

User's Manual Pub. 0300278-02 Rev. A

# Connects SCX-3000 Connects/Gateway 6.1

Catalog Number: SCX-3000



**SPECTRUM**  
C O N T R O L S



## Important Notes

1. Please read all the information in this owner's guide before installing the product.
2. The information in the manual applies to Connects Version 6.1.
3. This manual assumes that you have a full working knowledge of the relevant equipment.

### Notice

The product described in this manual is useful in a wide variety of applications. Therefore, you and others responsible for applying the product described herein are responsible for determining its acceptability for each application. While efforts have been made to provide accurate information within this manual, Spectrum Controls, Inc. assumes no responsibility for the accuracy, completeness, or usefulness of the information herein.

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## Preface

Read this introduction to familiarize yourself with the rest of the manual. This preface covers the following topics:

- Who should use this manual
- How to use this manual
- Technical support
- Conventions used in this manual

## Who Should Use This Manual

Use this manual if you are responsible for installing and running Connects 6.1.

## How to Use This Manual

This manual provides step-by-step instructions for installing and using Connects 6.1.

## Rockwell Automation Technical Support

For technical support, please contact your local distributor or contact Spectrum Controls, Inc. at: (425) 746-9481 from 8:00 am to 4:00 pm Pacific Time or send an email to [support@spectrumcontrols.com](mailto:support@spectrumcontrols.com)

For technical support, please contact your local Rockwell Automation TechConnect Office for all Spectrum products. Contact numbers are as follows:

- USA (1) 440-646-6900
- United Kingdom (44) 01908 635230
- Australia 1800-809-929
- Mexico 001-888-365-8677
- Brazil (55) 11 3618 8800
- Europe +49 211 41553 63

or send an email to [support@spectrumcontrols.com](mailto:support@spectrumcontrols.com)




## Documentation

If you would like a manual, you can download a free electronic version from the Internet at [www.spectrumcontrols.com](http://www.spectrumcontrols.com)

## Conventions Used in This Manual

The following conventions are used throughout this manual:

- Bulleted lists (like this one) provide information not procedural steps.
- lists provide sequential steps or hierarchical information.
- *Italic* type is used for emphasis.
- **Bold** type identifies headings and sub-headings:

<b>WARNING</b> 	Identifies information about practices or circumstances that can lead to personal injury or death, property damage, or economic loss. These messages help you to identify a hazard, avoid a hazard, and recognize the consequences.
<b>ATTENTION</b> 	Actions ou situations risquant d'entraîner des blessures pouvant être mortelles, des dégâts matériels ou des pertes financières. Les messages « Attention » vous aident à identifier un danger, à éviter ce danger et en discerner les conséquences.
<b>NOTE</b> 	Identifies information that is critical for successful application and understanding of the product.





# Chapter 1

## Connects 6.1 Overview

Connects 6.1 Software provides a communications translator between plant asset management software packages that use the Highway Addressable Remote Transducer (HART) Protocol for digital data transmission, and the following Spectrum Controls, Inc. and Rockwell Automation modules:

Supported Spectrum Controls, Inc. modules are:

- ControlLogix 1756sc-IF8H, 1756sc-OF8H
- CompactLogix 1769sc-IF4IH, 1769sc-OF4IH
- 1734sc-IE2CH, 1734sc-IE4CH, 1734sc-OE2CIH

Supported Rockwell Automation modules are:

- ControlLogix 1756-IF8H, 1756-OF8H, 1756-IF8IH, 1756-OF8IH; 1756-IF16H, 1756-IF16IH
- Flex I/O 1794-IE8H/B, 1794-OE8H/B, 1794-IF8IH, 1794-OF8IH, 1794-IF8IHNFXT
- FlexEx I/O 1797-IE8H/B, 1797-OE8H/B

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### **WARNING**



**CORRUPTION HAZARD for users of the 1794-IE8H/B, 1794-OE8H/B, 1797-IE8H/B, and 1797-OE8H/B Modules.**

**Communication conflicts may occur if you generate HART messages with ladder when using Connects and your device asset management software. Communications conflicts may result in corrupted data.**

The listed modules support a HART communication path that may also be used for ladder logic-based HART messaging. Connects also shares this path when used with device asset management tools.

To avoid the possibility of corrupting your data, do not generate HART messages with ladder when using Connects and your device asset management software, as communication conflicts may result in corrupt data.

---

Supported Platforms are:

<b>Platform</b>	<b>Catalog Number</b>
1756	AB 1756-CNB/D ControlNet
1756	AB 1756-CNBR/D ControlNet
1756	AB 1756-CN2 ControlNet
1756	AB 1756-CN2R ControlNet
1756	AB 1756-ENBT/A Ethernet
1756	AB 1756-EN2T Ethernet
1756	AB 1756-EN2TR Ethernet
1756	AB 1756-EN3TR Ethernet
1756	AB 1756-EN2F Ethernet (Fiber optic)
1756	AB 1756-EN2SC Ethernet
1769	AB 1769 L32C ControlNet Port
1769	AB 1769 L35CR ControlNet Port
1769	AB 1769 L35E EtherNet Port
1769	AB 1769 L32E EtherNet Port
FLEX	AB Flex 1794-ACN15 ControlNet
FLEX	AB Flex 1794-ACNR15 ControlNet
FLEX	AB Flex 1797-ACNR15 ControlNet
FLEX	AB Flex 1794-AENT EtherNet
FLEX	AB Flex 1794-AENTR EtherNet
1734	AB Point I/O 1734-ACNR ControlNet Adapter
1734	AB Point I/O 1734-AENT EtherNet Adapter
1734	AB Point I/O 1734-AENTR EtherNet Adapter

Supported Communication Bridge Modules are:

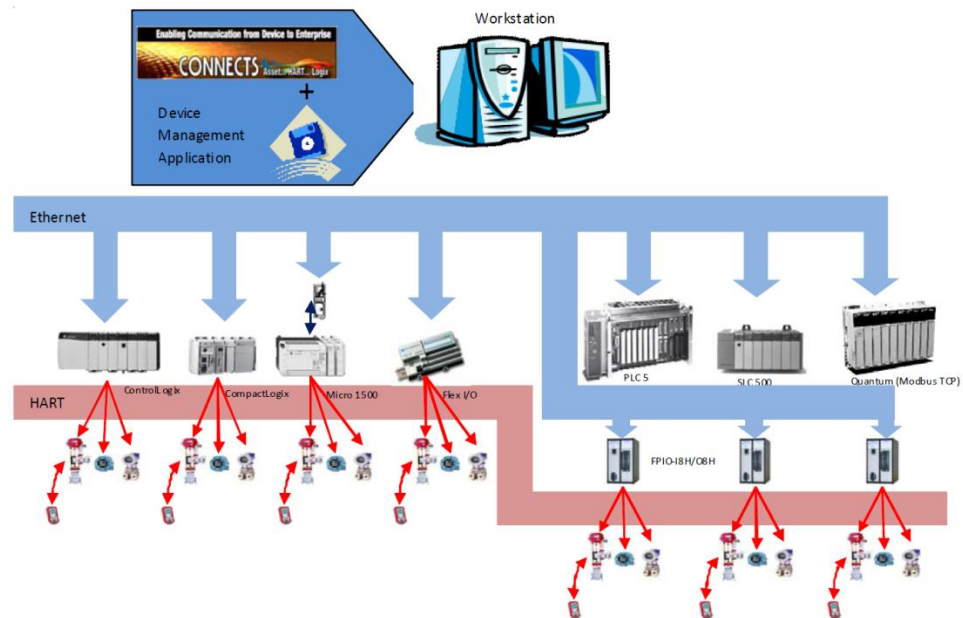
- AB 1756-CNB/D ControlNet
- AB 1756-CNBR/D ControlNet
- AB 1756-CN2 ControlNet
- AB 1756-CN2R ControlNet
- AB 1756-ENBT/A Ethernet
- AB 1756-EN2T Ethernet
- AB 1756-EN2TR Ethernet

- AB 1756-EN3TR Ethernet
- AB 1756-EN2F Ethernet (Fiber optic)
- AB 1756-EN2TSC Ethernet

## Section 1.1 General Description

Plant Asset Management software that is compatible with Connects includes Emerson's AMS package, Endress+Hauser's FieldCare, and Yokogawa's Plant Resource Manager. Asset management software allows you to view and modify the configuration data, and/or view process variables from any HART field device connected to the system. The HART modules appear as hardware multiplexers in the asset management software.

A single hardware multiplexer may represent up to 32 HART modules. Connects can be configured to use a built-in Ethernet driver, Rockwell Automation's RSLinx (PRO/OEM/Gateway), or to communicate directly with HART modules. Communication between Connects and the Asset Management software is accomplished by means of either a physical serial port or a virtual serial port. When using virtual serial ports, messages that are sent and received by the Asset Management software are passed directly to Connects through the virtual port software instead of via the physical serial port on the back of the PC. The block diagram below demonstrates how the individual pieces fit together.



## Section 1.2

### Required Software

The following software packages are required as listed:

<b>If you are:</b>	<b>You must have the following installed:</b>
Connecting to an AB controller using the DF1 communications protocol	ControlNet, RSLinx (Pro, Gateway, or OEM) version 2.41 or later AND Connects software
NOT using physical serial ports	Virtual Serial Port Driver (included with Connects)
Using third-party asset management and/or configuration software	RS-485 multiplexer support

## Section 1.3

### Required Hardware

Spectrum Controls Hart Modules are:

- 1756sc-IF8H
- 1756sc-OF8H (Firmware Rev. 2.3 or later).
- 1769sc-IF4IH
- 1769sc-OF4IH (Firmware Rev 2.1 or later).
- 1734sc-IE2CH
- 1734sc-IE4CH
- 1734sc-OE2CIH
- FPIO-I8H-EIP and/or FPIO-O8H-EIP

Rockwell Automation Hart Modules are:

- 1756-IF8H
- 1756-OF8H
- 1756-IF8IH
- 1756-OF8IH
- 1756-IF16H
- 1756-IF16IH
- 1794-IE8H/B
- 1794-OE8H/B
- 1794-IF8IH
- 1794-OF8IH
- 1797-IE8H/B
- 1797-OE8H/B

Supported PLC processors are:

- All ControlLogix processors
- CompactLogix L32E, L35E, L35C, and L35CR processors

For the FPIO-I8H-EIP or FPIO-O8H-EIP, see the appropriate module user manual for supported PLCs.

Supported network protocols are:

- ControlNet (1784-PCIC, 1784-PCICS or 1784-PCC)
- Ethernet (10/100 Mbps network card)
- DF1 (COM port is needed. Only supported on ControlLogix.)

## Section 1.4

### Minimum PC and User Requirements

Minimum personal computer requirements are:

- Supported operating systems are Windows XP, 32-bit, Windows 7, 32-bit and 64-bit, Windows Server 2008, 32-bit and 64-bit, and Windows 10.
- Pentium III at 500 MHz CPU
- 128 Mbytes RAM

We assume that you are familiar with:

- IBM-compatible personal computers.
- Microsoft Windows® operating systems
- Spectrum Controls 1756sc-IF8H, 1756sc-OF8H, FPIO-I8H-EIP, FPIO-O8H-EIP, 1769sc-IF4IH, and or 1769sc-OF4IH.
- Allen-Bradley 1756-IF8H, 1756-OF8H, 1756-IF16IH, 1794-IE8H/B, 1794-OE8H/B, 1794-IF8IH, 1794-OF8H, 1797-IE8H/B, 1797-OE8H/B
- Allen-Bradley programmable logic controllers (ControlLogix and or CompactLogix)
- Rockwell Software's PLC programming tools
- Emerson Process AMS or your chosen device management tool
- HART Server from the HART Foundation

## Section 1.5

### Before Installing Connects 6.1

Before you install the Connects software:

- Verify your personal computer meets minimum system requirements.
- If you are connecting to an Allen Bradley controller over DF1 or Control Net, RSLinx OEM, PRO, Gateway or higher must be installed with appropriate drivers.
- Verify that Adobe Reader is installed. If not, Adobe Reader is provided on the installation CD.
- Verify that the Asset Software package you are using has a multiplexer interface. (RS-485 network connection using the PC serial port.)
- The virtual serial driver is installed with Connects 6.1. If you do not wish to use the virtual serial driver, you may disable it.

