FactoryTalk Linx Getting Results Guide
Important User Information

Read this document and the documents listed in the additional resources section about installation, configuration, and operation of this equipment before you install, configure, operate, or maintain this product. Users are required to familiarize themselves with installation and wiring instructions in addition to requirements of all applicable codes, laws, and standards. Activities including installation, adjustments, putting into service, use, assembly, disassembly, and maintenance are required to be carried out by suitably trained personnel in accordance with applicable code of practice.

If this equipment is used in a manner not specified by the manufacturer, the protection provided by the equipment may be impaired.

In no event will Rockwell Automation, Inc. be responsible or liable for indirect or consequential damages resulting from the use or application of this equipment.

The examples and diagrams in this manual are included solely for illustrative purposes. Because of the many variables and requirements associated with any particular installation, Rockwell Automation, Inc. cannot assume responsibility or liability for actual use based on the examples and diagrams.

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Throughout this manual, when necessary, we use notes to make you aware of safety considerations.

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**WARNING:** Identifies information about practices or circumstances that can cause an explosion in a hazardous environment, which may lead to personal injury or death, property damage, or economic loss.

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**ATTENTION:** Identifies information about practices or circumstances that can lead to personal injury or death, property damage, or economic loss. Attentions help you identify a hazard, avoid a hazard, and recognize the consequence.

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**IMPORTANT** Identifies information that is critical for successful application and understanding of the product.

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Labels may also be on or inside the equipment to provide specific precautions.

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**SHOCK HAZARD:** Labels may be on or inside the equipment, for example, a drive or motor, to alert people that dangerous voltage may be present.

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**BURN HAZARD:** Labels may be on or inside the equipment, for example, a drive or motor, to alert people that surfaces may reach dangerous temperatures.

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**ARC FLASH HAZARD:** Labels may be on or inside the equipment, for example, a motor control center, to alert people to potential Arc Flash. Arc Flash will cause severe injury or death. Wear proper Personal Protective Equipment (PPE). Follow ALL Regulatory requirements for safe work practices and for Personal Protective Equipment (PPE).
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Preface

About this publication

The Getting Results Guide provides you with information on installing, navigating, and using FactoryTalk Linx.

IMPORTANT

The Getting Results Guide is included as a PDF (portable document format) file on your FactoryTalk Services installation DVD. This file must be viewed using the Adobe Acrobat Reader software.

This section includes the following information:

- Intended audience
- Find additional information
- Legal notices

Intended audience

You should be familiar with:

- Microsoft Windows operating systems
- Allen-Bradley PLCs (programmable logic controllers)
- Rockwell Automation PLC programming tools
- FactoryTalk Administration Console

Find additional information

For additional information about FactoryTalk Linx, consult the following resources:

Help

The Help includes overview, procedural, screen, and reference information for the product. The Help contains these basic components:

- Overview topics
- Quick-start topics
- Step-by-step procedures
- Dialog box descriptions

To view the Help while working in FactoryTalk Administration Console:

- Select Contents from the Help menu on FactoryTalk Administration Console main window and select FactoryTalk Linx Help, or
- Click Help on any FactoryTalk Linx dialog box or property screen, or
- Press F1, or
- From the Start menu, select Programs > Rockwell Software > FactoryTalk Tools > FactoryTalk Help > FactoryTalk Linx Help.

Release Notes

The electronic Release Notes provide a list of the hardware and software that is necessary to use FactoryTalk Linx effectively and a list of known anomalies, anomalies fixed, and new features that are available in the current release.

The Release Notes are available from the FactoryTalk Services installation DVD. The Release Notes for all FactoryTalk components, including FactoryTalk Linx, are available from the FactoryTalk Help. FactoryTalk Help can be launched from FactoryTalk Administration Console or from the Windows Start menu as described in the previous section.
The Rockwell Automation Customer Support Center offers an extensive online database that includes frequently asked questions and the latest patches. The Knowledgebase web page leads to a comprehensive, searchable database of support information for all Rockwell Automation products.

To access the Knowledgebase web page, visit www.rockwellautomation.com/support, and select Knowledgebase Support Center.

Questions concerning installation and use of FactoryTalk Linx software are handled by the Rockwell Automation Customer Support Center. The center is staffed Monday through Friday, except on U.S. holidays, from 8 a.m. to 5 p.m. Eastern time zone for calls originating within the U.S. and Canada.

To reach the Customer Support Center, call 440-646-3434 and follow the prompts. For calls originating outside the U.S. or Canada, locate the number in your country by visiting https://rockwellautomation.custhelp.com/app/phone.

When you call, you should be at your computer and be prepared to provide the following information:

- The product version number
- The type of hardware you are using
- The exact wording of any errors or messages that appeared on your screen
- A description of what happened and what you were doing when the problem occurred
- A description of how you tried to solve the problem

Rockwell Automation offers a wide range of training programs, from regularly scheduled classes to custom-tailored classes conducted at your site.

If you would like more information about these training programs, visit the Rockwell Automation site on the Web or contact the Rockwell Automation Training Coordinator. The Web address and telephone numbers appear on the back cover of this document.

Rockwell Automation provides expert consulting and turnkey implementations for making optimal use of Rockwell Software products. Please contact your local representative for more information.

Rockwell Automation publishes legal notices, such as privacy policies, license agreements, trademark disclosures, and other terms and conditions on the Legal Notices page of the Rockwell Automation website.
End User License Agreement (EULA)

You can view the Rockwell Automation End User License Agreement (EULA) by opening the license.rtf file located in your product's install folder on your hard drive.

The default location of this file is:

C:\Program Files (x86)\Common Files\Rockwell\license.rtf.

Open Source Software Licenses

The software included in this product contains copyrighted software that is licensed under one or more open source licenses.

You can view a full list of all open source software used in this product and their corresponding licenses by opening the index.html file located your product's OPENSOURCE folder on your hard drive.

The default location of this file is:

C:\Program Files (x86)\Common Files\Rockwell\Help\FactoryTalk Services Platform\Release Notes\OPENSOURCE\index.htm

You may obtain Corresponding Source code for open source packages included in this product from their respective project web site(s).
Alternatively, you may obtain complete Corresponding Source code by contacting Rockwell Automation via the Contact form on the Rockwell Automation website: http://www.rockwellautomation.com/global/about-us/contact/contact.page. Please include "Open Source" as part of the request text.
Welcome to FactoryTalk Linx

This chapter includes the following information:

- What is FactoryTalk Linx?
- Features and benefits
- Overview of basic concepts
- Installation and configuration checklist

What is FactoryTalk Linx?

FactoryTalk® Linx™ is a FactoryTalk® Live Data server and communications service designed to deliver control system information from Allen-Bradley® control products to the Rockwell Automation FactoryTalk® software portfolio and Studio5000® design software. While FactoryTalk Linx can communicate with most Allen-Bradley Programmable Logic Controllers (PLC®) and many other control products, it is specifically optimized to work with Logix 5000™ Programmable Automation Controllers (PAC) and the PlantPax process controller using EtherNet/IP. This gives the fastest data rates and capacity possible, while minimizing the impact on automation networks and control system operation. FactoryTalk Linx provides a scalable solution that can support small applications running on a single computer with a single controller, to large distributed and even redundant data server configurations communicating with many controllers.

A FactoryTalk Linx configuration consists of:

- A FactoryTalk Services Platform application and optional area to specify each major software component in a system and its workstation or network location
- FactoryTalk Linx Data server configuration on one or more computers in a system
- A list of communication devices and their settings (for example, node, baud rate, and alike).
- Device drivers and their associated properties.
- A list of potential target devices, with which FactoryTalk Linx can communicate (that is, exchange data).
- Shortcuts. A shortcut is a name that stands for the device you want to connect to, and the data that device contains. The communication path associated with the shortcut tells the application where to find that data.

For FactoryTalk View ME applications, you can pre-configure FactoryTalk Linx-based communications needed for the runtime applications, using the
design software, FactoryTalk View Studio. You can also edit configurations, using Windows CE-based tools on the PanelView Plus terminals.

**Features and benefits**

- Is delivered and installed with the FactoryTalk Services Platform (FTSP) which is included with most Rockwell Automation software products. FactoryTalk Linx is also delivered within the PanelView Plus Electronic Operator Interface (EOI) terminal’s firmware.
  
  **Tip:** The FactoryTalk Services Platform Installation includes several useful tools. Use FactoryTalk Live Data Test Client to interface with FactoryTalk Linx to read and write data directly to controllers. For more information about FactoryTalk Live Data Test Client, see FactoryTalk Services Platform Online Help.

- Is accessed as an embedded component within each software package that utilizes its services. Configure FactoryTalk Linx using the **Communication Setup** editor launched from a FactoryTalk application design environment (e.g. FactoryTalk View Studio) or from the FactoryTalk Administration Console.

- Starting with version 6.00.00, EtherNet/IP network drivers can be configured directly from the FactoryTalk Linx Network Browser control embedded within Studio 5000 and other Rockwell Automation design software.

- Provides access to controller and device data from any FactoryTalk application using FactoryTalk Live Data.

- Is highly optimized for Logix 5000 communications.

- Starting with version 5.30.00, supports FactoryTalk Alarms and Events. For more information about FactoryTalk Alarms and Events, see FactoryTalk Alarms and Events Online Help.

- Starting with version 5.30.00, network applications provide the option of specifying a secondary, or redundant, server to take over when the primary server fails.

- Starting with version 5.60.00, reads data directly from devices using parameters specified in the device’s Electronic Data Sheed (EDS) file.

- Starting with version 5.70.00, receives data from Logix 5000 controllers directly via unsolicited message.

- Starting with version 5.70.00, is able to communicate with Micro800 controllers.

- Starting with version 5.80.00, reads energy usage information from devices that support the ODVA CIP Energy object.

- Starting with version 5.90.00, reads Logix 5000 tag extended properties (e.g. @Min, @Max, @Description) and deliver them to FactoryTalk View applications. With FactoryTalk Linx version 6.10.00, this capability is enhanced to improve read performance and adds the ability to provide a description using information indirectly associated with a tag. This enables a FactoryTalk View SE client to obtain descriptions for tag elements that do not directly have a description.
assigned. This is similar to the description pass-through capability of Studio 5000 Logix Designer.

- Starting with version 5.90.00, removes Logix 5000 tag requests when their external access is switched to no access in Logix Designer, and the tags can be removed from the controller while it is operating.
- Starting with version 5.90.00, permits communications to specific Logix 5000 shortcuts to be inhibited to reduce the impact of Logix 5000 controllers that are disabled or off-line.
- Starting with version 6.00.00, provides access to Logix 5000 tag based alarm attributes (e.g. @Alarm...)
- Offers a variety of communication drivers and routing options.
- Supports Local applications (also called stand-alone applications) for smaller systems, and Network applications (also called distributed applications) for larger systems.
- Starting with version 6.00.00, enables the configuration of two redundant shortcut paths to a single Logix 5000 controller to support high availability systems that desire to retain communications when a path through a network becomes disabled.
- Starting with version 6.00.00, permits configuration of two shortcut paths to the primary and secondary Logix 5000 controllers in a redundant ControlLogix revision 31.5x system to retain communications when a redundancy switchover occurs.
- FactoryTalk Linx 6.00.00 added the ability to provide communications and browsing services for Studio 5000 and ControlFLASH. FactoryTalk Linx version 6.10.00 extends this functionality to support the Connected Components Workbench (CCW) version 12.00.00 and FactoryTalk AssetCentre version 9.00.00.
- FactoryTalk Linx version 6.00.00 updated both the Virtual Backplane and USB drivers and had them signed by Microsoft to permit them to operate on a workstation with Windows 10 Secure boot enabled. FactoryTalk Linx version 6.10.00 extends this functionality to include the drivers associated with the 1784-PCICS and 1784-PCKTS cards. In FactoryTalk Linx version 6.20.00, 1784-PKTX driver signed by Microsoft to support Windows 10 secure boot.
- FactoryTalk Linx version 6.10.00 added a new standalone version of FactoryTalk Linx Network Browser that can be launched from the Windows Start Menu. Previously this component was only available from within other Rockwell Automation software (For example, ControlFLASH and Studio 5000 Logix Designer). The Network Browser can be used to visualize the network to determine which devices are active in the system.
- FactoryTalk Linx version 6.10.00 added FactoryTalk Security Product Policy to provide more control over the configuration for authorized users.
- FactoryTalk Linx version 6.10.00 added logging of FactoryTalk Audit messages to track configuration changes of FactoryTalk Linx.
- FactoryTalk Linx version 6.10.00 supports a new capability in Logix5000 V32 controllers to change the names of tags and structure members on a running controller. When FactoryTalk Linx detects the rename operation, it will immediately stop requesting the old names and provide an appropriate error status back to the FactoryTalk software that requested the data, making it easier to locate other software that is impacted by the rename operation.
- FactoryTalk Linx version 6.10.00 added the ability to receive unsolicited messages using PLC-2 Unprotected Writes. This enables Logix5000 or legacy controllers to send information to a FactoryTalk software package using FactoryTalk Linx.
- FactoryTalk Linx version 6.10.00 changes the default setting for the “listen on EtherNet/IP Encapsulation port” (port 44818) for its Ethernet driver so that FactoryTalk Linx will respond to network browse requests and receive unsolicited messages from Logix5000 controllers. RSLinx Classic version 4.00.01 or earlier allocated this port by default but was updated with versions 4.10.00 to not allocate the port to reduce the likelihood of a conflict between these two software packages.
- FactoryTalk Linx version 6.10.00 added the ability to configure two independent instances of the data service on a single Windows operation system. It allows applications to have more tags, data clients (e.g. HMI clients), and/or controllers without affecting the other FactoryTalk Linx data server.
- FactoryTalk Linx version 6.11.00 added the ability to establish secure encrypted communications with FactoryTalk Policy Manager using CIP security. See FactoryTalk Policy Manager Online Help for more information about CIP security.
- FactoryTalk Linx version 6.20.00 added the ability to access information inside of devices that support the Open Device Vendors Association (ODVA) Common Industrial Protocol (CIP), using the Class, Instance and Attribute (CIA) messaging with the CIP Object - Class/Instance/Attribute Message shortcut type.
- The FactoryTalk Security Policy for FactoryTalk Linx was enhanced to control the user’s capabilities from the FactoryTalk Linx Network Browser and to control access to CIA Messaging.
- In conjunction with FactoryTalk Linx Gateway, provides standard OPC connectivity into the FactoryTalk system for third-party products. For more information about FactoryTalk Linx Gateway, refer to the FactoryTalk Linx Gateway Help. FactoryTalk Linx version 6.20.00 adds the ability to access information inside of devices that support the Open Device Vendors Association (ODVA) Common Industrial Protocol (CIP), using the Class, Instance and Attribute (CIA) messaging with the CIP Object - Class/Instance/Attribute Message shortcut type.
• Starting from version 6.20.00, FactoryTalk Linx supports tag communication with data types as LINT, ULINT, LREAL, USINT, UINT, and UDINT.

• Starting from version 6.20.00, FactoryTalk Linx instance02 supports Logix-based Alarms and Events.

• Starting from version 6.20.00, FactoryTalk Linx provides the ability to communicate using solicited messaging with Allen-Bradley controllers using PLC-5 or SLC-5 messaging over the DH+ network without having a 1784-PKTX card installed on the computer. This is achieved by using the 1756 EtherNet module bridging across a ControlLogix chassis to a DH+ network connected to a 1756-DHRIO module.

• FactoryTalk Linx version 6.20.00 adds the ability to configure existing drivers in FactoryTalk Linx Browser > Configure Drivers dialog box.

• FactoryTalk Linx version 6.20.00 adds the ability to view new CIP Identity Object Manufacturer information, which include Catalog Number, Manufacture Date, Hardware Revision, Warranty, and Series.

• FactoryTalk Linx version 6.20.00 adds FactoryTalk Audit information to diagnose configuration changes made from the FactoryTalk Linx Network Browser.

• FactoryTalk Linx version 6.20.00 adds the ability for FactoryTalk Linx Network Browser to browse through the 5094 IO HART modules and display HART connected devices in the topology.

• FactoryTalk Linx version 6.20.00 adds the ability for the FactoryTalk Linx Network Browser to access Device Statistics to help diagnose devices.

• FactoryTalk Linx version 6.20.00 adds the ability for the FactoryTalk Linx Network Browser to access Device Configuration to help configure port and network configuration of a device.

• FactoryTalk Linx version 6.20.00 adds the ability the ability for the FactoryTalk Linx Network Browser to launch an Internet browser to open the device embedded web page.

• FactoryTalk Linx version 6.20.00 provides the ability for FactoryTalk and PanelView Plus V12 terminals to access four attributes @Name, @Quality, @Timestamp, and @Scope.

• FactoryTalk Linx version 6.20.00 adds the ability for FactoryTalk and PanelView Plus V12 terminals to access PlantPAX Controller extended tag properties: @Library, @Instruction, @Label, @Area, @URL, and @Navigation.

• Starting from version 6.20.00, FactoryTalk Linx changed to utilize a device's Network Path to store location of the device in a system, which enables the user to configure and store the shortcut path using the device's IP address and slot number in a chassis.

• FactoryTalk Linx version 6.20.00 provides Chinese, German, French, and Japanese localized user interface (the localized FactoryTalk Linx
can only be installed when installing the same localized version of FactoryTalk View SE).

- FactoryTalk Linx version 6.20.00 adds the ability to close unused connections after a specified time.
- FactoryTalk Linx version 6.20.00 adds the ability to specify the max number of connections for a Processor shortcut connecting to PLC/SLC controllers using the DHRIO module.
- FactoryTalk Linx version 6.21.00 adds an About dialog box in FactoryTalk Linx Network Browser to show the version of the installed FactoryTalk Linx Network Browser and FactoryTalk Linx, or to view the copyright and contact information.
- FactoryTalk Linx version 6.21.00 adds the ability to detect devices that support a user initiate LED blink operation and presents an option on the device property dialog to locate where a device is physically installed by flashing a device’s LEDs.
- FactoryTalk Linx version 6.21.00 adds an option to set the Terminal file transfer communication package size. User can choose either 2000 bytes or 1400 bytes for the terminal communication package size (Default 2000). The smaller packet size improves the transfer time when FactoryTalk View Studio ME is operating within a virtual machine.
- FactoryTalk Linx version 6.21.00 adds two predefined tags (@NamespaceTimestamp, @NamespaceTimestampOPC) to show a timestamp for the last Logix controller namespace change.
- FactoryTalk Linx version 6.21.00 included a new tool named FactoryTalk Linx Configuration Import Export Tool, which enables the FactoryTalk Linx driver and shortcut configuration to be extracted, modified and replaced, providing an alternative to manually creating or editing the driver and shortcuts configuration from the FactoryTalk Administration Console user interface.
- FactoryTalk Linx version 6.21 supports to backup and restore shortcut and driver configurations in FactoryTalk Administration Console.
- FactoryTalk Linx version 6.21 adds the ability to generate SysLog for select events include CIP Security configuration changes, network configuration changes, and FactoryTalk Linx service restart.
- FactoryTalk Linx version 6.21.00 improved performance for design software that utilizing FactoryTalk Linx.
- In FactoryTalk Linx version 6.21.00, the FactoryTalk Linx Redundancy Module Configuration Tool can be launched from the FactoryTalk Linx Network browser.

**Overview of basic concepts**

It is important to understand some basic concepts about FactoryTalk and FactoryTalk Linx before you begin working with FactoryTalk Linx within the FactoryTalk Administration Console. For more detailed information about FactoryTalk, refer to the FactoryTalk Help.
Formerly known as FactoryTalk Automation Platform, the FactoryTalk Services Platform is an underlying architecture and set of services that Rockwell Automation software products build upon.

The FactoryTalk Services Platform:

- Provides common services (such as diagnostic messages, health monitoring services, access to real-time data) and shares plant resources (such as tags and graphic displays) throughout an automation system.
- Allows defining plant-floor resources once, and then allows simultaneous access to those resources across product boundaries.
- Supports centralized security services.

The FactoryTalk Services Platform includes the following components:

- FactoryTalk Directory
- FactoryTalk Live Data
- FactoryTalk Diagnostics
- FactoryTalk Administration Console

FactoryTalk Directory allows products to share a common address book, which finds and provides access to plant-floor resources, such as data tags and graphic displays.

The FactoryTalk Services Platform includes two separate directories: a Local Directory and a Network Directory. In a Local Directory, a Directory Server, all project information, and all participating software products are located on a single computer. Local applications cannot be shared across a network. A Network Directory organizes project information from multiple FactoryTalk products across multiple computers on a network.

FactoryTalk Live Data manages connections between FactoryTalk products and data servers. It reads values from, and writes values to, OPC-DA servers (Open Platform Communications - Data Access) and Live Data servers on behalf of client software products, such as FactoryTalk View and FactoryTalk Transaction Manager.

FactoryTalk Diagnostics collects and provides access to activity, status, warning, and error messages generated throughout a FactoryTalk system.

FactoryTalk Administration Console is a standalone tool that enables you to configure and manage FactoryTalk-enabled applications and FactoryTalk Linx configurations. A communications tab in the FactoryTalk Administration Console also permits configuring network drivers, browsing, and viewing the available devices that are discovered on the configured networks.

FactoryTalk Security

FactoryTalk Security offers centralized security services that provide the ability to control access to your automation system and secure features of a
single FactoryTalk product. By setting permissions to a single feature, you can limit a user or a group of users to perform securable actions. For more information on configuring FactoryTalk Security, refer to the topic titled About FactoryTalk Security in the FactoryTalk Linx Help.

FactoryTalk Linx related tools

Besides the components above, FactoryTalk Linx includes the following tools:

- FactoryTalk Live Data Test Client
- FactoryTalk Diagnostics Counter Monitor
- FactoryTalk Linx Configuration Import Export Tool
- Ethernet/IP Address Commissioning Tool

FactoryTalk Live Data Test Client

Use FactoryTalk Live Data Test Client to test the communications network for your FactoryTalk system. FactoryTalk Live Data Test Client reads and writes data items contained in:

- FactoryTalk data servers, such as FactoryTalk Linx or FactoryTalk View SE
- OPC-DA 2.0 compliant data servers, including RSLinx Classic and third-party OPC DA servers
- OPC-UA version 1.03 compliant data servers

FactoryTalk Diagnostics Counter Monitor

FactoryTalk Diagnostics Counter Monitor provides the ability to check the status of tags and to monitor the runtime values of diagnostic counters and strings that are made available by FactoryTalk software for diagnostic purposes. It shows diagnostics for FactoryTalk Linx Gateway, FactoryTalk Linx, and FactoryTalk Live Data (if installed). This information is helpful when consulting with Rockwell Automation technical support personnel.

FactoryTalk Linx Configuration Import Export Tool

Use the FactoryTalk Linx Configuration Import Export Tool to import or export the FactoryTalk Linx driver and shortcut configuration, modify the contents with desktop software, replace the configuration or move the configuration to a different computer. This is an alternative to manually creating or editing the driver and shortcut configuration from the FactoryTalk Administration Console user interface.

EtherNet/IP Address Commissioning Tool

EtherNet/IP Address Commissioning Tool provides user with an interface to manage how BOOTP/DHCP device request for address assignments are fulfilled. This tool is useful in cases where an installation-wide BOOTP/DHCP server is not being used, or where alternative means of assigning IP addresses are less convenient or not available (for example, with devices which only have Ethernet communications ports, no USB interface).

