

FX Tools Software Package - FX CommPro BACnet® User Guide

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FX Tools Software Package - FX CommPro BACnet® User Guide

Introduction

The FX CommPro BACnet® software is part of the FX Tools Pro and FX Tools Express software suite. Use FX CommPro BACnet software to download application software to Facility Explorer field controllers fitted with BACnet communication cards and to perform online commissioning activities.

Commissioning refers to a set of processes that ensures the control application operates according to the intended specification. FX CommPro BACnet tool allows you to test the control application with connected Facility Explorer controllers.

FX CommPro BACnet tool allows you to:

- read the device status
- download new control applications
- upload control applications (FX16 BACnet Rev. B only)
- read and write properties of the BACnet objects in the network profile
- modify parameters
- read device-specific data

To communicate with FX CommPro BACnet tool, the field controllers must have a BACnet communication card installed. Refer to the Facility Explorer documentation for the appropriate controller ordering information.

This document assumes that users are familiar with the BACnet protocol and Microsoft® Windows® Operating System (OS).

Installation and Startup

Installing FX CommPro BACnet Tool

Windows Operating System Upgrade

FX CommPro BACnet tool uses the Microsoft .NET Framework; therefore, you need to install Microsoft .NET Framework Version 2.0 to run FX CommPro BACnet tool.

Upgrade the Windows OS on your computer before you proceed with the tool installation.

The .NET Framework Version 2.0

The .NET Framework is a component of the Microsoft Windows OS used to build and run Windows OS based applications.

Checking the .NET Framework Installation

To check the .NET Framework installation:

1. From the Start menu, go to the Control Panel.
2. Double-click Add or Remove Programs. The Add or Remove Programs window appears.
3. Scroll down the list of applications. If Microsoft .NET Framework Version 2.0 appears, then the Windows OS upgrade is not necessary.

Getting Microsoft .NET Framework Version 2.0

To get Microsoft .NET Framework Version 2.0, go to the FX Tools Pro CD.

Installing FX CommPro BACnet Tool

To install FX CommPro BACnet tool:

1. Close all open programs.
2. Insert the FX Tools CD-ROM into the CD-ROM drive. The FX Tools starts automatically. The CD-ROM Navigator appears (Figure 1).

Note: If FX Tools does not start, select Autorun.exe to start it manually.

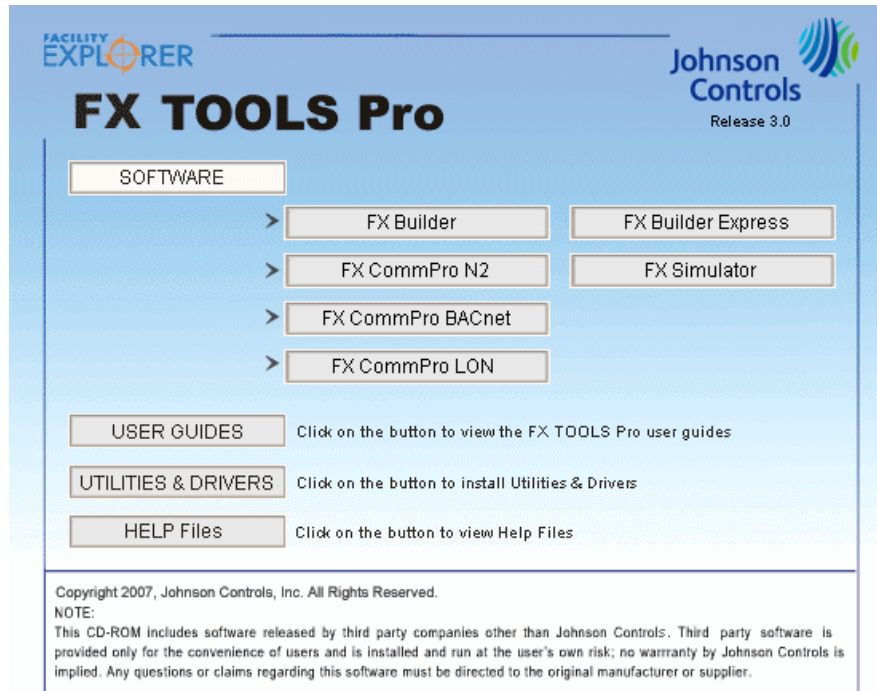


Figure 1: FX Tools Pro Software Menu

3. From the Software menu, click FX CommPro BACnet. The FX CommPro BACnet Open Setup Wizard appears (Figure 2).

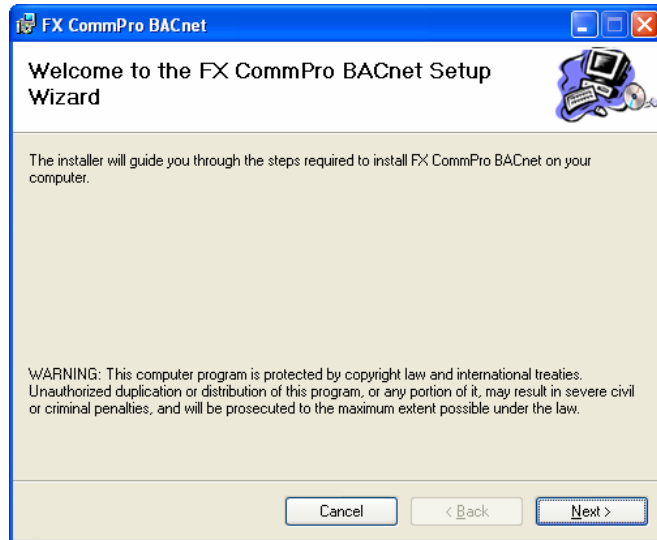


Figure 2: FX CommPro Installation Wizard

4. Click Next. The Select Destination Folder window appears (Figure 3).

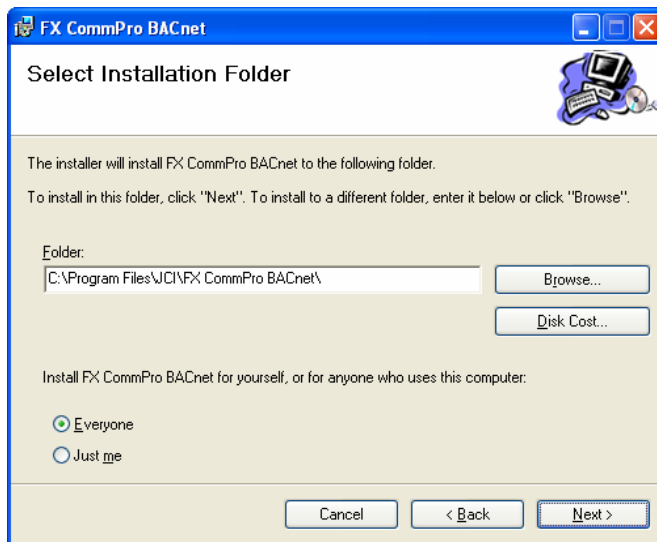


Figure 3: Destination Folder Window

5. To install FX CommPro BACnet tool in a directory other than the default directory shown in the Destination Folder box, click Browse and select a different directory.
6. Select **Everyone** to install FX CommPro BACnet tool for anyone who uses the computer. Select **Just me** to install FX CommPro BACnet tool for yourself.
7. Click Next. The Confirm Installation window appears (Figure 4).

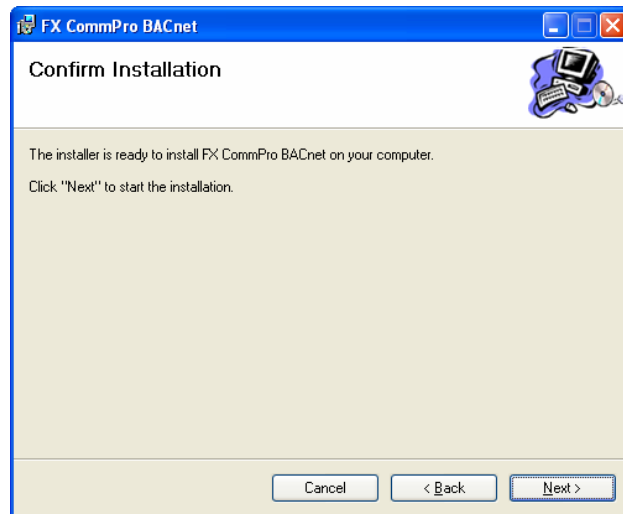


Figure 4: Confirm Installation Window

8. Click Next. The Installing FX CommPro BACnet window displays the progress of the installation (Figure 5). The FX CommPro BACnet Information window appears (Figure 6).

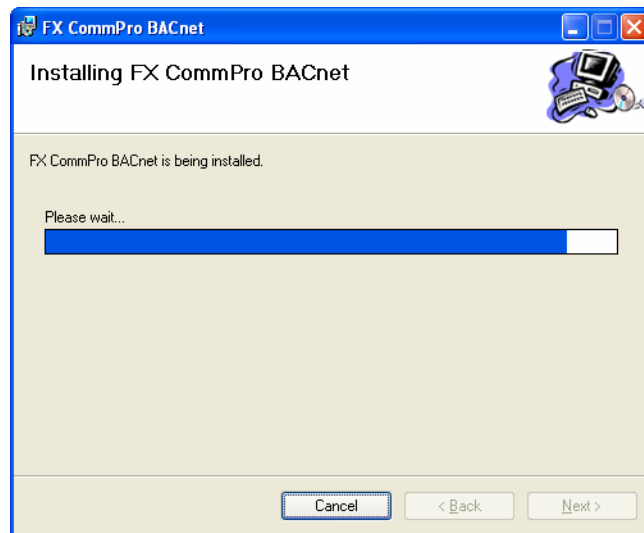


Figure 5: Installing FX CommPro BACnet Window

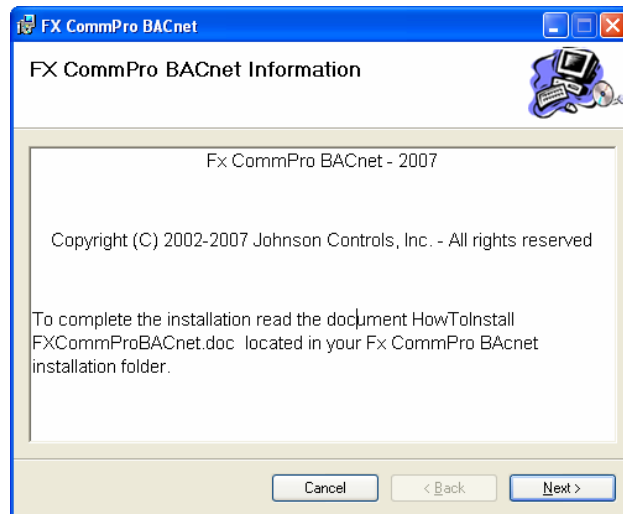


Figure 6: FX CommPro BACnet Information Window

9. Click Next. The Installation Complete window appears (Figure 7).

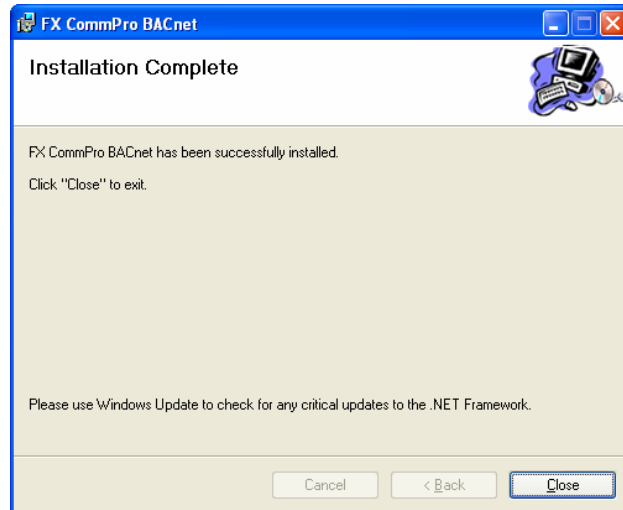


Figure 7: Installation Complete Window

10. Click Close.

Note: Do not rename the program directory after the program has been installed.

