



FactoryTalk Linux Getting Results Guide

Version 6.40.00



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.



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.



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.

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

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



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.



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.



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).

Rockwell Automation recognizes that some of the terms that are currently used in our industry and in this publication are not in alignment with the movement toward inclusive language in technology. We are proactively collaborating with industry peers to find alternatives to such terms and making changes to our products and content. Please excuse the use of such terms in our content while we implement these changes.

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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 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.

Knowledgebases

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/en-us/support, and select **Knowledgebase**.

Technical support

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

Training programs

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.

Consulting services

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

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Review and accept the Rockwell Automation Software and Cloud Services Agreement at <https://www.rockwellautomation.com/en-us/company/about-us/legal-notices/software-cloud-services-agreement.html>.

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 in 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\<product name>_oss.licenses.txt

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

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 optimized to work with Logix 5000™ Programmable Automation Controllers (PAC) and the PlantPax process controller using EtherNet/IP. It gives the fastest data rates and capacity possible while minimizing the impact on automation networks and control system operation. Use FactoryTalk Linx to:

- Browse devices in the network - The network browser provides the ability to discover devices in an automation system, permit the user to navigate the topology, perform device commissioning, access device properties, and diagnostic statistics.
- Acquire data - 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.
- Use the FactoryTalk Linx Gateway Remote Proxy Server - Remote Devices via Proxy Service allows FactoryTalk Linx on one computer to bridge through a central FactoryTalk Linx Gateway Professional workstation on the network to communicate with automation system devices on a different network.

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 the 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

FactoryTalk Linx:

FactoryTalk Linx version 5.90.00 and earlier:

- Is delivered and installed with the FactoryTalk Services Platform 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 (for example, FactoryTalk View Studio) or from the FactoryTalk Administration Console.
- 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 Sheet (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 (for example, **@Min**, **@Max**, **@Description**) and delivers 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.

FactoryTalk Linx version 6.00.00:

- 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.
- Starting with version 6.00.00, provides access to Logix 5000 tag based alarm attributes (for example, **@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 the 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:

- 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 version 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 (for example, HMI clients), and/or controllers without affecting the other FactoryTalk Linx data server.

FactoryTalk Linx version 6.11.00:

- 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:

- 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 with version 6.20.00, FactoryTalk Linx supports tag communication with data types as LINT, ULINT, LREAL, USINT, UINT, and UDINT.
- Starting with version 6.20.00, FactoryTalk Linx instance02 supports Logix-based Alarms and Events.
- Starting with 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/IP 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 includes **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 the port and network configuration of a device.
- FactoryTalk Linx version 6.20.00 adds 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 the 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:

- 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 initiating 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**. Users 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 including CIP Security configuration changes, network configuration changes, and FactoryTalk Linx service restart.
- FactoryTalk Linx version 6.21.00 improved performance for design software that utilizes FactoryTalk Linx for communications direct to devices (for example, Studio 5000 Logix Designer and ControlFLASH Plus).
- In FactoryTalk Linx version 6.21.00, the FactoryTalk Linx Redundancy Module Configuration Tool can be launched from the FactoryTalk Linx Network browser.

FactoryTalk Linx version 6.30.00:

- FactoryTalk Linx version 6.30.00 adds an option to enable or disable CIP Security (Port 2221) for the server workstation or a device via the **Network Browser**.
- FactoryTalk Linx version 6.30.00 supports browsing 5015 adapters and optimizes the user interface of 5015 adapters with their I/O modules.
- FactoryTalk Linx **Network Browser** version 6.30.00 supports indicating the offline status of devices.
- FactoryTalk Linx version 6.30.00 adds one predefined tag (**@TrackedStateValue**) to show the tracked state change detection value from a Logix L7 series controller.
- FactoryTalk Linx version 6.30.00 adds an **LLDP** tab in the **Network Browser** to view and edit the Link Layer Discovery Protocol (LLDP) detection status of a device.
- FactoryTalk Linx version 6.30.00 adds **@RedundancyEnabled** and **@RedundancyState** predefined tags associated with a processor shortcut, to indicate if the associated controller is operating in a ControlLogix Redundancy configuration and its current operational state. These tags are helpful for Human Machine Interface (HMI) displays that monitor the operation of a redundant ControlLogix controller's operation.
- FactoryTalk Linx **Network Browser** version 6.30.00 supports browsing of GuardLink connected devices.
- FactoryTalk Linx version 6.30.00 removes the "IO Linx" communications driver.

- FactoryTalk Linx version 6.30.00 enhances the configuration of port 44818 that keeps the same configuration status in both FactoryTalk Linx and FactoryTalk Administration Console.
- FactoryTalk Live Data version 6.30.00 extends the supported subscription rates to include 600, 700, 800, and 900 ms.
- FactoryTalk Live Data version 6.30.00 adds leading zeros for array indexes so that FactoryTalk Live Data Tag browser sorts array elements in the proper numerical order.
- FactoryTalk Linx version 6.30.00 raises the minimum DCOM authentication level to Packet Integrity. For additional information about the affected Rockwell Automation products, see the Knowledgebase Document ID: [PN1581 - Product Notification 2022-01-001 - Rockwell Automation products unable to establish proper DCOM connection after installing Microsoft DCOM Hardening patch \(MS KB5004442\)](#).

FactoryTalk Linx version 6.31.00:

- FactoryTalk Linx version 6.31.00 supports adding and configuring unsolicited message shortcuts for PLC5 and SLC500 controllers.
- FactoryTalk Linx **Network Browser** version 6.31.00 supports adding and configuring remote proxy drivers.
- FactoryTalk Linx **Network Browser** version 6.31.00 enhances the configurations on the **LLDP** tab. The neighbor information also shows on the **Port Configuration** tab.
- FactoryTalk Linx **Network Browser** version 6.31.00 adds audit messages for device configuration. When configuring device properties, audit messages are logged in FactoryTalk Diagnostics Viewer.

FactoryTalk Linx version 6.40.00:

- FactoryTalk Linx version 6.40.00 supports shortcut connections through a FactoryTalk Linx Gateway remote proxy server.
- FactoryTalk Linx version 6.40.00 provides a 64bit communications service for FactoryTalk Policy Manager.
- FactoryTalk Linx version 6.40.00 updates the USB kernel drivers to permit Windows Core Isolation Device Security.
- FactoryTalk Linx version 6.40.00 removes 1784-PCICS card's kernel driver.
- FactoryTalk Linx version 6.40.00 supports FactoryTalk View ME Studio MER project file transfer to a VersaView6300 computer running FactoryTalk View ME.
- FactoryTalk Linx version 6.40.00 supports switching the local language from a setting in the FactoryTalk Administration Console.
- FactoryTalk Linx version 6.40.00 includes a new FactoryTalk Live Data Tag Browser that includes the ability browse Logix Extended Tag properties and bits embedded within integer tags.
- FactoryTalk Linx version 6.40.00 supports REAL array and LREAL array data types for the CIA message.
- FactoryTalk Linx version 6.40.00 supports Symbolic shortcut access to bits within Micro800 numeric tags.
- FactoryTalk Linx version 6.40.00 increases the size of supported tag references received from FactoryTalk software from 260 characters to 1024 characters.
- FactoryTalk Linx **Network Browser** version 6.40.00 supports the Explicit Protected Mode function.
- FactoryTalk Linx **Network Browser** version 6.40.00 supports customizing IP subnet with rotary switches on the controllers.
- FactoryTalk Linx **Network Browser** version 6.40.00 adds a new driver to communicate through a FactoryTalk Linx Gateway Remote Proxy service.
- FactoryTalk Linx **Network Browser** version 6.40.00 adds an auto-start and minimize to system tray option.
- FactoryTalk Linx **Network Browser** version 6.40.00 supports uploading IODD device description files from an IO-Link device and registering them with the Device Description (formerly EDS) Subsystem.

- FactoryTalk Linx **Network Browser** version 6.40.00 increases the number of items that can be added to the Ethernet driver list from 64 to 255.
- FactoryTalk Linx **Network Browser** version 6.40.00 now displays device's DNS host name in the topology tree along with its resulting IP address.
- FactoryTalk Linx **Configuration Import Export Tool** version 6.40.00 supports importing and exporting drivers without specifying a target server.

DCOM security

In response to Microsoft Distributed Component Object Model (DCOM) Hardening patch (MS KB5004442), the minimum DCOM authentication level used by Rockwell Automation products was raised to Packet Integrity.

IMPORTANT: Installing this product's latest version with earlier unpatched versions of other FactoryTalk products or products using Classic OPC DA connections may cause a loss of connectivity due to the difference in DCOM authentication level used. For additional information, see the Knowledgebase Document ID: [IN39461 - Microsoft DCOM Hardening Information TOC](#).

Microsoft releases the DCOM Hardening patch in response to CVE-2021-26414. This patch elevates the minimum DCOM authentication level that is required to establish a DCOM connection. DCOM is used by many Rockwell Automation products and may be affected by the change that is made by the Microsoft patch. For additional information about the affected Rockwell Automation products, see the Knowledgebase Document ID: [PN1581 - Product Notification 2022-01-001 - Rockwell Automation products unable to establish proper DCOM connection after installing Microsoft DCOM Hardening patch \(MS KB5004442\)](#).

Impact on Rockwell Automation software

If computers within your network have installed the Microsoft patch, the DCOM authentication level of the client or server applications on these computers is required to update to `RPC_C_AUTHN_LEVEL_PKT_INTEGRITY`, while the authentication level of applications on other computers are not. As a result, the communication across the two types of computers will fail.



Tip:

- The distributed third-party OPC DA server and client applications are also impacted.
 - To ensure proper communication, the authentication level of both the server application and the client application should be at the same level.
-

Solutions

We recommend installing the latest version of Rockwell Automation software or installing the patch for the corresponding software version.

To avoid the compatibility issue, make sure all Rockwell Automation applications you use are updated.

If any computers within your network have not installed the Microsoft patch or some Rockwell Automation applications are not updated to the latest version, you can lower the DCOM application authentication level on all computers. To do so, do one of the following:

- Remove the Microsoft DCOM patch from all workstations in the system.
- Switch the DCOM authentication level on all workstations in the system using one of the following methods:
 - Use **Registry Editor**.
 - FactoryTalk software
 - Open **Registry Editor**, select **HKEY_LOCAL_MACHINE > SOFTWARE > WOW6432Node > Rockwell Software > FactoryTalk > Platform**, right-click **DCOMAuthLevel > Modify**, and then edit the **Value data** to 1. The default value after upgrading the Rockwell Automation application is 5 (RPC_C_AUTHN_LEVEL_PKT_INTEGRITY) and the former value is 1 (RPC_C_AUTHN_LEVEL_PKT_NONE).
 - RSLinx Classic software
 - Open **Registry Editor**, select **HKEY_LOCAL_MACHINE > SOFTWARE > WOW6432Node > Rockwell Software > RSLinx**, right-click **DCOMAuthLevel > Modify**, and then edit the **Value data** to 1. The default value after upgrading the Rockwell Automation application is 5 (RPC_C_AUTHN_LEVEL_PKT_INTEGRITY) and the former value is 1 (RPC_C_AUTHN_LEVEL_PKT_NONE).
 - Use the **DCOMAuthLevel** utility.
 - Open **DCOMAuthLevel**, select **None (for backward compatibility)**, and then click **OK**.



Tip:

- The authentication level lower than 5 will not be supported after installing the Microsoft patch.
- This utility will adjust the Authentication level for FactoryTalk Services Platform, FactoryTalk Live Data OPC DA client interface, FactoryTalk Linx Gateway OPC DA server interface, and RSLinx Classic's OPC DA server interface.
- The Windows Component Services DCOM configuration setting is not utilized or supported by FactoryTalk software or RSLinx Classic.

Workgroup and domain settings after the applications' authentication level is required to be updated

After the applications authentication level is adjusted to RPC_C_AUTHN_LEVEL_PKT_INTEGRITY, ensure all users in your network that contains Rockwell Automation software and third party OPC DA meet the requirement of DCOM for RPC_C_AUTHN_LEVEL_PKT_INTEGRITY:

- When working within a workgroup, each user needs to be created locally on each computer involved in the connection. Furthermore, each workstation in a workgroup must have the same user accounts, with the same usernames and passwords on each machine for authentication to occur. A blank password is not valid in most cases. In some cases, even though the user account has administrative privileges, you might have DCOM authentication problems, and we recommend that you use the Windows built-in administrator account to get it to work.
- When working within a domain, local users and groups are not required to be added to each computer. If working within a domain is preferred, a network administrator may have to implement changes.

For more information, see Microsoft documentation [How to Configure a Domain User or Group](#).

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.

FactoryTalk Services Platform

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, and 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

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

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

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

FactoryTalk Administration Console

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 software

FactoryTalk Linx is related with these software and they are available separately. If you want to use the functions, you must purchase them.

- FactoryTalk Linx Gateway
- FactoryTalk Linx Data Bridge
- FactoryTalk Action Manager
- KEServer Enterprise

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 users with an interface to manage how BOOTP/DHCP device requests 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 that only have EtherNet/IP communications ports, and 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.

✓	Step	Description	Refer to:
<input type="checkbox"/>	1.	Read and understand the <i>FactoryTalk Linx Getting Results Guide</i> .	This Guide.
<input type="checkbox"/>	2.	Plan your system.	"About FactoryTalk system" in the FactoryTalk Services Platform Help.
<input type="checkbox"/>	3.	Verify your personal computer meets the minimum hardware and software requirements.	" Minimum system requirements " on page 23
<input type="checkbox"/>	4.	Install FactoryTalk Services Platform and FactoryTalk Linx.	" Install FactoryTalk Linx " on page 24
<input type="checkbox"/>	5.	Configure FactoryTalk Security.	"Secure a FactoryTalk system" in the FactoryTalk Services Platform Help.
<input type="checkbox"/>	6.	Configure a FactoryTalk Administration Console application	"Manage applications" in FactoryTalk Services Platform Help.
<input type="checkbox"/>	7.	Add a FactoryTalk Linx server.	" Add FactoryTalk Linx to the FactoryTalk application " on page 29
<input type="checkbox"/>	8.	Specify general FactoryTalk Linx server properties.	" Define General server properties " on page 58
<input type="checkbox"/>	9.	Optionally, set up a redundant server to take over if the primary server fails (network applications only).	" Set up FactoryTalk Linx to support a redundant server (optional) " on page 58
<input type="checkbox"/>	10.	Optionally, set up options for device-based alarms.	" Set up FactoryTalk Linx to support FactoryTalk Alarms and Events (optional) " on page 59
<input type="checkbox"/>	11.	Add drivers and devices.	" Add a driver " on page 60
<input type="checkbox"/>	12.	Create shortcuts that point to your target devices.	" Create shortcuts " on page 61
<input type="checkbox"/>	13.	Test the system using FactoryTalk Live Data Test Client	"Test FactoryTalk communications" in FactoryTalk Services Platform Help.

