

## FX Tools Software Package - FX CommPro N2 User's Guide

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# FX Tools Software Package - FX CommPro N2 User's Guide

## *Introduction*

FX CommPro N2 is part of the FX Tools Pro and FX Tools Express software suite. Use FX CommPro N2 to download application software to Facility Explorer field controllers 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 N2 allows you to test the control application with connected Facility Explorer controllers.

FX CommPro N2 allows you to:

- read the device status
- download new control applications
- upload control applications (FX16 Rev. A and higher only)
- download new firmware files
- modify parameters
- read device-specific data

FX CommPro N2 uses the same plug-in concept as FX Builder Express. With FX CommPro N2, you can also configure and tune the parameters in the online mode through an intuitive user interface.

**Note:** To communicate with FX CommPro N2, the field controllers must have an N2 Open communication card installed. Refer to the Facility Explorer documentation for the appropriate controller ordering information.

This document assumes that users are familiar with the N2 Open protocol and Microsoft® Windows® operating system.

# Installation

## ***Installing FX CommPro N2 Tool***

### **Windows Operating System Upgrade**

FX CommPro N2 uses the Microsoft .NET Framework; therefore, you need to install Microsoft .NET Framework Version 2.0 to run FX CommPro N2.

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

#### ***The .NET Framework Version 2.0***

The .NET Framework is a component of the Windows operating system used to build and run Windows 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-ROM.

## Installing FX CommPro N2

To install FX CommPro N2:

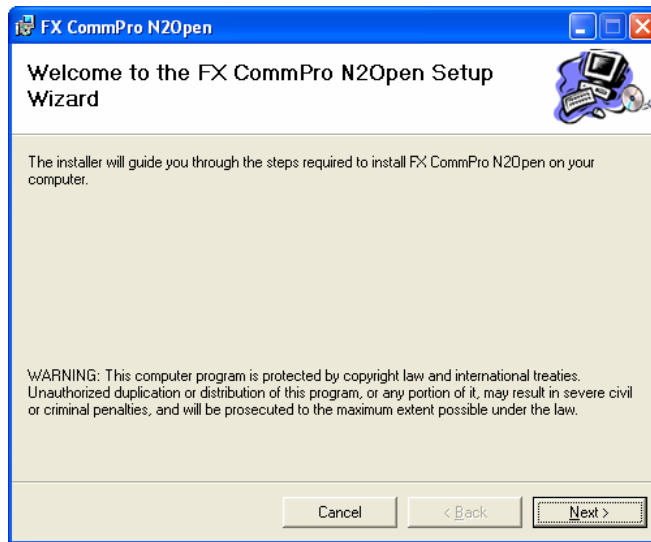
1. Close all open programs.
2. Insert the FX Tools CD-ROM into the CD-ROM drive. The FX Tools starts automatically. The CD-ROM Navigator appears (Figure 1).

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



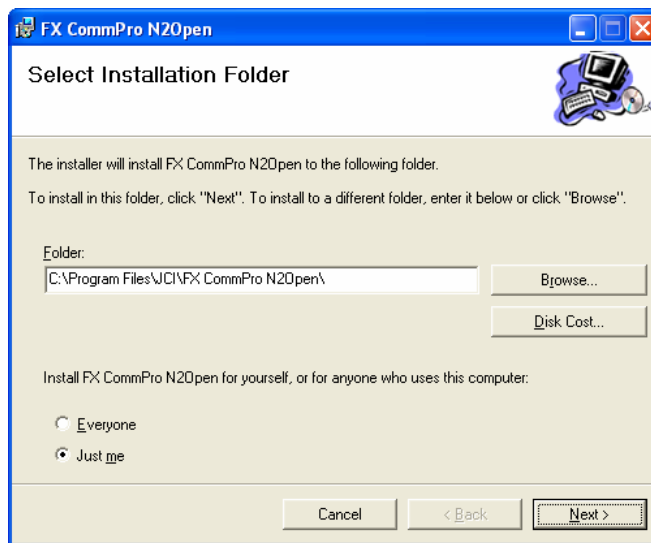
**Figure 1: FX Tools Pro Software Menu**

3. From the Software menu, click FX CommPro N2. The FX CommPro N2 Open Setup Wizard appears (Figure 2).



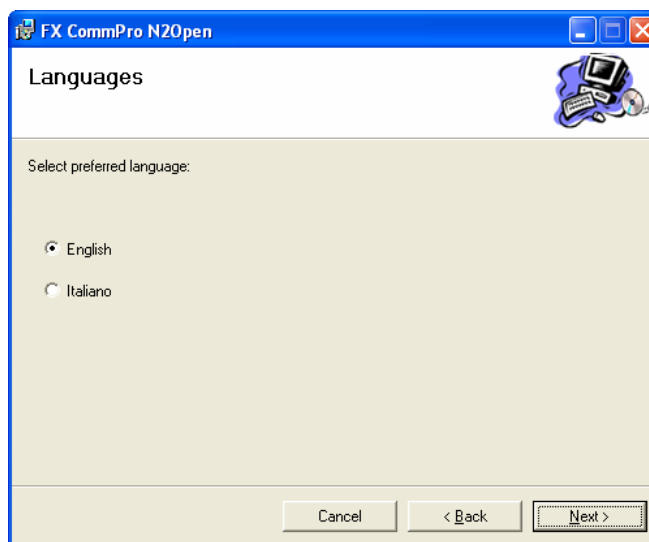
**Figure 2: FX CommPro Installation Wizard**

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



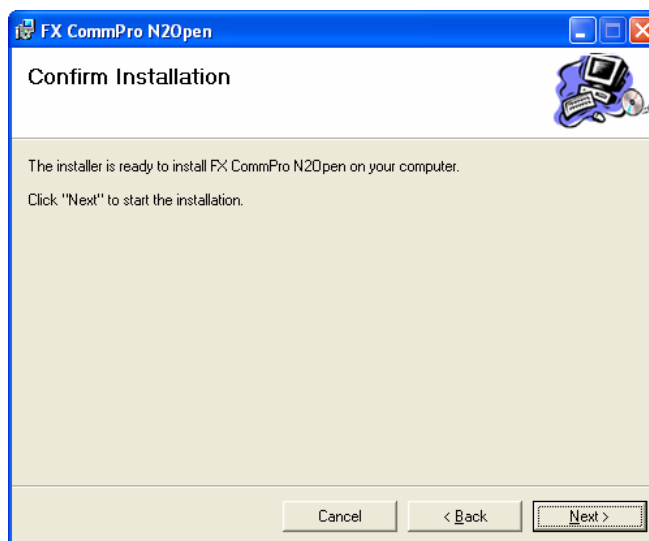
**Figure 3: Select Installation Folder Window**

5. To install FX CommPro N2 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 N2 for anyone who uses the computer. Select **Just me** to install FX CommPro N2 for yourself.
7. Click Next. The Languages window appears (Figure 4).



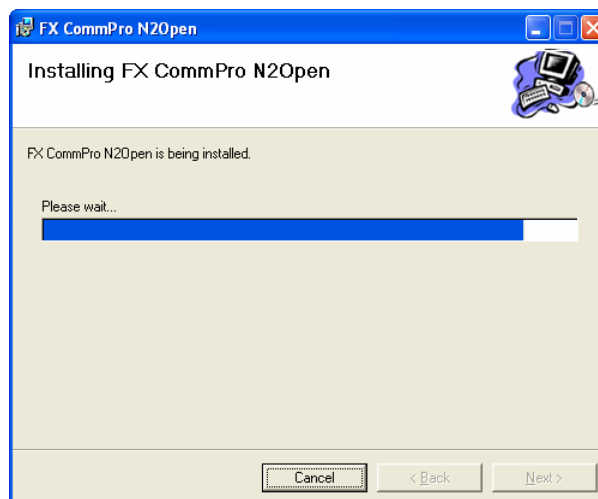
**Figure 4: Languages Window**

8. Select the preferred language.
9. Click Next. The Confirm Installation window appears (Figure 5).

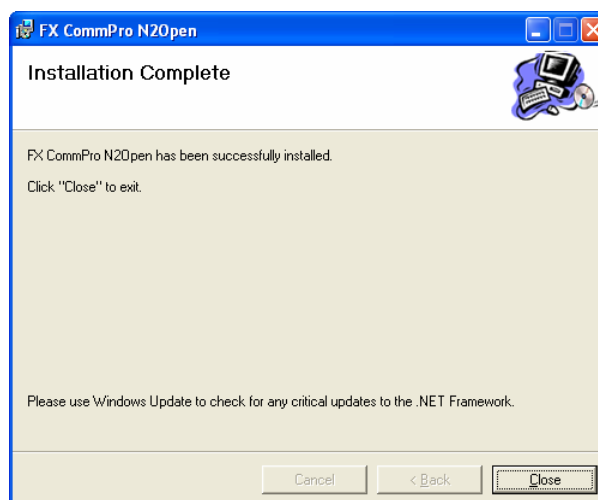


**Figure 5: Confirm Installation Window**

10. Click Next. The Installing FX CommPro N2Open window displays the progress of the installation (Figure 6). The Installation Complete window appears (Figure 7).



**Figure 6: Installing FX CommPro N2 Window**



**Figure 7: Installation Complete Window**

11. Click Close.

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

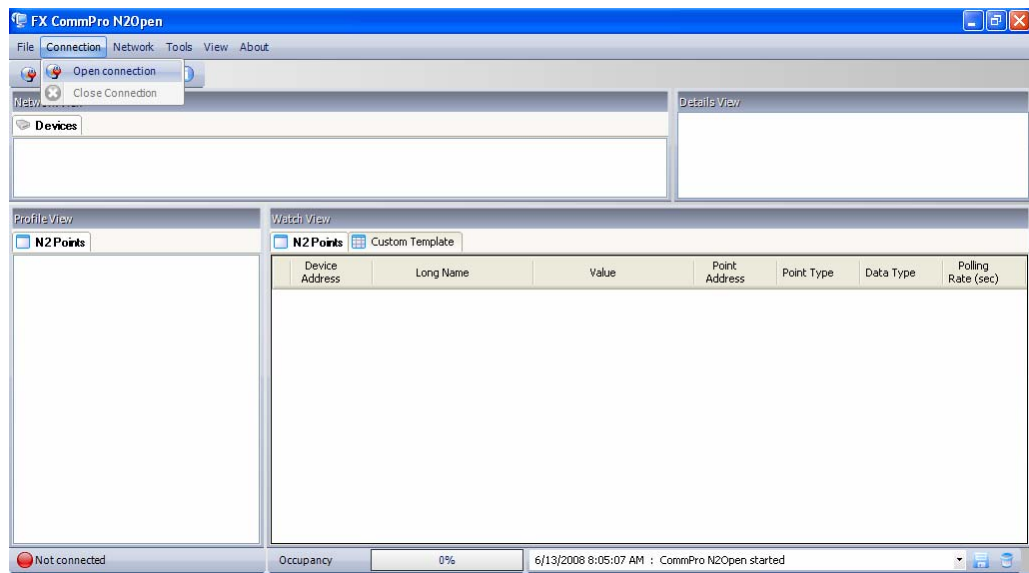


# FX CommPro N2 Navigation

## Starting FX CommPro N2

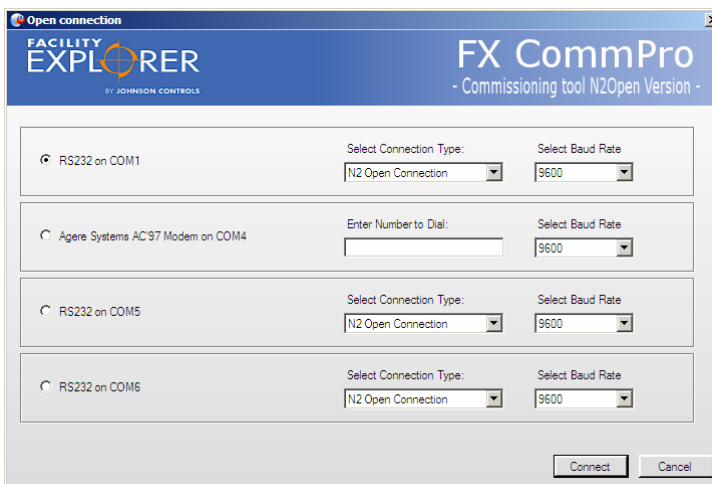
To start FX CommPro N2:

1. From the Windows Start menu, select Programs > FX Tools > FX CommPro N2Open. The FX CommPro N2Open Window appears (Figure 8).