FX CommPro BACnet Tool Navigation

Starting FX CommPro BACnet Tool

To start FX CommPro BACnet tool, select Programs > FX Tools > FX CommPro > FX CommPro BACnet from the Windows Start menu.

Main Window

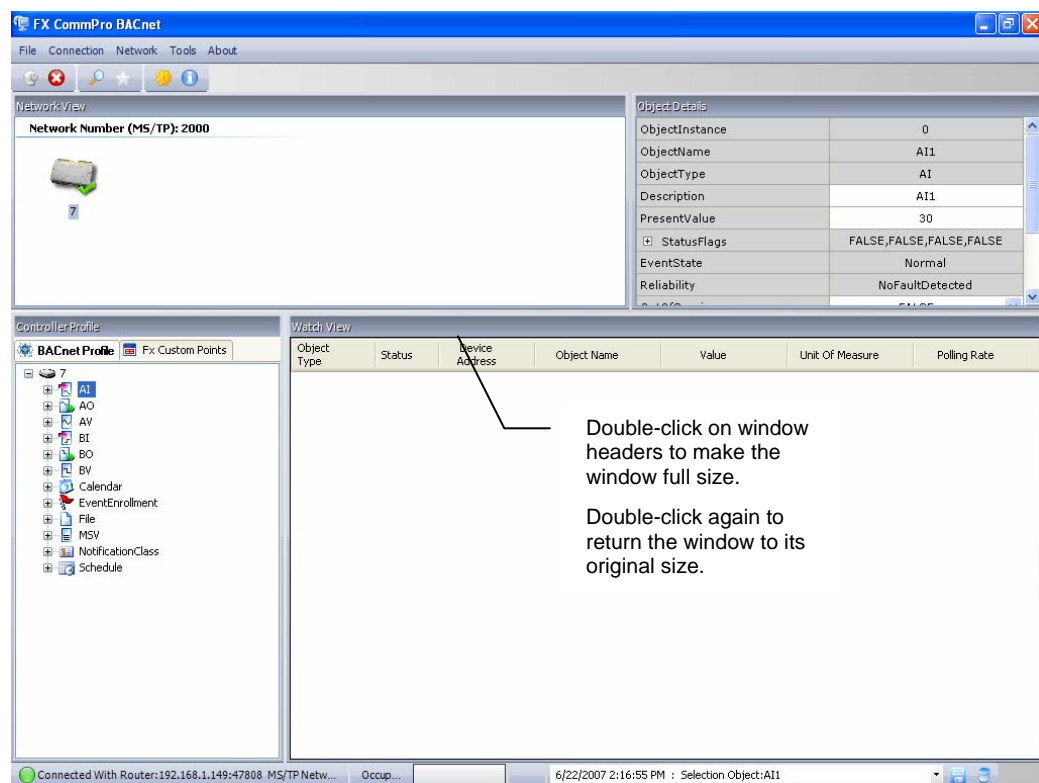


Figure 8: FX CommPro BACnet Tool Main Window

The FX CommPro BACnet tool main window contains the following areas:

- **Menu Bar and Toolbar** - provides an interface to the available actions allowed for the menu item or button you select.
- **Network View** - displays the identified BACnet devices, which includes their type and address.
- **Details View** - provides details about the selected BACnet device.
- **Profile View** - lists the BACnet points available to monitor, adjust, or command.
- **Watch View** - displays information of multiple points simultaneously.
- **Status Bar** - displays general information about the operation of the tool Network View area to show connected devices and their network variables.

Note: To view a window as a full size window, double-click on the window header. To return the window to its original size, double-click the window header again.

Menu Bar

In the Menu Bar (Figure 9), you can click on a menu item for a list of corresponding options. Available options appear in black. Unavailable Options appear in gray.

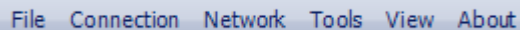


Figure 9: Menu Bar

File Menu

The File menu includes the following options:

- **Load Session** – opens and automatically reestablishes the session exactly as it was previously saved.
- **Save Session** - saves the session. This includes the connection settings, the devices that were scanned, and the watch view.
- **Load watchtemplate** – opens a Watch Template. The Watch Template provides a way for you to customize Watch Views.
- **Save watchtemplate** – saves a customized Watch View to a Watch Template.

Connection Menu

Use the Connection menu to open or close the network interface between FX CommPro BACnet tool and the field controllers.

- **Open** - provides a link to the Open Connection window.
In the Open Connection window, you can define and establish the network interface between FX CommPro BACnet tool and a BACnet network. Once the connection is established, the Scan BACnet window appears, allowing you to discover the devices on the BACnet network.
- **Close** - closes the network interface between FX CommPro BACnet tool and the BACnet network.

Network Menu

Use the Network menu to scan for devices on the BACnet network or to remove all devices from the Network View.

The Network Menu includes the following options:

- **Scan** - discovers all devices on the BACnet network within a user-identified range of MAC addresses.
- **Remove All** - removes devices from the BACnet network.

Tools Menu

The Tools Menu provides the following options:

- **Settings** - allows you to change the network connection parameters, device and object polling rates, Application Layer Protocol Data Unit (APDU) timeout, and write priority level.

View Menu

The View Menu allows you to show or hide the Network View, Details View, Profile View, and Watch View.

About Menu

Use the About Menu to view information about FX CommPro BACnet tool, including the revision.







Toolbar

The buttons in the toolbar (Figure 10) provide a shortcut to specific functions in FX CommPro BACnet tool. Table 1 shows the toolbar icons and describes their functions.



Figure 10: Toolbar

Table 1: Toolbar Icons

Icon	Description
	Opens a connection.
	Closes a connection.
	Scans the network for all devices within a specified Media Access Control (MAC) address range.
	Not used
	Allows you to change the network connection parameters, device, and object polling rates; APDU timeout; and write priority level.
	Provides information about FX CommPro BACnet tool.

Network View

The Network View shows all the devices currently connected to FX CommPro BACnet tool (Figure 11).



Figure 11: Network View

Network View Right-Click Options

You can add devices to the Network View or show/hide the network number when you right-click on an empty area in the Network View (Figure 12).

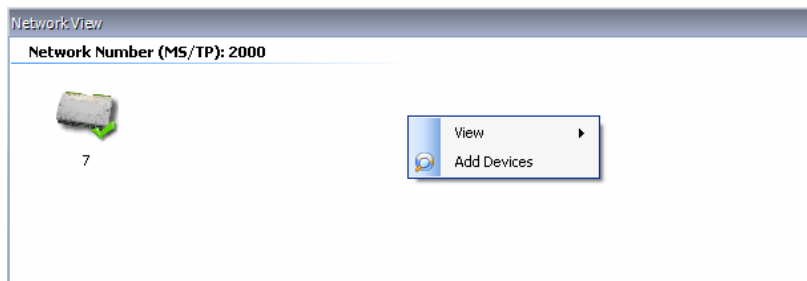


Figure 12: Network View Right-Click Menu Items

The right-click options include the following:

- **View** - allows you to show or hide the BACnet network number.
- **Add Devices** - opens the Scan window. Use the Scan window to discover BACnet devices within a specified range of MAC addresses.

Once devices appear in the Network View, you can perform several actions when you right-click on the selected device (Figure 13).

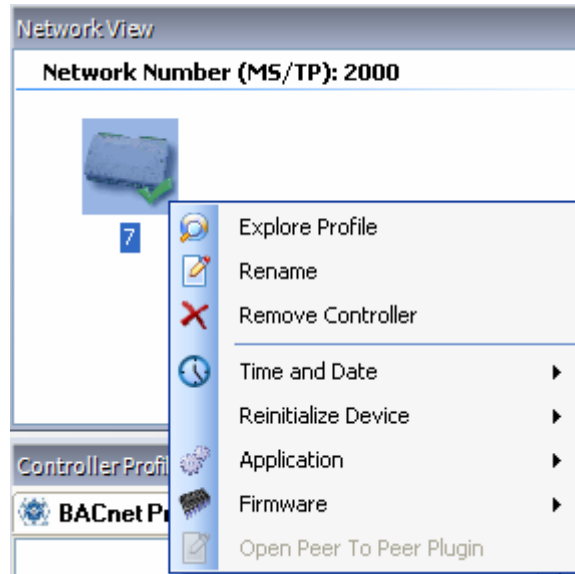


Figure 13: Network View Right-Click Menu Items

The right-click options include the following:

- **Explore Profile** - populates the Profile View with a tree showing all the objects in the BACnet device.
- **Rename** - allows you to change the name of the device.
- **Remove Controller** - removes the selected device from the Network View.
- **Time and Date** - updates the time and date of the selected devices to the time and date of the computer.
- **Reinitialize Device>Cold Start** - initiates a cold start of the selected devices.
- **Reinitialize Device>Warm Start** - initiates a warm start of the selected devices.
- **Application > Download** - downloads the desired application software file to the selected devices.
- **Firmware > Download** - downloads the desired firmware file (*.a37) to the selected devices.
- **Open Peer-to-Peer Plug-in** - opens the Peer-to-Peer plug-in, allowing you to define peer-to-peer data transfer bindings between client and server devices.

Profile View

The Profile View contains a tree that shows the application's BACnet profile points inside the selected device (Figure 14).

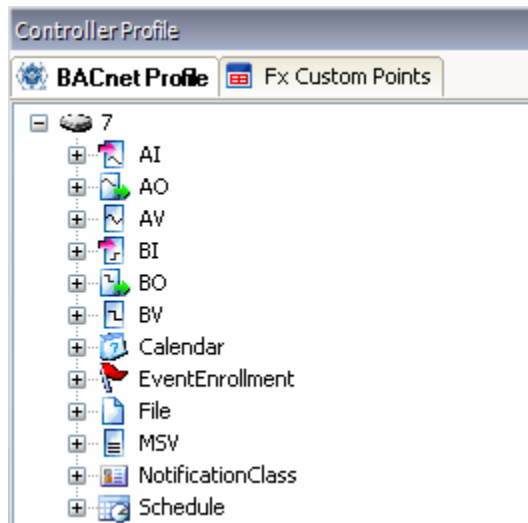


Figure 14: Profile View

Profile View Right-Click Options

When you right-click on the device name, or in an empty area of the Profile View (Figure 15), you can do the following:

- change the view mode between Group and Hierarchy
- sort objects by their Name or Instance Number
- add all objects to the Watch View
- remove all objects from the Watch View

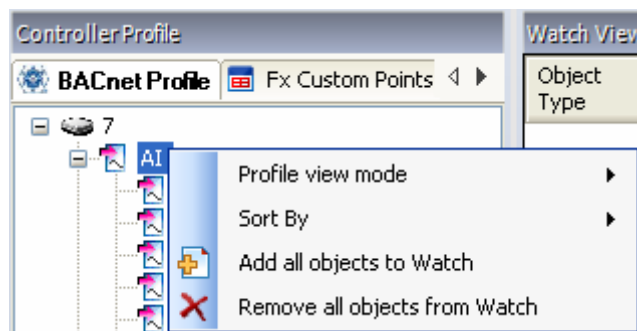


Figure 15: Profile View Right-Click Options

By right-clicking on the object, you can add or remove it from the Watch View.

