



FactoryTalk Linux Data Bridge 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.

No patent liability is assumed by Rockwell Automation, Inc. with respect to use of information, circuits, equipment, or software described in this manual.

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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.

These 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).

The following icon may appear in the text of this document.



Tip: Identifies information that is useful and can help to make a process easier to do or easier to understand.

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 and using FactoryTalk® Linx Data Bridge.



Tip: The *Getting Results Guide* is included in a PDF on your FactoryTalk Linx Data Bridge software installation DVD. These files must be viewed using the Adobe® Acrobat® Reader software.

This section includes the following information:

- Intended audience
- Where to find additional information
- Legal notices

Intended audience

You should be familiar with:

- Microsoft® Windows® operating systems
- FactoryTalk Linx (previously called RSLinx Enterprise)
- Allen-Bradley® programmable logic controllers (PLCs) and programmable automation controllers (PACs)
- Rockwell Automation® control system development software

Find additional information

For additional information about FactoryTalk Linx Data Bridge, 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, click **Help** in **FactoryTalk Linx Data Bridge**.

Release Notes

The Release Notes provide information updates that are necessary to use FactoryTalk Linx Data Bridge effectively. The Release Notes contain the following components:

- System requirements
- System features
- Anomalies
- Functional changes
- Application notes

To view the FactoryTalk Linx Data Bridge Release Notes, download them from the [Product Compatibility and Download Center](#).

Knowledgebase

The Rockwell Automation Customer Support Center offers an extensive online database that includes frequently asked questions and the latest patches. The Knowledgebase webpage leads to a comprehensive, searchable database of support information for all Rockwell Automation products.

To access the Knowledgebase webpage, visit www.rockwellautomation.com/en-us/support, then select **Knowledgebase**.

Technical support

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

To reach the Customer Support Center, call 440-646-3434 and follow the prompts. For calls originating outside the US 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 need more information about these training programs, visit the Rockwell Automation site or contact the Rockwell Automation Training Coordinator. The website address and telephone numbers are available at the bottom of the back cover.

Consulting services

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

Legal Notices

Rockwell Automation publishes legal notices, such as privacy policies, license agreements, trademark disclosures, and other terms and conditions on the [Legal Notices](#) page of the Rockwell Automation website.

Software and Cloud Services Agreement

Review and accept the Rockwell Automation Software and Cloud Services Agreement [here](#).

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 `oss_license.txt` file located in your product's `OPENSOURCE` folder on your hard drive. This file is divided into these sections:

- Components
Includes the name of the open source component, its version number, and the type of license.
- Copyright Text
Includes the name of the open source component, its version number, and the copyright declaration.
- Licenses
Includes the name of the license, the list of open source components citing the license, and the terms of the license.

The default location of this file is:

C:\Program Files (x86)\Common Files\Rockwell\Help\<product name>\Release Notes\OPENSOURCE\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 Data Bridge

This chapter includes the following information:

- What is FactoryTalk Linx Data Bridge?
- System configuration model
- Quick start: Set up and use FactoryTalk Linx Data Bridge

What is FactoryTalk Linx Data Bridge?

FactoryTalk® Linx Data Bridge synchronizes data between FactoryTalk Live Data servers that include FactoryTalk Linx, OPC UA, OPC DA, and FactoryTalk View SE HMI tags. This can be used between devices and servers in a FactoryTalk application that may not be compatible.

When source tag values change on a server or device, FactoryTalk Linx Data Bridge replicates the values to the destination tag on another server or device. Optional quality and timestamp tags provide metadata about the tag values.

FactoryTalk Linx Data Bridge supports:

- FactoryTalk Linx devices
- RSLinx® Classic devices
- OPC UA servers that support subscriptions
- OPC DA servers
- FactoryTalk View SE HMI tags

The performances of design time tag browsing and runtime tag value updates are dependent on:

- Source tag device or server capabilities
- Destination tag device or server capabilities
- FactoryTalk Linx Data Bridge host computer capabilities
- Network design and traffic

For best performance, ensure source, destination, and FactoryTalk Linx Data Bridge host devices meet the system requirements listed in *FactoryTalk Linx Data Bridge Release Notes*. Connect all devices using a 100 MB or higher Ethernet network.

System configuration model

Before using the FactoryTalk Linx Data Bridge to connect tags, there are several system configuration models you can refer to. Select the appropriate one for your system. Here list the examples of system configurations, including the FactoryTalk Linx data server, FactoryTalk Linx OPC UA Connector, and the FactoryTalk Linx Data Bridge:

- Single workstation: all the data servers and FactoryTalk Linx Data Bridge are installed on the same workstation.
- Partially distributed: the data servers and FactoryTalk Linx Data Bridge are installed on different workstations.

- Fully distributed: each of the data servers and FactoryTalk Linx Data Bridge is installed separately on different workstations.

NOTE: The FactoryTalk Linx Data Bridge can also be installed directly on a 1756 Compute Module or a CompactLogix™ 5480 controller.

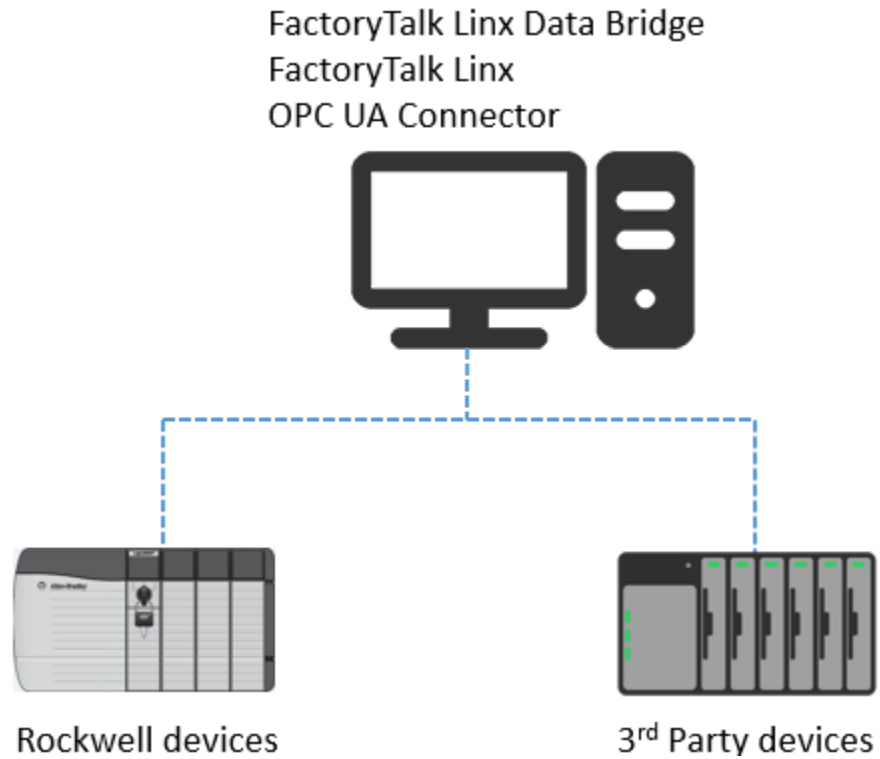


Figure1: Example of a single workstation system

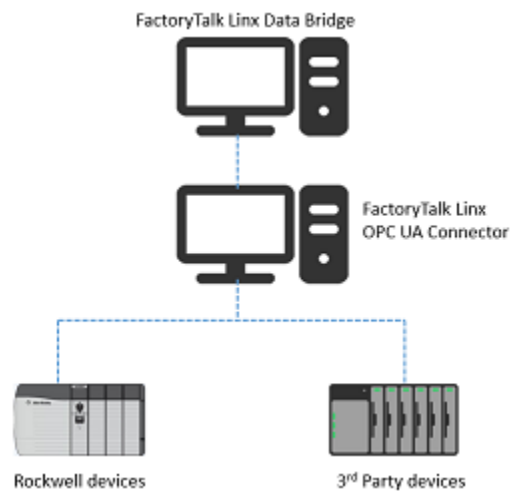


Figure2: Example of a partially distributed system

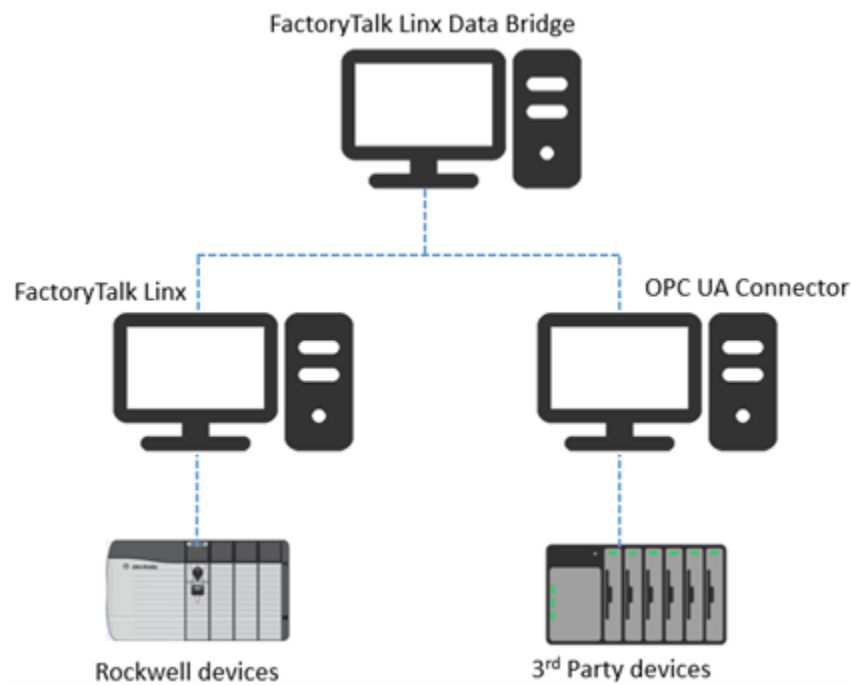


Figure3: Example of a fully distributed system

Quick start: Set up and use FactoryTalk Linx Gateway

Use the following checklist to guide you through the process of setting up and using FactoryTalk Linx Data Bridge.