**Figure 8: FX CommPro N2Open Window**

2. From the Connection menu, select Open connection.



**Figure 9: Open Connection Window**

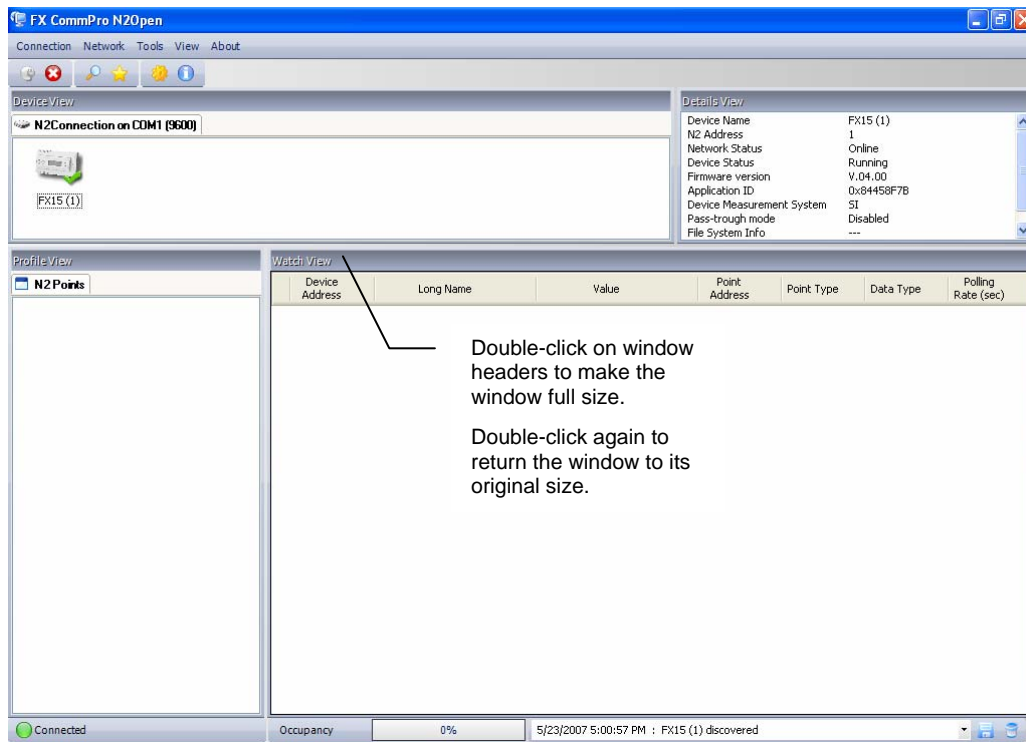
3. Select the appropriate communication port, connection type, and baud rate.
4. Click Connect. The Scan window appears (Figure 10).



**Figure 10: Scan Window**

5. Enter the device address or select a range of addresses to scan and click Scan. Once the system identifies a controller, the FX CommPro N2 main window appears (Figure 11).

## Main Window



**Figure 11: FX CommPro N2 Main Window**

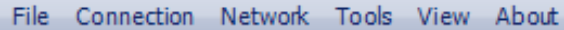
The FX CommPro N2 main window contains the following areas:

- **Menu Bar and Toolbar** - provides an interface to the available actions allowed for the menu item or button you select.
- **Device Window** - displays the identified N2 devices, which includes their type and address.
- **Details Window** - provides details about the selected N2 device.
- **Profile Window** - lists the N2 points available to monitor, adjust, or command.
- **Watch Window** - 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 12), you can click on a menu item for a list of corresponding options. Available options appear in black. Options not available appear in gray.



The image shows a horizontal menu bar with six items: 'File', 'Connection', 'Network', 'Tools', 'View', and 'About'. All items are displayed in a light blue font on a light gray background.

**Figure 12: 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 scanned devices, 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 and field controllers.

- **Open connection** - provides a link to the Open Connection window.

In the Open Connection window, you can define and establish the network interface between FX CommPro N2 and an N2 network. You can also establish a direct connection between FX CommPro N2 and a single device via Point-to-Point (PPP).

- **Close connection** - closes the network interface between FX CommPro N2 and the N2 network or the PPP connection.

### ***Network Menu***

Use the Network menu to identify devices on the N2 trunk.

The Network menu includes the following options:

- **Scan** - connects the FX CommPro to a specific device on the N2 network when you identify the device N2 address.
- **AutoScan** - discovers all devices on the N2 network within a user-identified range of N2 addresses.

### Tools Menu

The Tools menu provides the following options:

- **Extract Package** - extracts the skin (.skc) file from the commissioning file (.cn2o). This is used to provide a graphical user interface for a standard application. See *Graphic Commissioning*.
- **Edit Settings** - changes the network connection parameters, device and point polling rates, and the units of measure.

### View Menu

Use the View menu to show or hide the Details, Device, Profile, and Watch windows.

### About Menu

Use the About menu to view information about FX CommPro N2, including the revision.







## Toolbar

The buttons in the toolbar (Figure 13) provide a shortcut to specific functions in FX CommPro N2. Table 1 shows the toolbar icons and describes their functions.



Figure 13: Toolbar

Table 1: Toolbar Icons

Icon	Description
	Opens a connection.
	Closes the connection.
	Scans the network for a device with a specified N2 address.
	Autoscans the network for devices within a specified N2 address range.
	Allows you to change the network connection parameters, device and point polling rates, and units of measure.
	Provides information about FX CommPro.

## Device View

The Device View shows all the devices currently connected to FX CommPro N2 (Figure 14).



Figure 14: Device View

### Device View Right-Click Options

You can add devices to the Device View and change how they appear when you right-click on an empty area in the Device View (Figure 15).

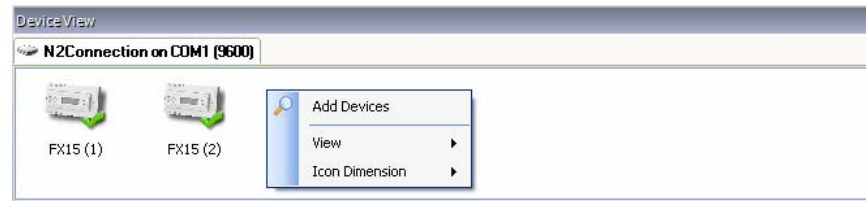


Figure 15: Device View Right-Click Menu Items

The right-click options include the following:

- **Add Devices** - opens the Scan window. Use the Scan window to connect N2 devices by identifying their specific N2 address or a range of N2 addresses.
- **View** - allows you to change how connected devices appear in the Device View. You can change the Device View so that devices appear as icons, tiled icons, or in a textual list.
- **Icon Dimension** - allows you to change the size of the device icons to small, medium, or large.

Once devices appear in the Device View, you can perform several actions when you right-click on the selected device (Figure 16).

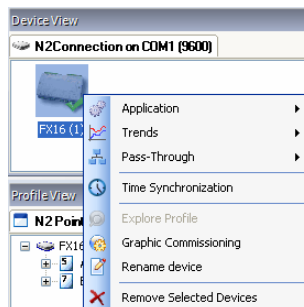


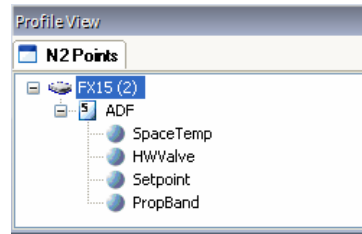
Figure 16: Device View Right-Click Menu Items

The right-click options include the following:

- **Application > Download** - downloads the desired application software file (.apd), commissioning skin file (.skc), and design skin file (.skc) to the selected device(s). Only FX16 Rev. B controllers allow you to download the commissioning and design skin files.
- **Firmware > Download** - downloads the desired firmware file (\*.a37) to the selected device.
- **Application > Upload** - uploads the desired application software file (\*.apd), commissioning skin file (\*.skc), and design skin file (\*.skc) from the selected devices. This feature is currently only supported by the FX16 Rev. A and higher controllers.
- **Trends > Upload** - uploads the trend log from the selected device. This feature is currently only supported by the FX16 Rev. A and higher controllers.
- **Pass-Through** - establishes a Pass-Through connection to the local link bus, allowing you to perform operations (for example, application downloading, exploring, and uploading trends) on the target controller's slave devices. This feature is currently only supported by the FX16 Rev. A and higher controllers.
- **Time Synchronization** - updates the time and date of the selected devices to the time and date of the computer.
- **Explore Profile** - populates the Profile View with a tree showing all the N2 profile points of the device.
- **Graphic Commissioning** - allows you to explore the device N2 points with a graphical plug-in similar to FX Builder Express.
- **Rename Device** - allows you to change the name of the device.
- **Remove Selected Devices** - removes the selected device from the Device View.

## Profile View

The Profile View contains a tree that shows the application N2 profile points inside the selected device (Figure 17).

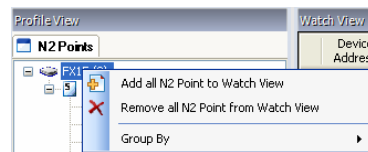


**Figure 17: Profile View**

### ***Device View Right-Click Options***

When you right-click on the device name or in an empty area of the Profile View (Figure 18), you can:

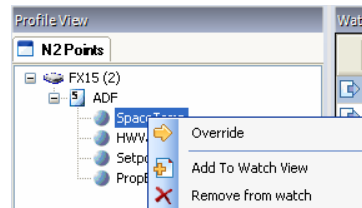
- add all N2 points to the Watch View
- remove all N2 points from Watch View
- group points by their N2 point type (for example, adf, adi, and bd) or by their application point data type (for example, input, output, and attribute)



**Figure 18: Profile View Right-Click Options**

By right-clicking on the point (Figure 19), you can:

- write to or override the point
- add point to Watch View
- remove point from Watch View



**Figure 19: Profile View Right-Click Options**



## Details View

The Details View (Figure 20) contains detailed information about the device you select in the Device View or the point you select in the Profile View.

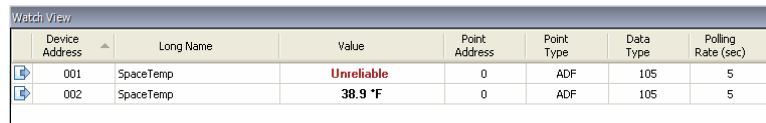


Figure 20: Details View

## Watch View

The Watch View displays detailed information from one or more devices (Figure 21). The detailed point information includes:

- Device Address
- Long Name
- Value
- Point Address
- Point Type
- Data Type
- Polling Rate



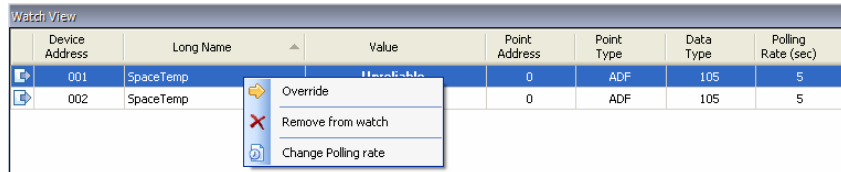
Device Address	Long Name	Value	Point Address	Point Type	Data Type	Polling Rate (sec)
001	SpaceTemp	Unreliable	0	ADF	105	5
002	SpaceTemp	38.9 °F	0	ADF	105	5

**Figure 21: Watch View**

You add points to the Watch View from the Profile View. Points in the Watch View appear in rows. Click on the columns to sort the points (click once for ascending and again for descending).

To perform actions on one or more points, right-click on the points and select the desired action from the list (Figure 22). These actions include:

- 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	Unreliable	0	ADF	105	5
002	SpaceTemp	38.9 °F	0	ADF	105	5

**Figure 22: Watch View Right-Click Options**

## Connecting to Devices

FX CommPro N2 supports three types of connections to the field controller:

- **N2 Bus (Network)**

The serial port of the computer connects to the N2 network or to an N2-enabled controller via an RS-232 to RS-485 converter.

- **Display Remote Connection**

The serial port of the computer connects to the Medium User Interface (MUI) via an RS-232 to RS-485 converter.

- **PPP Direct Connection**

The serial port of the computer connects to a modem-enabled controller via a null modem cable.

