

# FX Workbench User's Guide

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Refer to the [QuickLIT website](#) for the most up-to-date version of this document.

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# Niagara Introduction

FX Supervisory Controllers and FX Server are all built upon a software framework called NiagaraAX. Niagara is a Java® based software framework that integrates diverse systems and devices (regardless of manufacturer or communication protocol) into a unified platform that can be easily managed in real time over the Internet (or intranet) using a standard Web browser.

Before you use devices, such as chillers, Variable Air Volume (VAV) boxes, or temperature sensors, you must import information from those devices into the Niagara software. Niagara then models those devices and their data types in software through the Niagara common object model. This usually entails simplifying the device's data types to make them easier to manipulate and control through the software. You can then use the Niagara common object model to build applications to program the system easily without the need to develop raw code.

All of the Niagara software is written in Java® code, which means that it is platform independent. Niagara software runs on embedded FX Supervisory Controllers (FX20, FX40, FX60, and FX70) using the QNX operating system and the IBM® J9 Java Virtual Machine® (JVM), and runs on Microsoft® Windows® desktop operating system platforms using the HotSpot JVM (FX Server).

## FX Workbench Overview

Workbench is the term used to describe the Niagara<sup>AX</sup> Graphical User Interface. The Niagara framework provides the ability for developers to customize and expand the Workbench environment to suit the needs of their products. Johnson Controls has taken advantage of this capability and has created two customized versions of Workbench:

- **FX Workbench Pro:** This version is the unaltered Niagara<sup>AX</sup> Workbench. FX Workbench Pro provides all features and functions included with the Niagara<sup>AX</sup> Workbench.
- **FX Workbench:** This version is a reorganized, limited version of the Niagara<sup>AX</sup> Workbench. FX Workbench provides easy access to the most frequently used features and functions needed to configure and operate a station.

The Niagara framework also provides the ability for developers to add components and functionality. Johnson Controls has created the following features which are unique to its FX Supervisory Controller Family:

- New Station Wizard
- Default JCI Station
- Batch Import
- Spaces and Equipment
- N2 Driver
- Import Managers for Johnson Controls devices
- System Library
- Point Extension Manager
- Schedule Manager
- Link Manager
- Point Summary Manager
- Point Group Manager
- JCI User Manager
- Pre-built mobile device sized graphics
- Hardware scan services
- Meters
- Launch FX-PCT

## Document Purpose

The purpose of this document is to describe the features unique to Johnson Controls FX Workbench and FX Workbench Pro. For information on the Niagara framework and on Niagara Workbench, refer to the documents found in the installation directory of FX Workbench (typically, C:\JCI\FXWorkbench-x.y\docs).

## New JCI Station Wizard

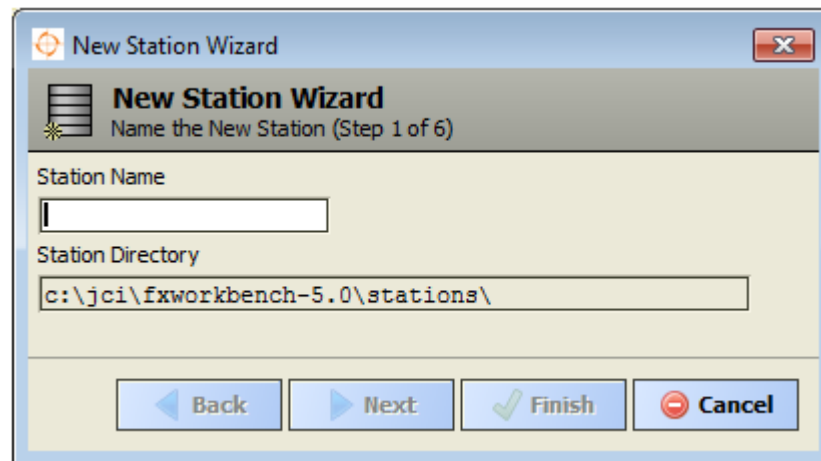
FX Workbench includes a New JCI Station wizard, which assists in the creation of a new FX Supervisory Controller station. The New JCI station wizard provides the same capabilities of the Niagara New Station wizard, including the ability to name the station, define the admin user password, and define the Fox and HTTP ports. In addition, the New JCI station wizard also provides the following unique functionality:

- Allows you to add popular network drivers (including N2, LONWORKS®, BACnet, Ndio, Nrio, SNMP, Wireless TEC, and MODBUS) to the station.
- Allows you to add popular services (including Tunnel, Crypto, Weather, and SMS) to the station.
- Allows you to add predefined user role templates (including Operator, Tenant, and Maintenance user roles) to the station.
- When finished, creates a platform connection and starts the new station.

### *Creating a New Station Using the JCI Station Wizard*

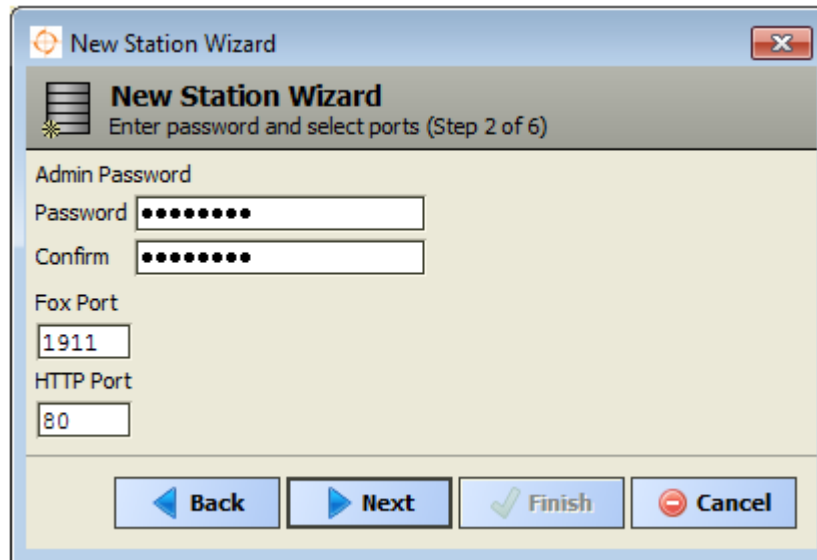
1. In the FX Workbench menu, click **Tools**.
2. Click **New Station**. The New Station Wizard appears.

**Figure 1: New Station Wizard – Station Name**



3. Enter the name of the station and click **Next**. Do not use any spaces or dashes in the name you enter.
4. Click **Next**.

Figure 2: New Station Wizard – Confirm Password



The image shows a software dialog box titled "New Station Wizard" with a close button (X) in the top right corner. Below the title bar, there is a header area with a stack of papers icon, the title "New Station Wizard", and the subtitle "Enter password and select ports (Step 2 of 6)". The main area contains four input fields: "Admin Password" with a password field (dots) and a "Confirm" field (dots), "Fox Port" with a text box containing "1911", and "HTTP Port" with a text box containing "80". At the bottom, there are four buttons: "Back" (with a left arrow), "Next" (with a right arrow), "Finish" (with a green checkmark), and "Cancel" (with a red X).

5. Enter the desired administrator user password and confirm the password by entering it again.  
**Note:** The password must have at least eight characters and one digit or symbol.
6. If desired, change the default Fox and HTTP port assignments for the new station.  
**Note:** Fox is a protocol used to communicate between devices or software applications.
7. Click **Next**.

**Figure 3: New Station Wizard – Driver Configuration**

**New Station Wizard**  
Select and name drivers (Step 3 of 6)

**N2 Driver Configuration**  
☒ None  
☐ One  
☐ Two  
 Enter N2 Driver Name(s):  
 1st   
 2nd

**Lon Driver Configuration**  
☒ None  
☐ One  
☐ Two  
 Enter Lon Driver Name(s):  
 1st   
 2nd

☐ Use LX Lon Network Type

**BacNet Driver Configuration**  
☒ None  
☐ BacNet IP Only  
☐ BacNet IP and MSTP  
 Enter Bacnet Driver Name

**Ndio Driver Configuration**  
☐ Ndio Driver  
 Enter Ndio Driver Name

**Nrio Driver Configuration**  
☐ M2M Driver  
☐ NRIO Driver  
 Enter Nrio Driver Name(s):

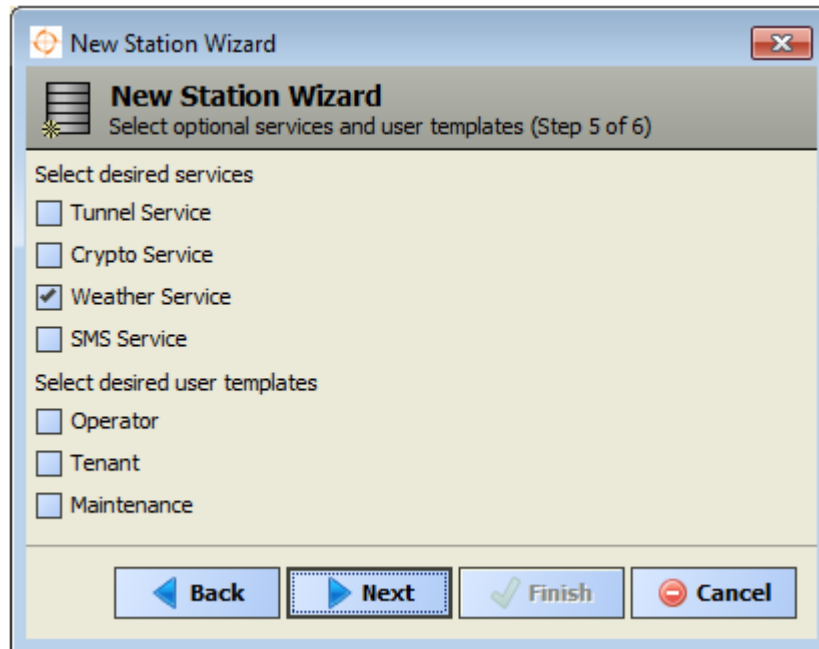
**Snmp Driver Configuration**  
☐ Snmp Driver  
 Enter Snmp Driver Name

**Wireless Stat Driver Configuration**  
☒ None  
☐ Gen 1 Wireless TStat Driver  
 Enter Wireless Stat Driver Name

**Navigation Buttons:** Back, Next, Finish, Cancel

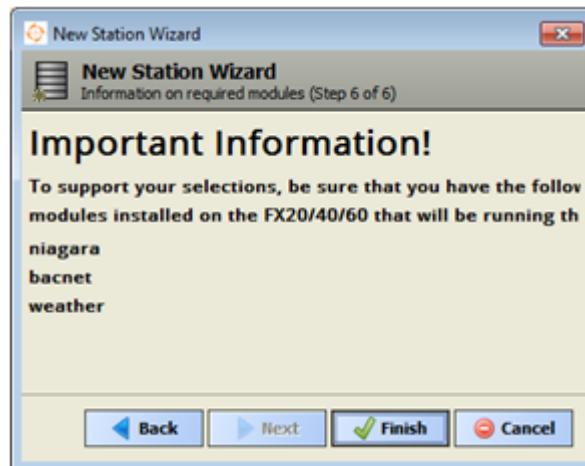
8. Select the desired network drivers. If necessary, select the number of drivers (None, One, or Two).
9. For each new driver you add, enter the desired driver names.
10. Click **Next**.
11. Select additional desired network drivers. If necessary, select the number of drivers (None, One, or Two).
12. For each new driver you add, enter the desired driver names.
13. Click **Next**.

**Figure 4: New Station Wizard – Optional Services Selection**



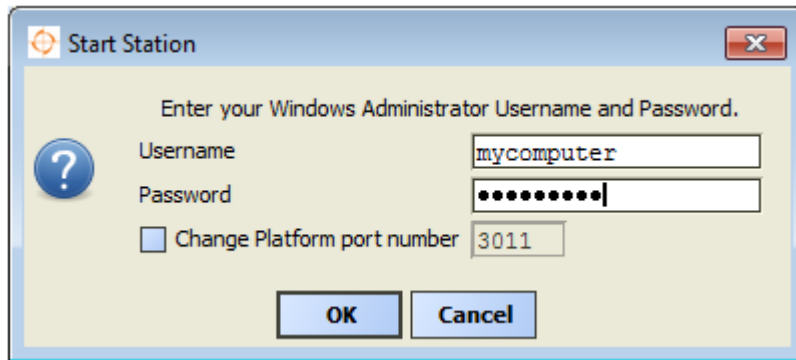
14. Click to select the services and user templates you want to add to the station.
15. Click **Next**. The wizard displays a list of required modules for the selected drivers and services. These modules must be on the FX Supervisory Controller that hosts the station. After the wizard process finishes and the new station is running, use the Software Manager to install the required software modules.

**Figure 5: New Station Wizard – Required Modules**



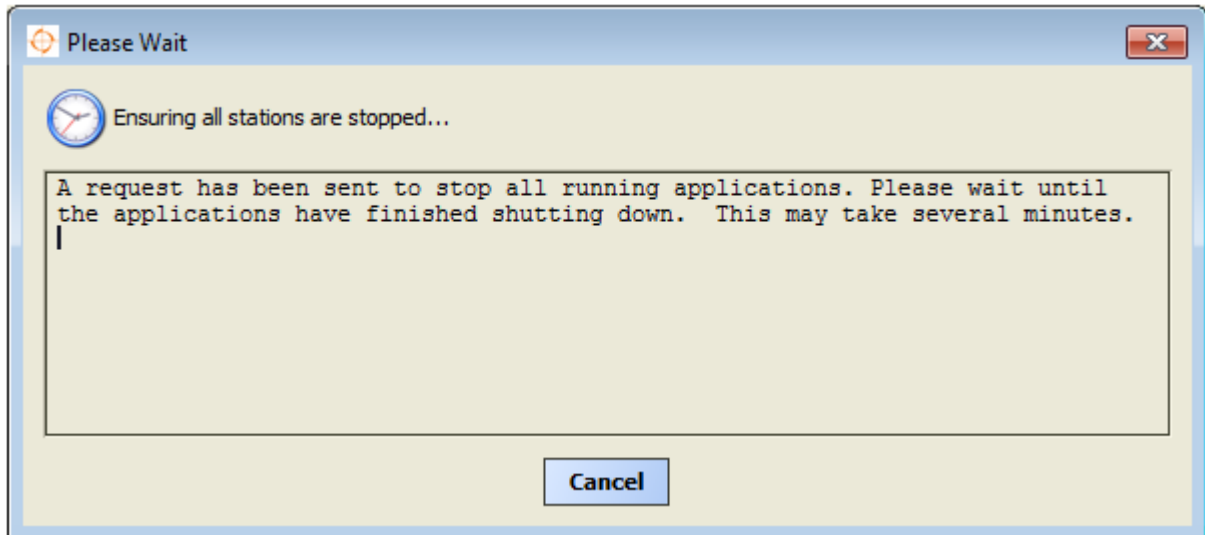
16. Click **Finish**. The Start Station dialog box appears.

**Figure 6: Start Station Dialog Box**



17. Enter your Windows user name and password. The system logs you in to and starts the station. The Please Wait dialog boxes appears while your computer starts the station.

**Figure 7: Please Wait Dialog Box**



18. Click **OK**. The station's Authentication dialog box appears.

**Figure 8: Station Authentication Dialog Box**

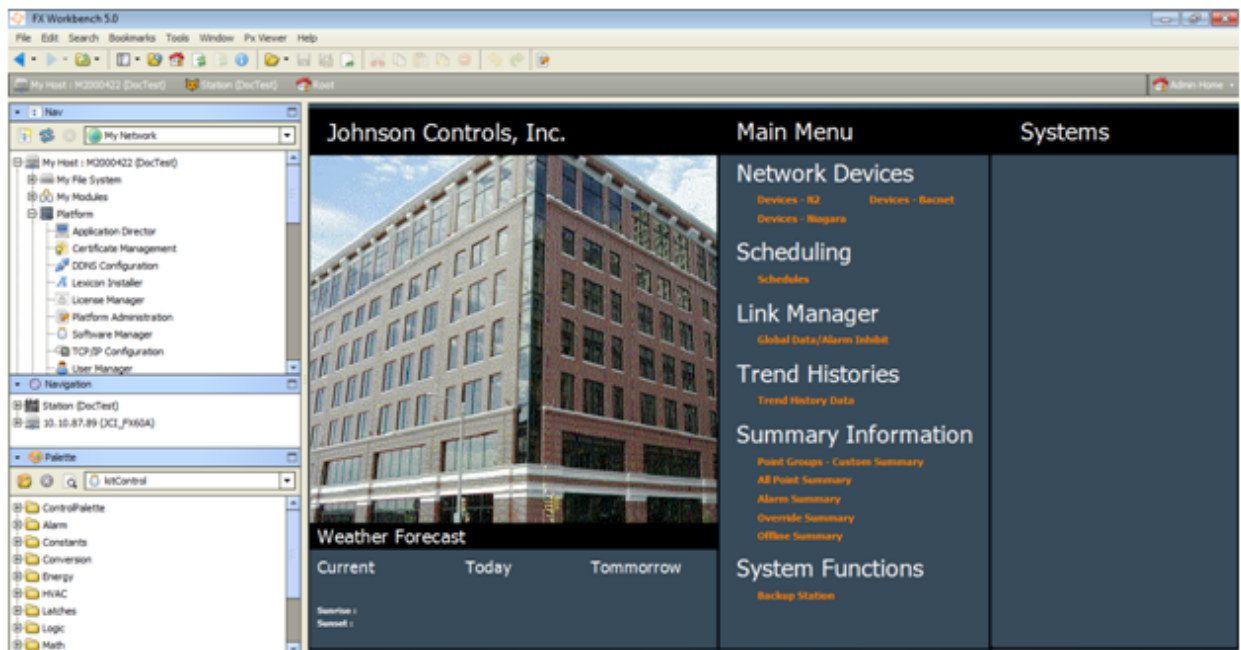


The dialog box is titled "Authentication" with a key icon and the text "Logon required for access". It contains two sections: "Realm" and "Credentials". The "Realm" section shows "Name" as "local:|fox:" and "Scheme" as "Fox (digest-md5)". The "Credentials" section has a "Username" field with "admin" and a "Password" field with masked characters. There is a checkbox for "Remember these credentials" which is checked. At the bottom are "OK" and "Cancel" buttons.

Authentication	
Logon required for access	
<b>Realm</b>	
Name	local: fox:
Scheme	Fox (digest-md5)
<b>Credentials</b>	
Username	admin
Password	*****
<input checked="" type="checkbox"/> Remember these credentials	
OK Cancel	

19. Enter **admin** for the user name, and enter the password you defined in Step 5.
20. Click **OK**. The new station appears.

**Figure 9: Initial View of a New Station**





## Default New JCI Station

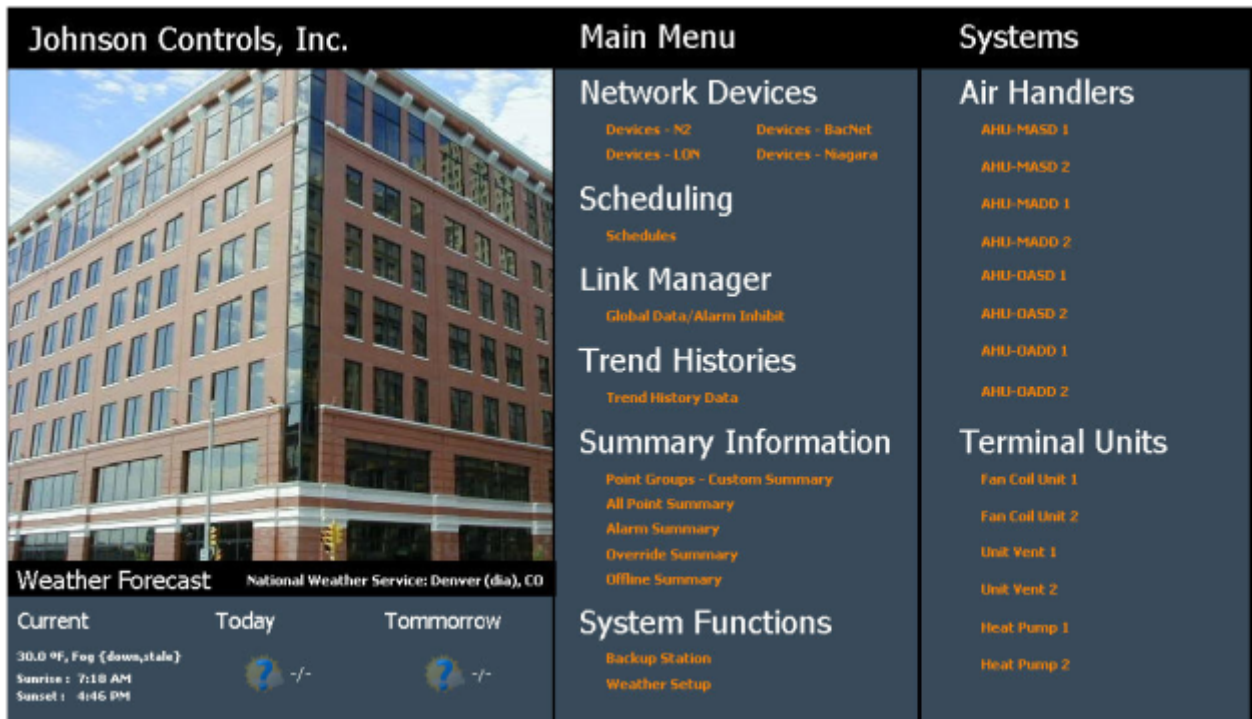
The station created by the New JCI Station wizard is based on a predefined New JCI Station, which has more default features than a station created by the Niagara New JCI Station wizard. Features that are unique to the New Station Wizard include:

- A predefined Px-based home page intended for the admin user (AdminHomePage.px)
- A predefined Px-based home page intended for non-admin users (HomePage.px)
- A predefined Hx-based home page intended for non-admin users accessing the station with handheld devices
- A predefined navigation file

### AdminHomePage.px

The AdminHomePage.px file contains graphics and hyperlinks intended for use by system administrators and operators. This page automatically links to users who have an Administrator or Operator roles.

**Figure 10: AdminHomePage.px**



The AdminHomePage Px View contains the following:

- An image of a building (brenzel.png)
- A Weather Forecast section
- A Main Menu section with hyperlinks to administrative managers
- A Systems section with placeholder hyperlinks

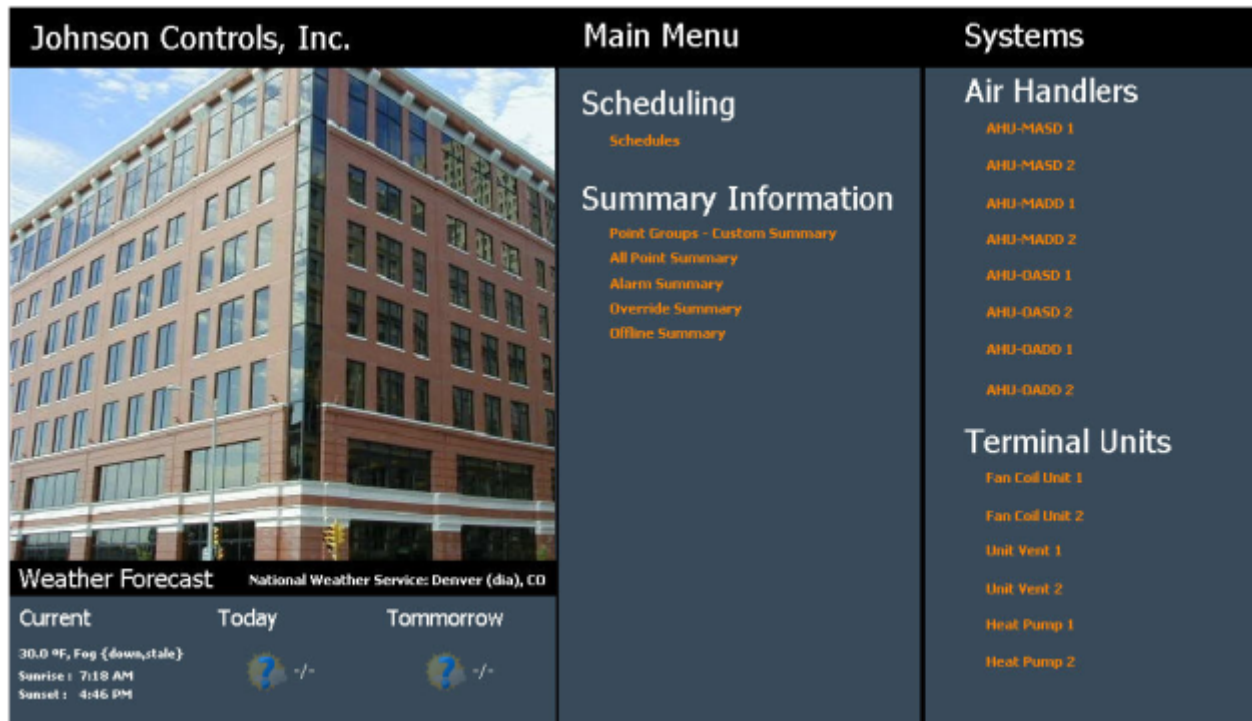
The AdminHomePage is a Px file. Therefore, you can use the Px Editor to add, edit, and delete components to customize the displayed information to your project requirements. For example, you can:

- replace the default building picture (brenzel.png) with a picture of your project's actual building
- change the weather service provider to match your project's actual location
- change the system hyperlinks bindings to match the actual device ORD
- change the names of the system hyperlinks

## HomePage.px

The HomePage.px file contains graphics and hyperlinks intended for users who have roles other than the Administrator or Operator role. This page automatically links to users who have a Maintenance or Tenant role.

**Figure 11: HomePage.px**



The HomePage Px View contains the following:

- An embedded picture of a building (brenzel.png)
- A Weather Forecast section
- A Main Menu section with hyperlinks to scheduling managers and summary information
- A Systems section with placeholder hyperlinks

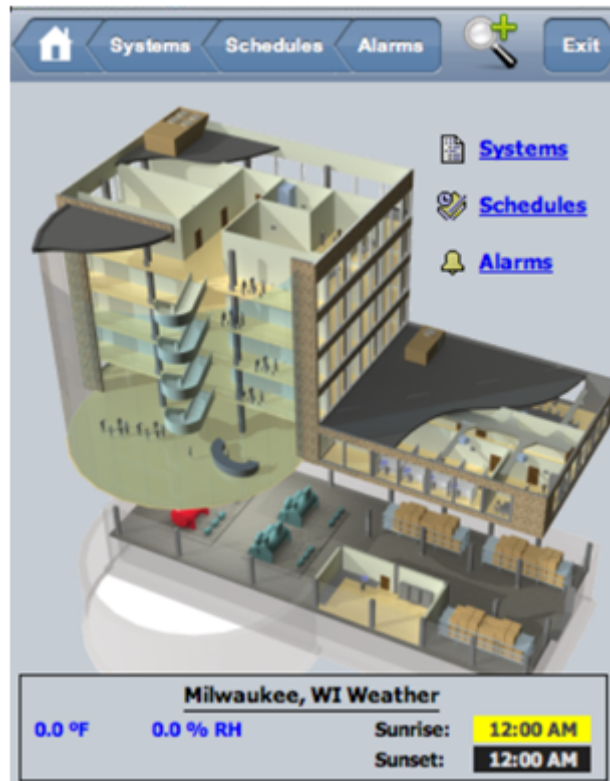
The HomePage is a Px file. Therefore, you can use the Px Editor to add, edit, and delete components to customize the displayed information to your project's requirements. For example, you can:

- replace the default building picture (brenzel.png) with a picture of your project's actual building.
- change the Weather Service provider to match your project's actual location
- change the system hyperlinks bindings to match the actual device ORD
- change the names of the system hyperlinks

## HxHome.px

The HxHome.px file contains graphics and hyperlinks intended for daily operators to access using a handheld device (such as an iPhone® or iPad®). This page automatically links to users who have an Administrator role.

**Figure 12: HxHome.px**



The HxHome view contains the following:

- An embedded picture of a building (MainBuild320.png)
- A top menu bar with hyperlinks to Systems, Schedules, and Alarms
- A weather forecast section

## Customizing the Home Page

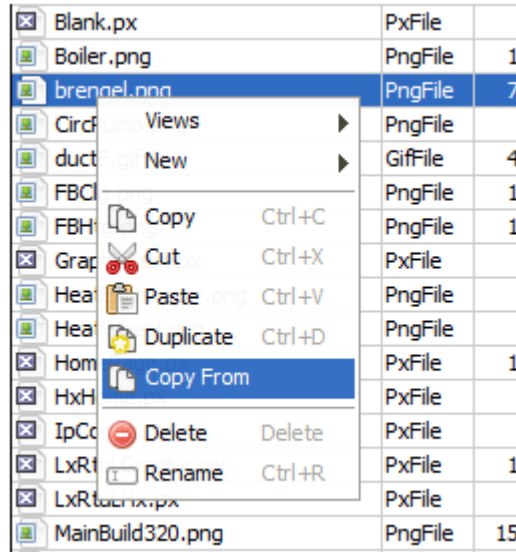
The HomePage is a .px file. Therefore, you can use the Px Editor to add, edit, and delete components to customize the displayed information to your project's requirements. For example, you can:

- replace the default building image (MainBuild320.png) with an image of your project's actual building
- change the Home Page title
- update the Device Networks section of the Home Page with hyperlinks to the actual networks defined in the station
- update the Systems section of the Home Page with hyperlinks to the actual devices defined in the station (up to 34 devices)
- show the Weather Forecast section
- update the weather service provider to match your project's actual location
- create new menu items and hyperlinks
- create a hyperlink to another station

## Changing the Building Image on the Home Page

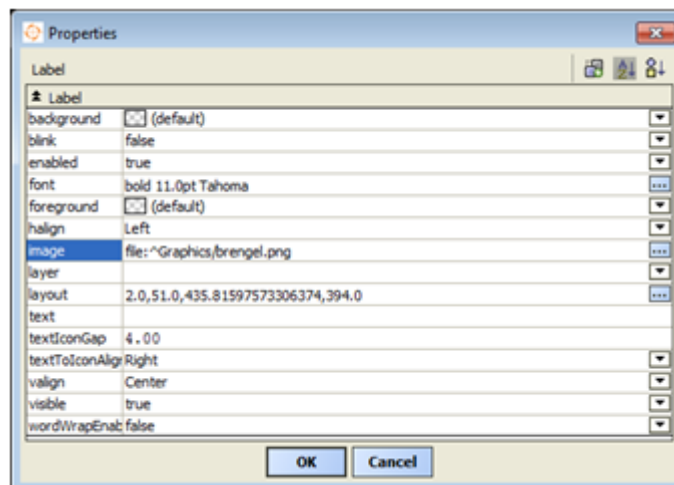
1. Locate the Graphics container in the Nav side bar under Station > Files > Graphics or in the Navigation side bar under Station > Administration > Files > Graphics.
2. Open the Graphics container. The Graphics Directory List appears.
3. Right-click anywhere in the Directory List and click **Copy From**.

Figure 13: Copy From



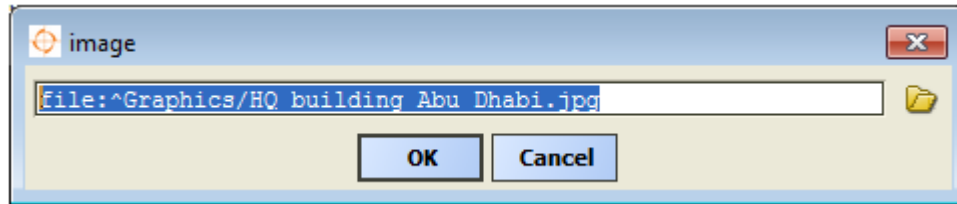
4. The File Chooser dialog appears. Browse to and select the desired graphic image file.
5. Click **Open**. The Directory List updates with the added file.
6. Double-click the home page .px file you want to edit. If you want to change the graphic for the Admin home page, double-click AdminHomePage.px. If you want to change the graphic for the regular home page, double-click Homepage.px. The home page .px file appears.
7. Use the View Selector or click **Toggle View/Edit Mode** to open the Px Editor.
8. In the canvas, double-click the building image (or select it from the Widget tree). The building image is a Bound Label. The properties sheet for that Bound Label appears.

Figure 14: Bound Label Properties Dialog Box



9. Click in the Image field. The Image dialog box appears.
10. In the Image dialog box, replace the file name of the old image with the file name of the new image you added.

**Figure 15: Image Dialog Box**

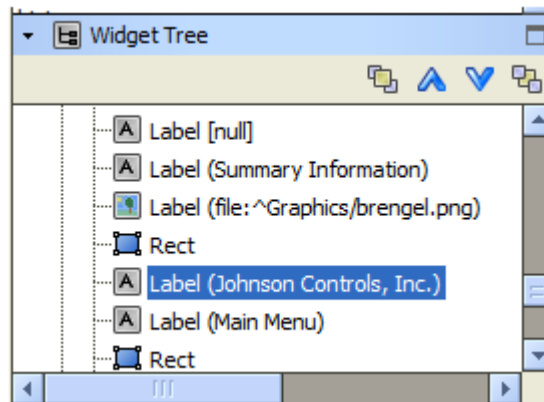


11. Click **OK** to accept the image. The Image dialog box closes.
12. Click **OK** to accept the changes to the bound label properties. The Properties dialog box closes.
13. Exit the Px Editor.

## ***Changing the Home Page Title***

1. Locate the Graphics container in the Nav side bar under Station > Files > Graphics and also in the Navigation side bar under Station > Administration > Files > Graphics.
2. Open the Graphics container. The Graphics Directory List appears.
3. Double-click the home page graphic you want to edit. The Home Page appears for the graphic you selected.
4. Use the View Selector or click **Toggle View/Edit Mode** to open the Px Editor.
5. In the canvas, select the label that you want to replace. The label is highlighted in the Widget Tree.

**Figure 16: Widget Tree**

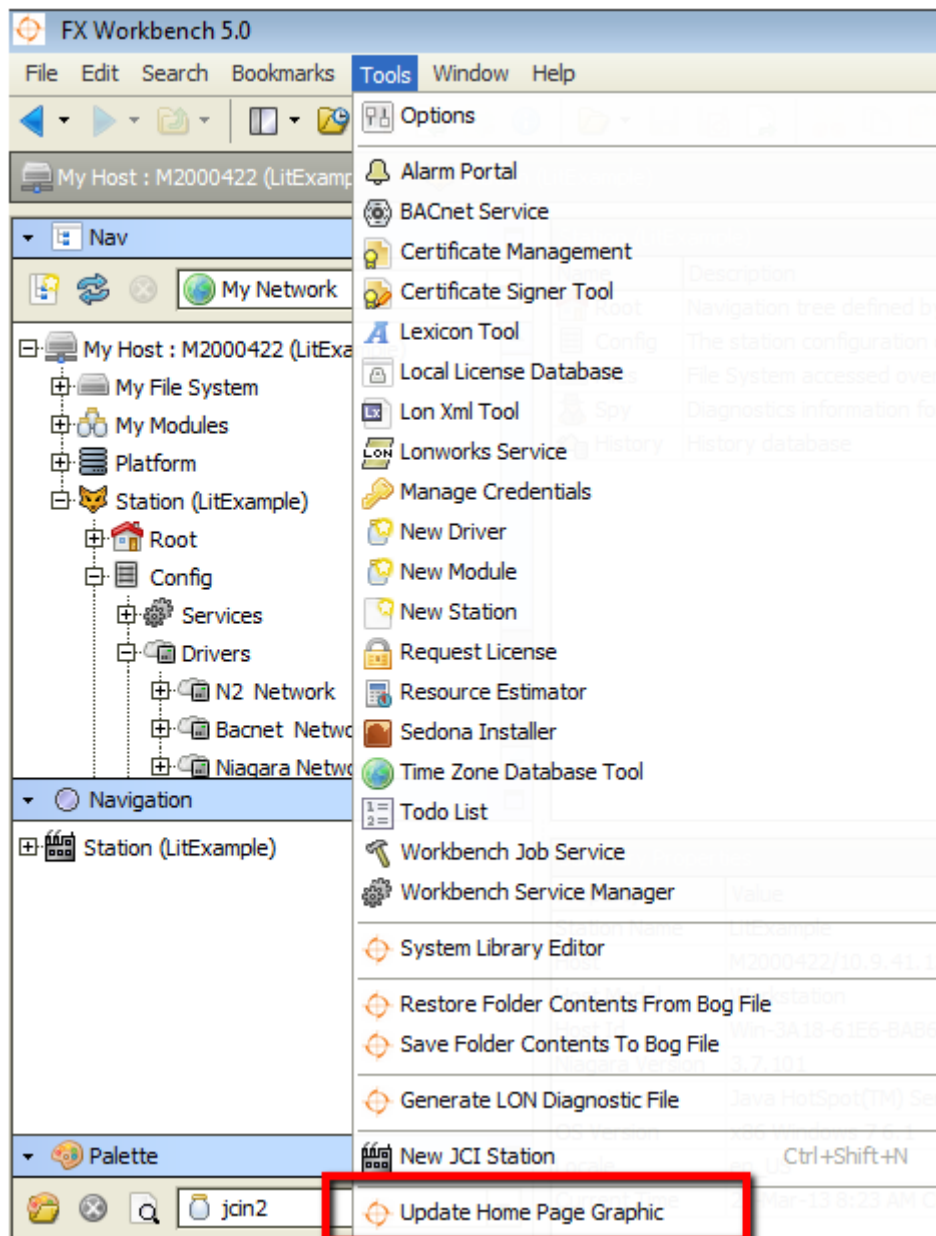


6. In the Widget Tree, double-click the label containing the title. The Properties dialog box appears.
7. Click in the Text field and enter the new title as desired.
8. Click **OK**.
9. Exit the Px Editor.

## Automatically Updating the Device Networks, Systems, and Weather Forecast Sections of the Home Page

On the Tools menu, click **Update Home Page Graphic**

Figure 17: Update Home Page Graphic



FX Workbench automatically performs the following updates to the Home Page:

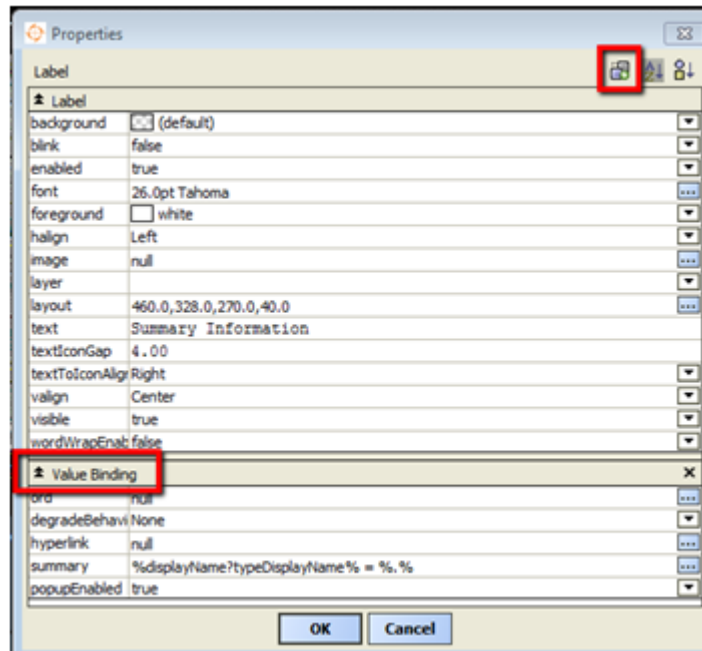
- updates the Device Networks section of the Home Page with hyperlinks to the actual networks (up to 4 networks) defined in the station
- updates the Systems section of the Home Page with hyperlinks to the actual devices defined in the station (up to 34 devices)
- shows the Weather Setup section if you previously selected the Weather Service in the New JCI Station Wizard.



## Manually Changing a Hyperlink Menu Item on the Home Page

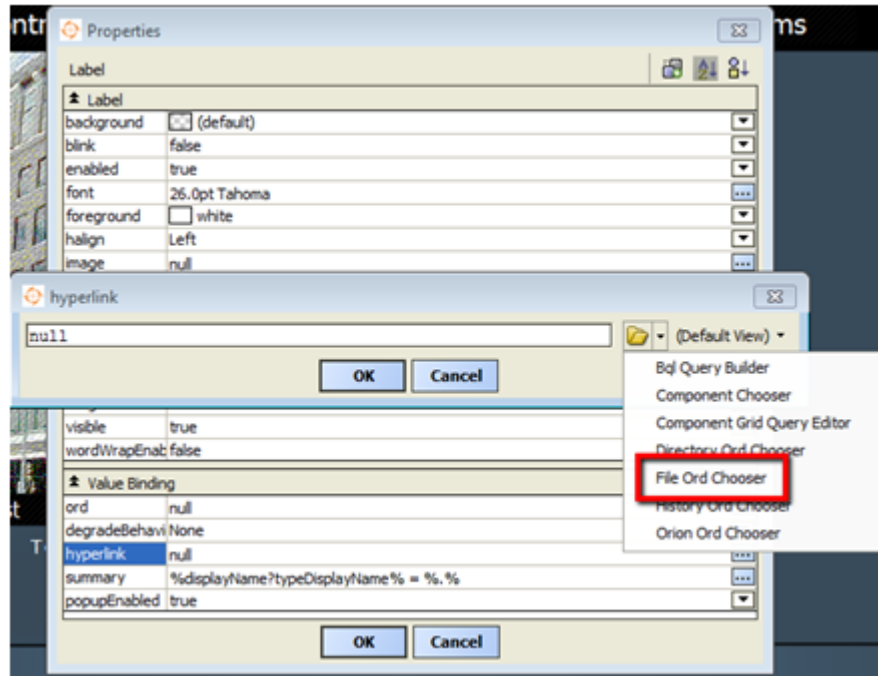
1. Locate the Graphics container in the Nav side bar under Station > Files > Graphics and also in the Navigation side bar under Station > Administration > Files > Graphics.
2. Open the Graphics container. The Graphics Directory List appears.
3. Double-click the home page graphic you want to edit. The Home Page appears for the graphic you selected.
4. Use the View Selector or click **Toggle View/Edit Mode** to open the Px Editor.
5. In the canvas, double-click the label. The Properties dialog box appears.
6. If a Value Binding section is not in the properties box, click **Add Binding**. A list of binding options appears. Select **bajauri:ValueBinding**.

Figure 18: Value Binding



7. In the Value Binding section, click the Hyperlink ellipsis button. The Hyperlink dialog box appears.
8. Click the Open Folder icon and select the File Ord Chooser.

Figure 19: File Ord Chooser



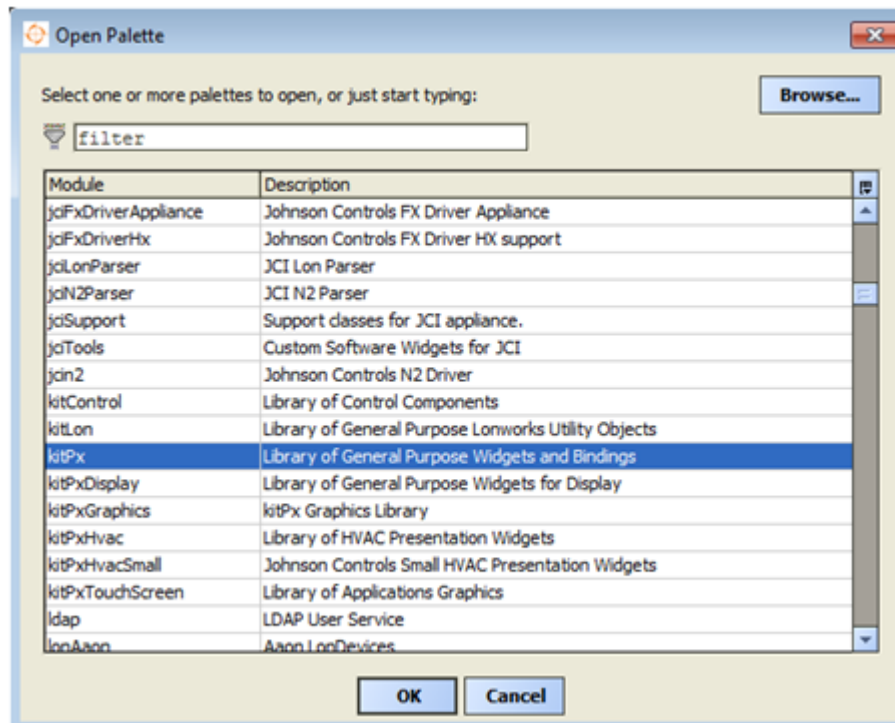
9. Select the Graphics folder and locate the Px file to which you want to link.
10. Click **OK**.
11. In the Text field, enter the new name of the Menu Item.
12. Click **OK**.
13. To test the hyperlink, click the **Site Home** or **Graphic** tab.

### ***Creating a New Hyperlink Menu Item on the Home Page***

1. Locate the Graphics container in the Nav side bar under Station > Files > Graphics and also in the Navigation side bar under Station > Administration > Files > Graphics.
2. Open the Graphics container. The Graphics Directory List appears.
3. Double-click the home page graphic you want to edit. The Home Page appears for the graphic you selected.
4. Use the View Selector or click Toggle View/Edit Mode to open the Px Editor.
5. Open the Palette side bar.
6. In the Palette side bar, click in the Open Palette icon. The Open Palette dialog box appears.



Figure 20: Open Palette Dialog Box



7. Select the kitPx palette. The kitPx palette appears in the Palette side bar.
8. Drag a BoundLabel component and drop it onto the canvas.
9. Double-click the BoundLabel. The Properties dialog box appears.
10. In the Text field, enter the name of the hyperlink.
11. To change the color of the hyperlink text, select a color from the Foreground field. To change the text font, select a font from the Font field.
12. In the Bound Label Binding section, click the Hyperlink ellipsis button. The Hyperlink dialog box appears.
13. Click **Open**. The File Chooser dialog box appears.
14. Select the Graphics folder and locate the Px file you want to link to.
15. Click **OK**.
16. In the Text field, enter the name of the Menu Item.
17. Click **OK**.
18. To test the hyperlink, click the **Site Home** or **Graphic** tab.

## Creating a Hyperlink to Another Station

1. Locate the Graphics container in the Nav side bar under Station > Files > Graphics and also in the Navigation side bar under Station > Administration > Files > Graphics.
2. Open the Graphics container. The Graphics Directory List appears.
3. Double-click the home page graphic you want to edit. The Home Page appears for the graphic you selected.
4. Use the View Selector or click **Toggle View/Edit Mode** to open the Px Editor.
5. Open the Palette side bar.
6. Open the kitPx palette.
7. Drag the BoundLabel component and drop it onto the canvas.
8. Double-click the BoundLabel. The Properties dialog box appears.
9. In the Text field, enter the name of the hyperlink.
10. To change the color of the hyperlink text, select a color from the Foreground field. To change the text font, select a font from the Font field.
11. In the Bound Label Binding section, click the Hyperlink ellipsis button. The Hyperlink dialog box appears.
12. Enter the IP address for the station to which you want to link.

Figure 21: Hyperlink Dialog Box



13. Click OK. To test the hyperlink, click the Site Home or Graphic tab.

## Predefined Navigation Files

A NAV file defines a custom navigation tree for a user, defining locator bar content and home page. The NAV file is a special .xml file that resides on the file system, not in the station database. You can create as many NAV files as you want; however, a client may display only one NAV file at any time. This means that any time you view a station, you can only see one NAV file in the Nav tree (or locator bar). However, since a station can serve many clients, each client can use different NAV files concurrently, based on their NAV file assignment. The NAV file is user-specific, so when a user logs into a station, the NAV file for that user appears in the Nav tree or locator bar.

The New JCI Station contains four predefined NAV files.

- [NavFile.nav](#)
- [MaintenanceNavFile.nav](#)
- [OperatorNavFile.nav](#)
- [TenantNavFile.nav](#)

### NavFile.nav

By default, the predefined NavFile.nav is assigned to the **admin** user. The predefined NavFile.nav file has the following major nodes:

- **Device Networks** – Provides a link to the Driver Manager.
- **Schedule Manager** – Provides a link to the Scheduler Manager.
- **Link Manager** – Provides a link to the Link Manager.
- **Point Groups** – Provides a link to the Point Group Manager.
- **Global Point Extension Manager** – Provides a link to the Global Point Extension Manager.
- **Alarm Console** – Provides a link to the Alarm Console.
- **Point Histories** – Provides a link to the History Space.
- **Administration** – Provides several links to administrative views, including the following:
  - **Files** – Provides a link to the File Directory.
  - **Custom Control** – Provides a link to an empty wire sheet for you to store your custom control programming.
  - **Alarm Service** – Provides a link to the Alarm Service.
  - **Email Service** – Provides a link to the Email Service.
  - **History Container View** – Provides a link to the History Nav Container View.
  - **Point Extension Defaults** – Provides a link to a wire sheet containing the default properties for the point extension types found in the Point Extension Manager.
  - **Backup Service** – Provides a link to the Backup Manager.
  - **Users** – Provides a link to the JCI User Manager.
  - **Time Sync** – Provides a link to the Time Sync Manager.
  - **Platform** – Provides a link to the Platform Service Container Plug-In.
  - **Web Service** – Provides a link to the Web Service property sheet.
  - **Serial Port Configuration** – Provides a link to the SerialPortService property sheet.
  - **Dialup Configuration** – Provides a link to the Dialup Configuration screen.
  - **TCP/IP Configuration** – Provides a link to the TCP/IP Configuration screen.
  - **Station Resources** – Provides a link to the Resource Manager.
  - **Weather Service** – Provides a link to the Weather Manager.

## MaintenanceNavFile.nav

By default, the predefined MaintenanceNavFile.nav is assigned to the maintenance user. The predefined MaintenanceNavFile.nav file has the following major nodes:

- **Device Networks** – Provides a link to the Driver Manager.
- **Schedule Manager** – Provides a link to the Scheduler Manager.
- **Link Manager** – Provides a link to the Link Manager.
- **Point Groups** – Provides a link to the Point Group Manager.
- **Global Point Extension Manager** – Provides a link to the Global Point Extension Manager.
- **Alarm Console** – Provides a link to the Alarm Console.
- **Point Histories** – Provides a link to the History Space.
- **Administration** – Provides several links to administrative views, including the following:
  - **Files** – Provides a link to the File Directory.
  - **History Container View** – Provides a link to the History Nav Container View.
  - **Point Extension Defaults** – Provides a link to a wire sheet containing the default properties for the point extension types found in the Point Extension Manager.
  - **Backup Service** – Provides a link to the Backup Manager.

## OperatorNavFile.nav

By default, the predefined OperatorNavFile.nav is assigned to the operator user. The predefined OperatorNavFile.nav file has the following major nodes:

- **Device Networks** – Provides a link to the Driver Manager.
- **Schedule Manager** – Provides a link to the Scheduler Manager.
- **Link Manager** – Provides a link to the Link Manager.
- **Point Groups** – Provides a link to the Point Group Manager.
- **Global Point Extension Manager** – Provides a link to the Global Point Extension Manager.
- **Alarm Console** – Provides a link to the Alarm Console.
- **Point Histories** – Provides a link to the History Space.
- **Administration** – Provides several links to administrative views, including the following:
  - **Files** – Provides a link to the File Directory.
  - **Custom Control** – Provides a link to an empty wire sheet for you to store your custom control programming.
  - **Alarm Service** – Provides a link to the Alarm Service.
  - **Email Service** – Provides a link to the Email Service.
  - **History Container View** – Provides a link to the History Nav Container View.
  - **Point Extension Defaults** – Provides a link to a wire sheet containing the default properties for the point extension types found in the Point Extension Manager.
  - **Backup Service** – Provides a link to the Backup Manager.
  - **Users** – Provides a link to the JCI User Manager.
  - **Time Sync** – Provides a link to the Time Sync Manager.
  - **Platform** – Provides a link to the Platform Service Container Plug-In.
  - **Web Service** – Provides a link to the Web Service property sheet.
  - **Serial Port Configuration** – Provides a link to the SerialPortService property sheet.
  - **Dialup Configuration** – Provides a link to the Dialup Configuration screen.
  - **TCP/IP Configuration** – Provides a link to the TCP/IP Configuration screen.
  - **Station Resources** – Provides a link to the Resource Manager.
  - **Weather Service** – Provides a link to the Weather Manager.

## TenantNavFile.nav

By default, the predefined TenantNavFile.nav is assigned to the tenant user. The predefined TenantNavFile.nav file has the following major nodes:

- **Device Networks** – Provides a link to the Driver Manager.
- **Schedule Manager** – Provides a link to the Scheduler Manager.
- **Link Manager** – Provides a link to the Link Manager.
- **Point Groups** – Provides a link to the Point Group Manager.
- **Global Point Extension Manager** – Provides a link to the Global Point Extension Manager.
- **Point Histories** – Provides a link to the History Space.

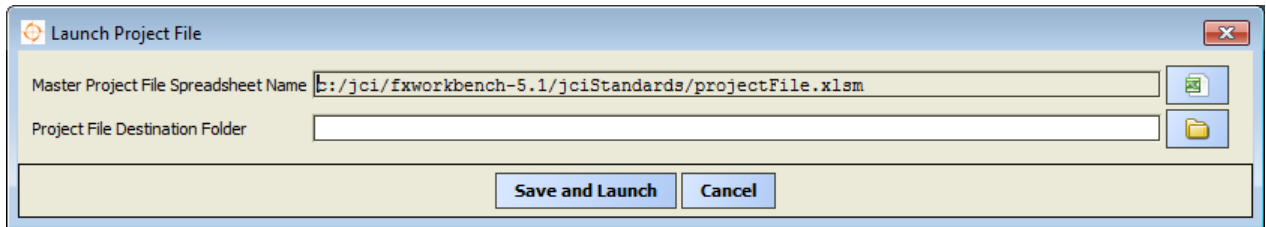
# Batch Import

Use the Batch Import process to easily import a major portion of your station database into FX Workbench.

## Importing Batch Files

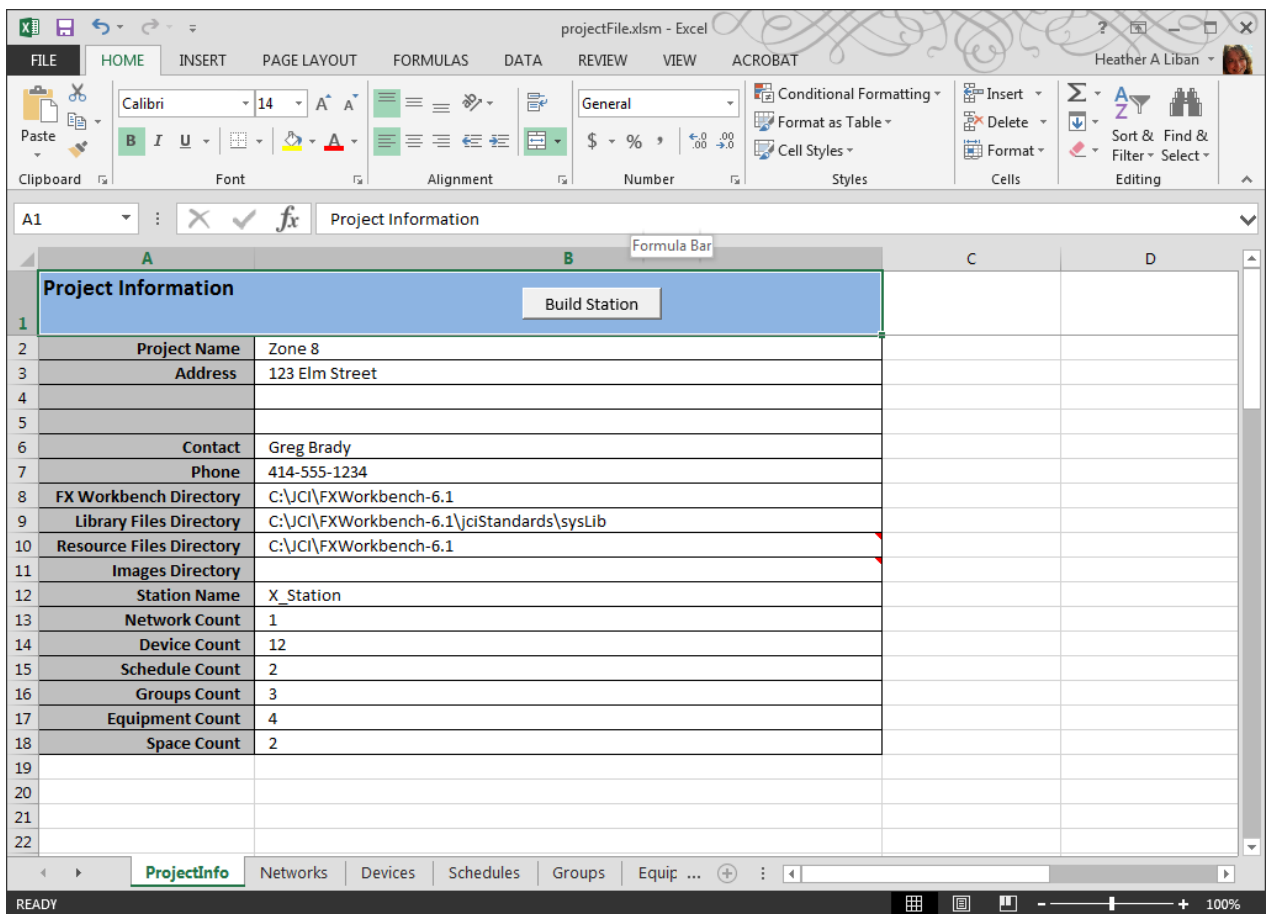
1. In the Tools menu, click Launch Project File. The Launch Project File screen appears.

Figure 22: Launch Project File



2. Click the folder button next to the Project File Destination Folder field. You are prompted to browse to and select a folder to store the batch import spreadsheet.
3. Select the folder you want and click Choose.
4. Click Save and Launch. A Microsoft Excel spreadsheet appears. Notice the tabs at the bottom of the spreadsheet.

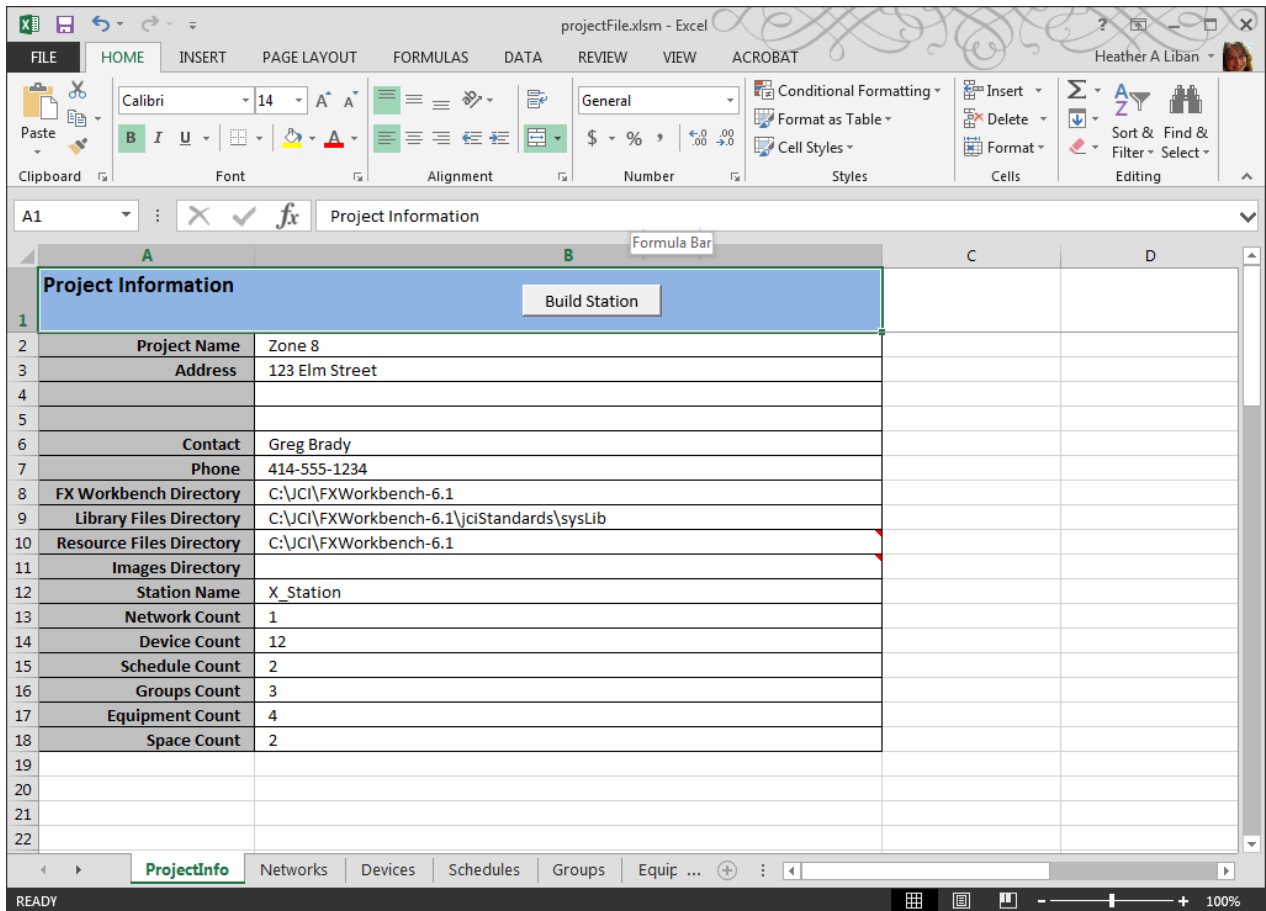
Figure 23: Project File Excel Spreadsheet



## Entering Project Information

1. On the Batch Import spreadsheet, select the ProjectInfo tab.

**Figure 24: Entering Project Information**



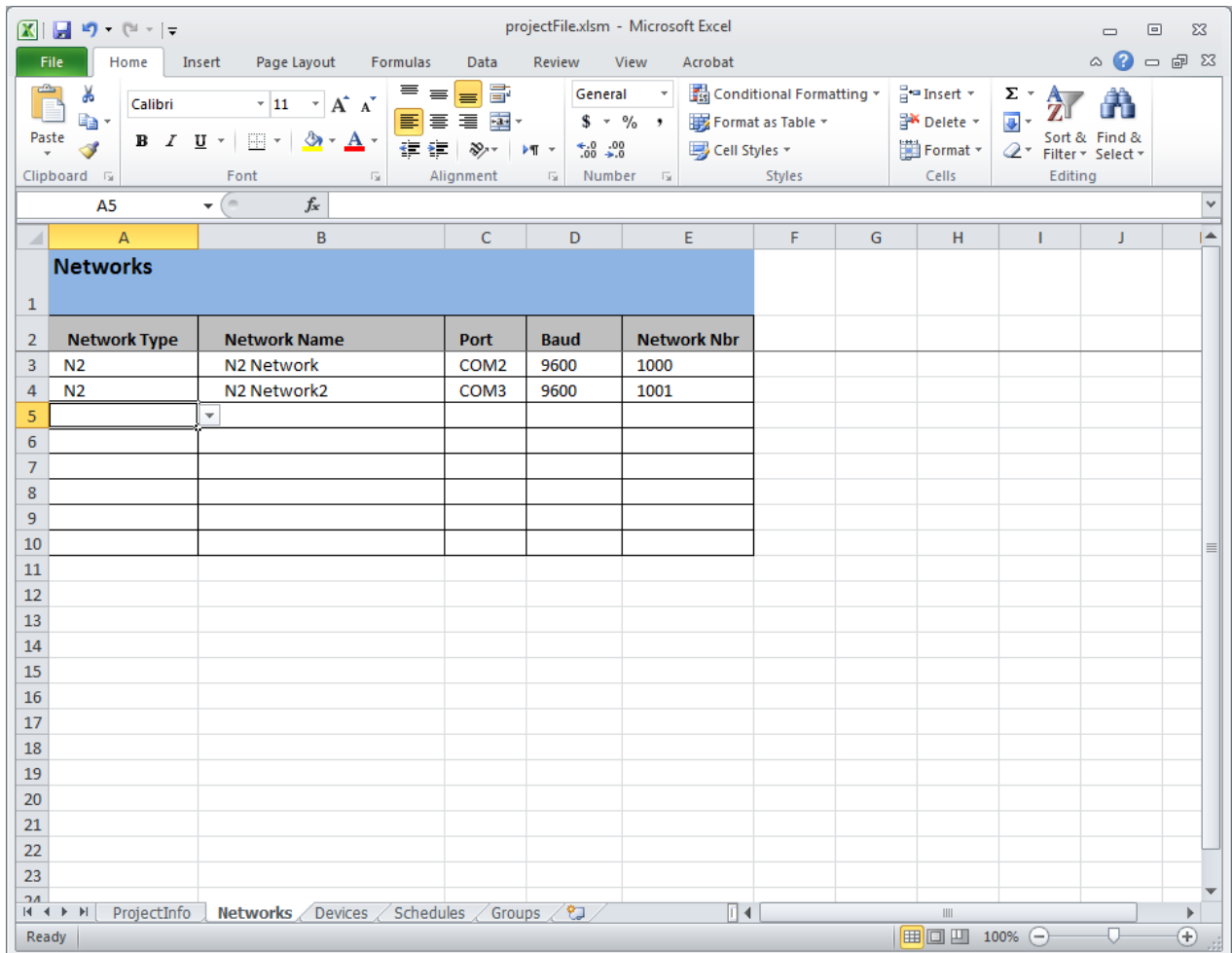
2. In the Project Name field, enter your project name.
3. Enter the address and contact information in the Address, Contact, and Phone fields.
4. The FX Workbench Directory and the Library Files Directory fields fill in automatically when the spreadsheet opens based upon the currently loaded version of the FX Workbench. Leave these fields as they are.
5. Double-click the Resource Files Directory cell and select the location of the set of resource files used for device imports.
6. If you want to use predefined images for spaces and equipment, double-click Images Directory and select the location of the images.
7. In the Station Name field, enter the station name.
8. Leave the remaining fields as they are. The fields fill in automatically as you update the rest of the spreadsheet.
9. Click Save.

## Entering Network Information

When you perform a batch import, enter network information on the Networks tab.

1. On the Batch Import spreadsheet, select the Networks tab.

**Figure 25: Entering Network Information**



2. In the Network Type column, select the network type you want to use. You can select the following networks:
  - N2
  - MSTP
  - BACnet IP (Use if you want to add EM1000 meters to your station.)
  - Modbus Async (Use if you want to add EM2000 meters to your station.)
  - Modbus TCP (Use if you want to add EM3000 meters to your station.)
3. In the Network Name column, enter the network names.
4. In the Port column, select the correct port number.
5. In the Baud column, select the correct baud rate.
6. In the Network Nbr column, enter the network number for BACnet MS/TP networks. An N2 network or Modbus network does not use a network number.



## Entering Device Information

When you perform a batch import, enter your device information on the Devices tab.

1. On the Batch Import spreadsheet, select the Devices tab.

**Figure 26: Entering Device Information**

	Network	Device Name	Address	Count	Resource File	Library File (Non-default)	Device Type	Alt Res Path	Equipment Type
3	N2 Network	VAV - 1	1		Single Duct VAV.caf		VND (N2Open)		Ahu
4	N2 Network	VAV - 2	2		Single Duct VAV.caf		VND (N2Open)		Ahu
5	N2 Network	VAV - 3	3		Single Duct VAV.caf				
6	BACNET_IP Network						EM2000 (BACnet IP)		ElectricMeter
7	BACNET_IP Network						EM2000 (BACnet IP)		ElectricMeter
10									

2. In the Network column, select the network you want to create a device for.

**Note:** If you select a network that allows you to add a meter, the meter appears in the Device Type column. If you do not want the meter to appear, remove it from the column.

3. In the Device Name column, enter your device name.
4. In the Address column, enter the device address. Use the following guidelines:
  - For **BACnet IP devices** and **ModBus TCP devices**, enter the IP address and optional port number. For example, 10.10.0.24:0x8AC0 or 10.10.0.24:47808.
  - For **BACnet MS/TP devices**, enter the devices address (1-255 for N2 or 0-127 for MS/TP).
5. In the Count column, enter the number of devices.
6. In the Resource File cell, double-click the cell to bring up a File Chooser dialog box. The default directory for the resource files is the directory path you set in the ProjectInfo tab. You can select a different file path if the resource file does not exist in the default directory. If you do select a file not in the default directory, the Alt Res Path column is filled in with the alternate file path.
7. For resource files that use the System Selection Wizard to create an application, you do not need to fill in the Library File column. Only use this column if you are specifying a library file that **is not** the default library file.
8. If you entered a device count, a purple Duplicate message appears. Do the following:
  - a. Click Duplicate to create matching rows for the number of devices you entered. The device rows appear.
  - b. If necessary, adjust the device information for the new device rows.

**Note:** If you leave the Count field blank, the Duplicate field does not appear.
9. If you want to change the device type, select the device you want from the Device Type column.
10. If you want to change the equipment type, select the equipment you want from the Equipment Type column.

## Entering Schedule Information

When you perform a batch import, you can enter schedule information on the Schedules tab.

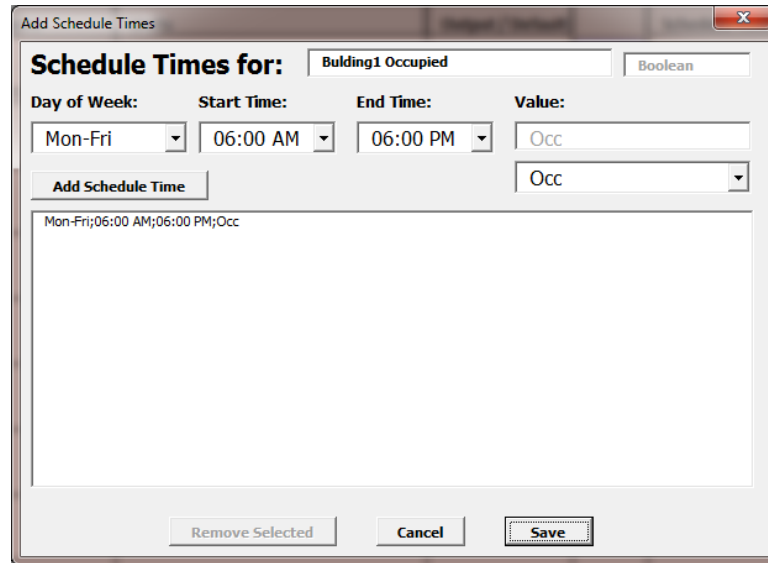
1. On the Batch Import spreadsheet, select the Schedules tab.

**Figure 27: Entering Schedule Information**

Schedule Type	Schedule Name	Units	Output / Default	Schedule Times
Boolean	1st Floor Occupancy Schedule	Unocc:Occ	Unocc	Mon-Fri;06:00 AM;06:00 PM;

2. In the Schedule Type column, select the schedule types for the schedules you want. You can select the following schedule types: Boolean, Numeric, and Enum.
3. In the Schedule Name column, enter a schedule name.
4. In the Units column, select the units you want to use. The units correspond to what you select as the schedule type (for example, if you select a numeric schedule type for room temperature scheduling, then one of the units you can select is DegF).
5. In the Output/Default column, enter the output you want to appear as the default when users view the calendar.
6. Click Add Times. The Add Schedule Times screen appears.

**Figure 28: Add Schedule Times**



The dialog box is titled "Add Schedule Times" and has a close button (X) in the top right corner. It contains the following elements:

- Schedule Times for:** A text field containing "Building1 Occupied" and a "Boolean" checkbox.
- Day of Week:** A dropdown menu showing "Mon-Fri".
- Start Time:** A dropdown menu showing "06:00 AM".
- End Time:** A dropdown menu showing "06:00 PM".
- Value:** A text field containing "Occ" and a dropdown menu also showing "Occ".
- Add Schedule Time:** A button.
- Mon-Fri;06:00 AM;06:00 PM;Occ:** A text area showing the current schedule entry.
- Remove Selected:** A button.
- Cancel:** A button.
- Save:** A button.

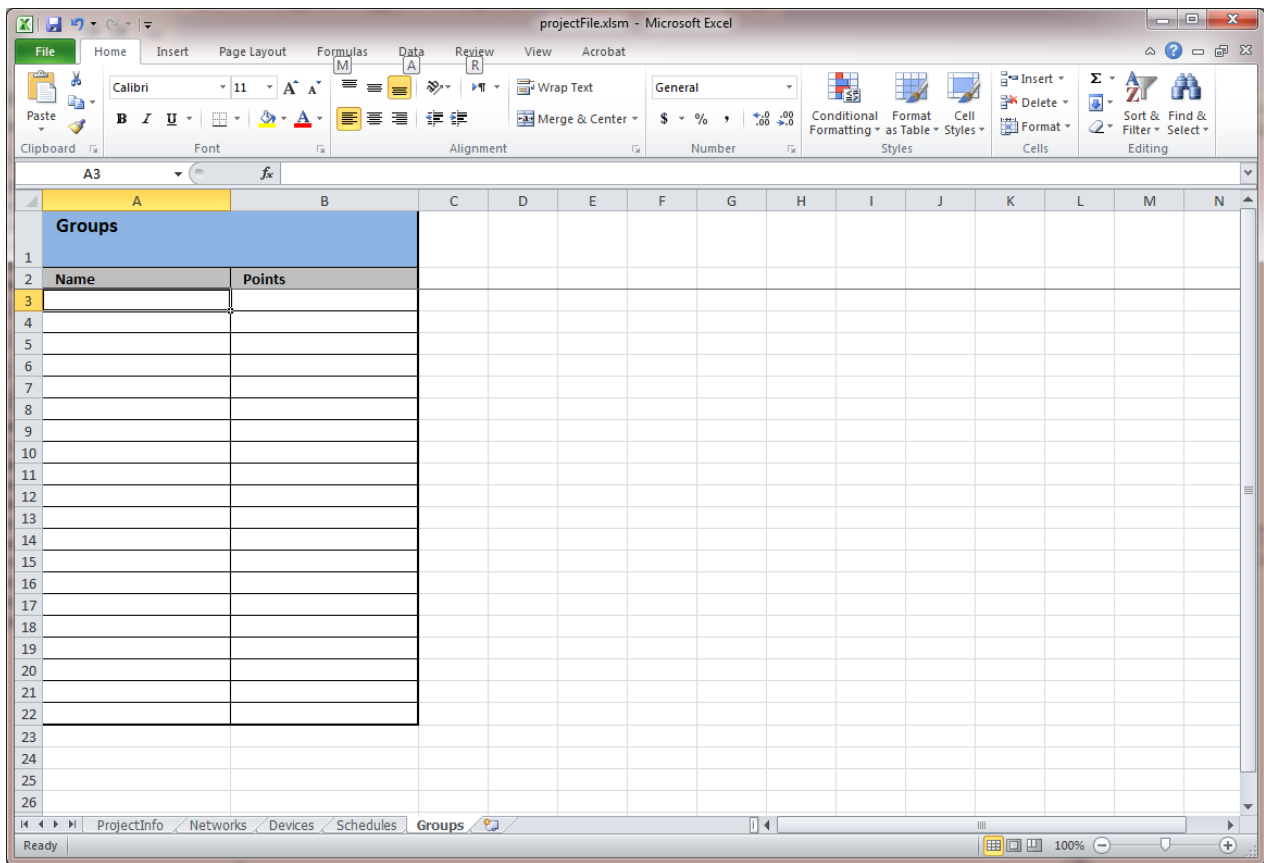
7. In the top part of the screen, select the times and values you want for your schedule and click Add Schedule Time.
8. If you want to remove a time, select the time and click Remove Selected.
9. Click Save. The time now appears in the Schedule Times column of the spreadsheet.

## Entering Group Information

When you perform a batch import, you can enter group information on the Groups tab.

1. On the Batch Import spreadsheet, select the Groups tab.

**Figure 29: Entering Group Information**



2. In the Name Column, enter the group name.
3. In the Points Column, enter the points that belong to the group. The Points value entered is a **wild card**. For example, if the Group Name is Zone Temps and the Points value is ZN-T, then the Zone Temp group adds all of the points named ZN-T to this group.

## Entering Equipment Information

When you perform a batch import, use the Equipment tab to enter equipment information. When you enter equipment information, you:

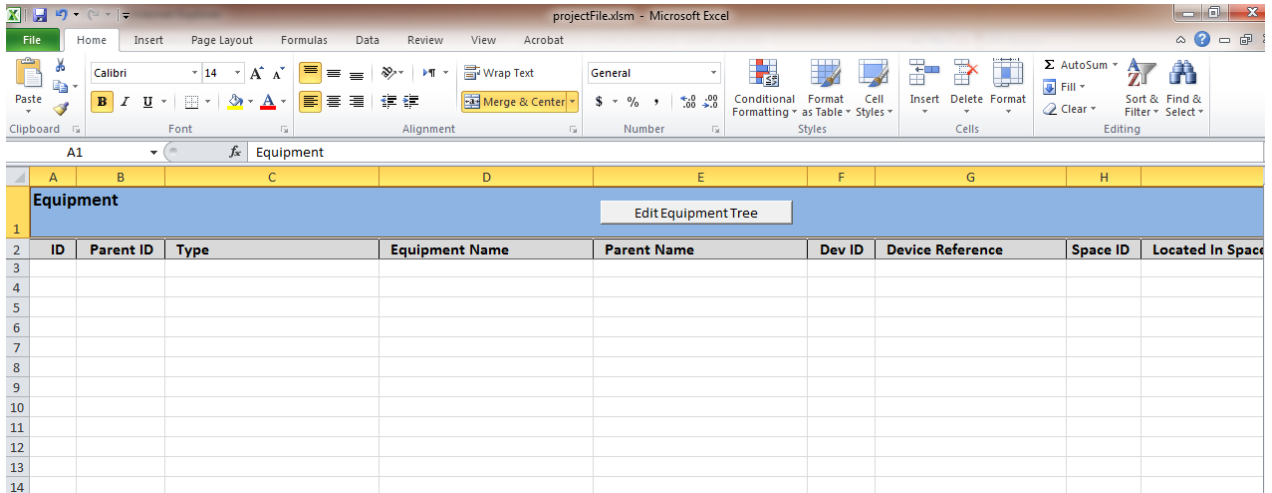
- define the different types of equipment that exist within the facility
- identify where the equipment is physically located
- specify what relationships exist between the various pieces of equipment within the facility

## Editing Existing Equipment

The Edit Equipment Tree dialog box, by default, displays the information that you defined in the Devices tab. If desired, you can edit existing equipment information, add new equipment, and delete equipment. After you define the information about the equipment in your facility and click Save Equipment Tree, the Equipment spreadsheet populates with the equipment information that you defined.

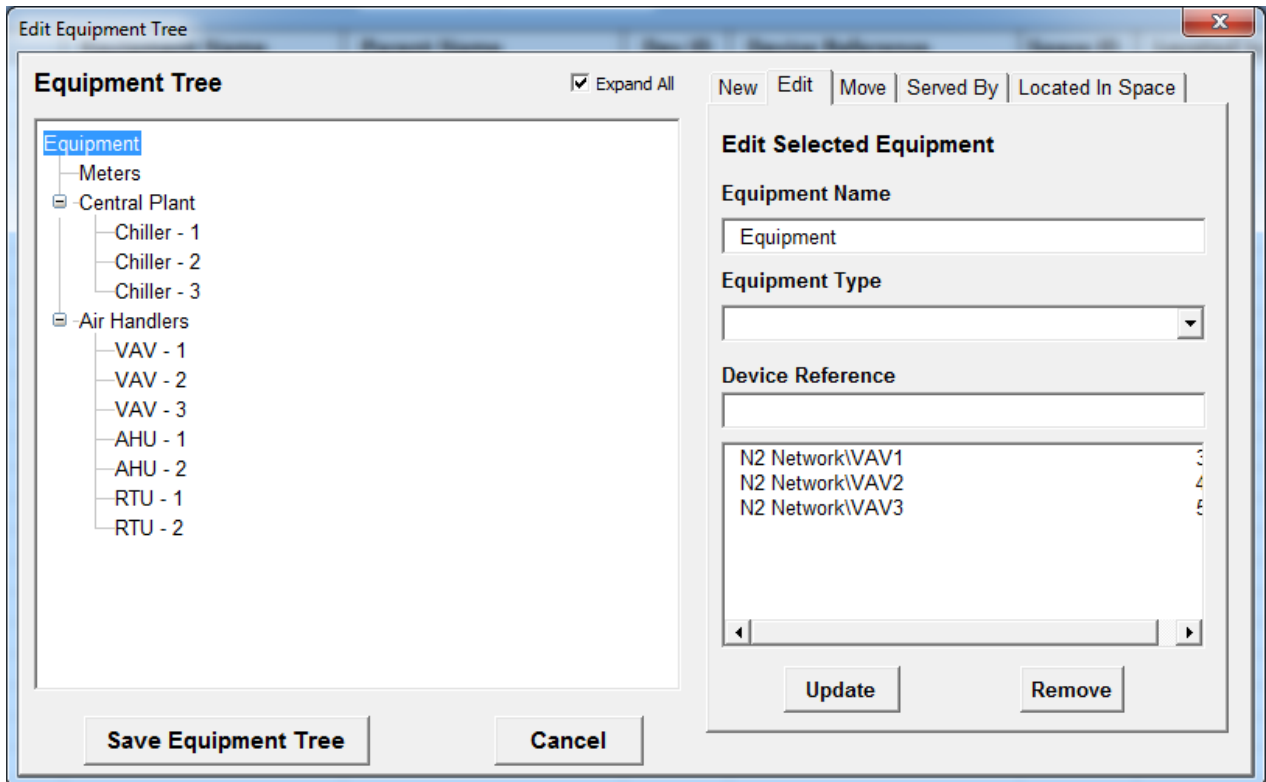
1. On the Batch Import spreadsheet, select the Equipment tab.

**Figure 30: Equipment Tab**



2. Click Edit Equipment Tree. The Edit Equipment Tree dialog box appears. By default, the dialog box displays device information, in a tree format, that you defined in the Devices tab.

**Figure 31: Edit Equipment Tree**



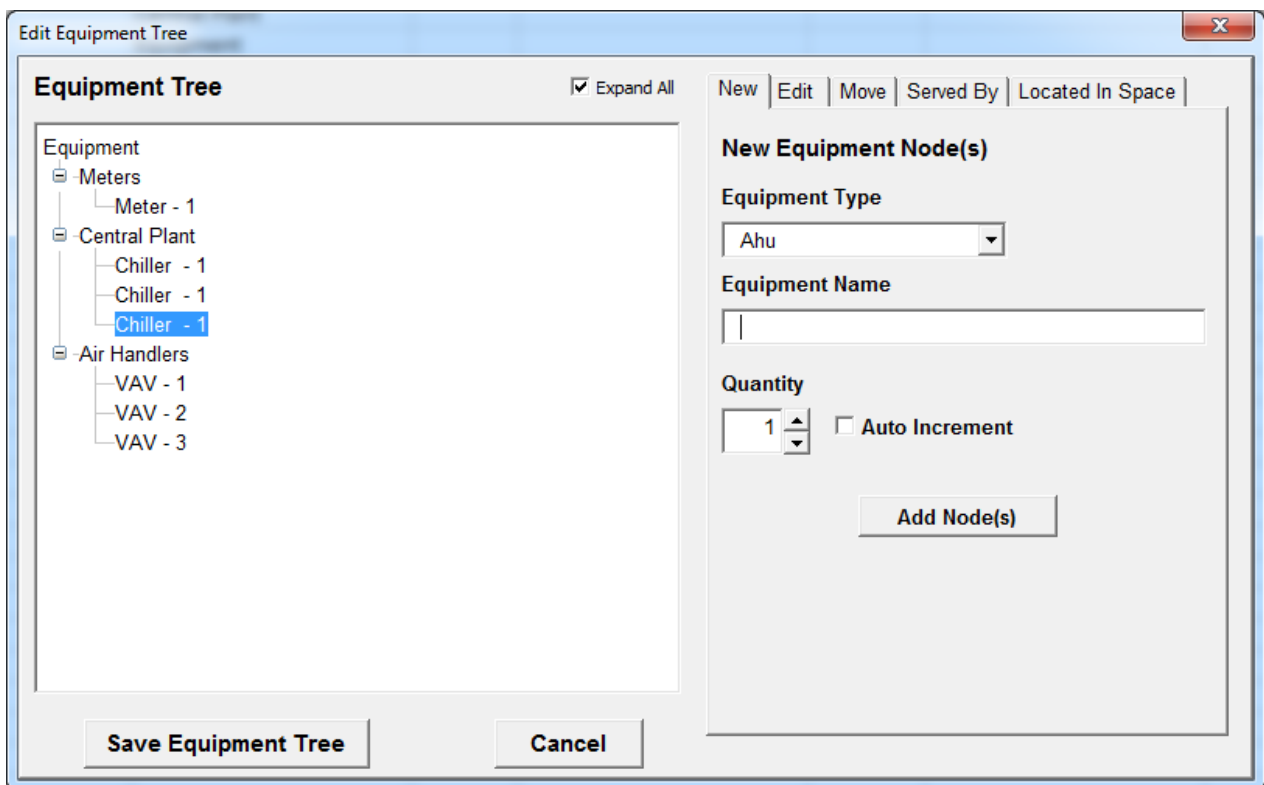
3. In the Equipment Tree, select the equipment that you want to modify and then click the Edit tab.
4. Do one or more of the following:
  - To edit the equipment name, enter the updated name in the Equipment Name field.
  - To change the equipment type (for example, changing a chiller to a boiler), select the equipment type you want from the Equipment Type list.

- To delete a device from the Equipment Tree, click Remove. The device is deleted from the tree.
  - To view the network that the equipment belongs to, select the device from the Device Reference list.
5. Click Update.
  6. Click Save Equipment Tree. The Edit Equipment Tree dialog box closes, and the Equipment spreadsheet updates with the current equipment information.

## Adding New Equipment

1. On the Batch Import spreadsheet, select the Equipment tab.
2. Click Edit Equipment Tree. The Edit Equipment Tree dialog box appears.
3. In the Equipment Tree, select the node to add the new equipment (for example, Central Plant) and click the New tab.

**Figure 32: Edit Equipment Tree - New**



4. In the Equipment Type field, select the equipment type you want.
5. In the Equipment Name field, enter the device name.
6. In the Quantity field, enter the quantity you want to add.
7. If you want the system to auto-increment the device name by number, select the Auto Increment check box.
8. Click Add Node(s).
9. Click Save Equipment Tree. The Edit Equipment Tree dialog box closes, and the Equipment spreadsheet updates with the current equipment information.

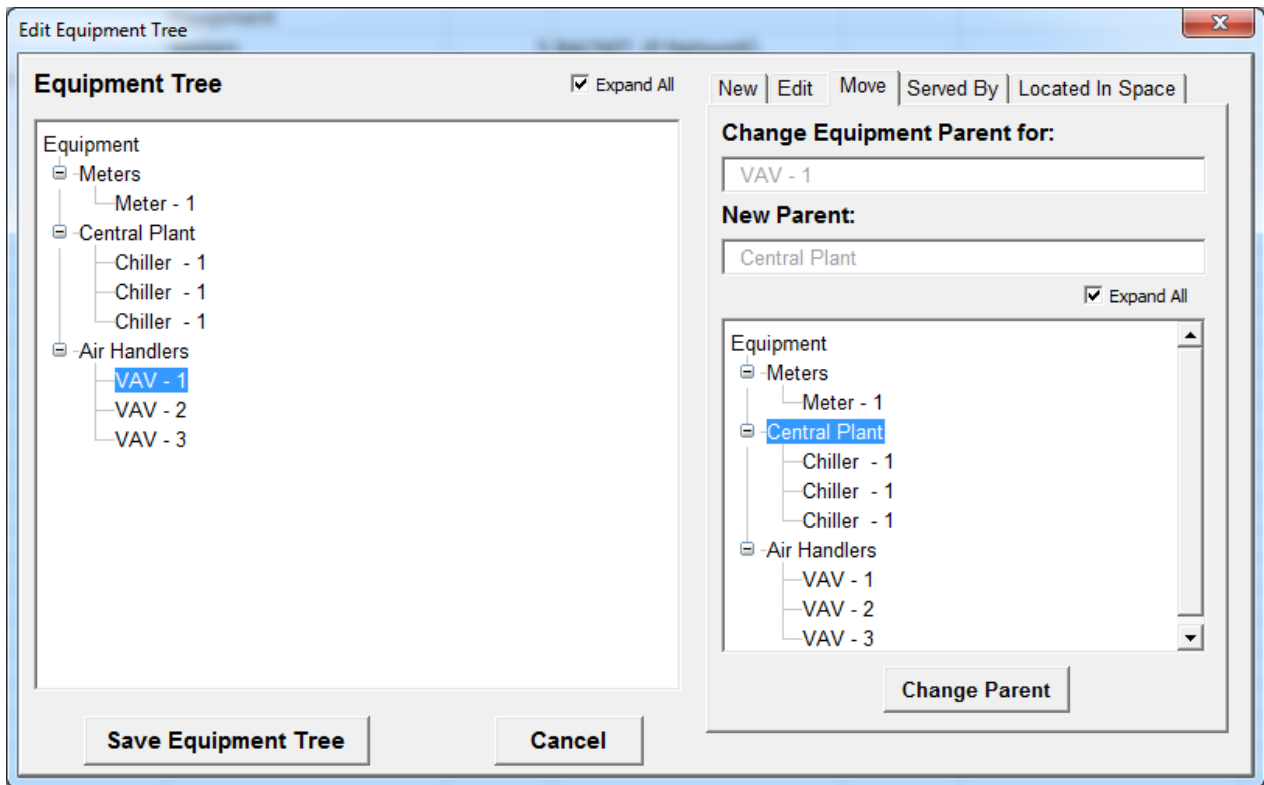
## Moving Equipment (Changing Parent)

If necessary, you can move equipment to a different place in the Equipment Tree.

1. On the Batch Import spreadsheet, select the Equipment tab.

2. Click Edit Equipment Tree. The Edit Equipment Tree dialog box appears.
3. In the Equipment Tree, select the device you want to move and click the Move tab.

**Figure 33: Edit Equipment Tree - Move**



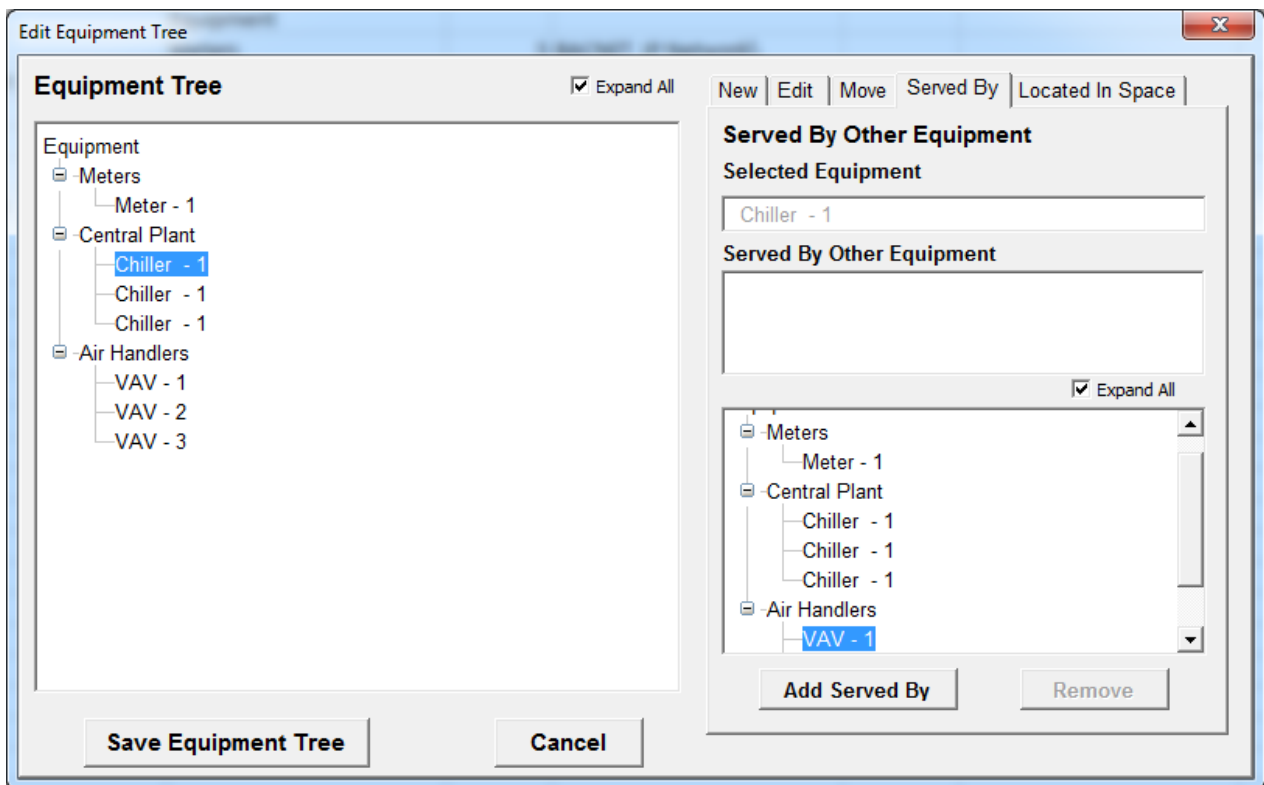
4. In the lower-right section of the dialog box, select the tree node that you want to move the device to. The new location appears in the New Parent field.
5. Click Change Parent. The equipment moves to the new location in the Equipment Tree.
6. Click Save Equipment Tree. The Edit Equipment Tree dialog box closes, and the Equipment spreadsheet updates with the current equipment information.

## Configuring Equipment Served By Relationships

Defining the **served by** relationship between pieces of equipment is an optional configuration step intended to simplify user interface navigation of a complex HVAC system. For example, within the FX Supervisory Controller's user interface, you can identify the specific VAV boxes being **served by** (receiving airflow from) a specific air handling unit, or which air handling units are **served by** (receiving chilled water from) a specific chilled water plant. Follow this procedure to configure the **served by** relationships between equipment.

1. On the Batch Import spreadsheet, select the Equipment tab.
2. Click Edit Equipment Tree. The Edit Equipment Tree dialog box appears.
3. In the Equipment Tree, select the subordinate (downstream) equipment you want and click the Served By tab.

**Figure 34: Edit Equipment Tree - Served By**



4. In the lower-right section of the dialog box, select the corresponding parent (upstream) equipment and click Add Served By. The equipment appears in the Served By Other Equipment field of the dialog box.

**Note:** Select the Expand All check box to expand the equipment nodes in the tree.

**Note:** To delete an equipment served by, select the equipment from the Served By Other Equipment field and click Remove.

5. Click Save Equipment Tree. The Edit Equipment Tree dialog box closes, and the Equipment spreadsheet updates with the current equipment information.
- Repeat this process until all equipment **served by** relationships have been configured.

## Assigning an Equipment to a Location

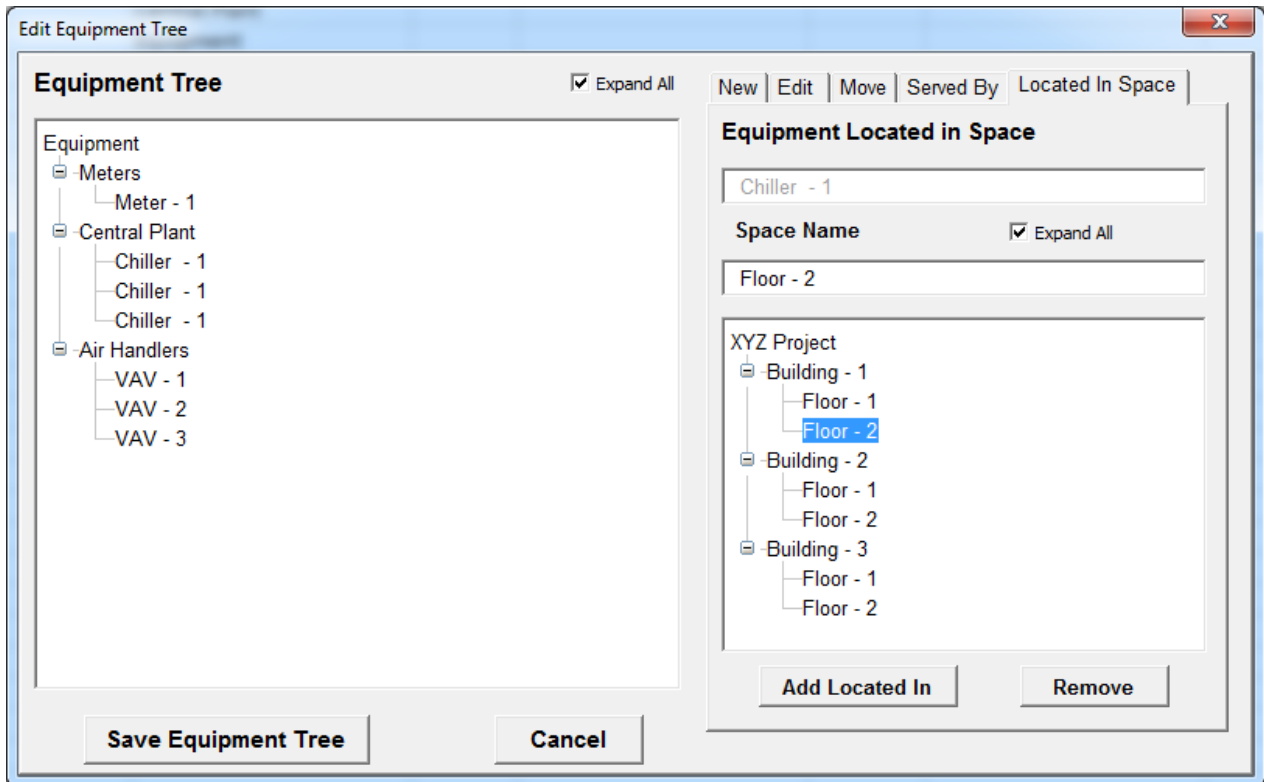
Defining the equipment location is an optional configuration step intended to assist users by identifying the physical location of equipment in the building. For example, if an alarm occurs in the FX Supervisory Controller's user interface on a specific piece of equipment, the user can quickly identify where the service technician needs to go to troubleshoot or fix the issue.

**Note:** You cannot assign equipment to a location until you have locations defined first. To create locations, see [Spaces Manager](#).

1. On the Batch Import spreadsheet, select the Equipment tab.
2. Click Edit Equipment Tree. The Edit Equipment Tree dialog box appears.
3. In the Equipment Tree, select the device you want and click the Located In Space tab.



**Figure 35: Edit Equipment Tree - Located in Space**



4. In the lower-right section of the dialog box, select the space you want to assign the equipment to and click Add Located In.

**Note:** Select the Expand All check box to expand the space nodes in the tree.

5. Click Save Equipment Tree. The Edit Equipment Tree dialog box closes, and the Equipment spreadsheet updates with the current equipment information.

## Configuring Spaces

Defining a relationship between pieces of equipment and the spaces they serve is an optional configuration step intended to simplify the user interface navigation of a complex HVAC system. For example, within the FX Supervisory Controller's user interface, you can identify the specific room that the VAV box is serving (providing conditioned air to). Follow these procedures to configure the spaces hierarchy and to define which equipment serves those spaces.

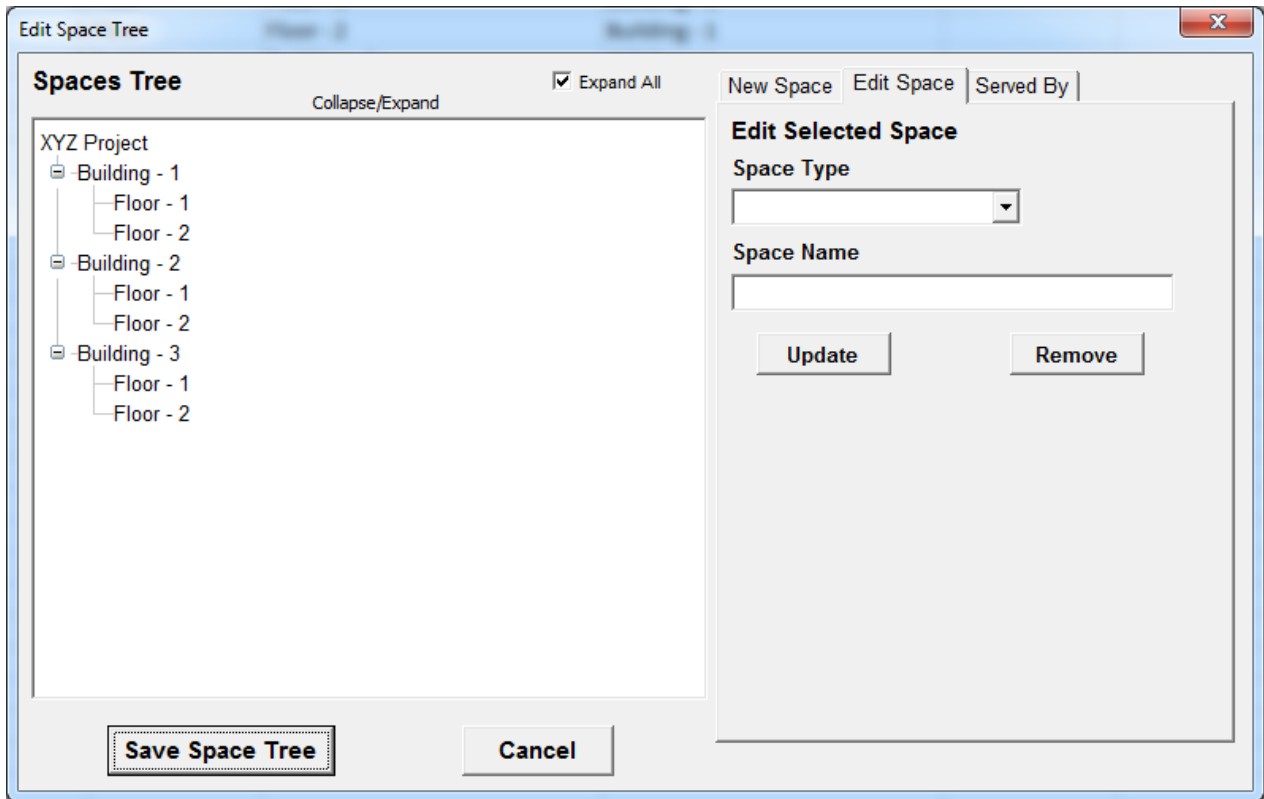
- define the layout and different types of spaces that exist within the facility
- define the relationship between specific equipment and the spaces they serve
- specify what relationships exist between the various spaces within the facility

## Editing Existing Spaces

Spaces are particular locations in a building. For example, a space can be a building, a floor, or a zone. If desired, you can add or edit space information. After you define the information about the spaces in your facility and click Save Space Tree, the Spaces spreadsheet populates with the space information that you defined.