Local applications versus Network applications

An application organizes project information, including elements such as data servers, HMI servers, and alarm and event servers. The application makes project information available to all FactoryTalk-enabled products participating in a FactoryTalk system.
• **Network applications** are held in a FactoryTalk Network Directory. Project information and participating software products can be located on a single computer (station) or multiple computers distributed across a network. All of the computers participating in a particular Network application share a common Network Directory Server located on a network computer.

• **Local applications** are held in a FactoryTalk Local Directory. Project information is located on a stand-alone computer and is available only to software products installed on that same local computer. Local applications cannot be accessed remotely and cannot share project information with a Network application.

**FactoryTalk Administration Console and FactoryTalk View Studio**

To edit FactoryTalk Linx configurations, use FactoryTalk Administration Console or FactoryTalk View Studio as follows:

- In a Network (distributed) application, you can use either FactoryTalk Administration Console or FactoryTalk View Studio.
- In a Local application, you can edit locally or remotely using FactoryTalk Administration Console, or you can edit locally or remotely within FactoryTalk View Studio.
- To edit a FactoryTalk View ME project, use FactoryTalk View Studio because of the specific needs of FactoryTalk View ME.

**Design-time versus runtime**

FactoryTalk Linx is comprised of design-time and runtime components. The design-time components provide the user interface that enables you to set up devices, drivers, and shortcuts that are ultimately used by the runtime components. Based on this configuration data, the runtime components execute read or write requests received during runtime operation.

**Installation and configuration checklist**

Use the following checklist to guide you through the installation and configuration process.

<table>
<thead>
<tr>
<th>Step</th>
<th>Description</th>
<th>Refer to:</th>
</tr>
</thead>
<tbody>
<tr>
<td>☐ 1.</td>
<td>Read and understand the FactoryTalk Linx Getting Results Guide.</td>
<td>This Guide.</td>
</tr>
<tr>
<td>☐ 3.</td>
<td>Verify your personal computer meets the minimum hardware and software requirements.</td>
<td>“Minimum system requirements” on page 23</td>
</tr>
<tr>
<td>☐ 6.</td>
<td>Configure a FactoryTalk Administration Console application</td>
<td>“Manage applications” in FactoryTalk Services Platform Help.</td>
</tr>
</tbody>
</table>
### Chapter 1  Welcome to FactoryTalk Linx

<table>
<thead>
<tr>
<th>Step</th>
<th>Description</th>
<th>Refer to:</th>
</tr>
</thead>
<tbody>
<tr>
<td>7.</td>
<td>Add a FactoryTalk Linx server.</td>
<td>“Add FactoryTalk Linx to the FactoryTalk application” on page 30</td>
</tr>
<tr>
<td>8.</td>
<td>Specify general FactoryTalk Linx server properties.</td>
<td>“Define General server properties” on page 37</td>
</tr>
<tr>
<td>9.</td>
<td>Optionally, set up a redundant server to take over if the primary server fails (network applications only).</td>
<td>“Set up FactoryTalk Linx to support a redundant server (optional)” on page 37</td>
</tr>
<tr>
<td>10.</td>
<td>Optionally, set up options for device-based alarms.</td>
<td>“Set up FactoryTalk Linx to support FactoryTalk Alarms and Events (optional)” on page 38</td>
</tr>
<tr>
<td>11.</td>
<td>Add drivers and devices.</td>
<td>“Add a driver” on page 39</td>
</tr>
<tr>
<td>12.</td>
<td>Create shortcuts that point to your target devices.</td>
<td>“Create shortcuts” on page 40</td>
</tr>
<tr>
<td>13.</td>
<td>Test the system using FactoryTalk Live Data Test Client</td>
<td>“Test FactoryTalk communications” in FactoryTalk Services Platform Help.</td>
</tr>
</tbody>
</table>
Install FactoryTalk Linx

FactoryTalk Linx supports two installation methods: Setup wizard installation and automated installation with command line syntax. This chapter uses the Setup wizard installation method to illustrate the steps.

This chapter contains the following information:

- Minimum system requirements
- Install FactoryTalk Linx software
- Update an existing installation

The automated installation with command line syntax reduces user interaction and provides command line parameters to install FactoryTalk Linx. See Install FactoryTalk Linx with command line syntax on page 101.

System requirements

To use FactoryTalk Linx, your personal computer must meet the following minimum hardware and software requirements:

Hardware requirements

FactoryTalk Linx requires the following hardware:

- Intel Core i5 Standard Power processor
- 4 GB of memory

Software requirements

FactoryTalk Linx is tested on operating systems installed from original Microsoft® media only. FactoryTalk Linx runs on the 64-bit versions of the following Windows® operating systems:

- Windows 10 (tested with v1903, v1909, v2004, and v20H2)
  FactoryTalk Linx adopts .NET 4.8 which is only supported in Windows 10 v1803 and later.
- Windows 10 IoT Enterprise 2016 LTSB
- Windows 10 IoT Enterprise 2019 LTSC
- Windows Server 2012
- Windows Server 2012 R2
- Windows Server 2016
- Windows Server 2019

**Supported with the Allen-Bradley 61xx family of Industrial Computers, Allen-Bradley VersaView 5400 Industrial Computers, CompactLogix™ 5480 family of controllers and ControlLogix 1756 Compute Module.
For additional information about Windows 10 Support for the FactoryTalk Suite of Rockwell Software products, refer to Knowledgebase Document ID: IN4493 - Windows 10 Support for the FactoryTalk Suite of Rockwell Software products

For the latest information regarding software platform support, refer to http://www.rockwellautomation.com/compatibility/##/scenarios.

Software compatibility

FactoryTalk Linx version 6.21.00 has been tested with, and is compatible with, the following Rockwell Automation products:

- Studio 5000 Logix Designer version 33.00.00
- Studio 5000 View Designer version 7.00
- ControlFLASH version 15.04
- ControlFLASH Plus version 4.00
- FactoryTalk Services Platform version 6.21.00
- FactoryTalk Alarms and Events version 6.21.00
- FactoryTalk View version 12.00.00
- FactoryTalk Linx Gateway version 6.21.00
- FactoryTalk Linx OPC UA Connector version 6.21.00
- FactoryTalk Activation version 4.05.01
- FactoryTalk Batch version 14.00
- Connected Components Workbench version 12.00.00
- FactoryTalk AssetCentre version 9.00.00
- EDS subsystem version 33.0.9.0

Prerequisite software

FactoryTalk Linx is a component of FactoryTalk Services. FactoryTalk Services Setup Wizard supports to install a series of Rockwell Software and the necessary prerequisite software, including:

Rockwell Software

- FactoryTalk Services Platform version 6.21.00
- FactoryTalk Activation Manager version 4.05.01
- FactoryTalk Linx version 6.21.00
- FactoryTalk Linx OPC UA Connector version 6.21.00
- FactoryTalk Alarms and Events version 6.21.00
- Rockwell Automation USB CIP Driver v3.18.06 (for 32-bit operating systems)
- Rockwell Automation x64 Driver v2.01.01 (for 64-bit operating systems)

Prerequisite Software

- FactoryTalk Diagnostics version 6.21.00
- Microsoft .NET Framework 4.6.2
- Microsoft Visual C++ 2017 Redistributable (x86) 14.14
- Microsoft Visual C++ 2017 Redistributable (x64) 14.14
Install FactoryTalk Linx

You can install one or more Rockwell Software products to a single personal computer.

IMPORTANT: The user installing or configuring FactoryTalk Linx must have administrative rights in Windows on the computers where the software is being installed or configured. The Windows domain Administrator account has these rights, for example.

To install FactoryTalk Linx software

1. Start your Windows operating system.
2. Insert the FactoryTalk Services DVD into the DVD-ROM drive.
   - Click Start, and then click Run. The Run dialog box appears.
   - In the Open control, type x:\setup, where x is the letter of the drive containing the FactoryTalk Services DVD-ROM, and then click OK.
3. If Microsoft .NET Framework 4.0 or later is not installed on your computer, the Microsoft .NET Framework Setup dialog box shows. Click Install.
4. On the FactoryTalk Services Setup dialog box, choose one of the following:
   - Click Install Now to start the software installation with the default settings.
   - Click Customize to select the products which you want to install, or specify a different drive where you want to install the software, and then click Install.
     (optional) If you are running out of storage, clear the Register EDS Files check box. However, clearing this check box turns off the EDS Parameter shortcut function.
5. On the End-User License Agreements dialog box, read the agreements, and click Accept all to continue the installation, or click Decline to return to the previous page.
6. When prompted to restart your computer during the installation, click Restart now to restart your computer and continue the installation, or Restart later to suspend and exit the installation.
7. On the That's it! dialog box, click Close to exit the installation.
   Meanwhile, you can also:
   - Click Installation Summary to see the installation details.
• Click Register for updates to learn how to receive email updates about product patches.
• Click Download it free to install Adobe Acrobat Reader. Adobe Acrobat Reader is required to open the FactoryTalk Linx Getting Results Guide and other documents.

8. The FactoryTalk Linx installation is complete. When you finish installing the software, remove the FactoryTalk Services DVD from the DVD-ROM drive, and store it in a safe place.

**Update an existing installation**

RSLinx Enterprise re-brands to FactoryTalk Linx version 6.00.00 in this release. Note the following before upgrading FactoryTalk Linx:

• You must have administrative rights in Windows on the computers where FactoryTalk Linx is being installed. For example, the Windows domain Administrator account has these rights.
• Be sure that you install FactoryTalk Linx with the compatible Rockwell Automation products.

Perform the following steps to upgrade from a previous version of the software:

1. Stop your current version of RSLinx Enterprise or FactoryTalk Linx.
2. Insert the FactoryTalk Services product DVD into the DVD-ROM drive. Perform the installation steps in the order presented on the screen. You can refer to Install FactoryTalk Linx on page 24 for the installation steps.

   **IMPORTANT** The old version of RSLinx Enterprise that exists on your computer is automatically uninstalled when you install a newer version of FactoryTalk Linx 6.00.00 or later.

3. Restart your computer.

   **IMPORTANT** You must restart your computer after installing Rockwell Automation products. If you are installing multiple products, you must restart your computer after all of the products are installed.

**Update a system that already has a FactoryTalk-enabled product installed**

If you are installing FactoryTalk Linx on a Windows platform, on which other FactoryTalk-enabled products are currently installed, you must first verify that all products are of the same CPR number. You can do this from Start > Control Panel > Programs and Features (view by small icons).

The CPR number is shown with the product. If any products are of a previous release, you must uninstall the products (following the sequence: uninstall FactoryTalk Activation Manager > uninstall FactoryTalk Services Platform > uninstall FactoryTalk Diagnostics last), restart your computer, and then use the installation DVD to install the correct release version.

If the CPR versions are compatible, verify that FactoryTalk Administration Console is installed, using the following procedure:
1. Select **Start > Control Panel > Programs and Features** (view by small icons).
2. Right click **FactoryTalk Services Platform** from the program list.
3. Select **Change** to start the installation wizard.
4. Select **Modify** from the **Program Maintenance** screen.
5. Verify the installation status of FactoryTalk Administration Console.
Start FactoryTalk Linx and explore the user interface

This chapter includes the following information:

- Start FactoryTalk Administration Console
- Basic FactoryTalk Administration Console user interface components
- Add FactoryTalk Linx to the FactoryTalk application
- What’s FactoryTalk Linx instance02 service?
- Explore the Communication Setup editor
- FactoryTalk Linx Network Browser

**Start FactoryTalk Administration Console**

FactoryTalk Linx is launched from within FactoryTalk Administration Console. To start FactoryTalk Administration Console, use the following procedure:

1. From the Start menu, select **Programs > Rockwell Software > FactoryTalk Administration Console**.
2. Select the FactoryTalk Directory you want to use. Refer to Local applications versus Network applications for more information about Network and Local applications.

**IMPORTANT** Depending on the security settings, you may be required to enter a User name and Password to open an application. Refer to the FactoryTalk Help for more information.

**FactoryTalk Administration Console user interface components**

FactoryTalk Administration Console is made up of the following basic user interface components:

<table>
<thead>
<tr>
<th>Item</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>The <strong>Explorer pane</strong> contains the <strong>Application</strong> tab and the <strong>Communications</strong> tab.</td>
</tr>
</tbody>
</table>
Add FactoryTalk Linx to the FactoryTalk application

To begin using FactoryTalk Linx after you install it, you must first add it to a FactoryTalk Linx application, which is created in the FactoryTalk Directory. Use the following procedure to add FactoryTalk Linx to an application.

1. In the Explorer window, position the cursor in the area or application where you want to add the FactoryTalk Linx server.
2. Right-click the area or application icon, select Add New Server > Rockwell Automation Device Server (FactoryTalk Linx).
3. In the FactoryTalk Linx Server Properties tabs, set the server properties.
   Add a FactoryTalk Linx Instance02 Server to have more tags, data clients (e.g. HMI clients), and/or controllers without affecting FactoryTalk Linx Instance01 Server.
4. Click OK to save your changes.
5. To modify the properties of a FactoryTalk Linx server, right-click the FactoryTalk Linx server icon, and select Properties.
6. In the FactoryTalk Linx Server Properties tabs, change the information as required, and click OK.

What's FactoryTalk Linx instance02 service?

How do I create a FactoryTalk Linx instance02 server?

1. From the Explorer window of FactoryTalk Administration Console or FactoryTalk View Studio, position the cursor in the area or application where you want to add the FactoryTalk Linx server.
   Tip: For a faster tag lookup, it's recommended to put only one FactoryTalk Linx data server per area.
2. Right-click the area or application icon, select Add New Server > Rockwell Automation Device Server (FactoryTalk Linx).
3. In the FactoryTalk Linx Server Properties tabs, under Server Type drop down list, select FactoryTalk Linx Instance02 Server, and then click OK.
Prior to version 6.10, only one instance of the FactoryTalk Linx service could operate on a workstation. With version 6.10, FactoryTalk Linx will support simultaneous operation of a second instance. This permits a single workstation to increase its data delivery capacity.

The FactoryTalk Linx instance02 service, similar to the FactoryTalk Linx Instance01 service, is created by FactoryTalk Linx to provide a separate independent FactoryTalk Linx data server on a single Windows operation system. It allows applications to have more tags, data clients (e.g. HMI clients), and/or controllers without affecting the other FactoryTalk Linx data server.

The FactoryTalk Linx Instance02 service starts once FactoryTalk Linx is installed. It will not be used until the configuration of FactoryTalk Linx Instance02 Server is completed in the FactoryTalk Administration Console or FactoryTalk View Studio.

**Tip:**
- The FactoryTalk Linx Instance02 Server is not supported on FactoryTalk View SE local station applications.
- The FactoryTalk Linx Instance02 Server is limited to Ethernet driver.
- The FactoryTalk Linx Instance02 Server is not supported on FactoryTalk View ME or PanelView Plus.
- The FactoryTalk Linx Instance02 Server doesn’t support the unsolicited message shortcut type.
- FactoryTalk Instance02 Server is supported on FactoryTalk Alarms and Events.

**Explore the FactoryTalk Linx Communication Setup editor**

Use the Communication Setup editor to add drivers, add devices, set up driver and device properties, and set up device shortcuts in your FactoryTalk Linx configurations.

To open the **Communication Setup** editor, perform the following steps:

1. In the **Explorer** pane, expand the appropriate application in the application tree.
2. Expand FactoryTalk Linx.
3. Double-click **Communication Setup**. The **Communication Setup**
editor opens in the workspace.

---

**Important:** Modifying this data at run time could cause unexpected results. See "Making run-time
changes in FactoryTalk applications" in the FactoryTalk Linx Help.

<table>
<thead>
<tr>
<th>Item</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>In the <strong>Device Shortcuts</strong> area, you can add, remove, and modify shortcuts and apply the shortcut properties to the selected shortcut name. A shortcut is a name that stands for the device you want to connect to, and the data that device contains. The shortcut is associated with a communication path to tell the application where to find that data.</td>
</tr>
</tbody>
</table>
| 2    | Tab(s) contain a communication tree control, representing the communication topology. Depending on your product, you will see the following tabs:

  - **FactoryTalk View SE (Site Edition) Local:** **Primary** tab
  - **FactoryTalk View SE Network:** **Primary** tab and, if server redundancy is selected, **Secondary** tab.

  Use the tabs to add, remove, and modify devices and drivers.

  Menu options are shown by right-clicking the various nodes within the communication tree. |
| 3    | **Mode** indicates whether you are **Online** or **Offline**. |
| 4    | **Browse status** indicates whether or not FactoryTalk Linx is interrogating the network to determine if there are additional devices present. |
| 5    | **Shortcut Properties Table** indicates the properties associated with the selected shortcut. |
| 6    | **Shortcut options** indicate the options associated with the selected shortcut type.

  **Note:** If **Unsolicited Message** is selected in the **Shortcut Type**, the following shortcut options show under the **Shortcut type** in the **Communication Setup** editor. For any other shortcut type (that is, processor, EDS parameter, or symbolic), the shortcut options are not visible. |
| 7    | **Status** shows messages that assist you as you configure your shortcuts. |

**OK** Saves any changes and closes the **Communication Setup** editor.

**Cancel** Closes the **Communication Setup** editor without saving the current changes.

**Verify** Shows a summary of the shortcuts you created, and their associated status messages.

**Help** Opens Help.
Right-click versus left-click

<table>
<thead>
<tr>
<th>To do this:</th>
<th>Do this:</th>
</tr>
</thead>
<tbody>
<tr>
<td>Select a device on the communication tree to apply a shortcut to it.</td>
<td>Left-click the device. If it is a valid device selection, the <strong>Apply</strong> button will become active. If it is an invalid device selection, status message (6) will alert you.</td>
</tr>
<tr>
<td>Start browsing the network.</td>
<td>Left-click a network on the communication tree. The <strong>Browse</strong> status (4) will indicate Browsing. or Right-click a network. Select <strong>Start Browsing</strong> from the context menu.</td>
</tr>
<tr>
<td>Stop browsing the network.</td>
<td>Right-click a network. Select <strong>Stop Browsing</strong> from the context menu.</td>
</tr>
<tr>
<td>View or edit a property screen.</td>
<td>Right-click the device or network. Select <strong>Properties</strong> from the context menu.</td>
</tr>
<tr>
<td>View a context menu.</td>
<td>Right-click.</td>
</tr>
</tbody>
</table>

**Important:** To open the property screen for a device, do not left-click the device to select it before right-clicking to open the property screen. The left-click action selects a shortcut target, which may or may not be the intended target for the highlighted shortcut.

If making an edit in the development environment will adversely affect the run-time system, warnings have been added to FactoryTalk to alert you. If the change is made through a dialog box, this warning icon:

⚠️

appears next to the component where the edit can be made. Hovering the mouse cursor over the icon shows the following message:

"Modifying this data at run time could cause unexpected results. See Making run-time changes in FactoryTalk applications in the Help."

If the edit is made through a menu item, the message opens when you click the menu item.

**FactoryTalk Linx Network Browser**

The FactoryTalk Linx Network browser provides a simple user interface to view and navigate an automation system topology and access device properties. This tool provides a standalone version of the Network Browser component that is shared by other Rockwell Automation software. This tool will share the FactoryTalk Linx drivers that are configured in the FactoryTalk Administration Console. The tool will also permits you to add and configure...
new drivers that can also be utilized by the FactoryTalk Administration Console.

The **Network Browser** creates and modifies device networking configurations. It shares networking configuration with FactoryTalk Linx in the FactoryTalk Administration Console.

Note: The device list capability in the Ethernet driver can only be configured within the Network Browser control.

You can use the **Network Browser** dialog box to:

- Navigate a network topology to locate a device for interaction
- Add and delete drivers
- Edit driver settings
- Configure search discovery settings
- Perform a search of a previously discovered device
- Automatically discover a selection

**To access the standalone version of Network Browser:**

1. Click Windows Start.
2. Select Rockwell Software > FactoryTalk Linx > FactoryTalk Linx Browser.

   Tip: You can redirect to the shortcut configuration page in FactoryTalk Administration Console by clicking **Configure Shortcut**.

For more information, click the **Help** button on the **Network Browser**.
## Network Browser settings

Use the general settings for the **Network Browser** to specify network configuration items and browser display information. Resize the **Network Browser** to see more or less of a network topology.

<table>
<thead>
<tr>
<th>Settings</th>
<th>Icon</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Auto discover</td>
<td><img src="image" alt="Auto discover icon" /></td>
<td>Enables the <strong>Network Browser</strong> to continuously discover the selected device or network branch.</td>
</tr>
<tr>
<td>Configure Drivers</td>
<td><img src="image" alt="Configure Drivers icon" /></td>
<td>Adds a driver on the computer to provide communications to a network and configures existing drivers for edit or delete.</td>
</tr>
<tr>
<td>Advanced Settings</td>
<td><img src="image" alt="Advanced Settings icon" /></td>
<td>Opens Advanced Settings to configure network discovery settings.</td>
</tr>
<tr>
<td>Zoom</td>
<td><img src="image" alt="Zoom icon" /></td>
<td>Increases (zoom in) or decreases (zoom out) the view of the network topology tree.</td>
</tr>
<tr>
<td>Help</td>
<td><img src="image" alt="Help icon" /></td>
<td>Opens the help topics.</td>
</tr>
<tr>
<td>Auto upload on page 91</td>
<td><img src="image" alt="Auto upload icon" /></td>
<td>Enables the <strong>Network Browser</strong> to check all the devices, and automatically upload and register EDS files for unknown devices in the selected device and its child devices.</td>
</tr>
<tr>
<td>Manual upload on page 90</td>
<td><img src="image" alt="Manual upload icon" /></td>
<td>Uploads and registers the EDS file from a selected device.</td>
</tr>
<tr>
<td>Filter on page 89</td>
<td><img src="image" alt="Filter icon" /></td>
<td>Provides a filtered list of devices upon the searching criteria.</td>
</tr>
<tr>
<td>Anchor</td>
<td><img src="image" alt="Anchor icon" /></td>
<td>Re-roots a view in the network topology tree to give focus on a specific node and the corresponding children of that node.</td>
</tr>
<tr>
<td>Refresh</td>
<td><img src="image" alt="Refresh icon" /></td>
<td>Instructs the browser to perform a discover cycle of the selected device or network branch immediately and update the network topology tree with the results. Refresh is only active when Auto discover is not activated.</td>
</tr>
<tr>
<td>Delete</td>
<td><img src="image" alt="Delete icon" /></td>
<td>Used to remove a device from the network topology view in a computer. Observe these guidelines to gain a better understanding of the delete command:</td>
</tr>
<tr>
<td>Discover</td>
<td><img src="image" alt="Discover icon" /></td>
<td>Indicates discovery status. An animated icon indicates that the corresponding device is being discovered or a discovery cycle is in progress. A static icon indicates that browsing is complete.</td>
</tr>
<tr>
<td>CIP Security Indicator</td>
<td><img src="image" alt="CIP Security Indicator icon" /></td>
<td>When the icon is in the tool bar, it works as a switch to show or hide the CIP Security configuration status of a device. When the icon is in front of a device, it shows the device supports CIP Security and no configuration has been taken yet.</td>
</tr>
<tr>
<td>CIP Security Indicator</td>
<td><img src="image" alt="CIP Security Indicator icon" /></td>
<td>Indicates the device is in the CIP security configuration process.</td>
</tr>
<tr>
<td>CIP Security Indicator</td>
<td><img src="image" alt="CIP Security Indicator icon" /></td>
<td>Indicates the device is successfully configured with CIP security.</td>
</tr>
<tr>
<td>User Log on/Log off</td>
<td><img src="image" alt="User Log on/Log off icon" /></td>
<td>Used to log on or log off from the FactoryTalk Browser. The users and privileges are defined in FactoryTalk system. If there is no user log on to FactoryTalk Browser, the FactoryTalk Browser will run in read-only mode.</td>
</tr>
<tr>
<td>About</td>
<td>Shows the version of the installed FactoryTalk Linx Network Browser and the FactoryTalk Linx, or to view the copyright and contact information.</td>
<td></td>
</tr>
<tr>
<td>-------</td>
<td>----------------------------------------------------------------------------------------------------------------------------------</td>
<td></td>
</tr>
<tr>
<td>Device Web Page</td>
<td>Used to open a web browser that allows a user to access a web page embedded within the device to view and edit device configuration, backup and restore settings, device status, and so forth. <strong>Note:</strong> the button / option is not displayed if the device does not contain an embedded web page or the device is connected to a network that is not directly reachable from a web browser (e.g. bridged network).</td>
<td></td>
</tr>
<tr>
<td>Device Property</td>
<td>Used to open the device properties dialog box based on the node selected.</td>
<td></td>
</tr>
<tr>
<td>Device Statistics</td>
<td>Used to open a dialog box that displays information to help diagnose a device. <strong>Note:</strong> the button / option is not displayed for a device that does not provide access to its statistics.</td>
<td></td>
</tr>
<tr>
<td>Configuration</td>
<td>Used to open the configuration dialog box based on the node selected. They can be driver configuration, device configuration, and bridge configuration. <strong>Note:</strong> the button / option is not displayed for a device that does not provide access to its configuration.</td>
<td></td>
</tr>
</tbody>
</table>
Chapter 4

Define FactoryTalk Linx server properties

This chapter includes the following information:

- Define General server properties
- Set up FactoryTalk Linx to support redundant servers (optional)
- Set up FactoryTalk Linx to support FactoryTalk Alarms and Events (optional)

To launch the Communication Setup editor, double-click Communication Setup from the Explorer under the FactoryTalk Linx server icon. The FactoryTalk Linx Server Properties dialog box opens.