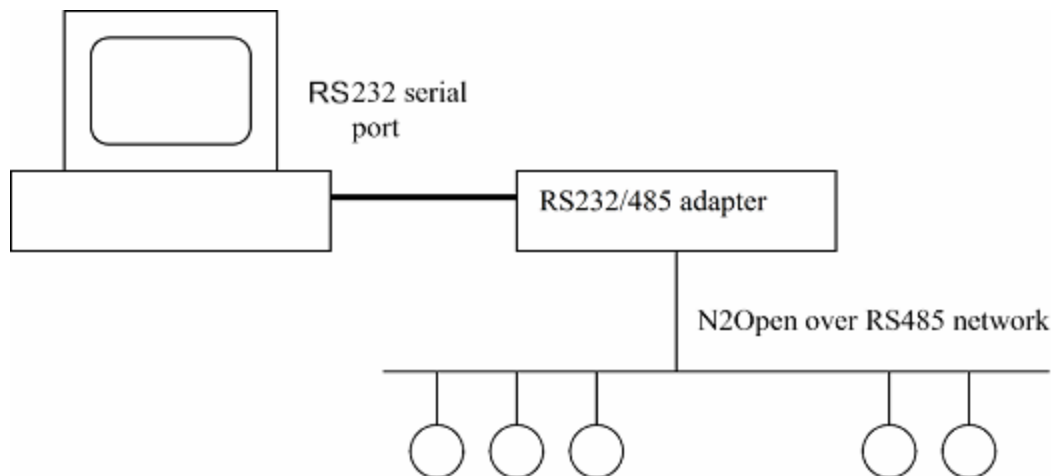
- **PPP Dial-up Connection**

The computer connects to the modem-enabled controller via internal or external modem (Public Switched Telephone Network [PSTN]/Global System for Mobile Communications [GSM]) and telephone cable.

## Connecting to One or More N2 Devices

To connect to one or more N2 devices:

1. Connect an RS-232 to RS-485 converter to the computer serial port.
2. Connect the N2 device or N2 trunk to the RS-485 converter (Figure 23).



**Figure 23: N2 Bus Connection**

3. Start FX CommPro N2.

4. Click the Open Connection toolbar icon. The Open Connection window appears (Figure 24).



**Figure 24: Open Connection Window**

5. Select the COM1 port of the connected RS-232 to RS-485 converter.
6. Select N2 Open Connection type.
7. Select 9600 baud rate.
8. Click Connect. The Scan window appears (Figure 25).



**Figure 25: Scan Window**

9. Enter the device address or select a range of addresses to scan.
10. Click Scan.

FX CommPro N2 scans for the specific N2 address or for all devices with the specified address range. A status bar shows the progress. Once the scan finishes, the main window appears. The Device View displays all the found devices.

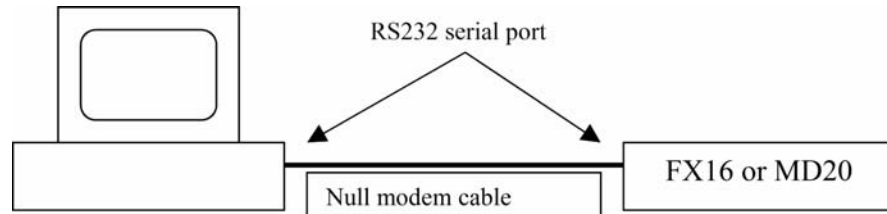
11. To add more devices, select Scan from the Network menu (or Autoscan from the Network menu).

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

## Connecting to Devices via PPP Connection

To connect to a device using PPP connection:

1. Using a null modem cable, connect the modem-enabled FX controller to the computer serial port (Figure 26).



**Figure 26: PPP Connection**

2. Start FX CommPro N2.
3. Click the Open connection toolbar icon. The Open connection window appears (Figure 27).



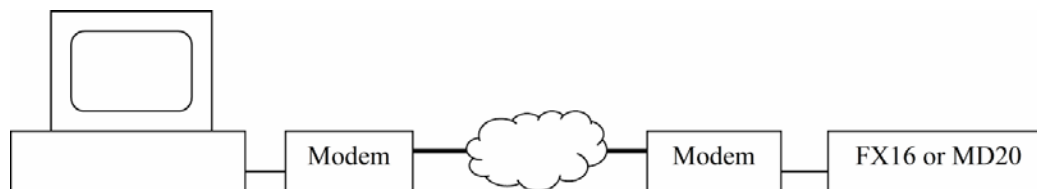
**Figure 27: Open Connection Window**

4. Select the COM1 port of the connected null modem cable.
5. Select Direct Connection type.
6. Select 9600 baud rate.
7. Click Connect. Once the system identifies the controller, the FX CommPro N2 main window appears with the device added to the Device View.

## Connecting to Devices Using a Modem Connection

To connect to a device using a modem connection:

1. Connect the modem-enabled FX controller to the computer via a modem and telephone cable (Figure 28).



**Figure 28: Modem Connection**

2. Start FX CommPro N2.
3. Click the Open connection toolbar icon. The Open connection window appears (Figure 29).



**Figure 29: Open Connection Window**

4. Select the COM1 port of the connected external modem or the port assigned to the internal modem.
5. Enter the telephone number to dial.
6. Select 9600 baud rate.
7. Click Connect. Once the system identifies the controller, the FX CommPro N2 main window appears with the device added to the Device View.

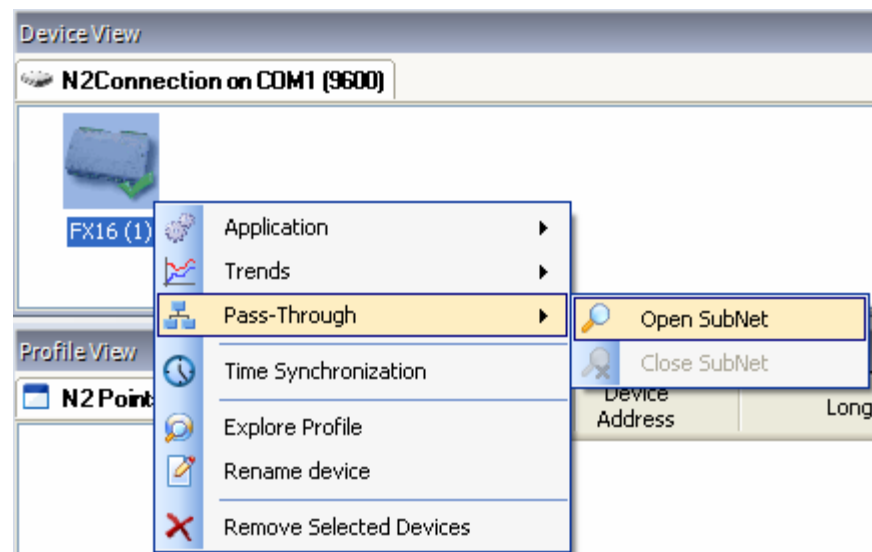
## Connecting to Slave Devices Using Pass-Through

The Pass-Through feature allows you to perform operations on devices connected to the local link bus of the FX16 Rev. B controller. Once the Pass-Through connection is established, you can perform the following operations on the slave devices:

- application download (supported only for slave devices defined as part of a gateway object)
- application upload (supported only for FX16 Rev. B slave devices, which are defined as part of a gateway object)
- time synchronization
- explore features (read, override, and release)
- trend upload (supported only for FX slave devices, which support trending)

To connect to a slave device using Pass-Through:

1. Establish a connection to the target master device.
2. In the Device View, select the target master device.



**Figure 30: Selecting Pass-Through**

3. Right-click the selected master device (Figure 30), and select Open Subnet from the Pass-Through menu. The Pass-Through Mode Wizard appears (Figure 31).

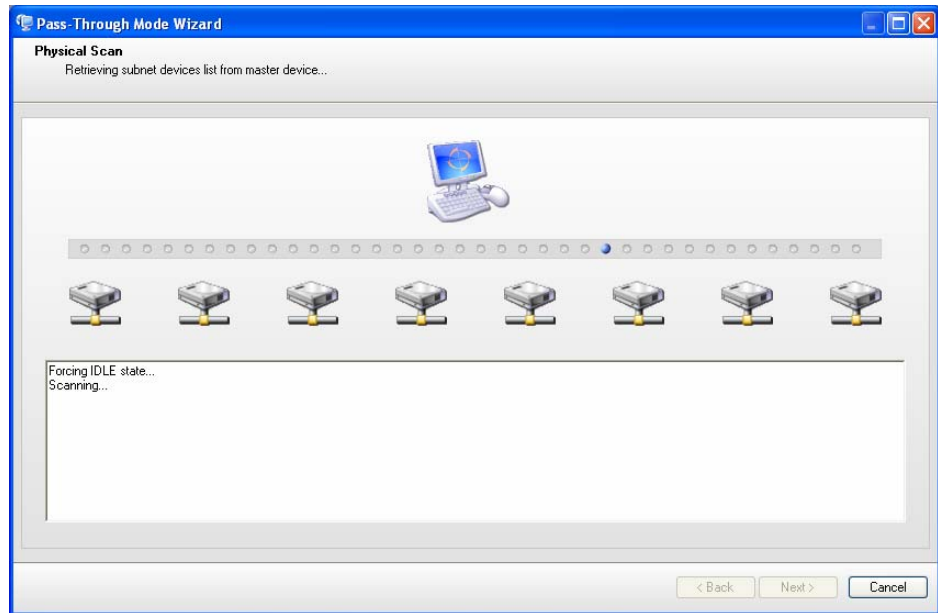
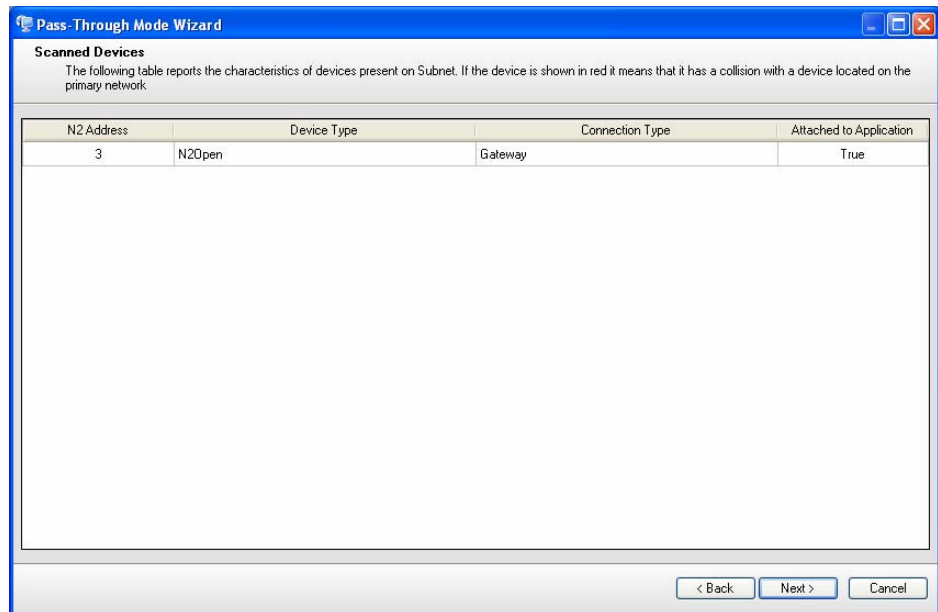


**Figure 31: Pass-Through Mode Wizard**

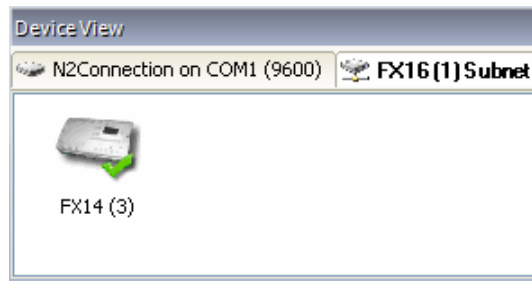
4. Select the desired scanning mode:
  - **Logical Scan** – Select this option if the slave device is defined in the master device application (either as part of a distributed application or as part of a gateway object).
  - **Physical Scan** – Select this option to discover all the devices attached to the local link bus regardless of whether they are defined in the master device application. During a Physical Scan, the master controller goes into a Standby state while the devices on the local link are discovered.

A status bar displays the scanning progress (Figure 32). Once the scan process finishes, the Pass-Through Mode Wizard identifies all discovered devices and their connection type (Figure 33).



**Figure 32: Scanning Progress****Figure 33: Scanned Device Results**

5. Click Next. The FX CommPro N2 main screen appears. The Device View displays tabs that show the original connection to the master device and the connection to the subnet of the master device (local link bus). See Figure 34.



**Figure 34: Slave Device Added to the Device View**

6. To close the Pass-Through connection, right-click the master device and select Close Subnet from the Pass-Through menu. The Pass-Through connection closes, and the slave devices are removed from the Device View.

