FactoryTalk Linx Gateway Getting Results Guide
Important user information

Read this document and the documents listed in the additional resources section about installation, configuration, and operation of this equipment before you install, configure, operate, or maintain this product. Users are required to familiarize themselves with installation and wiring instructions in addition to requirements of all applicable codes, laws, and standards.

Activities including installation, adjustments, putting into service, use, assembly, disassembly, and maintenance are required to be carried out by suitably trained personnel in accordance with applicable code of practice. If this equipment is used in a manner not specified by the manufacturer, the protection provided by the equipment may be impaired.

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

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

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

**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).

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About this publication

The *Getting Results Guide* provides you with information on installing and using FactoryTalk® Linx Gateway.

**Tip:** The *Getting Results Guide* is included in a portable document format (PDF) on your FactoryTalk Linx Gateway 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 Gateway, 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 Gateway Configuration Tool*.

**Release Notes**

The Release Notes provide information updates that are necessary to use FactoryTalk Linx Gateway effectively. The Release Notes contains the following components:

- System requirements
- System features
Anomalies

Functional changes

Application notes

To view the FactoryTalk Linx Gateway 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.

Technical support

Questions concerning installation and use of FactoryTalk Linx Gateway 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 http://support.rockwellautomation.com/contact information.

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 web site 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. Please contact your local representative for more information.

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Open Source Licenses

The software included in this product contains copyrighted software that is licensed under one or more open source licenses. Copies of those licenses are included with the software. Corresponding Source code for open source packages included in this product are located at their respective web site(s).

Alternately, 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.

A full list of all open source software used in this product and their corresponding licenses can be found in the OPENSOURCE folder included with these Release Notes. The default installed location of these licenses is C:\Program Files (x86)\Common Files\Rockwell\Help\FactoryTalk Linx Gateway\ReleaseNotes\OPENSOURCE\index.htm.

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This document is current as of the time of release of the product; however, the accompanying software may have changed since the release. Rockwell Automation, Inc. reserves the right to change any information contained in this document or the software at any time without prior notice. It is your responsibility to obtain the most current information available from Rockwell when installing or using this product.
Environmental compliance


Contact Rockwell Automation

Customer Support Telephone — 1.440.646.3434

Online Support — http://www.rockwellautomation.com/support/
Welcome to FactoryTalk Linx Gateway

This chapter includes the following information:

- What is FactoryTalk Linx Gateway?
- Overview of basic concepts
- Quick start: Set up and use FactoryTalk Linx Gateway

FactoryTalk® Linx™ Gateway is an OPC Unified Architecture (UA) and Classic Data Access (DA) data server. It allows OPC clients to connect to and access tag data from FactoryTalk applications that contain FactoryTalk Linx and FactoryTalk View SE servers. FactoryTalk Linx Gateway can send data to, and retrieve data from, any FactoryTalk Live Data server or OPC server that is defined within a FactoryTalk system.

FactoryTalk Linx Gateway consists of:

- A service that provides tag data to OPC DA clients.
- A service that provides tag data to OPC UA clients.
- A configuration tool that configures the runtime operation of the service. The configuration tool enables the selection of the area or application, from which you want to access data (called the scope) as well as to start and stop the service.

Use FactoryTalk Linx Gateway if you need to:

- Use FactoryTalk Linx as a data server for OPC clients.
- Use FactoryTalk View SE as a data server for OPC clients to access HMI server tags (such as alarm, derived, and system tags) and direct references.

Important:

- FactoryTalk Linx Gateway service starts and stops from the machine on which it is installed.
- FactoryTalk Linx Gateway supports OPC client notification under normal shutdown conditions. However, it is the OPC client's responsibility to provide a mechanism to detect when it is no longer connected to the server and flag data as bad quality.
- Your access to, and actions within, FactoryTalk Linx Gateway are controlled by FactoryTalk Security settings.

Only one FactoryTalk Linx Gateway is permitted to run on a given computer. The activation type determines feature support and the maximum capacity of unique tags that can be added to the FactoryTalk Linx Gateway server. The tag limit is for all unique tags, including active, inactive, and valid tags.
However, the OPC DA service and UA service tag limits are separate; a 5,000 tag limit activation can simultaneously serve 5,000 tags to DA clients and 5,000 tags to UA clients. All FactoryTalk Linx Gateway activations support a capacity of up to 20 simultaneous OPC DA or OPC UA client connections.

FactoryTalk Diagnostics and FactoryTalk Diagnostics Counter Monitor provide alerts when FactoryTalk Linx Gateway has reached the maximum tag capacity. This capacity can be increased with additional activations. Refer to About Activations on page 57 for more information about activations.

For more information regarding OPC, refer to the OPC Foundation Web site: https://opcfoundation.org

Overview of basic concepts
Because FactoryTalk Linx Gateway enables OPC clients to connect to FactoryTalk applications, it is important to understand some basic concepts about FactoryTalk. For more detailed information about FactoryTalk, refer to the FactoryTalk Services Platform Help.

FactoryTalk Services Platform
Formerly known as FactoryTalk Automation Platform, the FactoryTalk Services Platform is an underlying architecture and set of services that Rockwell Automation software products build upon.

The FactoryTalk Services Platform:

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

The FactoryTalk Services Platform includes the following components:

- FactoryTalk Directory
- FactoryTalk Live Data
- FactoryTalk Diagnostics
- FactoryTalk Administration Console
- FactoryTalk Security
- FactoryTalk Activation Manager

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

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

**FactoryTalk Live Data**

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

**FactoryTalk Diagnostics**

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

**FactoryTalk Administration Console**

FactoryTalk Administration Console is an optional, stand-alone tool that enables you to configure and manage FactoryTalk-enabled applications.

**FactoryTalk Security**

FactoryTalk Security offers centralized security services that provides the ability to control access to your automation system. Your access to, and actions within, the FactoryTalk Linx Gateway tool are controlled by FactoryTalk Security settings. Refer to Secure FactoryTalk Linx Gateway using FactoryTalk Security on page 69 before attempting to configure FactoryTalk Linx Gateway.

**FactoryTalk Activation Manager**

FactoryTalk Activation Manager provides a secure, software-based system for activating Rockwell Automation software products and managing software activation files.

**Application types**

An application organizes project information, including elements such as data servers, HMI servers, and alarm and event servers, and makes it available to FactoryTalk-enabled software products that support the same FactoryTalk Directory type.

- **Network applications** are held in a FactoryTalk Network Directory. Project information and participating software products can be located on multiple computers distributed across a network. All of the computers participating in a particular Network application share a common Network Directory Server located on a network computer.

- **Local applications** are held in a FactoryTalk Local Directory. Project information is located on a stand-alone computer and is available only to software products installed on that same local computer. Local applications cannot be accessed remotely and cannot share project information with a Network application.
Important: • Ensure all components intended for use in the same FactoryTalk system support the same FactoryTalk Directory types.

• The installed FactoryTalk Linx Gateway activation may limit support for FactoryTalk Directory types. For details on which FactoryTalk Directory types are supported by a certain activation, see Activation types on page 58.

If there is a possibility that a client will attempt to access tags during setup, before continuing, shut down all OPC clients and inhibit FactoryTalk Linx Gateway services using FactoryTalk Linx Gateway Configuration Tool > Server Configuration. This prevents the services from automatically starting while making changes.

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 Gateway.

<table>
<thead>
<tr>
<th>Step</th>
<th>Description</th>
<th>Refer to</th>
</tr>
</thead>
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<tr>
<td>☐ 1.</td>
<td>Read and understand the FactoryTalk Linx Gateway Getting Results Guide.</td>
<td></td>
</tr>
<tr>
<td>☐ 2.</td>
<td>Verify your personal computer meets the minimum hardware and software requirements.</td>
<td>System requirements on page 19</td>
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<tr>
<td>☐ 3.</td>
<td>Install FactoryTalk Linx Gateway.</td>
<td>Install FactoryTalk Linx Gateway on page 19</td>
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<td>☐ 4.</td>
<td>Install a valid FactoryTalk Linx Gateway activation.</td>
<td>About Activations on page 57</td>
</tr>
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<td>☐ 5.</td>
<td>Configure FactoryTalk Security, if required.</td>
<td>FactoryTalk Services Platform Help</td>
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<tr>
<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>
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<td>☐ 10.</td>
<td>Select the scope using the FactoryTalk Linx Gateway Select FactoryTalk Directory dialog box.</td>
<td>About the FactoryTalk Linx Gateway Scope Selection dialog box on page 34</td>
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<tr>
<td>☐ 11.</td>
<td>Configure OPC UA server endpoint in UA Server Endpoints tab</td>
<td>FactoryTalk Linx Gateway Help</td>
</tr>
<tr>
<td>Step</td>
<td>Description</td>
<td>Refer to</td>
</tr>
<tr>
<td>------</td>
<td>-------------</td>
<td>----------</td>
</tr>
<tr>
<td>12.</td>
<td>When the OPC client makes a connection with FactoryTalk Linx Gateway, enter FactoryTalk Linx Gateway as the server name to which you wish to connect. If the OPC client supports browsing, select FactoryTalk Linx Gateway from the list of available servers.</td>
<td>OPC client documentation</td>
</tr>
<tr>
<td>13.</td>
<td>Run the OPC client and select the tags you want to access (up to, but not exceeding, the activation count).</td>
<td>OPC client documentation</td>
</tr>
</tbody>
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Chapter 2

Install FactoryTalk Linx Gateway

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

FactoryTalk Linx Gateway 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 Gateway. See Install FactoryTalk Linx Gateway with command line syntax on page 61.

This chapter contains the following information:

- System requirements
- Where to install FactoryTalk Linx Gateway
- Install FactoryTalk Linx Gateway for the first time
- Update an existing system
- Install Remote FactoryTalk Linx Gateway

System requirements

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

Hardware requirements

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

FactoryTalk Linx Gateway was tested with the following hardware:

- Intel® Xeon® E5-1607 v3, 3.1 Ghz quad-core processor
- 8 GB of memory
- 80 GB hard disk
- 100 MBit Ethernet network
## Tested FactoryTalk Linx Gateway update rates

CPU and memory requirements for the FactoryTalk Linx Gateway OPC DA server increase as tags are set to active (up to the activation tag capacity) or as more clients connect to the server (up to the 20 connected client capacity). Rockwell Automation tests with the following update rates for a number of active tags.