Details View

The Details View contains detailed information about the device you select in the Network View or the object you select in the Controller Profile View (Figure 16).

Object Details	
ObjectInstance	7
ObjectName	BIG 07
ObjectType	Device
SystemStatus	Operational
VendorName	JCI
VendorIdentifier	5
ModelName	FX16D04
FirmwareRevision	06.1-31
ApplicationSoftwareVersion	CoV Enabled
Location	
Description	BIGApp v2.4 (5.0.33)
ProtocolVersion	1
ProtocolRevision	4

Object Details	
ObjectInstance	0
ObjectName	AI1
ObjectType	AI
Description	AI1
PresentValue	30
⊕ StatusFlags	FALSE,FALSE,FALSE,FALSE
EventState	Normal
Reliability	NoFaultDetected
OutOfService	FALSE
Units	degrees-Celsius
MinPresValue	-2
MaxPresValue	105
COVIncrement	0

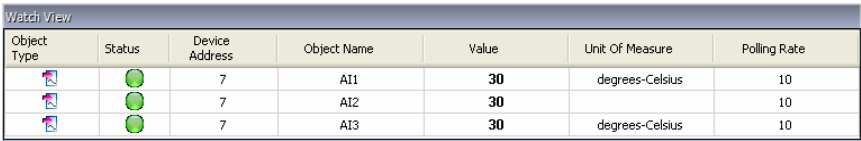
Figure 16: Details View

Information contained in the white fields is writable, whereas information contained in gray fields is read-only.

Watch View

The Watch View displays detailed information about objects from one or more devices (Figure 17). The detailed object information includes the following:

- Object Type
- Object Name
- Device Address
- Status
- Present Value
- Unit of Measure
- Polling Rate



Object Type	Status	Device Address	Object Name	Value	Unit Of Measure	Polling Rate
		7	AI1	30	degrees-Celsius	10
		7	AI2	30		10
		7	AI3	30	degrees-Celsius	10

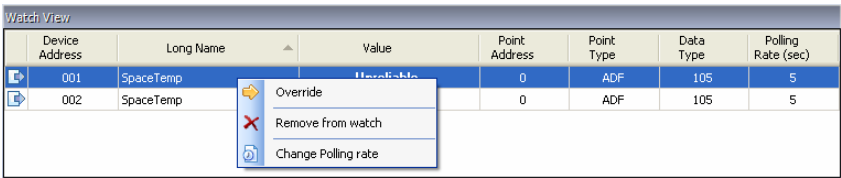
Figure 17: Watch View

You add objects to the Watch View from the Profile View. Objects in the Watch View appear in rows. Click on the column header to sort the objects (click once for ascending and click again for descending).

To remove an object from the Watch View, right-click on it and select Remove Watch.

To perform actions on one or more points, right-click on the points and select the desired action from the list (Figure 18). These actions include the following:

- Write to or override the point.
- Remove from Watch View.
- Change the poll rate.



Device Address	Long Name	Value	Point Address	Point Type	Data Type	Polling Rate (sec)
001	SpaceTemp	0	0	ADF	105	5
002	SpaceTemp	0	0	ADF	105	5

Override
 Remove from watch
 Change Polling rate

Figure 18: Watch View Right-Click Options

Connecting to Devices

FX CommPro BACnet tool (Figure 19) communicates via Internet Protocol (IP) over Ethernet. To connect FX CommPro BACnet tool to a Master-Slave/Token-Passing (MS/TP) field controller, you must install and configure a BACnet IP to MS/TP router or other adapter. We recommend you use the LP-KIT204-000C BACnet IP to MS/TP adapter.

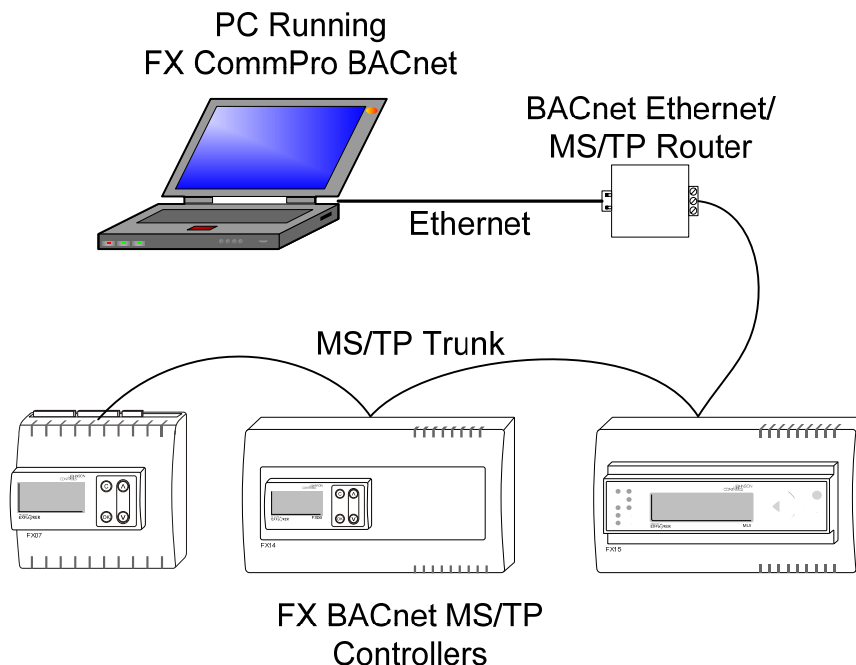


Figure 19: FX CommPro BACnet Tool Connection

Configuring the Network Settings of the Computer

You need to configure your computer's network settings so that the computer can communicate with the BACnet Ethernet / MS/TP router.

To configure the network settings of the computer:

1. From the Start menu, select Network Places. The Network Places window appears.

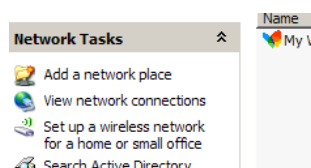


Figure 20: View Network Connections

2. From the Network Tasks section, select View network connection. The Network Connection window appears.

- Right-click Local Area Connection and select Properties. The Local Area Connection Properties dialog box appears.

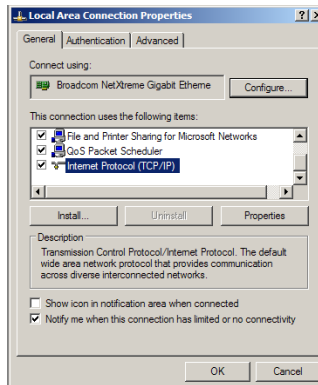


Figure 21: Local Area Connection Properties

- In the list of connections, select Internet Protocol (TCP/IP) and click Properties. The Internet Protocol (TCP/IP) Properties window appears.

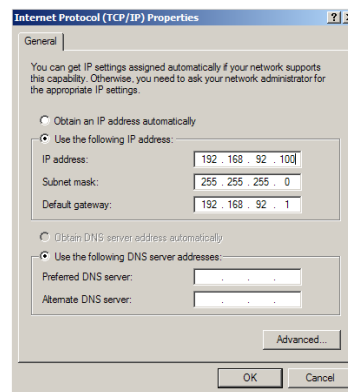


Figure 22: Internet Protocol (TCP/IP) Properties

- Click Use the Following IP Address and enter a unique IP address.

The first three quads of the IP address must match those of the Ethernet / MS/TP router. The final quad can be any value from 3 to 254 (the value is **not** used by router or any other device on the Ethernet network).

Connecting FX CommPro to BACnet Devices

To connect to a device:

- Connect the router to the computer running FX CommPro BACnet tool with a straight-through Ethernet cable.
- Connect the BACnet devices to the MS/TP end of the router.
- Start FX CommPro BACnet tool.
- Click the Open Connection. The Connection window appears (Figure 23).

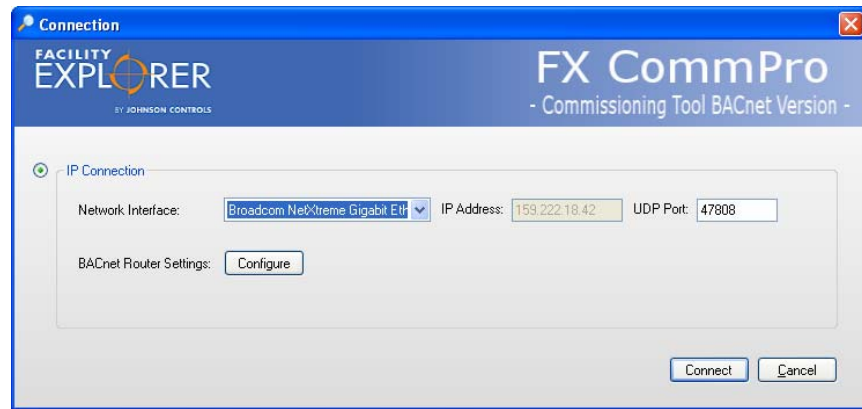


Figure 23: Connection Window

5. Select the computer's network interface.
6. Click Configure. The Router Settings window appears (Figure 24).

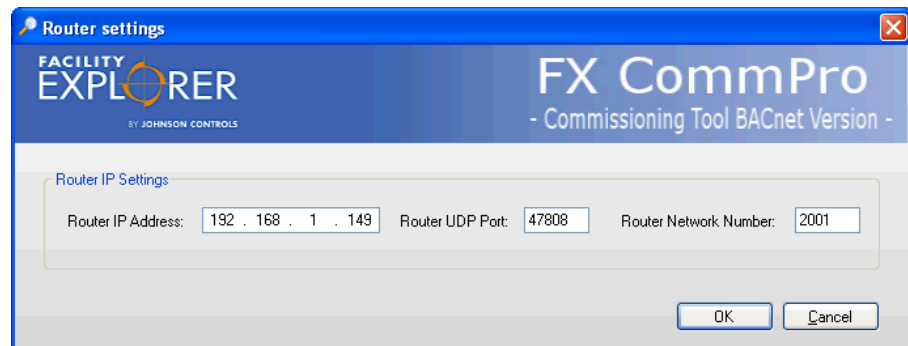


Figure 24: Configure Router Settings

7. Enter the IP address, UPD port, and network number for the router.
Note: The Router Network Number setting needs to match the network number setting in the BACnet router. The BACnet IP to MS/TP router (LP-KIT204-000C) ships with a default network number of 2001. For other BACnet IP to MS/TP Routers, refer to the manufacturer's documentation.
8. Click OK. The Connection window reappears.
9. Click Connect. The Scan BACnet Network window appears (Figure 25).