Define General server properties

Both Local and Network applications require you to specify server properties on the General tab of the FactoryTalk Linx Server Properties dialog box.

- The server name is FactoryTalk Linx and cannot be changed after the server has been created.
- Use the Description area to describe a component’s location, to identify a contact person or number in the event of failure, or to keep track of changes or version information.
- For Local applications, the computer hosting the FactoryTalk Linx server defaults to localhost and cannot be changed. For Network applications, identify the computer where the FactoryTalk Linx server resides by either clicking Browse or typing the computer name.

If you are going to set up a redundant server, click the Redundancy tab. Otherwise, click Apply to save the server information, and then click OK to close the dialog box.

Setup FactoryTalk Linx to support a redundant server (optional)

On the Redundancy tab of the FactoryTalk Linx Server Properties dialog box, you can set up a secondary (redundant) server that will take over in the event that there is service loss of the primary FactoryTalk Linx server.

The secondary server cannot be hosted on the same computer as the primary server. You can set up a redundant data server for a network (distributed) application only.

Note: For FactoryTalk View SE network station application, the FactoryTalk View SE HMI Server and SE Client must be located on the same computer. The FactoryTalk Directory Server, FactoryTalk Linx data server and OPC data servers can be located on remote computers.

Note that if you have configured FactoryTalk Linx instance02 on the primary computer, you must configure instance02 on the secondary computer too to
To set up a redundant server, on the **Redundancy** tab:

1. Select **Provide redundancy using a secondary server**.
2. Type the name of the computer that the secondary server will run on, or click **Browse** to locate and select a computer.
3. Select a switchover option.

If you are going to set up FactoryTalk Alarms and Events support, click the **Alarms and Events** tab. Otherwise, click **Apply** to save the server information, and then click **OK** to close the dialog box.

Tip: With v6.10 FactoryTalk Alarms and Events was limited to the first instance of FactoryTalk Linx, while v6.20 supports FactoryTalk Alarms and Events with Instance02.
Create a configuration

This chapter includes the following information:

- Add a driver
- Add a device
- Create shortcuts

To begin working with FactoryTalk Linx, you must add a FactoryTalk Linx data server to the FactoryTalk Directory. Once you have added FactoryTalk Linx and configured its properties, use the Communication Setup editor to add drivers, set up driver and device properties, and set up device shortcuts.

To launch the Communication Setup editor, double-click Communication Setup from the Explorer under the FactoryTalk Linx data provider.

A driver is software that interacts with a network interface (such as the interface that connects your computer to the Ethernet network) and manages the exchange of communication packets over the network, to which the interface is attached. Refer to the FactoryTalk Linx Help for information about the drivers that are supported.

If you are running on an Ethernet network, right-click the network shown (for example, Ethernet), and select Start Browsing to populate the driver with devices to add a driver.

**IMPORTANT** Some Ethernet devices may not support the browse protocol used by FactoryTalk Linx on Ethernet. If the devices you expect to appear during the browse do not appear, manually add the devices to the workstation’s Ethernet network by right-clicking on the network and selecting Add Device.

If you are running on any network other than Ethernet, right-click the device shown at this workstation, and select Add Driver to add a driver.

You can add devices by browsing the network, or you can manually add devices.

The list of potential device targets for FactoryTalk Linx can be gathered during online browsing. During a browse cycle, FactoryTalk Linx scans the network addresses, determines the present devices, and shows them in tree format. The display shows the set of devices discovered during the most recent browse cycle.
If a device is not found during a browse, it does not appear on the display, regardless of whether or not that device was previously discovered.

If you are running on an Ethernet network, right-click the network shown (for example, Ethernet) to start browsing. The network is automatically populated with devices.

**Browse the virtual backplane**

When you select the virtual backplane on the user interface, FactoryTalk Linx may not automatically discover devices that reside in it. If you have added the device with a separate software package, such as the SoftLogix Chassis Monitor or RSLinx Classic, this is most likely to happen.

If you think you have devices resident in your virtual backplane that are not showing up on the FactoryTalk Linx user interface, you can right-click the virtual backplane and select **Start Browsing**, or **Show All Devices** to see those devices. If the devices do not appear, saved configuration data is not lost.

**Manually add a device**

You can manually add the devices to the workstation’s network using the following procedure:

1. Right-click the network or driver and select **Add Device**. A list of **Available Devices** that applies only to the network you selected opens.
2. Select the device you wish to add, and click **OK**. The device is added below the driver or network on the communication tree. Unless your application requires a specific device version, you should select the most recent revision of that device.

For information on device revisions in the device list, see the drivers, device, and shortcuts section of “Frequently asked question” in the FactoryTalk Linx Help. The Help also provides information about how to add and configure drives and devices.

**Create shortcuts**

Your application uses a configuration file to communicate with devices on the network. This file contains at least one shortcut, which is a name that stands for the device you want to connect to and the data that device contains. The communication path associated with the shortcut tells the application where to find that data.

Here are some important aspects about device shortcuts:

- A shortcut needs to be configured for each device that the application needs to access. The connected device must be capable of providing data to the application.
- Shortcuts are stored on a per-FactoryTalk application basis instead of being associated with the FactoryTalk Linx server itself.
- Shortcuts are added, deleted, or modified using the Shortcut Editor in the Device Shortcuts area of the **Communication Setup** editor.

To create a shortcut, use the following procedure:
1. In the **Device Shortcuts** area of the **Communication Setup** editor, click **Add**. A default shortcut named *New_Shortcut* is created.

2. If you wish to change the name of the shortcut, you can enter the new name at this point.

   When creating a shortcut name:
   - Use the name of the controller, in which the data (tags) resides.
   - Ensure that the name is unique within this FactoryTalk View application.
   - Do not use any of the following characters: . (period), ], [, %, or /.
   - Keep shortcut names as short as possible. The name must be less than 255 characters.
   - Do not give the same name to FactoryTalk Linx shortcuts and RSLinx Classic topics. If a shortcut has the same name as a topic, tags will not be shown for one of them during a tag browse.

3. Select the device on the communication tree by clicking the device that contains the data you want to access for this shortcut, and click **Apply**. A dialog box opens to confirm your changes.

4. (Optional) You may also choose to use an Offline Tag File by entering the path and name of the file in the Properties Table or by clicking **Browse**... and browsing for the file. Click **Apply** in the **Device Shortcuts** area. An offline tag file is a ControlLogix project file (.acd) that contains tag data. You can use this file to browse for tags when designing your application when the controller is not online.

   **IMPORTANT** The ControlLogix program file (.acd) must be located on the local computer, instead of on a networked location. The offline file must be located in the specified directory on all FactoryTalk Linx server machines associated with the shortcut.

5. (Optional) Enable Alarms and Events support for this shortcut by selecting **Yes** from the menu in the Shortcut Properties Table. Refer to the FactoryTalk Linx Help before enabling Alarms and Events support for a shortcut.

6. In **Shortcut Type**, select a shortcut option to define a shortcut type for the selected shortcut. By default, **Processor** is selected.

   For more information about creating each shortcut type, See *FactoryTalk Linx Online Help*. 
Tip:
- FactoryTalk Linx establishes simultaneous connections to both the primary and secondary controllers. All communications occur with the primary controller but will switch to the secondary controller when FactoryTalk Linx detects the ControlLogix Redundancy system has performed a controller switchover.
- The Logix 5000 controllers must be at revision 31.50 or above to support redundant controller paths.
- The ControlLogix 1756-EN2T Ethernet modules must contain a specific revision released with ControlLogix Redundancy system revision 31.50 to support setting fixed IP addresses for each module.
- Redundant paths are not supported by FactoryTalk View ME (ME)
- When switching to Redundant ControlLogix Controller, a validation dialog box opens. Click Yes to continue.

7. To see the status messages associated with each shortcut you have configured, click Verify on the Communication Setup editor.

When you have finished adding shortcuts, click OK to close the Communication Setup editor. The shortcuts are not saved until you click OK to close this dialog box. A dialog box opens to confirm your changes.

A shortcut is a name that stands for the device you want to connect to, and the data that device contains. The communication path associated with the shortcut tells the application where to find that data. Shortcuts are added, deleted, or modified using the Shortcut Properties table in the Device Shortcuts area of the Communication Setup editor.

The following table shows the available shortcut types. Select one shortcut type for each shortcut.

<table>
<thead>
<tr>
<th>Shortcut type</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Processor</td>
<td>Used for the processor type devices, such as 1756-L53, 1756-L63, 1756-L64, 1756-L75, and CompactLogix L32E Processor.</td>
</tr>
<tr>
<td>EDS Parameter</td>
<td>Used for devices in which the EDS parameter is defined, such as 1734-ADN DeviceNet Adaptor, 1734-ADNX, 1747-AENTR, 1756-DNB, and 1783-MS10T Stratix 8300.</td>
</tr>
<tr>
<td>Symbolic</td>
<td>Used for devices that have tags or symbols defined, such as 1426 PowerMonitor™ 5000, Micro800 series (Micro820, Micro830, and Micro850) controllers, and 193 E1 Plus Solid-State Overload Relays.</td>
</tr>
<tr>
<td>Unsolicited Message</td>
<td>Used for the ControlLogix and PLC-5 controllers via Ethernet. Additional options show when this shortcut type is selected. Starting from version 6.10.00, FactoryTalk Linx supports PLC-2 communication via unsolicited message shortcut type.</td>
</tr>
<tr>
<td>CIP Object</td>
<td>Supports accessing devices' CIP Object instance attributes as tags. You must select a sub-option of the CIP Object. There are two forms of a CIP object shortcut, CIP Energey and CIA Message.</td>
</tr>
<tr>
<td>CIP Energy</td>
<td>When the CIP Object/CIP Energy shortcut is configured, a list of CIP Energy tag definitions is added to FactoryTalk Live Data to allow FactoryTalk software to browse and select the desired data values to be accessed.</td>
</tr>
<tr>
<td>Shortcut type</td>
<td>Description</td>
</tr>
<tr>
<td>--------------------------------------</td>
<td>---------------------------------------------------------------------------------------------------------------------------------------------</td>
</tr>
<tr>
<td>CIA Message</td>
<td>FactoryTalk Linx provides the ability to access information inside of devices that support the Open Device Vendors Association (ODVA) Common Industrial Protocol (CIP), using the CIP Object - Class/Instance/Attribute Message shortcut type.</td>
</tr>
<tr>
<td>Redundant Controller Path</td>
<td>Used for a single ControlLogix controller with redundant communication paths. The default path names are Path1 and Path2.</td>
</tr>
<tr>
<td>Redundant ControlLogix Controller</td>
<td>Used for two ControlLogix controllers in a single ControlLogix redundancy configuration connected to redundancy modules with different communication paths. The default path names are Primary Controller and Secondary Controller.</td>
</tr>
</tbody>
</table>

**Change shortcut types**

Use Communication Setup editor to switch between seven shortcut types in **Device Shortcuts** area.

**To change a shortcut type**

   Tip: When selecting a redundant shortcut, select the root shortcut to turn on the Shortcut Type list.

2. In Shortcut Type, select a new shortcut option.

3. (Optional) If the change involves any redundant shortcut types, a confirmation dialog box opens. Read the change summary and click Yes.
   - If a shortcut is changed to Redundant Controller Path, click Path 2, select the same Logix 5000 controller that Path1 assigned to (with a different communication path), and then click Apply.
   - If a shortcut is changed to Redundant ControlLogix Controller, click Secondary Controller, select the device which is a redundant pair to the device that Primary Controller assigned to, and then click Apply.
     Tip:
     - FactoryTalk Linx establishes simultaneous connections to both the primary and secondary controllers. All communications occur with the primary controller but will switch to the secondary controller when FactoryTalk Linx detects the ControlLogix Redundancy system has performed a controller switchover.
     - The Logix 5000 controllers must be at revision 31.50 or above to support redundant controller paths.
     - The ControlLogix 1756-EN2T Ethernet modules must contain a specific revision released with ControlLogix Redundancy system revision 31.50 to support setting fixed IP addresses for each module.
     - Redundant paths are not supported by FactoryTalk View ME (ME).
     - When switching to Redundant ControlLogix Controller, a validation dialog box opens. Click Yes to continue.

4. Click OK to close the Communication Setup editor.
Starting from version 6.20.00, FactoryTalk Linx adds a different method based on a device’s **Network Path** to store location of the device in a system. Previously all shortcuts were linked to a device based on a name that was assigned when it was first detected by a browse during discovery operation. **Device Path** linkage worked unless system changed and resulted in device being detected in a different order, causing names to be re-assigned. Compared with the Device Path, the Network Path enables the user to configure and store the shortcut path using the device's IP address and slot number in a chassis. By using the Network Path, FactoryTalk Linx improves its ability to retain the user specified route through the system to interface with a device and reduces the chance communications are interrupted by subsequent system changes. FactoryTalk Linx supports both device and network paths but can be switched back to a mode where only device path is utilized by changing the **Shortcut Policy** property.

The Network Path, for example:

```
EtherNet\10.224.107.97\Backplane\16
```

which:

- **EtherNet** is the driver name to which the device belongs to.
- **10.224.107.97** is the IP address that the device connects to, this address must be correctly input when adding a device manually.
- **Backplane** is the bus where the device is located.
- **16** is the slot number of the device, this number must be correctly input when adding the device manually.

The Device path, for example:

```
1756-A10/A.Data
```

which:

- **1756-A10/A** is the parent name of the device. This can be a driver name or backplane name.
- **Data** is the current project name that downloaded to the device.

When a shortcut is applied to a device, FactoryTalk Linx stores the shortcut path in both Network Path and Device Path format.

**Note:**
- The Shortcut policy settings on a single workstation are decided by the configurations under the network directory. If the Network Path is enabled under network directory, FactoryTalk Linx data server will communicate with the device using the Network Path method under both the network directory and local directory regardless of the settings configured in local directory.
- The FactoryTalk View ME application shortcut policy settings are decided by the configurations under the local directory.
### Shortcut Policy Properties

How do I open the Shortcut Policy Properties dialog box?

From the **Explorer** in FactoryTalk Administration Console or FactoryTalk View Studio, select **System > Policies > Product Policies > FactoryTalk Linx > Server Setting > Shortcut Policy**.

Starting with FactoryTalk Linx version 6.20, Shortcut route configurations are saved using both device paths and network path information. FactoryTalk Linx will utilize the Shortcut Policy setting to determine which path type to use by default. While Network Paths should be more resilient and are preferred, the system can be switched to utilize device paths similar to previous versions.

You can use the **Shortcut Policy Properties** dialog box to define the type of shortcut path (device or Network) that will be utilized for communications by FactoryTalk Linx.

How do I open the Shortcut path synchronization dialog box?

From the **Communication Setup** editor, click **Verify** to open the **Shortcut Verifier** dialog box, and then click **Synchronize**.

Starting with FactoryTalk Linx v6.20, Shortcut route configurations are saved using both device paths and network path information. The Network path was added to improve system resilience by avoiding system changes that could impact device paths. Because there are two possible routes for each shortcut, it is important to ensure they both reference the same system component. Additionally, in systems created prior to v6.20 the shortcut routes will utilize device paths. Utilize the **Shortcut Verifier** dialog to synchronize the shortcut configuration to ensure all shortcuts will contain proper network paths.

You can use the **Shortcut path synchronization** dialog box to synchronize the shortcut target for both device and network paths. After creating the shortcut, the shortcut path information will be stored using both the Network Path method and the Device Path method.

When any of the path information is changed, you can sync the shortcut path information choosing one of the following methods as the prior method to sync:

<table>
<thead>
<tr>
<th>Properties</th>
<th>Selection</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Enable Network Path</td>
<td>Enable</td>
<td>FactoryTalk Linx data server will communicate with the device utilizing the</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Network Path method. The option is selected by default.</td>
</tr>
<tr>
<td></td>
<td>Disable</td>
<td>FactoryTalk Linx data server will communicate with the device utilizing the</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Device Path method. Select this option to ensure shortcut settings are</td>
</tr>
<tr>
<td></td>
<td></td>
<td>compatible with older versions of FactoryTalk Linx.</td>
</tr>
</tbody>
</table>

**Note:** To put this change into effect, restart all the computers that are hosting FactoryTalk Linx data server.
• Network Path
• Device Path

For example, a shortcut is created and the shortcut path information is stored as:

• Network Path: EtherNet\10.224.107.97\Backplane\16
• Device Path: 1756-A10/A.Data

When changing the parent device name 1756-A10 to 1756-B10, it will cause FactoryTalk Linx unable to locate the device. Select Network Path as the prior method to sync, then FactoryTalk Linx will locate the device using EtherNet\10.224.107.97\Backplane\16 and correct the parent device name to 1756-A10.

Note: The network path is now the default and more resilient to system changes.

Predefined items for redundant shortcuts

When a shortcut is configured, access the diagnostic information associated with this shortcut to monitor the status of the communication. Add pre-define tags to view the diagnostic information in FactoryTalk Live Data Test Client.

The following table shows an example list of pre-define tags that used to view diagnostic information:

<table>
<thead>
<tr>
<th>Name</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>@AddItemCalls</td>
<td>Shows the number of times a client made a call to each AddItem method.</td>
</tr>
<tr>
<td>@AddItems</td>
<td>Shows the number of items a client added to FactoryTalk Linx.</td>
</tr>
<tr>
<td>@AddItemsIgnored</td>
<td>Shows the number of items requested to be added that were ignored as the items were already on-scan.</td>
</tr>
<tr>
<td>@AddShortcutCalls</td>
<td>Shows the number of attempts to add shortcuts to FactoryTalk Linx.</td>
</tr>
<tr>
<td>@AveragePacketResponse</td>
<td>Shows the average packet response time from a Logix controller.</td>
</tr>
<tr>
<td>@CLXDownloadCount</td>
<td>Shows the number of download events for a Logix controller.</td>
</tr>
<tr>
<td>@CLXMaxScanTime</td>
<td>Shows the maximum scan time for a Logix controller.</td>
</tr>
<tr>
<td>@CLXOfflineItemCount</td>
<td>Shows the number of items handled in an offline status for a Logix controller.</td>
</tr>
<tr>
<td>@CLXPacketsReinitialized</td>
<td>Shows the number of packets that were reinitialized due to connection lost or other problems.</td>
</tr>
<tr>
<td>@CLXPresentScanTime</td>
<td>Shows the current scan time for a Logix controller.</td>
</tr>
<tr>
<td>@CLXWritePackets</td>
<td>Shows the number of write command packets sent to a Logix controller.</td>
</tr>
<tr>
<td>@CLXWritesPending</td>
<td>Shows the number of write command packets pending to a Logix controller.</td>
</tr>
<tr>
<td>@ConnectionClosesFailed</td>
<td>Shows the number of times that the action of closing a connection is failed</td>
</tr>
<tr>
<td>@ConnectionClosesRejected</td>
<td>Shows the number of times that the action of closing a connection is rejected.</td>
</tr>
<tr>
<td>@ConnectionOpensFailed</td>
<td>Shows the number of times that the action of opening a connection is failed.</td>
</tr>
<tr>
<td>@ConnectionOpensRejected</td>
<td>Shows the number of times that the action of opening a connection is rejected.</td>
</tr>
<tr>
<td>@ConnectionsActive</td>
<td>Shows the number of active connections.</td>
</tr>
<tr>
<td>@ConnectionsAttempted</td>
<td>Shows the total number of connection open attempts.</td>
</tr>
<tr>
<td>@ConnectionsClosed</td>
<td>Shows the total number of connections that were closed.</td>
</tr>
<tr>
<td>@ConnectionsDropped</td>
<td>Shows the number of dropped connections.</td>
</tr>
<tr>
<td>@CurrentTime</td>
<td>Shows the current time from the Logix controller clock.</td>
</tr>
<tr>
<td>Name</td>
<td>Description</td>
</tr>
<tr>
<td>------</td>
<td>-------------</td>
</tr>
<tr>
<td>@DataCommunicationsInhibit_Path1</td>
<td>Shows the current inhibit state of redundant path1. Tip: To switch the current inhibit state of redundant path1, right-click the item &gt; Write Item(s) &gt; Async Write, change the Value (1 = True, 0 = False) and then click OK.</td>
</tr>
<tr>
<td>@DataCommunicationsInhibit_Path2</td>
<td>Shows the current inhibit state of redundant path2. Tip: To switch the current inhibit state of redundant path2, right-click the item &gt; Write Item(s) &gt; Async Write, change the Value (1 = True, 0 = False) and then click OK.</td>
</tr>
<tr>
<td>@DevicePath</td>
<td>Shows a string that describes the path to the Logix controller.</td>
</tr>
<tr>
<td>@DevicePathSwitch</td>
<td>Shows the current active path index (0 = Primary, 1 = Secondary). Tip: To switch the current active path, right-click the item &gt; Write Item(s) &gt; Async Write, change the Value (1 = True, 0 = False) and then click OK. If the write value of @DevicePathSwitch is invalid (out of range or same with current path), a write error (E_FAIL: 0x80004005) returns.</td>
</tr>
<tr>
<td>@DevicePathSwitchCount</td>
<td>Show the times that device path has switched over since service started.</td>
</tr>
<tr>
<td>@DevicePathSwitchTimestampLastMsg</td>
<td>Show the time stamp that last device switch over happened in text format.</td>
</tr>
<tr>
<td>@DPVersion</td>
<td>Shows a string of the CLXDP.DLL version number.</td>
</tr>
<tr>
<td>@FirstConnectionDropTime</td>
<td>Shows a timestamp for the first dropped connection.</td>
</tr>
<tr>
<td>@FreeMem</td>
<td>Shows the free memory in a Logix controller. Note: The ControlLogix 5580, CompactLogix 5480, and CompactLogix 5380 controllers do not provide this information because of architectural changes within the controller firmware.</td>
</tr>
<tr>
<td>@FreeMemDT</td>
<td>Shows the free Data Table memory in a Logix controller Note: The ControlLogix 5580, CompactLogix 5480, and CompactLogix 5380 controllers do not provide this information because of architectural changes within the controller firmware.</td>
</tr>
<tr>
<td>@FreeMemGM</td>
<td>Shows the free General memory in a Logix controller. Note: The ControlLogix 5580, CompactLogix 5480, and CompactLogix 5380 controllers do not provide this information because of architectural changes within the controller firmware.</td>
</tr>
<tr>
<td>@FreeMemIO</td>
<td>Shows the free I/O memory in a Logix controller. Note: The ControlLogix 5580, CompactLogix 5480, and CompactLogix 5380 controllers do not provide this information because of architectural changes within the controller firmware.</td>
</tr>
<tr>
<td>@FreeMemSC</td>
<td>Shows the free Security memory in a Logix controller. Note: The ControlLogix 5580, CompactLogix 5480, and CompactLogix 5380 controllers do not provide this information because of architectural changes within the controller firmware.</td>
</tr>
<tr>
<td>@IsPresent</td>
<td>Shows an integer that means: &quot;1&quot; : Logix controller is on-line and contains a program; &quot;0&quot; : Logix controller is off-line or there is no program inside.</td>
</tr>
<tr>
<td>@IsPresent_Path1</td>
<td>Shows the present status of redundant path1.</td>
</tr>
<tr>
<td>@IsPresent_Path2</td>
<td>Shows the present status of redundant path2.</td>
</tr>
<tr>
<td>@LastConnectionDropTime</td>
<td>Shows a timestamp for the last dropped connection.</td>
</tr>
<tr>
<td>@Mode</td>
<td>Shows a string describing the mode of the Logix controller: • Program • Run • Remote Program • Remote Run</td>
</tr>
<tr>
<td>@NumberOfCLXOptimizedPackets</td>
<td>Shows the number of optimized packets created to a Logix controller.</td>
</tr>
</tbody>
</table>
### Chapter 5  Create a configuration