Step	Description	Refer to:
1.	Read and understand the <i>FactoryTalk Linx Data Bridge Getting Results Guide</i> .	
2.	Verify that your personal computer meets the minimum hardware and software requirements.	System requirements on page 12
3.	Install FactoryTalk Linx Data Bridge.	Install FactoryTalk Linx Data Bridge on page 12
4.	Install a valid FactoryTalk Linx Data Bridge activation.	About Activations on page 31
5.	Configure FactoryTalk Security, if necessary.	<i>FactoryTalk Services Platform Help</i>
6.	Create a FactoryTalk application (or point to an existing application).	<i>FactoryTalk Services Platform Help</i>
7.	Add a FactoryTalk Linx data server, OPC DA/UA server, or FactoryTalk View SE HMI tags.	<i>FactoryTalk View Site Edition Help</i> or <i>FactoryTalk Services Platform Help</i>
8.	Create a shortcut between the FactoryTalk application and the server or controller.	<i>FactoryTalk View Site Edition Help</i> or <i>FactoryTalk Services Platform Help</i>
9.	Start FactoryTalk Linx Data Bridge by clicking Start > Programs > Rockwell Software > FactoryTalk Linx Gateway > FactoryTalk Linx Data Bridge Configuration .	<i>FactoryTalk Linx Data Bridge Help</i>
10.	Select the scope using the FactoryTalk Linx Data Bridge Select FactoryTalk Directory dialog box.	

Step	Description	Refer to:
11.	Configure source and destination tags in the Configurations tab.	Use FactoryTalk Linx Data Bridge to bridge data on page 24

Install FactoryTalk Linx Data Bridge

The FactoryTalk Linx Data Bridge installation DVD provides wizards to guide you through the installation process.

FactoryTalk Linx Data Bridge 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. The automated installation with command-line syntax reduces user interaction and provides command-line parameters to install FactoryTalk Linx Data Bridge. See [Install FactoryTalk Linx Data Bridge with command-line syntax](#).

This chapter contains the following information:

- System requirements
- Install FactoryTalk Linx Data Bridge for the first time
- Uninstall FactoryTalk Linx Data Bridge
- Upgrade FactoryTalk Linx Data Bridge

System requirements

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

Hardware requirements

FactoryTalk Linx Data Bridge performance may vary depending on host computer performance, network, and application configurations.

FactoryTalk Linx Data Bridge recommends the following hardware for applications with typical data acquisition needs:

- Intel® Core™ i5 Standard Power processor
- 4 GB of memory (RAM)
- 80 GB hard disk space
- 100 MB Ethernet network

Lower level x86 based CPUs will also work in standalone configurations with reduced data acquisition needs. It is recommended to run performance validation tests on the planned computer hardware to ensure the desired capacity and performance can be achieved.

Tested FactoryTalk Linx Data Bridge update rates

CPU and memory requirements for the FactoryTalk Linx Data Bridge increase as data pairs are bridged. For detailed information, refer to [FactoryTalk Linx Data Bridge Performance Reference](#) in *FactoryTalk Linx Data Bridge Online Help*.

Software requirements

FactoryTalk Linx Data Bridge has been tested on the following operating systems:

- Windows Server® 2022
- Windows Server 2019
- Windows Server 2016
- Windows 11 (v21H2 and v22H2)

If you use FactoryTalk Services Platform on Windows 11, you must update Windows 11 with patch KB5008215.

- Windows 10* (v21H2 and v22H2)

FactoryTalk Services Platform adopts .NET 4.8 which 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 additional information about Windows 10 Support for the FactoryTalk Suite of Rockwell Software® products, refer to Knowledgebase Document ID: [IN4493 - Windows 10 Support for the FactoryTalk Suite of Rockwell Software products](#).

Software compatibility

FactoryTalk Linx Data Bridge is compatible with these Rockwell Automation products:

- FactoryTalk Activation Manager version 5.01.00
- FactoryTalk Services Platform version 6.40.00
- FactoryTalk View version 14.00.00
- FactoryTalk Linx version 6.40.00
- FactoryTalk Linx OPC UA Connector version 6.40.00

Prerequisite software

FactoryTalk Linx Data Bridge Setup wizard supports to install a series of Rockwell software automatically and the prerequisite software including:

Rockwell Software

- FactoryTalk Services Platform version 6.40.00
- FactoryTalk Activation Manager version 5.01.00
- FactoryTalk Linx version 6.40.00
- Rockwell Automation x64 Driver v2.03.11

Prerequisite software

- Microsoft .NET Framework 4.8
- Microsoft Visual C++ 2015-2022 Redistributable (x86) 14.36
- Microsoft Visual C++ 2015-2022 Redistributable (x64) 14.36
- Microsoft SQL Server 2012 Native Client 11.4
- Microsoft SQL Server 2012 Native Client x64 11.4
- 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
- Wibu CodeMeter Runtime Kit 7.60

System features

FactoryTalk Linx Data Bridge version 6.20.00:

- Supports up to 200,000 tag pairs when the LNXGWPRO activation is detected. The LNXDB activation is still limited to 2,000 tags.
- Adds support for standalone activation.

FactoryTalk Linx Data Bridge version 6.21.00:

- Supports 500 tag pairs when operating on the CompactLogix5480 at the "Embedded" level.

FactoryTalk Linx Data Bridge version 6.21.01:

- Supports manually initiating an update or configuring a trigger tag to initiate an update for the destination tag in a group automatically.

FactoryTalk Linx Data Bridge version 6.30.00:

- Adds the ability to refresh destination tags only when the trigger tag is set or changed. Destination tags will not be refreshed when the source tag value changes.
- Adds an option to turn on or turn off the refresh of destination tags when the trigger tag quality is changed to good quality.
- The tag group subscription rate is changed or updated to reflect the FactoryTalk Live Data update rate that will be used.
- Raises DCOM authentication level to Packet Integrity.

FactoryTalk Linx Data Bridge version 6.40.00:

- Enable and disable group communications.
- Enable and disable group communications using a tag.
- Log trigger changes.

Install FactoryTalk Linx Data Bridge for the first time

You can install one or more Rockwell Automation software products on a single personal computer.

IMPORTANT: The user installing or configuring FactoryTalk Linx Data Bridge 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 Data Bridge software

1. Start your Windows operating system.
2. Insert the FactoryTalk Linx Data Bridge DVD into the DVD-ROM drive.

3. (optional) If **FactoryTalk Linx Data Bridge Setup** does not appear, start the setup utility:
 - a. In Windows, select **Start > Run**.
 - b. In **Open**, type `x:\setup`, where x is the letter of the drive containing the FactoryTalk Linx Data Bridge DVD-ROM, and then click **OK**.
 - c. 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. In **FactoryTalk Linx Data Bridge Setup**, select a product to install from the dropdown list.
5. Choose either:
 - **Install Now**: Install FactoryTalk Linx Data Bridge and the prerequisite software to the default installation directory: `C:\Program Files (x86)\Rockwell Software`.
 - **Customize**: Specify which software should be installed and select a different installation directory, then click **Install**.
6. In **End-User License Agreements**, read the agreements, then select **Accept all** to continue the installation, or click **Decline** to return to the previous page.
7. (optional) If 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.
8. When **Almost there** appears, select one of the following options, then click **Next**.
 - Select **Activate your software** to activate FactoryTalk Linx Data Bridge now.
 - Select **Skip activation** to activate FactoryTalk Linx Data Bridge later using FactoryTalk Activation Manager. For more information, refer to About Activations.
9. In **That's it!**, click **Restart now** to restart your computer and continue the installation, or **Restart later** to exit the installation. You must restart your computer before using FactoryTalk Linx Data Bridge. 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 Data Bridge Getting Results Guide* and other documents.