<table>
<thead>
<tr>
<th>Processor</th>
<th>Number of tags</th>
<th>Scan rate of all tags</th>
<th>Total CPU utilization</th>
</tr>
</thead>
<tbody>
<tr>
<td>Single</td>
<td>70,000</td>
<td>All data changing value every 250 msec</td>
<td>75%</td>
</tr>
<tr>
<td>Dual-core</td>
<td>70,000</td>
<td>All data changing value every 250 msec</td>
<td>50%</td>
</tr>
<tr>
<td>Dual-core</td>
<td>70,000</td>
<td>All data changing value every 1000 msec</td>
<td>20%</td>
</tr>
</tbody>
</table>

These values are tested on a computer with a dual-core Intel® Core™ i3-2120 processor, 3.3 GHz, with 4G of RAM. The single core test is run using only one of the cores to provide a basis for comparison. FactoryTalk Linx Gateway and FactoryTalk Linx are installed and configured on the same computer for the test.

The largest impact on CPU utilization is the rate the data is changing even if the data server (in this case, FactoryTalk Linx) is local or remote to the FactoryTalk Linx Gateway.

The total amount of memory used for the runtime tests was approximately 700MB. Additional memory would be utilized if browsing occurred.

## Tested FactoryTalk Linx Gateway OPC UA service update rates

CPU and memory requirements for the FactoryTalk Linx Gateway OPC UA server increase as tags are set to active (up to the activation tag capacity) or as more clients connect to the server (up to the 20 connected client capacity). Rockwell Automation tests with the following update rates for a number of active tags.

<table>
<thead>
<tr>
<th>Number of Active Tags</th>
<th>Tested Update Rate (ms)</th>
</tr>
</thead>
<tbody>
<tr>
<td>50,000</td>
<td>500</td>
</tr>
<tr>
<td>100,000</td>
<td>700</td>
</tr>
<tr>
<td>150,000</td>
<td>1000</td>
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<tr>
<td>200,000</td>
<td>1500</td>
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<td>350,000</td>
<td>3000</td>
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<tr>
<td>400,000</td>
<td>3500</td>
</tr>
<tr>
<td>450,000</td>
<td>4000</td>
</tr>
<tr>
<td>500,000</td>
<td>4500</td>
</tr>
</tbody>
</table>
These values are tested on a computer with a quad-core Intel Xeon E5-1607 v3 processor, 3.2 Ghz, and 8 GB of RAM.

Software requirements

FactoryTalk Linx Gateway and FactoryTalk Linx Data Bridge are tested on operating systems installed from original Microsoft® media only. They run on either the 32-bit or 64-bit versions of the following Windows® operating systems:

- Windows 7 Enterprise with Service Pack 1
- Windows Embedded Standard 7 with Service Pack 1
- Windows 7 Home Premium with Service Pack 1
- Windows 7 Ultimate with Service Pack 1
- Windows 7 Professional SP 1
- Windows 8
- Windows 8 Enterprise
- Windows 8 Professional
- Windows 10 Enterprise builds 1703, 1706, 1709 and 1803
- Windows 10 Professional builds 1703, 1706, 1709 and 1803
- Windows 10 IoT Enterprise 2016 Long Term Servicing Branch (LTSB) Embedded**
- Windows Server® 2008 R2 Enterprise Edition with Service Pack 1
- Windows Server 2008 R2 Standard Edition with Service Pack 1
- Windows Server 2012 Datacenter
- Windows Server 2012 Standard Edition
- Windows Server 2012 R2 Datacenter
- Windows Server 2012 R2 Standard Edition
- Windows Server 2016 Datacenter
- Windows Server 2016 Standard Edition

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

Software compatibility

FactoryTalk Linx Gateway and FactoryTalk Linx Data Bridge version 6.10.00 (CPR 9 SR 11) were tested with and are compatible with the following Rockwell Automation® products when used on the same computer:
Chapter 2  Install FactoryTalk Linx Gateway

- FactoryTalk® Activation Manager version 4.03.03
- FactoryTalk Services Platform version 6.10.00
- FactoryTalk View version 11.00.00
- RSLinx® Classic version 4.10.00
- FactoryTalk® Linx™ version 6.10.00

Prerequisite software

FactoryTalk Linx Gateway Setup wizard supports to automatically install a series of Rockwell software and the necessary prerequisite software, including:

Rockwell Software

- FactoryTalk Services Platform version 6.10.00 (CPR 9 SR 11)
- FactoryTalk Activation Manager version 4.03.03
- FactoryTalk Alarms and Events version 6.10.00 (CPR 9 SR 11)
- FactoryTalk Linx version 6.10.00 (CPR 9 SR 11)
- Rockwell Automation USB CIP Driver v3.18.06 (for 32-bit operating systems)
- Rockwell Automation x64 Driver v2.01.01 (for 64-bit operating systems)

Prerequisite software

- FactoryTalk Diagnostics version 6.10.00
- Microsoft .NET Framework 4.6.2
- Microsoft Visual C++ 2017 Redistributable (x86) 14.14
- Microsoft Visual C++ 2017 Redistributable (x64) 14.14
- 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 Local Discovery 1.03.400
- OPC .NET API 2.01
- Windows Firewall Configuration Utility 1.00.11
- Wibu CodeMeter Runtime Kit v6.60
Where to install FactoryTalk Linx Gateway

For FactoryTalk Local Directory applications, you must install FactoryTalk Linx Gateway on the local computer.

In a FactoryTalk Local Directory application, all project information and security settings are located on a single computer, and the FactoryTalk-enabled system cannot be shared across a network. A FactoryTalk Linx Gateway Local Directory, however, can support remote OPC clients. Products such as FactoryTalk View Site Edition (SE) Station and RSLogix use the Local Directory.

Depending on your requirements, FactoryTalk Linx Gateway installation options for Local FactoryTalk Directory applications include the following:

To use FactoryTalk Linx as a data server to HMI and other third-party OPC clients, FactoryTalk Linx Gateway, FactoryTalk Linx, and FactoryTalk Directory are installed on the same machine as shown in the following diagram:
For FactoryTalk View Site Edition (SE) applications that need to serve OPC data, FactoryTalk View SE Station can also be installed on the same machine, as shown in the following diagram. This also provides the benefit of FactoryTalk View SE Station features, such as alarm and derived tags and direct references. Plus, either FactoryTalk Linx or FactoryTalk View SE Station can be used as a data server.

For FactoryTalk Network Directory applications, you can install FactoryTalk Linx Gateway on any computer.

A FactoryTalk Network Directory organizes project information and security settings from multiple FactoryTalk-enabled products across multiple computers on a network. When a Network Directory is configured on a computer, that computer can then be used as a Network Directory Server, or it can be made a client of a Network Directory Server configured on a different computer on the network. Products such as FactoryTalk View SE Distributed and FactoryTalk Transaction Manager use the Network Directory.

**Tip:** In FactoryTalk Network Directory applications, you can choose from multiple computers to install FactoryTalk Linx Gateway. It is recommended that you install FactoryTalk Linx Gateway and the client on the same computer, instead of using Remote OPC across the network. Because FactoryTalk Live Data is used as the network protocol in what is considered to be a more robust and secure fashion than Remote OPC.

Depending on your requirements, FactoryTalk Linx Gateway provides many installation options for FactoryTalk Network Directory applications.

To connect to multiple RSLogix servers or multiple FactoryTalk View SE Distributed servers, FactoryTalk Linx Gateway, FactoryTalk Linx, and
FactoryTalk Directory can be distributed over different machines, as shown in the following diagram:

In this example, one FactoryTalk Linx Gateway is serving all clients. If a system requires 32,000 or more tags, use a no fixed limit tag activation and refer to the FactoryTalk Linx Gateway Release Notes > Application Notes for tested hardware and update rates.

You can have multiple FactoryTalk Linx Gateway servers point to the same scope in the same FactoryTalk Directory to provide redundancy for each other. The client code controls the switching between the FactoryTalk Linx Gateway servers.

FactoryTalk Linx Gateway supports redundant FactoryTalk Linx data servers and HMI servers. Refer to the FactoryTalk Services Platform Help for more information.

Remote FactoryTalk Linx Gateway enables an OPC DA client to access a remote OPC DA server like FactoryTalk Linx Gateway without installing Rockwell Automation software on the OPC DA client computer. It is intended for use with OPC DA clients that do not support server enumeration and cannot discover or identify remote OPC DA servers.

During the install, the Remote FactoryTalk Linx Gateway installer configures the Windows Firewall and security settings to allow DCOM communications between the OPC DA client and Remote FactoryTalk Linx Gateway.

Remote FactoryTalk Linx Gateway does not have a configuration interface. Remote FactoryTalk Linx Gateway does not support connections to OPC UA servers. A Remote FactoryTalk Linx Gateway installation is not required for an OPC UA client on one workstation to connect to the FactoryTalk Linx Gateway OPC UA service on another workstation.

---

**About Remote FactoryTalk Linx Gateway**

Remote FactoryTalk Linx Gateway enables an OPC DA client to access a remote OPC DA server like FactoryTalk Linx Gateway without installing Rockwell Automation software on the OPC DA client computer. It is intended for use with OPC DA clients that do not support server enumeration and cannot discover or identify remote OPC DA servers.

During the install, the Remote FactoryTalk Linx Gateway installer configures the Windows Firewall and security settings to allow DCOM communications between the OPC DA client and Remote FactoryTalk Linx Gateway.

Remote FactoryTalk Linx Gateway does not have a configuration interface. Remote FactoryTalk Linx Gateway does not support connections to OPC UA servers. A Remote FactoryTalk Linx Gateway installation is not required for an OPC UA client on one workstation to connect to the FactoryTalk Linx Gateway OPC UA service on another workstation.
Where to install Remote FactoryTalk Linx Gateway

Install Remote FactoryTalk Linx Gateway on the same computer as an OPC DA client that does not support server enumeration.

Shown below are multiple OPC DA clients connecting to a single FactoryTalk Linx Gateway OPC DA server. Remote FactoryTalk Linx Gateway is installed once per computer that hosts an OPC DA client.

See also

About Remote FactoryTalk Linx Gateway on page 25
Configure Windows firewall for Remote FactoryTalk Linx Gateway on page 26

Configure Windows firewall for Remote FactoryTalk Linx Gateway

If you install Remote FactoryTalk Linx Gateway on a remote third party OPC client, you need to configure Windows firewall to allow connections with the FactoryTalk Linx Gateway server. This is automatically configured after installation of FactoryTalk Gateway version 3.90.00 and later. If you want to verify the setting or make changes, follow the steps below.


To configure Windows firewall:

1. Select Start > Control Panel > System and Security (View by: Category).

2. In the Windows Firewall section, click Allow a program through Windows Firewall.
3. In the **Allowed Programs and features** list, verify the program *OPCTest.exe* which FactoryTalk Linx Gateway provided, or your own application for remote connecting, is in the list. If you cannot find it in the list, you can click **Allow another program** to browse and add it to the allowed programs list.