FactoryTalk Linux Installation

FactoryTalk Linux 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 Linux software
- Update an existing installation

The automated installation with command line syntax reduces user interaction and provides command line parameters to install FactoryTalk Linux. See [Install FactoryTalk Linux with command line syntax on page 118](#).

System requirements

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

Hardware requirements

FactoryTalk Linux recommends the following hardware for applications with typical data acquisition needs:

- Intel® Core™ i5 Standard Power processor
- Total processor cores is recommended to be no less than 4 for virtual machines
- 4 GB of memory

Lower level x86 based CPUs will also work in standalone configurations with reduced data acquisition needs.

For small applications, the following configuration was also evaluated:

- Intel® Atom™ CPU E3845 @ 1.91GHz (4 CPUs)
- 4 GB of memory
- 1500 data points

It is recommended to run a performance validation test on the planned computer hardware to ensure that the desired capacity and performance can be achieved.

Software requirements

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

- Windows Server 2022
- Windows Server 2019
- Windows Server 2016
- Windows 11 (v21H2 and v22H2)
If you use FactoryTalk Linux on Windows 11, you must update Windows 11 with patch KB5008215.
- Windows 10 (v21H2 and v22H2)

FactoryTalk Linux adopts .NET 4.8 that is only supported on Windows 10 v1803 and later.

- Windows 10 IoT Enterprise 2021 Long-Term Servicing Channel (LTSC)
- Windows 10 IoT Enterprise 2019 Long-Term Servicing Channel (LTSC)

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

Software compatibility

Software compatibility

FactoryTalk Linx version 6.40.00 has been tested with, and is compatible with, the following Rockwell Automation products:

- Studio 5000 Logix Designer version 36.00.00
- Studio 5000 View Designer version 8.02
- ControlFLASH version 15.08
- ControlFLASH Plus version 6.00
- FactoryTalk Services Platform version 6.40.00
- FactoryTalk Alarms and Events version 6.40.00
- FactoryTalk View version 14.00.00
- FactoryTalk Linx Gateway version 6.40.00
- FactoryTalk Linx OPC UA Connector version 6.40.00
- FactoryTalk Batch version 16.00
- Connected Components Workbench version 22.00.00
- FactoryTalk AssetCentre version 13.00.00
- FactoryTalk Policy Manager version 6.40.00
- FactoryTalk Logix Echo version 3.00.00
- FactoryTalk Updater version 4.10.00
- EDS subsystem version 36.0

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 6.40.00
- FactoryTalk Linx version 6.40.00
- FactoryTalk Linx OPC UA Connector version 6.40.00
- FactoryTalk Alarms and Events version 6.40.00
- FactoryTalk Policy Manager version 6.40.00
- FactoryTalk System Service 6.40.00
- Rockwell Automation x64 Driver v2.03.11.0001 (for 64-bit operating systems)

Prerequisite Software

- FactoryTalk Diagnostics version 6.40.00
- Microsoft .NET Framework 4.8
- Microsoft Visual C++ 2015-2022 Redistributable (x86) 14.36.32532
- Microsoft Visual C++ 2015-2022 Redistributable (x64) 14.36.32532
- Microsoft ODBC Driver 18.2 for SQL Server 18.2.2.1
- Microsoft ODBC Driver 18.2 for SQL Server x64 18.2.2.1
- OPC .NET API 2.01
- Windows Firewall Configuration Utility 1.00.17
- CodeMeter Runtime Kit v7.60

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

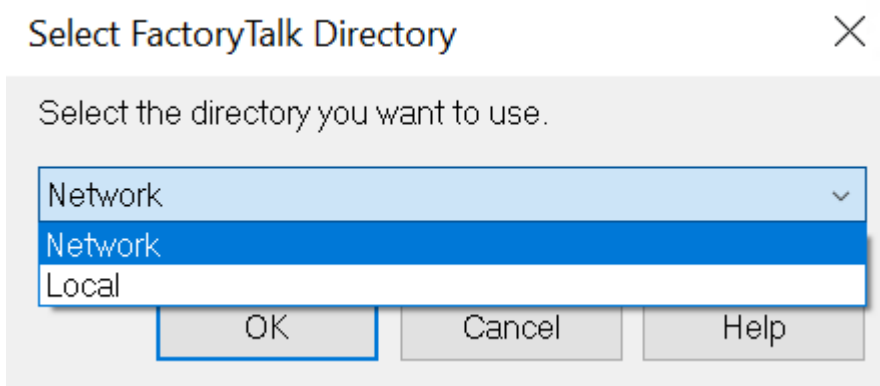
This chapter includes the following information:

- 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:

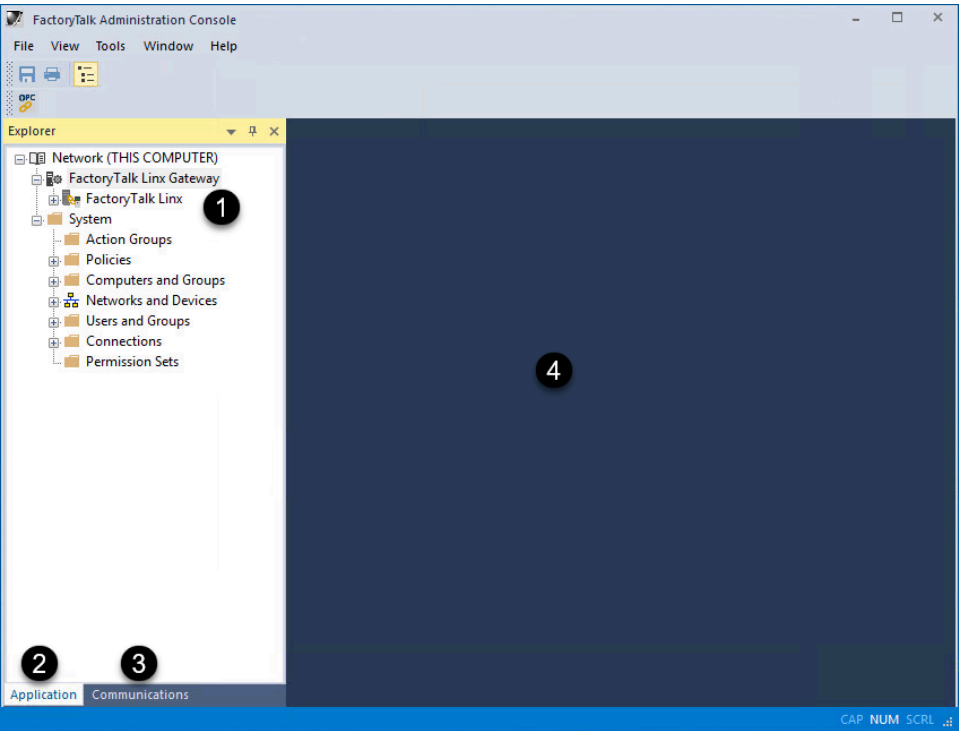
1. From the Start menu, select **Programs > Rockwell Software > FactoryTalk Administration Console**.
2. Select the FactoryTalk Directory you want to use. Refer to [Local applications versus Network applications on page 20](#) for more information about Network and Local applications.



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:



Item	Description
1	The Explorer pane contains the Application tab and the Communications tab.
2	<p>The Application tab shows your applications in tree format as you create them. With the Application tab, you can view and manage your applications. You use FactoryTalk Administration Console to add references to data servers, such as FactoryTalk Linx, within FactoryTalk applications.</p> <p>For more information about creating applications in the FactoryTalk Administration Console, refer to the FactoryTalk Administration Console Help.</p>
3	The Communications tab provides a view from the computer you are currently using. With the Communications tab, you can browse for devices your computer can access on the network (similar to RSWho in RSLinx Classic) and shows them in tree format. The tree is composed of networks, chassis, devices, and services. The status bar on this tab indicates whether the computer is online or offline, and whether it is browsing or not browsing.
4	The workspace is an empty pane when you start FactoryTalk Administration Console. When you launch FactoryTalk Linx from

Item	Description
	the Explorer pane, the Communication Setup editor opens in the workspace .

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, and 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**.

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, and select **Add New Server > Rockwell Automation Device Server (FactoryTalk Linx)**.
3. In the FactoryTalk Linx **Server Properties** tabs, under the **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 the 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 (for example, 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:

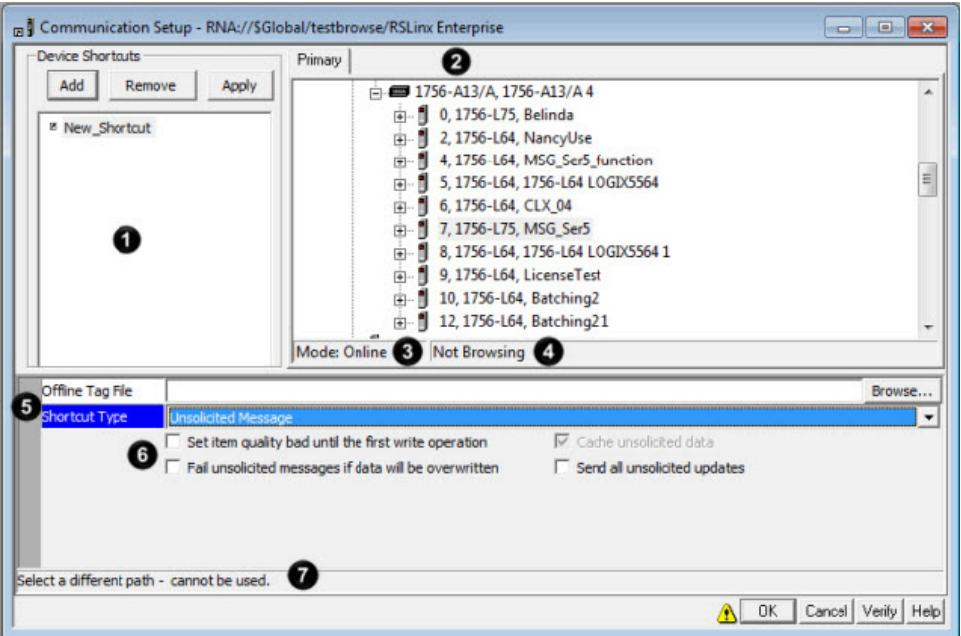
- The FactoryTalk Linx Instance02 Server is not supported on FactoryTalk View SE local station applications.
- The FactoryTalk Linx Instance02 Server is limited to Ethernet driver.
- The FactoryTalk Linx Instance02 Server is not supported on FactoryTalk View ME or PanelView Plus.
- The FactoryTalk Linx 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 the 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.

Item	Description
1	In the Device Shortcuts 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 the device contains.

Item	Description
	The shortcut is associated with a communication path to tell the application where to find that data.
2	<p>Tab(s) contain a communication tree control, representing the communication topology. Depending on your product, you will see the following tabs:</p> <p>FactoryTalk View SE (Site Edition) Local: Primary tab</p> <p>FactoryTalk View SE Network: Primary tab and, if server redundancy is selected, Secondary tab.</p> <p>Use the tabs to add, remove, and modify devices and drivers.</p> <p>Menu options are shown by right-clicking the various nodes within the communication tree.</p>
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	<p>Shortcut options indicate the options associated with the selected shortcut type.</p> <p>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.</p>
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

To do this:	Do this:
Select a device on the communication tree to apply a shortcut to it.	Left-click the device. If it is a valid device selection, the Apply button will become active. If it is an invalid device selection, status message (6) will alert you.

To do this:	Do this:
Start browsing the network.	Left-click a network on the communication tree. The Browse status (4) will indicate Browsing. or Right-click a network. Select Start Browsing from the context menu.
Stop browsing the network.	Right-click a network. Select Stop Browsing from the context menu.
View or edit a property screen.	Right-click the device or network. Select Properties from the context menu.
View a context menu.	Right-click.

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 permit you to add and configure new drivers that can also be utilized by the FactoryTalk Administration Console. The Ethernet driver and Remote Proxy driver are available with this version of FactoryTalk Linx.

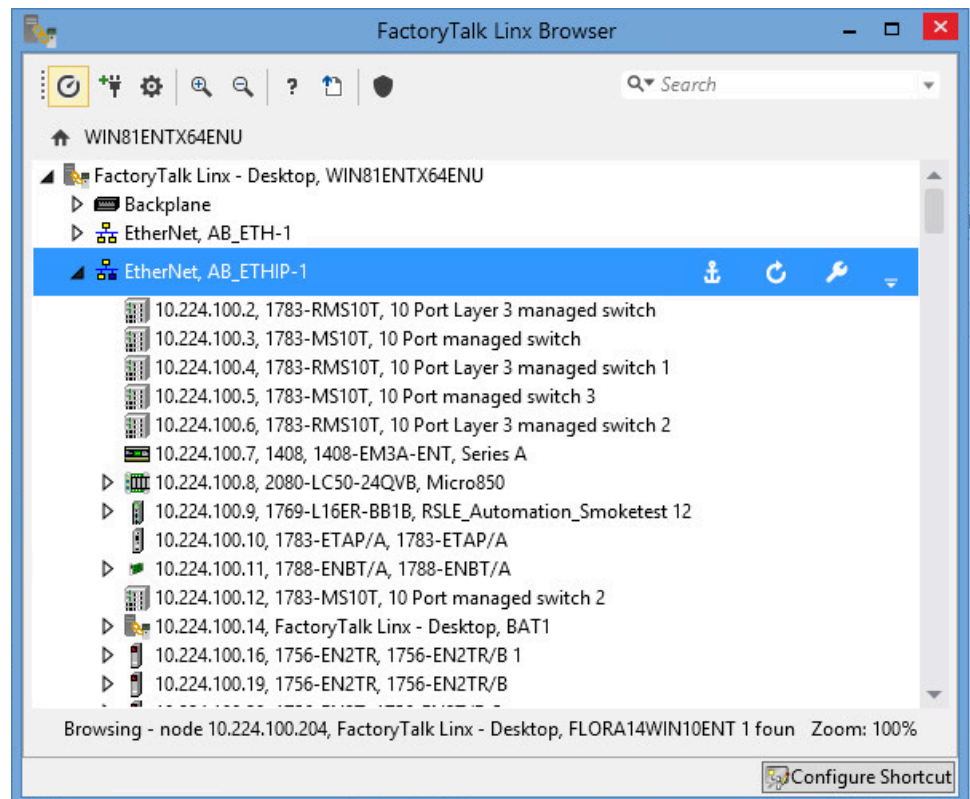
IMPORTANT: Drivers cannot be configured in the embedded FactoryTalk Linx Network Browser opened from FactoryTalk Policy Manager version 6.30.00 and earlier and FactoryTalk Action Manager version 1.00.00. Open the standalone FactoryTalk Linx Network Browser to configure the driver.