## Connecting to a Medium User Interface (MUI)

To connect to an MUI

1. Connect an RS-232 to RS-485 converter to the computer serial port.
2. Connect the MUI to the RS-485 converter.
3. Connect power to the MUI. If powering a local mount MUI from an FX Field Controller using the LP-KIT007-000C, disconnect the wires from terminals LL+ and LL- on the FX Field Controller.
4. Start FX CommPro N2.
5. Click Open Connection. The Open Connection window appears (Figure 24).



**Figure 35: Open Connection Window**

6. Click the appropriate COM port with the RS-232 to RS-485 adapter.
7. Select **Display Remote Connection** from the drop-down menu.
8. Click Connect.

## Downloading Files

Use FX CommPro to download the following types of files into the FX field controllers:

- application files (\*.apd)
- firmware files (\*.a37)

In addition, you can also use FX CommPro to download the application source code, design skin files, and commissioning skin files to FX16 Rev. B controllers.

### Downloading an Application File to FX Controllers

Before you download an application to a controller, you must first connect FX CommPro N2 to the device. For more information, see *Connecting to Devices*.

In FX CommPro N2, 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 Device View, select the target device.

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

2. Right-click the selected device (Figure 36), and select Download from the Application menu. The Download Operation Status window appears (Figure 37).

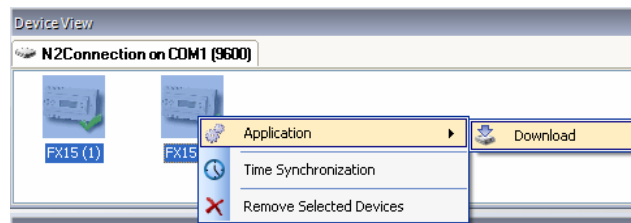
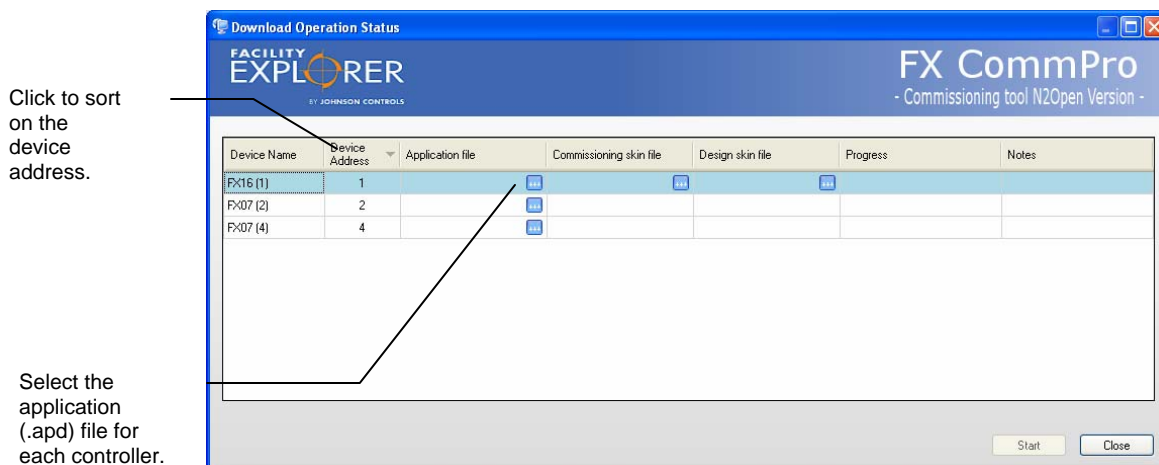


Figure 36: Selecting Application Download



**Figure 37: Download Operation Status Window**

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

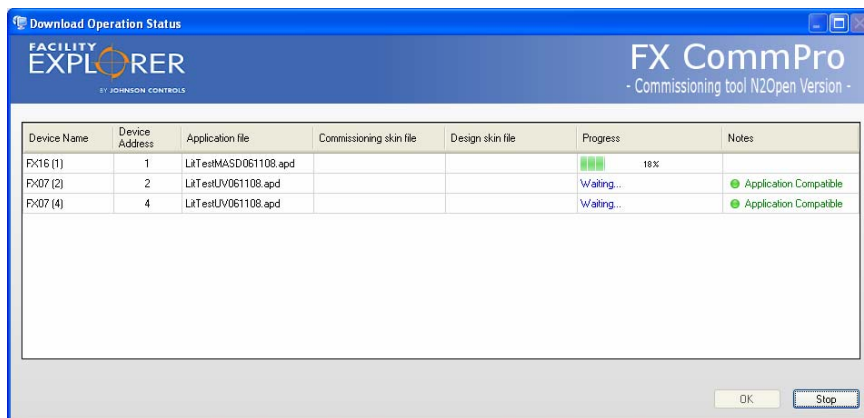
**Note:** You can use Ctrl or Shift to select two of the same controllers and then select an application file for both controllers. The same application then appears for both devices.

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 displays the progress of each application download operation. When the download operation finishes, a **Download Completed** message appears.



**Figure 38: Download Operation Progress**

5. Click OK to exit the Download Operation Status window (Figure 38).

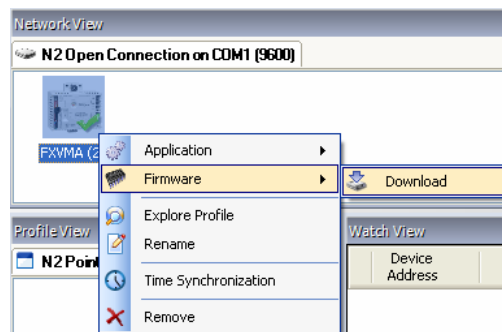
**Note:** For dial-up connections, the controller restarts after the completion of the application download. This reboot operation takes up to 2 minutes. At this stage, the dial-up connection ends. FX CommPro N2 closes the dial-up connection session and does not automatically reconnect the controller. You must open another session.

## Downloading a Firmware File to FX Controllers

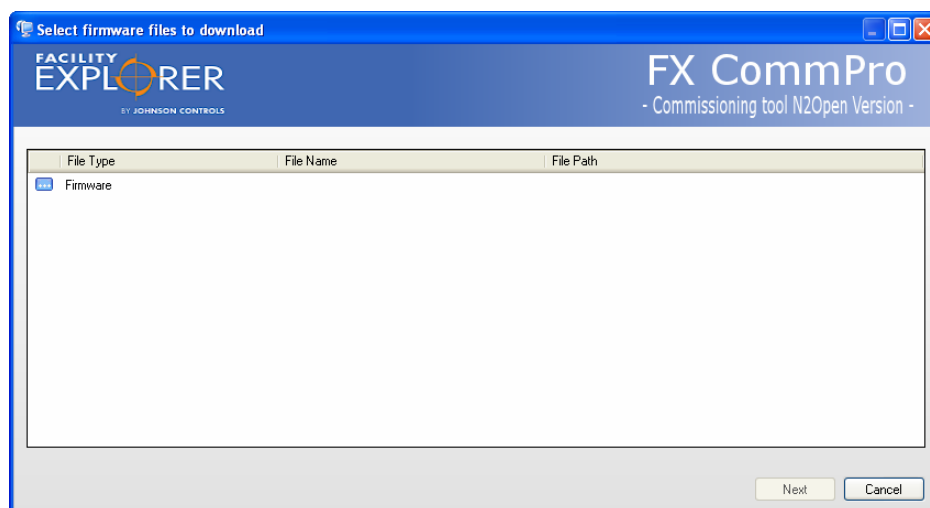
Before you download a firmware file to a controller, you must first connect FX CommPro N2 to the device. For more information see *Connecting to Devices*.

To download a firmware file to an FX controller:


1. In the Network View, right-click the desired device and select Download from the Firmware menu (Figure 39). The Select Firmware Files to Download window appears (Figure 40).

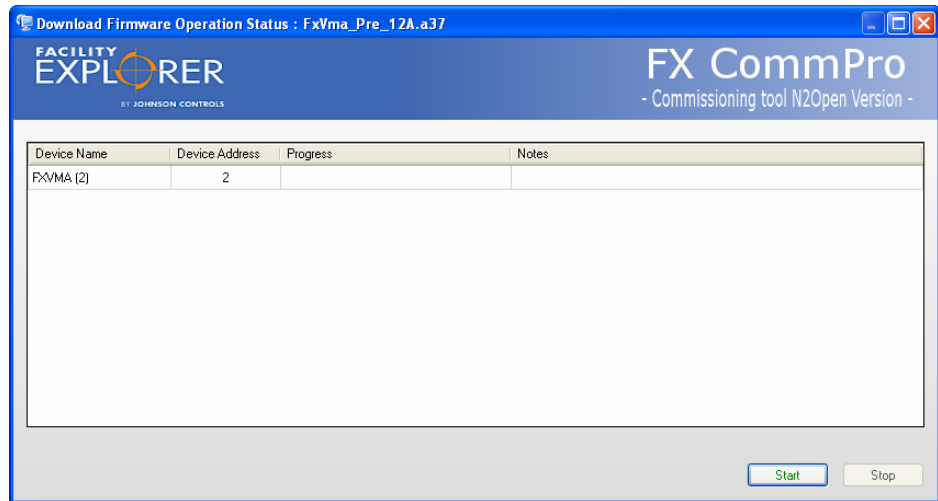


**Figure 39: Select Firmware>Download**



**Figure 40: Select Firmware Files to Download Window**

2. Click the  button. The Open dialog box appears.
3. Select the desired firmware file and click Open. Click Next. The Download Firmware Operation Status dialog box appears (Figure 41).



**Figure 41: Download Firmware Operation Status Window**

4. Click Start. The download process starts.

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

**IMPORTANT:** Take all precautions to prevent a power interruption or a communication interruption between FX CommPro N2 and the target controller during a firmware download. An interrupted firmware download may cause the controller to become permanently unresponsive.

5. Click OK.

## Downloading Application and Skin Files to FX16 Rev. A and Higher Controllers

FX16 Rev. A and higher devices allow you to download application files (.apd). These devices also allow you to download, design, and commission skin files (.skc), which enable you to upload the design and commissioning skin files at a later date, if needed.

### ***Design Skin File***

An uploaded design skin file allows you to view and edit the actual configuration using FX Builder Express.

### ***Commissioning Skin File***

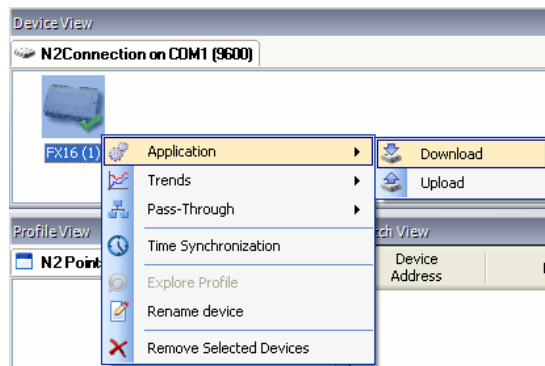
An uploaded commissioning skin file allows you to use the FX CommPro commissioning plug-in feature.

Before you download these files to an FX16 Rev. A and higher controller, you must first connect FX CommPro N2 to the device. For more information, see *Connecting to Devices*.

To download application and skin files to the FX16 Rev. A and higher controllers:

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

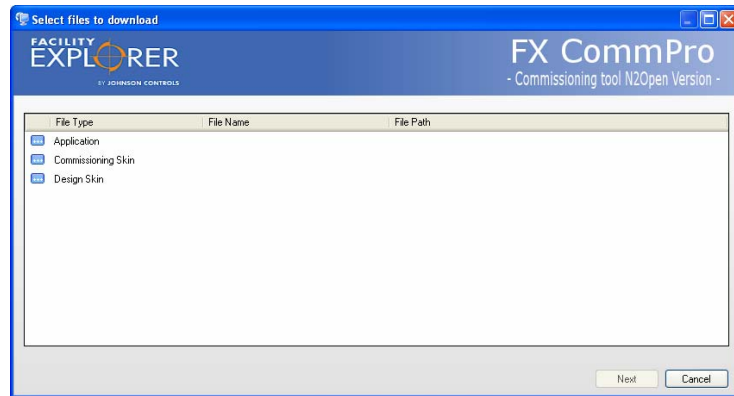
**Note:** If necessary, you can select more than one target device.