## Section 1.6

### Installing Connects

This section explains how to install and use the Connects software.

Chapter 2 explains how to configure and set up the Connects software and associated packages you need to use asset management software to interact with your PLCs and other devices.

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**NOTE**

To perform installation tasks, you must have Windows system administrator privileges. Your user account must also be a member of the local administrator user group. For more information, contact your system administrator.

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**NOTE**

When you open a program, or try to perform a task within a program, you may see a dialog box indicating that the program is being installed or updated by Windows Installer. This can occur if your administrator has set up the program to install this way, if program files have been deleted or corrupted, or if you are trying to use a program feature that was not installed during setup.

If the program was installed from a CD-ROM, or if you are no longer connected to the network, Windows Installer may ask you for the CD-ROM. When Windows Installer finishes, the program or feature you are trying to use starts.

If you choose to use **Add/Remove Programs** to install the software, you can install only programs that were written for Windows operating systems.

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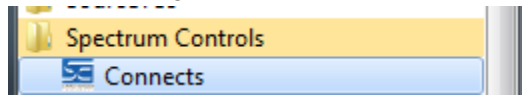
To install the Connects 6.1 software package:

1. Insert the supplied CD in your personal computer's CD-ROM drive. The installation program starts up automatically.
2. If this does not happen, navigate to the CD menu, and run **setup.exe** from the CD.

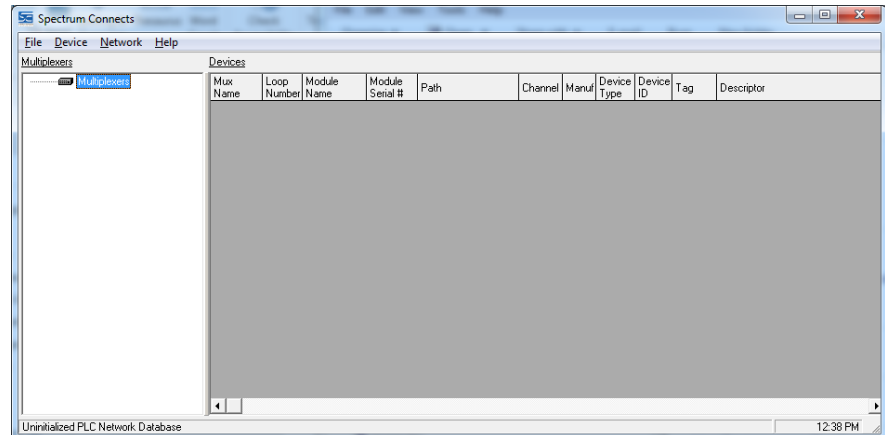
## Section 1.7

### Using the Connects 6.1 Software

1. After installing Connects 6.1, click **Start:Spectrum Controls:Connects:**



The Spectrum Connects main window appears:



The Spectrum Connects dialog contains:

- Spectrum Connects Title Bar.
- Spectrum Connects Menu Bar.
- Spectrum Connects Multiplexers and Devices Work Area. You use this work area to access and list modules and their associated sensor connections.
- Status bar, which shows software and system status.

Each software dialog component and its function are described below.

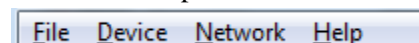
#### 1.7.1 Connects Title Bar

The title bar shows the company name and Windows **Minimize**, **Maximize**, and **Close** buttons.



#### 1.7.2 Connects Menu Bar

The menu bar provides access to the File, Device, Network, and Help menus:

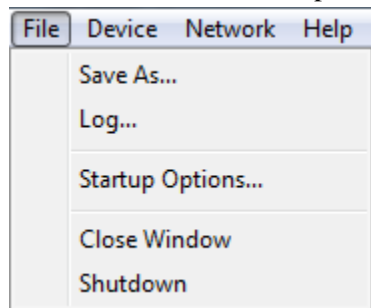


To get more information about each menu and its options, see:

- Accessing and using File Menu Options
- Accessing and using Device Menu Options
- Accessing and using Network Menu Options
- Accessing and using Help Menu Options

## Accessing and Using File Menu Options

To access the File menu options, click **File**:



Options are:

- **Save As.** Allows you to save the Connects database records of all the devices that the Connects software found on the current PLC network.
- **Log.** Allows you to create an activity log. This log maintains records of application status and message contents.
- **Startup Options.** Allows you to define the startup preferences for Connects.

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### NOTE



If startup options are altered, Connects must be restarted for the changes to take effect.

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### NOTE



**Legacy Mux Support** must be enabled when using asset management software other than Emerson AMS 7.0 or later.

- 
- **Close Window.** Allows the Connects application window to close, but leaves Connects running.
  - **Shutdown.** Closes the Connects application window and shuts down the application completely.