The [Ethernet driver on page 49](#) 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 to (remote)
- **Device List/Range** - Directly communicate with a device that you specify in a list or range

Remote Devices via Proxy Service allows FactoryTalk Linx on one computer to [bridge on page 44](#) through a central FactoryTalk Linx Gateway Professional workstation on the network to communicate with automation system devices on a different network. FactoryTalk Linx Gateway Professional must be installed on the central computer acting as the bridge, enabled with a Professional activation and configured to enable the Remote Proxy Service. Additionally, the FactoryTalk Linx Network Browser running on the central gateway workstation must have drivers configured to locate the desired automation devices, either on the same network or a separate network. The FactoryTalk Linx Network Browser on each remote engineering or maintenance workstation can then configure a driver using the **Remote Devices via Proxy Service** selection and bind it to a driver on the central gateway. Each driver can view, browse, and navigate the network topology from the gateway and go online with the device using the gateway as a bridge. This proxy service eliminates the need to configure similar drivers on multiple computers and makes the gateway driver configuration changes immediately visible to all remote computers.

NOTE: When a shortcut is configured to pass through a FactoryTalk Linx Gateway Proxy Server to PLC-5 or SLC-500 controllers directly connected to Ethernet, the controller's tags cannot be browsed, read or written. However, tags can be accessed if the path to the PLC-5 and SLC500 controllers is routed from EtherNet/IP across a ControlLogix chassis through a 1756-DHRIO module.



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.

Settings	Icon	Description
Auto discover on page		Enables the Network Browser to continuously discover the selected device or network branch.
Configure Drivers on page		Adds a driver on the computer to provide communications to a network and configures existing drivers for edit or delete. You can add or configure both Ethernet drivers and Remote Proxy drivers.
Advanced Settings on page		Opens Advanced Settings to configure network discovery settings.
Zoom		Increases (zoom in) or decreases (zoom out) the view of the network topology tree.
Help		Opens the help topics.

Settings	Icon	Description
Auto upload on page 41	 EDS / Device Description Auto Upload	Enables the Network Browser to check all the devices, and automatically upload and register device description files for unknown devices in the selected device and its child devices.
Manual upload on page 41	 EDS / Device Description Upload	Uploads and registers the device description file from a selected device.
Filter on page 39	 Filter	Provides a filtered list of devices upon the searching criteria.
Anchor on page		Re-roots a view in the network topology tree to give focus on a specific node and the corresponding children of that node.
Refresh on page		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.
Delete on page		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: <ul style="list-style-type: none"> Deleting a device from the network topology tree does not remove the device from the network. After closing the Network Browser, all devices on the network return to the view when the Network Browser launches and discovers the devices. Deleting a driver from the network topology tree permanently removes the driver and all its child nodes. Deleting a module with a network branch also removes the child nodes.
Discover		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.
CIP Security Indicator on page		When the icon is in the toolbar, it works as a switch to show or hide the CIP Security configuration status of a device.

Settings	Icon	Description
		When the icon is in front of a device, it shows the device supports CIP Security and no configuration has been taken yet.
CIP Security Indicator on page		Indicates the device is in the CIP security configuration process.
CIP Security Indicator on page		Indicates the device is successfully configured with CIP security.
CIP Security Indicator on page		Indicates CIP Security (Port 2221) is disabled.
User Log on/Log off		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.
About on page		Shows the version of the installed FactoryTalk Linx Network Browser and the FactoryTalk Linx, or to view the copyright and contact information.
Device Web Page		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. Note: 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 (for example, bridged network).
Device Properties on page		Used to open the device properties dialog box based on the node selected.
Device Statistics on page		Used to open a dialog box that displays information to help diagnose a device. Note: the button / option is not displayed for a device that does not provide access to its statistics.
Configuration on page		Used to open the configuration dialog box based on the node selected. They can be driver configuration, device configuration, and bridge configuration.

Settings	Icon	Description
		Note: the button / option is not displayed for a device that does not provide access to its configuration.

Use FactoryTalk Linx with Studio 5000 Logix Designer and ControlFLASH

This section includes the following sections:

- Select Communication software in Studio 5000 Logix Designer
- Select an RSLinx edition in ControlFLASH
- Configuring drivers in the Network Browser
- Configure drivers in FactoryTalk Administration Console

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**.

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/IP, and USB networks.
 - The other choice is FactoryTalk Linx (or RSLinx Enterprise v5.90.00), to communicate over USB and EtherNet/IP networks.

The following table shows the RSLinx edition that ControlFlash uses.

ControlFLASH uses...	If...
RSLinx Classic	RSLinx Classic is installed, and RSLinx Enterprise (v5.90.00 or later) is not installed.
FactoryTalk Linx (or RSLinx Enterprise v5.90.00)	FactoryTalk Linx (or RSLinx Enterprise v5.90.00) is installed, and RSLinx Classic is not installed.
Your preferred RSLinx edition	RSLinx Classic and FactoryTalk Linx (or RSLinx Enterprise v5.90.00) are installed.

Configuring drivers in the Network Browser

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 *FactoryTalk Network Browser*.

Besides, utilize the following functions with the **Network Browser**:

- Search
- Upload and register an EDS / device description 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: Devices configured in the Network Browser's Ethernet driver List and Bridge configuration are 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 the 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.

To filter the search by:	Select this filter attribute:
The name of a device	Device
The online name of a device	OnlineName
The communications path of a project	Path
The address of a device	Address

Operators

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

To search for:	Use this operator:	Example:
Two or more keywords	AND (all capital letters)	<code>alarm AND active</code> returns a list of tags that include the string alarm and active.
One of several keywords	OR (all capital letters)	<code>alarm OR active</code> returns a list of tags that include the string alarm or active.
Exact keywords	" " (quotation marks)	<code>"M200"</code> returns a list of tags that include the string M200 in its name or description.

Upload and register a device description file

Upload and register device description 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 a device description file within the device's firmware, you can upload the device description 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 are possible.

Upload and register a device description file in the Network Browser

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

For an online device in the network topology tree, if there is a device description file within the device's firmware, you can upload the device description file in the **FactoryTalk Linx Network Browser** 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 are possible.


Use the **FactoryTalk Linx Network Browser** to:

- Manually upload and register a device description file
- Automatically upload and register a device description file

Manually upload and register a device description file

The manual EDS / Device Description Upload function allows you to upload and register the device description file of a specific device in the **FactoryTalk Linx Network Browser**. With the manual EDS / Device Description Upload function, you can register a device description file at a time.

To manually upload and register a device description file

1. In the **FactoryTalk Linx Network Browser**, select a device in the network topology tree.
2. Click **More**  and select **EDS / Device Description Auto Upload**, or right-click the device and select **EDS / Device Description Upload**.
3. If the target device has registered a device description file, the following warning message shows:
"An EDS / Device Description is already registered for this device. Are you sure you still want to upload and register this EDS / Device Description file?"
Click **OK** to continue and replace the existing device description file, or click **Cancel** to stop the uploading process and retain the existing device description file on the current computer.

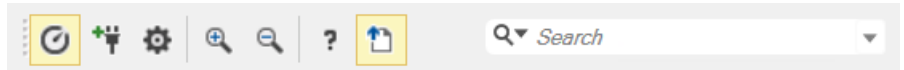
A progress circle shows the registration status. Wait while the system registers the device. If you want to register several device description files, repeat Step 1 to Step 3.

Automatically upload and register a device description file

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

To automatically upload and register a device description file

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



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 a device description file within its firmware, the system automatically uploads and registers the device description file on your computer. A progress circle shows beside the unregistered device indicating the EDS / Device Description auto upload status.

Register device description files using the Device Description File Installation Tool

You can register the device description files of hardware devices, including EDS and IODD files, by launching the **Device Description File Installation Tool**.

Before you begin:

- To register the device description file of a hardware device, you must have a valid and complete device description file of the hardware device. To search and download the device description 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 device description file in the same directory. You can save one or more device description files (and the related icon files) in one directory.

To register device description files using the Device Description File Installation Tool

1. From Windows **Start** menu, select **All Programs > Rockwell Automation > RSLinx > Tools > Device Description File Installation Tool**.
2. In the **Rockwell Automation - Hardware Installation Tool** dialog box, click **Add**. The **Device Description File Installation Tool** dialog box opens.
3. In the **Registration** dialog box:
 - Select **Register a single device description file** to register one device description file at a time, or
 - Select **Register a directory of device description files** to register two or more device description files at a time.
4. In the **Registration** dialog box, click **Browse** to select the device description file (if you are registering a single file), or the directory of the device description files (if you are registering two or more device description files), and click **Next**.
5. In the **Device Description 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: Device Description File Installation Tool 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 device description files

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

- This function updates the device description files on the computer which hosts the FactoryTalk Linx data server. Once registered, the device description file is available for use in client computers which exchange 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 device description file on each target computer respectively.
- Some hardware devices, such as Data Highway Plus (DH+) devices, do not have device description 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 device description file upload and registration.
- If a device description file is invalid, or an error occurs during the upload and registration, the device description file cannot be registered, and a diagnostics message is logged into FactoryTalk Diagnostics Viewer. To view the diagnostics messages:
 - From the 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 device description files that are previously registered on your computer are lost. You need to register the device description files again.

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

- If the EDS / Device Description Auto Upload function is enabled, the system detects and uploads device description files from the child devices of a selected node. If a selected node contains a grandchild device, the grandchild device's device description file is not uploaded automatically. To upload and register a device description 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 / Device Description Upload**.
- The EDS / Device Description Auto Upload function only uploads and registers device description files for unknown devices. If an existing device contains a new device description file, the system does not upload and register it. To update the new device description file, right-click the existing device in the network topology tree and select **EDS / Device Description Upload**.
- If there are many device description files being registered, the **FactoryTalk Linx Network Browser** may respond slowly.

Device Description File Installation Tool

How do I access the Device Description File Installation Tool?

From Windows **Start** menu, select **All programs > Rockwell Software > Device Description File Installation Tool**.

The Device Description File Installation Tool allows you to change the hardware description information currently installed on your computer.

Use Device Description File Installation Tool to register device description 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.

Add a bridge

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 network branch, and then click the  **Property** icon.



Tip: You can also add a bridge from the **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 then click the  **Property** icon.



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

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 an 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.

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

Copy items to a list

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.

5. Paste the copied items into the desired editing tool and make the desired modifications.
6. 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

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.



Setting	Description
Name	Used to create a name for the bridge. Names can include letters, numbers, spaces, and special characters.
Select Target Bridge Network	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.
Copy Setting From	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.

Copy a device configuration

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 to 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, Advanced

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.

Setting	Description
Poll interval between discovery cycles (msec)	The number of milliseconds that occur between each time the FactoryTalk Linx Network Browser queries the network.
Poll timeout (msec):	Specifies the amount of time (in milliseconds) to wait for poll Responses from devices.
Maximum concurrent packets to this network	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.
Enable discovery using subnet mask	Automatically discovers or communicates to devices in a subnet (up to 1000 maximum) at a slow rate without manual IP configuration. Important: Enabling the discovery option can significantly increases network traffic. Determine the impact on your network before enabling this command.
Reset	Used to return the Tuning settings to the default values.

Bridge Configuration dialog , General

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

Setting	Description
Name	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.
Device Serial Number	The unique identification number of the device.
Port Number\IP Address	The downstream IP address and port number of the bus node help identify a unique bridge configuration.
No.	Indicates the number of an item in the list.
Device List/Range	A list of items in the applicable range. Select the check box next to an item in the Device List/Range to edit the item settings.
Pencil Icon	Used to modify an IP address.
Add New	Used to add a new item to the list.
Delete	Used to delete an item from the list.
Copy	Used to copy an item(s) in the list.
Paste	Used to paste an item(s) in the list.

About Advanced Settings dialog box

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, General

Use the **General** tab on the **Advanced Settings** dialog box to control the discovery behavior of the **FactoryTalk Linx Network Browser**.

Setting	Description
Enable Automatic Discovery	Used to enable the discovery type.
Make Discovery Continuous (Auto browse)	Used to turn on continuous browsing of the network.
Show Unrecognized Devices	Used to enable unrecognized devices found during network discovery to be included in the FactoryTalk Linx Network Browser topology tree.
Detect and access device web page	Used to check whether the device supports the detailed information on a web page and user is able to open it.

Setting	Description
Display a warning when opening the device web page	Used to open a warning information dialog box that requires the user confirmation to open an Internet Explorer.
Enable Device Statistics	Used to enable a user to access the device statistics dialog box. Restart the FactoryTalk Linx Browser after selecting this option.
Enable Device Configuration	Used to enable a user to access the device configuration dialog box. Restart the FactoryTalk Linx Browser after selecting this option.
Enable Communications to Remote Proxy	Used to enable the Remote Devices via Proxy Service.
Minimize to system tray	When enabled and the user closes the Network Browser, the user interface is closed. The software is retained in memory and can be quickly launched from the Windows system tray.
Automatically run at startup	When enabled, the Network Browser will automatically run when the computer starts and can be launched from the Windows system tray.

Advanced Settings dialog, Bridged


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

Setting	Description
Add New	Opens the Add New dialog box where the settings for a new bridge are specified.
Edit	Opens the Bridge Configuration dialog box where the settings for a bridge can be edited.
Delete	Deletes the selected bridge.

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 **FactoryTalk Linx Network Browser**, select **Configure Drivers** .
2. In **Configure Drivers**, select **Ethernet** in **Available Drivers Types**, and then select **Add New**.
3. In **Configure Driver > General > Discovery Method**, select **Broadcast**.
4. (optional) In **Name**, type a name for the driver.
5. Select **Local Broadcast**.
6. (optional) In the **Advanced** tab, configure the network interface and the network browsing speed.
7. Select **OK** to save the settings and close the **Configure Drivers** dialog box.

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 **FactoryTalk Linx Network Browser**, select **Configure Drivers** .
2. In **Configure Drivers**, select **Ethernet** in **Available Drivers Types**, and then select **Add New**.
3. In **Configure Driver > General > Discovery Method**, select **Broadcast**.
4. (optional) In **Name**, type a name for the driver.
5. Select **Remote Broadcast**.
6. In **IP Address** and **Subnet Mask**, enter the addressing information for the driver distribution.
7. (optional) In the **Advanced** tab, configure the network interface and the network browsing speed.
8. Select **OK** to save the settings and close the **Configure Drivers** dialog box.

Add a driver with a Device List/Range

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

NOTE: Devices configured in the Network Browser's Ethernet driver List and Bridge configuration are 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 **FactoryTalk Linx Network Browser**, select **Configure Drivers** .
2. In **Configure Drivers**, select **Ethernet** in **Available Drivers**, and then select **Add New**.
3. In **Configure Driver > General > Discovery Method**, select **Device List/Range**.
4. (optional) In **Name**, type a name for the driver.
5. To add an IP address, range of IP addresses or Domain Name Server (DNS) host name to the list, select **Add New**.

See [Device List/Range settings on page 50](#) for details.



Tip: You can use **Paste** to add multiple items to the list copied from an external Windows software, such as notepad or Excel. A maximum of 255 items are supported in the device list.

6. (optional) In the **Advanced** tab, configure the network interface and the network browsing speed.
7. Select **OK** to save the settings and close the **Configure Drivers** dialog box.