**Figure 42: Selecting Application Download**

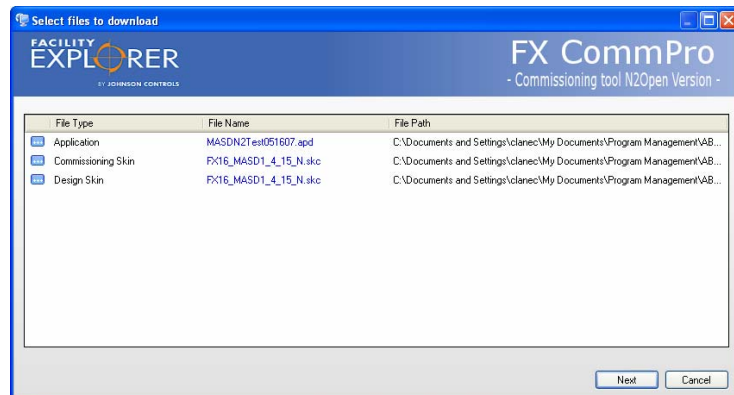
2. Right-click the selected device, and select Download from the Application menu (Figure 42). The Select files to download window appears (Figure 43).





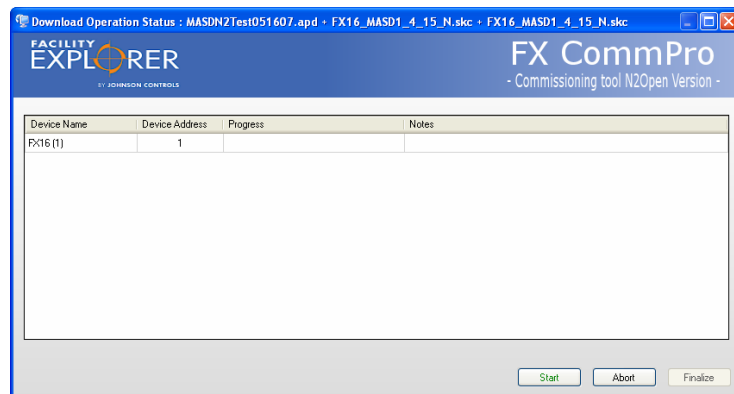
**Figure 43: Selecting the Application File to Download**

3. Click the  icon next to Application. The Open window appears.
4. Select the desired application file (.apd), and click Open. The Select files to download window reappears (Figure 44).
5. If necessary, repeat Steps 3 and 4 to select Commissioning Skin and Design Skin files.



**Figure 44: Files Selected for Downloaded**

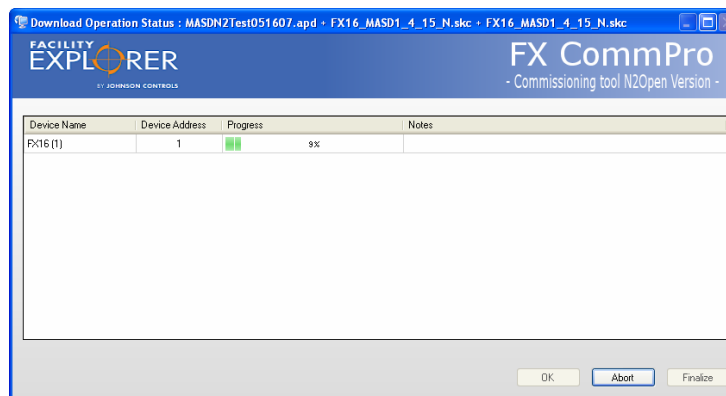
6. Click Next. The Download Operation Status window appears (Figure 45).



**Figure 45: Download Operation Status Window**

7. Click Start. The download process starts.

The Download Operation Status window displays the progress of the application download (Figure 46). When the download operation finishes, the Progress cell displays a **Download Completed** message.



**Figure 46: Download Operation Progress**

8. Click OK.

**Note:** For dial-up connections, the controller restarts after the completion of the application download. This reboot operation takes up to 2 minutes. At this stage, the dial-up connection ends. FX CommPro N2 closes the dial-up connection session and does not automatically reconnect the controller. You must open another session.

## Downloading Firmware File to Medium User Interface

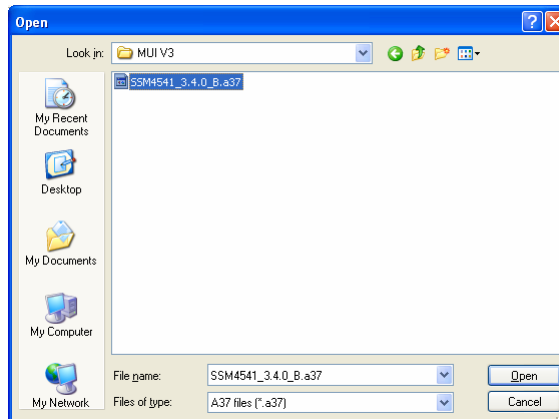
To download a firmware file to an MUI:

1. Click the Open Connection toolbar icon. The Open Connection window appears.
2. Check the circle for the appropriate COM port with the RS-232 to RS-485 adapter.
3. Select Display Remote Connection from the drop-down menu.
4. Click Connect. The Display Devices Firmware Update dialog box appears.



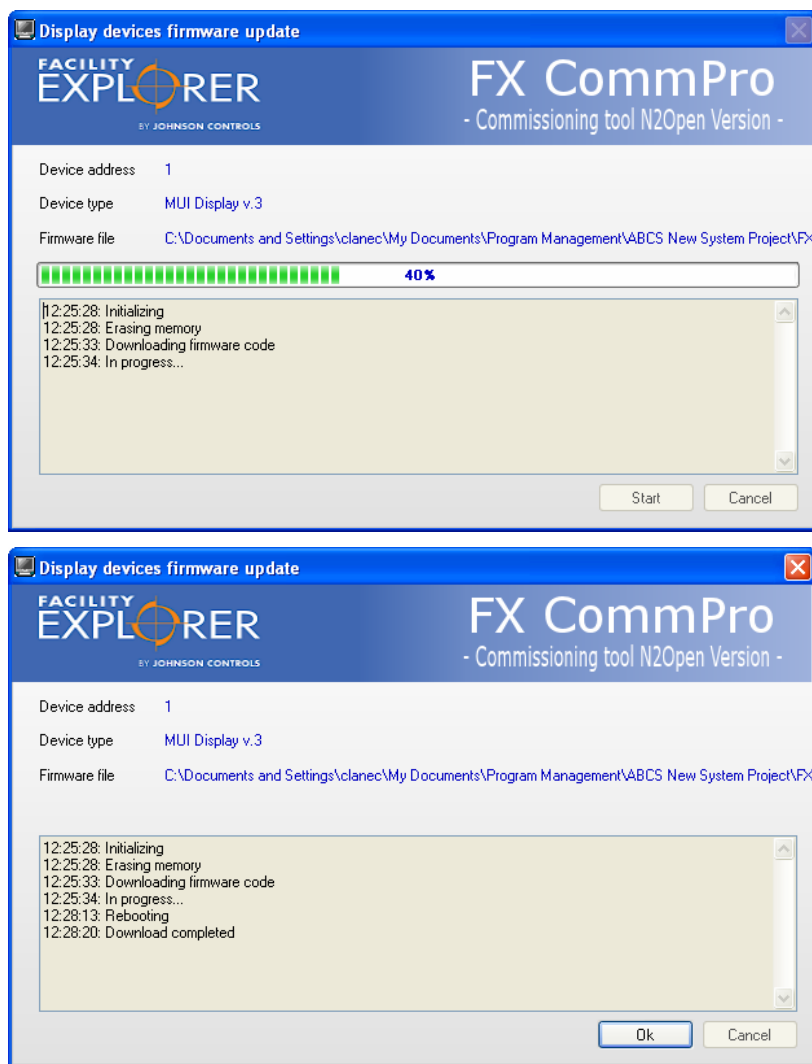
**Figure 47: Select MUI Version**

5. Select the appropriate version of MUI.
6. Click Browse. The Open dialog box appears.
7. Select the desired MUI firmware file (Figure 48).



**Figure 48: Browse to Firmware File**

8. Click Open. The Display Devices Firmware dialog box reappears.
9. Click Next. The progress window appears.
10. Click Start (Figure 49). The firmware download progress window shows current status.



**Figure 49: MUI Firmware Download Progress**

11. Once the MUI firmware download finishes, click OK.

## Uploading Files from FX Field Controllers

Use FX CommPro N2 to upload application, design skins, and commissioning skin files and trends from FX16 Rev A controllers.

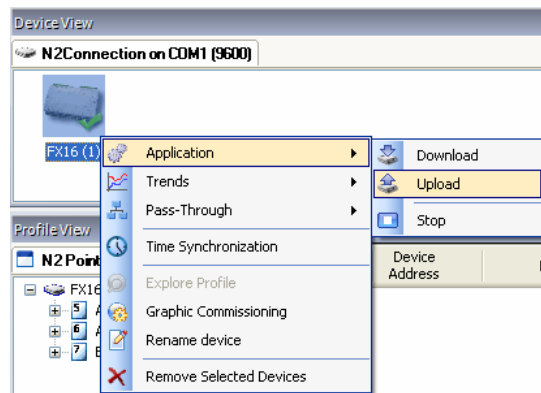
### Uploading Application, Design Skin, and Commissioning Skin Files from FX16 Rev. A and Higher Controllers

Before you upload files from an FX16 Rev. A and higher controller, you must first connect FX CommPro N2 to the device. For more information, see *Connecting to Devices*.

To upload application, design skin, and commissioning skin files from FX16 Rev. A and higher controllers:

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

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



**Figure 50: Selecting Application Upload**

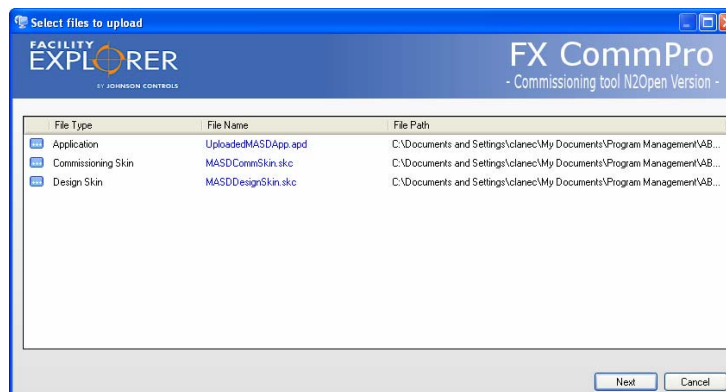
2. Right-click the selected device, and select Upload from the Application menu (Figure 50). The Select files to upload window appears (Figure 51).



**Figure 51: Select Files to Upload**

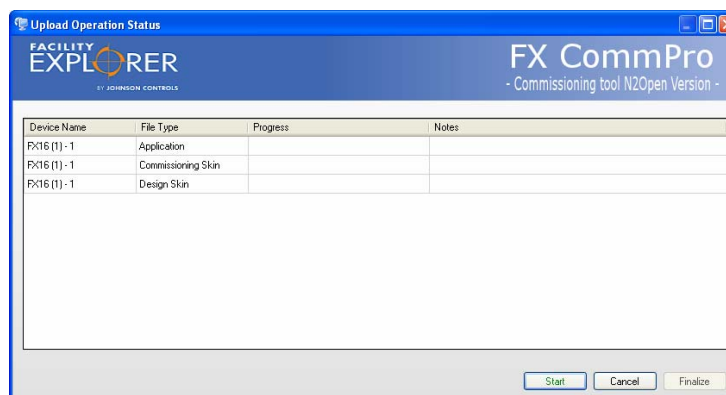
3. Click the  icon next to Application. The Save As window appears.

4. Select the application file (.apd) to save, and click Save. The Select files to upload window reappears (Figure 52).



**Figure 52: Files Selected for Uploading**

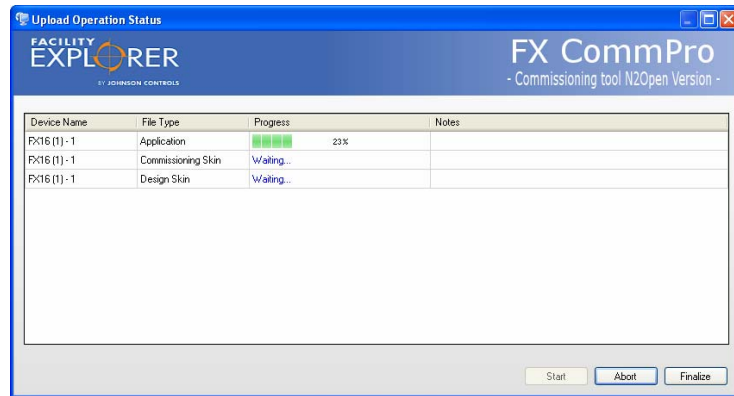
5. If necessary, repeat Steps 3 and 4 to select the locations for the commissioning skin and design skin files.
6. Click Next. The Upload Operation Status window appears (Figure 53).