1. On the Batch Import spreadsheet, select the Spaces tab.
2. Click Edit Space Tree. The Edit Space Tree dialog box appears.

**Figure 36: Edit Space Tree**

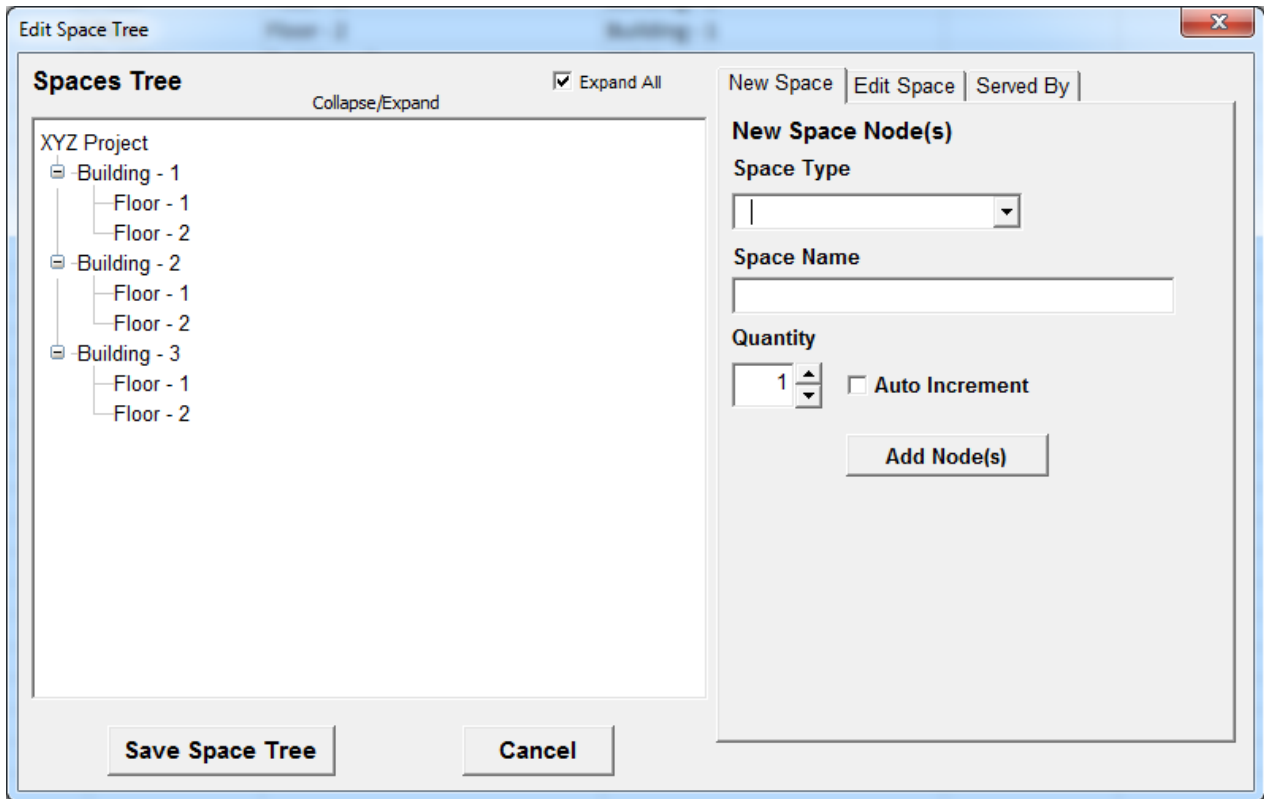


3. In the Spaces tree, select the space that you want to modify and then click the Edit Space tab.
4. Do one or more of the following:
  - To change the space type (for example, changing a floor to a zone), select the space type you want from the Space Type list.
  - To edit the space name, enter the updated name in the Space Name field.
  - To delete a device from the Spaces Tree, click Remove. The space is deleted from the tree.
5. Click Update.
6. Click Save Space Tree. The Edit Space Tree dialog box closes, and the Spaces spreadsheet updates with the current space information.

### **Adding New Spaces**

1. On the Batch Import spreadsheet, select the Spaces tab.
2. Click Edit Space Tree. The Edit Space Tree dialog box appears.
3. In the Spaces Tree, select the node to add the new space and click the New Space tab.

**Figure 37: Edit Space Tree - New**



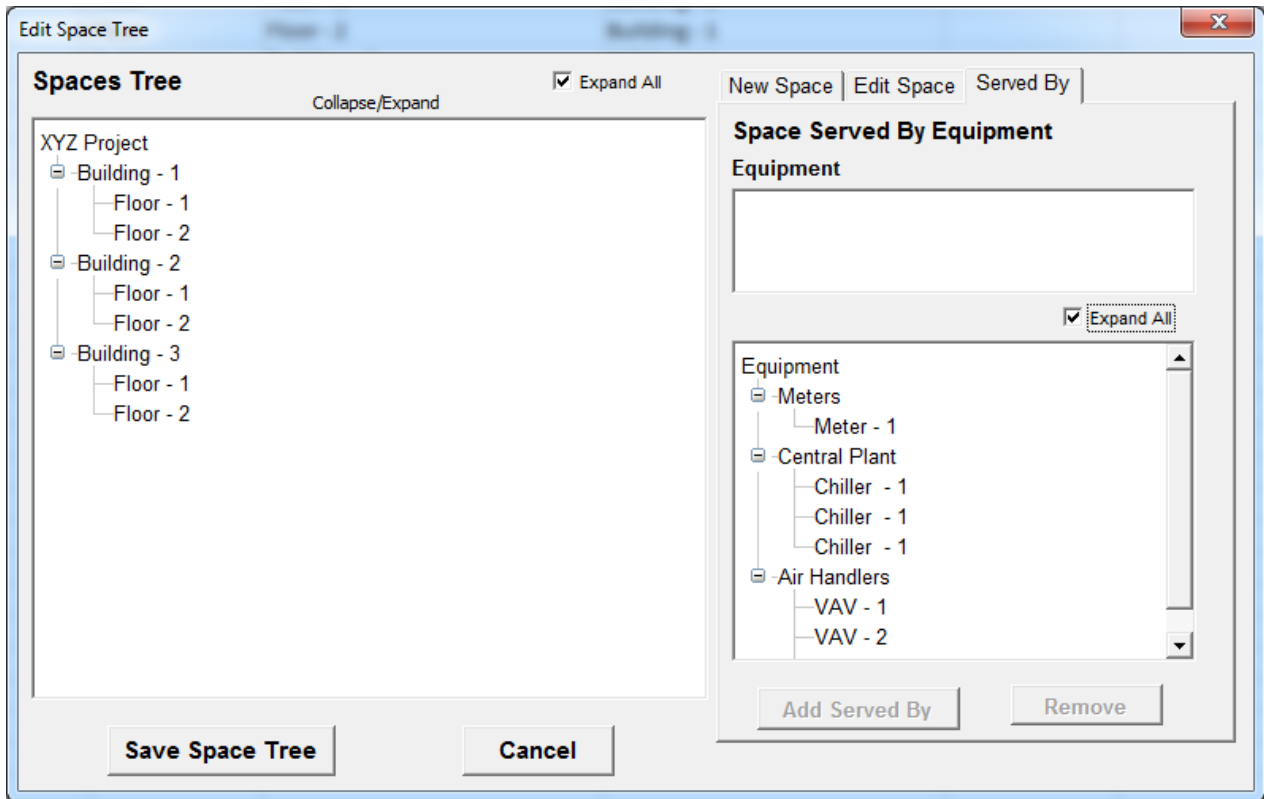
4. In the Space Type field, select the space type you want.
5. In the Space Name field, enter the space name.
6. In the Quantity field, enter the quantity you want to add.
7. If you want the system to auto-increment the space name by number, select the Auto Increment check box.
8. Click Add Node(s). The new space nodes appear in the Spaces tree.
9. Click Save Space Tree. The Edit Space Tree dialog box closes, and the Spaces spreadsheet updates with the current space information.

### **Configuring the Equipment Serving Space Relationships**

It is very useful to identify the equipment that serves the space. For example, you can identify the specific VAV box providing conditioned air to (serving) a specific room.

1. On the Batch Import spreadsheet, select the Spaces tab.
2. Click Edit Space Tree. The Edit Space Tree dialog box appears.
3. In the Spaces tree, select the space you want and click the Served By tab.

Figure 38: Edit Space Tree - Served By



4. In the lower-right section of the dialog box, select the equipment you want to add and click Add Served By. The equipment appears in the Space Served By Equipment field of the dialog box.

**Note:** Select the Expand All check box to expand the equipment nodes in the tree.

**Note:** To delete an equipment served by, select the equipment from the Space Served By Equipment field and click Remove.

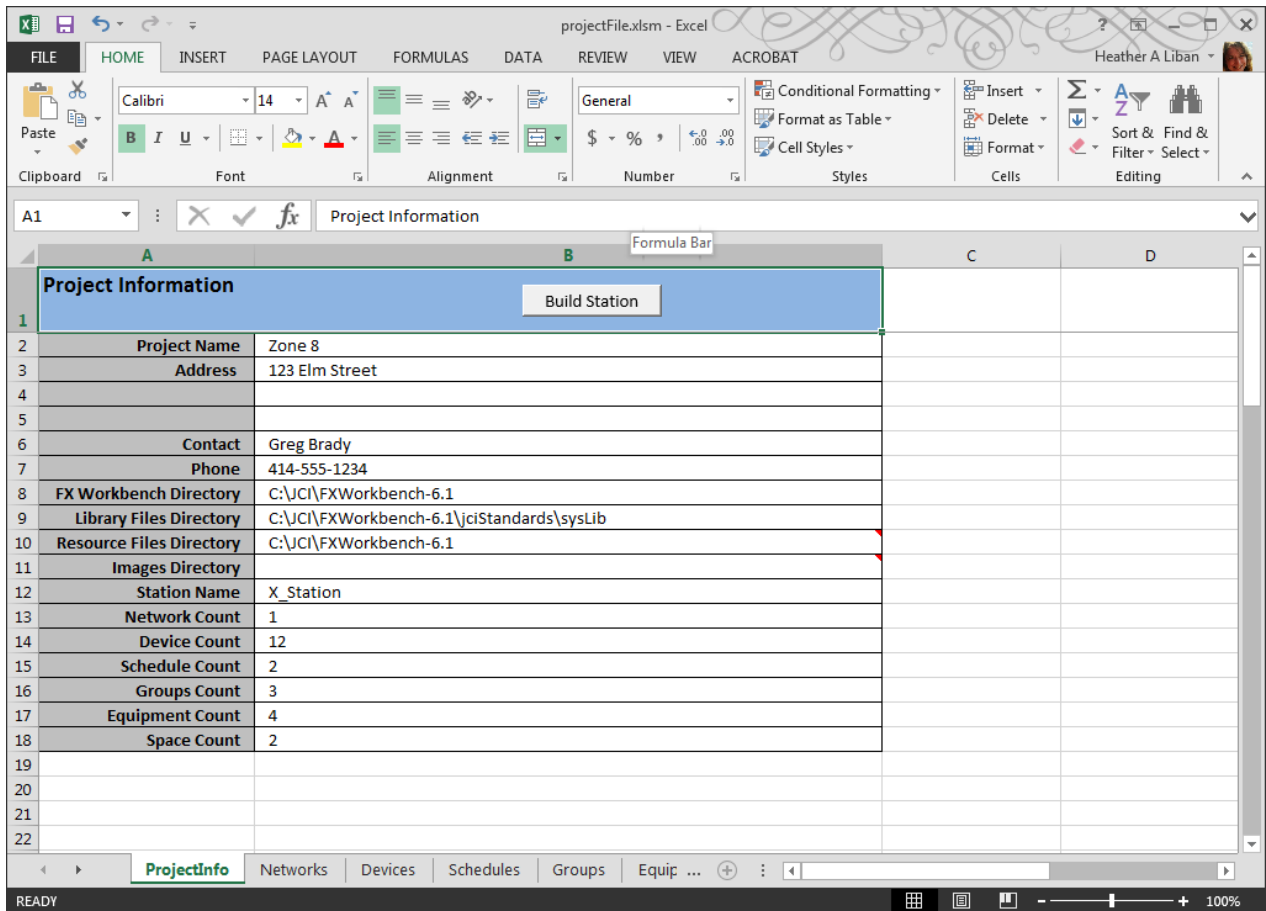
5. Click Save Space Tree. The Edit Space Tree dialog box closes, and the Spaces spreadsheet updates with the current space information. Repeat this process until all equipment serving space relationships have been configured.

## Building the Station

When you finish adding all the information needed for your stations (such as network information, devices, and schedules), you need to finish by clicking the Build Station button.

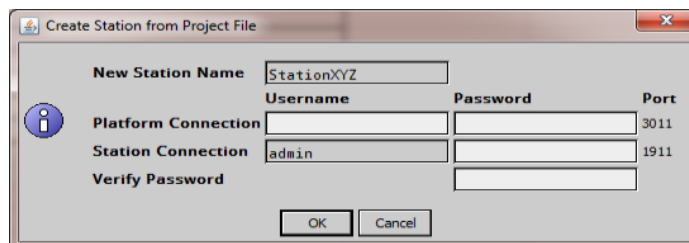
1. On the Batch Import spreadsheet, select the ProjectInfo tab.

**Figure 39: ProjectInfo Tab**



2. Click Build Station. The Create Station from Project File screen appears.

**Figure 40: Create Station from Project File**



3. Enter both your platform and station login information, verify your password, and click OK. The station password is checked against the Verify Password field to ensure that they match. Your station information is imported into FX Workbench.

**Note:** Enter a strong password for the new station.

Open the FX Workbench, log in to the new station after it is running, and complete the station configuration. After the station is imported, the station may not be ready to be downloaded into your FX Supervisor. You may need to configure the networks. The BACnet Network configuration may not be correct (Network Numbers, IP Port, and Local Device ID), and all of the networks are added in a Disabled state and need to be Enabled.

Also, other platform settings, new users, or other station configuration items should be completed at this point before downloading a station.

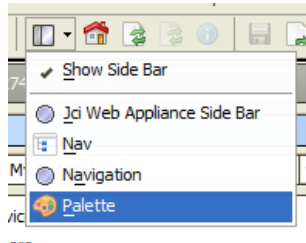
# Spaces and Equipment

## *Adding the Equipment Manager and Spaces Manager Using the Palette*

In most cases, you define the Equipment Manager and Spaces Manager settings during the Batch Import process. However, if necessary, you can manually add the Equipment Manager and Spaces Manager by using the FX Workbench Palette.

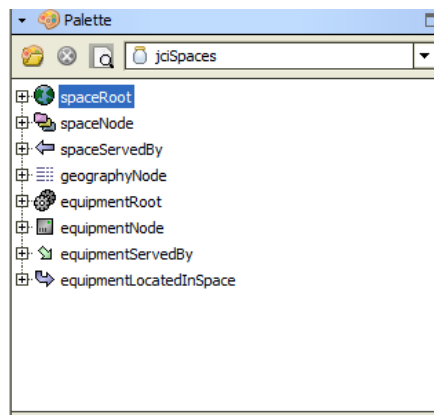
1. In the FX Workbench toolbar, click to open the Palette. The Palette appears in the side bar.

**Figure 41: Open Palette**



2. In the Palette, click Open Palette, select jciSpaces from the list of palettes, and click OK. The jciSpaces palette appears.

**Figure 42: jciSpaces Palette**



3. Make sure that Nav side bar is also open. If it is not, open the Nav side bar from the FX Workbench toolbar.
4. To add the Spaces Manager, do the following:
  - a. Drag the **spaceRoot** node from the Palette to **Config > Facility Explorer** in the Nav side bar.
  - b. Enter the name of the Spaces node (for example, a location name or an address) and click OK. The Spaces node that you added appears in the Nav side bar.
  - c. Double-click the Spaces node that you created. The Spaces Manager appears.
5. To add the Equipment Manager, do the following:
  - a. Drag the **equipmentRoot** node from the Palette to **Config > Facility Explorer** in the Nav side bar.
  - b. Enter the name of the Equipment node and click OK.
  - c. Double-click the Equipment node that you created. The Equipment Manager appears.

## ***Spaces Manager***

Defining Spaces is an optional configuration step intended to simplify user interface navigation of a complex HVAC system. For example, you can identify within the FX Supervisory Controller's user interface the spaces layout of a building (Building > Wing > Floor > Room). You can also identify the specific spaces being **served by** (receiving conditioned air from) a specific piece of equipment (for example, a VAV box or fan coil unit).

Follow the procedures in this section to configure the spaces and the corresponding **served by** relationships.

In most cases, the spaces that appear in Spaces Manager are added by using the Batch Import process. However, you can also add equipment manually by using the Spaces Manager.

This section covers the following tasks:

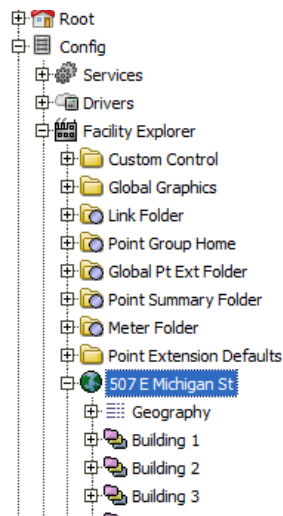
- [\*Adding a New Space\*](#)
- [\*Deleting a Space\*](#)
- [\*Configuring Spaces Served By Relationship \(Spaces Manager\)\*](#)
- [\*Deleting a Served By Relationship\*](#)



## Adding a New Space

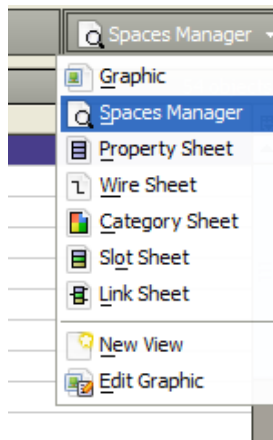
1. In the Nav side bar, expand Config > Facility Explorer.
2. Double-click the Location node.

**Figure 43: Space Node (Nav Side Bar)**

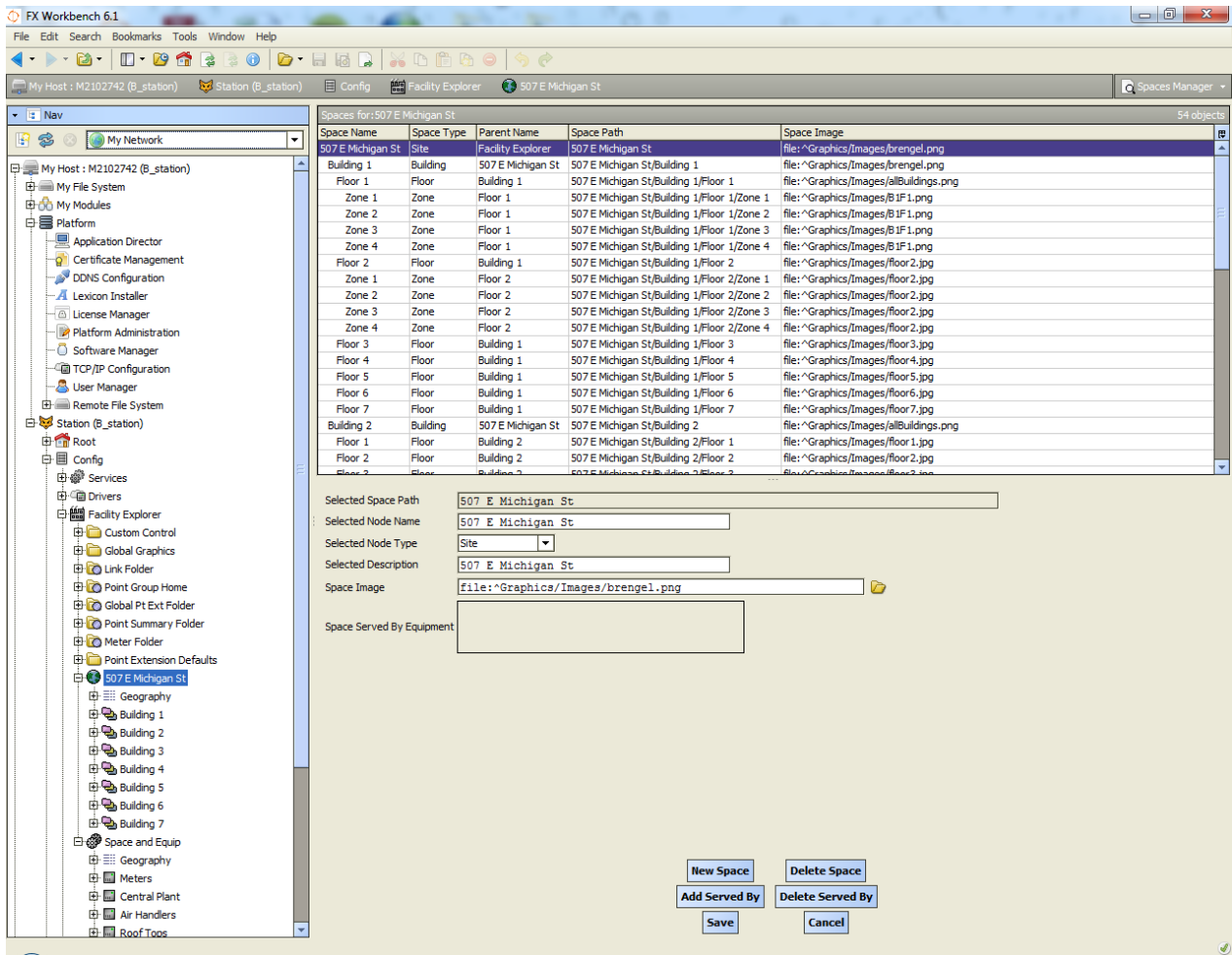


3. In the view selector at the top-right section of the screen, make sure that Spaces Manager is selected. The Spaces Manager screen appears. The Spaces Manager displays the list of spaces in your station.

**Figure 44: Select Spaces Manager**

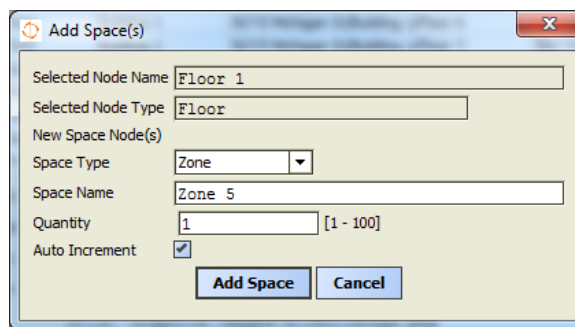


**Figure 45: Spaces Manager**



- Click New Space. The Add Space(s) screen appears.

**Figure 46: Add Space(s)**



- In the Space Type field, select the space type you want.
- In the Space Name field, enter the space name.
- In the Quantity field, enter the quantity you want to add.
- If you want the system to automatically increment the space name by number, select the Auto Increment check box.
- Click Add Space. The space that you created appears in the list in the Spaces Manager.

## Editing Spaces

1. In the Nav side bar, expand Config > Facility Explorer.
2. Double-click the spaces node.
3. In the view selector at the top-right section of the screen, make sure that Spaces Manager is selected. The Spaces Manager screen appears. The Spaces Manager displays the list of equipment in your station.

**Figure 47: Select Spaces Manager**

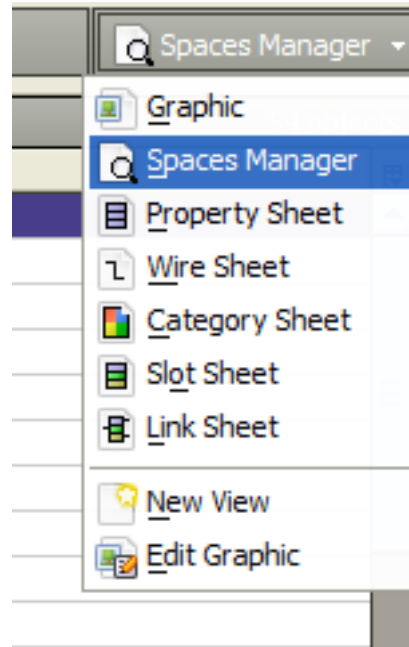
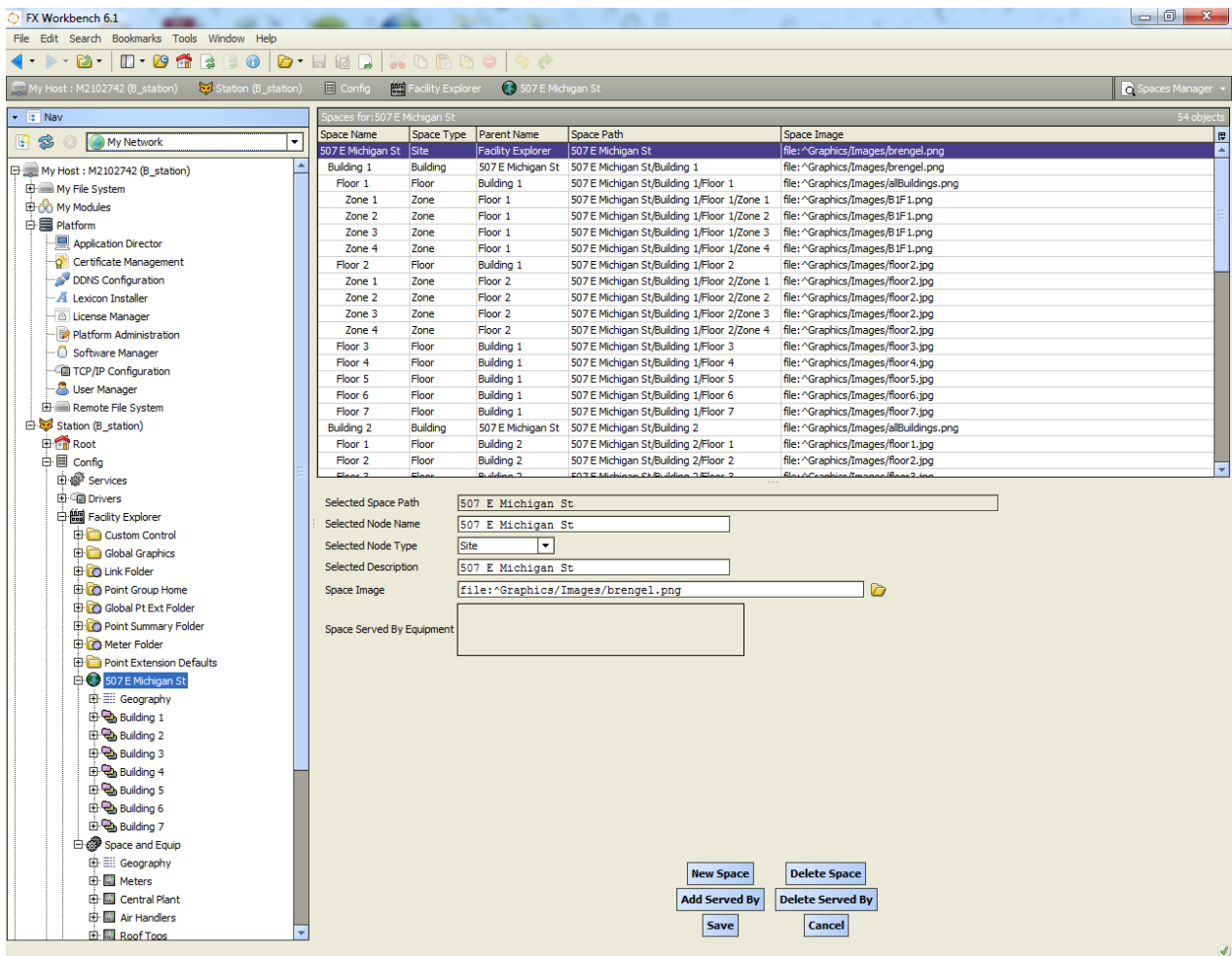


Figure 48: Spaces Manager



4. In the list in the Spaces Manager, select the space that you want to edit.
5. If necessary, edit the following information:
  - In the Selected Node Name field, change the space name.
  - In the Selected Node Type list box, select a different space type.
  - In the Space Image box, click the browse button and select an image for the space.
6. Click Save.

## Deleting a Space

If necessary, you can delete a space from the Spaces Manager.

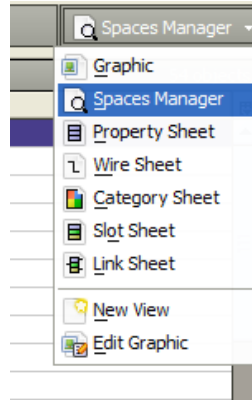
1. In the list of spaces in the Spaces Manager, select the space that you want to delete.
2. Click Delete Space. A screen appears asking you to verify that you want to delete the space.
3. Click Yes. The space is deleted from the Spaces Manager.

## Configuring Spaces Served By Relationship (Spaces Manager)

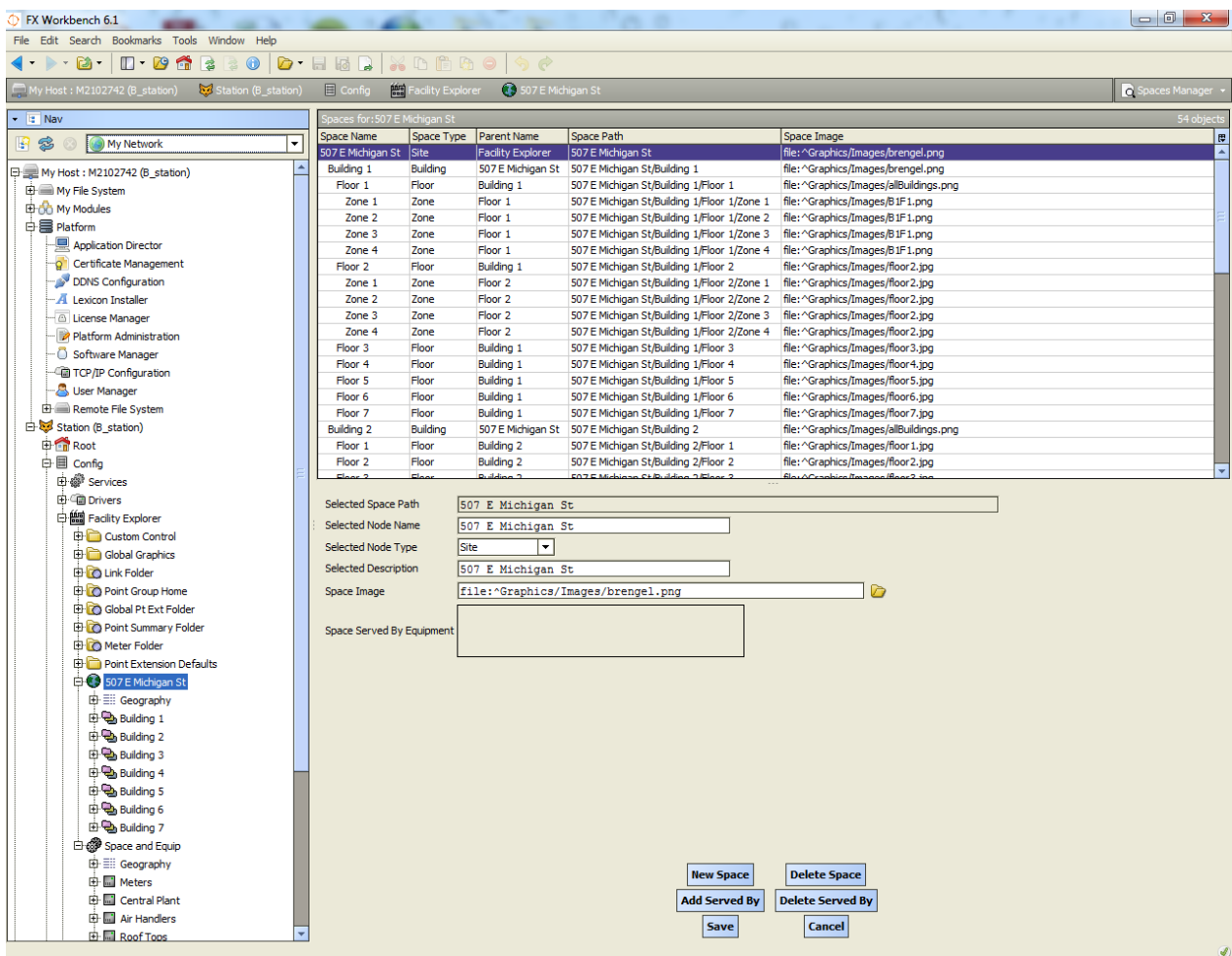
Defining the relationship between equipment and the space it serves is an optional configuration step intended to simplify user interface navigation of a complex HVAC system. For example, you can identify within the FX Supervisory Controller's user interface the specific VAV boxes **serving** (providing conditioned air to) a specific room. Follow this procedure to configure the **Spaces Served by** relationship for your equipment.

1. In the Nav side bar, expand Config > Facility Explorer.
2. Double-click the Location node.
3. In the view selector at the top-right section of the screen, make sure that Spaces Manager is selected. The Spaces Manager screen appears. The Spaces Manager displays the list of equipment in your station.

**Figure 49: Select Spaces Manager**

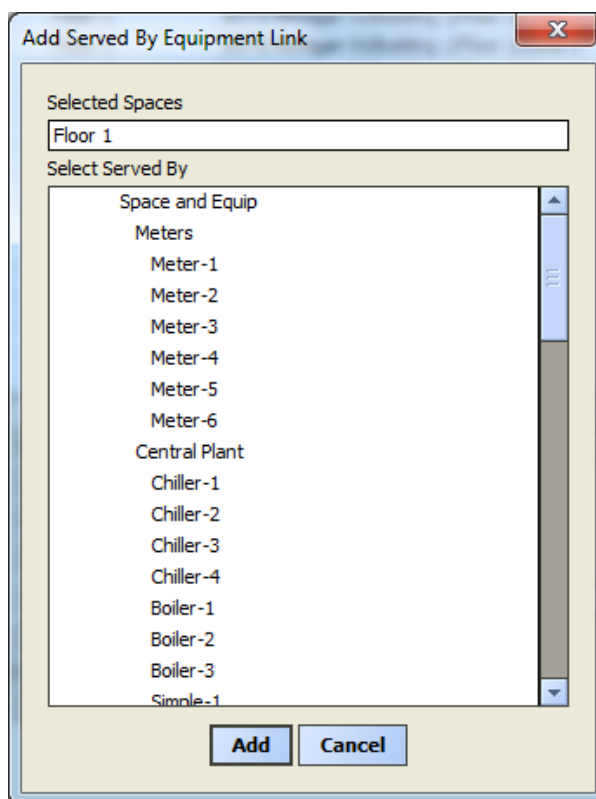


**Figure 50: Spaces Manager**



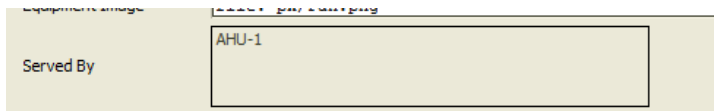
4. Click Add Served By. The Add Served By Link screen appears.

**Figure 51: Add Served By Link**



5. From the list, select the equipment serving the space identified in the Selected Spaces field and click Add. The equipment appears in the Served By field of the Spaces Manager.

**Figure 52: Served By**

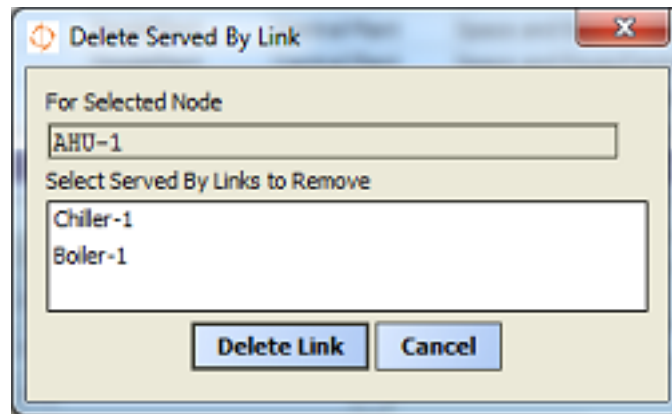


## Deleting a Served By Relationship

If necessary, you can delete a served by relationship.

1. In the list in the Equipment or Spaces Manager, select the served by link you want to delete.
2. Click Delete Served By. The Delete Served By Link screen appears.

Figure 53: Delete Served By Link



3. From the list, select the equipment or spaces served by link you want to delete and click Delete Link. The equipment is deleted from the Served By field in the Equipment or Spaces Manager.

## Equipment Manager

Using the Equipment Manager to define the equipment is an optional configuration step intended to simplify user interface navigation of a complex HVAC system. For example, it is useful to identify within the FX Supervisory Controller's user interface the following:

- the list of HVAC equipment being controlled
- which devices are controlling which pieces of equipment
- the equipment-to-equipment **served by** relationships (for example, the specific VAV boxes being **served by**, or receiving airflow from, a specific air handling unit, or which air handling units are being **served by**, or received chilled water from, a specific chilled water plant.

Follow the procedures in this section to define the equipment, their controller relationships, and their **served by** relationships.

In most cases, the equipment that appears in Equipment Manager are added by using the Batch Import process. However, you can also add equipment manually by using the Equipment Manager.

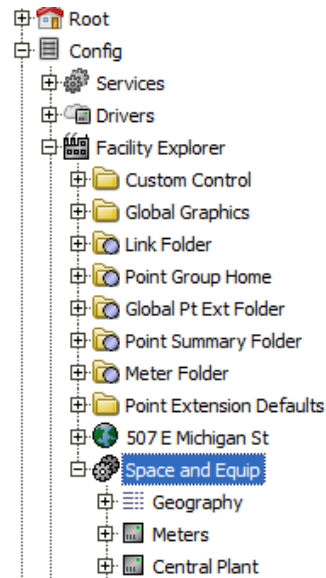
This section covers the following tasks:

- [Adding New Equipment](#)
- [Deleting Equipment](#)
- [Configuring Served By Relationships \(Equipment Manager\)](#)
- [Deleting a Served By Relationship](#)
- [Assigning Equipment to a Location](#)

## Adding New Equipment

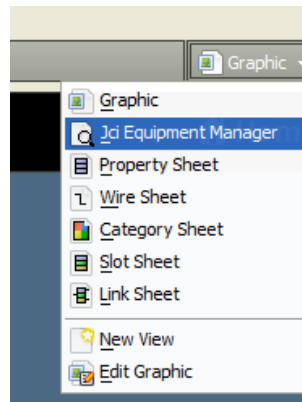
1. In the Nav side bar, expand Config > Facility Explorer.
2. Double-click the equipment node.

**Figure 54: Space and Equipment (Nav Side Bar)**



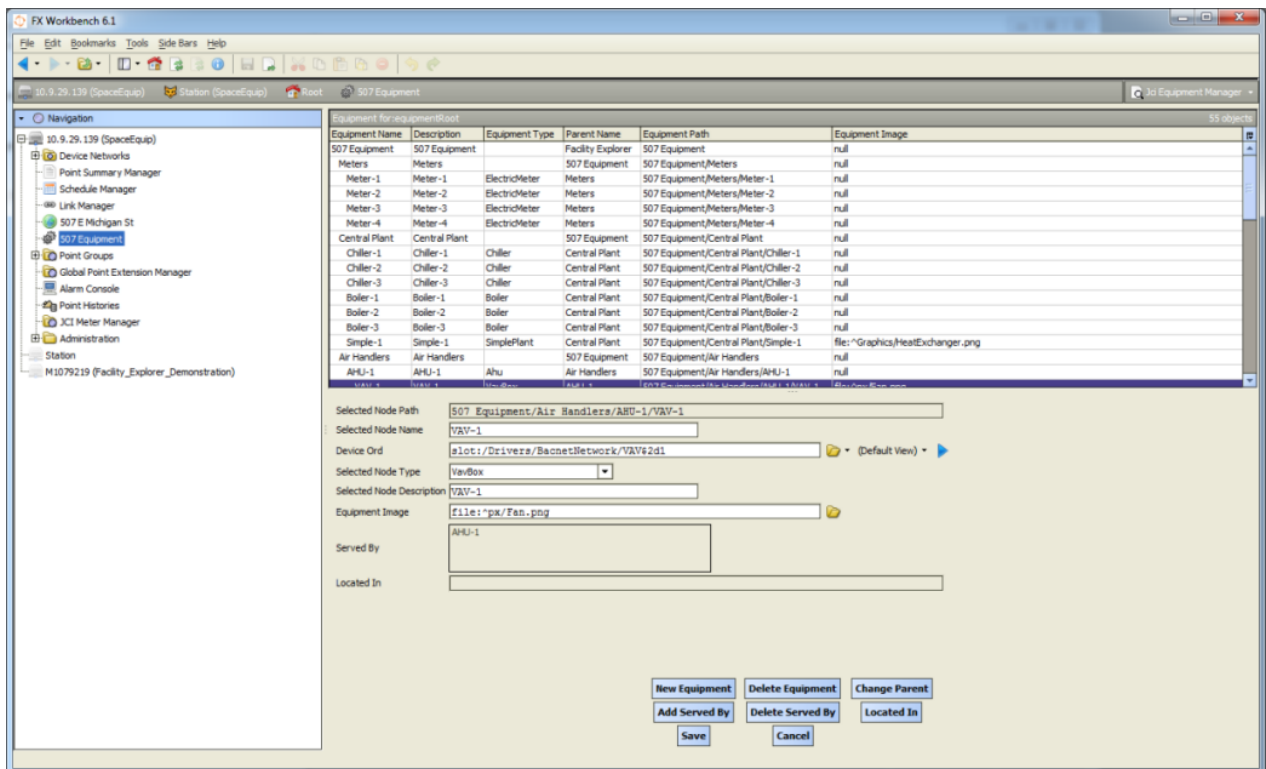
3. In the view selector at the top-right section of the screen, make sure that Jci Equipment Manager is selected. The Equipment Manager screen appears. The Equipment Manager displays the list of equipment in your station.

**Figure 55: Select Jci Equipment Manager**



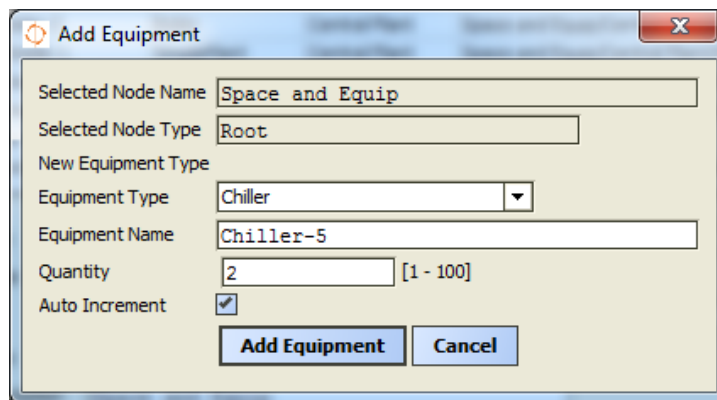


**Figure 56: Equipment Manager**



- Click New Equipment. The Add Equipment screen appears.

**Figure 57: Add Equipment**



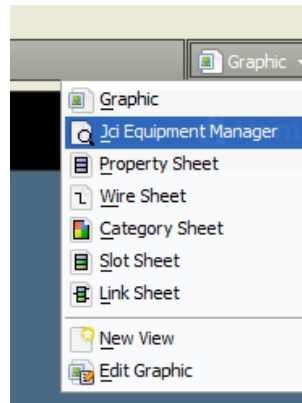
- In the Equipment Type field, select the equipment type you want.
- In the Equipment Name field, enter the device name.
- In the Quantity field, enter the quantity you want to add.
- If you want the system to automatically increment the device name by number, select the Auto Increment check box.
- Click Add Equipment. The equipment appears in the equipment list.

## Editing Equipment

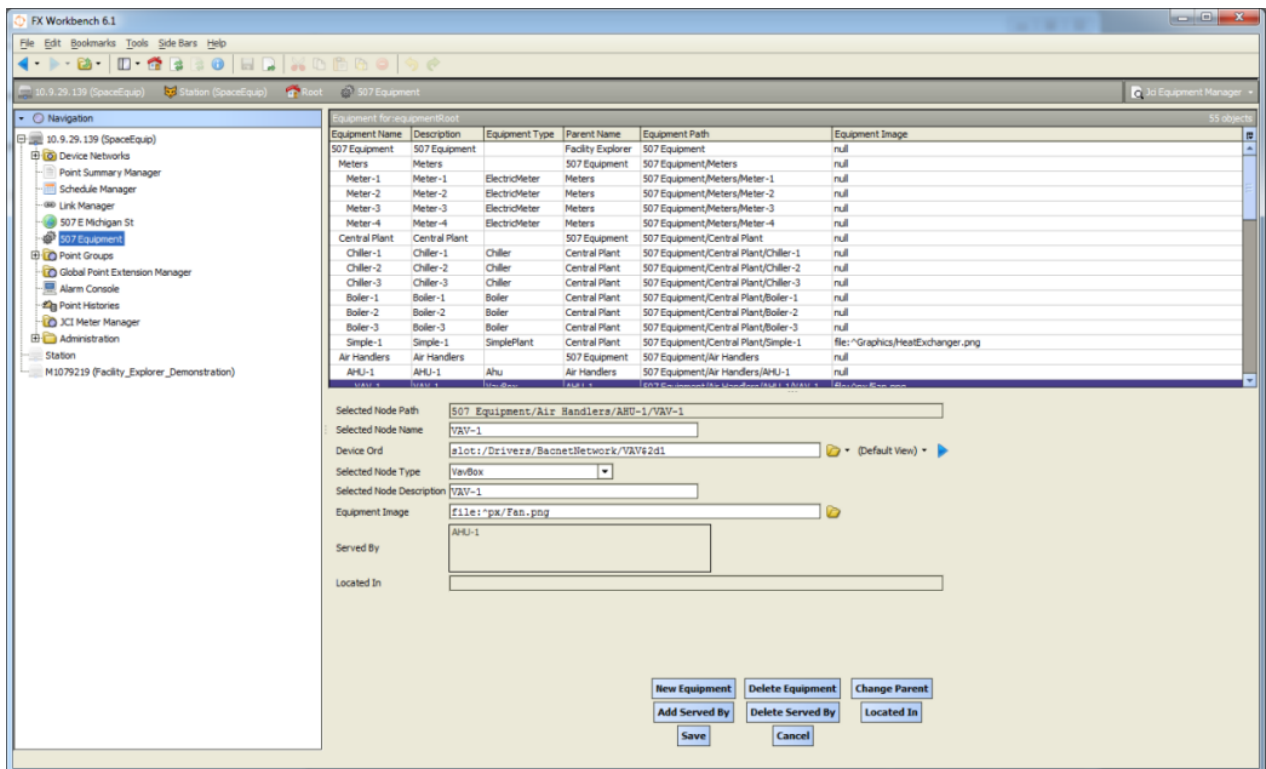
- In the Nav side bar, expand Config > Facility Explorer.
- Double-click the equipment node.

3. In the view selector at the top-right section of the screen, make sure that Jci Equipment Manager is selected. The Equipment Manager screen appears. The Equipment Manager displays the list of equipment in your station.

**Figure 58: Select Jci Equipment Manager**



**Figure 59: Equipment Manager**



4. From the list in the Equipment Manager, select the equipment that you want to edit.
5. If necessary, edit the following information:
  - In the Selected Node Name field, change the equipment name.
  - In the Equipment Ord field, click the browse button and select a different ord.
  - In the Selected Node Type list box, select a different equipment type.
  - In the Equipment Image box, click the browse button and select an image for the equipment.
6. Click Save.

## Deleting Equipment

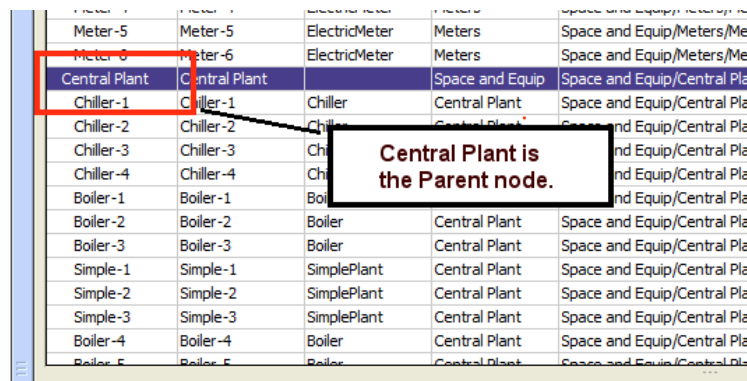
If necessary, you can delete a device from the Equipment Manager.

1. In the list of equipment in the Equipment Manager, select the equipment that you want to delete.
2. Click Delete Equipment. A screen appears asking you to verify that you want to delete the equipment.
3. Click Yes. The equipment is deleted from the Equipment Manager.

## Changing Parent Location

When you change a parent location for a device, you change where the device is located in the Equipment Manager tree. In the following graphic, Central Plant is the parent node. If you want, you can move Chiller-1 to a different Parent node.

Figure 60: Parent Location Example



Meter-5	Meter-5	ElectricMeter	Meters	Space and Equip/Meters/Met
Meter-6	Meter-6	ElectricMeter	Meters	Space and Equip/Meters/Met
Central Plant	Central Plant		Space and Equip	Space and Equip/Central Plai
Chiller-1	Chiller-1	Chiller	Central Plant	Space and Equip/Central Plai
Chiller-2	Chiller-2	Chiller	Central Plant	Space and Equip/Central Plai
Chiller-3	Chiller-3	Chiller	Central Plant	Space and Equip/Central Plai
Chiller-4	Chiller-4	Chiller	Central Plant	Space and Equip/Central Plai
Boiler-1	Boiler-1	Boiler	Central Plant	Space and Equip/Central Plai
Boiler-2	Boiler-2	Boiler	Central Plant	Space and Equip/Central Plai
Boiler-3	Boiler-3	Boiler	Central Plant	Space and Equip/Central Plai
Simple-1	Simple-1	SimplePlant	Central Plant	Space and Equip/Central Plai
Simple-2	Simple-2	SimplePlant	Central Plant	Space and Equip/Central Plai
Simple-3	Simple-3	SimplePlant	Central Plant	Space and Equip/Central Plai
Boiler-4	Boiler-4	Boiler	Central Plant	Space and Equip/Central Plai
Boiler-5	Boiler-5	Boiler	Central Plant	Space and Equip/Central Plai

1. In the Nav side bar, expand Config > Facility Explorer.
2. Double-click the equipment node.
3. In the view selector at the top-right section of the screen, make sure that Jci Equipment Manager is selected. The Equipment Manager screen appears.

Figure 61: Select Jci Equipment Manager

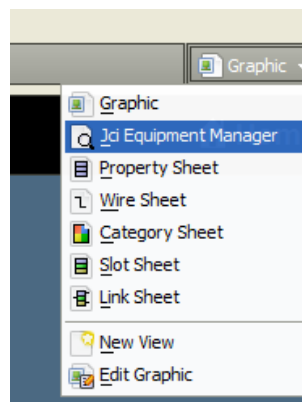
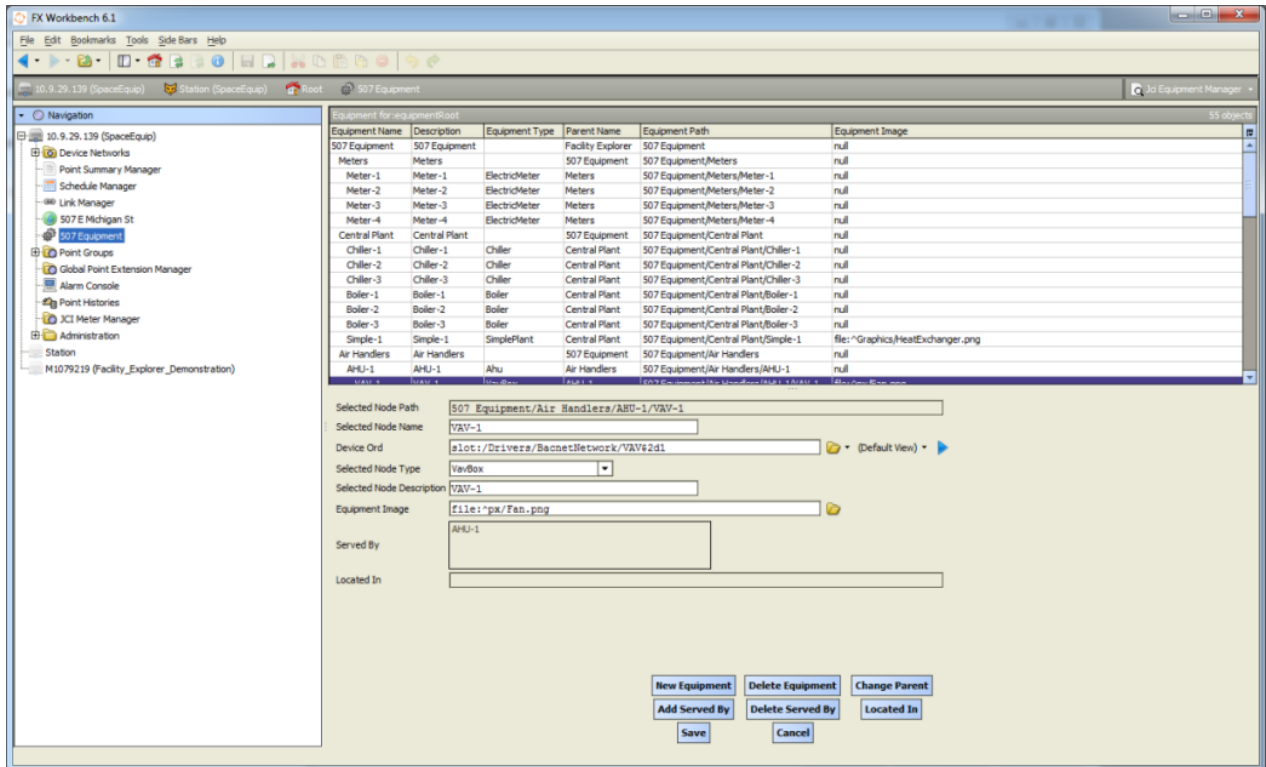
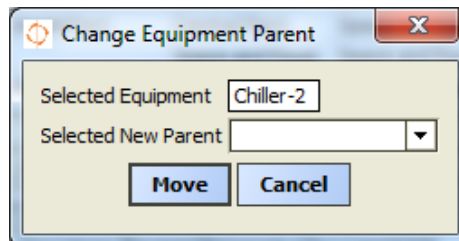


Figure 62: Equipment Manager



- Click Change Parent. The Change Equipment Parent screen appears.

Figure 63: Change Equipment Parent



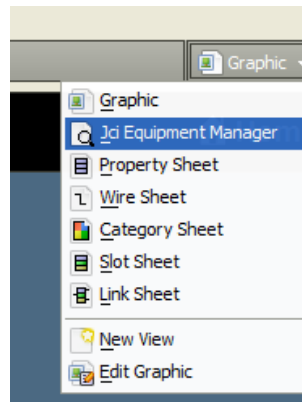
- In the Selected New Parent list box, select the parent node that you want.
- Click Move. The device appears under a different parent in the Equipment Manager.

## Configuring Served By Relationships (Equipment Manager)

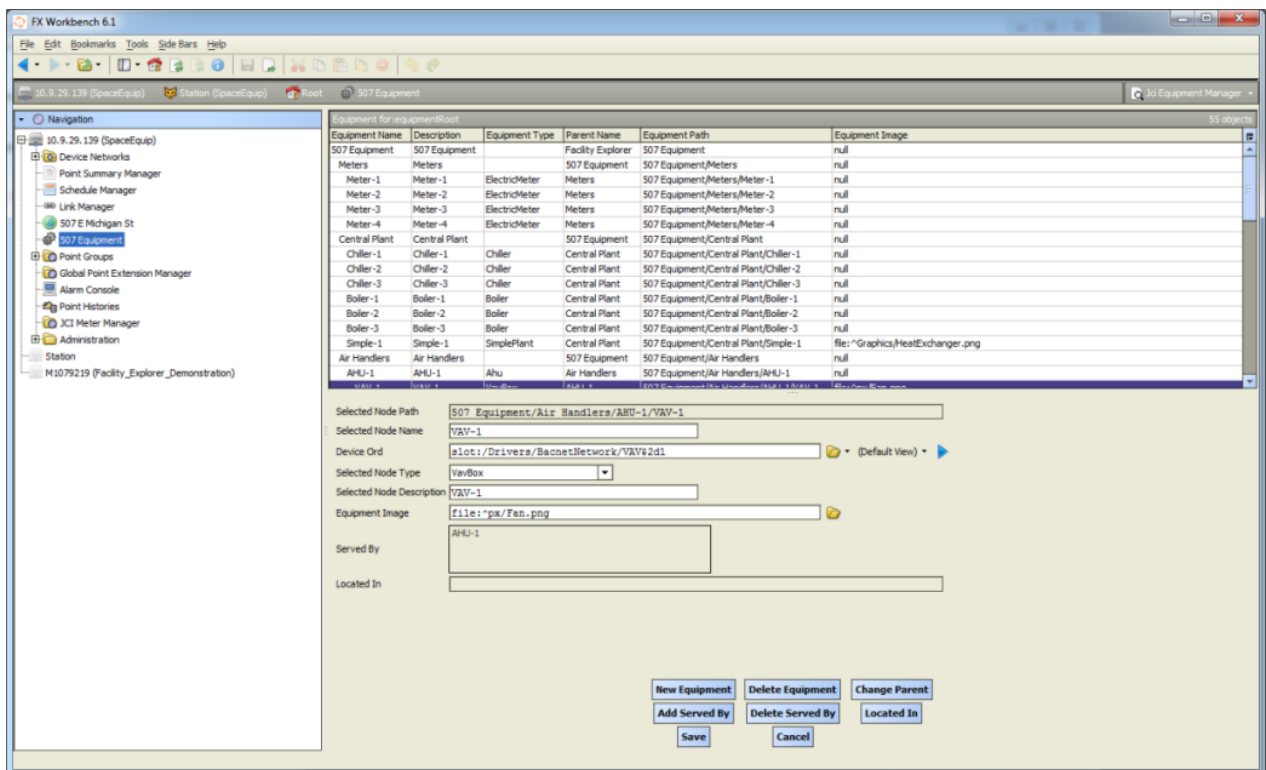
Defining the **served by** relationship between pieces of equipment is an optional configuration step intended to simplify user interface navigation of a complex HVAC system. For example, within the FX Supervisory Controller's user interface, you can identify the specific VAV boxes being **served by** (receiving airflow from) a specific air handling unit, or which air handling units are **served by** (receiving chilled water from) a specific chilled water plant. Follow this procedure to configure the **served by** relationships between equipment.

- In the Nav side bar, expand Config > Facility Explorer.
- Double-click Space and Equip.
- In the view selector at the top right section of the screen, make sure that Jci Equipment Manager is selected. The Equipment Manager screen appears.

**Figure 64: Select Jci Equipment Manager**

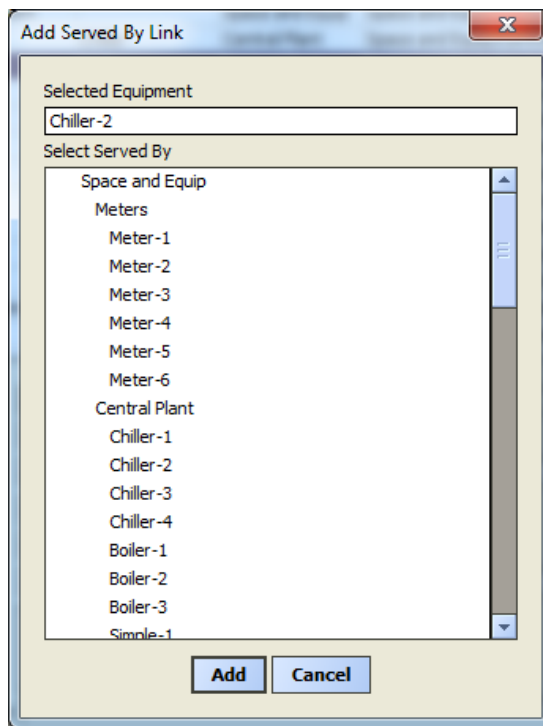


**Figure 65: Equipment Manager**



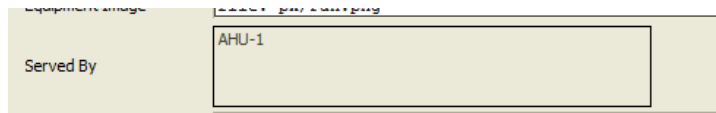
4. Click Add Served By. The Add Served By Link screen appears.

**Figure 66: Add Served By Link**



5. In the list, select the equipment that is mechanically upstream from the equipment identified in the Selected Equipment field and click Add. The equipment appears in the Served By field of the Equipment Manager.

**Figure 67: Served By**

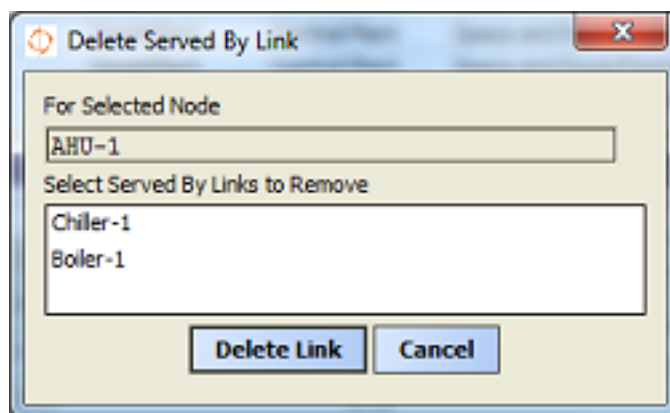


## Deleting a Served By Relationship

If necessary, you can delete a served by relationship.

1. In the list in the Equipment or Spaces Manager, select the served by link you want to delete.
2. Click Delete Served By. The Delete Served By Link screen appears.

**Figure 68: Delete Served By Link**



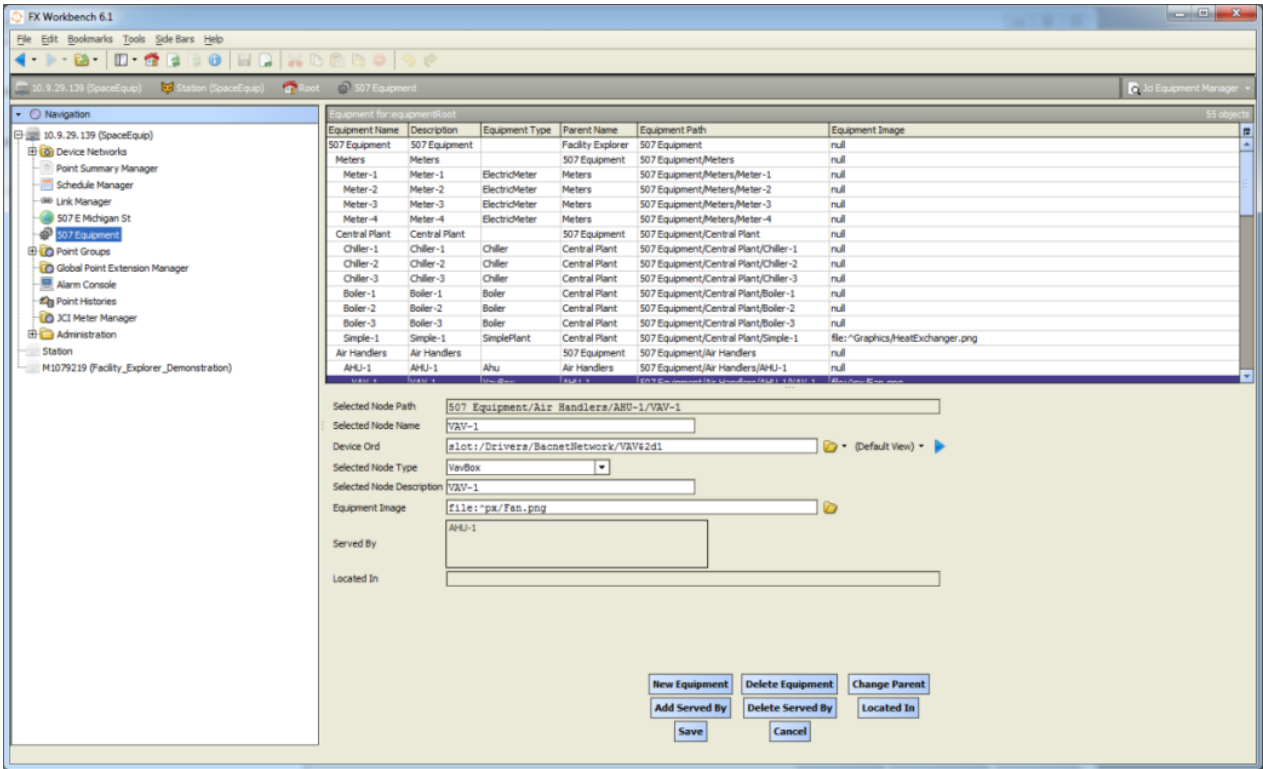
3. From the list, select the equipment or spaces served by link you want to delete and click Delete Link. The equipment is deleted from the Served By field in the Equipment or Spaces Manager.

### **Assigning Equipment to a Location**

Defining the location of equipment is an optional configuration step intended to assist users by identifying the physical location of equipment in the building. For example, if an alarm occurs in the FX Supervisory Controller's user interface on a specific piece of equipment, the user can quickly identify where the service technician needs to go to troubleshoot or fix the issue.

1. In the Nav side bar, expand Config > Facility Explorer.
2. Double-click Space and Equip.
3. In the view selector at the top-right section of the screen, make sure that Jci Equipment Manager is selected. The Equipment Manager screen appears.

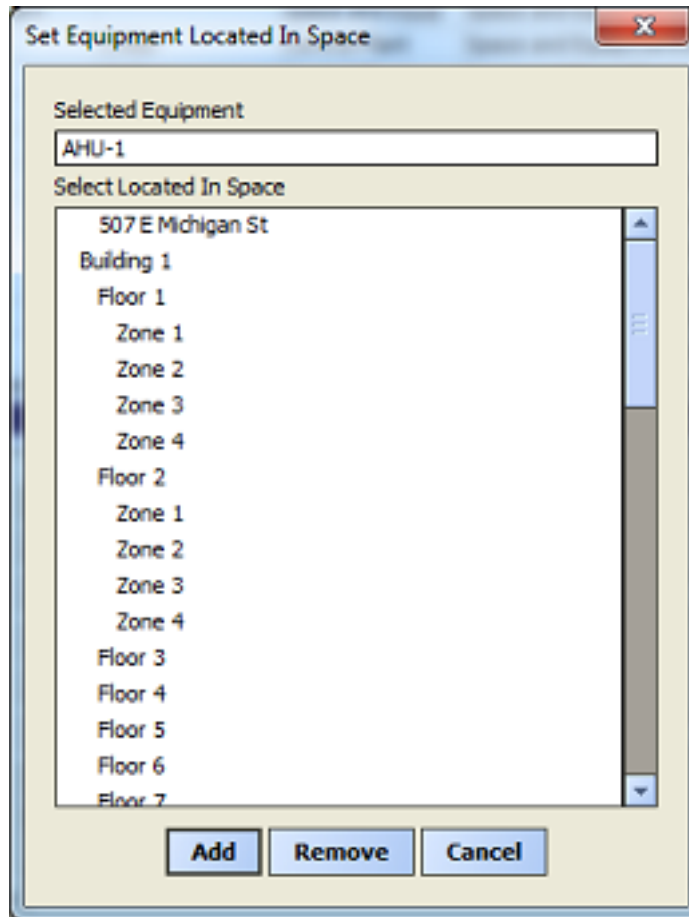
Figure 69: Equipment Manager



4. Click Located In. The Select Equipment Located In Space screen appears.



**Figure 70: Select Equipment Located In Space**



5. In the location list, select the location of the equipment in the Selected Equipment field and click Add. The location appears in the Equipment Located in Space field of the Equipment Manager.

## N2 Controller and Point Integration

FX Supervisory Controllers include a JciN2Network driver to integrate N2-based devices into the Niagara environment. Additionally, FX Workbench includes unique features to assist with integrating certain types of Johnson Controls N2-based devices. This section describes the features and procedures associated with integrating N2-based devices, with an emphasis on integrating Johnson Controls N2-based devices.

### JciN2Network Driver

The JciN2Network driver provides the components necessary to integrate N2-based devices and their data into the Niagara environment. The JciN2Network driver is made up of the JCI N2 network and a collection of Niagara device models for certain N2 device types, including N2OPEN, N2B, Dx9100, Tc9100, and Xt9100. See [Table 1](#) for a list of N2 devices supported by the JciN2Network driver.

**Table 1: N2 Devices Supported by the JciN2Network Driver**

N2 Device Type	Description	Revisions	Niagara Device Type Model
<b>FX05P0x<sup>1</sup></b>	FX05 OEM Controller	All	N2OPEN
<b>FX10<sup>1</sup></b>	FX10 OEM Controller	All	N2OPEN
<b>FX05P1x<sup>1</sup></b>	FX05 Advanced Field Controller	Revs >= 3.0	N2OPEN
<b>FX06<sup>1</sup></b>	FX06 Field Controller	Revs >= 3.0	N2OPEN
<b>FX07<sup>1</sup></b>	FX07 Field Controller	Revs >= 3.0	N2OPEN
<b>FX14<sup>1</sup></b>	FX14 Controller	Revs >= 3.0	N2OPEN
<b>FX15<sup>1</sup></b>	FX15 Controller	Revs >= 3.0	N2OPEN
<b>FX16<sup>1</sup></b>	FX16 Master Controller	Revs >= 3.0	N2OPEN
<b>MD20<sup>1</sup></b>	FX Master Display	All	N2OPEN
<b>UNT</b>	Metasys® Unitary Controller	Revs. >= B03	N2OPEN
<b>VAV</b>	Metasys Variable Air Volume Controller	Revs. >= A03	N2OPEN
<b>AHU</b>	Metasys Air Handling Unit	Revs. >= C03	N2OPEN
<b>VMA1400</b>	Metasys Variable Air Volume Modular Assembly	All	N2B
<b>DX-9100</b>	Metasys Extended Digital Controller	Rev. 1x Rev. 2x	Dx9100
<b>TC-9100</b>	Metasys Terminal Unit Controller	Revs. 1.x–3.x	Tc9100
<b>XTM-105</b>	Metasys Expansion Module	All	Xt9100
<b>TEC (N2 Models)</b>	Terminal Equipment Controller	All	N2OPEN
<b>VND</b>	Third-Party N2 Vendor Device	All	N2OPEN
<b>MIG</b>	Metasys Integrator	All	N2OPEN

<sup>1</sup> Fitted with an N2 Communications card.

# JciN2Network Licensing

The JciN2Network driver is a separately licensed feature, requiring an element in the FX Supervisory Controller's license file named **jcin2**, as follows:

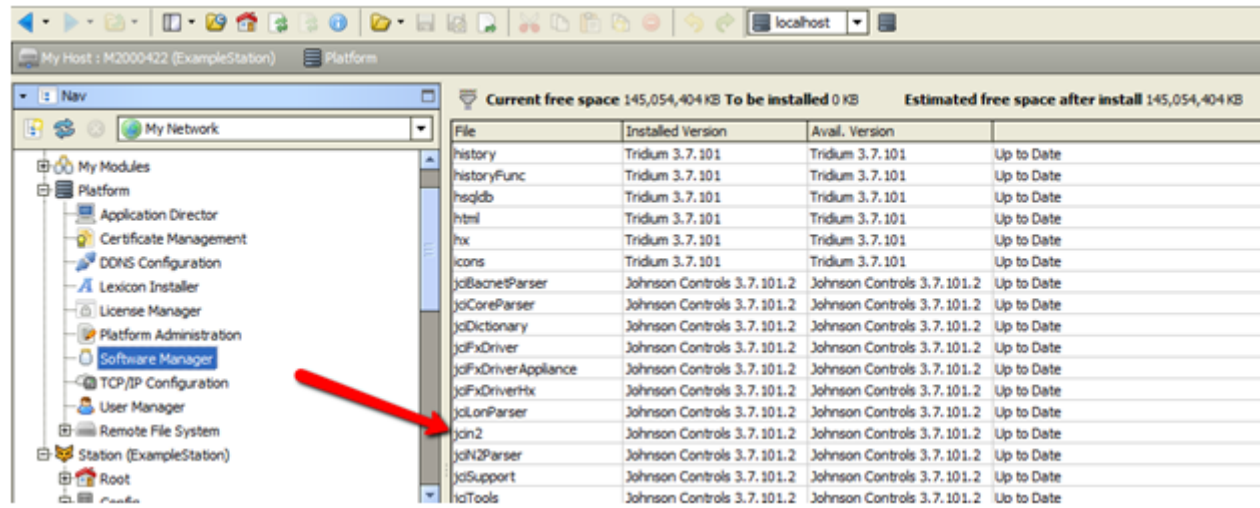
```
<feature name="jcin2" expiration="never" schedule.limit="none" point.limit="none" history.limit="none"
device.limit="none" parts="LP-FX2021N-0"/>
```

A new FX Supervisory Controller comes with a host license factory installed, and its host license includes the **jcin2** element.

# JciN2 Network Driver Software Installation

The jcin2 software module (jcin2.jar file) provides the JciN2Network driver capability. All FX Supervisory Controllers include the jcin2 software module factory installed. Normally, you do not need to install this software module. If the jcin2 module is not installed, use FX Workbench's Software Manager to install it.

Figure 71: Software Manager Showing jcin2 Module Installed



## Configuring a JciN2Network Integration for N2 Devices

This section provides the procedures to configure the JciN2Network driver client functions to integrate N2 devices into an FX Supervisory Controller. You configure the N2 driver by performing the following main tasks:

- [Adding a JciN2Network to the Station](#)
- [Configuring the JciN2Network](#)
- [Creating JciN2Device Components](#)
  - [Using Online Discovery to Add N2 Devices as JciN2Device Components](#)
  - [Manually Adding N2 Controller as JciN2Device Components](#)
- [Matching Manually Added JciN2Device Components to Discovered N2 Devices](#)

### Adding a JciN2Network to the Station

You can add a JciN2Network to the station in one of two ways. You can add a JciN2Network while you create a new station using the New Station wizard (see [Creating a New Station Using the JCI Station Wizard](#)), or you can manually add a JciN2Network.

To manually add a JciN2Network to the station:

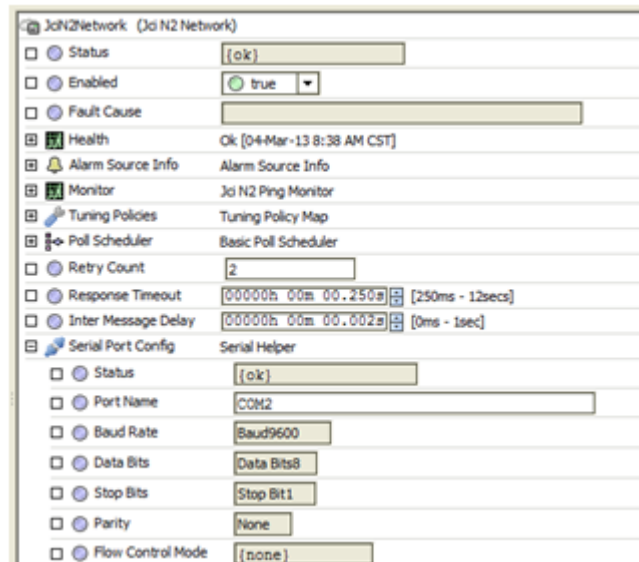
1. In the Nav tree, double-click the station's Config > Drivers container. The Driver Manager appears.
2. Click New. The New DeviceNetwork dialog box appears.
3. In the Type to Add field, select Jci N2 Network, and in the Number to Add field, enter **1**.
4. Click OK. A dialog box to name the network appears.
5. If desired, change the name of the network. Leave the Type setting as Jci N2 Network and the Enabled setting to true.
6. Click OK. The JciN2Network named JciN2Network (or your desired name) now appears in your Drivers folder.

## Configuring the JciN2Network

1. Right-click the JciN2Network and select Views > Property Sheet. The JciN2Network property sheet appears. You can also use the View Selector to display the Property Sheet.

For a new FX Supervisory Controller, the status displays {fault} and the Fault Cause displays **No port selected for serial communication**.

Figure 72: JciN2Network Property Sheet



2. In the Property sheet, expand the Serial Port Config.
3. In the Port Name field, change the entry from none to the actual COM port assignment for the desired physical RS-485 trunk on the FX Supervisory Controller. Refer to the FX Supervisory Controller's installation instructions for the COM port assignment for the desired RS-485 serial port.
4. Click Save. The Status changes from {fault} to {ok}, and the Fault Cause changes to blank.

## Creating JciN2Device Components

After you configure the JciN2Network, use online discovery to find and create JciN2Device components under the JciN2Network.

Alternatively, you can add N2Device components to the station manually. Use the JciN2Network's default JciN2NetworkDevice Manager view to perform both tasks.

### Using Online Discovery to Add N2 Devices as JciN2Device Components

Online discovery is the easiest way to accurately populate the station with the necessary JciN2Device components. Using online discovery requires that the FX Supervisory Controller be physically connected to a live network of N2 devices.

1. In the Nav side bar, right-click the JciN2Network and select Views > Jci N2 Device Manager. The Jci N2 Device Manager appears.
2. Click Discover to automatically locate the N2 devices on the network. A Device Discovery Config dialog box appears. By default, discovery occurs for all supported N2 devices in the address range 1 through 255. If desired, you can modify the start and stop address range used by the discovery process.
3. Click OK. A progress bar appears at the top of the view and updates as the discovery occurs. When the discovery job completes, discovered N2 devices appear at the top pane. The bottom Database pane lists all N2 devices currently mapped into the Niagara station. Initially, this table is empty.
4. Map the discovered N2 devices to the station. You can map the devices in the following ways:

- Drag the desired N2 device from the Discovered pane to Database pane. The Add dialog box appears.
  - Double-click the desired N2 device in the Discovered pane. The Add dialog box appears.
  - Select the desired N2 device in the Discovered pane, then press **a**. This action performs a Quick Add, so no Add dialog box appears.
5. In the Add dialog box, edit the configuration of the JciN2Device component. Initial property values are learned from the device.

**Table 2: JciN2Device Properties**

JciN2Device Property	Description
<b>Name</b>	This field reflects the learned N2 Controller Name of the device. If desired, you can edit this field.  This is only the Niagara component name for this device and changing it does not affect the name in the remote N2 device.  <b>Note:</b> Any slash character (/) is replaced by a period (.) in the Niagara name.
<b>Address</b>	This field reflects the N2 address learned from this device.
<b>Controller Type</b>	This field reflects the specific type of N2 device learned during discovery.

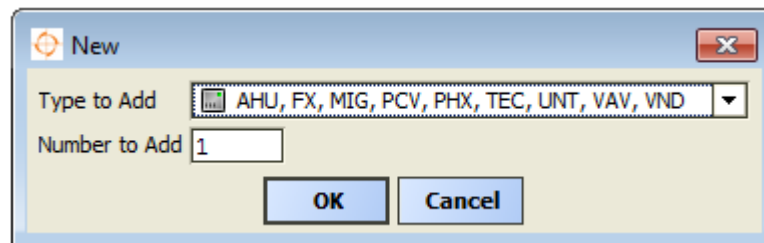
6. Click OK. The JciN2Device is added to the station and appears in the Database pane.

### **Manually Adding N2 Controller as JciN2Device Components**

An alternative method to using online discovery is to manually add an N2 device as a JciN2Device component. This manual process lets you add JciN2Device components when the FX Supervisory Controller station is not yet communicating with live N2 devices on an N2 network. To manually add a JciN2Device, use the Device Manager's new device wizard.

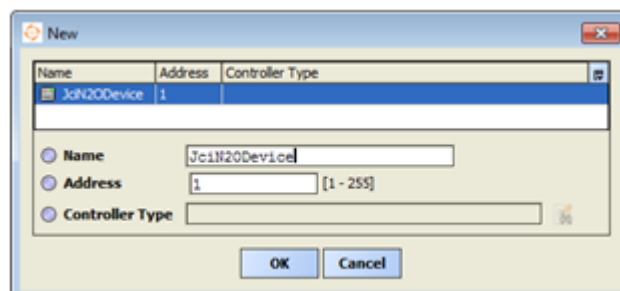
1. In the Jci N2 Device Manager, click New. The New dialog box appears.

**Figure 73: New Device Dialog Box**



2. In the Type to Add field, select the type of N2 device you want to add.
3. In the Number to Add field, enter the desired number of devices to add (the default value is 1).
4. Click OK. The New dialog box appears.

**Figure 74: New Dialog Box**



5. In the Name field, enter the desired name of the device.
6. In the Address field, enter the N2 address of the device.
7. Click OK. The JciN2Device is added to the station and appears in the Database pane.

## Matching Manually Added JciN2Device Components to Discovered N2 Devices

Once a JciN2Device component has been manually added to the FX Supervisory Controller station database, you can use the Match function (found in the Device Manager) to match that JciN2Device component to a discovered N2 device (an online controller). This process copies essential configuration information learned in the discovered N2 controller (primarily, its N2 address) into the selected JciN2Device component.

1. If the Discovered device table is empty, perform the Discover task.
2. Select one N2 controller in the Discovered table and one JciN2Device component in the Database table.
3. Click Match. The Match dialog box appears.

The Match dialog box is similar to the Add Device dialog box, where values are pre-populated from online discovery. The only difference is that the Type field cannot be edited.

Alternately, you can type m for a Quick Match. This bypasses the Match dialog box and the match is made in the station database.

4. Edit the JciN2Device component's properties (primarily, its N2 address) as needed.
5. Click OK. The discovered device appears dimmed, indicating that the device is represented in the station database.

## Jci N2 Import Manager

Once a JciN2Device has been created (see [Configuring a JciN2Network Integration for N2 Devices](#)), you use the FX Workbench Jci N2 Import Manager to complete the integration. The Jci N2 Import Manager lets you complete N2 device integration tasks that, if performed manually, would be very time consuming.

The Jci N2 Import Manager uses the N2 device's resource file and an associated System Library to perform the following tasks:

- Identify which points should be added to the station as proxy points.
- Identify which Px file and Hx template file should be associated to the device.
- Create a Px or Hx view for the device.
- Bind points to the symbols in the Px or Hx views.
- Identify which extensions (history, alarm, or totalization) should be added to each point (if a system library is used when importing the resource file).

The process by which the Jci N2 Import Manager performs these tasks depends on the type of N2 device and its available resource file. See [Table 3](#) to understand which resource files are available per N2 device type.

**Table 3: N2 Devices Supported by the JciN2Import Manager**

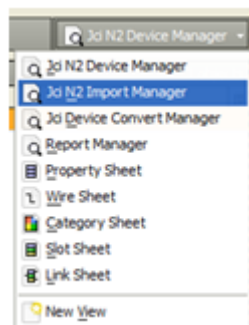
N2 Device Type	Description	Revision	Resource File Type
<b>FX05P0x</b>	FX05 OEM Controller	All	PRN
<b>FX10</b>	FX10 OEM Controller	All	PRN
<b>FX05P1x</b>	FX05 Advanced Field Controller	Revs. >= 3.0	APD
<b>FX06</b>	FX06 Field Controller	Revs. >= 3.0	APD
<b>FX07</b>	FX07 Field Controller	Revs. >= 3.0	APD
<b>FX14</b>	FX14 Controller	Revs. >= 3.0	APD
<b>FX15</b>	FX15 Controller	Revs. >= 3.0	APD
<b>FX16</b>	FX16 Master Controller	Revs. >= 3.0	APD

**Table 3: N2 Devices Supported by the JciN2Import Manager**

N2 Device Type	Description	Revision	Resource File Type
MD20	FX Master Display	All	APD
UNT	Metasys Unitary Controller	Revs. >= B03	PRN
VAV	Metasys Variable Air Volume Controller	Revs. >= A03	PRN
AHU	Metasys Air Handling Unit Controller	Revs. >= C03	PRN
VMA1400	Metasys Variable Air Volume Modular Assembly	All	PRN
DX-9100	Metasys Extended Digital Controller	Rev. 1.x Rev. 2.x	DMO
TC-9100	Metasys Terminal Unit Controller	Revs. 1.x-3.x	PRN
XTM-105	Metasys Expansion Module	All	HMC
TEC	Terminal Equipment Controller	All	PRN
VND	Third-Party N2 Vendor Device	All	PRN
MIG	Metasys Integrator	All	VCT
FX-PCV	VMA 1400 Replacement	All	CAF

## Using the Jci N2 Import Manager

- After you add the JciN2Device, select Jci N2 Import Manager from the View Selector. A list of devices without proxy points appears.

**Figure 75: Selecting the Jci N2 Import Manager**

- Select the desired devices and click **Edit** (or double-click the desired device). The Edit dialog box appears.



**Figure 76: Jci N2 Import Manager Edit Dialog Box**

The dialog box is titled 'Edit' and contains two tabs: 'JCI Device Extensions' and 'RTU1 Fx Device Information'. The 'RTU1 Fx Device Information' tab is selected, displaying the following fields and options:

- Name:** RTU1
- JCI Device Extensions (Fx Device Information):**
  - Resource File:** null
  - System Library:** null
  - System Of Units:** Imperial(deg F)
  - Import Graphic Type:** Kit Px Graphics
  - WorkBench Std Graphic File:** (empty field)
  - Hx Std Graphic File:** (empty field)
- System Type:** (empty field)
- Use Existing Graphic File:** null
- Use Existing Hx Graphic File:** null
- Create New Graphic File:** false
- Create Hx Graphic File:** false
- Clean Graphic:** true
- Update Action Menus:** true
- Parse Status:** (empty field)

At the bottom of the dialog are 'OK' and 'Cancel' buttons.

- Enter the requested information using [Table 4](#) as a reference.

**Table 4: Jci N2 Import Manager Properties**

Property	Description
<b>Name</b>	Enter the name of the device as you want it to appear in the station.
<b>Resource File</b>	Use the file chooser to select the resource file (for example, PRN, APD, DMO) that matches the actual application loaded in the controller. Use <a href="#">Table 3</a> to understand which resource file types are supported per N2 device type.
<b>System Library</b>	If a resource file that is not an APD or CAF was selected, this field remains null and a system library is not used.  If APD or CAF type resource file was selected, this field self-populates from information in the resource file.
<b>System Of Units</b>	This field is read-only and displays either SI (Metric) or Imperial, as identified in the resource file.
<b>Import Graphic Type</b>	Use this field to select the desired graphic type. Select Kit Px HVAC to select the original Niagara graphic symbols. Select Kit Px Graphics to select the new Niagara graphic symbols released as part of Niagara <sup>AX</sup> Release 3.7.  <b>Note:</b> You can set your desired default graphic type selection under the Tools > Options > JCI Options menu item.  <b>Note:</b> Standard graphics for legacy controllers (for example, APD and PRN resource files) are only available using the original graphic symbols.
<b>Workbench Std Graphic File</b>	Use this field to select a Px graphic file different than the default selection.
<b>Hx Std Graphic File</b>	Use this field to select an Hx graphic file different than the default selection.
<b>System Type</b>	This field is read-only and indicates if a standard system type is defined in resource file.

**Table 4: Jci N2 Import Manager Properties**

Property	Description
<b>Use Existing Graphic File</b>	Use this field if you want to reuse (alias) an existing Px graphic associated with another device. If you want to associate the device with an existing Px graphic file, browse to the location of the file and select it. If you do not want to reuse an existing graphic, then leave as null.
<b>Using Existing Hx Graphic File</b>	Use this field if you want to reuse (alias) an existing Hx graphic (iPhone®/iPod Touch® graphic) associated with another device. If you want to associate the device with an existing Hx graphic file, browse to the location of the file and select it. If you do not want to reuse an existing graphic, then leave as null.
<b>Create New Graphic File</b>	Use this field to select whether you want FX Workbench to create a new Px graphic file (select <b>true</b> ) or not (select <b>false</b> ).  <b>Note:</b> If you want to create a graphic with an empty canvas, select true and select OtherGraphic.px in the Workbench Std Graphic File field.
<b>Create Hx Graphic File</b>	Use this field to select whether you want FX Workbench to create a new Hx (iPhone/iPod touch friendly) graphic file (select <b>true</b> ) or not (select <b>false</b> ).
<b>Clean Graphic</b>	Use this field to select whether you want FX Workbench to clear unused points from a graphic (select <b>true</b> ) or not (select <b>false</b> ).
<b>Update Action Menus</b>	Use this field to select whether you want FX Workbench to customize the Action menus for the Boolean points using FX Workbench facets (select true) or not (select false). For example, instead of Active and Inactive, FX Workbench can customize the Action menu to the facets of the point (Override to On and Override to Off).
<b>Parse Status</b>	This field is read-only and displays the parsing status. If a problem occurs with parsing the file, the problem appears in this field.

- Click **OK**. The Jci N2 Import Manager adds the proxy points, creates the desired Px or Hx graphic views, binds points to the symbols in the Px or Hx views, and adds the appropriate extensions (if a system library was used).

## ***Tuning Policy Guidelines for N2 Devices***

The JciN2 network's tuning policies are the rules for evaluating both write requests (for example, to writable proxy points) as well as the acceptable freshness of read requests from polling. Tuning policies are important because they affect the status of the driver's proxy points. Refer to Table 6 for a description of the JciN2 Network Tuning Policy Properties.

### **N2 Tuning Policy Properties**

N2 Networks come with the default tuning policy (DefaultPolicy) and one predefined tuning policy (SlavePolicy). If necessary, you can also create additional tuning policies and adjust the tuning policy properties. [Table 5](#) describes the Tuning Policy properties for N2 networks.

**Table 5: Tuning Policy Properties for N2 Networks**

Property	Description
<b>Min Write Time</b>	Applies to writable proxy points, especially ones that have one or more linked inputs. Specifies the minimum amount of time allowed between writes. Provides a method to throttle rapidly changing values so that only the last value is written. If this property value is 0 (default), this rule is disabled. All value changes enable writes.
<b>Max Write Time</b>	<p>Applies to writable proxy points. Specifies the maximum <b>wait time</b> before rewriting the value (in case nothing else has triggered a write). Any write action resets this timer. If the property value is 0 (default), this rule is disabled (no timed rewrites).</p> <p><b>Note:</b> Setting this to a specific value, for example 10 minutes, may be useful. Often, a network may have devices that upon a power cycle (or even a power bump), have writable points that reset to some preset default value or state. Note that often in a site-wide power bump of a few seconds, such field controllers (devices on the network) typically reset, but an FX Supervisory Controller continues normal operation on backup battery. Since the network's default monitor ping is usually 5 minutes, the station (network) may never mark these devices as down, such that a Write On Up does not occur. If a writable point represents an AHU or chiller that defaults to unoccupied following a device reset, the load never restarts until the next day, when the schedule toggles. You can correct this issue by assigning the point to a tuning policy that does have a configured Max Write Time. At the same time, realize that many networks may be configured such that multiple masters may be issuing conflicting writes to one or more points in a device. Exercise caution with this property in this case, to avoid write contention that could result in toggling loads.</p>
<b>Write on Start</b>	<p>Applies to writable proxy points. Determines behavior at station startup.</p> <ul style="list-style-type: none"> <li>• If set to <b>true</b> (default), a write occurs when the station first reaches steady state.</li> <li>• If set to <b>false</b>, a write does not occur when the station reaches steady state.</li> </ul> <p><b>Note:</b> Consider setting this property to <b>false</b> in most tuning policies, except for tuning policies selectively assigned to more critical writable proxy points. This is particularly important for large networks with many writable proxy points.</p>
<b>Write on Up</b>	<p>Applies to writable proxy points. Determines behavior when a proxy point (and parent device) transitions from down to up.</p> <ul style="list-style-type: none"> <li>• If set to <b>true</b> (default), a write occurs when the parent device transitions from down to up.</li> <li>• If set to <b>false</b>, a write does not occur when the parent device transitions from down to up.</li> </ul>

**Table 5: Tuning Policy Properties for N2 Networks**

Property	Description
<b>Write on Enabled</b>	<p>Applies to writable proxy points. Determines behavior when a proxy point's status transitions from disabled to normal (enabled).</p> <ul style="list-style-type: none"> <li>If set to <b>true</b> (default), a write occurs when writable point transitions from disabled.</li> <li>If set to <b>false</b>, a write does not occur when writable point transitions from disabled.</li> </ul> <p><b>Note:</b> The disabled-to-enabled status transition can be inherited globally by points if the parent device had been set to disabled or network-wide if the driver network was set to disabled. Therefore, be aware that if left at true in tuning policies, that all associated writable points receive a write upon either the device or network when it transitions from status disabled to enabled.</p>
<b>Start Time</b>	<p>If set to a non-zero value, points become stale (status stale) if the configured time elapses without a successful read, indicated by Read Status ok.</p> <p>If set to <b>zero</b> (default), the stale timer is disabled, and points become stale immediately when unsubscribed.</p> <p>By default, proxy point status stale is indicated by tan background color. In addition, stale status is considered invalid for any downstream-linked control logic.</p> <p><b>Note:</b> We recommend that you specify the stale time to be at least three times the expected poll cycle time. Most peer-to-peer networks do experience collisions and missed messages. You may see nuisance stale statuses if you set the stale time too short. If a message is missed for some reason, then another poll cycle time or two is allowed for the message to be received before setting the stale flag.</p>

### Special Tuning Notes about the Stale Time Property

Never set the Stale Time property in a Tuning Policy shorter than the poll cycle time. Otherwise, points go stale in the course of normal polling. Instead, set the stale timer to be longer than the largest expected poll cycle time. This period can vary depending on how many Px graphics you view.

For each point, the stale timer is measured from the last time the point was updated. For example, if you have a 10-minute stale timer and an 8-minute poll cycle time, you have some points with values nearly 8 minutes old. If you stop polling, those points go stale roughly 2 minutes after polling has stopped, and not 10 minutes.

This scenario has resulted in some confusion, where the expectation was that after viewing a graphic, any points in it should stay up for the 10 full minutes (or the configured Stale Time) before going stale. However, the actual time depends on how long ago they were last polled.

### Using Multiple JciN2 Network Tuning Policies

For a JciN2 network, you typically create multiple tuning policies to achieve the following benefits:

- You can apply different tuning policies according to the source point's application usage.
- You can apply different tuning policies to accommodate multiple N2 networks (each with different performance capabilities).

### Predefined Tuning Policies for N2 Devices

In addition to the default tuning policy (DefaultPolicy), FX Workbench includes one additional predefined tuning policy (SlavePolicy) for use with Johnson Controls N2 controllers. If necessary, you can also create additional tuning policies:

**Table 6: Predefined Tuning Policies for N2 Devices**

Configuration Property	DefaultPolicy	SlavePolicy
<b>Min Write Time</b>	0	1 minute
<b>Max Write Time</b>	0	10 minutes

**Table 6: Predefined Tuning Policies for N2 Devices**

Configuration Property	DefaultPolicy	SlavePolicy
Write on Start	true	true
Write on Up	true	true
Write on Enabled	true	true
Stale Time	0	0

## Assigning a Tuning Policy or Poll Frequency Group to an N2 Point

By default, the Tuning Policy and Poll Frequency columns are hidden in the Point Extension Manager. To assign a tuning policy or poll frequency to a point, you need to unhide the columns in the Point Extension Manager.

**Note:** You can add the Tuning Policy and Poll Frequency columns **only** from the device Point Extension Manager. They are not available in the Global Point Extension Manager or the point Property Sheet.

1. In the Navigation Tree, double-click the desired N2 device.
2. On the menu on the top-right side of the screen, select Point Extension Manager. The Point Extension Manager appears. By default, the Tuning Policy and Poll Frequency columns are hidden.
3. In the far top right of the screen, click the arrow button next to the columns. A menu appears.
4. Select Tuning Policy and Poll Frequency. The columns appear on the screen with the Tuning Policy currently associated with each point displayed for the tuning policy and Normal for Poll Frequency.
5. In the Tuning Policy and Poll Frequency columns, click in the cell or cells for the points you want to change and select the tuning policy or poll frequency you want from the list. Table 7 lists the recommended tuning property values for Johnson Controls N2 controllers.

**Table 7: JciN2 Network Tuning Policy Properties Guidelines for Johnson Controls N2 Controllers**

Tuning Policy	Application
Default	
Slave	

6. Click Save.

## Adding a Tuning Policy

1. In FX Workbench, open the Property Sheet for your JciN2Network.
2. Right-click an existing tuning policy (found in the Tuning Policies container) and click Duplicate. The Name dialog box appears.
3. Enter the desired name for the new tuning policy and click **OK**.

## Configuring a Tuning Policy

1. In the JciN2Network's property sheet, expand Tuning Policies to see one or more contained Tuning Policies.
2. Expand the desired Tuning Policy to see the configuration properties.
3. Edit the configuration properties using [Table 8](#) as a reference.

**<See Table Below. Check with Greg W. on this, I think that the Critical Hw inputs used for slave or FX logic should be the Slave tuning policy.>**

**Table 8: JciN2Network Tuning Policy Properties Guidelines**

Configuration Property	Monitor Only Inputs	Critical Hardware Inputs Used for Slave or FX Supervisory Control Logic	Network Variable Inputs Connected to Critical Shared Hardware Inputs (Process Variables Used in Control Logic)	Network Variable Inputs: Non-Critical Shared Hardware Inputs (OA-T, Occupancy Schedule)	Network Variables Used for Setpoints	Internal Module Relinquish Default
Min Write Time	N/A	N/A	0 (default)	10 minutes	0 (default)	0 (default)
Max Write Time	N/A	N/A	1 minute	20 minutes	20 minutes	0 (default)
Write on Up	N/A	N/A	True (default)	True (default)	True (default)	False
Write on Start	N/A	N/A	True (default)	True (default)	True (default)	True (default)
Write on Enabled	N/A	N/A	True (default)	True (default)	True (default)	False
Stale Time	0 (default)	0 (default)	0 (default)	0 (default)	0 (default)	0 (default)

4. Click **Save**.

## ***N2 Point Details Manager***

The N2 Point Details Manager is a view under any N2 device object. Use the N2 Point Details Manager to command points, change point names, or change point facets. You can also add, delete, or rename points with the N2 Point Details Manager.

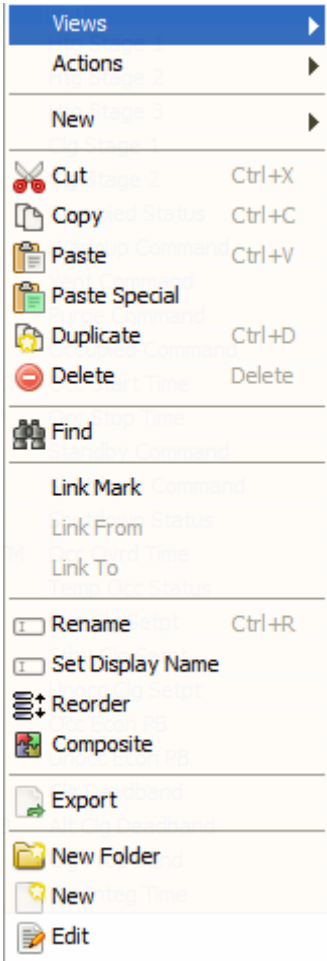
### **Accessing the N2 Point Details Manager**

1. Expand the Device Networks container.
2. Expand N2 Network.
3. Expand the desired device.
4. Double-click **Points**.
5. Use the View Selector to select the N2 Point Details Manager.