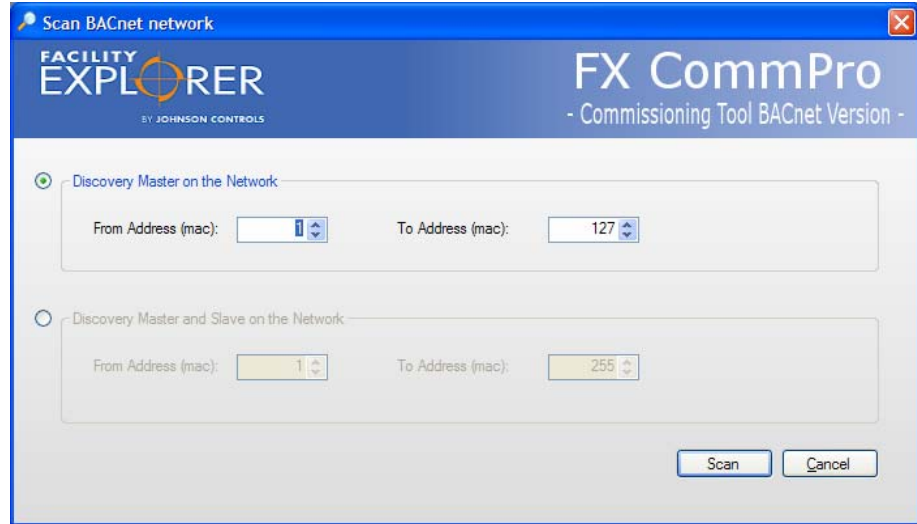


Figure 25: Scan BACnet Network Window

10. Enter a range of MAC addresses and click Scan.

Enter the range in the Discovery Master on the Network section to discover only master devices (1-127).

Enter the range in the Discovery Master and Slave on the Network section to discover both master and slave devices (1-255).

FX CommPro BACnet tool scans for all devices within the specified address range. A status bar shows the progress. Once the scan finishes, the main window appears. The Network View displays all the found devices.

11. To add more devices, select Scan from the Network menu.

Note: You can also right-click in the Network View and select Add Devices.

Downloading Files

You use FX CommPro BACnet tool to download the application software file (*.apd) into the FX field controllers. In addition, you can use FX CommPro BACnet tool to download firmware to the FX field controllers.

Downloading Application File to FX Controllers

Before you download an application to a controller, you must first connect the FX CommPro BACnet tool to the device. For more information, see *Connecting to Devices*.

In the FX CommPro BACnet tool, you can download a single application file to a device. You can also select multiple different devices and then download multiple applications at the same time.

To download an application file to the FX controllers:

1. In the Network View, select the target device.
Note: If necessary, you can select more than one device.
2. Right-click the selected device (Figure 26) and select Download from the Application menu. The Select File to Download window appears.

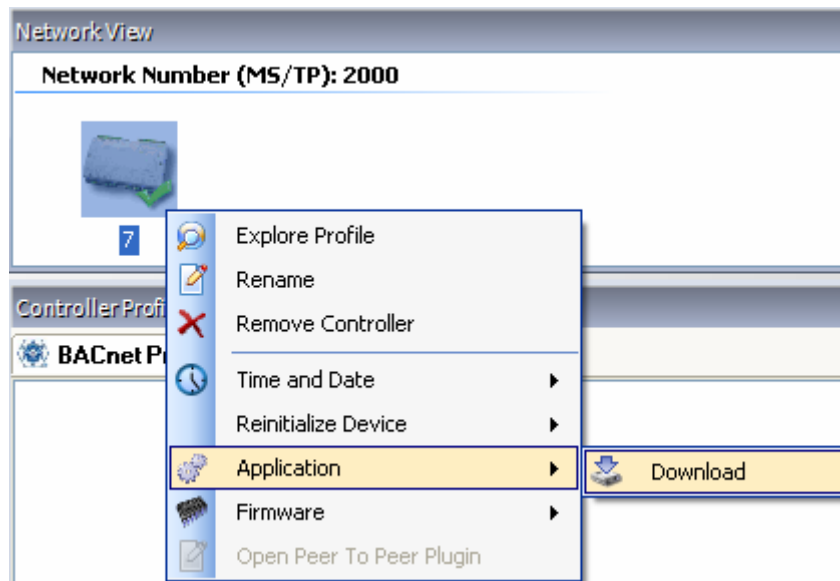


Figure 26: Selecting Application Download

3. Select the desired application file (*.apd) and click Open. The Download Operation Status window appears (Figure 27).

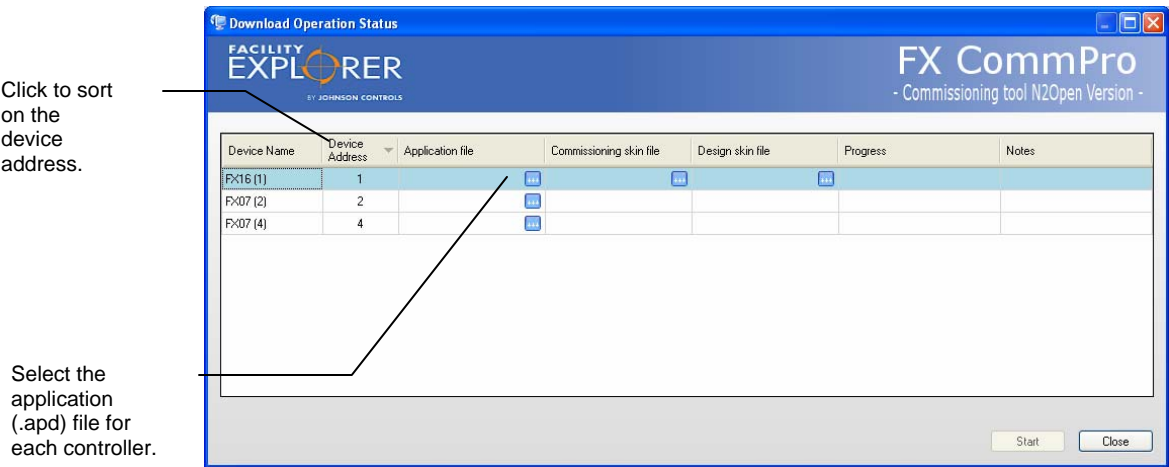


Figure 27: Download Operation Status Window

- Click the browse button in the Application File column for the desired controller and select the application (.apd) file.

Note: You can use Ctrl or Shift to select two of the same controllers and then select an application file for both controllers. The same application then appears for both devices.

If you select an application that is not compatible to the device you selected, a message appears in the Notes column saying **Device not Compatible**. If necessary, right-click on the device with the incompatible application and select Clear File or Remove Device.

Note: If you remove a device, then you need to go back to the main screen to add it again.

- Click Start. The download process starts.

The Download Operation Status window (Figure 28) displays the progress of the application download operation. When the download operation finishes, the Progress cell displays a **Download Completed** message.

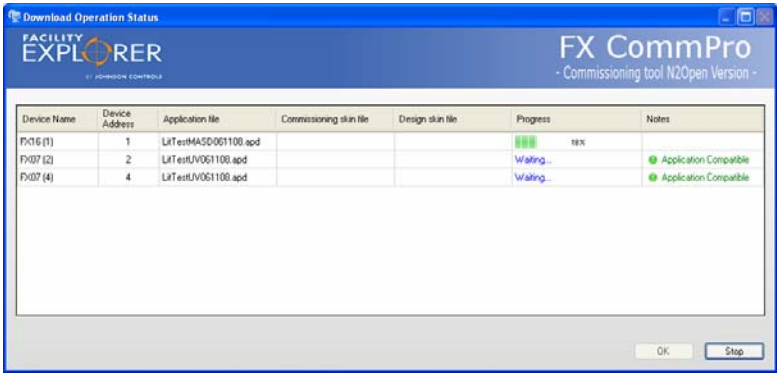


Figure 28: Download Operation Progress

- Click OK to exit the Download Operation Status window.

Downloading Firmware to FX Controllers

Before you download firmware to a controller, you must first connect FX CommPro BACnet tool to the device. For more information, see *Connecting to Devices*.

To download firmware to the FX controllers:

1. In the Network View, select the target device.

Note: If necessary, you can select more than one target device.

2. Right-click the selected device (Figure 29) and select Download from the Firmware menu. The Select File to Download window appears.

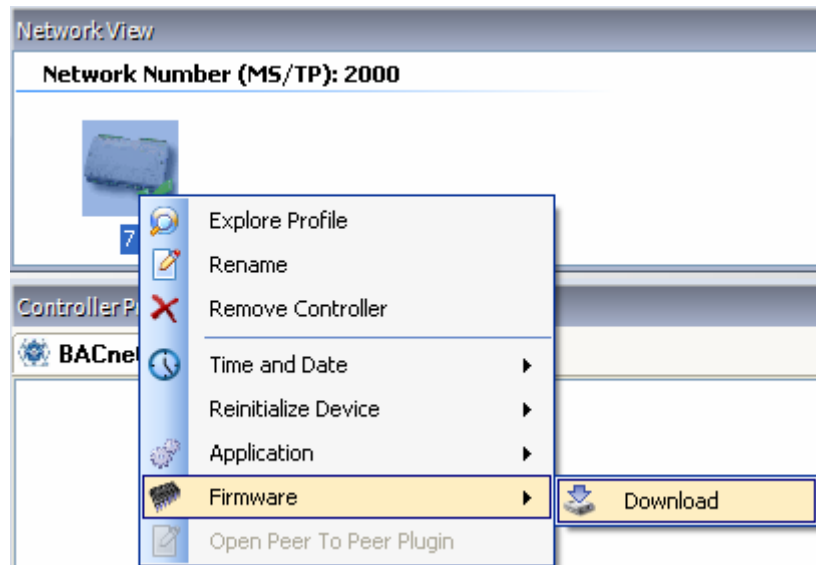


Figure 29: Selecting Application Download

3. Select the desired firmware file (.a37) and click Open. The Download Operation Status window appears (Figure 30).

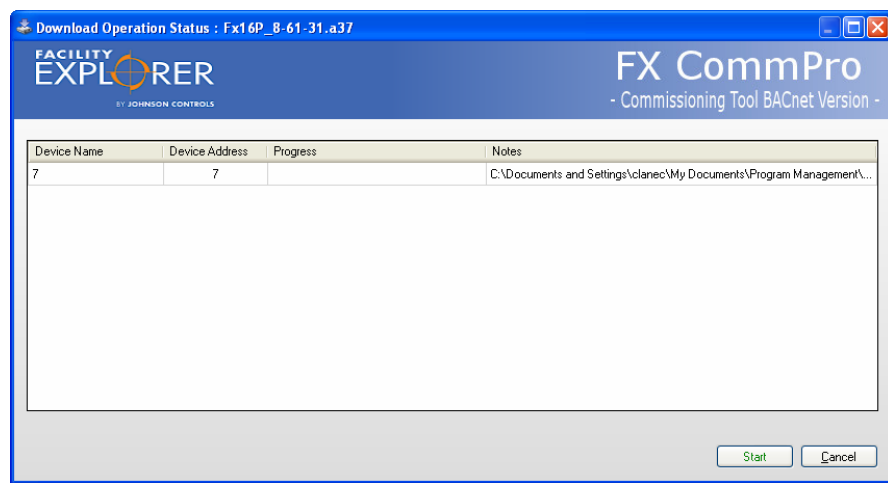


Figure 30: Download Operation Status Window

4. Click Start. The download process starts.

The Download Operation Status window (Figure 31) displays the progress of the firmware download operation. When the download operation finishes, the Progress cell displays a **Download Completed** message.