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

Uninstall FactoryTalk Linx Data Bridge

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

- Open **Programs and Features** in the Windows **Control Panel**, right-click **FactoryTalk Linx Data Bridge**, 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 the command-line parameter, see [Parameters on page 40](#).

Upgrade FactoryTalk Linx Data Bridge

Perform the following steps to upgrade to the latest version of FactoryTalk Linx Data Bridge:

1. Stop the FactoryTalk Linx Data Bridge services by selecting Windows Start > Services > FactoryTalk Linx Data Bridge Server > Stop the service.
2. If FactoryTalk Diagnostics Counter Monitor is running, exit the program.
3. Close **FactoryTalk Linx Data Bridge Configuration**.
4. Insert the FactoryTalk Linx Data Bridge product DVD. Perform the installation steps as presented on the screen.
5. Restart your computer.

NOTE: You must restart your computer after installing Rockwell Automation software products. If you are installing multiple products, you must restart your computer after all the products are installed.

Start FactoryTalk Linx Data Bridge and explore the user interface

This chapter includes the following information:

- Start FactoryTalk Linx Data Bridge
- About the FactoryTalk Linx Data Bridge dialog box

Start FactoryTalk Linx Data Bridge

If you are using Windows 10, select **Start > Programs > Rockwell Software > FactoryTalk Linx Data Bridge Configuration**.

If you are using Windows 7, select **Start > Programs > Rockwell Software > FactoryTalk Linx > FactoryTalk Linx Data Bridge Configuration**.

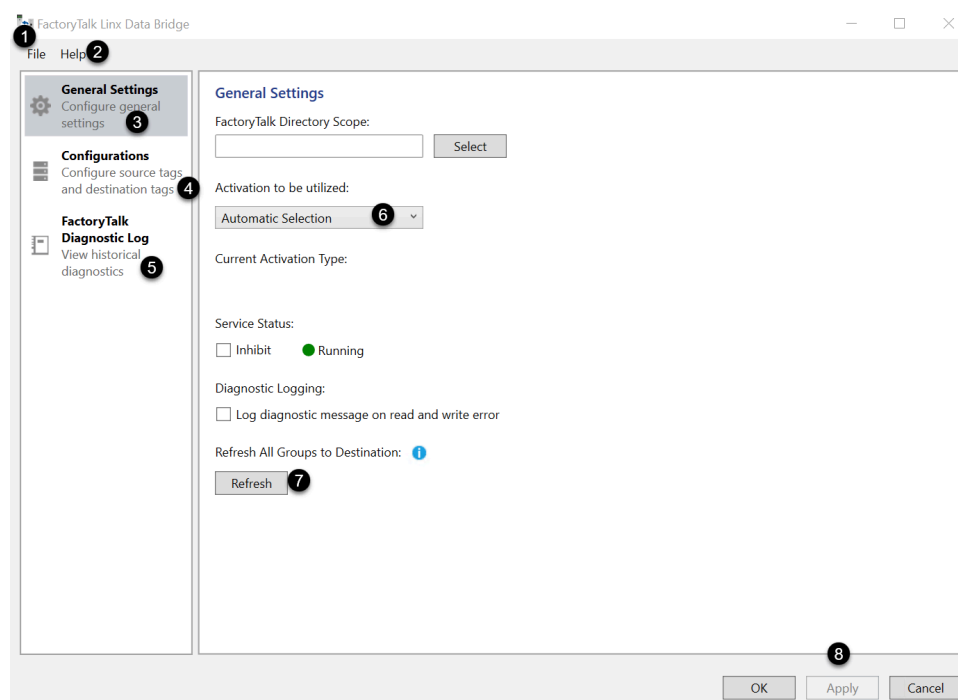
NOTE:

- Before you can configure FactoryTalk Linx Data Bridge, you must configure FactoryTalk Linx data servers/OPC DA or UA servers/FactoryTalk View SE HMI tags first. For detailed steps, see each product's Online Help.
- To start or stop the FactoryTalk Linx Data Bridge service, you must be either a Windows Administrator or a Power User of the computer.

About the FactoryTalk Linx Data Bridge configuration

The **FactoryTalk Linx Data Bridge Configuration** dialog box shows the General Settings, Configurations, software revision and activation information, and diagnostic information.

The **FactoryTalk Linx Data Bridge Configuration** dialog box contains the following information:



Item	Description
1	The File button contains information about: <ul style="list-style-type: none"> Create new configuration Log On Log Off Export configuration Import configuration Exit FactoryTalk Linx Gateway Configuration.
2	The Help button contains information about: <ul style="list-style-type: none"> Release Notes. Help Content Software version number Activation Copyright Contact information
3	The General Settings tab contains information about: <ul style="list-style-type: none"> FactoryTalk Directory scope selection. Server status Diagnostic logging option
4	The Configurations tab contains information about: <ul style="list-style-type: none"> Data group Data pair Properties Verification message
5	The FactoryTalk Diagnostic Log tab contains information about: <ul style="list-style-type: none"> FactoryTalk Diagnostics information.
6	The Activation to be utilized lists all the activation types. The default option is "Automatic Selection" which FactoryTalk Linx Data Bridge selects the activation that supports the most tags
7	Click Refresh to refresh all destination tags in all groups with the last set of source values received.
8	Click Apply to apply the changes and restart FactoryTalk Linx Data Bridge service.

General Settings

Use **General Settings** to set FactoryTalk application scope and global server properties for the FactoryTalk Linx Data Bridge service.

Global Settings

Field	Description
FactoryTalk Directory Scope	Sets the FactoryTalk Directory path to an application. Tags from the selected application can be used as the source or destination tags. Use FactoryTalk Administration Console to add, edit, and delete FactoryTalk applications. For more information, see Manage applications in <i>FactoryTalk Services Platform Online Help</i> . Changing the FactoryTalk Directory scope removes all configured data groups and pairs.
Activation to be utilized	Lists all the activation types. The default option is " Automatic Selection " in which FactoryTalk Linx Data Bridge selects the activation that supports the most tags.
Inhibit	Inhibits or enables the FactoryTalk Linx Data Bridge service. <ul style="list-style-type: none"> • Checked: Inhibits the FactoryTalk Linx Data Bridge service from operating. • Unchecked: Enables the FactoryTalk Linx Data Bridge service. (default)
Log diagnostic message on read and write error	Sets whether a diagnostic message is logged to the FactoryTalk Diagnostics every time a tag cannot be written or read. The default setting is Disable.
Refresh	Click Refresh to update destination tags in all tag groups with the last received value from the associated source tags.

Configurations

Use **Configurations** to add data groups and data pairs, set data pair properties, and verify the configuration.

Data Group Properties

Field	Description
Add Group	Adds a data group to the configuration.
Remove Group	Removes the selected data group and all its tags to the configuration.
Name	Sets the name for the data group.
Group Update Rate	Sets the update rate for all tags in the data group. If you enter an invalid group update rate, it will be automatically changed to the next valid update rate. For more details, see Factors that impact FactoryTalk Linx Data Bridge performance in <i>FactoryTalk Linx Data Bridge Help</i> .

Field	Description
Group communications	<p>Sets group communications using these control types:</p> <ul style="list-style-type: none"> Enabled Enables group communications between source and destination tags in a data group. Group communications are enabled by default. Disabled Disables group communications between source and destination tags in a data group. Enabled by tag Controls group communications using a tag. You can change group communications through any client that can modify the tag value. Changing the tag value to true or not zero, and the quality as good will enable group communications. Changing the tag value to false or zero, or the quality to bad will disable group communications. The tag cannot be configured in a tag pair as a source or destination. Supported data types include Bool, SINT, INT, DINT, LINT, USINT, UINT, UDINT, and ULINT. The subscribed source and destination tags in the disabled data groups are counted by the activation capacity.
Close existing tag subscriptions when disabled	<p>It takes effect when group communications are disabled. When it is selected, FactoryTalk Linx Data Bridge will release the resource occupied by the subscribed source and destination tags in data groups. After enabling group communications, you must resubscribe the source and destination tags, which will take time to load. If the resource is sufficient, we recommend that you keep tag subscriptions when disabling group communications.</p>
Only update destination tags with refresh trigger	<p>Refreshes destination tags only when the trigger tag is set or changed. This option will take effect after you click Apply or OK. Destination tags will not be refreshed when the source tag value changes.</p>
Update destination tags with refresh trigger quality changes	<p>Adds the option to turn on or turn off the refresh of destination tags when the trigger tag quality is changed to good quality.</p>
Log trigger changes	<p>Log trigger changes as FactoryTalk Diagnostic messages.</p>
Ensure data type consistency	<p>The FactoryTalk Linx Data Bridge requires the referenced source and destination tags in a tag pair to match data types. By disabling this setting, the FactoryTalk Linx Data Bridge will permit the exchange of tags that do not have matching types. When disabled, the destination device must ensure that values are formatted correctly for proper usage. Example of source tag matching destination tag</p>

Field	Description
	BOOL-> INT BOOL->DINT INT->DINT INT->LONG INT INT->UINT BOOL->String
Inhibit tag trigger	Sets to inhibit tag trigger. When Inhibit tag trigger is selected, automatic refresh of the tag group will not be initiated when the trigger tag value or quality value is changed.
Refresh Destination Tags	Sets to refresh destination tags under the tag group with the last set of source values received. If group communications are disabled, you cannot refresh destination tags.
Add Data Pair	Adds a data pair to the data group.
Remove Data Pair	Removes the selected data pair from the data group.



