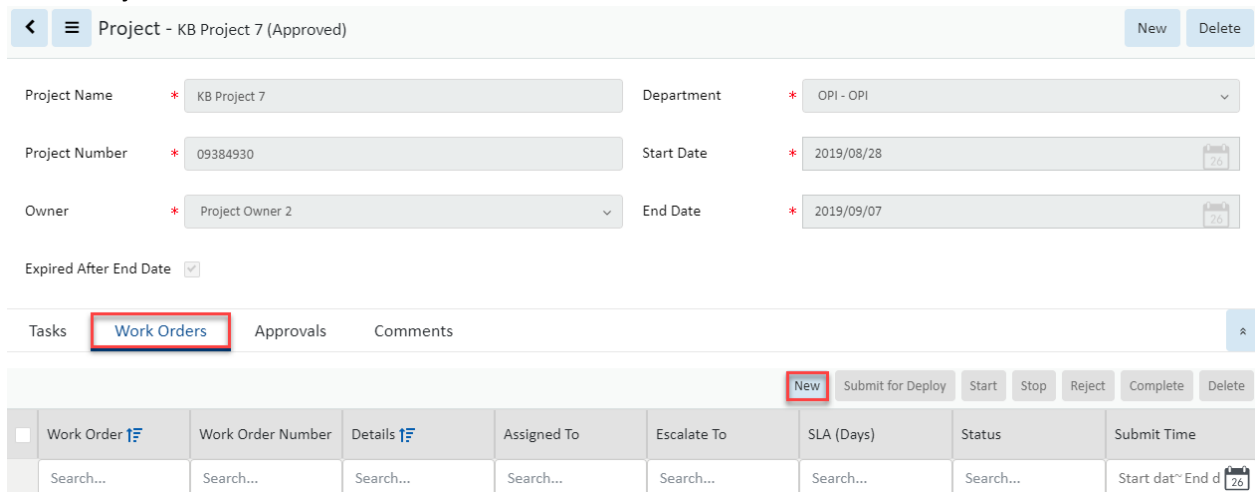
   a. The task status changes to (Approved)

17.4.12. Create Work Order

1. In the Project form select the Work Orders tab

2. Click the New button over the work order table list

3. On the New Work Order form enter a Work Order Name

a. The other required fields are already filled in
4. Click on the Submit button

17.4.13. Assign the Work Order and Add Actions

Actions are added to the work order for execution by the assigned users.

1. In the Work Order form Click on the Add button to add actions to the work order

a. The Actions form opens, here you select actions and assign them to users

2. Select the Assignee from the pull-down menu, this is the user primarily responsible for completing the action
3. Select the Escalate from the pull-down menu, this is the user that will be assigned the task if it is not completed before the SLA(Days) setting
4. Enter the number of days for the Assignee to complete the action before it is escalated
5. Click on the Submit button to add the selected actions to the work order
   a. The actions selected will be assigned to the designated users
   b. If other actions are to be assigned to different users, repeat the previous step

17.4.14. Submit Work Order for Deployment

A project will likely have multiple work orders to be executed by different teams and users.

Once all the designated task actions are assigned to a work order, it is ready to be submitted for deployment.

1. Click on the Preview button to see the work order and confirm it is correct
   a. The system will generate and download a pdf file
   b. The file will have multiple pages for each action showing the current and planned view of the rack and details for the action
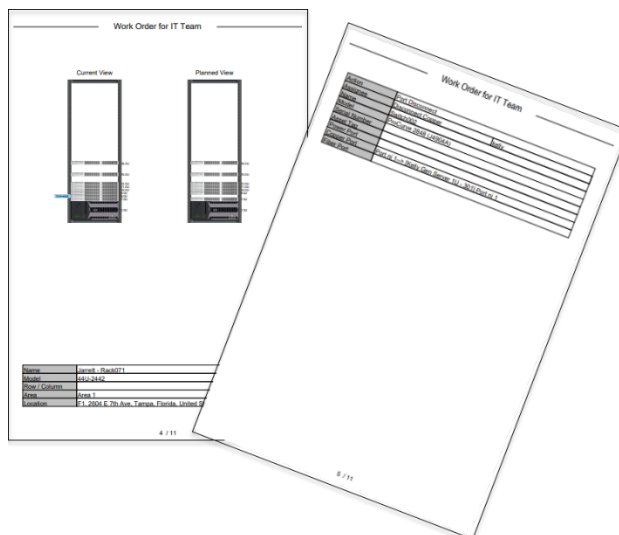
2. Click on the Submit for Deploy button

   a. The work order status changes to Pending Deploy
   b. The work order will be listed in the assigned users My Work Orders on the users My Activity page.
3. If a work order is assigned to you, Click on the work order name to open the work order

17.4.15. Start SLA | Stop SLA Timer (optional)

The Start and Stop buttons will begin and end the SLA count down. This is an optional feature that allows for the action to be escalated if the SLA days are exceeded before completion.

17.4.16. Complete Work Order

When a user completes an action in a work order they select the action and Click on the Complete button.

17.4.17. Completing the Project

The project is completed when all the associated work orders are completed.

If the project was created with the Expired After End Date option selected then the project will be expired on the end date entered regardless of the status of the tasks, actions and work orders.

18. Integrations Menu Group

18.1. Camera Studio Menu Item

The application provides an interface which allows users to view camera images and configure multi-camera views for cameras created in the device list. This feature works in conjunction with the Visual Data Center Image Server. Instructions for installation and configuration of the image server and physical cameras is provided in the Administration Guide.

The Camera Studio Menu Item displays the Camera Studio page with dedicated functions for managing and configuring camera views. The information below assumes the following actions have been completed:

- Image Server has been installed and associated to the instance of Visual Data Center
- FTP accounts are created on the Image Server for each of the IP Cameras to be managed
- IP Cameras are configured to deliver FTP images to the Image Server using the correct FTP user and password
- Images are successfully being deposited into the Image Server for the cameras

18.1.1. Creating Camera Devices

Camera devices will be created in the application device list using the Device Type which is Camera. These are the only devices which will be managed as a camera device with the Camera Studio and other features in the application related to cameras. When the camera device is created, set the IP Address attribute in the Basic Information section of the device to the IP Address of the IP Camera. **Note**: The camera device does not need to reference the FTP account or the IP Address of the Image Server to function correctly in the application.
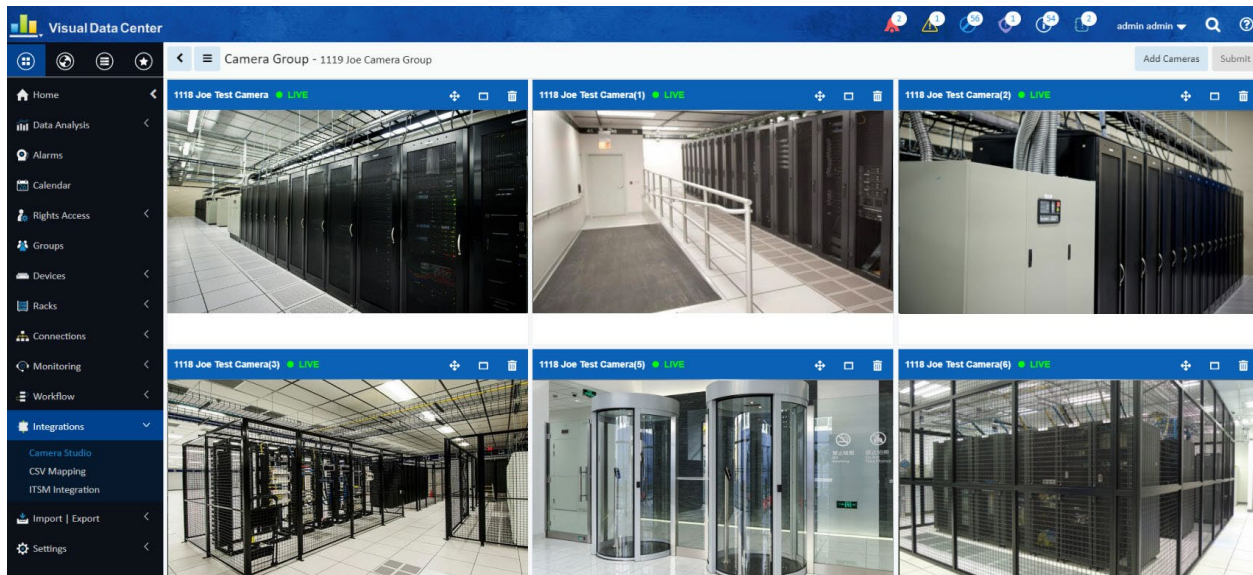
18.1.2. Managing Camera Groups

Camera Groups allow the user to define multi camera views. On the Camera Groups page, select the New button to create a new Camera Group. This will allow the user to select the list of cameras to be associated with the Camera Group. Options available for creating anew Camera Group include the group Name and User Groups which will have rights to view the cameras associated to the Camera Group.

Use the Add and Delete buttons on the Camera Group page to select the cameras which should be included in the Camera Group. Each of the Camera devices in the list will appear in the group camera dashboard.

18.1.3. Viewing Camera Groups

Once the Camera Groups have been defined, clicking the Play icon next to the camera group list will display the real time camera images for cameras defined in the group.

18.1.4. Camera Controls

When viewing the Camera Group dashboard with a multi camera display, the user has options to help manage the Camera Group and camera images.

18.1.4.1. Changing Camera Layout

User can modify the default camera layout by using the arrow icon on the camera to move to a new position in the camera dashboard. Select the Submit button to save any changes to the camera layout.

18.1.4.2. Minimize & Maximize

Each camera in the dashboard has a maximize icon to allow the user to view that camera in full screen mode. In full screen mode, the user can select the minimize icon to return to the multi camera user group view.

18.1.4.3. Delete Camera from View

Users can remove a camera from the Camera Group by clicking the Delete icon on the camera image. Select the Submit button to save the changes to the camera list for the camera group. **Note**: This action removes the camera from the camera group.

18.1.4.4. Live vs Playback Mode

Each camera has its own time manager tool to allow users to view live images or to reply historical images for the camera. On the bottom of the camera image, there is a progress indicator which is by default set to the current, live timestamp for the camera on the far right. When the current, live images are being viewed, there is an indicator on the top status bar for that camera which indicates LIVE images are being viewed.

Users can drag the timeline tool to a time in the past to replay images for that time. When the camera images displayed are historical images, the indicator on the top status bar will change to RECORDED IMAGES. Users can click the Live camera icon in the status bar to return to the live image streaming video feed for the camera.

The timestamp used in the playback tool is based on the timezone of the Image Server.

18.1.5. Viewing Single Cameras

There are two options available for users to view images for a single camera.

18.1.5.1. Device List

In the device list the user can find the device in the table, click the device name to access device central for the camera and view the camera images. Camera images are presented in the Dashboard tile for the camera device in Device Central.

18.1.5.2. Camera Studio

The Camera Studio maintains a list of both Camera Groups and individual Camera devices managed in the application. To view a single camera device simply choose the Camera tab and click the play icon next to the camera device name.

18.1.6. Troubleshooting Camera Images

If the camera images are not being correctly presented in the camera or camera group dashboards, the following tips may help to isolate the cause of the issue:

1. Confirm the images are being sent to the Image Server. Each camera has an FTP account created on the Image Server which creates a destination folder for these images to be stored. The path to this folder is /opt/VDCIS/ftpserver/res/home/[FTP Name] where [FTP Name] is the ftp account created for the camera. Under the FTP Name folder the images will be saves in subfolders by year, month and day. Confirm there are current images being deposited into the folder by the IP Camera.
2. If the images are NOT being saved correctly then investigate the status of the FTP server on the Image Server and the FTP configuration settings on the actual IP cameras.
3. If the images are being saved correctly then visit the Device Central page for the Camera which is exhibiting an issue. Confirm the following details for the device:
   a. IP Address in the Basic Information section is correctly defined.
   b. Click the Verify button on the Dashboard Tile for the camera device and confirm the Camera process sis working correctly. If there are issues with accessing the Image Server, this Verify process will provide a message indicating there is an issue.

18.2. CSV Mapping Menu Item

The application can retrieve monitoring data for a device from a csv file provided by third-party system. This is also known as Flat File monitoring. The third-party system would provide csv files at regular intervals with updated information.

The configuration phases for working with csv files for monitoring are as follows:

18.2.1. Phase 1: Creating a CSV Mapping Template

Create a CSV Mapping Template to reconcile the csv file format to the application

The CSV Mapping Menu Item displays a list of all the CSV Mapping templates in the system. The table list contains the following fields:

Table List Column	
Name	Name of the template is also a link to open the CSV Mapping form that contains the details for that template.
Mode	Displays the csv mapping template mode. Options are Single Device in a Data Source or Multiple Devices in a Data Source.
Description	Displays the user defined description for the csv mapping template.
Table List Buttons	Description
New	Presents the form for creating a new csv mapping template.
Delete	Deletes the selected csv mapping template from the system.

18.2.1.1. CSV Mapping Form

Selecting new or an existing csv mapping template presents the CSV Mapping Template form. The CSV Mapping Template form has static fields in the top section followed by tabs that present their fields related to the csv mapping form.

Fields	Description
Name	Displays the name of the template.
Mode	Displays the csv mapping template mode. Options are Single Device in a Data Source or Multiple Devices in a Data Source.
Description	Displays the text for the monitoring template description field.
Table List Buttons	Description
New	Presents the form for creating a new csv mapping template.
Submit	If any form fields are edited or new data has been added the Submit button becomes active and is used to update the form.
Delete	Deletes the current csv mapping template.
⤢ ⤡	These buttons collapse and expand the upper area of the form to provide more space for the tables.

18.2.1.2. Column Mapping Tab

The initial view presented when the Column Mapping Tab is selected is a table mapping the System Column name to a Column in CSV file.

1. Name - enter the CSV Mapping Template Name
2. Mode - Select either Single Device in a Data Source or Multiple Devices in a Data Source
3. Description - enter a user defined description for the template
4. Enter the column name in the CSV file for the column that has the attribute that will be monitored.
5. Enter the column name in the CSV file for the column that has the device name.
6. Enter the column name in the CSV file for the column that has the timestamp for the monitored information
   a. Select the date format that matches the timestamp in the csv file
7. Enter the column name in the CSV file that identifies the unit of measurement for the monitored value
8. Enter the column name in the CSV file for the column that has the monitored value
9. Click the Submit button to save your settings

18.2.1.3. Unit Mapping Tab

1. Find the relevant unit of measurement
2. Enter the string for the unit of measurement as it appears in the csv file
3. Click the Submit button to save your changes

18.2.2. Phase 2: Create a Monitoring Template

Create a Monitoring Template where the attributes are set to Monitor Type Flat File and the relevant attribute from the CSV file is identified. Refer to the Monitoring Menu Group section for more details.

In this example the application attribute Active Power will be linked to the CSV file attribute Customer KW.

18.2.3. Phase 3: Configure Monitoring for the Device

For the device configure monitoring for protocol Flat File.
Go to the device's Device Central page and select the Monitor function tile.

1. Enter the device's IP Address
5. Set the probe to be used (if all-in-one or only 1 probe it will already be selected)
6. Set the probe interval
7. Set the number of retries
8. Turn on monitoring for the device
9. Set the protocol to Flat File
10. Enter the path to the csv file
    Specify the path to the CSV file. The VDC application supports FTP, Local File and HTTP. For detailed file path syntax refer to
    https://commons.apache.org/proper/commons-vfs/filesystems.html
11. Enter the name of the device as it appears in the csv file
12. Select the name of the CSV Mapping Template to be used
13. Ensure that the monitoring template is set to active
14. Click Submit to save the settings
15. After a few polling cycles return to the device's main page and you should see values in the Real-time Monitoring Data

18.3. ITSM Integration Menu Item

The application fully supports interaction with popular third-party IT Service Management (ITSM) applications. A generic framework has been created to allow for automated tasks to be synchronized between this application and the third-party ITSM application. This framework establishes connections with the ITSM solution and performs synchronization actions based on user settings defined in the ITSM page. The synchronization process, if enabled, will perform updates every 30 seconds.

18.3.1. Synched Devices Function Tile

The initial view presented when the ITSM Integration Menu Item is selected is the Synched Devices function tile Service Now tab list.

18.3.1.1. Service Now Tab

Displays the list of devices that have been synchronized with Service Now. The Synch Now button on the upper right initiates an immediate synchronization.

List Column	Description
ITSM Device	Displays the ITSM Display name.
Device Name	Displays the device's name in this application.
Serial Number	Displays the contents of the Serial Number attribute.
Asset Tag	Displays the contents of the Asset Tag attribute.
Type	Displays the device type.
Model	Displays the device model.
Last Updated	Date and time of last update.
Synch Direction	Shows where the synch originated.
Description	Information about the event.

### 18.3.1.2. CSV Integration Tab

Displays details regarding the CSV integration.

18.3.2. Configuration Function Tile

In order to properly configure the application to synchronize with the ITSM application, there are several settings which must be defined on the Configuration Page to identify the communication settings and synch triggers to be processed.

Click on the Configuration function tile to access the Configuration Page.

18.3.2.1. ITSM Configuration

Synch Devices	Configuration	Model Map	Attribute Map
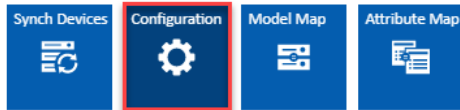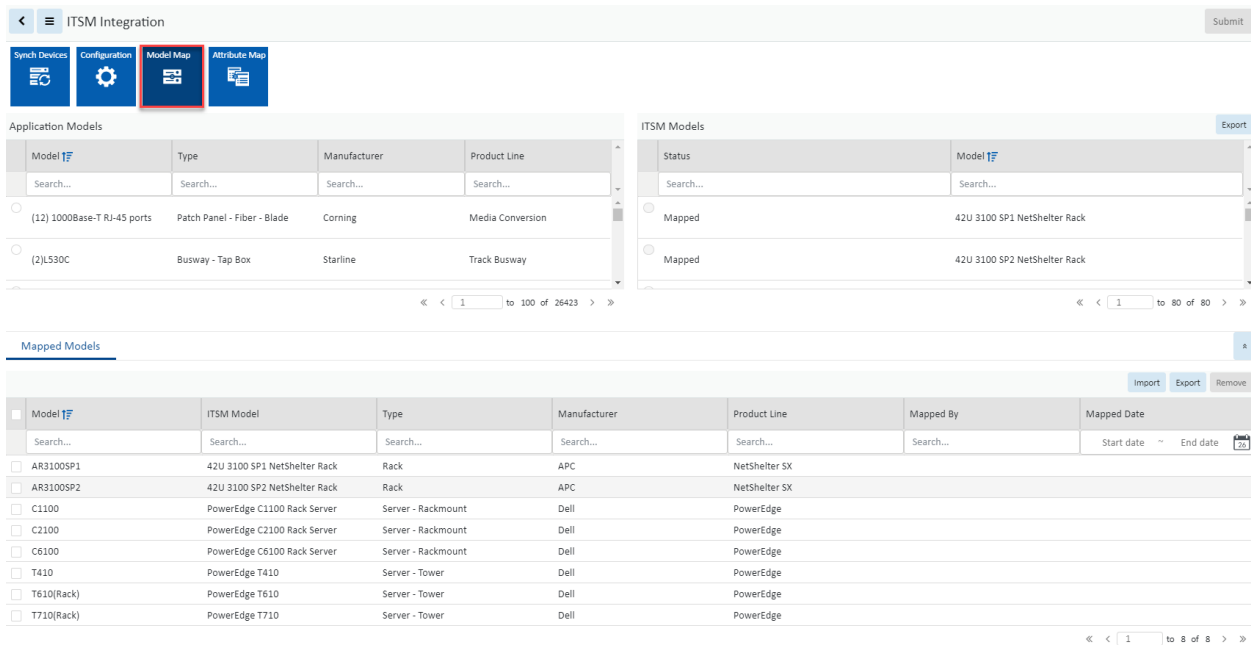
Product	* Service Now	Proxy Server	* Disabled
Status	* Enabled	Address	
URL	* https://dev58185.service-now.com/	Port	
User Name	* SyncVDC	Proxy Authentication	Disabled
Password	*	Proxy User	
Sync Asset	* Bi-Directional	Proxy Password	
Incident Push	* Enabled	Incident Caller ID	6816f79cc0a8016401c5a33be04be441
Synch Rules	placeholder placeholder		AND X

Fields	Description
Product	Select the Service Now option from the pull-down menu.
Status	Enable or Disable the functionality.
URL	Enter the URL for the paired Service Now instance.

User Name	Enter the user name the application will use to connect to the Service Now instance.
Password	Enter the password that corresponds with the user name.
Sync Asset	Set the value for how you want asset synchronization to flow. The options are Disabled, To ITSM Product Only, From ITSM Product Only or Bi-Directional.
Incident Push	If enabled the application alarms will open incident tickets on the Service Now instance. The options are Enabled and Disabled. **Note:** Only alarm changes from Normal to Warning|Critical|Unreachable and back to Normal will generate a ticket on the ITSM system.
Synch Rules	Allows users to restrict the synch activity with the ITSM system. Multiple rules can be added with AND logic to determine which devices will be processed. Only devices which match ALL of the defined rules will be processed with synch activity.
Proxy Server	Status of the proxy communication to the ITSM server.
Address	IP Address of the Proxy Server needed to access the ITSM solution.
Port	Port to be used for Proxy communication.
Proxy Authentication	Status of Proxy Authentication. If Enabled, the Proxy User and Proxy Password are used to establish communication with the ITSM Server.
Proxy User	User name to be submitted for the proxy connection.
Proxy Password	Password used with the proxy connection.
Incident Caller ID	System User ID from ITSM application for the account to be used to open the Incident on the ITSM solution.
Buttons	**Description**
Submit	If any form fields are edited or new data has been added the Submit button becomes active and is used to update the configuration settings.

18.3.3. Model Map Function Tile

The ITSM model library will not be using the same naming convention as this application so administrators must establish a mapping between the two systems. The Model Map page allows users to connect the models from the two systems so translation can be performed on synch activity going in each direction.
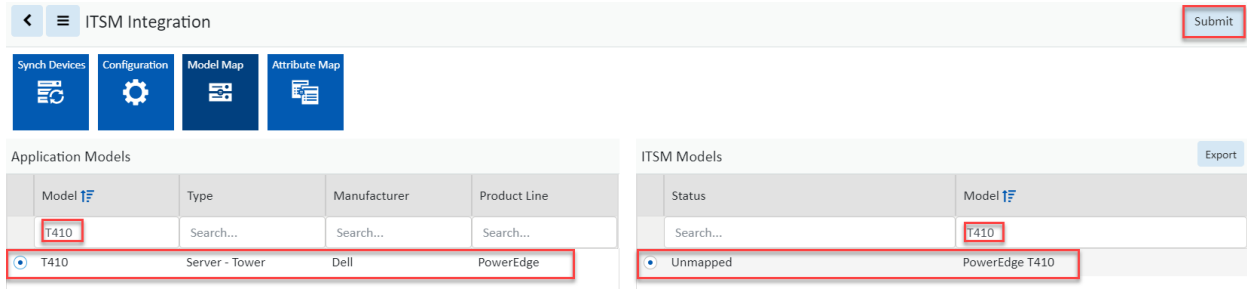
When the Model Map function tile is accessed, the application will fetch the Application Models from the current Master Model Database and the ITSM Models from the target ITSM solution. The table at the bottom of the page shows the list of models that have been mapped. The tables on the page contain the standard filter rows to assist users in finding the desired models.

18.3.3.1. Mapping Models
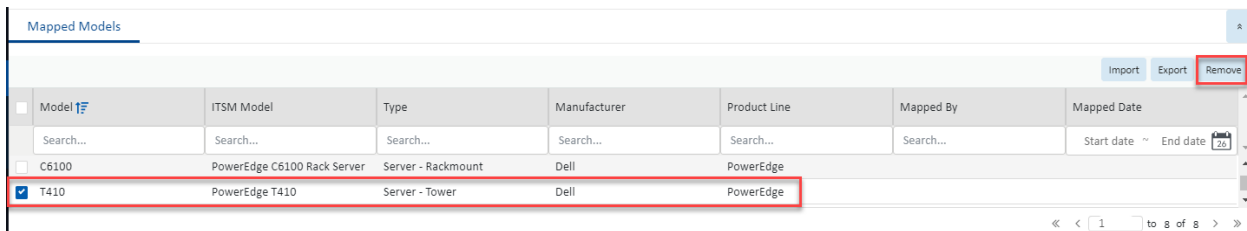
To map models:

1. Filter for the desired model from the Application Models list and select the radio button next to it.
2. Filter for the matching model from the ITSM Models list and select the radio button next to it.
3. Click on the Submit button to map the models.
   The models are added to the Mapped Models table on the Mapped Models tab.

18.3.3.2. Removing Mapping

1. In the Mapped Models table Select the row containing the mapped models to be un-mapped by selecting the check box.
2. Click on the Remove button to remove the mapping.
   The model status is updated in the ITSM Models list.

18.3.3.3. ITSM Model Export

The Export button with the ITSM Models list will produce a spreadsheet with the list of models in the ITSM system.

18.3.3.4. Mapped Models Import and Export

The list of mapped models can be exported to a spreadsheet. The spreadsheet can be edited and then imported to update or add entries to the list. The model names from each system must be entered in the spreadsheet exactly as they appear on their respective applications.

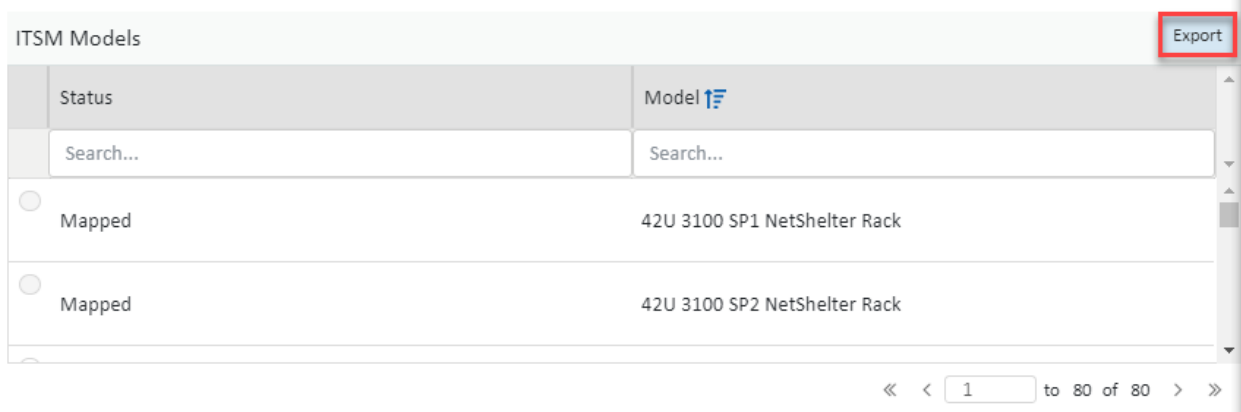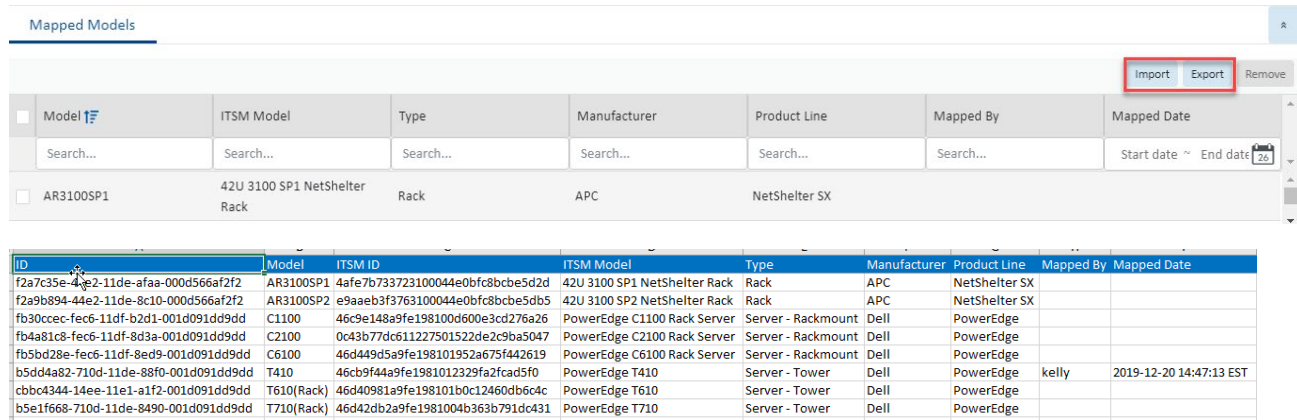| ID	Model	ITSM ID	ITSM Model	Type	Manufacturer	Product Line	Mapped By	Mapped Date
f2a7c35e-4e2-11de-afaa-000d566af2f2	AR3100SP1	4afe7b733723100044e0bfc8bcbe5d2d	42U 3100 SP1 NetShelter Rack	Rack	APC	NetShelter SX		
f2a9b894-44e2-11de-8c10-000d566af2f2	AR3100SP2	e9aaeb3f3763100044e0bfc8bcbe5db5	42U 3100 SP2 NetShelter Rack	Rack	APC	NetShelter SX		
fb30ccec-fec6-11df-b2d1-001d091dd9dd	C1100	46c9e148a9fe198100d600e3cd276a26	PowerEdge C1100 Rack Server	Server - Rackmount	Dell	PowerEdge		
fb4a81c8-fec6-11df-8d3a-001d091dd9dd	C2100	0c43b77dc611227501522de2c9ba5047	PowerEdge C2100 Rack Server	Server - Rackmount	Dell	PowerEdge		
fb5bd28e-fec6-11df-8ed9-001d091dd9dd	C6100	46d449d5a9fe198101952a675f442619	PowerEdge C6100 Rack Server	Server - Rackmount	Dell	PowerEdge		
b5dd4a82-710d-11de-88f0-001d091dd9dd	T410	46cb9f44a9fe1981012329fa2fcad5f0	PowerEdge T410	Server - Tower	Dell	PowerEdge	kelly	2019-12-20 14:47:13 EST
cbbc4344-14ee-11e1-a1f2-001d091dd9dd	T610(Rack)	46d40981a9fe198101b0c12460db6c4c	PowerEdge T610	Server - Tower	Dell	PowerEdge		
b5e1f668-710d-11de-8490-001d091dd9dd	T710(Rack)	46d42db2a9fe1981004b363b791dc431	PowerEdge T710	Server - Tower	Dell	PowerEdge		

18.3.4. Attribute Map Function Tile

The ITSM asset attribute list will not be using the same naming convention as this application so administrators must establish a mapping between the two systems. The Attribute Map page allows users to connect the asset attributes from the two systems so translation can be performed on synch activity going in each direction.