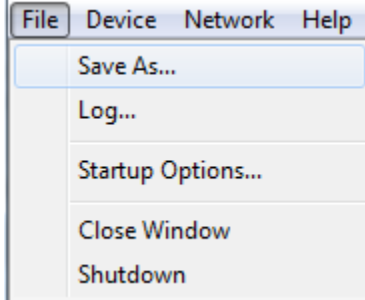


### 1.7.3 Saving Database Files

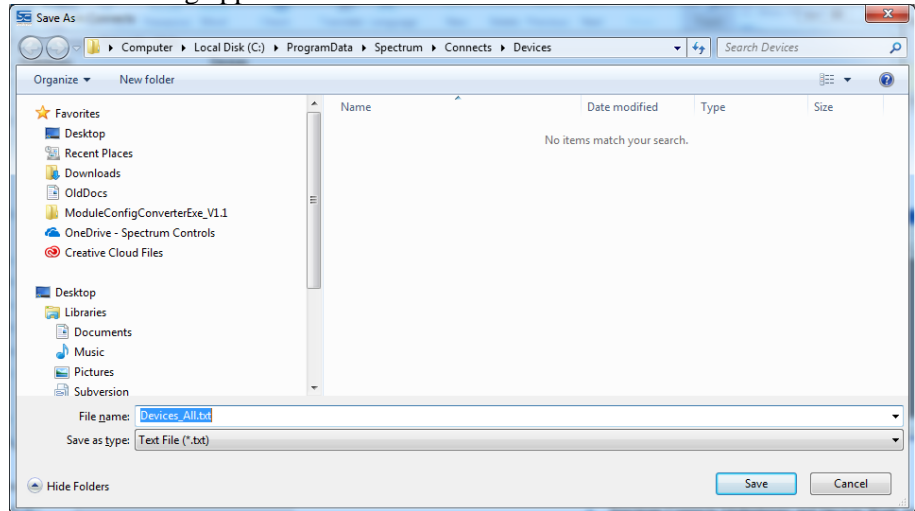
This option allows you to save the Connects database records of all the devices that the Connects software found on the current PLC network.

To save database record files:

1. From the File menu, select **Save As**:



2. The Save dialog appears:



3. Enter a name for your file and click **Save**. The software saves the file and closes the window.

### 1.7.4 Saving Log Files

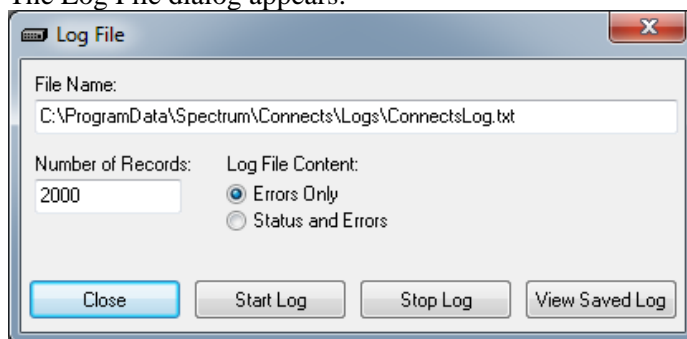
This option allows you to create an activity log. This log maintains records of application status and message contents.

To save Log files:

1. From the File menu, select **Log**:



The Log File dialog appears:



2. View or specify the following options:
  - **File Name.** Specifies name of log file.
  - **Number of Records.** User-selectable maximum number of records specifies how many log records may be written to the file. When the maximum number of records is reached, a message is placed in the log file that states **Log file is full**, and no more data is written to the file.
  - **Log File Content.** Specifies whether to record only error messages, or status and error messages. The activity log file contains text indicating status and message contents of the HART signals passed between the Asset Management software and the field devices. You can open the activity log file with Windows Notepad.

The default destination- for the log file is as follows:

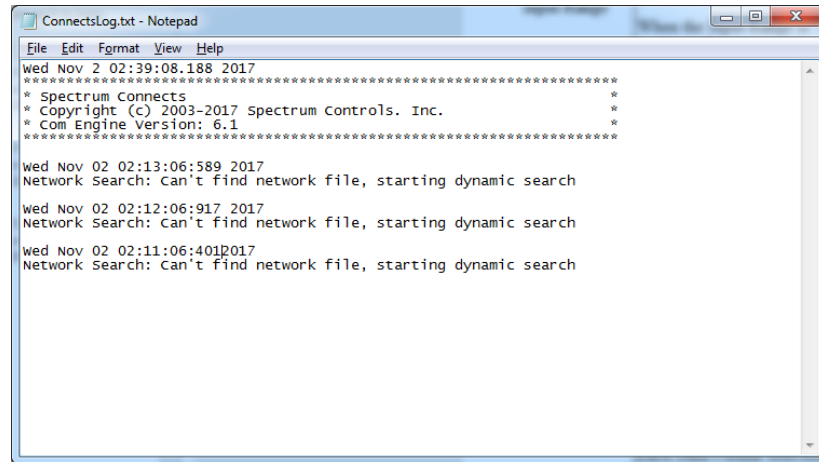
Windows XP: C:\Documents and Settings\All Users\Application Data\Spectrum\Connects\Logs\ConnectsLog.txt

C:\ProgramData\Spectrum\Connects\Logs\ConnectsLog.txt.

However, this varies by operating system and your default destination may be different:

- *Errors Only.* When selected, logs only error messages.
- *Status and Errors.* When selected, logs both error and status messages.
- **Close.** Closes Log File dialog.
- **Start Log.** When clicked, starts logging.

- **Stop Log.** When clicked, stops logging. This option only affects your current logging session. Example: You click **Stop Log**. The current logging stops immediately. However, on the next software startup, if the logging startup option is enabled, logging starts again.
- **View Saved Log.** Opens log in Notepad so you can view messages as follows:



3. When finished making selections, click **Close**.

### 1.7.5 Defining Startup Preferences

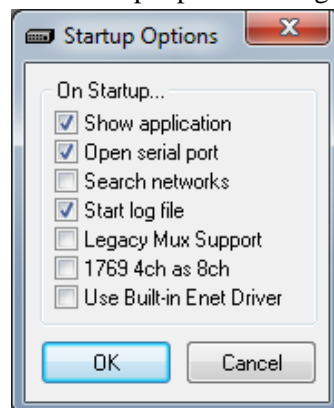
This option allows you to define the startup preferences for Connects. If you change the startup options, you must restart Connects for the changes to take effect.

To define startup preferences:

1. From the File menu, select **Startup Options**:



The Startup Options dialog appears:



2. View or specify the following options:

- **Show application.** On Connects startup, show the main window.
- **Open serial Port.** On Connects startup, open the designated serial port for the device(s).
- **Search networks.** On Connects startup, search available networks for devices.
- **Start log file.** On Connects startup, start logging using specified log file.
- **Legacy Mux Support.** Specifies to use legacy multiplex support (Arcom) instead of the default Spectrum multiplexer support.
- **1769 4ch as 8ch.** Select this option if you are currently using Connects 5.0 with 4-channel 1769 Modules. This allows you to upgrade to Connects 6.0 or later without having to rebuild your database with new loop numbers. Spectrum Controls, Inc. recommends that you ensure that all devices on your network are still assigned to the same loop numbers without any changes in the physical network setup.
- **Use Built-in Enet Driver.** Specifies whether to use the built-in Ethernet driver.