Device List/Range settings

These are the settings for Device List/Range:

- Single IP address, such as 10.88.20.33
- Single IP address and description, such as 10.88.20.33 "LineController"
The maximum length of the description is 63 characters.
- 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

NOTE: A large IP address range containing a high number of unused IP addresses will cause many Address Resolution Protocol (ARP) messages to be generated which could negatively affect the performance of devices on your network or potentially cause a device to stop communicating. To avoid this, limit each range to a set of active IP addresses.

- DNS host name, such as "PackLine1PLC"

**Tip:**

1. Using DNS host names requires a DNS host name server to be present on the network and configured with the appropriate names.
2. The proxy devices with DNS host names are not supported.

**Tip:**

1. A maximum of 255 items are supported in the device list.
2. If an item in the list is formatted incorrectly, a red line is placed around the item, and RSLinx does not utilize this item as part of the discovery cycle.

Add a single remote proxy driver

Remote Devices via Proxy Service permits each remote FactoryTalk Linx workstation to communicate with automation devices by bridging through a central FactoryTalk Linx Gateway Professional workstation. A client can connect 2,000 remote drivers with 2,000 remote devices at most. To change the devices presented in a remote proxy driver, go to the proxy server, and then change the associated driver on the server.

Prerequisites


- A central workstation has FactoryTalk Linx Gateway Professional configured
 - Version 6.31.00 or later is installed
 - A **Professional** activation is available
 - The central gateway can receive messages on port 44818
 - The Remote Proxy Service is enabled and configured




Tip: For the detailed steps of configuring Remote Proxy Service in FactoryTalk Linx Gateway, refer to *Enable remote proxy service in FactoryTalk Linx Gateway Help*.

- The FactoryTalk Linx Network Browser on the central workstation has network driver(s) configured

To add a single remote proxy driver

1. From the **FactoryTalk Linx Network Browser**, select .
2. In **Configure Drivers**, select **Remote Devices via Proxy Service** in **Available Driver Types**, and then select **Add New**.
3. In **Configure Remote Proxy Driver > Add Single/Multiple Driver(s)**, select **Add single driver**.

4. In **Local Driver Name**, edit the name of the driver as needed.
5. In **Server's IP Address or Hostname**, enter the IP address or hostname of the server you want to connect to, and then select .



Tip: DNS host names are not supported through a Proxy Service so only IP Addresses may be entered.

6. In **Server's Display Name**, edit the name of the server.
7. In **Remote Linx Driver Name**, select the driver.
8. Select **OK**.

Add multiple remote proxy drivers

Remote Devices via Proxy Service permits each remote FactoryTalk Linx workstation to communicate with automation devices by bridging through a central FactoryTalk Linx Gateway Professional workstation. A client can connect 2,000 remote drivers with 2,000 remote devices at most.

Prerequisites



- A central workstation has FactoryTalk Linx Gateway Professional configured
 - Version 6.31.00 or later is installed
 - A **Professional** activation is available
 - The central gateway can receive messages on port 44818
 - The Remote Proxy Service is enabled and configured



Tip: For the detailed steps of configuring Remote Proxy Service in FactoryTalk Linx Gateway, refer to *Enable remote proxy service in FactoryTalk Linx Gateway Help*.

- The FactoryTalk Linx Network Browser on the central workstation has network driver(s) configured

To add multiple remote drivers

1. From the **FactoryTalk Linx Network Browser**, select .
2. In **Configure Drivers**, select **Remote Devices via Proxy Service** in **Available Driver Types**, and then select **Add New**.
3. In **Add Single/Multiple Driver(s)**, select **Add multiple drivers**.
4. In **Server's IP Address or Hostname**, enter the IP address or hostname of the server you want to connect to, and then select .



Tip: DNS host names are not supported through a Proxy Service so only IP Addresses may be entered.

5. In **Remote Linx Driver Name**, select the checkbox in front of the driver name to select multiple drivers.



Tip: When adding multiple drivers, select the checkbox in the upper left corner to select all drivers in the list.

6. In **Server's Display Name**, edit the name of the server.
7. In **Local Driver Name**, edit the name of the selected drivers.
8. Select **OK**.

Configure a shortcut to connect through a FactoryTalk Linx Gateway remote proxy server

Starting from FactoryTalk Linx version 6.40.00, you can use a shortcut to connect through a FactoryTalk Linx Gateway remote proxy server. This will permit a FactoryTalk software in one system to pass communications to controllers and devices in a different system or network across a computer running FactoryTalk Linx Gateway. The FactoryTalk Linx service can operate in a different FactoryTalk directory than the one used by FactoryTalk Linx Gateway. Data delivery speeds will be from 5% to 50% slower through the proxy server than the system without the proxy server. The tested maximum capacity between a proxy server and a client is as follows:

- 50 shortcuts
- 500,000 tags, with a 2 second subscription rate

NOTE: This data is provided as an example capacity. The test did not verify all value changes that were delivered. Because each system has different operational requirements, testing should be performed to determine how a proposed system will operate.

To configure a shortcut to connect to remote proxy devices

1. On the proxy server computer, configure:
 - a. In the FactoryTalk Linx Network Browser, add a local driver, and then browse devices under the local driver node.
 - b. Install FactoryTalk Linx Gateway version 6.31.00 or later, and then enable remote proxy service. For more information, refer to Enable remote proxy service in FactoryTalk Linx Gateway Help.
2. On the proxy client computer, configure:
 - a. In the FactoryTalk Linx Network Browser, add one or more remote proxy drivers to connect to the driver you created in the proxy server computer. For more information, refer to Remote Devices via Proxy Service in FactoryTalk Linx Help.
 - b. In FactoryTalk Administration Console, configure a shortcut to connect to controllers of devices discovered under the remote proxy driver.

NOTE: Unsolicited Message and SLC/PLC connections are not supported.

The USB CIP Driver

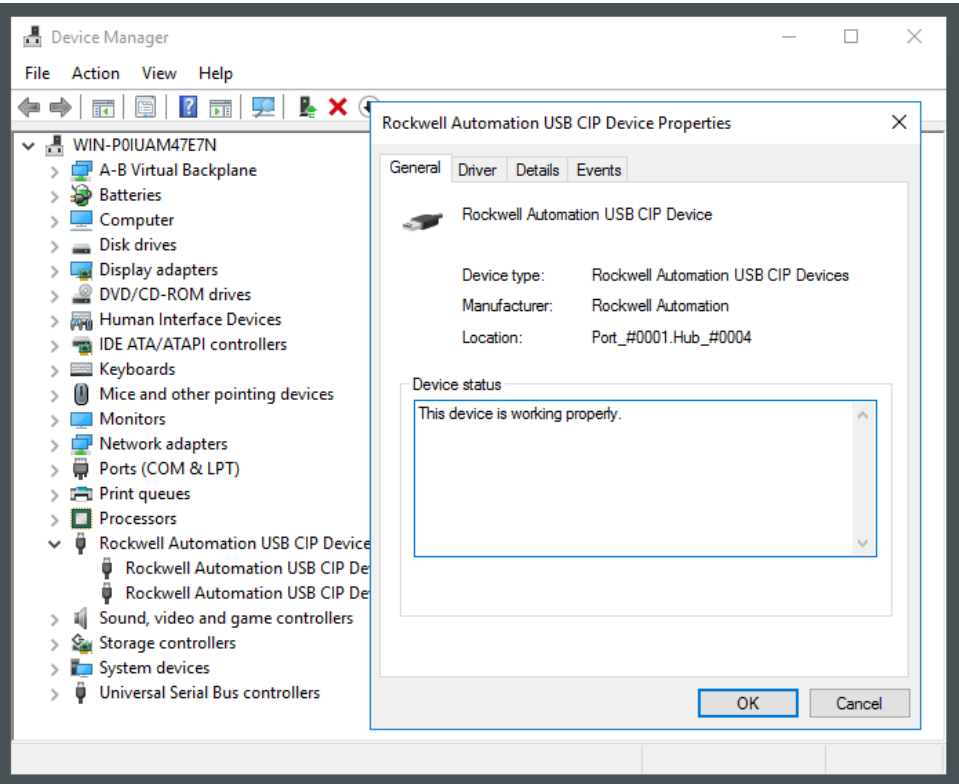
The USB CIP driver is a plug-and-play driver that gets loaded by Windows when a supported USB CIP device is plugged into the computer. The USB CIP driver builds atop the USB layers provided by the computer manufacturer and Microsoft to handle USB CIP traffic.

To verify the USB CIP driver has been loaded and is running, start Windows Device Manager using one of the following methods:

- Right-click on the Start menu, and then select Device Manager.
- Right-click the Computer, and then select Properties > Device Manager.
- Type Device Manager in the Cortana/Taskbar search field.

If one or more USB CIP devices are plugged in, you can see a node titled Rockwell Automation USB CIP Devices. If you expand that node, there will be one Rockwell Automation USB CIP Device node for each detected device. To view the device status, double-click on the node, or right-click and select Properties. Check the message under the Device status field to see if the device is working properly.

Select the **Driver** tab to view detailed information about the USB CIP device.



When a USB CIP device is plugged into a computer, the device will be browsed and assigned a slot under the virtual backplane branch, and then will be mirrored into the UBS branch in the FactoryTalk Linx Network Browser topology tree.



Tip: The USB branch is a simplified version of the virtual backplane branch, including only virtual backplane devices that are USB-connected. If a USB CIP device's hardware database file (HardwareDatabase.xml) is not registered on the computer, the USB CIP device may only appear in the virtual backplane as an Unrecognized Device with a yellow question mark and will not be included in the USB branch in the topology tree.

Troubleshooting USB Component

In a connection between the USB CIP device and the communication software such as RSLinx Classic or FactoryTalk Linx, there are hardware and software components working together for data transmitting. When the USB CIP communications do not working properly, check and diagnose each component.

USB CIP Device

The USB CIP device, for example, a Logix controller, contains electronics to drive the USB port and firmware to encode and decode communications. When a USB CIP communication is not working, verify if the device can talk to another

computer to rule out issues with the device itself. To locate the issue, have a computer already set up and known to work with similar devices.

NOTE: Logix controllers do not fully support data acquisition through USB CIP connections. Therefore, it is advisable to use USB CIP connections for specific tasks such as uploading and downloading programs, monitoring real-time operations, making real-time changes to settings, updating ControlFLASH firmware, or establishing a temporary connection for Studio 5000 Design Software. Avoid using USB CIP connections for reading or writing tag data.

USB Cable

The USB cable is used to physically connect a USB CIP device to a computer. The cables can loosen or corrode over time, particularly in harsh industrial environments. To rule out the issues from the cables, check the cables for damage or simply use a different cable.

Computer USB Port

A USB Port is a cable connection interface in a computer or other electronics devices. Like cables, the physical USB port on the computer can pick up dust or corrosion over time. When a USB Port is not functioning in the computer, try another Port if it's possible. Also, use different types of USB devices, such as USB thumb drive, to verify if the ports in your computer are fully functional.

The computers with the operating system earlier than Windows 8 or Windows Server 2012 does not support USB 3.0. It means that if the USB device provider doesn't provide the corresponding drivers to be installed, the USB Ports will not function.

USB CIP Helper

USB CIP Helper is a service running in the background of Windows that assigns slots in the virtual backplane and provides warning messages when slot assignment conflicts happen between multiple USB CIP devices.

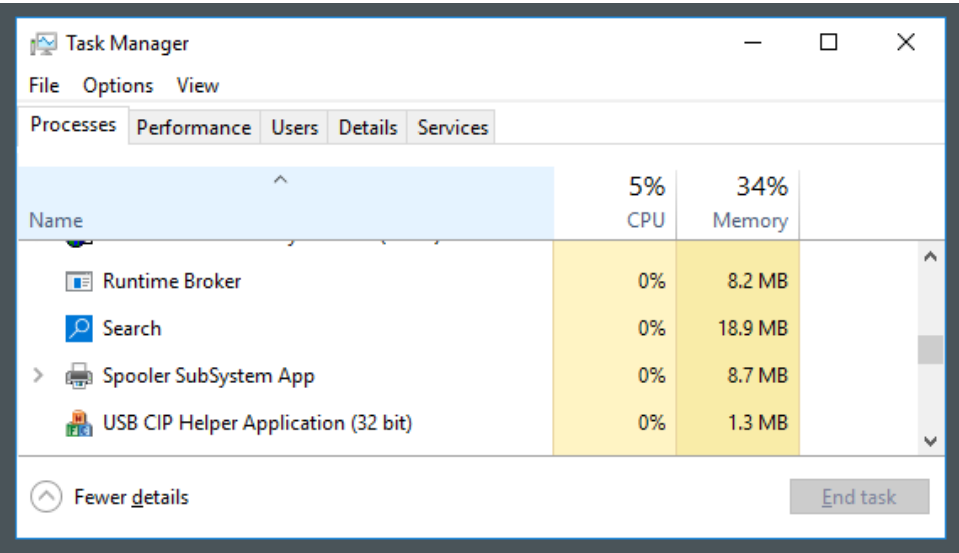
Upon detecting a USB CIP device, the USB CIP Helper Application assigns a slot in the virtual backplane based on the following guidelines:

1. If the detected device is in the registry cache, USB CIP Helper assigns the same virtual backplane slot that was previously used by the USB CIP device.
2. If the detected device is not in the registry cache, USB CIP Helper assigns an available virtual backplane slot that has remained empty for the longest duration.
3. The slot assignment process starts from the highest slot number (16) and continues downwards.

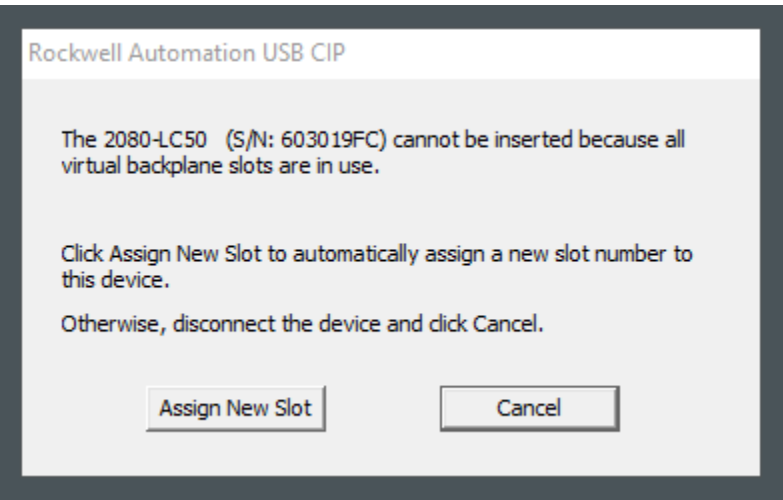


Tip: Once a virtual backplane slot is assigned to a USB CIP device, the registry cache is updated to record the time of device detection.