When the Attribute Map function tile is accessed, the application will fetch the list of Application Attributes from the current instance of the application and the ITSM Attributes from the target ITSM solution. The table at the bottom of the page shows the list of attributes that have been mapped. The tables on the page contain the standard filter rows to assist users in find the desired attributes.

18.3.4.1. Mapping Attributes

To map attributes:

3. Filter for the desired attribute from the Application Attributes list and select the radio button next to it.
4. Filter for the matching attribute from the ITSM Attribures list and select the radio button next to it.
5. Click on the Submit button to map the attributes.
    The attributes are added to the Mapped Attributes table on the Mapped Attributes tab.

18.3.4.2. Removing Mapping

1. In the Mapped Attributes table Select the row containing the mapped attributes to be un-mapped by selecting the check box.
2. Click on the Remove button to remove the mapping.
   The attribute status is updated in the ITSM Attributes list.

18.3.4.3. Attribute List Export

The Export buttons with the Application Attributes and ITSM Attributes lists will export the respective list of attributes to a spreadsheet. Users can use these lists to acquire the exact attribute name for mapping manually or using the import function described in the next section.

18.3.4.4. Mapped Attributes Import and Export

The list of mapped attributes can be exported to a spreadsheet. The spreadsheet can be edited and then imported to update or add entries to the list. The attribute names from each system must be entered in the spreadsheet exactly as they appear on their respective applications.

ID	Attribute	ITSM ID	ITSM Attribute	Category	Attribute Type	Value Type	Mapped By	Mapped Date
0aeddd86-ce3c-11dd-8da6-001d091dd9dd	Asset Tag	asset_tag	Asset tag	Common	System	String		
a11f9130-fff7-11de-b965-00241d120212	Date Created	sys_created_on	Created	Common	System	Datetime		
4966b8b1-52ba-425d-a74d-a8affeb888d3	Description	comments	Comments	Common	System	String	kelly	2019-12-20 15:11:50 EST
0aedd732-ce3c-11dd-9a2f-001d091dd9dd	Serial Number	serial_number	Serial number	Common	System	String		

18.3.5. ITSM Service Now Integration Specifics

The Service Now application provides a wide range and of asset management functions which can be integrated with this application. The functions supported in the Service Now integration include the following:

- Device Creation – One way to bi-directional support for device creations.
- Attribute Changes – One way or bi-directional support for changes to asset attributes.
- Incident Reporting – Creation of a ticket based on alarm generation in the application.

Specifics for how these integrated features are supported for Service Now are included in the sections below.

18.3.5.1. Configuration

Integration to the Service Now application uses the general parameters defined above. One clarifying note related to the configuration settings is related to the Incident Caller ID. In Service Now, this field is obtained by accessing the Users page in Service Now, right clicking on the User Name to be used for generating Incidents and selecting the Copy sys_id option from the shortcut menu.

18.3.5.2. Models

As part of the integration configurations for any ITSM solution there needs to be a model map between the two applications. For Service Now, the Model Map list is synchronized from the Hardware Models page which can be accessed by filtering the menu list for "Models" and then choosing the Hardware Models menu item.

18.3.5.3. Attributes

As part of the integration configurations for any ITSM solution there needs to be an attribute map between the two applications. For Service Now, the Attribute Map list is synchronized from alm_hardware form.
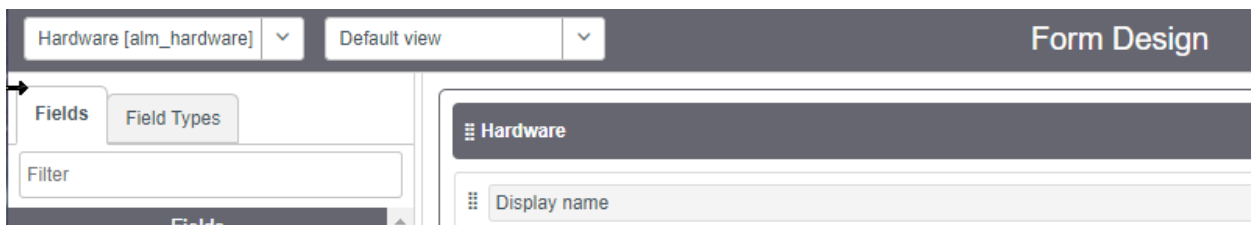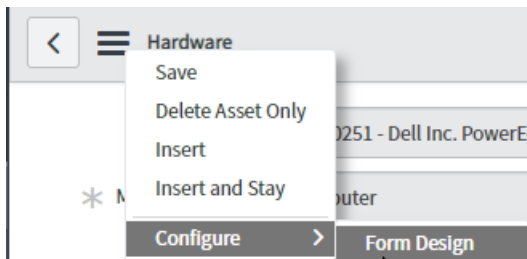
To add attributes in Service Now:
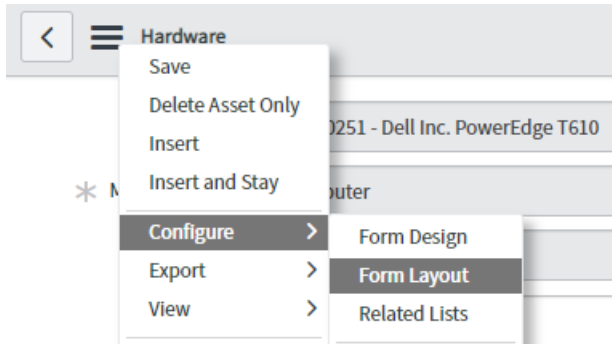
18.3.5.4. Assets

The actual device or asset synchronization will occur in the Assets list of Service Now. Depending on the one way or bi-directional support for ITSM integration which is defined on the Configuration pages, the devices or assets will be automatically created or updated on the respective applications. In Service Now, the Asset list is accessed by entering "Assets" into the menu filter and then selecting the Hardware Assets menu item from the list.

18.3.5.5. Incidents

When alarms are generated in this application, incident tickets can be automatically generated in the Service Now system. The following alarm condition changes will result in the creation of a new incident in the Service Now incident list:

- Normal to Unreachable
- Normal to Warning
- Normal to Critical

In Service Now, the Incident list can be accessed by typing "Incidents" into the menu filter and selecting the Incidents menu item. **Note:** The resulting list of incidents may be filtered to only show the incidents reported by or assigned to the active Service Now user. If needed, remove the filter for the current user to see the list for all Service Now users or the specific user configured to report incidents from this application. In the ITSM Configuration page, the Incident Caller ID setting is used to define the Service Now user who reports the incidents generated by alarms in this application.

18.3.6. ITSM CSV Integration Specifics

This section describes the integration design between Visual Data Center (VDC) and DCTrackMobile (DCTM) which uses CSV files to synchronize information between the systems.

18.3.6.1. Prerequisites

In order to properly configure the VDC application to synchronize with the CSV file, there are several settings which must be defined on the Configuration Page to identify the communication settings and sync triggers to be processed. The Configuration Page has the key parameters which need to be defined to control the communication for the CSV file integration.

- Product - Select CSV Mapping as the 3rd party product used for integration.
- Rack U check - If Enabled, the application will check asset u position specified in the CSV file. If the u position is different, the application will report it as an unmatched asset.
- Max Change Count - Set the number of updates that can be processed at one time.
- File Path - Specify the path to the CSV file. The VDC application supports FTP, Local File and HTTP. For detailed file path syntax refer to https://commons.apache.org/proper/commons-vfs/filesystems.html
- Interval(m) - Set the time Interval in minutes, between the end of processing the previous CSV file and the start of processing the next CSV file.

Click on the Configuration Button to access the Configuration Page.

ITSM Integration				Configuration	Model Map	Attribute Map	View Log

Configuration Save Cancel

Product	*	CSV Integration ▾	Synch Rules	+ Add Rule ?
Rack U Check	*	Enabled ▾		
Max Change Count	*			
File Path	*			
Interval (m)	*			

18.3.6.2. CSV File Format

The CSV file should be formatted as shown below and placed in the location specified in the File Path configuration field. Once a CSV file has been processed, the application will not process the CSV file again unless the file is changed.

SerialNo	Asset Type	Manufacturer	Model	Asset Name	Rack/Stand	Start RU	End RU	Orientation	Site	Room	Row	Rack
LR201106010276	Network	Checkpoint	SMART-1 5		RackMount	13	13	Front	LY	03NR2	A	LY03NR2A05
1214B00738	Network	Checkpoint	CHECKPOINT 4807		RackMount	20	20		LY	03NR1	C	Rack1 Row04_Robot
	Network	Checkpoint	CHECKPOINT 4807		RackMount	20	20	Front	LY	03NR2	C	LY03NR2C04
1380781	KVM	Avocent	AVOCENT CCM1650		RackMount	1	1		LY	05DH2		Rack1 Row04_Robot
1380712	Storage	Avocent	IBM 3576-E9U		RackMount	3	11	Front	LY	05DH1	B	Rack1 Row04_Robot
1380712	Storage	Avocent	IBM 3576-E9U		RackMount	3	11	Front	LY	05DH1	B	Rack1 Row04_Robot
13807123	Storage	Avocent	IBM 3576-E9U		RackMount	0	11	Front	LY	05DH1	B	Rack1 Row04_Robot
1380783	Storage	IBM	IBM 3576-E9U		RackMount	13	11	Front	LY	05DH1	B	Rack1 Row04_Robot
1380784	Storage	IBM	IBM 3576-E9U		RackMount	15	11	Front	LY	05DH1	B	Rack1 Row04_Robot

18.4. Eaton Predict Pulse Menu Item

Visual Data Center is integrated with the Eaton Predict Pulse application to provide real time monitoring attribute metrics to Predict Pulse. Predict Pulse uses real time data to analyze system status and detect imminent failure conditions. With this information, the Predict Pulse system can proactively contact owners of devices for service or replacement of the devices.

18.4.1. Settings Function Tile

The initial view presented when the Eaton Predict Pulse Menu Item is selected is the Settings function tile.
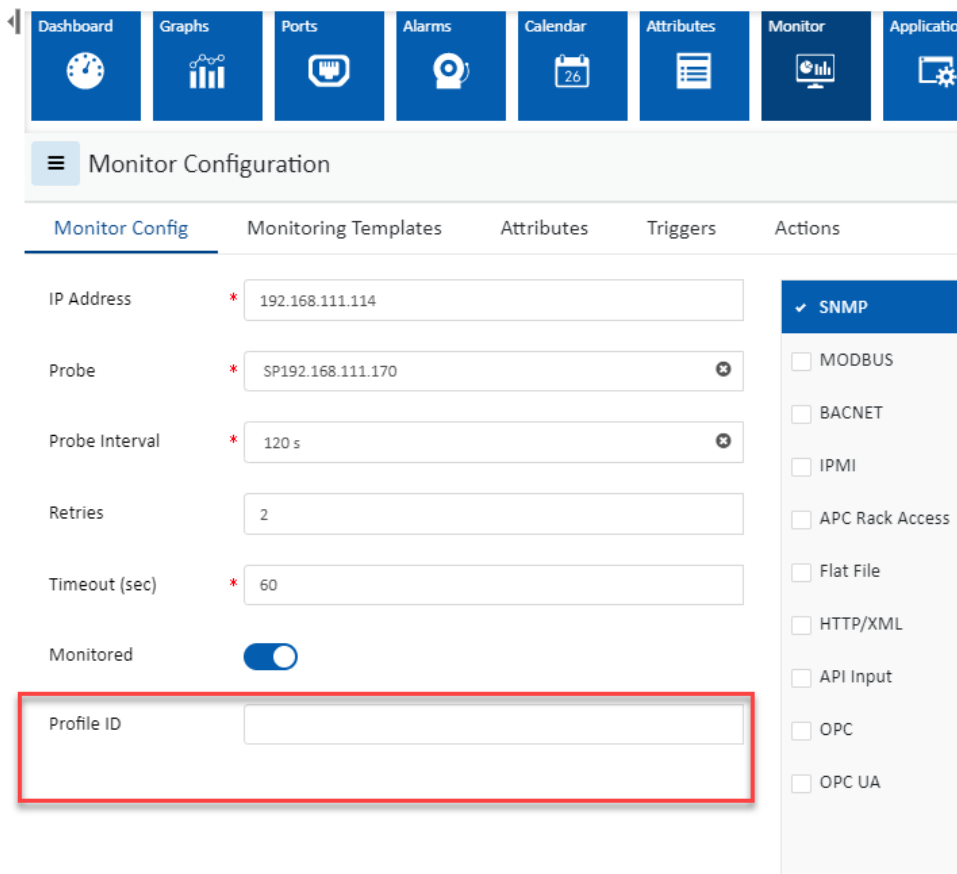
Fields	Description
User Name	User Name for logging on to the Predict Pulse service.
Password	Password used with the user name.
Host URL	The URL for the Predict Pulse instance.
Port	Port to be used for communication.
Application ID	ID for user from the Predict Pulse application.
Activation Code	Activation Code from the Predict Pulse application.
Gateway UUID	The unique identifier for the gateway.
Interval	The time between data collection incidents.
Buttons	**Description**
Submit	If any form fields are edited or new data has been added the Submit button becomes active and is used to update the configuration settings.

18.4.2. Devices Function Tile

The Devices function tile displays the list of monitored devices uploading data to the Predict Pulse service.

Table List Column	
Device	Name of the device is also a link to open the Device Central panel that contains the device's attributes list, function tiles and monitoring details.
Type	Displays the device's type name.
Manufacturer	Displays the device's manufacturer name.
Product Line	Displays the device's product line name.
Model	Displays the device's model name.
Lifecycle Status	Displays the device's lifecycle status - Available or Operational
Asset Tag	Displays the contents of the Asset Tag attribute.
Serial Number	Displays the contents of the Serial Number attribute.
IP Address	Displays the contents of the IP Address attribute.
Location	Displays the location where the device has been placed.

Devices with their UUID in the Profile ID field on their device central Monitor function tile page are designated as those uploading to Predict Pulse.
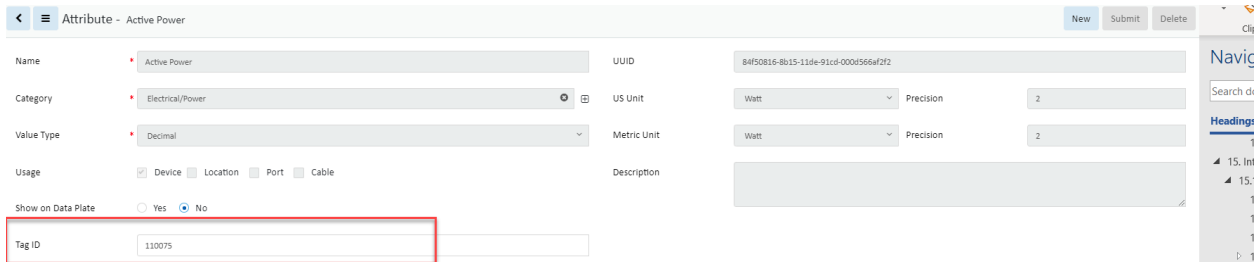
18.4.3. Attributes Function Tile

The Attributes function tile displays the list of monitored attributes uploading data to the Predict Pulse service.

Table List Column	
Attribute Name	Name of the attribute is also a link to open the attribute form that contains the attribute's configuration.
Category	Displays the attribute's Category. Options are Capacity, Common, Electrical/Power, Environmental, Global, Location, Network, Other, Port, Rack and Server.
Attribute Type	Displays if the attribute is System or Custom generated.
Value Type	Displays the attribute's Value Type. Options are String, Integer, Decimal, Datetime or Enum.
Metric Unit	Displays the attribute value's corresponding Metric Unit of measurement.
US Unit	Displays the attribute value's corresponding US Unit of measurement.

Attributes with a value in Tag ID (value comes from Predict Pulse) are included in the list.

19. Import | Export Menu Group

The Import | Export Menu Group contains menu items for importing and exporting activities. Presently you can import and export devices, models and PDU/RPP panels.

19.1. Import Central Menu Item

The Import Central Menu Item displays a list of all the import activity sessions in the system. The table list contains the following fields:

Table List Column	
Import Type	Displays the type of import activity and is also a link to the page with additional details for the import activity.
Submit Time	Displays the time the import was started.
Submitter	Displays the name of the user that initiated the import.
Status	Displays the current status of the import.
Overall	During the import it displays the import spreadsheet tab name being processed. Options are Devices, Ports, Relationship, Monitor_device and Monitor_target. Completed imports end with Monitor_target as the overall value.
Overall%	During the import it displays the progress through the spreadsheet as a percentage. Completed imports end with 100%.
Start Time	Displays the start time for the activity.
End Time	Displays the end time for the activity.
Table List Buttons	**Description**
Clear	Clears the table list.
New Import	Opens an import wizard that steps you through the import process.

19.1.1. Import Wizard

The Import Wizard page is displayed when the New Import button is selected. The import wizard is used to import Devices, Models, Locations, Monitoring Templates, PDU|RPP Panels, ITSM Model Mappings and ITSM Attribute Mappings.

1. Select Import Type
   a. From the Import Type drop-down choose the item to be imported.
      Note: To retrieve a template file, first select the import type and then use the Download Template button. The appropriate template for your import will be downloaded into the downloads folder.
      Note: Populate an import spreadsheet or download the new model package to your local workstation before proceeding to the next step.
   b. Click Next button to move to the next page of the wizard
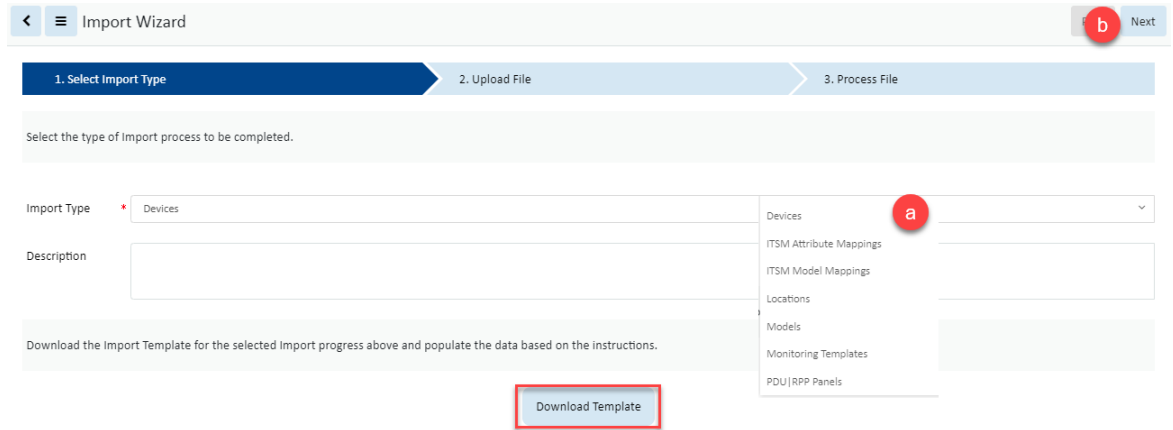
2. Upload File
    a. Browse to select the import spreadsheet or model package
    b. Click Next button to start import
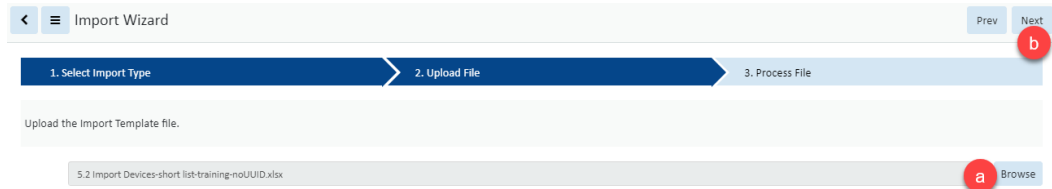
3. Process File
    a. Page displays the import process as it progresses through the import spreadsheet rows and subsequent tabs
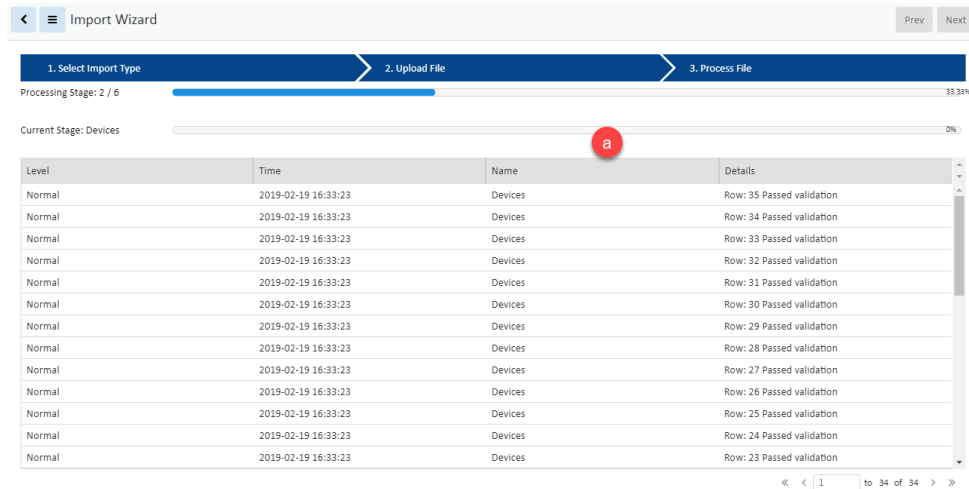
    b. When complete the page displays a summary indicating the number of each item successfully imported and failures.
    c. A link to open the error-comments.txt file is available for troubleshooting the import failures.

d. The error-comments.txt file indicates the sheet and rows where errors occurred.

```
Sheet : Devices
Row : 3          Reason: The Model does not exists in system.
Row : 4          Reason: The Model does not exists in system.
Row : 11         Reason: The Model does not exists in system.
Row : 12         Reason: The Model does not exists in system.
Row : 13         Reason: The Model does not exists in system.
Sheet : Ports
Sheet : Relationship
Sheet : Monitor_device
Sheet : Monitor_target
```

    i. Sheet: The Worksheet (in the Excel file) that has an issue

    ii. Row: Refers to the row (in the Excel spreadsheet) that has an issue

    iii. Reason: Provides information about the issue

19.1.2. Import Devices Spreadsheet

The bulk importing spreadsheet is composed of five spreadsheet tabs – Devices, Ports, Relationship, Monitor_Device, and Monitoring Template. For just creating the actual device and importing it into the device library, Devices is the one sheet that is of concern.

Devices sheet has six major column headers with sub-columns underneath. Following each description below is a graphic showing how it looks in the Excel spreadsheet.

19.1.2.1. Operations

Action option instructs the application on how to process the data in that row. The four action options are either

- A - add the device to the library
- U - update the device in the library
- D - delete the device from the inventory list
- AU - add the device if not already created, if created then update device in library

Import | Export Menu Group

19.1.2.2. Model Info

Model Info contains device specific details. While doing a bulk import, either the UUID must be completed or the type, Manufacturer, Product Line, and Model Name must be completed. This is because the model UUID will spell out the device information, and the device information will fill out the model UUID. One or the other is a requirement for bulk import.

Model Info				
UUID	Type	Manufacturer	Product Line	Model Name
97cb43f4-4503-11de-8bac-000d566af2f2	Rack	Wright Line	Paramount Enclosures	44U-2442

- Model UUID – UUID that is specific to the model
- Type – device type
- Manufacturer – device manufacturer
- Product Line – device product line
- Model Name – device model

19.1.2.3. Device Info

Device Info is information that is specific to a single device.

Device Info						
UUID	Device Name	Device Ref ID	Device Group	Description	Department	Owner
000daf91-e8d7-4bf8-9f1a-e8c10347f803	Kelly-Rack001		Public			

- Device UUID – UUID that is specific to that individual device
- Device Name – Name of the individual device. This field is NOT a unique attribute.
- Device Ref ID – "Nickname" for the device. Used as a reference when being referenced by another device. This field will be deleted once imported.
- Device Group – Device group that the device belongs to. Description – Notes to be held on device.
- Department – Department that the device belongs to.
- Owner – The device's owner.

19.1.2.4. Location

Location information identifies where the device is placed or to be placed.

Location					
Location	Area	Row	Column	X Offset	Y Offset

- Location – where the device is located/going to be placed. {Building – Floor – Area}
- Area – Area on the floor that the device is located in
- Row – Row on the floor within the area specified that the device is located on
- Column – Column on the floor within the area specified that the device is located on
- X Offset – displacement of the floor device on X-axis
- Y Offset – displacement of the floor device on Y-axis

19.1.2.5. Rack Mount

Rack Mount displays details for rack mounted devices including elevation and positioning within a rack.

								Rack Mount
Target Device UUID	Target Device Ref ID	Target Device Name	Mount Type	Local Transform tx	Local Transform ty	Local Transform tz	Local Transform zr	Local Transform xr

ack Mount										
cal Transform xr Rotation Angle	Position x	Position y	Position z	Rackmount External	U Position	U Size	Shelf ID	Horizontal Slot	Vertical Slot	Slot ID

- Target Device UUID – This is the UUID of the device where the selected device resides.
- Target Device Ref ID – References the Devices Ref ID where the selected device is to be placed.
- Target Device Name – Device name of the device where the selected device resides.
- Mount Type – Type
  - Floor Mount – used for racks and facility devices
  - Attach Mount – used for devices that are placed on side of racks
  - Rack Mount External – used for devices that go on the enclosure of racks
  - Rack Mount Internal – used for server to be placed inside a U position
  - Shelf Mount – used for devices to be placed on rack shelf
  - Chassis Mount – used for blades that are going into chassis
- Rotation Angle - Rotation of devices. Only required for devices that have mount type of Floor Mount. By default the devices will face the wall that is labeled with the floor grid   (Rotation = 0 degrees)
- Rackmount External - Position of the device on the outside of the rack
- U Position – location of device within a rack. There are three rack positions within a rack unit. Refer to the below image for more detail.
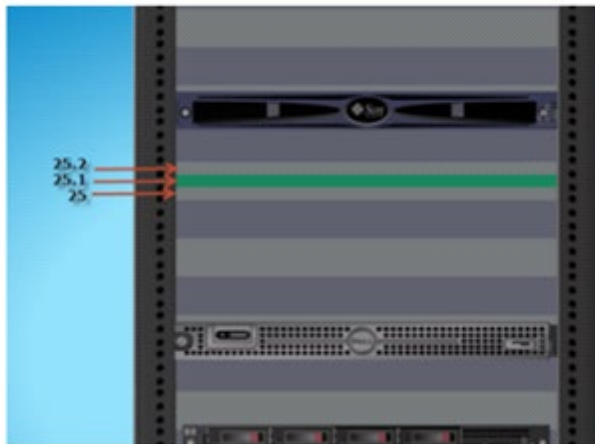
- U Size - the U size of the device
- Slot ID – position of blade within blade chassis, refer to diagram below for the naming convention of half and full blades.
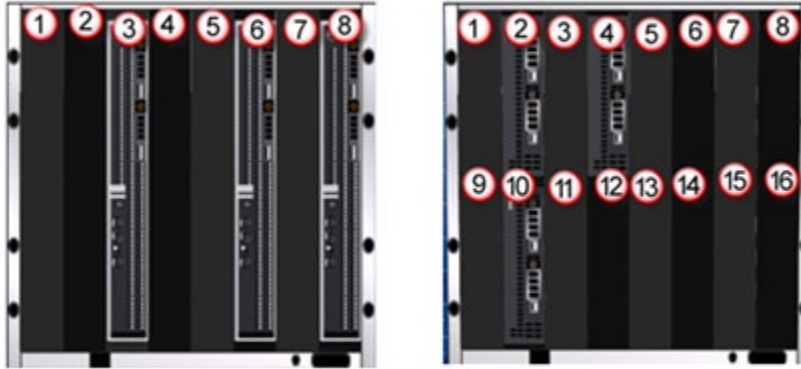
19.1.2.6. Device Attributes

Initially the spreadsheet displays a default set of attributes for a device. If within the application values are added to other attributes, those attributes will appear in the exported spreadsheet.

