FactoryTalk Linx Data Bridge Getting Results Guide
Important User Information

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

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

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

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

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.

---

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).
# Preface

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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 portable document format (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 the FactoryTalk Linx Data Bridge Configuration.

Release Notes

The Release Notes provide information updates that are necessary to use FactoryTalk Linx Data Bridge effectively. The Release Notes contains 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 http://www.rockwellautomation.com/compatibility/##/scenarios.

Knowledgebase

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 http://www.rockwellautomation.com/support, then select Knowledgebase Support Center.

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 U.S. holidays, from 8 a.m. to 5 p.m. Eastern time zone for calls originating within the U.S. and Canada.

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

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

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

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

If you need more information about these training programs, visit the Rockwell Automation site or contact the Rockwell Automation Training Coordinator. The web site address and telephone numbers are available at the bottom of the back cover.

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

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

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

The default location of this file is:

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

Open Source Software Licenses

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

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

The default location of this file is:

C:\Program Files (x86)\Common Files\Rockwell\Help\FactoryTalk Linx Data Bridge\Release Notes\OPENSOURCE\index.htm

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

FactoryTalk® Linx™ Data Bridge synchronizes data between FactoryTalk Live Data servers which includes 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 otherwise 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
- RSLogix Classic devices
- OPC UA servers that support subscriptions
- OPC DA servers
- FactoryTalk View SE HMI tags

The performance 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 to each other using a 100 Mbit or higher Ethernet network.

Before using the FactoryTalk Linx Data Bridge to connect tags, there are several system configuration models you can refer. Select the appropriate one for your system. Here lists the examples of system configurations including 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.

Figure 1: Example of a single workstation system
Chapter 1  Welcome to FactoryTalk Linx Data Bridge

Figure 2: Example of a partially distributed system

Figure 3: Example of a fully distributed system
Use the following checklist to guide you through the process of setting up and using FactoryTalk Linx Data Bridge.

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<th>Description</th>
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<td>Read and understand the FactoryTalk Linx Data Bridge Getting Results Guide.</td>
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<td>2.</td>
<td>Verify your personal computer meets the minimum hardware and software requirements.</td>
<td>System requirements on page 13</td>
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<td>3.</td>
<td>Install FactoryTalk Linx Data Bridge.</td>
<td>Install FactoryTalk Linx Data Bridge on page 13</td>
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<td>4.</td>
<td>Install a valid FactoryTalk Linx Data Bridge activation.</td>
<td>About Activations on page 37</td>
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<td>5.</td>
<td>Configure FactoryTalk Security, if required.</td>
<td>FactoryTalk Services Platform Help</td>
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<td>6.</td>
<td>Create a FactoryTalk application (or point to an existing application).</td>
<td>FactoryTalk Services Platform Help</td>
</tr>
<tr>
<td>8.</td>
<td>Create a shortcut between the FactoryTalk application and the server or controller.</td>
<td>FactoryTalk View Site Edition Help or FactoryTalk Services Platform Help.</td>
</tr>
<tr>
<td>9.</td>
<td>Start FactoryTalk Linx Data Bridge by clicking Start &gt; Programs &gt; Rockwell Software &gt; FactoryTalk Linx Gateway &gt; FactoryTalk Linx Data Bridge Configuration.</td>
<td>FactoryTalk Linx Data Bridge Help</td>
</tr>
<tr>
<td>10.</td>
<td>Select the scope using the FactoryTalk Linx Data Bridge Select FactoryTalk Directory dialog box.</td>
<td></td>
</tr>
<tr>
<td>11.</td>
<td>Configure source and destination tags in Configurations tab.</td>
<td>Use FactoryTalk Linx Data Bridge to bridge data on page 25</td>
</tr>
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Chapter 2

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 was tested with the following hardware:

- Intel® Core™ i5 Standard Power processor
- 4 GB of memory
- 80 GB hard disk
- 100 MBit Ethernet network

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, please refer FactoryTalk Linx Data Bridge Online Help.