**Figure 53: Upload Operation Status Window**

7. Click Start. The upload process starts.

The Upload Operation Status window displays the progress of the application upload operation (Figure 54). When the upload operation finishes, an **Upload Completed** message appears.



**Figure 54: Upload Operation Progress**

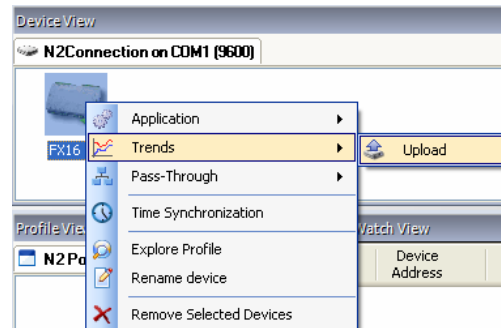
8. Click OK.

## Uploading Trends from FX16 Rev. A and Higher Controllers

Before you upload trends from the FX16 Rev. A and higher controller, you must first connect FX CommPro N2 to the device. For more information, see *Connecting to Devices*.

To upload trends from FX16 Rev. A and higher controller:

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




**Figure 55: Uploading Trends**

2. Right-click on the selected device, and select Upload from the Trends menu (Figure 55). The Trend Upload Wizard appears (Figure 56).



**Figure 56: Trend Upload Wizard**

3. Enter the target folder name or click on the  icon, and select the target folder (Figure 57).

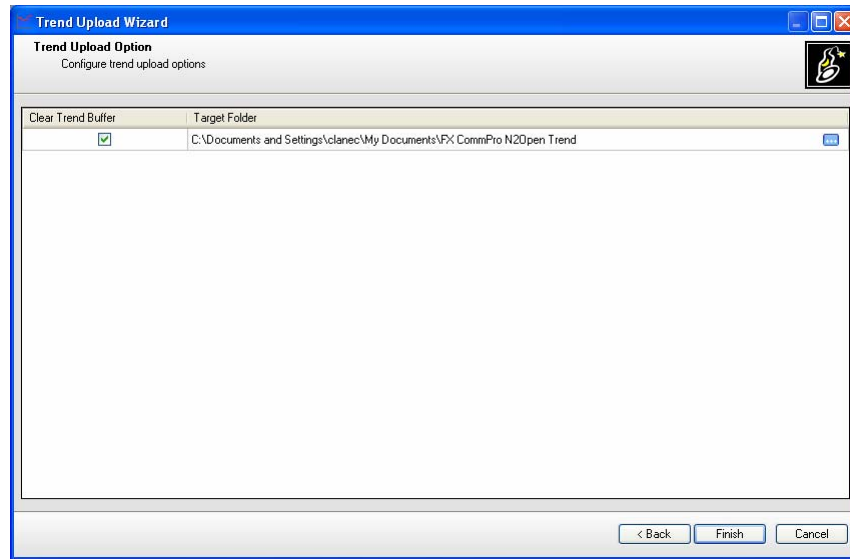


**Figure 57: Browse for Folder**

4. Click OK. The Trend Upload Wizard appears (Figure 58).

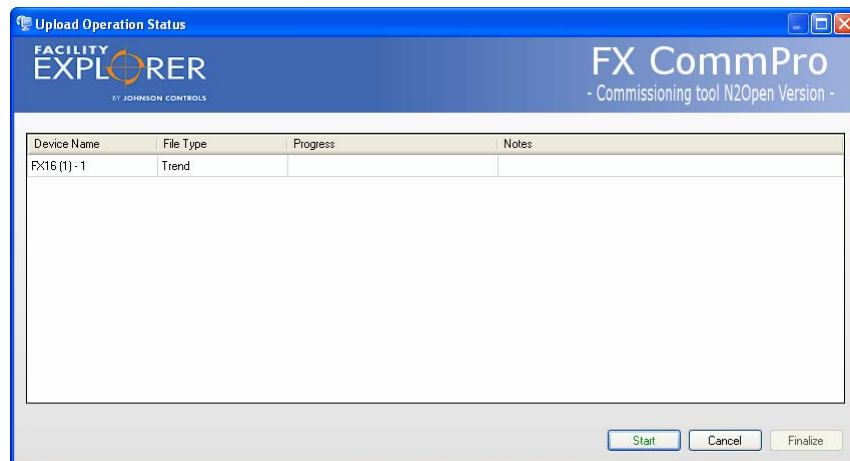
The wizard allows you to check or clear the trend buffer. You can also reselect the target folder.





**Figure 58: Trend Upload Options**

5. Select the desired options, and click Finish. The Upload Operation Status window appears (Figure 59).



**Figure 59: Upload Operation Status Window**

6. Click Start. The Upload process starts.  
The Upload Operation Status window displays the progress of the application upload operation. When the upload operation finishes, an **Upload Completed** message appears.
7. Click OK.

## Commissioning Controllers

Commissioning is a set of processes you use to ensure the controller works as expected. FX CommPro N2 allows you to perform the following commissioning activities:

- monitoring N2 points
- overriding N2 points
- adjusting N2 points

Before you commission controllers, you must first connect FX CommPro N2 to the device. For more information, see *Connecting to Devices*.

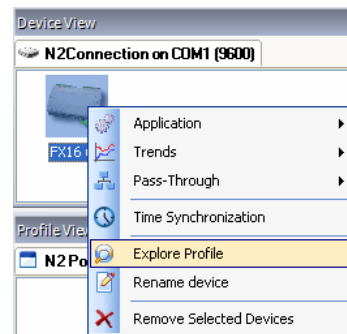
## Exploring the Device

To commission a controller with FX CommPro N2, you need to first **explore** the N2 network profile of the device. The N2 network profile contains all of the points exposed to the N2 network. The N2 network profile is defined when the application software is configured with FX Builder or FX Builder Express. If you want FX CommPro N2 to explore the points inside the FX controller, the controller must contain an application with a predefined N2 network profile.

After an application downloads to a controller, the Profile View populates with the N2 network profile points.

To explore a device:

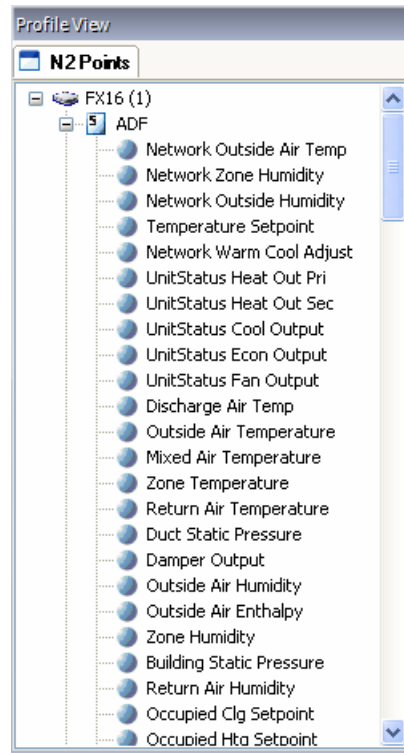
1. In the Device View, right-click on the target device and select Explore Profile (Figure 60). The Open Window appears.



**Figure 60: Exploring the Profile**

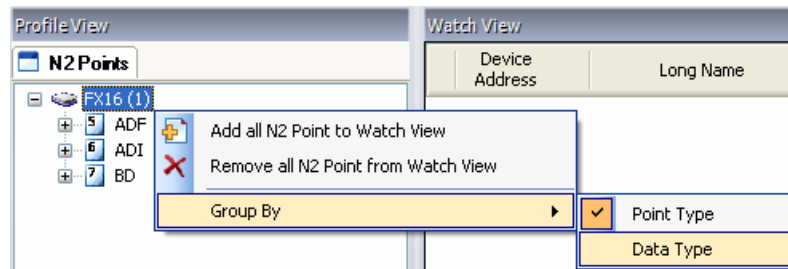
2. Select the application file (.apd) currently loaded in the target controller, and click Open.

The Profile View is populated with the points defined in the N2 network profile (Figure 61). FX CommPro N2 groups points by their N2 Point Type or by their application point data type.



**Figure 61: Profile View (Grouped by Point Type)**

3. To change the grouping, right-click on any area in the Profile View, and select Group By (Figure 62).



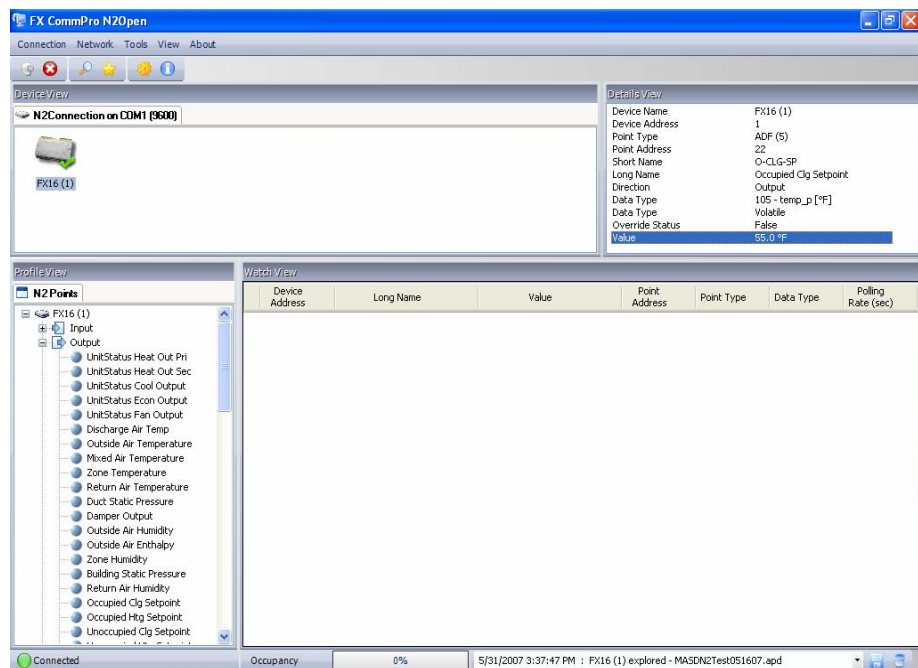
**Figure 62: Changing the Grouping**

4. Select the desired group type: Point Type or Data Type. The Profile View displays the points grouped by the selected type.

## Viewing Point Details Using the Profile View

To view point details using the Profile View, click on the desired point in the Profile View (Figure 63).

Information about the selected point appears in the Details View. This method is a quick way to view point information; however, you can only view information about one point at a time.



**Figure 63: Viewing a Point Value in the Details View**

## Viewing Point Details Using the Watch View

You can also add a desired point to the Watch View (Figure 64).

The Watch View can contain multiple points and can originate from different connected devices. The Watch View contains a table that allows you to sort points by the following attributes:

- Device Address
- Long Name
- Value
- Point Address
- Point Type
- Data Type
- Polling Rate

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

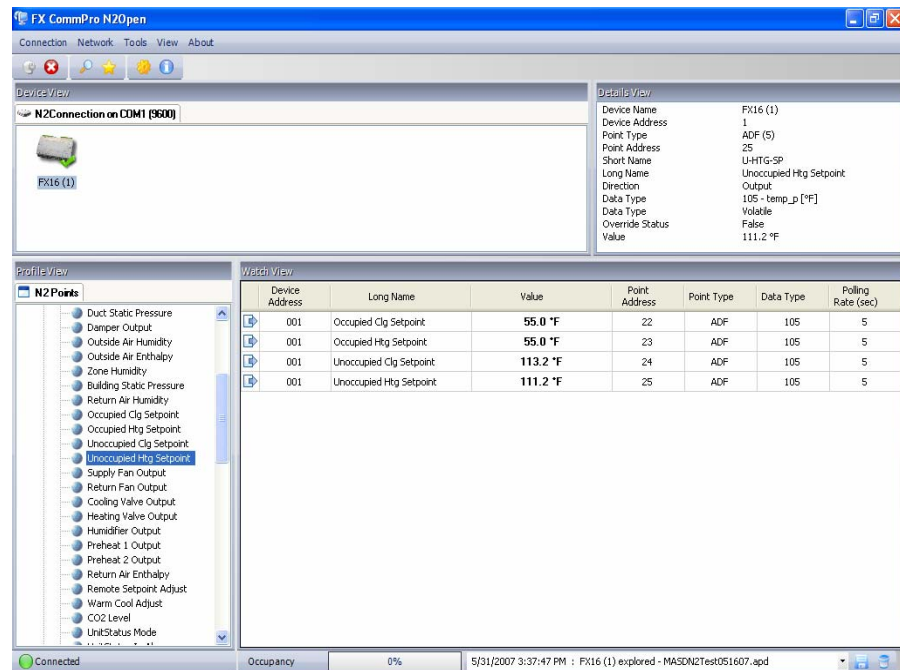


Figure 64: Viewing Points in the Watch View

### Adding a Specific Point to the Watch View

To add a specific point to the Watch View, right-click the point and select Add to Watch View.