If an attribute does not appear in the spreadsheet, go to the device, add the attribute if necessary and enter a value. When that device is exported the attribute with its value should appear in the spreadsheet

19.1.2.7. Creating New Devices from Spreadsheet

This section discusses how to create devices like racks, servers, a blade chassis, and blades through the Excel bulk import spreadsheet. The only prerequisite for this section is the Excel spreadsheet that can be downloaded from the Import Wizard's first page using the Download Template button. In the example below a rack, 2 blades, blade chassis, and server are created and added to the device library.

Follow these steps:

- With a blank Excel import spreadsheet, fill in the required information. When just creating a device and adding it to the device library, the fields below must be filled out. Below is a screen shot.
- Operations
    - o Actions
- Model Info
    - o Type
    - o Manufacturer
    - o Product Line
    - o Model Name
- Device Info
    - o Device Name

Operations		Model Info					
Action	UUID	Type	Manufacturer	Product Line	Model Name	UUID	Device Name
AU		Rack	Generic	Generic - Rack	Rack 42U		RD - Rack1
AU	✗	Server - Rackmount	HP	Proliant	DL380	✗	RD - Server1
AU		Server - Blade Enclosure	HP	Proliant	BL C7000		RD - Blade
AU		Server - Blade	HP	Proliant	BL480c		RD - Blade1
AU		Server - Blade	HP	Proliant	BL480c		RD - Blade2

*** Don't create the UUIDs, these will be self-generated by the system. If the Model UUID is known that one can be inserted instead of the other model information. ***

- The model information can be found in the Devices menu group > Models menu item.
- When the spreadsheet is completed use the Import Wizard to import and create the devices.

19.1.2.8. Creating New Devices and Mounting them to a Rack

This section discusses how to create devices like racks, servers, blade chassis, and blades through the VDC bulk import spreadsheet.

In the example below 1 rack, 1 server, 1 blade chassis and 2 blades will be created.

- The server and blade chassis will be mounted in the rack.
- The blades will be mounted in the blade chassis.

Follow these steps:

- With a blank Excel import spreadsheet, fill in the required information for each of the devices. The following fields must be filled out.
- Operations
  - Actions
- Model Info - must match exactly with the information in the application model database
  - Type
  - Manufacturer
  - Product Line
  - Model Name
- Device Info
  - Device Name

Operations		Model Info					
Action	UUID	Type	Manufacturer	Product Line	Model Name	UUID	Device Name
AU		Rack	Generic	Generic - Rack	Rack 42U		RD - Rack1
AU	✗	Server - Rackmount	HP	Proliant	DL380	✗	RD - Server1
AU		Server - Blade Enclosure	HP	Proliant	BL C7000		RD - Blade
AU		Server - Blade	HP	Proliant	BL480c		RD - Blade1
AU		Server - Blade	HP	Proliant	BL480c		RD - Blade2

*** Leave the UUIDs blank, these will be self-generated by the system. ***

- The next step is to provide the correct Rack Mount information. In this example a server and blade chassis will be mounted in a rack. To accomplish this, the server and blade chassis row will specify the rack they are to be placed in.

  a. When creating a rack and the devices that will be placed in the rack in a single spreadsheet, the rack must be referenced using the Device Ref Id. Enter a Device Ref ID for the rack.
  b. For the server and blade chassis the Target Ref ID is the racks' Device Ref ID. Along with populating the Device Ref ID cell, you must input "Rack Mount Internal" into the Mount Type and the U Position for the devices being mounted within the rack.

     This example would create the rack and then mount the server in U position 33 and the blade enclosure in U position 10 in Rack1.

Operations	Model Info				Device Info			Rack Mount		
Action	Type	Manufacturer	Product Line	Model Name	Device Name	Device Ref ID	Target Device Ref ID	Mount Type	U Position	Slot ID
AU	Rack	Wright Line	Paramount Enclosures	44U-2442	KB-Rack001	Rack1				
AU	Server - Rackmount	Dell	PowerEdge	R510	KB-Server002		Rack1	Rack Mount Internal	33.0	
AU	Server - Blade Enclosure	HP	Proliant	BL C7000	KB-ServerEnc001		Rack1	Rack Mount Internal	10.0	

  c. In order for the blades to go into the chassis during the import, the blade chassis must also use a Device Ref ID. Enter a Device Ref ID for the blade chassis.
  d. The Target Device Ref ID for the blades is the blade chassis' Device Ref ID. Select "Chassis Mount" as Mount Type and specify the Slot ID for the blades.

     Note: Slot ID/U position collision during import is supported. If there is a conflict with either the Slot ID and/or U Position, the user will be notified of the failure.

     Note: In the graphic below many columns have been hidden so the relevant columns are visible.

Operations	Model Info				Device Info			Rack Mount		
Action	Type	Manufacturer	Product Line	Model Name	Device Name	Device Ref ID	Target Device Ref ID	Mount Type	U Position	Slot ID
AU	Rack	Wright Line	Paramount Enclosures	44U-2442	KB-Rack001	Rack1				
AU	Server - Rackmount	Dell	PowerEdge	R510	KB-Server002		Rack1	Rack Mount Internal	33.0	
AU	Server - Blade Enclosure	HP	Proliant	BL C7000	KB-ServerEnc001	Enc001	Rack1	Rack Mount Internal	10.0	
AU	Server - Blade	HP	Proliant	BL465c G7	KB-ServerBlade001		Enc001	Chassis Mount		8
AU	Server - Blade	HP	Proliant	BL465c G7	KB-ServerBlade002		Enc001	Chassis Mount		5

- When the spreadsheet is completed use the Import Wizard to import and create the devices.

19.1.2.9. Mounting Existing Devices

If all of the devices (rack, server, blade chassis and blades) already exist on the server then you can mount them using their unique device names or the UUIDs (if the device names are not unique).

- Export the existing devices to a spreadsheet. This exported spreadsheet will contain the UUID (database Unique Identifiers) for the devices
- Edit the spreadsheet adding the Target Device UUID or Target Device Name, U position/Slot ID.

  This example places the KB-Server001 in to KB-Rack001 in U position 35.
  KB-ServerEnc001 into KB-Rack001 in U position 10 and the blades into the enclosure.

  Since these devices have UUIDs, no new devices are created. The existing devices are updated with the rack mount information and will now appear within the rack in all the graphic displays.

Operations		Model Info			Device Info			Rack Mount				
Action	Type	Manufacturer	Product Line	Model Name	UUID	Device Name	Target Device UUID	Target Device Name	Mount Type	U Position	U Size	Slot
AU	Rack	Wright Line	Paramount Enclosures	44U-2442	000daf91-e8d7-4bf8-9f1a-e8c10347f803	KB-Rack001			Floor Mount			
AU	Server - Rackmount	Dell	PowerEdge	R510	2e6c5748-1174-4116-80a0-b139f1750d98	KB-Server001	000daf91-e8d7-4bf8-9f1a-e8c10347f803	Kelly-Rack001	Rack Mount Internal	35.0	2.0	
AU	Server - Blade Enclosure	HP	Proliant	BL C7000	c18576af-0867-4738-9d2c-d84fed5588a7	KB-ServerEnc001	000daf91-e8d7-4bf8-9f1a-e8c10347f803	Kelly-Rack001	Rack Mount Internal	10.0	10.0	
AU	Server - Blade	HP	Proliant	BL465c G7	4aa6a83c-a087-4d77-bc8b-bc3e2512424f	KB-ServerBlade007	c18576af-0867-4738-9d2c-d84fed5588a7	Kelly-ServerEnc001	Chassis Mount			7
AU	Server - Blade	HP	Proliant	BL465c G7	ab83e447-efea-456d-88cb-03e805577994	KB-ServerBlade001	c18576af-0867-4738-9d2c-d84fed5588a7	Kelly-ServerEnc001	Chassis Mount			1

- When the spreadsheet is completed use the Import Wizard to import and create the devices.

19.1.2.10. Import Devices Spreadsheet: Ports Tab

List all of the ports for the devices on the devices tab.

Port Info													
UUID	Port Ref ID	Port Name	Port Type	Description	Inherited	Network	Speed(MB/s)	VLAN Name	Port Number	MAC Address1	Port Status	Has Back	Service Type
05401d8c-4737-11e6-8fa2-d39f039224ff		A17	NEMA 5-20R		Yes				17		Available	No	Out
054f6dfa-4737-11e6-b76e-b3e79ab62410		A23	NEMA 5-20R		Yes				23		Available	No	Out

19.1.2.11. Import Devices Spreadsheet: Relationship Tab

Lists all of the power and network connections for the devices on the devices tab. Bulk connections can be created using the relationship tab.

Operations	General Information							Provider Device					Consumer Device				
Action	UUID	Name	Cable Type	Description	Total Numble	Lengthi	Color	mber of co	device UUID	levice Nam	Port UUID	Port Ref ID	Port Name	Port Type	Device UUID	levice Nam	Port UUID	Port Ref ID	Port Name	Port Type
AU	58e43e93-	Buck-ATSC	Generic Power Cable				#FF0062B1		3a8d7457-	Buck-ATSC	f4e55450-		po 1	Power Po	1b8cead4-	Buck-UPS:	c275282a-		pi 1	Power Port
AU	a1c5e041-	Buck-UPS:	Generic Power Cable				#FF0062B1		1b8cead4-	Buck-UPS:	c273c75a-		po 1	Power Po	61b6496f-	Buck-PDU	d18ad155-		pi 1	Power Port

19.1.2.12. Import Devices Spreadsheet: Monitor_device Tab

Lists all of the Monitor Config tab settings from the device central monitor function tile for each device on the devices tab. Bulk configurations and modifications can be done using the monitor_device tab.

Operation	Device Information							Common Settings									SNMP Settings							
Action	Device Nam	UUID	Type	Manufactur	Product Lin	Model Nam	Device Ref	Iuction Str	IP Address	robe Interv	imeout(sec	Retry	Probe	Port	Protocol	Version	t Commun	Commun	User Name	Password	uth Proto	context Nam	vacy Proto	vacy Pass	ecurity Lev	Unit	p Commu
AU	CA2 - Sens	8c698c9b	Sensor		RF Code	Sensors -	RFCode - F		productio	127.0.0.1	60	29	2	SP	192.168	2162	UDP	SNMP_VE	public	private	jarrett		MD5		DES	0	noAuthNo
AU	HA1 - Sens	3952918d	Sensor		RF Code	Sensors -	RFCode - F		productio	127.0.0.1	60	29	2	SP	192.168	2162	UDP	SNMP_VE	public	private	jarrett		MD5		DES	0	noAuthNo
AU	HA2 - Sens	e942e799	Sensor		RF Code	Sensors -	RFCode - F		productio	127.0.0.1	60	29	2	SP	192.168	2162	UDP	SNMP_VE	public	private	jarrett		MD5		DES	0	noAuthNo

SNMP Settings								IPMI Settings						Modbus Settings			Http Settings			DCM Settin	BACNET Setting		
Password	uth Proto	context Nam	vacy Proto	vacy Pass	ecurity Lev	Unit	p Commu	User Name	Password	Port	mmand Ty	Auth Type	Priv Level	Interface	vice Numb	Port	Type	Tag ID	Port	User Name	Password	Node	vice Instan	Port	work Num
MD5		DES	0		noAuthNo																				
MD5		DES	0		noAuthNo																				
MD5		DES	0		noAuthNo																				

19.1.2.13. Import Devices Spreadsheet: Monitoring Template Tab

Lists all of the monitoring templates assigned to the devices on the devices tab. The Operations/Actions column is where users can use A to enable and D to disable a monitoring template for the device specified.

Operations	Device Information		Monitoring Template
Action	Device UUID	Device Name	Template Name
A	0130cadc-48b8-441d-81ef-aac6cb3431fe	Buck-ePDU-002-B	Rackmount PDU Eaton
A	04a1ba33-a11c-489c-9aaa-82df2d169e53	Buck-ePDU-001-A	Rackmount PDU Eaton
D	1b8cead4-6b7e-46b8-869e-850e5220883b	Buck-UPS1A	UPS Eaton M2
A	b2238dfe-c721-4a76-a756-484c572908a3	Buck-UPS-Rackmount-001-A	UPS Eaton M2
A	d97c3820-3c9d-4616-858a-aeeda3af7f68	Buck-UPS-Rackmount-002-B	UPS Eaton M2

19.1.2.14. Decommission Devices in Bulk with Spreadsheet

Devices can be decommissioned in bulk by changing the Life Cycle value on the devices tab to Decommissioned.

AS	AT	AU	AV	AW	AX	AY	AZ	BA	BB	
					Device Attributes					
Date Created	Current - Derated	Current - Rated	Space Re U	Space Ret U	Space I	Space Uti	Date Last Modified	Life Cycle	Power - Derated	Pov
2020-06-04 14:34:30.515-04			35 U	0 U	7 U	0.17 %	2020-06-04 14:35:43.411825-04	Decommissioned		
2020-06-04 14:34:30.442-04			37 U	0 U	5 U	0.12 %	2020-06-04 14:35:41.778394-04	Decommissioned		
2020-06-04 14:34:30.687-04							2020-06-04 16:26:43.66824-04	Operational		
2020-06-04 14:34:31.350-04	180.00 A	225.00 A					2020-06-04 14:36:19.39691-04	Operational	323856.00 W	4048
2020-06-04 14:34:31.030-04							2020-06-04 16:15:08.949882-04	Operational		

19.1.3. Import Locations Spreadsheet

Locations can be created by using the Location Import Template available from the Import Wizard page. The template allows users to add countries, states, cities, buildings, floors and areas to the navigation tree in bulk.

1. From the Import | Export menu group select the Import Central menu item.
2. Click on the New Import button.

3. Select the Locations radio button.

4. Click on the Download Template button and a Location Import Template Excel file will be downloaded to your downloads folder.

The Location Import Template includes 6 tabs where the location specifics are entered to create nodes on the navigation tree.

19.1.3.1. Add Cities Tab

Displays the list of known cities available using the Add Cities button when creating a new location.
Note: This table does not change the list in the application. Do not edit.

1. Filter to find the desired city. If your city is not present find a city in the same country and state.

2. Select the row that contains your city.
3. Click on the ADD CITY button.
   a. Continue to filter and add cities as needed.
4. Select the State tab.

19.1.3.2. State Tab

On the State Tab users specify the countries and states to be created on the navigation tree. The tab is populated with the cities selected and added on the Add Cities tab.

Note: If your city was not on the Add Cities tab and the state is not listed for your country, enter "All areas" for the State Name and manually add the city name as seen in row 2 below. "All areas" is case sensitive and must be entered as noted.

1. Edit the State tab if needed.
2. Select the City tab.

19.1.3.3. City Tab

On the City Tab users specify the cities to be created on the navigation tree. The tab is populated with the cities selected and added on the Add Cities tab.

1. Select the State from State Name pull-down menu, you may need to scroll up, to see the list of states that were previously specified on the State tab.
   a. The state drop-down menu includes the states listed on the State tab.
2. Enter the City Name.
3. Enter the latitude for the city in the decimal format (do not include the degree symbol or N/S). Positive number is North (33.152). Negative number is South (-33.3152).
4. Enter the longitude for the city in the decimal format (do not include the degree symbol or E/W). Positive number is East (44.3661). Negative number is West (-44.3661).
5. Optional - Enter description for city.
6. Select the Building tab.

19.1.3.4. Building Tab

On the Building Tab users specify the buildings to be created on the navigation tree.

	A	B	C	D	E	F
1	City Name	Building Name	**Electricity Price	**Number of Floors	Number of Basements	Carbon Emission Factor
2	Atlanta, Georgia (United States)	Atlanta Town Hall	1	2		
3	Miami, Florida (United States)	Miami Town Hall	1	3		
4	Jacksonville, Florida (United States)	Jacksonville Town Hall	1	1		
5	Los Angeles, California (United States)	Los Angeles Town Hall	1	2		
6	Cienfuegos, All areas (Cuba)	Cienfuegos Town Hall	1	1		

Tabs: Add Cities | State | City | **Building** | Floor | Area

1. Select the City from City Name pull-down menu, you may need to scroll up, to see the list of cities that were previously specified on the City tab.
2. Enter the Building Name.
3. Enter the Electricity Price, cost per kwh. (** indicates required field).
4. Enter the number of floors. (** indicates required field).
5. The other fields are optional.
6. Select the Floor tab.

19.1.3.5. Floor Tab

On the Floor Tab users specify the floors to be created on the navigation tree for each building.

	A	B	C	D	E	F
1	Building Name	Floor Name	**Floor Index	1 Phase Voltage	3 Phase Voltage	Description
2	Atlanta Town Hall, Atlanta, Georgia	Floor 1	F1			
3	Atlanta Town Hall, Atlanta, Georgia	Floor 2	F2			
4	Miami Town Hall, Miami, Florida	Floor 1	F1			
5	Miami Town Hall, Miami, Florida	Floor 2	F2			
6	Miami Town Hall, Miami, Florida	Floor 3	F3			
7	Jacksonville Town Hall, Jacksonville, Florida	Floor 1	F1			
8	Los Angeles Town Hall, Los Angeles, Califor	Floor 1	F1			
9	Los Angeles Town Hall, Los Angeles, Califor	Floor 2	F2			
10	Cienfuegos Town Hall, Cienfuegos, All areas	Floor 1	F1			

Tabs: Add Cities | State | City | Building | **Floor** | Area

1. Select the Building from Building Name pull-down menu, you may need to scroll up, to see the list of buildings that were previously specified on the Building tab.
2. Enter the Floor Name.
3. Enter the Floor Index. (** indicates required field).
   The floor index syntax is:
   F1 - first floor
   F2 - second floor
   F3 - third floor, additional floors if specified would follow this naming convention
   Ground - there is automatically a ground floor to represent the outside surroundings of the building. If needed add to floor list.
   B1 (etc) - if basements were specified, B1 is the first basement just below F1 or Ground
4. The other fields are optional.
5. Select the Area Tab

19.1.3.6. Area Tab

On the Area Tab users specify the areas to be created on the navigation tree.
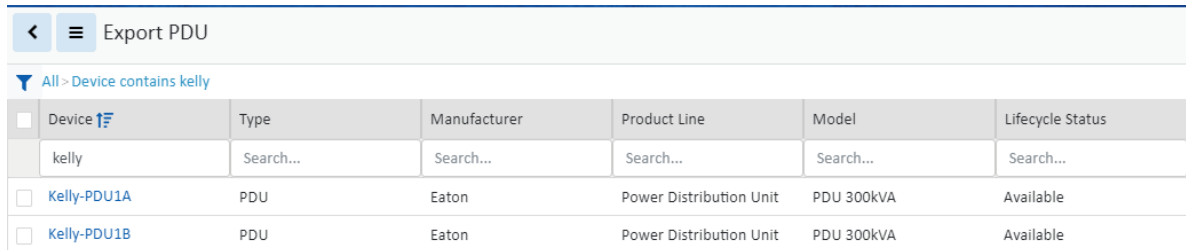
1. Select the Floor from Floor Name pull-down menu, you may need to scroll up, to see the list of floors that were previously specified on the Floors tab.
2. Enter the Area Name.
3. Select a color from the Color pull-down menu.
4. The other fields are optional. **Note**: The Space column is only used if the Area Mode field is set to Manual.
5. Save the spreadsheet and Import.

19.2. Export PDU Menu Item

The Export function for PDUs produces a spreadsheet where the user can manage breakers and panels on PDUs and RPPs for bulk import.

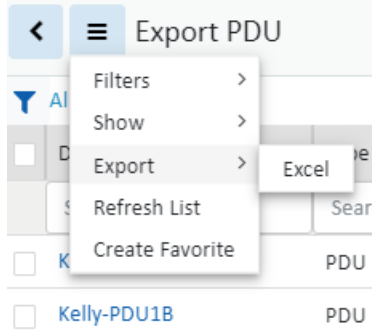1. Filter the list to display the devices to be managed.

2. Click on the table filter button, select Export > Excel

3. The Excel file will be in your Downloads folder named Export Pdu.xlsx
4. Edit the file as needed
5. When the spreadsheet is completed use the Import Wizard to import and create the devices

19.2.1. Editing the PDU Spreadsheet

The exported PDU spreadsheet has two tabs of data with the fields listed in the table below.

Note: When creating new panels and breakers there is no need to define the UUDI fields since the devices do not currently exist. The UUID field acts as the unique identifier in the application database to help identify objects when a referenced object has one instance in the list.

Panel Tab	Defines the panel and breaker configuration settings.
PDU UUID	System identifier for the PDU device.
PDU Name	Name of the PDU device.
Panel UUID	System identifier for the Panel device.
View Mode	Defines how the circuits will be presented in the panel schedule. Options are Single Table or Double Table.
Numbering Scheme	Defines how the circuits will be arranged in each column of a Double Table panel schedule. Options are 1,3,5… or 1,2,3…

Department	Default department for all new breakers configured on the panel. This field is in the format of Company – Department which are defined on the System menu.
Power Rated	Rated power setting for the panel.
Power Derated	Derated power setting for the panel.
Current Rated	Rated Current setting for the panel.
Current Derated	Derated current setting for the panel.
Voltage	Voltage setting for the panel.
Breaker UUID	System identifier for the breaker device.
Breaker Name	Name of the Breaker device.
Phase	Number of phases used by the breaker. Options are 1-Pole Breaker, 2-Pole Breaker and 3-Pole Breaker.
Circuit#	Circuit numbers included in the definition of the breaker. The number of values included in this field must match the number of phases defined in the line above. Circuit values should be separated with a comma and no spaces should be used. For example, an entry of 1,3,5 would be a 3 pole circuit using circuits 1, 3 and 5.
Department	Department assigned to the Breaker and associated power/current data. This field is in the format Company – Department which are defined on the System menu.
Current Rated	Rated current setting for the breaker.
Current Derated	Derated current setting for the breaker.
Voltage	Voltage setting for the breaker.

Connections Tab	Defines the connections between the breaker and the end device.
Cable UUID	System identifier for the cable used to establish the connection.
Cable Name	Name of the cable connecting the breaker to the end device.
Serial Number	Serial number for the cable connecting the breaker to the end device.
Cable Color	Color of the cable connecting the breaker to the end device. **Note:** The field requires the hexadecimal code used for the color. These codes can be retrieved by defining a connection and exporting the connection to the spreadsheet.
Cable Length	Length of the cable connecting the breaker to the end device.
Breaker UUID	System identifier for the breaker device.
PDU Name	Name of the PDU where the Breaker is configured.
PDU Panel	Name of the Panel where the Breaker is configured.
Breaker Name	Name of the Breaker device.
Poles	Listing of the Poles used on the breaker. Options are
Power To (uuid)	Device and port system identifiers for the end device connected to the breaker.
Power To (name)	Device and port names for the end device connected to the breaker.

19.2.1.1. Best Practice

As a best practice, users should import the panel and breaker settings in different phases. This approach can help limit the number of configuration issues that may occur during the import process (i.e. breakers cannot be created until after panels are created). The following three phases are recommended for the import process to create new panels, breakers and connections:

- Create Panels – Complete columns A-L on the Panels tab but there is no need to define the UUID fields since the panels are newly create through the import process.
- Create Breakers – Export the PDU and Panels with the Export spreadsheet and add support for the Breakers which need to be defined. It may be helpful to define a Breaker manually, so it is included in the export process and can be used to easily copy/paste for other breakers which need to be created.
- Create Connections – Using the panel and breaker information imported above, the Connections tab can be completed to establish connections from the breakers to end device.

20. Settings Menu Group

20.1. Attribute Manager Menu Item

The Attributes Manager Menu Item displays a list of all the attributes in the system. The table list contains the following fields:

Table List Column	
Attribute Name	Name of the attribute is also a link to open the attribute form that contains the attribute's configuration.
Category	Displays the attribute's Category. Options are Capacity, Common, Electrical/Power, Environmental, Global, Location, Network, Other, Port, Rack and Server.
Attribute Type	Displays if the attribute is System or Custom generated.
Value Type	Displays the attribute's Value Type. Options are String, Integer, Decimal, Datetime or Enum.
Metric Unit	Displays the attribute value's corresponding Metric Unit of measurement.
US Unit	Displays the attribute value's corresponding US Unit of measurement.
Table List Buttons	**Description**
New	Presents the form for creating a new attribute.
Delete	Deletes the selected attributes from the system.

20.1.1. Attribute Form

Selecting the New button presents the New Attribute form. The New Attribute form has the following fields:

Fields	Description
Name	Attribute name
Category	Display or select the attribute's Category. Options are Capacity, Common, Electrical/Power, Environmental, Global, Location, Network, Other, Port, Rack and Server.
Value Type	Displays the attribute's Value Type. Options are String, Integer, Decimal, Datetime or Enum. For a new attribute select the Value Type. For existing attributes the field is not changeable.
Usage	The usage checkboxes indicate where the attribute is available. Options are Device, Location, Port and Cable.
US Unit	Display or select the attribute value's corresponding US Unit of measurement.
Precision	Numeric value indicates the number of decimal places in value.
Metric Unit	Display or select the attribute value's corresponding Metric Unit of measurement.
Precision	Numeric value indicates the number of decimal places in value.
Description	Enter user defined description for the attribute.
Table List Buttons	**Description**
New	Presents a form for creating a new attribute.
Submit	Creates the new attribute with information from form. Submit also saves changes to an existing attribute's form.
Delete	Deletes the current attribute from the system.

20.2. Unit Manager Menu Item

The Unit Manager Menu Item displays a list of all the units used in the system. The table list contains the following fields:

Table List Column	
Name	Name of the unit is also a link to open the unit form that contains the unit details.
Symbol	Displays the symbol to be used when the unit is applied to a value.
Physical Quantity	Displays the unit's Physical Quantity. Options are area, currency, electric current, electric resistance, energy, flow rate, frequency, information storage, length, mass, power, pressure - stress, ratio, temperature, time, voltage or volume.
Unit Converter	Displays the unit value in relationship to a known unit based on the physical quantity.
Description	Displays user defined description for the unit.
Table List Buttons	Description
New	Presents the form for creating a new unit.
Delete	Removes the select units from the system.

20.2.1. Unit Manager Form

Selecting the New button presents the New Unit Manager form. The form has the following fields:

Fields	Description
Name	Display or edit the Name of the Unit.
Symbol	Display or edit the Symbol to be used when the unit is applied to a value.
Physical Quantity	Display or select the unit's Physical Quantity. Options are area, currency, electric current, electric resistance, energy, flow rate, frequency, information storage, length, mass, power, pressure - stress, ratio, temperature, time, voltage or volume.
Unit Converter	Display or enter the unit value in relationship to a known unit based on the physical quantity.
Description	Enter user defined description for the unit.
Table List Buttons	Description
New	Presents a form for creating a new unit.
Submit	Creates the new unit with information from form. Submit also saves changes to an existing unit's form.
Submit & New	Increases efficiency when creating a number of units sequentially by creating a new unit with existing values and presenting a blank new form.

20.3. Applications Menu Item

The Applications Menu Item displays a list of all the applications that have been manually added to the system. The table list contains the following fields:

Table List Column	
Name	Name of the application is also a link to open the application form that contains the application details.
OS Type	Displays if the application runs on Windows or Non-Windows platforms.
Purchased License Count	Displays the value entered that designates how many licenses the facility has for a particular application.

Actual Number of Installs Found	Displays a count for the number of instances where the application was manually associated with devices. The application is associated with a device via the application function tile in device central.
Table List Buttons	**Description**
New	Presents the form for creating a new application.
Delete	Deletes the selected applications from the system.

20.3.1. Application Form

Selecting the New button presents the New Application form. The form has the following fields:

Fields	**Description**
Name	Display or edit the Name of the Application.
OS Type	Display or edit the application's OS Type. Options are Windows and Non-Windows.
Purchased Licensed Count	Display or enter the number of licenses available for the application.
Table List Buttons	**Description**
New	Presents a form for creating a new application.
Submit	Creates the new application with information from form. Submit also saves changes to an existing application's form.
Submit & New	Increases efficiency when creating a number of applications sequentially by creating a new application with existing values and presenting a blank new form.

20.4. System Settings Menu Item

The System Settings Menu Item displays an interactive list of the system's settings.

Setting Name	**Value**	**Description**
3D Client Alarm Popup	Switch to turn on and off	Allows the user to control the behavior of the alarm popup message in the 3D client. When alarms are generated in the application, the alarm popup will provide a visual and audio notification in the bottom right of the 3D client. Users can click the popup message for more detail on the alarm which was generated.
Access Control Passcode	Click on the field to change the passcode	Access Control Passcode, default passcode "000000" is for communicating with rack access control devices (electronic rack handles).
Access Control Tag Attribute	Click in field to enter value	The system attribute that will correlates to the lookup and unlock functions in Mobile Security Manager.
Access Control User ID	Click in field to enter value	The User ID that pairs with the Access Control Passcode for communicating with rack access control devices (electronic rack handles).
Allow Rack Overlap	Switch to turn on and off	When set to on users can place racks on the floorplan which overlap other racks. When set to off users are not allowed to place racks on the floorplan which are within the specified distance. This setting is particularly important when using the Join feature for racks on the floorplan. The distance between racks using the Join feature must be equal to or greater than the distance defined with this setting when enabled.