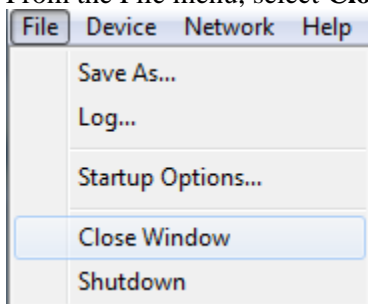
3. When finished making selections, click **OK**.

### 1.7.6 Closing the Connects Window

Closes the Connects application window, but leaves Connects running.

To close the window:

1. From the File menu, select **Close Window**:



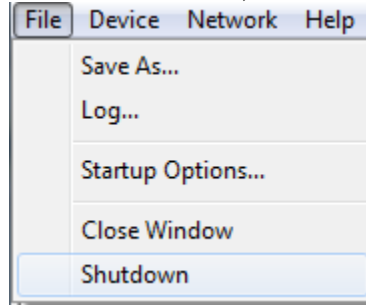
The Spectrum Connects window closes.

### 1.7.7 Shutting Down Connects

Closes the Connects application window, and shuts down the application.

To shut down Connects:

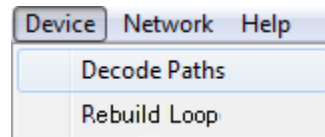
1. From the File menu, select **Shutdown**:



The Spectrum Connects window closes and the application shuts down.

### 1.7.8 Accessing and Using Device Menu Options

To access the Device menu, click **Device**:



Options are:

- **Decode Paths.** Returns as a separate string, the decoded value of an un-decoded path string.
- **Rebuild Loop.** Allows you to rescan the selected loop for new devices, or for devices that may have changed.



**NOTE** Spectrum Controls, Inc. recommends that you close the Asset Management software when rebuilding the loop. You may also execute the rebuild loop using the Asset Management software. If you rebuild the loop from Connects with the Asset Management software running, the changes are not reflected in the Asset Management software.

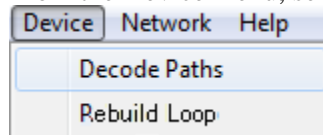
### 1.7.9 Decoding Paths

This option replaces the **Path** field that is normally shown in the Devices Work Area table, and the Saved Database File (from **File:Save as**) to make it more human readable. When the option is:

- Disabled, the RSLinx Hex format is shown.
- Enabled, the decoded form is shown.

To decode paths:

1. From the Device menu, select **Decode Paths**:



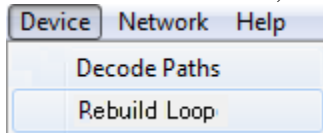
The software decodes the paths.

### 1.7.10 Rebuilding Loop

This option allows you to rescan the selected loop for new devices, or for devices that may have changed.

To rebuild the loop:

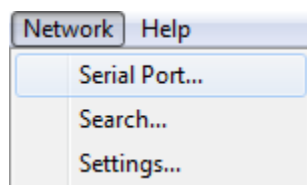
1. From the Device menu, select **Rebuild Loop**:



The software clears the existing database, determines existing device connection information, and rebuilds the database using that information.

### 1.7.11 Accessing and Using Network Menu Options

To access the Network menu, click **Network**:



Options are:

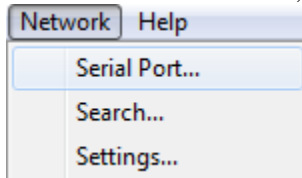
- **Serial Port.** Provides options to change the serial communication port and baud rate settings for the communication port that is used to transfer data from Connects to the asset management software.
- **Search.** Starts a full network scan, rebuilds all loops in the system, and rebuilds the list in the main application window. When running a network search, you select whether to run a dynamic search and to save the dynamic search results, or to run a static search.
- **Settings.** Contains the network settings for the Connects software. Network settings include setting the polling timeout, specifying the ControlNet address range, specifying whether to use auto-search at startup, choosing RSLink drivers, and specifying EtherNet/IP Module IP addresses.

### 1.7.12 Specifying Serial Port Settings

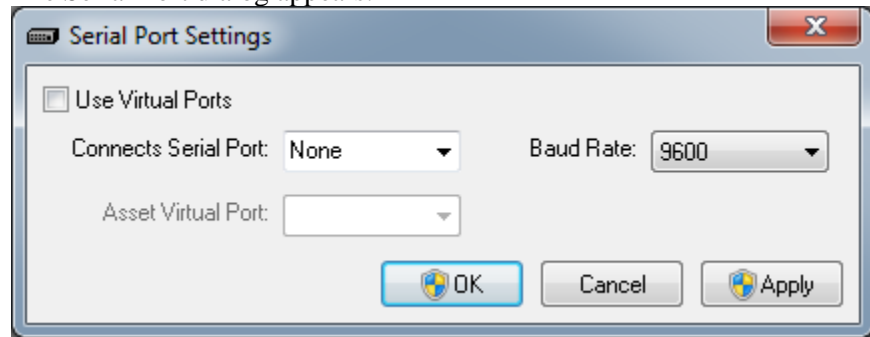
Use this option to select the serial communication port and baud rate settings for the communication port to transfer data from Connects to the asset management software. The serial port settings can be physical or virtual.

To specify serial port settings:

1. From the Network menu, select **Serial Port**:



The Serial Port dialog appears:



2. View or specify the following options:

- **Use Virtual Ports.** Specifies the use of virtual ports for communication with your devices. Instead of using two physical serial ports to communicate between Connects and your asset management tool, you can define two virtual serial ports to use. When you have specified a pair of virtual serial ports, you use one of the virtual ports for Connects, and the second port for your asset management tool.
- **Connects Serial Port.** Designates a COM port to use for communication. You specify two of these. When **Use Virtual Ports** is unchecked, this is a physical serial port. When **Use Virtual Ports** is checked, this is a virtual port.