<table>
<thead>
<tr>
<th>Name</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>@NumberOfDataItems</td>
<td>Shows the number of data items added to FactoryTalk Linx.</td>
</tr>
<tr>
<td>@NumberOfItems</td>
<td>Shows the total number of items added to FactoryTalk Linx. This value is the sum of @NumberOfDataItems and @NumberOfPredefinedItems.</td>
</tr>
<tr>
<td>@NumberOfOptimizedPackets</td>
<td>Shows the number of optimized items stored in ControlLogix Optimized packets.</td>
</tr>
<tr>
<td>@NumberOfPredefinedItems</td>
<td>Shows the number of predefined items added to FactoryTalk Linx.</td>
</tr>
<tr>
<td>@PacketsCancelled</td>
<td>Shows the total number of packets cancelled to the Logix controller.</td>
</tr>
<tr>
<td>@PacketsPerSecond</td>
<td>Shows average number of packets received from the Logix controller per second.</td>
</tr>
<tr>
<td>@PacketsReceived</td>
<td>Shows the number of packets received from the Logix controller.</td>
</tr>
<tr>
<td>@PacketsSent</td>
<td>Shows the number of packets sent to the Logix controller.</td>
</tr>
<tr>
<td>@PollBlocks</td>
<td>Shows the number of poll requests received from the RNA Toolkit.</td>
</tr>
<tr>
<td>@PollBlocksFailure</td>
<td>Shows the number of poll requests failure received from the RNA Toolkit.</td>
</tr>
<tr>
<td>@PollBlocksIgnored</td>
<td>Shows the number of poll requests received from the RNA Toolkit that are pending.</td>
</tr>
<tr>
<td>@PollBlocksSuccess</td>
<td>Shows the number of poll requests received from the RNA Toolkit.</td>
</tr>
<tr>
<td>@PollComplete</td>
<td>Shows the number of poll requests completed.</td>
</tr>
<tr>
<td>@PollCompleteFailure</td>
<td>Shows the number of completed poll requests failures.</td>
</tr>
<tr>
<td>@PollCompleteSuccess</td>
<td>Shows the number of completed poll requests success.</td>
</tr>
<tr>
<td>@ProcessorName</td>
<td>Shows a string containing the Logix controller program name. The program name can be a maximum of 40 characters in length.</td>
</tr>
<tr>
<td>@Redundancy Mode</td>
<td>Shows the redundancy state of a Logix controller. The primary controller in a redundant pair returns value &quot;1&quot;. The secondary controller in a redundant pair or a non-redundant controller returns value &quot;0&quot;.</td>
</tr>
<tr>
<td>@RemoveItemCalls</td>
<td>Shows the number of calls a client made to remove item.</td>
</tr>
<tr>
<td>@RemoveItem</td>
<td>Shows the number of items being removed.</td>
</tr>
<tr>
<td>@RemoveItemsWithDuplicate</td>
<td>same item being on-scan.</td>
</tr>
<tr>
<td>@Revision</td>
<td>Shows the firmware revision of the Logix controller.</td>
</tr>
<tr>
<td>@SetPropertyCalls</td>
<td>Shows the number of calls a client made to set property.</td>
</tr>
<tr>
<td>@ShortcutsAdded</td>
<td>Shows the number of shortcuts being added in FactoryTalk Linx.</td>
</tr>
<tr>
<td>@Status</td>
<td>Shows the status of the Logix controller. The status can be OK or Faulted.</td>
</tr>
<tr>
<td>@TimeToUploadGlobalTags</td>
<td>Shows the time in milliseconds to upload the global tags from the Logix controller.</td>
</tr>
<tr>
<td>@TotalMem</td>
<td>Shows the total memory in the Logix controller.</td>
</tr>
<tr>
<td></td>
<td><strong>Note:</strong> The ControlLogix 5580, CompactLogix 5480, and CompactLogix 5380 controllers do not provide this information because of architectural changes within the controller firmware.</td>
</tr>
<tr>
<td>@TotalMemDT</td>
<td>Shows the total Data Table memory in the Logix controller.</td>
</tr>
<tr>
<td></td>
<td><strong>Note:</strong> The ControlLogix 5580, CompactLogix 5480, and CompactLogix 5380 controllers do not provide this information because of architectural changes within the controller firmware.</td>
</tr>
<tr>
<td>@TotalMemGM</td>
<td>Shows the total General memory in the Logix controller.</td>
</tr>
<tr>
<td></td>
<td><strong>Note:</strong> The ControlLogix 5580, CompactLogix 5480, and CompactLogix 5380 controllers do not provide this information because of architectural changes within the controller firmware.</td>
</tr>
<tr>
<td>@TotalMemIO</td>
<td>Shows the total I/O memory in the Logix controller.</td>
</tr>
<tr>
<td></td>
<td><strong>Note:</strong> The ControlLogix 5580, CompactLogix 5480, and CompactLogix 5380 controllers do not provide this information because of architectural changes within the controller firmware.</td>
</tr>
<tr>
<td>@TotalMemSC</td>
<td>Shows the total security memory in the Logix controller.</td>
</tr>
<tr>
<td></td>
<td><strong>Note:</strong> The ControlLogix 5580, CompactLogix 5480, and CompactLogix 5380 controllers do not provide this information because of architectural changes within the controller firmware.</td>
</tr>
<tr>
<td>Name</td>
<td>Description</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------------------------------------------------</td>
</tr>
<tr>
<td>@WriteCompletes</td>
<td>Shows the number of write requests completed.</td>
</tr>
<tr>
<td>@WriteCompleteSuccess</td>
<td>Shows the number of write packets that successfully completed.</td>
</tr>
<tr>
<td>@WriteItemCalls</td>
<td>Shows the number of calls a client made to write item.</td>
</tr>
<tr>
<td>@WriteItem</td>
<td>Shows the number of items written.</td>
</tr>
<tr>
<td>@WriteItemFailures</td>
<td>Shows the number of requests written that are failed.</td>
</tr>
<tr>
<td>@WriteItemsSuccess</td>
<td>Shows the number of requests written that are succeeded.</td>
</tr>
</tbody>
</table>

For more information about pre-define items, see *FactoryTalk Services Platform Online Help.*

**Inhibit Data Communication**

FactoryTalk Linx enables you to control which shortcuts are active through both the FactoryTalk Admin Console or from an HMI screen. It provides appropriate system diagnostic indications that reflect that communications to the targeted device is intentionally inhibited. By doing this, the system loading time and network bandwidth needs could be reduced. The system usability could be improved as well by inhibiting and enabling data communication flexibly.

Starting from RSLinx Enterprise v5.90.00 (CPR 9 SR 9) (renamed FactoryTalk Linx with version 6.00.00), you can inhibit or enable data communication with a device in FactoryTalk Administration Console or FactoryTalk View Studio.

You can inhibit data communication of a device using the:

- Device Properties dialog box
- Predefined items

Tip: For RSLinx Enterprise v5.90.00 and later (renamed FactoryTalk Linx with version 6.00.00), data communication inhibit and enable support Logix 5000 controllers only.

**To inhibit data communication using the Device Properties dialog box**

1. From the Communication Setup editor, or from the Communication tab of the Explorer window, right click a device in the communication tree and select Properties.
2. In the Device Properties dialog box, select the Inhibit Data Communications check box.
3. Click OK.

After the device is inhibit, the icon shows on this device icon. If one or more shortcut is linked to the inhibit device, the icon also shows on the shortcut icon.
To inhibit data communication using predefined item:

1. Start FactoryTalk Live Data Test Client.
2. From the Data menu, select Add Item.
3. Select the predefined item @DataCommunicationsinhibit and click OK. The item will added to Live Data Test Client dialog box.
4. Right-click the predefined item @DataCommunicationsinhibit and select Write Item(s) > Async Write.
5. Set the Value to True click OK.

After the device is inhibit, the icon ![warning] shows on this device icon. If one or more shortcut is linked to the inhibit device, the icon also shows on the shortcut icon.

Tip:
- If you have set up primary and secondary servers, you need to inhibit data communication with the device on the Primary and the Secondary tabs respectively.
- If you inhibit a device and delete it from the communication tree, the inhibit data communication status will be removed from the topology. Even if the device can be re-browsed and added, it will be taken as a new one.

Create Syslog for select events

Syslog stands for System Logging Protocol and is a standard protocol used to send system log or event messages to a specific server, called a syslog server. It is primarily used to collect various device logs from several different machines in a central location for monitoring and review. It allows separation of the software that generates messages, the system that stores them, and the software that reports and analyzes them. Each message is labeled with a facility code, indicating the software type generating the message, and assigned a severity level.

Starting from version 6.21, FactoryTalk Linx could generate SysLog for select events include CIP Security configuration changes, network configuration changes, and system powerup. Then the Syslog messages can be displayed in the Syslog server.

Prerequisite

- Ensure the devices that apply syslog are added in the same zone in FactoryTalk Policy Manager.

To enable and configure the Syslog server

1. In the Start menu, select Rockwell Software > FactoryTalk Policy Manager.
2. In Global Settings, select Enable security eventing using Syslog server.
3. In Sever Settings,
• Select IP Address or Hostname.
• Enter the Port number and Protocol.

4. In **Filter Settings**, specify the **Event types that will generate messages** and **Lowest level of severity to log**.

5. In **Message Settings**, specify the **Sequence ID, Time quality**, and **Time resolutions**.

6. Click **Deploy**.

FactoryTalk Linx could generate SysLog for CIP Security configuration changes, network configuration changes, and system powerup. The table below lists the detailed events that FactoryTalk Linx supported.

<table>
<thead>
<tr>
<th>Category</th>
<th>Events</th>
</tr>
</thead>
</table>
| CIP Security configuration changes | • A new CRL for CIP Security was received.  
|                                  | • A new CIP Security identity was received.  
|                                  | • A new CIP Security identity failed to be accepted.  
|                                  | • A new policy was configured.  
|                                  | • Failed to start CIP Security messaging session.  
|                                  | • Started CIP Security messaging session.  
|                                  | • CIP Security trust was modified.  |
| Network configuration changes    | • Failed to modify network configuration.  
|                                  | • Network configuration was modified.  |
| System powerup                  | Restart the FactoryTalk Linx service.  |
Chapter 6

Backup and restore FactoryTalk Linx configuration

Starting with v6.21, the FactoryTalk Linx shortcut and driver configurations can be backed up and restored in FactoryTalk Administration Console. It is important to create a backup of the system configuration after any significant changes are made, to aid in recovering system operation should a computer hardware or operating system failure occur.

The FactoryTalk Linx configurations can be backed up and restored from the FactoryTalk Administration Console. The FactoryTalk Linx configuration is contained in four areas that must all be retained if you plan to restore the system later. The application contains the server and shortcut configuration, FactoryTalk Linx stores driver information needed by the shortcuts separately, FactoryTalk System folder contains the security policy settings utilized by FactoryTalk Linx and FactoryTalk Policy Manager maintains the CIP Security configuration used by FactoryTalk Linx when CIP Security is enabled.

- [Backup FactoryTalk Linx configuration on page 53](#)
- [Restore FactoryTalk Linx configuration on page 54](#)

Tip: FactoryTalk Linx Gateway’s configuration is managed separately. Review its documentation for information on managing its configuration.

Backup FactoryTalk Linx configuration

FactoryTalk Services Platform provides an option to back up the FactoryTalk Linx drivers and shortcuts configured on the same computer where the backup operation is initiated. If the application utilizes distributed FactoryTalk Linx data servers, you must perform a backup on each computer to ensure all of the configurations settings are retained. Refer to [Restore FactoryTalk Linx configuration on page 54](#) to find steps to restore FactoryTalk Linx configuration on the local workstation and distributed data servers.

Prerequisites

- Identify the FactoryTalk Linx data servers used by the application.
- Identify the host machines of the distributed FactoryTalk Linx servers.
- Identify if FactoryTalk Linx is configured to utilize CIP Security.

Tip: To check the CIP security information, from the Communications tab of FactoryTalk Administration Console, right click the top element in the communication tree and select Properties. In the Device Properties dialog box, select the CIP Security tab.
To back up FactoryTalk Linx configuration

1. In FactoryTalk Administration Console Explorer, right-click the Network or Local Directory icon, then select Backup.
2. In Specify archive name, use the default name or type another name for the backup file.
   
   Tip: It is recommended to not change the default archive name. The default name contains the leading digits of the security authority identifier which allows you to easily identify the archive file associated with a specific directory.

3. In Specify archive location use the default archive location or use Browse to open the Browse for Folder window and specify another location.

4. In Backup Contents:
   • Select FactoryTalk Linx configuration to save the FactoryTalk Linx drivers and shortcuts configured on this computer.
     
     Note: This option is grayed out if the FactoryTalk Linx is not installed or the installed FactoryTalk Linx version is earlier than 6.21.00.

   • (optional) Select FactoryTalk Directory configuration to back up the entire FactoryTalk Directory.

5. To encrypt your archive file, select the Encrypt file contents check box, and then enter the same passphrase in the Passphrase and Confirm passphrase fields. If you clear this check box, your backup archive file will not be encrypted or protected.

   Encrypt file contents is not available if your operating system does not support the proper level of encryption.

6. Select OK.

7. For distributed system, go to the host workstation of the distributed FactoryTalk Linx data server and perform the backup process above again.

   IMPORTANT To ensure all the configurations settings are retained, user performing the backup of a distributed system must go to each FactoryTalk Linx Data server and back up the configurations.

See also

Backup

Restore a FactoryTalk Directory

Restore FactoryTalk Linx configuration

The FactoryTalk Linx configuration saved with a FactoryTalk backup can be restored to return a computer to the configuration when the backup was created. This is helpful when a computer needs to be replaced or refreshed resulting from a significant hardware or operating system failure. The FactoryTalk Linx configuration saved from the local workstation or distributed data servers can be restored to a individual computers.
Prerequisites

1. Obtain the security permissions needed to perform backup and restore operations. Open System > Policies > System Policies, and then double-click User Rights Assignment.
2. Shut down all FactoryTalk software products, components, and services, except FactoryTalk Administration Console and FactoryTalk Help.
3. Log on to the directory to restore into, and create a backup archive of the existing directory.

To restore FactoryTalk Linx configuration

1. In FactoryTalk Administration Console Explorer, right-click Network or Local, and select Restore.
2. In Restore, select Browse, select the backup file (*.bak) to restore, and select Open.
3. Select Next.
4. If the backup file is encrypted, Restore Backup File opens. Type the passphrase used during the backup operation.

   An error message opens if the passphrase entered is not correct. Enter the passphrase again. If the wrong passphrase is entered three times, Restore Backup File closes. Select the archive file and try again.
5. In Restore Contents:
   - Select FactoryTalk Linx configuration to restore shortcut and driver configurations.
     
     Note:
     - Restoring the FactoryTalk Link configuration will impact the running system because existing drivers and shortcuts will be replaced with drivers and shortcuts from the backup file. Reconfigure the shortcuts after restore completed.
     - This option is grayed out if the FactoryTalk Linx is not installed or the installed FactoryTalk Linx version is earlier than 6.21.00.

   - Select FactoryTalk Directory configuration to restore the entire FactoryTalk Directory.

   The entire FactoryTalk Directory will be restored, including all applications, accounts, passwords, policies, security settings, and FactoryTalk Linx OPC UA Connector configuration for computers configured in the directory.

   Note: A warning dialog box appears after user select Finish, read the warning messages and click OK if you decide to continue.
7. If hosting servers on different computers than those configured in the restored directory, the following additional steps are required:
   - Add the new computers into the FactoryTalk Directory.
• Change the server host computer names on the server property pages.
• Restart the computers hosting FactoryTalk Linx and Tag Alarm and Event Servers. This is necessary to ensure the alarm servers start up.
Chapter 7

FactoryTalk Linx Configuration Import Export Tool

How do I open the FactoryTalk Linx Configuration Import Export Tool?

In the Start menu, select Rockwell Software > FactoryTalk Linx Configuration Import Export tool.

Use the FactoryTalk Linx Configuration Import Export Tool to import or export the FactoryTalk Linx driver and shortcut configuration, modify the contents with desktop software, replace the configuration or move the configuration to a different computer. This is an alternative to manually creating or editing the driver and shortcut configuration from the FactoryTalk Administration Console user interface.

Note: Only one instance of FTLinxCfgIETool.exe is allowed to run. Multiple windows are not supported. If you start the tool again when it is already running, no new window would be opened.

Note: The FactoryTalk Linx Configuration Import Export Tool limitations:
- Does not support importing and exporting configuration for devices added to the topology view using the "Add Device" option from the topology views in the FactoryTalk Administration Console.
- FactoryTalk Linx Instance02 server only supports Ethernet Driver.
- FactoryTalk Linx Instance02 server does not support Unsolicited Message shortcut.

Before using the FactoryTalk Linx Configuration Import Export Tool, a user should be granted the user permissions to export or import FactoryTalk Linx configurations.

To set user permissions

1. In the Start menu, select Rockwell Software > FactoryTalk Administration Console.
   - Set user permission for exporting FactoryTalk Linx configuration in Export Configuration > Configure Security.
• Set user permission for importing FactoryTalk Linx configuration in **Import Configuration > Configure Security**.

![Image of Configure Security](image)

• Set user permission for exporting FactoryTalk Linx drivers in **View Driver Configuration > Configure Security**.
• Set user permission for importing FactoryTalk Linx drivers in **Add / Modify Driver Properties > Configure Security** and **Delete Driver > Configure Security**.

![Image of Configure Security](image)

3. Set the permission for importing and exporting shortcut configurations.
• In FactoryTalk Administration Console, select an application, right click the application and select Security, expand the Common section, ensure the Read and Write actions are allowed.

• (optional) For applications under Network directory, user can specify the Read and Write permission for certain Area by right clicking the Area and selecting Security. Then expand the Common section, ensure the Read and Write actions are allowed.

Here is the settings of FactoryTalk Linx Configuration Import Export Tool.

<table>
<thead>
<tr>
<th>Option</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Operation</td>
<td>Choose to Import or Export shortcuts and drivers.</td>
</tr>
<tr>
<td>Target Server</td>
<td>Select the FactoryTalk Linx server that contains the shortcuts and drivers you need to export, or select the FactoryTalk Linx server that you need to add shortcuts and drivers in. Note: The servers are limited to the two FactoryTalk Linx instance running on the same workstation as the Configuration import/export tool.</td>
</tr>
<tr>
<td>Import File</td>
<td>Select the CSV file that contains the FactoryTalk Linx configuration.</td>
</tr>
<tr>
<td>Export File</td>
<td>Specify a folder location and filename to save the exported CSV file.</td>
</tr>
<tr>
<td>Both Shortcut &amp; Driver</td>
<td>Select to import or export both shortcut and driver configurations.</td>
</tr>
<tr>
<td>Shortcut Only</td>
<td>Select to only import or export shortcuts.</td>
</tr>
<tr>
<td>Driver Only</td>
<td>Select to only import or export drivers.</td>
</tr>
</tbody>
</table>
### Option | Description
--- | ---
Import List | List all the shortcuts or drivers that are available for import. Select the checkbox next to each item to choose the set to be imported or select the checkbox at the top of the list to select all items.

Export List | List all the shortcuts or drivers that are available for export. Select the checkbox next to each item to choose the set to be exported or select the checkbox at the top of the list to select all items.

Reset | Click to set all the options to their initial values.

Start Import | Click to start the Import process.

Start Export | Click to start the export process.

Create new items and skip existing | After selecting this option, all the existing items will be retained but new items will be added. This option is only available for import.

Create new items and update existing | After selecting this option, all the existing items with the same name will be replaced and new items will be created during importing shortcuts or drivers. This option is only available for import.

Delete all existing shortcuts & drivers and then create new | After selecting this option, all existing shortcuts and drivers will be deleted when the import starts, new shortcuts and drivers will be created during importing. This option is only available in the import.

View Log | To open and view the log file.

Status | Shows the progress of the import and export process.

---

**Export shortcuts or drivers**

Use the **FactoryTalk Linx Configuration Import Export Tool** to export one or multiple shortcuts or drivers to a CSV file.