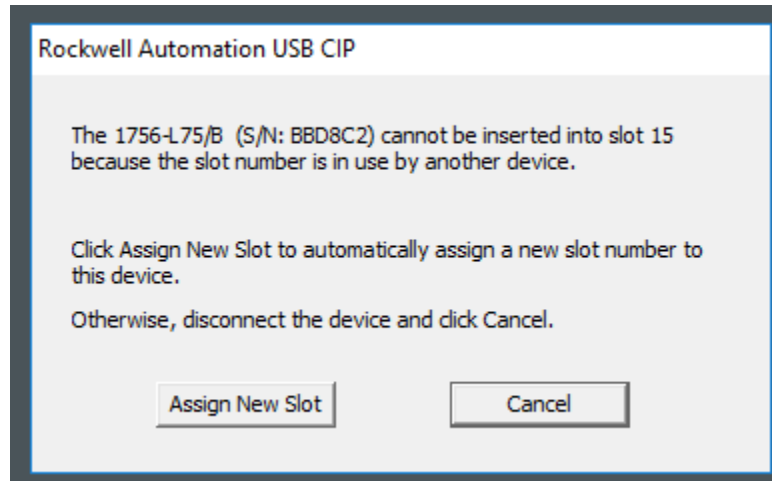
To check if the service is running, press Ctrl + Alt + Delete to start Task Manager:



When a USB CIP device is plugged in and there is no available slots in the virtual backplane, a message dialog box shows the detailed information. For example:



When the USB CIP device is assigned to a previously used slot and that slot is in used by other devices, a message dialog box shows the detailed information. For example:



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/IP network, from the **Communications Setup** editor, right-click on the network shown, then select **Start Browsing** to populate the driver with devices.
- Some EtherNet/IP devices may not support the browsing protocol used by FactoryTalk Linx on EtherNet/IP. 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/IP network of the workstation. Before you add a device manually, you must register it using the Device Description File Installation Tool.
- The EtherNet/IP 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.

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 **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 a 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 ensure a constant data communication when the primary server fails. Refer to the FactoryTalk Linx Help for more information about redundant servers.

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.

Setup FactoryTalk Linx to support FactoryTalk Alarms and Events (optional)

On the Alarms and Events tab of the FactoryTalk Linx Server Properties dialog box, you can configure the selected server for FactoryTalk Alarms and Events device-based alarm monitoring. Refer to the FactoryTalk Linx Help, or click Help on the property page before attempting to set up FactoryTalk Alarms and Events support.



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.

The screenshot shows the 'Alarms and Events' tab of the 'FactoryTalk Linx Server Properties' dialog box. The 'General' tab is selected, and the 'Enable alarm and event support' checkbox is checked. Below this, the 'Priorities' section is expanded, showing a table of severity ranges. The 'Alarm and Event History' section is also expanded, showing fields for 'Enable history', 'Database definition', 'Computer name', 'Database name', 'Cache file path', and 'Log language'.

Priority	Severity Range	
	Low	High
Urgent	751	1000
High	501	750
Medium	251	500
Low	1	250

Alarm and Event History

☐ Enable history

Database definition:

Computer name:

Database name:

Cache file path:

C:\Documents and Settings\All Users\Application Data\Rockwell Automation\

Log language:

English (United States), en-US

OK Cancel Apply Help

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 **Explorer** under the FactoryTalk Linx data provider.

Add a driver

A driver is a software that interacts with a network interface (such as the interface that connects your computer to the EtherNet/IP 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/IP network

If you are running on an EtherNet/IP 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/IP devices may not support the browse protocol used by FactoryTalk Linx on EtherNet/IP. If the devices you expect to appear during the browse do not appear, manually add the devices to the workstation's EtherNet/IP network by right-clicking on the network and selecting **Add Device**.

If you are running on any network other than EtherNet/IP

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

Add a device

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

Automatically add a device by browsing

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/IP 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 then 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 then 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 the 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/IP 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.

Shortcut types

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.

Shortcut type	Description
Processor	Used for the processor type devices, such as 1756-L53, 1756-L61S, 1756-L64, 1756-L75, and CompactLogix L32E Processor.
EDS Parameter	Used for devices in which the EDS parameter is defined, such as 1734- and DeviceNet Adaptor, 1734-ADNX, 1747-AENTR, 1756-DNB, and 1783-MS10T Stratix 8300.
Symbolic	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.
Unsolicited Message	Used for the ControlLogix, PLC-2, PLC-5, and SLC 500 controllers via EtherNet/IP. 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. Starting from version 6.31.00, FactoryTalk Linx supports PLC-5 and SLC 500 communication via unsolicited message shortcut type.
CIP Object	Supports accessing devices' CIP Object instance attributes as tags. You must select a sub-option of the CIP Object. Currently, FactoryTalk Linx supports the Energy and Class/Instance/Attribute Message sub-option.
Redundant Controller Path	Used for a single ControlLogix controller with redundant communication paths. The default path names are Path1 and Path2 .
Redundant ControlLogix Controller	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 .

Change shortcut types

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

To change a shortcut type

1. Double-click **Communication Setup** to display the **Device Shortcuts** area on the **Communication Setup** editor.



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/IP 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.

Shortcut Path Routing Options

Starting from version 6.20.00, FactoryTalk Linx adds a different method based on a device's **Network Path** to store the 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 the discovery operation. **Device Path** linkage worked unless the system changed and resulted in the 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 the 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 a backplane name.

Data is the current project name that is 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 the network directory, the 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 the local directory.
- The FactoryTalk View ME application shortcut policy settings are decided by the configurations under the local directory.

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

Properties	Selection	Description
		Note: To put this change into effect, restart all the computers that are hosting the FactoryTalk Linx data server.

NOTE: For SLC or PLC controllers with the same node on different channels connected to a 1756-DHRIO module, if the FactoryTalk Linx **Shortcut Policy > Enable Network Path** is set to **Disable**, FactoryTalk Linx will browse the device using the Device Path which does not contain node address information, so FactoryTalk Linx will pick up the wrong device on the module's other channel. If the **Enable Network Path** is set to **Enable**, FactoryTalk Linx will browse the device using the Network Path which contains node address information, so different SLC or PLC controllers with the same node address can be distinguished.

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.

Shortcut path synchronization

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 v6.20.00 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 by choosing one of the following methods as the prior method to sync:

- 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-defined tags to view the diagnostic information in FactoryTalk Live Data Test Client.

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

Name	Description
@AddItemCalls	When a FactoryTalk Live Data client wants to receive new data items, it will ask the FactoryTalk Linx to add the items from its data collection process. This attribute indicates the number of requests (calls) clients made to the add item operation.
@AddItems	Shows the number of items a client added to FactoryTalk Linx.
@AddItemsIgnored	Shows the number of items requested to be added that were ignored as the items were already on-scan.
@AddShortcutCalls	Shows the number of attempts to add shortcuts to FactoryTalk Linx.
@AveragePacketResponse	FactoryTalk Linx sends data item requests and receives responses from Logix controllers. This FactoryTalk Linx predefined diagnostic tag attribute indicates the average response time of the recent 100 responses from Logix controllers in milliseconds. After resetting the service or restarting your workstation, this value will be reset to zero.
@CLXDownloadCount	Shows the number of download events for a Logix controller.
@CLXMaxScanTime	A Logix controller can be configured to execute or scan a continuous task as a background process. This task is interrupted by periodic tasks, event tasks, and other processes on a controller. The Max Scan Time attribute provides the longest or maximum duration for the continuous task scan retrieved from Logix.

Name	Description
@CLXOfflineItemCount	Shows the number of items handled in an offline status for a Logix controller.
@CLXPacketsReinitialized	Shows the number of packets that were reinitialized due to connection lost or other problems.
@CLXPresentScanTime	A Logix controller can be configured to execute or scan a continuous task as a background process. This task is interrupted by periodic tasks, event tasks, and other processes on a controller. The Present Scan Time attribute provides the last duration for the continuous task scan retrieved from Logix.
@CLXWritePackets	Shows the number of write command packets sent to a Logix controller.
@CLXWritesPending	Shows the number of write command packets pending to a Logix controller.
@ConnectionClosesFailed	To establish communications to Logix controllers, FactoryTalk Linx will find an existing active CIP connection or establish a CIP connection. If the CIP connection is no longer needed, this CIP connection will be closed. The close CIP connection request might fail because of the internal error (for example, time out when closing the CIP connection) in FactoryTalk Linx. This attribute indicates how many CIP connections are unable to be closed.
@ConnectionClosesRejected	To establish communications to Logix controllers, FactoryTalk Linx will find an existing active CIP connection or establish a CIP connection. If the CIP connection is no longer needed, this CIP connection will be closed. Logix controllers can reject the close CIP connection request (for example, a Logix controller's message queue is full and it does not have capacity to process a new request). This attribute indicates the number that the close CIP connection requests were rejected.
@ConnectionOpensFailed	Shows the number of times that the action of opening a connection is failed.
@ConnectionOpensRejected	When trying to upload the namespace or read and write tag values of Logix controllers, FactoryTalk Linx will find an existing active CIP connection or establish a CIP connection. Logix controllers can reject the open CIP connection request. This attribute indicates the number that the open CIP connection requests were rejected.
@ConnectionsActive	To establish communications to Logix controllers, FactoryTalk Linx will find an existing active CIP connection or establish a CIP connection. FactoryTalk linx will start this attribute at zero (0) when there are no active connections, increment up as new connections are opened, and decrement down as connections

Name	Description
	are closed. This attribute indicates the number of active CIP connections being used to communicate packets of information with a controller.
@ConnectionsAttempted	To establish communications to Logix controllers, FactoryTalk Linx will find an existing active CIP connection or establish a new CIP connection. This attribute indicates the number that FactoryTalk Linx attempted to open the existing CIP connections, whether the attempt was successful or not.
@ConnectionsClosed	To establish communications to Logix controllers, FactoryTalk Linx will find an existing active CIP connection or establish a CIP connection. If the CIP connection is no longer needed, the CIP connection will be closed. This attribute indicates how many CIP connections were closed.
@ConnectionsDropped	To establish communications to Logix controllers, FactoryTalk Linx will find an existing active CIP connection or establish a CIP connection. If there are no packets sent through a CIP connection for a long time, this CIP connection will time out and closed (dropped). This attribute indicates the number of dropped CIP connections.
@CurrentTime	Shows the current time from the Logix controller clock.
@DataCommunicationsInhibit_Path1	Shows the current inhibit state of redundant path1. <div>  Tip: To switch the current inhibit state of redundant path1, right-click the item > Write Item(s) > Async Write, change the Value (1 = True, 0 = False) and then click OK. </div>
@DataCommunicationsInhibit_Path2	Shows the current inhibit state of redundant path2. <div>  Tip: To switch the current inhibit state of redundant path2, right-click the item > Write Item(s) > Async Write, change the Value (1 = True, 0 = False) and then click OK. </div>
@DevicePath	Shows a string that describes the path to the Logix controller.
@DevicePathSwitch	Shows the current active path index (0 = Primary, 1= Secondary). <div>  Tip: To switch the current active path, right-click the item > Write Item(s) > Async Write, change the Value (1 = True, 0 = False) and then click OK. </div>

Name	Description
	 If the write value of @DevicePathSwitch is invalid (out of range or same with the current path), a write error (E_FAIL: 0x80004005) returns.
@DevicePathSwitchCount	Show the times that the device path has switched over since the service started.
@DevicePathSwitchTimestampLastMsg	Show the time stamp that the last device switch over happened in text format.
@DPVersion	A data provider is a function of FactoryTalk Linx used to communicate to controller hardware. This attribute indicates the version of the Logix Data Provider (FactoryTalk Linx), Legacy Data Provider, Unsolicited Message Data Provider, or PLC Unsolicited Message Data Provider. The Data Provider type depends on the created shortcut type.
@FirstConnectionDropTime	When trying to upload the namespace or read and write tag values of Logix controllers, FactoryTalk Linx will find an existing active CIP connection or establish a CIP connection. If there are no packets sent through a CIP connection for a long time, this CIP connection will time out and be dropped. This attribute indicates the first time a connection was dropped.
@FreeMem	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.
@FreeMemDT	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.
@FreeMemGM	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.
@FreeMemIO	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.

Name	Description
@FreeMemSC	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.
@IsPresent	Shows an integer that means: "1" : Logix controller is on-line and contains a program; "0" : Logix controller is off-line or there is no program inside.
@IsPresent_Path1	Shows the present status of redundant path1.
@IsPresent_Path2	Shows the present status of redundant path2.
@LastConnectionDropTime	When trying to upload the namespace or read and write tag values of Logix controllers, FactoryTalk Linx will find an existing active CIP connection or establish a CIP connection. If there are no packets sent through a CIP connection for a long time, this CIP connection will time out and be dropped. This attribute indicates the last time a connection was dropped.
@Mode	This attribute indicates the mode of the Logix controller. This attribute is retrieved from the CIP Device Identity attribute obtained by communicating to the Logix controllers.
@NumberOfCLXOptimizedPackets	Shows the number of optimized packets created to a Logix controller.
@NumberOfDataItems	Shows the number of data items added to FactoryTalk Linx.
@NumberOfItems	Shows the total number of items added to FactoryTalk Linx. This value is the sum of @NumberOfDataItems and @NumberOfPredefinedItems.
@NumberOfOptimizedPackets	Shows the number of optimized items stored in ControlLogix Optimized packets.
@NumberOfPredefinedItems	Shows the number of predefined items added to FactoryTalk Linx.
@PacketsCancelled	Shows the total number of packets canceled to the Logix controller.
@PacketsPerSecond	Shows the average number of packets received from the Logix controller per second.
@PacketsReceived	FactoryTalk Linx sends data item requests and receives responses from Logix controllers. This attribute indicates the number of packets FactoryTalk Linx received from a Logix controller.
@PacketsSent	Shows the number of packets sent to the Logix controller.
@PollBlocks	Shows the number of poll requests received from the RNA Toolkit.

Name	Description
@PollBlocksFailure	Shows the number of poll requests failure received from the RNA Toolkit.
@PollBlocksIgnored	Shows the number of poll requests received from the RNA Toolkit that are pending.
@PollBlocksSuccess	Shows the number of poll requests received from the RNA Tool.
@PollComplete	Shows the number of poll requests completed.
@PollCompleteFailure	Shows the number of completed poll requests failures.
@PollCompleteSuccess	Shows the number of completed poll requests success.
@ProcessorName	Shows a string containing the Logix controller program name. The program name can be a maximum of 40 characters in length.
@RedundancyEnabled	Shows an integer that means: "1": Logix controller is configured with redundancy; "0": Logix controller isn't configured with redundancy; "-1": Logix controller doesn't support redundancy.
@RedundancyMode	Shows the redundancy state of a Logix controller. The primary controller in a redundant pair returns value "1". The secondary controller in a redundant pair or a non-redundant controller returns value "0". Note: This attribute only works with ControlLogix 1756-L55 controllers.
@RedundancyState	Shows the redundancy state of the Logix controller. "1": Powerup/Undetermined (powerup default) "2": Primary w/ Qualified Secondary "3": Primary w/ Disqualified Secondary "4": Primary w/ No Secondary "6": Primary w/ Qualifying Secondary "7": Qualifying Secondary "8": Qualified Secondary "9": Disqualified Secondary w/ Primary "10": Disqualified Secondary w/ No Partner "15": Primary Locking for Update "16": Primary Locked for Update "17": Secondary Locking for Update "18": Secondary Locked for Update
@RemoveItemCalls	Shows the number of calls a client made to remove an item.
@RemoveItem	Shows the number of items being removed.
@RemoveItemsDuplicate	Shows the same item being on-scan.
@Revision	This attribute indicates the firmware revision of Logix controllers. This attribute is retrieved from the CIP Device Identity attribute obtained by communicating to the controller.