---

**NOTE** To avoid communication problems, the baud rate configured for a serial port must match the baud rate being used in your asset management software.



- **Baud Rate.** Designates a baud rate to use for communicating via the designated serial port.
- **Asset Virtual Port.** Lists virtual serial ports to which the COM port selected in the **Connects Serial Port** field gets attached. In the example shown above, virtual serial port **COM7** is being connected to virtual serial port **COM8**. When **Use Virtual Ports** is unchecked, this option is disabled.

---

**NOTE** On Windows Vista and newer Windows operating systems, both **OK** and **Apply** buttons may require Administrator privileges to make any virtual port changes. If you do not have these privileges, check with your system administrator.



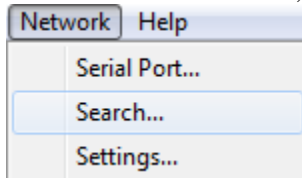
- **OK.** To apply your selection and exit, click **OK**.
- **Cancel.** To cancel your selection and exit without applying changes, click **Cancel**.
- **Apply.** To apply and save a change without exiting the dialog, click **Apply**.

### 1.7.13 Specifying Search Settings

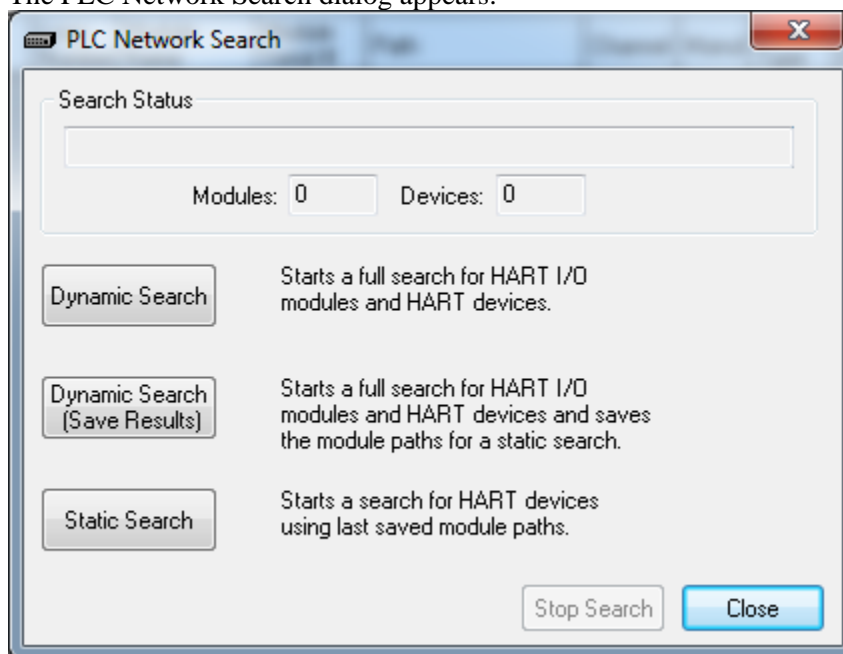
Use this option to initiate a full network search, rebuild all loops in the system, and show the list in the main Connects window.

To search:

1. From the Network menu, select **Search**:



The PLC Network Search dialog appears:



2. View or specify the following options:



**NOTE** Spectrum Controls, Inc. recommends that you close the Asset Management software when searching the network. Initiating a search while running Asset Management software may cause a loss of communication.

- **Search Status.** Shows status of search. Example: **Search stopped by user.**
- **Modules.** Lists number of HART I/O modules found.
- **Devices.** Lists number of HART devices found.
- **Dynamic Search.** Starts a full network search for HART I/O modules and HART devices but does not save the search results for later use.
- **Dynamic Search (Save Results).** Starts a full search for HART I/O modules and HART devices, and saves the search results to a file. The file can then be used for the **Static Search** option.



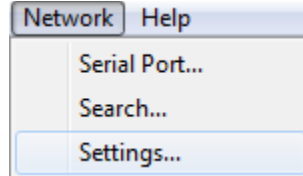
- **Static Search.** Starts a search for HART modules using the last saved results.
3. When finished, click **Close**.

### 1.7.14 Specifying Settings

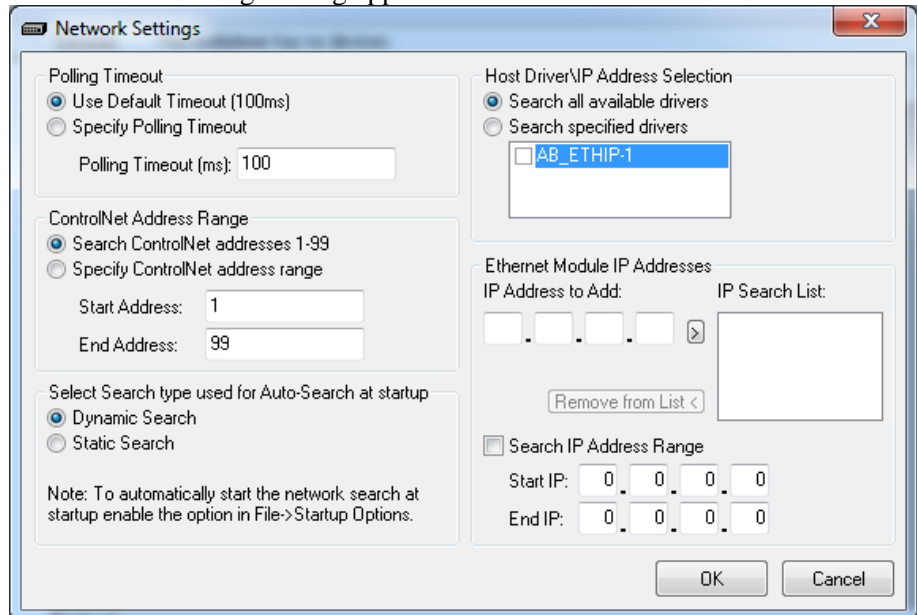
This option defines network settings used by all three supported RSLinx drivers, and the built-in Ethernet driver. Use this option to specify these settings for Connects.