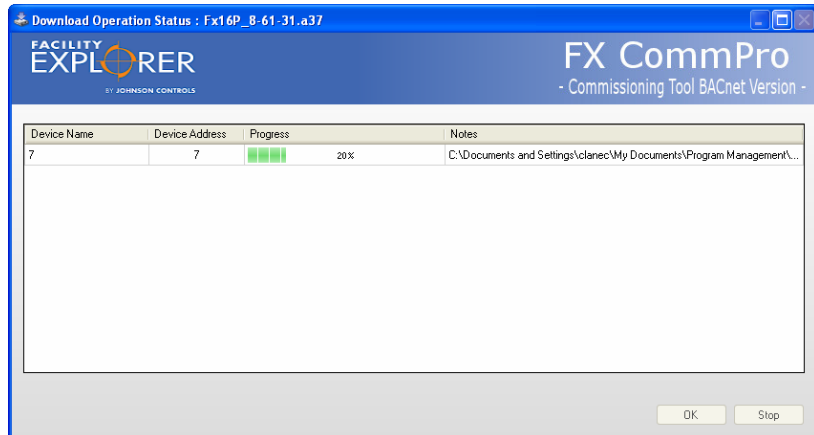


Figure 31: Download Operation Progress

5. Click OK to exit the Download Operation Status window.

Setting the Time and Date

Use FX CommPro BACnet tool to set the controller's time and date. Before you set the controller's time and date, you must first connect FX CommPro BACnet tool to the device. For more information, see *Connecting to Devices*.

To set the controller's time and date:

1. In the Network View, select the target device.

Note: If necessary, you can select more than one target device.

2. Right-click the selected device (Figure 32) and select Time and Date. Two options appear:

- Time Synchronization

Select Time Synchronization to set the controller's time and date to that of the computer's time and date.

- UTC Time Synchronization

Select UTC Time Synchronization to synchronize the controller's Universal Time Coordinated (UTC). The local time is calculated by subtracting the UTC Offset in the FX controller from the UTC time received in the UTC Time Synchronization.

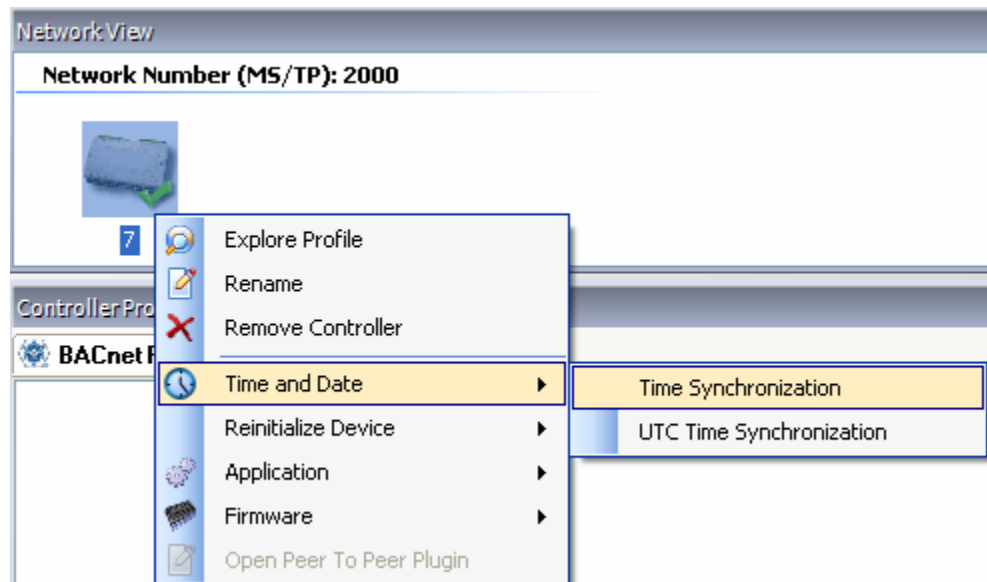


Figure 32: Setting the Controller's Time and Date

Defining a Watch Template

You can define a Watch Template to customize the Watch View with specific point information. Once you create a Watch Template, you can assign it to one or more devices. This allows you to easily compare similar points sourced from different devices.

To define a Watch Template:

1. In the Network View, right-click the device and select Define Template from the Watch Template menu (Figure 33).

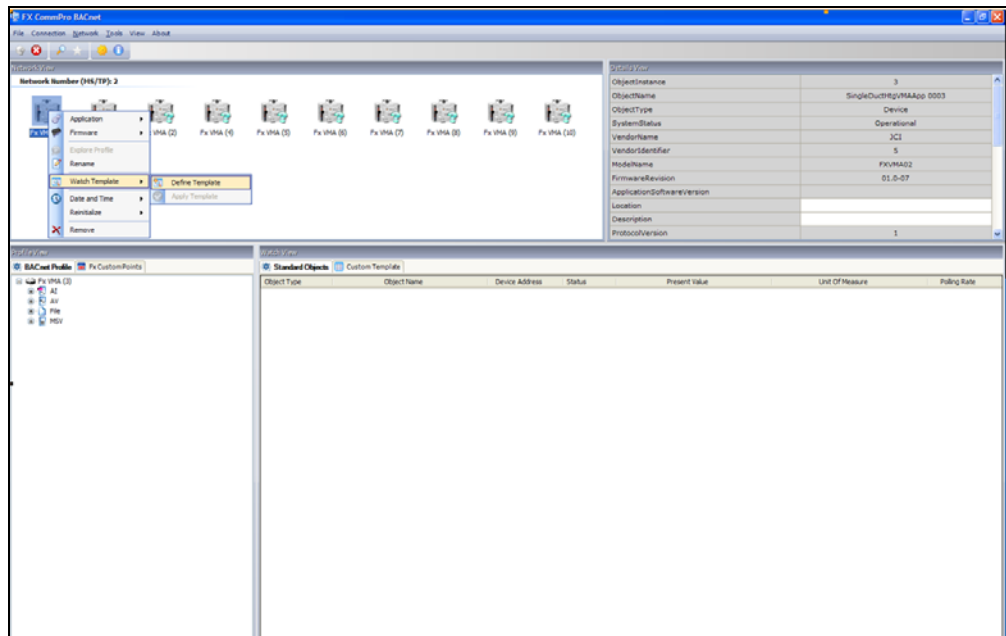


Figure 33: Define Watch Template

2. From the Profile View, right-click the points you want and select Add Objects to Watch Template (Figure 34). The point information appears on the Standard Objects tab.

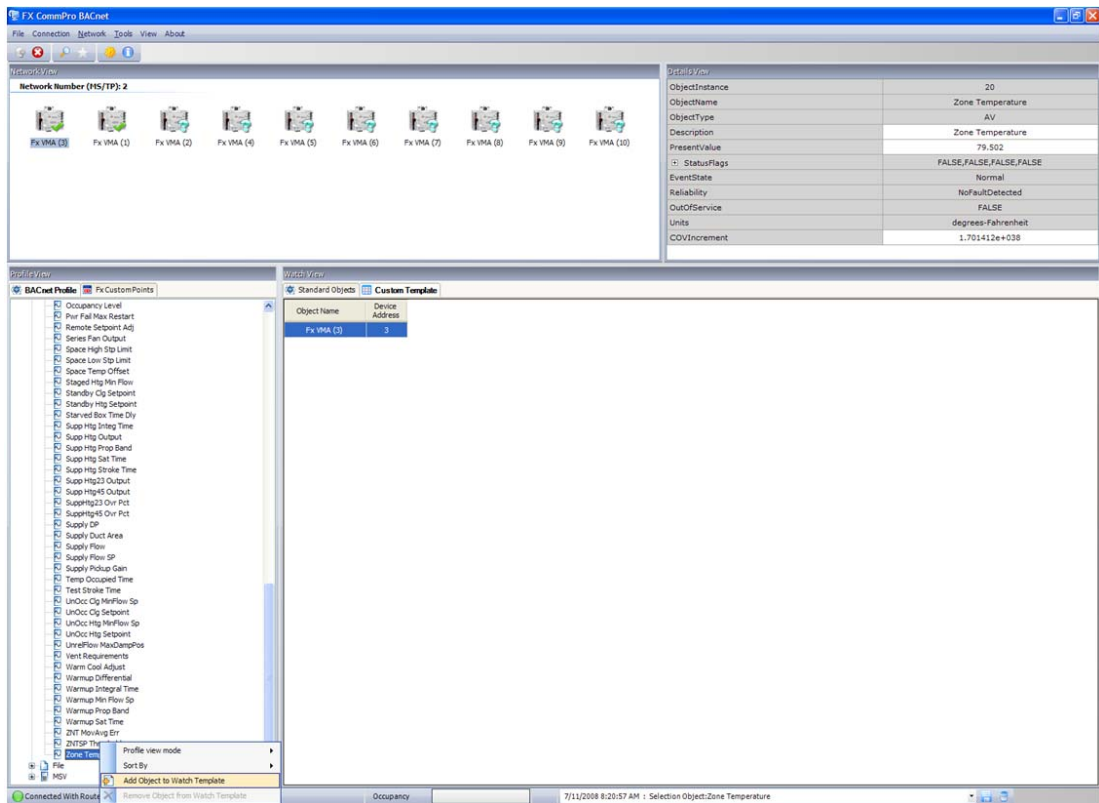


Figure 34: Add Objects to Watch Template

3. On the File menu, click Save Watch Template.
4. Enter the name of the template and click Save. The name you entered now appears on the Customer Template tab.

Applying a Watch Template to a Device

Once you customize the Watch View, you can assign the defined template to another device. Defining Watch templates and then assigning the template to other devices allow you to easily compare different points to each other.