4. Click **OK** to save the changes and close the dialog box.

**See also**

- [About Remote FactoryTalk Linx Gateway on page 25](#)
- [Where to install Remote FactoryTalk Linx Gateway on page 26](#)

---

**Install FactoryTalk Linx Gateway**

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

---

**Important:** The user installing or configuring FactoryTalk Linx Gateway 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 Gateway software:**

1. Start your Windows operating system.

2. Insert the FactoryTalk Linx Gateway DVD into the DVD-ROM drive.

3. (optional) If **FactoryTalk Linx Gateway 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 Gateway 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 Gateway Setup**, select a product to install from the drop down list. The available products are:

   - **Gateway**
     
     Select **Gateway** to install FactoryTalk Linx Gateway and all supporting FactoryTalk software on this computer. FactoryTalk Linx Gateway serves FactoryTalk application data from this computer to OPC DA and UA clients.
Chapter 2  Install FactoryTalk Linx Gateway

• **Remote Gateway**
  Select **Remote Gateway** to install Remote FactoryTalk Linx Gateway. No other FactoryTalk software is installed on this computer. Remote FactoryTalk Linx Gateway enables an OPC DA client on this computer to access a remote OPC DA server. It is intended for use with OPC DA clients that do not support server enumeration and cannot discover or identify remote OPC DA servers.

5. Choose either:

- **Install Now**: Install FactoryTalk Linx Gateway 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. If you are installing FactoryTalk Linx Gateway, **Almost there** appears. Select one of the following options, then click **Next**.

- Select **Activate your software** to activate FactoryTalk Linx Gateway now.

- Select **Skip activation** to activate FactoryTalk Linx Gateway later using FactoryTalk Activation Manager. For more information, refer to **About Activations** on page 57.

   If you are installing Remote Gateway, no activation is required.

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 Gateway. 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 Gateway Getting Results Guide and other documents.

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

Uninstall FactoryTalk Linx Gateway

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

• Open Programs and Features in Windows Control Panel, right-click FactoryTalk Linx Gateway version 6.00.00 and then click Uninstall.
• Open Setup.exe, and then click modify or uninstall.
• Open the Command Prompt window and type a command with the following syntax:
  
  Setup.exe [/Q | /QS] /Uninstall /Product="Gateway"

  Note: Components, such as FactoryTalk Activation Manager, that are shared with other products will not be uninstalled.

For more information about command-line parameter, see Parameters on page 62.

Update an existing installation

Before you begin

Note the following before upgrading FactoryTalk Linx Gateway:

• The user installing or configuring FactoryTalk Linx Gateway must have administrative rights in Windows on the computers where the software is being installed or configured.
• If you upgrade from RSOPC Gateway 1.00 (CPR 7), do not use Add/Remove Programs from Windows Control Panel to uninstall RSOPC Gateway 1.00 (CPR 7). Using this method to remove RSOPC Gateway 1.00 (CPR 7) deletes RSOPC Gateway 1.00 (CPR 7) configuration files.
• If you upgrade from FactoryTalk Gateway v3.90 or earlier to FactoryTalk Linx Gateway v6.00 or later, uninstall FactoryTalk Gateway using Add/Remove Programs before installing FactoryTalk Linx Gateway.

Upgrade FactoryTalk Linx Gateway

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

1. Stop the FactoryTalk Linx Gateway services by selecting the Inhibit checkbox in FactoryTalk Linx Gateway Configuration Tool > Server Configuration.
2. If FactoryTalk Diagnostics Counter Monitor is running, exit the program.

3. Close the FactoryTalk Linx Gateway Configuration Tool.

4. Insert the FactoryTalk Linx Gateway 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.

Install Remote FactoryTalk Linx Gateway

Remote FactoryTalk Linx Gateway enables an OPC DA client to access a remote OPC DA server like FactoryTalk Linx Gateway without installing Rockwell Automation software on the OPC DA client computer. It is intended for use with OPC DA clients that do not support server enumeration and cannot discover or identify remote OPC DA servers.

Remote FactoryTalk Linx Gateway does not have a configuration interface. Remote FactoryTalk Linx Gateway does not support connections to OPC UA servers.

Shown below are multiple OPC DA clients connecting to a single FactoryTalk Linx Gateway OPC DA server. Remote FactoryTalk Linx Gateway is installed once per computer that hosts an OPC DA client.

To install Remote FactoryTalk Linx Gateway, select Remote Gateway in FactoryTalk Linx Gateway Setup, then follow the installation instructions.
Chapter 3

Start FactoryTalk Linx Gateway and explore the user interface

This chapter includes the following information:

- Starting FactoryTalk Linx Gateway
- About the FactoryTalk Linx Gateway Configuration dialog box
- About the FactoryTalk Linx Gateway Scope Selection dialog box

Start FactoryTalk Linx Gateway by selecting **Start > Programs > Rockwell Software > FactoryTalk Linx Gateway > FactoryTalk Linx Gateway Configuration**. (Or click on the FactoryTalk Administration Console menu bar.) The **FactoryTalk Linx Gateway Configuration** dialog box opens. The default setting exposes all projects in the directory under the Network node.

**Tip:** To start or stop the FactoryTalk Linx Gateway service, you must be either a Windows Administrator or Power User of the computer.

The **FactoryTalk Linx Gateway Configuration** dialog box shows the Server Configuration, OPC UA Server Endpoints, software revision and activation information, and certificate and diagnostic information.
Chapter 3  Start FactoryTalk Linx Gateway and explore the user interface

Note: If there is a possibility that a remote client can start the FactoryTalk Linx Gateway service, you must disable the FactoryTalk Linx Gateway service via the Windows Control Panel (or all of the OPC clients should be stopped or shut down) before you reconfigure the scope. This will prevent the service from automatically starting while you are making changes to the scope configuration. The default DCOM settings prohibit launching the FactoryTalk Linx Gateway remotely and is the recommended setup.

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

![FactoryTalk Linx Gateway Configuration dialog box](image)

<table>
<thead>
<tr>
<th>Item</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>The <strong>File</strong> button contains information about:</td>
</tr>
<tr>
<td></td>
<td>• Log On</td>
</tr>
<tr>
<td></td>
<td>• Log Off</td>
</tr>
<tr>
<td></td>
<td>• Exit FactoryTalk Linx Gateway Configuration</td>
</tr>
</tbody>
</table>
Start FactoryTalk Linx Gateway and explore the user interface

<table>
<thead>
<tr>
<th>Item</th>
<th>Description</th>
</tr>
</thead>
</table>
| 2    | The Help button contains information about:  
- Release Notes.  
- Help Content  
- Software version number.  
- Activation  
- Copyright  
- Contact information |
| 3    | The Server Configuration tab contains information about:  
- FactoryTalk Directory scope selection.  
- OPC UA server name, status, OPC discovery service URL, status, and service inhibit checkbox.  
- OPC DA server status and service inhibit checkbox. |
| 4    | The UA Server Endpoints tab contains information about:  
- OPC UA server name, port, and URL.  
- Security mode and policy.  
- Authentication settings.  
- Diagnostic logging settings. |
| 5    | The Certificate Management tab contains information about:  
- Incoming certificate import, reject, trust, and remove button.  
- Outgoing certificate regenerate button.  
- Certificate properties |
| 6    | The FactoryTalk Diagnostic Log tab contains information about:  
- FactoryTalk Diagnostics information. |
| 7    | Click OK to apply the changes and restart FactoryTalk Linx Gateway service. |
| 8    | Click Cancel to close the dialog box. |
| 9    | Click Help to access the FactoryTalk Linx Gateway Help. |

Server Configuration

Use Server Configuration to set FactoryTalk application scope and global server properties for the FactoryTalk Linx Gateway service.

**Global Settings**

<table>
<thead>
<tr>
<th>Field</th>
<th>Description</th>
</tr>
</thead>
</table>
| FactoryTalk Diagnostics Scope | Sets the FactoryTalk Diagnostics path to an application. Tags from the selected application are made accessible to OPC clients through the UA or DA server.  
The supported scope will depend on the FactoryTalk Linx Gateway activation purchased. For more information on supported scopes and activation, see Activation types on page 58.  
Sets where the FactoryTalk Linx services reside, local to the FactoryTalk Linx Gateway host PC or distributed over the network. |
Chapter 3  

Start FactoryTalk Linx Gateway and explore the user interface

## UA Server Settings

<table>
<thead>
<tr>
<th>Field</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Service Name</td>
<td>Sets the OPC UA service name visible to OPC UA clients.</td>
</tr>
</tbody>
</table>
| Inhibit                      | Inhibits or enables the OPC UA service. 
  - Checked: Inhibits the OPC UA service from operating. 
  - Unchecked: Enables the OPC UA service. (default) |
| Discovery service URL        | Lists the URL at which the OPC UA service can be accessed. 
  Tip: Copy the URL text into the OPC UA client that accesses information from the FactoryTalk Linx Gateway OPC UA service. |
| Register with Discovery Service | Sets whether the OPC UA service is listed as part of the local OPC UA discovery service. |

## DA Server Settings

<table>
<thead>
<tr>
<th>Field</th>
<th>Description</th>
</tr>
</thead>
</table>
| Inhibit | Inhibits or enables the OPC DA service. 
  - Checked: Inhibits the OPC DA service from operating. 
  - Unchecked: Enables the OPC DA service. (default) |

**Tip:** If the system only utilizes one of the OPC services, Rockwell Automation recommends inhibiting the other service to reduce the impact on the host computer and eliminate unwanted communications.

## Select FactoryTalk Directory

Use **Select FactoryTalk Directory** to select an application, area, or sub-area (also known as the *scope*) from the FactoryTalk Directory. Tags from the scope are presented to OPC UA and DA clients as node IDs for subscription. The top-level or root location in the FactoryTalk Directory tree is not a valid selection.

**Tip:**
- If the server scope is changed up or down a level in the FactoryTalk Directory tree, OPC clients may not be able to access tags from the original configuration. This is because the OPC browse interface provides node ID paths that are relative to the configured scope. After changing the scope, check all relative paths in client applications to determine if their values need to be updated.
- You must inhibit the FactoryTalk Linx Gateway services before you can configure the scope. Note that if you do not have read permission, an error message opens when you configure scope. Refer to **Secure FactoryTalk Linx Gateway using FactoryTalk Security** on page 69. You must be logged into FactoryTalk to be able to configure the scope. If you have not already done so, you will be prompted to log in when you click **Select**.

## UA Server Endpoints

Use **UA Server Endpoints** to add, remove, and configure OPC UA server endpoint URLs and properties.

Each endpoint defines a specific approach for accessing data from the FactoryTalk Linx Gateway OPC UA service. With the security mode and
policy set to "None", only one endpoint is required. Future extensions will add functionality where multiple endpoints may be desirable to limit tag access via specific security constraints.