Tip: The FactoryTalk Linx Data Bridge moves data from source to destination tags both on initial startup and subsequently when source tag values are changed. Sending values on change reduces network and controller loading. However, if a destination tag is modified by an external method (for example, project download, SD Card restore, or manual change) or if the destination controller is disconnected when a source value is changed, the destination value may not contain the appropriate value from the source. To solve this issue, use the Refresh option to initiate an update manually or configure a trigger tag to initiate an update for the destination tags in a group automatically. See details in Refresh destination tags in *FactoryTalk Linx Data Bridge Help*.

Data Pair Properties

Field	Description
Name	Sets the name for the data pair. Required.
Source Tag	Sets the path to the tag that provides the value to the destination tag. Required.
Source Tag quality [INT/DINT]	Sets the path to the tag that receives the quality value from the source tag. Optional. Tip: Select a tag in the same location as the destination tag to permit the receiving device to verify the status of the source tag.
Source Tag timestamp [LINT]	Sets the path to the tag that receives the timestamp value from the source tag. Optional. The source device or server must support LINT tags. Older devices or servers that do not support LINT tags, such as SLC and PLC devices, cannot provide timestamp tags.

Field	Description
	Tip: Select a tag in the same location as the destination tag to permit the receiving device to verify when the source tag was last updated.
Source Tag Timestamp Style	<p>Sets the format used for the source tag timestamp.</p> <ul style="list-style-type: none"> • Logix - UNIX Time Format (default) • OPC - Win32 Time Format • String Time 24 Hour Format • String Time AM/PM Format <p>If the Source Tag Timestamp Style differs from the Destination Tag Timestamp Style, the source timestamp tag value will be converted to the destination tag timestamp style.</p>
Destination Tag	Sets the path to the tag that receives the value from the source tag. Required.
Destination Tag quality [INT/DINT]	<p>Sets the path to the tag that receives the quality value from the destination tag. Optional.</p> <p>Tip: Select a tag in the same location as the source tag to permit the sending device to verify the delivery of the destination tag.</p>
Destination Tag timestamp [LINT]	<p>Sets the path to the tag that receives the timestamp value from the destination tag. Optional.</p> <p>The target device or server must support LINT tags. Older devices or servers that do not support LINT tags, such as SLC and PLC devices, cannot receive timestamp tags.</p> <p>Tip: Select a tag in the same location as the source tag to permit the sending device to verify when the destination tag was last updated.</p>
Destination Tag Timestamp Style	<p>Sets the format used for the destination tag timestamp.</p> <ul style="list-style-type: none"> • Logix - UNIX Time Format (default) • OPC - Win32 Time Format • String Time 24 Hour Format • String Time AM/PM Format <p>If the Destination Tag Timestamp Style differs from the Source Tag Timestamp Style, the destination timestamp tag value will be converted to the source tag timestamp style.</p>

FactoryTalk Diagnostic Log

Use **FactoryTalk Diagnostic Log** to view historical error, warning, and information level diagnostic messages about the FactoryTalk Linx Data Bridge service on the local computer. The information shown is limited to the selected FactoryTalk Linx Data Bridge.



Tip:



To view diagnostic messages about a FactoryTalk Linx Data Bridge hosted on a remote computer, either:

- Use the FactoryTalk Linx Data Bridge on the host computer.
- or
- Click **Launch FactoryTalk Diagnostic Viewer** and configure it to view logs from an aggregated diagnostic log on a remote computer.

Button	Description
Refresh	Clears the FactoryTalk Diagnostic Log and refresh diagnostic messages from the FactoryTalk Diagnostics server on the local computer.
Launch FactoryTalk Diagnostic Viewer	Starts the FactoryTalk Diagnostic Viewer to view diagnostic messages for all FactoryTalk devices and services, or to view diagnostic messages for a remote computer.

Tag Browser

Use **Tag Browser** to select a tag from a device or server as either a source or destination tag. The application tree is shown in the left pane. When a branch in the application tree is selected, tags in the branch appear in the right pane.

NOTE: The source and destination tags must be defined to have the same data type.

To filter the tag list, enter an exact tag name or enter a search term with asterisks (*) as wildcards. For example, to find the tag @DAQ_ItemsActiveQty enter *DAQ* or @DAQ* in **Tag filter**.

About FactoryTalk Linx Data Bridge

Use **About FactoryTalk Linx Data Bridge** to identify the version of the FactoryTalk Linx Data Bridge user interface or FactoryTalk Linx Data Bridge service.

Revision

Field	Description
Configuration User Interface Revision	Lists the version number of the FactoryTalk Linx Data Bridge user interface on the local machine.
FactoryTalk Linx Data Bridge Service Revision	Lists the version number of the FactoryTalk Linx Data Bridge service on the local machine.

Use FactoryTalk Linx Data Bridge to bridge data

To send source tag values to destination tags, add a data group to select an update rate, then add each source and destination tag in a data pair. Configure each pair with the required tag names and optional quality and timestamp tags, then verify the configuration. Once a data pair has been verified and applied, FactoryTalk Linx Data Bridge updates the destination tags with the source tag values.

This chapter includes the following information:

- Add a data group
- Add a data pair
- Ensure data type consistency
- Search and select a tag
- Verify a configuration

Add a data group

Add a data group to contain a new set of data pairs. Each data pair in the data group is polled at the same update rate. Each data group must have a unique name.

The update rate is used to request the values of all source tags in the group from the source servers or controllers. However, the actual update rate of the destination tag values may be slower due to the performance of the source servers or controllers and the reliability and performance of the network.

To add a data group

1. In FactoryTalk Linx Data Bridge, select **Configurations**.
2. In the left pane of **Configurations**, select **Add Group**.
3. (optional) Edit **Name** and **Group Update Rate** for the data group.
If you enter an invalid group update rate, it will be automatically changed to the next valid update rate. For more details, see Factors that impact FactoryTalk Linx Data Bridge performance on page 23 in *FactoryTalk Linx Data Bridge Online Help*.
4. [Add one or more data pairs on page 24](#), then click **OK**.

Add a data pair

Add a data pair to synchronize tag values from a source tag to a destination tag. Each tag may have optional quality and timestamp tags. Each data pair must have a unique name, and source tags must not be identical to destination tags.

FactoryTalk Linx Data Bridge supports a maximum capacity of 200,000 data pairs.

IMPORTANT:

- To use timestamp tags, the source and destination devices or servers must support LINT tags. Older devices or servers that do not support LINT tags, such as SLC™ and PLC devices, cannot receive or provide timestamp tags.
- Unsolicited, CIP, and most EDS Parameter tags are read-only. Read-only tags should not be selected as destination tags.
- As the number of data pairs increases, the update rate they can be communicated will decrease. For more information, see FactoryTalk Linx Data Bridge Performance Reference. on page
- The source/destination device or server performance will impact the data update rate.

Prerequisites

- [Add a data group on page 24](#)

To add a data pair

1. In the left pane of Configurations on page , add a group or select an existing group from the list.
2. In the right pane of **Configurations**, select the **Group Pairs** tab, and then select **Add Data Pair**.
3. (optional) In **Properties**, enter a unique name for the data pair.
4. In **Properties**, [select a source tag and a destination tag for the data pair on page 25](#).
5. (optional) In **Properties**, select a source quality tag, source timestamp tag, destination quality tag, and destination timestamp tag.
6. Select [Verify on page 27](#) to validate the tag selections.
7. Select **OK**.

Search for and select a tag

Use the **Tag Browser** to search for and select a tag from the FactoryTalk application scope. Tags may only be selected from FactoryTalk application servers, or from devices that have a configured shortcut.

IMPORTANT:

- To use timestamp tags, the source and destination devices or servers must support LINT tags. Older devices or servers that do not support LINT tags, such as SLC™ and PLC devices, cannot receive or provide timestamp tags.
- Unsolicited, CIP, and most EDS Parameter tags are read-only. Read-only tags should not be selected as destination tags.
- As the number of data pairs increases, the update rate they can be communicated will decrease. For more information, see FactoryTalk Linx Data Bridge Performance Reference. on page
- The source/destination device or server performance will impact the data update rate.