Software requirements

FactoryTalk Linx Data Bridge is tested on operating systems installed from original Microsoft® media only. They run on the 64-bit versions of the following Windows® operating systems:
• See the Windows Lifecycle FAQ and Windows as a Service (WaaS) topics on the Microsoft® Web site for details regarding servicing requirements and other important information.

• Windows 10 Semi-Annual Channel is governed by the Microsoft Modern Lifecycle Policy. Refer to the Microsoft Web site for details.

• Windows 10 Long-Term Servicing Channel is governed by the Microsoft Fixed Lifecycle Policy. Refer to the Microsoft Web site for details.

• Windows® 10 (tested with v1903, v1909, v2004, and v20H2)
  FactoryTalk Linx Gateway adopts .NET 4.8 which is only supported in Windows 10 v1803 and later.

• Windows 10 IoT Enterprise 2016 LTSB
• Windows 10 IoT Enterprise 2019 LTSC
• Windows Server® 2012
• Windows Server 2012 R2
• Windows Server 2016
• Windows Server 2019

**Supported with the Allen-Bradley 61xx family of Industrial Computers or CompactLogix™ 5480 family of controllers.

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 Gateway version 6.21.00 (CPR 9 SR 12) has been tested with, and is compatible with, the following Rockwell Automation® products when used on the same computer:

• FactoryTalk® Activation Manager version 4.05.01
• FactoryTalk Services Platform version 6.21.00
• FactoryTalk View version 12.00.00
• FactoryTalk® Linx™ version 6.21.00

Prerequisite software

FactoryTalk Linx Data Bridge Setup wizard supports to automatically install a series of Rockwell software and the necessary prerequisite software, including:
Chapter 2 Install FactoryTalk Linx Data Bridge

Rockwell Software

- FactoryTalk Services Platform version 6.21.00 (CPR 9 SR 12)
- FactoryTalk Activation Manager version 4.05.01
- FactoryTalk Linx version 6.21.00 (CPR 9 SR 12)
- Rockwell Automation USB CIP Driver v3.18.06 (for 32-bit operating systems)
- Rockwell Automation x64 Driver v2.03.04 (for 64-bit operating systems)

Prerequisite software

- Microsoft .NET Framework 4.8
- Microsoft Visual C++ 2017 Redistributable (x86) 14.15
- Microsoft Visual C++ 2017 Redistributable (x64) 14.15
- Microsoft SQL Server 2012 Native Client 11.4
- Microsoft SQL Server 2012 Native Client x64 11.4
- Microsoft ODBC Driver 13.1 for SQL Server 13.1.811
- Microsoft ODBC Driver 13.1 for SQL Server x64 13.1.811
- OPC .NET API 2.01
- Windows Firewall Configuration Utility 1.00.14
- Wibu CodeMeter Runtime Kit v7.10

You can install one or more Rockwell Automation software products to 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.

Install FactoryTalk Linx Data Bridge for the first time

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 drop down list.

5. Choose either:
   - **Install Now**: Install FactoryTalk Linx Data Bridge and prerequisite software to the default installation directory: C:\Program Files\Rockwell Software (for 32-bit operating systems) or C:\Program Files (x86)\Rockwell Software (for 64-bit operating systems).
   - **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.

10. 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 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 command-line parameter, see Parameters.

---

**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 the **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 of the products are installed.
Start FactoryTalk Linx Data Bridge and explore the user interface

This chapter includes the following information:

- Starting FactoryTalk Linx Data Bridge
- About the FactoryTalk Linx Data Bridge Configuration 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 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:

<table>
<thead>
<tr>
<th>Item</th>
<th>Description</th>
</tr>
</thead>
</table>
| 1    | The **File** button contains information about:  
  - Create new configuration  
  - Log On  
  - Log Off  
  - Export configuration  
  - Import configuration  
  - Exit FactoryTalk Linx Gateway Configuration. |
| 2    | The **Help** button contains information about:  
  - Release Notes.  
  - Help Content  
  - Software version number  
  - Activation  
  - Copyright  
  - Contact information |
| 3    | The **General Settings** tab contains information about:  
  - FactoryTalk Directory scope selection.  
  - Server status  
  - Diagnostic logging option |
| 4    | The **Configurations** tab contains information about:  
  - Data group  
  - Data pair  
  - Properties  
  - Verification message |
| 5    | The **FactoryTalk Diagnostic Log** tab contains information about:  
  - FactoryTalk Diagnostics information. |
### General Settings

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

<table>
<thead>
<tr>
<th>Field</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>FactoryTalk Directory Scope</td>
<td>Sets the FactoryTalk Directory path to an application. Tags from the selected application can be used as source or destination tags. Use FactoryTalk Administration Console to add, edit, and delete FactoryTalk applications. For more information, see &quot;Manage applications&quot; in FactoryTalk Services Platform Online Help. Changing the FactoryTalk Directory scope removes all configured data groups and pairs.</td>
</tr>
<tr>
<td>Activation to be utilized</td>
<td>Lists all the activation types. The default option is &quot;Automatic Selection&quot; which FactoryTalk Linx Data Bridge selects the activation that supports the most tags.</td>
</tr>
</tbody>
</table>
| Inhibit                        | Inhibits or enables the FactoryTalk Linx Data Bridge service.  
  • **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. |

### Configurations

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

<table>
<thead>
<tr>
<th>Field</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Add Group</td>
<td>Adds a new data group to the configuration.</td>
</tr>
<tr>
<td>Remove Group</td>
<td>Removes the selected data group and all its tags to the configuration.</td>
</tr>
<tr>
<td>Name</td>
<td>Sets the name for the data group.</td>
</tr>
<tr>
<td>Group Update Rate</td>
<td>Sets the update rate for all tags in the data group.</td>
</tr>
</tbody>
</table>
| Ensure data type consistency | The FactoryTalk Linx Data Bridge requires the referenced source and destination tags in a tag pair to match data types. When disabled, the destination device must ensure values are formatted correctly for proper usage. By disabling this setting the FactoryTalk Linx Data Bridge will permit the exchange of tags that do not have matching types.  
Example of source tag matching destination tag  
Bool -> INT  
Bool->DINT  
INT->DINT  
INT->LONG INT  
INT->UINT  
Bool->String |
| Add Data Pair | Adds a new 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. Either restart the FactoryTalk Linx Data Bridge or design the system to ensure the source values changes periodically to ensure the destination receives updated values.

### Data Pair Properties

<table>
<thead>
<tr>
<th>Field</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Name</td>
<td>Sets the name for the data pair. Required.</td>
</tr>
<tr>
<td>Source Tag</td>
<td>Sets the path to the tag that provides the value to the destination tag. Required.</td>
</tr>
<tr>
<td>Source Tag quality [INT/DINT]</td>
<td>Sets the path to the tag that receives the quality value from the source tag. Optional.</td>
</tr>
<tr>
<td>Source Tag timestamp [LINT]</td>
<td>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.</td>
</tr>
<tr>
<td>Source Tag Timestamp Style</td>
<td>Sets the format used for the source tag timestamp.</td>
</tr>
<tr>
<td></td>
<td>• Logix - UNIX Time Format (default)</td>
</tr>
<tr>
<td></td>
<td>• OPC - Win32 Time Format</td>
</tr>
<tr>
<td></td>
<td>• String Time 24 Hour Format</td>
</tr>
<tr>
<td></td>
<td>• String Time AM/PM Format</td>
</tr>
<tr>
<td></td>
<td>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.</td>
</tr>
<tr>
<td>Destination Tag</td>
<td>Sets the path to the tag that receives the value from the source tag. Required.</td>
</tr>
<tr>
<td>Destination Tag quality [INT/DINT]</td>
<td>Sets the path to the tag that receives the quality value from the destination tag. Optional.</td>
</tr>
<tr>
<td>Destination Tag timestamp [LINT]</td>
<td>Sets the path to the tag that receives the timestamp value from the destination tag. Optional. 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.</td>
</tr>
<tr>
<td>Destination Tag Timestamp Style</td>
<td>Sets the format used for the destination tag timestamp.</td>
</tr>
<tr>
<td></td>
<td>• Logix - UNIX Time Format (default)</td>
</tr>
<tr>
<td></td>
<td>• OPC - Win32 Time Format</td>
</tr>
<tr>
<td></td>
<td>• String Time 24 Hour Format</td>
</tr>
<tr>
<td></td>
<td>• String Time AM/PM Format</td>
</tr>
<tr>
<td></td>
<td>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.</td>
</tr>
</tbody>
</table>
Chapter 3  Start FactoryTalk Linx Data Bridge and explore the user interface