### **Right-Click Actions**

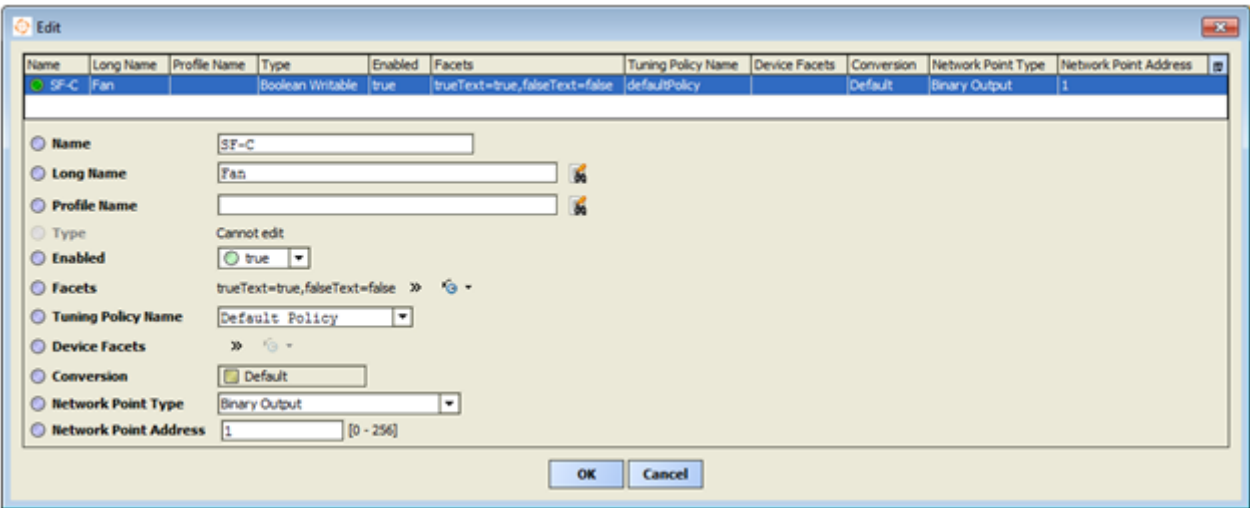
From the N2 Point Details Manager, right-click the point you want to perform various actions. For example, you can command a point, add a new point, delete a point, edit a point, rename a point, and duplicate a point.

Figure 77: Right-Click Actions on a Point



When editing an N2 point, the Edit dialog box displays the N2 point properties.

Figure 78: Edit Dialog Box



**Table 9: N2 Point Properties**

Field	Description
<b>Name</b>	Name of the N2 proxy point. If the point was created using the Import Manager, this field inherits the short name the point from the resource file or from the System Library.
<b>Long Name</b>	A longer, more descriptive name of the point. If the point was created using the Import Manager, this value inherits the long name from the resource file or from the System Library.
<b>Profile Name</b>	Indicates the original point name in the resource file if you imported the point using the System Library.
<b>Type</b>	Niagara point type.
<b>Enabled</b>	Determines if the point is enabled or disabled. True = Enabled. False = Disabled.
<b>Facets</b>	Defines the points facets. Facets determine how output values are formatted for display. For example, instead of True and False for a Boolean schedule, you may need On and Off instead. FX Workbench displays different facet options depending on the point type you select.
<b>Tuning Policy Name</b>	Specifies the tuning policy for the N2 proxy point.
<b>Device Facets</b>	Native facets used in proxy reads or writes.
<b>Conversion</b>	Conversion between read value (in Device Facets) and parent control point's output. Use the Standard Default conversion.
<b>Network Point Type</b>	Displays the N2 network point type (for example, Analog Input, Binary Input, Analog Output). The Network Point Type and the Network Point Address determines the point location on the N2 controller.
<b>Network Point Address</b>	Displays the network point address. The Network Point Type and the Network Point Address determines the point location on the N2 controller.



## FX CommPro N2 Download

Use FX CommPro N2 with the FX Supervisory Controller's Serial Tunnel functionality to commission Legacy N2 FX Field controllers (FX06, FX07, FX14, FX15, FX16). For FX CommProN2 to work properly with the Serial Tunnel:

- Ensure that when FX CommPro N2 tools starts and you are asked to specify a COM port, you enter a COM port that corresponds to the COM port specified in the setup for the Serial Tunnel.
- Verify that the COM port is not used by another Windows application.

FX CommPro Download displays the COM port selection from the FX CommPro tool

**Figure 79: FX CommPro Download**

The screenshot shows the 'FX CommPro - Commissioning tool N2Open Version -' window. It features a header with the 'FACILITY EXPLORER BY JOHNSON CONTROLS' logo. The main area contains three radio button options for connection types: 'RS232 on COM1', 'RS232 on COM2' (which is selected), and 'Lucent Win Modem on COM5'. Each option is accompanied by a 'Select Connection Type' dropdown and a 'Select Baud Rate' dropdown. For the selected 'RS232 on COM2', the connection type is 'N2 Open Connection' and the baud rate is '9600'. For the 'Lucent Win Modem on COM5' option, there is an 'Enter Number to Dial' text field and a 'Select Baud Rate' dropdown set to '9600'. At the bottom right, there are 'Connect' and 'Cancel' buttons.

**Note:** To download a legacy FX Field Controller in this manner, you must set the N2 Network timeout parameter to 1200 ms. If you do not set the timeout value, the download fails due to a communication timeout. For more information, see [Setting the Network Timeout in FX CommPro N2](#).

**Note:** If you connect to the N2 port via FX CommPro N2, you must set the Enabled property of the JciN2Network to false. This action allows FX CommPro N2 to communicate with the N2 trunk. The N2 cannot actively poll the trunk when attempting to download a controller on that trunk. After you finish with the configuration tool, make sure to set the Enabled property of the JciN2Network to true. This action allows normal N2 communication activity to resume.

## Serial Tunnel and HVAC Pro

Due to inconsistent behavior between HVAC Pro and the Serial Tunnel Service, HVAC Pro downloads are not supported.

## Serial Tunnel and GX9100 Programming Tool

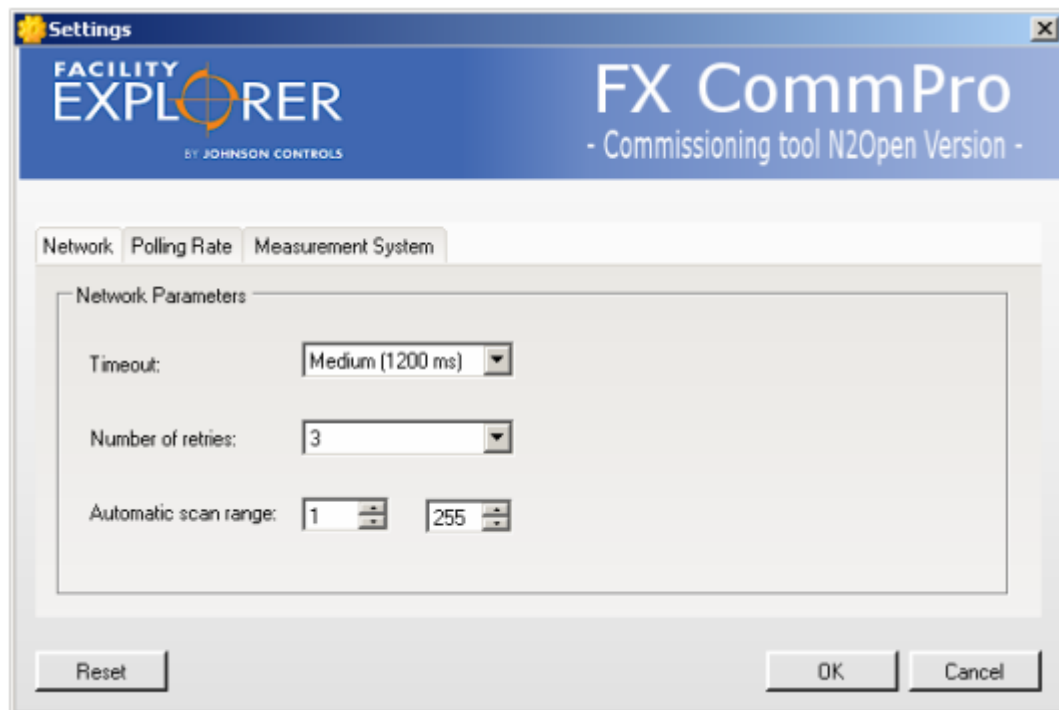
Due to inconsistent behavior between GX 9100 Programming Tool and the Serial Tunnel Service, GX 9100 downloads are not supported.

## Setting the Network Timeout in FX CommPro N2

Before you download a legacy N2 FX Field controller, you must set the N2 Network timeout parameter to 1200 ms. If you do not set the timeout value, the download fails due to a communication timeout. For more information, see [FX CommPro N2 Download](#).

1. Open FX CommPro N2.
2. On the Tools menu, click Edit Settings. The Settings dialog box appears.

**Figure 80: FX CommPro N2 Settings**



3. Set the time to Medium (1200 ms).
4. Click **OK**. Once you make this setting, a download of a legacy N2 FX Field Controller is tunneled from the FX CommPro N2 tool to the FX Supervisory Controller.

# Johnson Controls BACnet Device Integration

FX Supervisory Controllers use the Niagara BACnet® driver to integrate BACnet based devices, including Johnson Controls BACnet devices, into the Niagara environment. Additionally, FX Workbench includes unique features to assist you with integrating certain types of Johnson Controls BACnet devices. This section describes the features and procedures associated with integrating Johnson Controls BACnet devices into FX Supervisory Controller stations.

## Niagara BACnet Driver

The Niagara BACnet driver and its MS/TP component provides the mechanisms necessary to integrate Johnson Controls BACnet devices and their data into the Niagara environment.

To support this driver:

- The FX Supervisory Controller's host license must include support for the BACnet driver.
- The BACnet driver software module must be installed in the FX Supervisory Controller.
- The FX Supervisory Controller's BACnet driver must be properly configured for the Johnson Controls BACnet device and object integration.

## BACnet Driver and MS/TP Licensing

The BACnet driver and its MS/TP component are licensed features of the FX Supervisory Controller.

The FX Supervisory Controller's host license must include both the BACnet and MS/TP elements within the license, as follows:

- `<feature name=bacnet expiration=never schedule.limit=none export=true point.limit=none history.limit=none device.limit=none parts=LP-FX2021N-0/>`
- `<feature name=mstp expiration=never port.limit=5 parts=LP-FX2021N-0/>`

The port.limit parameter defines the maximum number of MS/TP trunks (the number of RS-485 ports on an FX Supervisory Controller) that can be used. You can order the BACnet and MS/TP features factory-installed into the FX Supervisory Controller's host license, or you can order the features separately and add them onto an existing FX Supervisory Controller's host license.

**Table 10: BACnet MS/TP Driver Ordering Codes**

Ordering Code	Description
LP-FX3021E-1	FX30 Supervisory Controller with BACnet MS/TP: Include 256 MB RAM, 128 MB Flash, 2 10/100 Mbps Ethernet ports, 1 non-isolated RS-485 port, 1 RS-232 port, 1 NDIO port, 2 communication option card option slots, embedded FX Workbench, Web User Interface, Data Recovery Services with SRAM, Niagara driver, oBix Driver, N2 driver, and BACnet MS/TP driver
LP-FX6021E-1	FX60E Supervisory Controller with BACnet MS/TP: Include 256 MB RAM, 128 MB Flash, 2 10/100 Mbps Ethernet ports, 1 non-isolated RS-485 port, 1 RS-232 port, 1 NDIO port, 2 communication option card option slots, embedded FX Workbench, Web User Interface, Data Recovery Services with SRAM, Niagara driver, oBix Driver, N2 driver, and BACnet MS/TP driver
LP-FX7021N-0	FX70 Supervisory Controller with 1 GB RAM/1 GB Flash, two 1 Gb Ethernet ports, one RS-485 serial port, one RS-232 serial port, two USB ports, two communication card option slots, internal battery backup, Niagara driver, N2 driver, BACnet MS/TP driver, oBix driver, embedded FX Workbench, embedded web UI
LP-FXBACMS-0	License update to add BACnet MS/TP driver feature to one FX Supervisory Controller

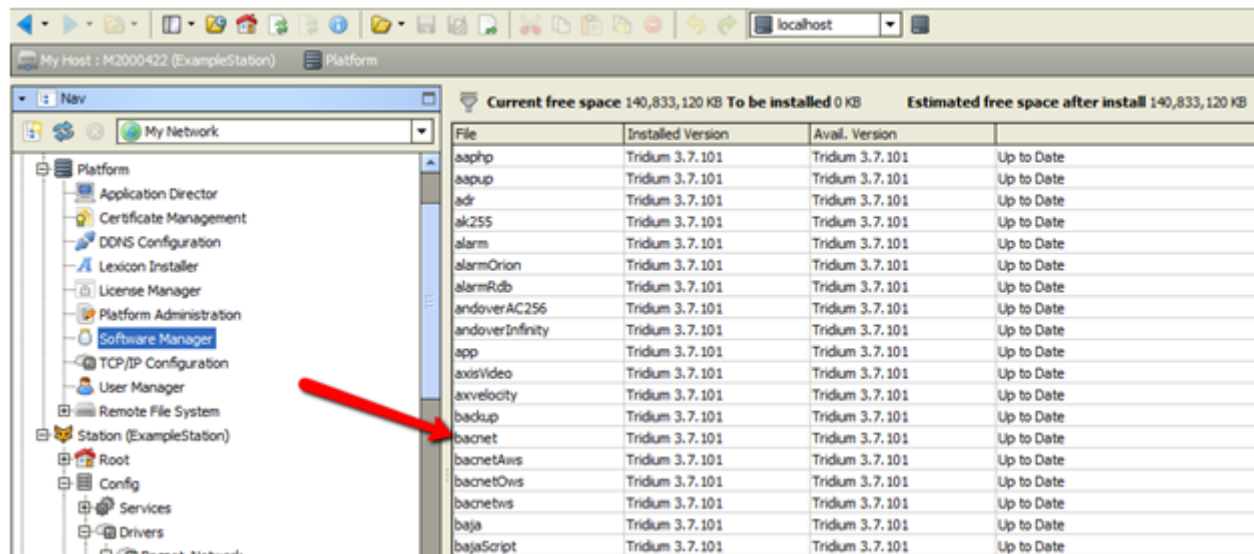
The EIA-485 (or RS-485) load factor parameter of connected MS/TP devices determines how many devices are physically supported per trunk due to electrical considerations. This attribute ranges from 31 (full load) up to 127 (quarter load) devices. FX-PC controllers are quarter load devices. Therefore, the maximum number of FX-PC controllers electrically supported by a single FX Supervisory Controller trunk is 127.

**Note:** Other factors may limit the actual number of supported FX-PC controllers on a trunk.

## BACnet Driver Software Installation

The BACnet driver capability is provided by the BACnet software module (bacnet.jar file). FX Supervisory Controllers come with the BACnet software module already installed. Normally, you do not need to install this software module. If the BACnet software module is not installed, use FX Workbench's Software Manager to install it.

**Figure 81: Software Manager Showing BACnet Module Installed**



## Configuring a BACnet Integration for FX-PC Controllers

This section provides the procedures to configure the Niagara BACnet driver's client functions to integrate FX-PC controllers into an FX Supervisory Controller. You configure the BACnet driver by performing the following main tasks:

1. Add the BACnet network.
2. Configure the BACnet local device.
3. Create BACnet device components.

### Adding a BACnet Network to the Station

You can add a BACnet network to the station in one of two ways. You can add a BACnet network while you are creating a new station using the New JCI Station wizard, or you can manually add a BACnet network.

1. Double-click the station's Config > Drivers container. The Driver Manager appears.
2. Click **New**. The New Device Network dialog box appears.
3. In the Type to Add field, select **Bacnet Network**, and in the Number to Add field, enter 1.
4. Click **OK**. A dialog box to name the network appears.
5. If desired, change the name of the network. Leave the Type setting as Bacnet Network and Enabled setting to true.
6. Click **OK**. A BACnet Network named **BacnetNetwork** (or your desired name) now appears in your Drivers folder.

### Configuring the BACnet Local Device

1. Display the property sheet for the BACnet network, either by right-clicking Bacnet Network and select Views > Property Sheet or by using the View Selector.
2. In the Bacnet Network property sheet, click to expand Local Device. You can also use the Nav side bar and double-click Local Device.

3. In the Object Id field, change the entry from -1 (driver inoperative) to a valid BACnet Device instance number.  
This number must be unique across the entire BACnet internetwork (range is 0 to 4,194,302). Most other Local Device properties are status (read-only) types reflective of the station's BACnet device capabilities.

**Figure 82: Local Device Properties**

Local Device (Local BACnet Device)	
Status	{ok}
Fault Cause	
Object Id	device
System Status	Operational
Vendor Name	Tridium
Vendor Id	36
Model Name	NiagaraAX Station
Firmware Revision	3.7.101
Application Software Version	Tridium 3.7.101
Location	unknown
Description	Local BACnet Device object

4. Click **Save**. The Status should change from {fault} to {ok}. The Fault Cause should change from Invalid Object ID to blank.

## Adding and Configuring the Network Ports

By default, a new BACnet network contains a Bacnet Comm component supporting BACnet/IP. In addition, you need to add and configure at least one MS/TP port to integrate FX-PC controllers.

To add and configure the network ports:

1. In the Bacnet Network property sheet, expand Bacnet Comm > Network. You can also select these items using the Nav side bar.
2. Open the **bacnet** palette in the FX Workbench palette side bar.
3. In the **bacnet** palette, expand the Network Ports folder.
4. Drag the MstpPort from the **bacnet** palette and drop it into the Network container. A Name dialog box appears.
5. In the Name dialog box, rename the port or use the default name (MstpPort).
6. Click OK to add the MstpPort. If needed, repeat to add additional MstpPort ports.
7. Expand the MstpPort in the property sheet view.

**Figure 83: MstpPort Property Sheet**

The screenshot shows the 'MstpPort' property sheet for a BACnet network. The 'Network' section is expanded, showing the 'MstpPort' component. The 'Network Number' is set to 2001. The 'Link' section is expanded, showing 'Port Name' as COM1, 'Baud Rate' as Baud\_38400, 'Mstp Address' as 0, 'Max Master' as 127, and 'Max Info Frames' as 20. The 'Status' is [ok], 'Fault Cause' is empty, 'Poll Service' is BacnetMultPoll, 'Max Devices' is MAX, and 'Enabled' is false.

8. Set the Network Number from its default -1 (inoperative) to the actual BACnet network number for the network segment to which you are connecting. For an existing BACnet installation, make sure to use the same network number already in use. For a new BACnet installation, you can choose this number.
9. Expand the Link component in the property sheet.
10. Configure the Link component properties. Use [Table 11](#) as a reference.

**Table 11: BACnet Mstp Link Layer Property Configuration Guidelines**

Property	Entry/Selection Guidelines
<b>Port Name</b>	Change the Port Name property from its default (COM1) to the actual COM port for the desired physical RS-485 trunk on the FX Supervisory Controller. Refer to the FX Supervisory Controller's installation instructions for the COM port assignments for the RS-485 serial ports.
<b>Baud Rate</b>	Change the Baud Rate property from its default (Baud_9600) to the desired baud rate for the MS/TP network. We recommend using Baud_38400 for networks of FX-PC controllers.
<b>Mstp Address</b>	Set the MS/TP Address property to a unique BACnet MAC address on the MS/TP trunk, in decimal, with valid range from 0 (default and recommended) to 127. Each BACnet controller on the MS/TP network segment must have a unique MAC address. Typically, you leave the MS/TP Address property at 0 (the default), and verify that no other MS/TP device on the trunk is addressed the same. If a token is lost, the device with the lowest MAC address regenerates the token (and in this case it is the FX Supervisory Controller).
<b>Max Masters</b>	Set the Max Master property to the lowest known master device address on the network, with possible room for expansion if needed.
<b>Max Info Frames</b>	Set the Max Info Frames property to the desired value (from 1-100). Max Info Frames controls how many messages are sent before passing the token, and you can increase the number up to 100 to increase performance in some cases.

11. Click Save.

12. Right-click MstpPort and select Actions > Enable.

## Creating BACnet Device Components

After configuring the BACnet Network network ports, you can use online discovery to find and create BACnet device components under Bacnet Network. Alternatively, you can manually add BACnet device components to the station.

You use the BACnet network Bacnet Device Manager view.

## Using Online Discovery to BACnet Controllers as BACnet Devices

Using online discovery is the easiest way to accurately populate the station with the necessary configured BACnet device objects. Using online discovery requires that the FX Supervisory Controller be physically connected to a live network of BACnet controllers. Follow these instructions to use online discovery to create BACnet device objects.

1. Display the Bacnet Device Manager either by right-clicking the BACnet Network and selecting Views > Bacnet Device Manager or by using the View Selector.
2. Click Discover to automatically locate the BACnet controllers on the network. A Configure Device Discovery dialog box appears. By default, discovery occurs for all possible BACnet controllers connected on locally connected networks. Depending on the size of your BACnet network, you may want to limit the discovery to only those devices within a certain instance ID range, on a specific network, or which respond within a specified time.

3. Click OK. A progress bar appears at the top of the view and updates as the discovery occurs.

When the discovery process completes, the discovered BACnet controllers appear in the top pane of the view. The bottom Database pane lists all BACnet controllers currently mapped into the FX Supervisory Controller station. Initially, this table appears empty.

4. Map the discovered BACnet controllers in the station. You can do this in the following ways:

**Table 12: BACnet Device Properties**

BACnet Device Property	Entry/Selection Guidelines
<b>Name</b>	This field reflects the learned Object_Name property from the BACnet controller's sole Device object. If desired, you can edit this field. This is only the Niagara component name for this device, and changing it does not affect the name in the remote BACnet controller. <b>Note:</b> Any slash (/) character is replaced by a period (.) in the Niagara name.
<b>Type</b>	This field represents the specific type of BACnet device. Typically, the only available selection is BACnet device.
<b>Device ID</b>	This field reflects the BACnet Object_Identifier learned from the BACnet controller. Editing does not affect the device's ID, only the ID used by Niagara to identify and access this device.
<b>MAC Addr</b>	This field reflects the data link layer MAC address learned for this device.
<b>Enabled</b>	This status flag indicates whether the FX Supervisory Controller is enabled for communications to the BACnet controller.

**Table 12: BACnet Device Properties**

BACnet Device Property	Entry/Selection Guidelines
<b>Use Cov</b>	<p>This setting specifies whether the FX Supervisory Controller attempts to subscribe for COV notifications as a way to monitor proxy point values.</p> <ul style="list-style-type: none"> <li>If the BACnet controller was learned, and the FX Supervisory Controller determined that the device indicates support for server-side COV, this flag defaults to true.</li> <li>Otherwise, this setting is false. In this case, no proxy points under the device use COV.</li> </ul> <p><b>Note:</b> If true, then individual proxy points under the device may use COV subscriptions, depending on their assigned tuning policy.</p>
<b>Max Cov Subscriptions</b>	<p>This setting applies only if Use Cov is true and specifies the maximum number of COV subscriptions that the FX Supervisory Controller attempts to use with this device. This setting prevents the station from consuming all of the available subscription space in that device.</p>

- Click OK. The BACnet device is added to the station and appears in the Database pane.

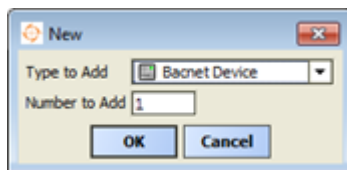
## Manually Adding BACnet Device Components

Manually adding BACnet controllers as BACnet device components is an alternative method to using online discovery. This manual process lets you add BACnet device components when the FX Supervisory Controller station is not yet communicating with live BACnet controllers on a BACnet network. To manually add a BACnet device, you can use the Device Manager's new device wizard, or you can drag and drop (or copy and paste) a BACnet Device from the BACnet palette.

### Adding a BACnet Device Using New Device Wizard

- Display the Bacnet Device Manager either by right-clicking the BACnet network and selecting Views > Bacnet Device Manager or by using the View Selector.
- Click New. The New dialog box appears.

**Figure 84: New BACnet Device Dialog Box**



- In the Type to Add field, select Bacnet Device.
- Enter the desired number of devices to add (the default value is 1).
- Click OK. The New dialog box appears.



**Figure 85: New BACnet Device Dialog Box**

6. Edit the configuration of the BACnet device component before you add the device to the station. This New dialog box is similar to the Add and Edit device dialog boxes, but in this case, values are not pre-populated from any discovery process. Use [Table 13](#) to configure these properties according to the BACnet controller that you want to add.

**Table 13: BACnet Device Property Configuration Guidelines**

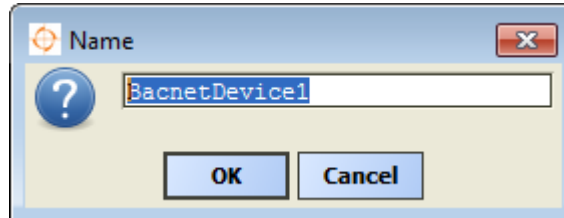
BACnet Device Property	Entry and Selection Guidelines
<b>Name</b>	Enter the desired BACnet device name. You can enter any name you want. This is only the Niagara component name for this device; your entry here does not affect the name in the remote BACnet controller.
<b>Type</b>	Select the specific type of BACnet device. Typically, the only available selection is <b>Bacnet Device</b> .
<b>Device ID</b>	Enter the BACnet Object_Identifier of the desired FX-PC controller. Your entry here does not affect the BACnet controller's Object ID. The Device ID is used by Niagara to identify and access the BACnet controller.
<b>MAC Addr</b>	Enter the data link layer MAC address for the desired BACnet controller.
<b>Enabled</b>	Select true to enable the FX Supervisory Controller for communications to the BACnet controller.
<b>Use Cov</b>	<p>This setting specifies whether the FX Supervisory Controller attempts to subscribe for COV notifications, as a way to monitor proxy point values.</p> <ul style="list-style-type: none"> <li>If set to true, the FX Supervisory Controller determines that the BACnet controller supports server-side COV.</li> <li>If set to false, no proxy points under the BACnet controller device use COV.</li> </ul> <p><b>Note:</b> If set to true, then individual proxy points under the device may use COV subscriptions, depending on their assigned tuning policy.</p>
<b>Max Cov Subscriptions</b>	This setting applies only if Use Cov is true and specifies the maximum number of COV subscriptions that the FX Supervisory Controller attempts to use with this device. This setting prevents the station from consuming all of the available subscription space in that device.

7. After you have a BACnet device component configured properly for your usage, click OK. The BACnet device is added to the station, and appears listed in the Database pane.

## Adding a BACnet Device From The Bacnet Palette

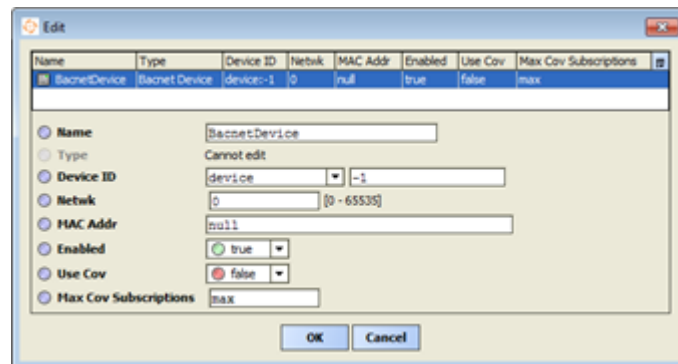
1. Open the **bacnet** palette in the FX Workbench palette side bar.
2. Drag a BACnet device from the **bacnet** palette and drop it into the Database pane of the Bacnet Device Manager or under the Config > Drivers > Bacnet Network. A Name dialog box appears and prompts you to enter BACnet device component name.

Figure 86: Name Dialog Box



3. Enter the desired name and then click OK. The BACnet device is added to the station and appears in the Database pane.
4. To edit the device properties, double-click the newly added BACnet device. The Edit dialog box appears.

Figure 87: Edit Dialog Box



**Note:** The Edit dialog box is nearly identical to the New dialog box. The only difference is that the Type field is not editable. Use [Table 14](#) to configure these properties according to the BACnet controller that you want to add.

5. Click OK. The BACnet device is added to the station and appears in the Database pane.

## Matching Manually Added BACnet Devices to Discovered BACnet Controllers

Once a BACnet device has been manually added to the FX Supervisory Controller station database, you can then use the Match function (found in the Bacnet Device Manager) to match that BACnet device component to a discovered BACnet controller. This process copies essential configuration (learned in the discovered BACnet controller) into the selected BacnetDevice component.

1. If the Discovered device table is empty, perform the Discover task.
2. Select one BACnet device in the Discovered table and one BACnet device in the Database table.
3. Click Match to match the devices. The Match dialog box appears.

The Match dialog box is similar to the Add Device dialog box, where values are pre-populated from the online discovery. The only difference is that you cannot edit the Type field. You can also type **m** for a Quick Match. Doing this bypasses the Match dialog box and the match is made in the station database.

4. Edit the device properties as needed.
5. Click OK. The discovered device appears dimmed, indicating that the device is represented in the station database as a BACnet device component.

## JCI Bacnet Import Manager

Once a BACnet device has been created per the previous steps, you use FX Workbench's JCI Bacnet Import Manager to complete the integration.

The JCI Bacnet Import Manager provides an efficient mechanism to complete BACnet controller integration tasks that, if performed manually, would be very time consuming. The JCI Bacnet Import Manager uses the BACnet controller's resource file and an associated System Library to perform the following tasks:

- Identify which points are inside the device and should be added to the station as proxy points
- Identify which Px file and Hx template file should be associated to the device
- Create a Px and Hx view for the device
- Bind points to the symbols in the Px and Hx views
- Identify which extensions (history, alarm, totalization) should be added to each point

The process by which the JCI Bacnet Import Manager performs these tasks depends on the type of BACnet controller and its available resource file. See [Table 14](#) to understand which Johnson Controls BACnet controllers support the JCI Bacnet Import Manager and their available resource files.

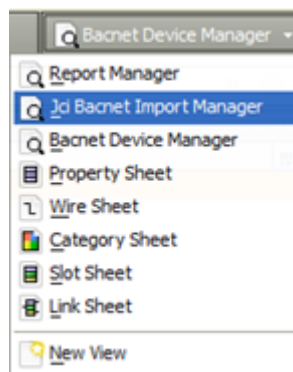
**Table 14: Johnson Controls BACnet Controllers Supported by the Import Manager**

BACnet Controller Type	Description	Resource File Type
<b>FX07 (Fitted with a BACnet communication card)</b>	FX07 Field Controller	APD
<b>FX14 (Fitted with a BACnet communication card)</b>	FX14 Controller	APD
<b>FX16 (Fitted with a BACnet communication card)</b>	FX16 Master Controller	APD
<b>FX-PCVx6xx</b>	FX-PCV Programmable VAV Box Controller	CAF
<b>FX-PCGx6xx</b>	FX-PCG General Purpose Programmable Controller	CAF
<b>FX-PCAx6xx</b>	FX-PCA Advanced Application Programmable Controller	CAF
<b>FX-PCXx7xx</b>	FX-PCX Expansion Input/Output Module	CAF
<b>WT-4000</b>	WT-4000 Series Pneumatic-to-Direct Digital Control (DDC) Room Thermostats	CSV

## Using the JCI Bacnet Import Manager

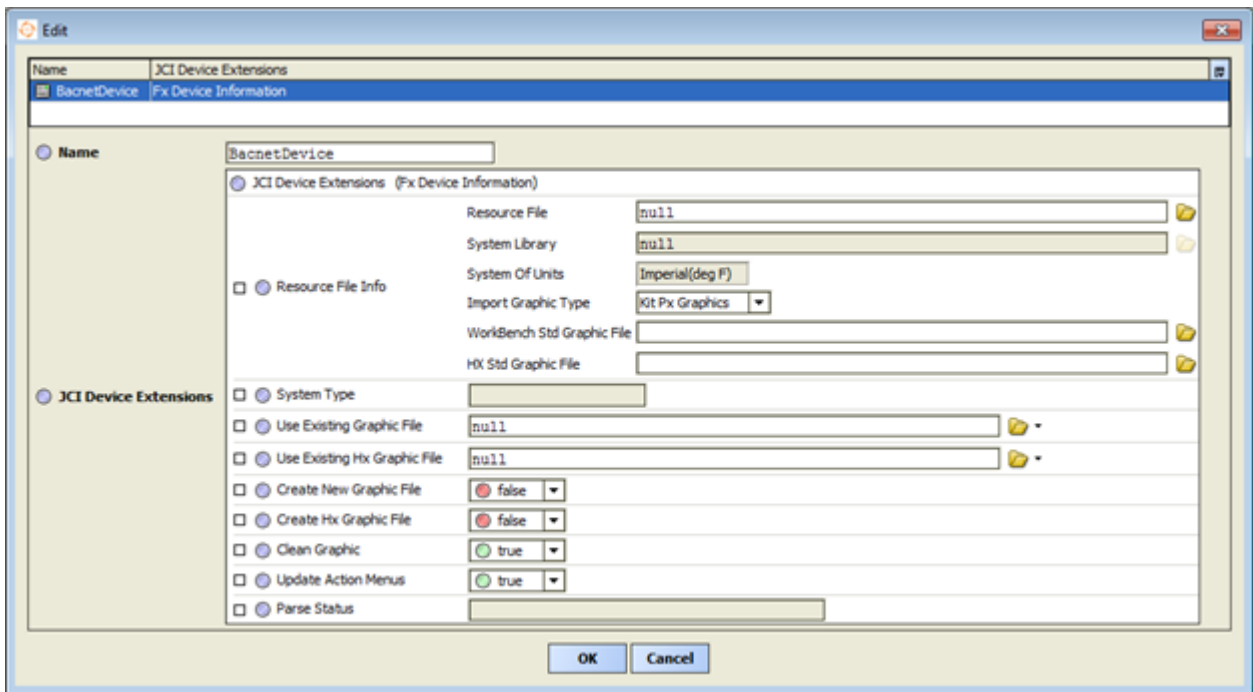
1. After you have added the BACnet device, use the View Selector to open the JCI Bacnet Import Manager. A list of devices appears.

**Figure 88: Selecting the JCI Bacnet Import Manager**



2. Select the desired devices and click Edit (or double-click the desired device). An Edit dialog box appears.

**Figure 89: JCI Bacnet Import Manager Edit Dialog Box**



3. Enter the requested information using [Table 15](#) as a reference:

**Table 15: JCI Bacnet Import Manager Properties**

Property	Descriptions
<b>Name</b>	Enter the name of the device as you want it to appear in the station.
<b>Resource File</b>	Use the file chooser to select the .caf, .apd, or .csv file that matches the actual application loaded in the controller.
<b>System Library</b>	This field self-populates from information in the resource file. You can select an alternative system library by selecting the library using the file chooser.
<b>System Of Units</b>	This field is read-only and displays either SI (Metric) or Imperial, as identified in the file.
<b>Import Graphic Type</b>	Use this field to select the desired graphic type. Select Kit Px HVAC to select the graphic template that uses the original Niagara graphic symbols. Select Kit Px Graphics to select the graphic template that uses the new Niagara graphic symbols released as part of NiagaraAX release 3.7. <b>Note:</b> You can set your desired default graphic type selection under the Tools > Options > JCI Options menu item.
<b>Workbench Std Graphic File</b>	Use this field to select a Px graphic file different from the default selection.
<b>Hx Std Graphic File</b>	Use this field to select an Hx graphic file different from the default selection.
<b>System Type</b>	This field is read-only and indicates if a standard system type is defined in resource file.
<b>Use Existing Graphic File</b>	Use this field if you want to reuse (alias) an existing Px graphic associated with another device. If you want to associate the device with an existing Px graphic file, browse to the location of the file and select it. If you do not want to reuse an existing graphic, then leave as null.

**Table 15: JCI Bacnet Import Manager Properties**

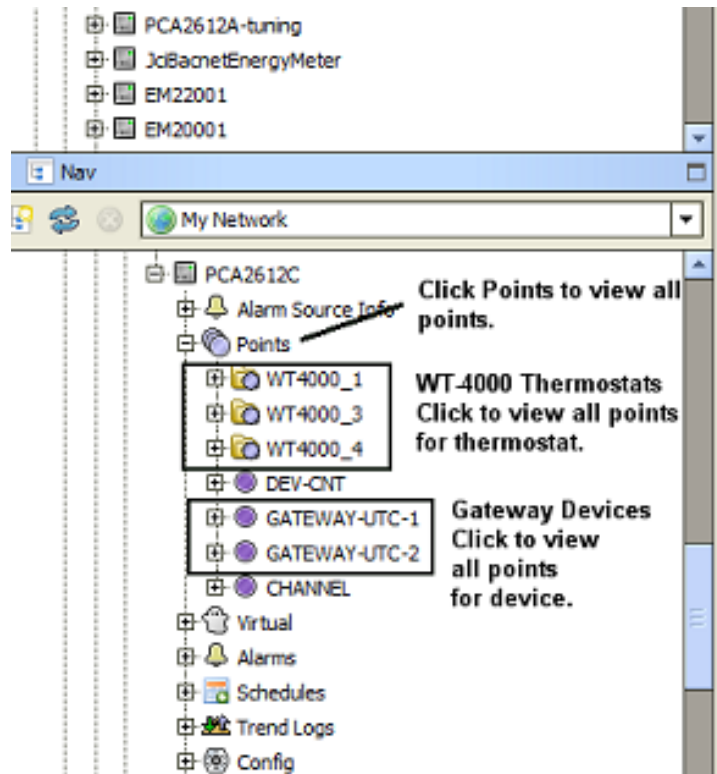
Property	Descriptions
<b>Use Exiting Hx Graphic File</b>	Use this field if you want to reuse (alias) an existing Hx graphic (iPhone®/iPod touch® graphic) associated with another device. If you want to associate the device with an existing Hx graphic file, browse to the location of the file and select it. If you do not want to reuse an existing graphic, then leave as null.
<b>Create New Graphic File</b>	Use this field to select whether you want FX Workbench to create a new Px graphic file (select <b>true</b> ) or not (select <b>false</b> ).  <b>Note:</b> If you want to create a graphic with an empty canvas, select true and select OtherGraphic.px in the Workbench Std Graphic File field.
<b>Create New Hx Graphic File</b>	Use this field to select whether you want FX Workbench to create a new Hx (iPhone/iPod touch friendly) graphic file (select <b>true</b> ) or not (select <b>false</b> ).
<b>Clean Graphic</b>	Use this field to select whether you want FX Workbench to clear unused points from a graphic (select <b>true</b> ) or not (select <b>false</b> ).
<b>Update Action Menus</b>	Use this field to select whether you want FX Workbench to customize the Action menus for the Boolean points using FX Workbench facets (select <b>true</b> ) or not (select <b>false</b> ). For example, instead of Active and Inactive, FX Workbench can customize the Action menu to the facets of the point (Override to On and Override to Off).
<b>Parse Status</b>	This field is read-only and displays the parsing status. If a problem occurs with parsing the file, the problem appears in this field.

- Click OK. FX Workbench adds the proxy points, creates the desired Px or Hx graphic views, binds points to the symbols in the Px and/or Hx views, and adds the appropriate extensions.

#### **WT-4000 Device Imports**

After you use the JCI Bacnet Import Manager to add a WT-4000 thermostat device (using a .csv file), FX Workbench organizes the points according to the Gateway device and thermostats. You can view points that are specific to one thermostat, or you can view all the points in the BACnet device at once.

**Figure 90: Nav Side Bar - WT-4000 Points**



You can also view where the points are located in the Point Extension Manager.

**Figure 91: Point Extension Manager - WT-4000 Points**

The screenshot shows the 'Points for: PCA2612C' window. The left sidebar contains a tree view with the following items: StationLON1, StationBAC1, works, Network, Device, et Comm, or, g Policies, 612A, 621A, 621, 611A, 615A, Meter, 612A-tuning, cnetEnergyMeter, 001, 001, and ly Network. The main table lists the following points:

Name	Description	Value
UTC-1_WT4000_1	UTC Time High 16 Bits	0.0 {fault,stal
UTC-2_WT4000_1	UTC Time Low 16 Bits	0.0 {fault,stal
ZN-T_WT4000_1	Zone Temperature	0.0 °F {fault,s
BLP-R_WT4000_1	Branch Line Pressure Requested	0.0 psi {fault,s
BLP-M_WT4000_1	Branch Line Pressure Measured	0.0 psi {fault,s
MODE_WT4000_1	Current Mode	0.0 {fault,stal
ZN-SP-U_WT4000_1	Zone Setpoint User	0.0 °F {fault,s
INSF-PRESS_WT4000_1	Insufficient Pressure Value	0.0 psi {fault,s
HOP-CNT_WT4000_1	Hop Count	0.0 {fault,stal
RSSI_WT4000_1	Radio Recieved Signal Strength	0.0 {fault,stal
BATTERY_WT4000_1	Battery Voltage	0.0 V {fault,st
DEV-TYP_WT4000_1	Device Type	0.0 {fault,stal
HTG-S_WT4000_1	Heating Status	Off {fault,stal
CLG-S_WT4000_1	Cooling Status	Off {fault,stal
FAN-S_WT4000_1	Fan Status	Off {fault,stal
OVERRIDE_WT4000_1	Override Button Pressed	Off {fault,stal
SETBACK_WT4000_1	Setback Button Pressed	Off {fault,stal
OCC-SHLDR-MODE_WT4000_1	Occupied Sensor Shoulder Mode	Off {fault,stal
MODE-R_WT4000_1	Mode Requested	0.0 {fault,stal
CMFT-UPPER_WT4000_1	Comfort Upper Delta	0.0 °F {fault,s
CMFT-LOWR_WT4000_1	Comfort Lower Delta	0.0 °F {fault,s
HTG-CLG-D_WT4000_1	Heating Cooling Delta	0.0 °F {fault,s
CNST-LIBBER_WT4000_1	Constrained Upper Delta	0.0 °F {fault,s

## Tuning Policy Guidelines for FX-PC Controllers

The BACnet network's tuning policies are the rules for evaluating both write requests (for example, to writable proxy points) as well as the acceptable freshness of read requests from polling. Tuning policies are important because they can affect the status of the driver's proxy points.

### BACnet Network Tuning Policy Properties

BACnet Networks come with the default tuning policy (DefaultPolicy) and five additional predefined tuning policies (PersistedSlowPolicy, HardwareFastPolicy, HardwareNormalPolicy, NetworkInputPolicy, and NetworkInputPeer). If necessary, you can also create additional tuning policies and adjust the tuning policy properties.

**Table 16: BACnet Network Tuning Policy Properties Descriptions**

Property	Descriptions
<b>Min Write Time</b>	Applies to writable proxy points, especially ones that have one or more linked inputs. Specifies the minimum amount of time allowed between writes. Provides a method to throttle rapidly changing values so that only the last value is written. If this property value is 0 (default), this rule is disabled. All value changes enable writes.
<b>Max Write Time</b>	<p>Applies to writable proxy points. Specifies the maximum wait time before rewriting the value, in case nothing else has triggered a write. Any write action resets this timer. If the property value is 0 (default), this rule is disabled (no timed rewrites).</p> <p><b>Note:</b> Setting this to a specific value (for example, 10 minutes) may be useful. Often, a network may have devices that upon a power cycle (or even a power bump), have writable points that reset to some preset default value or state. Note that often in a site-wide power bump of a few seconds, such field controllers (devices on the network) typically reset, but an FX Supervisory Controller continues normal operation on backup battery. Since the network's default monitor ping is usually 5 minutes, the station (network) may never mark these devices as down, such that a Write On Up does not occur.</p> <p>Here, if a writable point represents an AHU or chiller that defaults to unoccupied following a device reset, the load never restarts until the next day, when the schedule toggles. You can correct this issue by assigning the point to a tuning policy that does have a configured Max Write. At the same time, realize that many networks may be configured such that multiple masters may be issuing conflicting writes to one or more points in a device. Exercise caution with this property in this case, to avoid write contention that could result in toggling loads.</p>
<b>Write on Start</b>	<p>Applies to writable proxy points. Determines behavior at station startup.</p> <ul style="list-style-type: none"> <li>• If set to <b>true</b> (default), a write occurs when the station first reaches steady state.</li> <li>• If set to <b>false</b>, a write does not occur when the station reaches steady state.</li> </ul> <p><b>Note:</b> Consider setting this to false in most tuning policies, except for tuning policies selectively assigned to more critical writable proxy points. This is particularly important for large networks with many writable proxy points. For example, a BACnet network with 4,000 writable proxy points, if configured with only the Default Tuning Policy (at default values), upon station startup attempts to write to all 4,000 points, putting a significant load on the station. As a consequence, in this scenario, the BACnet driver (network) may generate write queue overflow exceptions.</p>
<b>Write on Up</b>	<p>Applies to writable proxy points. Determines behavior when a proxy point (and the parent device) transitions from down to up.</p> <ul style="list-style-type: none"> <li>• If set to <b>true</b> (default), a write occurs when the parent device transitions from down to up.</li> <li>• If set to <b>false</b>, a write does not occur when the parent device transitions from down to up.</li> </ul>



**Table 16: BACnet Network Tuning Policy Properties Descriptions**

Property	Descriptions
<b>Write on Enabled</b>	<p>Applies to writable proxy points. Determines behavior when a proxy point's status transitions from disabled to normal (enabled).</p> <ul style="list-style-type: none"> <li>• If set to <b>true</b> (default), a write occurs when the writable point transitions from disabled.</li> <li>• If set to <b>false</b>, a write does not occur when the writable point transitions from disabled.</li> </ul> <p><b>Note:</b> The disabled-to-enabled status transition can be inherited globally by points (if the parent device is set to disabled) or network-wide (if the driver network is set to disabled). Therefore, be aware that if left at true in tuning policies, all associated writable points receive a write upon either the device or network when it transitions from disabled to enabled status.</p>
<b>Stale Time</b>	<p>If set to a non-zero value, points become stale (status stale) if the configured time elapses without a successful read, indicated by Read Status ok.</p> <p>If set to zero (default), the stale timer is disabled, and points become stale immediately when unsubscribed.</p> <p>By default, proxy point status stale is indicated by a tan background color. In addition, stale status is considered invalid for any downstream-linked control logic.</p> <p><b>Note:</b> We recommend that you specify the stale time to be at least three times the expected poll cycle time. Most peer-to-peer networks do experience collisions and missed messages. You may see nuisance stale statuses if you set the stale time too short. If a message is missed for some reason, then another poll cycle time or two is allowed for the message to be received before setting the stale flag.</p>
<b>Poll Frequency</b>	<p>Provides a method to associate the tuning policy with one of three Poll Rates available in the network's Poll Service: Fast Rate, Normal Rate, or Slow Rate. The default poll frequency is Normal.</p> <p><b>Note:</b> Depending on the driver, there may be a single Poll Service (or Poll Scheduler) slot under the network, or as in the case of a BACnet network, a separate Poll Service for each configured port (IP, Ethernet, Mstp) under its BacnetComm &gt; Network container. The NiagaraNetwork uses subscriptions instead of polling.</p>
<b>Use COV</b>	<p>Default is <b>False</b>.</p> <p>If set to <b>True</b>, and assigned proxy points are under a BacnetDevice that supports the Subscribe COV service, any necessary updates are attempted using BACnet COV subscriptions to the device.</p> <p>If the subscription attempt succeeds, the Read Status property of the point's BacnetProxyExt displays COV.</p> <p>If the subscription attempt for a proxy point fails, normal polling is used, and the Read Status property shows Polled.</p>

**Table 16: BACnet Network Tuning Policy Properties Descriptions**

Property	Descriptions
<b>Use Confirmed COV</b>	<p>If Use Cov is enabled (True) and assigned proxy points are under a BACnet device that supports Confirmed COV notifications, any necessary updates are attempted using BACnet Confirmed COV subscriptions to the device.</p> <p>If Use Cov is disabled (<b>False</b>), it makes no difference what this property value is.</p> <p>The default value is <b>True</b>.</p>
<b>COV Subscription Lifetime</b>	<p>The lifetime, in minutes, for which Niagara subscribes for COV notifications. Then (if necessary) periodically re-subscribes occur. A value of zero means an indefinite lifetime, although this is not guaranteed to persist across resets of the server device.</p> <p>The default value is 15 minutes.</p>

### Special Tuning Notes about the Stale Time Property

Never set the Stale Time property in a Tuning Policy shorter than the poll cycle time, otherwise points go stale in the course of normal polling. Instead, set the stale timer to be longer than the largest expected poll cycle time. This period can vary depending on how many Px graphics you view.

For each point, the stale timer is measured from the last time the point was updated. For example, if you have a 10-minute stale timer and an 8-minute poll cycle time, you have some points with values nearly 8 minutes old. If you stop polling, those points go stale roughly 2 minutes after polling has stopped, and not 10 minutes.

This scenario has resulted in some confusion, where the expectation was that after viewing a graphic, any points in it should stay up for the 10 full minutes (or the configured Stale Time) before going stale. However, the actual time depends on how long ago they were last polled.

### Using BACnet Network Tuning Policies

For a BACnet network, you typically create multiple tuning policies to achieve the following benefits:

- You can apply different tuning policies according to the source point's application usage.
- You can apply different tuning policies to accommodate multiple BACnet networks (each with different performance capabilities). For example, you would likely use a different tuning policy for points under a BACnet MS/TP than for points under a BACnet IP network.
- You can apply different tuning policies to provide support for change of value (COV) notification for COV-capable devices. You typically add at least one tuning policy that has its Use Cov property set to True (and possibly with other adjustments). Then, when adding or editing proxy points under these devices, you can specify the use of this (COV-specific) tuning policy.

In addition to the default tuning policy (DefaultPolicy), FX Workbench includes five additional predefined tuning policies (PersistedSlowPolicy, HardwareFastPolicy, HardwareNormalPolicy, NetworkInputPolicy, and NetworkInputPeer) for use with Johnson Controls FX-PC Programmable Controllers. If necessary, you can also create additional tuning policies:

## Predefined Tuning Policies for BACnet Devices

Table 17: Predefined Tuning Policies for BACnet Devices

Configuration Property	DefaultPolicy	Persistent SlowPolicy	Hardware FastPolicy	Hardware NormalPolicy	Network InputPolicy	Network InputPeerPolicy
Min Write Time	0	0	0	0	1	0
Max Write Time	0	0	0	0	10	0
Write on Start	true	false	false	false	true	false
Write on Up	true	false	false	false	true	false
Write on Enabled	true	false	false	false	true	false
Stale Time	0	0	0	0	0	0
Poll Frequency	Normal	Slow	Fast	Normal	Normal	Normal
Use Cov	false	false	false	false	false	false
Use Confirmed Cov	true	true	true	true	true	true
Cov Subscription Lifetime	15 minutes	15 minutes	15 minutes	15 minutes	15 minutes	15 minutes

## Assigning a Tuning Policy to a BACnet Point

By default, the Tuning Policy column is hidden in the Point Extension Manager. To assign a tuning policy to a point, you need to add the Tuning Policy column to the Point Extension Manager.

**Note:** You can add the Tuning Policy column **only** from the device Point Extension Manager or the point Property Sheet. The Tuning Policy column is not available in the Global Point Extension Manager.

1. In the Navigation Tree, double-click the desired BACnet device.
2. On the menu on the top-right side of the screen, select Point Extension Manager. The Point Extension Manager appears. By default, the Tuning Policy column is hidden.
3. In the far top right of the screen, click the arrow button next to the columns. A menu appears.
4. Select Tuning Policy. The Tuning Policy column appears on the screen with the Tuning Policy currently associated with each point displayed.
5. In the Tuning Policy column, click in the cell or cells for the points you want to change and select the tuning policy you want from the list. The following table lists the recommended tuning policies for FX-PC controllers.

Table 18: BACnet Network Tuning Policy Properties Guidelines for FX-PC Controllers

Tuning Policy	Application
Default	Monitor only inputs
Hardware Fast	Critical hardware inputs used for slave or control
Network Input	Network variable inputs connect to critical
Internal Persisted Slow	Internal module relinquish defaults
Hardware Normal	Hardware inputs

6. Click Save.

## Automatic Station Component Creation

The JCI Import Managers use two different mechanisms to automatically create station components such as points, point extensions (alarms, histories, and totalizations), and graphical views (Px and Hx views). The type of mechanism used depends on the type of controller resource file identified during the import process.

**Table 19: Import Mechanism Used Based on Resource File Type**

Resource File Type	Controller Type	Import Mechanism
.prn	Legacy Metasys Application Specific Controllers (UNT, VAV, AHU, VMA14xx)  Legacy N2 FX Field Controllers (FX06, FX07, FX14, FX15, FX16)  <b>Note:</b> While referencing the .prn file for Legacy N2 FX Field Controllers is supported, we recommend that you reference the .apd file instead.	System Type
.dmo	DX-9100 Extended Digital Controller	System Type
.apd	Legacy N2 and BACnet FX Field Controllers FX06, FX07, FX14, FX15, FX16	System Library
.caf	FX-PC Programmable Controllers	System Library
.csv	WT-4100 Pneumatic to Direct Digital Control Room Thermostat	System Library

## System Type Mechanism

When referencing a .prn or .dmo resource file during the import process, FX Workbench uses the System Type to automatically create the station components.

Each system type in FX Workbench corresponds to a standard graphic. Double-click Graphic Templates in the Navigation side bar to locate the graphic.

**Note:** If you identify a resource file during the import process, the System Type is automatically determined. If you do not identify a resource file, or if you want to override the graphic selected by the System Type indicated by the resource file, then you should select a graphic in the FX Workbench Std Graphic File property. For the graphic to work correctly, standard point names must be used.

The System Types are used only for the legacy N2 controllers to select the standard graphic. The System Types are not used for any controller programmed using FX-PCT.

**Table 20: System Types**

System Type	Standard Graphic
Rooftop Applications	Rooftop
Packaged Rooftop	Rooftop
Unit Vent	UnitVentilator
Fan Coil	FanCoil
TC Fan Coil	TCFanCoil
Heat Pump	HeatPump
Heat Pump (TEC)	FcuRtuTEC
Single Duct	VavSingleDuct
Dual Duct	VavDualDuct
VMA Single Duct	VmaSingleDuct
VMA Dual Duct	VmaDualDuct
Air Handlers MA Single Path	MixedAirSingleDuct
Air Handlers MA Dual Duct	MixedAirDualDuct
Air Handlers 100% OA Single Path	100PctOASingleDuct
Air Handlers 100% OA Dual Path	100PctOADualDuct
Rooftop Unit (UNT)	Rooftop
Damper Assembly (VAV)	VavSingleDuctCZP
Damper Assembly (VMA)	VmaSingleDuctCZP
FCU-Rooftop (TEC)	FcuRtuTEC
FX Zoning Package	FXZoning
CAB UH/2 Pipe/Perim Equip (TEC)	CabUH2PipePerimTEC
VS Series VFD	VSSeriesVSD
Zoning Applications (TEC)	ZoningApplicTEC
AHU Mixed Air Single Duct	FXMASD
AHU 100% OA Dual Duct	FXOADD
AHU 100% OA Single Duct	FXOASD
Fan Coil Unit	FXFanCoilUnit
Heat Pump Unit	FXHeatPump
Unit Ventilator	FXUnitVentilator
Zoning Application	FXZoning

**Table 20: System Types**

System Type	Standard Graphic
Central Plant Heating System	FXHeatingSystem
Commercial Zoning Applications	Rooftop
Central Plant Secondary Pumping	FXSecPump
Other	Other

**Note:** Some configurations of VAV and VMA controllers include a fan as part of the system. If this is the configuration you have, you need to specify the System Override to the correct VAV/VMA graphics.

## PRN Resource Files

If the resource file is a .prn file, the graphic file (both Px and Hx) is selected from application information inside the .prn file. This information appears as the system type (added to the device after import). The import of .prn files does **not** use system libraries.

**Table 21: PRN Resource Files**

HVACPro System Type	FX System Type	PX Graphic File	HX Graphic File
<b>Rooftop</b>	Rooftop	RooftopGraphic.px	RooftopHx.px OtherHx.px
<b>Packaged Rooftop</b>	Rooftop	RooftopGraphic.px	RooftopHx.px
<b>Unit Vent</b>	UnitVentilator	UnitVentilatorGraphic.px	UnitVentilatorHx.px
<b>Fan Coil</b>	FanCoil	FanCoilGraphic.px	FanCoilHx.px
<b>TC Fan Coil</b>	TCFanCoil	TCFanCoilGraphic.px	TCFanCoilHx.px
<b>Heat Pump</b>	HeatPump	HeatPumpGraphic.px	HeatPumpHx.px
<b>Heat Pump (TEC)</b>	FcuRtuTEC	FcuRtuTECGraphic.px	FcuRtuTECHx.px
<b>Single Duct</b>	VavSingleDuct	VavSingleDuctGraphic.px	VavSingleDuctHxc.px
<b>Dual Duct</b>	VavDualDuct	VavDualDuctGraphic.px	VavDualDuctHx.px
<b>VMA Single Duct</b>	VmaSingleDuct	VMASingleDuctGraphic.px	VMASingleDuctHx.px
<b>VMA Dual Duct</b>	VmaDualDuct	VMADualDuctGraphic.px	VMADualDuctHx.px
<b>Air Handlers MA Single Path</b>	MixedAirSingleDuct	MixedAirSingleDuctGraphic.px	MixedAirSingleDuctHx.px
<b>Air Handlers MA Dual Path</b>	MixedAirDualDuct	MixedAirDualDuctGraphic.px	MixedAirDualDuctHxc.px
<b>Air Handlers 100% OA Single Path</b>	100PctOASingleDuct	100PctSingleDuctGraphic.px	100PctSingleDuctHx.px
<b>Air Handlers 100% OA Dual Path</b>	100PctOADualDuct	100PctDualDuctGraphic.px	100PctDualDuctHx.px
<b>Rooftop Unit (UNT)</b>	Rooftop	RooftopGraphic.px	RooftopHx.px
<b>Damper Assembly (VAV)</b>	VavSingleDuctCZP	VAVSingleDuctCZPGraphic.px	VAVSingleDuctCZPHx.px
<b>Damper Assembly (VMA)</b>	VmaSingleDuctCZP	VMASingleDuctCZPGraphic.px	VAVSingleDuctCZPHx.px
<b>FCU-Rooftop (TEC)</b>	FcuRtuTEC	FcuRtuTECGraphic.px	FcuRtuTECHx.px
<b>CAB UH/2 Pipe/Perim Equip (TEC)</b>	CabUH2PipePerimTEC	CabUH2PipePerimTECGraphic.px	CabUH2PipePerimTECHx.px
<b>Zoning Applications (TEC)</b>	ZoningApplicTEC	ZoningApplicTECGraphic.px	ZoningApplicTECHx.px
<b>VS Series VFD</b>	VSSeriesVSD	VSSeriesVSDGraphic.px	VSSeriesVSDHx.px
<sup>1</sup>	Other	OtherGraphic.px	OtherHx.px

<sup>1</sup> For N2 resources files that are not .prn, .apd or .caf files, or for a system type not on this list, the Other system type is used.

## HVAC PRO Graphics

Each standard graphic contains a default list of points. You can locate the graphic in the Graphic Templates section of the Navigation side bar.

### *HVAC Pro Rooftop (HVAC PRO Graphics)*

**Table 22: Rooftop**

Short Name	Description
ACLG-SP	Active Cooling Setpoint
AHTG-SP	Active Heating Setpoint
AIR-Q	Air Quality Sensor Level
CLG1-C	Stage 1 Cooling Command
CLG2-C	Stage 2 Cooling Command
CLG3-C	Stage 3 Cooling Command
CLG4-C	Stage 4 Cooling Command
CLG-C	Cooling Command
CLG-O	Cooling Output
DA-T	Discharge Air Temperature
DPR-C	Damper Command
HTG1-C	Stage 1 Heating Command
HTG2-C	Stage 2 Heating Command
HTG3-C	Stage 3 Heating Command
HTG4-C	Stage 4 Heating Command
HTG-O	Heating Output
MA-T	Mixed Air Temperature
OAD-O	Outside Air Damper Output
OA-T	Outside Air Temperature
OCC-C	Occupied Command
OCLG-SP	Occupied Cooling Setpoint
OHTG-SP	Occupied Heating Setpoint
RA-H	Return Air Humidity
RA-T	Return Air Temperature
RF-C	Return Fan Command
SF-C	Supply Fan Command
WC-ADJ	Warm/Cool Adjust
ZN-T	Zone Temperature



**Unit Ventilator (HVAC PRO Graphics)****Table 23: Unit Ventilator**

<b>Short Name</b>	<b>Description</b>
<b>ACLG-SP</b>	Active Cooling Setpoint
<b>AHTG-SP</b>	Active Heating Setpoint
<b>CLG-C</b>	Cooling Command
<b>CLG-O</b>	Cooling Output
<b>DA-T</b>	Discharge Air Temperature
<b>ECON-S</b>	Economizer Status
<b>HC-O</b>	Heating/Cooling Output
<b>HTG-C</b>	Heating Command
<b>HTG-O</b>	Heating Output
<b>MINPOS</b>	Minimum Position
<b>OAD-O</b>	Outside Air Damper Output
<b>OCC-C</b>	Occupied Command
<b>OCCFM-SP</b>	Occupied Cubic Feet per Minute (CFM) Setpoint
<b>OCLG-SP</b>	Occupied Cooling Setpoint
<b>OHTG-SP</b>	Occupied Heating Setpoint
<b>SF-C</b>	Supply Fan Command
<b>SF-S</b>	Supply Fan Status
<b>SUMWIN-S</b>	Summer/Winter Status
<b>UCLG-SP</b>	Unoccupied Cooling Setpoint
<b>UHTG-SP</b>	Unoccupied Heating Setpoint
<b>UNCFM-SP</b>	Unoccupied CFM Setpoint
<b>WC-ADJ</b>	Warm/Cool Adjust
<b>ZN-T</b>	Zone Temperature

**Fan Coil (HVAC PRO Graphics)****Table 24: Fan Coil**

<b>Short Name</b>	<b>Description</b>
<b>ACLG-SP</b>	Active Cooling Setpoint
<b>AHTG-SP</b>	Active Heating Setpoint
<b>CLG-C</b>	Cooling Command
<b>CLG-O</b>	Cooling Output
<b>HC-O</b>	Heating/Cooling Output
<b>HTG-C</b>	Heating Command
<b>HTG-O</b>	Heating Output
<b>OCC-C</b>	Occupied Command
<b>OCCFM-SP</b>	Occupied CFM Setpoint
<b>OCLG-SP</b>	Occupied Cooling Setpoint
<b>OHTG-SP</b>	Occupied Heating Setpoint
<b>SF-C</b>	Supply Fan Command
<b>SUMWIN-S</b>	Summer/Winter Status
<b>UCLG-SP</b>	Unoccupied Cooling Setpoint
<b>UHTG-SP</b>	Unoccupied Heating Setpoint
<b>UNCFM-SP</b>	Unoccupied CFM Setpoint
<b>WC-ADJ</b>	Warm/Cool Adjust
<b>ZN-T</b>	Zone Temperature

**TC Fan Coil (HVAC PRO Graphics)****Table 25: TC Fan Coil**

<b>Short Name</b>	<b>Description</b>
CLG1-C	Stage 1 Cooling Command
CLG2-C	Stage 2 Cooling Command
CLG-C	Cooling Command
CLG-O	Cooling Output
COMMONSP	Common Setpoint
COOLWSP	WSP Cooling
FAN1-C	Fan Speed 1
FAN2-C	Fan Speed 2
FAN3-C	Fan Speed 3
FS-C	Supply Fan Command
HC-O	Heating/Cooling Output
HEATWSP	Wireless Session Protocol (WSP) Heating
HTG1-C	Stage 1 Heating Command
HTG2-C	Stage 2 Heating Command
HTG-C	Heating Command
HTG-O	Heating Output
OCC-S	Occupancy Sensor
SF-O	Supply Fan Output
SUPVREQ	Supervisor Requested Mode
WC-ADJ	Warm/Cool Adjust
WINDOW-S	Window Sensor
ZN-T	Zone Temperature

**Heat Pump (HVAC PRO Graphics)****Table 26: Heat Pump**

<b>Short Name</b>	<b>Description</b>
<b>ACLG-SP</b>	Active Cooling Setpoint
<b>AHTG-SP</b>	Active Heating Setpoint
<b>AIR-Q</b>	Air Quality Sensor Level
<b>CMPR1-C</b>	Compressor 1 Command
<b>CMPR2-C</b>	Compressor 2 Command
<b>DA-T</b>	Discharge Air Temperature
<b>DPR-C</b>	Damper Command
<b>HTG1-C</b>	Stage 1 Heating Command
<b>MA-T</b>	Mixed Air Temperature
<b>OAD-O</b>	Outside Air Damper Output
<b>OA-T</b>	Outside Air Temperature
<b>OCC-C</b>	Occupied Command
<b>OCLG-SP</b>	Occupied Cooling Setpoint
<b>OHTG-SP</b>	Occupied Heating Setpoint
<b>RA-H</b>	Return Air Humidity
<b>RA-T</b>	Return Air Temperature
<b>RF-C</b>	Return Fan Command
<b>RVLV1-C</b>	Reversing Valve 1 Command
<b>RVLV2-C</b>	Reversing Valve 2 Command
<b>SF-C</b>	Supply Fan Command
<b>WC-ADJ</b>	Warm/Cool Adjust
<b>ZN-T</b>	Zone Temperature

**100 Pct OA Dual Duct (HVAC PRO Graphics)****Table 27: 100 Pct OA Dual Duct**

<b>Short Name</b>	<b>Description</b>
AIR-Q	Air Quality Sensor Level
CLG1-C	Stage 1 Cooling Command
CLG2-C	Stage 2 Cooling Command
CLG3-C	Stage 3 Cooling Command
CLG4-C	Stage 4 Cooling Command
CLG-O	Cooling Output
DA-T	Discharge Air Temperature
DAT-SP	Discharge Air Temperature Setpoint
DPR-O	Damper Output
GLY-T	Glycol Temperature
HR-O	Heat Recovery Output
HR-T	Heat Recovery Temperature
HTG1-C	Stage 1 Heating Command
HTG2-C	Stage 2 Heating Command
HTG3-C	Stage 3 Heating Command
HTG4-C	Stage 4 Heating Command
HTG-O	Heating Output
HUM-O	Humidifier Output
OA-T	Outside Air Temperature
OCC-C	Occupied Command
PH1-C	Stage 1 Preheat Command
PH2-C	Stage 2 Preheat Command
PH3-C	Stage 3 Preheat Command
PH4-C	Stage 4 Preheat Command
PH-O	Preheat Output
RA-H	Return Air Humidity
RA-T	Return Air Temperature
RF-C	Return Fan Command
RF-O	Return Fan Output
RF-S	Return Fan Status
SA-P	Duct Static Pressure
SF-C	Supply Fan Command
SF-O	Supply Fan Output
SF-S	Supply Fan Status
ZNT-SP	Zone Temperature Setpoint

**CABUH2 Pipe Perim TEC (HVAC PRO Graphics)****Table 28: CABUH2 Pipe Perim TEC**

<b>Short Name</b>	<b>Description</b>
<b>AuxOut</b>	Auxiliary Output
<b>CLG-O</b>	Cooling Output
<b>DI1</b>	Digital Input 1
<b>DI2</b>	Digital Input 2
<b>FanMode</b>	Fan Mode
<b>HTG-O</b>	Heating Output
<b>Mode</b>	Mode
<b>OCC-C</b>	Occupied Command
<b>OCLG-SP</b>	Occupied Cooling Setpoint
<b>OHTG-SP</b>	Occupied Heating Setpoint
<b>SF-C</b>	Supply Fan Command
<b>TOCC-S</b>	Temporary Occupied Status
<b>UCLG-SP</b>	Unoccupied Cooling Setpoint
<b>UHTG-SP</b>	Unoccupied Heating Setpoint
<b>ZN-T</b>	Zone Temperature

**FCU RTU TEC (HVAC PRO Graphics)****Table 29: FCU RTU TEC**

<b>Short Name</b>	<b>Description</b>
Alarm	Alarm
AUXHTG-C	Auxiliary Heating Command
AuxOut	Auxiliary Output
CLG1-C	Stage 1 Cooling Command
CLG2-C	Stage 2 Cooling Command
CLG-O	Cooling Output
COMP1-C	Compressor 1 Command
COMP2-C	Compressor 2 Command
D-1	Digital Input 1
D-2	Digital Input 2
DI1	Digital Input 1
DI2	Digital Input 2
Fan	Fan
FanMode	Fan Mode
Filter	Filter
HighFan	High Speed Fan
HTG1-C	Stage 1 Heating Command
HTG2-C	Stage 2 Heating Command
HTG-O	Heating Output
LowFan	Low Speed Fan
MedFan	Medium Speed Fan
Mode	Mode
OA-T	Outside Air Temperature
OCC-C	Occupied Command
OCLG-SP	Occupied Cooling Setpoint
OHTG-SP	Occupied Heating Setpoint
REVLV-C	Reversing Valve Command
SF-C	Supply Fan Command
TOCC-S	Temporary Occupied Status
UCLG-SP	Unoccupied Cooling Setpoint
UHTG-SP	Unoccupied Heating Setpoint
Wrench	Wrench
ZN-H	Zone Humidity
ZN-T	Zone Temperature

**Mixed Air Dual Duct (HVAC PRO Graphics)****Table 30: Mixed Air Dual Duct**

Short Name	Description
AIR-Q	Air Quality Sensor Level
CD-T	Cold Deck Temperature
CLG1-C	Stage 1 Cooling Command
CLG2-C	Stage 2 Cooling Command
CLG3-C	Stage 3 Cooling Command
CLG4-C	Stage 4 Cooling Command
CLG-O	Cooling Output
DPR-O	Damper Output
HD-T	Hot Deck Temperature
HR-O	Heat Recovery Output
HTG1-C	Stage 1 Heating Command
HTG2-C	Stage 2 Heating Command
HTG3-C	Stage 3 Heating Command
HTG4-C	Stage 4 Heating Command
HTG-O	Heating Output
HUM-O	Humidifier Output
OA-T	Outside Air Temperature
PH1-C	Stage 1 Preheat Command
PH2-C	Stage 2 Preheat Command
PH3-C	Stage 3 Preheat Command
PH4-C	Stage 4 Preheat Command
PH-O	Preheat Output
RA-H	Return Air Humidity
RA-T	Return Air Temperature
RF-C	Return Fan Command
RF-O	Return Fan Output
RF-S	Return Fan Status
SF-C	Supply Fan Command
SF-O	Supply Fan Output
SF-S	Supply Fan Status



**Mixed Air Single Duct (HVAC PRO Graphics)****Table 31: Mixed Air Single Duct**

<b>Short Name</b>	<b>Description</b>
AIR-Q	Air Quality Sensor Level
CLG1-C	Stage 1 Cooling Command
CLG2-C	Stage 2 Cooling Command
CLG3-C	Stage 3 Cooling Command
CLG4-C	Stage 4 Cooling Command
CLG-O	Cooling Output
DA-T	Discharge Air Temperature
DAT-SP	Discharge Air Temperature Setpoint
DPR-O	Damper Output
HTG1-C	Stage 1 Heating Command
HTG2-C	Stage 2 Heating Command
HTG3-C	Stage 3 Heating Command
HTG4-C	Stage 4 Heating Command
HTG-O	Heating Output
HUM-O	Humidifier Output
MA-T	Mixed Air Temperature
OA-T	Outside Air Temperature
OCC-C	Occupied Command
PH1-C	Stage 1 Preheat Command
PH2-C	Stage 2 Preheat Command
PH3-C	Stage 3 Preheat Command
PH4-C	Stage 4 Preheat Command
PH-O	Preheat Output
RA-H	Return Air Humidity
RA-T	Return Air Temperature
RF-C	Return Fan Command
RF-O	Return Fan Output
RF-S	Return Fan Status
SA-P	Duct Static Pressure
SF-C	Supply Fan Command
SF-O	Supply Fan Output
SF-S	Supply Fan Status
ZNT-SP	Zone Temperature Setpoint

**VAV Single Duct CZP (HVAC PRO Graphics)****Table 32: VAV Single Duct CZP**

<b>Short Name</b>	<b>Description</b>
<b>ACLG-SP</b>	Active Cooling Setpoint
<b>ACTAXHSP</b>	Active Auxiliary Heating Setpoint
<b>AHTG-SP</b>	Active Heating Setpoint
<b>AUXHTCMD</b>	Auxiliary Heating Command
<b>AUXHTG-O</b>	Auxiliary Heating Output
<b>AX1HTG-C</b>	Stage 1 Auxiliary Heating Command
<b>AX2HTG-C</b>	Stage 2 Auxiliary Heating Command
<b>CLG-C</b>	Cooling Command
<b>DA-T</b>	Discharge Air Temperature
<b>DMPCMD</b>	Damper Command
<b>HTG-C</b>	Heating Command
<b>OCC-C</b>	Occupied Command
<b>OCCFM-SP</b>	Occupied CFM Setpoint
<b>TOCC-S</b>	Temporary Occupied Status
<b>UNOSETP</b>	Unoccupied Setpoint
<b>WC-ADJ</b>	Warm/Cool Adjust
<b>ZN-T</b>	Zone Temperature
<b>ZONEDMD</b>	Zone Demand

**VAV Single Duct FAN (HVAC PRO Graphics)****Table 33: VAV Single Duct FAN**

<b>Short Name</b>	<b>Description</b>
<b>ACLG-SP</b>	Active Cooling Setpoint
<b>AHTG-SP</b>	Active Heating Setpoint
<b>BHACTSTG</b>	Box Heating Actual Stage
<b>BOXMODE</b>	Box Mode
<b>CLG-SP</b>	Cooling Setpoint
<b>COMMONSP</b>	Common Setpoint
<b>DA-T</b>	Discharge Air Temperature
<b>DMPRPOS</b>	Damper Position
<b>HSP</b>	Heating Setpoint
<b>OCC-C</b>	Occupied Command
<b>OCCFM-SP</b>	Occupied CFM Setpoint
<b>OCLG-SP</b>	Occupied Cooling Setpoint
<b>OHTG-SP</b>	Occupied Heating Setpoint
<b>SHOUTPUT</b>	Supplemental Heating Output
<b>SUPFLOSP</b>	Supply Flow Setpoint
<b>SUPFLOW</b>	Supply Flow
<b>UCLG-SP</b>	Unoccupied Cooling Setpoint
<b>UHTG-SP</b>	Unoccupied Heating Setpoint
<b>UNCFM-SP</b>	Unoccupied CFM Setpoint
<b>WC-ADJ</b>	Warm/Cool Adjust
<b>ZN-T</b>	Zone Temperature

**VAV Dual Duct (HVAC PRO Graphics)****Table 34: VAV Dual Duct**

<b>Short Name</b>	<b>Description</b>
<b>ACLG-SP</b>	Active Cooling Setpoint
<b>AHTG-SP</b>	Active Heating Setpoint
<b>BBHTCMD</b>	Baseboard Heating Command
<b>CDCMD</b>	Cold Deck Damper Command
<b>CD-O</b>	Cold Deck Damper Output
<b>CD-SP</b>	Cold Deck Setpoint
<b>CD-VP</b>	Cold Deck Velocity Pressure
<b>DA-T</b>	Discharge Air Temperature
<b>HDCMD</b>	Hot Deck Damper Command
<b>HDFLOW</b>	Hot Deck Flow
<b>HDT-SP</b>	Hot Deck Setpoint
<b>HD-VP</b>	Hot Deck Velocity Pressure
<b>HTG-O</b>	Heating Output
<b>OCC-C</b>	Occupied Command
<b>OCCFM-SP</b>	Occupied CFM Setpoint
<b>OCLG-SP</b>	Occupied Cooling Setpoint
<b>OHTG-SP</b>	Occupied Heating Setpoint
<b>TOTFLOW</b>	Total Flow
<b>TOTSA-VP</b>	Total Supply Air Velocity Pressure
<b>UCLG-SP</b>	Unoccupied Cooling Setpoint
<b>UHTG-SP</b>	Unoccupied Heating Setpoint
<b>UNCFM-SP</b>	Unoccupied CFM Setpoint
<b>WC-ADJ</b>	Warm/Cool Adjust
<b>ZN-T</b>	Zone Temperature

**VMA Single Duct CZP (HVAC PRO Graphics)****Table 35: VMA Single Duct CZP**

<b>Short Name</b>	<b>Description</b>
ACTAXHSP	Active Auxiliary Heating Setpoint
ACTCLGSP	Active Auxiliary Cooling Setpoint
ACTHSP	Active Heating Setpoint
AUXHTCMD	Auxiliary Heating Command
AUX-HTG	Auxiliary Heating
AUX-HTG1	Stage 1 Auxiliary Heating
AUX-HTG2	Stage 2 Auxiliary Heating
CLGCMD	Cooling Command
DA-T	Discharge Air Temperature
DPR-C	Damper Command
HTGCMD	Heating Command
OCCCMD	Occupied Command
OCC-SPT	Occupied Setpoint
TMPOCCST	Temporary Occupied Status
UNOSETP	Unoccupied Setpoint
WC-ADJ	Warm/Cool Adjust
ZN-T	Zone Temperature
ZONEDMD	Zone Demand

**VMA Single Duct Fan (HVAC PRO Graphics)****Table 36: VMA Single Duct Fan**

<b>Short Name</b>	<b>Description</b>
<b>ACLG-SP</b>	Active Cooling Setpoint
<b>AHTG-SP</b>	Active Heating Setpoint
<b>BHACTSTG</b>	Box Heating Actual Stage
<b>BHOUTPUT</b>	Box Heating Output
<b>BOXMODE</b>	Box Mode
<b>CLG-SP</b>	Cooling Setpoint
<b>COMMONSP</b>	Common Setpoint
<b>DA-T</b>	Discharge Air Temperature
<b>DMPRPOS</b>	Damper Position
<b>FAN-C</b>	Fan Command
<b>HSP</b>	Heating Setpoint
<b>HTG-O</b>	Heating Output
<b>OCC-C</b>	Occupied Command
<b>OCCFM-SP</b>	Occupied CFM Setpoint
<b>OCLG-SP</b>	Occupied Cooling Setpoint
<b>OHTG-SP</b>	Occupied Heating Setpoint
<b>SHOUTPUT</b>	Supplemental Heat Output
<b>SUPFLOSP</b>	Supply Flow Setpoint
<b>SUPFLOW</b>	Supply Flow
<b>UCLG-SP</b>	Unoccupied Cooling Setpoint
<b>UHTG-SP</b>	Unoccupied Heating Setpoint
<b>UNCFM-SP</b>	Unoccupied CFM Setpoint
<b>WC-ADJ</b>	Warm/Cool Adjust
<b>ZN-T</b>	Zone Temperature

**VMA Single Duct (HVAC PRO Graphics)****Table 37: VMA Single Duct**

<b>Short Name</b>	<b>Description</b>
<b>ACLG-SP</b>	Active Cooling Setpoint
<b>AHTG-SP</b>	Active Heating Setpoint
<b>BHACTSTG</b>	Box Heating Actual Stage
<b>BHOUTPUT</b>	Box Heating Output
<b>BOXMODE</b>	Box Mode
<b>CLG-SP</b>	Cooling Setpoint
<b>COMMONSP</b>	Common Setpoint
<b>DA-T</b>	Discharge Air Temperature
<b>DMPRPOS</b>	Damper Position
<b>HSP</b>	Heating Setpoint
<b>OCC-C</b>	Occupied Command
<b>OCCFM-SP</b>	Occupied CFM Setpoint
<b>OCLG-SP</b>	Occupied Cooling Setpoint
<b>OHTG-SP</b>	Occupied Heating Setpoint
<b>SHOUTPUT</b>	Supplemental Heating Output
<b>SUPFLOSP</b>	Supply Flow Setpoint
<b>SUPFLOW</b>	Supply Flow
<b>UCLG-SP</b>	Unoccupied Cooling Setpoint
<b>UHTG-SP</b>	Unoccupied Heating Setpoint
<b>UNCFM-SP</b>	Unoccupied CFM Setpoint
<b>WC-ADJ</b>	Warm/Cool Adjust
<b>ZN-T</b>	Zone Temperature

**VS Series VSD (HVAC PRO Graphics)****Table 38: VS Series VSD**

<b>Short Name</b>	<b>Description</b>
<b>Spd-Out</b>	Output Speed
<b>Motor-Spd</b>	Motor Speed
<b>Mtr-Speed</b>	Actual Speed
<b>Load-Pwr</b>	Load (Power)
<b>Motor-Amp</b>	Motor Current
<b>Bus-Volt</b>	Bus Voltage
<b>Motor-V</b>	Motor Volts
<b>ActFault</b>	Active Fault
<b>ActWarn</b>	Active Warning
<b>Ready</b>	Ready
<b>Run</b>	Run
<b>Faulted</b>	Faulted
<b>Warning</b>	Warning
<b>HandAuto</b>	Hand/Auto
<b>HOA</b>	Hands Off Auto (HOA) Off/On
<b>Sta-Sto</b>	Comms Start/Stop
<b>RstFault</b>	Comms Reset Fault



**Zoning Applic TEC (HVAC PRO Graphics)****Table 39: Zoning Applic TEC**

<b>Short Name</b>	<b>Description</b>
<b>AuxOut</b>	Auxiliary Output
<b>CLG-O</b>	Cooling Output
<b>DI1</b>	DI1
<b>DI2</b>	DI2
<b>HTG-O</b>	Heating Output
<b>Mode</b>	Mode
<b>OCC-C</b>	Occupied Command
<b>OCLG-SP</b>	Occupied Cooling Setpoint
<b>OHTG-SP</b>	Occupied Heating Setpoint
<b>TOCC-S</b>	Temporary Occupied Status
<b>UCLG-SP</b>	Unoccupied Cooling Setpoint
<b>UHTG-SP</b>	Unoccupied Heating Setpoint
<b>ZN-T</b>	Zone Temperature

## System Library Mechanism

When referencing an .apd or .caf resource file during the import process, FX Workbench uses the System Library to automatically create the station components.

### APD Resource Files

When referencing an .apd file during the import process, FX Workbench uses the System Library to automatically create the station components. The system library file name to use is contained in the .apd file itself. FX Builder adds the file name when the .apd file is built. [Table 40](#) lists the applications, the system type assigned to the device after import, and the associated system library file used when importing the .apd file. The Application column in the table is the same as the Description in the system library.

**Table 40: APD Resource Files - System Library File Names**

Application	FX Workbench System Type	System Library File Name
AHU Mixed Air Dual Duct	FXMADD	FX-AHU-MADD.xml
AHU Mixed Air Single Duct	FXMASD	FX-AHU-MASD.xml
AHU 100% OA Dual Duct	FXOADD	FX-AHU-OADD.xml
AHU 100% OA Single Duct	FXOASD	FX-AHU-OASD.xml
Fan Coil Unit	FXFanCoilUnit	FX-FanCoilUnit.xml
Heat Pump Unit	FXHeatPump	FX-HeatPump.xml
Unit Ventilator	FXUnitVentilator	FX-UnitVentilator.xml
Zoning Application	FXZoning	FX-Zoning.xml
Central Plant Heating System	FXHeatingSystem	FX-CP-Heating.xml
Central Plant Secondary Pumping	FXSecPump	FX-CP-Secondary-Pump.xml
FX VMA Single Duct Heating	FXVMASingleDuct	FX-VMA_SD_HTG.xml
Rooftop (FX)	FXRooftop	FX-Rooftop.xml
Central Plant Hot Water System	FXHotWaterSystem	FX-CP-HWSsystem.xml

### Graphic Files Selected for APD Files

If the resource file is an .apd file, then information from the system library is used to select a standard graphic file. The description in the system library is used to populate the system type.

**Table 41: APD Resource Files - Graphic Files Selected**

System Library File Name	Description	PX Graphic File	HX Graphic File
FX-AHU-MADD.xml	AHU Mixed Air Dual Duct	FXMADDGraphic.px	FXMADDHx.px
FX-AHU-MASD.xml	AHU Mixed Air Single Duct	FXMASDGraphic.px	FXMASDHx.px
FX-AHU-OADD.xml	AHU 100% OA Air Dual Duct	FXOADDGraphic.px	FXOADDHx.px
FX-AHU-OASD.xml	AHU 100% OA Air Single Duct	FXOASDGraphic.px	FXOASDHx.px
FX-FanCoilUnit.xml	Fan Coil Unit	FXFanCoilUnitGraphic.px	FXFanCoilUnitHx.px
FX-HeatPump.xml	Heat Pump Unit	FXHeatPumpGraphic.px	FXHeatPumpHx.px
FX-UnitVentilator.xml	Unit Ventilator	FXUnitVentilatorGraphic.px	FXUnitVentilatorHx.px
FX-Zoning.xml	Zoning Application	FXZoningGraphic.px	FXZoningHx.px
FX-CP-Heating.xml	Central Plant Heating System	FXHeatingSystemGraphic.px	FXHeatingSystemHx.px
FX-CP-Secondary-Pump.xml	Central Plant Secondary Pumping	FXSecPumpGraphic.px	FXSecPumpHx.px
FX-VMA_SD_HTG.xml	FX VMA Single Duct Heating	FXVMASingleDuctGraphic.px	FXVMASingleDuctHx.px

**Table 41: APD Resource Files - Graphic Files Selected**

<b>System Library File Name</b>	<b>Description</b>	<b>PX Graphic File</b>	<b>HX Graphic File</b>
<b>FX-Rooftop.xml</b>	Rooftop (FX)	FXRooftopGraphic.px	FXRooftopHx.px
<b>FX-CP-HWSystem.xml</b>	Central Plant Hot Water System	FXHotWaterSystemGraphic.px	FXHotWaterSystemHx.px

## CAF Resource Files

When referencing a .caf file during the import process, FX Workbench uses the System Library to automatically create the station components. The system library file name to use is determined by the system type and, if applicable, configuration type contained in the .caf file. [Table 42](#) gives the system type and, if applicable, configuration type as used in the System Selection Tree in FX-PCT. The ID numbers are stored in the .caf file. [Table 42](#) also contains the System Type assigned to the device after import and the name of the system library file used.

**Table 42: CAF Resource Files - System Library File Names**

PCT System Type Name	PCT System ID	PCT Configuration Type	PCT Configuration ID	FX System Type	System Library File Name
AHU	2005	Mixed Air Single Path	1	PCTMASD	PCT-AHU-MASD.xml
AHU	2005	100% OA Single Path	2	PCTOASD	PCT-AHU-OASD.xml
AHU	2005	Mixed Air Dual Path	3	PCTMADD	PCT-AHU-MADD.xml
AHU	2005	100% OA Dual Path	4	PCTOADD	PCT-AHU-OADD.xml
AHU	2005	Rooftop	5	PCTRooftop	PCT-AHU-Rooftop.xml
AHU	2005	Multizone	6	PCTMultizone	PCT-AHU-Multizone.xml
Fan Coil	2015	n/a	n/a	PCTFanCoilUnit	PCT-FanCoil.xml
Unit Vent	2035	n/a	n/a	PCTUnitVentilator	PCT-UnitVentilator.xml
Central Cooling Plant <sup>1</sup>	2050	n/a	n/a	PCTCentralCooling	PCT-CentralCoolingCC.xml
Central Cooling Plant	2050	Central Cooling	1	PCTCentralCooling	PCT-CentralCoolingCC.xml
Central Cooling Plant	2050	Central Cooling with Opt	2	PCTCentralCoolingOpt	PCT-CentralCoolingCCO.xml
Central Heating Plant	2060	n/a	n/a	PCTCentralHeating	PCT-CentralHeating.xml
Simple Central Plant	2070	n/a	n/a	PCTSimpleCentralPlant	PCT-SimpleCentralPlant.xml
Heat Pump	2075	n/a	n/a	PCTHeatPump	PCT-HeatPump.xml
VAV	2095	SD	1	PCTVAVSD	PCT-VAV-SD.xml PCT-VAV-SD-C.xml <sup>2</sup>
VAV	2095	DD	2	PCTVAVDD	PCT-VAV-DD.xml
VAV	2095	Slave SD	3	PCTVAVSSD	PCT-VAV-SSD.xml
VAV	2095	Slave DD	4	PCTVAVSDD	PCT-VAV-SDD.xml
Custom	2205	n/a	n/a	n/a	n/a
Monitor Only	2225	n/a	n/a	n/a	n/a

<sup>1</sup> This scenario supports old .caf files, created before there were configuration options in PCT for Central Cooling.

<sup>2</sup> If you want HVAC-PRO style names, select PCT-VAV-SD-C.xml as your system library.

## Graphic Files Selected for CAF Files

In some cases, the graphic file selected depends on the content of the .caf file.

**Table 43: CAF Resource Files - Graphic Files Selected**

System Library File	PX Graphic File	BACoids for Use of PX File	HX Graphic File	BACoids for Use of HX File
PCT-AHU-MASD.xml	PCT-AHU-MASD.px	n/a	PCT-AHU-MASDHx.px	n/a
PCT-AHU-OASD.xml	PCT-AHU-OASD.px	n/a	PCT-AHU-OASDHx.px	n/a
PCT-AHU-MADD.xml	PCT-AHU-MADD.px	n/a	PCT-AHU-MADDHx.px	n/a
PCT-AHU-OADD.xml	PCT-AHU-OADD.px	n/a	PCT-AHU-OADDHx.px	n/a
PCT-AHU-Rooftop.xml	PCT-AHU-Rooftop.px	n/a	PCT-AHU-RooftopHx.px	n/a
PCT-AHU-Multizone.xml	PCT-AHU-Multizone.px	n/a	PCT-AHU-MultizoneHx.px	n/a
PCT-FanCoil.xml	PCT-FanCoil.px	n/a	PCT-FanCoilHx.px	n/a
PCT-UnitVentilator.xml	PCT-UnitVentilator.px	n/a	PCT-UnitVentilatorHx.px	n/a
PCT-CentralCooling-CC.xml	PCT-CentralCooling-CC.px	n/a	PCT-CentralCooling-CCHx.px	n/a
PCT-CentralCooling-CC.xml	PCT-CentralCooling-CC2.px	2343,2363,2367,2400,2401	PCT-CentralCooling-CC2Hx.px	2343, 2363,2367,2400,2401
PCT-CentralCooling-CC.xml	PCT-CentralCooling-CC3.px	2246	PCT-CentralCooling-CC3Hx.px	2246
PCT-CentralCooling-CCO.xml	PCT-CentralCooling-CCO.px	n/a	PCT-CentralCooling-CCOHx.px	n/a
PCT-CentralCooling-CCO.xml	PCT-CentralCooling-CCO2.px	2343,2363,2367,2400,2401	PCT-CentralCooling-CCO2Hx.px	2343, 2363,2367,2400,2401
PCT-CentralCooling-CCO.xml	PCT-CentralCooling-CCO3.px	2246	PCT-CentralCooling-CCO3Hx.px	2246
PCT-CentralHeating.xml	PCT-HEATEXCH.px	2187,2201 + NOT 2008	PCT-HEATEXCHHx.px	2187, 2201 + NOT 2008
PCT-CentralHeating.xml	PCT-STEAMBOILER.px	1288 + 2007	PCT-STEAMBOILERHx.px	1288 + 2007
PCT-CentralHeating.xml	PCT-BOILER.px	If neither of the above	PCT-BOILERHx.px	If neither of the above
PCT-CentralHeating.xml	PCT-BOILER2.px	2277,2412	PCT-BOILER2Hx.px	2277,2412
PCT-CentralHeating.xml	PCT-BOILER3.px	2171	PCT-BOILER3Hx.px	2171
PCT-SimpleCentralPlant.xml	PCT-SimplePlant-CHW+HW.px	2238,2159,1288	PCT-SimplePlant-CHW+HWHx.px	2238, 2159, 1288
PCT-SimpleCentralPlant.xml	PCT-SimplePlant-2Pipe.px	If not above	PCT-SimplePlant-2PipeHx.px	If not above
PCT-HeatPump.xml	PCT-HeatPump.px	n/a	PCT-HeatPumpHx.px	n/a
PCT-VAV-SD.xml	PCT-VAV-SD-SF. px	78177	PCT-VAV-SD-SFHx.px	74864
PCT-VAV-SD.xml	PCT-VAV-SD-PF. px	74864	PCT-VAV-SD-PFHx.px	74864
PCT-VAV-SD.xml	PCT-VAV-SD-NoFan.px	If neither of the above	PCT-VAV-SD-NoFanHx.px	If neither of the above
PCT-VAV-SD-C.xml	VmaSingleDuctFanGraphic.px	78177	VmaSingleDuctFanHx.px	78177
PCT-VAV-SD-C.xml	PCT-VAV-SD-PF.px	74864	VmaSingleDuctFanHx.px	74864
PCT-VAV-SD-C.xml	VmaSingleDuctGraphic.px	n/a	VmaSingleDuctHx.px	n/a
PCT-VAV-DD.xml	PCT-VAV-DD.px	If neither of the above	PCT-VAV-DDHx.px	If neither of the above
PCT-VAV-SSD.xml	PCT-VAV-SSD-Fan.px	2045	PCT-VAV-SSD-FanHx.px	2045
PCT-VAV-SSD.xml	PCT-VAV-SSD-NoFan.px	If not above	PCT-VAV-SSD-NoFanHx.px	If not above
PCT-VAV-SDD.xml	PCT-VAV-SDD.px	n/a	PCT-VAV-SDDHx.px	n/a

**Note:** In the BACoids for Use of File column, if the BACoids are separated by a comma, the comma indicates an OR condition (use the file if any of these BACoids are in the .caf file). BACoids separated by a plus (+) indicate an AND condition (use this file if all of these BACoids are in the .caf file). **NOT** means the BACoid should not be in the .caf file). **n/a** means the graphic file is always used and no condition testing is needed.

## CSV Resource Files

When referencing a .csv file during the import process, FX Workbench uses the System Library to automatically create the station components. The only .csv file import supported is the file used by the WT-4000 gateway. The .csv file contains information about points associated with the gateway itself, along with any WT-4000 pneumatic to digital thermostats connected to that gateway. When you import .csv files, the system library is auto-populated in the import dialog box to be StatGateway.xml.

## Point information in the System Library

Only points on the field bus network can be imported. For example, an N2 address must be assigned or the point must be BACnet exposed.

For an **.apd resource file import**, each point appears by name as it appears in the .apd file. These names use the LON standard naming convention. The information about a point in the library is divided into two parts. Part one deals with if and how the point is added to the station ([Table 44](#)). The second part deals with extensions added to the point ([Table 45](#)).

**Table 44: APD Resource File Import - How Points Are Added to the Station**

Element Name	Element Description	Value Type	Example Value
<b>Import</b>	Should the point be imported into the supervisor or not by default?	True or false	True
<b>Name</b>	Name of the point in the supervisor.	(blank is false)	SF-O
<b>Description</b>	Description of point, used as long name if N2, description if BACnet.	String	Supply Fan Output
<b>Condition_Name1</b>	Condition of import, name of a point in .apd file	String	nciSupplyFanType
<b>Condition1</b>	Value of condition for import to be true	String	1
<b>Condition_Name2</b>	Condition of import, name of a point in apd file different from condition 1	String	nciTempCtrlScheme
<b>Condition2</b>	Value of condition for import to be true (both conditions 1 and 2 must be true)	String	3
<b>Condition_Name3</b>	Condition of import, name of a point in .apd file different from condition 1 and 2	String	6
<b>Condition3</b>	Value of condition for import to be true (all of conditions 1, 2, and 3 must be true)	String	nciMechCoolingType
<b>Alternate_US_Units</b>	Alternative US units to use in place of what is in the .apd file	String	in wc
<b>Alternate_SI_Units</b>	Alternative Metric units to use in place of what is in the .apd file	String	in wc

**Table 45: APD Resource File Import - Extensions Added to the Point**

Element Name	Element Description	Value Type	Example Value
<b>Schedule</b>	Not used	Not used	Not used
<b>Totalization</b>	Should a totalization extension be added?	True or false (Blank is false.)	True
<b>Alarm</b>	Should an alarm extension be added?	True or false (Blank is false.)	True
<b>Trend/Interval</b>	Should an interval trend extension be added?	True or false (Blank is false.)	True
<b>Trend/Interval_Time</b>	If an interval trend is added, what time?	Time in minutes (If not present, uses the NiagaraAX default.)	15

**Table 45: APD Resource File Import - Extensions Added to the Point**

Element Name	Element Description	Value Type	Example Value
Trend/COV	Should a COV trend extension be added?	True or false (Blank is false.)	True
Trend/COV_Tolerance	If a COV trend is added, what should the tolerance be?	Tolerance (If not present, uses NiagaraAX default.)	1
Alarm Folder	Not used	Not used	Not used

For a **.caf resource file import**, each possible point appears by BACoid as it appears in the .caf file. These BACoid numbers are unique for an application and are guaranteed not to change from one release of FX-PCT to another. The information about a point in the library is divided into two parts. Part one deals with if and how the point is added to the station ([Table 46](#)). The second part deals with extensions added to the point ([Table 47](#)).

**Table 46: CAF Resource File Import - How Points Are Added to the Station**

Element Name	Element Description	Value Type	Example Value
BACoid	BACoid identifier of an object in the .caf file	String	3472
Import	Should point be imported by default?	Y or N (Blank is N.)	Y
PCTPointName	Default point name in FX-PCT	String	OA-T
FXName	Name of point in FX Supervisor	String	OA-T
FXDescription	Description of point, used as long name if N2, description if BACnet	String	Outdoor Air Temperature
PointOrder	Order point should be added to device, largest number is added last, smallest first	Integer	120
ExportTag	Not used	Not used	Not used
Condition1	BACoids whose existence in the .caf file determine if the point should be imported. A ! indicates BACoid should not be in the .caf file. Comma separated list is an OR condition.	List of BACoids. Blank means no condition for import. Use value of Import element.	123,4564,!3432
Condition2	BACoids whose existence in the .caf file determine if the point should be imported. A ! indicates BACoid should not be in the .caf file. Comma separated list is an OR condition. Both Condition1 and Condition2 must be true.	List of BACoids. Blank means no condition for import. Use value of Import element or Condition1, if present.	123,4564,!3432

**Table 47: CAF Resource File Import - Extensions Added to the Point**

Element Name	Element Description	Value Type	Example Value
Schedule	Not used	Not used	Not used
Totalization	Should a totalization extension be added?	Y or N (Blank is N.)	Y
Alarm	Should an alarm extension be added?	Y or N (Blank is N.)	Y
Trend/Interval	Should an interval trend extension be added?	Y or N (Blank is N.)	Y



**Table 47: CAF Resource File Import - Extensions Added to the Point**

Element Name	Element Description	Value Type	Example Value
<b>Trend/Interval_Time</b>	If an interval trend is added, what time?	Time in minutes (if not present will use NiagaraAX default) Not used	15
<b>Trend/COV</b>	Should a COV trend extension be added?	Y or N (Blank is N.)	N
<b>Trend/COV_Tolerance</b>	If a COV trend is added, what should the tolerance be?	Tolerance (if not present, uses NiagaraAX default.)	1
<b>Alarm Folder</b>	Not used	Not used	Not used

BACnet points have a number of properties. In Niagara, a point has only one value, so it can express only one BACnet property. The typical property used for import is Present Value. In the case of .caf files, there are some points (most notably some setpoints) written to by modules internal to the controller. In this case, if present value is used, any update from the supervisor is overwritten by code running in the controller. These points use the Relinquish Default property, **not** present value. This determination is done by the import processing in FX Supervisor, since it can only be determined by the content of the .caf file.

## Device Px File Templates

The Px file templates contain various widgets (bound symbols such as fans, sensors, and text boxes). The widgets display real-time information about the device and its application. These widgets bind ORDs to the most commonly used point names (as long as standard point names are used).

## FX Standard Application Graphics

Each standard graphic contains a default list of points. You can locate the graphic in the Graphic Templates section of the Navigation side bar.

You can find the standard graphics that use the **original symbols** in the following directories:

- jciStandards/sysPxFile - contains all of the standard graphics for .prn and .apd resource files
- jciStandards/sysPxFileHx - contains all of the standard handheld graphics for .prn and .apd resource files
- jciStandards/sysPxFileHx/PCT - contains all of the standard handheld graphics for .caf resource files

You can find the standard graphics that use the **new symbols** in the following directories:

- jciStandards/sysGraphicsFile - contains all of the standard graphics for .prn, .cvs, and .apd resource files
- jciStandards/sysGraphicsFileHx - contains all of the standard handheld graphics for .prn and .apd resource files
- jciStandards/sysGraphicsFile/PCT - contains all of the standard graphics for .caf resource files
- jciStandards/sysGraphicsFileHx/PCT - contains all of the standard handheld graphics for .caf resource files

Use the following sections as a reference to view the points included within each standard graphic.