Prerequisites

1. [Add a data group on page 24](#)
2. [Add a data pair on page 24](#)

To search for and select a tag

1. In **Properties**, select the **Browse** button next to a source tag or destination tag field.
2. In the left pane of Tag Browser on page , expand and select a branch from the application tree.
3. (optional) In **Tag filter**, enter an exact tag name or enter a search term with asterisks (*) as wildcards to limit what tags are shown in the right pane.
For example, to find the tag @DAQ_ItemsActiveQty enter *DAQ* or @DAQ* in **Tag filter**.
4. In the right pane of **Tag Browser**, select a tag from the list and click **OK**.

Best practice for configuring the quality and timestamp tags

The quality and timestamp attributes permit the controllers involved in the FactoryTalk Linx Data Bridge exchange to determine if and when a value is delivered successfully. The source Quality and Timestamp should be assigned to the destination controller to permit it to determine the status of the tag value it receives. The destination Quality and Timestamp should be assigned to the source controller to permit it to determine the status of the tag value delivery.

Examples:

Source Value [Controller A]Tag_Source

Source Quality [Controller B]Tag_Destination_Quality

Source Timestamp [Controller B]Tag_Destination_Timestamp

Destination Value [Controller B]Tag_Destination

Destination Quality [Controller A]Tag_Source_Quality

Destination Timestamp [Controller A]Tag_Source_Timestamp

Design considerations

- Tag quantity limits (2,000 when FactoryTalk Linx Data Bridge is purchased separately and 200,000 when acquired with <FTL6W> Pro)



Tip: The Activation type is only shown when the pair tag is configured or added.

- Source and destination capacity may impact delivery efficiency and performance OPC servers may have limited capacity for tag quantity and performance. Logix controllers have a significantly higher read capacity.
- Change of State delivery
The FactoryTalk Linx Data Bridge moves data from source to destination tags both on initial startup and subsequently when source tag values are changed. Sending values on change reduces network and controller loading. However, when a destination tag is modified by an alternative method (for example, project download, SD Card restoration, or manual change) or if a destination controller is disconnected when a source value is changed, the destination value may not contain the appropriate value from the source.

Either restart the FactoryTalk Linx Data Bridge or design the system to ensure that the source values change periodically to ensure the destination receives updated values.

- Logix communications bandwidth

The communications capacity for Logix controllers prior to L8 is determined by a user System Overhead Time-Slice (SOTS) setting. The default setting may need to be adjusted to accommodate larger tag pair configurations.

- Quality and Timestamp

The quality and timestamp attributes permit the controllers involved in the FactoryTalk Linx Data Bridge exchange to determine if and when a value is delivered successfully. The source Quality and Timestamp should be assigned to the destination controller to permit it to determine the status of the tag value it receives. The destination Quality and Timestamp should be assigned to the source controller to permit it to determine the status of the tag value delivery.

Example:

Source Value [Controller A]Tag_Source

Source Quality [Controller B]Tag_Destination_Quality

Source Timestamp [Controller B]Tag_Destination_Timestamp

Destination Value [Controller B]Tag_Destination

Destination Quality [Controller A]Tag_Source_Quality

Destination Timestamp [Controller A]Tag_Source_Timestamp

- Admin rights required to make configuration changes

Users are required to sign in with a Windows administration account or provide a Windows administration account username and password to apply any configuration changes.

- Changes captured in the FactoryTalk Audit log

Changes related to the configuration will be captured in the FactoryTalk Audit log, for example, adding, deleting, or editing a tag pair.

- Information captured in the FactoryTalk Diagnostics log

Information related to system operation will be captured in the FactoryTalk Diagnostics log, for example, activation confirmation or failure, start or stop of FactoryTalk Linx Data Bridge service.

Information on communication failures will be captured in the FactoryTalk Diagnostics log by the data servers referenced in the configuration (for example, FactoryTalk Linx, FactoryTalk Linx UA Connector).

- Check source and destination data type matching in FactoryTalk Linx Data Bridge

Refer to Ensure data type consistency on page 19 for details.

Verify a configuration

Verify a configuration to ensure that source and destination tags are valid paths and that their data types are compatible. Verification results appear in the text pane beneath data pair properties. Configurations with errors cannot be saved.

To verify a configuration

- In Configurations on page 18, add one or more data groups on page 24 and data pairs on page 24.
- Select **Verify**.



Tip: If errors are detected during verification, double-click the error message in the verification results to highlight the cause of the error.

Export and import configurations

Export a FactoryTalk Linx Data Bridge configuration to save it as a backup, transfer it to a new FactoryTalk Linx Data Bridge host, or modify the configurations using other desktop software. Import a configuration to load an existing configuration to a FactoryTalk Linx Data Bridge host.

This chapter includes the following information:

- Export a configuration
- Import a configuration
- Export a configuration using the command prompt.
- Import a configuration using the command prompt.

Export a configuration

Export a configuration to save the FactoryTalk Directory scope, data groups, and data pairs to a file or transport them to a new host computer.

To export a configuration


1. Select **File > Export configuration**.
2. In **Export Configuration**, use **Save as type** to export the configuration as either XML or CSV.
3. In **Export Configuration**, enter a filename and path for the exported configuration file, then click **Save**.

Import a configuration


Import a configuration to load the FactoryTalk Directory scope, data groups, and data pairs from a file.

FactoryTalk Linx Data Bridge supports a maximum capacity of 200,000 data pairs.

To import a configuration

1. Select **File > Import configuration**.
2. In Data Items to Import on page , select an import method and options, then click **OK**:
 - **Delete All existing and create new from imported file:** All existing data groups and pairs are removed. All new data groups and pairs are created.
 - **Update existing and create new:** Data groups and pairs overwrite existing data groups and pairs. New data groups and pairs are created.
 - **Skip existing and create new:** Data groups and pairs that match existing data groups and pairs are not imported. New data groups and pairs are created.
 - **Skip invalid data:** If enabled (default), data groups or pairs that do not pass verification are not imported. If cleared, data groups or pairs that do not pass verification are imported.
3. In **Import Configuration**, select either XML or CSV files from the file type list.
4. In **Import Configuration**, browse to the path of an exported configuration, select it, and then select **Open**.

Export a configuration using the command prompt

Export a configuration using the command prompt on page  to save the FactoryTalk Directory scope, data groups, and data pairs to a file or transport them to a new host computer.

To export a configuration using the command prompt

1. Start **Windows Command Prompt** using Administrator privileges.
2. In the Command Prompt window, use the `cd` command to navigate to the installation path for FactoryTalk Linx Data Bridge.
The default path is C:\Program Files (x86)\Rockwell Software\FactoryTalk Linx Data Bridge\
3. Type `FTLinxDataBridgeCfg.exe -e -p:"file_path"`, then press **Enter**, where *file_path* is replaced with the file path and file name of the exported configuration file.

Import a configuration using the command prompt

Import a configuration using the command prompt to load the FactoryTalk Directory scope, data groups, and data pairs from a file.

FactoryTalk Linx Data Bridge supports a maximum capacity of 200,000 data pairs.

The FTLinxDataBridgeCfg.exe tool supports three import methods from the command prompt, each with a unique syntax:

- **-i:d** - All existing data groups and pairs are removed. All new data groups and pairs are created.
- **-i:u** - Data groups and pairs overwrite existing data groups and pairs. New data groups and pairs are created.
- **-i:s** - Data groups and pairs that match existing data groups and pairs are not imported. New data groups and pairs are created.

To import a configuration using the command prompt

1. Start **Windows Command Prompt** using Administrator privileges.
2. In the Command Prompt window, use the `cd` command to navigate to the installation path for FactoryTalk Linx Data Bridge.
The default path is C:\Program Files (x86)\Rockwell Software\FactoryTalk Linx Data Bridge\
3. Type `FTLinxDataBridgeCfg.exe -i:X -p:"file_path"`, then press **Enter**, where *-i:X* is replaced with the import method and *file_path* is replaced with the file path and file name of the configuration file.

Back up and restore FactoryTalk Linx Data Bridge

Back up the FactoryTalk Linx Data Bridge configurations

To back up FactoryTalk Linx Data Bridge configurations in case of unexpected circumstances, do one of the followings:

- Export your configurations by clicking **File > Export configuration**, and then save it as either an XML or CSV file to a safe location.
- Stop FactoryTalk Linx Data Bridge service and then go to C:\ProgramData\Rockwell\FactoryTalk Linx Data Bridge. Save the file FTLinxDatBridge.xml to a safe location.

Restore the FactoryTalk Linx Data Bridge configurations

To restore FactoryTalk Linx Data Bridge configurations from a system restart, do one of the followings:

- Import the previously saved configuration XML file and then select **File > Import configuration**.
- Copy the previously saved FTLinxDatBridge.xml file to C:\ProgramData\Rockwell\FactoryTalk Linx Data Bridge and replace the existing one.

About Activation

Rockwell Automation Windows-based software products are copy-protected and require an activation key, located in an activation file, to run the software.