Name	Description
@SetPropertyCalls	Shows the number of calls a client made to set property.
@ShortcutsAdded	Shows the number of shortcuts being added in FactoryTalk Linx.
@Status	<p>This attribute indicates the state of the Logix controller. This attribute is retrieved from the CIP Device Identity attribute obtained by communicating to the Logix controllers.</p> <ul style="list-style-type: none"> OK (the controller mode is Flash update in progress, Flash is bad, Debug, Remote Program, Remote Run, Program, or Run) Faulted (the controller mode is Faulted)
@TimeToUploadGlobalTags	<p>FactoryTalk Linx must maintain a copy of the tags and datatypes defined in a Logix controller to optimize communications. This attribute indicates the amount of time that FactoryTalk Linx uploads all the controller's tags and datatypes in milliseconds. This value is generated with a full namespace upload operation from Logix and will depend on the number of tags defined in the controller. On-line tag additions or deletions will impact this time duration the next time a full namespace upload occurs.</p>
@TotalMem	<p>Shows the total memory in the Logix controller.</p> <p>Note: The ControlLogix 5580, CompactLogix 5480, and CompactLogix 5380 controllers do not provide this information because of architectural changes within the controller firmware.</p>
@TotalMemDT	<p>Shows the total Data Table memory in the Logix controller.</p> <p>Note: The ControlLogix 5580, CompactLogix 5480, and CompactLogix 5380 controllers do not provide this information because of architectural changes within the controller firmware.</p>
@TotalMemGM	<p>Shows the total General memory in the Logix controller.</p> <p>Note: The ControlLogix 5580, CompactLogix 5480, and CompactLogix 5380 controllers do not provide this information because of architectural changes within the controller firmware.</p>
@TotalMemIO	<p>Shows the total I/O memory in the Logix controller.</p> <p>Note: The ControlLogix 5580, CompactLogix 5480, and CompactLogix 5380 controllers do not provide this information because of architectural changes within the controller firmware.</p>
@TotalMemSC	Shows the total security memory in the Logix controller.

Name	Description
	Note: The ControlLogix 5580, CompactLogix 5480, and CompactLogix 5380 controllers do not provide this information because of architectural changes within the controller firmware.
@TrackedStateValue	Shows the tracked state value from the controller.
@WriteCompletes	Shows the number of write requests completed.
@WriteCompleteSuccess	Shows the number of write packets that were successfully completed.
@WriteItemCalls	Shows the number of calls a client made to write an item.
@WriteItem	Shows the number of items written.
@WriteItemFailures	Shows the number of requests written that are failed.
@WriteItemsSuccess	Shows the number of requests written that are succeeded.

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 and 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 inhibits and enables support for 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 inhibited, 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 be added to the **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** and click **OK**.

After the device is inhibited, 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.



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 the 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 6.21.00, FactoryTalk Linx could generate SysLog for select events including 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 **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.

Category	Events
CIP Security configuration changes	<ul style="list-style-type: none">• 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	<ul style="list-style-type: none">• Failed to modify network configuration.• Network configuration was modified.
System powerup	Restart the FactoryTalk Linx service.

Work with Micro800 series controllers

RSLink Enterprise v5.70.00 and later (renamed FactoryTalk Linx with version 6.00.00) supports tag browsing for Micro800 series controllers. You may also browse the tag updates of the Micro800 series controller on user interfaces including FactoryTalk Live Data Test Client and the Tag Browser component in FactoryTalk View.

FactoryTalk Linx provides read and write access to tag value of Micro800 controllers from FactoryTalk Live Data clients (for example, FactoryTalk View SE and FactoryTalk View ME). You can create shortcuts for Micro800 controllers using the symbolic shortcut type in the **Communication Setup** editor.

RSLink Enterprise v5.70.00 and later (renamed FactoryTalk Linx with version 6.00.00) support the following Micro800 series controllers, including Micro820, Micro830, Micro850, and Micro870 controllers.

Micro800 controllers	Catalog number
Micro820 controllers	2080-LC20-20QWB
	2080-LC20-20QBB
	2080-LC20-20AWB
Micro830 controllers	2080-LC30-10QWB
	2080-LC30-10QVB
	2080-LC30-16AWB
	2080-LC30-16QVB
	2080-LC30-16QWB
	2080-LC30-24QBB
	2080-LC30-24QVB
	2080-LC30-24QWB
	2080-LC30-48AWB
	2080-LC30-48QBB
	2080-LC30-48QVB
	2080-LC30-48QWB
Micro850 controllers	2080-LC50-24AWB
	2080-LC50-24QBB
	2080-LC50-24QVB
	2080-LC50-24QWB
	2080-LC50-48AWB
	2080-LC50-48QBB
	2080-LC50-48QVB
	2080-LC50-48QWB
	2080-L50E-24AWB
	2080-L50E-24QBB
	2080-L50E-24QVB
	2080-L50E-24QWB
	2080-L50E-48AWB
	2080-L50E-48QBB
	2080-L50E-48QVB
	2080-L50E-48QWB

Micro800 controllers	Catalog number
Micro870 controllers	2080-LC70-24AWB
	2080-LC70-24QBB
	2080-LC70-24QWB
	2080-L70E-24AWB
	2080-L70E-24QBB
	2080-L70E-24QBBN
	2080-L70E-24QWB
	2080-L70E-24QWBN

Supported data types for Micro800 series controllers

FactoryTalk Linx allows online browse, read and write operations to Micro800 series (Micro820, Micro830, and Micro850) controllers with the following data types:

- BOOLEAN
- SINT
- INT
- DINT
- LINT
- USINT
- UINT
- UDINT
- ULINT
- REAL
- LREAL
- SHORT_STRING

The maximum string length is 252 bytes.



Tip:

- BYTE, WORD, DWORD, and LWORD data types are also supported for Micro800 series (Micro820, Micro830, and Micro850) controllers, while they are treated as equivalent data types. The equivalent for BYTE is USINT, WORD is UINT, DWORD is UDINT, and LWORD is ULINT.
- FactoryTalk Linx supports read and write access to the bits within the integer tags of Micro800 series controllers. For more information, see Configure a Symbolic shortcut in the FactoryTalk Linx Help and FactoryTalk Live Data Test Client Help.
- For Micro800 series controllers, the following data types are NOT supported in FactoryTalk Linx, though they are supported in the Connected Components Workbench software:
 - Date and Time
 - Structure and structure elements
 - Array of array

Work with Logix 5000 controllers

FactoryTalk Linx supports tag browsing for Logix 5000 controllers. You may also browse the tag updates of the Logix 5000 controllers on user interfaces including FactoryTalk Live Data Test Client and the Tag Browser component in FactoryTalk View.

FactoryTalk Linx provides read and write access to tag value of Logix 5000 controllers from FactoryTalk Live Data clients (for example, FactoryTalk View SE and FactoryTalk View ME). You can create shortcuts for Logix 5000 controllers using the Processor shortcut type in the **Communication Setup** editor.

FactoryTalk Linx supports the following Logix 5000 controllers.

Logix 5000 controllers	Catalog number
Compact GuardLogix® 5370 Safety Controller	1769-L30ERMS
	1769-L33ERMS
	1769-L36ERMS
	1769-L37ERMOS
	1769-L37ERMS
	1769-L38ERMS
Compact GuardLogix® 5380 Safety Controller	5069-L306ERMS2
	5069-L306ERMS3
	5069-L306ERS2
	5069-L3100ERMS2
	5069-L3100ERMS3
	5069-L3100ERS2
	5069-L310ERMS2
	5069-L310ERMS3
	5069-L310ERS2
	5069-L320ERMS2
	5069-L320ERMS3
	5069-L320ERS2
	5069-L330ERMS2
	5069-L330ERMS3
	5069-L330ERS2
	5069-L340ERMS2
	5069-L340ERMS3
	5069-L340ERS2
	5069-L350ERMS2
	5069-L350ERMS3
	5069-L350ERS2
	5069-L380ERMS2
	5069-L380ERMS3
	5069-L380ERS2
CompactLogix™ 5370 Controller	1769-L16ER-BB1B
	1769-L18ER-BB1B

Logix 5000 controllers	Catalog number
	1769-L18ERM-BB1B 1769-L19ER-BB1B 1769-L24ER-QB1B 1769-L24ER-QBFC1B 1769-L24ERM-QBFC1B 1769-L30ER 1769-L30ERM 1769-L30ER-NSE 1769-L33ER 1769-L33ERM 1769-L36ERM 1769-L37ERM 1769-L37ERMO 1769-L38ERM
CompactLogix™ 5380 Controller	5069-L306ER 5069-L306ERM 5069-L3100ERM 5069-L310ER 5069-L310ERM 5069-L310ER-NSE 5069-L320ER 5069-L320ERM 5069-L320ERP 5069-L330ER 5069-L330ERM 5069-L340ER 5069-L340ERM 5069-L340ERP 5069-L350ERM 5069-L380ERM
CompactLogix™ 5480 Controller	5069-L4100ERMW 5069-L4200ERMW 5069-L430ERMW 5069-L450ERMW 5069-L46ERMW
ControlLogix® 5550 Controller	1756-L1 1756-L55
ControlLogix® 5560 Controller	1756-L60M03SE 1756-L61 1756-L61S 1756-L62 1756-L62S 1756-L63

Logix 5000 controllers	Catalog number
	1756-L63S 1756-L64 1756-L65
ControlLogix® 5570 Controller	1756-L71 1756-L72 1756-L73 1756-L74 1756-L75
ControlLogix® 5580 Controller	1756-L81E 1756-L81E-NSE 1756-L81EP 1756-L82E 1756-L82E-NSE 1756-L83E 1756-L83E-NSE 1756-L83EP 1756-L84E 1756-L84E-NSE 1756-L85E 1756-L85E-NSE 1756-L85EP
GuardLogix® 5570 Safety Controller	1756-L71S 1756-L72S 1756-L73S
GuardLogix® 5580 Safety Controller	1756-L81ES 1756-L82ES 1756-L83ES 1756-L84ES

Supported data types for Logix 5000 controllers

FactoryTalk Linx allows online browse, read and write operations to Logix controllers with the following data elemental types. These types are supported as individual scalar tags, arrays and embedded within structures:

Data type	Description
BOOL	1-bit boolean
SINT	1-byte integer
INT	2-byte integer
DINT	4-byte integer
LINT	8-byte integer Note: The LINT data type has limited use on CompactLogix 5370, ControlLogix 5570, Compact GuardLogix 5370, and GuardLogix 5570 controllers. They can be used only with copy

Data type	Description
	(COP, CPS) instructions, the CST/WallClock Time attribute, time synchronization, and Add-On Instructions.
DT	Date and time. 64-bit storage; units are in microseconds.
LDT	Long date and time. 64-bit storage; units are in nanoseconds.
TIME32	Duration of time. 32-bit storage; units are in microseconds.
TIME	Duration of time. 64-bit storage; units are in microseconds.
LTIME	Long duration of time. 64-bit storage; units are in nanoseconds.
USINT	1-byte unsigned integer
UINT	2-byte unsigned integer
UDINT	4-byte unsigned integer
ULINT	8-byte unsigned integer
REAL	4-byte floating-point number
LREAL	8-byte floating-point number
STRING	Variable-length single-byte character string. Note: Logix 5000 controllers have a 484-character limitation on reading a string in FactoryTalk Linx because of the Trend object size. There is no string length limitation in FactoryTalk Live Data Test Client.

These controllers support the following elementary data types:

Controllers	Data types
CompactLogix 5380, CompactLogix 5480, ControlLogix 5580, Compact GuardLogix 5380, and GuardLogix 5580 controllers	SINT, INT, DINT, LINT, REAL, STRING USINT, UINT, UDINT, ULINT, LREAL
CompactLogix 5370, ControlLogix 5550, ControlLogix 5560, ControlLogix 5570, Compact GuardLogix 5370, and GuardLogix 5570 controllers	SINT, INT, DINT, LINT, REAL, STRING

The controller handles all immediate values as DINT data types.

The REAL data type also stores infinity and NAN, but the software display differs based on the display format.

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, the 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 83](#)
- [Restore FactoryTalk Linx configuration on page 85](#)



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 configuration settings are retained. Refer to [Restore FactoryTalk Linx configuration on page 85](#) 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: We don't recommend changing 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.



Tip: 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.
- (optional) Select **FactoryTalk Linx Gateway configuration** to back up server configuration, UA Server Endpoint settings, Advanced Settings, and UA Tag List configuration in FactoryTalk Linx Gateway.



Tip: This option is grayed out if the FactoryTalk Linx Gateway is not installed or the installed FactoryTalk Linx Gateway version is earlier than 6.21.00.

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 configuration settings are retained, the user performing the backup of a distributed system must go to each FactoryTalk Linx Data server and back up the configurations.
 - During a backup operation, some FactoryTalk services will be temporarily locked, preventing new requests from being processed. This situation will result in new tag read or write operations from being performed and prevent some user interface operations. Once the backup is completed, new requests will operate normally. To minimize the potential impact on the automation system, the backup operation should be performed when the system is in an idle state.
-

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 an individual computer.

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 the restore is 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.
 - (optional) Select **FactoryTalk Linx Gateway configuration** to restore server configuration, UA Server Endpoint settings, Advanced Settings, and UA Tag List configuration in FactoryTalk Linx Gateway.
-



Tip: This option is grayed out if the FactoryTalk Linx Gateway is not installed or the installed FactoryTalk Linx Gateway version is earlier than 6.21.00.

6. Select **Finish**.

NOTE: A warning dialog box appears after the user selects **Finish**, reads the warning messages, and clicks **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 to 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.

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 **FTLinxCfgLETool.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.