**UA Server Endpoints**

<table>
<thead>
<tr>
<th>Field</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>UA Server Endpoints</td>
<td>A list of all configured OPC UA server endpoint URLs, their security modes, and security policies.</td>
</tr>
<tr>
<td>Add</td>
<td>Adds a new OPC UA server endpoint to the list.</td>
</tr>
<tr>
<td>Remove</td>
<td>Removes the highlighted OPC UA server endpoint from the list.</td>
</tr>
</tbody>
</table>

**Endpoint Properties**

<table>
<thead>
<tr>
<th>Field</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Name</td>
<td>Sets the name for the OPC UA server endpoint. The name must be unique. The server name displays in the OPC UA namespace and is included in the full tag path for all nodes provided by the server.</td>
</tr>
<tr>
<td>Port</td>
<td>Sets the port number for the OPC UA server endpoint. The port must be unique. The default port is 4990 and increments by 1 for each additional endpoint.</td>
</tr>
<tr>
<td>URL</td>
<td>Sets the network path to the OPC UA Server. The path must be in the format opc.tcp://hostname_or_ip:port/Endpoint/Name where hostname_or_ip, port, and Endpoint/Name are replaced with the hostname or IP address, port number, and endpoint name of the OPC UA server. The firewall on the FactoryTalk Linx Gateway OPC UA server must allow incoming connections to the selected port for the connection to succeed.</td>
</tr>
</tbody>
</table>
| Security Mode   | Displays the security method required for connections between OPC UA clients and the FactoryTalk Linx Gateway OPC UA server.  
- **Sign**: Use signature to secure the connection.  
- **Sign & Encrypt**: Use signature and encryption to secure the connection.  
- **Sign + Sign & Encrypt**: Use either signature or signature and encryption to secure the connection.                                                                                                                           |
| Security Policy | Displays whether security is required or optional for connections between OPC UA clients and the FactoryTalk Linx Gateway OPC UA server. The firewall on the FactoryTalk Linx Gateway OPC UA server must allow incoming connections to the selected port for the connection to succeed. There are three security algorithm suites:  
- **Basic128Rsa15**  
- **Basic256**  
- **Basic256Sha256**                                                                                                                                                                                                                                           |
| Anonymous       | Sets OPC UA clients' log on user group is Anonymous with read and write access.                                                                                                                                                                                                                                                                |
| Limit to read-only access | Sets the log on user group is Anonymous with only read access.                                                                                                                                                                                                                                                                                           |
| FactoryTalk Security User | Sets OPC UA clients' log on user group is FactoryTalk Security user with read and write access. The user is created in FactoryTalk Administration Console > System > Users and Groups. Username and password are needed.                                                                                     |
| Log diagnostic message on tag write | When enabled, FactoryTalk Linx Gateway will create a diagnostic or audit message every time a tag is written by an external OPC UA client. The default setting is disabled.                                                                                                                                                                                      |
| Log as audit message | When enabled, FactoryTalk Linx Gateway will create an audit message in the FactoryTalk Audit log with time-and date-stamped information to track changes that occurred during the operation of the system.                                                                                                      |
Chapter 3  Start FactoryTalk Linx Gateway and explore the user interface

<table>
<thead>
<tr>
<th>Field</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Log as diagnostic message</td>
<td>When enabled, FactoryTalk Linx Gateway will create a diagnostic message in the FactoryTalk Diagnostics log with time-and date-stamped information to help diagnose anomalies.</td>
</tr>
</tbody>
</table>

**About FactoryTalk Linx Gateway**  Use About FactoryTalk Linx Gateway to identify the version of the FactoryTalk Linx Gateway user interface, OPC UA and DA servers, and OPC Foundation Discovery Service, or to view the activation type and grace period status.

**To open About FTLinx Gateway:**

1. From the Windows Start Menu, select All Programs > FactoryTalk Linx Gateway > FactoryTalk Linx Gateway Configuration.
2. Click Help > About FactoryTalk Linx Gateway.

**Revision**

<table>
<thead>
<tr>
<th>Field</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>FactoryTalk Linx Gateway User Interface Revision</td>
<td>Lists the version number of the FactoryTalk Linx Gateway user interface on the local machine.</td>
</tr>
<tr>
<td>FactoryTalk Linx Gateway OPC UA Server Revision</td>
<td>Lists the version number of the FactoryTalk Linx Gateway OPC UA service on the local machine.</td>
</tr>
<tr>
<td>FactoryTalk Linx Gateway OPC DA Server Revision</td>
<td>Lists the version number of the FactoryTalk Linx Gateway OPC DA service on the local machine.</td>
</tr>
<tr>
<td>OPC Foundation Discovery Service Revision</td>
<td>Lists the version number of the OPC Foundation Discovery Service on the local machine.</td>
</tr>
</tbody>
</table>

**Activation**

<table>
<thead>
<tr>
<th>Field</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Activation Type</td>
<td>Lists the type of activation used for FactoryTalk Linx Gateway, including whether or not the product is operating under a grace period.</td>
</tr>
</tbody>
</table>

**Certificate Management**  Use Certificate Management to view or manage FactoryTalk Linx Gateway OPC UA server certificates.

FactoryTalk Linx Gateway creates a default, self-signed security certificate during installation. The security certificate is stored at C:\ProgramData\Rockwell\FactoryTalk Linx Gateway\PKI\own\cert_ftgw_opcua_server.der on the host computer for the FactoryTalk Linx Gateway server.

When an OPC UA client makes connection with FactoryTalk Linx Gateway server, the security certificate from the OPC UA client needs to trusted by the user or manually imported to the computer that hosts FactoryTalk Linx.
Gateway server. FactoryTalk Linx Gateway can also shut down a connection by rejecting the security certificate. These only happen when a security policy is applied.

### Incoming Certificate

<table>
<thead>
<tr>
<th>Field</th>
<th>Description</th>
</tr>
</thead>
</table>
| Import      | Import the OPC UA client’s security certificate file to the FactoryTalk Linx Gateway computer trusted store folder.  
C:\ProgramData\Rockwell\FactoryTalk Linx Gateway\PKI\trusted |
| Reject      | Move the OPC UA client’s security certificate file to the FactoryTalk Linx Gateway computer rejected store folder.  
C:\ProgramData\Rockwell\FactoryTalk Linx Gateway\PKI\rejected |
| Remove      | Delete the OPC UA client’s security certificate file from the FactoryTalk Linx Gateway computer.                                              |
| Name        | Displays the name of the security certificate.                                                                                            |
| Workstation | Displays the computer where the security certificate is from.                                                                            |
| Status      | Displays the security certificate status on FactoryTalk Linx Gateway server.                                                             |
| Location    | Displays the path to the security certificate on the FactoryTalk Linx Gateway computer.                                                    |
| Application Name | Displays the common name under Subject Name.                                                        |
| Organization| Displays the organization that provides the security certificate.                                                                          |
| Application URI | Displays the FactoryTalk Linx Gateway application URI associated with the security certificate. |
| Domain      | Displays the domain where the security certificate is from.                                                                               |
| Subject Name| Displays the information of the security certificate holder. This includes the common name, domain components, etc.  |
| Valid From  | The beginning date for the period in which the certificate is valid.                                                                        |
| Expiration Time | The final date for the period in which the certificate is valid.  |
| Thumbprint  | The digest (or thumbprint) of the certificate data.                                                                                        |
| Trust       | Move the OPC UA client’s security certificate file to the FactoryTalk Linx Gateway computer trusted store folder.  
C:\ProgramData\Rockwell\FactoryTalk Linx Gateway\PKI\trusted |

### Outgoing Certificate

<table>
<thead>
<tr>
<th>Field</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Regenerate</td>
<td>Generates the outgoing certificate when the old one is expired.</td>
</tr>
<tr>
<td>Certificate to use</td>
<td>Displays the current in use security certificate.</td>
</tr>
<tr>
<td>Name</td>
<td>Displays the name of the security certificate.</td>
</tr>
<tr>
<td>Status</td>
<td>Displays the security certificate status on FactoryTalk Linx Gateway server.</td>
</tr>
<tr>
<td>Location</td>
<td>Displays the path to the security certificate on the FactoryTalk Linx Gateway computer.</td>
</tr>
<tr>
<td>Application Name</td>
<td>Displays the common name under Subject Name.</td>
</tr>
<tr>
<td>Organization</td>
<td>Displays the organization that provides the security certificate.</td>
</tr>
<tr>
<td>Application URI</td>
<td>Displays the FactoryTalk Linx Gateway application URI associated with the security certificate.</td>
</tr>
<tr>
<td>Domain</td>
<td>Displays the domain where the security certificate is from.</td>
</tr>
<tr>
<td>Subject Name</td>
<td>Displays the information of the security certificate holder. This includes the common name, domain components, etc.</td>
</tr>
<tr>
<td>Valid From</td>
<td>The beginning date for the period in which the certificate is valid.</td>
</tr>
<tr>
<td>Expiration Time</td>
<td>The final date for the period in which the certificate is valid.</td>
</tr>
</tbody>
</table>
Chapter 3  
Start FactoryTalk Linx Gateway and explore the user interface

<table>
<thead>
<tr>
<th>Field</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Thrumbprint</td>
<td>The digest (or thumbprint) of the certificate data.</td>
</tr>
</tbody>
</table>

**FactoryTalk Diagnostic Log**

Use **FactoryTalk Diagnostic Log** to view historical error, warning, and information level diagnostic messages about the FactoryTalk Linx Gateway services on the current computer.

**FactoryTalk Diagnostic Log**

<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>
Use FactoryTalk Linx Gateway to Access Data

This chapter includes the following information:

- Before you begin
- Starting FactoryTalk Linx Gateway
- Selecting the scope
- Accessing data

Before you begin

Before you can access data via FactoryTalk Linx Gateway, you must:

1. Install and activate FactoryTalk Linx Gateway.
   For the detailed steps, refer to Install FactoryTalk Linx Gateway on page 19.

2. Create a FactoryTalk application, or point to an existing application, in FactoryTalk Administration Console.
   For the detailed steps, refer to FactoryTalk Services Platform Help.

3. Add a data server, for example, a FactoryTalk Linx data server.
   For the detailed steps, refer to FactoryTalk Services Platform Help.

4. Add shortcuts to target controllers in FactoryTalk Linx.
   For the detailed steps, refer to FactoryTalk Linx Online Help.

Start FactoryTalk Linx Gateway

Start FactoryTalk Linx Gateway by selecting Start > Programs > Rockwell Software > FactoryTalk Linx Gateway > FactoryTalk Linx Gateway Configuration.