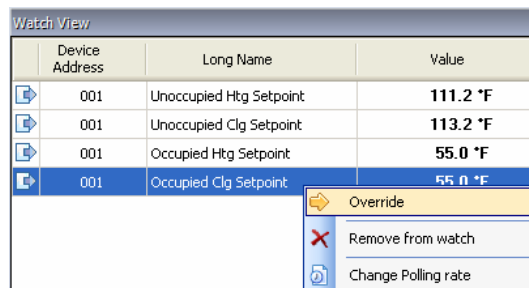
### Adding All Points in the Profile to the Watch View

To add all the points in the profile to the Watch View, right-click on an empty area of the Profile View, and select Add all N2 Point to the Watch View.

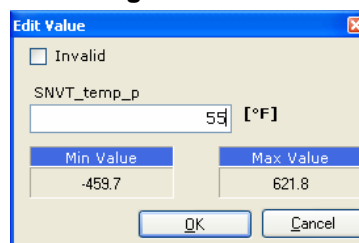
## Overriding Points

To override a point:

1. Right-click the point (either in the Profile View or the Watch View), and select Override (Figure 65). The Edit Value window appears (Figure 66).



**Figure 65: Overriding a Point from the Watch View**



**Figure 66: Edit Value Window**

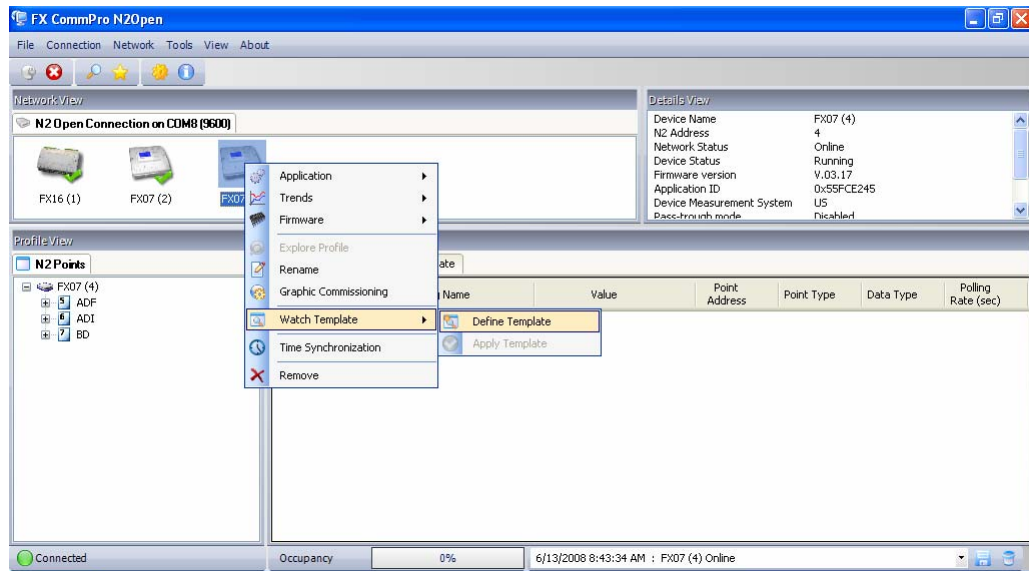
2. Enter the desired override value, and click OK.

## 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 event 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 67).



**Figure 67: Define Watch Template**

2. From the Profile View, drag the points to the Watch View.
3. On the File menu, click Save Watch Template.
4. Enter the name of the template and click Save.

## 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 already open, right-click the desired device in the Network View.
2. Select Apply Template from the Watch Template menu (Figure 68).

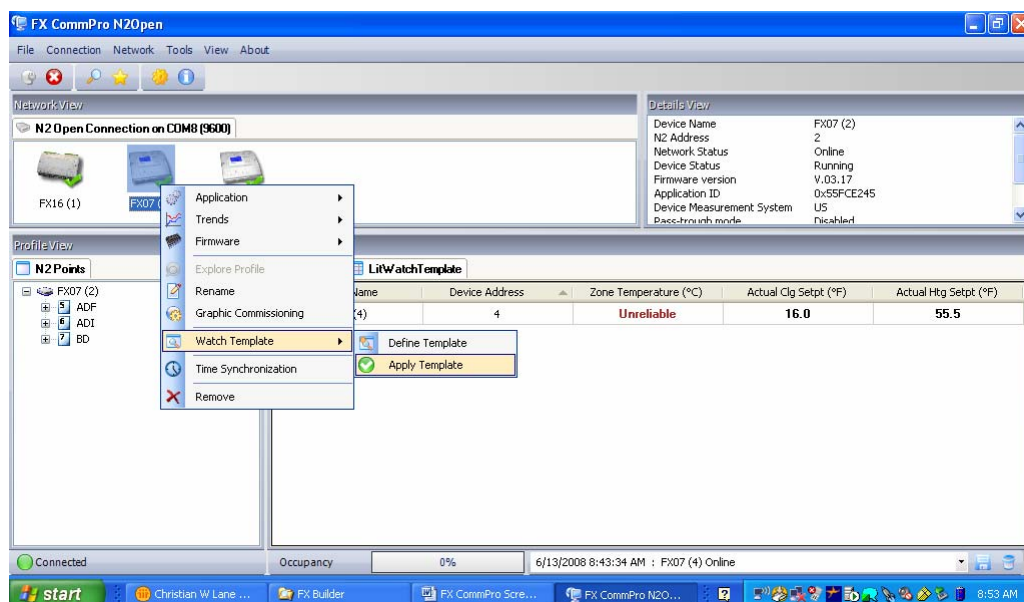


Figure 68: Apply Watch Template

## 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 69). Microsoft Excel opens and displays the data you exported.

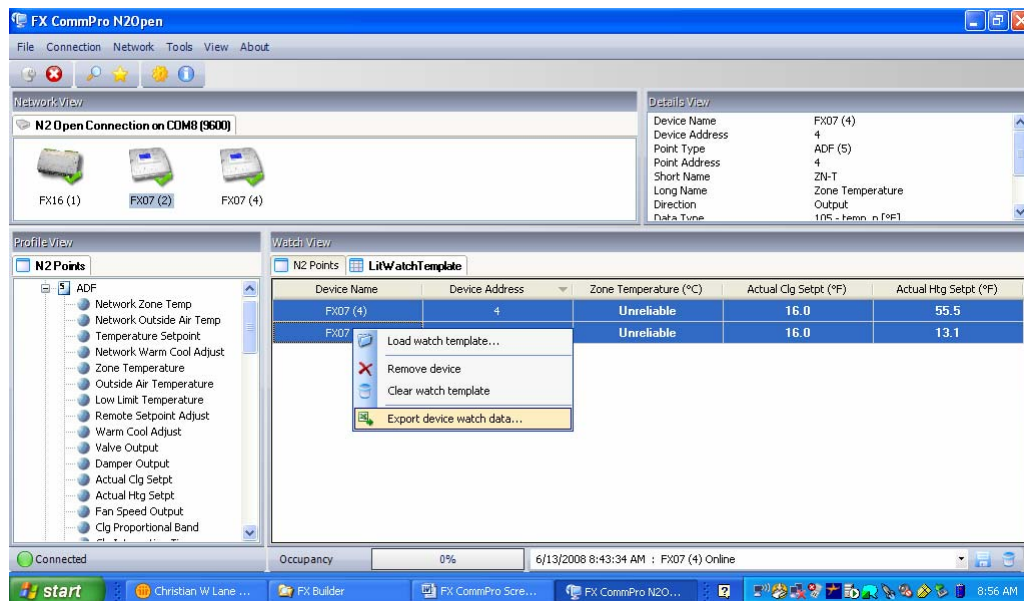


Figure 69: Exporting Watch Data



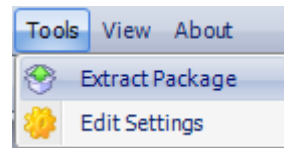
## Graphic Commissioning

Use graphic commissioning for standard applications configured using FX Builder Express. Graphic commissioning provides similar functions as standard commissioning, except that the points appear in a graphical plug-in (similar in appearance to the FX Builder Express plug-in).

### ***Extracting the Skin File from the Commissioning Package***

Each standard application includes a commissioning package file (.cn2o). This zipped file contains the commissioning skin file (.skc), which invokes the graphical commissioning session for that specific application.

To extract the skin file from the commissioning package, select Extract Package from the Tools menu (Figure 70).

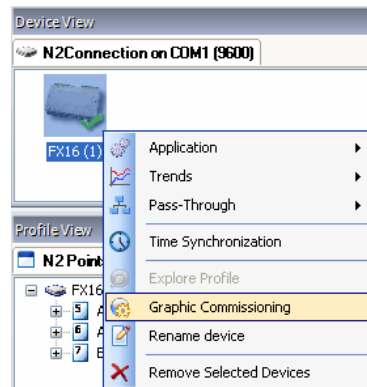


**Figure 70: Extracting the Commissioning Skin File**

### ***Invoking Graphic Commissioning***

To invoke Graphic Commissioning:

1. Right-click the device from the Device View, and select Graphic Commissioning (Figure 71). The Open window appears.



**Figure 71: Invoking Graphic Commissioning**

2. Select the commissioning skin file that corresponds to the application loaded in the selected controller, and click Open.

The commissioning plug-in appears and presents real-time information in a graphical plug-in (Figure 72). The commissioning plug-in is similar in appearance to the FX Builder Express application configuration plug-in, except that it includes folders for the Hardware (location of the input and output values) and for the various sequence of operation states.

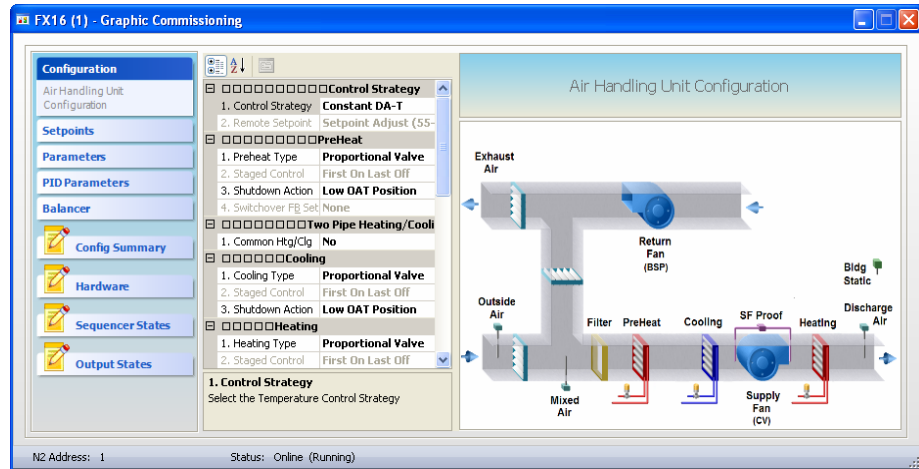


Figure 72: Graphic Commissioning

## Performing a VAV Box Flow Test

The Variable Air Volume (VAV) Box Flow Test is a feature available only for those controllers containing the Box Flow Test object in their application software. Currently, this object is only available in the FXVMA.

Use the VAV Box Flow Test to verify and diagnose the operations of the FXVMA controller when attached to a VAV box. When the VAV Box Flow Test is initiated, FXVMA opens (or closes, depending on the user-defined setting) the VAV box damper, pausing at user-defined steps. The FXVMA pauses momentarily at each step, takes a flow reading, and continues. Once the cycle is complete, the Box Flow Test evaluates all the flow readings and provides you with a diagnostic report that you can view and also export to a text (\*.txt) file.