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

<table>
<thead>
<tr>
<th>Button</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Refresh</td>
<td>Clear the FactoryTalk Diagnostic Log and refresh diagnostic messages from the FactoryTalk Diagnostics server on the local computer.</td>
</tr>
<tr>
<td>Launch FactoryTalk Diagnostic Viewer</td>
<td>Starts the FactoryTalk Diagnostic Viewer to view diagnostic messages for all FactoryTalk devices and services, or to view diagnostic messages for a remote computer.</td>
</tr>
</tbody>
</table>

Tag Browser

Use the **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

<table>
<thead>
<tr>
<th>Field</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Configuration User Interface Revision</td>
<td>Lists the version number of the FactoryTalk Linx Data Bridge user interface on the local machine.</td>
</tr>
<tr>
<td>FactoryTalk Linx Data Bridge Service Revision</td>
<td>Lists the version number of the FactoryTalk Linx Data Bridge service on the local machine.</td>
</tr>
</tbody>
</table>
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. On Configurations, select Add Group.
3. (optional) Edit the Name and Group Update Rate for the data group.
4. Add one or more data pairs, 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. The source and destination tag must be defined to have the same data type.

FactoryTalk Linx Data Bridge supports a maximum capacity of 200,000 data pairs.
Chapter 4  Use FactoryTalk Linx Data Bridge to bridge data

**Prerequisites**

- Add a data group

**To add a data pair:**

1. In **Configurations**, add a new group or select an existing group from the list.
2. 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.
5. (optional) In **Properties**, select a source quality tag, source timestamp tag, destination quality tag, and destination timestamp tag.
6. Select **Verify** 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.

**Prerequisites**

1. Add a data group
2. Add a data pair
Chapter 4  Use FactoryTalk Linx Data Bridge to bridge data

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, 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.

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 for the tag value it receives. The destination Quality and Timestamp should be assigned to the source controller to permit it to determine the status for 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

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 for the tag value it receives. The destination Quality and Timestamp should be assigned to the source controller to permit it to determine the status for the tag value delivery.

Design considerations

- Tag quantity limits (2000 when FactoryTalk Linx Data Bridge is purchased separately and 200,000 when acquired with <FTLGW> 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 restore 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 the source values changes 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 for the tag value it receives. The destination Quality and Timestamp should be assigned to the source controller to permit it to determine the status for 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
  User is required to log on with Windows administration account or provide 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 or 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
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

1. In Configurations, add one or more data groups and data pairs.
2. 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 to a new FactoryTalk Linx Data Bridge host, or to 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 command line.
- Import a configuration using command line.

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, 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 command line**

Export a configuration using the command prompt 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 command line**

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:

- **-id** - All existing data groups and pairs are removed. All new data groups and pairs are created.

- **-iu** - Data groups and pairs overwrite existing data groups and pairs. New data groups and pairs are created.

- **-is** - 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.
Backup and restore FactoryTalk Linx Data Bridge

Backup the FactoryTalk Linx Data Bridge configurations

To backup FactoryTalk Linx Data Bridge configurations in case of unexpected circumstance, do one of the followings:

- Export your configurations by clicking File > Export configuration, and then save it as either 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 FTLinxDataBridge.xml to a safe location.