Tip: To start or stop the FactoryTalk Linx Gateway service, you must be either a Windows Administrator or Power User of the computer.
Select the scope

The scope is the area or application from which you want to access data. The main **FactoryTalk Linx Gateway Configuration** dialog box shows the current scope. The supported scope will depend on the FactoryTalk Linx Gateway activation purchased. For more information on supported scopes and activation, see **Activation types** on page 58.

A local scope means that only one instance of a FactoryTalk Linx data server can be configured, and resides on the local host computer. A network scope means that multiple FactoryTalk Linx data servers can be configured and may be distributed across the network. If the FactoryTalk Linx Gateway is providing data to a FactoryTalk View SE application, activations that support the local or network application must be installed for FactoryTalk Linx Gateway and FactoryTalk View SE.

Tip:
- If there is a possibility of a remote or local client requesting tag data from FactoryTalk Linx Gateway, you must disable the FactoryTalk Linx Gateway service via the Windows Control Panel, or stop or shut down all of the OPC clients before you reconfigure the scope. This will prevent the service from automatically starting while you are configuring the scope. The default DCOM settings prohibit launching the FactoryTalk Linx Gateway OPC <DA> service remotely and is the recommended setup.
- You must stop the service before you can configure the scope. Note that if you do not have read permission, an error message opens when you configure scope. Refer to the FactoryTalk Linx Gateway Help. You must be logged into FactoryTalk to be able to configure the scope. If you have not already done so, you will be prompted to log in when you click Select.
- When using a new system, or if you need to change the scope, use the FactoryTalk Administration Console.

To select the scope:

1. In **Server Configuration**, next to **FactoryTalk Diagnostics Scope**, click Select.
2. In **Select FactoryTalk Directory**, select either the Network or Local FactoryTalk Directory.
3. From the FactoryTalk Directory tree, select an application or area.
4. Select OK.
5. In **Server Configuration**, select Apply.
6. In **FactoryTalk Linx Gateway Configuration**, click Yes to restart the FactoryTalk Linx Gateway services and apply the scope change.

Access the data

Your access to, and actions within, the FactoryTalk Linx Gateway tool are controlled by FactoryTalk Security settings. Refer to **Secure FactoryTalk Linx Gateway using FactoryTalk Security** on page 69 before attempting to configure FactoryTalk Linx Gateway.
Once a FactoryTalk Directory scope has been selected and the FactoryTalk Linx Gateway service is running, OPC UA and DA clients can read and write the data provided from the FactoryTalk Linx Gateway services. Refer to your OPC client documentation for more information.

**Prerequisites:**

1. In the scoped FactoryTalk application, add a FactoryTalk Linx data server.
2. In the scoped FactoryTalk application, create a shortcut from the application to the server hosting the tag data.
   a. In FactoryTalk View Studio or FactoryTalk Administration Console, open Communication Setup.
   b. In Device Shortcuts, click Add.
   c. (optional) Type a unique name for the shortcut.
   d. In the communications hierarchy tree in the right-hand pane, click the device that contains the tag data, then click Apply.
   e. Click Yes to apply changes.
   f. In Shortcut Type, select a type of shortcut. The default value is Processor.
   g. Click OK to close Communication Setup.

   For more information about shortcuts, see FactoryTalk Linx Help.

3. (optional) On the FactoryTalk Linx Gateway host PC, use Server Configuration to verify the FactoryTalk Linx Gateway OPC UA or OPC DA service is running.

**To access data from FactoryTalk Linx Gateway:**

1. Start an OPC UA or DA client.
2. Configure the OPC UA or DA client to connect to the FactoryTalk Linx Gateway service.
   - For OPC DA clients, this is done by entering or browsing to the hostname or IP address of the FactoryTalk Linx Gateway server.
   - For OPC UA clients, this is done by entering or browsing to an OPC UA Endpoint URL. If security is required, the client may need to accept the FactoryTalk Linx Gateway security certificate.
3. In the OPC client, add a data group.
4. In the OPC client, add one or more data items to the data group, up to but not exceeding the FactoryTalk Linx Gateway activation capacity.

For more information on FactoryTalk Linx Gateway activations, see Activation types on page 58.
Chapter 5

Use FactoryTalk Diagnostics Counter Monitor with FactoryTalk Linx Gateway

This chapter includes the following information:

- About FactoryTalk Diagnostics Counter Monitor
- Run FactoryTalk Diagnostics Counter Monitor
- Create a snapshot file
- Use FactoryTalk Diagnostics Counter Monitor to troubleshoot FactoryTalk Linx Gateway

FactoryTalk Diagnostics Counter Monitor is installed with FactoryTalk Services Platform. This stand-alone tool shows diagnostic counter information as well as OPC clients, groups, and corresponding items.

FactoryTalk Diagnostics Counter Monitor shows diagnostic information about the FactoryTalk Linx Gateway runtime operation:

- Diagnostic counters are displayed as properties at the FactoryTalk Linx Gateway, client, and group levels.
- Individual diagnostic items are displayed as children of their corresponding group connection.

The FactoryTalk Diagnostics Counter Monitor main window contains three areas:

1. **Navigator**
   - Workstations are manually added to or removed from a tree in the Navigator area. If FactoryTalk Linx or FactoryTalk Linx Gateway is installed on a workstation, FactoryTalk Diagnostics Counter Monitor automatically detects and shows them on the tree under the associated workstation.

2. **Data**
   - The values of the selected diagnostic items are displayed in the Data area.
   - The Data area contains the following columns:
     - **Name**: At the root, provider, and client levels, this is the name of the diagnostic counter. At the group level, this is the tag name.
     - **Value**: At the root and provider levels, this is the returned data value of the diagnostic counter. At the group level, this indicates the status of the tag: Active or Inactive.
   - Note that neither the list of names nor their values can be modified.
   - For a description of each counter, refer to the FactoryTalk Diagnostics Counter Monitor Help.

3. **Viewer**, which contains two tabs:
   - **Troubleshooting Resources**
     - The Help is integrated into FactoryTalk Diagnostics Counter Monitor using this viewer.
   - **FactoryTalk Diagnostics Messages**
     - Error messages associated with FactoryTalk Diagnostics Counter Monitor are logged to FactoryTalk Diagnostics. These messages are also displayed on the FactoryTalk Diagnostics Messages viewer. This enables you to see if there is any correlation between the logged messages and the values of the diagnostic items displayed in the Data area. Note that FactoryTalk Diagnostics messages are displayed for the local workstation only.
To further aid in diagnosing problems, an integrated snapshot feature captures diagnostic values into an .xml file. This enables you to send this information to Rockwell Automation Technical Support if you need troubleshooting assistance. Refer to Create a snapshot file on page 46.

Tip: FactoryTalk Diagnostics Counter Monitor is currently supported for desktop servers only. Windows CE is not supported in this release.

Keep the following in mind while using FactoryTalk Diagnostics Counter Monitor:

- Inactive tags are displayed with a value of Inactive.
- If a group’s state is inactive, then the items within that group are inactive, regardless of what appears on the screen. However, if a group’s state is active, it does not affect the state of any items within that group; that is, items within that group may be active or inactive.
- If client and group names are supplied by the client, then those names will be shown in the FactoryTalk Diagnostics Counter Monitor Navigator area.
- Duplicate items are given a numerical suffix (that is, itemname (#)) to distinguish them and are treated as unique tags. Duplicate items are numbered sequentially as they are added, regardless of the Group to which they are added. For more information, refer to FactoryTalk Diagnostics Counter Monitor Help.

Run FactoryTalk Diagnostics Counter Monitor

Note the following before you begin using FactoryTalk Diagnostics Counter Monitor:

- FactoryTalk Linx Gateway must be installed and running on one or more host computers on the network.
- The diagnostics client must have access to a workstation that has an application with diagnostic items associated with it. A client must be accessing those diagnostic items in order for them to be shown on FactoryTalk Diagnostics Counter Monitor.
- To prevent FactoryTalk Linx Gateway performance degradation, run only one instance of FactoryTalk Diagnostics Counter Monitor at a time, and close the tool when you have finished troubleshooting.

To run FactoryTalk Diagnostics Counter Monitor:

1. Start FactoryTalk Diagnostics Counter Monitor.

   Click Start > Programs > Rockwell Software > FactoryTalk Tools > FactoryTalk Diagnostics Counter Monitor.

   The FactoryTalk Diagnostics Counter Monitor main window opens. By default, the Navigator area shows a single root item called System Diagnostics.
2. Add a workstation to the Navigator area.

   Right-click on the root in the Navigator area, and select Add Workstation. The Enter Workstation IP Address/Hostname dialog box opens.

   **Tip:** Alternately, you can add a workstation by clicking the root in the Navigator area and clicking [ ].

   Enter the hostname or the device name of the workstation that contains the diagnostics you want to view, and click OK. For more information about the Enter Workstation IP Address/Hostname dialog box, refer to FactoryTalk Diagnostics Counter Monitor Help.

   Note that the default workstation is localhost.

3. Expand the workstation to expose the installed data provider(s).

4. Click on any diagnostic item in the tree. The diagnostic counters associated with the selected item are shown in the Data area of the FactoryTalk Diagnostics Counter Monitor main window. While the item is selected, the counter values are updated automatically as new values are received.

**Create a snapshot file**

Snapshot files aid in troubleshooting by capturing all diagnostic values in an .xml file, which can then be sent to Rockwell Automation Technical Support. The .xml file contains the values of all of the diagnostic counters, whether expanded and displayed or not. Refer to the FactoryTalk Diagnostics Counter Monitor Help for more information.

To create a snapshot file:

1. Click File > Save Snapshot.

2. Select the location to which you want to save the snapshot file. The default location is the C: drive.

3. Enter a filename, or use the default filename, FTDiagData.xml.

4. Click Save.

**Use FactoryTalk Diagnostics Counter Monitor to troubleshoot FactoryTalk Linx Gateway**

To use FactoryTalk Diagnostics Counter Monitor to troubleshoot FactoryTalk Linx Gateway:

1. Start FactoryTalk Linx Gateway. (Start > Programs > Rockwell Software > FactoryTalk Linx Gateway > FactoryTalk Linx Gateway Configuration or click on the FactoryTalk Administration Console menu bar.)
2. Start FactoryTalk Diagnostics Counter Monitor. (Start > Programs > Rockwell Software > FactoryTalk Tools > FactoryTalk Diagnostics Counter Monitor.)

3. Click FactoryTalk Linx Gateway OPC UA Server or FactoryTalk Linx Gateway OPC UA Server in the FactoryTalk Diagnostics Counter Monitor Navigator area.