To specify network settings:

1. From the Network menu, select **Settings**:

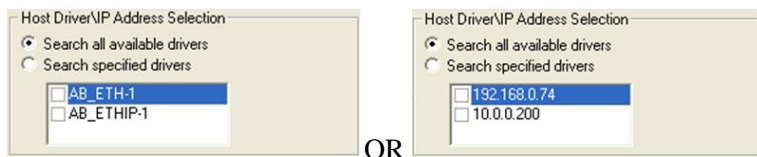


2. The Network Settings dialog appears:



3. View or specify the following options:
  - **Polling Timeout.** Specifies how long RSLinx waits for a response when polling an individual device. Default setting is 100 milliseconds. Valid range is 10 to 10000 milliseconds.
    - *Use Default Timeout (100 ms).* Specifies use of default timeout of 100 milliseconds.
    - *Polling Timeout (ms).* Allows you to specify a value within the valid range.
  - **ControlNet Address Range.** Specifies which ControlNet nodes are scanned by Connects. You may scan all nodes between 1 and 99, or specify a specific address range:
    - Search ControlNet addresses 1 – 99. Specifies search of all ControlNet addresses.

- Specify ControlNet Address range: Start Address: n End Address: n, where n is a number between 1 and 99. Specifies node numbers within a user-defined range. Specifying a range that includes only the active nodes greatly reduces search time. Entering the value zero (0) for both starting and ending nodes disables ControlNet scanning.
- **Select Search type used for Auto-Search at startup.** Specifies whether to use a dynamic or static search when automatically starting a network search for modules and devices when you start the Connects software. You must have enabled auto-search in the **File:Startup** options:
  - *Dynamic Search.* On startup, starts a full network search for HART I/O modules and HART devices, but does not save the search results for later use.
  - *Static Search.* On startup, starts a search for HART modules using the last saved results.
- **Host Driver/IP Address Selection.** When performing a network search, allows you to specify an RSLinx driver name or the host PC IP address. The list contains all available drivers from RSLinx or IP addresses listed on the available Ethernet network adapters installed on the PC. If Connects is unable to locate RSLinx on the PC, the built-in EtherNet/IP driver is automatically used. To select one or more drivers, click the checkbox associated with the driver you wish to select:



- **Ethernet Module IP Addresses.** Specifies a list of IP addresses to search.

Accessing and Using Help Menu Options



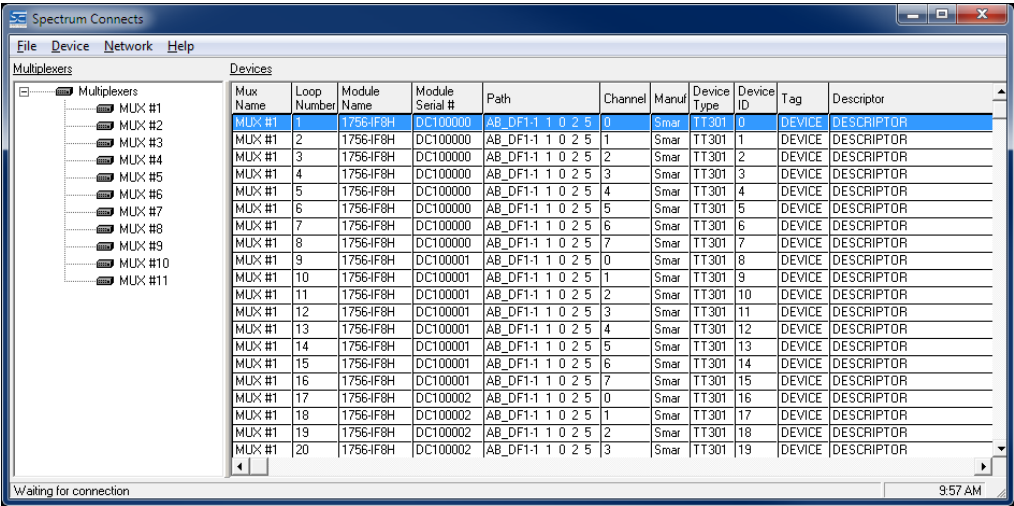
Options are:

- **Contents.** Opens the Connects documentation.
- **About.** Displays Connects information such as the revision level of the software, and where to call for technical support.



1.7.15 Connects Multiplexers and Devices Work Area

The Connects work area provides a graphical tree that lists all the multiplexers representing individual HART multiplexers that the software is currently emulating, along with a list of HART devices and associated properties that are linked to a multiplexer in the tree:



Work areas are:

- **Multiplexers.** Lists available multiplexers.
- **Devices.** Devices lists the following information about a selected multiplexer:
  - *Mux Name.* Lists name associated with a listed multiplexer.
  - *Loop Number.* Loop number of the multiplexer to which the device is connected.
  - *Module Name.* Spectrum I/O module name.
  - *Module Serial #.* Spectrum I/O module serial number.
  - *Path.* Text and/or numbers that represent the address of the module on the network to which the device is connected. You can change the path format from RSLinx Hex format to human-readable characters using the **Decode Paths** option.
  - *Channel.* Channel number to which the device is connected.
  - *Manufacturer.* HART device manufacturer number.
  - *Device Type.* HART device type number.
  - *Device ID.* HART device ID number.
  - *Tag.* HART device tag name.
  - *Descriptor.* HART device description.

### 1.7.16 Status Bar

The status bar at the bottom of the Connects main window provides information about the current status of the software:



The left side of the status bar displays software status messages. For example, when you scroll through menu options, the status bar shows a brief description of the bar.

The right side of the status bar displays your personal computer's current time.

# Chapter 2

## Configuring Software Setup

This chapter will cover:

- What you need to set up before you can run your project management software, Connects, and associated devices.
- Troubleshooting

### Section 2.1 Configuring RSLinx

If applicable, set up the appropriate RSLinx driver(s) for the communication protocol used between the personal computer running RSLinx and your PLC (ControlNet, EtherNet/IP, or DF1). If you are using RSLinx, verify that the modules are displayed in the RSWho window. RSLinx must be able to see the modules for the Connects Search function to operate properly.