### FX Fan Coil Unit

Table 48: FX Fan Coil Unit

Short Name	Description
ACTCLGSP	Active Cooling Setpoint
ACTHTGSP	Active Heating Setpoint
CLG1-C	Stage 1 Cooling Command
CLG-FB-C	Cooling Face and Bypass Command
CLG-FB-O	Cooling Face and Bypass Output
CLG-O	Cooling Output
COM-COIL-O	Common Coil Output
COM-FB-C	Common Coil Face and Bypass Command
COM-FB-O	Common Coil Face and Bypass Output
EFFCLGSP	Effective Cooling Setpoint
EMGHT-SP	Emergency Heat Setpoint
FILTER-S	Filter Status
HISPD-C	High Speed Command
HTG1-C	Stage 1 Heating Command
HTG-FB-C	Heating Face and Bypass Command
HTG-FB-O	Heating Face and Bypass Output
HTG-O	Heating Output
LOWSPD-C	Low Speed Command
MEDSPD-C	Medium Speed Command
OCC-MAN-CMD	Occupied Manual Command
OCC-SENSOR	Occupancy Sensor
REM-SP	Remote Setpoint
SF-C	Supply Fan Command
SF-S	Supply Fan Status
WC-ADJ	Warm/Cool Adjust
ZN-OC-SP	Occupied Cooling Setpoint

**Table 48: FX Fan Coil Unit**

<b>Short Name</b>	<b>Description</b>
<b>ZN-OH-SP</b>	Occupied Heating Setpoint
<b>ZN-T</b>	Zone Temperature
<b>ZN-UC-SP</b>	Unoccupied Cooling Setpoint
<b>ZN-UH-SP</b>	Unoccupied Heating Setpoint

**FX Heat Pump****Table 49: FX Heat Pump**

<b>Short Name</b>	<b>Description</b>
<b>ACTCLGSP</b>	Active Cooling Setpoint
<b>ACTHTGSP</b>	Active Heating Setpoint
<b>AHTG1-C</b>	Aux Heat 1 Command
<b>AHTG2-C</b>	Aux Heat 2 Command
<b>DPR-O</b>	Damper Output
<b>EFF-OCC</b>	Effective Occupancy
<b>EMGHT-SP</b>	Emergency Heat Setpoint
<b>FANSPD-O</b>	Fan Speed Output
<b>FILTER-S</b>	Filter Status
<b>HISPD-C</b>	High Speed Command
<b>HP1-C</b>	Stage 1 Command
<b>HP2-C</b>	Stage 2 Command
<b>LL-T</b>	Low Limit Temperature
<b>LOWSPD-C</b>	Low Speed Command
<b>MEDSPD-C</b>	Medium Speed Command
<b>OCC-MAN-CMD</b>	Occupied Manual Command
<b>REM-SP</b>	Remote Setpoint
<b>RV-C</b>	Reversing Valve Command
<b>SF-C</b>	Supply Fan Command
<b>SF-S</b>	Supply Fan Status
<b>WC-ADJ</b>	Warm/Cool Adjust
<b>ZN-OC-SP</b>	Occupied Cooling Setpoint
<b>ZN-OH-SP</b>	Occupied Heating Setpoint
<b>ZN-T</b>	Zone Temperature
<b>ZN-UC-SP</b>	Unoccupied Cooling Setpoint
<b>ZN-UH-SP</b>	Unoccupied Heating Setpoint

**FX Mixed Air Dual Duct****Table 50: FX Mixed Air Dual Duct**

Short Name	Description
BSP	Building Static Pressure
BSP-SP	Building Static Pressure Setpoint
CDP	Cold Deck Pressure
CD-SP	Cold Deck Temperature Setpoint
CD-T	Cold Deck Temperature
CLG1-C	Stage 1 Cooling Command
CLG2-C	Stage 2 Cooling Command
CLG3-C	Stage 3 Cooling Command
CLG4-C	Stage 4 Cooling Command
CLG-FB-C	Cooling Face and Bypass Command
CLG-FB-O	Cooling Face and Bypass Output
CLG-O	Cooling Output
CO2-LEV	CO2 Level (ppm)
DPR-O	Damper Output
DSP-SP	Duct Static Pressure Setpoint
HDP	Hot Deck Pressure
HD-SP	Hot Deck Temperature Setpoint
HD-T	Hot Deck Temperature
HTG1-C	Stage 1 Heating Command
HTG2-C	Stage 2 Heating Command
HTG3-C	Stage 3 Heating Command
HTG4-C	Stage 4 Heating Command
HTG-FB-C	Heating Face and Bypass Command
HTG-FB-O	Heating Face and Bypass Output
HTG-O	Heating Output
HUM-O	Humidifier Output
HUM-C	Humidifier Command
OA-E	Outside Air Enthalpy
OA-H	Outside Air Humidity
OA-T	Outside Air Temperature
OCC-MAN-CMD	Occupied Manual Command
PH1-C	Stage 1 Preheat Command
PH2-C	Stage 2 Preheat Command
PH3-C	Stage 3 Preheat Command
PH4-C	Stage 4 Preheat Command
PH-FB-C	Preheat Face and Bypass Command
PH-FB-O	Preheat Face and Bypass Output
PH-FB-VLV-O	Preheat Face and Bypass Valve Output
PH-O	Preheat Output
RA-H	Return Air Humidity

**Table 50: FX Mixed Air Dual Duct**

<b>Short Name</b>	<b>Description</b>
<b>RA-T</b>	Return Air Temperature
<b>RF-C</b>	Return Fan Command
<b>RF-O</b>	Return Fan Output
<b>RF-S</b>	Return Fan Status
<b>SF-C</b>	Supply Fan Command
<b>SF-O</b>	Supply Fan Output
<b>SF-S</b>	Supply Fan Status
<b>SMOKE-A</b>	Smoke Detector Alarm

**FX Mixed Air Single Duct****Table 51: FX Mixed Air Single Duct**

Short Name	Description
BSP	Building Static Pressure
BSP-SP	Building Static Pressure Setpoint
CLG1-C	Stage 1 Cooling Command
CLG2-C	Stage 2 Cooling Command
CLG3-C	Stage 3 Cooling Command
CLG4-C	Stage 4 Cooling Command
CLG-FB-C	Cooling Face and Bypass Command
CLG-FB-O	Cooling Face and Bypass Output
CLG-O	Cooling Output
CO2-LEV	CO2 Level (ppm)
CO2-SP	CO2 Level Setpoint (ppm)
COM-COIL-O	Common Coil Output
COM-FB-C	Common Coil Face and Bypass Command
COM-FB-O	Common Coil Face and Bypass Output
DA-T	Discharge Air Temperature
DAT-SP	Discharge Air Temperature Setpoint
DPR-O	Damper Output
DSP	Duct Static Pressure
DSP-P	Duct Static Pressure
DSP-SP	Duct Static Pressure Setpoint
HTG1-C	Stage 1 Heating Command
HTG2-C	Stage 2 Heating Command
HTG3-C	Stage 3 Heating Command
HTG4-C	Stage 4 Heating Command
HTG-FB-C	Heating Face and Bypass Command
HTG-FB-O	Heating Face and Bypass Output
HTG-O	Heating Output
HUM-C	Humidifier Command
HUM-O	Humidifier Output
MA-T	Mixed Air Temperature
OA-E	Outside Air Enthalpy
OA-H	Outside Air Humidity
OA-T	Outside Air Temperature
OCC-MAN-CMD	Occupied Manual Command
O-CLG-SP	Occupied Cooling Setpoint
PH1-C	Stage 1 Preheat Command
PH2-C	Stage 2 Preheat Command
PH3-C	Stage 3 Preheat Command
PH4-C	Stage 4 Preheat Command
PH-FB-C	Preheat Face and Bypass Command

**Table 51: FX Mixed Air Single Duct**

<b>Short Name</b>	<b>Description</b>
<b>PH-FB-O</b>	Preheat Face and Bypass Output
<b>PH-FB-VLV-O</b>	Preheat Face and Bypass Valve Output
<b>PH-O</b>	Preheat Output
<b>RA-E</b>	Return Air Enthalpy
<b>RA-H</b>	Return Air Humidity
<b>RA-T</b>	Return Air Temperature
<b>RAT-SP</b>	Return Air Temperature Setpoint
<b>RF-C</b>	Return Fan Command
<b>RF-O</b>	Return Fan Output
<b>RF-S</b>	Return Fan Status
<b>SF-C</b>	Supply Fan Command
<b>SF-O</b>	Supply Fan Output
<b>SF-S</b>	Supply Fan Status
<b>SMOKE-A</b>	Smoke Detector Alarm
<b>U-CLG-SP</b>	Unoccupied Cooling Setpoint
<b>ZN-H</b>	Zone Humidity
<b>ZN-T</b>	Zone Temperature



## FX Outside Air Dual Duct

Table 52: FX Outside Air Dual Duct

Short Name	Description
BSP	Building Static Pressure
BSP-SP	Building Static Pressure Setpoint
CDP	Cold Deck Pressure
CD-SP	Cold Deck Temperature Setpoint
CD-T	Cold Deck Temperature
CLG1-C	Stage 1 Cooling Command
CLG2-C	Stage 2 Cooling Command
CLG3-C	Stage 3 Cooling Command
CLG4-C	Stage 4 Cooling Command
CLG-FB-C	Cooling Face and Bypass Command
CLG-FB-O	Cooling Face and Bypass Output
CLG-O	Cooling Output
DSP-SP	Duct Static Pressure Setpoint
EA-T	Exhaust Air Temperature
EF-C	Exhaust Fan Command
EF-O	Exhaust Fan Output
EF-S	Exhaust Fan Status
ERGLY-C	Energy Recovery Glycol Loop Command
ERHW-C	Energy Recovery Heat Wheel Command
ERLL-T	Energy Recovery Low Limit Temperature
ER-O	Energy Recovery Output
ER-S	Energy Recovery Status
ER-SP	Energy Recovery Setpoint
GLYCOL-T	Glycol Temperature
HDP	Hot Deck Pressure
HD-SP	Hot Deck Temperature Setpoint
HD-T	Hot Deck Temperature
HTG1-C	Stage 1 Heating Command
HTG2-C	Stage 2 Heating Command
HTG3-C	Stage 3 Heating Command
HTG4-C	Stage 4 Heating Command
HTG-FB-C	Heating Face and Bypass Command
HTG-FB-O	Heating Face and Bypass Output
HTG-O	Heating Output
HUM-C	Humidifier Command
HUMIDITY	Humidity
HUM-O	Humidifier Output
OA-E	Outside Air Enthalpy
OA-H	Outside Air Humidity
OA-T	Outside Air Temperature

**Table 52: FX Outside Air Dual Duct**

<b>Short Name</b>	<b>Description</b>
<b>OCC-MAN-CMD</b>	Occupied Manual Command
<b>PH1-C</b>	Stage 1 Preheat Command
<b>PH2-C</b>	Stage 2 Preheat Command
<b>PH3-C</b>	Stage 3 Preheat Command
<b>PH4-C</b>	Stage 4 Preheat Command
<b>PH-FB-C</b>	Preheat Face and Bypass Command
<b>PH-FB-O</b>	Preheat Face and Bypass Output
<b>PH-FB-VLV-O</b>	Preheat Face and Bypass Valve Output
<b>PH-O</b>	Preheat Output
<b>SF-C</b>	Supply Fan Command
<b>SF-O</b>	Supply Fan Output
<b>SF-S</b>	Supply Fan Status
<b>SMOKE-A</b>	Smoke Detector Alarm

**FX Outside Air Single Duct****Table 53: FX Outside Air Single Duct**

<b>Short Name</b>	<b>Description</b>
<b>BSP</b>	Building Static Pressure
<b>BSP-SP</b>	Building Static Pressure Setpoint
<b>CLG1-C</b>	Stage 1 Cooling Command
<b>CLG2-C</b>	Stage 2 Cooling Command
<b>CLG3-C</b>	Stage 3 Cooling Command
<b>CLG4-C</b>	Stage 4 Cooling Command
<b>CLG-FB-C</b>	Cooling Face and Bypass Command
<b>CLG-FB-O</b>	Cooling Face and Bypass Output
<b>CLG-O</b>	Cooling Output
<b>COM-COIL-O</b>	Common Coil Output
<b>COM-FB-C</b>	Common Coil Face and Bypass Command
<b>COM-FB-O</b>	Common Coil Face and Bypass Output
<b>DA-T</b>	Discharge Air Temperature
<b>DAT-SP</b>	Discharge Air Temperature Setpoint
<b>DPR-O</b>	Damper Output
<b>DSP</b>	Duct Static Pressure
<b>DSP-SP</b>	Duct Static Pressure Setpoint
<b>EA-T</b>	Exhaust Air Temperature
<b>EAT-SP</b>	Exhaust Air Temperature Setpoint
<b>EF-C</b>	Exhaust Fan Command
<b>EF-O</b>	Exhaust Fan Output
<b>EF-S</b>	Exhaust Fan Status
<b>ERGLY-C</b>	Energy Recovery Glycol Loop Command
<b>ERHW-C</b>	Energy Recovery Heat Wheel Command
<b>ERLL-T</b>	Energy Recovery Low Limit Temperature
<b>ER-O</b>	Energy Recovery Output
<b>ER-S</b>	Energy Recovery Status
<b>ER-SP</b>	Energy Recovery Setpoint
<b>GLYCOL-T</b>	Glycol Temperature
<b>HTG1-C</b>	Stage 1 Heating Command
<b>HTG2-C</b>	Stage 2 Heating Command
<b>HTG3-C</b>	Stage 3 Heating Command
<b>HTG4-C</b>	Stage 4 Heating Command
<b>HTG-FB-C</b>	Heating Face and Bypass Command
<b>HTG-FB-O</b>	Heating Face and Bypass Output
<b>HTG-O</b>	Heating Output
<b>HUM-C</b>	Humidifier Command
<b>HUMIDITY</b>	Humidity
<b>HUM-O</b>	Humidifier Output
<b>OA-E</b>	Outside Air Enthalpy

**Table 53: FX Outside Air Single Duct**

<b>Short Name</b>	<b>Description</b>
<b>OA-H</b>	Outside Air Humidity
<b>OA-T</b>	Outside Air Temperature
<b>OCC-MAN-CMD</b>	Occupied Manual Command
<b>O-CLG-SP</b>	Occupied Cooling Setpoint
<b>PH1-C</b>	Stage 1 Preheat Command
<b>PH2-C</b>	Stage 2 Preheat Command
<b>PH3-C</b>	Stage 3 Preheat Command
<b>PH4-C</b>	Stage 4 Preheat Command
<b>PH-FB-C</b>	Preheat Face and Bypass Command
<b>PH-FB-O</b>	Preheat Face and Bypass Output
<b>PH-FB-VLV-O</b>	Preheat Face and Bypass Valve Output
<b>PH-O</b>	Preheat Output
<b>SF-C</b>	Supply Fan Command
<b>SF-O</b>	Supply Fan Output
<b>SF-S</b>	Supply Fan Status
<b>SMOKE-A</b>	Smoke Detector Alarm
<b>U-CLG-SP</b>	Unoccupied Cooling Setpoint
<b>ZN-H</b>	Zone Humidity
<b>ZN-T</b>	Zone Temperature

**FX Secondary Pump****Table 54: FX Secondary Pump**

<b>Short Name</b>	<b>Description</b>
CHWP1-C	Chilled Water Pump 1 Command
CHWP2-C	Chilled Water Pump 2 Command
CHWP3-C	Chilled Water Pump 3 Command
CHWP4-C	Chilled Water Pump 4 Command
Diff Pressure	System Differential Pressure
DP-SP	System Differential Pressure Setpoint
HWP1-C	Hot Water Pump 1 Command
HWP2-C	Hot Water Pump 2 Command
HWP3-C	Hot Water Pump 3 Command
HWP4-C	Hot Water Pump 4 Command
HWS-T	Hot Water Supply Temperature
P1 Speed	Pump 1 Speed
P1-ALM	Pump 1 Alarm
P1-C-ST	Pump 1 Auto/Override
P1-MAINT	Pump 1 Maintenance
P1-S	Pump 1 Status
P1-SPD-OP	Pump 1 Override Speed
P1-SPD-ST	Pump 1 Speed Auto/Override
P2 Speed	Pump 2 Speed
P2-ALM	Pump 2 Alarm
P2-C-ST	Pump 2 Auto/Override
P2-MAINT	Pump 2 Maintenance
P2-S	Pump 2 Status
P2-SPD-OP	Pump 2 Override Speed
P2-SPD-ST	Pump 2 Speed Auto/Override
P3 Speed	Pump 3 Speed
P3-ALM	Pump 3 Alarm
P3-C-ST	Pump 3 Auto/Override
P3-MAINT	Pump 3 Maintenance
P3-S	Pump 3 Status
P3-SPD-OP	Pump 3 Override Speed
P3-SPD-ST	Pump 3 Speed Auto/Override
P4 Speed	Pump 4 Speed
P4-ALM	Pump 4 Alarm
P4-C-ST	Pump 4 Auto/Override
P4-MAINT	Pump 4 Maintenance
P4-S	Pump 4 Status
P4-SPD-OP	Pump 4 Override Speed
P4-SPD-ST	Pump 4 Speed Auto/Override
SYSENA-C	System Enable Command

**FX Unit Ventilator****Table 55: FX Unit Ventilator**

<b>Short Name</b>	<b>Description</b>
ACTCLGSP	Active Cooling Setpoint
ACTHTGSP	Active Heating Setpoint
CLG1-C	Stage 1 Cooling Command
CLG-FB-C	Cooling Face and Bypass Command
CLG-FB-O	Cooling Face and Bypass Output
CLG-O	Cooling Output
COM-COIL-O	Common Coil Output
COM-FB-C	Common Coil Face and Bypass Command
COM-FB-O	Common Coil Face and Bypass Output
DPR-O	Damper Output
EFF-OCC	Effective Occupancy
EMGHT-SP	Emergency Heat Setpoint
HISPD-C	High Speed Command
HTG1-C	Stage 1 Heating Command
HTG2-C	Stage 2 Heating Command
HTG-FB-C	Heating Face and Bypass Command
HTG-FB-O	Heating Face and Bypass Output
HTG-O	Heating Output
LL-T	Low Limit Temperature
LOWSPD-C	Low Speed Command
MEDSPD-C	Medium Speed Command
OCC-MAN-CMD	Occupied Manual Command
REM-SP	Remote Setpoint
SF-C	Supply Fan Command
SF-S	Supply Fan Status
WC-ADJ	Warm/Cool Adjust
ZN-OC-SP	Occupied Cooling Setpoint
ZN-OH-SP	Occupied Heating Setpoint
ZN-T	Zone Temperature
ZN-UC-SP	Unoccupied Cooling Setpoint
ZN-UH-SP	Unoccupied Heating Setpoint

**FX Zoning****Table 56: FX Zoning**

Short Name	Description
BYPDPR-O	Bypass Damper Output
CLG1-C	Stage 1 Cooling Command
CLG2-C	Stage 2 Cooling Command
CLG3-C	Stage 3 Cooling Command
CLG4-C	Stage 4 Cooling Command
CLG-O	Cooling Output
CO2-LEV	CO2 Level (ppm)
DACLG-SP	Discharge Cooling Setpoint
DAHTG-SP	Discharge Heating Setpoint
DA-T	Discharge Air Temperature
DAVENT-SP	Ventilation Setpoint
ECON-S	Economizer Status
FILTER-S	Filter Status
HTG1-C	Stage 1 Heating Command
HTG2-C	Stage 2 Heating Command
HTG3-C	Stage 3 Heating Command
HTG4-C	Stage 4 Heating Command
HTG-O	Heating Output
IAQ-SP	CO2 Setpoint (ppm)
LOWLMT-SP	Low Limit Temperature Setpoint
MA-T	Mixed Air Temperature
OADPR-O	Damper Output
OA-E	Outside Air Enthalpy
OA-H	Outside Air Humidity
OAMIN-POS	Damper Minimum Position
OA-T	Outside Air Temperature
OCC-C	Occupied Command
RA-ENTH	Return Air Enthalpy
RA-H	Return Air Humidity
RA-T	Return Air Temperature
RT-MODE	Rooftop Mode
SF-C	Supply Fan Command
SF-S	Supply Fan Status
STATIC-P	Duct Static Pressure
STATIC-SP	Duct Static Pressure Setpoint
Z10ACT-SP	Zone 10 Active Temperature Setpoint
Z10DMP-O	Zone 10 Damper Output
Z10OCLG-SP	Zone 10 Active Occupied Cooling Setpoint
Z10OHTG-SP	Zone 10 Active Occupied Heating Setpoint
Z10-T	Zone 10 Temperature

**Table 56: FX Zoning**

<b>Short Name</b>	<b>Description</b>
<b>Z11ACT-SP</b>	Zone 11 Active Temperature Setpoint
<b>Z11DMP-O</b>	Zone 11 Damper Output
<b>Z11OCLG-SP</b>	Zone 11 Active Occupied Cooling Setpoint
<b>Z11OHTG-SP</b>	Zone 11 Active Occupied Heating Setpoint
<b>Z11-T</b>	Zone 11 Temperature
<b>Z12ACT-SP</b>	Zone 12 Active Temperature Setpoint
<b>Z12DMP-O</b>	Zone 12 Damper Output
<b>Z12OCLG-SP</b>	Zone 12 Active Occupied Cooling Setpoint
<b>Z12OHTG-SP</b>	Zone 12 Active Occupied Heating Setpoint
<b>Z12-T</b>	Zone 12 Temperature
<b>Z13ACT-SP</b>	Zone 13 Active Temperature Setpoint
<b>Z13DMP-O</b>	Zone 13 Damper Output
<b>Z13OCLG-SP</b>	Zone 13 Active Occupied Cooling Setpoint
<b>Z13OHTG-SP</b>	Zone 13 Active Occupied Heating Setpoint
<b>Z13-T</b>	Zone 13 Temperature
<b>Z14ACT-SP</b>	Zone 14 Active Temperature Setpoint
<b>Z14DMP-O</b>	Zone 14 Damper Output
<b>Z14OCLG-SP</b>	Zone 14 Active Occupied Cooling Setpoint
<b>Z14OHTG-SP</b>	Zone 14 Active Occupied Heating Setpoint
<b>Z14-T</b>	Zone 14 Temperature
<b>Z15ACT-SP</b>	Zone 15 Active Temperature Setpoint
<b>Z15DMP-O</b>	Zone 15 Damper Output
<b>Z15OCLG-SP</b>	Zone 15 Active Occupied Cooling Setpoint
<b>Z15OHTG-SP</b>	Zone 15 Active Occupied Heating Setpoint
<b>Z15-T</b>	Zone 15 Temperature
<b>Z16ACT-SP</b>	Zone 16 Active Temperature Setpoint
<b>Z16DMP-O</b>	Zone 16 Damper Output
<b>Z16OCLG-SP</b>	Zone 16 Active Occupied Cooling Setpoint
<b>Z16OHTG-SP</b>	Zone 16 Active Occupied Heating Setpoint
<b>Z16-T</b>	Zone 16 Temperature
<b>Z1ACT-SP</b>	Zone 1 Active Temperature Setpoint
<b>Z1DMP-O</b>	Zone 1 Damper Output
<b>Z1OCLG-SP</b>	Zone 1 Active Occupied Cooling Setpoint
<b>Z1OHTG-SP</b>	Zone 1 Active Occupied Heating Setpoint
<b>Z1-T</b>	Zone 1 Temperature
<b>Z2ACT-SP</b>	Zone 2 Active Temperature Setpoint
<b>Z2DMP-O</b>	Zone 2 Damper Output
<b>Z2OCLG-SP</b>	Zone 2 Active Occupied Cooling Setpoint
<b>Z2OHTG-SP</b>	Zone 2 Active Occupied Heating Setpoint
<b>Z2-T</b>	Zone 2 Temperature
<b>Z3ACT-SP</b>	Zone 3 Active Temperature Setpoint



**Table 56: FX Zoning**

<b>Short Name</b>	<b>Description</b>
<b>Z3DMP-O</b>	Zone 3 Damper Output
<b>Z3OCLG-SP</b>	Zone 3 Active Occupied Cooling Setpoint
<b>Z3OHTG-SP</b>	Zone 3 Active Occupied Heating Setpoint
<b>Z3-T</b>	Zone 3 Temperature
<b>Z4ACT-SP</b>	Zone 4 Active Temperature Setpoint
<b>Z4DMP-O</b>	Zone 4 Damper Output
<b>Z4OCLG-SP</b>	Zone 4 Active Occupied Cooling Setpoint
<b>Z4OHTG-SP</b>	Zone 4 Active Occupied Heating Setpoint
<b>Z4-T</b>	Zone 4 Temperature
<b>Z5ACT-SP</b>	Zone 5 Active Temperature Setpoint
<b>Z5DMP-O</b>	Zone 5 Damper Output
<b>Z5OCLG-SP</b>	Zone 5 Active Occupied Cooling Setpoint
<b>Z5OHTG-SP</b>	Zone 5 Active Occupied Heating Setpoint
<b>Z5-T</b>	Zone 5 Temperature
<b>Z6ACT-SP</b>	Zone 6 Active Temperature Setpoint
<b>Z6DMP-O</b>	Zone 6 Damper Output
<b>Z6OCLG-SP</b>	Zone 6 Active Occupied Cooling Setpoint
<b>Z6OHTG-SP</b>	Zone 6 Active Occupied Heating Setpoint
<b>Z6-T</b>	Zone 6 Temperature
<b>Z7ACT-SP</b>	Zone 7 Active Temperature Setpoint
<b>Z7DMP-O</b>	Zone 7 Damper Output
<b>Z7OCLG-SP</b>	Zone 7 Active Occupied Cooling Setpoint
<b>Z7OHTG-SP</b>	Zone 7 Active Occupied Heating Setpoint
<b>Z7-T</b>	Zone 7 Temperature
<b>Z8ACT-SP</b>	Zone 8 Active Temperature Setpoint
<b>Z8DMP-O</b>	Zone 8 Damper Output
<b>Z8OCLG-SP</b>	Zone 8 Active Occupied Cooling Setpoint
<b>Z8OHTG-SP</b>	Zone 8 Active Occupied Heating Setpoint
<b>Z8-T</b>	Zone 8 Temperature
<b>Z9ACT-SP</b>	Zone 9 Active Temperature Setpoint
<b>Z9DMP-O</b>	Zone 9 Damper Output
<b>Z9OCLG-SP</b>	Zone 9 Active Occupied Cooling Setpoint
<b>Z9OHTG-SP</b>	Zone 9 Active Occupied Heating Setpoint
<b>Z9-T</b>	Zone 9 Temperature
<b>ZNMAXHTG</b>	Zone Maximum Cooling
<b>ZNMAXCLG</b>	Zone Maximum Heating

## FX-PCT Standard System Types

### 100% OA Dual Duct (FX-PCT)

Table 57: 100% OA Dual Duct (FX-PCT)

FX Supervisor Name	Description
APP-MODE	Application Mode
BLDG-P	Building Static Pressure
BLDGP-SP	Building Static Pressure Setpoint
CD-F	Cold Deck Flow
CD-P	Cold Deck Static Pressure
CD-T	Cold Deck Temperature
CDTHI-SP	Discharge Air High Setpoint
CDTLO-SP	Discharge Air Low Setpoint
CDT-OARSTA	OA Reset A
CDT-OARSTB	OA Reset B
CDT-SP	Cold Deck Air Temperature Setpoint
CD-VP	Cold Deck Velocity Pressure
CHWE-T	Chilled Water Entering Temperature
CHWL-T	Chilled Water Leaving Temperature
CLG1-C	Cooling Stage 1 Command
CLG2-C	Cooling Stage 2 Command
CLG3-C	Cooling Stage 3 Command
CLG4-C	Cooling Stage 4 Command
CLG5-C	Cooling Stage 5 Command
CLG6-C	Cooling Stage 6 Command
CLG7-C	Cooling Stage 7 Command
CLG8-C	Cooling Stage 8 Command
CLG-C	Cooling Command
CLG-EN	Cooling Available
CLGFBD-O	Cooling Face & Bypass Damper Output
CLG-O	Cooling Output
CLGOATLOCKOUT-SP	OA Cooling Enable Setpoint
CLGUNOCC-SP	Night Cooling Setpoint
CP-C	Cooling Pump Command
CP-S	Cooling Pump Status
DA-F	Discharge Air Flow
DA-H	Discharge Air Humidity
DAH-SP	Discharge Air Humidity Setpoint
DAPHI-A	Discharge Air High Duct Pressure
DAP-SP	Duct Static Pressure Setpoint
DA-Q	Discharge Air Quality
DA-SD	Discharge Air Smoke Alarm

**Table 57: 100% OA Dual Duct (FX-PCT)**

<b>FX Supervisor Name</b>	<b>Description</b>
DA-VP	Discharge Air Velocity Pressure
EA-F	Exhaust Air Flow
EA-H	Exhaust Air Humidity
EAHR-T	Exhaust Air Heat Recovery Temperature
EA-P	Exhaust Air Static Pressure
EAPLO-A	Exhaust Air Low Duct Pressure
EA-Q	Exhaust Air Quality
EA-SD	Exhaust Air Smoke Alarm
EA-T	Exhaust Air Temperature
EA-VP	Exhaust Air Velocity Pressure
EF-A	Exhaust Fan Alarm
EF-C	Exhaust Fan Command
EFF-OCC	Effective Occupancy
EF-O	Exhaust Fan Output
EF-S	Exhaust Fan Status
EMERGENCY-BLDGP-SP	Emergency BSP Setpoint
EMERGENCY-DAP-SP	Emergency Duct Static Setpoint
EMERGENCY-MODE	Emergency Mode
FBPD-SWO	Network Switchover
FBPDSWO-SP	Switchover Setpoint
FFILT-DP	Final Filter Diff Pressure
FFILT-S	Final Filter Status
FLOW-DIFF	Flow Differential Setpoint
FSCS-EF	FSCS Exhaust Fan
FSCS-SF	FSCS Supply Fan
GEF-C	General Exhaust Fan Command
GEF-S	General Exhaust Fan Status
GLY-T	Glycol Temperature
HD-F	Hot Deck Flow
HD-H	Hot Deck Humidity
HD-P	Hot Deck Static Pressure
HD-T	Hot Deck Temperature
HDT-EARSTA	OA Reset A
HDT-EARSTB	OA Reset B
HDTHI-SP	Discharge Air High Setpoint
HDTLO-SP	Discharge Air Low Setpoint
HDT-OARSTA	OA Reset A
HDT-OARSTB	OA Reset B
HDT-SP	Hot Deck Air Temperature Setpoint
HDV-C	Humidifier Drain Valve Command

**Table 57: 100% OA Dual Duct (FX-PCT)**

<b>FX Supervisor Name</b>	<b>Description</b>
HD-VP	Hot Deck Velocity Pressure
HFV-C	Humidifier Fill Valve Command
HREAFBD-C	Heat Recovery EA FBD Command
HREAFBD-O	Heat Recovery EA FBD Output
HRLL-SP	Heat Recovery Low Limit Setpoint
HR-O	Heat Recovery Output
HROAFBD-C	Heat Recovery OA FBD Command
HROAFBD-O	Heat Recovery OA FBD Output
HRP-C	Heat Recovery Pump Command
HRP-S	Heat Recovery Pump Status
HR-T	Heat Recovery Temperature
HRT-SP	Heat Recovery Setpoint
HRW-C	Heat Recovery Wheel Command
HRW-O	Heat Recovery Wheel Output
HRW-S	Heat Recovery Wheel Status
HT-A	High Temperature Alarm
HTG1-C	Heating Stage 1 Command
HTG1-O	Heating 1 Output
HTG2-C	Heating Stage 2 Command
HTG2-O	Heating 2 Output
HTG3-C	Heating Stage 3 Command
HTG4-C	Heating Stage 4 Command
HTG5-C	Heating Stage 5 Command
HTG6-C	Heating Stage 6 Command
HTG7-C	Heating Stage 7 Command
HTG8-C	Heating Stage 8 Command
HTGOATLOCKOUT-SP	OA Heating Enable Setpoint
HTGUNOCC-SP	Night Heating Setpoint
HUM1-C	Humidifier Stage 1 Command
HUM2-C	Humidifier Stage 2 Command
HUM3-C	Humidifier Stage 3 Command
HUM4-C	Humidifier Stage 4 Command
HUM-C	Humidifier Command
HUM-EN	Humidification Available
HUMHI-A	Humidity High Limit
HUM-O	Humidifier Output
HUM-S	Humidifier Status
HUM-SP	Humidification Setpoint
LT-A	Low Temperature Alarm
LT-SP	Low Temperature Setpoint

**Table 57: 100% OA Dual Duct (FX-PCT)**

<b>FX Supervisor Name</b>	<b>Description</b>
OA-F	Outdoor Air Flow
OA-H	Outdoor Air Humidity
OALT-SP	OA Low Temperature Setpoint
OA-Q	Outdoor Air Quality
OA-T	Outdoor Air Temperature
OA-VP	Outdoor Air Velocity Pressure
OCCFLOW-DIFF	Occupied Flow Differential Setpoint
OCC-OVERRIDE	Occupancy Override
OCC-S	Occupancy Status
OCC-SCHEDULE	Occupancy Schedule
PFILT-DP	PreFilter Diff Pressure
PFILT-S	PreFilter Status
PH1-C	Preheat Stage 1 Command
PH1-O	Preheat 1 Output
PH2-C	Preheat Stage 2 Command
PH2-O	Preheat 2 Output
PH3-C	Preheat Stage 3 Command
PH4-C	Preheat Stage 4 Command
PH5-C	Preheat Stage 5 Command
PH6-C	Preheat Stage 6 Command
PH7-C	Preheat Stage 7 Command
PH8-C	Preheat Stage 8 Command
PH-A	Preheat Alarm
PH-C	Preheat Command
PH-EN	Preheat Available
PHFBD-O	Preheat Face & Bypass Damper Output
PH-O	Preheat Output
PHP-C	Preheat Pump Command
PHP-S	Preheat Pump Status
PH-T	Preheat Temperature
PHWE-T	Preheat Entering Water Temperature
PHWL-T	Preheat Leaving Water Temperature
RH-A	Reheat Alarm
RH-EN	Reheat Available
RH-O	Reheat Output
RHP-C	Reheat Pump Command
RHP-S	Reheat Pump Status
RHWE-T	Reheat Entering Water Temperature
RHWL-T	Reheat Leaving Water Temperature
SF-A	Supply Fan Alarm

**Table 57: 100% OA Dual Duct (FX-PCT)**

<b>FX Supervisor Name</b>	<b>Description</b>
<b>SF-C</b>	Supply Fan Command
<b>SF-O</b>	Supply Fan Output
<b>SF-S</b>	Supply Fan Status
<b>STMISO-C</b>	Steam Isolation Valve Command
<b>SYS-RESET</b>	System Reset
<b>TEF-C</b>	Toilet Exhaust Fan Command
<b>TEF-S</b>	Toilet Exhaust Fan Status
<b>TUNING-RESET</b>	Application Tuning Reset
<b>UNITEN-MODE</b>	Unit Enable Mode
<b>UNITEN-S</b>	Unit Enable Switch
<b>UNITEN-STATE</b>	Unit Enable State
<b>UNIT-RESET</b>	Unit Reset
<b>UNOCCFLOW-DIFF</b>	Unoccupied Flow Differential Setpoint
<b>WC-C</b>	WarmupCooldown
<b>ZN-H</b>	Zone Humidity
<b>ZN-Q</b>	Zone Quality
<b>ZN-T</b>	Zone Temperature

**100% OA Single Duct (FX-PCT)**

**Table 58: 100% OA Single Duct (FX-PCT)**

<b>FX Supervisor Name</b>	<b>Description</b>
AHU-STATE	AHU State
APP-MODE	Application Mode
BLDG-P	Building Static Pressure
BLDGP-SP	Building Static Pressure Setpoint
CHWE-T	Chilled Water Entering Temperature
CHWL-T	Chilled Water Leaving Temperature
CLG1-C	Cooling Stage 1 Command
CLG2-C	Cooling Stage 2 Command
CLG3-C	Cooling Stage 3 Command
CLG4-C	Cooling Stage 4 Command
CLG5-C	Cooling Stage 5 Command
CLG6-C	Cooling Stage 6 Command
CLG7-C	Cooling Stage 7 Command
CLG8-C	Cooling Stage 8 Command
CLG-C	Cooling Command
CLG-EN	Cooling Available
CLGFBD-O	Cooling Face & Bypass Damper Output
CLG-O	Cooling Output
CLGOATLOCKOUT-SP	OA Cooling Enable Setpoint
CLGOCC-SP	Occ Cooling Setpoint
CLGUNOCC-SP	Night Cooling Setpoint
CP-C	Cooling Pump Command
CP-S	Cooling Pump Status
DA1-P	Discharge Air Static Pressure 1
DA2-P	Discharge Air Static Pressure 2
DA-F	Discharge Air Flow
DA-H	Discharge Air Humidity
DAH-SP	Discharge Air Humidity Setpoint
DAPHI-A	Discharge Air High Duct Pressure
DAP-SP	Duct Static Pressure Setpoint
DA-Q	Discharge Air Quality
DA-SD	Discharge Air Smoke Alarm
DA-T	Discharge Air Temperature
DATCLGMIN-SP	Discharge Air Setpoint Cooling Min
DATCLGUNOCC-SP	Unocc Cooling Setpoint
DATHI-SP	Discharge Air High Setpoint
DATHTGMAX-SP	Discharge Air Setpoint Heating Max
DATHTGUNOCC-SP	Unocc Heating Setpoint
DATLO-SP	Discharge Air Low Setpoint
DAT-OARSTA	OA Reset A

**Table 58: 100% OA Single Duct (FX-PCT)**

<b>FX Supervisor Name</b>	<b>Description</b>
<b>DAT-OARSTB</b>	OA Reset B
<b>DATSATISFIED-SP</b>	Discharge Air Setpoint Zone Satisfied
<b>DAT-SP</b>	Discharge Air Temperature Setpoint
<b>DA-VP</b>	Discharge Air Velocity Pressure
<b>DEHUM-SP</b>	Dehumidification Setpoint
<b>EA-F</b>	Exhaust Air Flow
<b>EA-H</b>	Exhaust Air Humidity
<b>EAHR-T</b>	Exhaust Air Heat Recovery Temperature
<b>EA-P</b>	Exhaust Air Static Pressure
<b>EAPLO-A</b>	Exhaust Air Low Duct Pressure
<b>EA-Q</b>	Exhaust Air Quality
<b>EA-SD</b>	Exhaust Air Smoke Alarm
<b>EA-T</b>	Exhaust Air Temperature
<b>EAT-SP</b>	Exhaust Air Temperature Setpoint
<b>EA-VP</b>	Exhaust Air Velocity Pressure
<b>EF2-A</b>	Exhaust Fan2 Alarm
<b>EF2-C</b>	Exhaust Fan2 Command
<b>EF2-O</b>	Exhaust Fan2 Output
<b>EF2-S</b>	Exhaust Fan2 Status
<b>EF-A</b>	Exhaust Fan Alarm
<b>EF-C</b>	Exhaust Fan Command
<b>EFFCLG-SP</b>	Effective Cooling Setpoint
<b>EFFDAT-SP</b>	Discharge Air Setpoint
<b>EFFHTG-SP</b>	Effective Heating Setpoint
<b>EFF-OCC</b>	Effective Occupancy
<b>EF-LEAD</b>	Exhaust Fan Lead Select
<b>EF-O</b>	Exhaust Fan Output
<b>EF-S</b>	Exhaust Fan Status
<b>EMERGENCY-BLDGP-SP</b>	Emergency BSP Setpoint
<b>EMERGENCY-DAP-SP</b>	Emergency Duct Static Setpoint
<b>EMERGENCY-MODE</b>	Emergency Mode
<b>FBPD-SWO</b>	Network Switchover
<b>FBPDSWO-SP</b>	Switchover Setpoint
<b>FFILT-DP</b>	Final Filter Diff Pressure
<b>FFILT-S</b>	Final Filter Status
<b>FLOW-DIFF</b>	Flow Differential Setpoint
<b>FSCS-EF</b>	FSCS Exhaust Fan
<b>FSCS-SF</b>	FSCS Supply Fan
<b>GEF-C</b>	General Exhaust Fan Command
<b>GEF-S</b>	General Exhaust Fan Status
<b>GLY-T</b>	Glycol Temperature



**Table 58: 100% OA Single Duct (FX-PCT)**

<b>FX Supervisor Name</b>	<b>Description</b>
HC-C	Heating/Cooling Command
HCFBD-%	Heating/Cooling Face & Bypass Eff Cmd
HCFBD-O	Heating/Cooling Face & Bypass Output
HC-O	Heating/Cooling Output
HCP-C	Heating/Cooling Pump Command
HCP-S	Heating/Cooling Pump Status
HCWE-T	Htg/Clg Entering Water Temperature
HCWL-T	Htg/Clg Leaving Water Temperature
HDV-C	Humidifier Drain Valve Command
HFV-C	Humidifier Fill Valve Command
HREAFBD-C	Heat Recovery EA FBD Command
HREAFBD-O	Heat Recovery EA FBD Output
HRLL-SP	Heat Recovery Low Limit Setpoint
HR-O	Heat Recovery Output
HROAFBD-C	Heat Recovery OA FBD Command
HROAFBD-O	Heat Recovery OA FBD Output
HRP-C	Heat Recovery Pump Command
HRP-S	Heat Recovery Pump Status
HR-T	Heat Recovery Temperature
HRT-SP	Heat Recovery Setpoint
HRW-C	Heat Recovery Wheel Command
HRW-O	Heat Recovery Wheel Output
HRW-S	Heat Recovery Wheel Status
HTG1-C	Heating Stage 1 Command
HTG1-O	Heating 1 Output
HTG2-C	Heating Stage 2 Command
HTG2-O	Heating 2 Output
HTG3-C	Heating Stage 3 Command
HTG4-C	Heating Stage 4 Command
HTG5-C	Heating Stage 5 Command
HTG6-C	Heating Stage 6 Command
HTG7-C	Heating Stage 7 Command
HTG8-C	Heating Stage 8 Command
HTGOATLOCKOUT-SP	OA Heating Enable Setpoint
HTGOCC-SP	Occ Heating Setpoint
HTGUNOCC-SP	Night Heating Setpoint
HUM1-C	Humidifier Stage 1 Command
HUM2-C	Humidifier Stage 2 Command
HUM3-C	Humidifier Stage 3 Command
HUM4-C	Humidifier Stage 4 Command
HUM-C	Humidifier Command

**Table 58: 100% OA Single Duct (FX-PCT)**

<b>FX Supervisor Name</b>	<b>Description</b>
HUM-EN	Humidification Available
HUMHI-A	Humidity High Limit
HUM-O	Humidifier Output
HUM-S	Humidifier Status
HUM-SP	Humidification Setpoint
LT-A	Low Temperature Alarm
LT-SP	Low Temperature Setpoint
OA-F	Outdoor Air Flow
OA-F	Outdoor Air Flow
OA-H	Outdoor Air Humidity
OALT-SP	OA Low Temperature Setpoint
OA-Q	Outdoor Air Quality
OA-T	Outdoor Air Temperature
OA-VP	Outdoor Air Velocity Pressure
OCCFLOW-DIFF	Occupied Flow Differential Setpoint
OCC-OVERRIDE	Occupancy Override
OCC-S	Occupancy Status
OCC-SCHEDULE	Occupancy Schedule
PFILT-DP	PreFilter Diff Pressure
PFILT-S	PreFilter Status
PH1-C	Preheat Stage 1 Command
PH1-O	Preheat 1 Output
PH2-C	Preheat Stage 2 Command
PH2-O	Preheat 2 Output
PH3-C	Preheat Stage 3 Command
PH4-C	Preheat Stage 4 Command
PH5-C	Preheat Stage 5 Command
PH6-C	Preheat Stage 6 Command
PH7-C	Preheat Stage 7 Command
PH8-C	Preheat Stage 8 Command
PH-A	Preheat Alarm
PH-C	Preheat Command
PH-EN	Preheat Available
PHFBD-O	Preheat Face & Bypass Damper Output
PH-O	Preheat Output
PHP-C	Preheat Pump Command
PHP-S	Preheat Pump Status
PH-T	Preheat Temperature
PHWE-T	Preheat Entering Water Temperature
PHWL-T	Preheat Leaving Water Temperature
RH-A	Reheat Alarm

**Table 58: 100% OA Single Duct (FX-PCT)**

<b>FX Supervisor Name</b>	<b>Description</b>
<b>RH-EN</b>	Reheat Available
<b>RH-O</b>	Reheat Output
<b>RHP-C</b>	Reheat Pump Command
<b>RHP-S</b>	Reheat Pump Status
<b>RHWE-T</b>	Reheat Entering Water Temperature
<b>RHWL-T</b>	Reheat Leaving Water Temperature
<b>SF2-A</b>	Supply Fan2 Alarm
<b>SF2-C</b>	Supply Fan2 Command
<b>SF2-O</b>	Supply Fan2 Output
<b>SF2-S</b>	Supply Fan2 Status
<b>SF-A</b>	Supply Fan Alarm
<b>SF-C</b>	Supply Fan Command
<b>SF-LEAD</b>	Supply Fan Lead Select
<b>SF-O</b>	Supply Fan Output
<b>SF-S</b>	Supply Fan Status
<b>STMISO-C</b>	Steam Isolation Valve Command
<b>SUM-SP</b>	Summer Setpoint
<b>SUMWIN-C</b>	Summer Winter Command
<b>SUMWIN-S</b>	Summer/Winter Mode Status
<b>SUMWINSWO-DIFF</b>	Switchover Diff
<b>SUMWINSWO-SP</b>	Switchover Setpoint
<b>SYS-RESET</b>	System Reset
<b>TEF-C</b>	Toilet Exhaust Fan Command
<b>TEF-S</b>	Toilet Exhaust Fan Status
<b>TUNING-RESET</b>	Application Tuning Reset
<b>UNITEN-MODE</b>	Unit Enable Mode
<b>UNITEN-S</b>	Unit Enable Switch
<b>UNITEN-STATE</b>	Unit Enable State
<b>UNIT-RESET</b>	Unit Reset
<b>UNOCCFLOW-DIFF</b>	Unoccupied Flow Differential Setpoint
<b>WC-ADJ</b>	Warmer/Cooler Adjust
<b>WC-C</b>	WarmupCooldown
<b>WIN-SP</b>	Winter Setpoint
<b>ZN-H</b>	Zone Humidity
<b>ZN-Q</b>	Zone Quality
<b>ZN-SP</b>	Zone Setpoint
<b>ZN-SP-MIN</b>	Minimum Zone Setpoint
<b>ZN-SP-MAX</b>	Maximum Zone Setpoint
<b>ZN-T</b>	Zone Temperature
<b>ZN-TOCC</b>	Zone Temporary Occupancy

**Table 58: 100% OA Single Duct (FX-PCT)**

<b>FX Supervisor Name</b>	<b>Description</b>
<b>ZNT-SP</b>	Common Setpoint
<b>ZNT-STATE</b>	Zone Temperature State

**Central Heating (FX-PCT)**

**Table 59: Central Heating (FX-PCT)**

<b>FX Supervisor Name</b>	<b>Description</b>
BLDG-L	Building Load
BLR1-A	Boiler 1 Alarm
BLR1-C	Boiler 1 Command
BLR1EW-T	Boiler 1 Entering Water Temperature
BLR1-FS	Boiler 1 Flow Switch
BLR1HT-A	Boiler 1 High Temperature Alarm
BLR1ISOV-C	Boiler 1 Isolation Valve Command
BLR1ISOV-S	Boiler 1 Isolation Valve Status
BLR1-LO	Boiler 1 Lockout Switch
BLR1LW-T	Boiler 1 Leaving Water Temperature
BLR1-MS	Boiler 1 Maint Sw
BLR1-O	Boiler 1 Output
BLR1-S	Boiler 1 Status
BLR1SP-O	Boiler 1 Setpoint Output
BLR2-A	Boiler 2 Alarm
BLR2-C	Boiler 2 Command
BLR2EW-T	Boiler 2 Entering Water Temperature
BLR2-FS	Boiler 2 Flow Switch
BLR2HT-A	Boiler 2 High Temperature Alarm
BLR2ISOV-C	Boiler 2 Isolation Valve Command
BLR2ISOV-S	Boiler 2 Isolation Valve Status
BLR2-LO	Boiler 2 Lockout Switch
BLR2LW-T	Boiler 2 Leaving Water Temperature
BLR2-MS	Boiler 2 Maint Sw
BLR2-O	Boiler 2 Output
BLR2-S	Boiler 2 Status
BLR2SP-O	Boiler 2 Setpoint Output
BLR3-A	Boiler 3 Alarm
BLR3-C	Boiler 3 Command
BLR3EW-T	Boiler 3 Entering Water Temperature
BLR3-FS	Boiler 3 Flow Switch
BLR3HT-A	Boiler 3 High Temperature Alarm
BLR3ISOV-C	Boiler 3 Isolation Valve Command
BLR3ISOV-S	Boiler 3 Isolation Valve Status
BLR3-LO	Boiler 3 Lockout Switch
BLR3LW-T	Boiler 3 Leaving Water Temperature
BLR3-MS	Boiler 3 Maint Sw
BLR3-O	Boiler 3 Output
BLR3-S	Boiler 3 Status
BLR3SP-O	Boiler 3 Setpoint Output

**Table 59: Central Heating (FX-PCT)**

<b>FX Supervisor Name</b>	<b>Description</b>
BLR4-A	Boiler 4 Alarm
BLR4-C	Boiler 4 Command
BLR4EW-T	Boiler 4 Entering Water Temperature
BLR4-FS	Boiler 4 Flow Switch
BLR4HT-A	Boiler 4 High Temperature Alarm
BLR4ISOV-C	Boiler 4 Isolation Valve Command
BLR4ISOV-S	Boiler 4 Isolation Valve Status
BLR4-LO	Boiler 4 Lockout Switch
BLR4LW-T	Boiler 4 Leaving Water Temperature
BLR4-MS	Boiler 4 Maint Sw
BLR4-O	Boiler 4 Output
BLR4-S	Boiler 4 Status
BLR4SP-O	Boiler 4 Setpoint Output
BLR5-A	Boiler 5 Alarm
BLR5-C	Boiler 5 Command
BLR5EW-T	Boiler 5 Entering Water Temperature
BLR5-FS	Boiler 5 Flow Switch
BLR5HT-A	Boiler 5 High Temperature Alarm
BLR5ISOV-C	Boiler 5 Isolation Valve Command
BLR5ISOV-S	Boiler 5 Isolation Valve Status
BLR5-LO	Boiler 5 Lockout Switch
BLR5LW-T	Boiler 5 Leaving Water Temperature
BLR5-MS	Boiler 5 Maint Sw
BLR5-O	Boiler 5 Output
BLR5-S	Boiler 5 Status
BLR5SP-O	Boiler 5 Setpoint Output
BLR6-A	Boiler 6 Alarm
BLR6-C	Boiler 6 Command
BLR6EW-T	Boiler 6 Entering Water Temperature
BLR6-FS	Boiler 6 Flow Switch
BLR6HT-A	Boiler 6 High Temperature Alarm
BLR6ISOV-C	Boiler 6 Isolation Valve Command
BLR6ISOV-S	Boiler 6 Isolation Valve Status
BLR6-LO	Boiler 6 Lockout Switch
BLR6LW-T	Boiler 6 Leaving Water Temperature
BLR6-MS	Boiler 6 Maint Sw
BLR6-O	Boiler 6 Output
BLR6-S	Boiler 6 Status
BLR6SP-O	Boiler 6 Setpoint Output
BLR7-A	Boiler 7 Alarm
BLR7-C	Boiler 7 Command

**Table 59: Central Heating (FX-PCT)**

<b>FX Supervisor Name</b>	<b>Description</b>
<b>BLR7EW-T</b>	Boiler 7 Entering Water Temperature
<b>BLR7-FS</b>	Boiler 7 Flow Switch
<b>BLR7HT-A</b>	Boiler 7 High Temperature Alarm
<b>BLR7ISOV-C</b>	Boiler 7 Isolation Valve Command
<b>BLR7ISOV-S</b>	Boiler 7 Isolation Valve Status
<b>BLR7-LO</b>	Boiler 7 Lockout Switch
<b>BLR7LW-T</b>	Boiler 7 Leaving Water Temperature
<b>BLR7-MS</b>	Boiler 7 Maint Sw
<b>BLR7-O</b>	Boiler 7 Output
<b>BLR7-S</b>	Boiler 7 Status
<b>BLR7SP-O</b>	Boiler 7 Setpoint Output
<b>BLR8-A</b>	Boiler 8 Alarm
<b>BLR8-C</b>	Boiler 8 Command
<b>BLR8EW-T</b>	Boiler 8 Entering Water Temperature
<b>BLR8-FS</b>	Boiler 8 Flow Switch
<b>BLR8HT-A</b>	Boiler 8 High Temperature Alarm
<b>BLR8ISOV-C</b>	Boiler 8 Isolation Valve Command
<b>BLR8ISOV-S</b>	Boiler 8 Isolation Valve Status
<b>BLR8-LO</b>	Boiler 8 Lockout Switch
<b>BLR8LW-T</b>	Boiler 8 Leaving Water Temperature
<b>BLR8-MS</b>	Boiler 8 Maint Sw
<b>BLR8-O</b>	Boiler 8 Output
<b>BLR8-S</b>	Boiler 8 Status
<b>BLR8SP-O</b>	Boiler 8 Setpoint Output
<b>BLR-ROT</b>	Rotate Boilers
<b>BLR-RUNNING</b>	Current Stage
<b>BLR-SP</b>	Boiler Setpoint
<b>BLRSTG-SP</b>	Boiler Stage-up Setpoint
<b>BP1-C</b>	Boiler Pump 1 Command
<b>BP1-O</b>	Boiler Pump 1 Output
<b>BP1-S</b>	Boiler Pump 1 Status
<b>BP2-C</b>	Boiler Pump 2 Command
<b>BP2-O</b>	Boiler Pump 2 Output
<b>BP2-S</b>	Boiler Pump 2 Status
<b>BP3-C</b>	Boiler Pump 3 Command
<b>BP3-O</b>	Boiler Pump 3 Output
<b>BP3-S</b>	Boiler Pump 3 Status
<b>BP4-C</b>	Boiler Pump 4 Command
<b>BP4-O</b>	Boiler Pump 4 Output
<b>BP4-S</b>	Boiler Pump 4 Status
<b>BP5-C</b>	Boiler Pump 5 Command

**Table 59: Central Heating (FX-PCT)**

<b>FX Supervisor Name</b>	<b>Description</b>
<b>BP5-O</b>	Boiler Pump 5 Output
<b>BP5-S</b>	Boiler Pump 5 Status
<b>BP6-C</b>	Boiler Pump 6 Command
<b>BP6-O</b>	Boiler Pump 6 Output
<b>BP6-S</b>	Boiler Pump 6 Status
<b>BP7-C</b>	Boiler Pump 7 Command
<b>BP7-O</b>	Boiler Pump 7 Output
<b>BP7-S</b>	Boiler Pump 7 Status
<b>BP8-C</b>	Boiler Pump 8 Command
<b>BP8-O</b>	Boiler Pump 8 Output
<b>BP8-S</b>	Boiler Pump 8 Status
<b>BYPV-O</b>	Bypass Valve Output
<b>COMBDPR-C</b>	Combustion Damper Command
<b>COMBDPR-S</b>	Combustion Damper Status
<b>FROST-DIFF</b>	Frost Protect Differential
<b>FROST-SP1</b>	Frost Protect OA Setpoint 1
<b>FROST-SP2</b>	Frost Protect OA Setpoint 2
<b>HTGOATLOCKOUT-SP</b>	OA Heating Enable Setpoint
<b>HW-DP</b>	Hot Water Diff Pressure
<b>HWDP-SP</b>	HW Differential Pressure Setpoint
<b>HWS-HIGH</b>	HWS Reset High
<b>HWS-LOW</b>	HWS Reset Low
<b>HW-SP</b>	Hot Water Setpoint
<b>HWSYS-AVAILABLE</b>	HW System Available
<b>HX1EW-T</b>	HX1 Entering Water Temperature
<b>HX1-EW-T</b>	HX1 Entering Water Temperature
<b>HX1ISOV-C</b>	HX1 Isolation Valve Command
<b>HX1ISOVLV-C</b>	HX1 Isolation Valve Command
<b>HX1ISOVLV-S</b>	HX1 Isolation Valve Status
<b>HX1ISOV-S</b>	HX1 Isolation Valve Status
<b>HX1LW-T</b>	HX1 Leaving Water Temperature
<b>HX1-LW-T</b>	HX1 Leaving Water Temperature
<b>HX1-MS</b>	HX1 Maint Sw
<b>HX1V1-O</b>	HX1 Valve 1 Output
<b>HX1V2-O</b>	HX1 Valve 2 Output
<b>HX2EW-T</b>	HX2 Entering Water Temperature
<b>HX2-EW-T</b>	HX2 Entering Water Temperature
<b>HX2ISOV-C</b>	HX2 Isolation Valve Command
<b>HX2ISOVLV-C</b>	HX2 Isolation Valve Command
<b>HX2ISOVLV-S</b>	HX2 Isolation Valve Status
<b>HX2ISOV-S</b>	HX2 Isolation Valve Status



**Table 59: Central Heating (FX-PCT)**

<b>FX Supervisor Name</b>	<b>Description</b>
HX2LW-T	HX2 Leaving Water Temperature
HX2-LW-T	HX2 Leaving Water Temperature
HX2-MS	HX2 Maint Sw
HX2V1-O	HX2 Valve 1 Output
HX2V2-O	HX2 Valve 2 Output
HXBYP-T	Heat Exchanger Bypass Temperature
HXINR-T	HX Inlet Return Water Temperature
HXMP-O	Heat Exchanger Mixing Valve Output
HXSTG-SP	Heat Exchanger Stage-up Setpoint
HXSTM-P	Heat Exchanger Steam Pressure
MIX-O	Mixing Valve Output
OA-H	Outdoor Air Humidity
OALT-SP	OA Low Limit Setpoint
OA-T	Outdoor Air Temperature
OAT-HIGH	OAT Reset High
OAT-LOW	OAT Reset Low
PHW-F	Primary HW Flow
PHWP1-BA	Primary HW Pump 1 Belt Alarm
PHWP1-C	Primary HW Pump 1 Command
PHWP1-FAULT	Primary HW Pump 1 VFD Fault
PHWP1-LO	Primary HW Pump 1 Lockout Switch
PHWP1-O	Primary HW Pump 1 Output
PHWP1-OL	Primary HW Pump 1 Overload
PHWP1-S	Primary HW Pump 1 Status
PHWP2-BA	Primary HW Pump 2 Belt Alarm
PHWP2-C	Primary HW Pump 2 Command
PHWP2-FAULT	Primary HW Pump 2 VFD Fault
PHWP2-LO	Primary HW Pump 2 Lockout Switch
PHWP2-O	Primary HW Pump 2 Output
PHWP2-OL	Primary HW Pump 2 Overload
PHWP2-S	Primary HW Pump 2 Status
PHWP3-BA	Primary HW Pump 3 Belt Alarm
PHWP3-C	Primary HW Pump 3 Command
PHWP3-FAULT	Primary HW Pump 3 VFD Fault
PHWP3-LO	Primary HW Pump 3 Lockout Switch
PHWP3-O	Primary HW Pump 3 Output
PHWP3-OL	Primary HW Pump 3 Overload
PHWP3-S	Primary HW Pump 3 Status
PHWP4-BA	Primary HW Pump 4 Belt Alarm
PHWP4-C	Primary HW Pump 4 Command
PHWP4-FAULT	Primary HW Pump 4 VFD Fault

**Table 59: Central Heating (FX-PCT)**

<b>FX Supervisor Name</b>	<b>Description</b>
PHWP4-LO	Primary HW Pump 4 Lockout Switch
PHWP4-O	Primary HW Pump 4 Output
PHWP4-OL	Primary HW Pump 4 Overload
PHWP4-S	Primary HW Pump 4 Status
PHWP5-BA	Primary HW Pump 5 Belt Alarm
PHWP5-C	Primary HW Pump 5 Command
PHWP5-FAULT	Primary HW Pump 5 VFD Fault
PHWP5-LO	Primary HW Pump 5 Lockout Switch
PHWP5-O	Primary HW Pump 5 Output
PHWP5-OL	Primary HW Pump 5 Overload
PHWP5-S	Primary HW Pump 5 Status
PHWP6-BA	Primary HW Pump 6 Belt Alarm
PHWP6-C	Primary HW Pump 6 Command
PHWP6-FAULT	Primary HW Pump 6 VFD Fault
PHWP6-LO	Primary HW Pump 6 Lockout Switch
PHWP6-O	Primary HW Pump 6 Output
PHWP6-OL	Primary HW Pump 6 Overload
PHWP6-S	Primary HW Pump 6 Status
PHWP7-BA	Primary HW Pump 7 Belt Alarm
PHWP7-C	Primary HW Pump 7 Command
PHWP7-FAULT	Primary HW Pump 7 VFD Fault
PHWP7-LO	Primary HW Pump 7 Lockout Switch
PHWP7-O	Primary HW Pump 7 Output
PHWP7-OL	Primary HW Pump 7 Overload
PHWP7-S	Primary HW Pump 7 Status
PHWP8-BA	Primary HW Pump 8 Belt Alarm
PHWP8-C	Primary HW Pump 8 Command
PHWP8-FAULT	Primary HW Pump 8 VFD Fault
PHWP8-LO	Primary HW Pump 8 Lockout Switch
PHWP8-O	Primary HW Pump 8 Output
PHWP8-OL	Primary HW Pump 8 Overload
PHWP8-S	Primary HW Pump 8 Status
PHWP-ROT	Rotate Primary Hot Water Pumps
PHWR-T	Primary HW Return Temp
PHWS-T	Primary HW Supply Temp
SEC-HW-DP	Secondary Hot Water Diff Pressure
SEC-HWDP-SP	Secondary HW Diff Pressure Setpoint
SHW-F	Secondary HW Flow
SHWP1-BA	Secondary HW Pump 1 Belt Alarm
SHWP1-C	Secondary HW Pump 1 Command
SHWP1-FAULT	Secondary HW Pump 1 VFD Fault

**Table 59: Central Heating (FX-PCT)**

<b>FX Supervisor Name</b>	<b>Description</b>
SHWP1-LO	Secondary HW Pump 1 Lockout Switch
SHWP1-O	Secondary HW Pump 1 Output
SHWP1-S	Secondary HW Pump 1 Status
SHWP2-BA	Secondary HW Pump 2 Belt Alarm
SHWP2-C	Secondary HW Pump 2 Command
SHWP2-FAULT	Secondary HW Pump 2 VFD Fault
SHWP2-LO	Secondary HW Pump 2 Lockout Switch
SHWP2-O	Secondary HW Pump 2 Output
SHWP2-S	Secondary HW Pump 2 Status
SHWP3-BA	Secondary HW Pump 3 Belt Alarm
SHWP3-C	Secondary HW Pump 3 Command
SHWP3-FAULT	Secondary HW Pump 3 VFD Fault
SHWP3-LO	Secondary HW Pump 3 Lockout Switch
SHWP3-O	Secondary HW Pump 3 Output
SHWP3-S	Secondary HW Pump 3 Status
SHWP4-BA	Secondary HW Pump 4 Belt Alarm
SHWP4-C	Secondary HW Pump 4 Command
SHWP4-FAULT	Secondary HW Pump 4 VFD Fault
SHWP4-LO	Secondary HW Pump 4 Lockout Switch
SHWP4-O	Secondary HW Pump 4 Output
SHWP4-S	Secondary HW Pump 4 Status
SHWP5-BA	Secondary HW Pump 5 Belt Alarm
SHWP5-C	Secondary HW Pump 5 Command
SHWP5-FAULT	Secondary HW Pump 5 VFD Fault
SHWP5-LO	Secondary HW Pump 5 Lockout Switch
SHWP5-O	Secondary HW Pump 5 Output
SHWP5-S	Secondary HW Pump 5 Status
SHWP6-BA	Secondary HW Pump 6 Belt Alarm
SHWP6-C	Secondary HW Pump 6 Command
SHWP6-FAULT	Secondary HW Pump 6 VFD Fault
SHWP6-LO	Secondary HW Pump 6 Lockout Switch
SHWP6-O	Secondary HW Pump 6 Output
SHWP6-S	Secondary HW Pump 6 Status
SHWP7-BA	Secondary HW Pump 7 Belt Alarm
SHWP7-C	Secondary HW Pump 7 Command
SHWP7-FAULT	Secondary HW Pump 7 VFD Fault
SHWP7-LO	Secondary HW Pump 7 Lockout Switch
SHWP7-O	Secondary HW Pump 7 Output
SHWP7-S	Secondary HW Pump 7 Status
SHWP8-BA	Secondary HW Pump 8 Belt Alarm
SHWP8-C	Secondary HW Pump 8 Command

**Table 59: Central Heating (FX-PCT)**

<b>FX Supervisor Name</b>	<b>Description</b>
SHWP8-FAULT	Secondary HW Pump 8 VFD Fault
SHWP8-LO	Secondary HW Pump 8 Lockout Switch
SHWP8-O	Secondary HW Pump 8 Output
SHWP8-S	Secondary HW Pump 8 Status
SHWP-ROT	Rotate Secondary Hot Water Pumps
SHWR-T	Secondary HW Return Temp
SHWS-T	Secondary HW Supply Temp
STM-P	Steam Pressure
STMP-SP	Steam Pressure Setpoint
SYS-RESET	System Reset
SYSTEM-EN	System Enable
ZHLP1-C	Zone 1 Heating Pump Command
ZHLP2-C	Zone 2 Heating Pump Command
ZHLP3-C	Zone 3 Heating Pump Command
ZHLP4-C	Zone 4 Heating Pump Command
ZHLP5-C	Zone 5 Heating Pump Command
ZHLP6-C	Zone 6 Heating Pump Command
ZHLP7-C	Zone 7 Heating Pump Command
ZHLP8-C	Zone 8 Heating Pump Command
ZN1HTG-O	Zone 1 Heating Output
ZN1-SP	Zone 1 Setpoint
ZN1-T	Zone 1 Temperature
ZN2HTG-O	Zone 2 Heating Output
ZN2-SP	Zone 2 Setpoint
ZN2-T	Zone 2 Temperature
ZN3HTG-O	Zone 3 Heating Output
ZN3-SP	Zone 3 Setpoint
ZN3-T	Zone 3 Temperature
ZN4HTG-O	Zone 4 Heating Output
ZN4-SP	Zone 4 Setpoint
ZN4-T	Zone 4 Temperature
ZN5HTG-O	Zone 5 Heating Output
ZN5-SP	Zone 5 Setpoint
ZN5-T	Zone 5 Temperature
ZN6HTG-O	Zone 6 Heating Output
ZN6-SP	Zone 6 Setpoint
ZN6-T	Zone 6 Temperature
ZN7HTG-O	Zone 7 Heating Output
ZN7-SP	Zone 7 Setpoint
ZN7-T	Zone 7 Temperature
ZN8HTG-O	Zone 8 Heating Output

**Table 59: Central Heating (FX-PCT)**

<b>FX Supervisor Name</b>	<b>Description</b>
<b>ZN8-SP</b>	Zone 8 Setpoint
<b>ZN8-T</b>	Zone 8 Temperature
<b>ZN-T</b>	Zone Temperature
<b>ZNT-SP</b>	Zone Temperature Setpoint

**Central Cooling (FX-PCT)**

**Table 60: Central Cooling (FX-PCT)**

<b>FX Supervisor Name</b>	<b>Description</b>
<b>BLDG-L</b>	Building Load
<b>CH1-%FLA</b>	Chiller 1 Percent FLA
<b>CH1-A</b>	Chiller 1 Alarm
<b>CH1-AMPS</b>	Chiller 1 Amps
<b>CH1CHWE-T</b>	Chiller 1 CHW Entering Temperature
<b>CH1CHW-F</b>	Chiller 1 CHW Flow
<b>CH1CHW-FS</b>	Chiller 1 CHW Flow Switch
<b>CH1CHWISOV-C</b>	Chiller 1 CHW Isolation Valve Command
<b>CH1CHWISOV-S</b>	Chiller 1 CHW Isolation Valve Status
<b>CH1CHWL-T</b>	Chiller 1 CHW Leaving Temperature
<b>CH1CL-O</b>	Chiller 1 Current Limit Output
<b>CH1CWE-T</b>	Chiller 1 CW Entering Temperature
<b>CH1CW-F</b>	Chiller 1 CW Flow
<b>CH1CW-FS</b>	Chiller 1 CW Flow Switch
<b>CH1CWISOV-C</b>	Chiller 1 CW Isolation Valve Command
<b>CH1CWISOV-S</b>	Chiller 1 CW Isolation Valve Status
<b>CH1CWL-T</b>	Chiller 1 CW Leaving Temperature
<b>CH1-EN</b>	Chiller 1 Enable
<b>CH1-MS</b>	Chiller 1 Maint Sw
<b>CH1-MS</b>	Chlr1 Maintenance Switch
<b>CH1-S</b>	Chiller 1 Status
<b>CH1SP-O</b>	Chiller 1 Setpoint Output
<b>CH2-%FLA</b>	Chiller 2 Percent FLA
<b>CH2-A</b>	Chiller 2 Alarm
<b>CH2-AMPS</b>	Chiller 2 Amps
<b>CH2CHWE-T</b>	Chiller 2 CHW Entering Temperature
<b>CH2CHW-F</b>	Chiller 2 CHW Flow
<b>CH2CHW-FS</b>	Chiller 2 CHW Flow Switch
<b>CH2CHWISOV-C</b>	Chiller 2 CHW Isolation Valve Command
<b>CH2CHWISOV-S</b>	Chiller 2 CHW Isolation Valve Status
<b>CH2CHWL-T</b>	Chiller 2 CHW Leaving Temperature
<b>CH2CL-O</b>	Chiller 2 Current Limit Output
<b>CH2CWE-T</b>	Chiller 2 CW Entering Temperature
<b>CH2CW-F</b>	Chiller 2 CW Flow
<b>CH2CW-FS</b>	Chiller 2 CW Flow Switch
<b>CH2CWISOV-C</b>	Chiller 2 CW Isolation Valve Command
<b>CH2CWISOV-S</b>	Chiller 2 CW Isolation Valve Status
<b>CH2CWL-T</b>	Chiller 2 CW Leaving Temperature
<b>CH2-EN</b>	Chiller 2 Enable
<b>CH2-MS</b>	Chiller 2 Maint Sw

**Table 60: Central Cooling (FX-PCT)**

<b>FX Supervisor Name</b>	<b>Description</b>
CH2-MS	Chlr2 Maintenance Switch
CH2-S	Chiller 2 Status
CH2SP-O	Chiller 2 Setpoint Output
CH3-%FLA	Chiller 3 Percent FLA
CH3-A	Chiller 3 Alarm
CH3-AMPS	Chiller 3 Amps
CH3CHWE-T	Chiller 3 CHW Entering Temperature
CH3CHW-F	Chiller 3 CHW Flow
CH3CHW-FS	Chiller 3 CHW Flow Switch
CH3CHWISOV-C	Chiller 3 CHW Isolation Valve Command
CH3CHWISOV-S	Chiller 3 CHW Isolation Valve Status
CH3CHWL-T	Chiller 3 CHW Leaving Temperature
CH3CL-O	Chiller 3 Current Limit Output
CH3CWE-T	Chiller 3 CW Entering Temperature
CH3CW-F	Chiller 3 CW Flow
CH3CW-FS	Chiller 3 CW Flow Switch
CH3CWISOV-C	Chiller 3 CW Isolation Valve Command
CH3CWISOV-S	Chiller 3 CW Isolation Valve Status
CH3CWL-T	Chiller 3 CW Leaving Temperature
CH3-EN	Chiller 3 Enable
CH3-MS	Chiller 3 Maint Sw
CH3-MS	Chlr3 Maintenance Switch
CH3-S	Chiller 3 Status
CH3SP-O	Chiller 3 Setpoint Output
CH4-%FLA	Chiller 4 Percent FLA
CH4-A	Chiller 4 Alarm
CH4-AMPS	Chiller 4 Amps
CH4CHWE-T	Chiller 4 CHW Entering Temperature
CH4CHW-F	Chiller 4 CHW Flow
CH4CHW-FS	Chiller 4 CHW Flow Switch
CH4CHWISOV-C	Chiller 4 CHW Isolation Valve Command
CH4CHWISOV-S	Chiller 4 CHW Isolation Valve Status
CH4CHWL-T	Chiller 4 CHW Leaving Temperature
CH4CL-O	Chiller 4 Current Limit Output
CH4CWE-T	Chiller 4 CW Entering Temperature
CH4CW-F	Chiller 4 CW Flow
CH4CW-FS	Chiller 4 CW Flow Switch
CH4CWISOV-C	Chiller 4 CW Isolation Valve Command
CH4CWISOV-S	Chiller 4 CW Isolation Valve Status
CH4CWL-T	Chiller 4 CW Leaving Temperature
CH4-EN	Chiller 4 Enable

**Table 60: Central Cooling (FX-PCT)**

<b>FX Supervisor Name</b>	<b>Description</b>
CH4-MS	Chiller 4 Maint Sw
CH4-MS	Chlr4 Maintenance Switch
CH4-S	Chiller 4 Status
CH4SP-O	Chiller 4 Setpoint Output
CH5-%FLA	Chiller 5 Percent FLA
CH5-A	Chiller 5 Alarm
CH5-AMPS	Chiller 5 Amps
CH5CHWE-T	Chiller 5 CHW Entering Temperature
CH5CHW-F	Chiller 5 CHW Flow
CH5CHW-FS	Chiller 5 CHW Flow Switch
CH5CHWISOV-C	Chiller 5 CHW Isolation Valve Command
CH5CHWISOV-S	Chiller 5 CHW Isolation Valve Status
CH5CHWL-T	Chiller 5 CHW Leaving Temperature
CH5CL-O	Chiller 5 Current Limit Output
CH5CWE-T	Chiller 5 CW Entering Temperature
CH5CW-F	Chiller 5 CW Flow
CH5CW-FS	Chiller 5 CW Flow Switch
CH5CWISOV-C	Chiller 5 CW Isolation Valve Command
CH5CWISOV-S	Chiller 5 CW Isolation Valve Status
CH5CWL-T	Chiller 5 CW Leaving Temperature
CH5-EN	Chiller 5 Enable
CH5-MS	Chiller 5 Maint Sw
CH5-S	Chiller 5 Status
CH5SP-O	Chiller 5 Setpoint Output
CH6-%FLA	Chiller 6 Percent FLA
CH6-A	Chiller 6 Alarm
CH6-AMPS	Chiller 6 Amps
CH6CHWE-T	Chiller 6 CHW Entering Temperature
CH6CHW-F	Chiller 6 CHW Flow
CH6CHW-FS	Chiller 6 CHW Flow Switch
CH6CHWISOV-C	Chiller 6 CHW Isolation Valve Command
CH6CHWISOV-S	Chiller 6 CHW Isolation Valve Status
CH6CHWL-T	Chiller 6 CHW Leaving Temperature
CH6CL-O	Chiller 6 Current Limit Output
CH6CWE-T	Chiller 6 CW Entering Temperature
CH6CW-F	Chiller 6 CW Flow
CH6CW-FS	Chiller 6 CW Flow Switch
CH6CWISOV-C	Chiller 6 CW Isolation Valve Command
CH6CWISOV-S	Chiller 6 CW Isolation Valve Status
CH6CWL-T	Chiller 6 CW Leaving Temperature
CH6-EN	Chiller 6 Enable



**Table 60: Central Cooling (FX-PCT)**

<b>FX Supervisor Name</b>	<b>Description</b>
CH6-MS	Chiller 6 Maint Sw
CH6-S	Chiller 6 Status
CH6SP-O	Chiller 6 Setpoint Output
CH7-%FLA	Chiller 7 Percent FLA
CH7-A	Chiller 7 Alarm
CH7-AMPS	Chiller 7 Amps
CH7CHWE-T	Chiller 7 CHW Entering Temperature
CH7CHW-F	Chiller 7 CHW Flow
CH7CHW-FS	Chiller 7 CHW Flow Switch
CH7CHWISOV-C	Chiller 7 CHW Isolation Valve Command
CH7CHWISOV-S	Chiller 7 CHW Isolation Valve Status
CH7CHWL-T	Chiller 7 CHW Leaving Temperature
CH7CL-O	Chiller 7 Current Limit Output
CH7CWE-T	Chiller 7 CW Entering Temperature
CH7CW-F	Chiller 7 CW Flow
CH7CW-FS	Chiller 7 CW Flow Switch
CH7CWISOV-C	Chiller 7 CW Isolation Valve Command
CH7CWISOV-S	Chiller 7 CW Isolation Valve Status
CH7CWL-T	Chiller 7 CW Leaving Temperature
CH7-EN	Chiller 7 Enable
CH7-MS	Chiller 7 Maint Sw
CH7-S	Chiller 7 Status
CH7SP-O	Chiller 7 Setpoint Output
CH8-%FLA	Chiller 8 Percent FLA
CH8-A	Chiller 8 Alarm
CH8-AMPS	Chiller 8 Amps
CH8CHWE-T	Chiller 8 CHW Entering Temperature
CH8CHW-F	Chiller 8 CHW Flow
CH8CHW-FS	Chiller 8 CHW Flow Switch
CH8CHWISOV-C	Chiller 8 CHW Isolation Valve Command
CH8CHWISOV-S	Chiller 8 CHW Isolation Valve Status
CH8CHWL-T	Chiller 8 CHW Leaving Temperature
CH8CL-O	Chiller 8 Current Limit Output
CH8CWE-T	Chiller 8 CW Entering Temperature
CH8CW-F	Chiller 8 CW Flow
CH8CW-FS	Chiller 8 CW Flow Switch
CH8CWISOV-C	Chiller 8 CW Isolation Valve Command
CH8CWISOV-S	Chiller 8 CW Isolation Valve Status
CH8CWL-T	Chiller 8 CW Leaving Temperature
CH8-EN	Chiller 8 Enable
CH8-MS	Chiller 8 Maint Sw

**Table 60: Central Cooling (FX-PCT)**

<b>FX Supervisor Name</b>	<b>Description</b>
CH8-S	Chiller 8 Status
CH8SP-O	Chiller 8 Setpoint Output
CHLR1-LO	Chiller 1 Lockout Switch
CHLR1-LO	Chlr1 Lockout Switch
CHLR2-LO	Chiller 2 Lockout Switch
CHLR2-LO	Chlr2 Lockout Switch
CHLR3-LO	Chiller 3 Lockout Switch
CHLR3-LO	Chlr3 Lockout Switch
CHLR4-LO	Chiller 4 Lockout Switch
CHLR4-LO	Chlr4 Lockout Switch
CHLR5-LO	Chiller 5 Lockout Switch
CHLR5-LO	Chlr5 Lockout Switch
CHLR6-LO	Chiller 6 Lockout Switch
CHLR6-LO	Chlr6 Lockout Switch
CHLR7-LO	Chiller 7 Lockout Switch
CHLR7-LO	Chlr7 Lockout Switch
CHLR8-LO	Chiller 8 Lockout Switch
CHLR8-LO	Chlr8 Lockout Switch
CH-RUNNING	Current Stage
CH-SP	Chiller Setpoint
CHWBYPV-O	Chilled Water Bypass Valve Output
CHW-DP	Chill Water Diff Pressure
CHWDP-SP	CHW Differential Pressure Setpoint
CHWDT-SP	Differential Temperature Chill Water Setpoint
CHWRETURN-TEMP	Input 1
CHWSUPPLY-TEMP	Input 2
CLGOATLOCKOUT-SP	OA Cooling Enable Setpoint
CT1-C	Tower 1 Command
CT1H-C	Tower 1 HI Command
CT1ISOV-C	Tower 1 Iso Valve Command
CT1ISOV-S	Tower 1 Isolation Valve Status
CT1L-C	Tower 1 LO Command
CT1M-C	Tower 1 MED Command
CT1-O	Tower 1 Output
CT1-S	Tower 1 Status
CT2-C	Tower 2 Command
CT2H-C	Tower 2 HI Command
CT2ISOV-C	Tower 2 Iso Valve Command
CT2ISOV-S	Tower 2 Isolation Valve Status
CT2L-C	Tower 2 LO Command
CT2M-C	Tower 2 MED Command

**Table 60: Central Cooling (FX-PCT)**

<b>FX Supervisor Name</b>	<b>Description</b>
CT2-O	Tower 2 Output
CT2-S	Tower 2 Status
CT3-C	Tower 3 Command
CT3H-C	Tower 3 HI Command
CT3ISOV-C	Tower 3 Iso Valve Command
CT3ISOV-S	Tower 3 Isolation Valve Status
CT3L-C	Tower 3 LO Command
CT3M-C	Tower 3 MED Command
CT3-O	Tower 3 Output
CT3-S	Tower 3 Status
CT4-C	Tower 4 Command
CT4H-C	Tower 4 HI Command
CT4ISOV-C	Tower 4 Iso Valve Command
CT4ISOV-S	Tower 4 Isolation Valve Status
CT4L-C	Tower 4 LO Command
CT4M-C	Tower 4 MED Command
CT4-O	Tower 4 Output
CT4-S	Tower 4 Status
CT5-C	Tower 5 Command
CT5H-C	Tower 5 HI Command
CT5ISOV-C	Tower 5 Iso Valve Command
CT5ISOV-S	Tower 5 Iso Valve Status
CT5L-C	Tower 5 LO Command
CT5-O	Tower 5 Output
CT5-S	Tower 5 Status
CT6-C	Tower 6 Command
CT6H-C	Tower 6 HI Command
CT6ISOV-C	Tower 6 Iso Valve Command
CT6ISOV-S	Tower 6 Iso Valve Status
CT6L-C	Tower 6 LO Command
CT6-O	Tower 6 Output
CT6-S	Tower 6 Status
CT7-C	Tower 7 Command
CT7ISOV-C	Tower 7 Iso Valve Command
CT7ISOV-S	Tower 7 Iso Valve Status
CT7-O	Tower 7 Output
CT7-S	Tower 7 Status
CT8-C	Tower 8 Command
CT8ISOV-C	Tower 8 Iso Valve Command
CT8ISOV-S	Tower 8 Iso Valve Status
CT8-O	Tower 8 Output

**Table 60: Central Cooling (FX-PCT)**

<b>FX Supervisor Name</b>	<b>Description</b>
CT8-S	Tower 8 Status
CTSTG-SP	CT StageUp Setpoint
CT-T	Tower Basin Temperature
CTV-O	Tower Valve Output
CW-F	Condenser Water Flow
CWP1-C	Condenser Water Pump 1 Command
CWP1-S	Condenser Water Pump 1 Status
CWP2-C	Condenser Water Pump 2 Command
CWP2-S	Condenser Water Pump 2 Status
CWP3-C	Condenser Water Pump 3 Command
CWP3-S	Condenser Water Pump 3 Status
CWP4-C	Condenser Water Pump 4 Command
CWP4-S	Condenser Water Pump 4 Status
CWP5-C	Condenser Water Pump 5 Command
CWP5-S	Condenser Water Pump 5 Status
CWP6-C	Condenser Water Pump 6 Command
CWP6-S	Condenser Water Pump 6 Status
CWP7-C	Condenser Water Pump 7 Command
CWP7-S	Condenser Water Pump 7 Status
CWP8-C	Condenser Water Pump 8 Command
CWP8-S	Condenser Water Pump 8 Status
CWR-T	Condenser Water Return Temperature
CW-SP	Condenser Water Setpoint
CWS-T	Condenser Water Supply Temperature
DCPL-F	Decouple Loop Flow
DCPLF-SP	Decouple Loop Flow Setpoint
DCPL-S	Decouple Loop Direction
DCPL-T	Decouple Loop Temperature
OA-H	Outdoor Air Humidity
OA-T	Outdoor Air Temperature
PCHW-F	Primary CHW Flow
PCHWP1-C	Primary CHW Pump 1 Command
PCHWP1-S	Primary CHW Pump 1 Status
PCHWP2-C	Primary CHW Pump 2 Command
PCHWP2-S	Primary CHW Pump 2 Status
PCHWP3-C	Primary CHW Pump 3 Command
PCHWP3-S	Primary CHW Pump 3 Status
PCHWP4-C	Primary CHW Pump 4 Command
PCHWP4-S	Primary CHW Pump 4 Status
PCHWP5-C	Primary CHW Pump 5 Command
PCHWP5-S	Primary CHW Pump 5 Status

**Table 60: Central Cooling (FX-PCT)**

<b>FX Supervisor Name</b>	<b>Description</b>
PCHWP6-C	Primary CHW Pump 6 Command
PCHWP6-S	Primary CHW Pump 6 Status
PCHWP7-C	Primary CHW Pump 7 Command
PCHWP7-S	Primary CHW Pump 7 Status
PCHWP8-C	Primary CHW Pump 8 Command
PCHWP8-S	Primary CHW Pump 8 Status
PCHWR-T	Primary CHW Return Temp
PCHWS-T	Primary CHW Supply Temp
PCWP1-C	Condenser Water Pump 1 Command
PCWP1-S	Condenser Water Pump 1 Status
PCWP2-C	Condenser Water Pump 2 Command
PCWP2-S	Condenser Water Pump 2 Status
PCWP3-C	Condenser Water Pump 3 Command
PCWP3-S	Condenser Water Pump 3 Status
PCWP4-C	Condenser Water Pump 4 Command
PCWP4-S	Condenser Water Pump 4 Status
PCWP5-C	Condenser Water Pump 5 Command
PCWP5-S	Condenser Water Pump 5 Status
PCWP6-C	Condenser Water Pump 6 Command
PCWP6-S	Condenser Water Pump 6 Status
PCWP7-C	Condenser Water Pump 7 Command
PCWP7-S	Condenser Water Pump 7 Status
PCWP8-C	Condenser Water Pump 8 Command
PCWP8-S	Condenser Water Pump 8 Status
PPCHWP1-C	Primary CHW Pump 1 Command
PPCHWP1-S	Primary CHW Pump 1 Status
PPCHWP2-C	Primary CHW Pump 2 Command
PPCHWP2-S	Primary CHW Pump 2 Status
PPCHWP3-C	Primary CHW Pump 3 Command
PPCHWP3-S	Primary CHW Pump 3 Status
PPCHWP4-C	Primary CHW Pump 4 Command
PPCHWP4-S	Primary CHW Pump 4 Status
PPCHWP5-C	Primary CHW Pump 5 Command
PPCHWP5-S	Primary CHW Pump 5 Status
PPCHWP6-C	Primary CHW Pump 6 Command
PPCHWP6-S	Primary CHW Pump 6 Status
PPCHWP7-C	Primary CHW Pump 7 Command
PPCHWP7-S	Primary CHW Pump 7 Status
PPCHWP8-C	Primary CHW Pump 8 Command
PPCHWP8-S	Primary CHW Pump 8 Status
REFRIG-A	Refrigerant Alarm

**Table 60: Central Cooling (FX-PCT)**

<b>FX Supervisor Name</b>	<b>Description</b>
<b>SCHW-F</b>	Secondary CHW Flow
<b>SCHWP1-C</b>	Secondary CHW Pump 1 Command
<b>SCHWP1-O</b>	Secondary CHW Pump 1 Output
<b>SCHWP1-S</b>	Secondary CHW Pump 1 Status
<b>SCHWP2-C</b>	Secondary CHW Pump 2 Command
<b>SCHWP2-O</b>	Secondary CHW Pump 2 Output
<b>SCHWP2-S</b>	Secondary CHW Pump 2 Status
<b>SCHWP3-C</b>	Secondary CHW Pump 3 Command
<b>SCHWP3-O</b>	Secondary CHW Pump 3 Output
<b>SCHWP3-S</b>	Secondary CHW Pump 3 Status
<b>SCHWP4-C</b>	Secondary CHW Pump 4 Command
<b>SCHWP4-O</b>	Secondary CHW Pump 4 Output
<b>SCHWP4-S</b>	Secondary CHW Pump 4 Status
<b>SCHWP5-C</b>	Secondary CHW Pump 5 Command
<b>SCHWP5-O</b>	Secondary CHW Pump 5 Output
<b>SCHWP5-S</b>	Secondary CHW Pump 5 Status
<b>SCHWP6-C</b>	Secondary CHW Pump 6 Command
<b>SCHWP6-O</b>	Secondary CHW Pump 6 Output
<b>SCHWP6-S</b>	Secondary CHW Pump 6 Status
<b>SCHWP7-C</b>	Secondary CHW Pump 7 Command
<b>SCHWP7-O</b>	Secondary CHW Pump 7 Output
<b>SCHWP7-S</b>	Secondary CHW Pump 7 Status
<b>SCHWP8-C</b>	Secondary CHW Pump 8 Command
<b>SCHWP8-O</b>	Secondary CHW Pump 8 Output
<b>SCHWP8-S</b>	Secondary CHW Pump 8 Status
<b>SCHWPSTG-SP</b>	Secondary Chill Water Stageup Setpoint
<b>SCHWR-T</b>	Secondary CHW Return Temp
<b>SCHWS-T</b>	Secondary CHW Supply Temp
<b>SYS-RESET</b>	System Reset
<b>SYSTEM-EN</b>	System Enable

### Central Cooling Optimized (FX-PCT)

**Table 61: Central Cooling Optimized (FX-PCT)**

<b>FX Supervisor Name</b>	<b>Description</b>
<b>BLDG-L</b>	Building Load
<b>CH1-%FLA</b>	Chiller 1 Percent FLA
<b>CH1-A</b>	Chiller 1 Alarm
<b>CH1-AMPS</b>	Chiller 1 Amps
<b>CH1CHWE-T</b>	Chiller 1 CHW Entering Temperature
<b>CH1CHW-F</b>	Chiller 1 CHW Flow
<b>CH1CHW-FS</b>	Chiller 1 CHW Flow Switch
<b>CH1CHWISOV-C</b>	Chiller 1 CHW Isolation Valve Command
<b>CH1CHWISOV-O</b>	Chiller 1 CHW Isolation Valve Output
<b>CH1CHWL-T</b>	Chiller 1 CHW Leaving Temperature
<b>CH1CL-O</b>	Chiller 1 Current Limit Output
<b>CH1CWE-T</b>	Chiller 1 CW Entering Temperature
<b>CH1CW-F</b>	Chiller 1 CW Flow
<b>CH1CW-FS</b>	Chiller 1 CW Flow Switch
<b>CH1CWISOV-C</b>	Chiller 1 CW Isolation Valve Command
<b>CH1CWISOV-O</b>	Chiller 1 CW Isolation Valve Output
<b>CH1CWL-T</b>	Chiller 1 CW Leaving Temperature
<b>CH1-EN</b>	Chiller 1 Enable
<b>CH1-MS</b>	Chiller 1 Maint Sw
<b>CH1-S</b>	Chiller 1 Status
<b>CH1SP-O</b>	Chiller 1 Setpoint Output
<b>CH2-%FLA</b>	Chiller 2 Percent FLA
<b>CH2-A</b>	Chiller 2 Alarm
<b>CH2-AMPS</b>	Chiller 2 Amps
<b>CH2CHWE-T</b>	Chiller 2 CHW Entering Temperature
<b>CH2CHW-F</b>	Chiller 2 CHW Flow
<b>CH2CHW-FS</b>	Chiller 2 CHW Flow Switch
<b>CH2CHWISOV-C</b>	Chiller 2 CHW Isolation Valve Command
<b>CH2CHWISOV-O</b>	Chiller 2 CHW Isolation Valve Output
<b>CH2CHWL-T</b>	Chiller 2 CHW Leaving Temperature
<b>CH2CL-O</b>	Chiller 2 Current Limit Output
<b>CH2CWE-T</b>	Chiller 2 CW Entering Temperature
<b>CH2CW-F</b>	Chiller 2 CW Flow
<b>CH2CW-FS</b>	Chiller 2 CW Flow Switch
<b>CH2CWISOV-C</b>	Chiller 2 CW Isolation Valve Command
<b>CH2CWISOV-O</b>	Chiller 2 CW Isolation Valve Output
<b>CH2CWL-T</b>	Chiller 2 CW Leaving Temperature
<b>CH2-EN</b>	Chiller 2 Enable
<b>CH2-MS</b>	Chiller 2 Maint Sw
<b>CH2-S</b>	Chiller 2 Status

**Table 61: Central Cooling Optimized (FX-PCT)**

<b>FX Supervisor Name</b>	<b>Description</b>
CH2SP-O	Chiller 2 Setpoint Output
CH3-%FLA	Chiller 3 Percent FLA
CH3-A	Chiller 3 Alarm
CH3-AMPS	Chiller 3 Amps
CH3CHWE-T	Chiller 3 CHW Entering Temperature
CH3CHW-F	Chiller 3 CHW Flow
CH3CHW-FS	Chiller 3 CHW Flow Switch
CH3CHWISOV-C	Chiller 3 CHW Isolation Valve Command
CH3CHWISOV-O	Chiller 3 CHW Isolation Valve Output
CH3CHWL-T	Chiller 3 CHW Leaving Temperature
CH3CL-O	Chiller 3 Current Limit Output
CH3CWE-T	Chiller 3 CW Entering Temperature
CH3CW-F	Chiller 3 CW Flow
CH3CW-FS	Chiller 3 CW Flow Switch
CH3CWISOV-C	Chiller 3 CW Isolation Valve Command
CH3CWISOV-O	Chiller 3 CW Isolation Valve Output
CH3CWL-T	Chiller 3 CW Leaving Temperature
CH3-EN	Chiller 3 Enable
CH3-MS	Chiller 3 Maint Sw
CH3-S	Chiller 3 Status
CH3SP-O	Chiller 3 Setpoint Output
CH4-%FLA	Chiller 4 Percent FLA
CH4-A	Chiller 4 Alarm
CH4-AMPS	Chiller 4 Amps
CH4CHWE-T	Chiller 4 CHW Entering Temperature
CH4CHW-F	Chiller 4 CHW Flow
CH4CHW-FS	Chiller 4 CHW Flow Switch
CH4CHWISOV-C	Chiller 4 CHW Isolation Valve Command
CH4CHWISOV-O	Chiller 4 CHW Isolation Valve Output
CH4CHWL-T	Chiller 4 CHW Leaving Temperature
CH4CL-O	Chiller 4 Current Limit Output
CH4CWE-T	Chiller 4 CW Entering Temperature
CH4CW-F	Chiller 4 CW Flow
CH4CW-FS	Chiller 4 CW Flow Switch
CH4CWISOV-C	Chiller 4 CW Isolation Valve Command
CH4CWISOV-O	Chiller 4 CW Isolation Valve Output
CH4CWL-T	Chiller 4 CW Leaving Temperature
CH4-EN	Chiller 4 Enable
CH4-MS	Chiller 4 Maint Sw
CH4-S	Chiller 4 Status
CH4SP-O	Chiller 4 Setpoint Output



**Table 61: Central Cooling Optimized (FX-PCT)**

<b>FX Supervisor Name</b>	<b>Description</b>
CH5-%FLA	Chiller 5 Percent FLA
CH5-A	Chiller 5 Alarm
CH5-AMPS	Chiller 5 Amps
CH5CHWE-T	Chiller 5 CHW Entering Temperature
CH5CHW-F	Chiller 5 CHW Flow
CH5CHW-FS	Chiller 5 CHW Flow Switch
CH5CHWISOV-C	Chiller 5 CHW Isolation Valve Command
CH5CHWISOV-O	Chiller 5 CHW Isolation Valve Output
CH5CHWL-T	Chiller 5 CHW Leaving Temperature
CH5CL-O	Chiller 5 Current Limit Output
CH5CWE-T	Chiller 5 CW Entering Temperature
CH5CW-F	Chiller 5 CW Flow
CH5CW-FS	Chiller 5 CW Flow Switch
CH5CWISOV-C	Chiller 5 CW Isolation Valve Command
CH5CWISOV-O	Chiller 5 CW Isolation Valve Output
CH5CWL-T	Chiller 5 CW Leaving Temperature
CH5-EN	Chiller 5 Enable
CH5-MS	Chiller 5 Maint Sw
CH5-S	Chiller 5 Status
CH5SP-O	Chiller 5 Setpoint Output
CH6-%FLA	Chiller 6 Percent FLA
CH6-A	Chiller 6 Alarm
CH6-AMPS	Chiller 6 Amps
CH6CHWE-T	Chiller 6 CHW Entering Temperature
CH6CHW-F	Chiller 6 CHW Flow
CH6CHW-FS	Chiller 6 CHW Flow Switch
CH6CHWISOV-C	Chiller 6 CHW Isolation Valve Command
CH6CHWISOV-O	Chiller 6 CHW Isolation Valve Output
CH6CHWL-T	Chiller 6 CHW Leaving Temperature
CH6CL-O	Chiller 6 Current Limit Output
CH6CWE-T	Chiller 6 CW Entering Temperature
CH6CW-F	Chiller 6 CW Flow
CH6CW-FS	Chiller 6 CW Flow Switch
CH6CWISOV-C	Chiller 6 CW Isolation Valve Command
CH6CWISOV-O	Chiller 6 CW Isolation Valve Output
CH6CWL-T	Chiller 6 CW Leaving Temperature
CH6-EN	Chiller 6 Enable
CH6-MS	Chiller 6 Maint Sw
CH6-S	Chiller 6 Status
CH6SP-O	Chiller 6 Setpoint Output
CH7-%FLA	Chiller 7 Percent FLA

**Table 61: Central Cooling Optimized (FX-PCT)**

<b>FX Supervisor Name</b>	<b>Description</b>
CH7-A	Chiller 7 Alarm
CH7-AMPS	Chiller 7 Amps
CH7CHWE-T	Chiller 7 CHW Entering Temperature
CH7CHW-F	Chiller 7 CHW Flow
CH7CHW-FS	Chiller 7 CHW Flow Switch
CH7CHWISOV-C	Chiller 7 CHW Isolation Valve Command
CH7CHWISOV-O	Chiller 7 CHW Isolation Valve Output
CH7CHWL-T	Chiller 7 CHW Leaving Temperature
CH7CL-O	Chiller 7 Current Limit Output
CH7CWE-T	Chiller 7 CW Entering Temperature
CH7CW-F	Chiller 7 CW Flow
CH7CW-FS	Chiller 7 CW Flow Switch
CH7CWISOV-C	Chiller 7 CW Isolation Valve Command
CH7CWISOV-O	Chiller 7 CW Isolation Valve Output
CH7CWL-T	Chiller 7 CW Leaving Temperature
CH7-EN	Chiller 7 Enable
CH7-MS	Chiller 7 Maint Sw
CH7-S	Chiller 7 Status
CH7SP-O	Chiller 7 Setpoint Output
CH8-%FLA	Chiller 8 Percent FLA
CH8-A	Chiller 8 Alarm
CH8-AMPS	Chiller 8 Amps
CH8CHWE-T	Chiller 8 CHW Entering Temperature
CH8CHW-F	Chiller 8 CHW Flow
CH8CHW-FS	Chiller 8 CHW Flow Switch
CH8CHWISOV-C	Chiller 8 CHW Isolation Valve Command
CH8CHWISOV-O	Chiller 8 CHW Isolation Valve Output
CH8CHWL-T	Chiller 8 CHW Leaving Temperature
CH8CL-O	Chiller 8 Current Limit Output
CH8CWE-T	Chiller 8 CW Entering Temperature
CH8CW-F	Chiller 8 CW Flow
CH8CW-FS	Chiller 8 CW Flow Switch
CH8CWISOV-C	Chiller 8 CW Isolation Valve Command
CH8CWISOV-O	Chiller 8 CW Isolation Valve Output
CH8CWL-T	Chiller 8 CW Leaving Temperature
CH8-EN	Chiller 8 Enable
CH8-MS	Chiller 8 Maint Sw
CH8-S	Chiller 8 Status
CH8SP-O	Chiller 8 Setpoint Output
CH-SP	Chiller Setpoint
CHW1ISOV-S	CHW 1 Isolation Valve Status

**Table 61: Central Cooling Optimized (FX-PCT)**

<b>FX Supervisor Name</b>	<b>Description</b>
CHW2ISOV-S	CHW 2 Isolation Valve Status
CHW3ISOV-S	CHW 3 Isolation Valve Status
CHW4ISOV-S	CHW 4 Isolation Valve Status
CHW5ISOV-S	CHW 5 Isolation Valve Status
CHW6ISOV-S	CHW 6 Isolation Valve Status
CHW7ISOV-S	CHW 7 Isolation Valve Status
CHW8ISOV-S	CHW 8 Isolation Valve Status
CHWBYPV-O	Chilled Water Bypass Valve Output
CHW-DP	Chill Water Diff Pressure
CHW-DP	Chill Water Diff Pressure
CHWDP-SP	CHW Differential Pressure Setpoint
CLGOATLOCKOUT-SP	OA Cooling Enable Setpoint
CT1-C	Tower 1 Command
CT1H-C	Tower 1 HI Command
CT1ISOV-C	Tower 1 Iso Valve Command
CT1ISOV-S	Tower 1 Isolation Valve Status
CT1L-C	Tower 1 LO Command
CT1M-C	Tower 1 MED Command
CT1-O	Tower 1 Output
CT1-S	Tower 1 Status
CT1VIB-A	Tower 1 Vibration Alarm
CT2-C	Tower 2 Command
CT2H-C	Tower 2 HI Command
CT2ISOV-C	Tower 2 Iso Valve Command
CT2ISOV-S	Tower 2 Isolation Valve Status
CT2L-C	Tower 2 LO Command
CT2M-C	Tower 2 MED Command
CT2-O	Tower 2 Output
CT2-S	Tower 2 Status
CT2VIB-A	Tower 2 Vibration Alarm
CT3-C	Tower 3 Command
CT3H-C	Tower 3 HI Command
CT3ISOV-C	Tower 3 Iso Valve Command
CT3ISOV-S	Tower 3 Isolation Valve Status
CT3L-C	Tower 3 LO Command
CT3M-C	Tower 3 MED Command
CT3-O	Tower 3 Output
CT3-S	Tower 3 Status
CT3VIB-A	Tower 3 Vibration Alarm
CT4-C	Tower 4 Command
CT4H-C	Tower 4 HI Command

**Table 61: Central Cooling Optimized (FX-PCT)**

<b>FX Supervisor Name</b>	<b>Description</b>
CT4ISOV-C	Tower 4 Iso Valve Command
CT4ISOV-S	Tower 4 Isolation Valve Status
CT4L-C	Tower 4 LO Command
CT4M-C	Tower 4 MED Command
CT4-O	Tower 4 Output
CT4-S	Tower 4 Status
CT5-C	Tower 5 Command
CT5H-C	Tower 5 HI Command
CT5ISOV-C	Tower 5 Iso Valve Command
CT5ISOV-S	Tower 5 Isolation Valve Status
CT5L-C	Tower 5 LO Command
CT5M-C	Tower 5 MED Command
CT5-O	Tower 5 Output
CT5-S	Tower 5 Status
CT5VIB-A	Tower 5 Vibration Alarm
CT6-C	Tower 6 Command
CT6H-C	Tower 6 HI Command
CT6ISOV-C	Tower 6 Iso Valve Command
CT6ISOV-S	Tower 6 Isolation Valve Status
CT6L-C	Tower 6 LO Command
CT6M-C	Tower 6 MED Command
CT6-O	Tower 6 Output
CT6-S	Tower 6 Status
CT6VIB-A	Tower 6 Vibration Alarm
CT7-C	Tower 7 Command
CT7H-C	Tower 7 HI Command
CT7ISOV-C	Tower 7 Iso Valve Command
CT7ISOV-S	Tower 7 Isolation Valve Status
CT7L-C	Tower 7 LO Command
CT7M-C	Tower 7 MED Command
CT7-O	Tower 7 Output
CT7-S	Tower 7 Status
CT7VIB-A	Tower 7 Vibration Alarm
CT8-C	Tower 8 Command
CT8H-C	Tower 8 HI Command
CT8ISOV-C	Tower 8 Iso Valve Command
CT8ISOV-S	Tower 8 Isolation Valve Status
CT8L-C	Tower 8 LO Command
CT8M-C	Tower 8 MED Command
CT8-O	Tower 8 Output
CT8-S	Tower 8 Status