Restore the FactoryTalk Linx Data Bridge configurations

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

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

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 an **Software Activation** check box. 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 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

1. On the **Rockwell Software Setup** dialog box in the Installation Setup Wizard, select the **Activate your software** check box and click **Finish**.
2. 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.

3. 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.

4. 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, please contact your local Rockwell Automation Sales office or Technical Support for information on migrating your activations to FactoryTalk Activation Manager.


### Activation types

The activation type determines 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.

<table>
<thead>
<tr>
<th>Activation Name</th>
<th>Activation</th>
<th>FactoryTalk Directory</th>
<th>Activates FactoryTalk Linx Data Bridge</th>
<th>Supported Data Pairs</th>
</tr>
</thead>
<tbody>
<tr>
<td>FactoryTalk Linx Gateway Professional</td>
<td>LINXGW.PROFESSIONAL</td>
<td>Local or Network</td>
<td>Y</td>
<td>200,000</td>
</tr>
<tr>
<td>FactoryTalk Linx Data Bridge</td>
<td>LINX.DATABRIDGE</td>
<td>Local or Network</td>
<td>Y</td>
<td>2000</td>
</tr>
<tr>
<td>FactoryTalk Linx Data Bridge Embedded</td>
<td>Verifies its operating on a CompactLogix 5480 windows core</td>
<td>Local or Network</td>
<td>Y</td>
<td>500</td>
</tr>
</tbody>
</table>

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 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:

Before you begin:

- 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:

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), highlight the user you want to restrict.
3. From the **Permissions for *** from All Computers list**, click **Common > Write**, and select the **Deny** check box.
4. Click **OK**.

**Feature Security Properties**

Use the **Policy Settings** tab in **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 enhance the user security by requesting the users to log on to FactoryTalk Linx Data Bridge server when starts FactoryTalk Linx Data Bridge Configuration and when changing the scope.

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

- Click **File > Log On**.
- Click **Select next to FactoryTalk Diagnostics Scope on Server Configuration tab**.
  - Note: If you have enabled single sign-on function in FactoryTalk Services Platform > Explorer > System Policies > Security Policy, there is no need to manually log on FactoryTalk Linx Data Bridge server.
  - 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 with 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:

<table>
<thead>
<tr>
<th>Feature security policy</th>
<th>Allow</th>
<th>Deny</th>
</tr>
</thead>
</table>
| View Configurations     | Allow users to view information in **General Settings and Configurations** tab including:  
  - FactoryTalk Diagnostics Scope  
  - Activation to be utilized  
  - Current Activation Type  
  - Service Status  
  - Diagnostic Logging option  
  - Source and destination tag information.  
<p>| Hide the configuration information. |</p>
<table>
<thead>
<tr>
<th>Feature security policy</th>
<th>Allow</th>
<th>Deny</th>
</tr>
</thead>
<tbody>
<tr>
<td>Change configurations</td>
<td>Allow users to view and edit in <strong>General Settings and Configurations</strong> tab including:</td>
<td>Set the configuration areas unavailable.</td>
</tr>
<tr>
<td></td>
<td>• FactoryTalk Diagnostics Scope</td>
<td></td>
</tr>
<tr>
<td></td>
<td>• Activation to be utilized</td>
<td></td>
</tr>
<tr>
<td></td>
<td>• Current Activation Type</td>
<td></td>
</tr>
<tr>
<td></td>
<td>• Service Status</td>
<td></td>
</tr>
<tr>
<td></td>
<td>• Diagnostic Logging option</td>
<td></td>
</tr>
<tr>
<td></td>
<td>• Source and destination tag information.</td>
<td></td>
</tr>
</tbody>
</table>
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 45
- **View logged diagnostic information for FactoryTalk Linx Data Bridge** on page 46
- **Quality codes** on page 46
- **FactoryTalk Diagnostic Log** on page 47

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 off-line or inhibited?
  - When communications to a device containing a Source tag is 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 off-line.
  - When communications to a device containing a Destination tag is 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 off-line.