When you launch FactoryTalk Linx Data Bridge, the software checks for the activation file. If a valid activation cannot be found, an error is logged to FactoryTalk Diagnostics and FactoryTalk Linx Data Bridge operates under a grace period. Refer to FactoryTalk Services Platform Help for more information about grace periods.

This appendix includes the following information:

- Activate FactoryTalk Linx Data Bridge
- Activation types

Activate FactoryTalk Linx Data Bridge

FactoryTalk Linx Data Bridge supports activating software during the software installation. The new Installation Setup Wizard contains a **Software Activation** checkbox. This no longer requires you to open FactoryTalk Activation Manager to activate the software.

To activate your copy of FactoryTalk Linx Data Bridge in the **FactoryTalk Linx Data Bridge Installation Setup Wizard**, perform the following steps:

1. Perform the steps in Install FactoryTalk Linx Data Bridge to install FactoryTalk Linx Data Bridge software. The FTLDB installation DVD provides wizards to guide you through the installation process. FTLDB 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. The automated installation with command-line syntax reduces user interaction and provides command-line parameters to install FTLDB. See Install FTLDB with command-line syntax. This chapter contains the following information:
 - System requirements
 - Install FTLDB for the first time
 - Uninstall FTLDB
 - Upgrade FTLDB
2. On the **Rockwell Software Setup** dialog box in the Installation Setup Wizard, select the **Activate your software** checkbox and click **Finish**.
3. On the **Software Activation** dialog box, enter the product key from your Activation Certificate. The serial number should have been automatically added. If the serial number is not automatically added, enter the serial number.
4. Select **Activate locally** to activate FactoryTalk Linx Data Bridge on a single computer or select **Activate using a dongle** to activate FactoryTalk Linx Data Bridge on any computer by using a dongle.



Tip: The Activate using a dongle option requires that you have a dongle to lock the activation.

5. Click **Continue**.

You can still activate FactoryTalk Linx Data Bridge via FactoryTalk Activation Manager by clicking the **Explore other options** link in the **Software Activation** dialog box. The link provides direct access to the FactoryTalk Activation

Manager software. To activate your copy of FactoryTalk Linx Data Bridge in the FactoryTalk Activation Manager, click **Get New Activations** and follow the instructions in the FactoryTalk Activation Manager.

For more information on using the FactoryTalk Activation Manager, click **More** or **Help** in the FactoryTalk Activation Manager.

EvRSI activation is replaced by FactoryTalk Activation Manager. If you are using EvRSI activation, contact your local Rockwell Automation Sales office or Technical Support for information on migrating your activations to FactoryTalk Activation Manager.

For Rockwell Automation Technical Support in the U.S., call (440) 646-3434.

Outside the U.S., visit <http://www.rockwellautomation.com/global/about-us/contact/contact.page>.

Activation types

The activation type determines the feature support of the FactoryTalk Linx Data Bridge.

FactoryTalk Linx Data Bridge version 6.21.00 adds the ability to allow users to choose the specific activation that will be requested on startup. Find the available activations from **General Settings > Activation to be utilized**.

If FactoryTalk Linx Data Bridge fails to detect a valid activation file, an error is logged to FactoryTalk Diagnostics, and FactoryTalk Linx Data Bridge operates under a grace period. For more information about grace periods, see *FactoryTalk Services Platform Help*.

Activation Name	Activation	FactoryTalk Directory	Activates FactoryTalk Linx Data Bridge	Supported Data Pairs
FactoryTalk Linx Gateway Professional	LINXGW.PROFESSIONAL	Local or Network	Y	200,000
FactoryTalk Linx Data Bridge	LINX.DATABRIDGE	Local or Network	Y	2,000
FactoryTalk Linx Data Bridge Embedded	Verifies its operating on a CompactLogix™ 5480 windows core	Local or Network	Y	500



Tip: The Activation type is only shown when the pair tag is configured or added.

Secure FactoryTalk Linx Data Bridge using FactoryTalk Security

This appendix includes the following information:

- About FactoryTalk Security
- Using FactoryTalk Security with FactoryTalk Linx Data Bridge
- Feature Security Properties

About FactoryTalk Security

FactoryTalk Security improves the security of your automation system by limiting access to those with a legitimate need. FactoryTalk Security authenticates the identities of users and authorizes user requests to access a FactoryTalk system against a set of defined user accounts and access permissions held in the FactoryTalk network directory or FactoryTalk local directory.

For help with configuring security services, refer to *FactoryTalk Services Platform Help*.

If you prefer not to use security services, you can grant all users full access to your automation system. For help overriding security services, refer to *FactoryTalk Services Platform Help*.

Using FactoryTalk Security with FactoryTalk Linx Data Bridge

To configure security for the tool, in the FactoryTalk Administration Console, right-click the network (the highest level of the tree), and select **Security** from the menu.

The following example shows the steps to restrict a user from changing the scope:

Prerequisites

- Log in as Windows Administrator or Power User of the computer.
- Obtain Read/Write/List Children permissions within the Common section of Security.
- Log in to FactoryTalk.

To restrict a user from changing the scope

1. In the FactoryTalk Administration Console Explorer, right-click **Network > Security**. The **Security Settings for Network** dialog box opens.
For local scope, right-click **Local (THIS COMPUTER) > Security**. The **Security Settings for Local** dialog box opens.
2. On the **Permissions** tab, select **View permissions by User**, and you can see all the user groups (Administrators, All Users, Anonymous Logon), and highlight the user you want to restrict.
3. From the **Permissions for *** from All Computers list**, click **Common > Write**, and select the **Deny** checkbox.
4. Click **OK**.

Feature Security Properties

Use the **Policy Settings** tab in the **Feature Security Properties** dialog box to 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.

Starting from version 6.10.00, FactoryTalk Linx Data Bridge enhances the user security by requesting the users to sign in to FactoryTalk Linx Data Bridge server when starting FactoryTalk Linx Data Bridge Configuration and when changing the scope.

To log on to the FactoryTalk Linx Data Bridge server, do one of the followings

- Click **File > Log On**.
- Click **Select** next to **FactoryTalk Diagnostics Scope** on the **Server Configuration** tab.

NOTE:

- If you have enabled a single logon function in **FactoryTalk Services Platform > Explorer > System Policies > Security Policy**, there is no need to log on FactoryTalk Linx Data Bridge server manually.
 - Log off and log on back for the feature security settings to take effect.
-

As the product policy is configured upon the logon scope, make sure the FactoryTalk Linx Data Bridge server logon scope is the same as the FactoryTalk Diagnostics scope.

The following table shows the relationship between FactoryTalk Linx Data Bridge feature security policies and securable actions that the user can perform:

Feature security policy	Allow	Deny
View Configurations	Allow users to view information in the General Settings and Configurations tabs including: <ul style="list-style-type: none"> • FactoryTalk Diagnostics Scope • Activation to be utilized • Current Activation Type • Service Status • Diagnostic Logging option • Source and destination tag information. 	Hide the configuration information.
Change configurations	Allow users to view and edit in the General Settings and Configurations tabs including: <ul style="list-style-type: none"> • FactoryTalk Diagnostics Scope • Activation to be utilized • Current Activation Type • Service Status • Diagnostic Logging option • Source and destination tag information. 	Set the configuration areas unavailable.

Troubleshoot FactoryTalk Linx Data Bridge

At release time, this application presents certain circumstances and errors that require troubleshooting. This section supplies categories of Troubleshooting topics that indicate possible causes and solutions.

In this section:

[Typical failures on page 35](#)

[View logged diagnostic information for FactoryTalk Linx Data Bridge on page 37](#)

[Quality codes on page 37](#)

[FactoryTalk Diagnostic Log on page 38](#)

Typical failures

In this section, a few typical errors in FactoryTalk Linx Data Bridge are listed to identify the problems.

- What happens when a Controller is offline or inhibited?
 - When communications to a device containing a Source tag are inhibited (for example, the device is inhibited in FactoryTalk Linx), the source quality value associated with the tag will report an "out of service" status value when inhibited and "not connected" when offline.
 - When communications to a device containing a Destination tag are inhibited (for example, the device is inhibited in FactoryTalk Live), the destination quality value associated with the tag will report an "out of service" status value when inhibited and "not connected" when offline.
- What happens when the UA Connector is unable to communicate with a UA Server?
 - When communications to a UA server containing a Source tag failed, the source quality value associated with the tag will report a "Communication failure" status value.
 - When communications to a UA server containing a Destination tag failed, the destination quality value associated with the tag will report a "Communication failure" status value.
- What happens when a source or destination device is modified so a referenced item is no longer available, or its type is changed?
 - If the tag is deleted from a device, the quality value associated with the source or destination tag will report a "Configuration error" status value in FactoryTalk Linx or a "Bad" status value in UA Connector.
 - If a tag type is changed on a device, successful delivery of the source tag to the destination will depend on the source tag's value falling within a numeric range that will fit into the destination tag type. (For example, if the source tag is a DINT and the destination value is an INT, a value <32767 will be delivered but a value >32767 will fail.)
- What happens when the type for the selected item is incorrect?
 - When the **Ensure data type consistency** checkbox is selected, and when the **Apply** or **Verify** buttons are pressed, the source and destination data types will be verified and an error reported if they do not have the same data type.
 - When the **Ensure data type consistency** checkbox is not selected, the source tag value will be delivered to the destination. However, the destination tag may need to modify the resulting value so that is interpreted correctly.