Allow Rackmount Device Overlap	Switch to turn on and off	When set to on this feature will allow users to place devices into a Rack with overlap to other device already mounted into the rack. When set to off the user is not allowed to place devices in the rack which overlap with other devices.
Currency Symbol	Click to select from the drop-down list	Currency Symbol
Device Grid Reference Point	Click to select from drop-down menu.	Allows users to define the point on a device which is used to populate the Row and Column attributes. For a device to inherit the Row and Column values, the area on the floor must have a grid defined in the Floor Studio feature of the application and the device must be assigned to a location. Options: Left Front Corner, Right Front Corner, Front Middle
End Network Path at End Device	Switch to turn on and off	When set to on the Network Path will only show connections to the next End Device. When set to off the Network Path will show all connections beyond the End Device until the Max Network Path Hops limit is reached.
Generate Audit When Work Order is Submitted	Switch to turn on and off	Generate Audit When Work Order is Submitted
Layer Refresh Interval	Click in field to enter value	Defines the frequency for data refresh on the Layer floorplan views. The unit for this value is Seconds.
Max Network Path Hops	Click in field to enter value	Controls the number of connections to show in the Network Path feature of the application. **Note:** For devices such as a patch panel, the connection of the front patch panel port to the rear patch panel port will be counted as 1 for this connection limit.
Password Expiration Days	Click in field to enter value	Number of days a new password remains valid. If set to 0, then the user login passwords will never expire.
Require Unique Cable Names	Switch to turn on and off	When set to on all cable names defined in the application must have a unique name. When set to off users can name multiple cable connections with the same name. **Note:** This is a global setting for all locations and devices in the application.
Require Unique Port Names	Switch to turn on and off	When set to on users are not allowed to create ports on a device with the same port name as an existing port. When set to off users can define port names which match an existing port. This setting applies to a single device only. The same port name can be defined on different devices regardless of the value of this setting.
Show All Available Color	Switch to turn on and off	When choosing a color from the color palette the available options can be limited. If this setting is on, then all of the available colors will be shown. If this setting is off, then a limited subset of colors will be available to choose from the color palette.
Timestamp Format	Click to select from drop-down menu	Timestamp Format
Verify Rack U Collision	Switch to turn on and off	In the 3D Client, when set to ON the user is not allowed to place devices in the rack which collide with devices mounted to the other side of the rack. When set to OFF users may place devices into a rack which collide with other devices already mounted into the rack.
Table List Buttons		**Description**
Submit		Click to save changes to any of the settings.
Use Default		Resets to default values.

20.5. Port Settings Menu Item

The Port Settings Menu Item displays a list of all Port Setting network options in the system. Users can define Network options for use when assigning a Network attribute for ports. The table list contains the following fields:

Table List Column	
Network Name	Name of the network is also a link to open the form that contains the network details.
Network Type	Displays if the network type is Network or Storage.
Maximum Speed	Displays the maximum network speed set for the network.
Unit	Displays the unit for maximum speed, typically MB/s.
Table List Buttons	Description
New	Presents the form for creating a new port setting.
Delete	Deletes the selected port setting from the system.

20.5.1. Port Settings Form

Selecting the New button presents the Port Settings form. The form has static fields and check boxes.

Fields	Description
Network Name	Name for the network.
Maximum Speed	Maximum speed for the network.
Check Boxes	Description
Storage Network	Identifies the type of network. Check sets the type to Storage and unchecked the type is Network.
Set As Default	If checked this will be the default network setting for ports.
Table List Buttons	Description
New	Presents a form for creating a new network.
Submit	Creates the new network with information from form. Submit also saves changes to an existing network form.
Submit & New	Increases efficiency when creating a number of networks sequentially by creating a new network with existing values and presenting a blank new form.

20.6. Port Allocations Menu Item

By default, all network and power ports are counted towards the racks in which the devices are mounted. If users would like to allocate ports, for purposes of capacity and utilization reporting, to other racks, then this tool enables user to allocate the ports to the other racks.

The Port Allocations Menu Item displays a list of all Port Allocation objects in the system. The Port Allocation object contains the details regarding which ports are being reallocated to which racks. The table list contains the following fields:

Table List Column	
Port Allocations Name	Name of the Port Allocations object and is also a link to the form that contains the port allocations' details.
Port Type	Displays the type of ports allocated in the port allocation object.

Ports	Displays the number of ports being allocated in the port allocation object.
Allocation Racks	Displays the number of racks where the ports are being allocated in the port allocation object.
Table List Buttons	**Description**
New	Presents the form for creating a new port allocation object.
Delete	Deletes the selected port allocation object from the system.

20.6.1. Port Allocations Object Form

Selecting an existing port allocations item presents the Port Allocations Object form. The form has static fields in the top section followed by tabs that present their own lists related to the port allocations object.

Fields	Description
Port Allocations	Displays the name of the port allocations object.
Port Type	Displays the type of ports allocated in the port allocation object. When creating a new port allocation object the port type can be set to Network, Power or Storage.
Table List Buttons	**Description**
New	Displays an empty port allocations object form to create a new manufacturer.
Submit	If a form field is editable the Submit button becomes active and is used to update the form.
Delete	Deletes the current form.
⋩ ⋨	These buttons collapse and expand the upper area of the form to provide more space for the tables.

20.6.1.1. Ports Tab

The initial view presented when the Ports Tab is selected is a list of ports included in the port allocations object.

List Column	
Device Name	Name of the device where the port resides. The name is also a link to the device's device central page.
Location	Displays the location information for the device.
Port Name	Displays the port name to be included in the port allocations object.
Port Status	Displays if the port is available or not.
Port Type	Displays the port's type.
Network	Displays the network assigned to the port.
Speed (MB/s)	Displays the network's speed.
VLAN	Displays VLAN information.
User List Buttons	
Add	Displays a list of all available ports. Select the desired ports and click the Submit button to add to the list. Click the Close button to close the window.
Remove	Removes the selected ports from the list.

20.6.1.2. Allocated Racks Tab

The initial view presented when the Allocated Racks Tab is selected is a list of racks included in the port allocations object.

List Column	
Device Name	Name of the rack where the port will be allocated. The name is also a link to the rack's device central page.
Model	Displays the rack's model name.
Product Line	Displays the rack's product line.
Manufacturer	Displays the rack's manufacturer.
Serial Number	Displays the rack's serial number.
Asset Tag	Displays the rack's asset tag.
Groups	Displays the rack's groups.
Location	Displays the rack's location.
User List Buttons	
Add	Displays a list of all available racks. Select the desired racks and click the Submit button to add to the list. Click the Close button to close the window.
Remove	Removes the selected racks from the list.

21. Branch Circuit Monitoring

When the device type is a PDU or RPP the Device Central page has three extra function tiles for branch circuit monitoring.

- Panels function tile displays the panel schedule and the ability to edit and create new ones.
- Breakers function tile displays the existing breakers and the ability to edit and create new ones.
- Circuits function tile displays the existing circuits and the ability to edit and create new ones.

The following sections detail the specific steps needed to configure branch circuit monitoring for PDU panels and to map the data to Rackmount PDU devices.

21.1.1. Create PDU Device

The first step is to create a standard PDU or RPP device in the device list. This can be done manually in the Devices menu group > Devices menu item of the application or this device can be cloned from an existing device or imported using the bulk import tool. Branch circuit monitoring is only available for devices where the device type is PDU or RPP. Once created, users should place this device on the floorplan.

Note: The PDU should have values in the following attributes before moving forward with creating panels and breakers.

- Current - Derated in Amps
- Current - Rated in Amps
- Power - Derated in Watts
- Power - Rated in Watts
- Circuit % Critical - when the monitored value on a breaker exceeds this percentage of the derated current the value is shown in red on the PDU dashboard.
- Circuit % Warning - when the monitored value on a breaker exceeds this percentage of the derated current the value is shown in yellow on the PDU dashboard.

Actual Amp		Derated (A)	Rated (A)	Customer	Device	Breaker	Circuit	Phase	Circuit	Bre
3	6.25 %				ePDU - G619K11068		1	A	2	
1	2.08 %	48.0	60.0	OPI IT	ePDU - G619K11068	Breaker 1	3	B	4	
2	4.17 %				ePDU - G619K11068		5	C	6	

(Tabs above table: PDU1A-Panel 1, PDU1A-Panel 2)

   - **Note:** This does NOT trigger alarms, those would need to be configured separately.

21.1.2. Creating Panels and Breakers

In order for data to be properly displayed in the panel schedules and to allow users to map the data to other power consuming devices, users must create the Panels and Breakers for the PDU or RPP device.

21.1.2.1. Create Panels

1. Go to the Devices menu group and Select the Devices menu item.
2. Filter for the desired PDU or RPP device.
3. Click on the device name to open its Device Central page.
4. Select the Panels function tile.

5. Click on the New button.
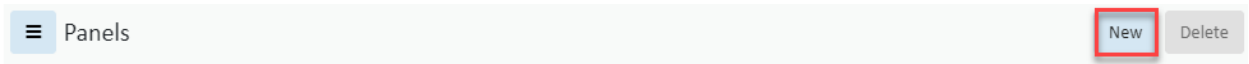
6. Fill out the New Panel form.

a. Panel Name – Define the panel name. **Note:** This device will be created in the device list so if there are many PDU devices with Panel A then you should differentiate the panel name so it can be distinguished in the full device list.
    Note: A panel becomes a device in the system and as such panels should have unique names. We recommend naming the panel to indicate the PDU to which it belongs, for example, PDU1A-Panel 1.
b. View Mode – The panel schedule can be displayed in a single column of circuits or in two columns of circuits.
c. Numbering Scheme – Circuits in the panel schedule can be either 1, 3, 5, etc or 1, 2, 3, etc. Users should select the appropriate setting for their PDU/RPP device.
d. Power|Current Rated|Derated – Capacity values for the panel which can be used for measuring utilization.
e. Volts – Setting to define the Volts of the panel.

Branch Circuit Monitoring

f. Department – This value will be used as the default setting for new Breakers defined on the panel. **Note:** The breaker can override this setting.
7. Click the Submit button to create the panel.

21.1.2.2. Create Breakers

1. Go to the Devices menu group and Select the Devices menu item.
2. Filter for the desired PDU or RPP device.
3. Click on the device name to open its Device Central page.
4. Select the Breakers function tile.

5. Click on the New button.
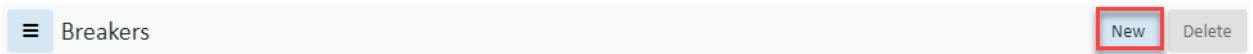
6. Fill out the New Breaker form:

a. Panel - Select the panel (from the pull-down list) where this breaker will be created.
b. Breaker Name – Define the breaker name.
   Note: A breaker becomes a device in the system and as such breakers should have unique names. We recommend naming the breaker to indicate the PDU and panel to which it belongs, for example, PDU1A-Panel 1-Breaker 2.
c. Breaker Type – Define if the breaker is a 1, 2, or 3 phase breaker. The number of Circuit input boxes will update based on the selection of the Breaker Type option.
d. Circuit – Define the circuit numbers which comprise the breaker. Users only need to input the first circuit value and the other circuit input boxes will be populated automatically based on the panel settings.
e. Current Rated|Derated – Capacity values for the panel which can be used for measuring utilization. These will be displayed in the panel schedule along with the actual current values.
f. Volts – Setting to define the Volts of the panel.

g. Department – Department for the breaker. This setting can help provide billing reports for customers using data from the PDU branch circuit monitoring data.

h. Electricity Price - Set the

7. Click the Submit button to create the breaker.

21.1.3. Create a Monitoring Template for the Panels

Create a monitoring template for the panels using the following Attributes and Applied Rules.

- For each circuit add the corresponding attribute with the name *PDU - P1C0# Current* where the # matches the circuit number. For example:
  - o Attribute PDU - P1C01 is for Circuit 1
  - o Attribute PDU - P1C03 is for Circuit 3
  - o **Note:** Use these same attributes for all panels to ensure that monitored information flows to the dashboard.
- Configure the attribute to communicate via the appropriate protocol to the data point. For SNMP enter the OID.
- Set the Applied Rules at the appropriate level to link the monitoring template to your PDU panels.

Note: See the Monitoring Templates Menu Item section of this document for monitoring template details.

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21.1.4. Connecting Breakers to Rack PDU Devices

A common need for power management and properly defining the full power path for end IT devices is to connect Rack PDU devices to the Breakers. This function is performed with the Port Mapping tool and is similar to connecting standard power in|out ports on IT devices.

1. From the Connections menu group select the Port Mapping menu item
2. On the Port Mapping page

   a. Filter the left table to display the breakers.
   b. Select the breaker by checking the box next to the breaker name.
   c. Filter the right table to show devices on Same Floor.
   d. Filter the device field to display the desired rack PDU.
   e. Click the triangle next to the rack PDU name to show ports and select the desired port by checking the box next to the port name.
3. Click the Connect button.
4. Edit the New Cable page as desired.

5. Click the Submit button to complete the connection.

Once these connections are established the power path for the Rack PDU device will now include the breaker, panel and PDU device to which is was connected.

21.1.5. Activating Monitoring for Branch Circuit Data

Activating monitoring is done at the panel level. Panel monitoring requires the panel IP address, protocol configuration and turning on the monitoring template to fully activate monitoring.

1. From the PDU device central page Select the Monitor function tile.
2. Edit the Monitoring Config tab for the panel and Click the Submit button
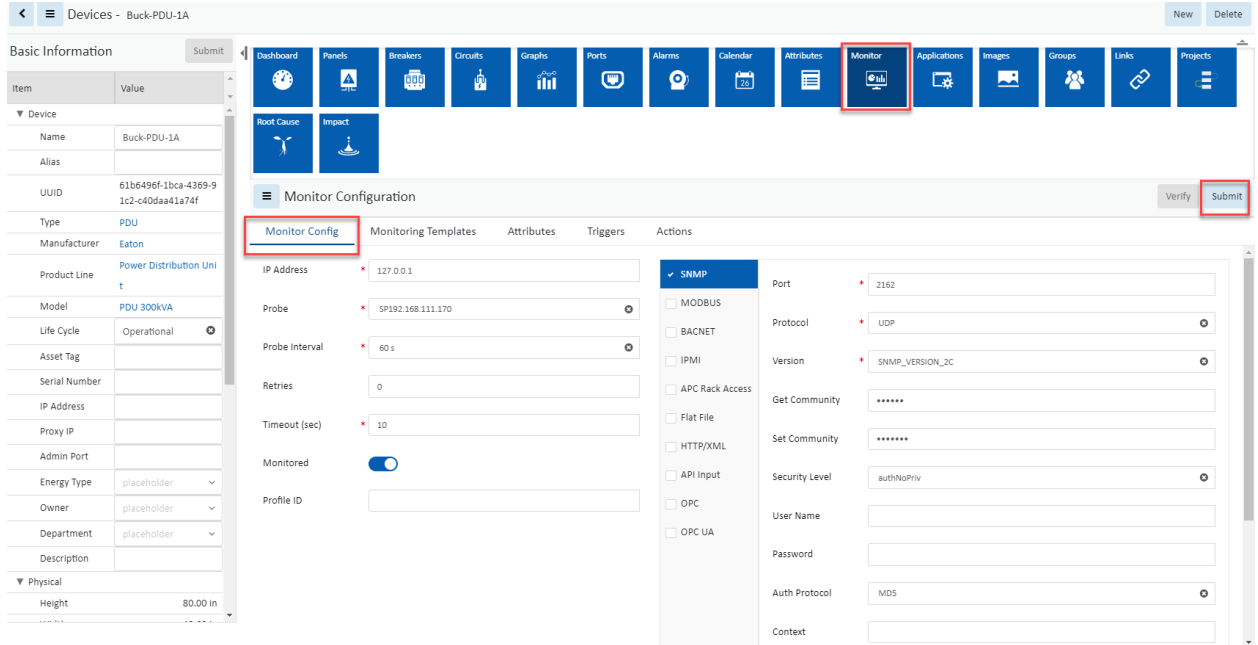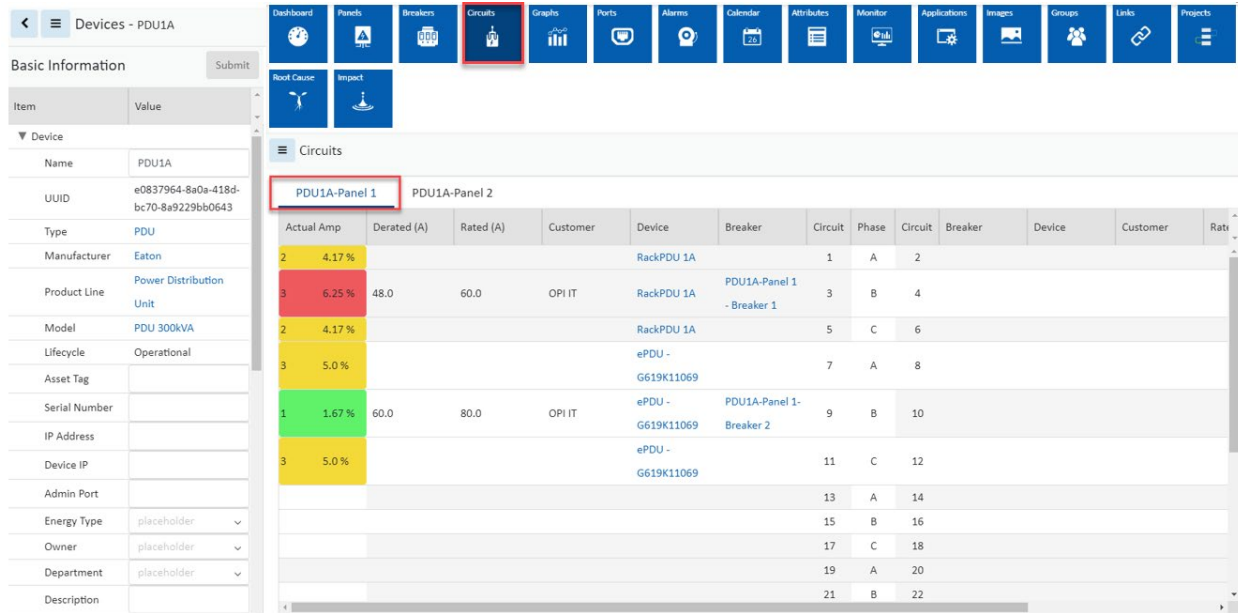
3. Select the Monitoring Template tab.
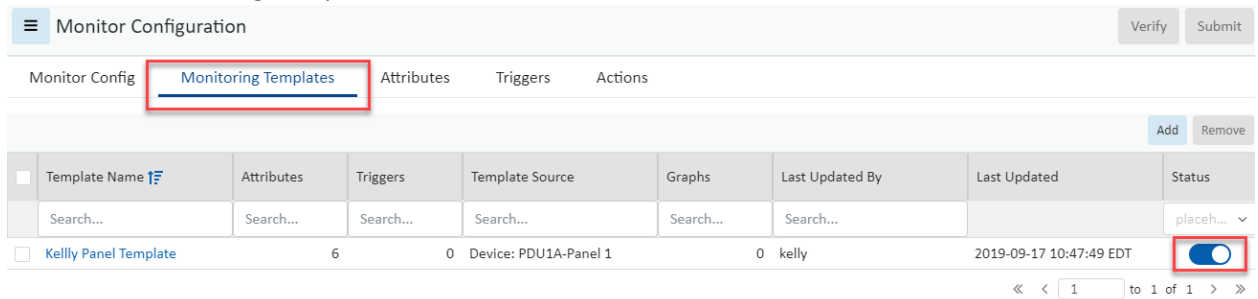
4. Flip the Switch to turn on the monitoring template.

21.1.6. Viewing Panel Schedules

When the configuration and monitoring settings have been completed users can view the PDU/RPP panel schedules and other relevant PDU/RPP device information by selecting the device in the devices list and viewing the Circuits function tile. If multiple panels are defined for the PDU/RPP they will be listed in separate tabs at the top of the panel schedule listing.

Item	Description
Actual Amp and %	Displays the live data which is collected and mapped to the circuits on the panel and its percentage of the derated value. The Circuit % Critical and Circuit % Warning PDU attribute values determine if the background color for the column reports normal (green), warning (yellow) or critical (red).
Derated (A)	Attribute defined by users for the selected device. The Current – Derated attribute is used for this value.
Rated (A)	Attribute defined by users for the selected device. The Current – Rated attribute is used for this value.
Customer	Displays the Department set at the breaker or the panel if not set at the breaker.
Device	Displays the name of the device that has been connected via port mapping to the circuit.
Circuit	Displays the circuit number.
Phase	Displays the phase.

21.1.7. PDU Floor Device Dashboard Attribute Map

Device Type: PDU		
Section: Panel Schedule		
Field Title	**Scalar Attribute**	**Tabular Attribute**
	PDU - P1C01 Current	
	PDU - P1C02 Current	
	PDU - P1C03 Current	
	PDU - P1C04 Current	
	PDU - P1C05 Current	
	PDU - P1C06 Current	
	PDU - P1C07 Current	
	PDU - P1C08 Current	
	PDU - P1C09 Current	
	PDU - P1C10 Current	
	PDU - P1C11 Current	
	PDU - P1C12 Current	
	PDU - P1C13 Current	
	PDU - P1C14 Current	
	PDU - P1C15 Current	
	PDU - P1C16 Current	
	PDU - P1C17 Current	
	PDU - P1C18 Current	
	PDU - P1C19 Current	
	PDU - P1C20 Current	
Actual Amp	PDU - P1C21 Current	
	PDU - P1C22 Current	
	PDU - P1C23 Current	
	PDU - P1C24 Current	
	PDU - P1C25 Current	
	PDU - P1C26 Current	
	PDU - P1C27 Current	
	PDU - P1C28 Current	
	PDU - P1C29 Current	
	PDU - P1C30 Current	
	PDU - P1C31 Current	
	PDU - P1C32 Current	
	PDU - P1C33 Current	
	PDU - P1C34 Current	
	PDU - P1C35 Current	
	PDU - P1C36 Current	
	PDU - P1C37 Current	
	PDU - P1C38 Current	
	PDU - P1C39 Current	
	PDU - P1C40 Current	
	PDU - P1C41 Current	
	PDU - P1C42 Current	
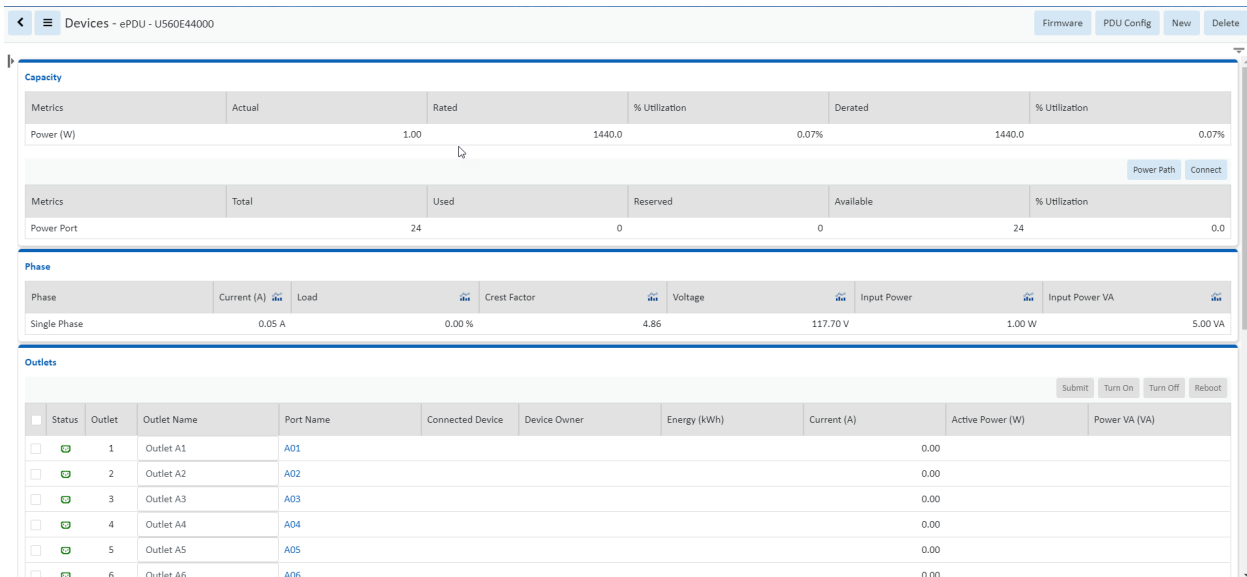
22. Device Dashboards

Standard device dashboards show Real-time Monitoring Data for the monitored data points. The device types in this section have enhanced dashboards. When a device name link is selected from the devices list or other views, the Device Central page is loaded. Device Dashboards are visible when the Dashboard function tile is selected. The Dashboard function tile is selected by default when the Device Central page opens.

The following sections will provide details for the various enhanced device dashboards accessed through the Dashboard function tile. For details regarding the other function tiles please refer to the Device Central section of this document.

22.1. PDU Rackmount Device Dashboard

When the device type is PDU - Rackmount the PDU Rackmount Dashboard page is loaded when the Dashboard function tile is selected in device central.

22.1.1. Buttons

Item	Description
Firmware Button	Allows user to select a firmware file from the firmware library and upload to the current PDU. The Firmware Management section of this document details how to add files to the firmware library and bulk load to multiple PDUs.
PDU Config Button	Allows user to browse for the manufacturer's xml configuration file from their local workstation and upload it to the PDU.
New Button	Opens the form to create a new device.
Delete Button	Deletes the current device.

22.1.2. Capacity Tables

22.1.2.1. Power Capacity Table

Item	Description
Actual	Power value collected from the device using the Active Power monitor attribute.
Rated	Attribute defined by users for the selected device. The Power – Rated attribute is used for this value.
% Utlization	Percent of Rated value that the actual power represents.
Derated	Attribute defined by users for the selected device. The Power – Derated attribute is used for this value.
% Utilization	Percent of Derated value that the actual power represents.
Power Path Button	Displays the power path flow chart for the device.
Connect Button	Opens the port mapping page filtered for the current device ready to create connections.

22.1.2.2. Port Capacity Table

Item	Description
Metrics	Indicates type of port.
Total	Displays total number of ports on the device.
Used	Displays number of ports used.
Reserved	Displays number of ports reserved.
Available	Displays number of ports available.
% Utilization	Displays the percentage of ports used.

22.1.3. Phase Table

Item	Description
Phase	Power Phase of the device.
Current (A)	Current value of the Phase.
Load	Percentage Load of the Phase.
Crest Factor	Crest factor of the Current that is provided by the Phase.
Voltage	Voltage of the Phase.
Input Power	Input Power in Watts of the Phase.
Input Power VA	Input Power in Voltamps of the Phase.

22.1.4. Outlets Table

The Outlets table provides several outlet level data and control features for the selected device. Not all models support the outlet level data collection and/or data control features. Turn On, Turn Off and Reboot features are only enabled for Eaton devices which support this capability.

When an outlet is selected and the Reboot command is issued, the user will be prompted to reboot all power outlets of the device connected to the chosen port or to only reboot the selected port. Rebooting all outlets will issue simultaneous reboot commands to all power outlets connected to the device which will result in a hard reboot of the device. A 20 second delay will be assigned to the restart of these outlets.

If more than one outlet is selected and the Reboot command is issued, then the user will be prompted to determine if remote outlets should be rebooted for each device individually. This will allow users to determine how to handle each outlet independently.

Item	Description
Turn On Button	Outlets which are selected will be sent the command to turn On. A warning appears before the command is sent to the target device.
Turn Off Button	Outlets which are selected will be sent the command to turn Off. A warning appears before the command is sent to the target device.
Reboot Button	Outlets which are selected will be sent the command to Reboot the outlet. A warning appears before the command is sent to the target device. When sent there may be a delay on processing at the end device. The application will immediately show the outlet state as Off and will return to On when a polled data returns an On value.
Warning	The warning gives users the option of cancelling the On, Off and Reboot commands. Users can select to stop showing the warning for the current login session by checking "Don't show this message again."
Checkbox	When selected, the outlets will be included in the On, Off and Reboot functions.
Status	Shows the status of the LED for On (Green) and Off (Red) values. These outlet status icons do not relate to monitoring or alarm thresholds defined for the device.
Outlet	Outlet index number for the outlet on the selected device.
Outlet Name	Outlet name collected from the device. Users can select the Edit icon to update the Outlet name and the name will be written to the target device. **Note:** The outlet name must be under 12 characters.
Connected Device	Device name of the device connected to the outlet in the Port Mapping feature of the application.
Device Owner	Owner of the device connected to the outlet in the Port Mapping feature of the application.
Energy kWh	Energy value collected from the device using the Outlet Energy_Port## attribute. The date listed in this field is collected from the device and indicates the "Energy Since" date for the reported Energy value. Resetting this counter must be done on the device web interface directly.
Current (A)	Current value collected from the device using the Outlet Current Port## attribute.
Active Power (W)	Active Power value collected from the device using the Outlet Power Port## attribute.
Power VA (VA)	Voltamp value collected from the device using the Outlet VA Port## attribute.