### Section 2.2 Starting Your Project Management Software

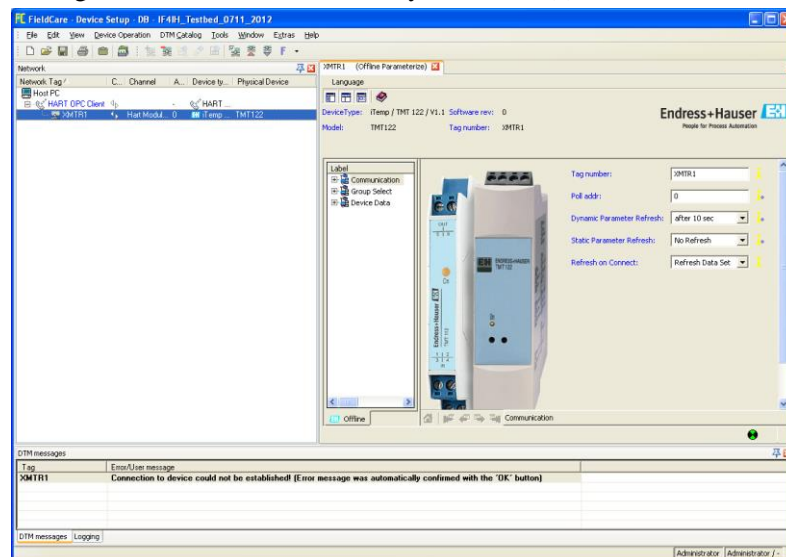
---

**NOTE** The asset management or device configuration software you use to configure and manage HART devices within the network must support an RS-485 multiplexer.

---



In order to run Connects 6.1, you need to have your project management software running already. The example software used in this documentation is Endress+Hauser FieldCare. Before starting Connects 6.1, start your project management software and access your device(s):



## Section 2.3

### Setting up the PLC Network Settings

Once you have Connects 6.1 software and the associated software packages properly configured, set up the PLC network settings under **Network:Settings** that best match your network topology. Enter IP addresses for your Ethernet cards, and select the range of ControlNet addresses that you use in your network.

## Section 2.4

### Adding the HART Modules and Devices

To configure the software so you can add HART Modules and devices, specify the following settings:

- Enable Channels:

Configure each channel for 4-20 mA and enable HART. (See module user manual for more details.)

---

**NOTE** Disable HART on channels that are not used or channels that have non-HART devices installed to reduce the overall HART acquisition time of the module.

---



- Set Handle Time Out:

Set the module **Handle Time Out** setting to between 5-30 sec. (Recommended setting is 10.)

- Set Module Pass Through Priority:

The module pass-through priority adjusts how often pass-through messages are serviced by the module. Pass-through messages are used to send HART messages to the field device via ladder or Connects. Increasing the number of channel scans before executing a pass-through message will increase the update time needed for Connects to send and receive HART data to, and from, the field device.

- Pass-through Serviced Once Every Two Channel Scans: This setting is the default and allows for normal HART acquisition times for Connects.
- *Pass-through Serviced Every Channel Scan*: Use this configuration if you do not need to read the HART data within the PLC, or if the HART update rate is not critical to your control system. This will give you the best performance when using the Connects software.
- (Recommended) *Pass-through Serviced Every Module Scan*: Use this configuration if the HART acquisition time for Connects is not critical. This setting provides the best performance for PLC HART acquisition. (Not Recommended.)

After configuring the Connects software, start a Network search (**Network:Search**), and verify that the software finds the HART modules and

HART devices that you have connected. If the search is unable to find your Hart modules, run the search again, or increase the polling timeout value.

## Section 2.5 Troubleshooting the Installation

If Connects does not start or run properly, view the Status messages displayed by the Connects software, and make sure you have set up the following:

- If you are connecting your PC to an Allen-Bradley controller over DF1 or Control Net, you must have RSLinx (OEM/PRO/Gateway) set up and running.
- Does your computer have enough memory? Running Connects requires a minimum of 128 MB of RAM.
- Does your computer have enough disk space? Running RSLinx requires a minimum of 10 MB of available hard disk space.
- Did you install the virtual serial port software? Unless you are using physical serial ports, Connects requires a virtual COM port to communicate with asset management or configuration client software.

The Status Bar at the bottom left edge of the Connects application window displays the following messages based upon current status of the Connects software. Moving your cursor over the Tray icon also shows the status messages:

Message	Description
Uninitialized	Connects has not completed its initialization yet.
Internal Database Failure	There was a fatal error trying to initialize the internal database.
Uninitialized Network Database	The database is not initialized yet or the Network search operation did not find any HART modules to populate the network database.
Searching PLC Network	Connects is in the process of searching the PLC network for HART I/O modules and mapping them to mux addresses and loop numbers.
RSLinx Lite Not Supported	The RSLinx version installed has not been activated for an RSLinx version of OEM or higher. Connects requires an RSLinx version of OEM or higher to operate.
Serial Port Open Failure	The last attempt to select a serial (com) port failed either because the port is already in use by another application, or it does not exist.
Waiting for Connection	Connects is running with an active PLC Network, and a serial port has been selected, but there is no communication established to the Asset Management software.

<b>Message</b>	<b>Description</b>
Connected	Connects is running with an active Network and communicating to an Asset Management Software package.
Connection Idle	A connection was established, but there has been no activity for at least 2 minutes.
Serial Port is Closed	Connects currently does not have a serial port connection open. To connect to the Asset Management software, select a serial port via the serial port configuration screen. For more information refer to the section, Serial Port Configuration.



# Appendix A

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**Corporate Headquarters**

Spectrum Controls Inc.  
P.O. Box 6489  
Bellevue, WA 98006 USA  
Fax: 425-641-9473  
**Tel: 425-746-9481**

**Web Site: [www.spectrumcontrols.com](http://www.spectrumcontrols.com)**  
**E-mail: [spectrum@spectrumcontrols.com](mailto:spectrum@spectrumcontrols.com)**