To apply a watch template to a device:

1. With the Watch Template you want to apply open, right-click the desired device in the Network View.

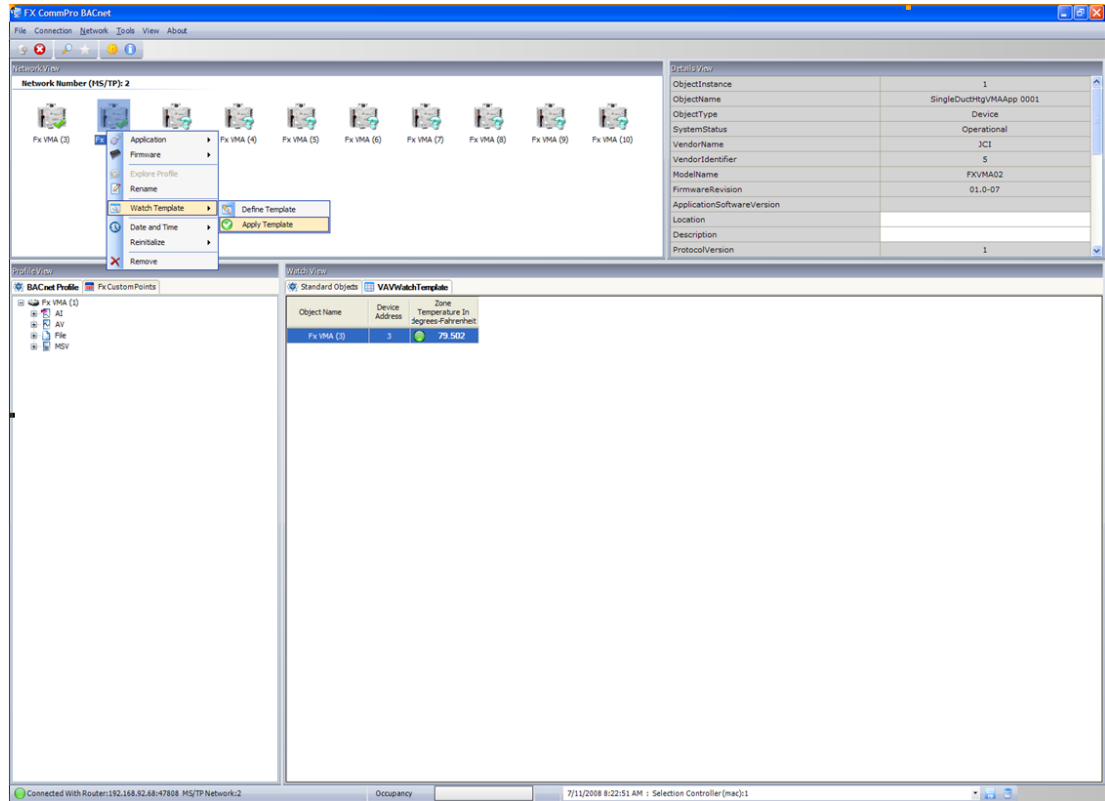


Figure 35: Apply Watch Template

2. Select Apply Template from the Watch Template menu (Figure 35). The Watch Template is now applied to the device (Figure 36).

Object Name	Device Address	Zone Temperature In degrees Fahrenheit
Fx VMA (3)	3	79.502
Fx VMA (2)	2	77.522

Figure 36: Applied Watch Template

Exporting Watch View Data

You can export Watch View data to a Microsoft® Excel (.xls) format.

To export Watch View data:

1. Right-click in the Watch View template.
2. Select Export device watch data (Figure 37). Microsoft Excel opens and displays the data you exported.

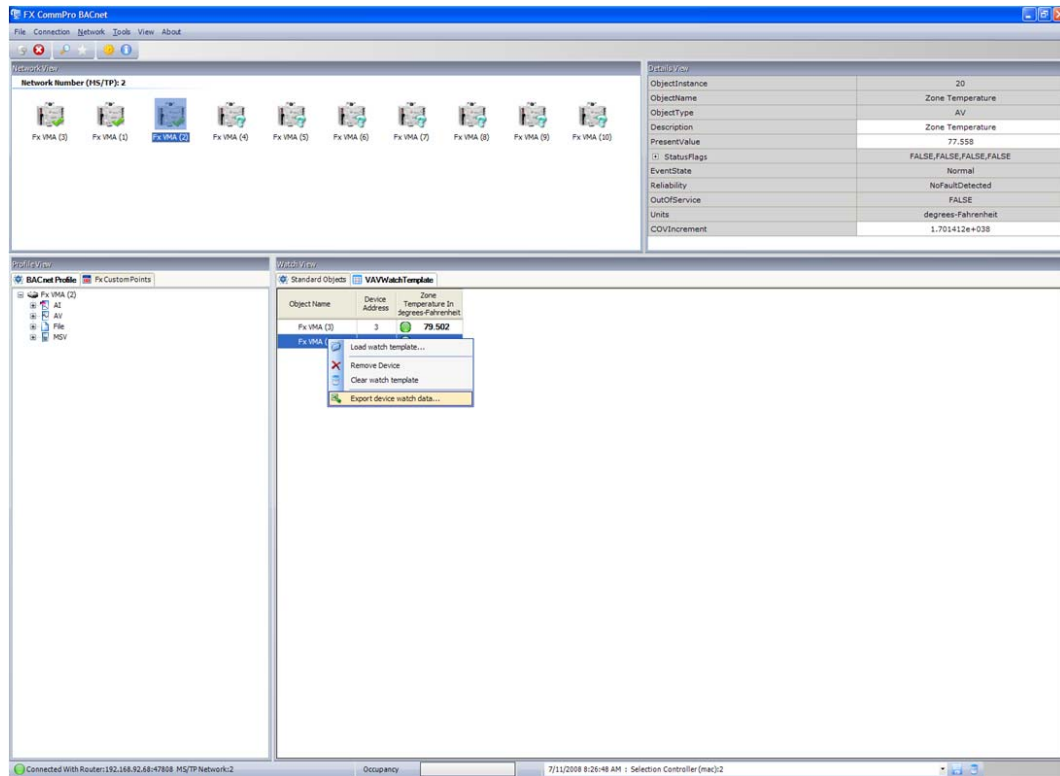


Figure 37: Exporting Watch Data

Reinitializing the Controller

You can use FX CommPro BACnet tool to reinitialize the controller by sending it a Cold Restart or Warm Restart command. Before you reinitialize the controller, you must first connect FX CommPro BACnet tool to the device. For more information, see *Connecting to Devices*.

To reinitialize the controller:

1. In the Network View, select the target device.

Note: If necessary, you can select more than one target device.

2. Right-click the selected device (Figure 38), and select Reinitialize Device. Two options appear:

- Cold Restart

Select Cold Restart to force a complete reboot of the controller.

- Warm Restart

Select Warm Restart to reinitialize controller.

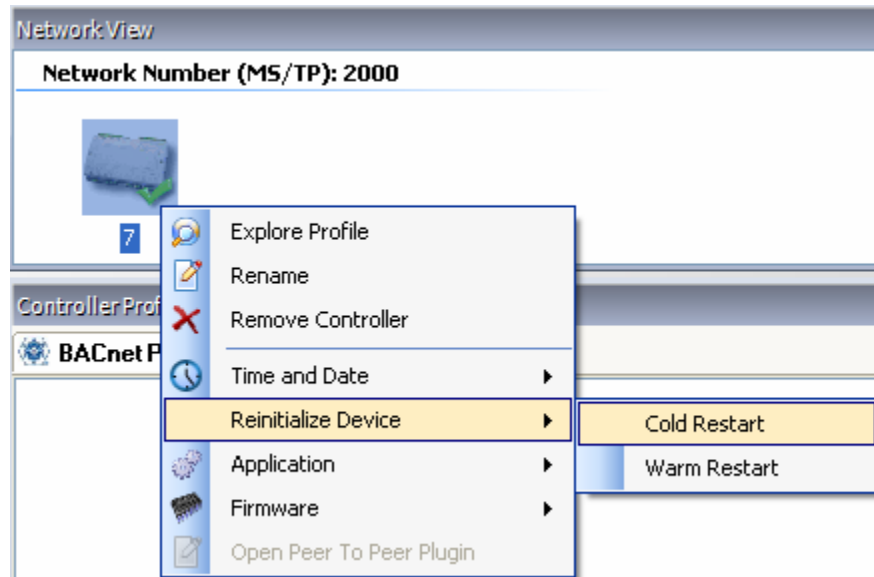


Figure 38: Reinitializing the Device

Commissioning Controllers

Commissioning is a set of processes you use to ensure the controller works as expected. FX CommPro BACnet tool allows you to perform the following commissioning activities:

- monitoring BACnet object properties
- overriding the present values of BACnet input objects (Analog Input [AI], Binary Input [BI])
- commanding with priority the present value of BACnet output and value objects (Analog Output [AO], Binary Output [BO], Analog Value [AV], Binary Value [BV], and Multistate Value [MSV])
- changing other writable properties of BACnet objects

Before you commission controllers, you must first connect FX CommPro BACnet tool to the device. For more information, see *Connecting to Devices*.

Exploring the Device

To commission a controller with the FX CommPro BACnet tool, you need to first **explore** the BACnet network profile of the device. The BACnet network profile contains all of the objects exposed to the BACnet network. The BACnet network profile is defined when the application software is configured with FX Builder or FX Builder Express. If you want FX CommPro BACnet tool to explore the objects inside the FX controller, the controller must contain an application with a predefined BACnet network profile.

After an application downloads to a controller, the Profile View populates with the BACnet network profile points.

To explore a device:

1. In the Network View, right-click on the target device and select Explore Profile (Figure 39).

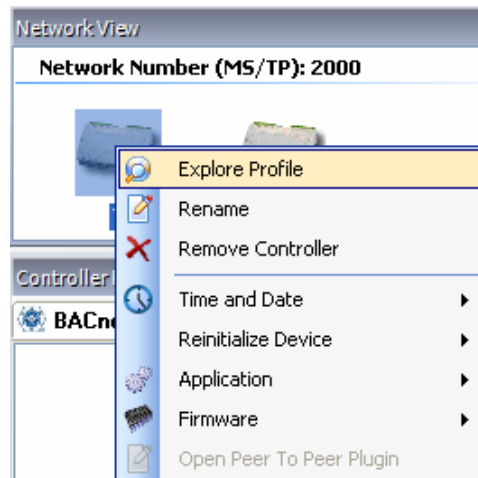


Figure 39: Exploring the Profile

2. The Profile View populates with the objects defined in the BACnet network profile (Figure 40). FX CommPro BACnet tool groups points by their object name or by their object instance number.

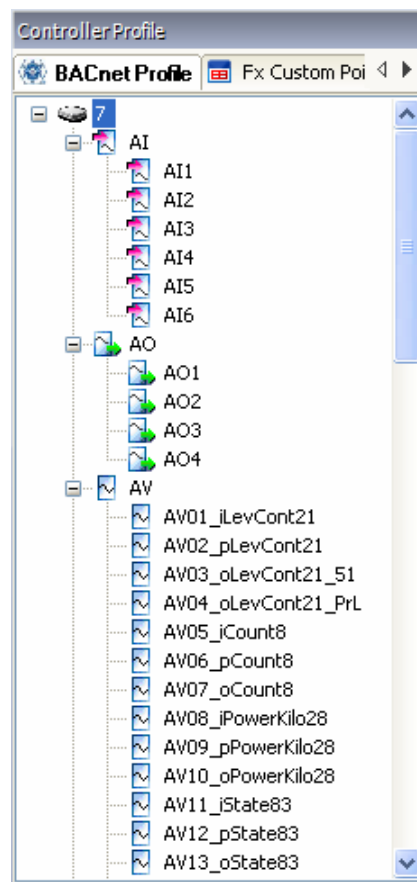


Figure 40: Profile View (Grouped by Point Type)

3. To change the grouping, right-click any area in the Profile View and select Sort By (Figure 41).

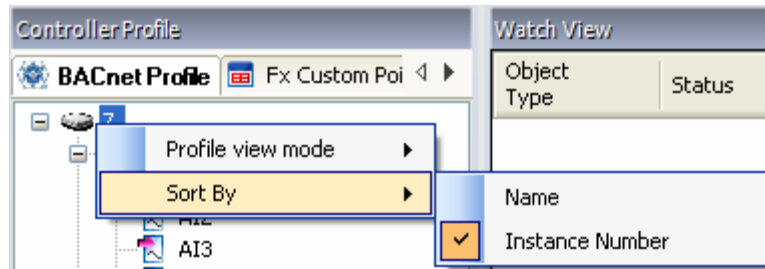


Figure 41: Changing the Grouping

4. Select the desired sort type: Name or Instance Number. The Profile View displays the points grouped by the selected type.