**To export shortcuts or drivers to a CSV file**

1. In the **FactoryTalk Linx Configuration Import Export Tool**, select Export in the **Operation** box.
2. In the **Target Server** box, click the (...) button to select a **FactoryTalk Directory**, and then select the FactoryTalk Linx Server that contains the shortcuts and drivers you want to export.
   
   **Note:** The FactoryTalk Linx Configuration Import Export Tool can only import or export the contents for FactoryTalk Linx on the same workstation.

3. In the **Export File** box, click the (...) button to select the path to save the CSV file and give the file a name.
4. Select to export **Both Shortcuts & Driver**, **Shortcut Only**, or **Driver Only**.
5. In the **Export List** box, select the shortcuts or drivers you want to export by checking the boxes before them.
6. Click **Start Export**.
7. (optional) Click **View Log** to display the log file.
Import shortcuts or drivers

Use the **FactoryTalk Linx Configuration Import Export Tool** to import one or multiple shortcuts or drivers.

**Note:** After importing shortcuts, the FactoryTalk Linx Configuration Import Export Tool will automatically browse the devices that the shortcuts pointed to.

To import shortcuts or drivers from a CSV file

1. In the **FactoryTalk Linx Configuration Import Export Tool**, select **Import** in the **Operation** box.
2. In the **Target Server** box, click the (...) button to select a FactoryTalk Directory, and then select the FactoryTalk Linx server that need to add shortcuts or drivers in.
3. In the **Import File** box, click the (...) button to select the path where the .CSV file is located.
4. Select to import **Both Shortcuts & Driver**, **Shortcut Only**, or **Driver Only**.
5. In the **Import List** box, select the shortcuts or drivers you want to import by checking the boxes before them.
6. Select one of the three options: **Create new items and skip existing**, **Create new items and update existing**, or **Delete all existing shortcuts & drivers and then create new** to determine how you want the import to execute.
7. Click **Start Import**.

**Note:**
- If the workstation name in the import file references a different workstation, the FactoryTalk Linx configuration cannot be imported.
- If there are two shortcuts with the same name in the CSV file, the second shortcut will be ignored during import.
- The import operation merges the drivers and/or shortcut from the import file into the configuration for a FactoryTalk Linx server. If you want to replace the FactoryTalk Linx configuration you must manually delete the drivers and/or shortcuts that are not referenced in the import file.

8. (optional) Click **View Log** to display the log file.

Prepare a CSV file for importing

There are two methods to prepare a CSV file for importing:

- Edit the exported CSV file
- Create a CSV file contains the required elements

While creating or editing the CSV file, there are some properties need to be included.

For **shortcuts**:

<table>
<thead>
<tr>
<th>Parameters</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Shortcut Name</td>
<td>The name of the shortcut. The name should be unique and cannot leave empty.</td>
</tr>
<tr>
<td>Parameters</td>
<td>Description</td>
</tr>
<tr>
<td>----------------------------------</td>
<td>---------------------------------------------------------------------------------------------------------------------------------------------</td>
</tr>
<tr>
<td>Tag File</td>
<td>The path of the ACD file that is associated with a Logix 5000 controller. It associates the selected shortcut with this tag file for offline tag browsing. This column can be empty.</td>
</tr>
<tr>
<td>Shortcut Type</td>
<td>The types of shortcut include • Processor • EDS Parameter • Symbolic • Unsolicited Message • CIP Object • Redundant Controller Path • Redundant ControlLogix Controller If this parameter is empty, the default shortcut is Processor.</td>
</tr>
<tr>
<td>Fail UnsolMsg If Data Will Be Overwritten</td>
<td>Parameter for Unsolicited Message shortcut type. When FactoryTalk Linx receives an unsolicited message it will forward the data to the FactoryTalk client software that requested the data from the shortcut. If a new message is received before FactoryTalk Linx can deliver the data, the initial data will be overwritten. Enabling this option will cause FactoryTalk Linx to reject any new messages till the previous data is delivered. The controller sending the message will then receive a “?” error and must resend the rejected data. Value 1 means to enable this option, 0 means to disable this option. This column can be empty.</td>
</tr>
<tr>
<td>Cache Unsolicited Data</td>
<td>Parameter for Unsolicited Message shortcut type. This option indicates that FactoryTalk Linx will temporarily store all unsolicited messages that it receives from a PLC in its memory and then process each of them sequentially. By default, the check box of this option is selected and cannot be cleared. Value 1 means to enable this option, 0 means to disable this option. This column can be empty.</td>
</tr>
<tr>
<td>Send All Unsolicited Updates</td>
<td>Parameter for Unsolicited Message shortcut type. When FactoryTalk Linx receives an unsolicited message, it checks the data against the last set of data it received. If this option is enabled, the repeated / same data will be sent to the FactoryTalk client software with the update rate configured in Studio 5000 Logix Designer. With this option disabled, the repeated data will be discarded. Value 1 means to enable this option, 0 means to disable this option. This column can be empty.</td>
</tr>
<tr>
<td>Set Item Quality Bad Until First Write</td>
<td>Parameter for Unsolicited Message shortcut type. Specifies how FactoryTalk Linx sets the initial quality for FactoryTalk Live Data items. With this option checked, the initialized quality is “Bad” until an unsolicited message is received to update this item. Value 1 means to enable this option, 0 means to disable this option. This column can be empty.</td>
</tr>
<tr>
<td>Parameters</td>
<td>Description</td>
</tr>
<tr>
<td>-----------------------------------------------</td>
<td>---------------------------------------------------------------------------------------------------------------------------------------------</td>
</tr>
</tbody>
</table>
| CIP Object                                    | Parameter for CIP Object shortcut. Supports accessing devices' CIP Object instance attributes as tags. You must select a sub-option of the CIP Object. Currently FactoryTalk Linx supports these options:  
  • Energy  
  • CIA Message  
  This column can be empty. |
| Shortcut Path Timeout                         | Parameter for Redundant Controller Path and Redundant ControlLogix Controller shortcuts. Specify the timeout time in seconds when sending a request to read the controller status but no response is received.  
  This column can be empty, and the default value is 2. |
| Shortcut Path Interval                        | Parameter for Redundant Controller Path and Redundant ControlLogix Controller shortcuts. Specify the interval in seconds between each request to read the controller status.  
  This column can be empty, and the default value is 1. |
| Destination Element Upper limit (octal)       | Parameter for Unsolicited Message shortcut. The Controller's Destination Element for the message is compared with FactoryTalk Linx shortcut element lower/upper limits to determine which shortcut will receive the message. The upper limit is 017777 (default). |
| Destination Element Lower limit (octal)       | Parameter for Unsolicited Message shortcut. The Controller's Destination Element for the message is compared with FactoryTalk Linx shortcut element lower/upper limits to determine which shortcut will receive the message. The lower limit is 010 (default). |
| Disable write service                         | Parameter for CIP Object CIA Message shortcut type. Select this option to disable the operation of writing tags, while the reading operation is still allowed.  
  Value 1 means to enable this option, 0 means to disable this option. This column can be empty. |
| Alarm Event Enabled                           | Enable FactoryTalk Alarms and Events support for the selected shortcut. The values include  
  0: None  
  1: Only Alarms Notification Messages  
  2: All Alarms & Events Notification Messages (Default) |
| Alarm Event Buffer Timeout                    | The length of time you want FactoryTalk Linx to buffer alarms in the event it becomes disconnected from the selected Logix 5000 controller.  
  Only UNIT type value is supported. The 0 (zero) means to disable the buffer. The default value is 20. |
| Primary Machine                               | Shows the local machine name as the computer hosting the FactoryTalk Linx server.  
  This column can be empty under the Local directory. |
<table>
<thead>
<tr>
<th>Parameters</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Primary Device</td>
<td>Refers to the primary controller when two ControlLogix controllers are in a single ControlLogix redundancy configuration connected to redundancy modules with different communication paths. The default path names are <strong>Primary Controller</strong> and <strong>Secondary Controller</strong>. This column can be empty.</td>
</tr>
<tr>
<td>Primary Redundant Device</td>
<td>Refers to the secondary controller when two ControlLogix controllers are in a single ControlLogix redundancy configuration connected to redundancy modules with different communication paths. The default path names are <strong>Primary Controller</strong> and <strong>Secondary Controller</strong>. This column can be empty.</td>
</tr>
<tr>
<td>Primary Metadata In Name Service Parameters</td>
<td>Parameters for redundant and processor shortcut. Refers to the <strong>Upload all extended tag properties</strong> option for the primary controller. It means enabling all the extended properties information uploaded from the controller. As a result, the individual item read performance is improved. 0: The option is not selected (Default). 1: The option is selected.</td>
</tr>
<tr>
<td>Primary Redundant Metadata In Name Service Parameters</td>
<td>Parameters for redundant and processor shortcut. Refers to the <strong>Upload all extended tag properties</strong> option for the secondary controller. It means enabling all the extended properties information uploaded from the controller. As a result, the individual item read performance is improved. 0: The option is not selected (Default). 1: The option is selected.</td>
</tr>
<tr>
<td>Primary Metadata Pass Through</td>
<td>Parameters for redundant and processor shortcut. Refers to the <strong>Provide pass-through descriptions for tags</strong> option for the primary controller. It means enabling the description pass-through function. As a result, FactoryTalk Linx provides description pass-through from some areas in Studio 5000 Logix Designer to FactoryTalk View SE applications. To select this option, you must first select <strong>Upload all extended tag properties</strong>. 0: The option is not selected (Default). 1: The option is selected.</td>
</tr>
<tr>
<td>Primary Network Path</td>
<td>The <strong>Network Path</strong> of the primary controller. A relative path used to route through the network originating from the workstation driver and ending with the desired device's network address or chassis slot number. For example, EtherNet\10.224.107.97\Backplane\16.</td>
</tr>
<tr>
<td>Primary Redundant Network Path</td>
<td>The <strong>Network Path</strong> of Redundant controller.</td>
</tr>
<tr>
<td>Primary Connection Inactivity Timeout (sec.)</td>
<td>Parameter for Processor shortcut. The amount of time to wait when no data requests are made to the device before closing some (but not all) connections for a shortcut. This is only applicable for Processor shortcut type. This is available for ControlLogix and CompactLogix controllers. The default value is 0 which means <strong>Keep connections open</strong>. Other options include 32, 64, 128, 256, 512, and 1024.</td>
</tr>
</tbody>
</table>
### Parameters

<table>
<thead>
<tr>
<th>Parameters</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Primary Max CIP Connection</td>
<td>Parameter for Processor shortcut. Specifies the max number of connections for a shortcut. This option is only available for a Processor shortcut connecting to PLC/SLC controllers using the DHRIO module. The range is 0-4.</td>
</tr>
<tr>
<td>Secondary Machine</td>
<td>Shows the local machine name of the computer hosting the FactoryTalk Linx secondary server.</td>
</tr>
<tr>
<td>Secondary Device</td>
<td>Refers to the redundant server or secondary server. To minimize disruptions to clients if the primary data server fails, set up a redundant data server. The secondary server is configured using the Secondary tab on the Communication Setup editor.</td>
</tr>
<tr>
<td>Secondary Redundant Network Path</td>
<td>The network path of the secondary server.</td>
</tr>
</tbody>
</table>

Drivers include these parameters:

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Driver Name</td>
<td>The name of the driver. The name cannot be more than 15 characters. Wide characters are not supported.</td>
</tr>
<tr>
<td>Driver ID</td>
<td>The Driver IDs correspond with Driver types, including:</td>
</tr>
<tr>
<td>Param Port</td>
<td>Refers to the <strong>Listen on EtherNet/IP encapsulated ports</strong> option of Ethernet drivers. Enable this option if the network includes devices that transmit data using unsolicited messages. When this setting is enabled, the UDP port will not be available for use by other applications. The value 44818 means that this setting is enabled, and the column will be empty if this setting is not enabled.</td>
</tr>
<tr>
<td>Param Address</td>
<td>The IP address of the Ethernet driver that will listen to data.</td>
</tr>
<tr>
<td>Param Adapter</td>
<td>The MAC address of the Ethernet driver that will listen to data. Tip: The MAC address can be automatically configured according to the IP address provided.</td>
</tr>
<tr>
<td>Param Type</td>
<td>Refers to the type of the Ethernet driver, which include:</td>
</tr>
<tr>
<td>Param CardID</td>
<td>Parameter for DH+ and DH485 driver. Refers to the <strong>Jumper ID</strong> option. It displays the 1784-PKTX card number, which is set using the jumpers on the card. This ID must match the value set with the jumpers on the 1784-PKTX card. Available jumper IDs are 0, 1, 2, and 3. This column can be empty, and the default value is 0.</td>
</tr>
<tr>
<td>Parameter</td>
<td>Description</td>
</tr>
<tr>
<td>-------------------------</td>
<td>-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------</td>
</tr>
<tr>
<td>Param StationNumber</td>
<td>Parameter for DH+ and DH485 driver. Refer to the <strong>Station Number</strong> option. Used to enter the Station Number for the driver. The Station Number must be unique to this network. No other devices on the network can be assigned this address. All packets sent to this station address are forwarded to FactoryTalk Linx. Available station numbers are 0 to 77 decimal. This column can be empty, and the default value is 0.</td>
</tr>
<tr>
<td>Param BaudRate</td>
<td>Parameter for DFI, DH+, and DH485 driver. Refers to the option <strong>Baud</strong>. Used to configure the baud rate for the driver that transmits data to your device. This column can be empty and the default value for DFI driver is 19200, for DH+ is 57600, for DH485 is 19200.</td>
</tr>
<tr>
<td>Param UseAutoConfig</td>
<td>Parameter for DFI driver. Refers to the option <strong>Use Auto-configuration</strong>. Used to enable or disable the command that automatically detects the settings of the device connected to the specified COM port. Before you enable this command, make sure the COM port, Device, and Station Number settings are correct. This column can be empty, and the default value is 0, which means the option is not enabled.</td>
</tr>
<tr>
<td>Param comPort</td>
<td>Parameter for DFI driver. Refers to the option <strong>COM Port</strong>. Used to select a COM port. The driver transmits data to a device connected to the serial (com) port of a computer. Select a port from the list of all Comm Ports available on your computer. Available port numbers are 0 to 31. This column can be empty, and the default value is <strong>COM1</strong>.</td>
</tr>
</tbody>
</table>
| Param connect_type      | Parameter for DFI driver. Refers to the option **Device**. Used to select the DFI device that is connected to your computer. The values include  
  - PLC.CH0 (default value) means PLC-5  
  - SLC.CH0 means SLC or MicroLogix  
  - AC.CH) means Logix Platform |
<p>| Param station           | Parameter for DFI driver. Refers to the option <strong>Station Number</strong>. Used to enter the Station Number for the driver. All packets sent to this station address will be forwarded to FactoryTalk Linx. Available station numbers are 0 to 254 decimal. This column can be empty, and the default value is 0. |
| Param ack_timeout       | Parameter for DFI driver. Refers to the option <strong>Ack/Poll Timeout (mSec)</strong>. Used to enter an ACK value. This column can be empty, and the default value is 3000. |
| Param error_check       | Parameter for DFI driver. Refers to the option <strong>Error Check</strong>. Used to match the setting of the device you are connected to (BCC or CRC). All devices on the network must be configured the same. This column can be empty, and the default value is BCC. |</p>
<table>
<thead>
<tr>
<th>Parameter</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Param parity</td>
<td>Parameter for DFI driver. Refers to the option Parity. Used to match the error checking method for the connected driver (None, Even, or Odd). The values include:</td>
</tr>
<tr>
<td></td>
<td>• NOPARITY (Default) means None,</td>
</tr>
<tr>
<td></td>
<td>• ODDPARITY means Odd,</td>
</tr>
<tr>
<td></td>
<td>• EVENPARITY means Even.</td>
</tr>
<tr>
<td>Param stop_bits</td>
<td>Parameter for DFI driver. Refers to the option Stop Bits. Used to select the amount of time between data transmissions. Basic DFI protocol generally uses 1. The values include:</td>
</tr>
<tr>
<td></td>
<td>• ONESTOPBIT (Default) means 1</td>
</tr>
<tr>
<td></td>
<td>• TWOSTOPBITS means 2</td>
</tr>
<tr>
<td>Param MaxStationNumber</td>
<td>Parameter for DH485 driver. Refers to the option Max. Station Number. Used to enter the maximum station number that this device should poll for on the network. Must be equal to or greater than the value of Station Number. Available station numbers are 0 to 31.</td>
</tr>
<tr>
<td></td>
<td>This column can be empty and the default value is 31.</td>
</tr>
<tr>
<td>Remote address</td>
<td>The IP Address of the Remote Broadcast Ethernet driver.</td>
</tr>
<tr>
<td>Remote Subnet Mask</td>
<td>The Subnet Mask address of the Remote Broadcast Ethernet driver.</td>
</tr>
<tr>
<td>Tuning Poll Rate</td>
<td>Refers to the Device discovery poll rate (msec) option of Ethernet drivers. It defines how often (in milliseconds) the FactoryTalk Linx Network Browser requests data from a device. For example, a poll rate of 1000 ms results in data being requested every second.</td>
</tr>
<tr>
<td></td>
<td>Its default value (msec) is 10, the minimum value is 1, and the maximum value is 10000.</td>
</tr>
<tr>
<td>Tuning Offline Interval</td>
<td>Refers to the Offline device discovery poll rate (msec) option of Ethernet drivers. It defines how often (in milliseconds) the FactoryTalk Linx Network Browser requests data from a device. For example, a poll rate of 1000 ms results in data being requested every second. It is inactive when the Ethernet driver uses the broadcast discovery.</td>
</tr>
<tr>
<td></td>
<td>Its default value (msec) is 1000, the minimum value is 1, and the maximum value is 10000.</td>
</tr>
<tr>
<td>Tuning Poll Timeout</td>
<td>Refers to the Poll Timeout (msec) option of Ethernet drivers. It specifies the amount of time (in milliseconds) to wait for a device to respond to a request. Its default value (msec) is 3000, the minimum value is 1, and the maximum value is 10000.</td>
</tr>
<tr>
<td>Tuning Browse Cycle Interval</td>
<td>Refers to the Poll interval between browse cycle (msec) option of Ethernet drivers. It specifies the number of milliseconds that occur between each time the FactoryTalk Linx Network Browser queries the network. Its default value (msec) is 1000, the minimum value is 1, and the maximum value is 10000.</td>
</tr>
</tbody>
</table>
### Parameter | Description
--- | ---
Tuning Max Packets | Refers to the Maximum concurrent packets to this network option of Ethernet drivers. It configures the maximum number of requests that wait for a response on this network at any given time as part of the browsing process. Its default value is 32, the minimum value is 1, and the maximum value is 128.

### Devices

This parameter is only for Point to Point Ethernet drivers. Refers to the Device List / Range. A discovery message is sent to each specified individual IP address. The list identifies target devices using the device name or IP address.

The following forms are supported:
- DHCP Name, such as “PackLine1PLC”
- Single IP address, such as 10.88.20.33
- Single IP address and description, such as 10.88.20.33 “LineController”
- Range of IP Addresses
  - Enter all four octets for both IP addresses, such as 10.88.20.3-10.88.20.54 or
  - Enter the four octets for the first part of the range and enter the last octet for the second part of the range, such as 10.88.20.3-54

### Startup Mode

The supported startup modes include
- Automatic (Default)
- Manual
- Demand
- Disabled

---

**Use FactoryTalk Linx Configuration Import Export Tool with command line operation**

FactoryTalk Linx Configuration Import Export Tool supports import and export via the user interface, it also provides an option to use command line operation to:

- Import, export, or delete shortcuts and drivers.
- Add, update, and delete drivers.
- Browse devices to ensure communications to a device will function when requested.

The final operation results can be checked in the Log file stored in Windows Temp folder.

Before using the commands to do the operations mentioned above, a user should be granted the user permissions to export or import FactoryTalk Linx configurations.

**To set user permissions**

1. In the Start menu, select Rockwell Software > FactoryTalk Administration Console.
   - Set user permission for exporting FactoryTalk Linx configuration in Export Configuration > Configure Security.
   - Set user permission for importing FactoryTalk Linx configuration in Import Configuration > Configure Security.

   ![Feature Security Properties](image)

   - Set user permission for exporting FactoryTalk Linx drivers in View Driver Configuration > Configure Security.
   - Set user permission for importing FactoryTalk Linx drivers in Add / Modify Driver Properties > Configure Security and Delete Driver > Configure Security.

   ![Feature Security Properties](image)

3. Set the permission for importing and exporting shortcut configurations.
In FactoryTalk Administration Console, select an application, right-click the application and select Security, expand the Common section, ensure the Read and Write actions are allowed.

For applications under Network directory, user can specify the Read and Write permission for certain Area by right-clicking the Area and selecting Security. Then expand the Common section, ensure the Read and Write actions are allowed.

Use commands to import, export, or delete drivers and shortcuts. These commands are supported with shortcut and drivers under FactoryTalk Linx Instance01 Server and FactoryTalk Linx Instance02 Server. The final operation results can be checked in the Log file stored in Windows Temp folder.

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>/Export</td>
<td>Required</td>
</tr>
<tr>
<td>/Import</td>
<td>Required</td>
</tr>
<tr>
<td>/DeleteShortcuts</td>
<td>Required</td>
</tr>
<tr>
<td>/DeleteDrivers</td>
<td>Required</td>
</tr>
<tr>
<td>/Scope</td>
<td>Optional for importing, exporting deleting driver. The format should be like /Scope Global or /Scope Local. The default scope is Global if the scope is not specified.</td>
</tr>
<tr>
<td>/Shortcut</td>
<td>Required</td>
</tr>
</tbody>
</table>

Add this parameter to include shortcuts in the import or export range.
<table>
<thead>
<tr>
<th>Parameter</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>/Driver</td>
<td>Required Add this parameter to include drivers in the import or export range.</td>
</tr>
<tr>
<td>/TargetServerPath</td>
<td>Required Specify the server that contains the shortcuts and drivers you need to export, or to select the server you need to import shortcuts and drivers to.</td>
</tr>
<tr>
<td>/FilePath</td>
<td>Required Specify the exported directory to save the exported CSV file. Specify the CSV file that contains the FactoryTalk Linx configuration.</td>
</tr>
<tr>
<td>/ReplaceExistItems</td>
<td>Required for importing shortcuts or drivers. Add this parameter to replace existing shortcuts and drivers with the same name during importing.</td>
</tr>
<tr>
<td>/RehostMachineName</td>
<td>Required for importing shortcuts or drivers. Add this parameter to allow import configuration when the workstation name in the import file references a different workstation rather than the local machine.</td>
</tr>
</tbody>
</table>

The following are examples of importing and exporting operations:

**To export shortcuts and drivers to a specified CSV file**

```
"C:\Program Files (x86)\Rockwell Software\RSLinx Enterprise\FTLinxCfgIETool.exe" /EXPORT /Scope Global /Shortcut /Driver /TargetServerPath "RNA://$Global/test/test/FactoryTalk Linx" /FilePath "C:\Shortcuts.csv"
```

**To import shortcuts and drivers contains in a specified CSV file**

```
"C:\Program Files (x86)\Rockwell Software\RSLinx Enterprise\FTLinxCfgIETool.exe" /IMPORT /Scope Global /Shortcut /Driver /TargetServerPath "RNA://$Global/test2/test/FactoryTalk Linx Instance 02" /FilePath "C:\Shortcuts.csv" /ReplaceExistItems /RehostMachineName
```

**To delete shortcuts and drivers**

```
"C:\Program Files (x86)\Rockwell Software\RSLinx Enterprise\FTLinxCfgIETool.exe" /DeleteShortcuts /Scope Global /TargetServerPath "RNA://$Global/test/test/FactoryTalk Linx Instance 01"
"C:\Program Files (x86)\Rockwell Software\RSLinx Enterprise\FTLinxCfgIETool.exe" /DeleteDrivers /Scope Global /TargetServerPath "RNA://$Global/test/test/FactoryTalk Linx Instance 02"
```
Use commands to add, update, or delete drivers

Used commands to add, update, or delete drivers. The commands for drivers are only supported with FactoryTalk Linx Instance01 Server. The final operation results can be checked in the Log file stored in Windows Temp folder.