**Table 61: Central Cooling Optimized (FX-PCT)**

<b>FX Supervisor Name</b>	<b>Description</b>
CTV-O	Tower Valve Output
CW1ISOV-S	CW 1 Isolation Valve Status
CW2ISOV-S	CW 2 Isolation Valve Status
CW3ISOV-S	CW 3 Isolation Valve Status
CW4ISOV-S	CW 4 Isolation Valve Status
CW5ISOV-S	CW 5 Isolation Valve Status
CW6ISOV-S	CW 6 Isolation Valve Status
CW7ISOV-S	CW 7 Isolation Valve Status
CW8ISOV-S	CW 8 Isolation Valve Status
CW-DP	Cond Water Diff Pressure
CW-F	Condenser Water Flow
CWP1-C	Condenser Water Pump 1 Command
CWP1-O	Condenser Water Pump 1 Output
CWP1-S	Condenser Water Pump 1 Status
CWP2-C	Condenser Water Pump 2 Command
CWP2-O	Condenser Water Pump 2 Output
CWP2-S	Condenser Water Pump 2 Status
CWP3-C	Condenser Water Pump 3 Command
CWP3-O	Condenser Water Pump 3 Output
CWP3-S	Condenser Water Pump 3 Status
CWP4-C	Condenser Water Pump 4 Command
CWP4-O	Condenser Water Pump 4 Output
CWP4-S	Condenser Water Pump 4 Status
CWP5-C	Condenser Water Pump 5 Command
CWP5-O	Condenser Water Pump 5 Output
CWP5-S	Condenser Water Pump 5 Status
CWP6-C	Condenser Water Pump 6 Command
CWP6-O	Condenser Water Pump 6 Output
CWP6-S	Condenser Water Pump 6 Status
CWP7-C	Condenser Water Pump 7 Command
CWP7-O	Condenser Water Pump 7 Output
CWP7-S	Condenser Water Pump 7 Status
CWP8-C	Condenser Water Pump 8 Command
CWP8-O	Condenser Water Pump 8 Output
CWP8-S	Condenser Water Pump 8 Status
CWR-T	Condenser Water Return Temperature
CW-SP	Condenser Water Setpoint
CWS-T	Condenser Water Supply Temperature
DCPL-F	Decouple Loop Flow
DCPL-S	Decouple Loop Status
OA-H	Outdoor Air Humidity

**Table 61: Central Cooling Optimized (FX-PCT)**

<b>FX Supervisor Name</b>	<b>Description</b>
OA-T	Outdoor Air Temperature
PCHW-F	Primary CHW Flow
PCHWP1-C	Primary CHW Pump 1 Command
PCHWP1-FAULT	Primary CHW Pump 1 VFD Fault
PCHWP1-O	Primary CHW Pump 1 Output
PCHWP1-S	Primary CHW Pump 1 Status
PCHWP2-C	Primary CHW Pump 2 Command
PCHWP2-FAULT	Primary CHW Pump 2 VFD Fault
PCHWP2-O	Primary CHW Pump 2 Output
PCHWP2-S	Primary CHW Pump 2 Status
PCHWP3-C	Primary CHW Pump 3 Command
PCHWP3-FAULT	Primary CHW Pump 3 VFD Fault
PCHWP3-O	Primary CHW Pump 3 Output
PCHWP3-S	Primary CHW Pump 3 Status
PCHWP4-C	Primary CHW Pump 4 Command
PCHWP4-FAULT	Primary CHW Pump 4 VFD Fault
PCHWP4-O	Primary CHW Pump 4 Output
PCHWP4-S	Primary CHW Pump 4 Status
PCHWP5-C	Primary CHW Pump 5 Command
PCHWP5-FAULT	Primary CHW Pump 5 VFD Fault
PCHWP5-O	Primary CHW Pump 5 Output
PCHWP5-S	Primary CHW Pump 5 Status
PCHWP6-C	Primary CHW Pump 6 Command
PCHWP6-FAULT	Primary CHW Pump 6 VFD Fault
PCHWP6-O	Primary CHW Pump 6 Output
PCHWP6-S	Primary CHW Pump 6 Status
PCHWP7-C	Primary CHW Pump 7 Command
PCHWP7-FAULT	Primary CHW Pump 7 VFD Fault
PCHWP7-O	Primary CHW Pump 7 Output
PCHWP7-S	Primary CHW Pump 7 Status
PCHWP8-C	Primary CHW Pump 8 Command
PCHWP8-FAULT	Primary CHW Pump 8 VFD Fault
PCHWP8-O	Primary CHW Pump 8 Output
PCHWP8-S	Primary CHW Pump 8 Status
PCHWR-T	Primary CHW Return Temp
PCHWS-T	Primary CHW Supply Temp
PCWP1-C	Condenser Water Pump 1 Command
PCWP1-S	Condenser Water Pump 1 Status
PCWP2-C	Condenser Water Pump 2 Command
PCWP2-S	Condenser Water Pump 2 Status
PCWP3-C	Condenser Water Pump 3 Command

**Table 61: Central Cooling Optimized (FX-PCT)**

<b>FX Supervisor Name</b>	<b>Description</b>
PCWP3-S	Condenser Water Pump 3 Status
PCWP4-C	Condenser Water Pump 4 Command
PCWP4-S	Condenser Water Pump 4 Status
PCWP5-C	Condenser Water Pump 5 Command
PCWP5-S	Condenser Water Pump 5 Status
PCWP6-C	Condenser Water Pump 6 Command
PCWP6-S	Condenser Water Pump 6 Status
PCWP7-C	Condenser Water Pump 7 Command
PCWP7-S	Condenser Water Pump 7 Status
PCWP8-C	Condenser Water Pump 8 Command
PCWP8-S	Condenser Water Pump 8 Status
PPCHWP1-C	Primary CHW Pump 1 Command
PPCHWP1-S	Primary CHW Pump 1 Status
PPCHWP2-C	Primary CHW Pump 2 Command
PPCHWP2-S	Primary CHW Pump 2 Status
PPCHWP3-C	Primary CHW Pump 3 Command
PPCHWP3-S	Primary CHW Pump 3 Status
PPCHWP4-C	Primary CHW Pump 4 Command
PPCHWP4-S	Primary CHW Pump 4 Status
PPCHWP5-C	Primary CHW Pump 5 Command
PPCHWP5-S	Primary CHW Pump 5 Status
PPCHWP6-C	Primary CHW Pump 6 Command
PPCHWP6-S	Primary CHW Pump 6 Status
PPCHWP7-C	Primary CHW Pump 7 Command
PPCHWP7-S	Primary CHW Pump 7 Status
PPCHWP8-C	Primary CHW Pump 8 Command
PPCHWP8-S	Primary CHW Pump 8 Status
REFRIG-A	Refrigerant Alarm
SCHW-F	Secondary CHW Flow
SCHWP1-C	Secondary CHW Pump 1 Command
SCHWP1-O	Secondary CHW Pump 1 Output
SCHWP1-S	Secondary CHW Pump 1 Status
SCHWP2-C	Secondary CHW Pump 2 Command
SCHWP2-O	Secondary CHW Pump 2 Output
SCHWP2-S	Secondary CHW Pump 2 Status
SCHWP3-C	Secondary CHW Pump 3 Command
SCHWP3-O	Secondary CHW Pump 3 Output
SCHWP3-S	Secondary CHW Pump 3 Status
SCHWP4-C	Secondary CHW Pump 4 Command
SCHWP4-O	Secondary CHW Pump 4 Output
SCHWP4-S	Secondary CHW Pump 4 Status

**Table 61: Central Cooling Optimized (FX-PCT)**

<b>FX Supervisor Name</b>	<b>Description</b>
<b>SCHWP5-C</b>	Secondary CHW Pump 5 Command
<b>SCHWP5-O</b>	Secondary CHW Pump 5 Output
<b>SCHWP5-S</b>	Secondary CHW Pump 5 Status
<b>SCHWP6-C</b>	Secondary CHW Pump 6 Command
<b>SCHWP6-O</b>	Secondary CHW Pump 6 Output
<b>SCHWP6-S</b>	Secondary CHW Pump 6 Status
<b>SCHWP7-C</b>	Secondary CHW Pump 7 Command
<b>SCHWP7-O</b>	Secondary CHW Pump 7 Output
<b>SCHWP7-S</b>	Secondary CHW Pump 7 Status
<b>SCHWP8-C</b>	Secondary CHW Pump 8 Command
<b>SCHWP8-O</b>	Secondary CHW Pump 8 Output
<b>SCHWP8-S</b>	Secondary CHW Pump 8 Status
<b>SCHWR-T</b>	Secondary CHW Return Temp
<b>SCHWS-T</b>	Secondary CHW Supply Temp
<b>SYS-RESET</b>	System Reset
<b>SYS-RESET</b>	System Reset
<b>SYSTEM-EN</b>	System Enable



**Fan Coil (FX-PCT)****Table 62: Fan Coil (FX-PCT)**

<b>FX Supervisor Name</b>	<b>Description</b>
CLG1-C	Cooling Stage 1 Command
CLG2-C	Cooling Stage 2 Command
CLG3-C	Cooling Stage 3 Command
CLG-C	Cooling Command
CLG-EN	Cooling Available
CLG-O	Cooling Output
CLGOCC-SP	Occ Cooling Setpoint
CLGUNOCC-SP	Unocc Cooling Setpoint
DA-SD	Discharge Air Smoke Alarm
DA-T	Discharge Air Temperature
EFFCLG-SP	Effective Cooling Setpoint
EFFHTG-SP	Effective Heating Setpoint
EFF-OCC	Effective Occupancy
FILT-S	Filter Status
HC-C	Heating/Cooling Command
HC-O	Heating/Cooling Output
HTG1-C	Heating Stage 1 Command
HTG2-C	Heating Stage 2 Command
HTG3-C	Heating Stage 3 Command
HTG-C	Heating Command
HTG-EN	Heating Available
HTG-O	Heating Output
HTGOCC-SP	Occ Heating Setpoint
HTGUNOCC-SP	Unocc Heating Setpoint
LIGHT-C	Lighting Command
OA-T	Outdoor Air Temperature
OCC-OVERRIDE	Occupancy Override
OCC-S	Occupancy Status
OCC-SCHEDULE	Occupancy Schedule
SF-C	Supply Fan Command
SFH-C	Supply Fan HI Command
SFL-C	Supply Fan LO Command
SFM-C	Supply Fan MED Command
SF-O	Supply Fan Output
SF-S	Supply Fan Status
SUM-SP	Summer Setpoint
SUMWIN-C	Summer Winter Command
SUMWIN-S	Summer/Winter Mode Status
SYSTEM-MODE	System Mode
TUNING-RESET	Application Tuning Reset

**Table 62: Fan Coil (FX-PCT)**

<b>FX Supervisor Name</b>	<b>Description</b>
UNITEN-MODE	Unit Enable Mode
UNITEN-S	Unit Enable Switch
UNITEN-STATE	Unit Enable State
WC-ADJ	Warmer/Cooler Adjust
WC-C	Warmup Cooldown Command
WIN-SP	Winter Setpoint
ZN-H	Zone Humidity
ZNLL-SP	Low Limit Setpoint
ZN-SP	Zone Setpoint
ZN-SP-MIN	Minimum Zone Setpoint
ZN-SP-MAX	Maximum Zone Setpoint
ZN-T	Zone Temperature
ZN-TOCC	Zone Temporary Occupancy
ZNT-SP	Common Setpoint
ZNT-STATE	ZNT State

**Heat Pump (FX-PCT)****Table 63: Heat Pump (FX-PCT)**

<b>FX Supervisor Name</b>	<b>Description</b>
CLG-EN	Cooling Available
CLGOATLOCKOUT-SP	OA Cooling Enable Setpoint
CLGOCC-SP	Occ Cooling Setpoint
CLGUNOCC-SP	Night Cooling Setpoint
COMP1-C	Compressor Stage 1 Command
COMP2-C	Compressor Stage 2 Command
COMPCLG-O	Cooling Percent Cmd
COMPHTG-O	Heating Percent Cmd
DA-SD	Discharge Air Smoke Alarm
DA-T	Discharge Air Temperature
DATLL-SP	Discharge Air Low Limit Setpoint
ECON-AVAILABLE	Free Cooling Available
ECON-EN	Economizer Enable
ECON-EN	Economizer Enable
ECONSWO-SP	Change Over Temperature
EFFCLG-SP	Effective Cooling Setpoint
EFFHTG-SP	Effective Heating Setpoint
EFF-OCC	Effective Occupancy
EMERGENCY-MODE	Emergency Mode
FILT-S	Filter Status
GEF-C	General Exhaust Fan Command
GEF-S	General Exhaust Fan Status

**Table 63: Heat Pump (FX-PCT)**

<b>FX Supervisor Name</b>	<b>Description</b>
HPRW-T	Heatpump Return Water Temperature
HPSW-T	Heatpump Supply Water Temperature
HTG1-C	Heating Stage 1 Command
HTG2-C	Heating Stage 2 Command
HTG-EN	Heating Available
HTGOATLOCKOUT-SP	OA Heating Enable Setpoint
HTGOCC-SP	Occ Heating Setpoint
HTGUNOCC-SP	Night Heating Setpoint
ISOVLV-C	Isolation Valve Command
ISOVLV-S	Isolation Valve Status
LIGHT-C	Lighting Command
MAD-O	Mixed Air Damper Output
OAD-MINPOS	OA Damper Minimum Position
OA-H	Outdoor Air Humidity
OA-T	Outdoor Air Temperature
OCC-OVERRIDE	Occupancy Override
OCC-S	Occupancy Status
OCC-SCHEDULE	Occupancy Schedule
REV1-C	Reversing Valve 1 Command
REV2-C	Reversing Valve 2 Command
SF-C	Supply Fan Command
SFH-C	Supply Fan HI Command
SFL-C	Supply Fan LO Command
SFM-C	Supply Fan MED Command
SF-O	Supply Fan Output
SF-S	Supply Fan Status
SUM-SP	Summer Setpoint
SUPHTG-O	Supplemental Heating Percent Cmd
SYS-RESET	System Reset
SYSTEM-MODE	System Mode
TEF-C	Toilet Exhaust Fan Command
TEF-S	Toilet Exhaust Fan Status
TUNING-RESET	Application Tuning Reset
UNITEN-MODE	Unit Enable Mode
UNITEN-S	Unit Enable Switch
UNITEN-STATE	Unit Enable State
WC-ADJ	Warmer/Cooler Adjust
WC-C	Warmup Cooldown
WIN-SP	Winter Setpoint
ZNF-O	Zone Fan Speed

**Table 63: Heat Pump (FX-PCT)**

<b>FX Supervisor Name</b>	<b>Description</b>
<b>ZN-H</b>	Zone Humidity
<b>ZNLL-SP</b>	Low Limit Setpoint
<b>ZN-SP</b>	Zone Setpoint
<b>ZN-SP-MIN</b>	Minimum Zone Setpoint
<b>ZN-SP-MAX</b>	Maximum Zone Setpoint
<b>ZN-T</b>	Zone Temperature
<b>ZN-TOCC</b>	Zone Temporary Occupancy
<b>ZNT-SP</b>	Common Setpoint
<b>ZNT-STATE</b>	ZNT State

**Mixed Air Dual Duct (FX-PCT)****Table 64: Mixed Air Dual Duct (FX-PCT)**

<b>FX Supervisor Name</b>	<b>Description</b>
APP-MODE	Application Mode
BLDG-P	Building Static Pressure
BLDGP-SP	Building Static Pressure Setpoint
CD-F	Cold Deck Flow
CD-F	Cold Deck Flow
CD-P	Cold Deck Static Pressure
CD-T	Cold Deck Temperature
CDTHI-SP	Discharge Air High Setpoint
CDTLO-SP	Discharge Air Low Setpoint
CDT-OARSTA	OA Reset A
CDT-OARSTB	OA Reset B
CDT-SP	Cold Deck Air Temperature Setpoint
CD-VP	Cold Deck Velocity Pressure
CHWE-T	Chilled Water Entering Temperature
CHWL-T	Chilled Water Leaving Temperature
CLG1-C	Cooling Stage 1 Command
CLG2-C	Cooling Stage 2 Command
CLG3-C	Cooling Stage 3 Command
CLG4-C	Cooling Stage 4 Command
CLG5-C	Cooling Stage 5 Command
CLG6-C	Cooling Stage 6 Command
CLG7-C	Cooling Stage 7 Command
CLG8-C	Cooling Stage 8 Command
CLG-C	Cooling Command
CLG-EN	Cooling Available
CLGFBDO	Cooling Face & Bypass Damper Output
CLG-O	Cooling Output
CLGOATLOCKOUT-SP	OA Cooling Enable Setpoint
CLGUNOCC-SP	Night Cooling Setpoint
CP-C	Cooling Pump Command
CP-S	Cooling Pump Status
DA-F	Discharge Air Flow
DA-H	Discharge Air Humidity
DAH-SP	Discharge Air Humidity Setpoint
DAPHI-A	Discharge Air High Duct Pressure
DAP-SP	Duct Static Pressure Setpoint
DA-Q	Discharge Air Quality
DA-SD	Discharge Air Smoke Alarm
DA-VP	Discharge Air Velocity Pressure
EAD-C	Exhaust Air Damper Command

**Table 64: Mixed Air Dual Duct (FX-PCT)**

<b>FX Supervisor Name</b>	<b>Description</b>
EAD-O	Exhaust Air Damper Output
EAHR-T	Exhaust Air Heat Recovery Temperature
ECON-AVAILABLE	Free Cooling Available
ECON-EN	Economizer Enable
ECONSWO-SP	Change Over Temperature
EFF-OCC	Effective Occupancy
EMERGENCY-BLDGP-SP	Emergency BSP Setpoint
EMERGENCY-DAP-SP	Emergency Duct Static Setpoint
EMERGENCY-MODE	Emergency Mode
FBPD-SWO	Network Switchover
FBPDSWO-SP	Switchover Setpoint
FFILT-DP	Final Filter Diff Pressure
FFILT-S	Final Filter Status
FLOW-DIFF	Flow Differential Setpoint
FSCS-RF	FSCS Return Fan
FSCS-RLF	FSCS Relief Fan
FSCS-SF	FSCS Supply Fan
GEF-C	General Exhaust Fan Command
GEF-S	General Exhaust Fan Status
GLY-T	Glycol Temperature
HD-F	Hot Deck Flow
HD-H	Hot Deck Humidity
HD-P	Hot Deck Static Pressure
HD-T	Hot Deck Temperature
HDTHI-SP	Discharge Air High Setpoint
HDTLO-SP	Discharge Air Low Setpoint
HDT-OARSTA	OA Reset A
HDT-OARSTB	OA Reset B
HDT-RARSTA	OA Reset A
HDT-RARSTB	OA Reset B
HDT-SP	Hot Deck Air Temperature Setpoint
HDV-C	Humidifier Drain Valve Command
HD-VP	Hot Deck Velocity Pressure
HFV-C	Humidifier Fill Valve Command
HREAFBD-C	Heat Recovery EA FBD Command
HREAFBD-O	Heat Recovery EA FBD Output
HRLL-SP	Heat Recovery Low Limit Setpoint
HR-O	Heat Recovery Output
HROAFBD-C	Heat Recovery OA FBD Command
HROAFBD-O	Heat Recovery OA FBD Output
HRP-C	Heat Recovery Pump Command

**Table 64: Mixed Air Dual Duct (FX-PCT)**

<b>FX Supervisor Name</b>	<b>Description</b>
HRP-S	Heat Recovery Pump Status
HR-T	Heat Recovery Temperature
HRT-SP	Heat Recovery Setpoint
HRW-C	Heat Recovery Wheel Command
HRW-O	Heat Recovery Wheel Output
HRW-S	Heat Recovery Wheel Status
HT-A	High Temperature Alarm
HTG1-C	Heating Stage 1 Command
HTG1-O	Heating 1 Output
HTG2-C	Heating Stage 2 Command
HTG2-O	Heating 2 Output
HTG3-C	Heating Stage 3 Command
HTG4-C	Heating Stage 4 Command
HTG5-C	Heating Stage 5 Command
HTG6-C	Heating Stage 6 Command
HTG7-C	Heating Stage 7 Command
HTG8-C	Heating Stage 8 Command
HTGOATLOCKOUT-SP	OA Heating Enable Setpoint
HTGUNOCC-SP	Night Heating Setpoint
HUM1-C	Humidifier Stage 1 Command
HUM2-C	Humidifier Stage 2 Command
HUM3-C	Humidifier Stage 3 Command
HUM4-C	Humidifier Stage 4 Command
HUM-C	Humidifier Command
HUM-EN	Humidification Available
HUMHI-A	Humidity High Limit
HUM-O	Humidifier Output
HUM-S	Humidifier Status
HUM-SP	Humidification Setpoint
LT-A	Low Temperature Alarm
LT-SP	Low Temperature Setpoint
MAD-MINPOS	Mixed Air Damper Min Pos
MAD-O	Mixed Air Damper Output
MA-H	Mixed Air Humidity
MA-Q	Mixed Air Quality
MA-T	Mixed Air Temperature
MOA-CO2RSTA	CO2 Reset A
MOA-CO2RSTB	CO2 Reset B
MOAD-C	Min Outdoor Air Damper Command
MOAD-O	Min Outdoor Air Damper Output
MOADPOS-SP	Min OA Damper Position

**Table 64: Mixed Air Dual Duct (FX-PCT)**

<b>FX Supervisor Name</b>	<b>Description</b>
<b>MOAD-S</b>	Min Outdoor Air Damper Status
<b>MOA-F</b>	Min Outdoor Air Flow
<b>MOAF-A</b>	Min Outdoor Air Fan Alarm
<b>MOAF-C</b>	Min Outdoor Air Fan Command
<b>MOAFLOW-SP</b>	Min OA Flow Setpoint
<b>MOAF-O</b>	Min Outdoor Air Fan Output
<b>MOAF-S</b>	Min Outdoor Air Fan Status
<b>MOA-VP</b>	Min Outdoor Air Velocity Pressure
<b>OAD-C</b>	Outdoor Air Damper Command
<b>OAD-MINPOS</b>	OA Damper Minimum Position
<b>OAD-O</b>	Outdoor Air Damper Output
<b>OA-F</b>	Outdoor Air Flow
<b>OA-H</b>	Outdoor Air Humidity
<b>OALT-SP</b>	OA Low Temperature Setpoint
<b>OA-Q</b>	Outdoor Air Quality
<b>OA-T</b>	Outdoor Air Temperature
<b>OA-VP</b>	Outdoor Air Velocity Pressure
<b>OCCFLOW-DIFF</b>	Occupied Flow Differential Setpoint
<b>OCC-OVERRIDE</b>	Occupancy Override
<b>OCC-S</b>	Occupancy Status
<b>OCC-SCHEDULE</b>	Occupancy Schedule
<b>PFILT-DP</b>	PreFilter Diff Pressure
<b>PFILT-S</b>	PreFilter Status
<b>PH1-C</b>	Preheat Stage 1 Command
<b>PH1-O</b>	Preheat 1 Output
<b>PH2-C</b>	Preheat Stage 2 Command
<b>PH2-O</b>	Preheat 2 Output
<b>PH3-C</b>	Preheat Stage 3 Command
<b>PH4-C</b>	Preheat Stage 4 Command
<b>PH5-C</b>	Preheat Stage 5 Command
<b>PH6-C</b>	Preheat Stage 6 Command
<b>PH7-C</b>	Preheat Stage 7 Command
<b>PH8-C</b>	Preheat Stage 8 Command
<b>PH-A</b>	Preheat Alarm
<b>PH-C</b>	Preheat Command
<b>PH-EN</b>	Preheat Available
<b>PHFBD-O</b>	Preheat Face & Bypass Damper Output
<b>PH-O</b>	Preheat Output
<b>PHP-C</b>	Preheat Pump Command
<b>PHP-S</b>	Preheat Pump Status
<b>PH-T</b>	Preheat Temperature



**Table 64: Mixed Air Dual Duct (FX-PCT)**

<b>FX Supervisor Name</b>	<b>Description</b>
PHT-SP	Preheat Temperature Setpoint
PHWE-T	Preheat Entering Water Temperature
PHWL-T	Preheat Leaving Water Temperature
RAD-O	Return Air Damper Output
RA-F	Return Air Flow
RA-H	Return Air Humidity
RA-P	Return Air Static Pressure
RAPLO-A	Return Air Low Duct Pressure
RA-Q	Return Air Quality
RA-SD	Return Air Smoke Alarm
RA-T	Return Air Temperature
RA-VP	Return Air Velocity Pressure
RF-A	Return Fan Alarm
RF-C	Return Fan Command
RF-O	Return Fan Output
RF-S	Return Fan Status
RH-A	Reheat Alarm
RH-EN	Reheat Available
RH-O	Reheat Output
RHP-C	Reheat Pump Command
RHP-S	Reheat Pump Status
RHWE-T	Reheat Entering Water Temperature
RLF-A	Relief Fan Alarm
RLF-C	Relief Fan Command
RLF-F	Relief Air Flow
RLF-O	Relief Fan Output
RLF-S	Relief Fan Status
RLF-VP	Relief Air Velocity Pressure
SF-A	Supply Fan Alarm
SF-C	Supply Fan Command
SF-O	Supply Fan Output
SF-S	Supply Fan Status
STMISO-C	Steam Isolation Valve Command
SYS-RESET	System Reset
TEF-C	Toilet Exhaust Fan Command
TEF-S	Toilet Exhaust Fan Status
TUNING-RESET	Application Tuning Reset
UNITEN-MODE	Unit Enable Mode
UNITEN-S	Unit Enable Switch
UNITEN-STATE	Unit Enable State
UNIT-RESET	Unit Reset

**Table 64: Mixed Air Dual Duct (FX-PCT)**

<b>FX Supervisor Name</b>	<b>Description</b>
<b>UNOCCFLOW-DIFF</b>	Unoccupied Flow Differential Setpoint
<b>WC-C</b>	Warmup Cooldown
<b>ZN-H</b>	Zone Humidity
<b>ZN-Q</b>	Zone Quality
<b>ZN-T</b>	Zone Temperature

**Mixed Air Single Duct (FX-PCT)****Table 65: Mixed Air Single Duct (FX-PCT)**

<b>FX Supervisor Name</b>	<b>Description</b>
AHU-STATE	AHU State
APP-MODE	Application Mode
BLDG-P	Building Static Pressure
BLDGP-SP	Building Static Pressure Setpoint
CHWE-T	Chilled Water Entering Temperature
CHWL-T	Chilled Water Leaving Temperature
CLG1-C	Cooling Stage 1 Command
CLG2-C	Cooling Stage 2 Command
CLG3-C	Cooling Stage 3 Command
CLG4-C	Cooling Stage 4 Command
CLG5-C	Cooling Stage 5 Command
CLG6-C	Cooling Stage 6 Command
CLG7-C	Cooling Stage 7 Command
CLG8-C	Cooling Stage 8 Command
CLG-C	Cooling Command
CLG-EN	Cooling Available
CLGFBD-O	Cooling Face & Bypass Damper Output
CLG-O	Cooling Output
CLGOATLOCKOUT-SP	OA Cooling Enable Setpoint
CLGOCC-SP	Occ Cooling Setpoint
CLGUNOCC-SP	Unocc Cooling Setpoint
CP-C	Cooling Pump Command
CP-S	Cooling Pump Status
DA1-P	Discharge Air Static Pressure 1
DA2-P	Discharge Air Static Pressure 2
DA-F	Discharge Air Flow
DA-F	Discharge Air Flow
DA-H	Discharge Air Humidity
DAH-SP	Discharge Air Humidity Setpoint
DAPHI-A	Discharge Air High Duct Pressure
DAP-SP	Duct Static Pressure Setpoint
DA-Q	Discharge Air Quality
DA-SD	Discharge Air Smoke Alarm
DA-T	Discharge Air Temperature
DATCLGMIN-SP	Discharge Air Setpoint Cooling Min
DATCLGUNOCC-SP	Unocc Cooling Setpoint
DATHI-SP	Discharge Air High Setpoint
DATHTGMAX-SP	Discharge Air Setpoint Heating Max
DATHTGUNOCC-SP	Unocc Heating Setpoint
DATLO-SP	Discharge Air Low Setpoint

**Table 65: Mixed Air Single Duct (FX-PCT)**

<b>FX Supervisor Name</b>	<b>Description</b>
DAT-OARSTA	OA Reset A
DAT-OARSTB	OA Reset B
DATSATISFIED-SP	Discharge Air Setpoint Zone Satisfied
DAT-SP	Discharge Air Temperature Setpoint
DA-VP	Discharge Air Velocity Pressure
DEHUM-SP	Dehumidification Setpoint
EAD-C	Exhaust Air Damper Command
EAD-O	Exhaust Air Damper Output
EAHR-T	Exhaust Air Heat Recovery Temperature
ECON-AVAILABLE	Free Cooling Available
ECON-EN	Economizer Enable
ECONSWO-SP	Change Over Temperature
EFFCLG-SP	Effective Cooling Setpoint
EFFDAT-SP	Discharge Air Setpoint
EFFHTG-SP	Effective Heating Setpoint
EFF-OCC	Effective Occupancy
EMERGENCY BLDGP-SP	Emergency BSP Setpoint
EMERGENCY DAP-SP	Emergency Duct Static Setpoint
EMERGENCY-MODE	Emergency Mode
FBPD-SWO	Network Switchover
FBPD-SWO-SP	Switchover Setpoint
FFILT-DP	Final Filter Diff Pressure
FFILT-S	Final Filter Status
FLOW-DIFF	Flow Differential Setpoint
FSCS-RF	FSCS Return Fan
FSCS-RLF	FSCS Relief Fan
FSCS-SF	FSCS Supply Fan
GEF-C	General Exhaust Fan Command
GEF-S	General Exhaust Fan Status
GLY-T	Glycol Temperature
HC-C	Heating/Cooling Command
HCFBD-O	Heating/Cooling Face & Bypass Output
HC-O	Heating/Cooling Output
HCP-C	Heating/Cooling Pump Command
HCP-S	Heating/Cooling Pump Status
HCWE-T	Htg/Clg Entering Water Temperature
HCWL-T	Htg/Clg Leaving Water Temperature
HDV-C	Humidifier Drain Valve Command
HFV-C	Humidifier Fill Valve Command
HREAFBD-C	Heat Recovery EA FBD Command
HREAFBD-O	Heat Recovery EA FBD Output

**Table 65: Mixed Air Single Duct (FX-PCT)**

<b>FX Supervisor Name</b>	<b>Description</b>
HRLL-SP	Heat Recovery Low Limit Setpoint
HR-O	Heat Recovery Output
HROAFBD-C	Heat Recovery OA FBD Command
HROAFBD-O	Heat Recovery OA FBD Output
HRP-C	Heat Recovery Pump Command
HRP-S	Heat Recovery Pump Status
HR-T	Heat Recovery Temperature
HRT-SP	Heat Recovery Setpoint
HRW-C	Heat Recovery Wheel Command
HRW-O	Heat Recovery Wheel Output
HRW-S	Heat Recovery Wheel Status
HT-A	High Temperature Alarm
HTG1-C	Heating Stage 1 Command
HTG1-O	Heating 1 Output
HTG2-C	Heating Stage 2 Command
HTG2-O	Heating 2 Output
HTG3-C	Heating Stage 3 Command
HTG4-C	Heating Stage 4 Command
HTG5-C	Heating Stage 5 Command
HTG6-C	Heating Stage 6 Command
HTG7-C	Heating Stage 7 Command
HTG8-C	Heating Stage 8 Command
HTGOATLOCKOUT-SP	OA Heating Enable Setpoint
HTGOCC-SP	Occ Heating Setpoint
HTGUNOCC-SP	Unocc Heating Setpoint
HUM1-C	Humidifier Stage 1 Command
HUM2-C	Humidifier Stage 2 Command
HUM3-C	Humidifier Stage 3 Command
HUM4-C	Humidifier Stage 4 Command
HUM-C	Humidifier Command
HUM-EN	Humidification Available
HUMHI-A	Humidity High Limit
HUM-O	Humidifier Output
HUM-S	Humidifier Status
HUM-SP	Humidification Setpoint
LT-A	Low Temperature Alarm
LT-SP	Low Temperature Setpoint
MAD-MINPOS	Mixed Air Damper Min Pos
MAD-O	Mixed Air Damper Output
MA-H	Mixed Air Humidity
MA-Q	Mixed Air Quality

**Table 65: Mixed Air Single Duct (FX-PCT)**

<b>FX Supervisor Name</b>	<b>Description</b>
MA-T	Mixed Air Temperature
MOA-CO2RSTA	CO2 Reset A
MOA-CO2RSTB	CO2 Reset B
MOAD-C	Min Outdoor Air Damper Command
MOAD-O	Min Outdoor Air Damper Output
MOADPOS-SP	Min OA Damper Position
MOAD-S	Min Outdoor Air Damper Status
MOA-F	Min Outdoor Air Flow
MOAF-A	Min Outdoor Air Fan Alarm
MOAF-C	Min Outdoor Air Fan Command
MOAFLOW-SP	Min OA Flow Setpoint
MOAF-O	Min Outdoor Air Fan Output
MOAF-S	Min Outdoor Air Fan Status
OAD-C	Outdoor Air Damper Command
OAD-MINPOS	OA Damper Minimum Position
OAD-O	Outdoor Air Damper Output
OA-F	Outdoor Air Flow
OA-F	Outdoor Air Flow
OA-H	Outdoor Air Humidity
OALT-SP	OA Low Temperature Setpoint
OA-Q	Outdoor Air Quality
OA-T	Outdoor Air Temperature
OA-VP	Outdoor Air Velocity Pressure
OCCFLOW-DIFF	Occupied Flow Differential Setpoint
OCC-OVERRIDE	Occupancy Override
OCC-S	Occupancy Status
OCC-SCHEDULE	Occupancy Schedule
PFILT-DP	PreFilter Diff Pressure
PFILT-S	PreFilter Status
PH1-C	Preheat Stage 1 Command
PH1-O	Preheat 1 Output
PH2-C	Preheat Stage 2 Command
PH2-O	Preheat 2 Output
PH3-C	Preheat Stage 3 Command
PH4-C	Preheat Stage 4 Command
PH5-C	Preheat Stage 5 Command
PH6-C	Preheat Stage 6 Command
PH7-C	Preheat Stage 7 Command
PH8-C	Preheat Stage 8 Command
PH-A	Preheat Alarm
PH-C	Preheat Command

**Table 65: Mixed Air Single Duct (FX-PCT)**

<b>FX Supervisor Name</b>	<b>Description</b>
PH-EN	Preheat Available
PHFBD-O	Preheat Face & Bypass Damper Output
PH-O	Preheat Output
PHP-C	Preheat Pump Command
PHP-S	Preheat Pump Status
PH-T	Preheat Temperature
PHT-SP	Preheat Temperature Setpoint
PHWE-T	Preheat Entering Water Temperature
PHWL-T	Preheat Leaving Water Temperature
RAD-O	Return Air Damper Output
RA-F	Return Air Flow
RA-H	Return Air Humidity
RA-P	Return Air Static Pressure
RAPLO-A	Return Air Low Duct Pressure
RA-Q	Return Air Quality
RA-SD	Return Air Smoke Alarm
RA-T	Return Air Temperature
RAT-SP	Return Air Temperature Setpoint
RA-VP	Return Air Velocity Pressure
RF2-A	Return Fan2 Alarm
RF2-C	Return Fan2 Command
RF2-O	Return Fan2 Output
RF2-S	Return Fan2 Status
RF-A	Return Fan Alarm
RF-C	Return Fan Command
RF-LEAD	Relief Fan Lead Select
RF-O	Return Fan Output
RF-S	Return Fan Status
RH-A	Reheat Alarm
RH-EN	Reheat Available
RH-O	Reheat Output
RHP-C	Reheat Pump Command
RHP-S	Reheat Pump Status
RHWE-T	Reheat Entering Water Temperature
RHWL-T	Reheat Leaving Water Temperature
RLF2-A	Relief Fan2 Alarm
RLF2-C	Relief Fan2 Command
RLF2-O	Relief Fan2 Output
RLF2-S	Relief Fan2 Status
RLF-A	Relief Fan Alarm
RLF-C	Relief Fan Command

**Table 65: Mixed Air Single Duct (FX-PCT)**

<b>FX Supervisor Name</b>	<b>Description</b>
RLF-F	Relief Air Flow
RLF-O	Relief Fan Output
RLF-S	Relief Fan Status
RLF-VP	Relief Air Velocity Pressure
SF2-A	Supply Fan2 Alarm
SF2-C	Supply Fan2 Command
SF2-O	Supply Fan2 Output
SF2-S	Supply Fan2 Status
SF-A	Supply Fan Alarm
SF-C	Supply Fan Command
SF-LEAD	Supply Fan Lead Select
SF-O	Supply Fan Output
SF-S	Supply Fan Status
STMISO-C	Steam Isolation Valve Command
SUM-SP	Summer Setpoint
SUMWIN-C	Summer/Winter
SUMWIN-S	Summer/Winter Mode Status
SUMWINSWO-DIFF	Switchover Diff
SUMWINSWO-SP	Switchover Setpoint
SYS-RESET	System Reset
SYS-RESET	System Reset
TEF-C	Toilet Exhaust Fan Command
TEF-S	Toilet Exhaust Fan Status
TUNING-RESET	Application Tuning Reset
UNITEN-MODE	Unit Enable Mode
UNITEN-S	Unit Enable Switch
UNITEN-STATE	Unit Enable State
UNIT-RESET	Unit Reset
UNOCCFLOW-DIFF	Unoccupied Flow Differential Setpoint
WC-ADJ	Warmer/Cooler Adjust
WC-C	Warmup Cooldown
WIN-SP	Winter Setpoint
ZN-H	Zone Humidity
ZN-Q	Zone Quality
ZN-SP	Zone Setpoint
ZN-SP-MIN	Minimum Zone Setpoint
ZN-SP-MAX	Maximum Zone Setpoint
ZN-T	Zone Temperature
ZN-TOCC	Zone Temporary Occupancy
ZNT-SP	Common Setpoint
ZNT-STATE	Zone Temperature State



**Multizone (FX-PCT)****Table 66: Multizone (FX-PCT)**

<b>FX Supervisor Name</b>	<b>Description</b>
<b>APP-MODE</b>	Application Mode
<b>CD-T</b>	Cold Deck Temperature
<b>CDTHI-SP</b>	Discharge Air High Setpoint
<b>CDTLO-SP</b>	Discharge Air Low Setpoint
<b>CDT-OARSTA</b>	OA Reset A
<b>CDT-OARSTB</b>	OA Reset B
<b>CDT-SP</b>	Cold Deck Air Temperature Setpoint
<b>CHWE-T</b>	Chilled Water Entering Temperature
<b>CHWL-T</b>	Chilled Water Leaving Temperature
<b>CLG1-C</b>	Cooling Stage 1 Command
<b>CLG2-C</b>	Cooling Stage 2 Command
<b>CLG3-C</b>	Cooling Stage 3 Command
<b>CLG4-C</b>	Cooling Stage 4 Command
<b>CLG5-C</b>	Cooling Stage 5 Command
<b>CLG6-C</b>	Cooling Stage 6 Command
<b>CLG7-C</b>	Cooling Stage 7 Command
<b>CLG8-C</b>	Cooling Stage 8 Command
<b>CLG-C</b>	Cooling Command
<b>CLG-EN</b>	Cooling Available
<b>CLGFBD-O</b>	Cooling Face & Bypass Damper Output
<b>CLG-O</b>	Cooling Output
<b>CLGOATLOCKOUT-SP</b>	OA Cooling Enable Setpoint
<b>CLGUNOCC-SP</b>	Night Cooling Setpoint
<b>CP-C</b>	Cooling Pump Command
<b>CP-S</b>	Cooling Pump Status
<b>DA-H</b>	Discharge Air Humidity
<b>DAH-SP</b>	Discharge Air Humidity Setpoint
<b>DAPHI-A</b>	Discharge Air High Duct Pressure
<b>DA-Q</b>	Discharge Air Quality
<b>DA-SD</b>	Discharge Air Smoke Alarm
<b>EAHR-T</b>	Exhaust Air Heat Recovery Temperature
<b>ECON-AVAILABLE</b>	Free Cooling Available
<b>ECON-EN</b>	Economizer Enable
<b>ECONSWO-SP</b>	Change Over Temperature
<b>EFF-OCC</b>	Effective Occupancy
<b>EMERGENCY-MODE</b>	Emergency Mode
<b>FBPD-SWO</b>	Network Switchover
<b>FBPDSWO-SP</b>	Switchover Setpoint
<b>FFILT-DP</b>	Final Filter Diff Pressure
<b>FFILT-S</b>	Final Filter Status

**Table 66: Multizone (FX-PCT)**

<b>FX Supervisor Name</b>	<b>Description</b>
GEF-C	General Exhaust Fan Command
GEF-S	General Exhaust Fan Status
GLY-T	Glycol Temperature
HD-H	Hot Deck Humidity
HD-T	Hot Deck Temperature
HDTHI-SP	Discharge Air High Setpoint
HDTLO-SP	Discharge Air Low Setpoint
HDT-OARSTA	OA Reset A
HDT-OARSTB	OA Reset B
HDT-RARSTA	OA Reset A
HDT-RARSTB	OA Reset B
HDT-SP	Hot Deck Air Temperature Setpoint
HDV-C	Humidifier Drain Valve Command
HFV-C	Humidifier Fill Valve Command
HREAFBD-C	Heat Recovery EA FBD Command
HREAFBD-O	Heat Recovery EA FBD Output
HRLL-SP	Heat Recovery Low Limit Setpoint
HR-O	Heat Recovery Output
HROAFBD-C	Heat Recovery OA FBD Command
HROAFBD-O	Heat Recovery OA FBD Output
HRP-C	Heat Recovery Pump Command
HRP-S	Heat Recovery Pump Status
HR-T	Heat Recovery Temperature
HRT-SP	Heat Recovery Setpoint
HRW-C	Heat Recovery Wheel Command
HRW-O	Heat Recovery Wheel Output
HRW-S	Heat Recovery Wheel Status
HT-A	High Temperature Alarm
HTG1-C	Heating Stage 1 Command
HTG1-O	Heating 1 Output
HTG2-C	Heating Stage 2 Command
HTG2-O	Heating 2 Output
HTG3-C	Heating Stage 3 Command
HTG4-C	Heating Stage 4 Command
HTG5-C	Heating Stage 5 Command
HTG6-C	Heating Stage 6 Command
HTG7-C	Heating Stage 7 Command
HTG8-C	Heating Stage 8 Command
HTGOATLOCKOUT-SP	OA Heating Enable Setpoint
HTGUNOCC-SP	Night Heating Setpoint
HUM1-C	Humidifier Stage 1 Command

**Table 66: Multizone (FX-PCT)**

<b>FX Supervisor Name</b>	<b>Description</b>
HUM2-C	Humidifier Stage 2 Command
HUM3-C	Humidifier Stage 3 Command
HUM4-C	Humidifier Stage 4 Command
HUM-C	Humidifier Command
HUM-EN	Humidification Available
HUMHI-A	Humidity High Limit
HUM-O	Humidifier Output
HUM-S	Humidifier Status
HUM-SP	Humidification Setpoint
LT-A	Low Temperature Alarm
LT-SP	Low Temperature Setpoint
MAD-MINPOS	Mixed Air Damper Min Pos
MAD-O	Mixed Air Damper Output
MA-H	Mixed Air Humidity
MA-Q	Mixed Air Quality
MA-T	Mixed Air Temperature
MOA-CO2RSTA	CO2 Reset A
MOA-CO2RSTB	CO2 Reset B
MOAFLOW-SP	Min OA Flow Setpoint
OAD-MINPOS	OA Damper Minimum Position
OA-F	Outdoor Air Flow
OA-H	Outdoor Air Humidity
OALT-SP	OA Low Temperature Setpoint
OA-Q	Outdoor Air Quality
OA-T	Outdoor Air Temperature
OA-VP	Outdoor Air Velocity Pressure
OCC-OVERRIDE	Occupancy Override
OCC-S	Occupancy Status
OCC-SCHEDULE	Occupancy Schedule
PFILT-DP	PreFilter Diff Pressure
PFILT-S	PreFilter Status
PH1-C	Preheat Stage 1 Command
PH1-O	Preheat 1 Output
PH2-C	Preheat Stage 2 Command
PH2-O	Preheat 2 Output
PH3-C	Preheat Stage 3 Command
PH4-C	Preheat Stage 4 Command
PH5-C	Preheat Stage 5 Command
PH6-C	Preheat Stage 6 Command
PH7-C	Preheat Stage 7 Command
PH8-C	Preheat Stage 8 Command

**Table 66: Multizone (FX-PCT)**

<b>FX Supervisor Name</b>	<b>Description</b>
PH-A	Preheat Alarm
PH-C	Preheat Command
PH-EN	Preheat Available
PHFBD-O	Preheat Face & Bypass Damper Output
PH-O	Preheat Output
PHP-C	Preheat Pump Command
PHP-S	Preheat Pump Status
PH-T	Preheat Temperature
PHT-SP	Preheat Temperature Setpoint
PHWE-T	Preheat Entering Water Temperature
PHWL-T	Preheat Leaving Water Temperature
RA-H	Return Air Humidity
RAPLO-A	Return Air Low Duct Pressure
RA-Q	Return Air Quality
RA-SD	Return Air Smoke Alarm
RA-T	Return Air Temperature
RF-C	Return Fan Command
RF-S	Return Fan Status
RH-A	Reheat Alarm
RH-EN	Reheat Available
RH-O	Reheat Output
RHP-C	Reheat Pump Command
RHP-S	Reheat Pump Status
RHWE-T	Reheat Entering Water Temperature
RHWL-T	Reheat Leaving Water Temperature
SF-C	Supply Fan Command
SF-S	Supply Fan Status
STMISO-C	Steam Isolation Valve Command
SYS-RESET	System Reset
TEF-C	Toilet Exhaust Fan Command
TEF-S	Toilet Exhaust Fan Status
TUNING-RESET	Application Tuning Reset
UNITEN-MODE	Unit Enable Mode
UNITEN-S	Unit Enable Switch
UNITEN-STATE	Unit Enable State
UNIT-RESET	Unit Reset
WC1-ADJ	Zone 1 Warmer/Cooler Adjust
WC2-ADJ	Zone 2 Warmer/Cooler Adjust
WC3-ADJ	Zone 3 Warmer/Cooler Adjust
WC4-ADJ	Zone 4 Warmer/Cooler Adjust
WC5-ADJ	Zone 5 Warmer/Cooler Adjust

**Table 66: Multizone (FX-PCT)**

<b>FX Supervisor Name</b>	<b>Description</b>
WC6-ADJ	Zone 6 Warmer/Cooler Adjust
WC7-ADJ	Zone 7 Warmer/Cooler Adjust
WC8-ADJ	Zone 8 Warmer/Cooler Adjust
WC-C	Warmup Cooldown Command
ZN1D-O	Zone 1 Damper Output
ZN1-H	Zone 1 Humidity
ZN1HTG1-C	Zone 1 Heating Stage 1 Command
ZN1HTG2-C	Zone 1 Heating Stage 2 Command
ZN1HTG3-C	Zone 1 Heating Stage 3 Command
ZN1HTG-C	Zone 1 Heating Command
ZN1HTG-O	Zone 1 Heating Output
ZN1-Q	Zone 1 Quality
ZN1-SP	Zone 1 Setpoint
ZN1-T	Zone 1 Temperature
ZN1-TOCC	Zone 1 Temporary Occupancy
ZN2D-O	Zone 2 Damper Output
ZN2-H	Zone 2 Humidity
ZN2HTG1-C	Zone 2 Heating Stage 1 Command
ZN2HTG2-C	Zone 2 Heating Stage 2 Command
ZN2HTG3-C	Zone 2 Heating Stage 3 Command
ZN2HTG-C	Zone 2 Heating Command
ZN2HTG-O	Zone 2 Heating Output
ZN2-Q	Zone 2 Quality
ZN2-SP	Zone 2 Setpoint
ZN2-T	Zone 2 Temperature
ZN3D-O	Zone 3 Damper Output
ZN3-H	Zone 3 Humidity
ZN3HTG1-C	Zone 3 Heating Stage 1 Command
ZN3HTG2-C	Zone 3 Heating Stage 2 Command
ZN3HTG3-C	Zone 3 Heating Stage 3 Command
ZN3HTG-C	Zone 3 Heating Command
ZN3HTG-O	Zone 3 Heating Output
ZN3-Q	Zone 3 Quality
ZN3-SP	Zone 3 Setpoint
ZN3-T	Zone 3 Temperature
ZN3-TOCC	Zone 3 Temporary Occupancy
ZN4D-O	Zone 4 Damper Output
ZN4-H	Zone 4 Humidity
ZN4HTG1-C	Zone 4 Heating Stage 1 Command
ZN4HTG2-C	Zone 4 Heating Stage 2 Command
ZN4HTG3-C	Zone 4 Heating Stage 3 Command

**Table 66: Multizone (FX-PCT)**

<b>FX Supervisor Name</b>	<b>Description</b>
<b>ZN4HTG-C</b>	Zone 4 Heating Command
<b>ZN4HTG-O</b>	Zone 4 Heating Output
<b>ZN4-Q</b>	Zone 4 Quality
<b>ZN4-SP</b>	Zone 4 Setpoint
<b>ZN4-T</b>	Zone 4 Temperature
<b>ZN4-TOCC</b>	Zone 4 Temporary Occupancy
<b>ZN5D-O</b>	Zone 5 Damper Output
<b>ZN5-H</b>	Zone 5 Humidity
<b>ZN5HTG1-C</b>	Zone 5 Heating Stage 1 Command
<b>ZN5HTG2-C</b>	Zone 5 Heating Stage 2 Command
<b>ZN5HTG3-C</b>	Zone 5 Heating Stage 3 Command
<b>ZN5HTG-C</b>	Zone 5 Heating Command
<b>ZN5HTG-O</b>	Zone 5 Heating Output
<b>ZN5-Q</b>	Zone 5 Quality
<b>ZN5-SP</b>	Zone 5 Setpoint
<b>ZN5-T</b>	Zone 5 Temperature
<b>ZN5-TOCC</b>	Zone 5 Temporary Occupancy
<b>ZN6D-O</b>	Zone 6 Damper Output
<b>ZN6D-O</b>	Zone 6 Damper Output
<b>ZN6-H</b>	Zone 6 Humidity
<b>ZN6HTG1-C</b>	Zone 6 Heating Stage 1 Command
<b>ZN6HTG2-C</b>	Zone 6 Heating Stage 2 Command
<b>ZN6HTG3-C</b>	Zone 6 Heating Stage 3 Command
<b>ZN6HTG-C</b>	Zone 6 Heating Command
<b>ZN6HTG-O</b>	Zone 6 Heating Output
<b>ZN6-Q</b>	Zone 6 Quality
<b>ZN6-SP</b>	Zone 6 Setpoint
<b>ZN6-T</b>	Zone 6 Temperature
<b>ZN6-TOCC</b>	Zone 6 Temporary Occupancy
<b>ZN7D-O</b>	Zone 7 Damper Output
<b>ZN7-H</b>	Zone 7 Humidity
<b>ZN7HTG1-C</b>	Zone 7 Heating Stage 1 Command
<b>ZN7HTG2-C</b>	Zone 7 Heating Stage 2 Command
<b>ZN7HTG3-C</b>	Zone 7 Heating Stage 3 Command
<b>ZN7HTG-C</b>	Zone 7 Heating Command
<b>ZN7HTG-O</b>	Zone 7 Heating Output
<b>ZN7-Q</b>	Zone 7 Quality
<b>ZN7-SP</b>	Zone 7 Setpoint
<b>ZN7-T</b>	Zone 7 Temperature
<b>ZN7-TOCC</b>	Zone 7 Temporary Occupancy
<b>ZN8D-O</b>	Zone 8 Damper Output

**Table 66: Multizone (FX-PCT)**

<b>FX Supervisor Name</b>	<b>Description</b>
<b>ZN8-H</b>	Zone 8 Humidity
<b>ZN8HTG1-C</b>	Zone 8 Heating Stage 1 Command
<b>ZN8HTG2-C</b>	Zone 8 Heating Stage 2 Command
<b>ZN8HTG3-C</b>	Zone 8 Heating Stage 3 Command
<b>ZN8HTG-C</b>	Zone 8 Heating Command
<b>ZN8HTG-O</b>	Zone 8 Heating Output
<b>ZN8-Q</b>	Zone 8 Quality
<b>ZN8-SP</b>	Zone 8 Setpoint
<b>ZN8-T</b>	Zone 8 Temperature
<b>ZN8-TOCC</b>	Zone 8 Temporary Occupancy

**Rooftop (FX-PCT)****Table 67: Rooftop (FX-PCT)**

<b>FX Supervisor Name</b>	<b>Description</b>
AHU-STATE	AHU State
APP-MODE	Application Mode
CHWE-T	Chilled Water Entering Temperature
CHWL-T	Chilled Water Leaving Temperature
CLG1-C	Cooling Stage 1 Command
CLG2-C	Cooling Stage 2 Command
CLG3-C	Cooling Stage 3 Command
CLG4-C	Cooling Stage 4 Command
CLG5-C	Cooling Stage 5 Command
CLG6-C	Cooling Stage 6 Command
CLG7-C	Cooling Stage 7 Command
CLG8-C	Cooling Stage 8 Command
CLG-C	Cooling Command
CLG-EN	Cooling Available
CLGFBD-O	Cooling Face & Bypass Damper Output
CLGFBD-O	Cooling Face & Bypass Damper Output
CLG-O	Cooling Output
CLGOATLOCKOUT-SP	OA Cooling Enable Setpoint
CLGOCC-SP	Occ Cooling Setpoint
CLGUNOCC-SP	Night Cooling Setpoint
CP-C	Cooling Pump Command
CP-S	Cooling Pump Status
DA-H	Discharge Air Humidity
DAH-SP	Discharge Air Humidity Setpoint
DAPHI-A	Discharge Air High Duct Pressure
DA-Q	Discharge Air Quality
DA-SD	Discharge Air Smoke Alarm
DA-T	Discharge Air Temperature
DATCLGMIN-SP	Discharge Air Setpoint Cooling Min
DATCLGUNOCC-SP	Unocc Cooling Setpoint
DATHI-SP	Discharge Air High Setpoint
DATHTGMAX-SP	Discharge Air Setpoint Heating Max
DATHTGUNOCC-SP	Unocc Heating Setpoint
DATLO-SP	Discharge Air Low Setpoint
DAT-OARSTA	OA Reset A
DAT-OARSTB	OA Reset B
DATSATISFIED-SP	Discharge Air Setpoint Zone Satisfied
DAT-SP	Discharge Air Temperature Setpoint
DEHUM-SP	Dehumidification Setpoint
ECON-AVAILABLE	Free Cooling Available



**Table 67: Rooftop (FX-PCT)**

<b>FX Supervisor Name</b>	<b>Description</b>
<b>ECON-C</b>	Economizer Enable Command
<b>ECON-EN</b>	Economizer Enable
<b>ECONSWO-SP</b>	Change Over Temperature
<b>EFFCLG-SP</b>	Effective Cooling Setpoint
<b>EFFDAT-SP</b>	Discharge Air Setpoint
<b>EFFHTG-SP</b>	Effective Heating Setpoint
<b>EFF-OCC</b>	Effective Occupancy
<b>EMERGENCY-MODE</b>	Emergency Mode
<b>FFILT-DP</b>	Final Filter Diff Pressure
<b>FFILT-S</b>	Final Filter Status
<b>GEF-C</b>	General Exhaust Fan Command
<b>GEF-S</b>	General Exhaust Fan Status
<b>HGBPV-C</b>	Hot Gas Bypass Valve Command
<b>HT-A</b>	High Temperature Alarm
<b>HTG1-C</b>	Heating Stage 1 Command
<b>HTG1-O</b>	Heating 1 Output
<b>HTG2-C</b>	Heating Stage 2 Command
<b>HTG2-O</b>	Heating 2 Output
<b>HTG3-C</b>	Heating Stage 3 Command
<b>HTG4-C</b>	Heating Stage 4 Command
<b>HTG5-C</b>	Heating Stage 5 Command
<b>HTG6-C</b>	Heating Stage 6 Command
<b>HTG7-C</b>	Heating Stage 7 Command
<b>HTG8-C</b>	Heating Stage 8 Command
<b>HTGOATLOCKOUT-SP</b>	OA Heating Enable Setpoint
<b>HTGOCC-SP</b>	Occ Heating Setpoint
<b>HTGUNOCC-SP</b>	Night Heating Setpoint
<b>HUM1-C</b>	Humidifier Stage 1 Command
<b>HUM2-C</b>	Humidifier Stage 2 Command
<b>HUM3-C</b>	Humidifier Stage 3 Command
<b>HUM4-C</b>	Humidifier Stage 4 Command
<b>HUM-C</b>	Humidifier Command
<b>HUM-EN</b>	Humidification Available
<b>HUM-O</b>	Humidifier Output
<b>HUM-SP</b>	Humidification Setpoint
<b>LT-A</b>	Low Temperature Alarm
<b>LT-SP</b>	Low Temperature Setpoint
<b>MAD-MINPOS</b>	Mixed Air Damper Min Pos
<b>MAD-O</b>	Mixed Air Damper Output
<b>MA-H</b>	Mixed Air Humidity
<b>MA-Q</b>	Mixed Air Quality

**Table 67: Rooftop (FX-PCT)**

<b>FX Supervisor Name</b>	<b>Description</b>
MA-T	Mixed Air Temperature
MOA-CO2RSTA	CO2 Reset A
MOA-CO2RSTB	CO2 Reset B
OAD-MINPOS	OA Damper Minimum Position
OA-H	Outdoor Air Humidity
OALT-SP	OA Low Temperature Setpoint
OA-Q	Outdoor Air Quality
OA-T	Outdoor Air Temperature
OCC-OVERRIDE	Occupancy Override
OCC-S	Occupancy Status
OCC-SCHEDULE	Occupancy Schedule
PFILT-DP	PreFilter Diff Pressure
PFILT-S	PreFilter Status
RA-H	Return Air Humidity
RA-Q	Return Air Quality
RA-SD	Return Air Smoke Alarm
RA-T	Return Air Temperature
RAT-SP	Return Air Temperature Setpoint
RH-EN	Reheat Available
RH-O	Reheat Output
RHP-C	Reheat Pump Command
RHP-S	Reheat Pump Status
RHWE-T	Reheat Entering Water Temperature
RHWL-T	Reheat Leaving Water Temperature
SF-C	Supply Fan Command
SF-S	Supply Fan Status
STMISO-C	Steam Isolation Valve Command
SUM-SP	Summer Setpoint
SYS-RESET	System Reset
TEF-C	Toilet Exhaust Fan Command
TEF-S	Toilet Exhaust Fan Status
TUNING-RESET	Application Tuning Reset
UNITEN-MODE	Unit Enable Mode
UNITEN-S	Unit Enable Switch
UNITEN-STATE	Unit Enable State
UNIT-RESET	Unit Reset
WC-ADJ	Warmer/Cooler Adjust
WC-C	Warmup Cooldown
WIN-SP	Winter Setpoint
ZN-H	Zone Humidity
ZN-Q	Zone Quality

**Table 67: Rooftop (FX-PCT)**

<b>FX Supervisor Name</b>	<b>Description</b>
<b>ZN-SP-MIN</b>	Minimum Zone Setpoint
<b>ZN-SP-MAX</b>	Maximum Zone Setpoint
<b>ZN-SP</b>	Zone Setpoint
<b>ZN-T</b>	Zone Temperature
<b>ZN-TOCC</b>	Zone Temporary Occupancy
<b>ZNT-SP</b>	Common Setpoint
<b>ZNT-STATE</b>	Zone Temperature State

# Simple Plant (FX-PCT)

Table 68: Simple Plant (FX-PCT)

FX Supervisor Name	Description
BLR1-A	Boiler 1 Alarm
BLR1-C	Boiler 1 Command
BLR1-EN	Boiler 1 Enable
BLR1-FS	Boiler 1 Flow Switch
BLR1HT-A	Boiler 1 High Temperature Alarm
BLR1-O	Boiler 1 Output
BLR1-S	Boiler 1 Status
BLR1SP-O	Boiler 1 Setpoint Output
BLR-SP	Boiler Setpoint
BYPV-O	Bypass Valve Output
CALCFLOW-SETPOINT	Calculated Flow Setpoint
CH1-A	Chiller 1 Alarm
CH1-AMPS	Chiller 1 Amps
CH1CHWE-T	Chiller 1 CHW Entering Temperature
CH1CHW-F	Chiller 1 CHW Flow
CH1CHW-FS	Chiller 1 CHW Flow Switch
CH1CHWL-T	Chiller 1 CHW Leaving Temperature
CH1CL-O	Chiller 1 Current Limit Output
CH1CWE-T	Chiller 1 CW Entering Temperature
CH1CW-F	Chiller 1 CW Flow
CH1CW-FS	Chiller 1 CW Flow Switch
CH1CWL-T	Chiller 1 CW Leaving Temperature
CH1-EN	Chiller 1 Enable
CH1-S	Chiller 1 Status
CH1SP-O	Chiller 1 Setpoint Output
CH-SP	Chiller 1 Setpoint
CHWBYPV-O	Chilled Water Bypass Valve Output
CHW-DP	Chilled Water Diff Pressure
CHWDPPV-O	CHW DP Valve Output
CHWDP-SP	CHW Differential Pressure Setpoint
CHWFLOW-SP	CHW Min Flow Setpoint
CHWSYS-AVAIL	CHW System Available Status
CHWSYS-EN	Chilled Water System Enable
CLGOATLOCKOUT-SP	OA Cooling Enable Setpoint
COMBDPR-C	Combustion Damper Command
COMBDPR-S	Combustion Damper Status
CT1BH-EN	Tower 1 Basin Heater Enable
CT1BSN-T	Tower 1 Basin Temperature
CT1BSN-TS	Tower 1 Basin Temp Status
CT1-C	Tower 1 Command

**Table 68: Simple Plant (FX-PCT)**

<b>FX Supervisor Name</b>	<b>Description</b>
CT1H-C	Tower 1 HI Command
CT1L-C	Tower 1 LO Command
CT1LVL-A	Tower 1 Level Alarm
CT1LVL-S	Tower 1 Level Status
CT1M-C	Tower 1 MED Command
CT1MUV-C	Tower 1 MU Valve Command
CT1-O	Tower 1 Output
CT1-S	Tower 1 Status
CT1VIB-A	Tower 1 Vibration Alarm
CTV-O	Tower 1 Valve Output
CW-F	Condenser Water Flow
CWP1-C	Condenser Water Pump 1 Command
CWP1-RANK	Condenser Water Pump 1 Rank
CWP1-RUNTIME	Condenser Water Pump 1 Runtime
CWP1-S	Condenser Water Pump 1 Status
CWP2-C	Condenser Water Pump 2 Command
CWP2-RANK	Condenser Water Pump 2 Rank
CWP2-RUNTIME	Condenser Water Pump 2 Runtime
CWP2-S	Condenser Water Pump 2 Status
CWP-ROT	Rotate Condenser Water Pumps
CWR-T	Condenser Water Return Temperature
CW-SP	Condenser Water Setpoint
CWS-T	Condenser Water Supply Temperature
HCByPVLV-O	Htg.Clg Bypass Valve Output
HC-C	Heating/Cooling Command
HTGOATLOCKOUT-SP	OA Heating Enable Setpoint
HW-DP	Hot Water Diff Pressure
HWDP-SP	HW Differential Pressure Setpoint
HWFLOW-SP	HW Min Flow Setpoint
HWS-HIGH	HWS Reset High
HWS-LOW	HWS Reset Low
HW-SP	Hot Water Setpoint
HWSYS-AVAILABLE	HW System Available Status
HWSYS-EN	Hot Water System Enable
HX1V1-O	Heat Exchanger 1 Valve 1 Output
HX1V2-O	Heat Exchanger 1 Valve 2 Output
MIX-O	Mixing Valve Output
MR-T	Mechanical Room Temperature
OA-H	Outdoor Air Humidity
OALT-SP	OA Low Temperature Setpoint
OA-T	Outdoor Air Temperature

**Table 68: Simple Plant (FX-PCT)**

<b>FX Supervisor Name</b>	<b>Description</b>
OAT-HIGH	OAT Reset High
OAT-LOW	OAT Reset Low
PCHW-F	Primary CHW Flow
PCHWP1-C	Primary CHW Pump 1 Command
PCHWP1-O	Primary CHW Pump 1 Output
PCHWP1-RANK	Primary CHW Pump 1 Rank
PCHWP1-RUNTIME	Primary CHW Pump 1 Runtime
PCHWP1-S	Primary CHW Pump 1 Status
PCHWP2-C	Primary CHW Pump 2 Command
PCHWP2-O	Primary CHW Pump 2 Output
PCHWP2-RANK	Primary CHW Pump 2 Rank
PCHWP2-RUNTIME	Primary CHW Pump 2 Runtime
PCHWP2-S	Primary CHW Pump 2 Status
PCHWP-ROT	Rotate Primary Chilled Water Pumps
PCHWR-T	Primary CHW Return Temp
PCHWS-T	Primary CHW Supply Temp
PHCWR-T	Primary Htg/Clg Return Water Temperature
PHCWS-T	Primary Htg/Clg Supply Water Temperature
PHW-F	Primary HW Flow
PHWP1-C	Primary HW Pump 1 Command
PHWP1-O	Primary HW Pump 1 Output
PHWP1-O	Primary HW Pump 1 Output
PHWP1-RANK	Primary HW Pump 1 Rank
PHWP1-RUNTIME	Primary HW Pump 1 Runtime
PHWP1-S	Primary HW Pump 1 Status
PHWP2-C	Primary HW Pump 2 Command
PHWP2-O	Primary HW Pump 2 Output
PHWP2-O	Primary HW Pump 2 Output
PHWP2-RANK	Primary HW Pump 2 Rank
PHWP2-RUNTIME	Primary HW Pump 2 Runtime
PHWP2-S	Primary HW Pump 2 Status
PHWP-ROT	Rotate Primary Hot Water Pumps
PHWR-T	Primary HW Return Temp
PHWS-T	Primary HW Supply Temp
PLANT-EN	Plant Enable
PWDPBPV-O	Pri Water Diff Pressure Bypass Valve Output
PWDP-SP	2 Pipe Differential Pressure Setpoint
PW-F	Primary Water Flow
PWP1-C	Primary Water Pump 1 Command
PWP1-O	Primary Water Pump 1 Output
PWP1-RANK	Primary Water Pump 1 Rank

**Table 68: Simple Plant (FX-PCT)**

<b>FX Supervisor Name</b>	<b>Description</b>
<b>PWP1-RUNTIME</b>	Primary Water Pump 1 Runtime
<b>PWP1-S</b>	Primary Water Pump 1 Status
<b>PWP2-C</b>	Primary Water Pump 2 Command
<b>PWP2-O</b>	Primary Water Pump 2 Output
<b>PWP2-RANK</b>	Primary Water Pump 2 Rank
<b>PWP2-RUNTIME</b>	Primary Water Pump 2 Runtime
<b>PWP2-S</b>	Primary Water Pump 2 Status
<b>PWP-ROT</b>	Rotate Primary Water Pumps
<b>REFRIG-A</b>	Refrigerant Alarm
<b>STM-P</b>	Steam Pressure
<b>STMP-SP</b>	Steam Pressure Setpoint
<b>SUMWIN-C</b>	Summer Winter Command
<b>SYS-RESET</b>	System Reset
<b>TUNING-RESET</b>	Application Tuning Reset

**Unit Ventilator (FX-PCT)****Table 69: Unit Ventilator (FX-PCT)**

<b>FX Supervisor Name</b>	<b>Description</b>
CLG1-C	Cooling Stage 1 Command
CLG2-C	Cooling Stage 2 Command
CLG3-C	Cooling Stage 3 Command
CLG-C	Cooling Command
CLG-EN	Cooling Available
CLG-O	Cooling Output
CLGOATLOCKOUT-SP	OA Cooling Enable Setpoint
CLGOCC-SP	Occ Cooling Setpoint
CLGUNOCC-SP	Night Cooling Setpoint
DA-SD	Discharge Air Smoke Alarm
DA-T	Discharge Air Temperature
DATLL-SP	Discharge Air Low Limit Setpoint
ECON-AVAILABLE	Free Cooling Available
ECON-EN	Economizer Enable
ECONSWO-SP	Change Over Temperature
EFFCLG-SP	Effective Cooling Setpoint
EFFHTG-SP	Effective Heating Setpoint
EFF-OCC	Effective Occupancy
EMERGENCY-MODE	Emergency Mode
FBD-O	Face & Bypass Damper Output
FILT-S	Filter Status
HC-C	Heating/Cooling Command
HC-O	Heating/Cooling Output
HTG1-C	Heating Stage 1 Command
HTG2-C	Heating Stage 2 Command
HTG3-C	Heating Stage 3 Command
HTG-C	Heating Command
HTG-EN	Heating Available
HTG-O	Heating Output
HTGOATLOCKOUT-SP	OA Heating Enable Setpoint
HTGOCC-SP	Occ Heating Setpoint
HTGUNOCC-SP	Night Heating Setpoint
LIGHT-C	Lighting Command
LT-A	Low Temperature Alarm
MAD-O	Mixed Air Damper Output
MA-T	Mixed Air Temperature
MAT-SP	MA Temperature Setpoint
OAD-MINPOS	OA Damper Minimum Position
OA-H	Outdoor Air Humidity
OALL-SP	Low OA Temperature Setpoint



**Table 69: Unit Ventilator (FX-PCT)**

<b>FX Supervisor Name</b>	<b>Description</b>
OA-T	Outdoor Air Temperature
OCC-OVERRIDE	Occupancy Override
OCC-S	Occupancy Status
OCC-SCHEDULE	Occupancy Schedule
SF-C	Supply Fan Command
SFH-C	Supply Fan HI Command
SFL-C	Supply Fan LO Command
SFM-C	Supply Fan MED Command
SF-O	Supply Fan Output
SF-S	Supply Fan Status
SUM-SP	Summer Setpoint
SUMWIN-C	Summer Winter Command
SUMWIN-S	Summer/Winter Mode Status
SYSTEM-MODE	System Mode
TUNING-RESET	Application Tuning Reset
UNITEN-MODE	Unit Enable Mode
UNITEN-S	Unit Enable Switch
UNITEN-STATE	Unit Enable State
WC-ADJ	Warmer/Cooler Adjust
WC-C	Warmup Cooldown
WIN-SP	Winter Setpoint
ZNF-O	Zone Fan Speed
ZN-H	Zone Humidity
ZNLL-SP	Low Limit Setpoint
ZN-SP	Zone Setpoint
ZN-SP-MIN	Minimum Zone Setpoint
ZN-SP-MAX	Maximum Zone Setpoint
ZN-T	Zone Temperature
ZN-TOCC	Zone Temporary Occupancy
ZNT-SP	Common Setpoint
ZNT-STATE	ZNT State

# VAV Dual Duct (FX-PCT)

Table 70: VAV Dual Duct (FX-PCT)

FX Supervisor Name	Description
CD-F	Cold Deck Flow
CDFLOW-SP	Cold Deck Flow Setpoint
CD-O	Cold Deck Damper Output
CLGOCC-SP	Occ Cooling Setpoint
CLGUNOCC-SP	Night Cooling Setpoint
DA-T	Discharge Air Temperature
EAD-O	Exhaust Air Damper Output
EA-F	Exhaust Air Flow
EAFLOW-DIFF	Exhaust Diff Setpoint
EFFCLG-SP	Effective Cooling Setpoint
EFFHTG-SP	Effective Heating Setpoint
EFF-OCC	Effective Occupancy
EMERGENCY-MODE	Emergency Mode
HD-F	Hot Deck Flow
HDFLOW-SP	Hot Deck Flow Setpoint
HD-O	Hot Deck Damper Output
HTGOCC-SP	Occ Heating Setpoint
HTGUNOCC-SP	Night Heating Setpoint
LIGHT-C	Lighting Command
MINFLOWCO2-SP	CO2 Minimum Flow Setpoint
OCCEAFLOW-DIFF	Occ Exhaust Diff
OCC-OVERRIDE	Occupancy Override
OCC-S	Occupancy Status
OCC-SCHEDULE	Occupancy Schedule
SA-F	Supply Airflow Rate
SUPHTG1-C	Supplemental Heating Stage 1 Command
SUPHTG-C	Supplemental Heating Command
SUPHTG-O	Supplemental Heating Percent Cmd
SYSTEM-MODE	System Mode
TUNING-RESET	PID Loop Tuning Reset
UNITEN-MODE	Unit Enable Mode
UNITEN-S	Unit Enable Switch
UNOCCEAFLOW-DIFF	Unocc Diff Setpoint
WC-ADJ	Warmer/Cooler Adjust
WC-C	WarmupCooldown
ZN-H	Zone Humidity
ZNLL-SP	Low Limit Setpoint
ZN-Q	Zone Quality
ZN-SP	Zone Setpoint
ZN-SP-MIN	Minimum Zone Setpoint

**Table 70: VAV Dual Duct (FX-PCT)**

<b>FX Supervisor Name</b>	<b>Description</b>
<b>ZN-SP-MAX</b>	Minimum Zone Setpoint
<b>ZN-T</b>	Zone Temperature
<b>ZN-TOCC</b>	Zone Temporary Occupancy
<b>ZNT-STATE</b>	Zone Temperature State

**VAV Dual Duct Slave (FX-PCT)****Table 71: VAV Dual Duct Slave (FX-PCT)**

<b>FX Supervisor Name</b>	<b>Description</b>
CD-F	Cold Deck Flow
CDFLOW-SP	Cold Deck Flow Setpoint
CD-O	Cold Deck Damper Output
DA-T	Discharge Air Temperature
EAD-O	Exhaust Air Damper Output
EA-F	Exhaust Air Flow
EAFLOW-DIFF	Exhaust Diff Setpoint
EMERGENCY-MODE	Emergency Mode
HD-F	Hot Deck Flow
HDFLOW-SP	Hot Deck Flow Setpoint
HD-O	Hot Deck Damper Output
MINFLOWCO2-SP	CO2 Minimum Flow Setpoint
MSTCDFLOW-OUTSTATE	Master CD Constant Flow Setpoint Control
MSTCDFLOW-OUTSTATE	Master CD Flow Setpoint Control
MSTHDFLOW-OUTSTATE	Master HD Flow Setpoint Control
MSTRCDFLOW-PERCENT	Master CD Flow Percent
MSTRHDFLOW-PERCENT	Master HD Flow Percent
MSTRSUPHTG1-C	Master Supp Heating Stage 1 Cmd
MSTRSUPHTG-C	Master Supp Heating Command
MSTRSUPHTG-O	Master Supp Heating Output
OCCEAFLOW-DIFF	Occ Exhaust Diff
SA-F	Supply Airflow Rate
SUPHTG1-C	Supplemental Heating Stage 1 Command
SUPHTG-C	Supplemental Heating Command
SUPHTG-O	Supplemental Heating Percent Cmd
UNOCCEAFLOW-DIFF	Unocc Diff Setpoint

# **VAV Single Duct (FX-PCT)**

**Table 72: VAV Single Duct (FX-PCT)**

<b>FX Supervisor Name</b>	<b>Description</b>
CLG-O	Cooling Output
CLGOCC-SP	Occ Cooling Setpoint
CLGUNOCC-SP	Night Cooling Setpoint
DA-T	Discharge Air Temperature
DPR-O	Supply Air Damper Output
EAD-O	Exhaust Air Damper Output
EA-F	Exhaust Air Flow
EAFLOW-DIFF	Exhaust Diff Setpoint
EFFCLG-SP	Effective Cooling Setpoint
EFFHTG-SP	Effective Heating Setpoint
EFF-OCC	Effective Occupancy
EMERGENCY-MODE	Emergency Mode
HTG1-C	Heating Stage 1 Command
HTG2-C	Heating Stage 2 Command
HTG3-C	Heating Stage 3 Command
HTG-C	Heating Command
HTG-EN	Heating is Available
HTG-O	Heating Output
HTGOCC-SP	Occ Heating Setpoint
HTGUNOCC-SP	Night Heating Setpoint
LIGHT-C	Lighting Command
MINFLOWCO2-SP	CO2 Minimum Flow Setpoint
OCC-OVERRIDE	Occupancy Override
OCC-S	Occupancy Status
OCC-SCHEDULE	Occupancy Schedule
SA-F	Supply Airflow Rate
SAFLOW-SP	Supply Flow Setpoint
SA-T	Supply Air Temperature
SF-C	Series Fan Command
SF-O	Series Fan Output
SF-S	Series Fan Status
SUPHTG1-C	Supplemental Heating Stage 1 Command
SUPHTG-C	Supplemental Heating Stage Command
SUPHTG-O	Supplemental Heating Command
SUPHTG-O	Supplemental Heating Output
SYSTEM-MODE	System Mode
UNITEN-MODE	Unit Enable Mode
UNITEN-S	Unit Enable Switch
WC-ADJ	Warmer/Cooler Adjust
WC-C	WarmupCooldown

**Table 72: VAV Single Duct (FX-PCT)**

<b>FX Supervisor Name</b>	<b>Description</b>
<b>ZN-H</b>	Zone Humidity
<b>ZNLL-SP</b>	Low Limit Setpoint
<b>ZN-Q</b>	Zone Quality
<b>ZN-SP</b>	Zone Setpoint
<b>ZN-SP-MIN</b>	Minimum Zone Setpoint
<b>ZN-SP-MAX</b>	Maximum Zone Setpoint
<b>ZN-T</b>	Zone Temperature
<b>ZN-TOCC</b>	Zone Temporary Occupancy
<b>ZNT-SP</b>	Common Setpoint

**VAV Single Duct N2 (FX-PCT)****Table 73: VAV Single Duct N2 (FX-PCT)**

<b>FX Supervisor Name</b>	<b>Description</b>
<b>ACLG-SP</b>	Effective Cooling Setpoint
<b>ACREQ</b>	Autocalibrate
<b>ACSOL-C</b>	Autocalibration Solenoid Command
<b>AHTG-SP</b>	Effective Heating Setpoint
<b>AUTOCAL-STATE</b>	Autocalibration Status
<b>BHENBLE</b>	Heating is Available
<b>BHOUTPUT</b>	Heating Output
<b>BHPIDPV</b>	Box Heating Percent Cmd
<b>BOXMODE</b>	Box Mode
<b>BOXS-T</b>	Supply Air Temperature
<b>CLG-MINFLOW</b>	Cooling Min Flow
<b>CLG-SP</b>	Occ Cooling Setpoint
<b>CLGUNOCC-SP</b>	Night Cooling Setpoint
<b>CMAXFLO</b>	Cooling Max Flow
<b>COMMONSP</b>	Common Setpoint
<b>COMMONSP</b>	Zone Setpoint
<b>CPIDPV</b>	Cooling Output
<b>DA-T</b>	Discharge Air Temperature
<b>DMPRPOS</b>	Supply Air Damper Output
<b>EAD-O</b>	Exhaust Air Damper Output
<b>EA-F</b>	Exhaust Air Flow
<b>EAFLOW-DIFF</b>	Exhaust Diff Setpoint
<b>EMERGENCY-MODE</b>	Emergency Mode
<b>FAN-C</b>	Series Fan Command
<b>FAN-O</b>	Series Fan Output
<b>FLOWAREA</b>	Supply Area
<b>HSP</b>	Occ Heating Setpoint
<b>HTG1-C</b>	Heating Stage 1 Command

**Table 73: VAV Single Duct N2 (FX-PCT)**

<b>FX Supervisor Name</b>	<b>Description</b>
HTG2-C	Heating Stage 2 Command
HTG3-C	Heating Stage 3 Command
HTG-C	Heating Command
HTGMINFL	Staged Device Min Flow
HTG-MINFLOW	Heating Min Flow
HTGUNOCC-SP	Night Heating Setpoint
LIGHT-C	Lighting Command
MINFLOWCO2-SP	CO2 Minimum Flow Setpoint
OCC-C	Effective Occupancy
OCCHTGFL	Occ Heating Min Flow
OCCLEVEL	Occupancy Level
OCC-OVERRIDE	Occupancy Override
OCC-S	Occupancy Status
OCMNC-SP	Occ Cooling Min Flow
PKUPGAIN	Supply Pickup Gain
SF-S	Series Fan Status
SHOUTPUT	Supplemental Heating Percent Cmd
SUPFLOSP	Supply Flow Setpoint
SUPFLOW	Supply Airflow Rate
SUPHTG1-C	Supplemental Heating Stage 1 Command
SUPHTG-C	Supplemental Heating Command
SYSTEM_MODE	System Mode
UMNC-SP	Unocc Cooling Min Flow
UNCHMAX	Unocc Heating Min Flow
UNITEN-MODE	Unit Enable Mode
UNITEN-S	Unit Enable Switch
WARMUPMIN	Warmup Min Flow
WC-ADJ	Warmer/Cooler Adjust
WC-C	WarmupCooldown
ZN-H	Zone Humidity
ZNLL-SP	Low Limit Setpoint
ZN-Q	Zone Quality
ZN-T	Zone Temperature
ZN-TOCC	Zone Temporary Occupancy

### VAV Single Duct Slave (FX-PCT)

Table 74: VAV Single Duct Slave (FX-PCT)

FX Supervisor Name	Description
CLG-O	Cooling Output
DA-T	Discharge Air Temperature
DPR-O	Supply Air Damper Output
EAD-O	Exhaust Air Damper Output
EA-F	Exhaust Air Flow
EAFLOW-DIFF	Exhaust Diff Setpoint
EMERGENCY-MODE	Emergency Mode
HTG1-C	Heating Stage 1 Command
HTG2-C	Heating Stage 2 Command
HTG3-C	Heating Stage 3 Command
HTG-C	Heating Command
HTG-O	Heating Output
MSTRFAN-C	Master Fan Command
MSTRFAN-O	Master Fan Output
MSTRFLOW-PERCENT	Master Supply Flow Percent
MSTRFLOW-S	Master Flow Setpoint Status
MSTRHTG1-C	Master Heating Stage 1 Cmd
MSTRHTG2-C	Master Heating Stage 2 Cmd
MSTRHTG3-C	Master Heating Stage 3 Cmd
MSTRHTG-C	Master Heating Command
MSTRHTG-O	Master Heating Output
MSTRSUPHTG1-C	Master Supp Heating Stage 1 Cmd
MSTRSUPHTG-C	Master Supp Heating Command
MSTRSUPHTG-O	Master Supp Heating Output
MSTRZN-CO2	Master Zone CO2
SA-F	Supply Airflow Rate
SAFLOW-SP	Supply Flow Setpoint
SA-T	Supply Air Temperature
SF-C	Fan Command
SF-O	Series Fan Output
SF-S	Fan Status
SUPHTG1-C	Supplemental Heating Stage 1 Command
SUPHTG-C	Supplemental Heating Command
SUPHTG-O	Supplemental Heating Percent Cmd

### WT-4000 Gateway Points

Table 75: WT-4000 Gateway

FX Supervisor Name	Description
GATEWAY-UTC-1	UTC Time High 16 Bits
GATEWAY-UTC-2	UTC Time Low 16 Bits



**Table 75: WT-4000 Gateway**

<b>FX Supervisor Name</b>	<b>Description</b>
<b>CHANNEL</b>	Radio Channel
<b>DEV-CNT</b>	Online Device Count
<b>UTC-1</b>	UTC Time High 16 Bits
<b>UTC-2</b>	UTC Time Low 16 Bits
<b>ZN-T</b>	Zone Temperature
<b>BLP-R</b>	Branch Line Pressure Requested
<b>BLP-M</b>	Branch Line Pressure Measured
<b>MODE</b>	Current Mode
<b>ZN-SP-U</b>	Zone Setpoint User
<b>INSF-PRESS</b>	Insufficient Pressure Value
<b>HOP-CNT</b>	Hop Count
<b>RSSI</b>	Radio Recieved Signal Strength
<b>BATTERY</b>	Battery Voltage
<b>DEV-TYP</b>	Device Type
<b>HTG-S</b>	Heating Status
<b>CLG-S</b>	Cooling Status
<b>FAN-S</b>	Fan Status
<b>OVERRIDE</b>	Override Button Pressed
<b>SETBACK</b>	Setback Button Pressed
<b>OCC-SHLDR-MODE</b>	Occupied Sensor Shoulder Mode
<b>MODE-R</b>	Mode Requested
<b>CMFT-UPPER</b>	Comfort Upper Delta
<b>CMFT-LOWR</b>	Comfort Lower Delta
<b>HTG-CLG-D</b>	Heating Cooling Delta
<b>CNST-UPPER</b>	Constrained Upper Delta
<b>CNST-LOWER</b>	Constrained Lower Delta
<b>MAX-PROT-TEMP</b>	Maximum Protection Temperature
<b>MIN-PROT-TEMP</b>	Minimum Protection Temperature
<b>OVR-TIME-MAX</b>	Override Time Maximum
<b>OVR-UPPER-DELTA</b>	Override Upper Delta
<b>OVR-LOWER-DELTA</b>	Override Lower Delta
<b>HTG-CLG-DZ</b>	Heating Cooling Dead Zone Delta
<b>STBK-UPPER</b>	Setback Upper Delta
<b>STBK-LOWER</b>	Setback Lower Delta
<b>DISPLAY</b>	Display Mode
<b>ZN-SP-S</b>	Zone Setpoint System
<b>STPT-PRESS</b>	Setpoint Pressure
<b>ACTION</b>	Action Direction
<b>PRESS-GAIN</b>	Pressure Gain Sensitivity
<b>TEMP-PB</b>	Temperature Proportional Band

**Table 75: WT-4000 Gateway**

<b>FX Supervisor Name</b>	<b>Description</b>
<b>UNOCC-MODE-PRESS</b>	Unoccupied Mode Pressure
<b>RADIO-CHNL</b>	Radio Channel

## Selecting a Default Graphic

FX Workbench provides standard graphics. However, new symbols were added with release 3.7 of Niagara, and we updated our standard graphics to use these symbols. The standard graphics for the legacy devices (graphics not programmed by FX-PCT) have not been updated. You can specify which style of graphic to use by default.

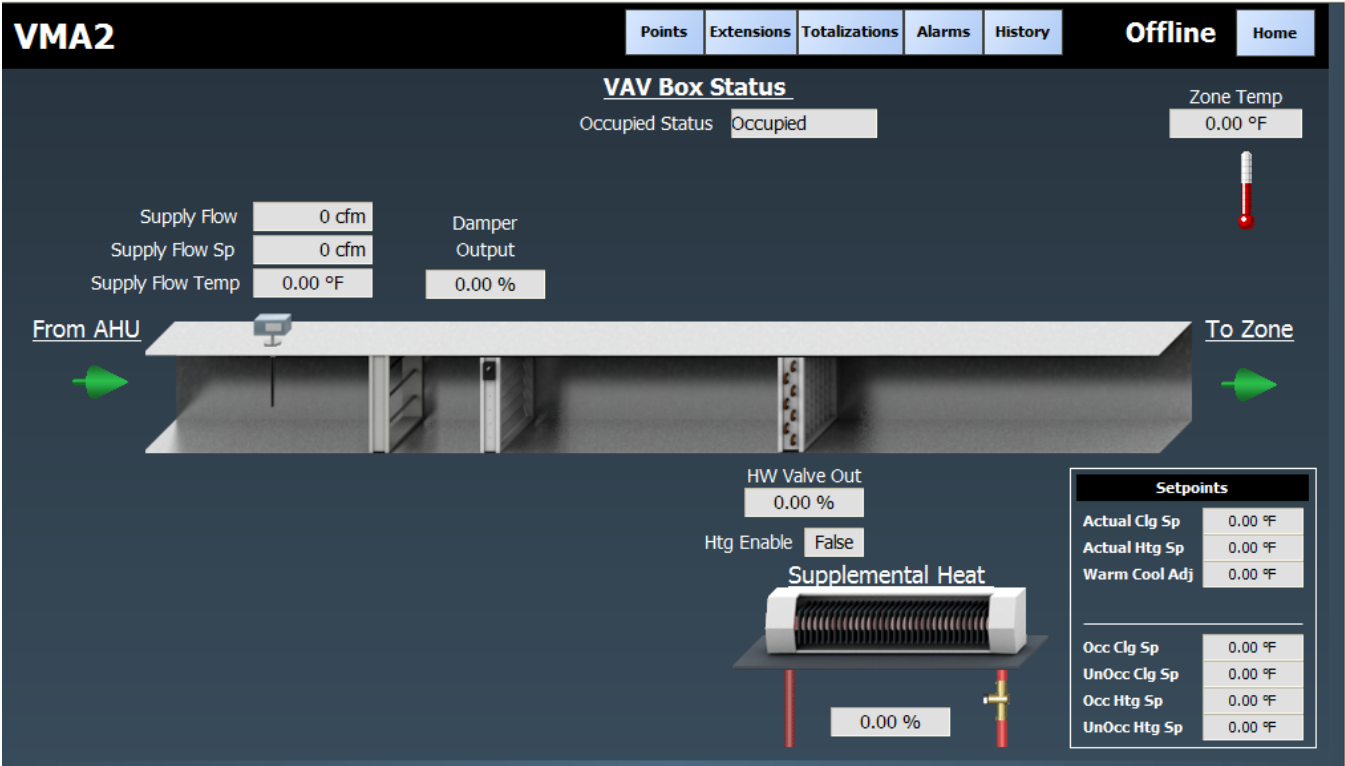
1. Under Tools, choose Options from the list menu.
2. In the left sidebar, click JCI Options. The JCI Options window opens on the main screen.
3. In the Import Standard Graphic Default list box, select the type of graphic you want to default to and click OK. Kit Px HVAC is the original style, and Kit Px Graphics is the style based on the new symbols.

**Note:** Changes are not saved until FX Workbench is restarted. You can override this default each time you reference a resource file during the import process.

Device Graphic Buttons

The device graphic in FX Workbench provides various buttons you can select, including Points, Extensions, Totalizations, Alarms, and History.


































Figure 92: Device Graphic



## Points Button

Click Points to view points for the device.

Figure 93: Points

Database						33 objects
Name	Long Name	Type	Out	Network Point Type	Network Point Address	
 OCC-SCHEDULE	Occupancy Schedule	Enum Writable	Unoccupied {fault,down,stale} @ def	Analog Data Integer	78	
 EFF-OCC	Effective Occupancy	Enum Point	Occupied {fault,down,stale}	Analog Data Integer	2	
 ZN-T	Zone Temperature	Numeric Point	0.00 °F {fault,down,stale}	Analog Input	1	
 EFFCLG-SP	Effective Cooling Setpoint	Numeric Point	0.00 °F {fault,down,stale}	Analog Data Float	13	
 EFFHTG-SP	Effective Heating Setpoint	Numeric Point	0.00 °F {fault,down,stale}	Analog Data Float	14	
 ZNT-SP	Common Setpoint	Numeric Writable	0.00 °F {fault,down,stale} @ def	Analog Data Float	197	
 WC-ADJ	Warmer/Cooler Adjust	Numeric Writable	0.00 °F {fault,down,stale} @ def	Analog Data Float	2	
 CLGOCC-SP	Occ Cooling Setpoint	Numeric Writable	0.00 °F {fault,down,stale} @ def	Analog Data Float	190	
 HTGOCC-SP	Occ Heating Setpoint	Numeric Writable	0.00 °F {fault,down,stale} @ def	Analog Data Float	194	
 SA-F	Supply Airflow Rate	Numeric Point	0.00 cfm {fault,down,stale}	Analog Data Float	58	
 SAFLOW-SP	Supply Flow Setpoint	Numeric Point	0.00 cfm {fault,down,stale}	Analog Data Float	150	
 DPR-O	Supply Air Damper Output	Numeric Writable	0.00 % {fault,down,stale} @ def	Analog Output	1	
 CLG-O	Cooling Output	Numeric Point	0.00 % {fault,down,stale}	Analog Data Float	70	
 CLGUNOCC-SP	Night Cooling Setpoint	Numeric Writable	0.00 °F {fault,down,stale} @ def	Analog Data Float	192	
 HTGUNOCC-SP	Night Heating Setpoint	Numeric Writable	0.00 °F {fault,down,stale} @ def	Analog Data Float	196	
 HTG-O	Heating Output	Numeric Writable	0.00 % {fault,down,stale} @ def	Analog Output	2	
 SA-T	Supply Air Temperature	Numeric Writable	0.00 °F {fault,down,stale} @ def	Analog Data Float	21	
 SUPHTG-O	Supplemental Heating Percent Cmd	Numeric Writable	0.00 % {fault,down,stale} @ def	Analog Output	3	
 ZN-TOCC	Zone Temporary Occupancy	Boolean Writable	Inactive {fault,down,stale} @ def	Binary Data	1	
 SYSTEM-MODE	System Mode	Enum Writable	Shutdown Closed {fault,down,stale} @ def	Analog Data Integer	67	
 HTG-EN	Heating is Available	Boolean Writable	False {fault,down,stale} @ def	Binary Data	40	
 OCCTIME		Numeric Writable	0.00 min {fault,down,stale} @ def	Analog Data Float	85	
 HTGAVAIL		Boolean Writable	False {fault,down,stale} @ def	Binary Data	169	
 HTGMODE		Enum Point	No Htg Required {fault,down,stale}	Analog Data Integer	69	
 AACT		Boolean Point	False {fault,down,stale}	Binary Data	66	
 NOHEAT		Boolean Point	False {fault,down,stale}	Binary Data	4	
 STARVBOX		Boolean Point	False {fault,down,stale}	Binary Data	55	
 NOCOOL		Boolean Point	False {fault,down,stale}	Binary Data	3	
 WTRFLUSH		Boolean Writable	False {fault,down,stale} @ def	Binary Data	167	
 OCC-S		Enum Point	Unoccupied {fault,down,stale}	Analog Data Integer	68	
 OAFRACTN		Numeric Writable	0.00 % {fault,down,stale} @ def	Analog Data Float	80	
 SPMAXPOS		Numeric Writable	0.00 % {fault,down,stale} @ def	Analog Data Float	181	
 THRESHLD		Numeric Writable	0.00 °F {fault,down,stale} @ def	Analog Data Float	183	

## Extensions Button

Click Extensions to view and assign extensions to view the Point Extension Manager.

**Figure 94: Point Extension Manager**

Points for: VMA2									33 objects
Name	Description	Value	Enabled	Trend	Alarm	Totalization	Point Type	Address	
OCC-SCHEDULE	Occupancy Schedule	Unoccupied {fault,down,stale} @ def					EnumWritable	78	
EFF-OCC	Effective Occupancy	Occupied {fault,down,stale}					EnumPoint	2	
ZN-T	Zone Temperature	0.00 °F {fault,down,stale}					NumericPoint	1	
EFFCLG-SP	Effective Cooling Setpoint	0.00 °F {fault,down,stale}					NumericPoint	13	
EFFHTG-SP	Effective Heating Setpoint	0.00 °F {fault,down,stale}					NumericPoint	14	
ZNT-SP	Common Setpoint	0.00 °F {fault,down,stale} @ def					NumericWritable	197	
WC-ADJ	Warmer/Cooler Adjust	0.00 °F {fault,down,stale} @ def					NumericWritable	2	
CLGOCC-SP	Occ Cooling Setpoint	0.00 °F {fault,down,stale} @ def					NumericWritable	190	
HTGOCC-SP	Occ Heating Setpoint	0.00 °F {fault,down,stale} @ def					NumericWritable	194	
SA-F	Supply Airflow Rate	0.00 cfm {fault,down,stale}					NumericPoint	58	
SAFLOW-SP	Supply Flow Setpoint	0.00 cfm {fault,down,stale}					NumericPoint	150	
DPR-O	Supply Air Damper Output	0.00 % {fault,down,stale} @ def					NumericWritable	1	
CLG-O	Cooling Output	0.00 % {fault,down,stale}					NumericPoint	70	
CLGUNOCC-SP	Night Cooling Setpoint	0.00 °F {fault,down,stale} @ def					NumericWritable	192	
HTGUNOCC-SP	Night Heating Setpoint	0.00 °F {fault,down,stale} @ def					NumericWritable	196	
HTG-O	Heating Output	0.00 % {fault,down,stale} @ def					NumericWritable	2	
SA-T	Supply Air Temperature	0.00 °F {fault,down,stale} @ def					NumericWritable	21	
SUPHTG-O	Supplemental Heating Percent Cmd	0.00 % {fault,down,stale} @ def					NumericWritable	3	
ZN-TOCC	Zone Temporary Occupancy	Inactive {fault,down,stale} @ def					BooleanWritable	1	
SYSTEM-MODE	System Mode	Shutdown Closed {fault,down,stale} @ def					EnumWritable	67	
HTG-EN	Heating is Available	False {fault,down,stale} @ def					BooleanWritable	40	
OCCTIME		0.00 min {fault,down,stale} @ def					NumericWritable	85	
HTGAVAIL		False {fault,down,stale} @ def					BooleanWritable	169	
HTGMODE		No Htg Required {fault,down,stale}					EnumPoint	69	
AACT		False {fault,down,stale}					BooleanPoint	66	
NOHEAT		False {fault,down,stale}					BooleanPoint	4	
STARVBOX		False {fault,down,stale}					BooleanPoint	55	
NOCOOL		False {fault,down,stale}					BooleanPoint	3	
WTRFLUSH		False {fault,down,stale} @ def					BooleanWritable	167	
OCC-S		Unoccupied {fault,down,stale}					EnumPoint	68	
OAFRACTN		0.00 % {fault,down,stale} @ def					NumericWritable	80	
SPMAXPOS		0.00 % {fault,down,stale} @ def					NumericWritable	181	
THRESHLD		0.00 °F {fault,down,stale} @ def					NumericWritable	183	

**Totalization Button**

Click Totalization to view the totalization reports for the device.

**Figure 95: Totalization Screen**

Discrete Points		Numeric Points			
Point Name	CDS Count	CDS Time	Active Time	Reset Time	ST
CLG1-C	0	03-Jan-07 5:57 AM MST	0ms	03-Jan-07 5:57 AM MST	
EFF-OCC	0	03-Jan-07 5:57 AM MST	0ms	03-Jan-07 5:57 AM MST	

## Alarms Button

Click Alarms to view a list of Alarms for the device.

**Figure 96: Alarms**

Time Range ? to ?

Open Alarm Sources

1 Sources / 2 Alarms

Timestamp	Source State	Ack State	Source	Alarm Class	Priority	Message Text
20-Aug-13 9:19:19 AM CDT	Fault	0 Aaked / 2 Unacked	SystemService	Default Alarm Class	255	Tamper Switch OK

Acknowledge

Hyperlink

Notes

Silence

Filter

Review Video



## History Button

Click History to set up and view history data.

Figure 97: History

The screenshot displays the 'History Chart Builder' window. At the top, the breadcrumb navigation shows 'Root', 'Administration', 'History Container View', and 'History Chart Builder'. The main interface is divided into two primary sections: 'Histories' on the left and 'Current Charts' on the right.

**Configuration Section (Top):**

- Time Range:** A dropdown menu set to 'Today'.
- Title:** A text input field containing '52313 History'.
- Grid Lines:** A dropdown menu set to 'Show'.
- Rollup:** A dropdown menu set to '1 minute' with a 'Min' button next to it.

**Histories Section (Left):**

A tree view under the heading 'Histories' shows a list of data series. The root is 'Demo512', which is expanded to show a list of sub-items, each preceded by a triangle icon:

- B1/ZN-T
- B2/BLR1EW-T
- B2/BLR1LW-T
- B2/BLR2EW-T
- B2/BLR2LW-T
- B2/BLR3EW-T
- B2/BLR3LW-T
- B2/BLR4EW-T
- B2/BLR4LW-T
- B2/BLR5EW-T
- B2/BLR5LW-T
- B2/BLR6EW-T
- B2/BLR6LW-T
- B2/HW-DP
- B2/OA-T
- B2/PHWR-T
- B2/PHWS-T
- B3/CH1CHWE-T
- B3/CH1CHWL-T
- B3/CWS-T
- B3/OA-T
- VMA1/SA-T
- VMA1/ZN-T
- VMA2/SA-T
- VMA2/ZN-T

**Current Charts Section (Right):**

This section displays two chart configurations:

- Blue Series:** 'Demo512/B2/BLR5LW-T' with an 'Area Chart' type.
- Red Series:** 'Demo512/B2/OA-T' with an 'Area Chart' type.

Each chart configuration has three small icons to its right: a blue square, a white square, and a red square.