4. Use the counters displayed in the Counter area to see the high-level status of the FactoryTalk Linx Gateway interactions with the clients:
   - **Activation**: Verify the value indicates the correct activation.
   - **Count against Activation**: Verify there are tags present (value > 0).
   - **Service Status**: Verify the service is Running.
   - **Selected Scope**: Verify the scope is correct for your application.
   - **Data Callbacks**: Verify that tags are updating (values increase). If tags are not updating, there are a number of possible reasons:
     - The data values are static.
     - The controller is in PROGRAM mode.
     - Groups or items at the client level are inactive.

5. Click the FactoryTalk Diagnostics Messages tab in the Viewer area. For more information about using this resource, refer to the FactoryTalk Diagnostics Counter Monitor Help.
This chapter includes the following information:

- What to check first if you’re having problems
- Troubleshooting tools for FactoryTalk Linx Gateway
- Troubleshooting topics
- How to contact technical support

### What to check first if you have problems

**Does your FactoryTalk Linx Gateway meet the minimum hardware and software requirements?** Refer to Install FactoryTalk Linx Gateway on page 19 for these requirements.

**Is the software installed correctly?** Refer to Install FactoryTalk Linx Gateway on page 19 for installation instructions. Restart your computer after installing the software before you begin using FactoryTalk Linx Gateway.

**Do you have a valid activation file?** Check the FactoryTalk Diagnostics log. An information message is logged if the activation file is not detected by the system when you launch FactoryTalk Linx Gateway. Refer to the FactoryTalk Services Platform Help for information about FactoryTalk Diagnostics messages. Refer to About Activations on page 57 for information about activations.

### Troubleshooting Tools

To help you isolate, diagnose, and correct any problems you may experience using FactoryTalk Linx Gateway, use the following troubleshooting tools:

**FactoryTalk Linx Gateway Configuration Tool**

Use the FactoryTalk Linx Gateway Configuration Tool to view status and diagnostic information. Server Configuration displays the server status. About > FactoryTalk Historical Diagnostics displays FactoryTalk Diagnostics messages scoped to the FactoryTalk Linx Gateway service.

**FactoryTalk Diagnostics**

FactoryTalk Diagnostics provides the ability to log errors, warnings, and other status messages generated throughout a FactoryTalk-enabled system to a central location called an event log. If you encounter a problem, you can review the events in the log that led up to the problem to assist in determining the cause. Or, you can monitor the log to identify potential problems and take corrective action before a problem occurs.

Note that FactoryTalk Diagnostics messages are displayed for the local workstation only.
Refer to the FactoryTalk Services Platform Help for more information about FactoryTalk Diagnostics and the event log. Refer to the FactoryTalk Linx Gateway Help for more information about diagnostic messages specific to FactoryTalk Linx Gateway.

**FactoryTalk Diagnostics Counter Monitor**

FactoryTalk Diagnostics Counter Monitor aids in troubleshooting OPC connections from third-party products. It shows diagnostic information about the FactoryTalk Linx Gateway runtime operation. The FactoryTalk Diagnostics event log and Help are integrated into this tool. Refer to Use FactoryTalk Diagnostics Counter Monitor with FactoryTalk Linx Gateway on page 43 for more information. Refer to the FactoryTalk Diagnostics Counter Monitor Help for individual counter descriptions.

**FactoryTalk Live Data Test Client**

FactoryTalk Live Data Test Client is a utility to test your OPC connection after you have configured the FactoryTalk Linx Gateway. This utility is installed automatically with FactoryTalk Services Platform. This utility can only test connections to the FactoryTalk Linx Gateway OPC DA service.

**OPC Test Client**

OPC Test Client is a utility that enables you to test your data connections if you are using remote OPC Client functionality. This utility is installed automatically as part of Remote FactoryTalk Linx Gateway on the FactoryTalk Linx Gateway product DVD.


**Troubleshooting topics**

The topics below provide information to help you troubleshoot FactoryTalk Linx Gateway.

**FactoryTalk Linx Gateway activations**

If you are experiencing activation problems, refer to:

- [About Activations on page 57](#)
- FactoryTalk Linx Gateway troubleshooting topics in FactoryTalk Linx Gateway Help.
- FactoryTalk Activation Manager troubleshooting topics in FactoryTalk Activation Manager Help.

**FactoryTalk Security**

If you are experiencing problems with FactoryTalk Security, refer to:

- [Secure FactoryTalk Linx Gateway using FactoryTalk Security on page 69](#)
- Troubleshooting topics in FactoryTalk Services Platform Help.

**FactoryTalk Linx Gateway service (starting and stopping)**

If you are experiencing problems starting or stopping the FactoryTalk Linx Gateway service, verify your Windows user account privileges. You must have administrative rights to start and stop the service.
Data quality

If you are experiencing problems with bad quality data, no data being returned, data is stale or frozen, or tags do not appear during an OPC client tag browse operation, use the following steps to isolate and correct the problem:

1. If testing an OPC DA connection, verify that the FactoryTalk connection is working.
   a. If testing an OPC DA connection, use the FactoryTalk Live Data Test Client to connect directly to FactoryTalk (not FactoryTalk Linx Gateway). Then, verify that you can browse and add an item. If there are no problems, then the issue is with FactoryTalk Linx Gateway, not FactoryTalk.

2. Test the connection.
   a. If testing an OPC DA connection, run OPC Test Client or FactoryTalk Live Data Test Client. Note that you may need to change the DCOM settings if you use OPC Test Client.
      a. Navigate to the application containing the data server that you are trying to use.
      a. Browse, and put some tags on scan. If you cannot browse for tags, then the data server is not configured correctly or the devices that the data server is pointing to are not configured or connected.
   b. If testing an OPC UA connection, use the OPC Foundation UA Sample Client to connect to FactoryTalk Linx Gateway. If the sample client connects, the issue is not with FactoryTalk Linx Gateway but with the OPC UA client.

3. Verify that the tags are not hidden by the External Access attribute (set in Logix Designer, starting with version 18 for controllers that support External Access). For more information on the External Access attribute, refer to the documentation for version 18 (CPR 9 SR 2) or later of the application. Note that if the External Access attribute for a tag in a controller is changed from None to Read or Read/Write, you may need to restart the data client to see the tag. If the External Access attribute for a tag in a controller is changed from Read or Read/Write to None, the Quality changes to Out of Service for that tag.

4. Check the FactoryTalk Linx Gateway configuration.
   a. Open FactoryTalk Linx Gateway.
b. Verify that the server is running. If you are experiencing stale or frozen data, it is possible that the client was not notified that FactoryTalk Linx Gateway service had stopped.

c. Verify that the proper application, including scope (network or local), is selected.

d. Verify that you have the correct activation for the application you are trying to run.

5. Check the FactoryTalk Diagnostics log. Some events to check for:

a. A controller is in the process of downloading a new program. The FactoryTalk Diagnostics log will indicate if a new program has been downloaded and specify the path.

b. The activation is incorrect for the application or you have exceeded the activation capacity.

c. The tag does not exist. Any currently non-existing tags should be logged as not existing in the controller.

6. Check the FactoryTalk Linx configuration.

a. Open FactoryTalk Administration Console or FactoryTalk View Studio.

b. Right-click the FactoryTalk Linx server and select Properties. Verify the correct computer hosting FactoryTalk Linx is shown.

c. Double-click Communication Setup.

d. Verify that there is a shortcut configured and that it has the correct name.

e. Click the shortcut and verify that it is pointing to the expected device within the communication tree.

f. SS6. Right-click the network you are using and select Start Browsing. If the device disappears from the Communication tree, then FactoryTalk Linx is no longer finding the device. Verify that the device is online.

7. If testing an OPC DA quality issue, verify that DCOM access settings are configured correctly.

8. Verify any firewall software is configured to allow access to FactoryTalk Linx Gateway OPC DA and UA service ports.
9. Verify that the scope and FactoryTalk Linx shortcuts are correctly configured. Refer to Access the data on page 40.

If the above steps do not resolve your problem, please contact Rockwell Automation Technical Support.

There are many factors to consider when diagnosing communication problems:

- **Computer effect on communication**
  - Memory, disk space, and anti-virus scans can affect computer performance. Refer to System requirements on page 19.
  - Firewalls and switches can completely or partially block communication.
  - The typical timing factor for communication updates is the CPU load. Rockwell Automation recommends a 40% maximum steady state CPU loading. This balances utilization of the hardware and gives enough bandwidth for peak loading.

- **Multiple clients effect on communication**
  - The packaging of data to OPC standards takes computer CPU power to achieve, and this can be significant depending on the data loading.
  - The number of clients requesting data from a single OPC data server can also significantly impact computer CPU loading, particularly if they are not requesting the same items (tags).
  - Clients creating and destroying groups can significantly impact CPU usage.

- **Network effect on communication**
  - An incorrect network configuration can reduce communication effectiveness. Verify your network configuration as well as your installation. Refer to Install FactoryTalk Linx Gateway on page 19.

- **Controller effect on communication**
  - For ControlLogix controllers, data requests are handled by a CPU separate from the control program CPU. (FlexLogix controllers have one CPU to handle all tasks.) However, eventually these data requests are handled by the controller program. This affects communication efficiency since the controller is performing higher priority tasks and handles communication when CPU time is available. You can monitor task utilization using Logix 5000 Task Monitor on the Logix Designer utilities DVD.
  - Data requests are sent to controllers via a network port (for example, Ethernet, ControlNet, DeviceNet). For ControlLogix Ethernet communication, the ENET, ENBT, EN2T, or EWEB module is required. These modules could be a bottleneck to
communication depending on the number of data requests and the number of requesting clients.

- Tag structure in a controller program can also have a significant impact on communication efficiency. Refer to your Logix Designer documentation.

- The communication time slice setting within the controller (set using Logix Designer application) will affect communication. You may need to increase the setting value.

- The way OPC clients request data can either help or hinder the ControlLogix Optimized Packets process. Refer to your ControlLogix controller documentation.

- Offline or disconnected controllers will cause additional retries and diagnostics to be logged. Inhibit a controller using FactoryTalk Linx if it will not be present in the system for an extended period of time.

- **DCOM effect on communication**
  
  OPC DA is based on DCOM, therefore:

  - Changing DCOM security settings may stop the OPC DA service from working.
  
  - Changing DCOM security settings may prevent a client from browsing tags through the OPC UA service.
  
  - If the server and client become disconnected (either via a physical network disconnect or a software disconnect), there is a hard-coded 6-minute time-out notification.
  
  - If the server and client are reconnected, the OPC connection is not automatically reconnected to the original objects. Therefore, servers and clients may require restarting.

---

**Contact Rockwell Automation Technical Support**

If you are experiencing a problem with, or have a question about, FactoryTalk Linx Gateway, please consult the Help and Release Notes. If you cannot find the answer, contact Rockwell Automation Technical Support.