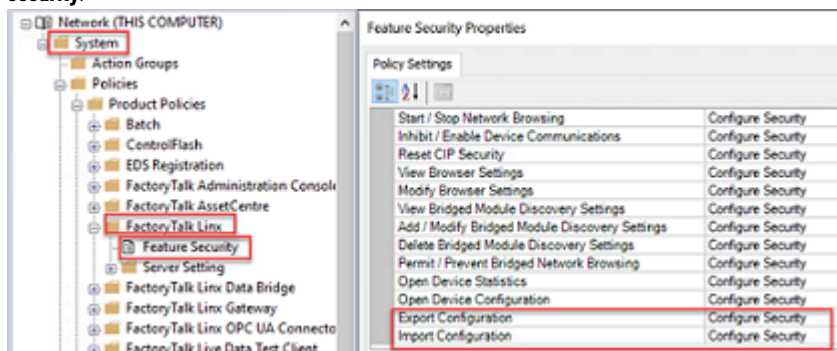
NOTE: The **FactoryTalk Linx Configuration Import Export Tool** limitations:

- 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 the Unsolicited Message shortcuts.
-

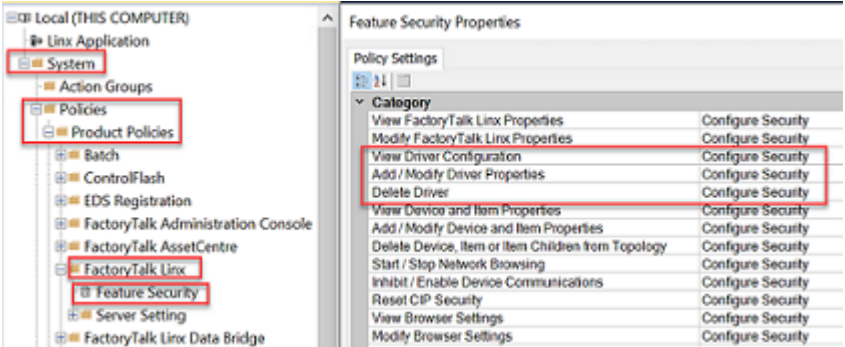
Before using the **FactoryTalk Linx Configuration Import Export Tool**, a user should be granted the user permissions to export or import FactoryTalk Linx configurations.

To set user permissions

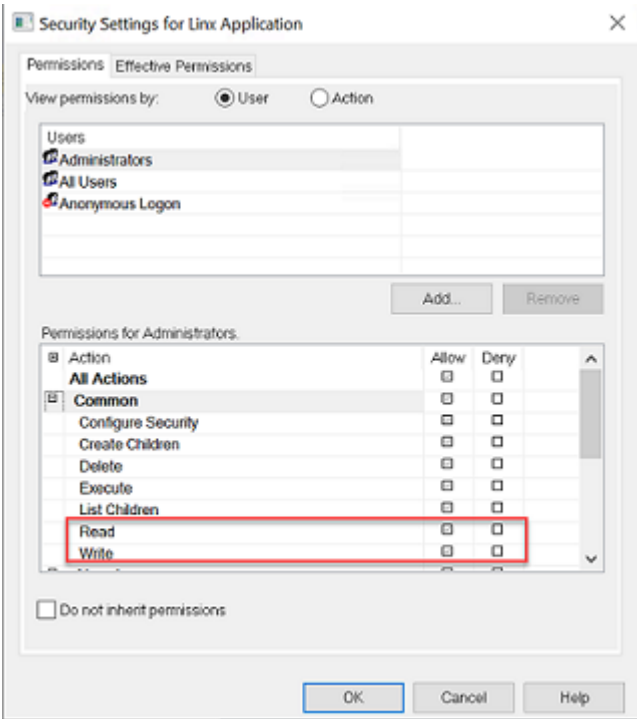
1. In the **Start** menu, select **Rockwell Software > FactoryTalk Administration Console**.
2. In **FactoryTalk Administration Console**, select **System > Product Policies > Policies > FactoryTalk Linx > Feature Security**.
 - Set user permission for exporting FactoryTalk Linx configuration in **Export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



- 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**.



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

Settings of the FactoryTalk Linx Configuration Import Export Tool

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

Option	Description
Operation	Choose to Import or Export shortcuts and drivers.

Option	Description
Target Server	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 instances running on the same workstation as the Configuration import/export tool.
Import File	Select the CSV file that contains the FactoryTalk Linx configuration.
Export File	Specify a folder location and filename to save the exported CSV file.
Both Shortcut & Driver	Select to import or export both shortcut and driver configurations.
Shortcut Only	Select to only import or export shortcuts.
Driver Only	Select to only import or export drivers.
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.

NOTE: If you only export drivers, go to Step 3.

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.

NOTE: If you only import drivers, go to Step 3.

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.

NOTE: To avoid compatibility problems, make sure the import file contains the FactoryTalk Linx version information and the version is consistent with that installed on the computer.

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**.

**Tip:**

- 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 containing the required elements

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

For **shortcuts**:

Parameters	Description
FactoryTalk Linx Version	The FactoryTalk Linx version of the exported configurations. To avoid compatibility problems, make sure the import file contains the FactoryTalk Linx version information and the version is consistent with that installed on the computer.
Shortcut Name	The name of the shortcut. The name should be unique and cannot leave empty.
Tag File	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.
Shortcut Type	The types of shortcut include <ul style="list-style-type: none"> • Processor • EDS Parameter • Symbolic • Unsolicited Message • CIP Object • Redundant Controller Path • Redundant ControlLogix Controller

Parameters	Description
	If this parameter is empty, the default shortcut is Processor.
Fail Unsolicited Message If Data Will Be Overwritten	<p>Parameter for Unsolicited Message shortcut type.</p> <p>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.</p> <p>Value 1 means to enable this option, 0 means to disable this option. This column can be empty.</p>
Cache Unsolicited Data	<p>Parameter for Unsolicited Message shortcut type.</p> <p>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.</p> <p>Value 1 means to enable this option, 0 means to disable this option. This column can be empty.</p>
Send All Unsolicited Updates	<p>Parameter for Unsolicited Message shortcut type.</p> <p>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.</p> <p>Value 1 means to enable this option, 0 means to disable this option. This column can be empty.</p>
Set Item Quality Bad Until First Write	<p>Parameter for Unsolicited Message shortcut type.</p> <p>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.</p> <p>Value 1 means to enable this option, 0 means to disable this option. This column can be empty.</p>
CIP Object	<p>Parameter for CIP Object shortcut.</p> <p>Supports accessing devices' CIP Object instance attributes as tags.</p> <p>You must select a sub-option of the CIP Object. Currently, FactoryTalk Linx supports these options:</p> <ul style="list-style-type: none"> Energy CIA Message <p>This column can be empty.</p>

Parameters	Description
Shortcut Path Timeout	<p>Parameter for Redundant Controller Path and Redundant ControlLogix Controller shortcuts.</p> <p>Specify the timeout time in seconds when sending a request to read the controller status but no response is received.</p> <p>This column can be empty, and the default value is 2.</p>
Shortcut Path Interval	<p>Parameter for Redundant Controller Path and Redundant ControlLogix Controller shortcuts.</p> <p>Specify the interval in seconds between each request to read the controller status.</p> <p>This column can be empty, and the default value is 1.</p>
Destination Element Upper limit (octal)	<p>Parameter for Unsolicited Message shortcut.</p> <p>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.</p> <p>The upper limit is 017777 (default).</p>
Destination Element Lower limit (octal)	<p>Parameter for Unsolicited Message shortcut.</p> <p>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.</p> <p>The lower limit is 010 (default).</p>
Disable write service	<p>Parameter for CIP Object CIA Message shortcut type.</p> <p>Select this option to disable the operation of writing tags, while the reading operation is still allowed.</p> <p>Value 1 means to enable this option, 0 means to disable this option. This column can be empty.</p>
Alarm Event Enabled	<p>Enable FactoryTalk Alarms and Events support for the selected shortcut.</p> <p>The values include</p> <p>0: None</p> <p>1: Only Alarms Notification Messages</p> <p>2: All Alarms & Events Notification Messages (Default)</p>
Alarm Event Buffer Timeout	<p>The length of time you want FactoryTalk Linx to buffer alarms in the event it becomes disconnected from the selected Logix 5000 controller.</p> <p>Only the UNIT type value is supported. The 0 (zero) means to disable the buffer. The default value is 20.</p>
Primary Machine	<p>Shows the local machine name as the computer hosting the FactoryTalk Linx server.</p> <p>This column can be empty under the Local directory.</p>
Primary Device	<p>Refers to the primary controller when two ControlLogix controllers are in a single ControlLogix redundancy configuration connected to redundancy modules with different</p>

Parameters	Description
	communication paths. The default path names are Primary Controller and Secondary Controller . This column can be empty.
Primary Redundant Device	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 Primary Controller and Secondary Controller . This column can be empty.
Primary MetadataInNameService	Parameters for redundant and processor shortcuts. Refers to the Upload all extended tag properties 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.
Primary Redundant Metadata In NameService	Parameters for redundant and processor shortcuts. Refers to the Upload all extended tag properties 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.
Primary MetadataPass Through	Parameters for redundant and processor shortcuts. Refers to the Provide pass-through descriptions for tags 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 Upload all extended tag properties . 0: The option is not selected (Default). 1: The option is selected.
Primary Network Path	The Network Path of the primary controller. A relative path is 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.
Primary Redundant Network Path	The Network Path of Redundant controller.
Primary Connection Inactivity Timeout (sec.)	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.

Parameters	Description
	This is only applicable for the Processor shortcut type. This is available for ControlLogix and CompactLogix controllers. The default value is 0 which means Keep connections open . Other options include 32, 64, 128, 256, 512, and 1024.
Primary Max CIP Connection	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.
Secondary Machine	Shows the local machine name of the computer hosting the FactoryTalk Linx secondary server.
Secondary Device	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.
Secondary Redundant Network Path	The network path of the secondary server.

Drivers include these parameters:

Parameter	Description
FactoryTalk Linx Version	The FactoryTalk Linx version of the exported configurations. To avoid compatibility problems, make sure the import file contains the FactoryTalk Linx version information and the version is consistent with that installed on the computer.
Driver Name	The name of the driver. The name cannot be more than 15 characters. Wide characters are not supported.
Driver ID	The Driver IDs correspond with Driver types, including: <ul style="list-style-type: none"> Ethernet Driver ID: 1 Serial-DF1 Driver ID: 2 DH+ Driver ID: 3 DH485 Driver ID: 4 Remote Proxy Driver ID: 13
Param Port	Refers to the Listen on EtherNet/IP encapsulated ports 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.
Param Address	The IP address of the Ethernet driver that will listen to data.
Param Adapter	The MAC address of the Ethernet driver that will listen to data.

Parameter	Description
	<p>Tip: The MAC address can be automatically configured according to the IP address provided.</p>
Param Type	<p>Refers to the type of the Ethernet driver, which includes:</p> <ul style="list-style-type: none"> Point_to_Point LocalBroadcast RemoteBroadcast <p>If this column is empty, the default value is LocalBroadcast.</p>
Param CardID	<p>Parameter for DH+ and DH485 driver.</p> <p>Refers to the Jumper ID 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.</p> <p>This column can be empty, and the default value is 0.</p>
Param StationNumber	<p>Parameter for DH+ and DH485 driver.</p> <p>Refer to the Station Number 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.</p> <p>This column can be empty, and the default value is 0.</p>
Param BaudRate	<p>Parameter for DF1, DH+, and DH485 driver. Refers to the Baud option. Used to configure the baud rate for the driver that transmits data to your device.</p> <p>This column can be empty and the default value for the DF1 driver is 19200, for DH+ is 57600, for DH485 is 19200.</p>
Param UseAutoConfig	<p>Parameter for DF1 driver.</p> <p>Refers to the option Use Auto-configuration. 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.</p> <p>This column can be empty, and the default value is 0, which means the option is not enabled.</p>
Param comPort	<p>Parameter for DF1 driver.</p> <p>Refers to the option COM Port. 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.</p> <p>This column can be empty, and the default value is COM1.</p>
Param connect_type	<p>Parameter for DF1 driver.</p>

Parameter	Description
	<p>Refers to the option Device. Used to select the DF1 device that is connected to your computer. The values include</p> <ul style="list-style-type: none"> PLC_CHO (default value) means PLC-5 SLC_CHO means SLC or MicroLogix AC_CH) means Logix Platform
Param station	<p>Parameter for DF1 driver.</p> <p>Refers to the option Station Number. 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.</p> <p>This column can be empty, and the default value is 0.</p>
Param ack_timeout	<p>Parameter for DF1 driver.</p> <p>Refers to the option Ack/Poll Timeout (mSec). Used to enter an ACK value.</p> <p>This column can be empty, and the default value is 3000.</p>
Param error_check	<p>Parameter for DF1 driver.</p> <p>Refers to the option Error Check. 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.</p> <p>This column can be empty, and the default value is BCC.</p>
Param parity	<p>Parameter for DF1 driver.</p> <p>Refers to the option Parity. Used to match the error checking method for the connected driver (None, Even, or Odd).</p> <p>The values include</p> <ul style="list-style-type: none"> NOPARITY (Default) means None, ODDPARITY means Odd, EVENPARITY means Even.
Param stop_bits	<p>Parameter for DF1 driver.</p> <p>Refers to the option Stop Bits. Used to select the amount of time between data transmissions. Basic DF1 protocol generally uses 1.</p> <p>The values include</p> <ul style="list-style-type: none"> ONESTOPBIT (Default) means 1 TWOSTOPBITS means 2
Param MaxStationNumber	<p>Parameter for DH485 driver.</p> <p>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 the Station Number. Available station numbers are 0 to 31.</p> <p>This column can be empty and the default value is 31.</p>
Remote address	The IP Address of the Remote Broadcast Ethernet driver.

Parameter	Description
Remote Subnet Mask	The Subnet Mask address of the Remote Broadcast Ethernet driver.
Tuning Poll Rate	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. Its default value (msec) is 10, the minimum value is 1, and the maximum value is 10000.
Tuning Offline Interval	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. Its default value (msec) is 1000, the minimum value is 1, and the maximum value is 10000.
Tuning Poll Timeout	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.
Tuning Browse Cycle Interval	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.
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.
Auto Remove Offline Devices	Refers to the Auto remove offline devices option of Ethernet drivers. It configures whether to remove offline devices automatically. 0: The option is not selected (Default). 1: The option is selected.
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.

Parameter	Description
	<p>The following forms are supported:</p> <ul style="list-style-type: none"> 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 <ul style="list-style-type: none"> 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	<p>The supported startup modes include</p> <ul style="list-style-type: none"> Automatic (Default) Manual Demand Disabled
Remote Server Address	Refers to the server IP address of the remote proxy service.
Remote Driver Name	Refers to the driver's name of the remote proxy driver.

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 the Windows Temp folder.

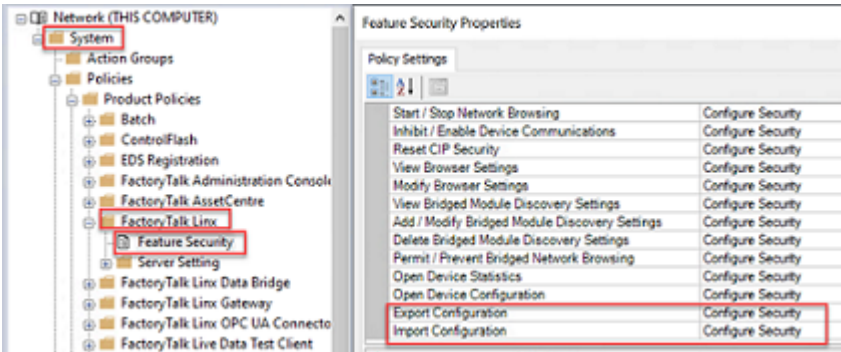
Before using the commands to do the operations mentioned above, a user should be granted the user permissions to export or import FactoryTalk Linx configurations.