<table>
<thead>
<tr>
<th>Command</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>/AddDriver</td>
<td>Required for adding drivers.</td>
</tr>
<tr>
<td>/UpdateDriver</td>
<td>Required for updating drivers.</td>
</tr>
<tr>
<td>/DeleteDriver</td>
<td>Required for deleting drivers.</td>
</tr>
<tr>
<td>/Scope</td>
<td>Optional for adding, updating, deleting driver. The format should be like /Scope Global or /Scope Local. The default scope is Global if the scope is not specified.</td>
</tr>
<tr>
<td>/driverName</td>
<td>Required for adding, updating, or deleting drivers. It specifies the name of the drivers that you want to add, update, or delete.</td>
</tr>
<tr>
<td>/driverType</td>
<td>Required for adding or updating drivers. It specifies the type of drivers, including: • LocalBroadcast • RemoteBroadcast • PointToPoint</td>
</tr>
<tr>
<td>/browseInterval</td>
<td>Optional for adding or updating drivers. It refers to the Poll interval between browse cycle (msec) option. The number of milliseconds that occur between each time the FactoryTalk Linx Network Browser queries the network. Its default value (msec) is 1000, the minimum value is 1, and the maximum value is 10000.</td>
</tr>
<tr>
<td>/pollRate</td>
<td>Optional for adding or updating drivers. It refers to the Device discovery poll rate (msec) option. It defines how often (in milliseconds) the FactoryTalk Linx Network Browser requests data from a device. For example, a poll rate of 1000 ms results in data being requested every second. Its default value (msec) is 10, the minimum value is 1, and the maximum value is 10000.</td>
</tr>
<tr>
<td>/pollTimeout</td>
<td>Optional for adding or updating drivers. It refers to the Poll Timeout (msec) option. It specifies the amount of time (in milliseconds) to wait for a device to respond to a request. Its default value (msec) is 3000, the minimum value is 1, and the maximum value is 10000.</td>
</tr>
<tr>
<td>/maxPackets</td>
<td>Optional for adding or updating drivers. It refers to the Maximum concurrent packets to this network option. It configures the maximum number of requests that wait for a response on this network at any given time as part of the browsing process. Its default value is 32, the minimum value is 1, and the maximum value is 128.</td>
</tr>
</tbody>
</table>
### Command Description

<table>
<thead>
<tr>
<th>Command</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>/offlinInterval</td>
<td>Optional for adding or updating drivers. It refers to the <strong>Offline device discovery poll rate (msec)</strong> option. It defines how often (in milliseconds) the FactoryTalk Linx Network Browser requests data from a device. For example, a poll rate of 1000 ms results in data being requested every second. It is inactive when the Ethernet driver uses the broadcast discovery. Its default value (msec) is 1000, the minimum value is 1, and the maximum value is 10000.</td>
</tr>
<tr>
<td>/proxyEnabled</td>
<td>Optional for adding or updating drivers.</td>
</tr>
<tr>
<td>/proxyAddress</td>
<td>Optional for adding or updating drivers.</td>
</tr>
<tr>
<td>/proxyPort</td>
<td>Optional for adding or updating drivers.</td>
</tr>
<tr>
<td>/paramPort</td>
<td>Optional for adding or updating drivers. It refers to the <strong>Listen on EtherNet/IP encapsulated ports</strong> option. Enable this option if the network includes devices that transmit data using unsolicited messages. When this setting is enabled, the UDP port will not be available for use by other applications. /paramPort 1 means to enable the setting, while any other numbers except 1 will disable the setting. <strong>Note</strong>: /paramPort 44818 also means that the setting is disabled.</td>
</tr>
<tr>
<td>/paramAddress</td>
<td>Optional for adding or updating drivers. It specifies the IP address of the Ethernet driver that will listen to data.</td>
</tr>
<tr>
<td>/paramAdapter</td>
<td>Optional for adding or updating drivers. It specifies the MAC address of the Ethernet driver that will listen to data.</td>
</tr>
<tr>
<td>/remoteAddress</td>
<td>Required for adding or updating Remote Broadcast drivers. It refers to the IP address of the Remote Broadcast driver.</td>
</tr>
<tr>
<td>/remoteSubnetMask</td>
<td>Required for adding or updating Remote Broadcast drivers. It refers to the Subnet Mask address of the Remote Broadcast driver.</td>
</tr>
<tr>
<td>/deviceAddress</td>
<td>Required for adding or updating Point to Point drivers. The format should be like: deviceAddresses 10.224.107.100</td>
</tr>
</tbody>
</table>

The following are the examples of different operations:

**To add a driver**

```
"C:\Program Files (x86)\Rockwell Software\RSLinx Enterprise\FTLinxCfgIETool.exe" /adddriver /Scope Global /driverName AB_ETH-13 /driverType PointToPoint /browseInterval /DEVICEADDRESSES "10.224.107.100||10.224.107.11||10.224.107.21||10.224.107.81"
```

```
"C:\Program Files (x86)\Rockwell Software\RSLinx Enterprise\FTLinxCfgIETool.exe" /adddriver /driverName AB_ETH-79 /driverType LocalBroadcast /DEVICEADDRESSES "10.224.107.49" /pollRate 11 /browseInterval 1230
```
Chapter 7  FactoryTalk Linx Configuration Import Export Tool

/pollTimeOut 236 /maxPackets 31 /offlineInterval 999 /paramPort 1

“C:\Program Files (x86)\Rockwell Software\RSLinx Enterprise\FTLinxCfgIETool.exe” /addDriver /Scope Global /driverName AB_ETH-78 /driverType LocalBroadcast

Tip: Follow such commands to update drivers.

To delete a driver

“C:\Program Files (x86)\Rockwell Software\RSLinx Enterprise\FTLinxCfgIETool.exe” /deletedriver /Scope Global /driverName AB_ETH-13

Browse devices with commands

FactoryTalk Linx browse cycle scans addresses and determines the present devices. During each browse cycle, FactoryTalk Linx compares the list of devices present in its configuration for that network (discovered during a previous browse cycle or manually added to the network) against what was just discovered. If a device is present in the configuration but not found during the browse cycle, it is removed from the display. Thus, when browsing a network, the display shows the set of devices discovered during the most recent browse cycle. The final operation results can be checked in the Log file stored in Windows Temp folder.

Browse devices with these commands. The commands are only supported with FactoryTalk Linx Instance01 Server.

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>/Browse</td>
<td>Required</td>
</tr>
<tr>
<td>/NetworkPath &lt;path&gt;</td>
<td>Required&lt;br&gt;Specifications the path of the device.</td>
</tr>
<tr>
<td>/Timeout</td>
<td>Optional&lt;br&gt;Specifies the timeout value of the browsing operation. The default value is 5000ms.</td>
</tr>
</tbody>
</table>

The following is an example of deleting a device.

“C:\Program Files (x86)\Rockwell Software\RSLinx Enterprise\FTLinxCfgIETool.exe” /Browse /NetworkPath "AB_ETH-13\10.224.107.100" /Timeout 6000
Troubleshooting

This chapter includes the following information:

- What to check first if you are having problems
- Troubleshooting tools for FactoryTalk Linx
- Answers to common questions

What to check first when you have problems

Does your computer meet the minimum hardware and software requirements? Refer to System requirements for these requirements.

Is the FactoryTalk Administration Console installed on your computer? If you are running on a Windows platform, verify that FactoryTalk Administration Console is installed using the following procedure:

1. Select Start > Control Panel > Programs and Features (view by small icons).
2. Right click FactoryTalk Automation Platform from the program list.
3. Select Change to start the installation wizard.
4. Select Modify from the Program Maintenance screen.
5. Verify the installation status of FactoryTalk Administration Console.

Troubleshooting tools for FactoryTalk Linx

FactoryTalk Linx provides diagnostic tools, with which you can troubleshoot problems when they occur:

- FactoryTalk Diagnostics event log
- Predefined items

FactoryTalk Diagnostics event log

In a FactoryTalk-enabled automation system, Rockwell Software products monitor system activity and generates detailed diagnostic messages. Meanwhile, FactoryTalk Diagnostics collects this activity, warning, error, and audit messages from all participating products throughout a distributed system and routes them to Local Logs (also called event logs) on each computer.

If you encounter a problem, you can review the events in the log that led up to the problem to assist in determining the cause. Or you can monitor the log to identify potential problems and take corrective action before a problem occurs.

Refer to the FactoryTalk Help for more information about FactoryTalk Diagnostics and the event log.

Predefined items

Predefined items are counters or strings that are made available by FactoryTalk Linx as data items for diagnostic purposes. These predefined
items access information contained in FactoryTalk Linx. Refer to the FactoryTalk Linx Help for more information about predefined items.

The following are some frequently asked questions about FactoryTalk Linx.

**Answers to common questions**

**Where is the help for FactoryTalk Linx?**

From the FactoryTalk Linx, select Help > Contents > FactoryTalk Help > FactoryTalk Linx Help.

**Why don’t I see FactoryTalk Linx on my Start menu?**

FactoryTalk Linx uses the FactoryTalk Administration Console to edit all of the configuration data and does not require a standalone interface. FactoryTalk View Studio can also make changes to FactoryTalk Linx configurations. Therefore, if you are using FactoryTalk View SE or FactoryTalk View ME, you do not have to leave the main user interface.

**Why can’t I browse for tags?**

Tag browsing (that is, browsing online for data items) is not supported in the FactoryTalk Administration Console. To browse for tags and connect them to components in your system, you must use the FactoryTalk View Studio, the FactoryTalk Transaction Manager or the FactoryTalk Live Data Test Client tag browsers.

**Why can’t I edit my ME configuration?**

Editing HMI servers within applications, namely FactoryTalk View SE Distributed, SE Local, and ME, is not supported in the FactoryTalk Administration Console. The FactoryTalk Administration Console is intended to configure and manage your application. To edit SE or ME configurations, you must use FactoryTalk View Studio.

**Can I run FactoryTalk Linx and RSLinx Classic on the same computer?**

FactoryTalk Linx and RSLinx Classic can run simultaneously on the same computer, although there are some considerations that you must be aware of to avoid resource conflicts between these two applications. Refer to Use FactoryTalk Linx with RSLinx Classic on page 85 for more information.
### Advanced topics

The following topics are presented in this section:

- About the virtual backplane
- Supported network routes
- System sizing recommendations
- Move FactoryTalk Linx configurations
- Manage CIP connections

#### About the virtual backplane

The virtual backplane is a driver service that provides connectivity between FactoryTalk Linx and various device drivers and other applications within the FactoryTalk Linx server. It allows the software modules and communications resources contained in the server to be configured and visualized in a manner similar to the devices in a ControlLogix system.

For example, both the PCICS and PKTCS device drivers plug into the virtual backplane. Packets received by one of these communications interface cards can be routed across the virtual backplane to (or through) any other interface card whose driver plugs into the virtual backplane, or to any application that plugs into the virtual backplane, such as the SoftLogix5xxx controller.

This is very similar to having a 1756-CNB and a 1756-ENBT module plugged into a ControlLogix chassis: packets received across the ENBT can be routed across the backplane and out the CNB module, or to a controller sitting in the backplane.

It is important to remember that FactoryTalk Linx occupies a slot in the virtual backplane (as can RSLinx Classic), which means that it is able to be both a source and a destination for packets sent over the backplane.

This chassis-like model is carried over to the PanelView Plus platforms in a minimalistic fashion. For ControlNet support, those platforms implement two-slot virtual backplanes, where FactoryTalk Linx sits in one slot (slot #0) and the 2711P-RN15S ControlNet Scanner card sits in the other (slot #1).

The preferred route for PCGC networks is for the FactoryTalk Linx engine to be connected to the end device. For example, a PanelView Plus device connected directly to a PLC-5, or a FactoryTalk Linx data server on a Windows computer connected directly to a DH+/RIO module in a ControlLogix rack.

FactoryTalk Linx allows you to change the network type used when going across a route that includes multiple CIP (Control and Information Protocol; for example, Ethernet or ControlNet) hops.
FactoryTalk Linx does not support offlink routes. Offlink routes are network paths, in which the underlying network protocol changes. This mean if you originally start on a PCCC route (for example, DH+/DH485, DH-RIO), you cannot switch to a CIP route such as ControlNet or Ethernet. The reverse is also true: you cannot start on a CIP route (for example, Ethernet to ControlLogix to DH+ to PLC-5), and then switch to a PCCC route.

The following sections provide guidelines for moving your shortcuts from application to application and for moving your list of selected hardware from computer to computer. Before moving your files, stop the FactoryTalk Linx service using the Windows Service Control Panel.

You can reuse shortcuts developed in one application for FactoryTalk Linx for another FactoryTalk Linx application without having to re-enter the shortcuts using the following procedures. These procedures move only the shortcuts and not the drivers themselves.

**Move FactoryTalk Linx configurations**

1. Right-click the FactoryTalk Linx server in the application tree and select **Properties**.
2. Change the computer name in the computer hosting the FactoryTalk Linx server box to the new location of the FactoryTalk Linx server.
3. A warning message opens to alert you that this procedure changes the FactoryTalk Linx server reference. You must reapply your shortcuts because the paths may not be set correctly; only the shortcut name is preserved. Follow the instructions provided on the dialog box.

**Move shortcuts from one computer to another: same application**

1. Identify the computer, on which your FactoryTalk Directory Server is located.
2. On that FactoryTalk Directory Server computer, locate the shortcuts.xml file in:

   `C:\Documents and Settings\All Users\Application Data\Rockwell\RNAServer\Global\RnaStore\your_application_name\any_area_or_sub_areas_you_have\your_FactoryTalk_Linx_server_name`

   This assumes that you have not changed your documents and settings location, and that you installed Windows to the `C:\` drive

   *Your_application_name* is the name of your application, and within the application are folders and sub folders for areas and sub areas, if used. *Any_area_or_sub_areas_you_have* will match a file directory of the same name.

   *Your_FactoryTalk_Linx_server_name* will match the name of your FactoryTalk Linx data server in the application (the default is FactoryTalk Linx).

3. Move the shortcuts.xml file to the path where your new application is; all your shortcuts names will be moved there.

**Move shortcuts on the same computer: different application**
For example:
C:\Documents and Settings\All Users\Application
Data\Rockwell\RNAServer\Global\RnaStore\your_NEW_application
_name\any_area_or_sub_areas_you_have\your_FactoryTalk_Linx_ser
ver_name

4. For each shortcut, you must reapply the path to the end device.

This method works for moving shortcuts between Local applications
(remembering that Local applications always use the computer, on which it
runs as the Local FactoryTalk Directory server), and for moving shortcuts
between Local and Networked applications.

The path for local shortcuts is:
C:\Documents and Settings\All Users\Application
Data\Rockwell\RNAServer\Local\
RnaStore\your_application_name_here\your_FactoryTalk_Linx_server_na
me.

To move shortcuts between computers and between applications, follow the
same path on the FactoryTalk Directory server as described in the previous
section. Keep in mind that the FactoryTalk Directory server will have a
directory for each application and for each FactoryTalk Linx server.

To move shortcuts between computers, even with different FactoryTalk
Directories, follow the same path on the FactoryTalk Directory server as
described in the previous section. Keep in mind that the FactoryTalk
Directory server will have a directory for each application and for each
FactoryTalk Linx server, and you can move from application to application.

It is important to remember that your shortcut names are copied, but not the
associated paths; so you must reapply each shortcut.

Applications using FactoryTalk Linx data services from the same FactoryTalk
Linx host computer always share the same physical hardware configuration
(for example, drivers and devices). In this case, there is no need to move
hardware configurations from one application to another.

**IMPORTANT** Only qualified personnel familiar with FactoryTalk Linx and the consequences
associated with moving the RSLinxNg.xml file should perform the procedure
described in this section. These consequences include:
- Driver mismatch (different driver configurations, including addresses)
- Communications interfaces mismatch (some cards may get inappropriately
  reconfigured)
- Topology mismatch (including subnets)
Contact Rockwell Automation Technical Support for assistance.

This procedure is typically used for the following reasons:
• You have nearly identical control systems on similar process lines, and you want to copy the same hardware configurations to duplicate FactoryTalk Linx host computers on each line.

or

• You have nearly identical workstations (FactoryTalk Linx hosts) in the same control system, each having the same perspective of the network, and the same hardware configuration is needed in each workstation.

You can:

• Copy I/O configurations
• Avoid losing user-assigned device names
• Avoid having to reapply shortcuts for applications copied from the source computer

By using the following procedure:

1. Stop the FactoryTalk Linx service, using the Windows Service Control Panel on both the source and the target computers.

   **IMPORTANT** If a Rockwell Automation application attempts to use FactoryTalk Linx service, FactoryTalk Linx will restart. Rockwell Automation applications that use FactoryTalk Linx must be stopped or shut down before you proceed. This will prevent the service from automatically starting, while you are moving the configuration file.

2. Use Windows Explorer to locate the file an RSLinxNG.xml file in the directory `C:\Documents and Settings\All Users\Application Data\Rockwell\FactoryTalk Linx`. This assumes you have not changed your documents and settings location and that you installed Windows to the `C:\` drive.

3. Copy `RSLinxNG.xml` from the source computer to the target computer, and restart the computer hosting FactoryTalk Linx. This results in an exact copy of the source computer’s hardware configuration.

   **IMPORTANT** Any time you change the FactoryTalk Linx physical configuration (`RSLinxNG.xml`), you may break existing application shortcut assignments. Check all shortcut assignments in all applications that use the FactoryTalk Linx service on the same host workstation to ensure that the correct devices are assigned.

**Manage CIP connections**

By default, RSLinx Enterprise CPR 9 SR 1 and earlier would open up to five CIP connections to a Logix controller: Four for read operations and one for write operations. In some system configurations, the maximum connection resources in a controller or bridge module could be reached fairly quickly. In this situation, if the client load changed, problems could result. For example, if an HMI terminal was introduced into the system, it could cause performance variation among all terminals in the system, or you might not be able to go online with programming software.
Starting from RSLinx Enterprise CPR 9 SR 2 (renamed FactoryTalk Linx version 6.00.00), checks for devices that support a relatively small number of CIP connections and limits the number of read connections. The number of write connections remains fixed at 1. These devices are described in the following sections. By default, all other devices and bridge modules still open as many as four read connections and one write connection.

The following Logix controllers are assigned from 1 to 4 read connections, as configured, with the default being 1 read connection and 1 write connection. This is determined at runtime and is based on the actual controller, not the type specified in the FactoryTalk Linx topology, if it is different.

- 1769-L23E-QB1
- 1769-L23-QBFC1
- 17-69-L23E-QBFC1

The following communication bridge modules are assigned from 1 to 4 read connections, as configured, with the default being 1 read connection and 1 write connection. This determination is based on the FactoryTalk Linx topology; only the bridge module closest to the target controller is checked.

- 1756-DHRIO
- 1756-DHRIO
- 1761-NET-ENI

To determine how many CIP connections FactoryTalk Linx is using for a particular path, create a shortcut using that path and then check the value in the @ConnectionsActive predefined item. Refer to the FactoryTalk Linx Help for more information on predefined items.

The following FactoryTalk Diagnostics messages are used to support this feature:

- I_CLXDP_STARTED_ON_ROUTE is logged when a CLX data provider is started.
- I_CLXDP_MAX_READ_CONNECTIONS is logged to indicate the maximum number of read connections that the data provider will attempt to open.

Refer to the FactoryTalk Services Platform Help for more information about FactoryTalk Diagnostics.

Configuration parameters in the registry file or the RSLinxNG.xml file can be used to override the default values. Refer to Rockwell Automation Knowledgebase Document ID: QA4294: CIP connections with RSLinx Enterprise (Reducing PanelView Plus connections) for information on manually changing the connection allocation.

The Common Industrial Protocol, known as CIP, encompasses a comprehensive suite of messages and services for the collection of industrial automation applications — control, safety, energy, synchronization & motion,
information and network management. CIP allows users to integrate these applications with enterprise-level Ethernet networks and the Internet.

CIP provides a unified communication architecture throughout the industrial enterprise. CIP allows users to benefit today from the many advantages of open networks and protects their existing automation investments, while providing an extensible and upgradeable communication architecture.

CIP security has multiple layers of security that enables a CIP-connected device to protect itself from malicious CIP communications. Then the device can reject data that has been altered, reject messages send by untrusted people or untrusted devices, and reject messages that request actions that are not allowed. CIP security defines the notion of a security profile, which is a set of well-defined capabilities to facilitate device interoperability and end-user selection of devices with the appropriate security capability.

With CIP Security transportation, you can have:

- **Authentication of the endpoints**. Ensuring that the target and originate devices are both trusted entities.
- **Message integrity and authentication**. Ensuring that the message was sent by the trusted endpoint and was not modified in transit.
- **Message encryption**. Optional capability to encrypt the communications.

To support CIP Security configurations, there are two useful functions in Network Browser that you can utilize:

- Device multi-selection
- CIP Security indicator

### CIP Security Indicator

CIP Security indicator is a function that can show the CIP Security configuration status in front of devices in topology tree. To turn on this function, click the icon 🗳️ in the toolbar.

The icons have different meanings:

- 🗳️ means the device supports CIP security and no configuration action has been taken yet.
- 🟢 means the device is in the CIP security configuration process.
- ⚫ means the device is successfully configured with CIP security.

**Note:** If a device doesn't support CIP security, there is no icon in front of it.

### Device Multi-Selection

Device multi-selection is a function that you can use when adding multiple devices for CIP Security configuration.

**To utilize multi-selection with FactoryTalk Policy Manager:**

1. In the **Zones** or **Devices** tab, click **Discover Devices**.
2. After the Network Browser dialog box is popped out, select the devices for CIP security configuration.

For more information about how to configure CIP Security, see FactoryTalk Policy Manager Online Help.

The following table shows the shortcut key combinations when selecting multiple devices:

<table>
<thead>
<tr>
<th>To select</th>
<th>Do this</th>
</tr>
</thead>
<tbody>
<tr>
<td>A single device</td>
<td>Click the device</td>
</tr>
<tr>
<td>A range of devices</td>
<td>Click the first device in the range, and then hold down Shift while clicking the last device in the range. To expand the range from above, click the devices above while holding down Shift+Ctrl.</td>
</tr>
<tr>
<td>Nonadjacent devices</td>
<td>Click the first device, and then hold down Ctrl while clicking the other device or devices. Note that if you wrongly select a device, click that device again with Ctrl holding down to unselect that device.</td>
</tr>
</tbody>
</table>
Chapter 10

Use FactoryTalk Linx with RSLinx Classic

FactoryTalk Linx and RSLinx Classic can run simultaneously on the same computer. This is a common setup if you need to create or edit a program using RSLogix 5, RSLogix 500, and RSLogix 5000 software or Logix Designer application, which require RSLinx Classic, for use in an application, and you must accomplish this using only one computer.