22.1.5. PDU Rackmount Device Dashboard Attribute Map

Field Title	Scalar Attribute	Tabular Attribute
Device Type: PDU - Rackmount	
Section: Capacity	
Actual	Active Power	
Rated	Power - Rated	
% Utilization	Active Power/Power - Rated	
Derated	Power - Derated	
% Utilization	Active Power/Power - Derated	
Section: Phase	
Phase	Input Phase 1 Name	Input Phase Name
Phase	Input Phase 2 Name	Input Phase Name
Phase	Input Phase 3 Name	Input Phase Name
Current	Input Current 1	Input Current
Current	Input Current 2	Input Current
Current	Input Current 3	Input Current
Load	Input Current % Load Phase 1	Input Current % Load
Load	Input Current % Load Phase 2	Input Current % Load
Load	Input Current % Load Phase 3	Input Current % Load
Crest Factor	Input Current Crest Factor Phase 1	Input Current Crest Factor
Crest Factor	Input Current Crest Factor Phase 2	Input Current Crest Factor
Crest Factor	Input Current Crest Factor Phase 3	Input Current Crest Factor
Voltage	Input Voltage Phase 1	Input Voltage
Voltage	Input Voltage Phase 2	Input Voltage
Voltage	Input Voltage Phase 3	Input Voltage
Input Power	Input Power Phase 1	Input Power
Input Power	Input Power Phase 2	Input Power
Input Power	Input Power Phase 3	Input Power
Input Power VA	Input Power VA Phase 1	Input Power VA
Input Power VA	Input Power VA Phase 2	Input Power VA
Input Power VA	Input Power VA Phase 3	Input Power VA
Section: Outlets	
Status	Outlet Status 1...48	Outlet Status
Outlet	Outlet ID 1...48	Outlet ID
Outlet Name	Outlet Name 1...48	Outlet Name
Energy(kWh)	Outlet Energy 1...48	Outlet Energy
Current	Outlet Current 1...48	Outlet Current
Active Power	Outlet Power 1...48	Outlet Power
Power VA	Outlet VA 1...48	Outlet VA

22.2. Rack Device Dashboard

When the device type is a rack the Rack Dashboard page is loaded when the Dashboard function tile is selected in device central.

Trend Chart icons are located on the dashboard which will open a trend chart interface for the selected data point or multiple data points. The following sections and detailed data are available on this dashboard interface.

22.2.1. Manage Button

The Manage button opens the Rack Manager page for the selected rack allowing users to manage devices within the rack and to view rack detail and capacity information.

22.2.2. Current (Amps) Capacity Charts

Two charts are presented to the user to provide information related to the capacity and actual values of the racks for current (Amps). The values shown in the rack charts are inherited from one of three locations based on the following rules. This source of power is defined at the top of the chart with the Power Source designation.

- PDU – Rackmount – If the rack has one or more PDU – Rackmount devices mounted into the rack which are actively being monitored for actual current then the Rackmount PDU values will be used.
- PDU/RPP – If the PDU – Rackmount devices are not actively being monitored AND the Rackmount – PDU devices are connected to PDU/RPP Branch Circuit monitoring panels then the current and power data for the rack will be pulled from the Branch Circuit monitoring configurations.
- UPS – Rackmount – If neither of the conditions above exists and the rack has monitored UPS – Rackmount devices then the power data for the rack will be pulled from these devices.

In either case, the A|B Power setting for the data is derived from the attribute setting at the monitored device. The name of the attribute is A-B Side Power in the Electrical/Power attribute category.

The actual current values will be compared to the Derated Current values for the rack device. There are two attributes to define with the racks to establish this derated value for the A and B sides of the power connections. The attribute names to define for this feature are A Current Derated and B Current Derated in the Electrical/Power attribute category.

Device Dashboards
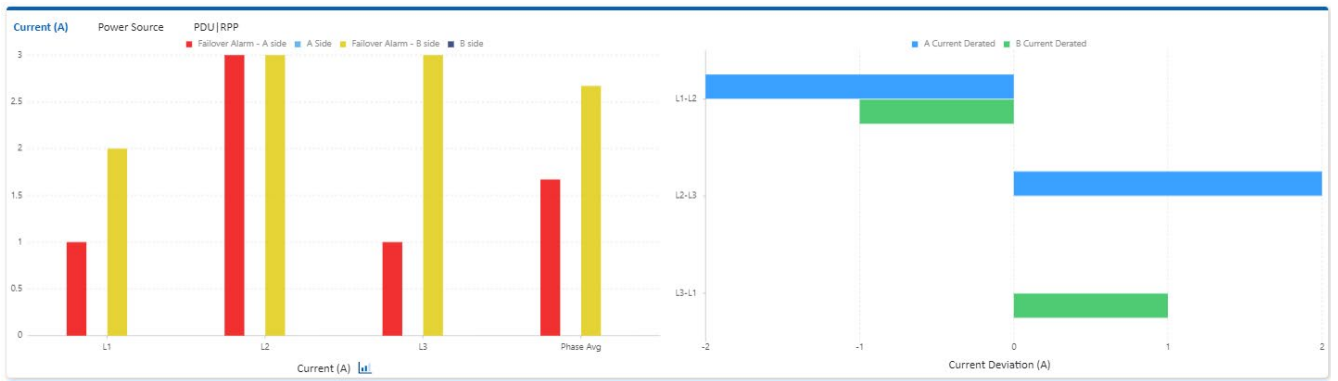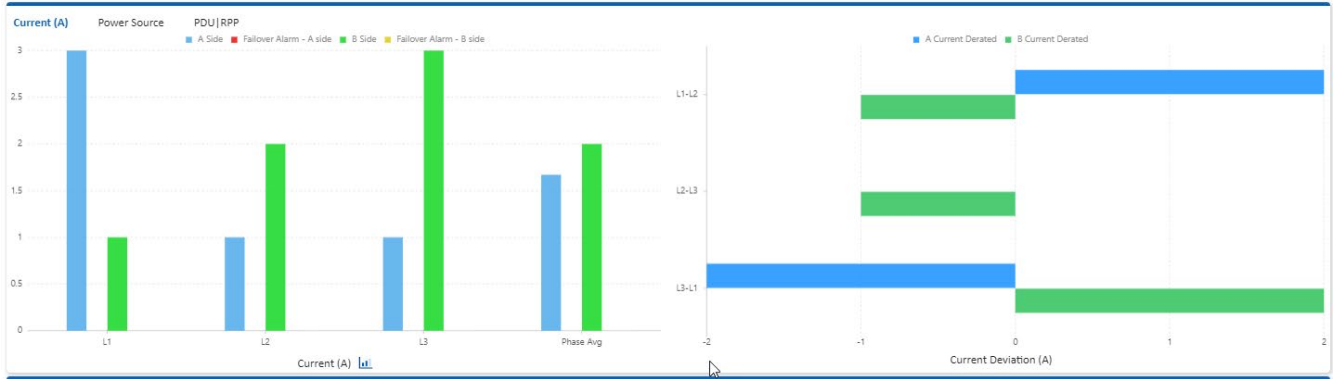
- Current Chart – Shows the A and B Current actual values for each phase (L1, L2 and L3) connected to the rack. If there is a single-phase power source for the rack then only one bar will be displayed.
- Current Deviation – Shows the balance of current on phases by showing the difference on phases for both A and B rated power sources.

The bar charts presented in the graph will be blue for A side values and green for B side values. If the Phase (L1, L2, L3 or Phase Average) is not able to withstand a failover from A to B then the A is red and B is yellow to indicate failover issues.

Note: If the rack has an IP address the alarm subsystem will generate a Critical alarm for the Rack indicating which phase and A|B power side is in this important alarm condition. These alarms can be managed and routed with the standard alarm processing tools covered in a separate section of this document.

22.2.3. Power

Two tables of power data are provided to the user in the rack dashboard.

In the top table, a summary of A and B Current readings is provided. The following defines the values used in this table:

- A | B power – Will sum the values for all PDU Rackmount devices mounted to the rack with the A or B Side Power designations.

- Current Rated – Sum of all Current – Rated attribute settings.
- Current Derated – Sum of all Current – Derated attribute settings.
- L1 Current (A) – Phase 1 readings for the mounted devices
- L2 Current (A) – Phase 2 readings for the mounted devices
- L3 Current (A) – Phase 3 readings for the mounted devices
- Avg Current (A) – Average of the three phase reading for mounted devices

In the second table, a list of all mounted UPS Rackmount devices will be displayed showing:

- A | B Power
- UPS Remaining Time
- UPS Load (W)
- Rated Utilization
- Derated Utilization
- Redundancy Test
- Input Voltage (V)

22.2.4. Environment

This table will list the Temperature and Humidity data points for all mounted devices which are collecting this value.
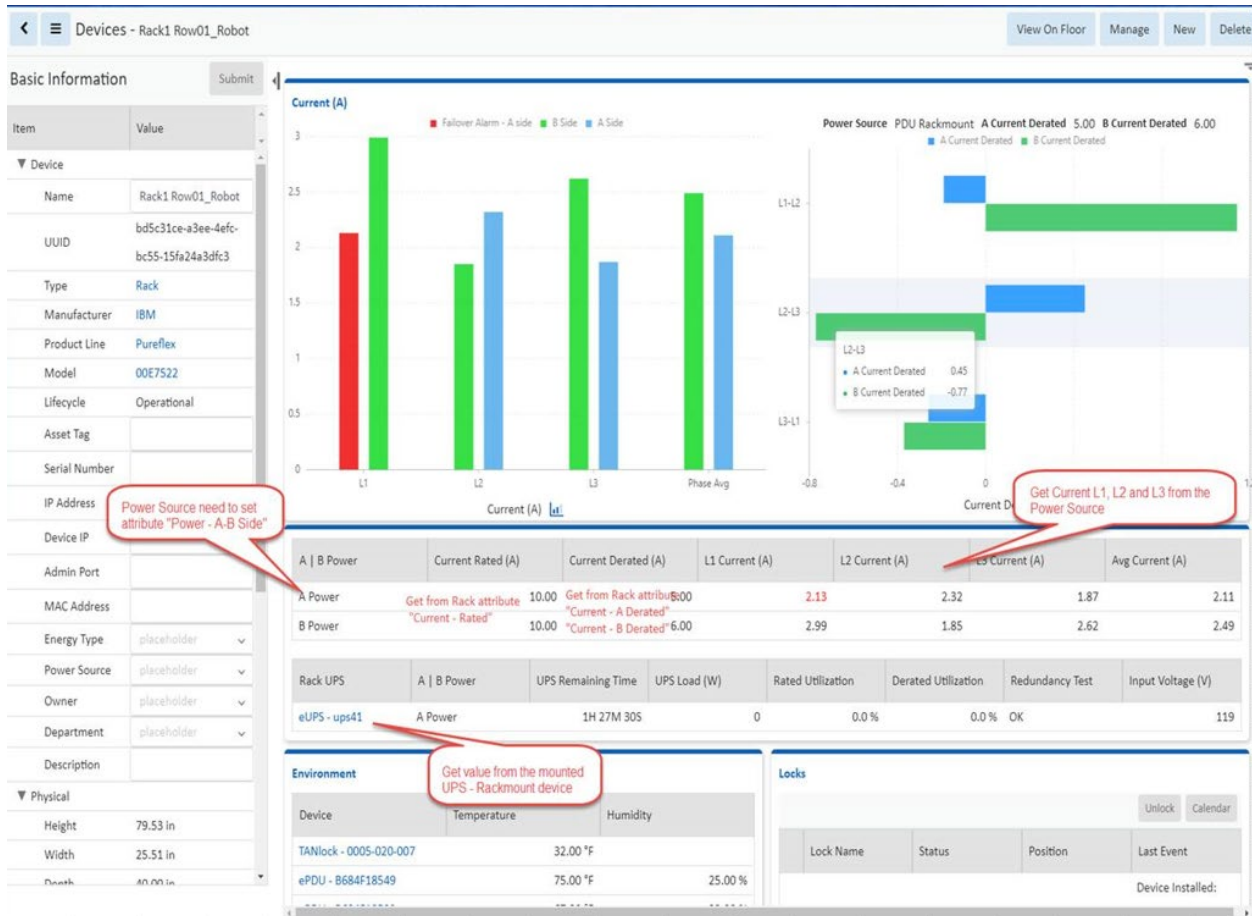
22.2.5. Locks

This table will list the Locks associated with the rack. The table fields include:

- Lock Name
- Status
- Position
- Last Event
- Unlock button to open the lock
- Calendar button to access the list of events associated with the lock

22.2.6. Rack Device Dashboard Attribute Map

The graphic below displays the name of the device attribute that is feeding data to the dashboard item.

22.3. Rack Group Dashboard

When the device type is a rack and the it belongs to a rack group, the Rack Group page is loaded when the Rack Group function tile is selected in device central. If a rack is not associated with a rack group, then the Rack Group function tile is black and cannot be selected.

22.3.1. Capacity Chart

The upper portion of the Rack Group dashboard displays the aggregated values of all racks in the Rack Group for key performance metrics. Beneath the aggregated data is a table with each rack's individual power metrics.

22.3.2. RU Fragmentation Chart

The RU Fragmentation chart shows the rack unit size across the bottom axis. The left axis indicates how many devices of that unit size can be accommodated in the rack group.

22.3.3. 7-Day Rack Group Power Consumption Chart

The 7-Day Rack Group Power Consumption chart displays a trend line for power consumption over the last 7 days.

22.3.4. Power By Racks (W) Chart

The Power By Racks chart shows how much power in watts is currently used by each rack in the rack group.
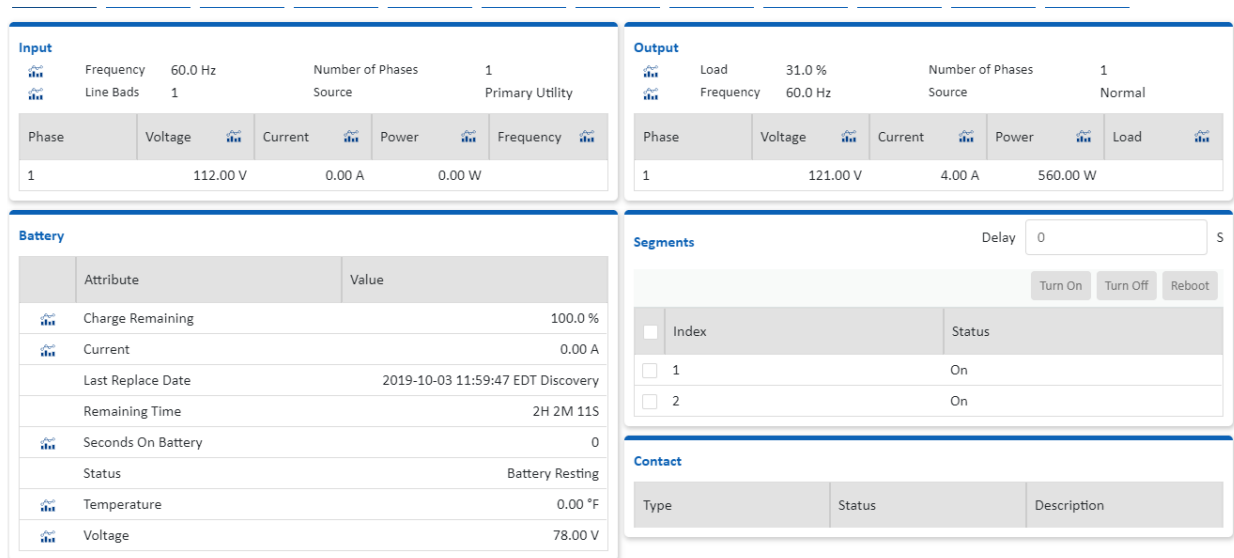
22.4. UPS Floor Device Dashboard

When the device type is a UPS the UPS Dashboard page is loaded when the Dashboard function tile is selected in device central.

The following sections and detailed data are available on this dashboard interface.

Several Trend Chart icons 🏭 are located on the dashboard which will open a trend chart interface for the selected data point or multiple data points.

22.4.1. Buttons

Item	Description
New Button	Opens the form to create a new device.
Delete Button	Deletes the current device.

22.4.2. Input

Item	Description
Frequency	Value collected from the device.
Line Beads	Value collected from the device.
Number of Phases	Value collected from the device.
Source	Value collected from the device.
Bad Status	Value collected from the device.
Phase	Value collected from the device.
Voltage	Value collected from the device.
Current	Value collected from the device.
Power	Value collected from the device.
Frequency	Value collected from the device.

22.4.3. Output

Item	Description
Load	Value collected from the device.
Frequency	Value collected from the device.
Number of Phases	Value collected from the device.
Source	Value collected from the device.
Phase	Value collected from the device.
Voltage	Value collected from the device.
Current	Value collected from the device.
Power	Value collected from the device.
Load	Value collected from the device.

22.4.4. Battery

Item	Description
Charge Remaining	Value collected from the device.
Current	Value collected from the device.

Last Replace Date	Value collected from the device.
Remaining Time	Value collected from the device.
Seconds On Battery	Value collected from the device.
Status	Value collected from the device.
Temperature	Value collected from the device.
Voltage	Value collected from the device.

22.4.5. Segments

Item	Description
Delay	Amount of time in seconds to wait before sending the Control command to the selected Segment.
Index	Reference to the load segment number.
Status	Current status of the load segment.
Turn On Button	Turns on the selected load segment.
Turn Off Button	Turns off the selected load segment.
Reboot Button	Reboots the selected load segment.

22.4.6. Contact

Item	Description
Type	Value collected from the device.
Status	Value collected from the device.
Description	Value collected from the device.

22.5. UPS Rackmount Device Dashboard

When the device type is a UPS - Rackmount the UPS Rackmount Dashboard page is loaded when the Dashboard function tile is selected in device central.

The following sections and detailed data are available on this dashboard interface.

Several Trend Chart icons are located on the dashboard which will open a trend chart interface for the selected data point or multiple data points.

The buttons located on the top right of the dashboard provide integrated functions with other parts of the application.

Note: Instructions for bulk configuration of an Eaton UPS with the M2 card can be found in the Bulk Configuration for Eaton UPS M2 Card section in this document.

22.5.1. Buttons

Item	Description
Firmware Button	Allows user to select a firmware file from the firmware library and upload to the current UPS. The Firmware Management section of this document details how to add files to the firmware library and bulk load to multiple UPS.
New Button	Opens the form to create a new device.
Delete Button	Deletes the current device.

22.5.2. Input

Item	Description
Frequency	Value collected from the device.
Line Beads	Value collected from the device.
Number of Phases	Value collected from the device.
Source	Value collected from the device.

Bad Status	Value collected from the device.
Line Fail Cause	Value collected from the device.
Phase	Value collected from the device.
Voltage	Value collected from the device.
Current	Value collected from the device.
Power	Value collected from the device.
Frequency	Value collected from the device.

22.5.3. Output

Item	Description
Load	Value collected from the device.
Frequency	Value collected from the device.
Number of Phases	Value collected from the device.
Source	Value collected from the device.
Phase	Value collected from the device.
Voltage	Value collected from the device.
Current	Value collected from the device.
Power	Value collected from the device.
Load	Value collected from the device.

22.5.4. Battery

Item	Description
Charge Remaining	Value collected from the device.
Current	Value collected from the device.
Last Replace Date	Value collected from the device.
Remaining Time	Value collected from the device.
Seconds On Battery	Value collected from the device.
Status	Value collected from the device.
Temperature	Value collected from the device.
Voltage	Value collected from the device.

22.5.5. Segments

Item	Description
Delay	Amount of time in seconds to wait before sending the Control command to the selected Segment.
Index	Reference to the load segment number.
Status	Current status of the load segment.
Turn On Button	Turns on the selected load segment.
Turn Off Button	Turns off the selected load segment.
Reboot Button	Reboots the selected load segment.

22.5.6. Contact

Item	Description
Type	Value collected from the device.
Status	Value collected from the device.
Description	Value collected from the device.

22.5.7. UPS Rackmount Device Dashboard Attribute Map

Device Type: UPS - Rackmount		
Section: Input		
Field Title	**Scalar Attribute**	**Tabular Attribute**
Frequency	Input Frequency	
Number of Phases	Input Number of Phases	
Lines Beads	Input Lines Beads	
Source	Input Source	
Phase	Input Phase_1	Input Phase ID
	Input Phase_2	
	Input Phase_3	
Voltage	Input Voltage Phase 1	Input Voltage
	Input Voltage Phase 2	
	Input Voltage Phase 3	
Current	Input Current 1	Input Current
	Input Current 2	
	Input Current 3	
Power	Input Power Phase 1	Input Power
	Input Power Phase 2	
	Input Power Phase 3	
Frequency	Input Frequency_1	Input Phase Frequency
	Input Frequency_2	
	Input Frequency_3	
Section: Input		
Field Title	**Scalar Attribute**	**Tabular Attribute**
Load	Output Load	
Number of Phases	Output Number Phases	
Frequency	Output Frequency	
Source	Output Source	
Phase	Output Phase_1	Output Phase ID
	Output Phase_2	
	Output Phase_3	
Voltage	Output Voltage Phase 1	Output Voltage
	Output Voltage Phase 2	
	Output Voltage Phase 3	
Current	Output Current 1	Output Current
	Output Current 2	
	Output Current 3	
Power	Output Power Phase 1	Output Power
	Output Power Phase 2	
	Output Power Phase 3	
Load	Output Load 1	Output Phase Load
	Output Load 2	
	Output Load 3	
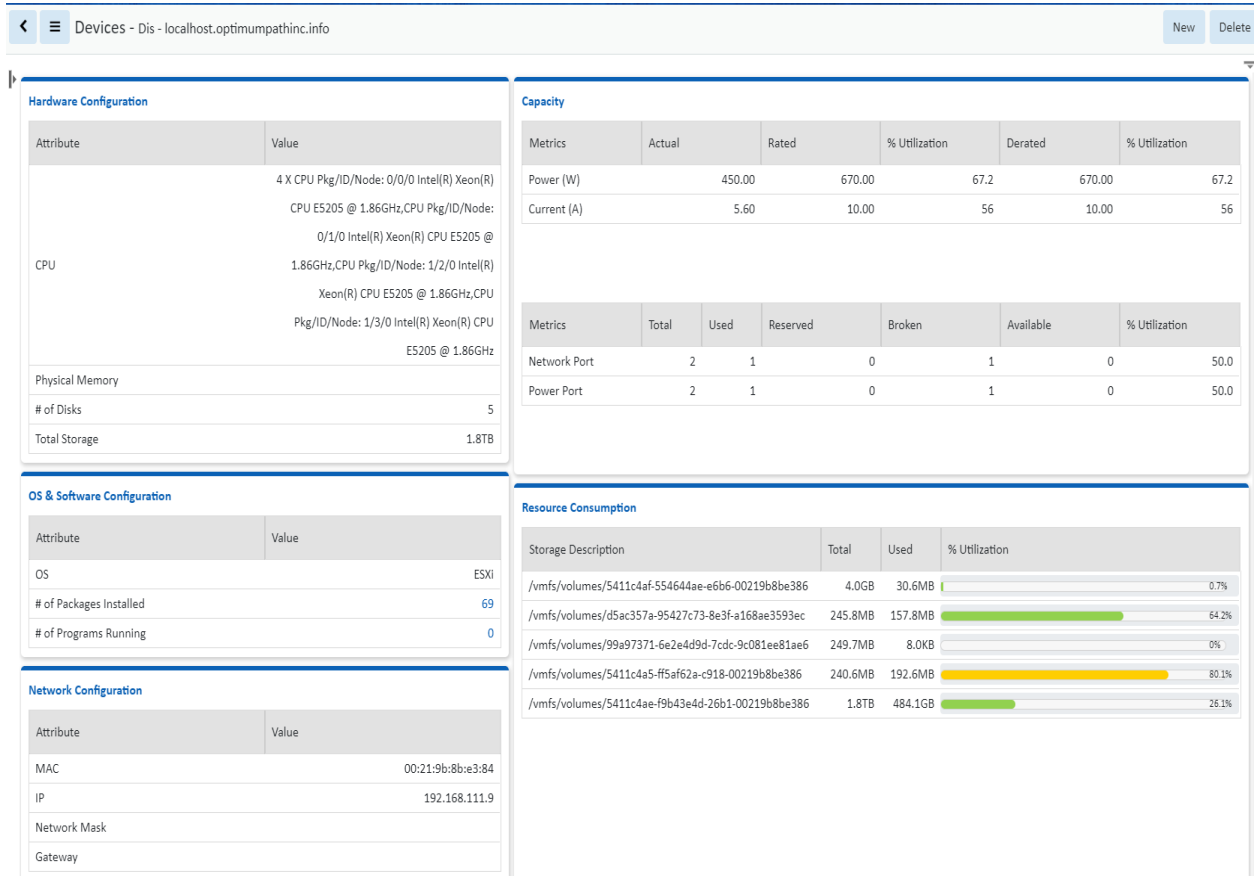
Section: Battery		
Field Title	**Scalar Attribute**	**Tabular Attribute**
Remaining Time	Battery Time Remaining	
Voltage	Battery Voltage	
Current	Battery Current	
Charge Remaining	Battery Capacity	
Status	Battery Status	
Last Replace Date	Last Replace Date	
Seconds on Battery	Seconds on Battery	
Temperature	Battery Temperature	

22.6. Server Device Dashboard

When the device type is a server the Server Dashboard page is loaded when the Dashboard function tile is selected in device central.

The following sections and detailed data are available on this dashboard interface.

Several Trend Chart icons ⛿ are located on the dashboard which will open a trend chart interface for the selected data point or multiple data points.

22.6.1. Hardware Configuration

Item	Description
CPU	Value collected from the device.
Physical Memory	Value collected from the device.
# of Disks	Value collected from the device.
Total Storage	Value collected from the device.

22.6.2. Capacity

22.6.2.1. Power Capacity Table

Item	Description
Metrics	Row indicates Power (W) attribute information for the device. Power Actual may be monitored data or static data based on the Energy Data Source attribute for the device. Current (A) attribute information for the device. Current Actual may be monitored data or static data based on the Energy Data Source attribute for the device.
Actual	Power value collected from the device using the Active Power monitor attribute.
Rated	Attribute defined by users for the selected device. The Power – Rated attribute is used for this value.
% Utlization	Percent of Rated value that the actual power represents.
Derated	Attribute defined by users for the selected device. The Power – Derated attribute is used for this value.
% Utilization	Percent of Derated value that the actual power represents.

22.6.2.2. Port Capacity Table

Item	Description
Metrics	Indicates type of port.
Total	Displays total number of ports on the device.
Used	Displays number of ports used.
Reserved	Displays number of ports reserved.
Broken	Displays number of ports broken.
Available	Displays number of ports available.
% Utilization	Displays the percentage of ports used.

22.6.3. OS & Software Configuration

Item	Description
OS	Value collected from the device.
# of Packages Installed	Value collected from the device.
# of Programs Running	Value collected from the device.

22.6.4. Network Configuration

Item	Description
MAC	Value collected from the device.
IP	Value collected from the device.
Network Mask	Value collected from the device.
Gateway	Value collected from the device.

22.6.5. Resource Consumption

Shows disks volumes (partitions) and percent of space used.

22.6.6. Environmental

Displays a chart tracking temperature and humidity for the device.

22.6.7. Port Status

Item	Description
Status	Displays connection status collected directly form the device.
Port Index	Displays the port number.
Label	Displays the port label collected from the device.
Port Name	Displays the port name.
Connected Device	Name of the device connected to the port as defined in port mapping.
Bandwidth	Value collected from the device.
Inbound Errors	Value collected from the device.
Outbound Errors	Value collected from the device.
Inbound Data (MB)	Value collected from the device.
Outbound Data (MB)	Value collected from the device.

![Eaton - Powering Business Worldwide]

22.7. Switch Device Dashboard

When the device type is a switch the Switch Dashboard page is loaded when the Dashboard function tile is selected in device central.

Devices - Dis - switchcc61cd		New	Delet

Network Configuration

Attribute	Value
MAC	00:5f:86:cc:61:cd
IP	10.10.10.250
Network Mask	255.255.255.0
Gateway	10.10.10.1,0.0.0.0

Capacity

Metrics	Total	Used	Reserved	Broken	Available	% Utilization
Network Port	30	0	0	0	30	0.0

Port Status

Status	Port Index	Label	Port Name	Connected Device	Bandwidth	Inbound Errors	Outbound Errors	Inbound Data (M...	Outbound Data (...
Down	49	gigabitethernet1	no_01		0.000 %	0	0	0	0
Down	50	gigabitethernet2	no_02		0.000 %	0	0	0	0
Down	51	gigabitethernet3	no_03		0.000 %	0	0	0	0
Up	52	gigabitethernet4	no_04		0.060 %	0	0	2047	1916
Up	53	gigabitethernet5	no_05		0.000 %	0	0	1610	2047
Up	54	gigabitethernet6	no_06		0.002 %	0	0	1777	525
Up	55	gigabitethernet7	no_07		0.002 %	0	0	2047	1424
Up	56	gigabitethernet8	no_08		0.002 %	0	0	2047	1073
Up	57	gigabitethernet9	no_09		0.000 %	0	0	1375	2047
Up	58	gigabitethernet10	no_10		0.000 %	0	0	1861	2047
Up	59	gigabitethernet11	no_11		0.000 %	0	0	233	2047
Up	60	gigabitethernet12	no_12		0.000 %	3222	0	2047	2047
Down	61	gigabitethernet13	no_13		0.000 %	0	0	0	0
Down	62	gigabitethernet14	no_14		0.000 %	0	0	0	0

The following sections and detailed data are available on this dashboard interface.

22.7.1. Network Configuration

Item	Description
MAC	Value collected from the device.
IP	Value collected from the device.
Network Mask	Value collected from the device.
Gateway	Value collected from the device.

22.7.2. Capacity

Item	Description
Metrics	Indicates type of port.
Total	Displays total number of ports on the device.
Used	Displays number of ports used.
Reserved	Displays number of ports reserved.
Broken	Displays number of ports broken.
Available	Displays number of ports available.
% Utilization	Displays the percentage of ports used.