Viewing Object Details Using the Details View

To view object details using the Details View, click on the desired object in the Profile View (Figure 42). Information about the selected object appears in the Details View.

This method is a quick way to view object information; however, you can only view information about one object at a time.

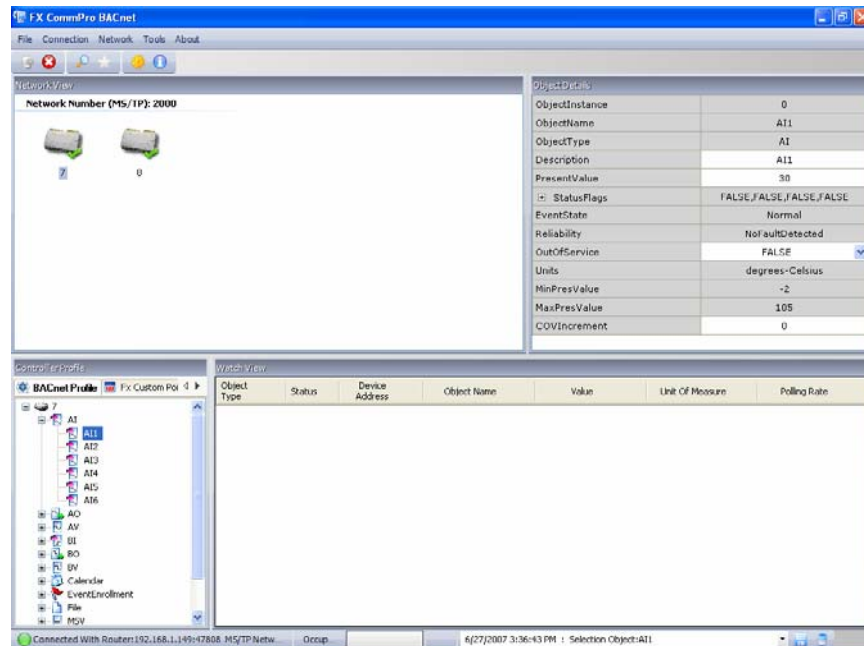


Figure 42: Viewing Object Details in the Details View

Viewing Object Details Using the Watch View

To view details about multiple objects simultaneously, use the Watch View (Figure 43). The Watch View can contain details about multiple objects originating from one or more connected devices. The Watch View contains a table that allows you to sort objects by the following attributes:

- Object Type
- Status
- Device Address
- Object Name
- Present Value
- Unit of Measure
- Polling Rate

The Watch View allows you to easily compare the present values of multiple objects.

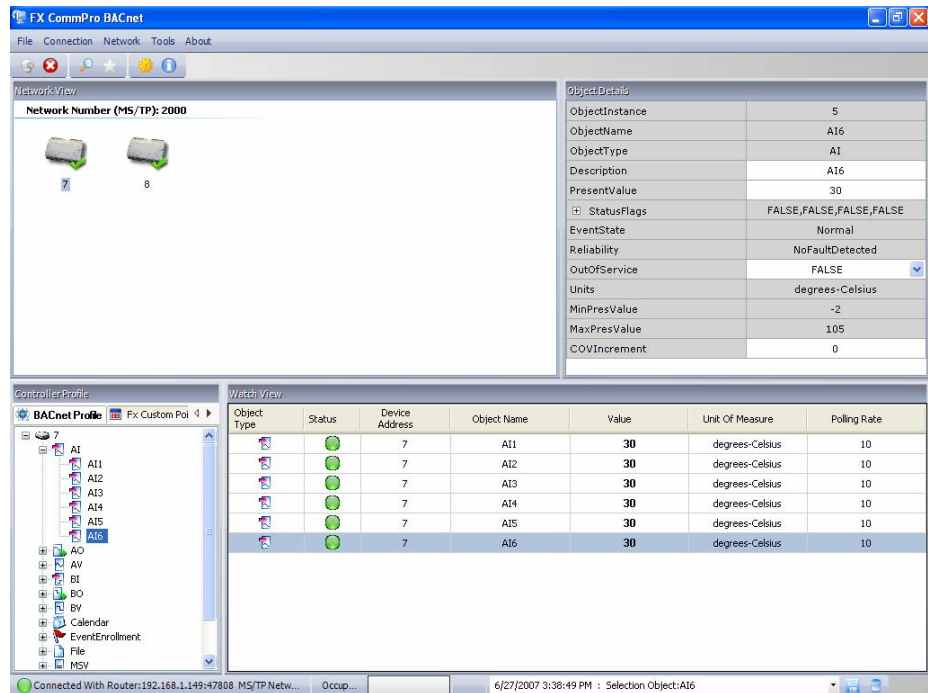


Figure 43: Viewing Objects in the Watch View

Adding a Specific Object to the Watch View

To add a specific object in the profile to the Watch View, double-click the object.

Note: You can also right-click the object and select Add to Watch.

Adding All Objects to the Watch View

To add all the objects in the profile to the Watch View, right-click on the device in the Profile View and select Add all Objects to Watch.

Overriding Input Objects

To override input objects:

1. Select the input object you want to override.
2. In the Details View, change the OutofService property from FALSE to TRUE. This action disconnects the present value property from the physical input of the controller.
3. Double-click on the present value property in either the Watch View or Details View.
4. Change the value as needed and press Enter.

Object Details	
ObjectInstance	0
ObjectName	AI1
ObjectType	AI
Description	AI1
PresentValue	70
StatusFlags	FALSE,FALSE,FALSE,TRUE
EventState	Normal
Reliability	NoFaultDetected
OutOfService	TRUE
Units	degrees-Celsius
MinPresValue	-2
MaxPresValue	105
COVIncrement	1.#QNAN



Watch View						
Object Type	Status	Device Address	Object Name	Value	Unit Of Measure	Polling Rate
		18	AI1	70	degrees-Celsius	10

Figure 44: Edit Value Window

5. To release the override, change the OutofService property to FALSE. This action reconnects the present value property to the physical input of the controller.

Overriding Output Objects

To override output objects:

1. Select the output object you want to override.
Note: Do not change the OutofService property from FALSE to TRUE in the Details View. This action disconnects the present value property of the object from the physical controller.
2. Double-click on the present value property in either the Watch View or Details View.
3. Change the value as needed and press Enter. FX CommPro BACnet tool writes the selected output object's present value property at the priority defined in the tool settings.
4. To release the override, right-click the present value field in the Watch View and select Relinquish. This action sets the priority command to Null and restores the present value of the selected object to local control.

Adjusting Analog, Binary, and Multistate Value Objects

To adjust the present value property of an AV, BV, or MSV object, the present value property must be writable (also known as commandable). For FX Field Controllers, an AV, BV, and MSV object present value property is only writable when mapped to an input application point within the software application at design time using the FX Builder BACnet Protocol plug-in.

To adjust analog, binary, and multistate value objects:

1. Select the object you want to adjust.
2. Double-click the present value property in either the Watch View or Details View.
3. Change the value as needed and press Enter. FX CommPro BACnet tool writes the selected object's present value property at the priority defined in the tool's settings.
4. To release the adjust command, right-click on the present value field in the Watch View and select Relinquish. This action reverts the present value property to the default value defined in the application software.

Adjusting Other Writeable Properties of BACnet Objects

To adjust other properties of BACnet objects (Description, for example), the property must be writable as indicated by a white background in the Edit Value Window (Figure 44).

To adjust the value of the property:

1. Select the object that contains the property you want to adjust.
2. Double-click the property (or select the drop-down box) in the Details View.
3. Change the value as needed and press Enter. The change is permanent until another change is made.

Peer-to-Peer Bindings

In a BACnet peer-to-peer network, two or more devices communicate directly with each other. A device can read values from (pull mode) or write values to (push mode) another device.

FX Field Controllers with the BACnet card option provide support for peer-to-peer networking. The following peer-to-peer restrictions apply:

- Binding is only allowed between objects that belong to different devices (not to objects belonging to the same device).
- Binding is only allowed between objects of the same type group. The three object group types are Analog (AI, AO, AV), Binary (BI, BO, BV), and Multistate (MSV).
- The total number of bindings allowed per device is limited (Table 2).

Table 2: Maximum Number of Bindings Supported

Device	Maximum Number of Bindings
FX07	20
FX14	20
FX16	40

Setting up Peer-to-Peer Communication Bindings

To set up peer-to-peer communication bindings:

1. From the Network View, right-click on the device you wish to make the peer-to-peer binding client (the device requesting the data) and select **P2P Binding** (Figure 45). The Peer-to-Peer Plug-in appears, showing the Client Device you selected (Figure 46).