IMPORTANT FactoryTalk Linx and RSLinx Classic cannot support unsolicited messages on the same computer. To support unsolicited message, FactoryTalk Linx needs to bind the TCP/IP port 44818 to receive CIP messages. This port is reserved by CIP standard, which means that other CIP products from third parties (for example, RSLinx Classic and KepServerEx) may also bind this port. To avoid the port binding conflict issue, do NOT enable the unsolicited message function of FactoryTalk Linx on the same machine where other CIP products (such as RSLinx Classic and KepServerEx) need to bind the TCP/IP port 44818.

For Windows Server 2008 and Windows 7 operating systems

Dual-channel 1784-PKTX(D) driver

When running FactoryTalk Linx and RSLinx Classic on a Windows Server 2008 R2 or Windows 7 operating system, if your FactoryTalk Linx configuration consists of a:

FactoryTalk Linx and RSLinx Classic both install and use the same 1784-PKTX(D) driver. FactoryTalk Linx uses the first channel (assigned by default and cannot be changed). RSLinx Classic uses the second channel.

If you are running on Windows Server 2008 R2 or Windows 7 operating system, and your FactoryTalk Linx or RSLinx Classic configuration consists of a dual-channel 1784-PKTX(D) driver, you configure the driver for both FactoryTalk Linx and RSLinx Classic.

See “Configure the 1784-PKTX(D) driver for FactoryTalk Linx and RSLinx Classic” in the FactoryTalk Linx Help for this procedure.

IMPORTANT This applies only to the dual-channel 1784-PKTX(D) driver; the single-channel 1784-PKTX driver can be configured in only one product (either FactoryTalk Linx or RSLinx Classic) at a time.

For all the supported operating systems

When running FactoryTalk Linx and RSLinx Classic on any of the supported operating systems (see software requirements for the full list), if your FactoryTalk Linx configuration consists of a:
1784-PKTX driver

If your FactoryTalk Linx configuration consists of a 1784-PKTX driver, and you need RSLinx Classic to communicate using that same driver, then you must share the driver within FactoryTalk Linx with RSLinx Classic.

**IMPORTANT** You can use this procedure for Windows 7 operating systems; however, the previous procedure is the preferred method.

Serial-DF1 driver (RS232 DF1 devices)

If your FactoryTalk Linx configuration consists of a Serial-DF1 driver (RS232 DF1 devices), and you need RSLinx Classic to communicate using that same driver, you must share the driver within FactoryTalk Linx with RSLinx Classic.

1784-PCIC(S) driver

If your FactoryTalk Linx configuration consists of a 1784-PCIC(S) driver, you configure the driver in FactoryTalk Linx, and then add a virtual backplane to RSLinx Classic. The virtual backplane is a sharable component between RSLinx Classic and FactoryTalk Linx. Because the 1784-PCIC(S) plugs into the virtual backplane, it is sharable as well.

See "Sharing the FactoryTalk Linx virtual backplane with RSLinx Classic" in the FactoryTalk Linx Help for this procedure.
Chapter 11

Use FactoryTalk Linx with Studio 5000 Logix Designer and ControlFLASH

Select an RSLinx edition in ControlFLASH

When working with ControlFLASH, you can use either RSLinx Classic or FactoryTalk Linx (or RSLinx Enterprise v5.90.00) as your communications software. FactoryTalk Linx (or RSLinx Enterprise v5.90.00) can be used with devices supporting USB and EtherNet/IP communications only.

To select or change an RSLinx edition in ControlFLASH:

1. Launch ControlFLASH.
2. On the Welcome page, click Change RSLinx Edition. The button is enabled only if RSLinx Classic and FactoryTalk Linx (or RSLinx Enterprise v5.90.00) are installed.
   - The default choice is RSLinx Classic to communicate over Data Highway Plus, DF1, DH485, ControlNet, DeviceNet, Ethernet, and USB networks.
   - The other choice is FactoryTalk Linx (or RSLinx Enterprise v5.90.00), to communicate over USB and Ethernet networks.

The following table shows the RSLinx edition that ControlFlash uses.

<table>
<thead>
<tr>
<th>ControlFLASH uses...</th>
<th>If...</th>
</tr>
</thead>
<tbody>
<tr>
<td>RSLinx Classic</td>
<td>RSLinx Classic is installed, and RSLinx Enterprise (v5.90.00 or later) is not installed.</td>
</tr>
</tbody>
</table>

Select RSLinx Edition in Studio 5000 Logix Designer

Studio 5000 V31 or later supports communication software switch between RSLinx Classic and FactoryTalk Linx. This allows you to select which communication software is used for network topology browsing and online communications services. Launch the Who Active dialog box and display the network topology. Studio 5000 Logix Designer defaults to RSLinx Classic.

Tip: Close open projects and multiple sessions of Studio 5000 Logix Designer before selecting Communication Software.

To select Communication Software in Studio 5000 Logix Designer

1. Launch Studio 5000 Logix Designer.
2. Click Communications > Select Communication Software.
3. In the Select Communication Software dialog box, click either RSLinx Classic or FactoryTalk Linx, and click OK.
4. (Optional) If switching to FactoryTalk Linx, read the warning message, and then click OK.
A driver is the software interface to the computer or workstation hardware that allows the computer to communicate with a network to detect and communicate with a control system device. If a device is not detected by the Network Browser, use the browser to add or modify a driver configuration. For more information about the Network Browser, see topic FactoryTalk Network Browser.

Besides, utilize the following functions with the Network Browser:

- Search
- Upload and register an EDS file
- Bridge configuration

The Ethernet driver is available with FactoryTalk Linx. The Ethernet driver provides multiple ways for the computer or workstation to discover or detect devices on EtherNet/IP:

- **Local Broadcast** - Broadcast message to the full subnet that the computer is connected to (local)
- **Remote Broadcast** - Broadcast message to a full subnet that is different from the one the computer is connected (remote)
- **Device List/Range** - Directly communicate with a device that you specify in a list or range

Note: Ethernet List and Bridge configured is visible in FactoryTalk Administration Console. But you need to return to the Network Browser to modify the configurations.

You can add a driver for local or remote broadcast, or create a list or range of IP addresses. Perform the applicable task to add a driver.

**Filter criteria for a device**

Use Filter to locate a device in the previously viewed or discovered network topology.

Functional details about Filter:

- **Filter** only examines devices detected or viewed by the browser. Initiating a filter will not cause the browser to discover a new device.
- Attribute text can contain alphanumeric characters and can be full words, compound expressions, fragments of a word, or a single letter or number.
- Click X in the Filter bar to cancel the search and return to the normal view.
- Click the down arrow on the right side of the Filter bar to select a previously searched string from the drop-down list box. This list contains up to 10 previously searched items.
Clear the filter text in the **Filter** bar to return to the network topology tree view.

Attributes include predefined criteria to filter the results by:
- Device
- OnlineName
- Path
- Address

**Perform a filter**

Use the **FactoryTalk Linx Network Browser** to locate devices matching text you provide. After the initial discovery of the network topology, you can use attributes to limit the scope of the search.

**To perform a filter**

1. In the **Filter** box, type a keyword or select a previously searched string from the drop-down list box, and then press **Enter**. Filter text can contain alphanumeric characters and can be full words, compound expressions, fragments of a word, or a single letter or number.

   To require **Filter** to find an exact match to the keyword, enclosing the keyword in quotation marks (For example, "East Section").

   The **FactoryTalk Linx Network Browser** examines the text and presents all known devices in the network topology tree that match the search criteria.

2. (optional) Select an attribute by clicking the drop-down icon to narrow the search results to keywords associated with the selected device parameter:
   - Device
   - OnlineName
   - Path
   - Address

   **Tip:** When entering a search filter, type a keyword followed by a colon. For example, to locate ControlLogix controllers, type Device:

3. (optional) Use operators between keywords to refine the search results using a logical statement:
   - **AND** to search for two or more keywords. For example, alarm **AND** active.
   - **OR** to search for several keywords. For example, error **OR** fault.

   **Tip:** An example of using operators between keywords to refine search results is Device: 1756-L OR Device: 1768-L to locate ControlLogix and CompactLogix controllers.

4. The **FactoryTalk Linx Network Browser** displays results within a few seconds, regardless of pressing **Enter**.

5. To repeat a previous search, click the down arrow on the right side of the **Filter** box and click a previous search.

   **Tip:** Click **X** in the **Filter** bar to cancel the search and return to the normal view.
Filter attributes

The filter attributes for the Filter function make it easy to refine search results.

<table>
<thead>
<tr>
<th>To filter the search by:</th>
<th>Select this filter attribute:</th>
</tr>
</thead>
<tbody>
<tr>
<td>The name of a device</td>
<td>Device</td>
</tr>
<tr>
<td>The online name of a device</td>
<td>OnlineName</td>
</tr>
<tr>
<td>The communications path of a project</td>
<td>Path</td>
</tr>
<tr>
<td>The address of a device</td>
<td>Address</td>
</tr>
</tbody>
</table>

Operators

Use operators with the keyword Filter function to return a more precise set of results.

<table>
<thead>
<tr>
<th>To search for:</th>
<th>Use this operator:</th>
<th>Example:</th>
</tr>
</thead>
<tbody>
<tr>
<td>Two or more keywords</td>
<td>AND (all capital letters)</td>
<td>alarm AND active returns a list of tags that include the string alarm and active.</td>
</tr>
<tr>
<td>One of several keywords</td>
<td>OR (all capital letters)</td>
<td>alarm OR active returns a list of tags that include the string alarm or active.</td>
</tr>
<tr>
<td>Exact keywords</td>
<td>&quot; &quot; (quotation marks)</td>
<td>&quot;M200&quot; returns a list of tags that includes the string M200 in its name or description.</td>
</tr>
</tbody>
</table>

Upload and register an EDS file

Upload and register EDS files from devices to allow device communications in the FactoryTalk Linx Network Browser.

For an online device in the network topology tree, if there is an EDS file within the device’s firmware, you can upload the EDS file and register it to the FactoryTalk Linx data server. Once registered, the device information shows in the FactoryTalk Linx Network Browser, and communications to other information within the device is possible.

Starting from FactoryTalk Linx v6.00.00, you can upload and register EDS files of devices within the FactoryTalk Linx Network Browser.

For an online device in the network topology tree, if there is an EDS file within the device’s firmware, you can upload the EDS file in the FactoryTalk Linx Network Browser and register it to FactoryTalk Linx data server. Once registered, the device information shows in the FactoryTalk Linx Network Browser, and communications to other information within the device is possible.

Use the FactoryTalk Linx Network Browser to:

- Manually upload and register an EDS file
- Automatically upload and register an EDS file

Manually upload and register an EDS file

The manual EDS upload function allows you to upload and register the EDS file of a specific device in the FactoryTalk Linx Network Browser. With the manual EDS upload function, you can register an EDS file at a time.
To manually upload and register an EDS file

1. In the **FactoryTalk Linx Network Browser**, select a device in the network topology tree.

2. Click **More** and select **EDS upload** , or right-click the device and select **EDS upload**.

3. If the target device has registered an EDS file, the following warning message shows:

   "An EDS is already registered for this device. Are you sure you still want to upload and register this EDS file?"

   Click **OK** to continue and replace the existing EDS file, or click **Cancel** to stop the uploading process and retain the existing EDS file on the current computer.

A progress circle shows the registration status. Wait while the system registers the device. If you want to register several EDS files, repeat Step 1 to Step 3.

The automatic EDS upload function enables the **FactoryTalk Linx Network Browser** to automatically upload and register EDS files for a selected node and its child nodes. For an online device whose EDS file is not registered, the system detects whether there is an EDS file within the device’s firmware. If there is an EDS file found, the system automatically uploads it from the device and registers it on the current computer. With the automatic EDS upload function, you can register several EDS files at a time.

Automatically upload and register an EDS file

To automatically upload and register an EDS file

1. Turn on the EDS file auto-upload button in the **FactoryTalk Linx Network Browser**.

   ![EDS file auto-upload button](image)

   **Tip:** This enables the automatic upload and registration function. By default, the function is disabled.

2. In the communication tree of the **FactoryTalk Linx Network Browser**, double-click (or click the ">" sign beside) a node to expand and view its child devices.

The system automatically browses the selected node and its child devices. If an unregistered online device is found, and it has an EDS file within its firmware, the system automatically uploads and registers the EDS file on your computer. A progress circle shows beside the unregistered device indicating the auto EDS upload status.
You can register the EDS files of hardware devices using the EDS Hardware Installation Tool.

Before you begin:

- To register the EDS file of a hardware device, you must have a valid and complete EDS file of the hardware device. To search and download the EDS file of a specific hardware device, visit Rockwell Automation Network Resources.
- If an icon file (*.ico) exists for the hardware device, save it with the same name as the EDS file in the same directory. You can save one or more EDS files (and the related icon files) in one directory.

To register EDS files using the EDS Hardware Installation Tool

1. From Windows Start menu, select All Programs > Rockwell Automation > RSLinx > Tools > EDS Hardware Installation Tool.
2. In the Rockwell Automation - Hardware Installation Tool dialog box, click Add. The Rockwell Automation’s EDS Wizard dialog box opens.
3. In the Registration dialog box:
   - Select Register a single file to register one EDS file at a time, or
   - Select Register a directory of EDS files to register two or more EDS files at a time.
4. In the Registration dialog box, click Browse to select the EDS file (if you are registering a single file), or the directory of the EDS files (if you are registering two or more EDS files), and click Next.
5. In the EDS File Installation Test Results dialog box, review the hardware device list and click Next.
6. In the Change Graphic Image dialog box, review the icon(s) of the hardware device(s) and click Next.
   Tip: Rockwell Automation’s EDS Wizard assigns a default icon to each hardware device. You can specify a different icon for the hardware device(s) by selecting the hardware device and clicking the Change icon button.
7. In the Final Task summary dialog box, review the hardware device list and click Next.
8. When the registration is completed, click Finish to return to the Rockwell Automation - Hardware Installation Tool dialog box.
9. Click Exit.

Considerations when uploading and registering EDS files

To manually or automatically upload and register EDS files in the FactoryTalk Linx Network Browser, consider the following:

- This function updates the EDS files on the computer which hosts the FactoryTalk Linx data server. Once registered, the EDS file is available for use in clients computers which exchanges data with the FactoryTalk Linx data server.
• To support a new device on computers with different FactoryTalk Linx data servers, you must register the hardware device’s EDS file on each target computer respectively.
• Some hardware devices, such as Data Highway Plus (DH+) devices, do not have EDS files and therefore do not support upload and registration.
• Some hardware devices, such as Micro800 series devices and PanelView Plus terminals, require a patch or a new release of FactoryTalk Linx that officially adds support for the new hardware devices. These devices cannot communicate with FactoryTalk Linx merely by EDS file upload and registration.
• If an EDS file is invalid, or an error occurs during the upload and registration, the EDS file cannot be registered, and a diagnostics message is logged into FactoryTalk Diagnostics Viewer. To view the diagnostics messages:
  • From Windows Start menu, select All Programs > Rockwell Software > FactoryTalk Tools > Diagnostics Viewer, or
  • In FactoryTalk Administration Console, from the Tools menu, select FactoryTalk Diagnostics > Viewer.
• If you upgrade or re-install FactoryTalk Linx, the EDS files that are previously registered on your computer are lost. You need to register the EDS files again.

To automatically upload and register EDS files in the FactoryTalk Linx Network Browser, consider the following:

• If automatic EDS upload function is enabled, the system detects and uploads EDS files from the child devices of a selected node. If a selected node contains a grandchild device, the grandchild device’s EDS file is not uploaded automatically. To upload and register an EDS file from a grandchild device, select its upper-level node to ensure the automatic browsing and uploading, or right-click the device in the network topology tree and select EDS upload.
• The auto EDS upload function only uploads and registers EDS files for unknown devices. If an existing device contains a new EDS file, the system does not upload and register it. To update the new EDS file, right-click the existing device in the network topology tree and select EDS upload.
• If there are many EDS files being registered, the FactoryTalk Linx Network Browser may respond slowly.

What is EDS Hardware Installation Tool

How do I access the EDS Hardware Installation Tool?

From Windows Start menu, select All programs > Rockwell Software > EDS Hardware Installation Tool.

The EDS Hardware Installation Tool allows you to change the hardware description information currently installed on your computer.
Use EDS Hardware Installation Tool to register EDS files for unrecognized devices.

**Bridge across networks**

Use a bridge to connect two networks and, if necessary, convert communications from one network protocol to another so that they can communicate. Creating a bridge in the **Network Browser** enables the browser to detect devices on another physical network and enables users to perform diagnostic and configuration functions on those devices. After adding a bridge, the name given to the bridge appears in the **Network Browser** tree topology.

Create a bridge to enable the **FactoryTalk Linx Network Browser** to detect devices on another network and perform diagnostic and configuration functions on those devices.

**To add a bridge**

1. In the **FactoryTalk Linx Network Browser**, below a bridged module, click the Ethernet FactoryTalk Linx Browser and click the **Property** icon.
   - Tip: You can also add a bridge from Advanced tab in the Advanced Settings dialog box.

2. In the **Bridged Configuration** dialog box, click **Add New**.

3. From the **Add New** dialog box, in the **Name** box, enter a name for the bridge.

4. Next to the **Select Target Bridge Network** box, click **Browse (…)**.

5. From the **Bridge Path Selection** dialog box, select a device for the **FactoryTalk Linx Browser** to detect on another network.
   - Tip: To add an existing configuration path from another bridge instead of creating a new target bridge path, click the **Copy Setting From list** and select a configuration. If there are no existing configuration paths to select, **Empty** is displayed in the **Copy Setting From** list.

6. Click the **General** tab and configure the browsing discovery options for the bridge.
   - Enable Automatic Discover
   - Make Discovery Continuous
   - Show unrecognized devices

7. Click **OK** to save.

**Edit a bridge**

Edit a bridge to update settings and make changes to the IP addresses for devices in the bridge configuration.

**To edit a bridge**

1. In the **FactoryTalk Linx Network Browser**, below a bridged module, select the Ethernet network branch and click the **Property** icon.
2. In the **Bridge Configuration** dialog box, click the Advanced tab and configure the tuning settings to change how fast the **FactoryTalk Linx Network Browser** discovers items on the network.

3. Click **Apply**.

4. Click the **General** tab.

5. Click **Add New**.

6. To remove an IP address or range from the list, select the check box next to the address and click **Delete**.

7. To modify the information for an existing IP address or range in the list, select item in the list and then edit the associated properties.

8. Click **OK** to save the changes.

---

### Delete a bridge

Deleting a bridge removes the connection between devices on a bridged network. If devices on a bridged network are no longer valid, delete the bridge in the **Network Browser**.

#### To delete a bridge

1. In the **Network Browser**, below a bridged module, locate the Ethernet branch.

   Tip: You can also delete a bridge from the **Bridged** tab in the **Advanced Settings** dialog box.

   1. Click the **Delete** icon to delete the bridge.

---

### Copy and paste items to a list in a bridge configuration

To have a list of devices stored in a spreadsheet or a database to manage updates and maintenance schedules, copy the list from a **Device List/Range** configuration. Additionally, if updating the included devices, paste additional items into the **Device List/Range** instead of manually entering the device information.

#### To copy and paste list items in a bridge configuration

1. In the **FactoryTalk Linx Network Browser** click **Advanced Settings**.

2. In the **Advanced Settings** dialog box, click **Bridged**.

3. Click a bridge node and click **Edit**.

4. In the **Bridge Configuration** dialog box, in the **Device List/Range** area, select the check boxes next to the list items to copy and click **Copy**.

   Tip: To select all the items, select the check box next to the **No.** list.

   1. Paste the copied items into the desired editing tool and make the desired modifications.

   2. After making the modifications, copy the items.
7. In the **Bridge Configuration** dialog box, select the location in the list to paste the items and click **Paste**.
8. Click **OK** to save changes.

### Delete an item in a list in a bridge configuration

Delete an item to a list or range of IP addresses for a bridge.

**To delete an item to a list in a bridge configuration**

1. In the **FactoryTalk Linx Network Browser** click **Advanced Settings**.
2. In the **Advanced Settings** dialog box, click **Bridged**.
3. Click the bridge node to modify an item and click **Delete**.
   - **Tip**: To delete all the items in the list at once, select the check box next to the **No.** column and then click **Delete**.
4. When a verification message appears, click **OK**.

### About Add New dialog box

Use the **Add New** dialog box to:

- Create a name for a new bridge
- Select a target path for a new bridge
- Copy an existing configuration path into a new bridge

### Add New dialog box settings

When adding a bridge, define the name and target bridge network using the **Add New** dialog box.

<table>
<thead>
<tr>
<th>Setting</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Name</td>
<td>Used to create a name for the bridge. Names can include letters, numbers, spaces, and special characters.</td>
</tr>
<tr>
<td>Select Target Bridge Network</td>
<td>Used to select a device that has two communication ports for two different networks or a separate device in the same chassis to connect with a different network.</td>
</tr>
<tr>
<td>Copy Setting From</td>
<td>Used to copy an existing configuration path into the new bridge. If there is not an existing configuration path, empty will appear in the list.</td>
</tr>
</tbody>
</table>

### Copy a device configuration in a bridge

Copy a configuration for a device that is being deleted or replaced with a new module or moved to a new location. For example, if replacing a module, copy the configuration from the old module and add it to the new module.

**IMPORTANT**

Deleting a module from a bridged network permanently removes the module configuration from the **FactoryTalk Linx Network Browser**. If removing or replacing a module, be sure to copy the module configuration to a different module prior to deletion. Once a module is deleted, the corresponding module configuration is also deleted and cannot be retrieved.

### To copy a device configuration in a bridge

1. In the **FactoryTalk Linx Network Browser** click **Advanced Settings**.
2. In the **Advanced Settings** dialog box, click **Bridged**.
3. Select the device in the applicable bridge configuration and click Add New.
4. In the Add New dialog box, click the Copy setting From list and select the bridge that contains the desired device.
5. Click Browse next to Select Target Bridge Network to open the Bridge Path Selection dialog box.
6. Select the desired device and click OK.

**About Bridge Path Selection dialog box**

The Bridge Path Selection dialog box includes the devices from the network topology tree in the FactoryTalk Linx Browser. In the Bridge Path Selection dialog box, select the network to connect the current network.

**About Bridge Configuration dialog box**

Use the Bridge Configuration dialog box to:

- Edit settings in a bridge
- Copy and paste items in a Device List/Range
- Add new items in a range
- Edit items in a range
- Delete items in a range
- Configure discovery depth and discovery scope of the devices displayed in the Network Browser

**Bridge Configuration dialog box, Advanced tab settings**

Use the Advanced tab on the Add Driver dialog box to configure settings that control how the devices in the bridge configuration are distributed over the network.