22.7.3. Port Status

Item	Description
Status	Displays connection status collected directly form the device.
Port Index	Displays the port number.
Label	Displays the port label collected from the device.
Port Name	Displays the port name.
Connected Device	Name of the device connected to the port as defined in port mapping.
Bandwidth	Value collected from the device.
Inbound Errors	Value collected from the device.
Outbound Errors	Value collected from the device.
Inbound Data (MB)	Value collected from the device.
Outbound Data (MB)	Value collected from the device.

22.8. Transfer Switch Rackmount Device Dashboard

When the device type is a Transfer Switch - Rackmount the Transfer Switch - Rackmount Dashboard page is loaded when the Dashboard function tile is selected in device central.

The following sections and detailed data are available on this dashboard interface.

Several Trend Chart icons 📊 are located on the dashboard which will open a trend chart interface for the selected data point or multiple data points.

Active Source - Source 1

Source	Voltage	Frequency	Status Frequency	Status Good	Status Internal Fallu...	Voltage Status	Status Used
Source 1	120.5 V	60.0 Hz	Good	Voltage And Freq Normal Range	Good	Normal Range	Powering Load
Source 2	120.3 V	60.0 Hz	Good	Voltage And Freq Normal Range	Good	Normal Range	Not Powering Load

Output

Attribute	Value
Voltage	120.8 V
Current	0.0 A
Status Internal Failure	Good
Status Output	Output Powered
Status Overload	No Overload
Status Over Temperature	No Over Temperature
Status Short Circuit	No Short Circuit
Status Communication Lost	Good
Status Configuration Failure	Good

Configuration

Attribute	Value
Input Voltage Rating	1.0 V
Input Frequency Rating	60.0 Hz
Preferred	Source 1
Sensitivity	Normal
Transfer Mode	Standard
Last Transfer Test Result	No Test Initiated

Environment

Attribute	Value
Temperature	0.00 °F
Humidity	

Contact Sensors

Sensor	Type	Status	Description
1	Normally Open	Closed With Notice	Input #1
2	Normally Open	Closed With Notice	Input #2

Capacity

Power Path | Connect

Metrics	Total	Used	Reserved	Available	%
Power Port	10	0	0	10	

22.8.1. Buttons

Item	Description
New Button	Opens the form to create a new device.
Delete Button	Deletes the current device.

22.8.2. Active Source

Item	Description
Source	Value collected from the device.
Voltage	Value collected from the device.
Frequency	Value collected from the device.
Status Frequency	Value collected from the device.
Status Good	Value collected from the device.
Status Internal Failure	Value collected from the device.
Voltage Status	Value collected from the device.
Status Used	Value collected from the device.

22.8.3. Output

Item	Description
Voltage	Value collected from the device.
Current	Value collected from the device.
Status Internal Failure	Value collected from the device.
Status Output	Value collected from the device.
Status Overload	Value collected from the device.
Status Over Temperature	Value collected from the device.
Status Short Circuit	Value collected from the device.
Status Communication Lost	Value collected from the device.
Status Configuration Failure	Value collected from the device.

22.8.4. Configuration

Item	Description
Input Voltage Rating	Value collected from the device.
Input Frequency Rating	Value collected from the device.
Preferred	Value collected from the device.
Sensitivity	Value collected from the device.
Transfer Mode	Value collected from the device.
Last Transfer Test Result	Value collected from the device.

22.8.5. Environment

Item	Description
Temperature	Value collected from the device.
Humidity	Value collected from the device.

22.8.6. Contact Sensors

Item	Description
Sensor	Value collected from the device.
Type	Value collected from the device.
Status	Value collected from the device.
Description	Value collected from the device.

22.8.7. Capacity

Item	Description
Power Path Button	Displays the power path based on port mapping.
Connect Button	Opens the port mapping page with the current device selected.
Metrics	Displays port type as collected from the device.
Total	Displays total number of ports.
Used	Displays the number of ports used.
Reserved	Displays the number of ports reserved.
Available	Displays the number of ports available.
% Utilization	Displays the percentage of ports utilized.

22.8.8. Transfer Switch Rackmount Device Dashboard Attribute Map

Field Title	Scalar Attribute	Tabular Attribute
Device Type: ATS - Rackmount		
Section: Active Power		
Active Power	Active Source	
Source	Input Index_1	Input Index
	Input Index_2	
Voltage	Input Voltage_1	Input Voltage
	Input Voltage_2	
Frequency	Input Frequency_1	Input Frequency
	Input Frequency_2	
Status Frequency	Input Frequence Status_1	Input Frequence Status
	Input Frequence Status_2	
Status Good	Contact State 1	Contact State
	Contact State 2	
Status Internal Failure	Input Interval Failure Status_1	Input Interval Failure Status
	Input Interval Failure Status_2	
Voltage Status	Input Voltage Status_1	Input Voltage Status
	Input Voltage Status_2	
Status Used	Input Used Status_1	Input Used Status
	Input Used Status_2	
Section: Output		
Field Title	**Scalar Attribute**	**Tabular Attribute**
Voltage	Output Voltage	
Current	Output Current	
Status Internal Failure	Output Internal Failure Status	
Status Output	Output Status	
Status Overload	Overload Status	
Status Over Temperature	Over Temperature Status	
Status Short Circuit	Short Circuit Status	
Status Communication Lost	Communication Lost Status	
Status Configuration Failure	Configuration Failure Status	
Section: Configuration		
Field Title	**Scalar Attribute**	**Tabular Attribute**
Input Voltage Rating	Config Input Voltage Rating	
Input Frequency Rating	Config Input Frequency Rating	
Preferred	Config Preferred	
Sensitivity	Config Sensitivity	
Transfer Mode	Transfer Mode	
Last Transfer Test Result	Transfer Test	
Section: Environment		
Field Title	**Scalar Attribute**	**Tabular Attribute**
Temperature	Temperature	
Humidity	Humidity	
Section: Contact Sensors		
Field Title	**Scalar Attribute**	**Tabular Attribute**
Type	Contact Type 1	Contact Type
	Contact Type 2	
Status	Contact State 1	Contact State
	Contact State 2	
Description	Contact Description 1	Contact Description
	Contact Description 2	

22.9. Access Control Device Dashboard

When the device type is access control the Access Control Dashboard page is loaded when the

An Access Control device must be created, configured for monitoring and mounted in order for the dashboard to be fully populated.

Lock Infomation

Door Status	Closed	
Lock Status	Locked	UnLock
Password Timeout	0	Reset
Password Wrong	0	Reset
User Management		Set Delete

22.9.1. Creating the Device and Configuring Monitoring

- Create the Access Control device
- Select the new device from the device list to go to its Device Central page
- Click on the Monitoring function tile to access device's monitoring page
- Activate monitoring by configuring the Monitoring function tile as described in the Function Tiles section.

22.9.2. Mounting an Access Control Device on a Rack

An Access Control Device is mounted directly on the rack front door. From the Racks menu group select the Rack Manager menu item. Search for and select the rack to mount the device and then select the rack (see red outline), click the View icon and select Front Door. From the device list, search and select the access device, drag the device to the desired position and Save.
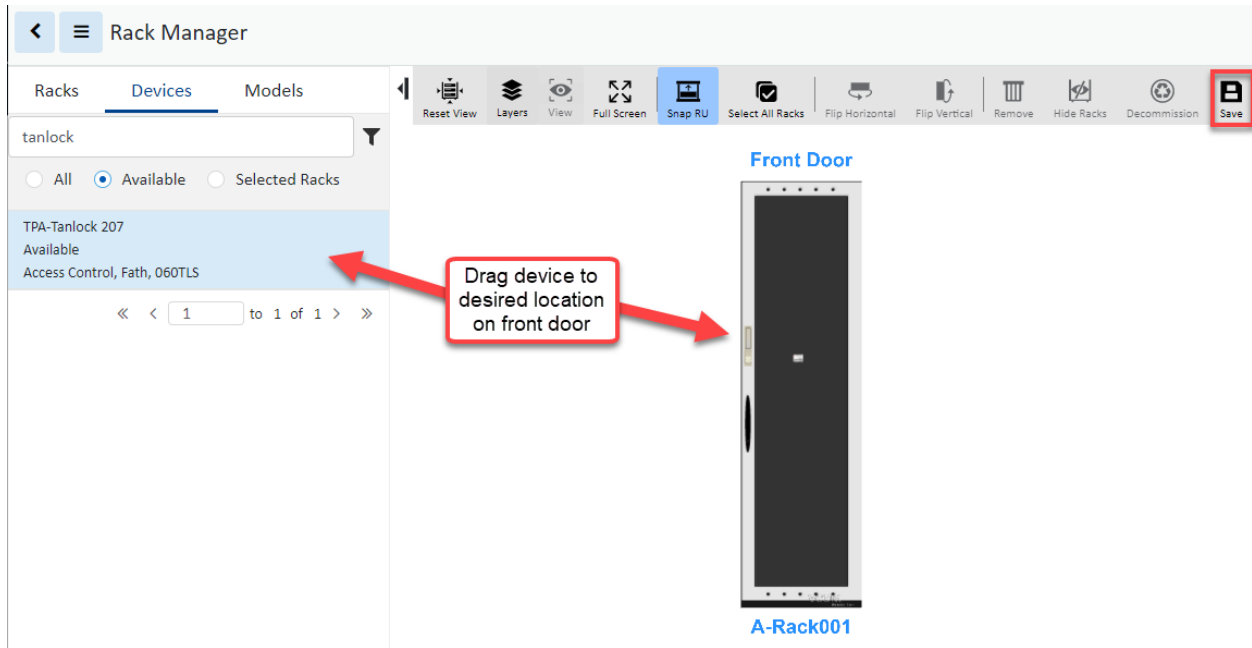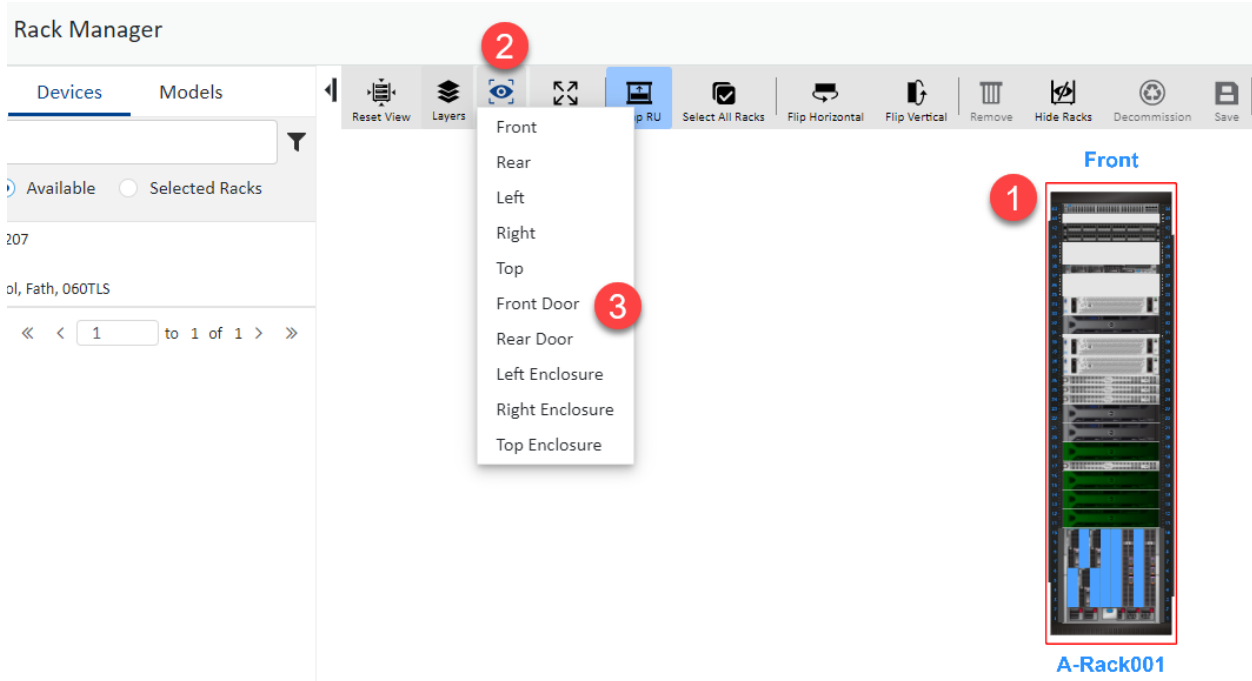
Device Dashboards

22.9.3. Access Control Device Dashboard

The Access Control dashboard contains information and buttons for controlling the device.

22.9.3.1. Lock Information

Item	Description
Door Status	Closed or Open status which is collected from the device.
Lock Status	Locked or Unlocked status which is collected from the device and button to Lock or Unlock
Password Timeout	Number of times a user timed out while entering name or password at the access device. Hover over the number and "since YYYY-MM-DD HH-MM-SS TZ" shows start date of the count. Reset button resets the count start date and the value of the counter to 0
Password Wrong	Number of time a user entered the wrong password at the access device or from the application. Hover over the number and "since YYYY-MM-DD HH-MM-SS TZ" shows start date of the count. Reset button resets the count start date and the value of the counter to 0.
User Management	Set button lets you add a new user with a password. Delete button lets you name a user to be deleted.

22.9.3.2. Reporting

A Rack Lock Summary report provides summary data for the actions performed on the Access Control devices. The report can be found by selecting the Reports Menu Item and expanding the Asset category.

Visual Data Center OPI

Rack Lock Summary

Date Range:	2017-12-01 ~ 2017-12-13
Location Nums:	4 (1, 1, 1 Main St, Mobile)(Area 1, 1, 1 Main St, Mobile)(Area 2, 1, 1 Main St, Mobile)(Area 3, 1, 1...
Device Group Nums:	2 (Public, Fath)
Rack Group:	1 (Fath)
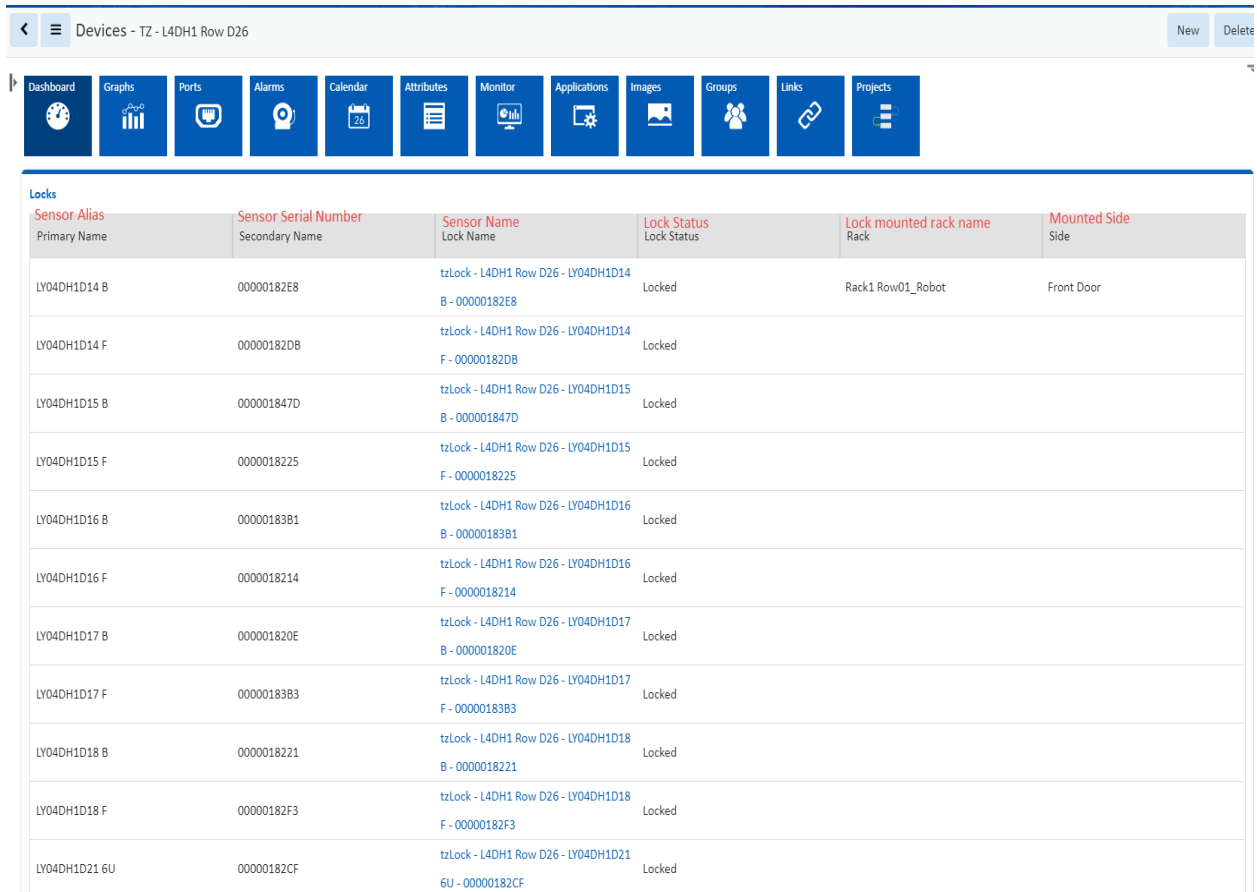
by rack
by device name
temp unit: °F

Rack Group:

Rack	Device Name	Manufacturer	Model	Serial Number	# Unlock	# Open	Temperature
Rack001	Fath Lock 206	Fath	060TLS	0005-020-007	11	9	32.0
Rack001	Fath Lock 207	Fath	060TLS	0008-020-007	1	2	32.0
Rack002	Fath Lock 208	Fath	060TLS	0006-020-007	1	1	32.0
Rack002	Fath Lock 209	Fath	060TLS	0007-020-007	1	1	32.0
Rack003	Fath Lock 100	Fath	060TLS	0005-020-007	3	3	32.0
	Fath Lock 555 - test	Fath	060TLS		0	0	

22.9.4. TZ Gateway Lock Dashboard

If the device is a TZ Gateway reporting rack lock status, the system will display the following dashboard:

22.10. Power Bus Bar Device Dashboard

When the device type is a Power Bus Bar the Power Bus Bar Dashboard page is loaded when the Dashboard function tile is selected in device central.

The following sections and detailed data are available on this dashboard interface.

Several Trend Chart icons are located on the dashboard which will open a trend chart interface for the selected data point or multiple data points.

Infeed Data

L-N Voltage	132.93 V	Current	10.63 A	Active Power	3937.02 W	Total Energy	14448.68 kW-h
L-L Voltage	230.28 V	Frequency	60.02 Hz	Apparent Power	4232.89 VA	Power Factor	0.93

Line Index	Line Current (A)	Line Current %
Line1	10.9	18.16
Line2	10.77	17.95
Line3	10.2	16.99
NeutralC	0	0
NeutralM	9999.99	9999.99

Phase Index	L-N Voltage (V)	L-L Voltage (V)	Power Factor	Active Power (W)	Apparent Power (VA)	Energy (kWh)
Phase L1	132.64	228.87	0.92	1324.97	1445.22	4810.37
Phase L2	132.41	230.96	0.95	1348.19	1426.15	5019.4
Phase L3	133.75	231.01	0.93	1263.86	1363.83	4618.91

Outlets

Index	Name	Port Name	Connected Device	Current (A)	Active Power (W)	Apparent Power (VA)	Power Factor
1	Device 1			30	2008.38	2152.13	0.93
2	Device 2			30	1928.63	2080.92	0.93

22.10.1. Infeed Data

Item	Description
L-N Voltage	Value collected from the device.
L-L Voltage	Value collected from the device.
Current	Value collected from the device.
Frequency	Value collected from the device.
Active Power	Value collected from the device.
Apparent Power	Value collected from the device.
Total Energy	Value collected from the device.
Power Factor	Value collected from the device.
Line Index	Value collected from the device.
Line Current (A)	Value collected from the device.
Line Current %	Value collected from the device.
Phase Index	Value collected from the device.
L-N Voltage (V)	Value collected from the device.
L-L Voltage (V)	Value collected from the device.
Power Factor	Value collected from the device.
Active Power (W)	Value collected from the device.
Apparent Power (VA)	Value collected from the device.
Energy (kWh)	Value collected from the device.

22.10.2. Outlets

Item	Description
Index	Value collected from the device.
Name	Value collected from the device.
Connected Device	Value collected from the device.
Current Rating	Value collected from the device.
Active Power (W)	Value collected from the device.
Apparent Power (VA)	Value collected from the device.
Power Factor	Value collected from the device.

22.10.3. Power Bus Bar Device Dashboard Attribute Map

Device Type: Power Bus		
Section: Infeed Data		
Field Title	**Scalar Attribute**	**Tabular Attribute**
L-N Voltage	Infeed L-N Voltage	
Current	Current	
Active Power	Active Power	
Total Energy	Energy	
L-L Voltage	Infeed L-L Voltage	
Frequency	Input Frequency	
Apparent Power	Apparent Power	
Power Factor	Power Factor	
Line Index	Infeed Line Index 1	Infeed Line Index
	Infeed Line Index 2	
	Infeed Line Index 3	
	Infeed Line Index 4	
	Infeed Line Index 5	
Line Current(A)	Infeed Line Current 1	Infeed Line Current
	Infeed Line Current 2	
	Infeed Line Current 3	
	Infeed Line Current 4	
	Infeed Line Current 5	
Line Current(%)	Infeed Line Current Percentage 1	Infeed Line Current Percentage
	Infeed Line Current Percentage 2	
	Infeed Line Current Percentage 3	
	Infeed Line Current Percentage 4	
	Infeed Line Current Percentage 5	
Phase Index	Input Phase 1 Name	Input Phase Name
	Input Phase 2 Name	
	Input Phase 2 Name	
L-N Voltage	Infeed Phase L-N Voltage 1	Infeed Phase L-N Voltage
	Infeed Phase L-N Voltage 2	
	Infeed Phase L-N Voltage 3	
L-L Voltage	Infeed Phase L-L Voltage 1	Infeed Phase L-L Voltage
	Infeed Phase L-L Voltage 2	
	Infeed Phase L-L Voltage 3	
Power Factor	Input Power Factor 1	Input Power Factor
	Input Power Factor 2	
	Input Power Factor 3	
Active Power	Input Power 1	Input Power
	Input Power 2	
	Input Power 3	
Apparent Power	Input Power VA 1	Input Power VA
	Input Power VA 2	
	Input Power VA 3	
Energy	Infeed Phase Energy 1	Infeed Phase Energy
	Infeed Phase Energy 2	
	Infeed Phase Energy 3	
Section: Outlets		
Field Title	**Scalar Attribute**	**Tabular Attribute**
Outlet	Outlet ID 1…48	Outlet ID
Outlet Name	Outlet Name 1…48	Outlet Name

Current	Outlet Current 1…48	Outlet Current
Active Power	Outlet Power 1…48	Outlet Power
Power VA	Outlet VA 1…48	Outlet VA
Power Factor	Outlet Power Factor 1…48	Outlet Power Factor

23. Navigation Tree

The Navigation tree creates, displays, and manages the sites in the application. These are visible as nodes for countries, states, cities, buildings, floors and areas. The floor building tools become available when the floor and area nodes are selected. The information below will describe the components and features of the navigation tree for the application.

23.1. Tree Nodes

The navigation tree has nodes for locations displayed in a hierarchical format by default. The navigation tree nodes can be grouped by Country, State, City and Building. Users can also filter the nodes by entering text into the search field. The navigation tree nodes listed in the table below are available to help users organize their sites for easy management.

Node	Description	Selection Behavior
Country	List of countries that can be managed in the application.	Shows the selected country with alarm LEDs for sites within that country.
State	List of States or Provinces for the selected country. **Note:** If a country does not have predefined States to choose from the list, the All Areas option can be selected to create a State node in the navigation tree.	Shows the selected State or Province with alarm LEDs for cities within that State or Province.
Campus/City	Under the State node, users can create a Campus or City node. There is not a predefined list of these locations available for the user to select. Users enter the city name in the Name field.	Highlights the selected City in the State or Province view.
Building	Address or other reference to the building being managed.	Displays the image of the building if it was loaded when the building is defined in Location Studio.
Floor	Reference to the floor within the selected building.	Displays the full floor layout with devices assigned to this floor location.
Area	Multiple options for Area types to help organize the navigation tree to match the needs of the customer. Multiple types of Area can be included under a single Floor node.	Zooms to only the Area level of the floor with the devices mounted to this area location. Other floor names and devices are hidden.
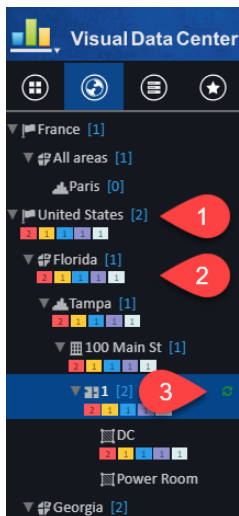
1. Next to each node of the tree is a blue number in square brackets. This indicates the number of next level nodes under the selected node.

2. Under each location node of the navigation tree will be a summary count of alarms for that node. There are 5 possible alarm types: Critical (red), Warning (yellow), Unreachable (blue), Minor (purple) and Information (light blue). The device counts are aggregated for all locations under the selected node. The summary count boxes are colorized and visible when the value is greater than 0. **Note:** The Alarm count information will be automatically updated every 5 minutes, but users can choose to refresh manually to get updated data between the auto refresh cycles.

3. When a node is selected the refresh icon is displayed to the right of the node.

23.2. Creating Locations (Navigation Tree Nodes)

There are five buttons on the upper right corner of the navigation tree page for creating locations. These include Add Cities, Import, Add Child, Add Sibling and Delete.
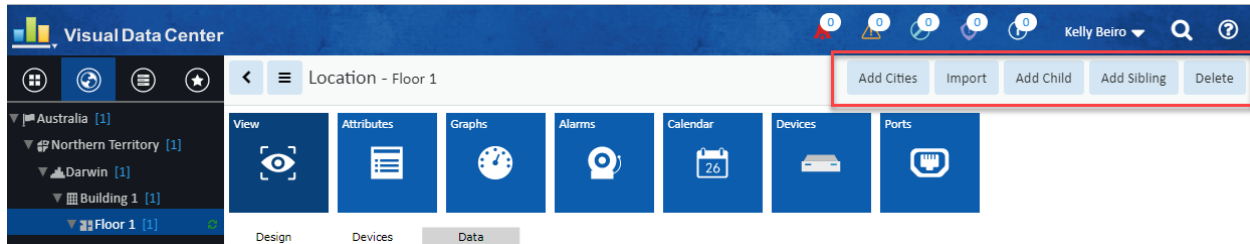
23.2.1. Add Cities Button

The Add Cities button displays a list of over 3000 known cities with their country, state, latitude and longitude information. Select a city by checking the box and click Submit to add the Country, State and City nodes for the location to the tree.

If your city is not listed, click New and fill out the New City form.

23.2.1.1. New City Form

Fields	Description
Name	Sets the name of the city.
Country	Select the country from the list.
State	Select the state. If the country's states are unknown, the system will present "All area" as the option.
Latitude	Enter the latitude for the city in the decimal format (do not include the degree symbol or N/S). Positive number is North (33.152). Negative number is South (-33.3152).
Longitude	Enter the longitude for the city in the decimal format (do not include the degree symbol or E/W). Positive number is for East (44.3661). Negative number is West (-44.3661).
Description	User defined description of the city.
Buttons	**Description**
New	New opens a form to create a city.
Submit	If any form fields are edited or new data has been added the Submit button becomes active and is used to add a new city or update the existing city.
Cancel	Does not create new city and closes the form.

23.2.2. Import Button

The Import button displays the Import Wizard page with the Locations radio dial selected. Locations can be imported from a Location Import Template spreadsheet. The template can be downloaded with the Download Template button. For instructions on filling out the location spreadsheet see the Import Locations Spreadsheet section in the Import | Export Menu Group chapter of this guide.

Import Wizard

1. Select Import Type   2. Upload File   3. Process File

Select the type of Import process to be completed.

○ Models   ○ Devices   ○ PDU/RPP Panels   ● Locations

Download the Import Template for the selected Import progress above and populate the data based on the instructions.

Download Template

23.2.3. Add Child Button

The Add Child button is available when a city, building or floor node is selected.

- When a city node is selected, Add Child will present a form to create a building
- When a building node is selected, Add Child will present a form to create a floor
- When a floor node is selected, Add Child will present a form to create an area

23.2.4. Add Sibling Button

The Add Sibling button is available when building, floor or area node is selected

- When a building node is selected, Add Sibling will present a form to create a building
- When a floor node is selected, Add Sibling will present a form to create a floor
- When an area node is selected, Add Sibling will present a form to create an area

23.2.5. Delete Button

The Delete button will delete the selected node and all its children.

23.2.6. New Building Form

The new building form is presented when a building is the sibling or child for the node selected on the navigation tree.

Fields	Description
Name	Sets the name of the building.
Type	Preset to Building.
Description	User defined description of the building.
Required Attributes*	Number of Floors and Electricity Price require values for a floor.
Non-required Attributes	Users can enter values as needed to the other attributes. Attributes can be added to the list or removed using the Add and Remove buttons
User Group	Select the user groups and set their access for the floor.
Buttons	**Description**
Submit & New	Creates the building as specified and opens a new building form.
Submit	Creates the building as specified.
Cancel	Does not create the new building and closes the form.

23.2.7. New Floor Form

The new floor form is presented when a floor is the sibling or child for the node selected on the navigation tree.