- What happens when the UA Connector is unable to communicate to a UA Server?
  - When communications to an UA server containing a Source tag failed, the source quality value associated with the tag will report an “Communication failure” status value.
  - When communications to an UA server containing a Destination tag failed, the destination quality value associated with the tag will report an “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 “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 destination value is an INT, a value <32767 will be delivered but a value >32767 will fail.)

- What happens when the type for selected item is incorrect?
  - When the “Ensure data type consistency” check box 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” check box 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.

**View logged diagnostic information for FactoryTalk Linx Data Bridge**

Use FactoryTalk Diagnostic Log 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
- 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.

**See also**

[FactoryTalk Diagnostic Log on page 47](#)

**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 off the quality codes specified in the OPC Data Access Custom Interface Standard version 3.00.
Hexadecimal | Decimal | Name              | Description                                                                 |
<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>0x00</td>
<td>00</td>
<td>Bad</td>
<td>The value is not useful. See FactoryTalk Diagnostics messages for more information.</td>
</tr>
<tr>
<td>0x40</td>
<td>64</td>
<td>Uncertain</td>
<td>The value is uncertain. See FactoryTalk Diagnostics messages for more information.</td>
</tr>
<tr>
<td>0xC0</td>
<td>192</td>
<td>Good</td>
<td>The value is useful and up to date.</td>
</tr>
<tr>
<td>0x04</td>
<td>04</td>
<td>Configuration error</td>
<td>The FactoryTalk Linx Data Bridge configuration is invalid. Verify the configuration in FactoryTalk Linx Data Bridge Configuration.</td>
</tr>
<tr>
<td>0x08</td>
<td>08</td>
<td>Not connected</td>
<td>The associated input is not connected.</td>
</tr>
<tr>
<td>0x0C</td>
<td>12</td>
<td>Device failure</td>
<td>A device has failed.</td>
</tr>
<tr>
<td>0x10</td>
<td>16</td>
<td>Sensor failure</td>
<td>A sensor has failed.</td>
</tr>
<tr>
<td>0x14</td>
<td>20</td>
<td>Last known value</td>
<td>Communications have failed but the last known value is available.</td>
</tr>
<tr>
<td>0x18</td>
<td>24</td>
<td>Communications failure</td>
<td>Communications have failed and the last known value is not available.</td>
</tr>
<tr>
<td>0x1C</td>
<td>28</td>
<td>Out of service</td>
<td>The item or group are in the Inactive state or the communications to a Logix controller is inhibited.</td>
</tr>
<tr>
<td>0x44</td>
<td>68</td>
<td>Last usable value</td>
<td>The value is no longer being written and the data is stale. The last known value is provided instead.</td>
</tr>
<tr>
<td>0x50</td>
<td>80</td>
<td>Sensor calibration required</td>
<td>The value is at or has exceeded one of the sensor limits or the sensor is out of calibration.</td>
</tr>
<tr>
<td>0x54</td>
<td>84</td>
<td>EGU exceeded</td>
<td>The value has exceeded the limits defined for this parameter.</td>
</tr>
<tr>
<td>0x58</td>
<td>88</td>
<td>Sub normal</td>
<td>The value is derived from multiple sources but has fewer than the required number of sources providing Good quality.</td>
</tr>
<tr>
<td>0x08</td>
<td>216</td>
<td>Local override</td>
<td>The value has been overridden. The input may be disconnected or a value has been manually set.</td>
</tr>
</tbody>
</table>

See also

FactoryTalk Diagnostic Log on page 47

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.