To set user permissions

1. In the **Start** menu, select **Rockwell Software > FactoryTalk Administration Console**.
2. In **FactoryTalk Administration Console**, select **System > Product Policies > Policies > FactoryTalk Linx >**

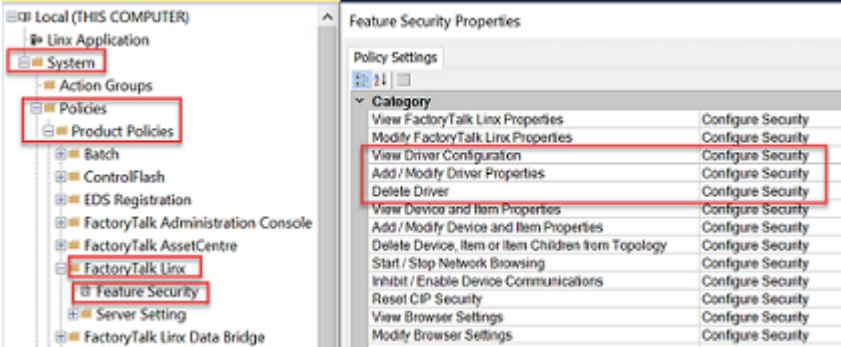
Feature Security.

- 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**.

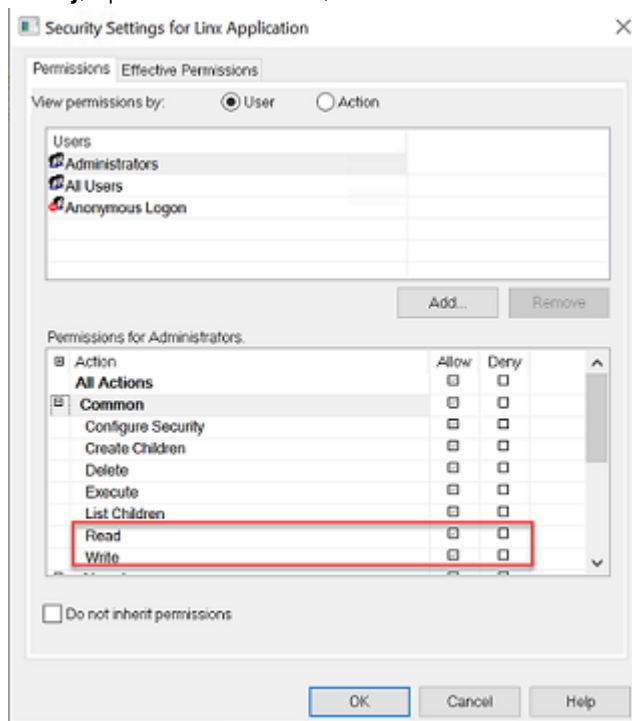


- Set user permission for exporting FactoryTalk Linx drivers in **View Driver Configuration > Configure Security**.
- Set user permission for importing FactoryTalk Linx drivers in **Add / Modify Driver Properties >**

Configure Security and Delete Driver > Configure Security.



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

Import, export, or delete shortcuts/drivers with commands

Use commands to import, export, or delete drivers and shortcuts. These commands are supported with shortcuts 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 the Windows Temp folder.

Parameter	Description
/Export	Required
/Import	Required
/DeleteShortcuts	Required
/DeleteDrivers	Required
/Scope	Optional for importing, exporting deleting driver. The format should be like <code>/Scope Global</code> or <code>/Scope Local</code> . The default scope is Global if the scope is not specified.
/Shortcut	Required Add this parameter to include shortcuts in the import or export range.
/Driver	Required

Parameter	Description
	Add this parameter to include drivers in the import or export range.
/TargetServerPath	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.
/FilePath	Required Specify the exported directory to save the exported CSV file. Specify the CSV file that contains the FactoryTalk Linx configuration.
/ReplaceExistItems	Required for importing shortcuts or drivers. Add this parameter to replace existing shortcuts and drivers with the same name during importing.
/RehostMachineName	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.
/Silent	Optional To close the Command Prompt window automatically after the commands are run.

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" /Silent
```

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 /Silent
```

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" /Silent

"C:\Program Files (x86)\Rockwell Software\RSLinx Enterprise\FTLinxCfgIETool.exe" /DeleteDrivers
/Scope Global /TargetServerPath "RNA://$Global/test/test/FactoryTalk Linx Instance 02" /Silent
```

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 the Windows Temp folder.

Command	Description
/AddDriver	Required for adding drivers.
/UpdateDriver	Required for updating drivers.
/DeleteDriver	Required for deleting drivers.
/Scope	Optional for adding, updating, deleting the driver The format should be like <code>/Scope Global</code> or <code>/Scope Local</code> . The default scope is Global if the scope is not specified.
/driverName	Required for adding, updating, or deleting drivers. It specifies the name of the drivers that you want to add, update, or delete.
/driverType	Required for adding or updating drivers. It specifies the type of drivers, including: <ul style="list-style-type: none"> LocalBroadcast RemoteBroadcast PointToPoint
/browseInterval	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.
/pollRate	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.
/pollTimeout	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.
/maxPackets	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

Command	Description
	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.
/offlineInterval	Optional for adding or updating drivers. It refers to the Offline 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. 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.
/proxyEnabled	Optional for adding or updating drivers.
/proxyAddress	Optional for adding or updating drivers.
/proxyPort	Optional for adding or updating drivers.
/paramPort	Optional for adding or updating drivers. It refers to the Listen on EtherNet/IP encapsulated ports option. Enable this option if the network includes devices that transmit data using unsolicited messages. When this setting is enabled, the UDP port (44818) will not be available for use by other applications. <code>/paramPort 1</code> means to enable the setting, <code>/paramPort 0</code> means to disable the setting.
/paramAddress	Optional for adding or updating drivers. It specifies the IP address of the Ethernet driver that will listen to data.
/paramAdapter	Optional for adding or updating drivers. It specifies the MAC address of the Ethernet driver that will listen to data.
/remoteAddress	Required for adding or updating Remote Broadcast drivers. It refers to the IP address of the Remote Broadcast driver.
/remoteSubnetMask	Required for adding or updating Remote Broadcast drivers. It refers to the Subnet Mask address of the Remote Broadcast driver.
/deviceAddresses	Required for adding or updating Ethernet drivers with a device list. The formats should be like: <ul style="list-style-type: none"> Single IP address: <code>/DEVICEADDRESSES "192.168.1.10"</code> Single IP address and description:

Command	Description
	<pre>/DEVICEADDRESSES "192.168.1.10 \"LineController\" "</pre> <ul style="list-style-type: none"> Range of IP addresses: <ol style="list-style-type: none"> <pre>/DEVICEADDRESSES "192.168.1.10 192.168.1.11 192.168.1.12 192.168.1.13"</pre> <pre>/DEVICEADDRESSES "192.168.1.10-13"</pre> DNS host name: <pre>/DEVICEADDRESSES "\"PackLine1PLC\" "</pre>
/Silent	Optional To close the Command Prompt window automatically after the commands are run.

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
"192.168.1.10||192.168.1.11||192.168.1.12||192.168.1.13" /Silent

"C:\Program Files (x86)\Rockwell Software\RSLinx
Enterprise\FTLinxCfgIETool.exe" /adddriver /driverName AB_ETH-79 /driverType
LocalBroadcast /pollRate 11 /browseInterval 1230 /pollTimeoout 236 /maxPackets 31 /offlineInterval
999 /paramPort 1 /Silent

"C:\Program Files (x86)\Rockwell Software\RSLinx Enterprise\FTLinxCfgIETool.exe" /adddriver /Scope
Global /driverName AB_ETH-78 /driverType LocalBroadcast /Silent
```



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 /Silent
```

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 the Windows Temp folder.

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

Parameter	Description
/Browse	Required
/NetworkPath <path>	Required Specifies the path of the device.
/Timeout	Optional Specifies the timeout value of the browsing operation. The default value is 5000ms.
/Silent	Optional To close the Command Prompt window automatically after the commands are run.

The following is an example of browsing a device:

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

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 on page 23](#) 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 Diagnosticst even log

In a FactoryTalk-enabled automation system, Rockwell Software products monitor system activity and generate 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.

Answers to common questions

The following are some frequently asked questions about FactoryTalk Linx.

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 116](#) 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 using the CIP protocol. 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. Once USB CIP devices are added to the virtual backplane, FactoryTalk Linx will automatically mirror the devices into the USB branch in the topology tree.

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 out the CNB module, or to a controller sitting in the backplane.

Note that RSLinx Classic occupies slot 0 and that FactoryTalk Linx occupies slot 1 in the virtual backplane, which means that they are 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 minimalist fashion. For ControlNet support, those platforms implement two-slot virtual backplanes, where FactoryTalk Linx sits in one slot and the 2711P-RN15S ControlNet Scanner card sits in the other.



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

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

Supported network routes

The preferred route for PCCC 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 (Common Industrial Protocol; for example, EtherNet/IP or ControlNet) hops.

FactoryTalk Linx does not support *offlink* routes. Offlink routes are network paths, in which the underlying network protocol changes. This means 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/IP. The reverse is also true: you cannot start on a CIP route (for example, EtherNet/IP to ControlLogix to DH+ to PLC-5), and then switch to a PCCC route.

Move FactoryTalk Linx configurations

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.

Move your shortcuts

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 shortcuts from one computer to another: same application

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 in the dialog box.

Move shortcuts on the same computer: different 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 shortcut names will be moved there.
 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_Linux_server_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_Linux_server_name.**

Move shortcuts from one computer to another: different application

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 Linux server.

Move shortcuts from one computer to another: different FactoryTalk Directory

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 Linux 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.

Move your physical layout (drivers and devices)

Applications using FactoryTalk Linux data services from the same FactoryTalk Linux 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.

Move from one computer to another

IMPORTANT: Only qualified personnel familiar with FactoryTalk Linux 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.

Logix controllers with a limited number of connections

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

CIP bridge modules with a limited number of connections

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 is 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

Use predefined items to count active CIP connections

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.

Use FactoryTalk Diagnostics to track and troubleshoot CIP connections

FactoryTalk Diagnostics

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.

Change the allocation of CIP connections

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.

CIP Security

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/IP 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 enable a CIP-connected device to protect itself from malicious CIP communications. Then the device can reject data that has been altered, reject messages sent 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 the 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.
-  means CIP Security (Port 2221) is disabled.

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:

To select	Do this
A single device	Click the device

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

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 the 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.

Dual-channel 1784-PKTX(D) driver

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.

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 on page 23](#) 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.

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.

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

Comparing different installation methods

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.

Installation method	Description	References
Setup wizard installation	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 provide full installation details such as an installation summary and how to register for product updates	Chapter 3 Install <FTX> on page 24
Unattended installation	An automated installation method in RSLinx 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 120 .	Use unattended installation on page 119
Silent installation for FactoryTalk Linx .msi file	An automated installation method in RSLinx Enterprise version 5.60.00	Use silent installation for FactoryTalk Linx .msi file on page 121

Installation method	Description	References
	and later (renamed FactoryTalk Linx with version 6.00.00). It installs the FactoryTalk Linx .msi file with little (or no) user intervention. You need to manually install the prerequisite software and required components before silent installation.	

Use unattended installation

Starting with CPR 9 SR 9, FactoryTalk Services supports 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.

Perform unattended installation

To perform an 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 the 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 a detailed description of each parameter, see [Parameters on page 119](#). 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.

/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

RSLink 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 4.8
\Redist\DotNETFX_4.8.
For detailed instructions about how to install it, refer to <http://msdn.microsoft.com/en-us/library/hh506443.aspx>.
- VCRedist_2015-2022
\Redist\VCRedist_2015-2022.
- EDSReader
\Redist\EDSReader.
- OPC .NET API 4.5
\Redist\OPCNETAPIRedist_2.01.10600\x86.
- FactoryTalk Diagnostics v6.40.00
\Redist\FTDiagnostics_6.40.00.

- Windows Firewall Configuration Utility 1.00.17
\Redist\WFCU_1.00.17.
- Certificates installation
For detailed instructions about how to install it, refer to [Install certificates on page 122](#).
- x64 driver package (for 64-bit operating systems)
\Redist\KN64Bit_2.03.11.
- FactoryTalk Services Platform v6.40.00
\Common\6.40.00-FTSP.
- FactoryTalk Alarms and Events v6.40.00
\Common\6.40.00-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 (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-10-10-2018.cer
- Drivers-11-03-2017.cer
- Drivers-12-06-2016.cer
- DriversSHA1-10-10-2018.cer
- Drivers-SHA1-11-27-2017.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

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

- MicRooCerAut2011_2011_03_22.cer
- RA - Enterprise Root Certification Authority.cer
- VeriSign Universal Root Certification Authority.cer

Use the following steps to perform manually install a certificate when automatic installation fails:

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.
2. On the **General** tab of the **Certificate** dialog box, click **Install Certificate**.
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**.

For more information on certificate installation, see *Deploying Certificates to the Trusted Publishers Store* at [http://technet.microsoft.com/en-us/library/cc730989\(v=ws.10\).aspx](http://technet.microsoft.com/en-us/library/cc730989(v=ws.10).aspx).

Perform silent installation

To perform a silent installation, follow the following steps:

1. Close all open Windows programs.
2. Open the **Command Prompt** window as the administrator.
3. In the **Command Prompt** window, navigate to *D:\Common\6.30.00-FTLinx*, where "*D:\Common*" is the drive path 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**.

```
Msixexec /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 6.30.00 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 119](#).

Glossary

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. Common Industrial 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/IP 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 protocol 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 Architecture 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.

³
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.

Rockwell Automation Support

Use these resources to access support information.

Technical Support Center	Find help with how-to videos, FAQs, chat, user forums, and product notification updates.	rok.auto/support
Knowledgebase	Access Knowledgebase articles.	rok.auto/knowledgebase
Local Technical Support Phone Numbers	Locate the telephone number for your country.	rok.auto/phonesupport
Literature Library	Find installation instructions, manuals, brochures, and technical data publications.	rok.auto/literature
Product Compatibility and Download Center (PCDC)	Get help determining how products interact, check features and capabilities, and find associated firmware.	rok.auto/pcdc

Documentation feedback

Your comments help us serve your documentation needs better. If you have any suggestions on how to improve our content, complete the form at rok.auto/docfeedback.

Waste Electrical and Electronic Equipment (WEEE)



At the end of life, this equipment should be collected separately from any unsorted municipal waste.

Rockwell Automation maintains current product environmental information on its website at rok.auto/pec.

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