Fields	Description
Name	Sets the name of the floor.
Type	Preset to Floor.
Description	User defined description of the floor.
Clone Floor	Select the floor to be cloned from the drop-down list of existing floors or Generic Floor. Generic floor creates a 15 ft. by 15 ft.
Add Generic Rack	The checkbox becomes active when Generic Floor is selected as the clone floor option. Adds a generic 42U rack to the floor.
Required Attributes*	Floor index requires a value for a floor.
Non-required Attributes	Users can enter values as needed to the other attributes. Attributes can be added to the list or removed using the Add and Remove buttons
User Group	Select the user groups and set their access for the floor.
Buttons	**Description**
Submit & New	Creates the floor as specified and opens a new floor form.
Submit	Creates the floor as specified.
Cancel	Does not create the new floor and closes the form.

23.2.8. New Area Form

The new area form is presented when an area is the sibling or child for the node selected on the navigation tree.

Fields	Description
Name	Sets the name of the area or the prefix of the areas created, if the quantity is set to more than 1.
Type	Preset to Area.
Quantity	Enter the number of areas to be created.
Preview Button/Clear	Displays the area names as they will appear. Clear button removes the preview.
Required Attributes*	There are no required attributes for areas.
Non-required Attributes	Users can enter values as needed to the other attributes. Attributes can be added to the list or removed using the Add and Remove buttons
User Group	Select the user groups and set their access for the floor.
Buttons	**Description**
Submit & New	Creates the area(s) as specified and opens a new area form.
Submit	Creates the area(s) as specified.
Cancel	Does not create the new area and closes the form.

23.3. Tree Node Function Tiles

Tree Node Function Tiles are displayed when a node in the tree is selected. These tiles control what is displayed in the content area of the navigation tree page.

View	Site Data	Capacity	Attributes	Graphs	Alarms	Calendar	Racks	Devices	Ports
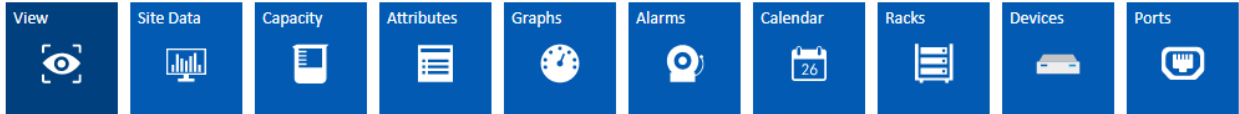
23.3.1. View Function Tile

Selected by default it causes the content area to display the map of the area (world, country, state, city), the associated graphic (building) or floorplan (floor).

23.3.2. Site Data Function Tile

Displays capacity metrics for the selected location in graphs and tables.

- Attributes lists attribute values and accompanying trend charts
- Devices provides device counts
- Cooling Devices shows cooling device counts in a pie chart

23.3.3. Capacity Function Tile

Displays capacity metrics for the selected location in graphs and tables.

- Space (ft^2) shows overall floor space details
- Raise Floor Space (ft^2) shows raised floor space details
- Available Space for Racks calculate how may racks of size can be placed. The settings gear icon allows users to add custom rack sizes to the calculations.
- RU Capacity table shows used and available rack space
- RU Fragmentation indicates the number of devices able to be mounted for 2-10 RU sizes

23.3.4. Attributes Function Tile

Displays the attributes associated with the selected node. Users can modify entries and add additional attributes from the application attribute list. For information on creating new attributes see the Attribute Manager Menu Item sub-section of the Settings Menu Group section.

When the user logs in and reviews the location Attributes function tile page, the value of attributes from the Location Department Template are restricted to the user's department. Users can only see the data for areas belonging to the same department.

23.3.5. Graphs Function Tile

Displays the Graphs associated with the selected node. Click the play button to see the graphs reflect the data from the node. For information on creating new graphs see the Graphs Menu Item sub-section of the Data Analysis Menu Group section.

23.3.6. Alarms Function Tile

Displays the Alarms for the selected node. For details on managing alarms see the Alarms section.

23.3.7. Calendar Function Tile

Displays the calendar log for the selected node. For details on using the calendar filters and functions see the Calendar section.

23.3.8. Racks Function Tile

Displays list of racks on the node and the selected rack details.

23.3.9. Devices Function Tile

Displays the list of devices deployed on the selected node in a standard table that can be filtered, searched and exported. For details using a table list see the Standard Table Features section.

23.3.10. Ports Function Tile

Displays the ports list for the devices deployed on the selected node. When a port is selected the port management buttons are activated for Circuit Trace, Power Path, Network Path and Connect. For details on these functions see the Ports Function Tile sub-section of the Device Central for Existing Devices section.

23.4. Floor Node

Selecting a floor node displays the floor plan for the selected floor and adds the Design and Deploy function tiles.

23.4.1. View Function Tile (Floor)

The default View displays the presents the published floor with devices in place.

1. Menu has the following features:
    a. Filters - a list of saved filters
    b. Export - export device list to Excel, export floor|area image to PDF or export Rack details to PDF
    c. Refresh - refreshes the display
2. Displays current layer view name
3. Layer view buttons

    a. UI Layers include Alarm, Device Names (default) and Device Type. The values for the select UI layer are superimposed on the floor devices.
    b. Rack Layers include rack and port metrics. The values for the select rack layer are superimposed on the floor devices.
    c. Environment Layers show temperature, thermal and humidity maps.
       Note: Some layers have replay capability where you can view the changes to the layer over time (For example: Any of the Thermal Environment Layers). When available the player is visible and allows for a date and time range, video speed, timeline, video play, pause and replay buttons.

    Data and Time Range   2020/01/02 00:00 ~ 2020/01/02 15:25   📅26   Speed   1s ⌄   ◯————————————   ▶ ❚❚ ↺
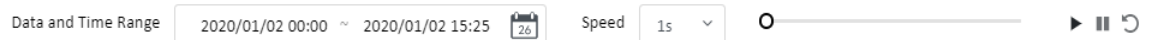
    d. Energy Layers show power metrics. The values for the selected energy layer are superimposed on the floor devices.

4. Filter Icon - Filters are used to restrict the devices which show the attribute data on the selected layer to only devices which match the filter criteria. Users may define complex filter criteria by defining filter rules for any of the available layer attributes associated to the devices. To define a filter for a layer view, users can click the Filter icon on the left side of the workspace. This will present standard application filter tool where the user can build simple and complex filters utilizing AND and OR clauses. See the Filter Options section for details on creating filters.

   🔻 All

   | Run | Save |

   | Type | ⊗ | equals | ⊗ | Transfer Switch | ⊗ | 🔍 | AND | X |
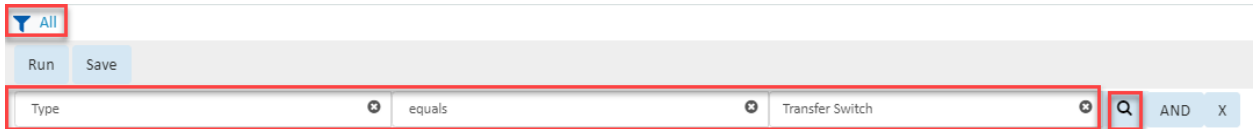
To clear or reset the view on the floorplan users can hit the X button to delete each filter rule.
Note: If the Search field in the rule is a long drop-down list the user can used the Magnifying Glass to open a table list view of the options that can be filtered by column. To select an option

click the radio button and Submit.

5. The Devices list shows the full list of devices on the floor.
   a. Use the collapse icon next to the top of the devices to hide and show the list.
6. When a device is selected the device and position properties are listed.
   a. Use the collapse icon next to the top of the devices to hide and show the list.

23.4.2. Design Function Tile - Creating a Floorplan

When a floor node is selected, the Design function tile displays the workspace where users upload and configure the floorplan for their particular location. Once the floorplan is constructed, users can mount devices onto the floorplan using the Deploy function tile. When the Design function tile is accessed, there are two sets of icons available to help with the tasks needed to create the floorplan. Select the floor to be defined and then use the tools provided to construct the floor views.

Along the top of the screen the following icons are available:

23.4.2.1. Upload Icon

The Upload icon allows users to upload floorplan images so they can define attributes of the floor. Supported file type for the upload include jpg, png and bmp. Floor Image window shows the floor plan and presents buttons to rotate Counter-Clockwise or Clockwise before submitting.

- Zoom In: Use the mouse roller ball to zoom in and out on the floorplan.
- Move Floorplan: Click and hold the right mouse button to move the floorplan on the workspace.

Note: To upload a 3D CAD file for the floor plan users must use the CAD Tool in the application 3D Client.

23.4.2.2. Anchor Icon

The Anchor icon allows users to place anchor points on each corner where walls connect on the floorplan drawing. This will allow the connecting walls to be created properly. Users click this icon to enter the mode to place anchor points. Mouse clicks will assign an anchor point to the image. Users can click the Escape key to exit the anchor point mode and return to the standard edit mode.

- To delete anchor points, Escape key to standard edit mode, click anchor point (turns red) and click the remove icon (trash can).

23.4.2.3. Wall Icon

The Wall icon allows users to connect anchor points to create the walls of the floorplan. Clicking this icon will enter the draw wall mode. Users select the type of wall from the pull-down menu and can then systematically click anchor points to draw a set of walls around the floorplan image.

- No pre-existing anchor points - The wall tool also works without pre-existing anchor points. Select the wall type and then click on the floorplan to start the wall and also create anchor points as the user clicks to create walls.
- Non-contiguous walls - If the user needs to create a non-contiguous wall or there is an opening between anchor points, use Escape to exit the wall drawing tool. Click the wall drawing tool to start a new wall at a new anchor point.
- Delete wall – Exit the wall tool with Escape key, left click select the wall (turns red) and click the remove icon (trash can).
- Change wall type - Exit the wall tool with Escape key, left click select the wall (turns red) and change the wall Type in the properties window.
- Use the collapse icon to hide the properties window.
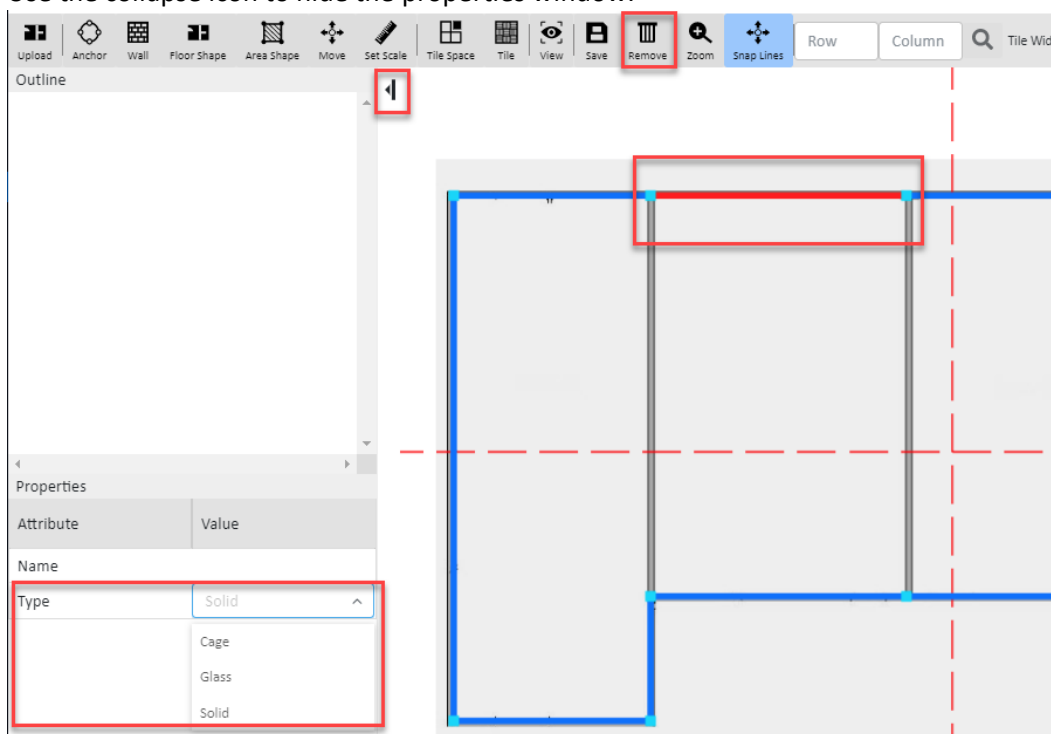
23.4.2.4. Floor Shape Icon

After the walls have been created the full area of the floor is defined by selecting the Floor Shape icon and then clicking the anchor points around the perimeter of the entire floor. This process establishes the area of the floorplan for capacity planning purposes. As the perimeter anchor points are selected, they

turn red. To complete the floor definition process users must "close" the perimeter by selecting the first anchor point again and the floor shape color is applied. To start the process over, users can select the Escape icon to return to the standard Edit mode.

When the full floor area has been defined the floor name is shown in the outline and when selected the properties can be seen and altered as needed.
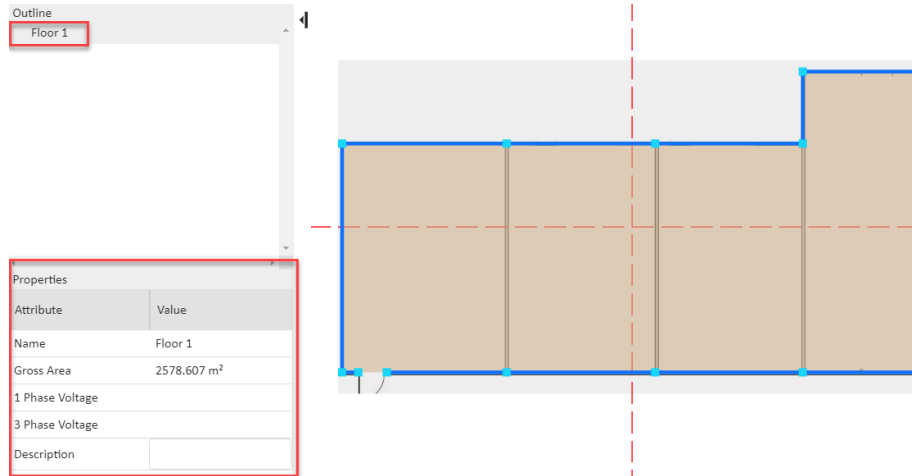
23.4.2.5. Area Shape Icon

After the floor is defined, users can then define areas of the floor. This process is similar to the floor definition feature. Users select the Area Shape icon and then connect wall anchor points until a full area is defined. As the perimeter anchor points are selected, they turn red. To complete the area definition users "close" the perimeter by selecting the first anchor point again and the area color is applied. To start the process over, users can select the Escape icon to return to the standard Edit mode.

When the area has been defined the Add Area form opens and the user selects the area name from the drop-down menu.
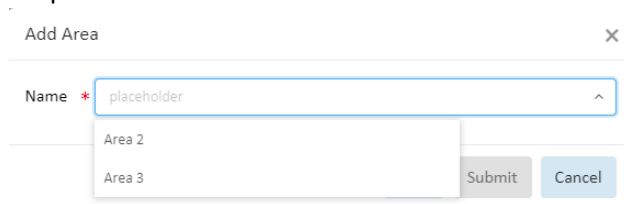
If the area name does not exist, the user can click the New button and fill out the New Area form to create and apply the new name.

Once the area is created the area name is shown in the outline and when selected the properties can be seen and altered as needed.
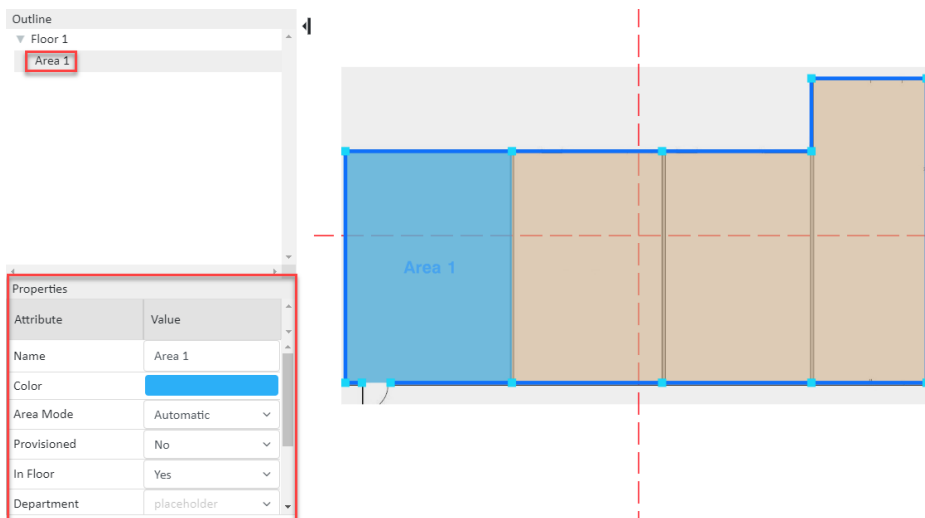
- Color – Click on the color swatch and select a new color from the color palette. By default the area color is blue.

23.4.2.6. Move Icon

The Move icon allows users to select an anchor point and move it to a new location.

23.4.2.7. Set Scale Icon

The Set Scale icon allows user to define the length of a wall. The units displayed will be presented based on the user settings. Exit the wall tool with Escape key, left click select the wall (turns red), select the Set Scale tool and enter a value.

Navigation Tree

Note: Set scale on one wall and the other walls will be set proportionally.

23.4.2.8. Tile Space Icon - Apply Raised Floor, Tiles and Grid

Select the area where you want to apply the raised floor from the outline list. Click on the Tile Space icon and fill out the Add Tile Space form:
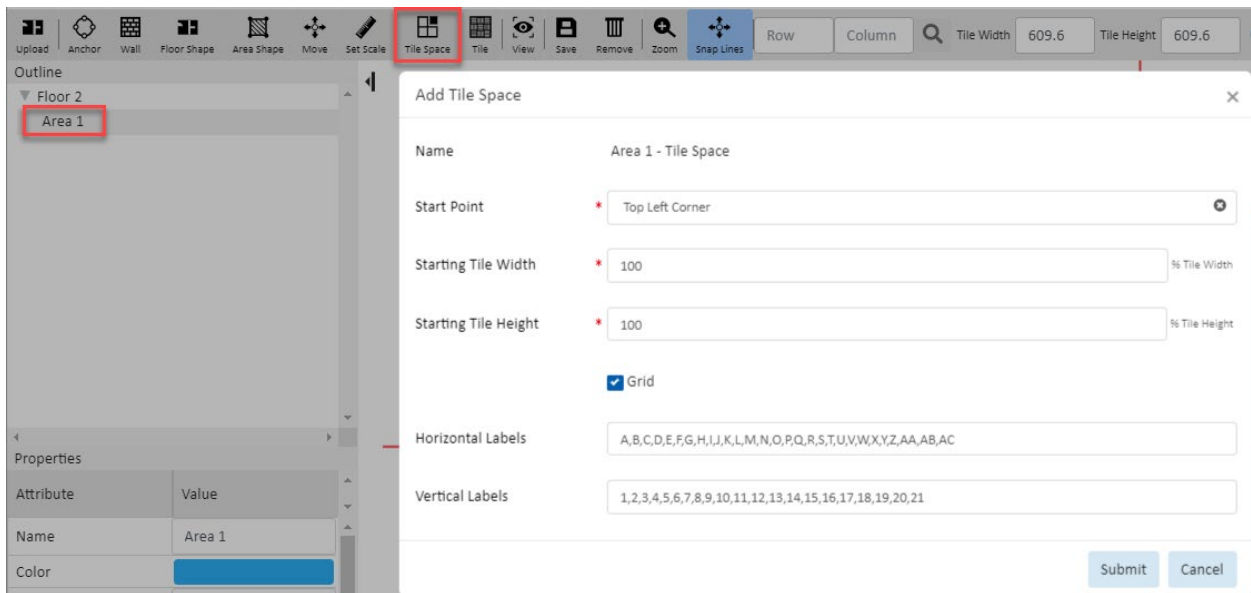
- Start Point identifies the corner where the labels will begin. The default is Top Left Corner but it can be change to Bottom Left Corner, Top Right Corner or Bottom Right Corner.
- Starting Tile Width sets the width of the first tile as a percentage of the full tile's width
- Starting Tile Height sets the height of the first tile as a percentage of the full tile's height.
- Grid checkbox turns the grid on in the selected area.
- Horizontal Labels will by default add letters across the tiles beginning with the letter A and continuing for the number of tiles in the space.
- Vertical Labels will by default add numbers vertically down the tiles beginning with the number 1 and continuing for the number of tiles in the space.

o To change labels select the Area Tile Space item in the outline and edit the Column and Row labels. The labels are entered with a comma between each entry.
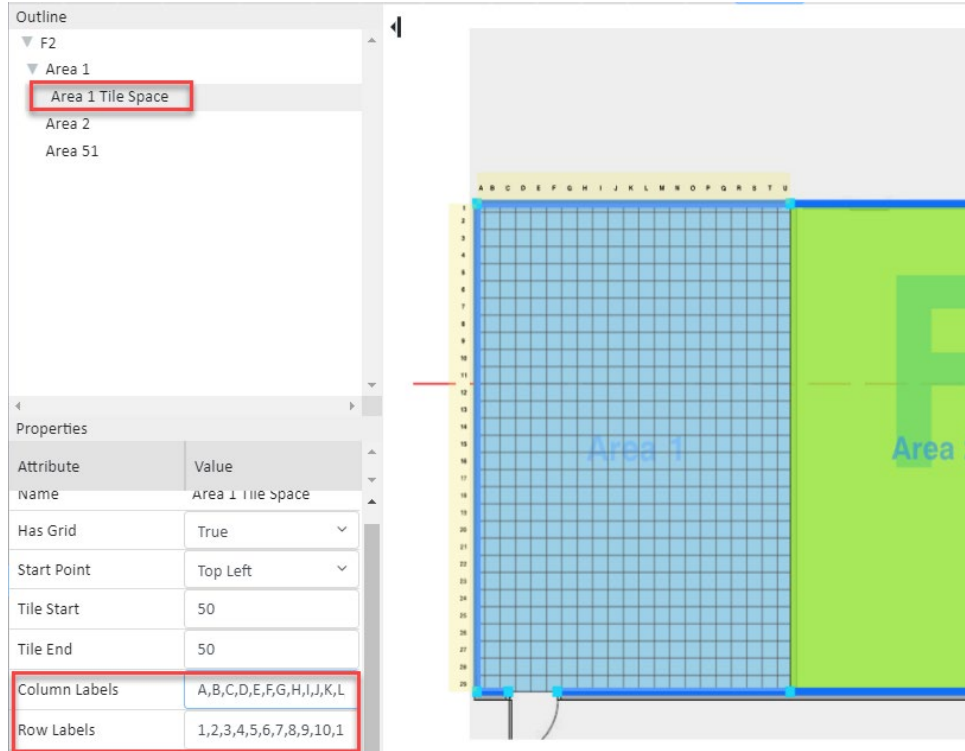
23.4.2.9. Tile Icon - Specify Perforated and Common Tiles

Identifying the location of Perforated and Common tiles helps the system accurately calculate the usable/billable floor space and visually keeps users from placing devices on those tiles.

- Select the tiles to be changed from normal tiles
    - o Contiguous tiles - Shift Click to select the first tile then the last tile (tiles turn green)
    - o Non-contiguous tiles - Control Click to select tiles one at a time
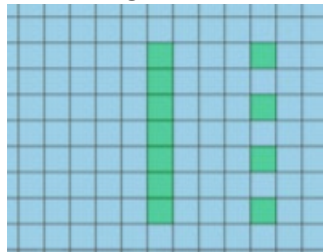
- Click on the Tile icon and select the desired type of tile
    - o Normal - the default tile type, displayed in the default area color
    - o Perforated - displays as a dark gray tile
    - o Turn on Common - displays with an extra border. Common is good for walkways and areas where no devices are to be placed.

o   Turn off Common - used to revert common tiles back to normal
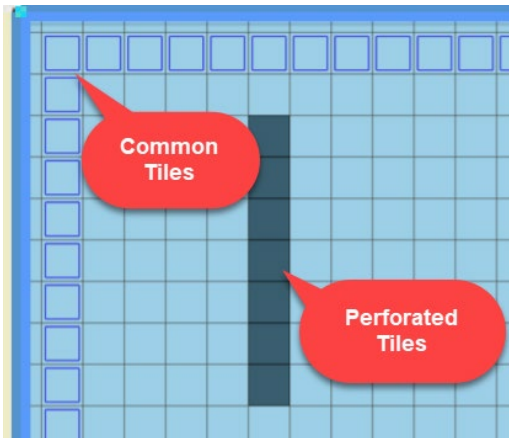
23.4.2.10. View Icon

The View icon allows users to specify which elements will be visible on the floorplan during the design process.
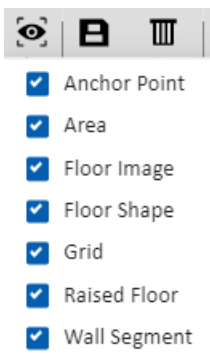
23.4.2.11. Save Icon

The Save icon saves changes to the floor plan.

23.4.2.12. Remove Icon

The Remove icon is used whenever the user wishes to delete selected design elements like anchor points, walls or an element selected in the floorplan Outline. Anchor points and walls turn red when selected. Items in the outline are highlighted gray when selected.

23.4.2.13. Zoom Icon

The Zoom icon allows users to zoom in or out of the floorplan image by fixed percentages.

•   The roller ball on the mouse zooms in or out of the floorplan image to any desired view.

23.4.2.14. Snap Lines Icon

When the Snap Lines icon is highlighted green guide lines will appear as new anchor points are being placed and the anchor points will snap to align.

23.4.2.15. Row, Column Tile Search Fields

The Row and Column fields allow the user to enter a grid point and then search. The desired tile is highlighted green.
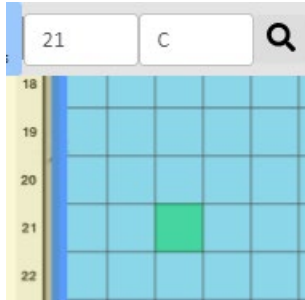
23.4.2.16. Tile Width, Tile Height and Measurement Unit Field

The Tile Width, Tile Height fields and Measurement Unit radio buttons allow users to set the raised floor tile size.

23.4.3. Deploy Function Tile - Placing Devices on the Floorplan

When a floor node is selected, the Deploy function tile displays the workspace where users place devices from the devices list onto floorplans which have been created with the Design function.

The Deploy function tile page has several important features which allow users to easily assign and align devices on the floorplans.

23.4.3.1. Align Icons

Align icons allow users to align multiple devices by one of its edges or center points. Users select multiple devices using the Ctrl key while clicking devices on the floor. The first device selected will be the reference for the other devices. After multiple devices are selected, click one of the Align icons to align all selected devices based on the selected edge or center point feature.

23.4.3.2. Join Icons

Join icons allow users to join multiple devices in a row on the floorplan. Users select multiple devices using the Ctrl key while clicking devices on the floor. The first device selected will be the reference for the other devices. Joining to the Top, Bottom, Left or Right of the last device can be done with single click of the icon.

- If multiple devices are selected the order in which they are selected determines the join order.

- The left, right, top and bottom options are based on the view on the screen view. Top indicates the top of the screen, bottom indicated the bottom of the screen, etc.

23.4.3.3. Rotate Icon

Rotate icon will rotate all selected devices the number of degrees entered or selected.

23.4.3.4. Set Height Icon

Set Height icon allows users to set the height of a device off the floor. Users can place devices above the floor or under the floor with a radio button selection while running this function. Multiple devices may be selected while performing this function.

23.4.3.5. Save Icon

Save icon saves all changes from the floorplan to the navigation tree. Devices placed onto the floor will be assigned the location attributes and will be changed from Available to Operational device status.

23.4.3.6. Remove Icon

Remove icon will remove all selected devices from the floorplan.
Note: This will not delete the device from the application device list.

23.4.3.7. Zoom Icon

The Zoom icon allows users to zoom in or out of the floorplan image by fixed percentages.

Note: The roller ball on the mouse zooms in or out of the floorplan image to any desired view.

23.4.3.8. Undo/Redo Icons

These will undo and redo previous actions.

23.4.3.9. Adding Devices to Floor

23.4.3.9.1. Device List

Users can add existing devices to the floorplan with an easy drag and drop action from the Devices tab list on the left part of the page. By default, the list shows Available devices, but the user can elect to show All devices or just the devices in the Current Location. Using the filter tool users can further refine the list.
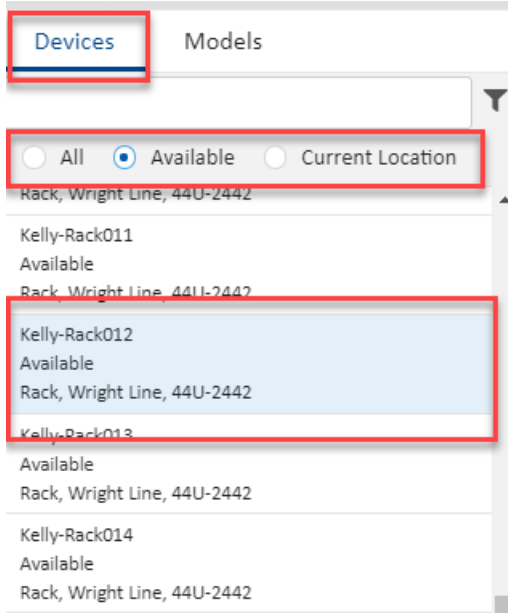
Navigation Tree

Multiple devices can be selected from the navigation tree using either the Ctrl or Shift keys. After selecting devices, drag and drop the devices onto the floorplan.