- Reasons that cause the destination tags to have values that don't match the source tags.
 - Destination tag value is modified through an alternative method or the destination is offline when a source value changes. For example:
 - Downloading a project to destination controllers.
 - Restarting destination controllers.
 - Source or destination controllers go offline or are inhibited for a period of time.
 - Restoring a destination controller's memory from an SD memory card.
 - Manual changes made by a user to the destination controller.
 - Downloading data from the Logix Data upload/download tool.
 - The destination controller's data is updated or loaded from an external source.

Use the Refresh option to initiate an update manually or configure a trigger tag to initiate an update for the destination tag in a group automatically. See details in Refresh destination tags on page 36 in *FactoryTalk Linx Data Bridge Help*.

- When a destination tag value does not match the value of the source tag:
 - Verify if the source values are changing at an appropriate rate.

NOTE: Value changes should change no faster than twice the subscript rate to provide the best opportunity for the destination to receive all changes.

- Verify if the **Only update destination tags with refresh trigger** checkbox is cleared. If selected, source change won't trigger destination change. Destination tags are refreshed only when the trigger tag is set or changed.
- Verify if the FactoryTalk Linx Data Bridge configuration has the correct source and destination tags.
- Verify if the communications to the source and destination devices are functioning.

NOTE: If the source or destination controller is a redundant ControlLogix® controller, the controller's synchronization crossload may affect the communications performance with the redundant controller. Review the [ControlLogix Redundant Controller User Manual](#) for communications performance considerations.

- Verify if the source and destination devices have sufficient message processing capacity to accommodate the FactoryTalk Linx Data Bridge communications.

NOTE: You can evaluate the predefined diagnostic tags associated with FactoryTalk Linx or the FactoryTalk Linx OPC UA Connector to determine if these communications services are operating effectively.

- The FactoryTalk Linx Data Bridge sends values to the destination when it detects a value change from the source. If a destination controller was disconnected for a time, redownloaded or the destination value was modified by another method, the source value will not be resent until the FactoryTalk Linx Data Bridge detects a source value change. Configure a refresh trigger tag and select **Update destination tags with refresh trigger quality changes** checkbox or click **Refresh Destination Tags** to force the FactoryTalk Linx Data Bridge to resend the last values it received from the source.

View logged diagnostic information for FactoryTalk Linx Data Bridge

Use [FactoryTalk Diagnostic Log](#) on page 38 to view historical error, warning, and information level diagnostic messages about the FactoryTalk Linx Data Bridge service on the current computer.



Tip:

To view diagnostic messages about a FactoryTalk Linx Data Bridge hosted on a remote computer, either:

- Use the FactoryTalk Linx Data Bridge on the host computer.
- or
- Click **Launch FactoryTalk Diagnostic Viewer** and configure it to view logs from an aggregated diagnostic log on a remote computer.

To view logged diagnostic information for FactoryTalk Linx Data Bridge

- In FactoryTalk Linx Data Bridge, select **FactoryTalk Diagnostic Log**.

Quality codes

Each source or destination tag in a data pair can optionally be configured with a corresponding quality tag. The value of the quality tag is called a quality code, which describes the status of the source or destination tag. The quality codes provided by FactoryTalk Linx Data Bridge are based on the quality codes specified in the OPC Data Access Custom Interface Standard version 3.00.

Hexadecimal	Decimal	Name	Description
0x00	00	Bad	The value is not useful. See FactoryTalk Diagnostics messages for more information.
0x40	64	Uncertain	The value is uncertain. See FactoryTalk Diagnostics messages for more information.
0xC0	192	Good	The value is useful and up to date.
0x04	04	Configuration error	The FactoryTalk Linx Data Bridge configuration is invalid. Verify the configuration on page 38 in FactoryTalk Linx Data Bridge.
0x08	08	Not connected	The associated input is not connected.
0x0C	12	Device failure	A device has failed.
0x10	16	Sensor failure	A sensor has failed.

Hexadecimal	Decimal	Name	Description
0x14	20	Last known value	Communications have failed but the last known value is available.
0x18	24	Communications failure	Communications have failed and the last known value is not available.
0x1C	28	Out of service	The item or group is in the Inactive state or the communications to a Logix controller are inhibited.
0x44	68	Last usable value	The value is no longer being written and the data is stale. The last known value is provided instead.
0x50	80	Sensor calibration required	The value is at or has exceeded one of the sensor limits or the sensor is out of calibration.
0x54	84	EGU exceeded	The value has exceeded the limits defined for this parameter.
0x58	88	Sub normal	The value is derived from multiple sources but has fewer than the required number of sources providing Good quality.
0xD8	216	Local override	The value has been overridden. The input may be disconnected or a value has been manually set.

FactoryTalk Linx Diagnostic Log

How do I open FactoryTalk Diagnostic Log?

- In FactoryTalk Linx Data Bridge, select **FactoryTalk Diagnostic Log**.

Use **FactoryTalk Diagnostic Log** to view historical error, warning, and information level diagnostic messages about the FactoryTalk Linx Data Bridge service on the local computer. The information shown is limited to the selected FactoryTalk Linx Data Bridge.



Tip:



To view diagnostic messages about a FactoryTalk Linx Data Bridge hosted on a remote computer, either:

- Use the FactoryTalk Linx Data Bridge on the host computer.
- or
- Click **Launch FactoryTalk Diagnostic Viewer** and configure it to view logs from an aggregated diagnostic log on a remote computer.

Button	Description
Refresh	Clears the FactoryTalk Diagnostic Log and refresh diagnostic messages from the FactoryTalk Diagnostics server on the local computer.
Launch FactoryTalk Diagnostic Viewer	Starts the FactoryTalk Diagnostic Viewer to view diagnostic messages for all FactoryTalk devices and services, or to view diagnostic messages for a remote computer.

Command-line syntax install

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

In the unattended installation, you enter a specified command line with multiple parameters. During the installation process, instead of prompting you for installation and configuration information interactively, the process follows the parameters you specified in the command lines.

Perform unattended installation

To install FactoryTalk Linx Data Bridge in the unattended mode, do the following steps. The steps may vary slightly. Follow the on-screen instructions that apply to your operating system.

1. Close all open Windows programs.
2. Open the **Command Prompt** window as Administrator.
3. In the **Command Prompt** window, navigate to *D:*, where *D:* is the drive containing the FactoryTalk Linx Data Bridge 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. The silent installation requires the Windows Administrator privilege.

4. Type a command line with the following syntax:


```
Setup.exe {/Q | /QS}
/IAcceptAllLicenseTerms
[/AutoRestart]
[/SetupLanguage=language]
/Product=product_name
[/InstallDrive=drive]
[/SerialNumber=serial_number]
[/ProductKey=product_key]
[/Version=product_version]
```
5. Press **Enter**. The installation process starts with the parameters that you specified.
6. For detailed descriptions of each parameter, see [Parameters on page 40](#). 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 must enclose it in quotation marks (" ").

/Q

One of **/Q** and **/QS** is required if **/Record** is not specified.

Installs the product in the silent mode without any user interface.

/QS

One of /Q and /QS is required if /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 for /Q or /QS.

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= *language*

Optional. Specifies which language will be displayed during the installation process. The value must be 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 your inputs to a recording file.

/Playback

Optional. Plays back a recording file.

/IgnoreWarning

Optional. If specified, the setup will ignore and continue.

/Uninstall= *Product name*

Optional. Uninstall the product.

/InstallDrive= *drive*

Optional. Specifies the installation drive.

If omitted, the default drive location is:

- C:\Program Files (x86)\Rockwell Software

/SerialNumber= *serial_number*

Optional. Specifies the serial number that is required if you want to get activation keys during installation.

/ProductKey= *product_key*

Optional. Specifies the product key that is required if you want to get activation keys during installation.

/Version= *product_version*

Optional. Specifies the version corresponding to the product version that the **SerialNumber** and **ProductKey** are able to activate if you want to get activation keys during the installation.

If the version information is omitted, the installer uses a default version which is the most recent product version available when retrieving the activation.

Examples

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

Example 1

```
Setup.exe /Q /IAcceptAllLicenseTerms
```

means:

The FactoryTalk Linx Data Bridge unattended installation uses the default settings during the installation process, with no user interface.

Example 2

```
Setup.exe /QS /IAcceptAllLicenseTerms /AutoRestart /SetupLanguage=CHS /  
InstallDrive=D: /SerialNumber=0123456789 /ProductKey=ABCDE-FGHIJ /Version=6.00.00
```

means:

- During the installation, the progress, error, or complete messages show on user interfaces. The displayed language is Chinese.
- FactoryTalk Linx Data Bridge will be installed to **D:\Program Files (x86)\Rockwell Software**
- The setup will get activation keys during installation if the serial number *0123456789* and product key *ABCDE-FGHIJ* are valid.
- 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.