To perform a VAV Box Flow Test:

1. Connect FX CommPro to the network of FXVMAs.
2. Select the target FXVMA and click on Box Flow Test from the Tools menu (Figure 73). The FXVMA Box Flow Test Wizard appears (Figure 74).

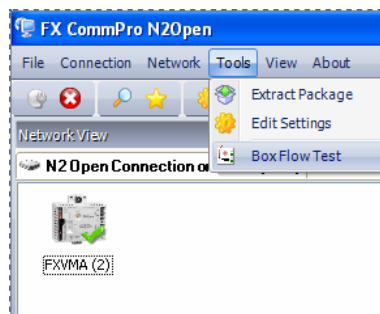
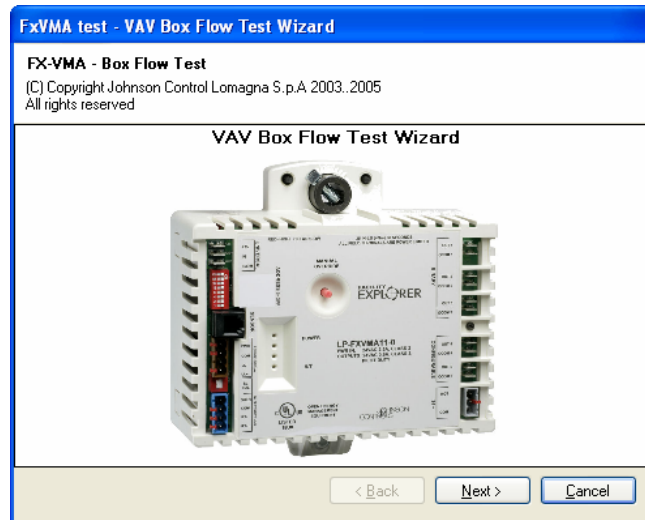
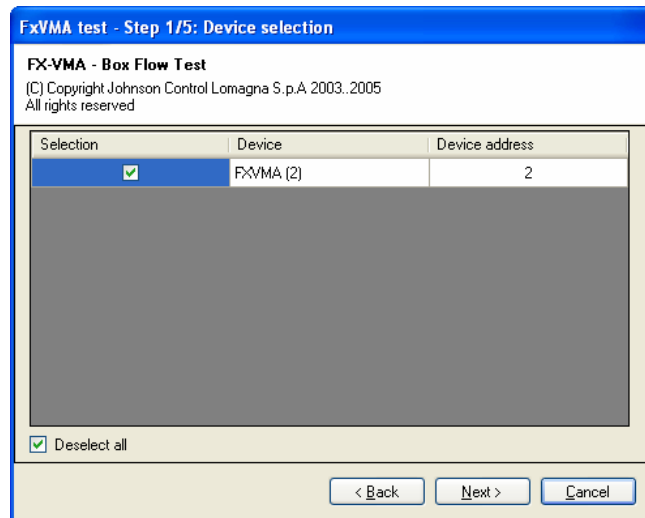


Figure 73: Select Tools &gt; Box Flow Test



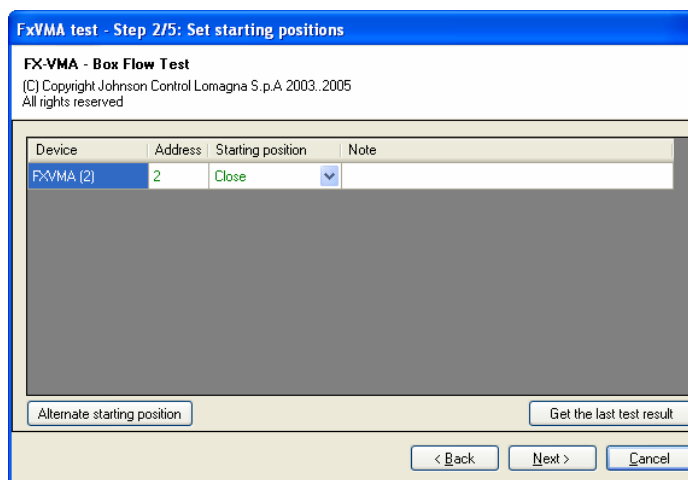
**Figure 74: FXVMA Box Flow Test**

3. Click Next. Step 1 of the Box Flow Test Wizard appears (Figure 75).
4. Select all the desired FXVMA controllers on which to perform the test.



**Figure 75: Device Selection**

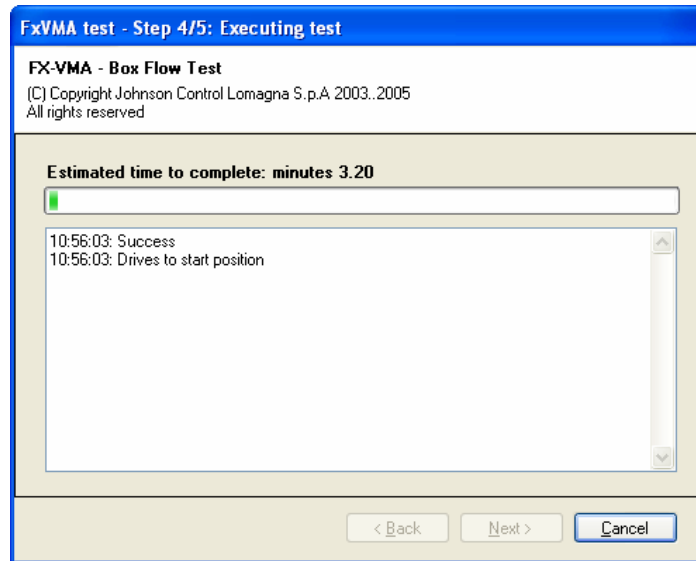
5. Click Next. Step 2 of the Box Flow Test Wizard appears (Figure 76).
6. Use the list box to select the starting position for each FXVMA.  
If you perform the test on multiple FXVMAs, we recommend you select the **Alternate starting position** button. When you select this button, the starting positions for all the FXVMAs are staggered. This prevents the VAV box dampers from all being closed at the same time, which in turn prevents an excessive buildup of pressure in the supply duct.



**Figure 76: Set Starting Positions**

7. Click Next. Step 3 of the Box Flow Test Wizard appears. Set the following test characteristics:
  - **Test type:** Set to either **One way** or **Two way**. Setting to One way modulates the damper in only one direction (for example, from open to closed or from closed to open). Setting to Two way modulates the damper in both directions (for example, from open to closed and back to open).
  - **Test steps:** Select a number between 2 and 10. The test divides the stroke time by the number of steps, pauses at each of these intervals, and takes a flow reading.
  - **Test stroke time:** Enter the desired stroke time. The FvVMA's internal actuator is a 60-second actuator, so you typically leave this setting at its default value (60 seconds).
8. Click Next. Step 4 of the Box Flow Test Wizard appears (Figure 77). The FvVMA executes the test.

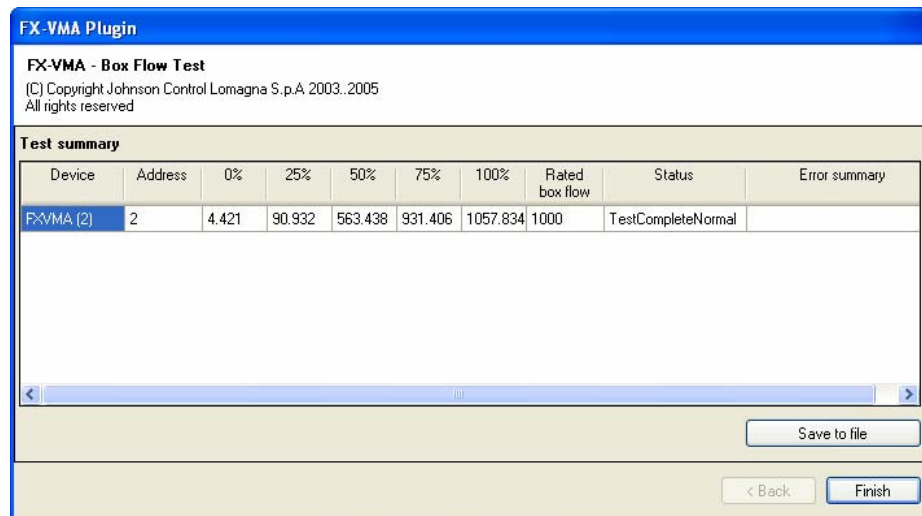
The FvVMA actuator cycles according to the test characteristics you defined, and takes flow readings at each interval. A progress bar and status window provides you with the estimated time to complete the test and the current operation.



**Figure 77: Executing Test**

When you finish, a message indicates that the test is complete.

9. Click OK.
10. Click Next. Step 5 of the Box Flow Test wizard appears (Figure 78). This dialog box shows the results of the Box Flow Test for each FXVMA, including the following:
  - device name and address
  - actual flow readings at the defined steps
  - VAV box rated flow
  - status, which shows the summary of the status of the current or most recent test.
  - Error Summary. See Table 2.



**Figure 78: FXVMA Plug-in**

**Table 2: Error Summary**

<b>Error Summary</b>	<b>Description</b>
<b>Large dP Offset</b>	Occurs if the absolute value of the Delta P Offset is greater than or equal to the Delta P Offset tolerance. This indicates that an auto calibration was performed when the damper was not fully closed. This is often a symptom of a stuck or reversed actuator.
<b>Flow Not Reliable</b>	Occurs if the flow sensor analog input is not reliable.
<b>Damper Command Not Responding</b>	Occurs if the damper position did not reach its commanded value for one or more of the test steps.
<b>Poor Flow Response</b>	Occurs if $(\text{Max Flow} - \text{Min Flow}) \leq (\text{RatedBoxFlow} * \text{Flow Tolerance}/100)$ . The flow tolerance is currently 0%.
<b>Insufficient Flow</b>	Occurs if $\text{Max Flow} < (\text{RatedBoxFlow} * 100 - \text{FlowTolerance}/100)$
<b>Excessive Flow</b>	Occurs if $\text{Max Flow} > 1.5 * \text{RatedBoxFlow}$
<b>Non-increasing Flow</b>	Occurs if flow change is moving in the wrong direction (depending on if damper is opening or closing)
<b>Excessive Hysteresis</b>	Occurs if flow reading at a step in the opening direction is significantly different than the flow reading at the same step in the closing direction (percent error > flow tolerance).

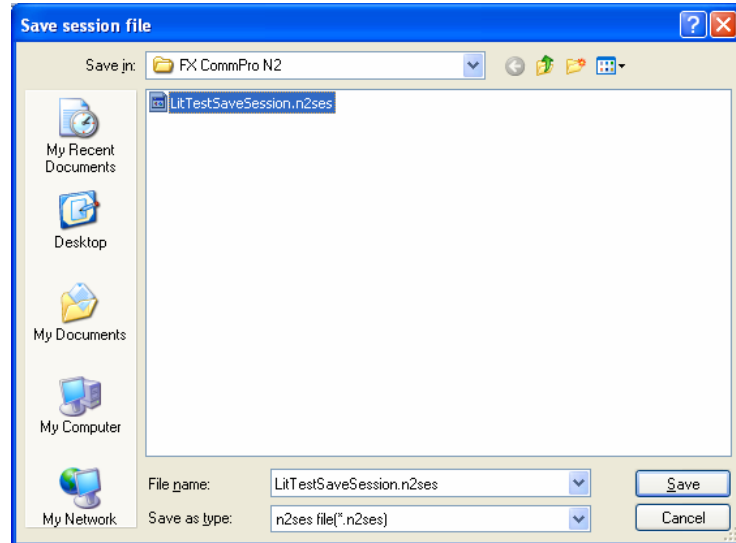
11. Click **Save to file** to save the test results to a \*.txt file.
12. Select the desired location. Click OK.
13. Click Finish. The main window of FX CommPro N2 reappears.

## Saving a Session

When you save the session you save the connection settings, the devices that were scanned, and the watch view.

To save the session:

1. From the File menu, click Save Session. The Save session to file screen appears (Figure 79).



**Figure 79: Save Session to File**

2. Enter the name of the file and click Save.

## Loading a Session

Use the Load Session feature to open a previously saved session.

To load a session:

1. From the File menu, click Load Session.
2. Select the session you want to load and click Open. FX CommPro N2 opens the previously saved session.

# Specifications and Technical Data

## Ordering Codes

Table 3: Software

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

## Technical Specifications

Table 4: FX CommPro N2 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 2.5 MB (typical) to 6 MB (maximum) for each application file
	Display	Display resolution 800 x 600 16-bit (32,768) color minimum
	Communication Interface	RS-232C, USB
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.*



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