Note: Device must be highlighted before dragging. Click left mouse button to select (item turns blue), then click left mouse button again and hold to drag to position on the floor.

By default, the selected devices will be added to the floor in a joined row in the order they were selected. Once on the floorplan, the user can move the devices manually or use the icons at the top to help update alignment or join order in the layout.

23.4.3.9.2. Models List

Users can add new devices to the floorplan with an easy drag and drop action from the Models tab list on the left part of the page. By default, the list shows the entire model library. Using the filter tool users can further refine the list.
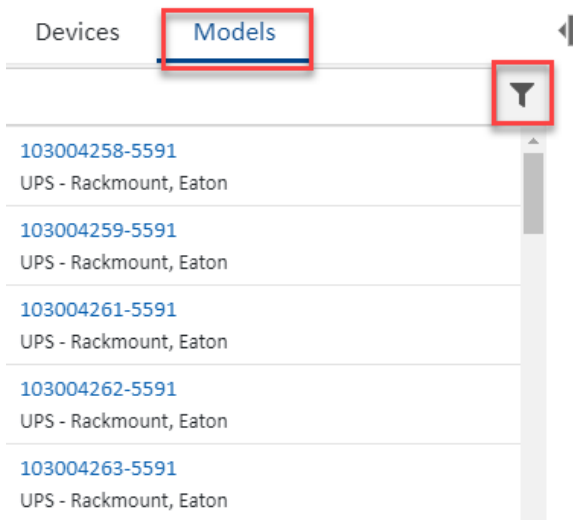
When the model is released on the floorplan the Add Devices By Model form opens. Enter the new device's name and select a device group. Enter a quantity, if more than one of the devices is desired. The devices are added to the floor and if the quantity was more than one, the additional device names will be appended with parenthesis and a number.

23.4.4. Racks Function Tile

Displays a list of the racks deployed on the current floor and when selected the a rack page is displayed with rack details and access to rack management functions.

1. The selected rack is highlighted in the rack list causing the rack to be displayed and its detail to be loaded on the page.
2. Edit Icon - goes to the device central page for the rack.

3. Manage Rack button - opens the rack manager page with the rack loaded.
4. Print button - generates a PDF file rack report containing the following:
   a. Images of the rack front, rear, left, right and outer left and right sides of the rack.
   b. The list of devices mounted on the rack.
   c. The rack's dashboard information which includes the power and capacity statistics.
5. Show Enclosure checkbox - toggle to show rack enclosure.
6. Mounted Devices tab
   a. Displays the list of devices mounted in the rack.
   b. Select the device on the rack and the row is highlighted in the list or vice versa.
   c. The Remove and Decommission button will act on the devices with the boxes checked.
7. Dashboard tab - displays the rack power dashboard elements in the content area.
8. Capacity tab - displays the rack capacity dashboard elements in the content area.

24. Creating and Configuring Traps

SNMP Traps are an important part of device monitoring and management and can be configured in the application. The SNMP Trap listener will receive traps from monitored devices and process the traps based on the rules and configurations. Many vendor trap objects are predefined in the Monitoring Template section of the application. Creating new trap objects is a multi-step process documented in the sections below.

24.1. Create Attributes for Traps

The application generates all alarms, notifications and actions based on Attributes. So, the first step to creating support for a new trap is to ensure there is an attribute created in the application. This step is completed on the Attribute Manager page which is in the Settings group menu.

- Name – Define the name of the trap attribute. This is typically a unique name which is easy to find and manage when reported in the Alarms and Calendar features of the application.
- Define the Category where this attribute will be visible when reviewing the full attributes list.
- Choose the Value Type of the trap to be delivered from the device. In most cases, this type will be set to String.
- Usage – Choose the Device checkbox. Only device traps are supported in the application.

This attribute will be used in other sections below to fully configure the trap object in the application.

24.2. Create Trap Data Elements

Once the trap attribute is defined in the application, the user can go to the Monitoring – Monitoring Templates page to create support for the actual trap object from the device. Examples of predefined traps can be found in the monitoring templates that start with the string "Trap". Create a new monitoring template which will contain the list of traps to be created for your device. There are two ways to define the individual trap attributes in the monitoring template as documented below.

24.2.1. Traps Defined Manually

Users can manually define a trap attribute in the monitoring template by following these steps. Please refer to working examples of traps in the preconfigured Monitoring Templates if more information is needed on how to manually create a trap attribute:

- Choose the Attribute from the application Attribute Manager which will be used for tracking the trap object sent from the device.
- Define an alias for this attribute. This is not required but may be a way to provide a user-friendly name to a more complex attribute name. The Alias name will be used for reporting in alarms and calendar events.
- Data Type should be set to Scalar.
- Monitor Type should be set to SNMP Trap.
- Parameters – Trap OID should be the OID from the device MIB which represents the trap alarm sent by the device. Specific is a configuration setting which is defined in the manufacturer MIB

for each trap object being sent to the application as an alarm. Item Value is used in some cases to match the value assigned in the trap to a configuration with the attribute defined in the application.

- Variable Bindings – In some cases traps will be dependent on other objects in the SNMP MIB. If the trap object being defined has a variable binding then click the Add button and define the Name, OID, Value type and Enum Values fields.
  - o The system will translate ENUM values into user-accessible readable format for traps in the alarm details and email.

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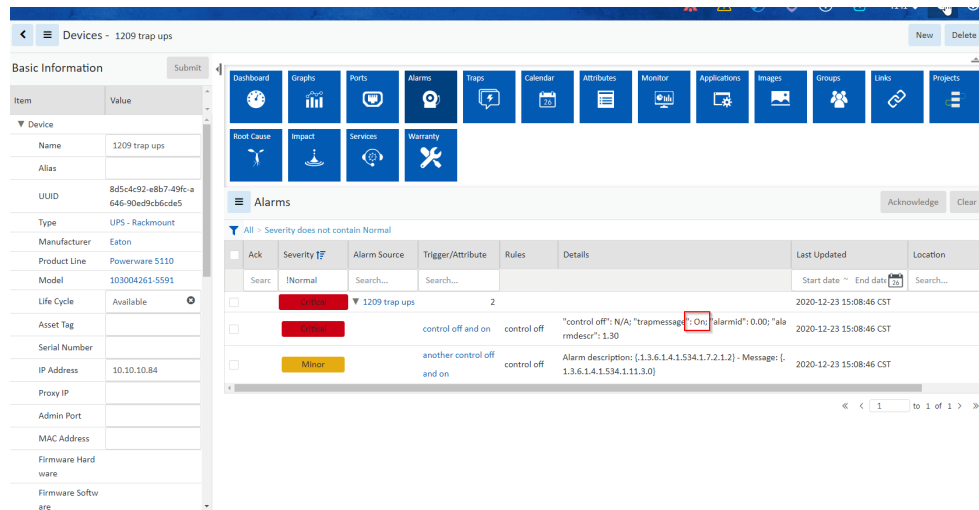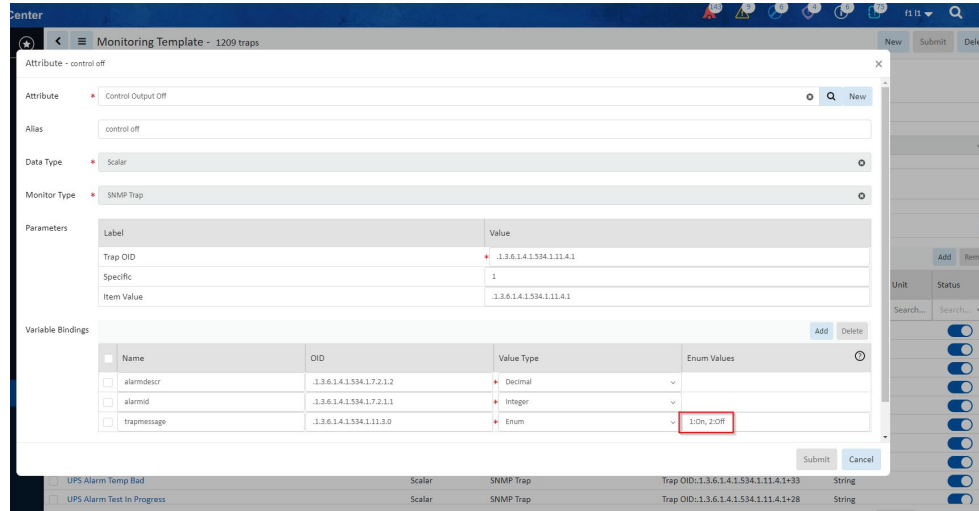
- For Variable Bindings support for fuzzy matching at the end of some of the bindings (such as OID .1.3.6.1.4.1.534.1.11 could match all the OID start with it.) This means that variable binding OIDs no longer require an exact match to be recognized by the system.
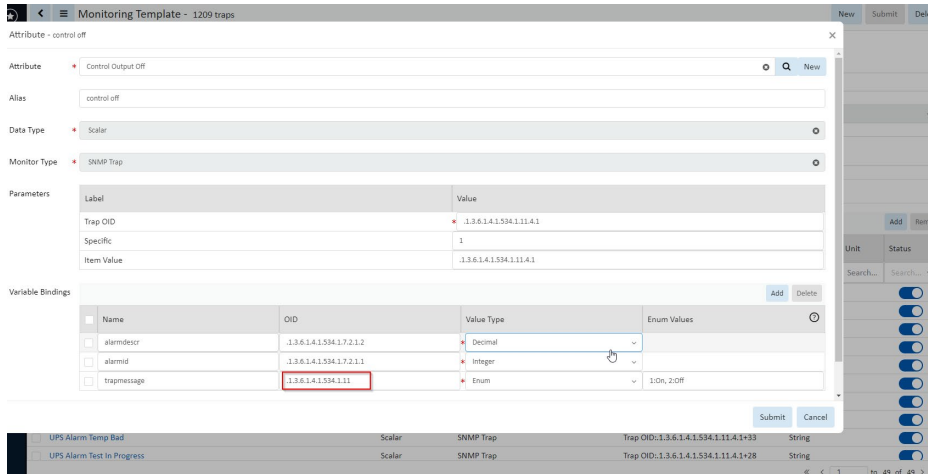
- Status – Determines if the application will process this trap definition for the assigned devices.

24.2.2. Traps Imported from MIB

An alternative to the manual creation of the trap object in the application is to use the Import from MIB option when creating attributes. This method is much easier to use and is recommended for trap configuration activity. To use this method of creating support for traps, follow these steps below:

- Create a new Monitoring Template or open an existing template which will contain the trap definitions.
- On the Attributes Tab, click the Add button.
- At the top of the Add Attribute page turn on the Add Attribute from MIB checkbox.
- Browse to the file which is the MIB file which contains the trap definitions to support.
- Select the checkbox next to the trap objects which will be imported.
- Assign the application Attribute which will be used to map to the Trap object. A list of available Attributes is in the dropdown list in the Attribute column of the table.
- Click the Submit button.

The selected traps will be created in the monitoring template and can be assigned to devices.

24.2.3. Traps Imported via Excel

- Below is the screenshot for the trap import template

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- o You will fill out the template with the columns below
  - o Column B: Name
    - ▪ This is the name of the trap template to be created
  - o Column E: Name
    - ▪ This is the name of the attribute to be used. Note, the attribute must already be created in the system.
  - o Column H: Enable
    - ▪ This is to enable the trap in the template
  - o Column I: Trap OID
    - ▪ Should be the OID from the device MIB which represents the trap alarm sent by the device. Specific is a configuration setting which is defined in the manufacturer MIB for each trap object being sent to the application as an alarm.
  - o Column J: Specific
  - o Column K: Item Value
    - ▪ is used in some cases to match the value assigned in the trap to a configuration with the attribute defined in the application.
- o After filling out the spreadsheet follow normal import procedure and select Monitoring Template as the dropdown option.

24.3. Define Trigger for Trap

24.3.1. Define Trap Triggers Manually

The nature of an SNMP Trap is to report a condition with the device and report the alarm condition to the monitoring application. The steps in the sections above will configure the application to receive the trap from the source device, but for the trap to be reported to users you need to define the Trigger for the trap event.

Defining a Trigger for a trap attribute is the same as defining a Trigger for a standard polled data element from a device. On the Monitoring Template where the Traps are defined, select the Triggers tab and click the New button to define a new Trigger. Key elements of the SNMP Trap Trigger are as follows:

- Name – Name of the Trigger. This trigger name will appear in the Alarms and Calendar when the trap event is detected.
- Severity – Alarm severity to assign to the event when the trap is received for the device.
- Rules – Select the Trap attribute or combination of trap attributes which will cause this Trigger to be enabled.

Click Submit to save the Trigger definition. When this trigger event is enabled the device will be set to the defined alarm severity in the trigger rule.

24.3.2. Define Trap Triggers via Import

Below is a screenshot of an example trap import

	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R
1			Property								Rule			Trap Recovery Rule			Trap Message	
2	Status	ID	Name	Severity	Type	Template/Device ID	Template/Device Name	Min Time On (s)	Min Time Off (s)	Descriptio n	Attribute	Operatio n	Valu e	Attribute	Operatio n	Valu e	Message Format	Recovery Message Format
3	Enable		Control Output Off	Information	Template		Trap XUPS M2 V3				Control Output Off							
4	Enable		Control Output On	Information	Template		Trap XUPS M2 V3				Control Output On							
5	Enable		UPS Agent Down	Minor	Template		Trap XUPS M2 V3				UPS Agent Down							
6	Enable		UPS Alarm Battery Bad	Critical	Template		Trap XUPS M2 V3				UPS Alarm Battery Bad							
7	Enable		UPS Alarm Charger Failed	Critical	Template		Trap XUPS M2 V3				UPS Alarm Charger Failed							
8	Enable		UPS Alarm Entry Added	Warning	Template		Trap XUPS M2 V3				UPS Alarm Entry Added							
9	Enable		UPS Alarm Entry Removed	Warning	Template		Trap XUPS M2 V3				UPS Alarm Entry Removed							
10	Enable		UPS Alarm Fan Failure	Warning	Template		Trap XUPS M2 V3				UPS Alarm Fan Failure							
11	Enable		UPS Alarm Temp Bad	Warning	Template		Trap XUPS M2 V3				UPS Alarm Temp Bad							
12	Enable		UPS Alarm Test In Progress	Information	Template		Trap XUPS M2 V3				UPS Alarm Test In Progress							
13	Enable		UPS AlarmFuse Failure	Critical	Template		Trap XUPS M2 V3				UPS AlarmFuse Failure							
14	Enable		UPS Alt Power Not Available	Minor	Template		Trap XUPS M2 V3				UPS Alt Power Not Available							
15	Enable		UPS Ambient Temp Bad	Warning	Template		Trap XUPS M2 V3				UPS Ambient Temp Bad							
16	Enable		UPS Awaiting Power	Minor	Template		Trap XUPS M2 V3				UPS Awaiting Power			UPS Utility Power Restored				
17	Enable		UPS Battery Discharged	Critical	Template		Trap XUPS M2 V3				UPS Battery Discharged							
18	Enable		UPS Breaker Open	Critical	Template		Trap XUPS M2 V3				UPS Breaker Open							
19	Enable		UPS Building Alarm	Warning	Template		Trap XUPS M2 V3				UPS Building Alarm							
20	Enable		UPS Bypass Not Available	Warning	Template		Trap XUPS M2 V3				UPS Bypass Not Available							
21	Enable		UPS Comm Established	Information	Template		Trap XUPS M2 V3				UPS Comm Established			UPS Communications Lost				
22	Enable		UPS Communications Lost	Information	Template		Trap XUPS M2 V3				UPS Communications Lost			UPS Comm Established				

- o You will fill out the template with the columns below
  - o Column C: Name
    - ▪ Name of the trigger
  - o Column D: Severity
    - ▪ This is the alarm severity category the trigger will display once active
  - o Column E: Type
    - ▪ The type of trigger and where it will be created ie either under a template or a specific device
  - o Column G: Name
    - ▪ The name of the type or device the trigger will be applied to
  - o Column K: Attribute
    - ▪ The name of the trap attribute that will activate the trigger if received.
- o After filling out the spreadsheet follow normal import procedure and select Triggers as the dropdown option.

24.4. Define Recovery Rules for Trap

When traps are received by the application and a trigger is enabled to set an alarm for a device, there needs to be an automated way for the trap alarms to be cleared from the alarm panel when the device reports the original trap condition no longer exists. Users can configure these recovery rules within the Triggers page for the trap alarm.

On the New Trigger definition page, there is a Recovery Rules section which is used to define the Trap events which will clear the alarm condition. Essentially, when the recovery rules events are received for the device, the original trap event will be cleared for the device. This clearing of the trap event will reset the trap to Normal condition for the device which eliminates an entry in the alarm panel for the device.

Note: When defining the recovery rules, there are options to use compound logic the AND|OR buttons to require multiple trap events to clear the original trap alarm.

24.5. Define Custom Messages for Trap

On the New Trigger definition page there is an option to deliver a text string along with the trap alarm. Using the Message Format field on the new trigger page, users define the text string which will be sent with the trap alarm when it is generated. This text string will appear in the Alarm panel and the Calendar entry for the alarm generated for the device.

24.6. Configure Trap Forwarding

Users may want for the application to collect SNMP Traps from devices and then forward these traps to a third-party application for further processing. For these use cases, the Actions feature is used to define Trap Forward rules.

Create a New Action by selecting the Template, Trigger or Alarm which contains the SNNP Trap you want to forward to a third-party application.

Define an Operation Rule where Operation Type is set to Forward Trap and the Destination Host|Ports are for the server which should receive the trap.

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24.7. Generate Trap to 3rd Party Application

The Visual Data Center application is capable of delivering SNMP Traps for any alarm detected within the application. Alarms are generated using the Trigger feature so they may be simple threshold alarms, complex triggers involving multiple conditions or traps received from devices managed within the application. In any of these cases, the Visual Data Center application can notify a third-party application with an alarm which is in the format of an SNMP Trap.

In the example below, an Action is created for any alarm generated in Visual Data Center which has a severity of Critical.

To forward this alarm condition to a third-party system users will create a new Operation with this Action where Operation Type is set to Forward Alarm and the Destination Host|Port are set for the server which should receive the Alarm trap generated by Visual Data Center.

24.8. Trap Troubleshooting

For traps to be delivered by an end device, received by Visual Data Center and processed correctly requires proper configurations for traps across devices. Please reference these important notes for configuring traps to work properly with the application.

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24.8.1. Device Configurations

- Ensure the end device is configured to deliver traps to the Visual Data Center Probe server. Many devices refer to this as the Trap Receiver configuration and setup. By default, the Visual Data Center trap listener is configured to listen on port 162.
- For SNMP version 1 traps, ensure the Community strings are defined for the end device.
- For SNMP version 3 traps, more configuration elements are required:
  - The definition of the Trap Receiver (Visual Data Center Probe) will require a user name to be included in the setup.
  - The version 3 user name has different Security options for authentication and privacy. A single setting must be used for all devices using SNMP version 3 communication to Visual Data Center:
    - No Auth, No Priv
    - Auth, No Priv
    - Auth, Priv

24.8.2. Probe Server Configuration – SNMP Version 3 Only

If SNMP Version 3 traps are being sent from devices, the Visual Data Center probe server must have the following configuration file updated to align with the settings defined on the end device. All devices at the customer site must communicate with the same SNMP version 3 communication settings. The following file is used to define the communication settings for version 3 traps:

/opt/VDC/monitor/vms/webapps/vms/WEB-INF/config/snmp_v3_trap.json

```
[root@vdc60-3170 logs]# more /opt/VDC/monitor/vms/webapps/vms/WEB-INF/config/snmp_v3_trap.json
[
        {
                "userName":"TRECK",
                "authProtocol":"MD5",
                "authPassword":"",
                "privProtocol":"DES",
                "privPassword":null,
                "engineID":""
        },
        {
                "userName":"test_17",
                "authProtocol":"SHA",
                "authPassword":"test1204",
                "privProtocol":"AES",
                "privPassword":"test1204",
                "engineID":""
        }
]
```

"userName":"",
"authProtocol":"",
"authPassword":"",
"privProtocol":"",
"privPassword":null,
"engineID":""

All values entered to this configuration file should be entered between the "" after the colon.

- userName – Insert the SNMP version 3 user configured on the end device which is delivering the trap.

- authProtocol – Enter either MD5 or SHA.
- authPassword – If a password is required for the authentication then enter here.
- privProtocol – Enter either AES or DES here.
- privPassword – If a password is required for the privilege setting then enter here.
- engineID - Engine ID of the authoritive snmp entity (trap sender). If trap sender's engineID can be ignored, null value can be used

If this configuration file is updated, the vms process (on the probe server) MUST be restarted.

1. Login to the server as root
2. ps -ef | grep vms
3. kill -9 the process ID assigned to the vms process in the output of the first command
4. su - vdc -c "cd /opt/VDC/monitor/vms/bin;./vms start >/dev/null 2>&1"

If there is not an existing monitoring template it needs to be created. Once a monitoring template exists, users must enable the template and monitoring for the device and then the v3 traps can be received.

Triggers created by the traps are generated when traps received.

24.8.3. Get Number of Traps Coming into Server
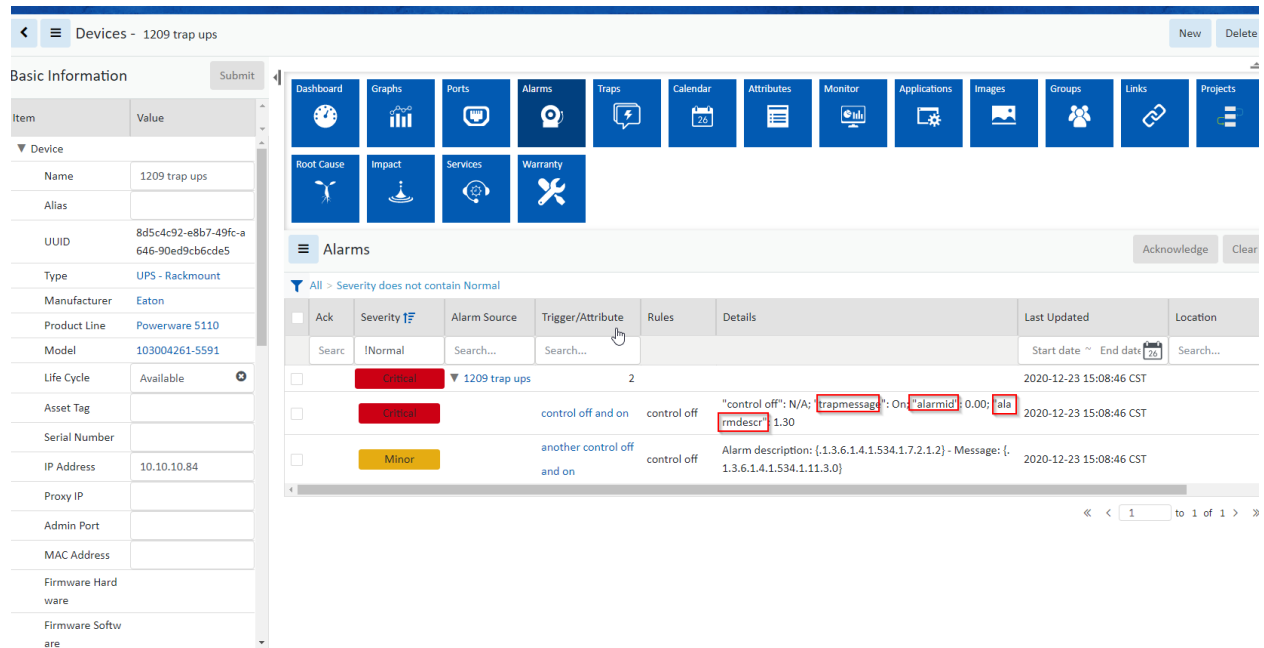
To get the number of traps coming into the server from a specific IP and port run the following command as root:

tcpdump -i ens32 -w /tmp/troubleshoot.pcap -vv -A -T snmp -s 0 "(src 192.168.111.229 and dst port 162)"

Where ens32 is the name of the NIC port in use on the application server.

```
[root@vdc60-3170 ~]# ifconfig -a
ens32: flags=4163<UP,BROADCAST,RUNNING,MULTICAST>  mtu 1500
        inet 192.168.111.170  netmask 255.255.255.0  broadcast 192.168.111.255
        inet6 fe80::1112:8124:a8fa:339b  prefixlen 64  scopeid 0x20<link>
        ether 00:0c:29:ad:a2:3b  txqueuelen 1000  (Ethernet)
        RX packets 5144251  bytes 1207793975 (1.1 GiB)
        RX errors 0  dropped 0  overruns 0  frame 0
        TX packets 4403023  bytes 435232033 (415.0 MiB)
        TX errors 0  dropped 0 overruns 0  carrier 0  collisions 0
```

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24.8.4. Trap Events in the Device Alarm Tile

The system will display the "Name" of each trap binding and NOT the OID in the alarm detail and email.
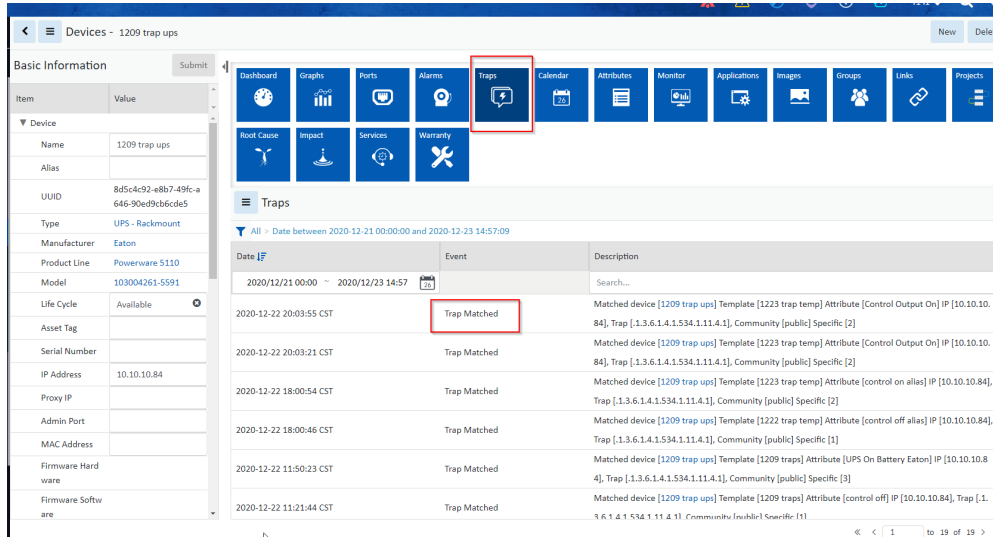
24.8.5. Traps Function Tile

A new Traps function tile has been added to device central and it displays a calendar with all the trap events related to the current device.

Only Traps that match the configuration (device ip and trap oid) for a device will be shown under this tiles information.
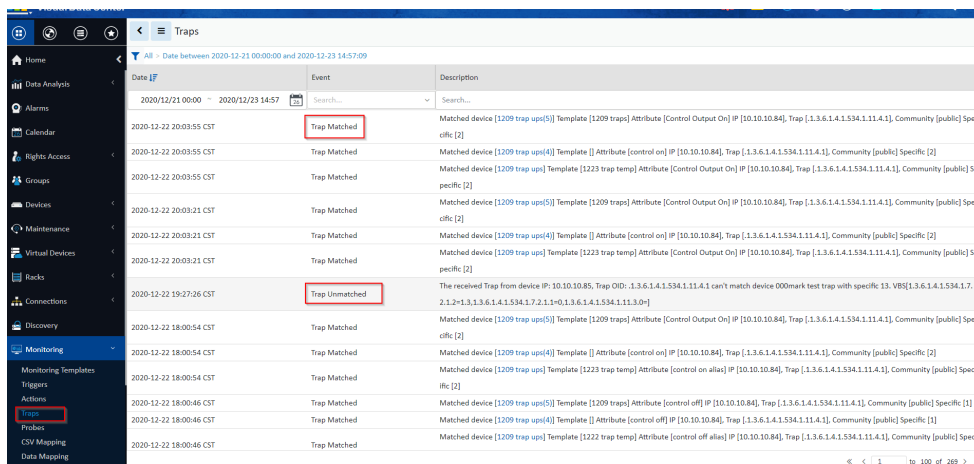
24.8.6. Monitoring Menu Group > Traps Menu Item

Displays all the Trap Matched and Trap Unmatched events for all devices in the specified date range.

A Matched Trap must meet the following

- If the device IP in the trap matches a device IP in the application.
- If the trap OID matches an ACTIVE trap attribute set for the device. Please note this requires the monitoring template is activated for the device AND the actual trap within the monitoring template is enabled.

If the conditions above are not met the trap will be considered unmatched and the details contains trap OID, IP and reason not received will be seen.

24.8.7. Calendar

The events calendar includes Trap Matched and Trap Unmatched events for all devices in the specified date range.

Added a new calendar event named Trap Unmatched. The details contains the trap OID, IP and reason not received.

A Matched Trap must meet the following

- If the device IP in the trap matches a device IP in the application.
- If the trap OID matches an ACTIVE trap attribute set for the device. Please note this requires the monitoring template is activated for the device AND the actual trap within the monitoring template is enabled.

Creating and Configuring Traps

If the conditions above are not met the trap will be considered unmatched and the details contains trap OID, IP and reason not received will be seen.