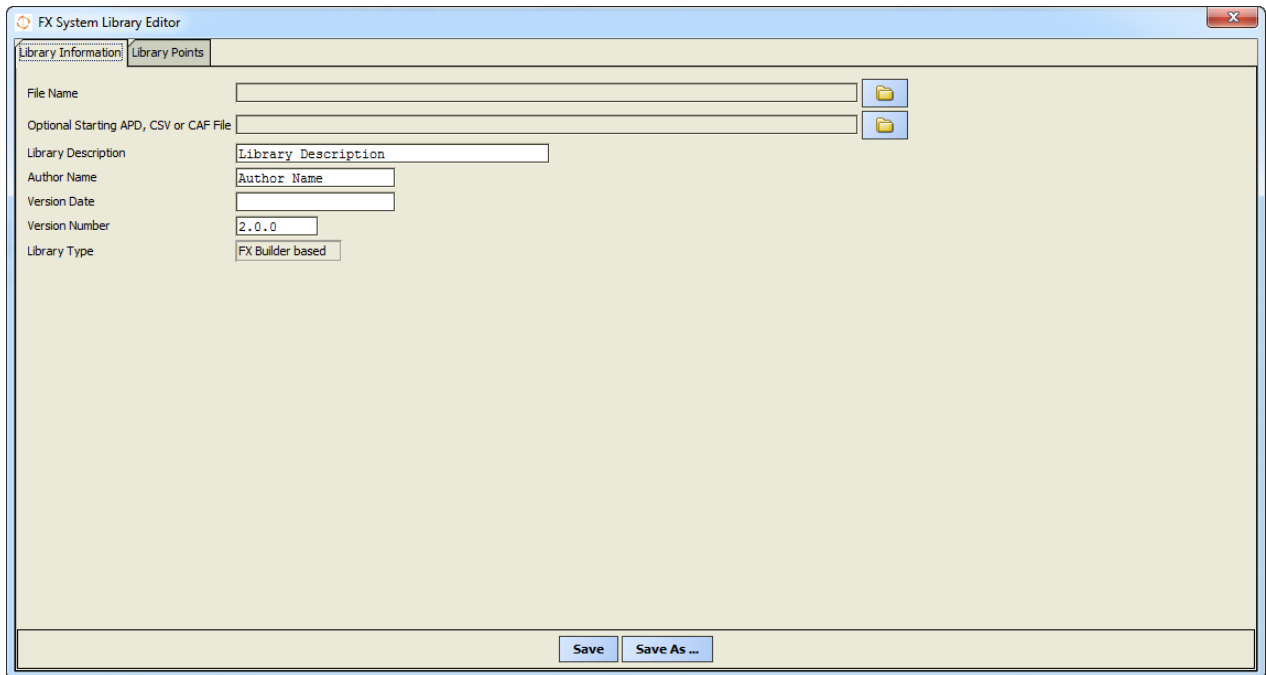
**Bottom Section:**

At the bottom of the window, there are two buttons: 'Build' and 'Clear'.

## Working with the System Library

1. In the Tools menu, click System Library Editor. The FX System Library Editor appears.

**Figure 98: FX System Library Editor**



2. Click the Library Information tab.
3. In the File Name field, click the folder and browse to an existing System Library file. Use the following path:  
C:\JC\FXWorkbench-<version>\jcistandards\sysLib.
4. In the Library Description field, modify the description of the system as desired.
- Note:** When importing apd files, this field is used by the system.properties text file to identify the corresponding graphic Px template.
5. In the Author Name field, enter the name of the person you want to identify as the author (usually your name).
6. In the Version Date field, enter the version date.
7. In the Version Number field, enter the version number.

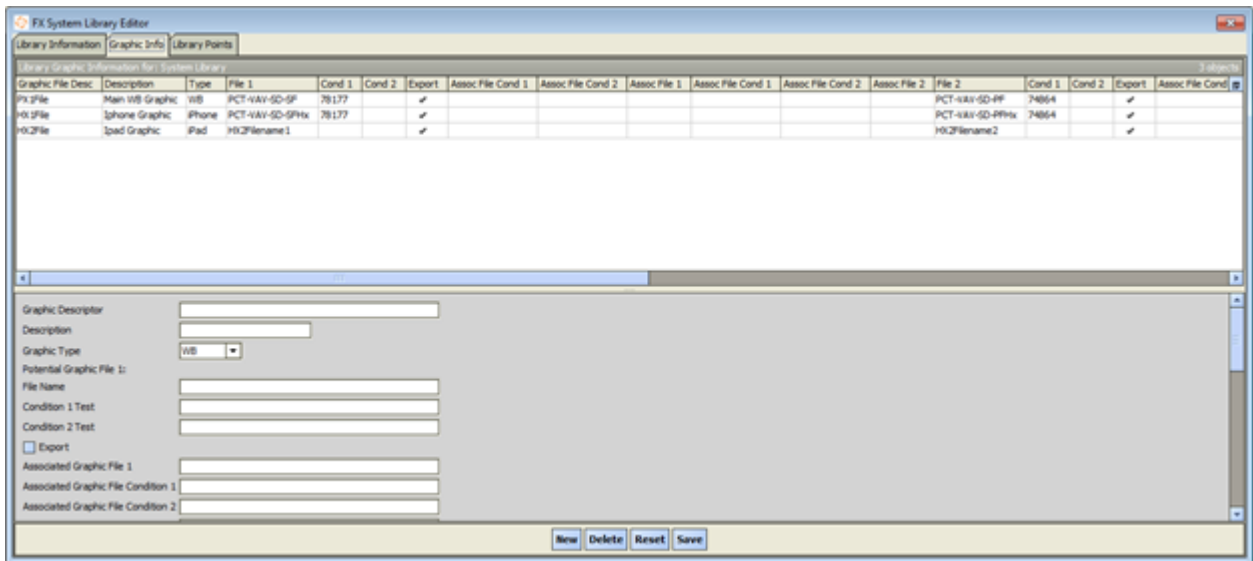
The Library Type field automatically displays information from the selected library or resource file (either from the .apd file [Legacy FX Field Controller], the .caf file [FX-PC], or the .csv file [WT4000]).

## Editing Graphic Information (FX-PC Controller Library Files Only)

1. Click the Graphic tab. The Graphic dialog box appears.

The top half of the dialog box displays all of the graphic information for the selected library file. The bottom half of the dialog box allows you to edit the elements.

**Figure 99: System Library Editor-Graphic Tab**



2. Select the graphic descriptor you want to edit.
3. Modify the library information as desired. Use [Table 77](#) as a reference.

**Table 76: Device Graphic Properties**

Field	Description
<b>Graphic Descriptor</b>	Description of type of graphic.
<b>Description</b>	Description of the graphic file.
<b>Graphic Type</b>	Type of Graphic. Select: <ul style="list-style-type: none"> <li>• WB for a Px graphic</li> <li>• iPhone for an Hx graphic sized to fit an iPhone</li> </ul>
<b>File Name</b>	The file name for standard graphic to associate with device in FX Supervisor database.
<b>Condition 1 Test</b>	BACnet Object ID (BACoid) - Used (along with Condition2) to conditionally use the file name indicated by the text. An empty value means use of this File Name is unconditional. Multiple BACoids separated by commas are OR conditions. So 1234, 5678 means condition1 is true if either BACoid 1234 or 5678 is in the .caf file. The NOT operator is also supported for a BACoid; it is indicated by an exclamation sign. Therefore, !1234, 5678 means condition1 is true if either BACoid 1234 is NOT in the .caf file or 5678 is in the .caf file.
<b>Condition 2 Test</b>	BACoid - Used (along with Condition1) to conditionally use the file name indicated by the text. An empty value means use of this file name is unconditional. Multiple BACoids separated by commas are OR conditions. So 1234, 5678 means condition2 is true if either BACoid 1234 or 5678 is in the .caf file. The NOT operator is also supported for a BACoid; it is indicated by an exclamation sign. Therefore, !1234, 5678 means condition2 is true if either BACoid 1234 is NOT in the .caf file or 5678 is in the .caf file.

**Table 76: Device Graphic Properties**

Field	Description
<b>Export Tag</b>	(Future) Select the Export check box to indicate if graphic should be tagged for FX Server export in the FX Supervisor Database.
<b>Associated Graphic File 1</b>	File name of the first associated graphic file. This is used for systems whose graphics are so complex they require multiple graphic views.
<b>Associated Graphic File Condition 1</b>	BACoid - Used (along with Condition2) to conditionally use the file name indicated by the AssocGraphic1FileName attribute. An empty value for both of these conditions means that there is no associated graphic file. Multiple BACoids separated by commas are OR conditions. So 1234, 5678 means condition1 is true if either BACoid 1234 or 5678 is in the .caf file. The NOT operator is also supported for a BACoid; the NOT operator is indicated by an exclamation sign. Therefore, !1234, 5678 means condition1 is true if either BACoid 1234 is NOT in the .caf file or 5678 is in the .caf file.
<b>Associated Graphic File Condition 2</b>	BACoid - Used (along with Condition1) to conditionally use the file name indicated by the AssocGraphic1FileName attribute. An empty value for both of these conditions means that there is no associated graphic file. Multiple BACoids separated by commas are OR conditions. So 1234, 5678 means condition2 is true if either BACoid 1234 or 5678 is in the .caf file. The NOT operator is also supported for a BACoid; the NOT operator is indicated by an exclamation sign. Therefore, !1234, 5678 means condition2 is true if either BACoid 1234 is NOT in the .caf file or 5678 is in the .caf file.
<b>Associated Graphic File 2</b>	File name of the second associated file. This name is used for systems whose graphics are so complex they require multiple graphic views.
<b>Associated Graphic File Condition 1</b>	BACoid - Used (along with Condition2) to conditionally use the file name indicated by the AssocGraphic2FileName attribute. An empty value for both of these conditions means that there is no associated graphic file. Multiple BACoids separated by commas are OR conditions. So 1234, 5678 means condition1 is true if either BACoid 1234 or 5678 is in the .caf file. The NOT operator is also supported for a BACoid; the NOT operator has an exclamation sign. Therefore, !1234, 5678 means condition1 is true if either BACoid 1234 is NOT in the .caf file or 5678 is in the .caf file.
<b>Associated Graphic File Condition 2</b>	BACoid - Used (along with Condition1) to conditionally use the file name indicated by the AssocGraphic2FileName attribute. An empty value for both of these conditions means that there is no associated graphic file. Multiple BACoids separated by commas are OR conditions. So 1234, 5678 means condition2 is true if either BACoid 1234 or 5678 is in the .caf file. The NOT operator is also supported for a BACoid; the NOT operator has an exclamation sign. Therefore, !1234, 5678 means condition2 is true if either BACoid 1234 is NOT in the .caf file or 5678 is in the .caf file.
<b>Associated Graphic File 2 Name</b>	File name of the second associated file. This name is used for systems whose graphics are so complex they require multiple graphic views.

4. Click Save.
5. Select the next graphic descriptor and edit as desired.

- Click Save. Repeat this process until you complete all modifications.
- Click the Library Information tab.
- Click Save to write over the existing library or Save As to create a new library file.

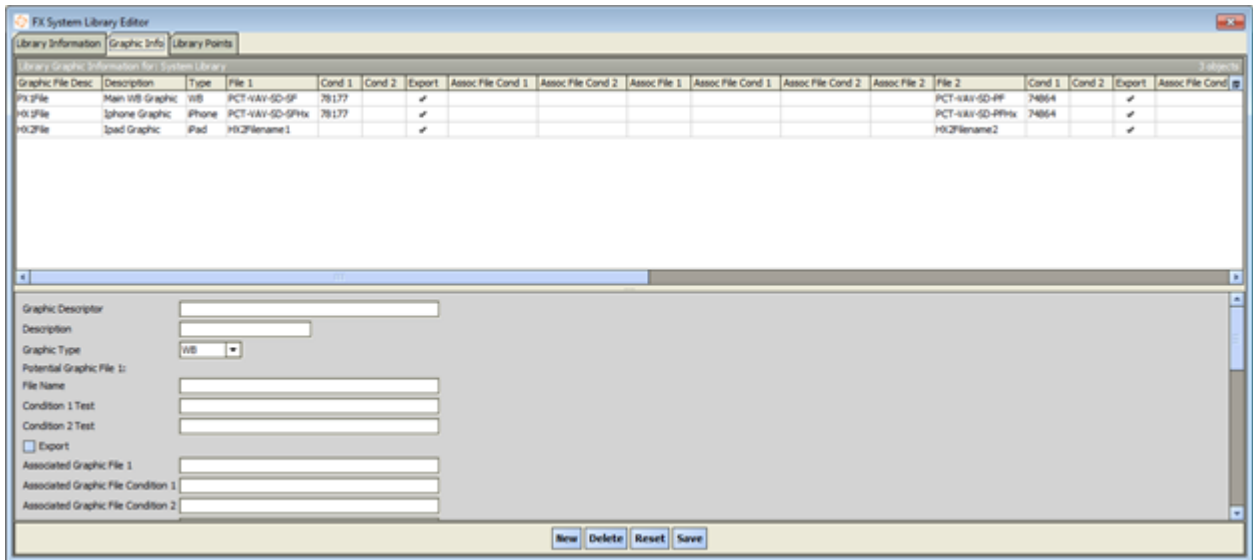
**Note:** Any time both **Condition One** and **Condition Two** are specified, both conditions must be true for the graphic file to be used.

#### Editing Graphic Information (WT-4000 Files Only)

- Click the Graphic tab. The Graphic dialog box appears.

The top half of the dialog box displays all of the graphic information for the selected library file. The bottom half of the dialog box allows you to edit the elements.

**Figure 100: System Library Editor-Graphic Tab**



- Select the graphic descriptor you want to edit.
- Modify the library information as desired.

**Table 77: Device Graphic Properties**

Field	Description
<b>Graphic Descriptor</b>	Description of the type of graphic.
<b>Description</b>	Description of the graphic file.
<b>Graphic Type</b>	Type of graphic. Select: <ul style="list-style-type: none"> <li>WB for a Px graphic</li> <li>iPhone for an Hx graphic sized to fit an iPhone</li> </ul>
<b>File Name</b>	The file name for a standard graphic to associate with a device in the FX Supervisor database.
<b>Condition 1 Test</b>	Either blank or one or more Modbus register addresses separated by commas. Used along with Condition 2 to conditionally use the filenameN indicated by the text. A blank means that the use of the filename is unconditional. A Modbus register number means that an item with that address must appear in the imported .csv file for the filenameN to be used. A comma separated list are OR conditions. The NOT operator is also supported using an exclamation point. So !43,52 means Condition 1 is true if either Modbus register address 43 is not in the .csv or address 52 is.

**Table 77: Device Graphic Properties**

Field	Description
<b>Condition 2 Test</b>	Either blank or one or more Modbus register addresses separated by commas. Used along with Condition 1 to conditionally use the filenameN indicated by the text. A blank means that the use of the filename is unconditional. A Modbus register number means than an item with that address must appear in the imported .csv file for the filenameN to be used. A comma separated list are OR conditions. The NOT operator is also supported using an exclamation point. So !43,52 means Condition 2 is true if either Modbus register address 43 is not in the .csv or address 52 is.
<b>Export</b>	(Future) Select the Export check box to indicate if graphic should be tagged for FX Server export in the FX Supervisor Database.
<b>Associated Graphic File 1</b>	File name of the first associated graphic file. This is used for systems whose graphics are so complex they require multiple graphic views.
<b>Associated Graphic File Condition 1</b>	Either blank or one or more Modbus register addresses separated by commas. Used along with Condition 2 to conditionally use the filenameN indicated by the text. A blank means that the use of the filename is unconditional. A Modbus register number means than an item with that address must appear in the imported .csv file for the filenameN to be used. A comma separated list are OR conditions. The NOT operator is also supported using an exclamation point. So !43,52 means Condition 1 is true if either Modbus register address 43 is not in the .csv or address 52 is.
<b>Associated Graphic File Condition 2</b>	Either blank or one or more Modbus register addresses separated by commas. Used along with Condition 1 to conditionally use the filenameN indicated by the text. A blank means that the use of the filename is unconditional. A Modbus register number means than an item with that address must appear in the imported .csv file for the filenameN to be used. A comma separated list are OR conditions. The NOT operator is also supported using an exclamation point. So !43,52 means Condition 2 is true if either Modbus register address 43 is not in the .csv or address 52 is.
<b>Associated Graphic File 2</b>	File name of the second associated file. This name is used for systems whose graphics are so complex they require multiple graphic views.
<b>Associated Graphic File Condition 1</b>	Either blank or one or more Modbus register addresses separated by commas. Used along with Condition 2 to conditionally use the filenameN indicated by the text. A blank means that the use of the filename is unconditional. A Modbus register number means than an item with that address must appear in the imported .csv file for the filenameN to be used. A comma separated list are OR conditions. The NOT operator is also supported using an exclamation point. So !43,52 means Condition 1 is true if either Modbus register address 43 is not in the .csv or address 52 is.

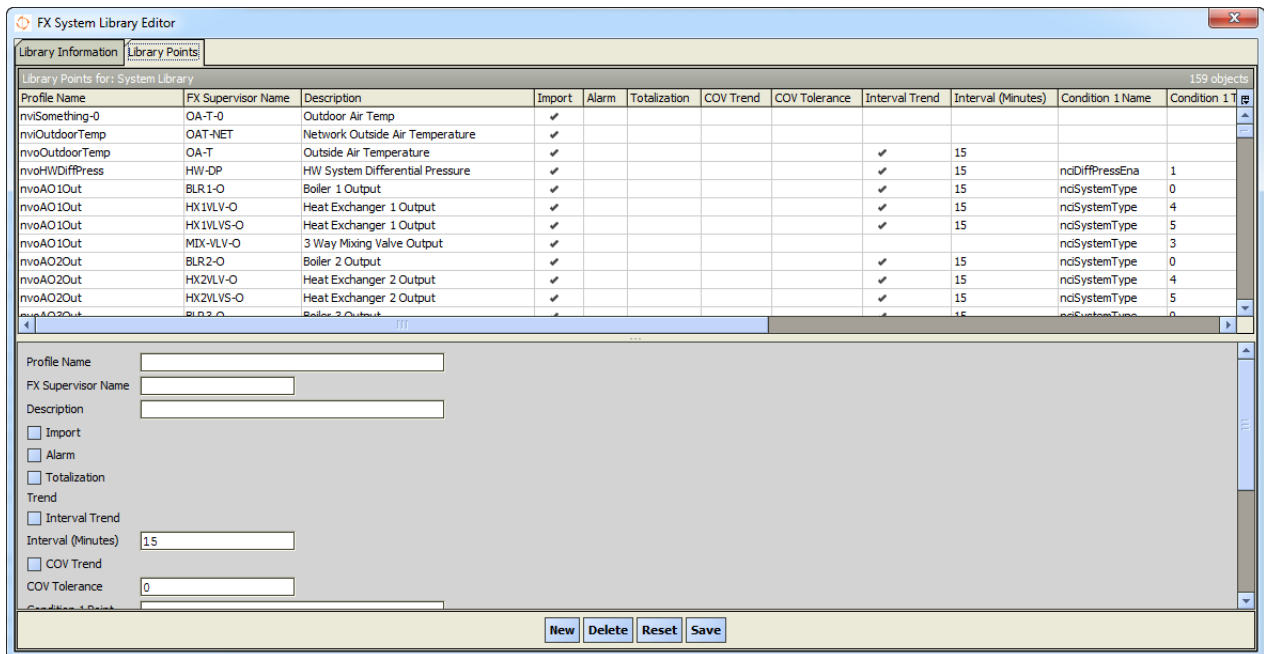
**Table 77: Device Graphic Properties**

Field	Description
<b>Associated Graphic File Condition 2</b>	Either blank or one or more Modbus register addresses separated by commas. Used along with Condition 1 to conditionally use the filenameN indicated by the text. A blank means that the use of the filename is unconditional. A Modbus register number means that an item with that address must appear in the imported .csv file for the filenameN to be used. A comma separated list are OR conditions. The NOT operator is also supported using an exclamation point. So !43,52 means Condition 2 is true if either Modbus register address 43 is not in the .csv or address 52 is.
<b>Stat Graphic</b>	The thermostat (for example, the graphic for MFR_3) graphic file associated with the WT-4000 thermostat.
<b>Stat Graphic Condition 1</b>	Modbus Point Addresses in the Gateway - Used (along with Condition 2) to conditionally use the file name indicated by the Stat Graphic attribute. An empty value for both of these conditions means that there is no associated graphic file.
<b>Stat Graphic Condition 2</b>	Modbus Point Addresses in the Gateway - Used (along with Condition 1) to conditionally use the file name indicated by the Stat Graphic attribute. An empty value for both of these conditions means that there is no associated graphic file.
<b>Associated Graphic File 2 Name</b>	File name of the second associated file. This name is used for systems whose graphics are so complex they require multiple graphic views.

### Editing Point Information for FX Controller APD File Imports

1. Click the Library Points tab. The Library Points dialog box appears. The top half of the dialog box displays all available points for the selected library file. The bottom half of this dialog box allows you to edit the elements.

**Figure 101: System Library Editor-Library Points for FX Controller APD File Imports**



2. Highlight the profile point you want to edit.
3. Modify the library information as desired.

**Table 78: Library Points Properties for FX Controller APD file Imports**

Field	Description
<b>Profile Name</b>	Defines the name of the application point name as it appears in the FX Field Controllers application file (.apd file).
<b>FX Supervisor Name</b>	Defines the name of the proxy point (as it appears in the FX Supervisory Controller station). This name is also used to automatically bind the point to a symbol in the graphic page.
<b>Description</b>	Defines the description of the point.
<b>Import</b>	Determines if a proxy point is created and associated to the source application point. If you do not select the Import check box, then the point does not import with the device.
<b>Alarm</b>	Determines if an alarm extension is created for the point. If you do not select the Alarm check box, then an alarm extension is not added during import.
<b>Totalization</b>	Determines if a totalization extension is created for the point. If you do not select the Totalization check box, then a totalization extension is not added during import.
<b>Interval Trend</b>	Determines if an interval-type history extension with an interval is created for the point. If you do not select the Interval Trend check box, then a numeric history extension is not added to the point during import.
<b>Interval Minutes</b>	Determines how often a history record is recorded.



**Table 78: Library Points Properties for FX Controller APD file Imports**

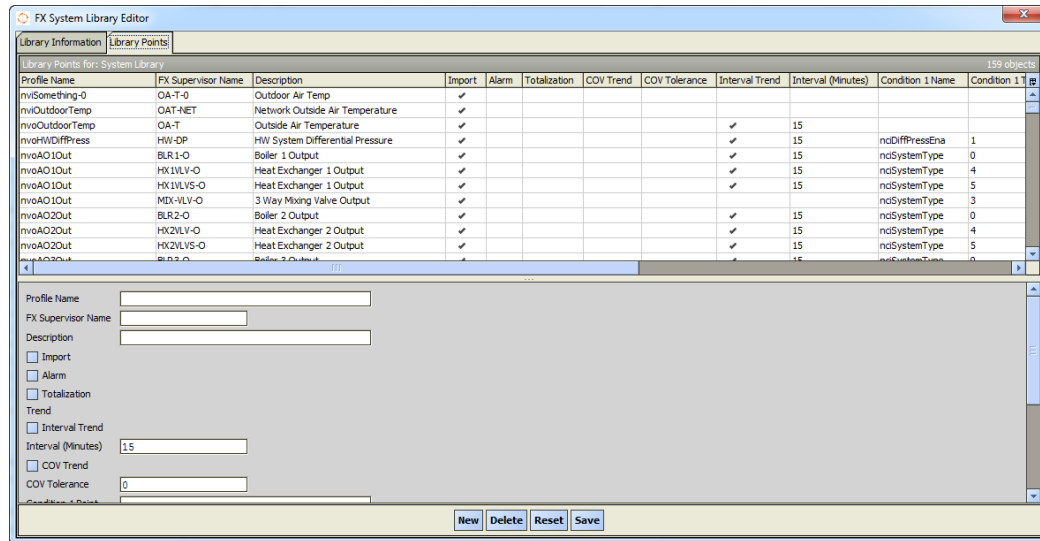
Field	Description
<b>COV Trend</b>	Determines if a COV-type history extension is created for the point. If you do not select the COV Trend check box, then a COV-type history extension is not added to the point during import.
<b>COV Tolerance</b>	Determines the COV tolerance if COV-type trend was selected.
<b>Condition 1 Point</b>	Identifies the application point to be used for the primary condition test.
<b>Condition 1 Test</b>	If the value of Condition 1 Point (identified in the row above) equals this value, then the point is added.
<b>Condition 2 Point</b>	Identifies the application point to be used for the secondary condition test.
<b>Condition 2 Test</b>	If the value of Condition 2 Point (identified in the row above) equals this value, and if Condition 1 is true, then the point is added.
<b>Condition 3 Point</b>	Identifies the application point to be used for the third condition test.
<b>Condition 3 Test</b>	If the value of Condition 3 Point (identified in the row above) equals this value, and if Condition 1 and 2 are true, then the point is added.
<b>Alternate SI Units</b>	Identifies alternate SI units of measure.
<b>Alternate US Units</b>	Identifies alternate US units of measure.
<b>Point Order</b>	Indicates the order that you want the points to appear (lowest PointOrder number appears first).

4. Click Save.
5. Select the next point in the System Library file and edit the properties as desired.
6. Click Save. Repeat this process until you complete all modifications.
7. Click the Library Information tab
8. Click Save.

***Editing Point Information for FX-PC Controller CAF File Imports***

1. Click the Library Points tab. The Library Points dialog box appears. The top half of the dialog box displays all available points for the selected library file. The bottom half of the dialog box allows you to edit the elements.

**Figure 102: System Library Editor-Library Points for FX-PC Controller .caf File Imports**



2. Highlight the profile point you want to edit.
3. Modify the library information as desired.

**Table 79: Library Points Properties for FX-PX Controllers CAF File Imports**

Field	Description
<b>FX Supervisor Name</b>	Name of Control Point in FX Supervisor Database
<b>Description</b>	Description of object
<b>Import</b>	Determines if a proxy point is created and associated to the source application point. If you do not select the Import check box, then the point does not import with the device.
<b>Alarm</b>	Determines if an alarm extension is created for the point. If you do not select the Alarm check box, then an alarm extension is not added during import.
<b>Totalization</b>	Determines if a totalization extension is created for the point. If you do not select the Totalization check box, then a totalization extension is not added during import.
<b>Interval Trend</b>	Determines if an interval-type history extension with an interval is created for the point. If you do not select the Interval Trend check box, then a numeric history extension is not added to the point during import.
<b>Interval Minutes</b>	Determines how often a history record is recorded.
<b>COV Trend</b>	Determines if a COV-type history extension is created for the point. If you do not select the COV Trend check box, then a COV-type history extension is not added to the point during import.
<b>COV Tolerance</b>	Determines the COV tolerance if COV-type trend was selected.

**Table 79: Library Points Properties for FX-PX Controllers CAF File Imports**

Field	Description
<b>Condition 1 Test</b>	BACoid - used (along with Condition2) to conditionally import an object from a .caf file, if the Import flag is true. An empty value means import is unconditional. Multiple BACoids separated by commas are OR conditions. So 1234, 5678 means condition1 is true if either BACoid 1234 or 5678 is in the .caf file. The NOT operator is also supported for a BACoid; it is indicated by an exclamation sign. Therefore, !1234, 5678 means condition1 is true if either BACoid 1234 is <b>not</b> in the .caf file or 5678 is in the .caf file.
<b>Condition 2 Test</b>	BACoid - used (along with Condition1) to conditionally import an object from a .caf file, if the Import flag is true. An empty value means import is unconditional. Multiple BACoids separated by commas are OR conditions. So 1234, 5678 means condition2 is true if either BACoid 1234 or 5678 is in the .caf file. The NOT operator is also supported for a BACoid; it is indicated by an exclamation sign. Therefore, !1234, 5678 means condition2 is true if either BACoid 1234 is NOT in the .caf file or 5678 is in the .caf file.
<b>PointOrder</b>	Indicates the order that you want the points to appear (lowest PointOrder number appears first).
<b>Export Tag</b>	(Future) Flag (Y/N) to indicate if Control Point should be tagged for FX Server export in the FX Supervisor Database.
<b>Bacnet Property</b>	Allows you to define the present value (Present Value), the minimum present value (Min Pres Value), and the maximum present value (Max Pres Value) in the FX Supervisory Controller.

4. Click Save.
5. Select the next point in the System Library file and edit the properties as desired.
6. Click Save. Repeat this process until you complete all modifications.
7. Click the Library Information tab.
8. Click Save.

#### ***Editing Point Information for WT-4000 CSV File Imports***

1. Click the Library Points tab. The Library Points dialog box appears. The top half of the dialog box displays all available points for the selected library file. The bottom half of the dialog box allows you to edit the elements.
2. Highlight the profile point you want to edit.
3. Modify the library information as desired. Use as a reference:

**Table 80: Library Points Properties for WT-4000 CSV File Imports**

Field	Description
<b>Modbus Register</b>	Indicates the Modbus register number for the point.
<b>Register Byte</b>	(Binary Points only) Indicates the bytes for the point: high half (H) or low half (L) of the register. Leave this field blank if you want to use the whole register.
<b>Register Bit</b>	(Binary Points only) Indicates the bits for the point.
<b>Name in Config File</b>	Name of the point as it appears in the .csv file (xxx is the name of the thermostat).
<b>FX Supervisor Name</b>	Name of Control Point in FX Supervisor Database

**Table 80: Library Points Properties for WT-4000 CSV File Imports**

Field	Description
<b>Description</b>	Description of point
<b>Import</b>	Determines if a proxy point is created and associated to the source application point. If you do not select the Import check box, then the point does not import with the device.
<b>Alarm</b>	Determines if an alarm extension is created for the point. If you do not select the Alarm check box, then an alarm extension is not added during import.
<b>Totalization</b>	Determines if a totalization extension is created for the point. If you do not select the Totalization check box, then a totalization extension is not added during import.
<b>Interval Trend</b>	Determines if a interval-type history extension with an interval is created for the point. If you do not select the Interval Trend check box, then a numeric history extension is not added to the point during import.
<b>Interval Minutes</b>	Determines how often a history record is recorded.
<b>COV Trend</b>	Determines if a COV-type history extension is created for the point. If you do not select the COV Trend check box, then a COV-type history extension is not added to the point during import.
<b>COV Tolerance</b>	Determines the COV tolerance if COV-type trend was selected.
<b>Condition 1 Test</b>	Modbus registers in the .csv file import
<b>Condition 2 Test</b>	Modbus registers in the .csv file import
<b>PointOrder</b>	Indicates the order that you want the points to appear (lowest PointOrder number appears first).
<b>Export Tag</b>	(Future) Flag (Y/N) to indicate if Control Point should be tagged for FX Server export in the FX Supervisor Database.
<b>Bacnet Property</b>	Allows you to define the present value (Present Value), the minimum present value (Min Pres Value), and the maximum present value (Max Pres Value) in the FX Supervisory Controller.

4. Click **Save**.
5. Select the next point in the System Library file and edit the properties as desired.
6. Click **Save**. Repeat this process until you complete all modifications.
7. Click the Library Information tab.
8. Click **Save**.

### ***Adding a New System Library File***

#### **Creating a New System Library File from an Existing File**

1. On the Tools menu, click System Library Editor. The FX System Library Editor appears.
2. Click the Library Information Tab.
3. In the File Name field, click the folder and browse to an existing System Library file. Use the following path:  
C:\JCI\FXSupervisorPro<version>\jcistandards\sysLib.
4. Select the desired System Library file and click Open. The FX System Library Editor reappears with the Library Information tab opened.

5. In the Library Description field, modify the description of the system as desired.  
**Note:** This field (for FX field controllers) is used by the system properties text file to identify the corresponding graphic Px template.
6. In the Author Name field, enter the name of the person you want to identify as the author (usually your name)
7. In the Version Date field, enter the version date.
8. Click Save As.
9. Enter the name of the new system library file. The file extension must be .xml. We recommend you save the system to c:\JCI\FXSupervisor<version>\jciStandards\sysLib.
10. Click Save.

### **| Creating a New System Library File from an APD, CAF, or CSV File**

1. On the Tools menu, click System Library Editor. The FX System Library Editor appears.
2. Click the Library Information Tab.
3. In the Optional Starting APD, CSV, CAF File field, browse to the .apd, .csv, or .caf file on which you want to base your new system library.
4. In the Library Description field, enter a description for the new system.  
**Note:** This field (for FX field controllers) is used by the system properties text file to identify the corresponding graphic Px template.
5. In the Author Name field, enter the name of the person you want to identify as the author (usually your name).
6. In the Version Date field, enter the version date.
7. Click Save As.
8. Enter the name of the new system library file. The file extension must be .xml. We recommend you save the system to c:\JCI\FXWorkbench-<version>\jciStandards\sysLib.
9. Click Save.

### ***Adding a Point to a System Library File***

1. On the Library Points tab of the System Library Editor, click New. A new point appears at the end of the point list called nvi<Something>. Change the point name and modify its elements as desired.
2. Click Save.
3. Repeat Steps 1 and 2 for all additional points you wish to add.

# Mobile Device User Interface

FX Workbench allows you to create a mobile device interface (iPhone®, iPad®, or Android™) for an FX Supervisory Controller. With this mobile device user interface, you can view the devices, points, schedules, and alarms in a station. You can also override points, edit schedules, and acknowledge alarms.

## Mobile Device User Interface Concepts

The Home screen appears when you first log in to the station from the mobile device. The Home screen also appears when you press the Home button or when you press the Home button on a system graphic.

**Note:** Not all functionality found in the FX Workbench works in the mobile device user interface.

Figure 103: Mobile Device Home Screen







## Navigation Buttons

Use [Table 81](#) to understand the buttons in the FX Workbench iPhone user interface.

Table 81: Navigation Buttons

Navigation Buttons	Description
<b>Home Button</b> 	Press the Home button to go to the Home screen.
<b>Back Button</b> 	Press the Back button to go back to the previous page.
<b>Log Out Button</b> 	Press the Log Out button to log out of the station.

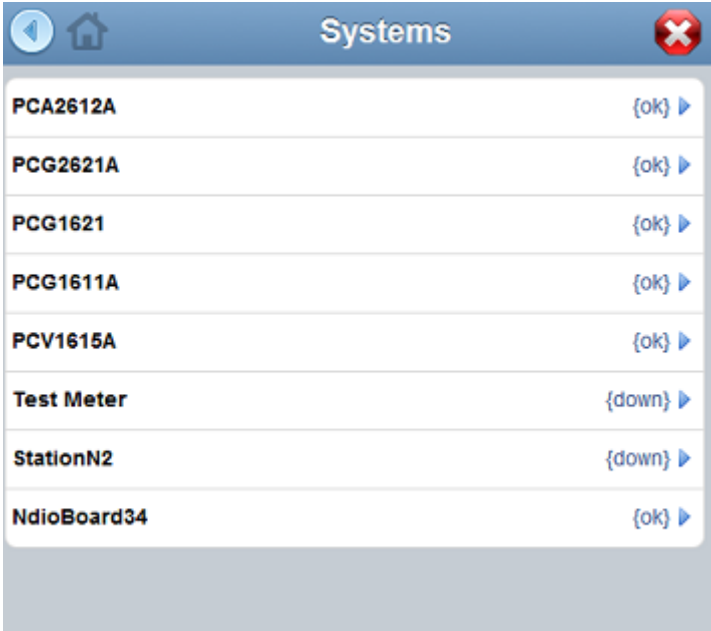
**Table 81: Navigation Buttons**

Navigation Buttons	Description
<b>Information Button</b> 	Press the Information button to view additional information (such as a history, equipment, or space).
<b>History Table View Button</b> 	Press the History Table View button to view history data in table format.
<b>Live History Button - Active</b> 	Indicates an active Live History. Press to view history information.
<b>Live History Button - Paused</b> 	Indicates a paused Live History. Press to view history information.

# Systems

When you press Systems, a list of all the systems defined in the connected station appears. A system is a device contained within an N2, BACnet®, LONWORKS, or any other device network defined in the station. The systems that appear on the screen update dynamically. Therefore, whenever you add or delete a device, the Systems screen immediately reflects the change. The Systems screen displays the name of the system, the current status of the system, and a link to the points defined within the system.

Figure 104: Systems Screen

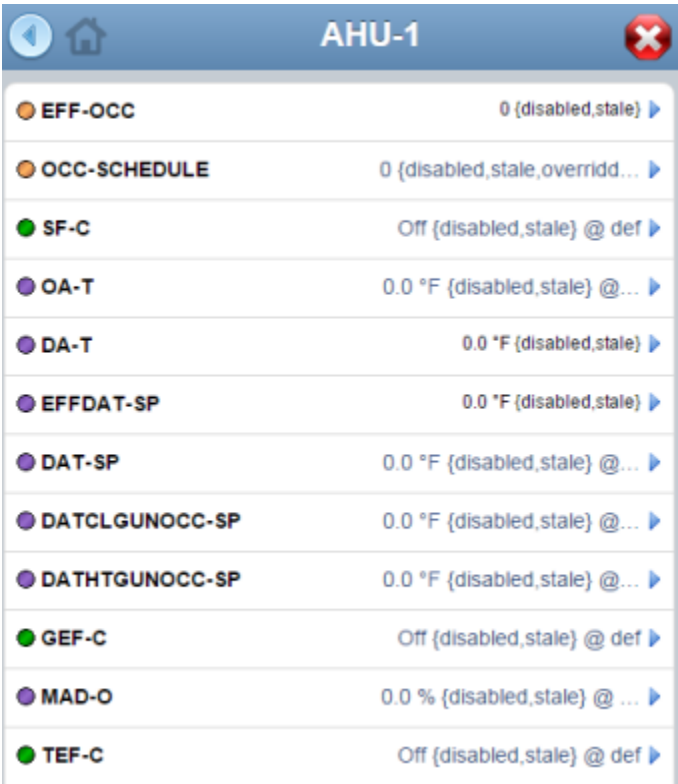
















# Points

When you press the arrow next to a device on the Systems screen, the Points screen appears. The Points screen displays a list of points for the device. Like the devices in the Systems screen, the points update dynamically. On this screen, the name of the point and the current value and status of the point appears. A colored icon representing the point type appears in front of the point name.

Figure 105: Points Screen



 EFF-OCC	0 (disabled,stale) ▶
 OCC-SCHEDULE	0 (disabled,stale,overridd... ▶
 SF-C	Off (disabled,stale) @ def ▶
 OA-T	0.0 °F (disabled,stale) @... ▶
 DA-T	0.0 °F (disabled,stale) ▶
 EFFDAT-SP	0.0 °F (disabled,stale) ▶
 DAT-SP	0.0 °F (disabled,stale) @... ▶
 DATCLGUNOCC-SP	0.0 °F (disabled,stale) @... ▶
 DATHTGUNOCC-SP	0.0 °F (disabled,stale) @... ▶
 GEF-C	Off (disabled,stale) @ def ▶
 MAD-O	0.0 % (disabled,stale) @ ... ▶
 TEF-C	Off (disabled,stale) @ def ▶

Each point, when pressed, takes you to a point details screen. If the point can be commanded, command buttons (such as Override and Auto) appear below the point details. The point details always display the option to Add or Delete a Live History to the point. If the Live History for the point does not exist, then an Add Live History button appears. If the Live History exists for the point, the Delete Live History button appears.

To see the point details, press the point.

Figure 106: Point Details Screen



To command a point, press the appropriate command button below the point details of the point.

**Note:** Read-only points do not have command buttons below the point details.

### Point Overrides

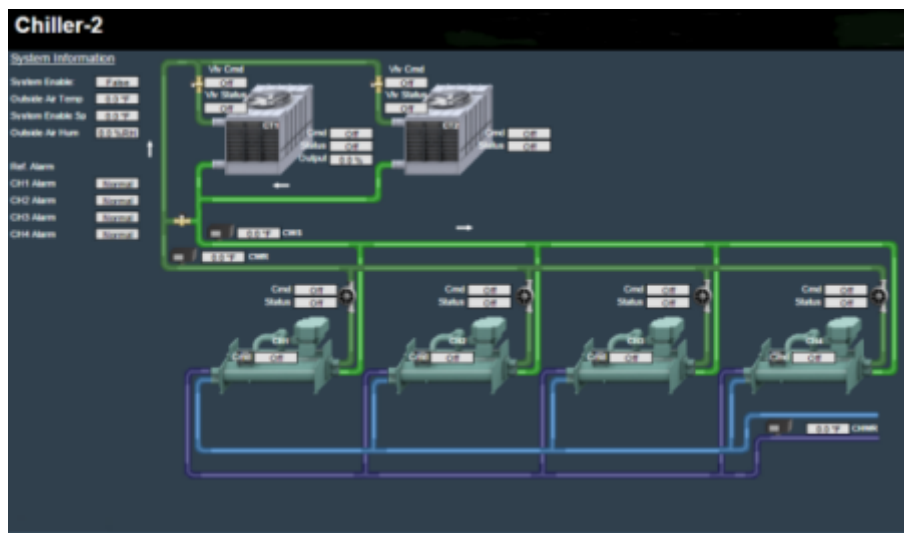
To override a point within a system, press the point on the Points screen. The point override screen displays the current value, status, and point type. The command options of this specific point appear below the point values. The command option buttons that appear are based upon the point type and the actions that are enabled for the point. If the point is read-only, you cannot override it.

## Graphics

You can view a graphic representation of the system if an HxGraphic file is defined for that system in the station. An HxGraphic is a graphic file designed to fit the smaller display size.

**Note:** For the mobile device user interface, we provide a set of standard HxGraphic system graphics that you can use. In addition, we provide a new palette (kitPxHvacSmall) that you can use to build a new library of small HxGraphics. When you add a device on the station with FX Workbench, you have the option to select Create Hx Graphic File.

Figure 107: Graphics Screen



**Note:** Press the link to the right of the System Name to view points.

# Schedules

When you press Schedules on the Home screen, a dynamic summary of all the defined schedules for the station appears. The Schedules screen displays the name of the schedule and the current schedule output value and status. A colored icon representing the Schedule type also appears in front of the schedule name. To view details about a schedule, press the schedule.

Figure 108: Schedules Screen

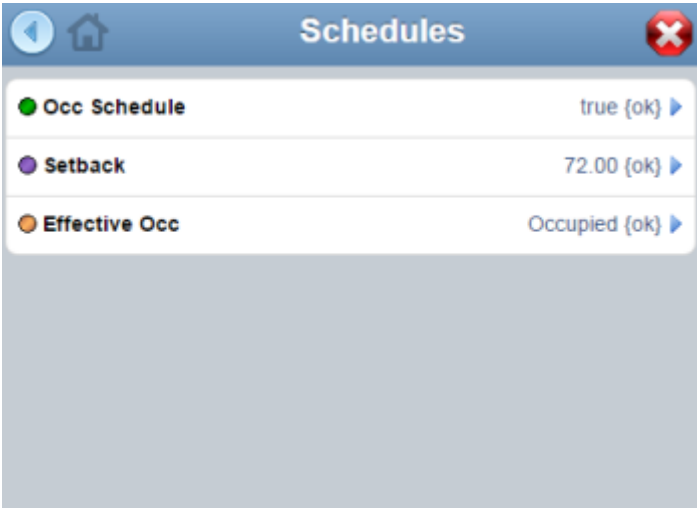
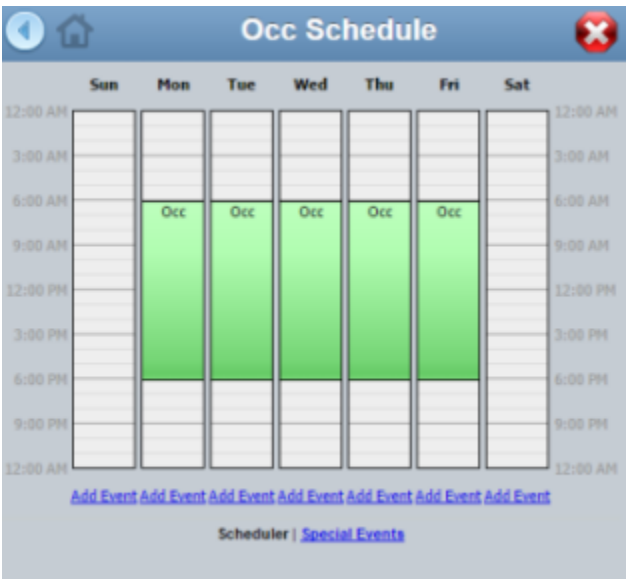


Figure 109: Schedule Details Screen



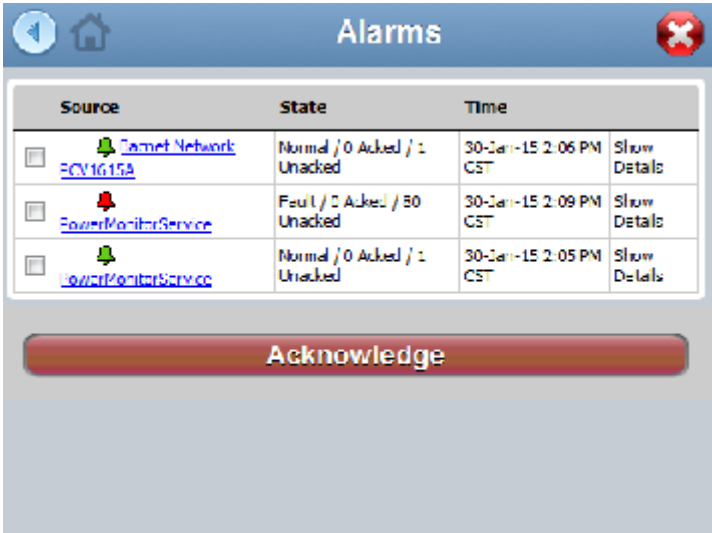
To modify schedules, select an existing event and modify the event parameters. To create a new schedule event or schedule special events, press Add Event. Special events are exceptions to the normal weekly schedule.

# Alarms

When you press Alarms on the Home screen, a dynamic summary of all of the active alarms in the station appears. The Alarms screen displays the object name of the alarm, the alarm state, and the time the alarm occurred. A colored icon representing the alarm type also appears in front of the alarm object name.

Each alarm has a Show Details link that takes you to the Alarm Details screen. The Alarm Details screen provides additional information about the alarm. If the object in alarm has a hyperlink property defined in its associated alarm object definition, a link appears for the alarm on the Alarms screen. Press this link to view the linked object defined in the alarm object. A typical linked object would be the reference to a graphic.

Figure 110: Alarms Screen



**Note:** Press the alarm point to view details about the point.

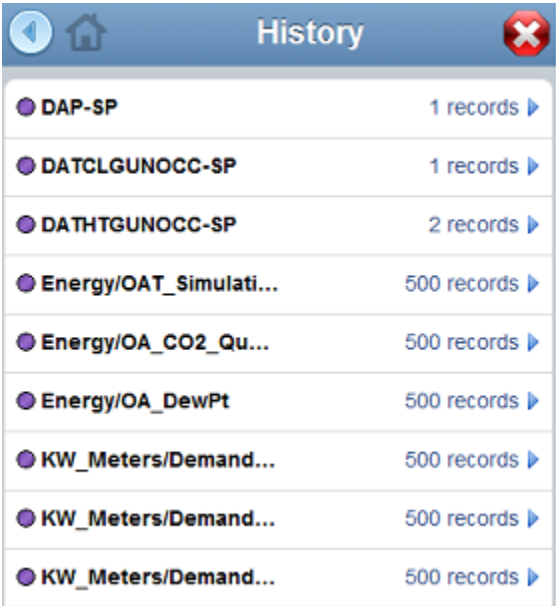
To acknowledge an alarm, select the check box next to the alarm and press Acknowledge. Alarms that have already been acknowledged, but are still in an off-normal state, have a check box that appears dimmed.

### Histories

When you press Trends on the Home screen, a list of histories for the points in your station appears. The History screen displays the available active histories for the points in your station. Next to each history is a number that indicates the numbers of samples for the history. Press a point to view details about its history.

**Note:** Press the Histories link to view the histories in the station.

Figure 111: History Screen



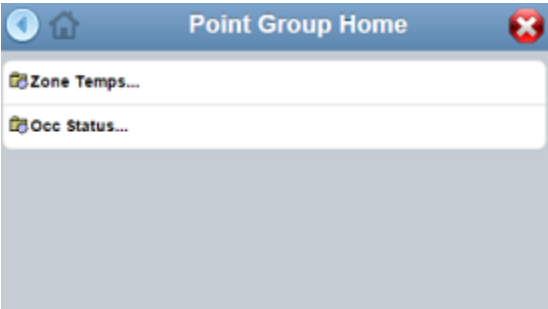
### Live History

A Live History lets you sample a point rapidly. For example, a normal history may record a history sample every 10 minutes. A Live History can sample a point every 20 seconds. Live Histories are normally used for diagnostic purposes.

### Point Groups

When you press Groups on the Home screen, predefined groups for the points in your station appear. Point groups provide a way to organize similar points in one place.

Figure 112: Point Groups Home Screen



### Equipment

When you press Equipment on the Home screen, a dynamic summary of all the defined equipment for the station appears. The Equipment screen displays the equipment organized by type (for example, air handlers or meters) and the name of the equipment. You can also view a graphic of the equipment, the points, and additional details about the equipment (such the ability to command points).

## **Spaces**

When you press Spaces on the Home screen, a dynamic summary of all the defined spaces for the station appears. The Spaces screen displays the spaces organized by the type of space (for example, building, floor, and zone). You can also view the equipment serving the space, the points, and additional point details (such the ability to command points).

## ***Mobile Device User Interface Steps***

### **Selecting the HXAdmin Role for the User Interface**

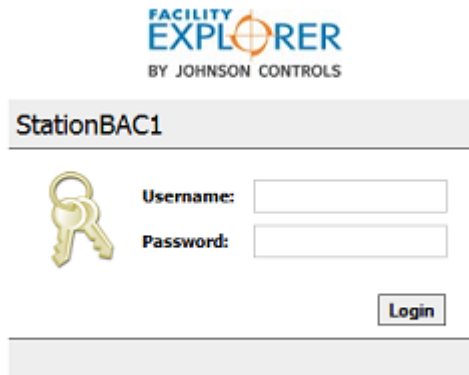
1. Use FX Workbench to create a new user. Select the HXAdmin role for the user.
2. Define devices using standard system types.

When you add a device to the station, you can use standard HxGraphic system graphics. These new standard graphics are PX files formatted to fit the mobile device screens size (without scaling the screen). When you select Create Hx Graphic File on the device setup screen, an appropriately sized graphic appears on your mobile device.

## Logging in to the FX Supervisory Controller/FX Server Station from a Mobile Device

1. Enter the URL or IP address of the FX Supervisory Controller/FX Server in the browser and press Go. The Facility Explorer login screen appears.


Figure 113: Login Screen



The login screen for Facility Explorer by Johnson Controls. At the top is the logo 'FACILITY EXPLORER BY JOHNSON CONTROLS'. Below it is a grey bar containing the station name 'StationBAC1'. Underneath is a yellow key icon. To the right of the key are two input fields: 'Username:' and 'Password:'. Below the 'Password:' field is a 'Login' button. At the bottom is a wide grey bar.

2. Enter your station Username and Password.
3. Press Login. The Home screen appears.

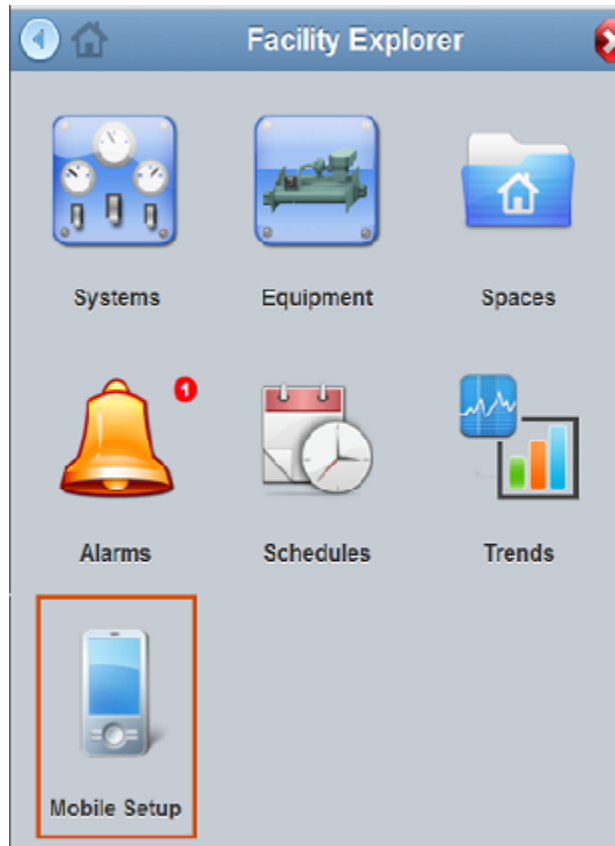
## Accessing the Home Screen

The Home screen is the first screen to appear when you log in to the station. However, if you navigate away from the Home screen, you can return to it by pressing the Home button .



## Configuring the Mobile Device Interface

Figure 114: Press Mobile Setup



1. Press the Mobile Setup link on the Home screen. The Mobile Configurations screen appears.

Figure 115: Mobile Configurations Screen



2. Do one of the following:

- To add a new device type (for example, iPhone or Android), press Add. The Mobile Device Information screen appears.
- To update an existing configuration type, press the configuration type. The Mobile Device Information screen appears.

**Figure 116: Mobile Device Information**

3. In the Mobile Device Name field, enter the new mobile device configuration name. This name helps you identify your unique configuration.
4. Leave the User Agent and Test Value fields as they are. These fields display information about the device you are using.
5. Hold your device in its portrait orientation and press Test Device. Clicking Test Device updates the portrait width and height values with values specific for your device.

Hold your mobile device in its landscape orientation and press Test Device again. The landscape width and height values update with values specific for your device.

**Note:** If you still find that some screens (especially the history graphs) are not sized properly, use this screen to edit the portrait and landscape values to better fit on your device.

6. If you need to use simple styles on your phone (for example, if you have a mobile device that uses the Internet Explorer browser, press Yes in the Simple Styles field.
7. In the Display Graphics field, press Yes or No if you want FX Workbench graphics on your mobile device.
8. In the Display Canvas field, press Yes or No if you want to use a canvas for history plotting.

**Note:** Some mobile devices have browsers that do not support the canvas.

9. In the Large Graphics field, press Yes or No if you want to use large graphics (for example, if you have an iPad mobile device).
10. Press Save.

# Working with System Information

## Viewing the Systems in the Station

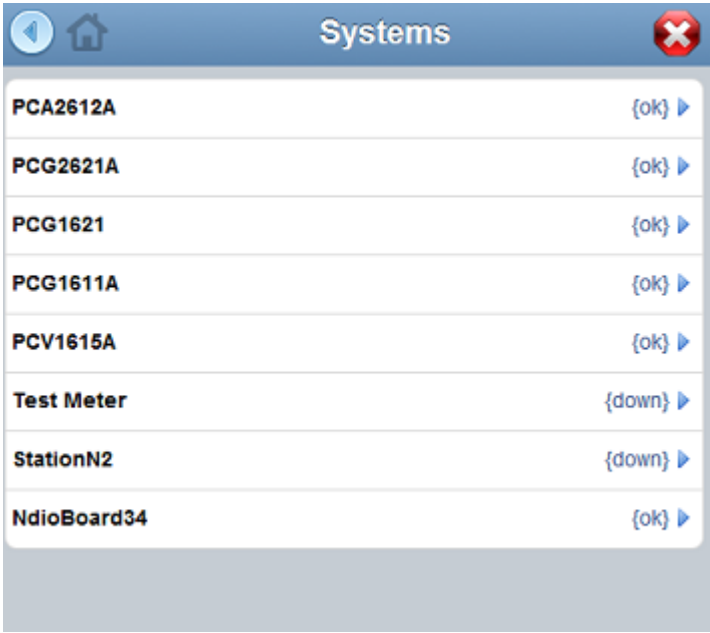
To view the systems in the station, press **Systems**. A system is a device contained within an N2, BACnet, LonWORKS, or any other device network defined in the station.

## Viewing System Graphics

When you set up a device in FX Workbench, there is an option to Create HX Graphic File. If you select this option, then FX Workbench generates a mobile device graphic for the device, and the Show Graphic link appears underneath the device name.

- 1. Press **Systems** on the mobile device Home screen. The Systems screen appears.

Figure 117: Viewing System Graphics

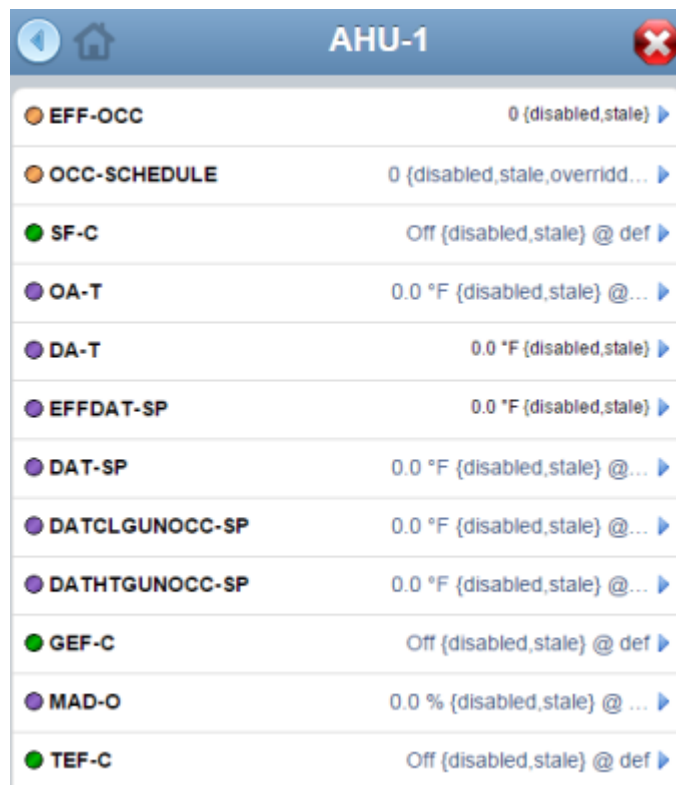


- 2. Press the device name (left side of the screen) for the graphic you want.

## Viewing Points

- 1. Press **Systems** on the mobile device Home screen. The Systems screen appears.
- 2. Press the arrow next to the system (right side of the screen) to view the system points.

Figure 118: Points Screen

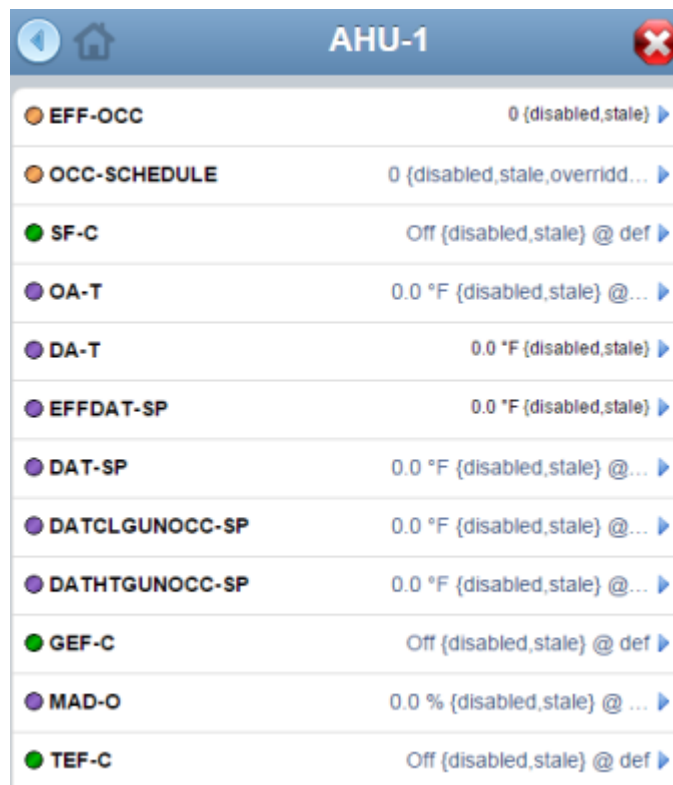


AHU-1	
● EFF-OCC	0 {disabled,stale} ▶
● OCC-SCHEDULE	0 {disabled,stale,overrid...} ▶
● SF-C	Off {disabled,stale} @ def ▶
● OA-T	0.0 °F {disabled,stale} @... ▶
● DA-T	0.0 °F {disabled,stale} ▶
● EFFDAT-SP	0.0 °F {disabled,stale} ▶
● DAT-SP	0.0 °F {disabled,stale} @... ▶
● DATCLGUNOCC-SP	0.0 °F {disabled,stale} @... ▶
● DATHTGUNOCC-SP	0.0 °F {disabled,stale} @... ▶
● GEF-C	Off {disabled,stale} @ def ▶
● MAD-O	0.0 % {disabled,stale} @ ... ▶
● TEF-C	Off {disabled,stale} @ def ▶

### Overriding Points

1. Press **Systems** on the mobile device Home screen. The Systems screen appears.
2. Press the arrow next to the system you want. The points for the system appear.

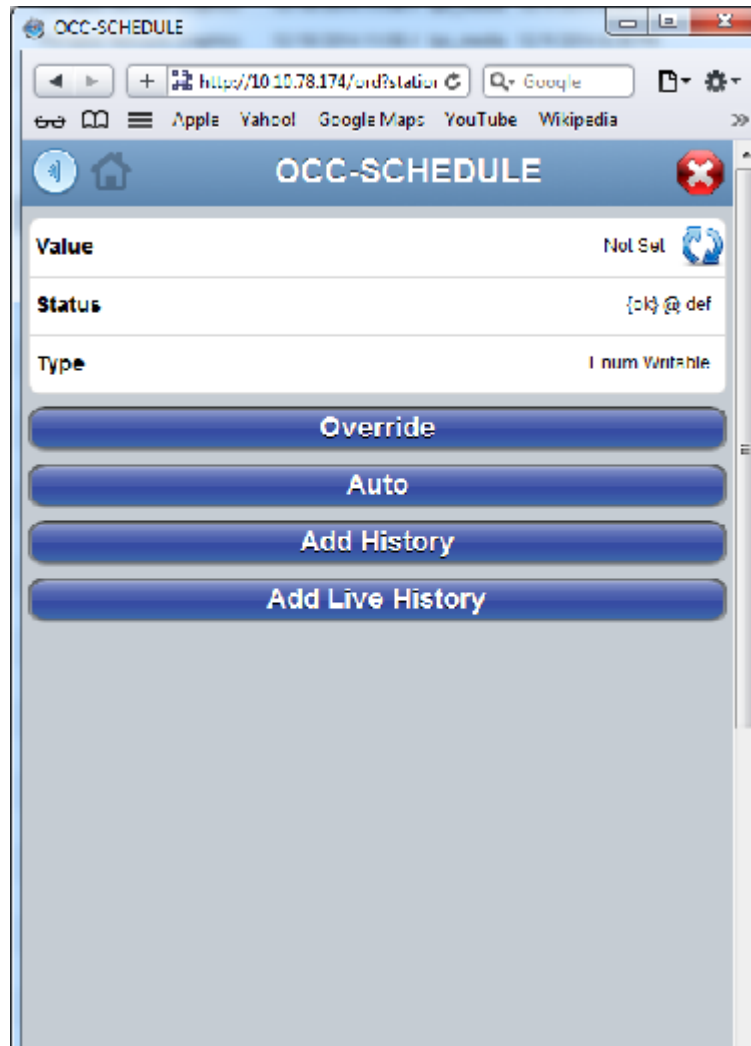
Figure 119: Command Points Screen



AHU-1		
● EFF-OCC	0 {disabled,stale}	▶
● OCC-SCHEDULE	0 {disabled,stale,overrid...	▶
● SF-C	Off {disabled,stale} @ def	▶
● OA-T	0.0 °F {disabled,stale} @...	▶
● DA-T	0.0 °F {disabled,stale}	▶
● EFFDAT-SP	0.0 °F {disabled,stale}	▶
● DAT-SP	0.0 °F {disabled,stale} @...	▶
● DATCLGUNOCC-SP	0.0 °F {disabled,stale} @...	▶
● DATHTGUNOCC-SP	0.0 °F {disabled,stale} @...	▶
● GEF-C	Off {disabled,stale} @ def	▶
● MAD-O	0.0 % {disabled,stale} @ ...	▶
● TEF-C	Off {disabled,stale} @ def	▶

3. Press the link next to the point you want to override. The point details screen appears. If the point command buttons (Override and Auto) do not appear, then the point is read-only and you cannot command it.

Figure 120: Point Override Screen 1



4. Press Override. The system displays the values you can override. The values that you can edit vary, depending on the point type.

Figure 121: Point Override Screen 2

OCC-SCHEDULE

Value Not Set

Status {overridden} @ 8

Type Enum Writable

**Override**

Value Occupied

Duration 2 hours

00000 h 00 m 00 s

Ok

Cancel

5. Enter the override values and press Ok.

#### ***Returning Overridden Point Values to the Setpoint Values***

1. Press **Systems** on the mobile device Home screen. The Systems screen appears.
2. Press the arrow next to the system that has the point or points you want to override. The points for the system appear.
3. Press the link next to the point you want to override. The point override screen appears.
4. Press Auto. The Auto button returns the overridden point value to the setpoint value.

## Working with Schedules

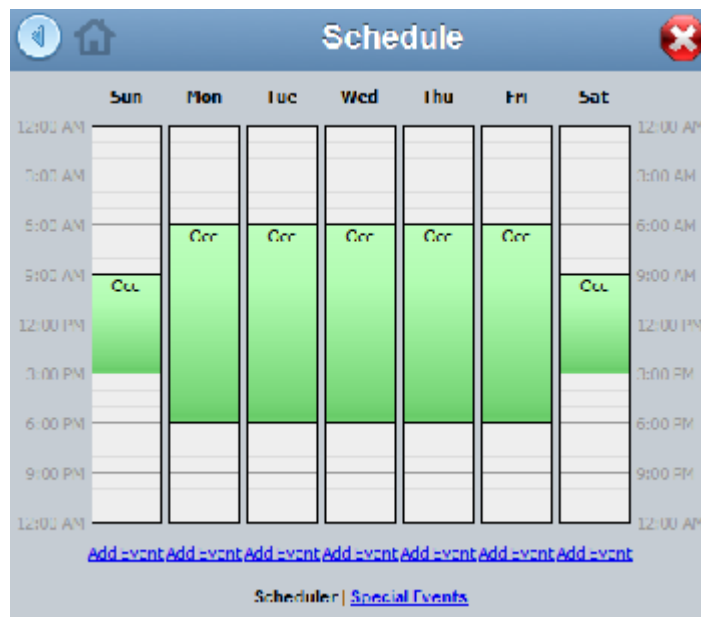
### Viewing the Schedules in the Station

1. On the mobile device Home screen, press **Schedules**. A list of schedules in the station appears.
2. Press the schedules you want to view.

### Editing a Scheduled Event

1. On the mobile device Home screen, press **Schedules**. A list of schedules in the station appears.
2. Press the schedules you want to edit. The Schedule Details screen appears.

Figure 122: Schedule Details Screen



3. Press the bar for the day you want to edit. The bottom part of the screen displays a section to edit schedule values. The values may vary, depending on the type of schedule you select.



Figure 123: Editing a Schedule Screen

**Schedule**

	Sun	Mon	Tue	Wed	Thu	Fri	Sat
12:00 AM							
3:00 AM							
6:00 AM		Occ	Occ	Occ	Occ	Occ	
9:00 AM	Occ						Occ
12:00 PM							
3:00 PM							
6:00 PM							
9:00 PM							
12:00 AM							

**Modify Event**

Start: 06 : 00 : 00 AM CST

End: 06 : 00 : 00 PM CST

Output: Occ

**Modify** **Delete** **Cancel**

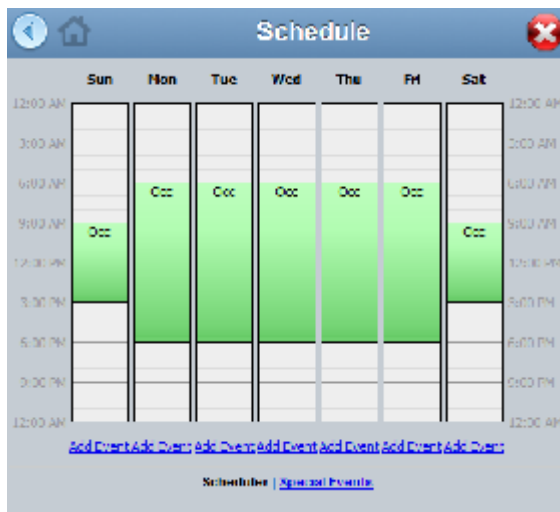
4. Do one of the following:

- To edit the schedule values, edit the values on the screen and press Modify.
- To delete the schedules for the day, press Delete.
- To cancel, press Cancel.

### Adding a New Scheduled Event

1. On the mobile device Home screen, press **Schedules**. A list of schedules for the station appears.
2. Press the schedules you want to add an event for. The Schedule Details screen appears.

Figure 124: Schedule Details - Add Event



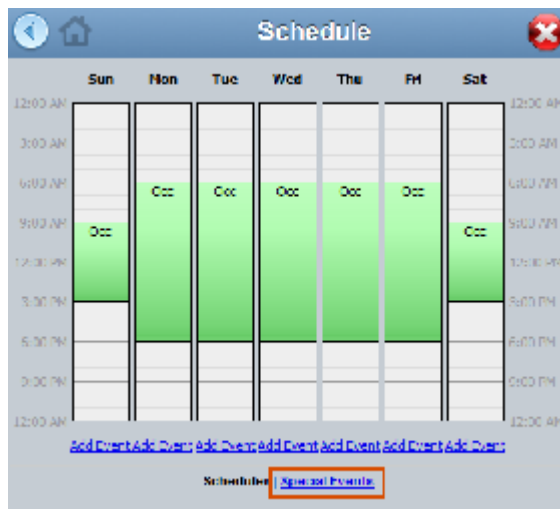
3. Press Add Event. The bottom part of the screen displays a section to add schedule values. The values may vary, depending on the types of schedule you select.
4. Enter the schedule values and press Add.

### Viewing Special Events

Special events are exceptions of the normal weekly schedule.

1. On the mobile device Home screen, press **Schedules**. A list of schedules in the station appears.
2. Press the schedules you want to view an event for. The schedule details screen appears.

Figure 125: Select Special Events



3. Press Special Events. The Special Events screen appears. The list of events appear in the left part of the screen. Details about the time of the even appear on the right part of the screen.

Figure 126: Special Events Screen

The screenshot displays the 'Special Events' interface. At the top, there are two tabs: 'Special Events' and 'Events'. The 'Special Events' tab is active, showing a table with two columns: 'Name' and 'Summary'. The first row contains 'Spring Break' and 'Date Range: 16 Apr 2015 - 24 Apr 2015'. Below the table, there are links: 'Add', 'Edit', 'Up', 'Down', and 'Delete'. The 'Events' tab is visible on the right, showing a list of times from 12:00 AM to 12:00 AM. At the bottom right of the 'Events' tab, there is a link 'Add Event...'. At the bottom center of the screen, there is a breadcrumb trail: 'Scheduler | Special Events'.

Name	Summary
Spring Break	Date Range: 16 Apr 2015 - 24 Apr 2015

[Add](#) | [Edit](#) | [Up](#) | [Down](#) | [Delete](#)

[Add Event...](#)

[Scheduler](#) | [Special Events](#)

4. To move down the list of events, press down. To move up the list of events, press up.

### Adding Special Events

Special events are exceptions to the normal weekly schedule.

1. On the mobile device Home screen, press **Schedules**. A list of schedules for the station appears.
2. Press the schedules you want to add a special event for. The schedule details screen appears.
3. Press Special Events. The Special Events screen appears. The list of events appear in the left part of the screen. Details about the time of event appear on the right part of the screen.
4. On the left part of the screen, press Add. The Special Events Summary screen appears.

**Figure 127: Add Special Events Summary**

Name	Summary
Spring Break	Date Range: 16 Apr 2015 - 24 Apr 2015

**Add Event**

Name: Independence Day

Type: Date

Any Weekday Any Day Any Month Any Year

Add Cancel

5. Enter the name and type of the event and press Add. The Special Events screen reappears.
6. Select the schedule you just added and press Edit. The system prompts you to enter schedule details.

**Figure 128: Add Special Events Schedule Details**

**Special Events**

Name	Summary
Holiday	Date: Apr 2015
New Month Day	Date: Apr 1 2015
Independence Day	Date: Apr 2015

**Edit Event**

Name: Independence Day

Type: Date

Any Weekday Any Day Any Month Any Year

Update Cancel

7. Enter the schedule details and press Update. The event now appears on the list of scheduled events.
8. Press Add Event. The system prompts you to add the time and values for the event.

**Figure 129: Add Special Events - Date and Time**



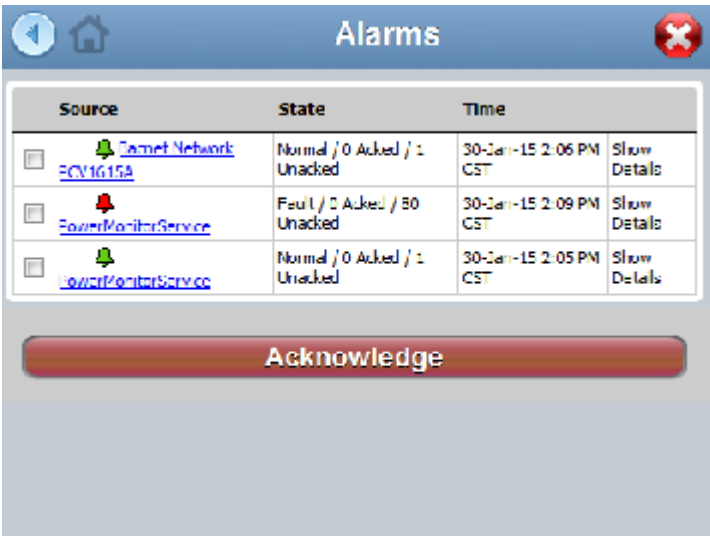
9. Enter the time and values of the event and press Add.

## Working with Alarms

### Viewing the Alarms in the Station

1. On the mobile device Home screen, press **Alarms**. A list of alarms appears.

Figure 130: Alarms List

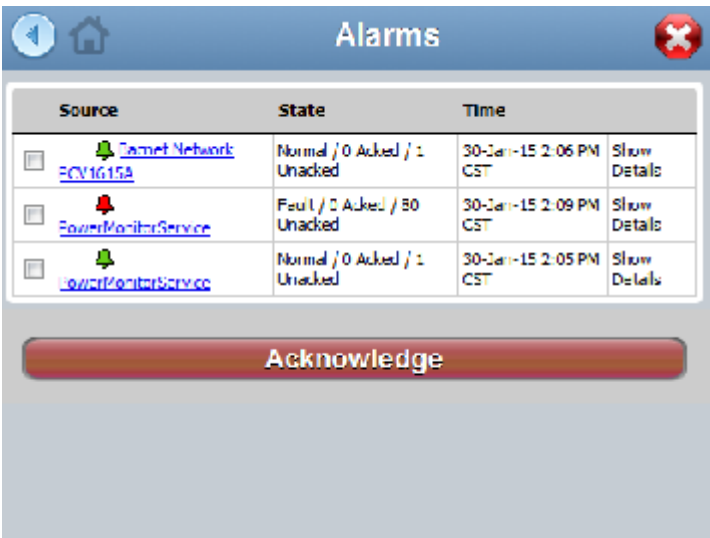


2. To view details about the object in alarm, press the alarm link in the source column.

### Acknowledging an Alarm

1. On the mobile device Home screen, press **Alarms**. A list of alarms appears.

Figure 131: Alarms List



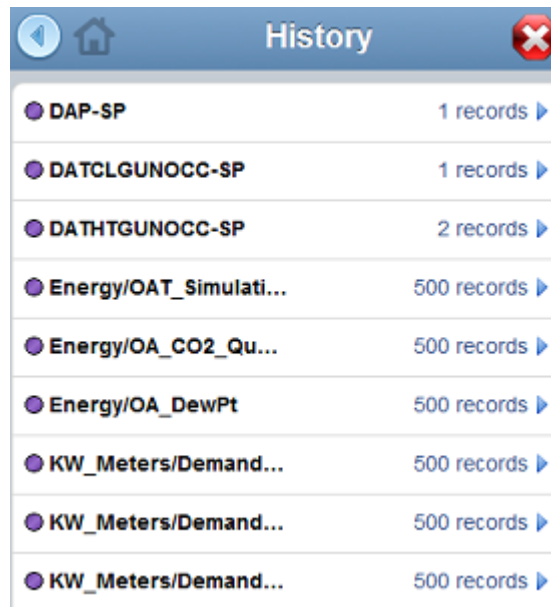
2. Press the box next to the point you want to acknowledge. A check box appears in the box.
3. Press Acknowledge.

## Working with Histories

### Viewing a History

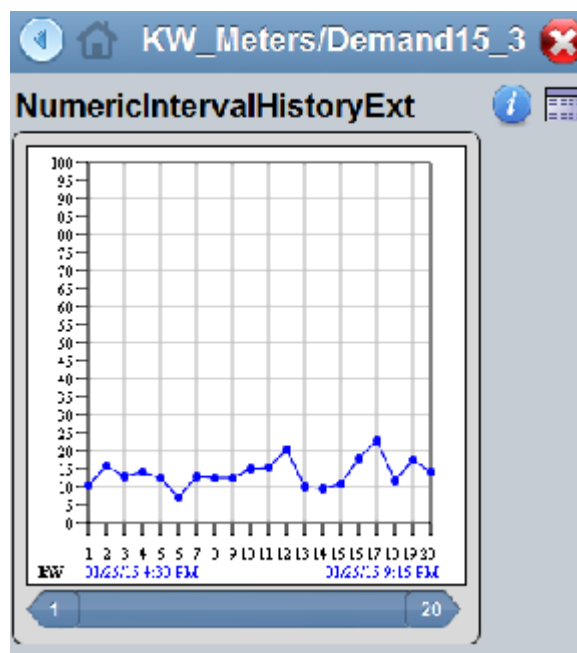
1. On the mobile device Home screen, press **Trends**. The History screen appears.

Figure 132: History Screen



2. Press the point to view details about the history for that point. A graph displaying the point history appears.

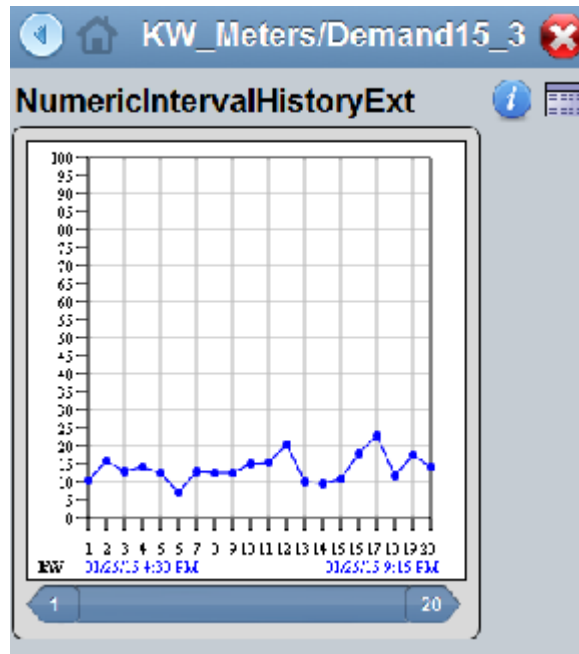
Figure 133: History Chart View



### Viewing a History in a Table Format

1. On the mobile device Home screen, press **Trends**. The History screen appears.
2. Press the point to view details about the history for that point. A graph displaying the point history appears.

Figure 134: History in Chart View



3. In the upper-right corner of the screen, press the Table icon. The point history now appears in a table format.

Figure 135: History in Table View

The screenshot shows a mobile application interface for 'KW\_Meters/Demand15\_3'. The main title is 'NumericIntervalHistoryExt'. Below the title is a table with four columns: '1 - 500', 'Timestamp', 'Status', and 'Value'. The table displays 11 rows of data. The status for all rows is 'ok'. The values are in kW.

1 - 500	Timestamp	Status	Value
1	01/25/15 4:30 PM	ok	10.42 kW
2	01/25/15 4:45 PM	ok	16 kW
3	01/25/15 5:00 PM	ok	12.95 kW
4	01/25/15 5:15 PM	ok	13.99 kW
5	01/25/15 5:30 PM	ok	12.49 kW
6	01/25/15 5:45 PM	ok	7.17 kW
7	01/25/15 6:00 PM	ok	12.89 kW
8	01/25/15 6:15 PM	ok	12.33 kW
9	01/25/15 6:30 PM	ok	12.51 kW
10	01/25/15 6:45 PM	ok	15.13 kW
11	01/25/15 7:00 PM	ok	15.27 kW

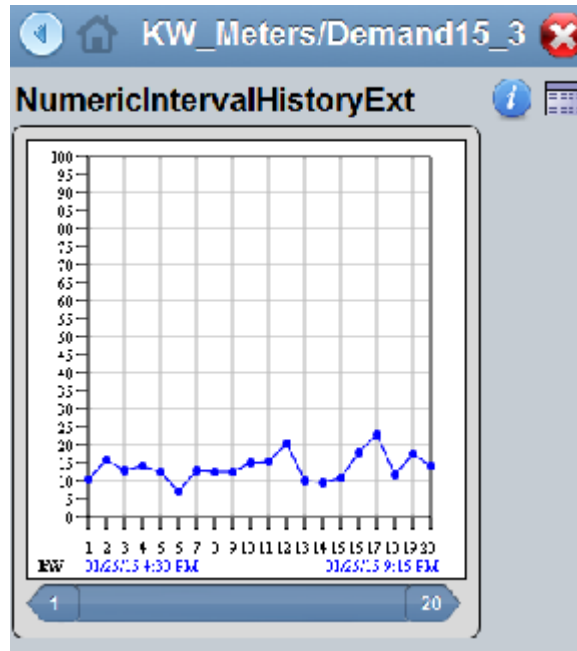


### Customizing a History View

If necessary, you can customize how you want the history to appear on the screen.

1. On the mobile device Home screen, press **Trends**. The History screen appears.
2. Press the point to view details about the history for that point. A graph displaying the point history appears.

Figure 136: History in Chart View



3. In the upper-right corner of the screen, press the History Information icon.

Figure 137: History Information

History Information	
History Name	/StationBNC1/KW_Meters/Demand15_1
History Source	/StationBNC1/KW_Meters/Demand15_1
CacheSize	500 records
Record Count	500
Full Policy	Full
Interval	1 minute
First Time	01/25/15 4:40 PM
Last Time	01/25/15 9:10 PM
Recorded Minimum	2
Recorded Maximum	12
Minimum Graph Value	0.1
Maximum Graph Value	150.1
Start Index	1
Graph Type	<input checked="" type="radio"/> Line <input type="radio"/> Bar
Display Style	<input type="radio"/> Newest <input checked="" type="radio"/> Oldest

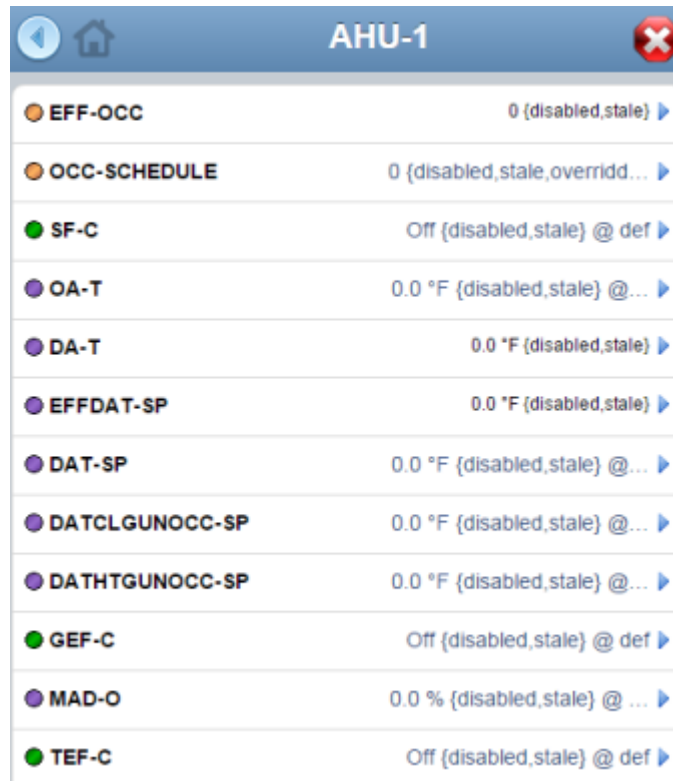
Save Cancel

4. Press the Minimum Graph Value and Maximum Graph Value fields and enter the values that you want to graph to show.
5. If the history has more than 500 values saved, the Start Index field becomes editable. Enter the start value you want to see first.
6. In the Graph Type field, select if you want a line graph or a bar graph.
7. In the Display Start field, select if you want the history to start with the newest or oldest samples.
8. Press Save.

### Setting up a Live History

1. On the mobile device Home screen, press **Systems**.
2. On the Systems screen, press the arrow next to the device you want. The Points screen appears.

Figure 138: Points Screen



3. Press the point for which you want to set up a Live History based on the sample rate used to define the Live History. Information about the point appears.

Figure 139: Add Live History



4. Press Add Live History. The Add Live History screen appears.

Figure 140: Add Live History

The screenshot shows a mobile application interface for 'ZN-SP-MIN'. At the top, there is a blue header bar with a back arrow, a home icon, the text 'ZN-SP-MIN', and a red close button. Below the header, there are three rows of information: 'Value' showing '55.0 °F' with a refresh icon, 'Status' showing '{ok} @ def', and 'Type' showing 'Numeric Writable'. Below this is a grey box titled 'Add Live History'. Inside this box, there are two fields: 'Sample Rate' with a dropdown menu set to '5 seconds' and 'Sample Size' with a text input '120' and a range '50 to 500'. At the bottom of the grey box are two buttons: a green 'Ok' button and a red 'Cancel' button.

5. In the Sample Rate field, select the number in seconds that you want the Live History to sample values.
6. In the Sample Size field, select the number of samples you want to used.
7. Press Ok.

The Live History has now been added to the point.

#### ***Removing a Live History from a Point***

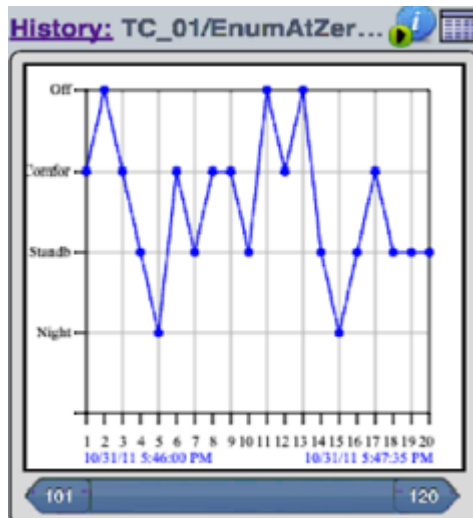
1. On the mobile device Home screen, press **Systems**.
2. On the Systems screen, press the device you want. The Points screen appears.
3. Press the point for which you want to delete a Live History. Information about the point appears.
4. Press Delete Live History. The Live History has been removed from the point.

#### ***Viewing a Live History***

1. On the mobile device Home screen, press **Trends**. The History screen appears.

Series Name	Records
DAP-SP	1 records
DATCLGUNOCC-SP	1 records
DATHTGUNOCC-SP	2 records
Energy/OAT_Simulati...	500 records
Energy/OA_CO2_Qu...	500 records
Energy/OA_DewPt	500 records
KW_Meters/Demand...	500 records
KW_Meters/Demand...	500 records
KW_Meters/Demand...	500 records

- ### Figure 142: Live History

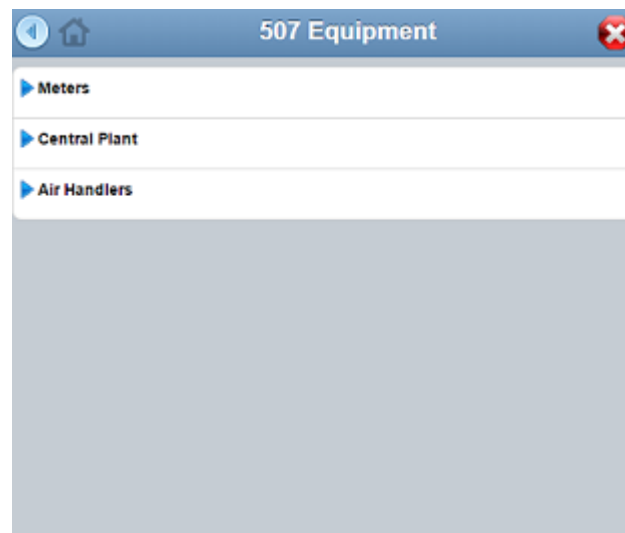


## Viewing Point Groups

## Working with Equipment

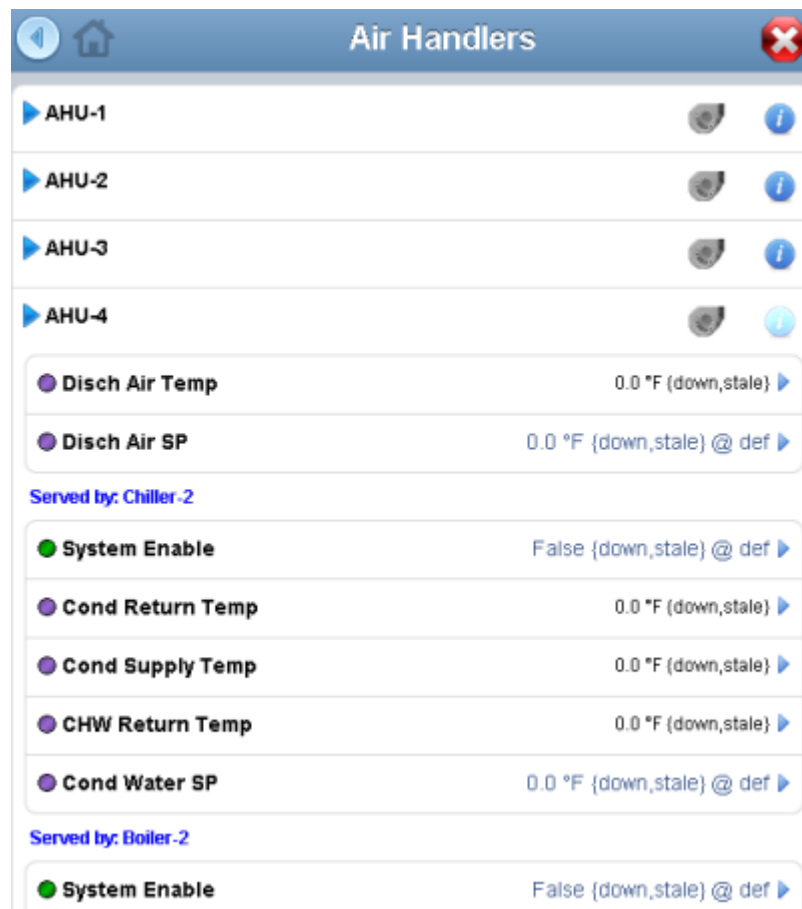
1. On the mobile device Home screen, press **Equipment**. A list appears displaying equipment categories.

Figure 143: Equipment Categories



2. Press the blue arrow for the equipment category you want. A list of equipment appears.

Figure 144: Equipment



3. If the equipment serves more equipment, a blue arrow appears next to the equipment. Press the arrow. The equipment appears.  
**Note:** If there is no more equipment to view, the arrow next to the equipment is dimmed.
4. To view point information, press the blue information icon on the right side of the screen.  
**Note:** To view additional information about the point, press the point. Points that you can command appear in blue.
5. To view the equipment graphic, press the small graphic icon on the right side of the screen.

## Working with Spaces

### Viewing Spaces

Spaces refer to locations in a building. For example, a space can be a building, floor, or a zone. The mobile device interface allows you to view how spaces are organized in the station.

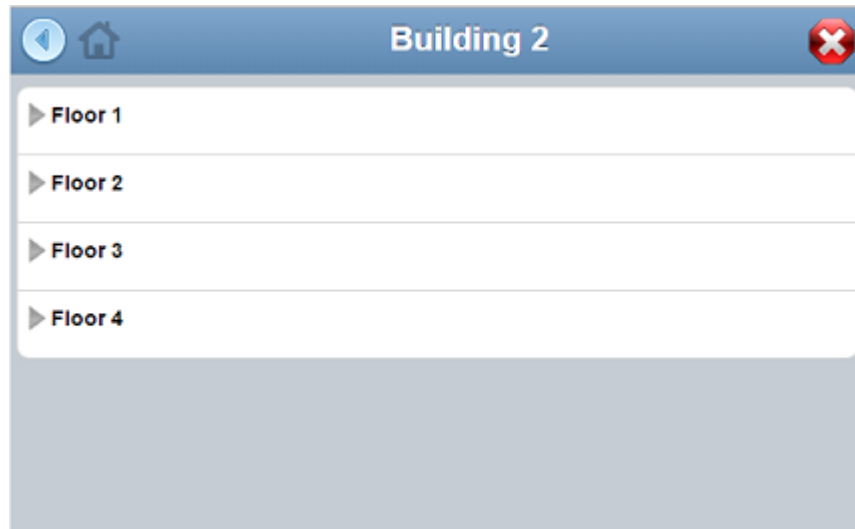
1. On the mobile device Home screen, press **Spaces**. A list appears displaying spaces.

**Figure 145: Spaces**



2. If the spaces are organized by categories and there are additional spaces to view, a blue arrow appears next to the space. Press the arrow. A list of locations within the space you selected appear.
3. To view point information, press the blue information icon on the right side of the screen.  
**Note:** To view additional information about the point, press the point. Points that you can command appear in blue.

Figure 146: Spaces



**Note:** If there are no more spaces to view, the arrow next to the space is dimmed.



# Point Extension Manager

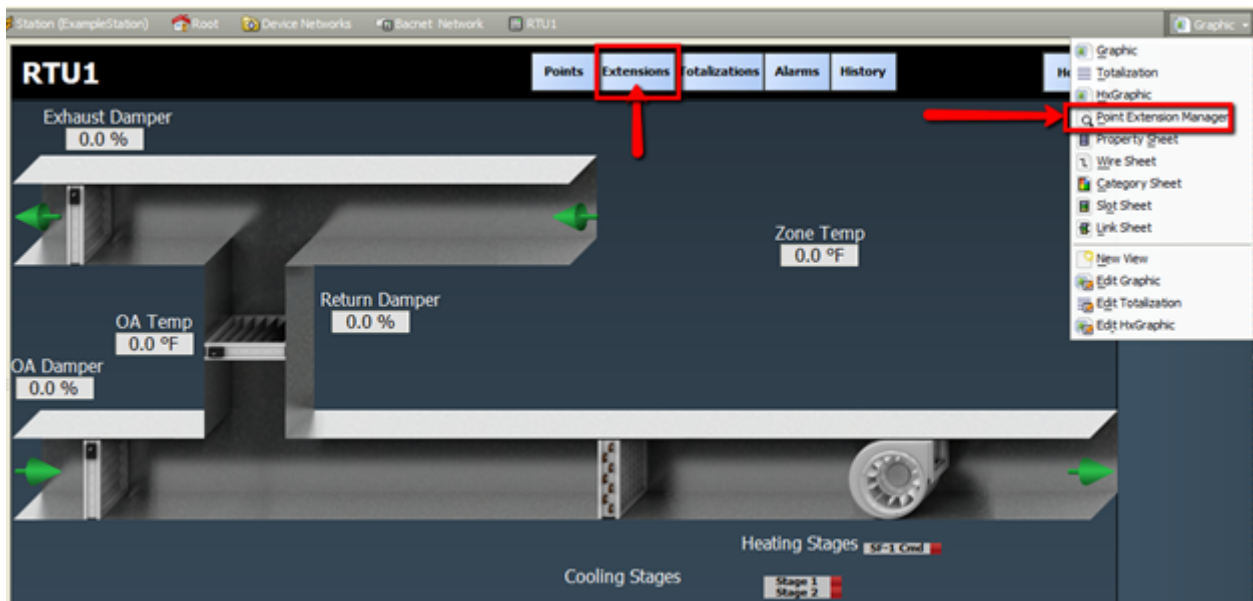
The Point Extension Manager is a feature unique to the Johnson Controls FX Workbench, and provides an easy way to add alarm, history, and totalization extensions to points in the station. The Point Extension Manager also lets you easily enable and disable points and add status flags to add point facets. This section describes how to use the Point Extension Manager.

## Accessing the Point Extension Manager

Each device created with the JCI Import Manager and System library contains a view for that device's Point Extension Manager.

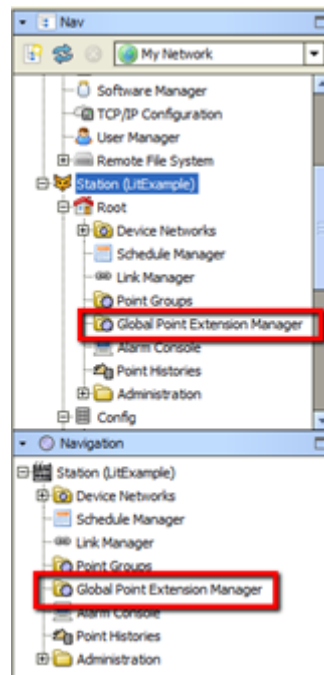
To access the point extension manager from a device graphic, click Extensions, or use the view selector to display the Point Extension Manager for the device.

Figure 147: Accessing a Device's Point Extension Manager



To access the Point Extension Manager for all devices in the station, click Global Point Extension Manager in the Nav side bar under Station > Root > Global Point Extension Manager or in the Navigation side bar under Station > Global Point Extension Manager.

**Figure 148: Accessing the Global Point Extension Manager**

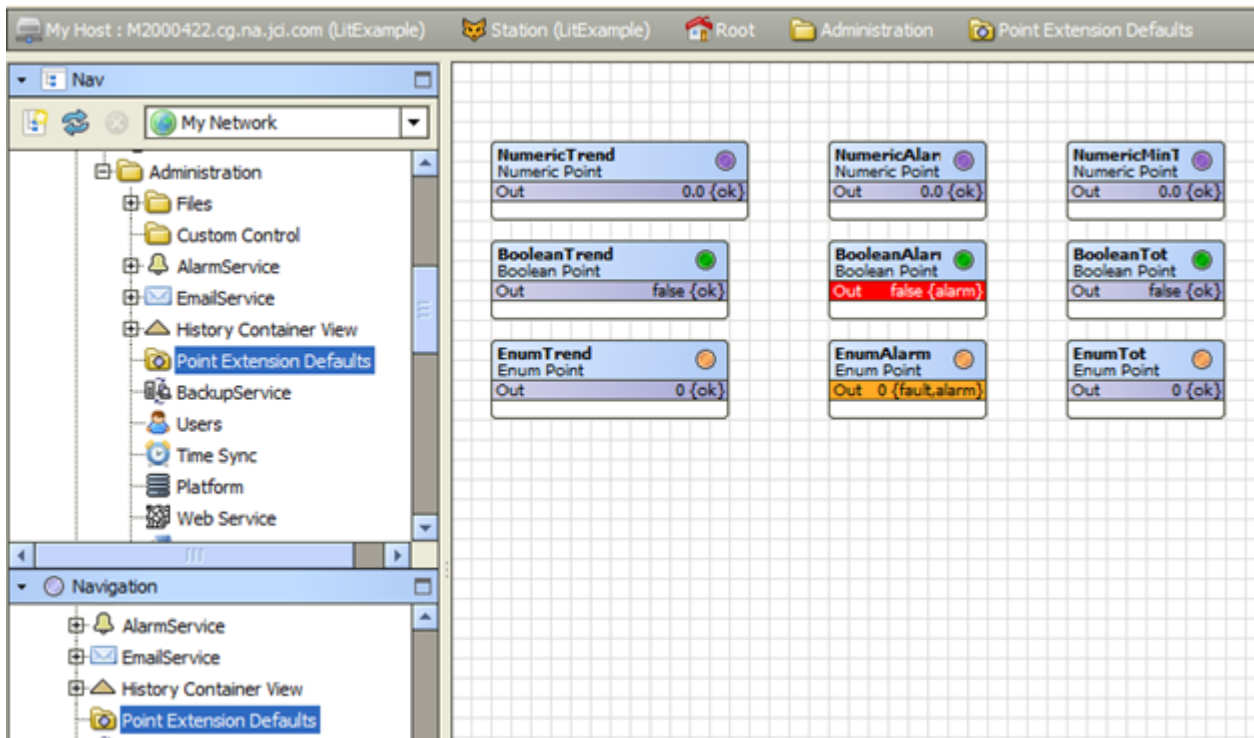


## ***Setting Point Extension Properties***

Before you add history, alarm, and totalization extensions, we recommend that you set the properties for these extensions to the most frequently used values. By configuring these values, you can save time configuring the extension properties.

1. Open the Point Extension Defaults container in the Nav side bar under Station > Root > Administration or in the Navigation side bar under Station > Administration. A wire sheet appears with the point extension components.

**Figure 149: Point Extension Defaults**



2. Double-click a point extension component. The components property sheet appears.
3. Edit the properties. Use [Table 82](#) and [Table 83](#).