<table>
<thead>
<tr>
<th>Button</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Refresh</td>
<td>Clear the FactoryTalk Diagnostic Log and refresh diagnostic messages from the FactoryTalk Diagnostics server on the local computer.</td>
</tr>
</tbody>
</table>
### Button Description

<table>
<thead>
<tr>
<th>Button</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Launch FactoryTalk Diagnostic Viewer</td>
<td>Starts the FactoryTalk Diagnostic Viewer to view diagnostic messages for all FactoryTalk devices and services, or to view diagnostic messages for a remote computer.</td>
</tr>
</tbody>
</table>

### See also

View logged diagnostic information for FactoryTalk Linx Data Bridge on page 46
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.

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

1. Close all open Windows programs.
2. Open the Command Prompt window as administrator.
3. In the Command Prompt window, navigate to D:, where D: is the drive containing the FactoryTalk Linx 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 you specified.
6. For detailed description about each parameter, see Parameters. You can also type Setup /? in the Command Prompt window, and press Enter to view the help information of all parameters and examples.

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

Perform unattended installation

Parameters
Appendix D  Command line syntax install

/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 and location are:
• C:\Program Files (x86)\Rockwell Software (64-bit) or
• C:\Program Files\Rockwell Software (32-bit).

/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 if you are using a 64-bit operating system, or D:\Program Files\Rockwell Software if you are using a 32-bit operating system.
• 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.
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 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 properly function. While the file is simply plain text, 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.

---

**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.
**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.

**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 USB or parallel port of the computer, to allow the program to run. Programs that use a dongle query the port at start-up and at programmed intervals thereafter, and close if the dongle does not respond with the expected validation code.

---

**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 -

**HMI server**

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

- I -

**Incoming Certificate**

Certificate provided by an OPC UA clients to FactoryTalk Linx Gateway when the client initiates a communications request. Note that incoming certificates are not trusted until a user accepts or trusts them through the FactoryTalk Linx Gateway's user interface.
- 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 into 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.

- 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](https://opcfoundation.org)

**Outgoing Certificate**

Certificate generated by FactoryTalk Linx Gateway and delivered to OPC UA clients when they initiate a communications request. Note that many OPC UA clients require manual approval when they receive a certificate in order to enable communications with an OPC UA server.

- **P** -

**poll**

Systematically request data from a device.

**poll rate**

Often how data is requested from a device. Poll rates are typical specified in milliseconds. (A poll rate of 1000 ms results in data being requested every second).

- **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 at 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.
**tag group**

A set of data items defined in the FactoryTalk Linx Gateway's UA Tag List interface that share a set of security settings enabling authorized OPC UA clients to access the 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).

---

**UA**

See [OPC UA](#).

**UA tag list**

The UA tag list configuration determines the data values that each OPC UA Client can access from FactoryTalk Linx Gateway. The UA tag list option provides both enhanced security and complex type information (for example, structures and arrays). When the UA tag list option is disabled, all tags that are available from data sources in a FactoryTalk Application (for example, controllers and hardware via FactoryTalk Live, OPC DA and OPC UA servers) are accessible as scalar values to OPC UA Clients. The UA tag list contains one or more tag groups that define access rights and includes complex type information enabling an OPC UA Client to utilize structures or User Defined Types (UDT) from Logix controllers.

**URL**

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

Use these resources to access support information.

<table>
<thead>
<tr>
<th>Technical Support Center</th>
<th>Find help with how-to videos, FAQs, chat, user forums, and product notification updates.</th>
<th>rok.auto/support</th>
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</thead>
<tbody>
<tr>
<td>Knowledgebase</td>
<td>Access Knowledgebase articles.</td>
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<tr>
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</tr>
<tr>
<td>Literature Library</td>
<td>Find installation instructions, manuals, brochures, and technical data publications.</td>
<td>rok.auto/literature</td>
</tr>
<tr>
<td>Product Compatibility and Download Center (PCDC)</td>
<td>Get help determining how products interact, check features and capabilities, and find associated firmware.</td>
<td>rok.auto/pcdc</td>
</tr>
</tbody>
</table>

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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.