**Phone**

440-646-3434

**Worldwide web**

http://www.rockwellsoftware.com

http://support.rockwellautomation.com

**Hours of operation**

Support staff are available 8 a.m. to 5 p.m. EST, Monday through Friday, except holidays.

**Before you call**

Before you call, you should be at your computer and be prepared to give the following information:
• The product serial number and version number. These can be found by clicking Start > Settings > Control Panel > Add/Remove Programs and clicking FactoryTalk Linx Gateway.

• The type of hardware you are using.

• The version of Windows operating system you are using.

• The exact wording of any messages that appeared on your screen.

• What happened and what you were doing when the problem occurred.

• How you tried to solve the problem.
About Activations

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 Gateway, the software checks for the activation file. If a valid activation cannot be found, an error is logged to FactoryTalk Diagnostics and FactoryTalk Linx Gateway 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 Gateway
- Activation types

Activate FactoryTalk Linx Gateway

FactoryTalk Linx Gateway 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 Gateway in the FactoryTalk Linx Gateway Installation Setup Wizard, perform the following steps:

1. Perform the steps in Install FactoryTalk Linx Gateway on page 19 to install FactoryTalk Linx Gateway software.

2. On the Rockwell Software Setup dialog box in the Installation Setup Wizard, select the Activate your software check box 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 Gateway on a single computer, or select Activate using a dongle to activate FactoryTalk Linx Gateway 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 Gateway 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 Gateway 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.

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


The activation type determines feature support and the maximum capacity of unique tags that can be added to the FactoryTalk Linx Gateway server. The tag limit is for all unique tags, including active, inactive, and valid tags. However, the OPC DA service and UA service tag limits are separate; a 5,000 tag limit activation can simultaneously serve 5,000 tags to DA clients and 5,000 tags to UA clients. All FactoryTalk Linx Gateway activations support a client capacity of up to 20 simultaneous OPC DA or 110 OPC UA client connections. But the actual capacity for OPC client connections could vary based on available computer resources and the amount of information being requested.

If a valid activation cannot be found, FactoryTalk Linx Gateway operates under a grace period. Refer to FactoryTalk Services Platform Help for more information about grace periods.

If an activation limits FactoryTalk Linx Gateway to a Local FactoryTalk Directory, a Network FactoryTalk Directory scope cannot be selected. If a Network FactoryTalk Directory is already selected and the activation is downgraded, FactoryTalk Linx Gateway displays an error and writes a diagnostic message to FactoryTalk Diagnostics.

When checking for valid activations, FactoryTalk Linx Gateway finds and uses the activation with the highest feature support. The selected activation type is visible in the **About** tab of **FactoryTalk Linx Gateway Configuration**. Supported activations are shown in the table below from top to bottom as highest to lowest priority.

### Activation types

<table>
<thead>
<tr>
<th>Activation Type</th>
<th>Feature Support</th>
<th>Tag Limit</th>
</tr>
</thead>
<tbody>
<tr>
<td>EvRSI</td>
<td>Full</td>
<td>Up to 10,000</td>
</tr>
<tr>
<td>FactoryTalk Activation Manager</td>
<td>Full</td>
<td>Up to 100,000</td>
</tr>
<tr>
<td>Local FactoryTalk Directory</td>
<td>Partial</td>
<td>Up to 20,000</td>
</tr>
<tr>
<td>Network FactoryTalk Directory</td>
<td>Partial</td>
<td>Up to 100,000</td>
</tr>
<tr>
<td>Activation Name</td>
<td>Activation</td>
<td>Tag Limit</td>
</tr>
<tr>
<td>-------------------------------------</td>
<td>------------------</td>
<td>--------------</td>
</tr>
<tr>
<td>FactoryTalk Linx Gateway Professional</td>
<td>LINXGW.PROFESSIONAL</td>
<td>No fixed limit</td>
</tr>
<tr>
<td>FactoryTalk Gateway Distributed</td>
<td>RSOPCD.UNLTD</td>
<td>No fixed limit</td>
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<td>FactoryTalk Gateway Distributed 70K</td>
<td>RSOPCD.70000</td>
<td>70,000</td>
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<tr>
<td>FactoryTalk Linx Gateway Distributed</td>
<td>LINXGW.DISTRIBUTED</td>
<td>32,000</td>
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<td>FactoryTalk Gateway Distributed 32000</td>
<td>RSOPCD.32000</td>
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<td>FactoryTalk Gateway Station 32000</td>
<td>RSOPCS.32000</td>
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<tr>
<td>FactoryTalk Linx Gateway Standard</td>
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<td>1,000</td>
</tr>
</tbody>
</table>

If a system requires 32,000 or more tags, use a no fixed limit activation and refer to the FactoryTalk Linx Gateway Release Notes > Application Notes for tested hardware and update rates.

**Tip:** To check the number of tags added to FactoryTalk Linx Gateway, use FactoryTalk Diagnostics Counter Monitor.

- For OPC DA service tags, view the **Count against Activation** counter.
- For OPC UA service tags, view the **Total Items in Subscription** counter.

If you have multiple clients subscribing the same tags, the tags being used against the activation limit should be counted separately. For example there are five clients subscribing 1000 tags, then the total activation limit used is 5000 tags.

As a best practice, Rockwell Automation recommends using a shared concurrent activation, which is locked to a networked activation server computer, but shared by client computers on the network. Refer to FactoryTalk Services Platform Help for more information.
Note that if you have multiple FactoryTalk Linx Gateway instances using different tag counts, each FactoryTalk Linx Gateway instance must be activated using its own specific activation file to ensure that each FactoryTalk Linx Gateway instance receives the correct tag count activation.

**Tip:** FactoryTalk Batch v9.00.00 (CPR 9) and later supports direct communication between FactoryTalk Live Data and plant-floor controllers and devices, removing the need for FactoryTalk Linx Gateway.
Install FactoryTalk Linx Gateway with command line syntax

Besides the Setup Wizard installation, FactoryTalk Linx Gateway 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 Gateway 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 Gateway 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 Gateway 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:

   ```
   ```
5. Press **Enter**. The installation process starts with the parameters you specified.

6. For detailed description about each parameter, see Parameters on page 62. You can also type **Setup /?** in the **Command Prompt** window, and press **Enter** to view the help information of all parameters and examples.

**Parameters**

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

/Q

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 the one of ENU, CHS, DEU, ESP, FRA, ITA, JPN, KOR, or PTB.

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

/Record

Optional. Records your inputs to a recording file.
/Playback

Optional. Plays back a recording file.

/IgnoreWarning

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

/Product=product name

Required. Specifies which product will be installed. The product name must be one of the following:

- Gateway
- Remote Gateway

/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 /Product="Gateway"

means:

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

Example 2

Setup.exe /QS /IAcceptAllLicenseTerms /AutoRestart /SetupLanguage=CHS /Product="Gateway" /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 Gateway version 6.00.00 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 /Product="Gateway"

means:

- The software is uninstalled silently with no user interface.
**Appendix C**

**About FactoryTalk Linx**

This appendix includes an overview of FactoryTalk Linx.

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

FactoryTalk Linx:

- Is delivered and installed with the FactoryTalk Services Platform (FTSP) which is included with most Rockwell Automation software products. FactoryTalk Linx is also delivered within the PanelView Plus Electronic Operator Interface (EOI) terminal’s firmware.

  **Tip:** The FactoryTalk Services Platform Installation includes several useful tools. Use FactoryTalk Live Data Test Client to interface with FactoryTalk Linx to read and write data directly to controllers. For more information about FactoryTalk Live Data Test Client, see FactoryTalk Services Platform Online Help.

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

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

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

- Is highly optimized for Logix 5000 communications.
Starting with version 5.30.00, supports FactoryTalk Alarms and Events. For more information about FactoryTalk Alarms and Events, See FactoryTalk Alarms and Events Online Help.

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

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

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

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

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

Starting with version 5.90.00, reads Logix 5000 tag extended properties (e.g. @Min, @Max, @Description).

Starting with version 5.90.00, removes Logix 5000 tag requests when their external access is switched to no access in Logix Designer, and the tags can be removed from the controller while it is operating.

Starting with version 5.90.00, permits communications to specific Logix 5000 shortcuts to be inhibited to reduce the impact of Logix 5000 controllers that are disabled or off-line.

Starting with version 6.00.00, provides access to Logix 5000 tag based alarm attributes (e.g. @Alarm…)

Starting with version 6.00.00, offers a variety of communication drivers and routing options.

Starting with version 6.00.00, enables the configuration of two redundant shortcut paths to a single Logix 5000 controller to support high availability systems that desire to retain communications when a path through a network becomes disabled.

Starting with version 6.00.00, permits configuration of two shortcut paths to the primary and secondary Logix 5000 controllers in a redundant ControlLogix revision 31.5x system to retain communications when a redundancy switchover occurs.

Supports FactoryTalk Security to provide a means for system administrators to control access to resources (such as applications or areas) or the ability to perform tasks, such as read and write, in the automation system using FactoryTalk Security.

In conjunction with FactoryTalk Linx Gateway, provides standard OPC connectivity into the FactoryTalk system for third-party products.
For more information about FactoryTalk Linx Gateway, refer to the FactoryTalk Linx Gateway Help.

For more information, refer to FactoryTalk Linx Help.
Appendix D

Secure FactoryTalk Linx Gateway using FactoryTalk Security

This appendix includes the following information:

- About FactoryTalk Security
- Using FactoryTalk Security with FactoryTalk Linx Gateway
- Securing tag write access for FactoryTalk Linx Gateway

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.

Secure the FactoryTalk Linx Gateway Configuration tool

The FactoryTalk Linx Gateway Configuration tool enables you to start or stop the FactoryTalk Linx Gateway service and configure the scope. 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.

Secure runtime actions

Runtime actions are browsing, reading, or writing to tags. You configure security governing these actions using the Anonymous Logon user account at either the application level or area level.

To browse the directory and read the data, the Anonymous Logon user must have List Children and Read permissions within the Common section of Security.

To write to tags, the Anonymous Logon user must have Write Value permissions within the Tag section of Security.

Keep the following in mind when securing runtime actions:

- Security for the FactoryTalk Linx Gateway is set at the FactoryTalk Linx Gateway level using the Anonymous Logon user account. Therefore, all clients that access that specific FactoryTalk Linx Gateway will have the same privileges. If different clients need different privileges, then a second FactoryTalk Linx Gateway will need to be configured on another computer.

- Security is area-based. It is a best practice to have only one data server per area. This allows you to place different permissions on each area (data server).

- When configuring the scope for the FactoryTalk Linx Gateway, you should select the FactoryTalk Application, not an area. Selecting the scope at the application level enables you to add areas to that application without having to change the scope. Changing a scope affects all the existing tag references that have been previously configured in the clients.