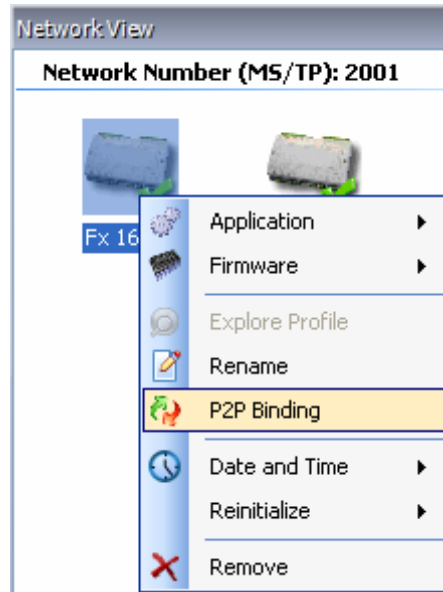


Figure 45: Opening the Peer-to-Peer Plug-in

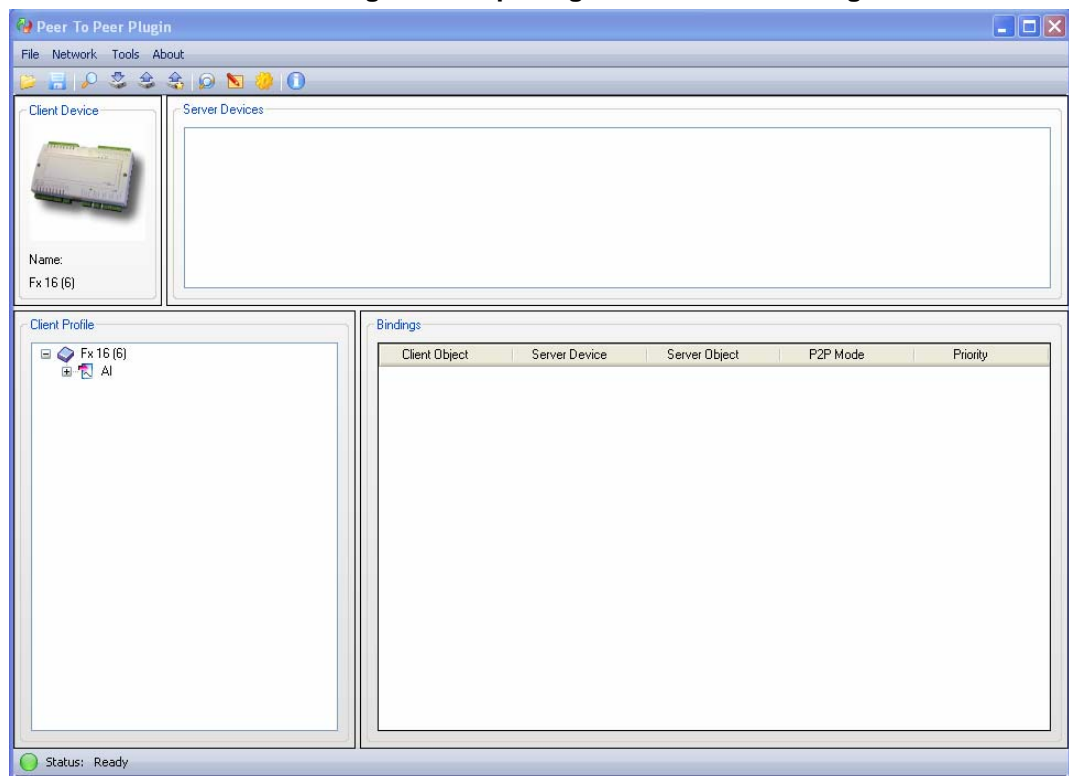


Figure 46: Peer-to-Peer Plug-in

2. Right-click the Server Devices area and select Add Network Devices (Figure 47). The Select Server Devices window appears, listing devices on the network that you can select to be servers.

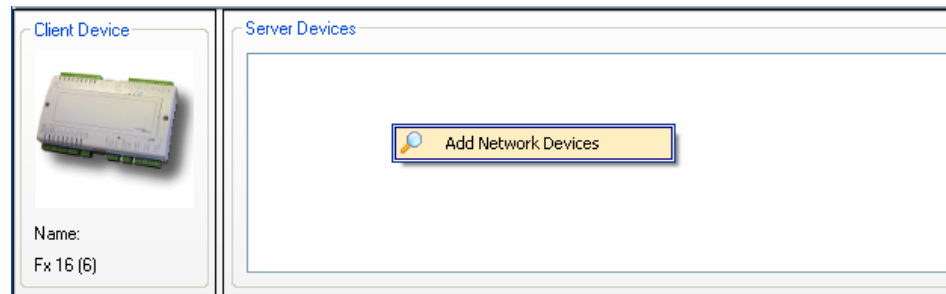


Figure 47: Add Server Devices

3. Check the box next to the desired servers, or click Select All or Unselect All (Figure 48). Click OK. The Retrieving P2P Information window appears (Figure 49).

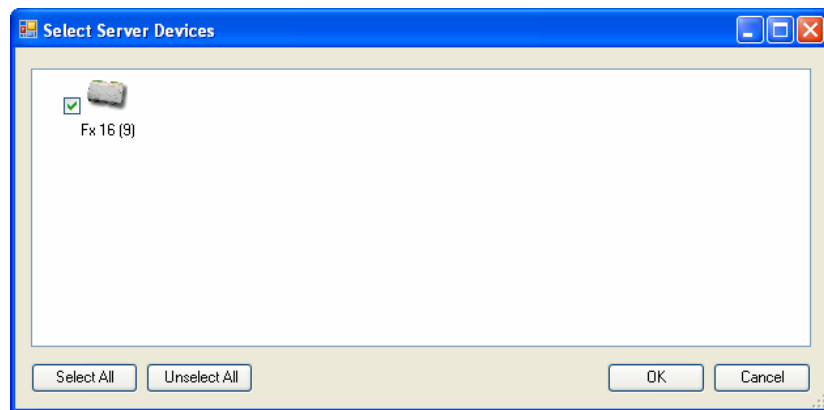


Figure 48: Select Server Devices Window

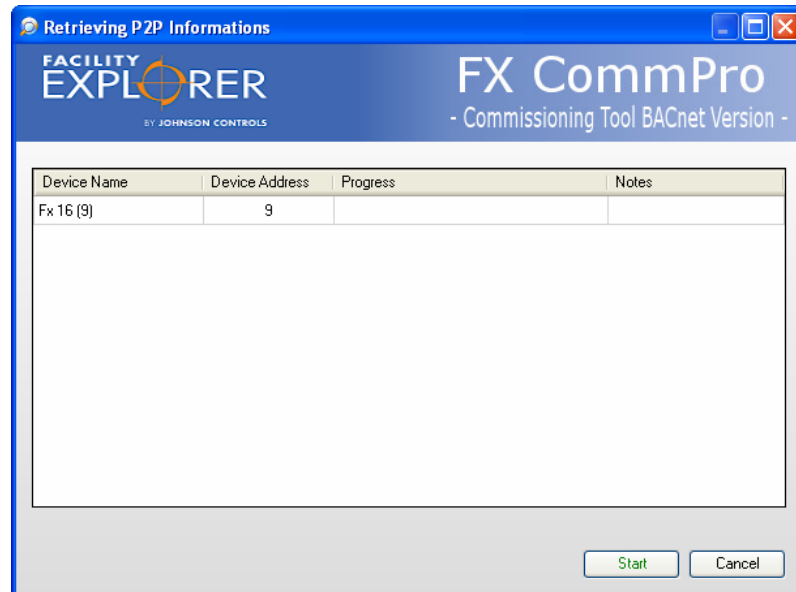


Figure 49: Retrieving P2P Information Window

4. Click Start to initiate a retrieval of the object information inside the targeted server device. A progress bar indicates status. When the progress bar displays Completed, click OK. The Peer-to-Peer Plug-in main screen appears.
5. In the Client Profile window, expand the devices objects to show the object properties.
6. Right-click on the desired property to share and select Create Binding (Figure 50). The Bindings Window is populated with the Client Object and the Server Device.

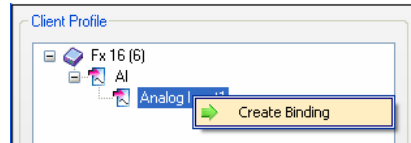



Figure 50: Creating a Binding

7. Click  to browse to the desired server object property. The Select Server Object window appears.
8. Select the desired server object property and click OK.

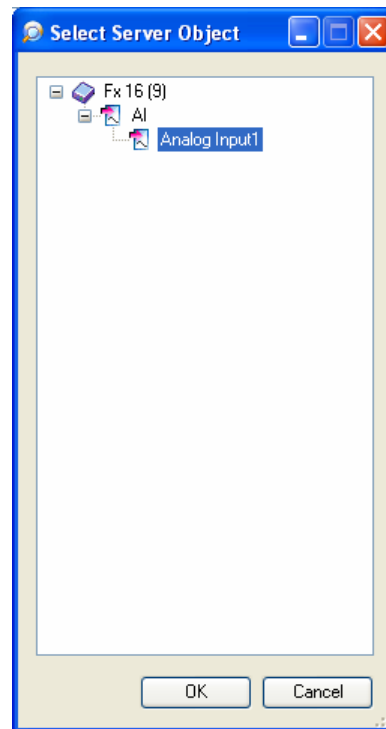


Figure 51: Selecting Server Object

9. Select the Peer-to-Peer mode.

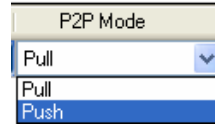


Figure 52: P2P Mode

10. Select Pull if you want the client device to request data from the server device. Select Push if you want the client device to send data to the server device. See Figure 52.
11. When you are finished making all the desired bindings, select Download Table from the Network menu to download the binding configuration to the target devices.

Reusing Peer-to-Peer Binding Configurations

If desired, you can save the binding configuration to a file for reuse.

To reuse peer-to-peer binding configurations:

1. Select Save from the File menu.

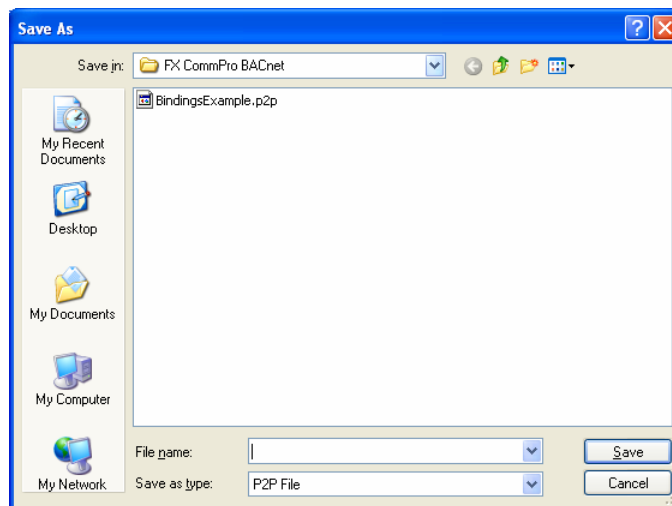


Figure 53: Saving a Binding Configuration

2. Enter the desired file name for the binding configuration and click Save.

Installing a Previously Saved Binding Configuration to a Controller

To install a previously saved peer-to-peer binding configuration controller:

1. Select Open from the File menu to retrieve a previous binding configuration file.
2. Select Download Table from the Network menu to download the binding configuration to the target devices.

Uploading Peer-to-Peer Binding Configuration

To upload the binding configuration from a devices, select the Upload Table option from the Network menu. The Peer-to-Peer Binding Configuration table loaded in the target controller appears in the plug-in. You can then edit the configuration and re-download it if desired.

Specifications and Technical Data

Ordering Codes

Table 3: Software

Product Code	Product Description
LP-FXTPRO-0	FX Tools Pro CD ROM (FX Builder, FX CommPro N2, FX CommPro LON, FX CommPro BACnet® software, FX Loader and MD LON Loader) - New User
LP-FXTPRO-6	FX Tools Pro CD ROM (FX Builder, FX CommPro N2, FX CommPro LON, FX CommPro BACnet, FX Loader, and MD LON Loader) - upgrade

Technical Specifications

Table 4: FX CommPro BACnet Tool

System Requirements		
Operating System		Microsoft Windows 2000 (with Service Pack 4 or later) Microsoft Windows XP® (with Service Pack 2 or later)
Hardware Requirements	Processor	Intel® Pentium® Processor, 500 MHz or higher
	RAM	Minimum 512 MB RAM (1 GB recommended)
	Hard Disk	60 MB available hard disk storage for FX Tools 2.5 MB (typical) to 6 MB (maximum) for each application file
	Display	Display resolution 800 x 600 16-bit (32,768) color minimum
	Network Interface	10/100 Mbps Ethernet USB for MS/TP Router Power
Software Requirements		Microsoft .NET Framework Version 2.0

The performance specifications are nominal and conform to acceptable industry standards. For application at conditions beyond these specifications, consult the local Johnson Controls® office. Johnson Controls, Inc. shall not be liable for damages resulting from misapplication or misuse of its products.