**Table 82: History Extension Property Sheet**

Property	Description
Status	Read-only field that displays the current status of the history.
Fault Cause	Read-only field that displays a reason why the history extension is not working.
Enabled	Determines whether the history extension is enabled.
Active Period	Specifies the days of the week and the start and end times for history record collection.
Active	Read-only field that indicates whether the history collection is active (as defined by the Active Period parameters).
History Name	Displays the automatic naming method used by the station. The history name must be unique to both the FX Supervisory Controller and FX Server. The history name format field provides a way to automatically name histories any time a new history is created. The format %parent.name% is the default history name format and creates a name based on the parent object.
ID	Displays a unique identification for each history. The ID value is the name that was automatically created by the History Name Format or manually created in the name field or rename dialog box.
Source	Read-only field that displays the ORD of the active history extension.
Time Zone	Read-only field that displays the time zone of the active history extension.
Record Type	Displays the data that the record holds in terms of: <ul style="list-style-type: none"> <li>extension type (history)</li> <li>data type (for example, BooleanTrendRecord or NumericTrendRecord)</li> </ul>

**Table 82: History Extension Property Sheet**

Property	Description
<b>Capacity</b>	Allows you to set a finite number of records to collect or to collect an unlimited number of records. If you choose the Record Count option, an additional records field displays. In the <b>records</b> field, enter the maximum number of records that you want to save in the history database.
<b>Full Policy (Roll or Stop)</b>	Allows you to choose what to do when the Capacity number is reached. The <b>Roll</b> option drops off the oldest record to make room for the newest record. The <b>Stop</b> option causes the history to stop recording.
<b>Interval</b>	Read-only field that displays the selected collection type ( <b>regular</b> or <b>interval</b> ).
<b>System Tags</b>	Allows you to add an additional identifier (the System Tag) to a history extension. This identifier is then available for selective import or export of histories using the Niagara System History Import or Niagara System History Export option (using the System Tag Patterns). Each System Tag is separated by a semicolon. For example: NorthAmerica;Region1;Cities.
<b>ValueFacets</b>	Allows you to use the Edit Facets dialog box to choose how you want to display the logged data.
<b>Change Tolerance</b>	For COV-based collections, the amount that the monitored variable has to change to be logged as a changed value.
<b>Precision</b>	Allows you to select <b>32 bit</b> or <b>64 bit</b> options for the history data logging. <b>Note:</b> 64 bit allows a higher level of precision but consumes more memory.
<b>Min Rollover Value</b>	A number used as the starting point for calculations for cumulative logging after a rollover. Rollover occurs after a running total maximum value is reached. Select the null option if a <b>minRolloverValue</b> is unknown.
<b>Max Rollover Value</b>	The maximum value for calculations when a rollover is detected by the history logging process. Using this parameter and the <b>minRolloverValue</b> parameter helps you avoid negative numbers when logging running total data, such as energy usage.
<b>Interval</b>	For Interval-based collection, the cycle time, or how often the history parameters are checked.  <b>Note:</b> Because histories with different intervals are not compatible, a new history is created (split off from the original history) when you change this parameter.

**Table 83: Alarm Extension Properties**

Field	Description
<b>Alarm Inhibit</b>	<p>A <b>true</b> value in this field prevents alarm generation due to any transition or state change. For example, if there is a true value in this field and an <b>Offnormal</b> value is reached, a <b>toOffNormal</b> status is not communicated. When the alarm state returns to <b>Normal</b>, a <b>toNormal</b> status is also not communicated. A false value in this field prevents alarms from being inhibited (even if an Inhibit Time is set).</p> <p><b>Note:</b> The purpose of the Alarm Inhibit property is to prevent unintended alarms, such as in after-hours situations where a piece of equipment is turned off. A difference between Alarm Inhibit and Alarm Delay is that the Alarm Inhibit is a Boolean value (true/false) and may be controlled by another device (for example, an ON/OFF value of a fan).</p> <p>If the Alarm Inhibit value is set to <b>true</b>, the <b>Inhibit Time</b> property qualifies the behavior.</p>
<b>Inhibit Time</b>	<p>The value of this property affects the time that the current Alarm Inhibit state remains in effect after an Alarm Inhibit state change. For example, when an Alarm Inhibit value changes from <b>true</b> to <b>false</b>, alarm generation continues to be inhibited for the time is specified by the Inhibit Time property value. When an Alarm Inhibit value changes from <b>false</b> to <b>true</b>, alarm generation for discrete type points continues to be inhibited for three times the Inhibit Time property.</p>
<b>Alarm State</b>	<p>This field displays the current alarm state of the component: Normal, Low Limit, High Limit, or Fault.</p>
<b>Time Delay</b>	<p><b>Note:</b> Time Delay does not affect alarms generated by a Fault. There is no delay when transitioning in or out of a Fault generated alarm.</p> <p>The minimum time that an alarm condition must exist before the object alarms. The object status must meet the <b>alarm</b> criteria for a continuous period equal to or greater than defined in the Time Delay property before an alarm is generated. The general purpose of the Time Delay property is to prevent nuisance alarms caused by a momentary change in a state value (Normal, Low Limit, or High Limit). Time Delay applies to properties that transition both in and out of alarm states. Therefore, an alarm status may continue to display as Offnormal (for example) for a time equal to the Time Delay after the value has returned to Normal parameters. The Time Delay is the minimum time that a normal condition must exist before the object comes out of alarm.</p> <p><b>Note:</b> Typically, when both Alarm Delay and Alarm Inhibit properties are used, Time Delay is less (shorter) than Alarm Inhibit.</p>
<b>Time Delay to Normal</b>	<p>The minimum time that a normal condition must exist before the object returns to normal status.</p>
<b>Alarm Enable</b>	<p>Select any of the options to individually enable the generation of alarms when the following transitions occur:</p> <ul style="list-style-type: none"> <li>toOffnormal: when the offNormal event occurs</li> <li>toFault: when the Fault event occurs</li> </ul> <p><b>Note:</b> No alarms are generated unless an Alarm Enable option is selected.</p>
<b>To Offnormal Times</b>	<p>This property displays four pieces of information that are related to the time when the component status changed to Offnormal. A <b>null</b> value means that the event has not occurred.</p> <ul style="list-style-type: none"> <li>Alarm Time: The time that the To Offnormal event occurred.</li> <li>Ack Time: The time that the alarm was acknowledged.</li> <li>Normal Time: The time that the To Normal event occurred.</li> <li>Count: The total number of Offnormal events.</li> </ul>
<b>To Normal Times</b>	<p>The time that the component transitioned to a normal state.</p>

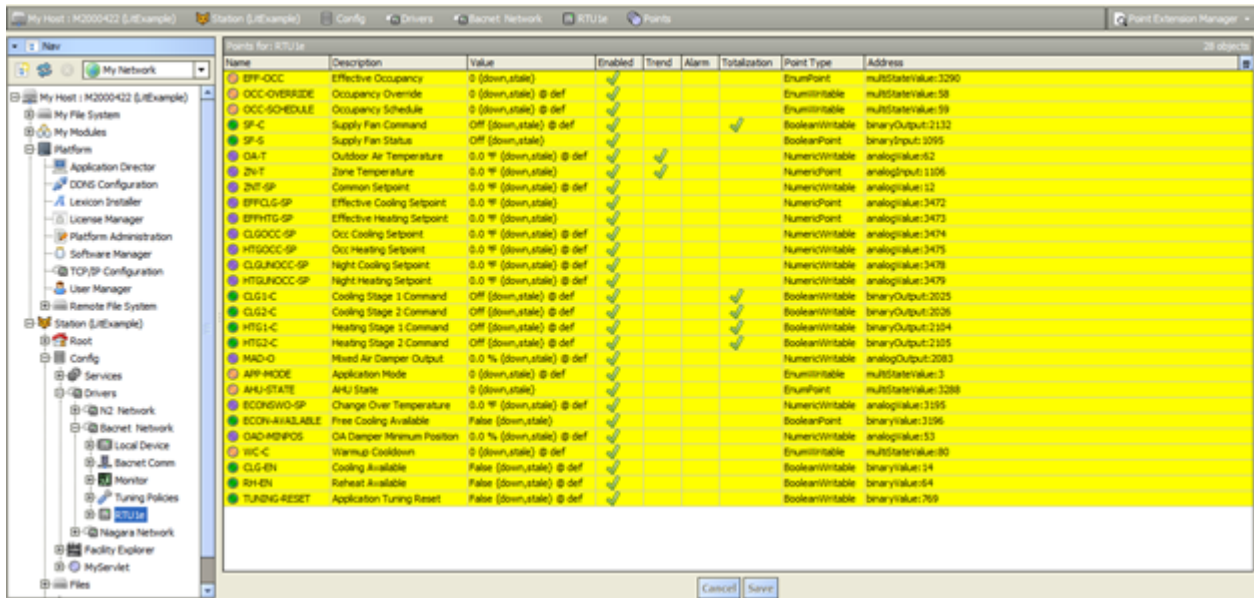
**Table 83: Alarm Extension Properties**

Field	Description
Time in Current State	The elapsed time since the component transitioned to the current state.
Source Name	The name of the alarm source. If you use the default script setting %parent.displayName%, the source name field shows the <b>display name</b> of the alarm extension parent. You can edit this script or type a literal string to display.
To Fault Text	Enter text to display when the component transitions to a Fault status. <b>Note:</b> This text may be overridden if text is entered under the <b>Fault Algorithm</b> properties <b>High Limit Text</b> or <b>Low Limit Text</b> .
To Offnormal Text	Enter text to display when the component transitions to an Offnormal (alarm) state. <b>Note:</b> This text may be overridden if text is entered under the <b>Offnormal Algorithm</b> properties <b>High Limit Text</b> or <b>Low Limit Text</b> .
To Normal Text	Enter text to appear when the component transitions to a Normal status.
Hyperlink Ord	Enter or choose an Ord, a BQL Query, or a path to a component to associate with an alarm status on the component you are configuring. When an alarm is reported in the console, the Hyperlink button is active and uses this path. Use the folder icon to browse to the file that you want to link to. Click the arrow icon to the right of the folder icon to test the Ord that you enter.
Sound File	Enter or choose the path to a sound file that executes when the current component is in an alarm state. Use the folder icon to browse to the file that you want to use. Click the arrow icon to the right of the folder icon to test the path that you enter.
Alarm Icon	Enter or choose the path to a graphic file that is added to the display in the <b>timestamp</b> column of the alarm table in the Console Recipient view. Use the folder icon to browse to the file that you want to use. Click the arrow icon to the right of the folder icon to test the path that you enter.
Fault Algorithm	Enter the fault alarm generation parameters. Options depend on the type of alarm extension. <ul style="list-style-type: none"> <li>For an Out of Range alarm extension type (for numeric points), separate <b>High Limit</b>, <b>Low Limit</b>, and <b>Deadband</b> parameters apply, along with associated limit enable properties and <b>High Limit Text</b> and <b>Low Limit Text</b> properties.</li> <li>For a Change of State alarm extension type, select an alarm value to designate the alarm state.</li> <li>For a Status alarm extension type, select the a status flag.</li> </ul>
Offnormal Algorithm	Enter the Offnormal alarm generation parameters. Options depend on the type of alarm extension. <ul style="list-style-type: none"> <li>For an Out of Range alarm extension type (for numeric points), separate <b>High Limit</b>, <b>Low Limit</b>, and <b>Deadband</b> parameters apply, along with associated limit enable properties and <b>High Limit Text</b> and <b>Low Limit Text</b> properties.</li> <li>For a Change of State alarm extension type, select an alarm value to designate the alarm state.</li> <li>For a Status alarm extension type, select a status flag.</li> </ul>
Alarm Class	Select an alarm class from the option list. The alarm class specifies the alarm routing options for this component.
Meta Data	Enter new facets using the meta data property (optional).

# Adding History Extensions Using the Point Extension Manager

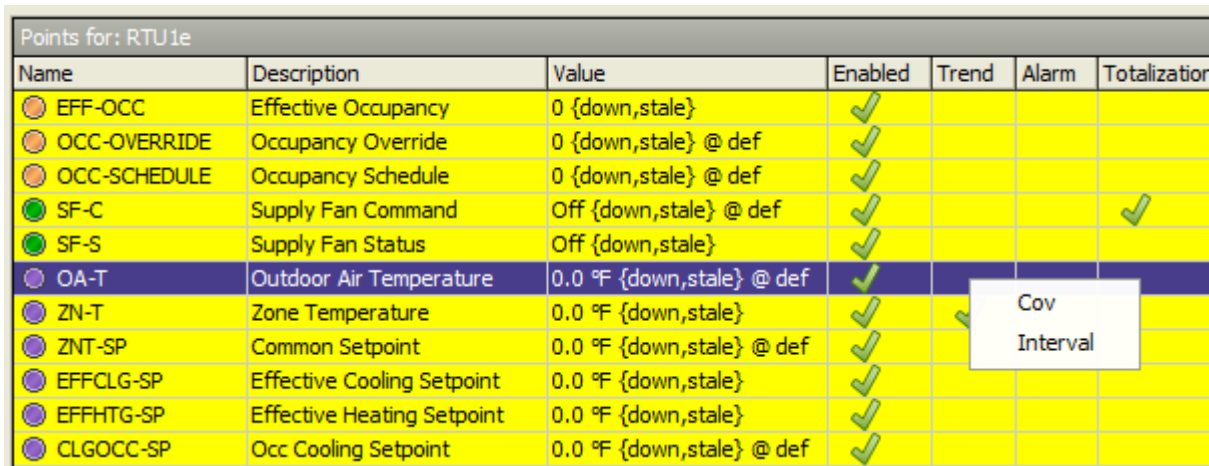
1. Display the Point Extension Manager.

Figure 150: Point Extension Manager



2. In the Point Extension Manager table view, find the point for which you want to add a history extension and click its Trend cell. A dialog box appears allowing you to select the type of history extension.

Figure 151: History Extension Type Dialog Box



3. Select the type of history extension.
- **Cov:** to collect values whenever those values change.
  - **Interval:** to collect values at specified time intervals.

A check mark appears in the cell, designating that the history extension has been added.

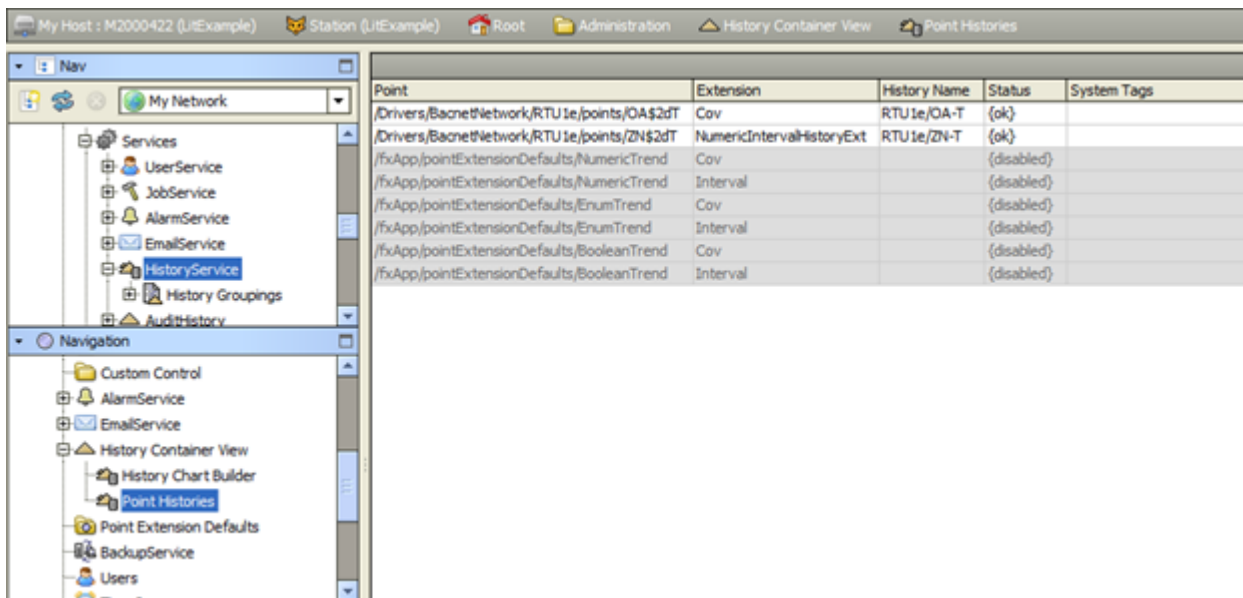
4. Repeat this process for all points to which you want to add history extensions.
5. Click Save.

## Configuring History Extensions

Each history extension has a set of properties that allows you to configure it.

1. Display the History Extension Manager, either by double-clicking the HistoryService container in the Nav side bar (under Station > Config > Services) or by double-clicking the Point Histories container in the Navigation side bar (under Station > Administration > History Container View).

**Figure 152: History Extension Manager**



Point	Extension	History Name	Status	System Tags
/Drivers/BacnetNetwork/RTU1e/points/OA\$2dT	Cov	RTU1e/OA-T	{ok}	
/Drivers/BacnetNetwork/RTU1e/points/ZN\$2dT	NumericIntervalHistoryExt	RTU1e/ZN-T	{ok}	
/fxApp/pointExtensionDefaults/NumericTrend	Cov		{disabled}	
/fxApp/pointExtensionDefaults/NumericTrend	Interval		{disabled}	
/fxApp/pointExtensionDefaults/EnumTrend	Cov		{disabled}	
/fxApp/pointExtensionDefaults/EnumTrend	Interval		{disabled}	
/fxApp/pointExtensionDefaults/BooleanTrend	Cov		{disabled}	
/fxApp/pointExtensionDefaults/BooleanTrend	Interval		{disabled}	

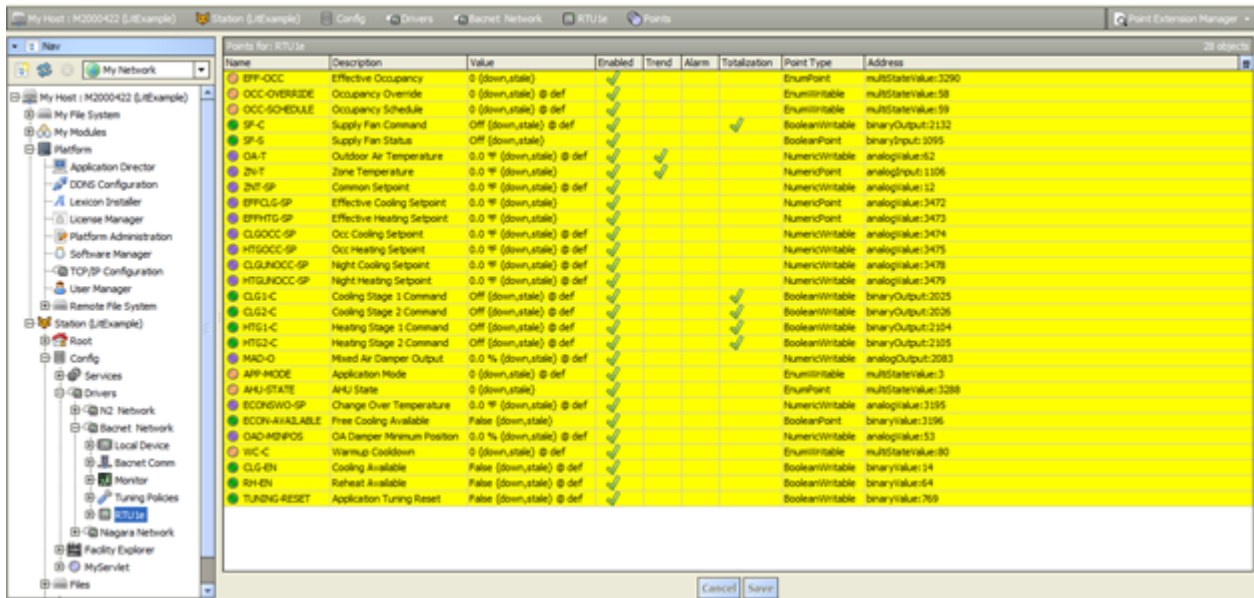
2. Double-click a history extension. The property sheet for the selected point history appears.
3. Modify the fields.
4. Click Save.



# Adding Alarm Extensions Using the Point Extension Manager

1. Display the Point Extension Manager.

Figure 153: Point Extension Manager



2. In the Point Extension Manager table view, find the point for which you want to add an alarm extension and click in its Alarm cell. A dialog box appears allowing you to select the type of history extension.

Figure 154: Alarm Extensions Type Dialog Box

Points for: All Device Networks									
Network Name	Device Name	Point Name	Value	Enabled	Trend	Alarm	Totalization	Status Flags	Point Type
Bacnet Network	RTU1e	EFF-OCC	0 {down,stale}	✓					EnumP
Bacnet Network	RTU1e	OCC-OVERRIDE	0 {down,stale} @ def	✓					EnumV
Bacnet Network	RTU1e	OCC-SCHEDULE	0 {down,stale} @ def	✓					EnumV
Bacnet Network	RTU1e	SF-C	Off {down,stale} @ def	✓			✓		Boolean
Bacnet Network	RTU1e	SF-S	Off {down,stale}	✓					Boolean
Bacnet Network	RTU1e	OA-T	0.0 °F {down,stale} @ def	✓	✓				Numeric
Bacnet Network	RTU1e	ZN-T	0.0 °F {down,stale}	✓	✓				Numeric
Bacnet Network	RTU1e	ZNT-SP	0.0 °F {down,stale} @ def	✓				Out Of Range Status	Numeric
Bacnet Network	RTU1e	EFFCLG-SP	0.0 °F {down,stale}	✓					Numeric
Bacnet Network	RTU1e	EFFHTG-SP	0.0 °F {down,stale}	✓					Numeric
Bacnet Network	RTU1e	CLGOCC-SP	0.0 °F {down,stale} @ def	✓					Numeric
Bacnet Network	RTU1e	HTGOCC-SP	0.0 °F {down,stale} @ def	✓					Numeric
Bacnet Network	RTU1e	CLGUNOCC-SP	0.0 °F {down,stale} @ def	✓					Numeric
Bacnet Network	RTU1e	HTGUNOCC-SP	0.0 °F {down,stale} @ def	✓					Numeric

3. Select the type of alarm extension. Use [Table 84](#) as a reference. A check mark appears in the cell, indicating that the alarm extension has been added.

**Table 84: Alarm Extension Types**

Dialog Option	Alarm Extension Type	Applies to Point Type	Functionality
<b>Out of Range</b>	OutOfRangeAlarmExt	NumericPoint and NumericWritable	Provides alarming based upon numeric alarm high and low limits. Includes configurable deadband.
<b>Change of State</b>	BooleanChangeOfStateAlarmExt	BooleanPoint and BooleanWritable	Provides alarming based upon one of two possible values (state) as an alarm condition.
	EnumChangeOfStateAlarmExt	EnumPoint and EnumWritable	Provides alarming based upon one of two possible values (state) as an alarm condition.
<b>Command Failure</b>	BooleanCommandFailureAlarmExt	BooleanWritable	Provides alarming based on mismatch between commanded value and actual (sensed) value. Extension has feedbackValue input property for linking.
	BooleanCommandFailureAlarmExt	EnumWritable	Provides alarming based on mismatch between commanded value and actual (sensed) value. Extension has feedbackValue input property for linking.
<b>Status</b>	StatusAlarmExt	Any type that accepts extensions	Provides alarming based upon any combination of status flags, including overridden, null, and so on.

4. Repeat this process for all points to which you want to add alarm extensions.
5. Click Save.

## Configuring Alarm Extensions

Each alarm extension has a set of properties that let you configure it independently.

1. Display the Alarm Extension Manager, either by double-clicking the AlarmService container in the Nav side bar (under Station > Config > Services) and then changing the view with the View Selector or by double-clicking the Alarm Service container in the Navigation side bar (under Station > Administration > Alarm Service).

Figure 155: Alarm Extension Manager

Point	Extension	Alarm State	toOffNormal Enabled	toFault Enabled	Alarm Class	Instructions
Drivers/BackendNetwork/RTUUse/points/2h-T	Out Of Range	Normal	true	true	Default Alarm Class	
\\AppointExtensionDefaults/BrumAlarm	ChangeOfState	Fault	true	true	Default Alarm Class	
\\AppointExtensionDefaults/BrumAlarm	CommandFailure	Fault	true	true	Default Alarm Class	
\\AppointExtensionDefaults/BrumAlarm	Status	Normal	true	true	Default Alarm Class	
\\AppointExtensionDefaults/BrumAlarm	ChangeOfState	Fault	true	true	Default Alarm Class	
\\AppointExtensionDefaults/BooleanAlarm	CommandFailure	Normal	true	true	Default Alarm Class	
\\AppointExtensionDefaults/BooleanAlarm	Status	Normal	true	true	Default Alarm Class	
\\AppointExtensionDefaults/NumericAlarm	OutOfRange	Normal	true	true	Default Alarm Class	
\\AppointExtensionDefaults/NumericAlarm	Status	Normal	true	true	Default Alarm Class	

2. Double-click the alarm extension that you want to configure. The property sheet for the selected alarm extension appears.
3. Modify the fields. Use [Table 84](#) as reference.
4. Click Save.

## Adding Totalization Extensions Using the Point Extensions Manager

1. Display the Point Extension Manager.

Figure 156: Point Extensions Manager

Name	Description	Value	Enabled	Trend	Alarm	Totalization	Point Type	Address
EPF-OC	Effective Occupancy	0 (down_state) @ def	✓				BrumPoint	multistateValue:3290
OC-OC-REDE	Occupancy Override	0 (down_state) @ def	✓				BrumPoint	multistateValue:58
OC-SCHEDULE	Occupancy Schedule	0 (down_state) @ def	✓				BrumPoint	multistateValue:59
SP-C	Supply Fan Command	Off (down_state) @ def	✓			✓	BooleanPoint	binaryOutput:2132
SP-S	Supply Fan Status	Off (down_state) @ def	✓				BooleanPoint	binaryInput:1095
OA-T	Outdoor Air Temperature	0.0 °F (down_state) @ def	✓	✓			NumericPoint	analogInput:62
2h-T	Zone Temperature	0.0 °F (down_state) @ def	✓				NumericPoint	analogInput:1106
2h-T-SP	Common Setpoint	0.0 °F (down_state) @ def	✓				NumericPoint	analogInput:12
EPF-CG-SP	Effective Cooling Setpoint	0.0 °F (down_state) @ def	✓				NumericPoint	analogInput:3472
EPF-HG-SP	Effective Heating Setpoint	0.0 °F (down_state) @ def	✓				NumericPoint	analogInput:3473
CLG-OC-SP	Occ Cooling Setpoint	0.0 °F (down_state) @ def	✓				NumericPoint	analogInput:3474
HTG-OC-SP	Occ Heating Setpoint	0.0 °F (down_state) @ def	✓				NumericPoint	analogInput:3475
CLG-NOCC-SP	Night Cooling Setpoint	0.0 °F (down_state) @ def	✓				NumericPoint	analogInput:3476
HTG-NOCC-SP	Night Heating Setpoint	0.0 °F (down_state) @ def	✓				NumericPoint	analogInput:3477
CLG1-C	Cooling Stage 1 Command	Off (down_state) @ def	✓			✓	BooleanPoint	binaryOutput:2025
CLG2-C	Cooling Stage 2 Command	Off (down_state) @ def	✓			✓	BooleanPoint	binaryOutput:2026
HTG1-C	Heating Stage 1 Command	Off (down_state) @ def	✓			✓	BooleanPoint	binaryOutput:2104
HTG2-C	Heating Stage 2 Command	Off (down_state) @ def	✓			✓	BooleanPoint	binaryOutput:2105
MAQ-O	Mixed Air Damper Output	0.0 % (down_state) @ def	✓				NumericPoint	analogOutput:2083
APP-MODE	Application Mode	0 (down_state) @ def	✓				BrumPoint	multistateValue:3
AKJ-STATE	AKJ State	0 (down_state) @ def	✓				BrumPoint	multistateValue:1288
ECON-AVAIL-SP	Change Over Temperature	0.0 °F (down_state) @ def	✓				NumericPoint	analogInput:1195
ECON-AVAILABLE	Free Cooling Available	False (down_state) @ def	✓				BooleanPoint	binaryValue:1196
GAQ-MINPOS	OA Damper Minimum Position	0.0 % (down_state) @ def	✓				NumericPoint	analogInput:53
WIC-C	Warmup Cutdown	0 (down_state) @ def	✓				BrumPoint	multistateValue:80
CLG-EN	Cooling Available	False (down_state) @ def	✓				BooleanPoint	binaryValue:14
RH-EN	Reheat Available	False (down_state) @ def	✓				BooleanPoint	binaryValue:64
TUNING-RESET	Application Tuning Reset	False (down_state) @ def	✓				BooleanPoint	binaryValue:769

2. In the Point Extension Manager table view, find the point for which you want to add a totalization extension and click in its Totalization cell. A dialog box appears allowing you to select the type of totalization extension.

Figure 157: Totalization Extension Type Dialog

Points for: All Device Networks									
Network Name	Device Name	Point Name	Value	Enabled	Trend	Alarm	Totalization	Status Flags	Point Type
Bacnet Network	RTU1e	EFF-OCC	0 {down,stale}	✓					EnumPoint
Bacnet Network	RTU1e	OCC-OVERRIDE	0 {down,stale} @ def	✓		✓			EnumWritable
Bacnet Network	RTU1e	OCC-SCHEDULE	0 {down,stale} @ def	✓					EnumWritable
Bacnet Network	RTU1e	SF-C	Off {down,stale} @ def	✓			✓		BooleanWritable
Bacnet Network	RTU1e	SF-S	Off {down,stale}	✓					BooleanPoint
Bacnet Network	RTU1e	OA-T	0.0 °F {down,stale} @ def	✓	✓				NumericWritable
Bacnet Network	RTU1e	ZN-T	0.0 °F {down,stale}	✓	✓	✓			NumericPoint
Bacnet Network	RTU1e	ZNT-SP	0.0 °F {down,stale} @ def	✓					NumericWritable
Bacnet Network	RTU1e	EFFCLG-SP	0.0 °F {down,stale}	✓					NumericPoint
Bacnet Network	RTU1e	EFFHTG-SP	0.0 °F {down,stale}	✓					NumericPoint
Bacnet Network	RTU1e	CLGOCC-SP	0.0 °F {down,stale} @ def	✓					NumericWritable
Bacnet Network	RTU1e	HTGOCC-SP	0.0 °F {down,stale} @ def	✓					NumericWritable
Bacnet Network	RTU1e	CLGUNOCC-SP	0.0 °F {down,stale} @ def	✓					NumericWritable
Bacnet Network	RTU1e	HTGUNOCC-SP	0.0 °F {down,stale} @ def	✓					NumericWritable
Bacnet Network	RTU1e	CLG1-C	Off {down,stale} @ def	✓				Discrete	BooleanWritable
Bacnet Network	RTU1e	CLG2-C	Off {down,stale} @ def	✓					BooleanWritable
Bacnet Network	RTU1e	HTG1-C	Off {down,stale} @ def	✓					BooleanWritable
Bacnet Network	RTU1e	HTG2-C	Off {down,stale} @ def	✓					BooleanWritable
Bacnet Network	RTU1e	MAD-O	0.0 % {down,stale} @ def	✓					NumericWritable
Bacnet Network	RTU1e	APP-MODE	0 {down,stale} @ def	✓					EnumWritable
Bacnet Network	RTU1e	AHU-STATE	0 {down,stale}	✓					EnumPoint
Bacnet Network	RTU1e	ECONSWO-SP	0.0 °F {down,stale} @ def	✓					NumericWritable
Bacnet Network	RTU1e	ECON-AVAILABLE	False {down,stale}	✓					BooleanPoint

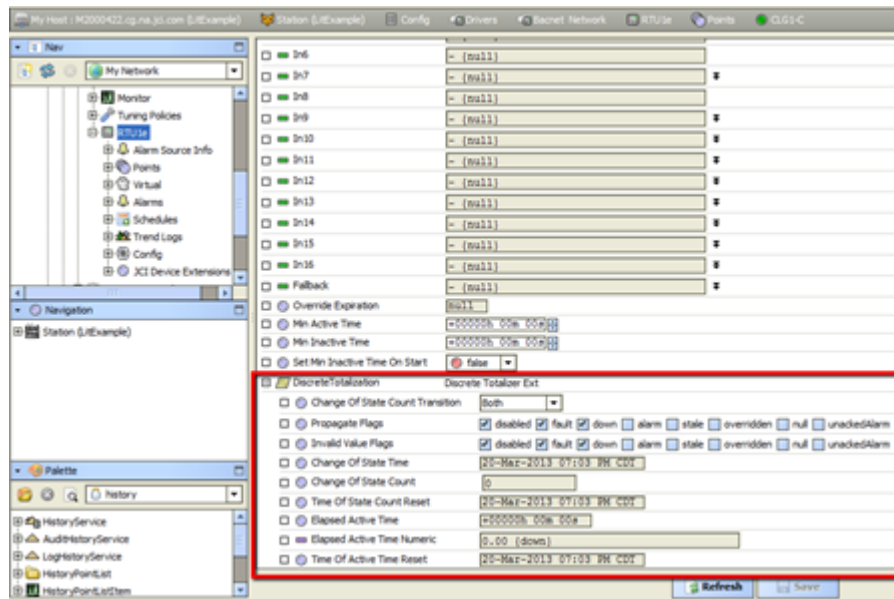
- Select the type of totalization extension.
  - Discrete: accumulates runtime and change of state (COS) counts.
  - Numeric: accumulates a numeric total using hourly or minutely totalization.
- A check mark appears in the cell, indicating that the totalization extension has been added.
- Repeat this process for all points to which you want to add totalization extensions.
- Click Save.

## Configuring Totalization Extensions

Each totalization extension has a set of properties that lets you configure it independently.

1. In the Point Extension Manager, double-click the point with the totalization extension you want to configure. The point's property sheet appears.
2. Expand the points totalization extension to show its configuration properties.

Figure 158: Expanded Totalization Extension



3. Double-click the alarm extension that you want to configure. The property sheet for the selected alarm extension appears.
4. Modify the properties.
5. Click Save.

## Inheriting Status Flags

The BACnet protocol provides for native **abnormal status** of data objects, which Niagara can learn about from the Status\_Flags property of a BACnet object. Possible abnormal BACnet Status\_Flags include the following:

- **IN\_ALARM**: appears as {alarm} in Niagara
- **FAULT**: appears as {fault} in Niagara
- **OVERRIDDEN**: appears as {overridden} in Niagara
- **OUT\_OF\_SERVICE**: appears as {disabled} in Niagara

Starting in Niagara<sup>AX</sup> 3.2, only the single selected property of the BACnet object is polled by default for any BACnet proxy point. For example, if you add a proxy point for a Binary Input object and select **presentValue** as its Property ID, by default, **presentValue** is the only value polled in the source object. If this BACnet object were to have a native **in\_alarm** status, you would have no indication in Niagara. You would see only the Niagara point status, such as **ok**.

If needed, you can edit the point facets of any BACnet proxy point to include additional properties (beyond the configured property) for polling—one of which could be **statusFlags**.

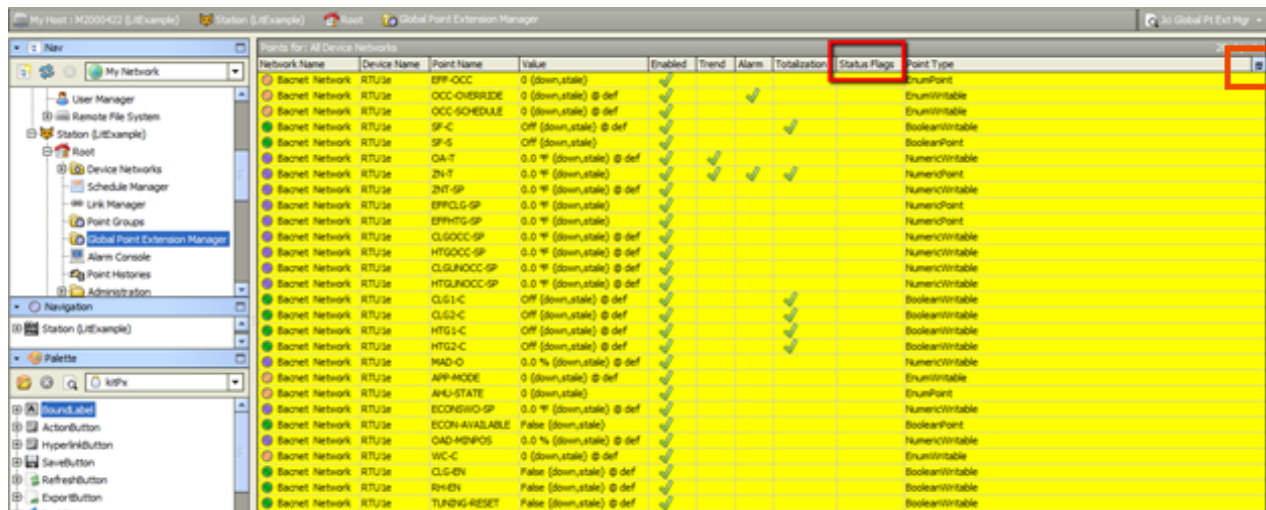
If **status flags** are added to a point's facets, a **status merger** with Niagara point status occurs.

Instructions for configuring the point facets to include polling status flags are found in the Niagara<sup>AX</sup> BACnet Guide. However, the Point Extension Manager provides an easy, check-the-box mechanism for you to configure the point facets to include polling status flags.

## ***Adding Polling to BACnet Controller Points' Status Flag Through Point Extension Manager***

1. Display the Point Extension Manager.

### Figure 159: Point Extension Manager



2. To expose the status flag, select the Options button in the far right of the column headers. Select Status Flags in the drop-down list. A check mark appears in the list, and the Status Flags column is added to the Point Extension Manager view.

The Status Flags column is normally hidden.

3. In the Point Extension Manager table view, find the point for which you want to inherit its status flags and click in its Status Flags cell.
4. Click Save.

## Assigning a Tuning Policy or Poll Frequency Group to an N2 Point

By default, the Tuning Policy and Poll Frequency columns are hidden in the Point Extension Manager. To assign a tuning policy or poll frequency to a point, you need to add the columns to the Point Extension Manager.

**Note:** You can add the Tuning Policy and Poll Frequency columns **only** from the device Point Extension Manager. They are not available in the Global Point Extension Manager.

1. In the Navigation Tree, double-click the desired N2 device.
2. On the menu on the top-right side of the screen, select Point Extension Manager. The Point Extension Manager appears. By default, the Tuning Policy and Poll Frequency columns are hidden.
3. In the far top right of the screen, click the arrow button next to the columns. A menu appears.
4. Select Tuning Policy and Poll Frequency. The columns appear on the screen with the Tuning Policy currently associated with each point displayed for the tuning policy and Normal for Poll Frequency.
5. In the Tuning Policy and Poll Frequency columns, click in the cell or cells for the points you want to change and select the tuning policy or poll frequency you want from the list.
6. Click Save.

## Assigning a Tuning Policy to a BACnet Point

By default, the Tuning Policy column is hidden in the Point Extension Manager. To assign a tuning policy to a point, you need to add the Tuning Policy column to the Point Extension Manager.

**Note:** You can add the Tuning Policy column **only** from the device Point Extension Manager. The Tuning Policy column is not available in the Global Point Extension Manager.

1. In the Navigation Tree, double-click the desired BACnet device.
2. On the menu on the top-right side of the screen, select Point Extension Manager. The Point Extension Manager appears. By default, the Tuning Policy column is hidden.
3. In the far top right of the screen, click the arrow button next to the columns. A menu appears.
4. Select Tuning Policy. The Tuning Policy column appears on the screen with the Tuning Policy currently associated with each point displayed.
5. In the Tuning Policy column, click in the cell or cells for the points you want to change and select the tuning policy you want from the list.
6. Click Save.



# Schedule Manager

Use the Schedule Manager to determine activities such as building occupancy and the start and stop times of HVAC equipment based on regular, repeating, or unique events.

Schedule configuration in Niagara is performed by adding schedule components to a station and linking them to control other components. Schedule components are found in the schedule palette, and each schedule component has a scheduler view, which you use to define events.

The Schedule Manager is a feature unique to the Johnson Controls FX Workbench, and provides an easy way for you to:

- add schedule components to a station
- organize multiple schedules into a single location
- link the schedule component outputs to other station components (writable points)

Three types of schedule components can be added and configured with the Schedule Manager:

- Weekly Schedules
- Calendar Schedules
- Triggers Schedules

This section describes how to add and configure schedules using the Schedule Manager.

## Working with Weekly Schedules

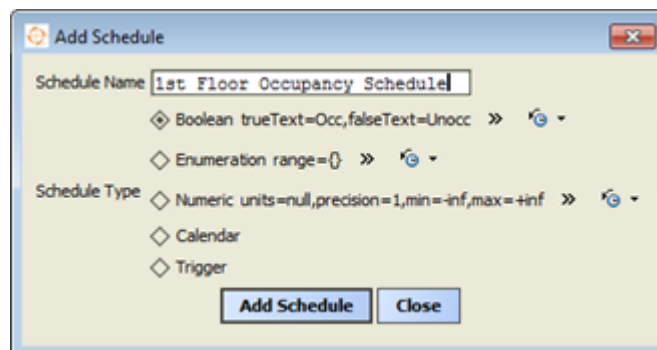
Weekly schedules define regular, repeating events by **time-of-day** and **day-of-week**. Weekly schedules also include any number of **special events** that are configurable. Typically, weekly schedules are the most frequently used schedule components. Four different types of weekly schedules are available, based on their data category (Boolean, numeric, enum, and string). Each schedule is identical except for input/output.

## Adding a Weekly Schedule Using the Schedule Manager

Use the Schedule Manager to create a new weekly schedule. When you add a schedule using the Schedule Manager, you also define the Schedule component's facets. Facets determine how its output value is formatted for display. For example, instead of **true** and **false** for a BooleanSchedule, you may need On and Off instead. Assigned facets appear in scheduler views when adding events, displaying summary data, and so on. Facets are especially important for EnumSchedules. You need to define **range** facets before you add weekly schedule events (in order to pick an event's enumerated value). Range facets should match those used in any controlled (output-linked) EnumWritables. You can also define the facets after adding the schedule by using the Properties tab of the Schedule view. See the [Configuring Schedule Properties](#) section.

1. Display the Schedule Manager by double-clicking the Schedule Manager in the Navigation side bar (under the Station container) or Nav side bar (under the Station > Root container).
2. Click New Schedule. The Add Schedule dialog box appears.

Figure 160: Adding Schedule Screen



3. Enter the desired name of the schedule.



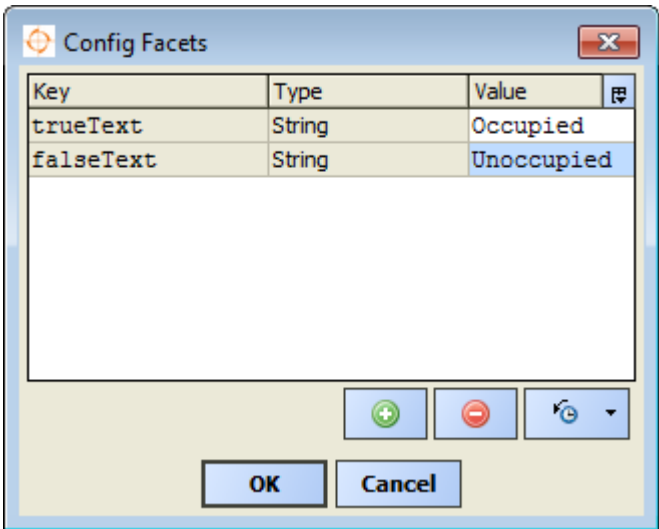
4. Select the desired weekly schedule type. Use [Table 85](#) as a reference.

**Table 85: Weekly Schedule Types**

Schedule Type	Description
<b>Boolean</b>	Allows you to schedule control over BooleanWritable points, which are typically proxy points with 2 states.  For example, equipment mode (Off/On) or occupancy (Unoccupied/Occupied).
<b>Enumeration</b>	Allows you to schedule control over EnumWritable points, which are typically proxy points with multiple states.  For example, equipment mode (Off/On/Heating/Cooling/Auto) or occupancy (Unoccupied/Occupied/Bypass/Standby).
<b>Numeric</b>	Allows you to schedule control over NumericWritable points, which are typically proxy points of network variables.  For example, setpoints or limits.

5. Define the schedule facets to match the linked components (BooleanWritable or EnumWritable points). The procedure to define the schedule facets depends on the type of schedule you select. Use [Table 86](#) as a reference to define schedule facets:

**Table 86: Procedure for Defining Schedule Facets**

Schedule Type	Procedure
Boolean	<p>a. Click the facets control (&gt;&gt;). The Config Facets editor dialog appears.</p>  <p>b. Enter the desired facet value for the trueText key and falseText key. Be sure to match the schedule facets with the facets of the controlled components.</p> <p>c. Click OK.</p>
Enumeration	<p>a. Click the facets control (&gt;&gt;). The Config Facets editor dialog box appears.</p> <p>b. Click in the Value field.</p> <p>c. Click the facets control (&gt;&gt;). The Enum dialog box appears.</p> <p>d. Manually define each ordinal and state value, or click on Use Frozen Enum in Range and select the desired range from the list. Make sure to match the schedule facets with the facets of the controlled components.</p> <p><b>Note:</b> For FX-PC controller's Occupancy Schedule network input, choose the frozen enum set jciSupport:JciBACnetOccupancyScheduleEnum</p> <p>e. Click OK.</p>
Numeric	<p>a. Click the facets control (&gt;&gt;). The Config Facets editor dialog appears.</p> <p>b. Select the desired units, precision, and min/max range.</p> <p>c. Click OK.</p>

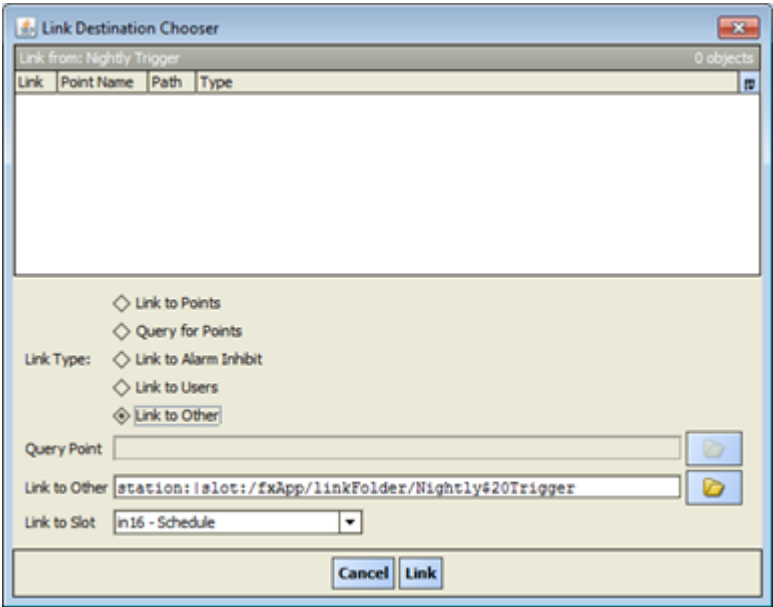
6. Click Add Schedule. The Schedule Manager displays the newly created weekly schedule in its Schedule List.
7. Repeat this procedure as needed to add all desired schedules.

### Linking a Weekly Schedule to Components Using the Schedule Manager

To complete the add schedule process, you link the output of the Schedule component to the inputs of other station components (usually, writable points). You can link the output (Out slot) of a Schedule to any component with a like Status<Type> input. For example, you might link the output of a Boolean Schedule to a Boolean Writable point.

- 1. Display the Schedule Manager by double-clicking the Schedule Manager in the Navigation side bar (under the Station container) or Nav side bar (under the Station > Root container).
- 2. In the Schedule List section of the Schedule Manager, select the Schedule you want to link.
- 3. Click New Link. The Link Destination Chooser dialog appears [Figure 161](#) and lists the components available for you to assign to the selected schedule.

Figure 161: Link Destination Chooser Dialog Box



**Note:** The Link Destination Chooser dialog box only displays writable components and for the type of the schedule you select. For example, if you select an Enumeration schedule, then FX Workbench only displays Enum Writable points.

- 4. Find the components you want to link to the Schedule. Use [Table 87](#) as a reference to help you find the desired components: You can sort the table by clicking the column headers.

**Table 87: Link Destination Chooser Guidelines**

Field	Entry/Selection Guidelines
<b>Link to Points</b>	<p>Select this option to display a list of writable points in the station that are available to assign to the selected Schedule. You can sort the list by selecting the table headers.</p> <p><b>Note:</b> The Link Destination Chooser dialog displays only writable points of the same type as the Schedule. For example, if you select an Enumeration Schedule, then the Link Destination Chooser only allows you to choose EnumWritable points.</p>
<b>Query for Points</b>	<p>Select this option to query for points you want to assign to the Schedule. Select the folder icon next to Query Point. The Bql Query Builder appears. Use the Bql Query Builder to define the search instructions for the points you want to find and add. The <b>In:</b> field allows you to define where to start searching in the nav tree. The <b>Of Type</b> field lets you filter your search by type of component. The <b>Match</b> field works with the <b>plus</b> to filter objects using search criteria. For more information about how to use the Bql Query Builder, refer to About the Bql Query Builder in the Niagara Drivers Guide.</p>
<b>Link to Alarm Inhibit</b>	<p>Select this option to display a list of Alarm Source Extensions you want to assign to the Schedule. Use this option to link a schedule to the alarm inhibit slot of an alarm extension. Linking a schedule to an alarm inhibit allows you to allow/inhibit alarms from being generated based on a time schedule. For example, you can prevent space temperature out-of-range alarms from being generated during unoccupied periods.</p>
<b>Link to Users</b>	<p>Select this option to schedule a user's access. This option is valid only if the User property Allow Scheduled Access has been set to <b>true</b>. Use <a href="#">Table 96</a> for more information.</p>
<b>Link to Other</b>	<p>Select this option if you know the name and location of the specific Ord of the component you want to assign to the schedule. Select the folder next to Link to Other field. The Select Ord dialog appears, allowing you to navigate the station structure and specifically choose the component you want to link to the schedule.</p>

- If necessary, select a different priority level to assign the schedule from the Link to Slot list. The default priority level is In16.
- Click Link.

### Deleting a Linked Component from a Schedule using Schedule Manager

- In the Schedule List section of the Schedule Manager, select the desired Schedule.
- In the Links for section, select the link you want to delete.
- Click Delete Link.

### Deleting a Schedule Using the Schedule Manager

- In the Schedule List section of the Schedule Manager, select the schedule you want to delete.
- Click Delete Schedule

### Configuring the Weekly Schedule

You configure the schedule by first configuring the Weekly Schedule to enter regular schedule events. Regular schedule events are events that repeat from week to week, based on the day of the week and the time of day. Then configure the Special Events.

- Display the Schedule Manager by double-clicking the Schedule Manager in the Navigation side bar (under the Station container) or Nav side bar (under the Station>Root container).

2. In the Schedule List section of the Schedule Manager, double-click the schedule you want to configure. The Scheduler view appears. The default tab of the Scheduler view is the Weekly Schedule.

**Figure 162: Weekly Schedule Tab**

	Sun	Mon	Tue	Wed	Thu	Fri	Sat
3:00 AM	Null	Null	Null	Null	Null	Null	Null
6:00 AM							
9:00 AM							
12:00 PM							
3:00 PM							
6:00 PM							
9:00 PM							

Event Start: 12:00 AM  
 Event Finish: 12:00 AM  
 Event Output: ☐ null ☒ occupied

Weekly Schedule | Special Events | Properties | Summary

Save Refresh

3. To add a new event, click in the day at the approximate event start time and drag down to define the approximate finish event time. To fine tune to a specific time, enter the times in the Event Start and Event Finish fields.
4. With the event highlighted, select the output value associated to that event. If this is a Boolean schedule or an Enumeration schedule, select the event output value from the drop-down menu. If this is a Numeric schedule, type the output value and press Enter. To make the event null schedule, select the Null check box.
5. Repeat for all other days of the week.

**Note:** Right-clicking in the weekly schedule area displays an event menu. The menu options are straightforward, and may include the following:

- **Delete Event:** This option deletes the selected event.
- **Paste Day:** This option appears only if copy day option was used first. This option copies all events into the selected day.
- **All Day Event:** This option makes the currently selected (or last entered) event extend to entire day.
- **Apply M-F:** This option copies all events in the selected day to Mon, Tue, Wed, Thu, and Fri (and overwrites any existing events on those days).
- **Copy Day:** This option copies all events in the selected day to use with the Paste Day option.
- **Clear Day:** This option clears all events in the selected day.
- **Clear Week:** This option clears all events in the entire weekly schedule.

6. Click Save.

## Configuring Special Events

Use the Special Events tab to enter all exceptions to the weekly schedule. For example, you can enter Christmas\_Break or Half\_Day as a special event.

## Adding a Special Event

1. In the Schedule View, click the Special Events tab at the bottom of the screen.

**Figure 163: Special Events Tab**

The screenshot displays the 'Special Events' tab in a software interface. At the top, there are navigation buttons: 'Prev Page', 'Prev Month', 'Today', 'Next Month', and 'Next Page'. Below these are five monthly calendars for March, April, May, June, and July 2013. Each calendar shows days of the week (s, m, t, w, t, f, s) and dates. The 'Today' button is highlighted. Below the calendars is a large text area for event details, with tabs for 'Name' and 'Summary'. To the right of this area is a sidebar with a list of time slots (3:00 AM, 6:00 AM, 9:00 AM, 12:00 PM, 3:00 PM, 6:00 PM, 9:00 PM) and input fields for 'Event Start', 'Event Finish', and 'Event Output'. At the bottom of the interface are buttons for 'Add', 'Edit', 'Priority', 'Rename', 'Delete', 'Save', and 'Refresh'.

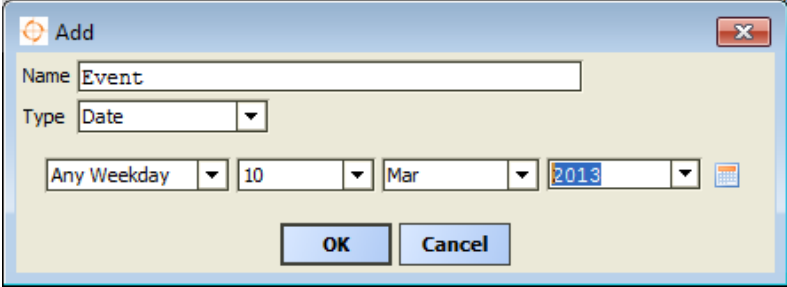
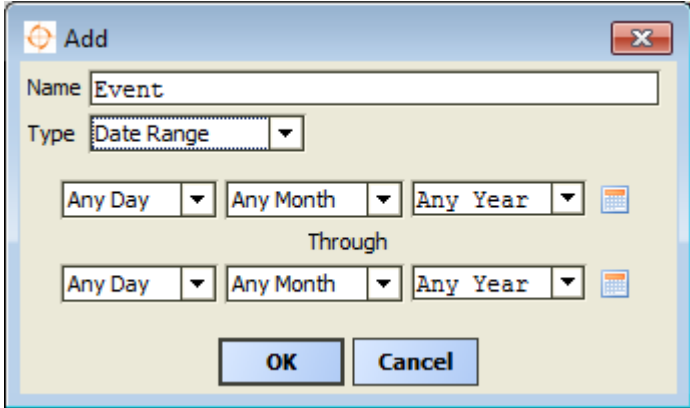
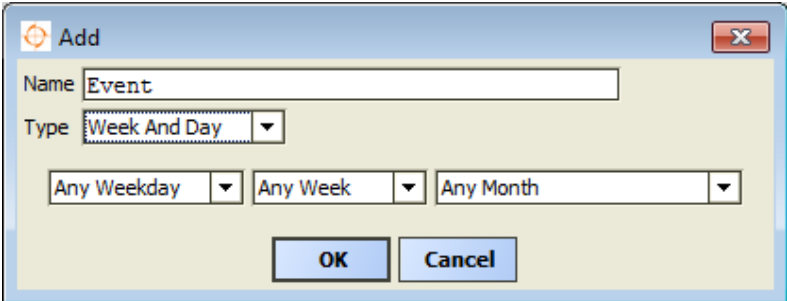
2. Click Add. The Add dialog box appears.

**Figure 164: Add Dialog Box**

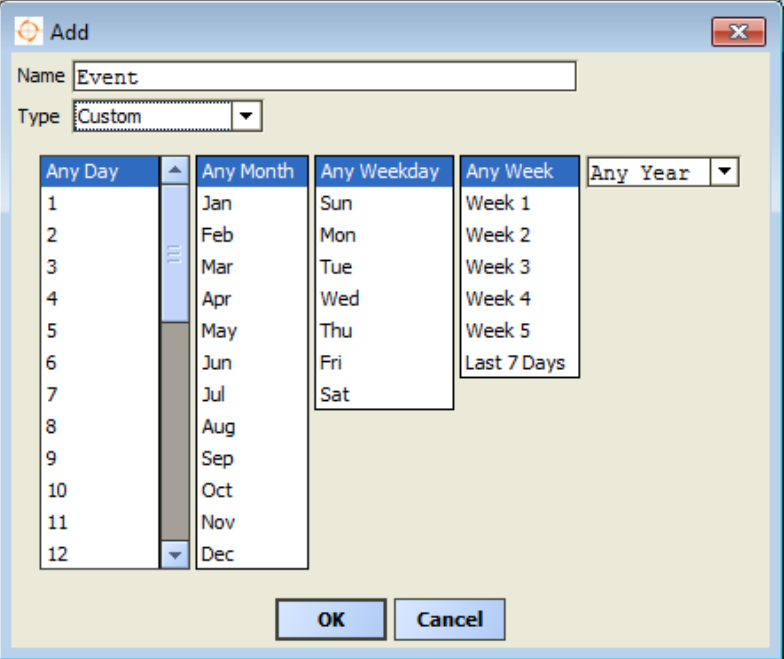
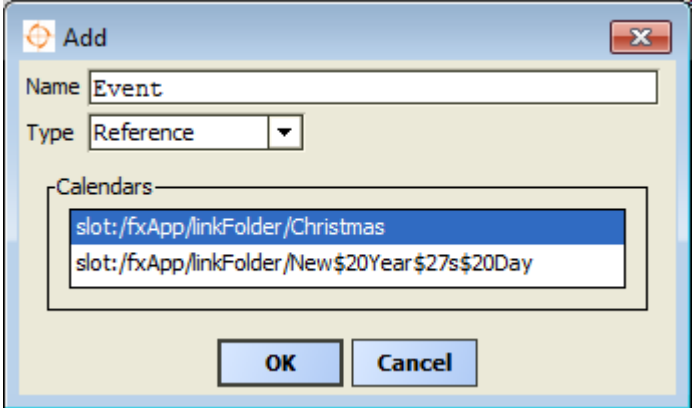
The screenshot shows the 'Add' dialog box. It has a title bar with an 'Add' icon and a close button. Inside, there is a 'Name' field with the text 'Event'. Below it is a 'Type' dropdown menu set to 'Date'. Underneath the dropdown is a date selector with four dropdown menus: 'Any Weekday', '10', 'Mar', and '2013'. At the bottom of the dialog are 'OK' and 'Cancel' buttons.

3. In the Name field, enter a descriptive name for the special event, for example, Christmas\_Break or Half\_Day. The default value is Event. You can change this later, if needed.
4. In the Type field, enter the desired selection criteria for day or days. [Table 88](#) describes the available choices.

**Table 88: Entry/Selection Choices for Special Event Types**

Special Event Type Choice	Description
<b>Date</b>	<p>Choose <b>Date</b> to select by various combinations of weekday, numerical date, month or month combinations, and year.</p> 
<b>Date Range</b>	<p>Choose <b>Date Range</b> to select by start and end range, using for each a combination of day, month, and year.</p> 
<b>Week and Day</b>	<p>Choose <b>Week and Day</b> to select by combinations of day of week and week in month.</p> 

**Table 88: Entry/Selection Choices for Special Event Types**

Special Event Type Choice	Description
<p><b>Custom</b></p>	<p>Choose <b>Custom</b> to select by various combinations of day, month, weekdays, and year.</p> 
<p><b>Reference</b></p>	<p>Choose <b>Reference</b> to select by referencing a specific CalendarSchedule component already defined in the station.</p> 

- After you have a name and type selected (and defined as needed), click OK to add it to this schedule's special events. It remains selected for further editing, except for type.
- Click Save.



### Defining Newly Created Special Events

1. With the special event name selected, click in the right-side events column and enter events as desired. The Event Start, Event Finish, and Event Output controls work the same as in the Weekly Schedule tab.

Figure 165: Configuring a Special Event

Name	Summary
Christmas	Date: 25 Dec

Unoccupied

3:00 AM  
6:00 AM  
9:00 AM  
12:00 PM  
3:00 PM  
6:00 PM  
9:00 PM

Event Start 12:00 AM  
Event Finish 12:00 AM  
Event Output null Unoccupied

+ Add + Edit

2. Click Save.

### Special Event Priorities

If you have more than one special event defined, you can define relative priorities by the order of their listing in the Special Events table. The highest priority is at top of list. Events in this special event, when active, always occur. Lowest priority is at bottom of list. Events occur only if not overlapped by other special events active during the same period.

Change a special event's priority by selecting it and using the priority arrow buttons.

Figure 166: Changing Special Event Priorities

Name	Summary
New Year's Day	Date: 1 Jan
Christmas	Date: 25 Dec

+ Add + Edit Priority Priority Rename Delete

## Configuring Schedule Properties

The Properties tab in the Weekly Schedule view is where you specify the schedule's effective period, default output, and facets, and it is also where you clean up special events action.

### Changing the Schedule's Effective Period

By default, a weekly schedule added via the Schedule Manager is always effective. Whenever a schedule component is not effective, its output (Out slot) goes to its default output value, regardless of its weekly schedule or any special events.

1. In the Schedule View, click the Properties tab at the bottom of the screen.

Figure 167: Properties Tab

Effective Period

Prev Page Prev Month Today Next Month Next Page

Mar 2013 Apr 2013 May 2013 Jun 2013

Any Day Any Month Any Year

Through

Any Day Any Month Any Year

Default Output ☒ null 0

Facets range=jdSupport:3dBAcnetOccupanyScheduleEnum >> [icon]

Cleanup Special Events ☒ true

Weekly Schedule Special Events **Properties** Summary

2. Use the **start** through **end** range fields to limit the effective period.

Figure 168: Start and End Range Fields

Any Day Any Month Any Year

Through

Any Day Any Month Any Year

3. Click Save. Only the effective days in the calendar months are shown highlighted green.

### Schedule's Default Output

Whenever a schedule event (special or weekly) is not defined, the schedule component's output (**out** slot) reverts to its **default output**. The white area in the Weekly Schedule view's listed events indicates when the default value is used and displays the current default value, as shown in [Figure 169](#). The default output value is also used whenever the schedule is not effective.

Figure 169: Default Output



**Note:** The **null** option is an available choice and depending on control logic, this may be a valid choice. The default output varies by schedule type, as shown in [Table 89](#).

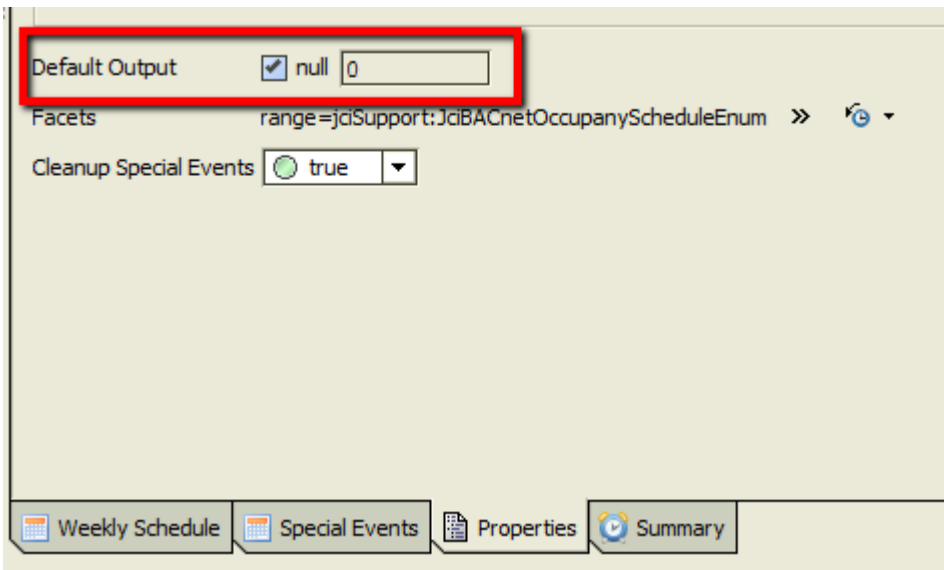
Table 89: Default Output

Schedule Type	Default Output
BooleanSchedule	False
EnumSchedule	Null
NumericSchedule	Null
StringSchedule	Null

### Changing Default Output

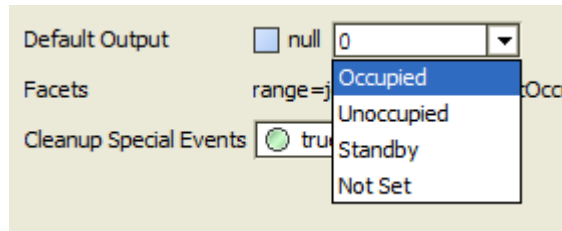
1. In the Schedule View, click the Properties tab at the bottom of the screen.
2. By default, the Null check box is selected.

Figure 170: Default Output



3. Clear the Null check box.
4. Select the desired default output from the list of available Schedule outputs.

**Figure 171: Default Output Selections**



5. Click Save.

## Schedule's Facets

When you add a schedule using the Schedule Manager, you define the Schedule component's facets, which determine how its output value is formatted for display. For example, instead of **true** and **false** for a BooleanSchedule, you may need **On** and **Off** instead. Assigned facets appear in scheduler views when adding events, displaying summary data, and so on.

**Note:** Facets are especially important for EnumSchedules. You need to define **range** facets before you add weekly schedule events (in order to pick an event's enumerated value). Range facets should match those used in any controlled (output-linked) EnumWritables.

Default facets for schedule components are shown in [Table 90](#).

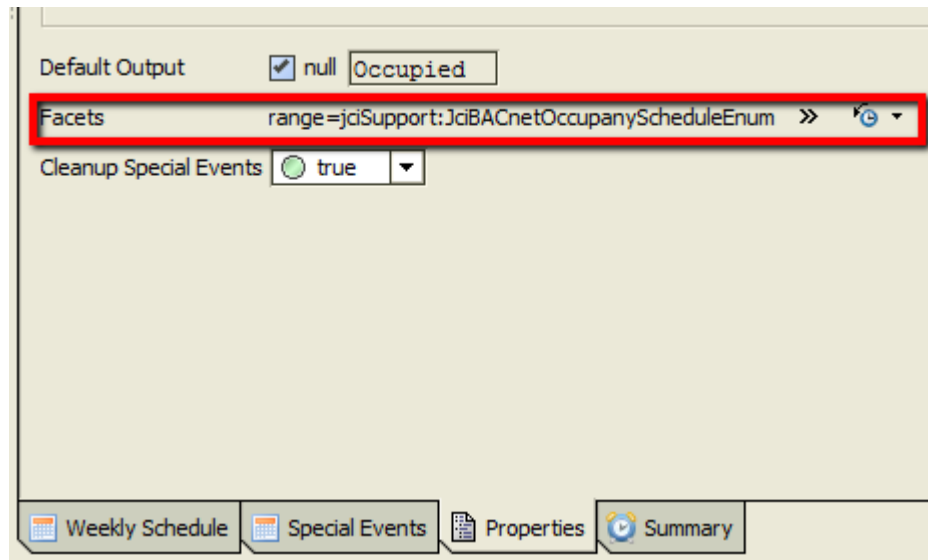
**Table 90: Default Schedule Output Facets**

Schedule Type	Default Schedule Output Facets
BooleanSchedule	trueText: true falseText: false
EnumSchedule	range: <not defined>
NumericSchedule	units: (null), precision: 1
StringSchedule	Not applicable

## Changing a Schedules's Facets

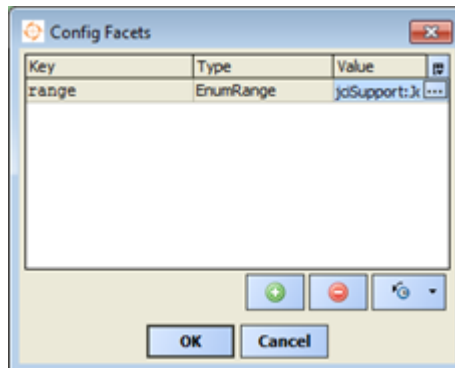
1. In the Schedule View, click the Properties tab at the bottom of the screen.

**Figure 172: Facets**



2. Click the facets control (>>). The Config Facets Editor dialog box appears.

**Figure 173: Configure Facets Editor**



## **Cleaning Up Special Events**

1. In the Schedule View, click the Properties tab at the bottom of the screen.

**Figure 174: Cleanup Special Events**

Default Output ☒ null Occupied

Facets range=jciSupport:JciBACnetOccupanyScheduleEnum >> ↻

Cleanup Special Events ☒ true ▼

Weekly Schedule Special Events Properties Summary

2. In the Cleanup Special Events field, select the desired options. Use [Table 91](#) as a reference.

**Table 91: Options for Cleanup Special Events**

Cleanup Special Events Option	Description
<b>True</b>	One-time special events that have occurred (and will not be effective again) are automatically deleted. When a special event is deleted, a message is sent to the schedule log, and that special event no longer appears in the Special Events tab.
<b>False</b>	One-time special events are retained, even though they do not occur again.

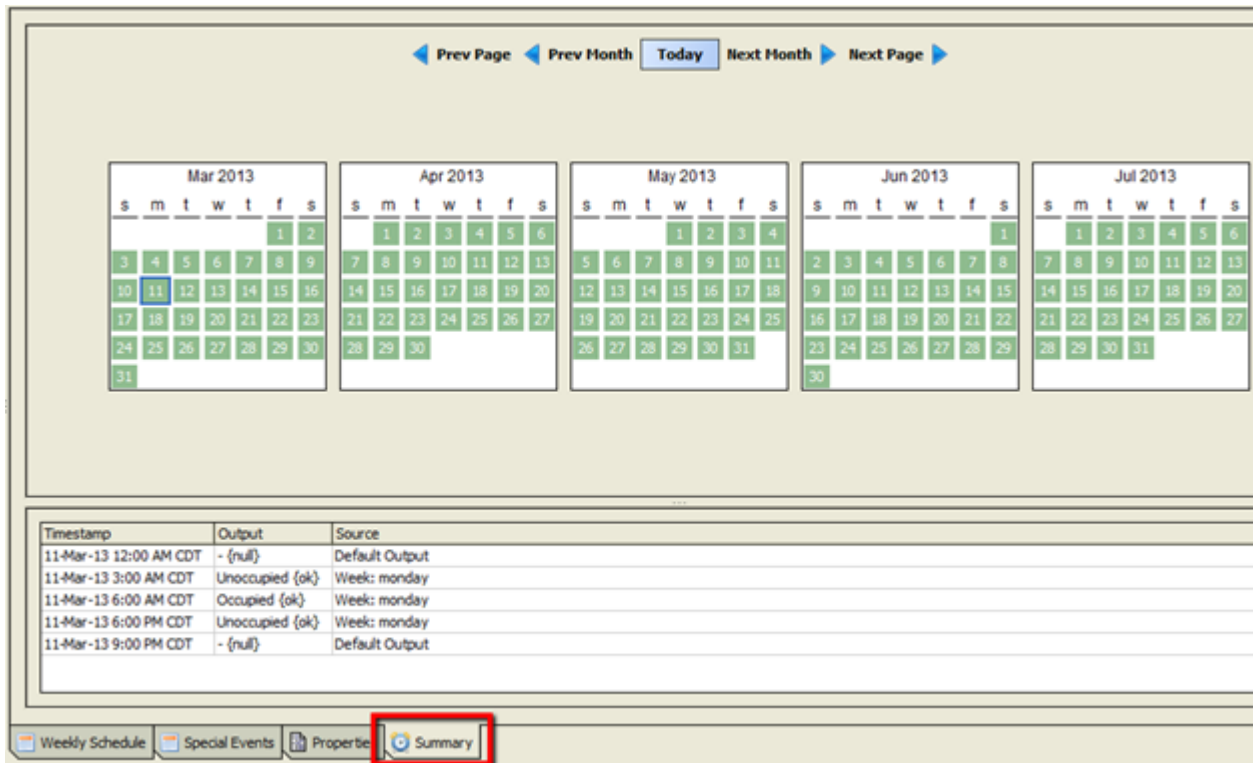
3. Click Save.

## ***Accessing and Using the Schedule Summary***

The Summary tab in the Weekly Scheduler view shows a summary listing of all scheduled events for any one selected day in a weekly schedule. Events may be from the normal weekly schedule, special events, or a combination of both. Unlike with other tabbed views, this tab is read-only.

1. In the Schedule View, click the Summary tab at the bottom of the screen. The Schedule Summary appears. In the Schedule Summary, days with schedule events are shown highlighted green. Days without schedule events are shown in white.

Figure 175: Schedule Summary



2. View the calendar as desired to see events. Click Next Month and Prev Month, or Next Page and Prev Page to move the calendar ahead or back in time. Click any day to see its events. Click on Today (at the top) to see the current day's events.

The table lists each event's start timestamp, the schedule's output value, and the event source. The Out Source provides a string **source description** of the current output, as one of the following:

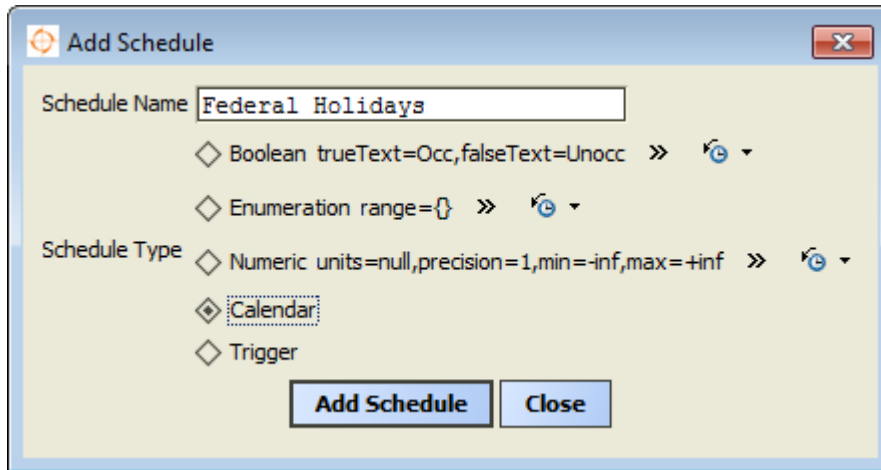
- Input
- Special Events: <SpecialEventName>
- Week: <day\_of\_week>
- Default Output

## Adding a Calendar Schedule with the Schedule Manager

A CalendarSchedule component defines specific days. Typically, you use Calendar Schedules to define days with scheduling exceptions (for example, holidays), and reference them in the special events setup of weekly schedules. By categorizing these scheduling exceptions, you can globally change the days that special events occur. Any edit of a Calendar Schedule affects all weekly schedules containing a special event that references it.

1. Double-click the Schedule Manager in the Navigation side bar (under the Station container) or Nav side bar (under the Station > Root container).
2. Click New Schedule. The Add Schedule dialog box appears.

Figure 176: Add Schedule Dialog Box



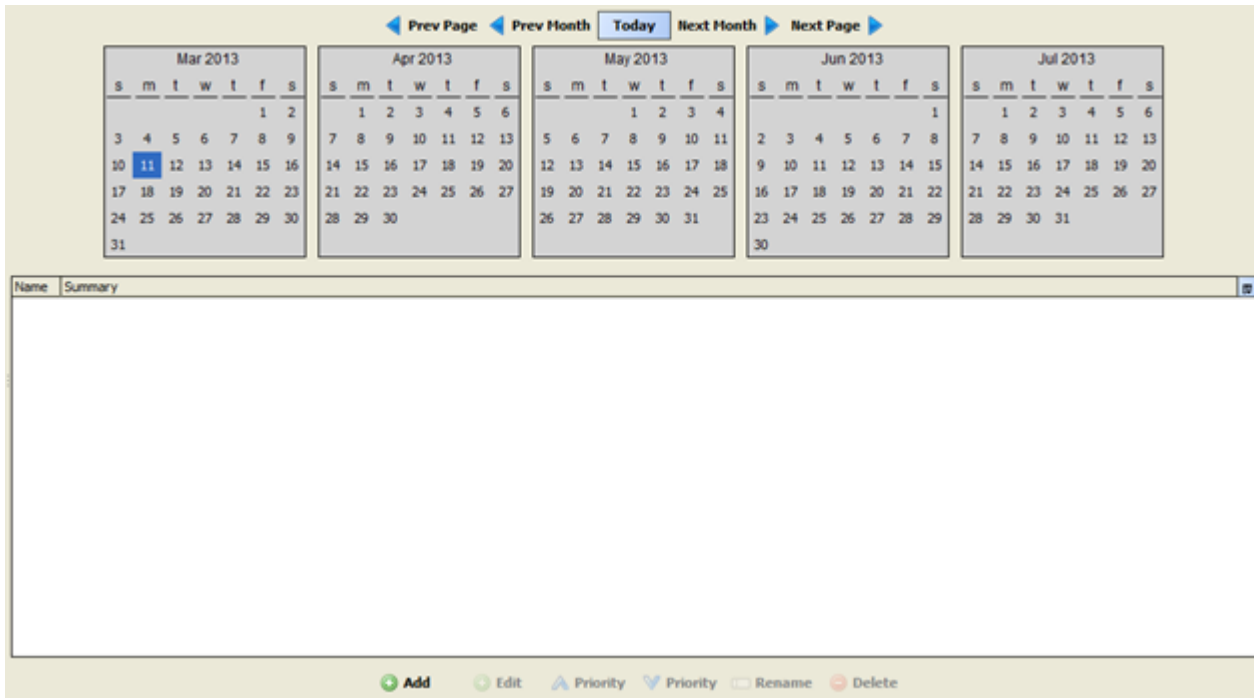
3. Enter the desired name of the calendar schedule.
4. Select the Calendar schedule type.
5. Click on Add Schedule. The Schedule Manager displays the newly created Calendar Schedule in its Schedule List.
6. Repeat this procedure as needed to add all desired Calendar schedules.

## Configuring a Calendar Schedule

1. In the Schedule List section of the Schedule Manager, double-click the Calendar schedule you want to configure. The Calendar Scheduler appears.

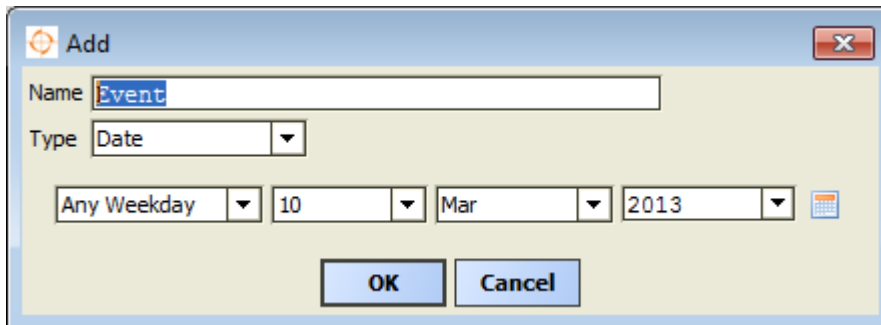


Figure 177: Calendar Scheduler View



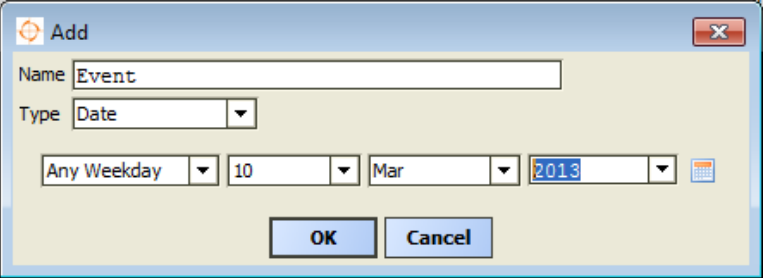
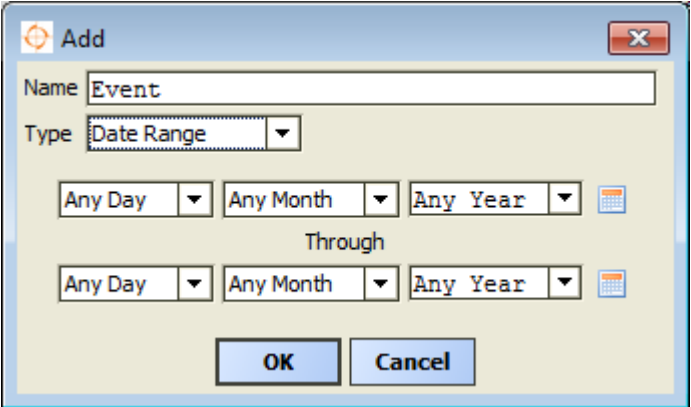
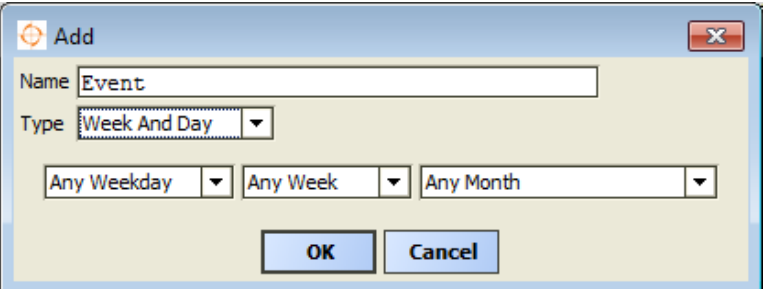
2. Click Add. The Add dialog box appears.

Figure 178: Add Dialog Box

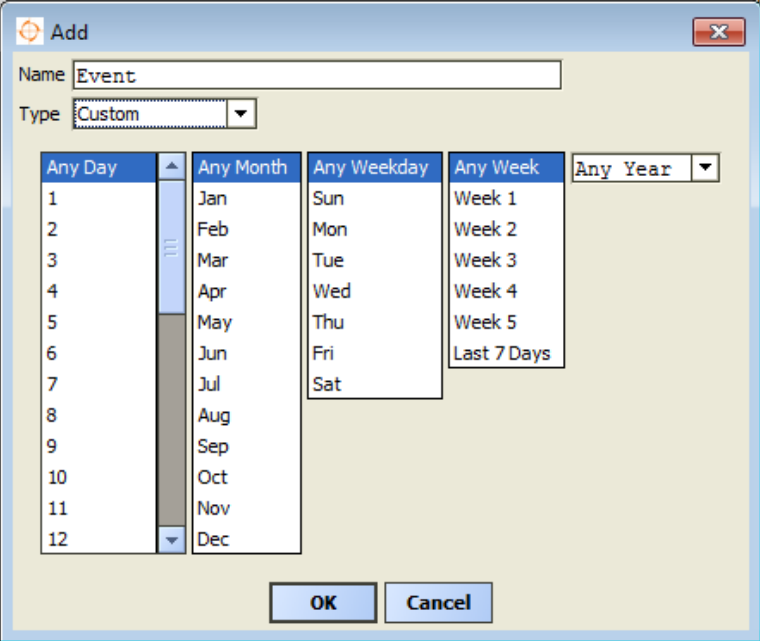
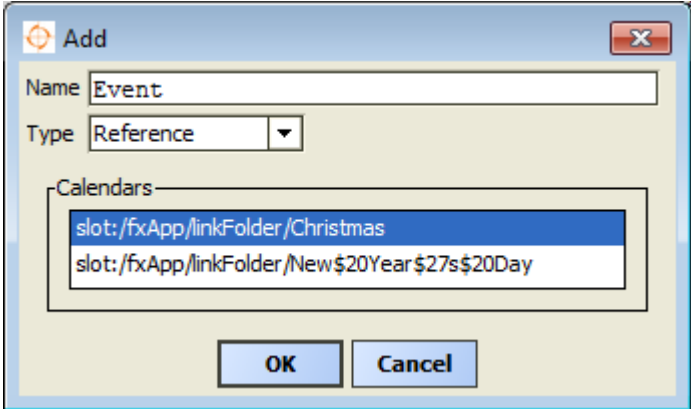


3. In the Name field, enter a descriptive name for the calendar, for example, **New Year's Day**. The default value is Event. You can change this value later, if needed.
4. In the Type field, enter the desired selection criteria for day or days. [Table 92](#) describes the available choices.

**Table 92: Entry/Selection Guidelines for Special Event Type Choices**

Special Event Type Choice	Selection Guidelines
<b>Date</b>	<p>Choose <b>Date</b> to select by various combinations of weekday, numerical date, month or month combinations, and year.</p> 
<b>Date Range</b>	<p>Choose <b>Date Range</b> to select by start and end range, using for each a combination of day, month, and year.</p> 
<b>Week and Day</b>	<p>Choose <b>Week and Day</b> to select by combinations of day of week and week in month.</p> 

**Table 92: Entry/Selection Guidelines for Special Event Type Choices**

Special Event Type Choice	Selection Guidelines
<p><b>Custom</b></p>	<p>Choose <b>Custom</b> to select by various combinations of day, month, weekdays, and year.</p> 
<p><b>Reference</b></p>	<p>Choose <b>Reference</b> to select by referencing a specific CalendarSchedule component already defined in the station.</p> 

5. After you have named and type selected (and defined as needed), click OK to add it to this calendar schedule's special events. It remains selected for further editing, except for type.
6. Repeat this process as needed, to add additional special events to the calendar schedule.
7. Click Save.

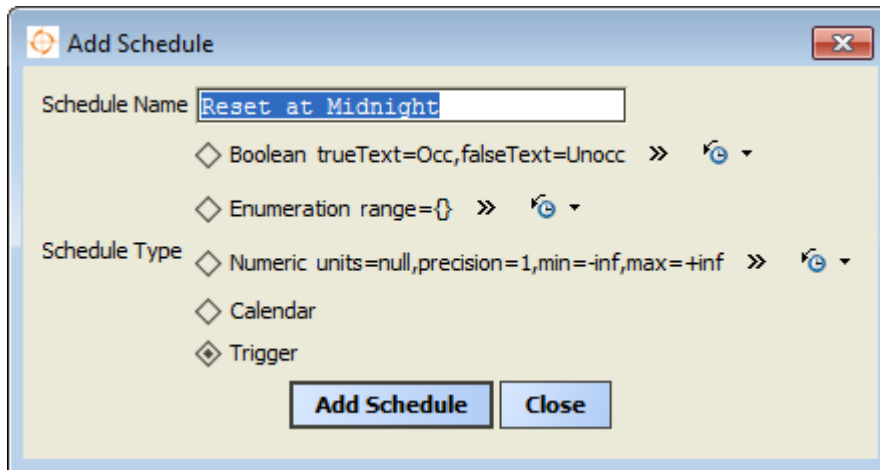
## Working with Trigger Schedules

TriggerSchedules are special-purpose schedules, providing scheduling control for either linked actions or topics of other components. For example, a popular use of a TriggerSchedule is to periodically reset a timer.

### Adding a Trigger Schedule with the Schedule Manager

1. Display the Schedule Manager by double-clicking the Schedule Manager in the Navigation side bar (under the Station container) or Nav side bar (under the Station>Root container).
2. Click New Schedule. The Add Schedule dialog box appears.

**Figure 179: Add Schedule Dialog**



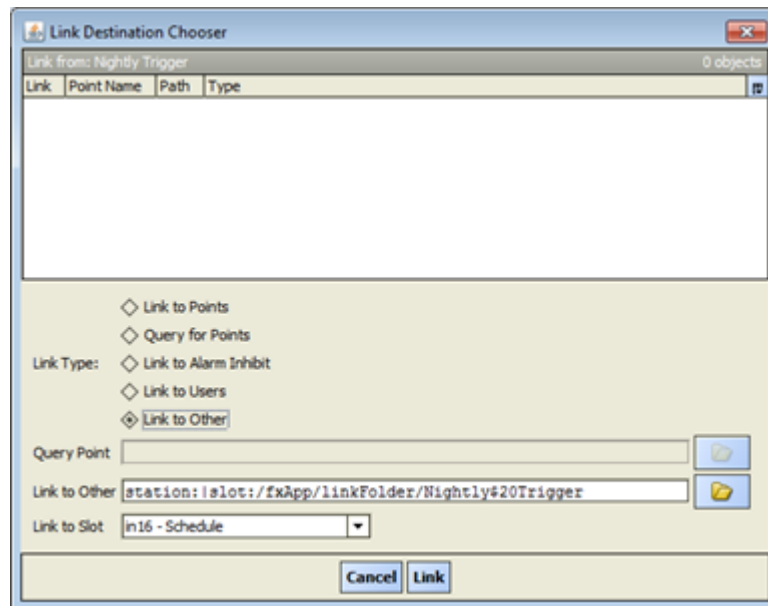
3. Enter the desired name of the trigger schedule.
4. Select the Trigger schedule type.
5. Click Add Schedule. The Schedule manager displays the newly created Trigger Schedule in its Schedule List.
6. Repeat this procedure as needed to add all desired Trigger schedules.

### Linking a Trigger Schedule to Components Using the Schedule Manager

To complete the add trigger schedule process, you link the output of the Trigger Schedule component to the inputs of other station components (usually, the action of a control point or of a point extension). You can link the output (Out slot) of a Trigger Schedule to any component with a like Status <Type> input.

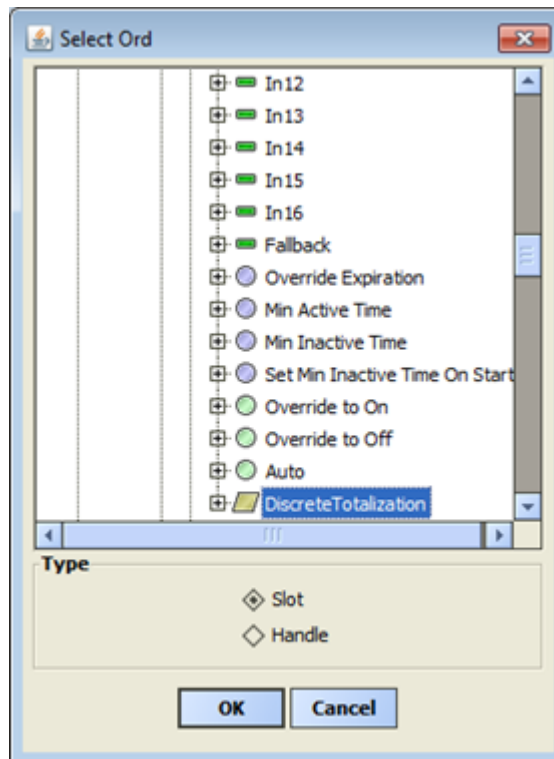
1. Double-click the Schedule Manager in the Navigation side bar (under the Station container) or Nav side bar (under the Station > Root container).
2. In the Schedule List section of the Schedule Manager, select the Trigger Schedule you want to link.
3. Click New Link. The Link Destination Chooser dialog appears [Figure 180](#) and lists the component types available for you to assign to the selected trigger schedule.

**Figure 180: Link Destination Chooser Dialog Box**



4. Find the components you want to link to the Schedule. The Link Destination Chooser dialog box is the same as the dialog box that appears when linking a weekly schedule to its components. However, since Trigger Schedules are most often intended to control actions of control points or of point extensions, you most often would select **Link to Other** and then select the Ord of the desired component. [Figure 182](#) shows an example of linking a trigger schedule a DiscreteTotalization point extension.

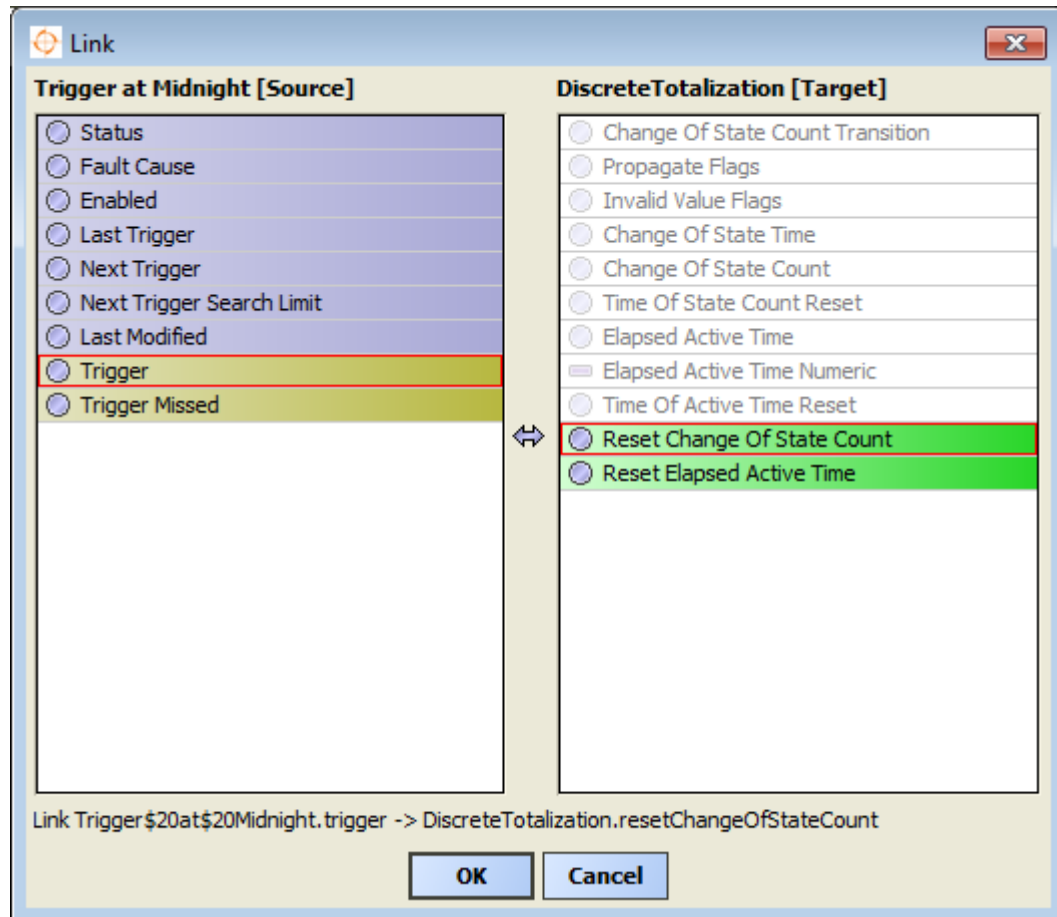
**Figure 181: Select Ord Dialog Box**



5. Click OK. The Link dialog box appears.

6. Select the desired trigger schedule output (usually the trigger) and destination input. In the example of linking a DiscreteTotalization extension, the target is the Reset Change of State Count.

**Figure 182: Link Dialog Box**

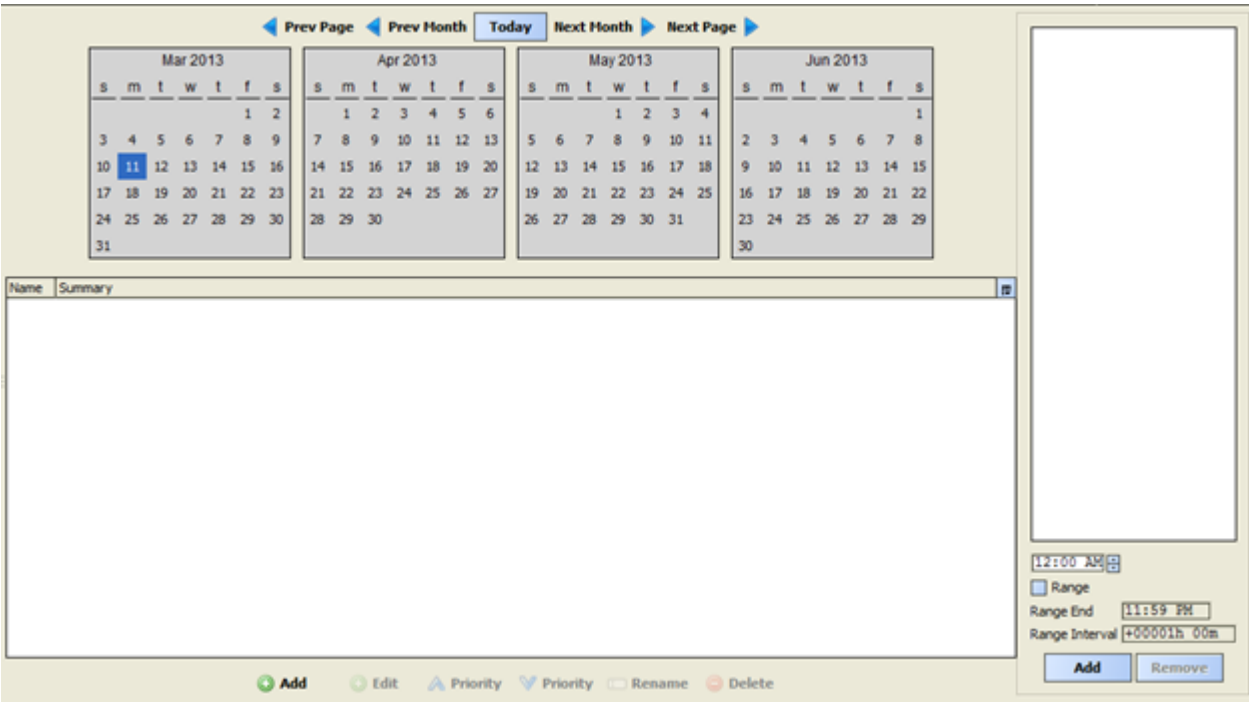


7. Click OK. The newly created Link appears in the bottom window of the Schedule Manager.

## Configuring a Trigger Schedule

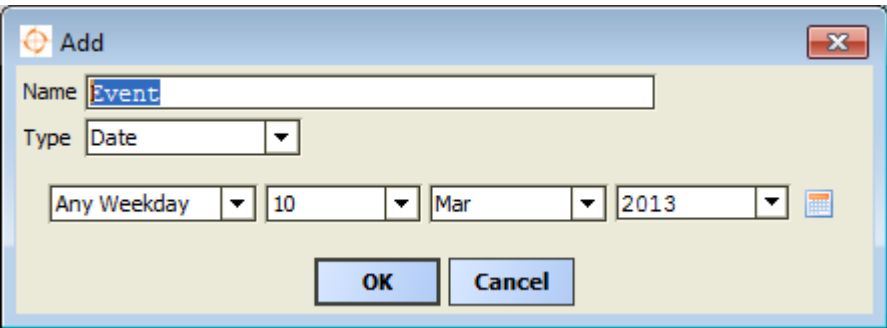
1. In the Schedule List section of the Schedule Manager, double-click the trigger schedule you want to configure. The Trigger Scheduler appears.

Figure 183: Trigger Scheduler View



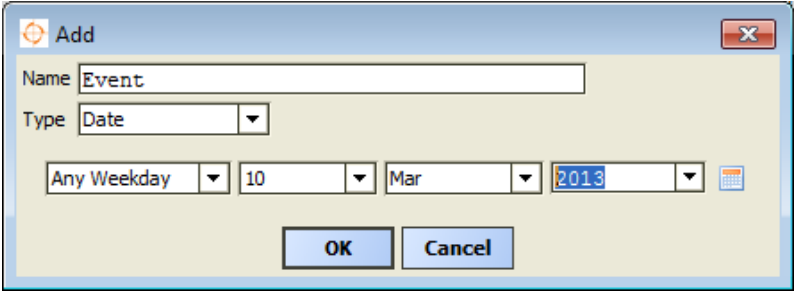
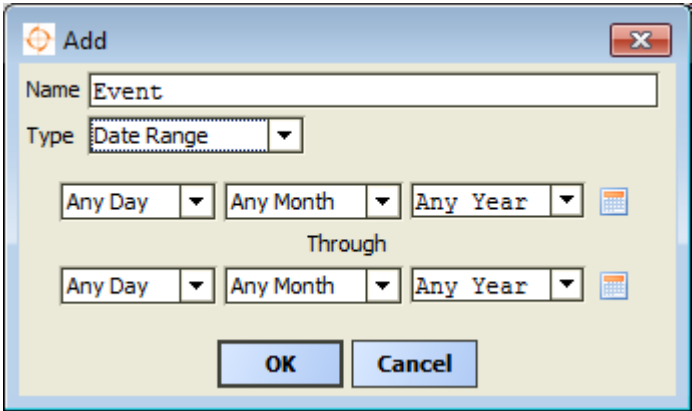
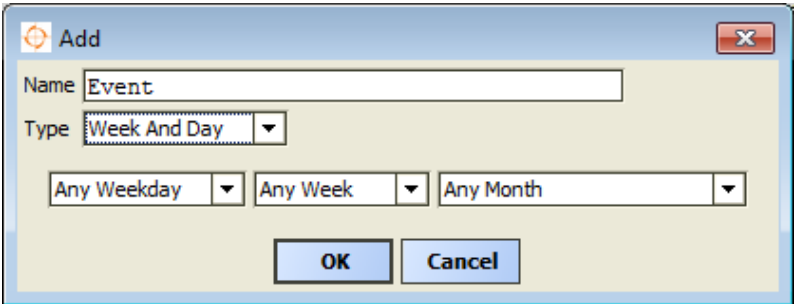
2. Click Add to add a Trigger Event. The Add dialog box appears.