<table>
<thead>
<tr>
<th>Setting</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Poll interval between discovery cycles (msec)</td>
<td>The number of milliseconds that occur between each time the FactoryTalk Linx Network Browser queries the network.</td>
</tr>
<tr>
<td>Poll timeout (msec):</td>
<td>Specifies the amount of time (in milliseconds) to wait for poll responses.</td>
</tr>
<tr>
<td>Maximum concurrent packets to this network</td>
<td>Used to configure the maximum number of requests that can be waiting for a response on this network at any given time as part of the browsing process.</td>
</tr>
<tr>
<td>Enable discovery using subnet mask</td>
<td>Enables the FactoryTalk Linx Network Browser to communicate with each device on the subnet. Important: Enabling the discovery command significantly increases the amount of traffic on a network. Determine the impact on your network prior to enabling this command.</td>
</tr>
<tr>
<td>Reset</td>
<td>Used to return the Tuning settings to the default values.</td>
</tr>
</tbody>
</table>

**Bridge Configuration dialog box, General tab settings**

The General tab on the Bridge Configuration dialog box contains this information:

<table>
<thead>
<tr>
<th>Setting</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Name</td>
<td>The descriptive name for the bridge. Adding a descriptive name for a bridge makes it easier to find the bridge in the Network Browser network topology tree. The name can contain characters, including letters, numbers, and special characters.</td>
</tr>
<tr>
<td>Device Serial Number</td>
<td>The unique identification number of the device.</td>
</tr>
<tr>
<td>Port Number/IP Address</td>
<td>The downstream IP address and port number of the bus node to help identify a unique bridge configuration.</td>
</tr>
</tbody>
</table>
Use the **Advanced Settings** dialog box to:

- Configure discovery settings
- Display recognized and unrecognized devices in the **Network Browser** dialog box
- Configure discovery depth and discovery scope of the devices displayed in the **Network Browser** dialog box
- Create a bridge

**Advanced Settings dialog box, General tab settings**

<table>
<thead>
<tr>
<th>Setting</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Enable Automatic Discovery</td>
<td>Used to enable the discovery type.</td>
</tr>
<tr>
<td>Make Discovery Continuous (Auto browse)</td>
<td>Used to turn on continuous browsing of the network.</td>
</tr>
<tr>
<td>Show Unrecognized Devices</td>
<td>Used to enable unrecognized devices found during network discovery to be included in the <strong>FactoryTalk Linx Network Browser</strong> topology tree.</td>
</tr>
<tr>
<td>Detect and access device web page</td>
<td>Used to check whether the device supports the detailed information in a web page and user is able to open it.</td>
</tr>
<tr>
<td>Display a warning when opening the device web page</td>
<td>Used to open a warning information dialog box that requires the user confirmation to open an Internet Explorer.</td>
</tr>
<tr>
<td>Enable Device Statistics</td>
<td>Used to enable a user to access the device statistics dialog box. Restart the FactoryTalk Linx Browser after selecting this option.</td>
</tr>
<tr>
<td>Enable Device Configuration</td>
<td>Used to enable a user to access the device configuration dialog box. Restart the FactoryTalk Linx Browser after selecting this option.</td>
</tr>
</tbody>
</table>

**Advanced Settings dialog box, Bridged tab settings**

Use the **Bridged** tab on the **Advanced Settings** dialog box to configure network bridges.

<table>
<thead>
<tr>
<th>Setting</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Add New</td>
<td>Opens the <strong>Add New</strong> dialog box where the settings for a new bridge are specified.</td>
</tr>
<tr>
<td>Edit</td>
<td>Opens the <strong>Bridge Configuration</strong> dialog box where the settings for a bridge can be edited.</td>
</tr>
<tr>
<td>Delete</td>
<td>Deletes the selected bridge.</td>
</tr>
</tbody>
</table>
Add a driver for Local Broadcast

To add a driver to the same subnet that a computer is connected to, configure the driver for Local Broadcast.

To add a driver for Local Broadcast:

1. From the Network Browser, click the Add Drivers icon.
2. In the Add Driver dialog box, select a driver, and click OK. The General and Advanced tabs display in the Add Driver dialog box.
3. Click the Advanced tab and select the physical port of the computer, and configure the tuning settings to change how fast the Network Browser discovers items on the network.
4. Click Apply.
5. Click the General tab, and in the Name box, enter a name for the driver.
6. In the Discovery Method list, click Broadcast.
7. Click Local Broadcast click OK.

Add a driver for Remote Broadcast

To add a driver to a different subnet than the one the computer is connected to, configure the driver for Remote Broadcast.

To add a driver for Remote Broadcast:

1. From the Network Browser, click the Add Drivers icon.
2. In the Add Driver dialog box, select a driver, and click OK. The General and Advanced tabs display in the Add Driver dialog box.
3. Click the Advanced tab and select the physical port of the computer, and configure the tuning settings to change how fast the Network Browser discovers items on the network.
4. Click Apply.
5. Click the General tab, and in the Name box, enter a name for the driver.
6. In the Discovery Method list, click Broadcast.
7. Click Remote Broadcast.
8. In IP Address and Subnet Mask fields, enter the addressing information for the driver distribution.
9. Click OK to add the driver and save the settings.

Add a driver with a Device List/Range

When adding a driver, use a list or range of IP addresses to make sure broadcast messages reach the desired devices.

Note: Ethernet List and Bridge configured is visible in FactoryTalk Administration Console. But you need to return to the Network Browser to modify the configurations.

To add a driver with a Device List/Range

1. From the Network Browser, click the Add Drivers icon.
2. In the Add Driver dialog box, select a driver, and click OK. The General and Advanced tabs display in the Add Driver dialog box.
3. Click the **Advanced** tab and select the physical port of the computer, and configure the tuning settings to change how fast the **Network Browser** discovers items on the network.
4. Click **Apply**.
5. Click the **General** tab, and in the **Discovery Method** list, click **Device List/Range**.
6. In the box under **Device List/Range**, enter the desired subnet range.
7. In the **Name** box, enter a name for the driver and click **OK**.

**Configure drivers in FactoryTalk Administration Console**

**To configure a driver in FactoryTalk Administration Console**

1. From the **Explorer**, under the FactoryTalk Linx data server, double-click **Communication Setup**.
2. From the **Communication Setup** editor, right-click on the device shown at the root, and click **Add Driver**.
3. In the **Add Driver Selection** dialog box, the available drivers will appear. Select the driver you want to add, and click **OK**.
4. From the applicable driver properties dialog box, enter the settings and click **OK**.
5. After you add the driver, right-click on the driver and then click **Start Browsing** to populate the driver with devices.

**Tip:**
- If you are adding a driver via an Ethernet network, from the **Communications Setup** editor, right-click on the network shown, then select **Start Browsing** to populate the driver with devices.
- Some Ethernet devices may not support the browse protocol used by FactoryTalk Linx on Ethernet. If the devices you expect to appear during the browse do not display, right-click the network and click **Add Device** to manually add the device to the Ethernet network of the workstation. Before you add a device manually, you must register it using the EDS Hardware Installation Tool.
- Ethernet list configured in the network browser control is visible in the FactoryTalk Administration Console but you need to return to the network browser control to modify the configuration.
Install FactoryTalk Linx with command line syntax

Besides the Setup Wizard installation, FactoryTalk Linx also supports automated installation using command line syntaxes. You can typically use this automated installation method during large-scale rollouts, when it might be too slow and costly to have administrators or technicians interactively install the software on individual computers.

This automated installation method requires you to enter a command line at the beginning of the installation. During the installation process, instead of prompting you for installation and configuration information interactively, the process follows the specific command line, without user intervention.

FactoryTalk Linx supports the following automated installation:

- Unattended installation (recommended)
- Silent installation for FactoryTalk Linx .msi file

FactoryTalk Linx supports setup wizard installation, and installation with command line syntax (that is, unattended installation and silent installation). The following table illustrates the differences among each installation method.

<table>
<thead>
<tr>
<th>Installation method</th>
<th>Description</th>
<th>References</th>
</tr>
</thead>
<tbody>
<tr>
<td>Setup wizard installation</td>
<td>The standard method to install FactoryTalk Linx. It installs all the necessary prerequisites software and required components. The installation processes are visible, easy to use, and provides full installation details such as installation summary and how to register for products updates.</td>
<td>Chapter 3 Install &lt;FTX&gt; on page 24</td>
</tr>
<tr>
<td>Unattended installation</td>
<td>An automated installation method in RSLogix Enterprise version 5.90.00 and later (renamed FactoryTalk Linx with version 6.00.00). It installs all the necessary prerequisites software and required components with little (or no) user intervention, and provides multiple parameters that allow customized installations. It is recommended for large-scale rollouts. Tip: Depending on the customized parameters, you can silently install FactoryTalk Linx, prerequisite software, and required components using this method. See Example 1 on page 103.</td>
<td>Use unattended installation on page 102</td>
</tr>
</tbody>
</table>
Use unattended installation

Starting with CPR 9 SR 9, FactoryTalk Services support unattended installation. In the unattended installation, you enter a specified command line syntax with multiple parameters. You can customize the parameters to meet your needs.

To perform unattended installation, follow the steps below. The steps may vary slightly. Follow the on-screen instructions that apply to your operating system.

1. Close all open Windows programs.
2. Open the Command Prompt window as administrator.
3. In the Command Prompt window, navigate to D:, where D: is the drive containing the FactoryTalk Linx installation DVD or installation package, and press Enter.
   Tip: The User Account Control dialog box may show after you press Enter, click Yes to continue.
4. Type a command line with the following syntax:
   
   Setup.exe {/Q | /QS} 
   /IAcceptAllLicenseTerms 
   [/AutoRestart] 
   [/SetupLanguage=language] 
   [/InstallDrive=drive]

5. Press Enter. The installation process starts with the parameters you specified.
6. For detailed description about each parameter, see Parameters on page 102. You can also type Setup /? in the Command Prompt window, and press Enter to view the help information of all parameters and examples.

Parameters

The parameters and values are not case sensitive. If the value includes spaces, you need to enclose it in quotation marks (" ").

/Q

Required if /QS or /Record is not specified.
Installs the product in the silent mode without any user interface.

/QS

Required if /Q or /Record is not specified.
Installs the product in the unattended mode without user interaction during installation, and shows the progress, errors, or complete messages on the user interface.
Chapter 12  Install FactoryTalk Linx with command line syntax

/IAcceptAllLicenseTerms
Required. Specifies that you read and acknowledge all license agreements, and agree to continue the installation.

/AutoRestart
Optional. If specified, the computer will be restarted automatically after the installation, if a restart is required to complete the installation.

The parameter is ignored if a restart is not required.

/SetupLanguage=value
Optional. Specifies which language will be displayed during the installation process. The value must be the one of ENU, CHS, DEU, ESP, FRA, ITA, JPN, KOR, or PTB.

If omitted, the default language is the user or system user interface language.

/Record
Optional. Records the installation options chosen to a recording file.

/Playback
Optional. Plays back a recording file to specify the installation options.

/InstallDrive=value
Optional. Specifies the installation drive. If omitted, the default drive and location are:

- C:\Program Files (x86)\Rockwell Software (64-bit) or
- C:\Program Files\Rockwell Software (32-bit).

/Uninstall
Optional. Use to uninstall the software.

Examples

The following examples show how to use the commands during the unattended installation.

Example 1

Setup.exe /Q /IAcceptAllLicenseTerms

means:

The software is installed silently with no customized parameters. It uses the default settings during the installation process, with no user interface.
**Example 2**

Setup.exe /QS /IAcceptAllLicenseTerms /AutoRestart /SetupLanguage=CHS /InstallDrive=D:

means:

- During the installation, the progress, error, or complete messages show on user interfaces. The displayed language is Chinese.
- FactoryTalk Linx will be installed to D:\Program Files (x86)\Rockwell Software if you are using a 64-bit operating system, or D:\Program Files\Rockwell Software if you are using a 32-bit operating system.
- After the installation, if a restart is required, the computer will be restarted automatically.

**Example 3**

Setup.exe /Q /Uninstall

means:

- The software is uninstalled silently with no user interface.

---

**Use silent installation for FactoryTalk Linx .msi file**

RSLinx Enterprise v5.60.00 (CPR 9 SR 6) (Renamed FactoryTalk Linx with version 6.00.00) and later supports silent installation for .msi file. In the silent installation, FactoryTalk Linx is installed with default settings, with no (or little) dialog boxes, messages, or user intervention.

**Before you begin**

Before installing the .msi file of FactoryTalk Linx using the silent installation, you must manually install the following prerequisite software and required components, in the following sequences:

- Microsoft .NET Framework 4.6  
  \Redist\DotNETFX_4.6  
- Microsoft SQL Server Compact 4.0  
  \Redist\SQLServerCE_4.0.
- OPC .NET API 4.5  
  \Redist\OPCNETAPIRedist_2.01.10600\x86.
- FactoryTalk Diagnostics v3.00.00  
  \Redist\FTDiagnostics_3.00.00.
- Windows Firewall Configuration Utility 1.00.08  
  \Redist\WFCU_1.00.09.
- Certificates installation
For detailed instructions about how to install it, refer to Install certificates on page 105.

- USB CIP driver package (for 32-bit operating systems)
  \Redist\USBCIP_3.18.06.

- x64 driver package (for 64-bit operating systems)
  \Redist\KN64Bit_2.01.01.

- FactoryTalk Services Platform v3.00.00
  \Common\3.00.00-FTSP.

- FactoryTalk Alarms and Events v3.00.00
  \Common\3.00.00-FTAE.

**Rockwell Automation x64 driver package**

Rockwell Automation x64 driver package includes the following drivers:

- 1747-UIC (DH485)
- 1752-SmartGuard USB
- 1784-PCIC(S) (ControlNet)
- 1784-PKTC(S) (ControlNet)
- 1784-PKTX (DH485 / DH+/RIO)
- 1784-U2DHP (DH+)
- Micro800 Remote LCD (208-REMLCD / 820 Remote LCD)
- Micro810
- Virtual Backplane
- USB CIP

In addition, this release of x64 driver package includes a number of enhancements, including Virtual Backplane driver improvements. The driver installation folder is C:\Program Files\Rockwell Automation.

**Install certificates**

The following certificates are available in the installation directory \Redist\Cert:

- 2016-Rockwell-Driver-SHA1.cer
- 2016-Rockwell-SHA256.cer
- DriverCodeSigning2012-1.cer
- Drivers-12-06-2016.cer
- Logix-11-04-2016.cer
- Rockwell_2013.cer
- Rockwell_2014.cer
- Rockwell_2015.cer
- rockwellcert2010.cer
- rockwellcert2013.cer
- VeriSign Class 3 Public Primary Certification Authority - G5 2036.cer

Use the following steps to perform manually install a certificate when automatically installation fails:
Chapter 12  Install FactoryTalk Linx with command line syntax

The steps below take the VeriSign Class 3 Public Primary Certification Authority - G5 2036.cer certificate as an example.

1. Locate the certificate file at FactoryTalk Services installation directory \Redist\Cert\VeriSign Class 3 Public Primary Certification Authority -G5 2036.cer, and double click it.
3. In the Certificate Import Wizard dialog box, click Next.
4. Select Place all certificates in the following store, and click Browse.
5. In the Select Certificate Store dialog box, select the Trusted Root Certificate Authorities folder, and click OK.
6. In the Certificate Import Wizard dialog box, click Next.
7. Click Finish.


Perform silent installation

To perform silent installation, follow the following steps:

1. Close all open Windows programs.
2. Open the Command Prompt window as administrator.
3. In the Command Prompt window, navigate to D:\Common\6.00.00-FTLinx, where D: is the drive containing the FactoryTalk Services installation DVD or installation package, and press Enter.
   Tip: The User Account Control dialog box may show after you press Enter, click Yes to continue.
4. Type the following command line syntax, and press Enter.
   
   ```
   Msiexec /I "FactoryTalk Linx.msi" /qn /L*v+ 
   "%Temp%\Rockwell - FactoryTalk Linx Install.log"
   ```

   Tip: The command line install has two options:
   - /qb: basic UI (user interface) - simple progress and error handling
   - /qn: no UI - completely silent installation

   The installation process starts silently. For the installation log file, type the following command line syntax in the Command Prompt window:

   ```
   %Temp%\Rockwell - FactoryTalk Linx Install.Log
   ```

Uninstall FactoryTalk Linx

To uninstall FactoryTalk Linx software, do any of the following:

- Open Programs and Features in Windows Control Panel, right-click FactoryTalk Linx version 6.00.00 and then click Uninstall.
- Open Setup.exe, and then click modify or uninstall.
- Open the Command Prompt window and type a command with the following syntax:

   ```
   Setup.exe [/Q | /QS] /Uninstall
   ```

   Note: Components, such as FactoryTalk Activation Manager, that are shared with other products will not be uninstalled.
For more information about command-line parameter, see Parameters on page 102.
**application.** A set of data elements used to implement a control system. See **Network application**, **Local application**.

**area.** Areas organize and subdivide a distributed Network application into logical or physical divisions. For example, separate areas may correspond with separate manufacturing lines in a facility, separate plants in different geographical locations, or different manufacturing processes. Areas are not available with Local applications.

**bus.** In FactoryTalk Linx, a bus is defined as a network, a driver, or chassis.

**channel.** In FactoryTalk Linx, a channel is a driver.

**CIA Message.** Class/Instance/Attribute Message.

**CIP.** Control and Information Protocol.

**client.** A component or subsystem that uses data or functionality provided by some other component or subsystem (the server). The term can also refer to the computer that executes this software, connecting to a server computer across a communications network.

**configuration.** A file that contains information about the physical structure you defined for your system. This file includes all network paths, defined drivers and devices, data providers, and object protocols.

**CPR.** Coordinated Product Release.

**data access server.** A server that provides tags.

**data element.** An individually addressable item of data. For example, a tag (for example, OPC or HMI), or an HMI Project Component (for example, a graphic display, event file, node, channel).

**Data Provider.** Logic that knows how to speak to a particular class of products. One of the building blocks of FactoryTalk Linx, a Data Provider acts as a multiplexor for multiple clients and optimizes what data can be read together for more efficient handling.

**deploy.** To copy and distribute project files to designated directories on other computers.

**distributed application.** See **Network application**.

**Downstream/Bridged configuration.** Used to create a bridge in the **Network Browser** to enable the browser to detect devices on another physical network and to perform diagnostic and configuration functions on those devices.

**driver.** Software that interacts with a network interface (such as the interface that connects your computer to the Ethernet network), and manages the exchange of communication packets over the network, to which the interface is attached.
**EtherNet/IP.** An industrial network protocol that adapts the CIP to standard Ethernet.

**FactoryTalk.** FactoryTalk is a set of services and technologies that enable Rockwell Automation products to work together to share information across all layers of an enterprise.

**FactoryTalk Administrative Console.** A stand-alone tool used to configure and administer FactoryTalk applications. This tool may be used to perform such tasks as creating areas and data server elements, creating user accounts and user groups, configuring security permissions, and viewing system-wide diagnostic messages. FactoryTalk Administration Console installs along with most FactoryTalk-enabled software products.

**FactoryTalk Alarms and Events.** FactoryTalk Alarms and Events is a set of distributed services that allows participating FactoryTalk products, such as FactoryTalk View, to use the alarm information, which is detected from devices that are distributed across an application.

**FactoryTalk Directory.** The FactoryTalk Directory contains the information that allows a distributed automation system to organize, browse, and locate all the data and services available to it. A FactoryTalk Directory can contain multiple applications, which allows multiple automation systems on the same network.

**FactoryTalk Linx Gateway.** The FactoryTalk Linx Gateway acts as an OPC server that compliant with both Data Access and Unified Architectures protocol. It enables OPC clients to connect to FactoryTalk applications that contain FactoryTalk Linx and FactoryTalk View Site Edition servers, and access tag data within those applications. The FactoryTalk Linx Gateway can send data to, and retrieve data from, any FactoryTalk Live Data server or OPC server that is defined within a FactoryTalk system.

**FactoryTalk Live Data.** FactoryTalk Live Data is a service that reads and writes tag values (OPC items) to or from any OPC-DA (OLE for process Control - Data Access) or Live Data server on behalf of client software products, such as FactoryTalk View Site Edition and FactoryTalk Transaction Manager.

**FactoryTalk Linx OPC UA Connector.** The FactoryTalk Linx OPC UA Connector is a FactoryTalk Live Data Server that acts as an OPC UA Client to interface with third-party OPC UA Data Servers. Similar to FactoryTalk Linx this connector can operate in a distributed network configuration and interface with multiple external devices or servers.

**GUI.** Graphical user interface.

**HMI.** Human machine interface.

**local.** Using a single computer to carry out a task.

**Local application.** A Local application is accessible only from the local computer where it resides. Even if the computer is connected to a network or
a Network application resides on the same computer, the Local application remains self-contained and does not share its data or any of its project elements. Local applications do not support areas. Also called stand-alone applications.

**Network application.** A software system that uses several interconnected computers that share information and processing duties to accomplish its tasks. A Network application organizes project elements from multiple FactoryTalk-enabled products. All of the computers participating in a particular application share a common FactoryTalk Directory located on a network computer. Also called a distributed application.

**offline data item.** A data item (tag) whose server is not currently available but whose name is still available for browsing, selection, and use. Offline data items are read directly from a controller's project file.

**Offline device.** The device that is not in direct communication (for example, when programming in Logix Designer).

**online data item.** A data item (tag) whose server is currently available to supply data. Online data items are read directly from a controller, just as they are defined in that controller.

**OPC.** A set of industry-standard specifications that define interfaces for communicating with automation devices and services. Applying OPC standards makes interoperability possible among automation and control applications, field systems and devices, and business and office applications that are supplied by different vendors.

**OPC DA.** OPC Data Access is a group of client-server standards that provides specifications for communicating real-time data from data acquisition devices such as PLCs to display and interface devices like HMI, SCADA, and ERP/MES systems.

**OPC UA.** The OPC Unified Architecture (UA), released in 2008, is a platform independent service-oriented architecture that integrates all the functionality of the individual OPC Classic specifications into one extensible framework.

**packet.** The transmission unit exchanged at the network layer.

**PCCC (PC).** Programmable Controller Communication Commands.

**redundancy.** The availability of a standby hardware or software module that can assume the responsibilities of a primary hardware or software module if that primary module fails. reference. A link from one data element to another. The referring element is called the source element, and the referenced element is called the target element. A graphic display, for example, typically reference tags, which supply it with runtime data.

**runtime.** The operation of a control system.

**server.** A subsystem that provides services for clients, using a set of interfaces.
**shortcut.** Represents a device that you want to connect to on the network, and the data that device contains. The communication path associated with the shortcut tells the application where to find that data. This symbolic reference to a physical device is similar to a topic in RSLinx Classic.

**stand-alone application.** All application components in a stand-alone application are located on a single computer, and are only accessible from the computer where they reside. Stand-alone applications do not support areas. Also called Local applications.

**syslog.** Syslog stands for System Logging Protocol and is a standard protocol used to send system log or event messages to a specific server, called a syslog server. It is primarily used to collect various device logs from several different machines in a central location for monitoring and review.

**tag.** A logical name for a variable in a device or in local memory. For example, a tag can represent a process variable in a Logix 5000 controller.
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