Glossary

[A-F on page 43](#)

[H-U on page 46](#)

A-F

- A -

access path

An access path defines the computer, driver, networks, and communication devices used to communicate with a destination device or processor in Object Linking and Embedding for Process Control (OPC) conversations.

acknowledgment (ACK)

An ASCII control character is used to acknowledge the reception and acceptance of a transmission block.

activate

To make a Rockwell Software product active so that it can run without the limitations imposed by demonstration mode. Without activation, some Rockwell Software products will not run, some will run with diminished functionality, and others will run for a limited period of time and then shut down with or without warning.

activation file

A text file that contains all of the activation information that is required to license a software product and allow it to function properly. While the file is simply plaintext, the contents of the file are protected by a signature.

activation host

The device associated with an activation by a unique ID.

activation server

An activation server is any computer that hosts concurrent activations. The activation server manages the activations and shares them with other configured computers on the network.

alias

A logical name for a variable in a device or memory. Similar to a tag.

application

A machine or process monitored and controlled by a controller or the use of computer-based or controller-based routines for specific purposes.

area

An area organizes and subdivides a distributed Network application into logical or physical divisions.

- B -

baud

A unit of signaling speed equal to the number of discrete conditions or signal events per second. Where one bit is encoded on each signaling event, the number of baud is the same as the number of bits per second.

Block Check Character (BCC)

An error checking method developed to improve error detection in data communications. The BCC is added to the end of each block of data before the block is transmitted.

- C -

Certificate

A digital certificate is an electronic representation of an identity. A certificate binds the identities public key to its identifiable information, such as name, organization, email, username, and/or a device serial number. A certificate is used to authenticate the connection to other devices. Selected by default when CIP security is enabled.

CIA Messaging

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.

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 communication network.

Common Industrial Protocol (CIP)

The Common Industrial Protocol (CIP) is an industrial protocol for industrial automation applications supported by ODVA. Previously known as Control and Information Protocol, CIP defines messages and services for the collection of manufacturing automation applications – control, safety, synchronization, motion, configuration, and information. It is used in EtherNet/IP, DeviceNet, CompoNet, and ControlNet. Extensions to CIP are CIP Safety, CIP Motion, CIP Security, and CIP Sync.

CIP security

CIP security has multiple layers of security that enables a CIP-connected device to protect itself from malicious CIP communications. Then the device can reject data that has been altered, reject messages 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.

concurrent activation

A type of activation that allows multiple computers across a network to use Rockwell Software products at the same time. Concurrent activations include floating activations and borrowed activations.

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.

cyclic redundancy check (CRC)

A Cyclic Redundancy Check (CRC) is an error checking technique used by computers.

- D -

DA

See OPC DA.

data element

An individually addressable item of data. For example, an OPC tag, an HMI tag, a graphic display, an event file, a node, and a channel.

data provider

One of the building blocks of FactoryTalk Linx, a data provider acts as a multiplexer for multiple clients and optimizes what data can be read together for more efficient handling.

data server

Data servers serve tags, or data items, contained in OPC-DA (Data Access) servers. Clients that need access to data items use data server application elements to locate the computers that are hosting OPC-DA 2.0 compliant data servers.

DCOM

Distributed Component Object Model (DCOM) is a proprietary Microsoft technology for communication between software components on connected computers. It allows a computer to run programs over the network on a different computer as if the program was running locally.

dongle

A dongle is a security or copy-protection device for commercial computer programs. When required by a program, a dongle must be connected to an input/output port, such as a USB or parallel port of the computer, to allow the program to run. Programs that use a dongle query the port at startup and programmed intervals thereafter, and close if the dongle does not respond with the expected validation code.

- E -

Endpoint

An endpoint represents the set of configuration settings on an OPC UA Server that determine how OPC UA clients will interface with the server. This includes a Universal Resource Locator (URL) string, Transport Control Protocol (TCP) port, security and data access settings.

Encryption

In cryptography, encryption is the process of encoding information. This process converts the original representation of the information, known as plaintext, into an alternative form known as ciphertext. Ideally, only authorized parties can decipher a ciphertext back to plaintext and access the original information. Encryption does not itself prevent interference but denies the intelligible content to a would-be interceptor.

External Access

A property that allows you to specify the level of access (Read-Only, Read/Write, or None) external applications and devices have to tags.

- F -

floating activation

A type of concurrent activation that requires a continuous network connection and allows multiple computers to use Rockwell Software products concurrently. An activation server manages a predetermined number of activations in a pool and makes these activations available to any configured computer on the network.

When a computer connects to the network and runs a Rockwell Software product, it automatically "checks out" an activation from the pool of available concurrent activations. When the product shuts down, the activation is automatically freed and returns to the activation server's available pool. Checking out activations from the pool and returning them to the server happens automatically, without any user intervention.

H-U

- H -

HMI server

The software module that is responsible for performing core runtime operations such as data collection, alarm detection, historical data logging and retrieval, and for providing FactoryTalk View SE Clients with graphic displays, runtime data, and events.

- I -

IP Address

Each server or client on a TCP/IP internet is identified by a numeric IP (Internet Protocol) address. The two types of IP addresses are the IPv4 (IP version 4) address and the IPv6 (IP version 6) address.

IP addresses are managed and allocated to users by the Internet Assigned Numbers Authority (IANA) and its delegates. The internet address specifies both the network and the individual host. This specification varies with the size of the network. An IP address identifies a machine in an IP network and is used to determine the destination of a data packet. Port numbers identify a particular application or service on a system.

- N -

Namespace

A collection of information that a Server makes visible to its Clients.

Namespace index

The numeric values used to identify OPC UA namespaces correspond to the index in the NamespaceArray.

NodeID

A numeric or text value that uniquely identifies a data value in an OPC UA Server. An OPC UA client will receive NodeIDs from an OPC UA server while browsing its namespace and will make read, write, and subscription requests for data by delivering the NodeID back to the OPC UA server.

Network Interface Controller

A network interface controller (NIC) is a computer hardware component that connects a computer to a computer network, typically a circuit board or chip.

- O -

OPC DA

OPC (Open Platform Communications) Data Access (DA) is a non-proprietary technical specification that defines a set of standard interfaces based on Microsoft's OLE/COM (Component Object Model) technology. Applying OPC DA standards makes interoperability possible among automation and control applications, field systems and devices, and business and office applications.

The FactoryTalk Services Platform supports and extends the OPC DA 3.0 specification, which includes the ability to browse data items.

For more information on OPC DA, see <https://opcfoundation.org>

OPC Test Client

A data connections test utility that shows whether you are using Remote OPC Client functionality.

OPC UA

OPC (Open Platform Communications) Unified Architecture (UA) is a platform-independent service-oriented architecture that integrates the individual OPC Classic specifications into one extensible framework. Applying OPC UA standards makes interoperability possible among automation and control applications, field systems and devices, and business and office applications.

For more information on OPC UA, see <https://opcfoundation.org>

- P -

poll

Systematically request data from a device.

poll rate

Often how data is requested from a device. Poll rates are typically specified in milliseconds. (A poll rate of 1,000 ms results in data being requested every second).

port number

A port number is a way to identify a specific process to which an internet or other network message is to be forwarded when it arrives at a server. All network-connected devices come equipped with standardized ports that have an assigned number. These numbers are reserved for certain protocols and their associated function.

- R -

rehost (an activation)

Rehosting an activation provides a way of moving an activation file from one computer or device to another. Rehosting an activation file deactivates the file on the computer that is hosting it and then creates a rehost code that Rockwell Technical Support staff can use to generate a new activation file for use on another computer.

- S -

signing

Cryptographic digital signatures use public key algorithms to provide data integrity. When you sign data with a digital signature, someone else can verify the signature, and can prove that the data originated from you and was not altered after you signed it.

scope

The level at which tags and routines may be created. They can be created at the controller level (accessible to all routines), or the program level (accessible to only the routines within a single program).

shortcut

A symbolic reference to a physical 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.

- T -

TCP

TCP (Transmission Control Protocol) is a standard that defines how to establish and maintain a network conversation through which application programs can exchange data. TCP works with the Internet Protocol (IP), which defines how computers send packets of data to each other.

tag

A named area of the process-connected device or controller's memory where data is stored. It is the basic mechanism for allocating memory, referencing data from logic, and monitoring data.

topology

The way a network is physically structured. This includes all networks, nodes, devices, Data Providers, drivers/channels, and object protocols. In FactoryTalk Linx, this is presented in tree form (the communications tree).

- U -

UA

See OPC UA.

URL

A Uniform Resource Locator (URL) is a reference to an OPC UA Server that specifies its location on a computer network and the TCP port used to interface with it.

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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