Figure 184: Add Dialog Box



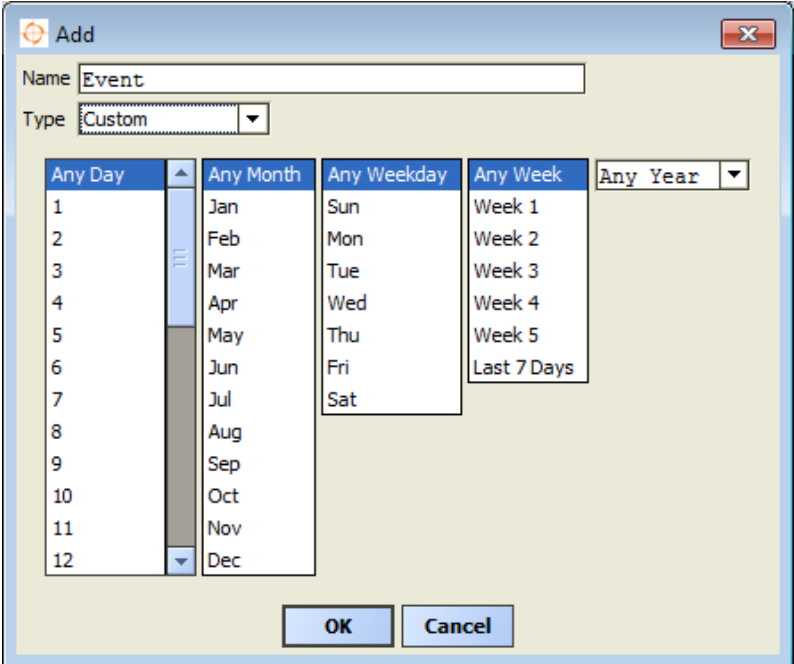
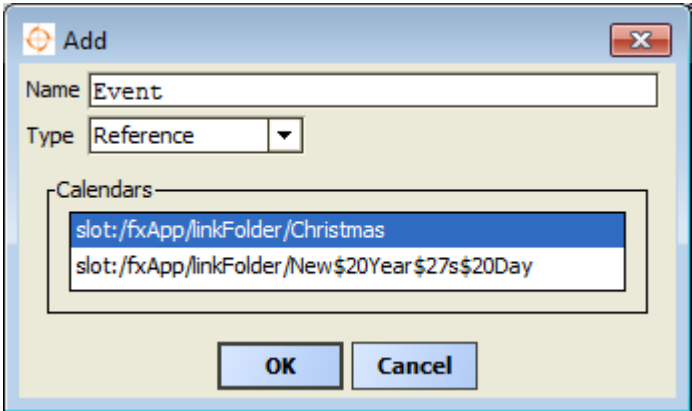
3. In the Name field, enter a descriptive name for the trigger event, for example, Reset Every Midnight. The default value is Event. You can change this later, if needed.
4. In the Type field, enter the desired selection criteria for day or days. [Table 93](#) describes the available choices.

**Table 93: Entry/Selection Choices for Special Event Type Choices**

Special Event Type Choice	Selection Guidelines
<b>Date</b>	<p>Choose <b>Date</b> to select by various combinations of weekday, numerical date, month or month combinations, and year.</p> 
<b>Date Range</b>	<p>Choose <b>Date Range</b> to select by start and end range, using for each a combination of day, month, and year.</p> 
<b>Week and Day</b>	<p>Choose <b>Week and Day</b> to select by combinations of day of week and week in month.</p> 



**Table 93: Entry/Selection Choices for Special Event Type Choices**

Special Event Type Choice	Selection Guidelines
<b>Custom</b>	<p>Choose <b>Custom</b> to select by various combinations of day, month, weekdays, and year.</p> 
<b>Reference</b>	<p>Choose <b>Reference</b> to select by referencing a specific CalendarSchedule component already defined in the station.</p> 

- After you have a name and type selected (and defined as needed), click OK to add it to this Trigger Schedule's events. It remains selected for further editing (except for type).
- With the Trigger Schedule still selected, in the right-side time picker area, select the desired Trigger times. Use [Table 94](#) as a reference.

**Table 94: Trigger Schedule Time Picker Options**

Trigger Time Type	Procedure
To add a single Trigger Time	a. Select the Trigger Time by using the up/down controls or by typing in time directly. <b>Note:</b> A default <b>midnight</b> trigger time may exist (00h:00m); you can delete it if needed. b. Click Add.
To add multiple Trigger Times	Repeat above for all desired Trigger Times.
To add multiple Trigger Times that occur at repeating intervals	a. Using the top editor, select the beginning time in the range by using the up/down controls or by typing in the time directly. b. Select the Range checkbox. This enables the Range End and Range Interval fields for entering values. c. Select the range end time by using the up/down controls or by typing in time directly. d. Select the range interval by using the up/down controls or by typing in the interval directly. e. Click Save.

- Repeat this process as needed, to add additional trigger events to the trigger schedule.
- Click Save.

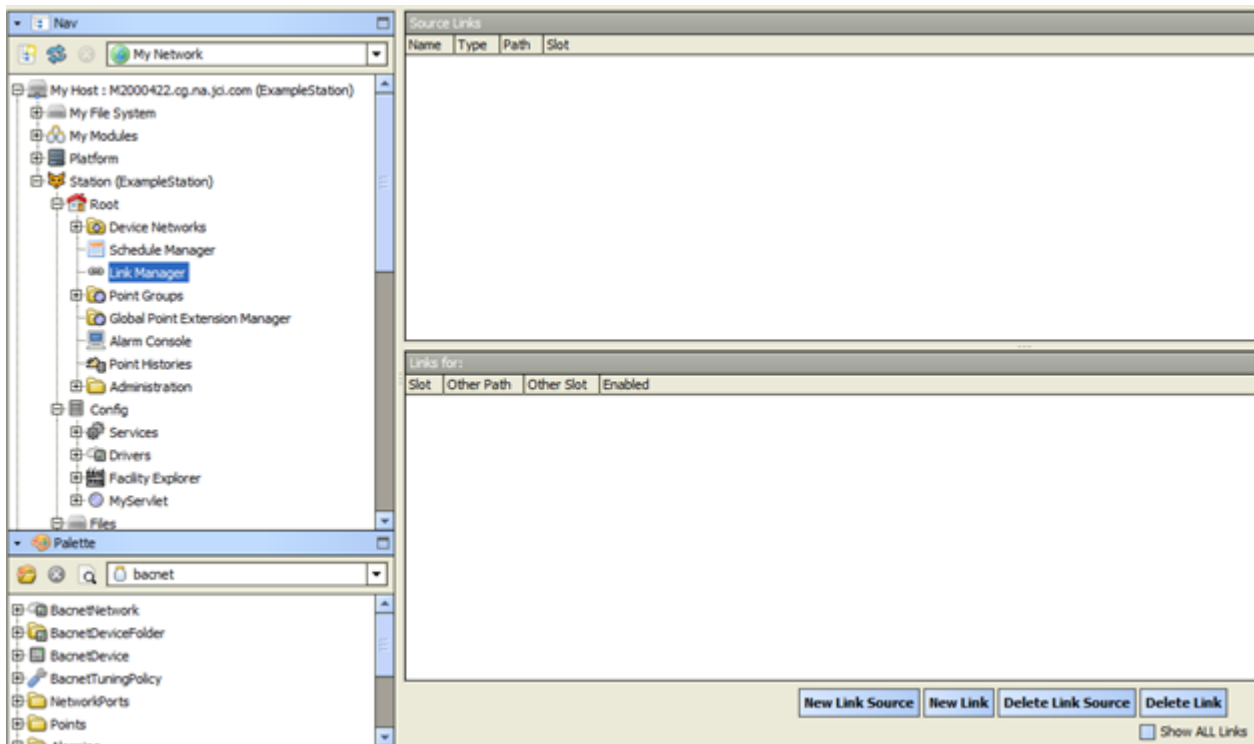
# Link Manager

The Link Manager is a feature unique to the Johnson Controls FX Workbench, and provides an easy way to link station components together in a centralized location. The Link Manager shares similar dialog boxes as the Point Group Manager, letting you to use these managers efficiently. This section describes how to add and configure links using the Link Manager.

## Creating a Link Using the Link Manager

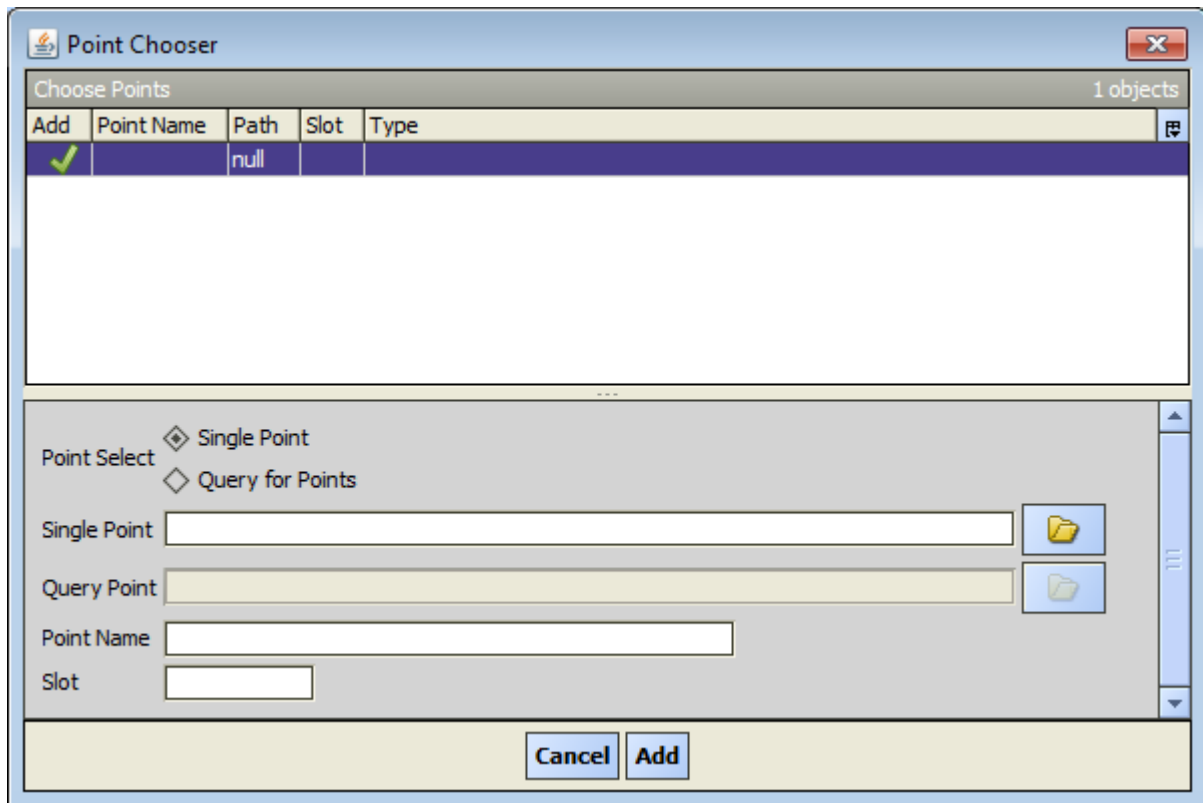
1. Display the Link Manager by double-clicking the Link Manager in the Navigation side bar (under the Station container) or Nav side bar (under the Station > Root container).

Figure 185: Link Manager



2. Click New Link Source. The Point Chooser screen appears.

Figure 186: Point Chooser Screen

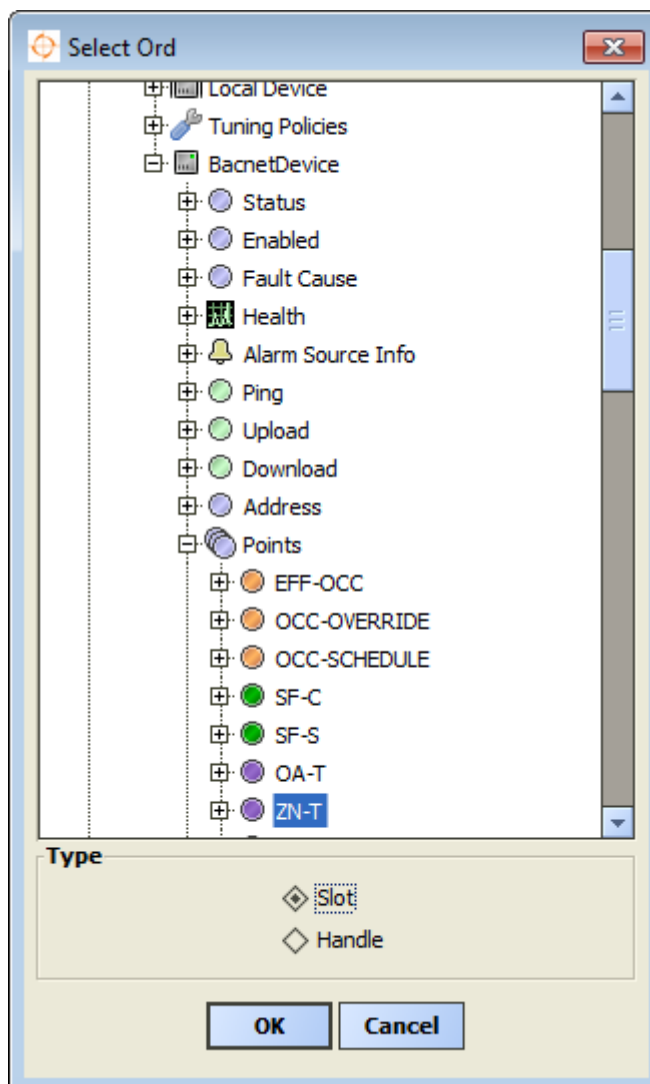


3. Create a new link source. The Link Manager provides two ways to create new link sources: by selecting the Ord or by querying the station using filters.

**Create New Link by Selecting the Ord**

- a. Select a Single Point.
- b. Click the Open Folder icon to the right of the Single Point field. The Ord Dialog appears.

**Figure 187: Select Ord Dialog**



- c. Browse to the point you want to add.

**Note:** Typically points are located under **Config > Drivers > driver\_n > device\_n > Points**.

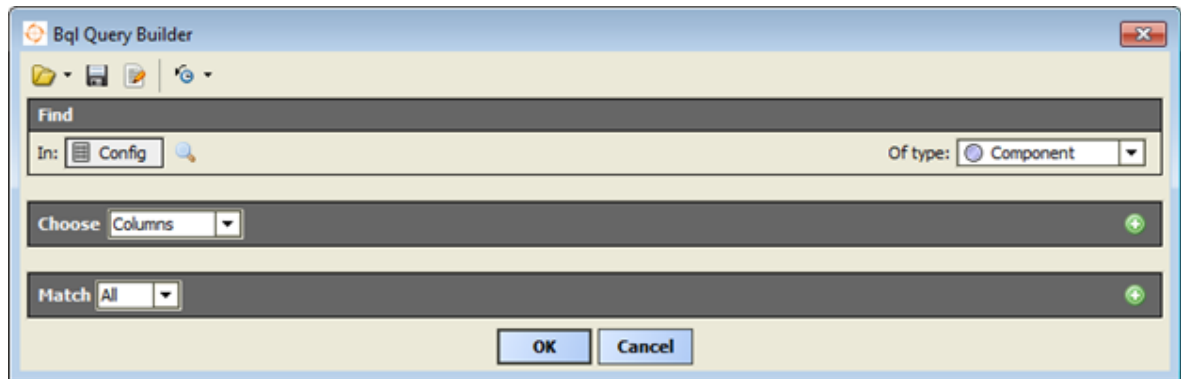
**Note:** Make sure to select Slot in the Types section of the Select Ord dialog box.

- d. If desired, use the Point Name field to modify how the point's name appears in the Link Manager folder. If you do not want to change the point name, leave this field blank.
- e. Click Add. The point now appears in the Point Group folder.

#### **Create New Link by Querying the Station Using Filters**

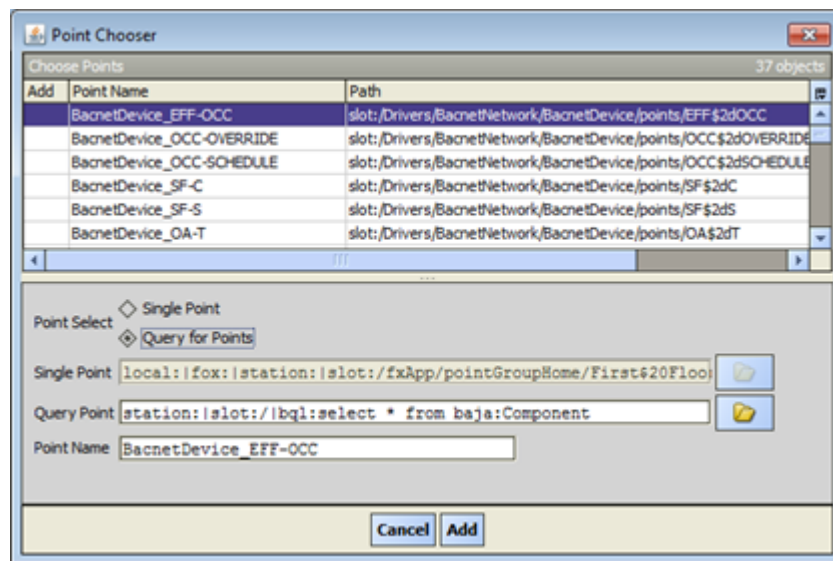
- a. Select Query for Points
- b. Click the Open Folder icon to the right of the Query Point field. The Bql Query Builder appears.

**Figure 188: Bql Query Builder Screen**



- c. Use the Bql Query Builder to define the search instructions for the point you want to find and add. The **In:** field allows you to define where to start searching in the nav tree. The **Of Type** field lets you filter your search by type of component. The Match field works with the plus to filter objects using search criteria. For more information about how to use the Bql Query Builder, refer to *About the Bql Query Builder* in the *Niagara Drivers Guide*.
- d. Click OK. The Point Chooser dialog box appears and lists all the points resulting from your Bql Query.

**Figure 189: Point Chooser Dialog Box**



- e. Click the Add column for the point you want to add
- f. If desired, select the point you want and use the Point Name field to modify how the point's name appears in the Link Manager folder. If you do not want to change the point name, leave this field blank.
- g. Click Add.

## Point Summary Manager

The Point Summary Manager provides reports that you can create, customize, and view.

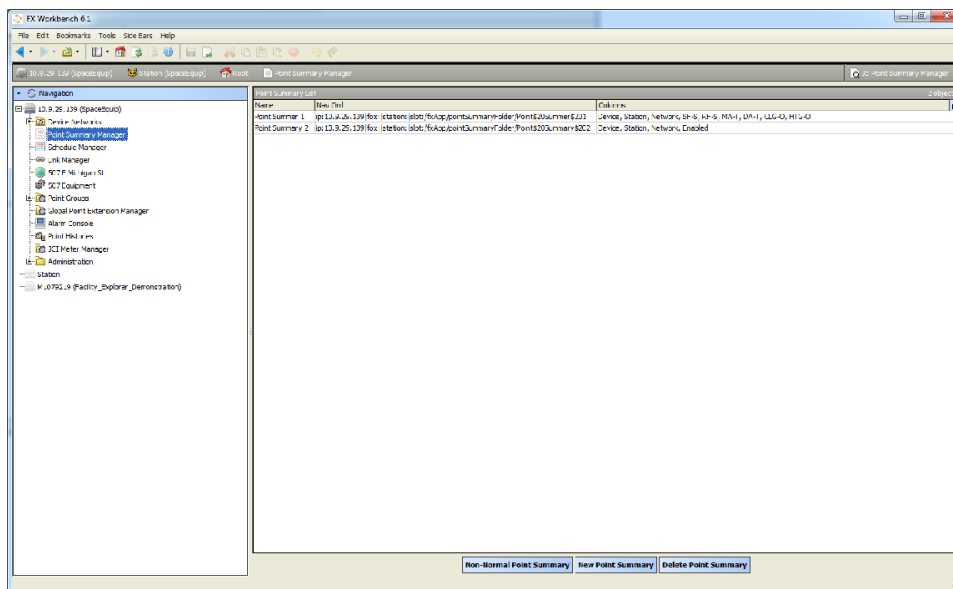
## Creating a New Point Summary

## Creating a Report from an Existing Template

Use the following procedure to create a report from a predefined template.

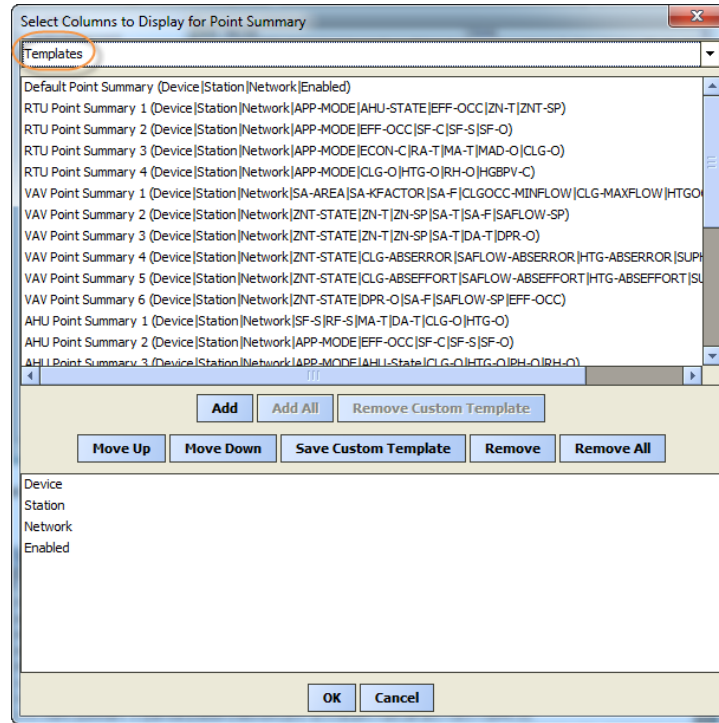
1. Display the Point Summary Manager by double-clicking Point Summary Manager in the Navigation side bar (in the Station container) or Nav side bar (in the Station > Root container). The Point Summary List screen appears.

### Figure 190: Point Summary List



2. Click **New Point Summary**. A dialog box appears prompting you to define the columns in your report.

**Figure 191: Point Summary Column Configuration - Existing Template**



3. Select **Templates** from the drop-down menu and select one of the predefined report templates.
4. Click Add.
5. To adjust the column order, select the column and click Move Up to move the column up. Select Move Down to move the column down.
6. To remove a column, select the column and click Remove. To remove all columns, click Remove All.
7. Click OK. A dialog box prompts you to enter the name of the report.
8. Enter the name of the report and click OK.

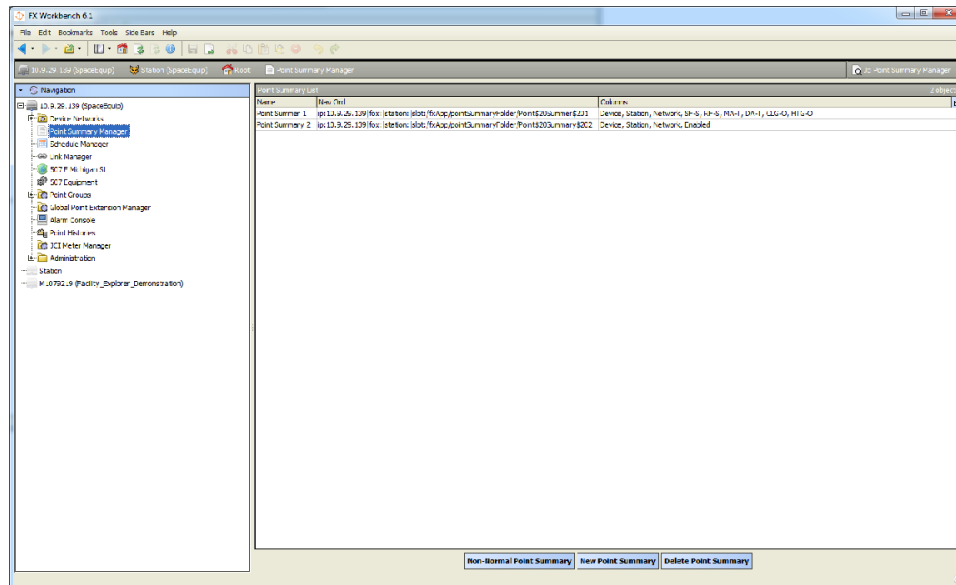
### Creating a Report from Hardware Options

Use the following procedure to create a report from existing hardware options.

1. Display the Point Summary Manager by double-clicking Point Summary Manager in the Navigation side bar (under the Station container) or Nav side bar (under the Station > Root container). The Point Summary List screen appears.

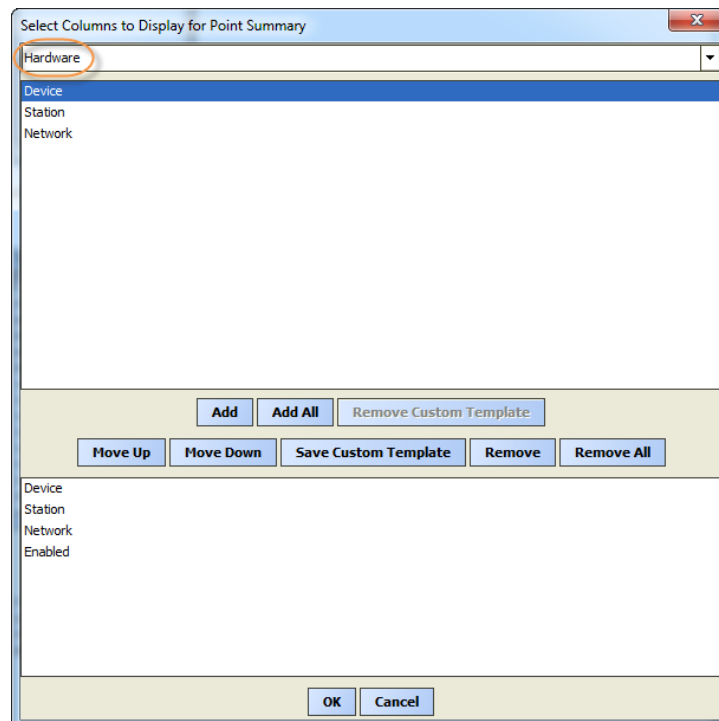


**Figure 192: Point Summary List**



- Click New Point Summary. A dialog box appears prompting you to define the columns in your report.

**Figure 193: Point Summary Column Configuration - Hardware Options**



- Select **Hardware** from the drop-down menu and select the hardware option you want to create the report for.
- Click Add.
- To adjust the column order, select the column and click Move Up to move the column up. Select Move Down to move the column down.
- To remove a column, select the column and click Remove. To remove all columns, click Remove All.

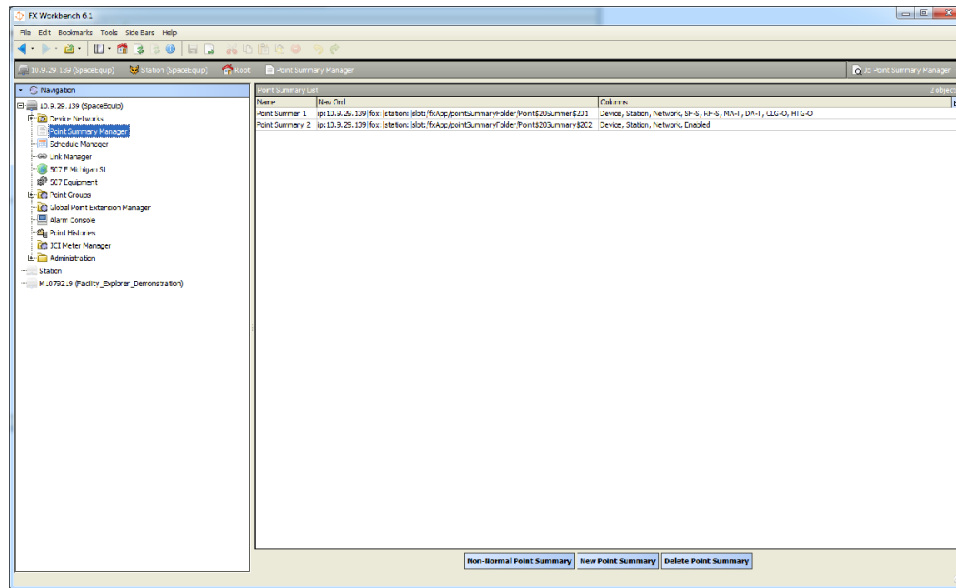
7. Click OK. A dialog box prompts you to enter the name of the report.
8. Enter the name of the report and click OK.

## Creating a Report from Existing Points

Use the following procedure to create a report from the existing points in your system.

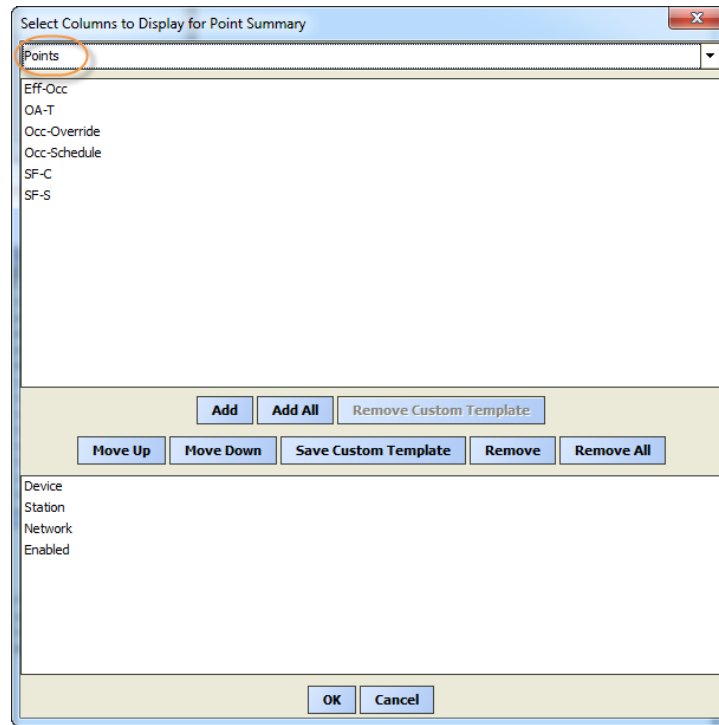
1. Display the Point Summary Manager by double-clicking Point Summary Manager in the Navigation side bar (under the Station container) or Nav side bar (under the Station > Root container). The Point Summary List screen appears.

### Figure 194: Point Summary List



2. Click **New Point Summary**. A dialog box appears prompting you to define the columns in your report.

**Figure 195: Point Summary Column Configuration - Points**



3. Select **Points** from the drop-down menu.
4. Select the point or points you want to create a report for.
5. Click Add.
6. To adjust the column order, select the column and click Move Up to move the column up. Select Move Down to move the column down.
7. To remove a column, select the column and click Remove. To remove all columns, click Remove All.
8. Click OK. A dialog box prompts you to enter the name of the report.
9. Enter the name of the report and click OK.

### **Creating a Report Using a Custom Template**

- If necessary, you can create a new report from a previously created custom template.
1. Display the Point Summary Manager by double-clicking Point Summary Manager in the Navigation side bar (under the Station container) or Nav side bar (under the Station > Root container). The Point Summary List screen appears.

- The bottom half the screen displays the columns of the report you created.

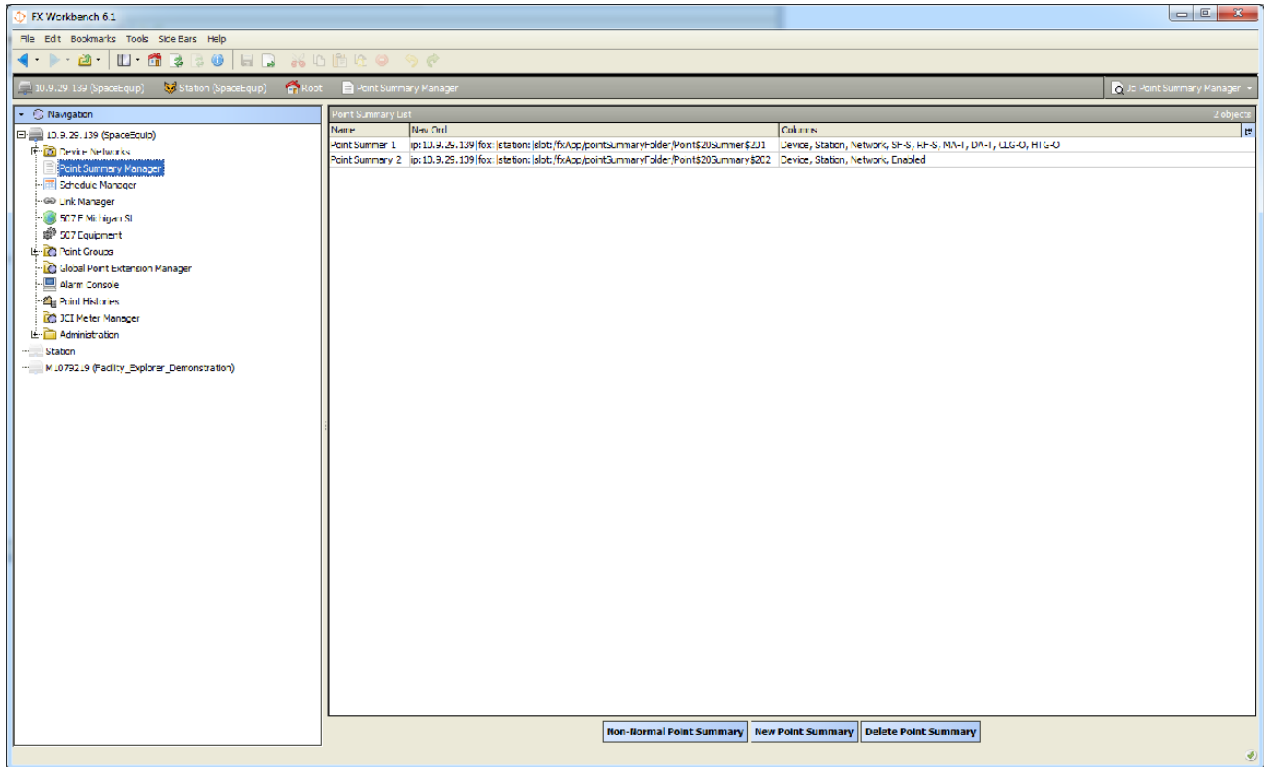
- FX Workbench User's Guide

## Creating a Custom Template

If necessary, you can create your own custom template.

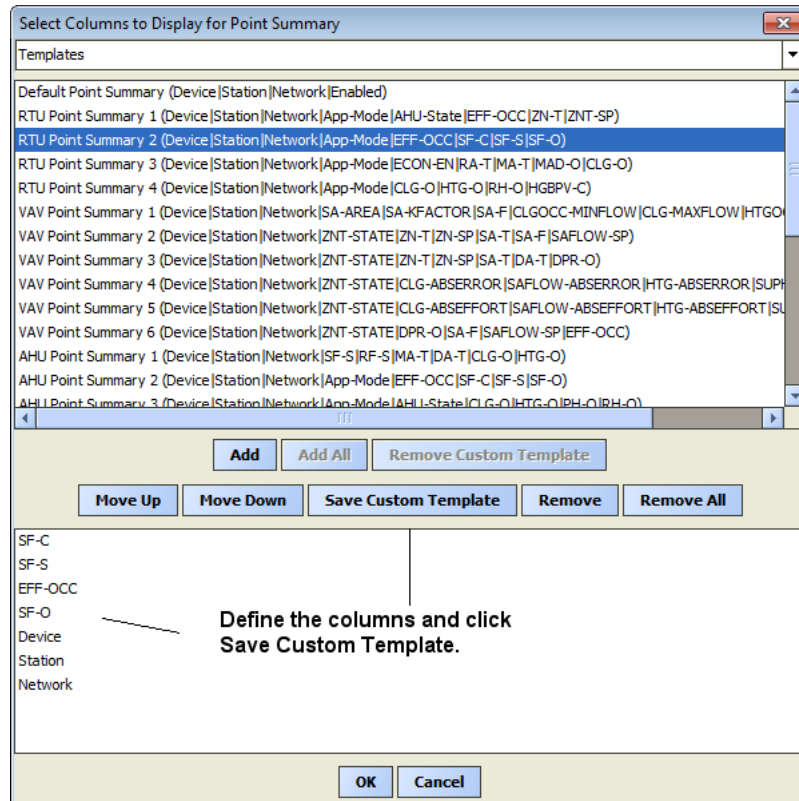
1. Display the Point Summary Manager by double-clicking Point Summary Manager in the Navigation side bar (in the Station container) or Nav side bar (in the Station > Root container). The Point Summary List screen appears.

**Figure 197: Point Summary List**



2. Click New Point Summary. A dialog box appears prompting you to define the columns and information in your report.

**Figure 198: Point Summary Column Configuration**



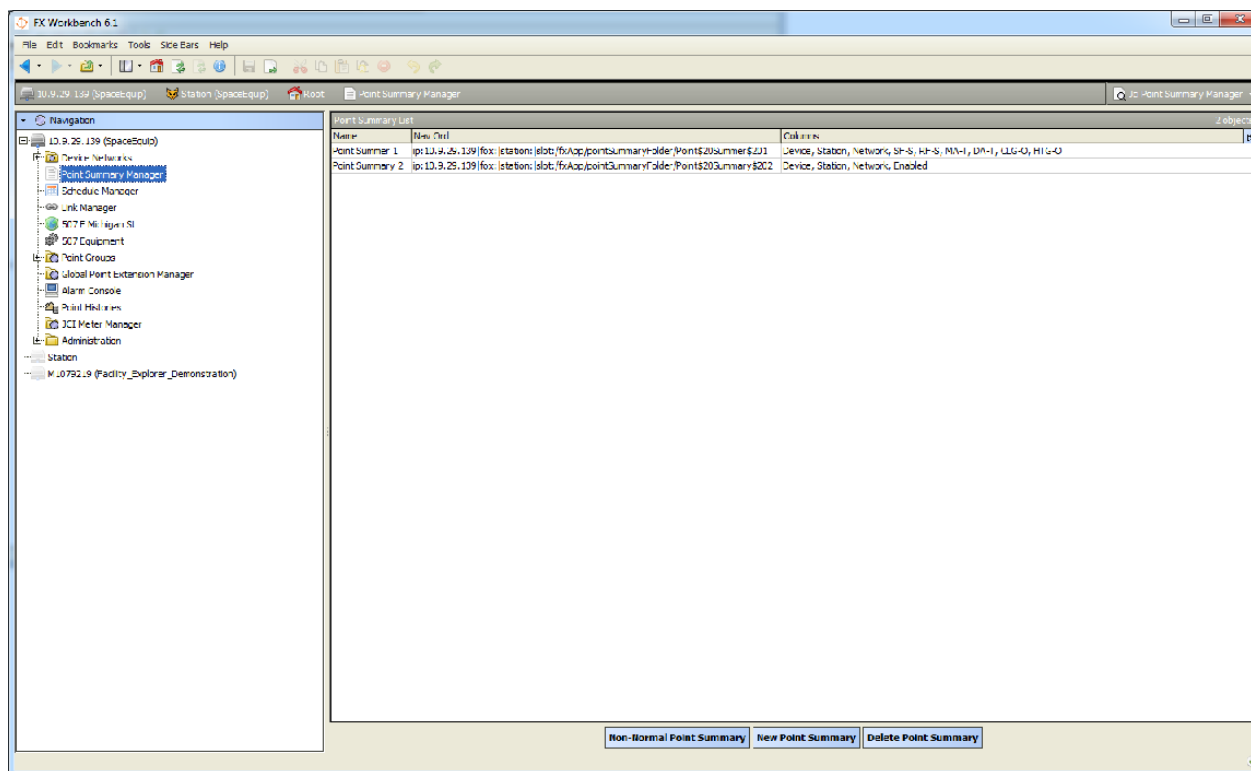
3. In the upper section of the screen, select the column information to add to the template. Click Add.
4. Adjust the columns as desired.
5. Click Save Custom Template. A dialog box prompts you to enter a template name.
6. Enter a template name and click OK.

The template appears when you select Custom Templates from the drop-down menu at the top of the screen.

## Viewing a Point Summary

1. Display the Point Summary Manager by double-clicking Point Summary Manager in the Navigation side bar (under the Station container) or Nav side bar (under the Station > Root container). The Point Summary List screen appears.

**Figure 199: Point Summary List**



2. Double-click the point summary you want to view. The Point Summary appears.

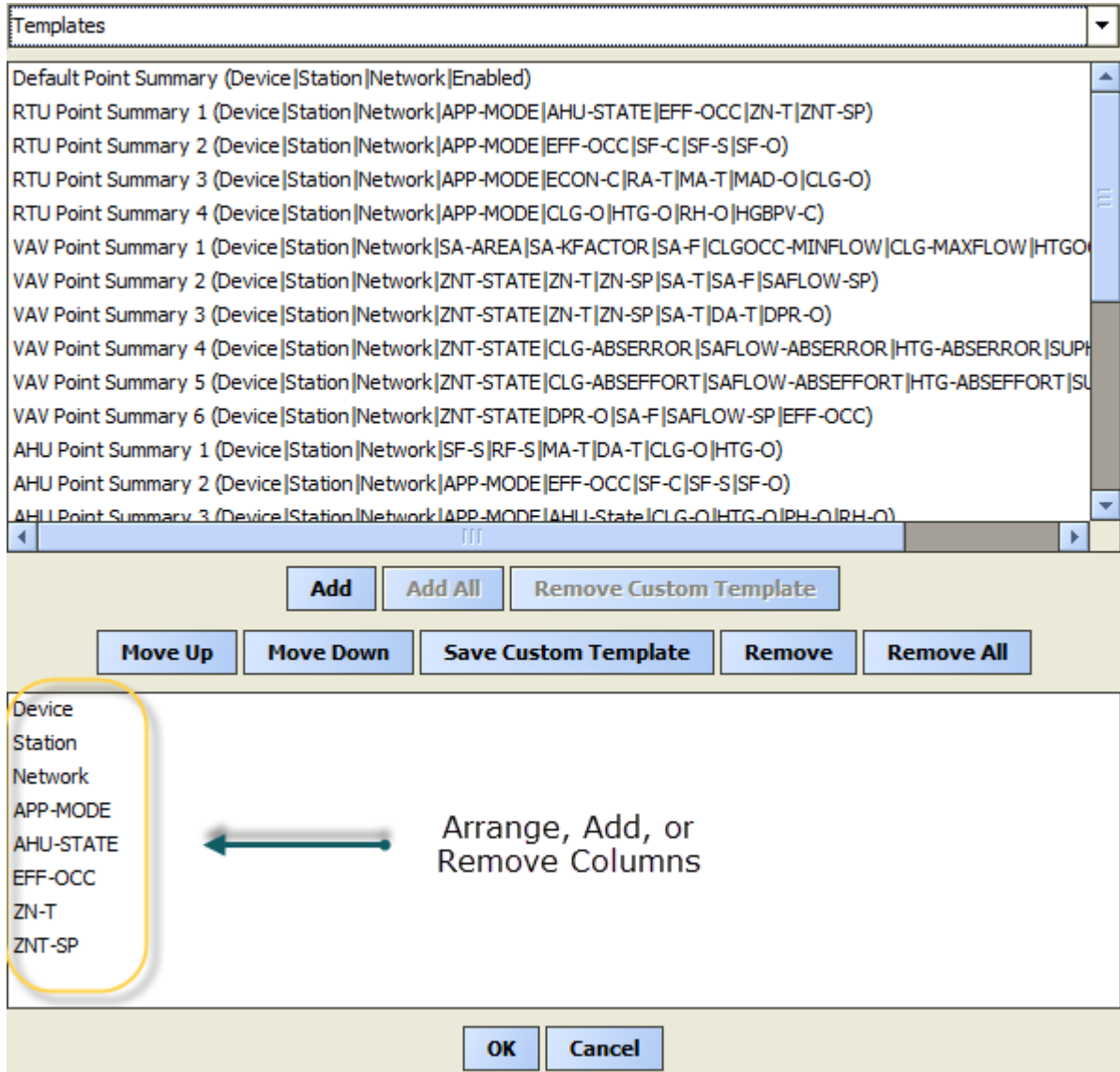
Figure 200: Point Summary

Device	Revision	Network	RF-S	RF-S	MA-T	DA-T	CIG-T	HTG-T
JCU-1	SpaceEquip	Niagara Network						
Meter-1	SpaceEquip	BacnetNetwork						
Meter-2	SpaceEquip	BacnetNetwork						
Meter-3	SpaceEquip	BacnetNetwork						
Meter-4	SpaceEquip	BacnetNetwork						
Chiller-1	SpaceEquip	BacnetNetwork						
Chiller-2	SpaceEquip	BacnetNetwork						
Chiller-3	SpaceEquip	BacnetNetwork						
Chiller-4	SpaceEquip	BacnetNetwork						
Chiller-5	SpaceEquip	BacnetNetwork						
Chiller-6	SpaceEquip	BacnetNetwork						
Chiller-7	SpaceEquip	BacnetNetwork						
Chiller-8	SpaceEquip	BacnetNetwork						
Chiller-9	SpaceEquip	BacnetNetwork						
Chiller-10	SpaceEquip	BacnetNetwork						
Chiller-11	SpaceEquip	BacnetNetwork						
Chiller-12	SpaceEquip	BacnetNetwork						
Chiller-13	SpaceEquip	BacnetNetwork						
Chiller-14	SpaceEquip	BacnetNetwork						
Chiller-15	SpaceEquip	BacnetNetwork						
Chiller-16	SpaceEquip	BacnetNetwork						
Chiller-17	SpaceEquip	BacnetNetwork						
Chiller-18	SpaceEquip	BacnetNetwork						
Chiller-19	SpaceEquip	BacnetNetwork						
Chiller-20	SpaceEquip	BacnetNetwork						
Chiller-21	SpaceEquip	BacnetNetwork						
Chiller-22	SpaceEquip	BacnetNetwork						
Chiller-23	SpaceEquip	BacnetNetwork						
Chiller-24	SpaceEquip	BacnetNetwork						
Chiller-25	SpaceEquip	BacnetNetwork						
Chiller-26	SpaceEquip	BacnetNetwork						
Chiller-27	SpaceEquip	BacnetNetwork						
Chiller-28	SpaceEquip	BacnetNetwork						
Chiller-29	SpaceEquip	BacnetNetwork						
Chiller-30	SpaceEquip	BacnetNetwork						
Chiller-31	SpaceEquip	BacnetNetwork						
Chiller-32	SpaceEquip	BacnetNetwork						
Chiller-33	SpaceEquip	BacnetNetwork						
Chiller-34	SpaceEquip	BacnetNetwork						
Chiller-35	SpaceEquip	BacnetNetwork						
Chiller-36	SpaceEquip	BacnetNetwork						
Chiller-37	SpaceEquip	BacnetNetwork						
Chiller-38	SpaceEquip	BacnetNetwork						
Chiller-39	SpaceEquip	BacnetNetwork						
Chiller-40	SpaceEquip	BacnetNetwork						
Chiller-41	SpaceEquip	BacnetNetwork						
Chiller-42	SpaceEquip	BacnetNetwork						
Chiller-43	SpaceEquip	BacnetNetwork						
Chiller-44	SpaceEquip	BacnetNetwork						
Chiller-45	SpaceEquip	BacnetNetwork						
Chiller-46	SpaceEquip	BacnetNetwork						
Chiller-47	SpaceEquip	BacnetNetwork						
Chiller-48	SpaceEquip	BacnetNetwork						
Chiller-49	SpaceEquip	BacnetNetwork						
Chiller-50	SpaceEquip	BacnetNetwork						
Chiller-51	SpaceEquip	BacnetNetwork						
Chiller-52	SpaceEquip	BacnetNetwork						
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Chiller-62	SpaceEquip	BacnetNetwork						
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Chiller-74	SpaceEquip	BacnetNetwork						
Chiller-75	SpaceEquip	BacnetNetwork						
Chiller-76	SpaceEquip	BacnetNetwork						
Chiller-77	SpaceEquip	BacnetNetwork						
Chiller-78	SpaceEquip	BacnetNetwork						
Chiller-79	SpaceEquip	BacnetNetwork						
Chiller-80	SpaceEquip	BacnetNetwork						
Chiller-81	SpaceEquip	BacnetNetwork						
Chiller-82	SpaceEquip	BacnetNetwork						
Chiller-83	SpaceEquip	BacnetNetwork						
Chiller-84	SpaceEquip	BacnetNetwork						
Chiller-85	SpaceEquip	BacnetNetwork						
Chiller-86	SpaceEquip	BacnetNetwork						
Chiller-87	SpaceEquip	BacnetNetwork						
Chiller-88	SpaceEquip	BacnetNetwork						
Chiller-89	SpaceEquip	BacnetNetwork						
Chiller-90	SpaceEquip	BacnetNetwork						
Chiller-91	SpaceEquip	BacnetNetwork						
Chiller-92	SpaceEquip	BacnetNetwork						
Chiller-93	SpaceEquip	BacnetNetwork						
Chiller-94	SpaceEquip	BacnetNetwork						
Chiller-95	SpaceEquip	BacnetNetwork						
Chiller-96	SpaceEquip	BacnetNetwork						
Chiller-97	SpaceEquip	BacnetNetwork						
Chiller-98	SpaceEquip	BacnetNetwork						
Chiller-99	SpaceEquip	BacnetNetwork						
Chiller-100	SpaceEquip	BacnetNetwork						

- To filter by device type, click Device Filter, select the device type, and click OK.
- To customize the column information, click Column Filter to add or remove columns.



**Figure 201: Column Filter**



### Deleting a Point Summary

1. Display the Point Summary Manager by double-clicking Point Summary Manager in the Navigation side bar (under the Station container) or Nav side bar (under the Station > Root container).
2. From the Point Summary List screen, select the point summary you want to delete.
3. Click Delete Point Summary.

### Viewing Non-Normal Points

Non-normal points are points that are in some sort of bad state (for example, points that are in a fault or an alarm state).

1. Display the Point Summary Manager by double-clicking Point Summary Manager in the Navigation side bar (under the Station container) or Nav side bar (under the Station > Root container). The Point Summary List screen appears.
2. Click Non-Normal Point Summary. A report appears displaying non-normal points.

# Point Group Manager

The Point Group Manager is a feature unique to the Johnson Controls FX Workbench. This section describes how to organize points in a station, using the Point Group Manager.

## Folders and Groups

Use folders as a way to organize points in a station. For example, you can create folders to organize the points based on building layout, equipment type, or floor.

**Note:** We recommend that you create folders prior to grouping points in your station. Folders not only force you to think about the structure and layout of your system, but they also prevent possible rework when you organize your points.

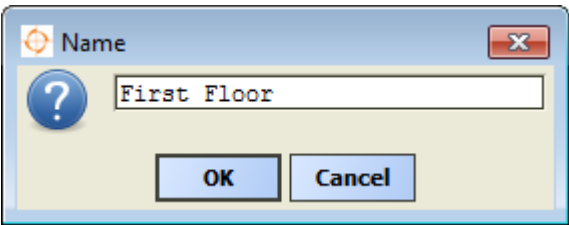
Point groups provide a way to organize points that share similarities.

## Using the Point Group Manager

### Creating a Point Group Folder

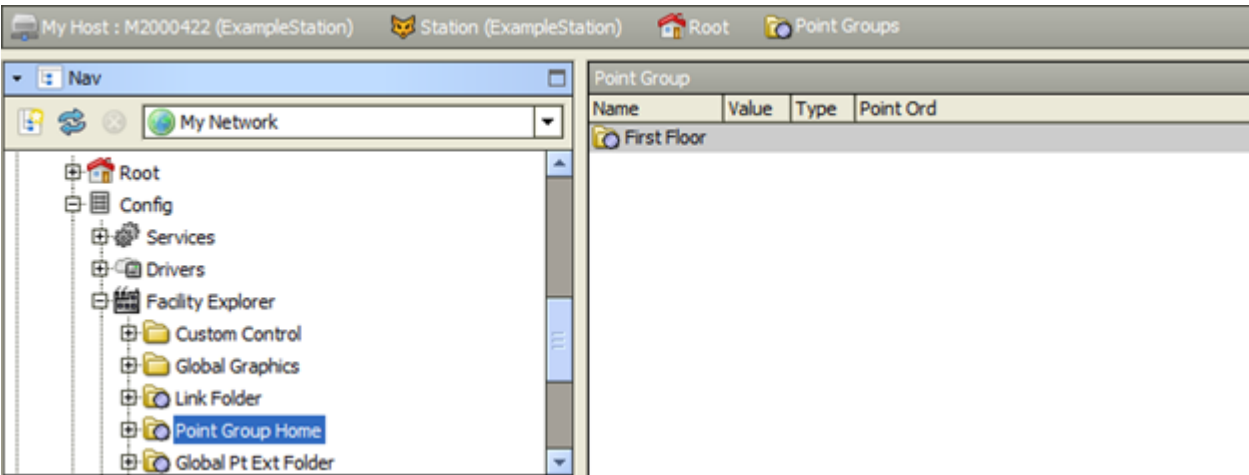
1. Display the Point Group Manager, either by double-clicking Point Groups in the Navigation side bar or by double-clicking Point Group Home in the Nav side bar.
2. Click New Folder. The Name dialog box appears.
3. Enter the name of the folder and click OK.

Figure 202: Point Group Folder Name Dialog Box



4. The new Point Group folder appears in the Point Group Manager.

Figure 203: Point Group Manager

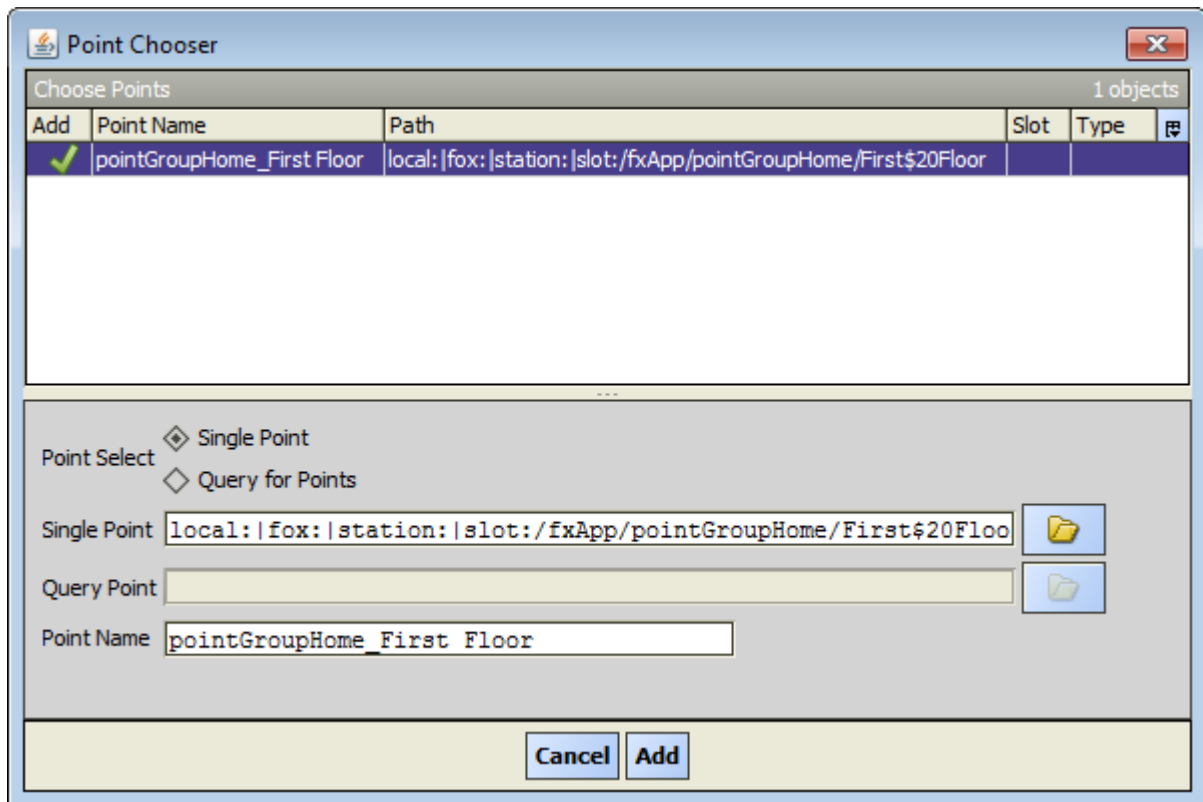


### Adding a Single Point to a Point Group Folder

1. Display the Point Group Manager, either by double-clicking Point Groups in the Navigation side bar or by double-clicking Point Group Home in the Nav side bar.
2. Double-click the folder to which you want to add the point.

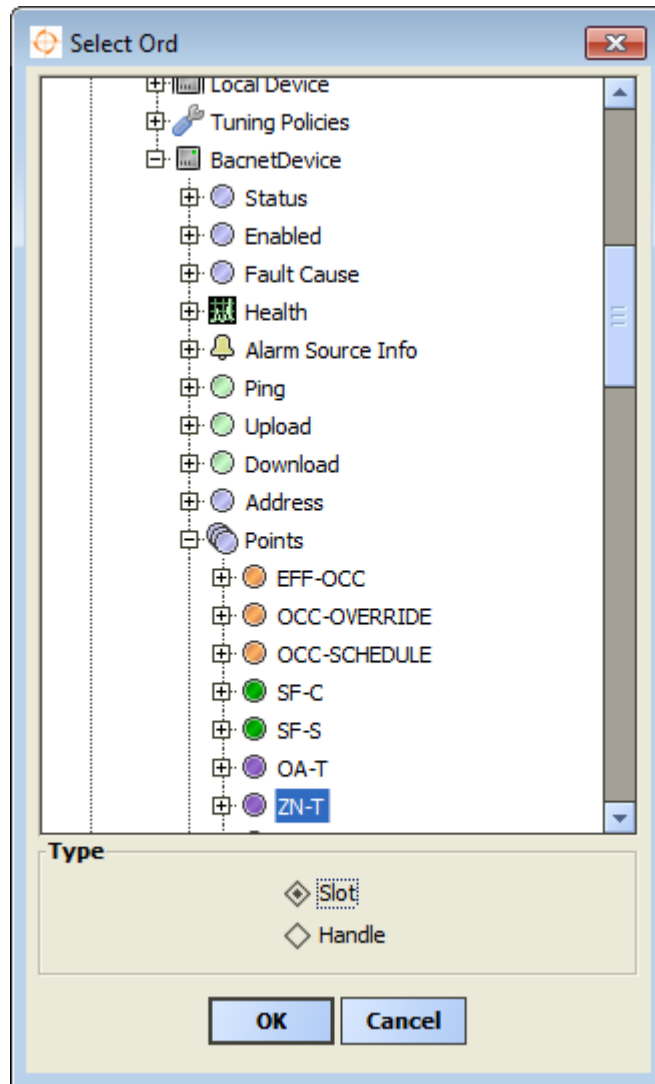
3. Click New. The Point Chooser dialog box appears.

**Figure 204: Point Chooser Dialog Box**



4. Select Single Point.
5. Click the Open Folder icon to the right of Single Point field. The Select Ord dialog box appears.

Figure 205: Select Ord Dialog Box



6. Browse to the point you want to add.

**Note:** Typically, points are located under Config > Drivers > driver\_n > device\_n > Points.

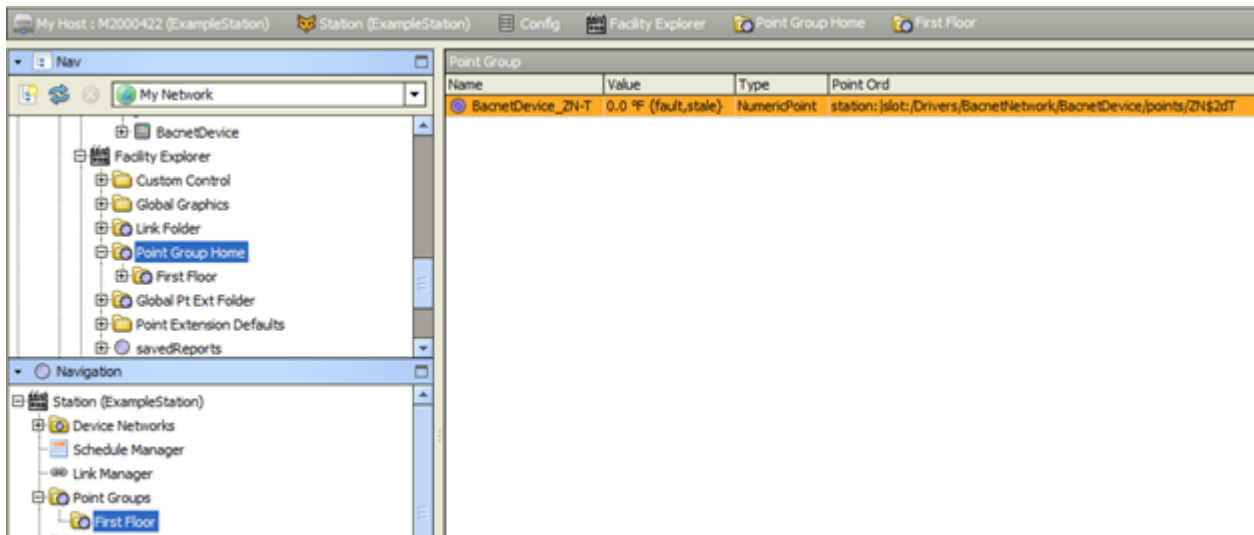
**Note:** Make sure to select Slot in the Type section of the Select Ord dialog box.

7. If desired, use the Point Name field to modify how the point's name appears in the Group folder. If you do not want to change the point name, leave this field blank.

**Note:** We recommend that you modify the point name. This makes the points easier to distinguish.

8. Click Add. The point now appears in the Point Group folder.

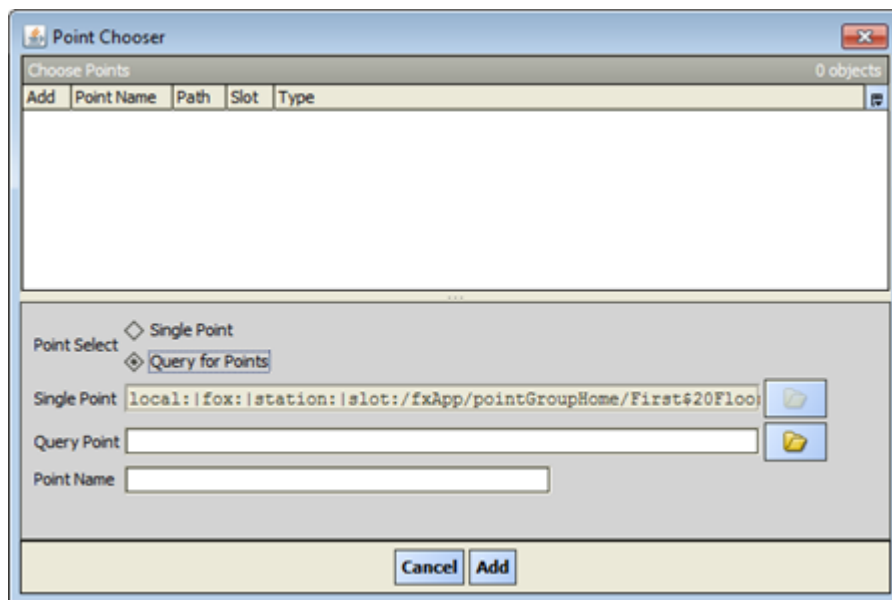
**Figure 206: Point Added to Point Group Folder**



### ***Adding Multiple Points to a Point Group Folder***

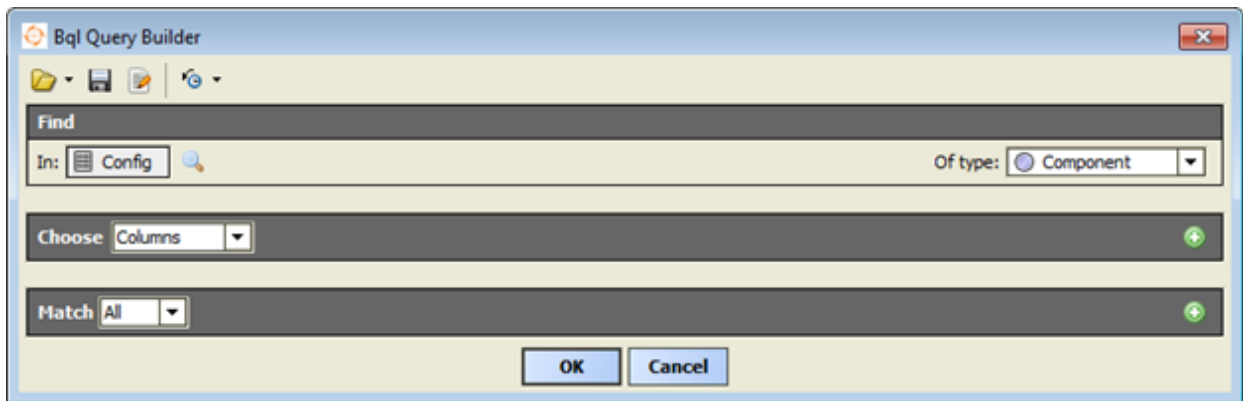
1. Display the Point Group Manager, either by double-clicking Point Groups in the Navigation side bar or by double-clicking Point Group Home in the Nav side bar.
2. Double-click the folder to which you want to add the points.
3. Click New. The Point Chooser dialog box appears.

**Figure 207: Point Chooser Dialog Box**



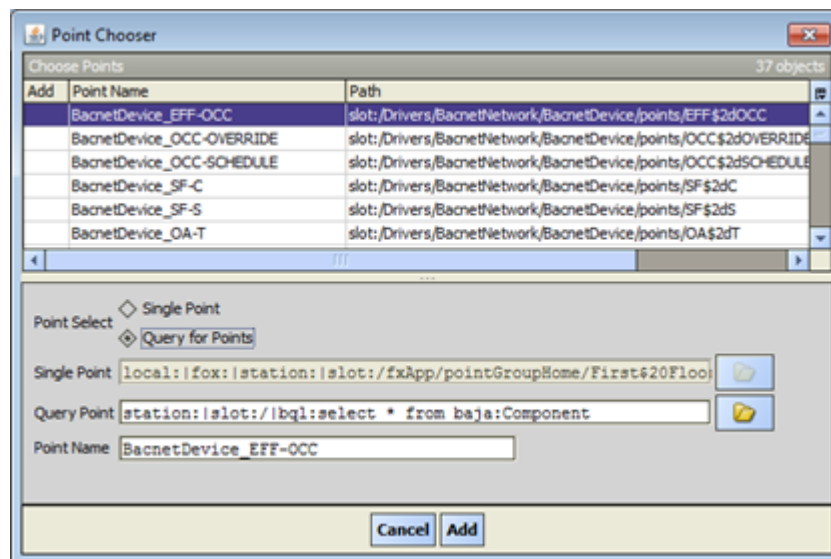
4. Select Query for Points
5. Click the Open Folder icon to the right of the Query Point field. The Bql Query Builder appears.

Figure 208: Bql Query Builder



6. Use the Bql Query Builder to define the search instructions for the points you want to find and add. The **In:** field allows you to define where to start searching in the nav tree. The **Of Type** field lets you filter your search by type of component. The Match field works with the plus to filter objects using search criteria. For more information about how to use the Bql Query Builder, refer to the *Niagara Drivers Guide*.
7. Click OK. The Point Chooser dialog box appears and lists all the points resulting from your Bql Query.

Figure 209: Point Chooser Dialog Box



8. Click the Add column for every point you want to add.
  9. If desired, select the point you want and use the Point Name field to modify how the point's name appears in the Group folder. If you do not want to change the point name, leave this field blank.
- Note:** We recommend that you modify the point name. This makes the point more unique according to how they are grouped.
10. Click Add.

## Deleting a Point Group Folder

1. Display the Point Group Manager, either by double-clicking Point Groups in the Navigation side bar or by double-clicking Point Group Home in the Nav side bar.

2. Select the Point Group folder you want to delete and click Delete. The Point Group folder and all the points it contained are removed from the Point Group Manager.

***Deleting a Point from a Point Group Folder***

1. Display the Point Group Manager, either by double-clicking Point Groups in the Navigation side bar or by double-clicking Point Group Home in the Nav side bar.
2. Double-click the folder that contains the point or points you want to delete.
3. Select the point or points to delete and click Delete. The points are removed from the Point Group folder.

# JCI User Manager

The JCI User Manager is a feature unique to the Johnson Controls FX Workbench. The JCI User Manager provides a mechanism to quickly add new users to an FX Supervisory Controller or FX Server station.

## Roles

**Table 95: Roles**

Role	Description	Permissions
<b>Tenant</b>	The Tenant role has the least number of privileges. Assign this role to users who are only interested in the occupancy status and temperature of the rooms. For example, a Tenant role might be a building administrator assistant, a receptionist, or a janitor.	<ul style="list-style-type: none"> <li>• View points and point groups</li> <li>• Change the occupied times in the Scheduler.</li> </ul>
<b>Maintenance</b>	The Maintenance role has a limited number of privileges. Assign this role to users who use the system daily to perform small modifications to station information. For example, a Maintenance role might be a facilities manager or a maintenance person.	<p>Maintenance role permissions contain the Tenant role permissions, plus:</p> <ul style="list-style-type: none"> <li>• Add, edit, configure, and delete alarms.</li> <li>• Use the alarm console.</li> <li>• Add, edit, configure, and delete histories.</li> <li>• Use the history console.</li> </ul>
<b>Operator</b>	The Operator role has slightly fewer privileges than the Administrator role. Assign this role to people who set up a system. For example, an Operator role might be a building engineer or a controls contractor.	<p>Operator role permissions contain the Maintenance role permissions, plus:</p> <ul style="list-style-type: none"> <li>• Use the Station Wizard (if the operator has FX Workbench installed on the computer).</li> <li>• Edit graphics.</li> <li>• Edit schedules.</li> <li>• Add, edit, configure, and delete devices.</li> <li>• Perform time/date management.</li> <li>• Edit the Email Config screen.</li> </ul>
<b>Administrator</b>	The Administrator role has full access to the station. Assign this role to someone who not only needs to set up a system but also needs the flexibility of working with all features. For example, an administrator role might be a fully trained controls contractor.	<p>Administrator role permissions contain the Operator role permissions, plus:</p> <ul style="list-style-type: none"> <li>• Add, edit, and delete user profiles.</li> </ul>
<b>HXAdmin</b>	<p>The HXAdmin role has full access to the station, but is specifically used if you want to access the station with a mobile device (such as an iPhone® or iPod touch®). When you select this user role, the Nav file sets to HxNavFile.nav and the Web Profile Type sets to Jci Handheld Hx Profile. The user ID and password you define are used as the login name and password when you connect to a station via your mobile device.</p> <p><b>Note:</b> You must select the HXAdmin role if you want the ability to access the station from a mobile device.</p>	If you have the HXAdmin role permissions, you have access and monitoring control of a station on a mobile device.

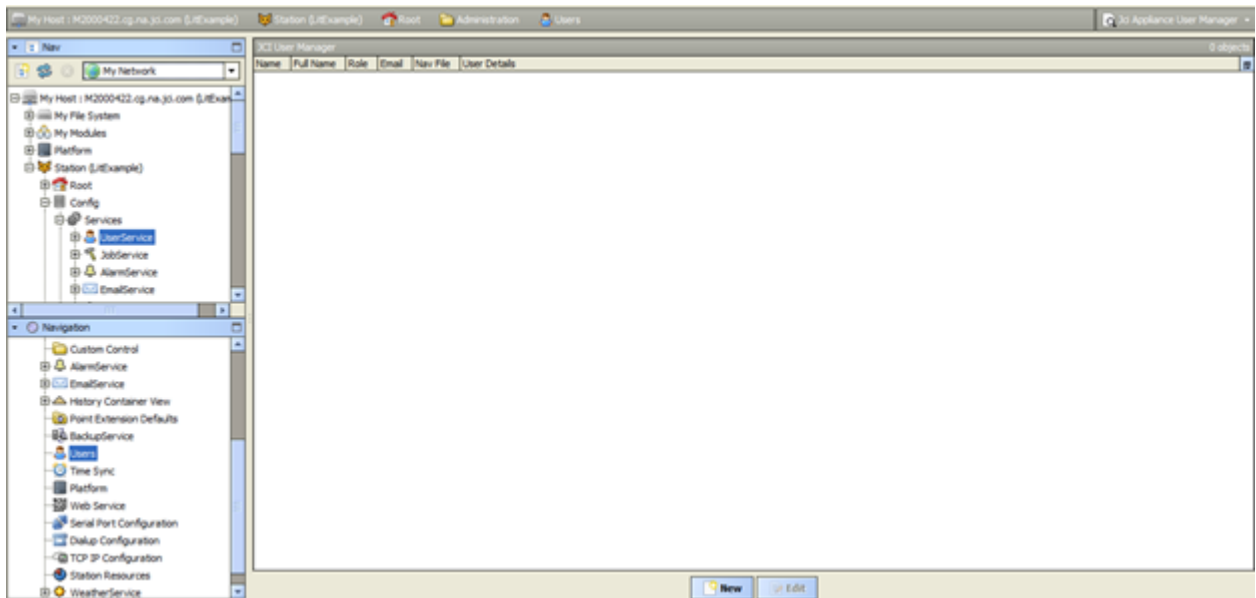


When you add a user, you assign a role to the user. FX Workbench allows you to create different roles with different privileges for each role.

## ***Adding User with the JCI User Manager***

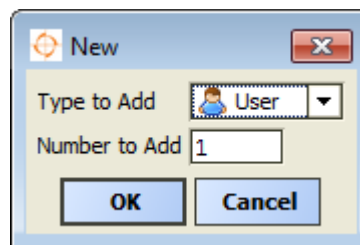
1. Display the JCI User Manager, either by double-clicking the UserService container in the Nav side bar (under Station > Config > Services >) and then changing the view with the View Selector or by double-clicking the Users container in the Navigation side bar (under Station > Administration).

**Figure 210: JCI User Manager**



2. Click New. The New dialog box appears.

**Figure 211: New User Dialog Box**



3. Enter the number of users to add and click OK. The New dialog box appears.

**New**

Name	Full Name	Role	Password	Email	Nav File	User Details
User		Administrator	--password--		file: ^NavFile.nav	Contact Information

☒ **Name**

☒ **Full Name**

☒ **Role**

☒ **Password**
  
 Password 
  
 Confirm

☒ **Email**

☒ **Nav File**

☒ **User Details**

☒ **User Details (Contact Information)**

☐ ☒ Address

☐ ☒ Phone

☐ ☒ Fax

☐ ☒ Cell

☐ ☒ Pager

☐ ☒ Allow Scheduled Access

☐ ☒ Help File

☐ ☒ User Agent

- ### Table 96: User Properties

FX Workbench User's Guide

**Table 96: User Properties**

Field	Description
Nav File	Specify a Nav file that provides custom navigation for the user, defining locator bar content and home page. Click the folder control for a File Chooser dialog to navigate to the location of the station's .nav files (by convention, a <b>Nav</b> folder under the station directory).
Address	This is an optional field allowing you to enter the user's address.
Phone	This is an optional field allowing you to enter the user's phone number.
Fax	This is an optional field allowing you to enter the user's fax number.
Cell	This is an optional field allowing you to enter the user's cell phone number.
Pager	This is an optional field allowing you to enter the user's pager number.
Allow Scheduled Access	Select true to enable user access via a Schedule. When set to true, additional components are added to the UserDetails that allows this user to be selected in the Schedule Manager.  Select false to disable scheduled access.
Help File	Enter the desired help file for this user. This field is usually left at its default FXAdminHelpHTML.chm.
User Agent	This is a read-only field used by HxAdmin users (the information comes from a mobile browser logging into FX Workbench). The information identifies the type of device connecting to FX Workbench to select the proper mobile device configuration information.

- Click OK. The new user is added.

## Hardware Scan Service

In FX Workbench, you have the option to add the Hardware Scan Service. This service presents a complete hardware profile of the hosting supervisory controller in a graphical display. This display includes the controller's Product Model type (which is a combination of its base board and NPM module, if applicable) with a representative controller image, along with details about installed option cards. You can use this information when troubleshooting remotely, or after adding an option card to confirm a COM address for a specific port.

**Note:** This service is only available with Niagara Version 3.7 or later (FX 5.0 and later).

To use the hardware scan service, you must first install it.

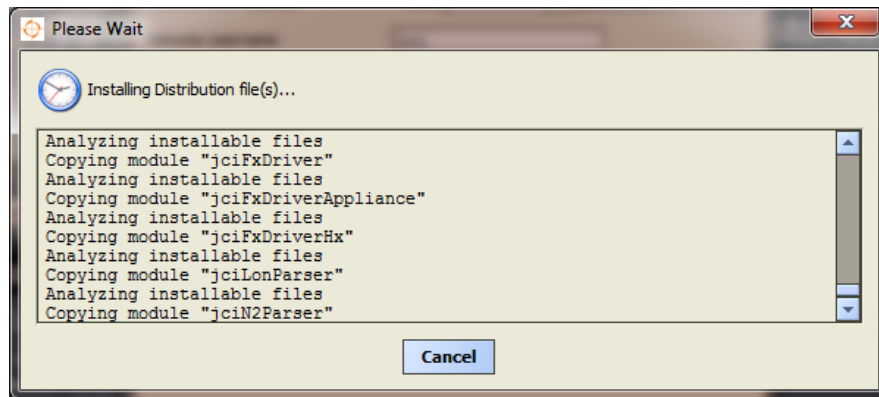
### *Installing the Hardware Scan Service*

1. In FX Workbench or FX Workbench Pro, click the Tools menu, then click Install Hardware Scan. The Hardware Scan Service screen appears.

**Figure 213: Hardware Scan Service File Installation**

2. In the Remote Site Address field, enter the IP address of the device to which you want to install the Hardware Scan Service.
3. In the Remote Username and Remote Password fields, enter your remote user name and password.
4. If necessary, select the Change Platform Port Number check box and enter a different port number.
5. Click Finish. FX Workbench installs the hardware scan files on the device. After the files are installed, your FX Workbench session is disconnected and your device restarts.

**Figure 214: Installing Distribution Files**



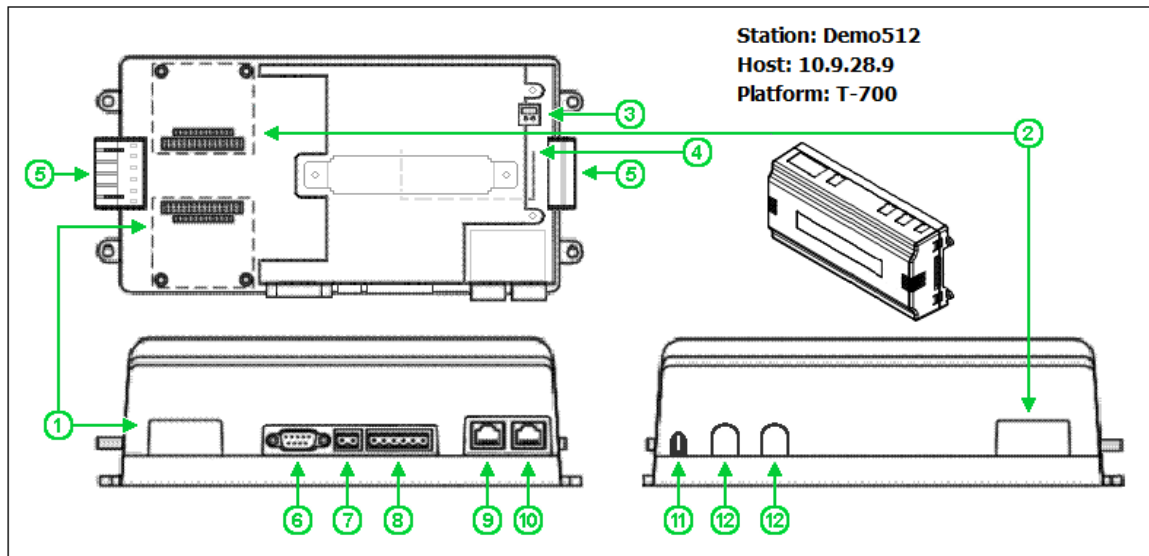
6. After the device restarts, log in to the device again.

To locate the the Hardware Scan service that you just installed, go to the Nav tree > Station > Config > Services > PlatformServices > HardwareScanService.

### ***Performing a Hardware Scan***

1. For the device you want to scan, go to the Nav tree > Station > Config > Services > PlatformServices.
2. Double-click HardwareScanService. A detailed graphic of the device appears.

**Figure 215: Hardware Scan Graphic**



Reference	Location	Description	Port Type	Status
1	Option Slot1	Empty		
2	Option Slot2	Empty		
3	Base Unit	Serial Shell Jumper		Serial Shell
4	Pci Slot	empty		
5	Base Unit	COM2	RS-485	Owned by mstp1
6	Base Unit	COM1	RS-232	Owned by Serial Shell
7	Base Unit	External 12V Battery Backup		
8	Base Unit	Contact Inputs		
9	Base Unit	LAN1	Ethernet	Available
10	Base Unit	LAN2	Ethernet	Disabled
11	Base Unit	Electrical Ground		
12	Base Unit	Antenna Knockouts		

## Meters

FX Workbench includes features that allow you to easily add EM Series energy meters to your FX Supervisory Controller station. FX Workbench supports three different types of meters, depending on the type of network you have set up in your station.

### EM1000 Meter

The EM1000 meter is a **Modbus® Async device**. The EM1000 meter is an affordable multifunction power meter designed to be used in electrical substations, panel boards, and as a power meter for OEM equipment.

### EM2000 Meter

The EM2000 meter is a **BACnet® device**. The meter is designed to integrate seamlessly into existing and new building management systems using BACnet protocol.

### EM3000 Meter

The EM3000 meter is a **Modbus TCP device**. The EM3000 meter is a high-performance product designed to measure revenue grade electrical energy usage and communicate back that information using modern communication media.

## Adding Meters

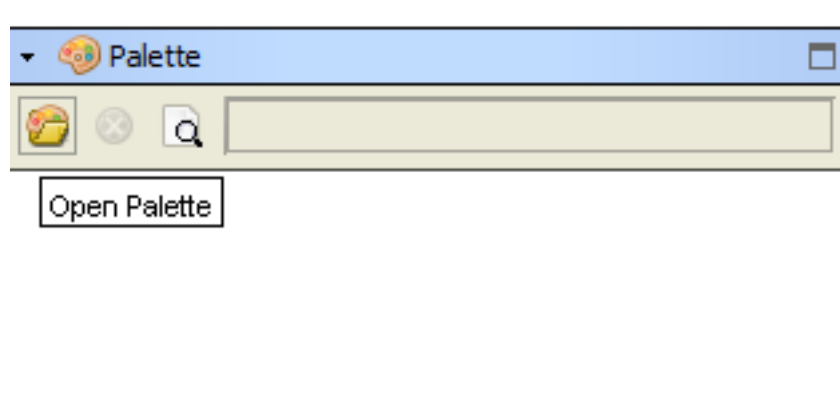
You can add meters in three ways:

- [Adding a Meter Using the Palette](#)
- [Adding Multiple Meters By Using the JCI Meter Manager](#)
- Adding meters when you import a station using Batch Import. For more information about adding meters using Batch Import, see [Batch Import](#).

### Adding a Meter Using the Palette

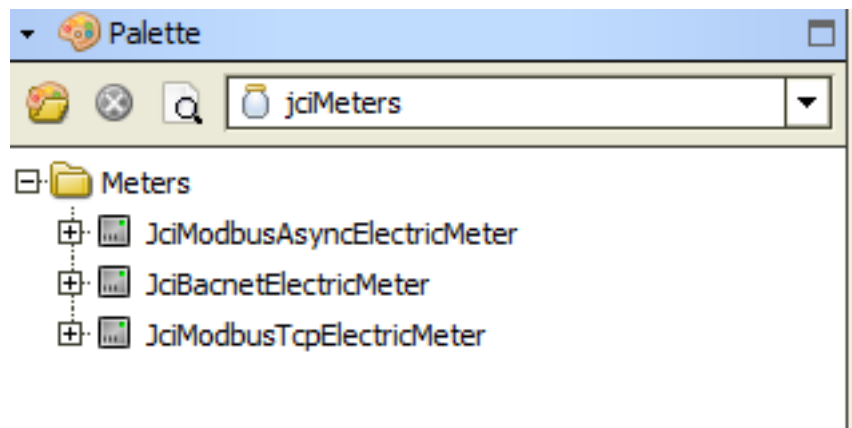
1. On the Toolbar, click Sidebars > Palette. The Palette appears on the left side of the screen.

Figure 216: Open Meter Palette



2. Click Open Palette.
3. Scroll down the Module list, select **jciMeters**, and click OK. The Meters palette appears.

Figure 217: Meters Palette



4. In the Navigation tree, expand the device network that you want to add the meter to.
5. On the palette, select the meter you want to add.

**Note:** You must select a meter that is compatible with the network. You cannot, for example, add a JciModbusAsyncElectricMeter to a BACnet network.

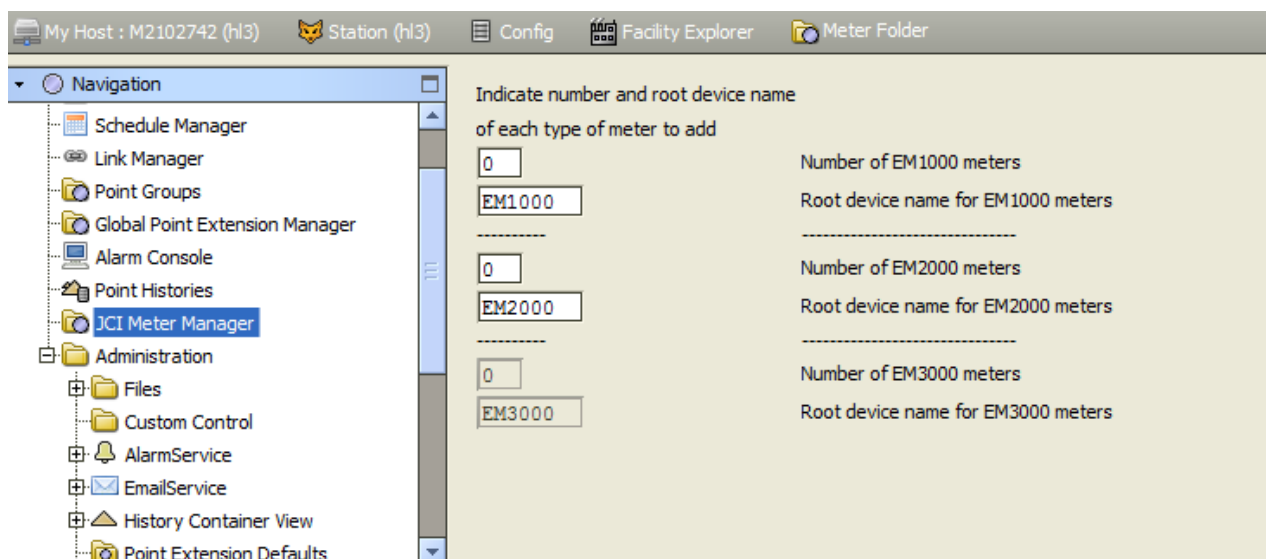
6. Drag the meter type from the palette to the appropriate network container. For example, drag a JciBacnetElectricMeter component from the jciMeters palette to the BacnetNetwork container. The meter is now added to your network.

## Adding Multiple Meters By Using the JCI Meter Manager

Use the following steps to add multiple meters by using the JCI Meter Manager.

1. In the Navigation tree, double-click JCI Meter Manager. The JCI Meter Manager screen appears.

Figure 218: JCI Meter Manager Screen



2. Do one or more of the following:

**To Add an EM1000 Meter to your Modbus Async Network**



- a. In the EM1000 section, enter the number of meters you want.
- b. Enter the root device name.

#### **To Add an EM2000 Meter to your BACnet Network**

- a. In the EM2000 section, enter the number of meters you want.
- b. Enter the root device name.

#### **To Add an EM3000 Meter to your Modbus TCP Network**

- a. In the EM3000 section, enter the number of meters you want.
- b. Enter the root device name.

**Note:** The meter fields on the screen appear dimmed if you do not have the network for the meter.

3. Click Add Meters. The meters now appear as devices in the appropriate device network container. Each meter's device name is created from the root device name that you identified together with an automatically appended numeral. For example, if you add three meters with a root device name of **EM1000**, then three meters are added with the device names **EM10001**, **EM10002**, and **EM100003**.

**Note:** If necessary, click Reset to reset the data on the screen.

### ***Matching BACnet Meter Components to Discovered BACnet Meters***

After you add a BACnet meter device component to the FX Supervisory Controller station database, you can use the Match function in the Bacnet Device Manager to match that the component to a discovered BACnet meter. This process copies essential configuration information from the discovered BACnet meter to the selected meter device component. To match a BACnet meter device component to a discovered meter device, follow these steps:

1. Go to the Bacnet Device Manager.
2. If the Discovered table is empty, perform the discover task.
3. Select one BACnet meter in the Discovered table and one BACnet meter device component in the Database table.
4. Click Match to match the devices. The Match dialog box appears. The Match dialog box is similar to the Add Device dialog box, where values are prepopulated from the online discovery. However, in the Match dialog box, you cannot edit the Type field.

**Note:** You can also type **m** for a Quick Match. Doing this bypasses the Match dialog box and the match is made in the station database.

5. Edit the meter properties as needed.
6. Click OK. The discovered meter device appears dimmed, indicating that the meter device is represented in the station database as a BACnet device component.

### ***Configuring the JciModbusAsyncEnergyMeter***

The default address for all JciModbusAsyncEnergyMeter device components added to the station database is 1. You must change this address to the actual address of the EM1000 meter.

1. In the Navigation Tree, double-click the JciModbusAsyncEnergyMeter device component.
2. Use the View Selector to open its property sheet.
3. In the Device Address field, enter the actual Modbus device address for the EM1000 meter.
4. Click Save. Repeat this procedure for all JciModbusAsyncEnergyMeter device components.

### ***Configuring the JciModbusTcpEnergyMeter***

You must configure the communication properties of the JciModbusTcpEnergyMeter to match the address of the actual EM3000 meter.

1. In the Navigation Tree, double-click the JciModbusTcpEnergyMeter device component.
2. Use the View Selector to open its property sheet.
3. In the Device Address field, leave it set to **1**.
4. In the IP Address field, enter the actual IP address for the EM3000 meter.
5. In the Portal field, enter the actual Modbus port for the EM3000 meter.

**Note:** The default Modbus TCP port for all EM3000 meters is 502. This is also the default setting in FX Workbench. Therefore, you only need to change the setting if the EM3000 meter was configured to use a different TCP port.

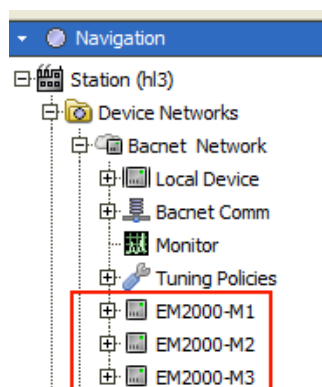
6. Click Save. Repeat this procedure for all JciModbusTcpEnergyMeter device components.

## Viewing Meter Information

After you add meters to the device network, you can view information about them.

1. Expand the Device Network for the meter you want to view. A list of meters appears.

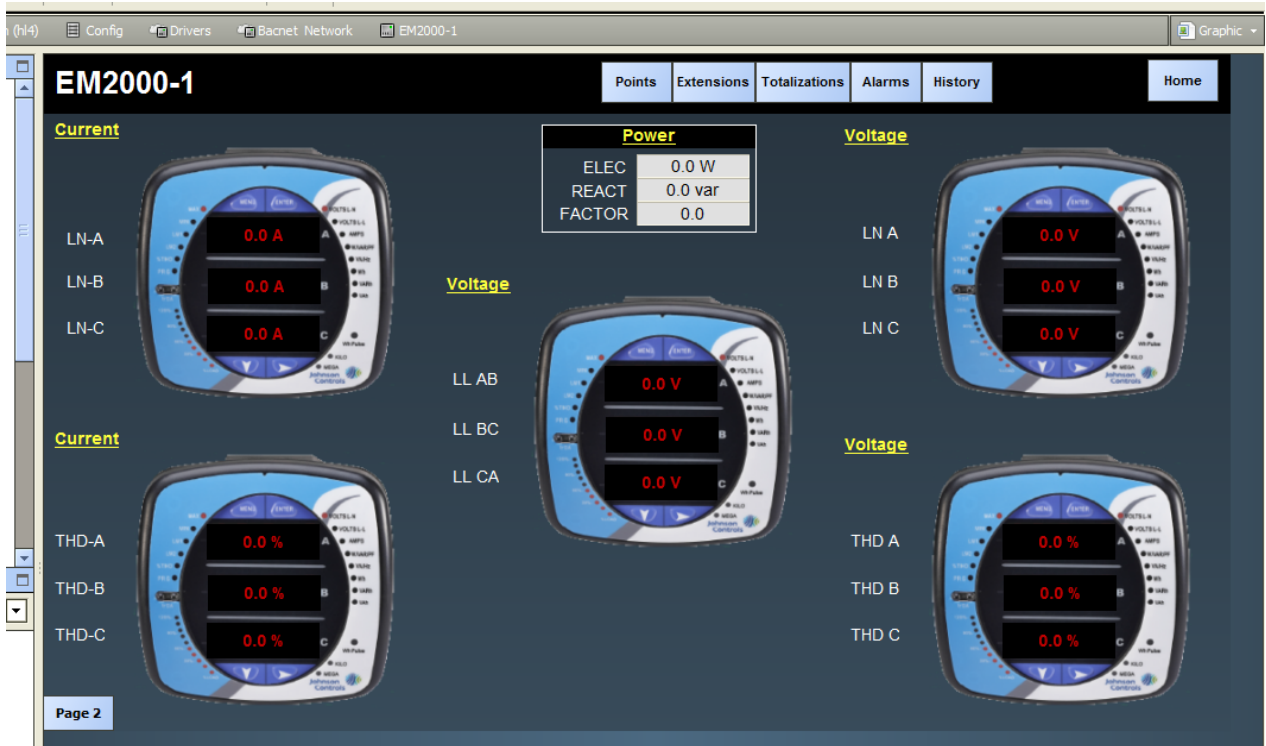
**Figure 219: Meters in Navigation Tree**



2. Double-click the meter you want to view. The meter graphic appears.

The meter graphics work the same as any device graphic. You can click Points to view points; click Extension to view the Point Extension Manager; click Totalization to view totalization information; click Alarms to view alarms; and click History for history data.

Figure 220: Meter Graphic - Page 1



- Click Page 2 (near the bottom of the screen). A graphic displays a different view of the meter data .

Figure 221: Meter Graphic - Page 2



- Click Page 1 to return to the previous graphic.

## Launch FX-PCT

FX Workbench Pro allows you to launch Facility Explorer Programmable Controller Tool (FX-PCT). FX-PCT is used to configure, simulate, and commission the Facility Explorer Programmable Controllers (FX-PCGs, FX-PCVs, and FX-PCXs).

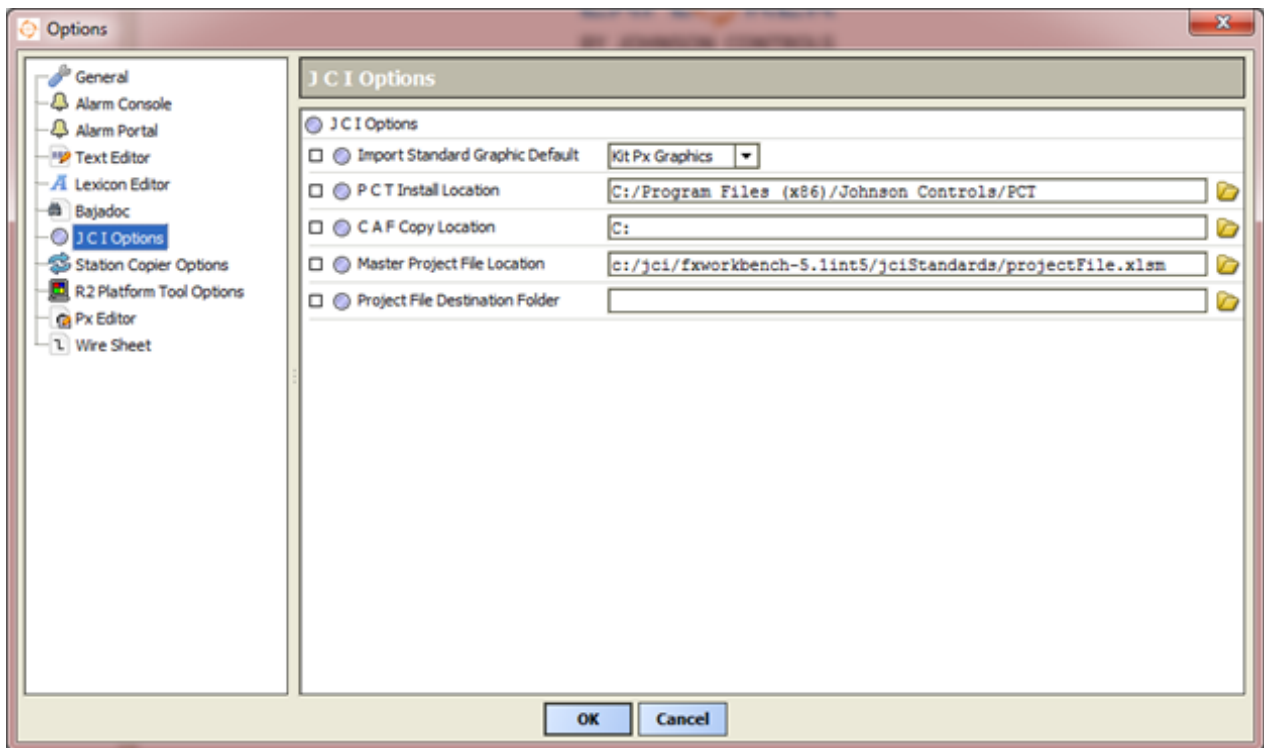
### Prerequisites

You must have FX-PCT 6.0 or later installed on your computer.

Before you use this feature, you may want to specify the FX-PCT installation location or the location for storing .caf files. To do this, follow these steps:

1. In FX Workbench Pro, click Options on the Tools menu.
2. In the Options dialog box, click JCI Options. The JCI dialog box appears.

**Figure 222: JCI Options Dialog Box**



3. Do the following:
  - a. To specify the location in which FX-PCT is installed on your computer, use the folder icon to set the PCT Install Location field. The default location is the default installation path for FX-PCT on a Windows 7 computer. If PCT is installed on a different location on your computer, select a different path.
  - b. To specify the location in which .caf files are stored, use the folder icon set the CAF Copy Location field. The default location is **C:**. Use this directory if you select a .caf file stored on a FX Supervisor device (for example, FX20, FX60, or FX70). You must have write access to this location on your computer.
4. Click Save.
5. Close and then restart FX Workbench.

## Launching FX-PCT

In FX Workbench Pro, click the Tools menu, then click Launch PCT. If you are not logged into a station, FX-PCT opens without launching a .caf file. If you are logged into a station on FX Workbench, the Launch PCT screen appears.

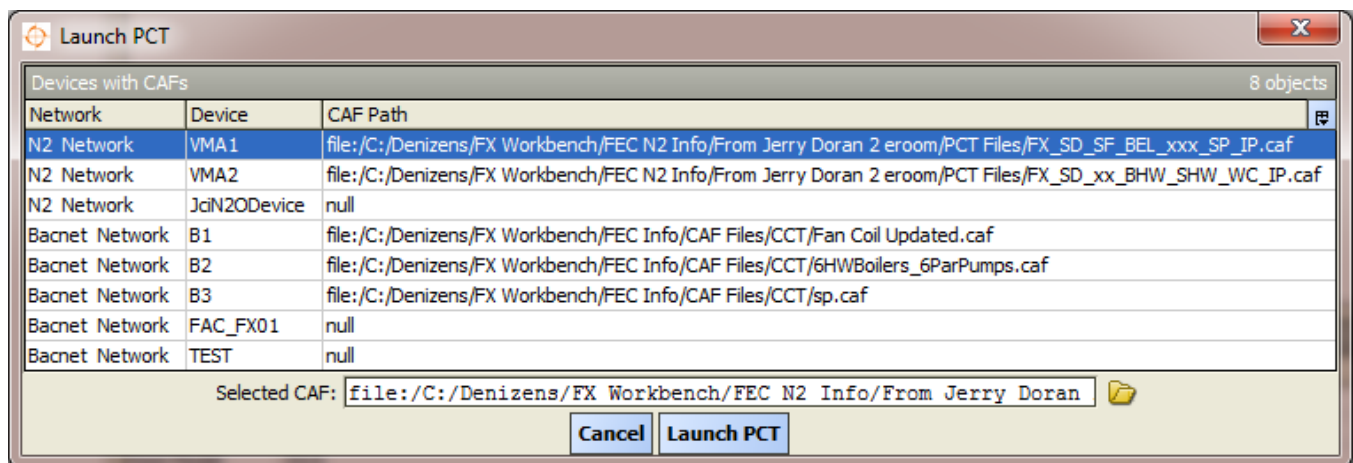
If you want to launch FX-PCT with a .caf file, either select a device with an associated .caf resource file or use the folder icon to select a .caf file on the computer or an FX Supervisor. If you select a .caf file on an FX Supervisor, the file is copied to the CAF copy location specified in the FX Workbench Options dialog box.

If you select a .caf file on an FX Supervisor, the file is copied to the CAF Copy Location specified in the FX Workbench Options dialog box.

**Note:** If you do not want to launch FX-PCT with a .caf file, do not select any file.

**Note:** If you make any changes to the .caf file that originated on an FX Supervisor, you need to copy the updated .caf file back to the FX Supervisor.

**Figure 223: Launch PCT**



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