- You can deny both Read and Write access to areas. This is shown in the following example.

Example
Assume a Network-scoped distributed system. This system has a FactoryTalk Application called MyFTApp that contains three areas and three data servers.

Assume the requirements for the OPC clients are:

- Full access (Reads/Writes) allowed through FactoryTalk Linx.
- No Reads allowed from the OPC client through RSLinx Classic.
- No Writes allowed from the OPC client into the FactoryTalk View SE HMI (Reads are allowed).

To meet these requirements:

1. The selected scope (using the FactoryTalk Linx Gateway Configuration screen) should be Network/MyFTApp. (Selected Scope field shows Network/MyFTApp.)

2. Security for Area1 (using the FactoryTalk Administration Console) should be configured as follows:
   a. Under Application MyFTApp, right-click Area1 > Security to open Security Settings for Area1 dialog box, and then select Anonymous Logon user group.
   b. From Permissions for Anonymous Logon from All Computers list, select Common > Read > Allow.
   c. From Permissions for Anonymous Logon from All Computers list, select Common > List Children > Allow.
   d. From Permissions for Anonymous Logon from All Computers list, select Tag > Write Value > Allow.

3. Security for Area2 (using the FactoryTalk Administration Console) should be configured as follows:
   a. Under Application MyFTApp, right-click Area2 > Security to open Security Settings for Area2 dialog box, and then select Anonymous Logon user group.
b. From **Permissions for Anonymous Logon from All Computers** list, select **Common > Read > Deny**.

4. Security for Area3 (using the FactoryTalk Administration Console) should be configured as follows:

a. Under Application **MyFTApp**, right-click **Area3 > Security** to open **Security Settings for Area3** dialog box, and then select **Anonymous Logon** user group.

b. From **Permissions for Anonymous Logon from All Computers** list, select **Tag > Write Value > Deny**.

If a write action is attempted into Area3, the following error is logged in FactoryTalk Diagnostics:

"FactoryTalk Linx Gateway write failed due to denied access for client ‘Client1’ group ‘Group1 (Active, 250ms)’ item ‘Area3::my_int’. Verify you have the correct security authorization to perform the write operation."

If you attempt to browse the FactoryTalk application, Area2 will not show since Read permissions have been denied. If your display has a tag previously referenced from Area2, its value will show as (Empty Data) with a Quality of Invalid Quality. The following errors are logged in FactoryTalk Diagnostics:

"Cannot interpret area RNA://$Global/MyFTApp/Area2 (result=80042062) Failed to add item ‘[FTI_Advanced]my_tag’ to server RNA://$Global/MyFTApp/Area2:RSLC’ because of insufficient access rights."

**Tip:** Access to resources (such as applications, areas, or servers) and the ability to perform tasks (such as read or write) are governed by the permissions set in FactoryTalk Security. As a result, if you do not have the appropriate permission, some components on a dialog box may be unavailable, or entire dialog boxes or context menu selections described in the Help may be inaccessible. Refer to the FactoryTalk Services Platform Help for more information.

---

**Secure tag write access for an application or area**

When using the **Anonymous Logon**, the system administrator can manage tag write access in an application, area, or sub-area for FactoryTalk Linx Gateway servers. Tag write access is enabled (Write Tag permission is set to Allow) by default.

**Before you begin:**

- Find the Anonymous Logon in Users and Group > Users.
- Do not delete or change password.
Secure FactoryTalk Linx Gateway using FactoryTalk Security

Check Effective permissions to verify Rights for the Anonymous Logon user.

To disable write access for an application, area, or sub-area:

1. On the FactoryTalk Administration Console application tab, click the application, area, or sub-area.
3. Select Anonymous Logon from the list of users.
4. Click and expand Tag in the list of permissions to expose the Write Value permission.
5. Select the Deny check box.
6. Click OK.

Secure tag write access for a computer

When using the Anonymous Logon, the system administrator can manage tag write access for a specific computer. Use the system administrator to specify permissions for each FactoryTalk Linx Gateway.

Before you begin:

- Find the Anonymous Logon in Users and Group > Users.
- Do not delete or change password.
- Check Effective permissions to verify Rights for the Anonymous Logon user.

To disable tag write access for a computer:

1. On the application window, select the application, area, or sub-area.
3. Click Add. The Select User and Computer dialog box opens.
4. Select Anonymous Logon from the list of users. If Anonymous Logon is not listed, select Show users only.
5. Select the appropriate computer from the list, If computers are not listed, select Show computers only, and the click OK.
6. Click and expand Tag in the list of permissions to expose the Write Value permission.
7. Select the Deny check box.
8. 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 Gateway enhance the user security by requesting the users to log on to FactoryTalk Linx Gateway server when starts FactoryTalk Linx Gateway Configuration and when changing the scope.

The logon scope is determined by the user's activation type. If a user has a local license, he can only log on to local scope. If the user has a network license, he can logon to both network and local scope.

To log on FactoryTalk Linx Gateway 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 Gateway 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 Gateway server logon scope is the same with FactoryTalk Diagnostics scope.

The following table shows the relationship between FactoryTalk Linx Gateway 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>
<tbody>
<tr>
<td>View Gateway Server Properties</td>
<td>Allow users to view information in Server Configuration tab including:</td>
<td>Hide UA Server and DA Server information. Users can only select scope in Server Configuration tab.</td>
</tr>
<tr>
<td></td>
<td>- FactoryTalk Diagnostics Scope</td>
<td></td>
</tr>
<tr>
<td></td>
<td>- UA Server Service Name</td>
<td></td>
</tr>
<tr>
<td></td>
<td>- UA Server status</td>
<td></td>
</tr>
<tr>
<td></td>
<td>- Local Discovery Service URL and status.</td>
<td></td>
</tr>
<tr>
<td></td>
<td>- DA Server status</td>
<td></td>
</tr>
<tr>
<td>Modify Gateway Server Properties</td>
<td>Allow users to edit in Server Configuration tab:</td>
<td>Set Service Name area, UA Server Inhibit checkbox, Register with Discovery Service checkbox, and DA Server Inhibit checkbox unavailable.</td>
</tr>
<tr>
<td></td>
<td>- Change UA Server Service Name.</td>
<td></td>
</tr>
<tr>
<td></td>
<td>- Inhibit UA Server communication.</td>
<td></td>
</tr>
<tr>
<td></td>
<td>- Select if register with LDS.</td>
<td></td>
</tr>
<tr>
<td></td>
<td>- Inhibit DA Server communication.</td>
<td></td>
</tr>
<tr>
<td>Feature security policy</td>
<td>Allow</td>
<td>Deny</td>
</tr>
<tr>
<td>------------------------------------------------</td>
<td>-----------------------------------------------------------------------</td>
<td>-----------------------------------------------------------------------</td>
</tr>
<tr>
<td>View UA Server Endpoint Properties</td>
<td>Allow users to view UA server configuration information and security settings in <strong>UA Server Endpoints</strong> tab including the endpoints: Name, Port, URL, Security Policy, Security Mode, Authentication Settings, Diagnostic Logging</td>
<td>Hide the <strong>Endpoint Properties</strong> area.</td>
</tr>
<tr>
<td>Remove UA Server Endpoint</td>
<td>Allow users to remove the selected endpoint in <strong>UA Server Endpoints</strong> tab.</td>
<td>Set the <strong>Remove</strong> button unavailable.</td>
</tr>
<tr>
<td>Add/Configure UA Server Endpoint Properties</td>
<td>Allow users to add a new endpoint and edit existing endpoints’ configuration information and security settings in <strong>UA Server Endpoints</strong> tab including: Name, Port, URL, Security Policy, Security Mode, Authentication Settings, Diagnostic Logging</td>
<td>Set the <strong>Endpoint Properties</strong> area and the <strong>Add</strong> button unavailable.</td>
</tr>
<tr>
<td>Manage Incoming Certificate</td>
<td>Allow users to view and import, reject, trust and remove certificates in <strong>Certificate Management</strong> tab.</td>
<td>Set the <strong>Import</strong>, <strong>Reject</strong>, <strong>Trust</strong>, and <strong>Remove</strong> button as unavailable.</td>
</tr>
<tr>
<td>View Outgoing Certificate Properties</td>
<td>Allow users to view the outgoing certificates information in <strong>Certificate Management</strong> &gt; <strong>Outgoing Certificate</strong> tab.</td>
<td>Set the outgoing certificate properties unavailable. When switching to <strong>Outgoing Certificate</strong> tab, the <strong>Certificate Properties</strong> area still shows the <strong>Incoming Certificate</strong> properties.</td>
</tr>
<tr>
<td>Modify Outgoing UA Certificate Properties</td>
<td>Allow users to regenerate an outgoing certificate when the old one is expired or there is a need to do so.</td>
<td>Set the <strong>Regenerate</strong> button as unavailable.</td>
</tr>
<tr>
<td>OPC UA Client Read Access</td>
<td>Allow OPC UA clients to read data values through FactoryTalk Linx Gateway server.</td>
<td>OPC UA clients cannot read data values through FactoryTalk Linx Gateway server. An access denied error occurs during communication.</td>
</tr>
<tr>
<td>OPC UA Client Write Access</td>
<td>Allow OPC UA clients to read and write data values through FactoryTalk Linx Gateway server.</td>
<td>OPC UA clients cannot write data values through FactoryTalk Linx Gateway server. An access denied error occurs when editing tag values.</td>
</tr>
</tbody>
</table>
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.

- 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.

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.
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 terminate if the dongle does not respond with the expected validation code.

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.

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.

- **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 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** -

**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** -

**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.
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Rockwell Automation support

Rockwell Automation provides technical information on the web to assist you in using its products. At http://www.rockwellautomation.com/support you can find technical and application notes, sample code, and links to software service packs. You can also visit our Support Center at https://rockwellautomation.custhelp.com for software updates, support chats and forums, technical information, FAQs, and to sign up for product notification updates.

In addition, we offer multiple support programs for installation, configuration, and troubleshooting. For more information, contact your local distributor or Rockwell Automation representative, or visit http://www.rockwellautomation.com/services/online-phone.

Installation assistance

If you experience a problem within the first 24 hours of installation, review the information that is contained in this manual. You can contact Customer Support for initial help in getting your product up and running.

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<th>1.440.646.3434</th>
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<td>Use the Worldwide Locator available at <a href="http://www.rockwellautomation.com/locations">http://www.rockwellautomation.com/locations</a>, or contact your local Rockwell Automation representative.</td>
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New product satisfaction return

Rockwell Automation tests all of its products to ensure that they are fully operational when shipped from the manufacturing facility. However, if your product is not functioning and needs to be returned, follow these procedures.

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