Configuring Firewalls for FactoryTalk Services Platform

Version 6.60.00

Rockwell Automation

Reference Manual

Original Instructions

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.

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

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

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

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

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

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

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

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

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

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

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

Table of Contents

Preface

Summary of changes

This publication contains the following new or updated information. This list includes substantive updates only and is not intended to reflect all changes.

Topic	Page
Software version information	throughout
Add the port information for • OKTA OIDC • MyRockwell OIDC • LDAP and LDAPS	22
Update the publication number	throughout

About this publication

Rockwell Automation® understands that customers desire to know ports used by our architecture, as it is something necessary to perform Risk Analysis or Threat Modelling on their architecture, as well as minimize the number of ports needed to be opened across a firewall in a secure environment. This document is meant to show the ports, services, and firewall rules necessary for FactoryTalk® Services Platform components to function properly. Keep in mind that additional ports need to stay open because DCOM and dynamic ports are a requirement between the machines running various FactoryTalk® software applications, such as Studio 5000 Logix Designer® .

This document is intended to provide detailed information on the following topics:

- Data flows for specific scenarios and transactions common to FactoryTalk Services Platform, including:
  - FactoryTalk Directory clients interfacing with a FactoryTalk Network Directory, also known as a FactoryTalk Directory server
  - Various Authentication methods for Windows® , Azure, and FactoryTalk users
- Services overview with description used in FactoryTalk Services Platform
- Operational differences between the Socket.IO and DCOM communication channels
- Ports, services, and firewall rules necessary for the following FactoryTalk Services Platform components:
  - FactoryTalk Network Directory
  - FactoryTalk Directory client

Network firewalls general recommendations

Any firewalls, both physical and virtual, must allow the ports and protocols listed in the document to be open. Additionally, be sure that typical LAN speeds can be maintained, and no connectivity or latency issues were created.

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Software and Cloud Services Agreement

View and sign the Rockwell Automation Software and Cloud Services Agreement here.

Third-Party Software Licenses

View a full list of all third-party software used in this product in C:\Program Files (x86)\Common Files\Rockwell\Third Party Attributions, including:

- Open-source software
- Commercial software
- Other third-party free software

You may obtain Corresponding Source code for open-source packages included in this product from their respective project websites. Alternatively, you may obtain the complete Corresponding Source code by contacting Rockwell Automation via the Contact form at the bottom of the Rockwell Automation website: https://www.rockwellautomation.com/en-us/company/about-us/contact-us.html. Please include "Open Source" as part of the comments for your General Inquiry request.

Communication protocols - Socket.IO and DCOM

Several FactoryTalk applications, such as eventing and directory server in FactoryTalk Services Platform, use Socket.IO or DCOM to communicate between computers and systems. Below are the communication methodologies and the FactoryTalk services that rely on these communication methods.

Socket.IO

Socket.IO is built on top of the WebSocket protocol, which provides a low-latency, full-duplex communication channel over one TCP connection. Socket.IO enables real-time, bidirectional communication between a client, usually a web browser, and a server over one persistent connection. It is commonly used in web applications to build features such as chat applications, real-time notifications, and interactive dashboards.

The ports used with Socket.IO depend on the protocol being used and the specific transport methods that are employed based on the capabilities of the client and server. Commonly, Socket.IO would use the same ports as regular HTTP (port 80) or HTTPS (port 443) traffic. Here's a basic breakdown:

- Long Polling (default with FactoryTalk Services Platform): Port 80 (HTTP) or 443 (HTTPS)
- WebSocket (can be turned on in UI): Port 80 (HTTP) or 443 (HTTPS)
- Other fallback mechanisms: Same ports as the underlying HTTP/HTTPS protocol

Keep in mind that these are general guidelines, and the actual ports used can be configured based on your specific server setup. Always refer to the official Socket.IO documentation and your server configuration for the most accurate and up-to-date information.

Services using Socket.IO

- EventClientMultiplexer.exe
- EventServer.exe
- RnaDirMultiplexor.exe
- RnaDirServer.exe
- Ftsvchost.exe
- FactoryTalk Web Authentication
- FactoryTalk Web Support Service

These services are used on the FactoryTalk Directory server and on each computer that is a part of the same FactoryTalk Directory.

DCOM

Distributed Component Object Model (DCOM) is a Microsoft technology that enables communication between software components on different computers in a network. DCOM uses a variety of ports for communication, and the specific ports used can vary depending on the configuration and the components involved. Here are some key points about DCOM port usage:

- **Dynamic Port Allocation**

  DCOM primarily uses dynamic port allocation, which means that the ports used for communication are not fixed and can change each time a DCOM communication occurs. When a DCOM server is started, it registers itself with the DCOM Endpoint Mapper service, which assigns a dynamically allocated port for that server.

- **Dynamic Port Range**

  DCOM dynamically selects a port from a predefined range for communication. In Windows, the default dynamic port range used by DCOM is 1024 to 65535.

- **Port Exhaustion**

  In cases where a large number of DCOM communications are occurring simultaneously, there is a possibility of running out of available ports within the dynamic range. This can lead to errors or performance issues.

- **Customization**

  While DCOM primarily uses dynamic port allocation, you can configure DCOM to use specific ports for certain components or applications if needed. This might involve modifying the Windows Registry settings.

- **Endpoint Mapper Port**

  The DCOM Endpoint Mapper service itself typically uses port 135 (both TCP and UDP) for its initial communication. This port allows clients to query the Endpoint Mapper to find out which dynamic port a particular DCOM server is using.

- **Firewall Considerations**

  DCOM communications might require configuration of firewalls and network security settings. This includes ensuring that the dynamic port range is open for communication if your network security policies require it.

Dynamic ports used by Rockwell Automation

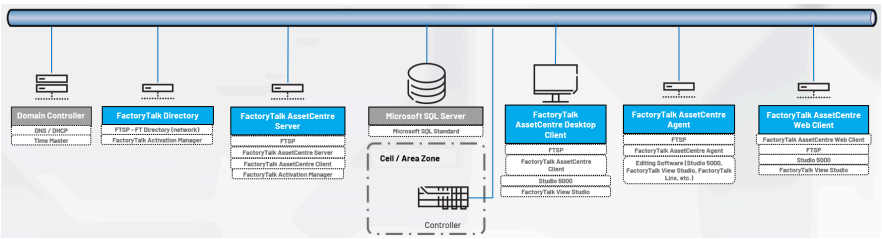
The dynamic ports used by Rockwell Automation are 49152–65535, and the user-defined ports are 1024–49151.

Test architecture, hardware, and software used to generate this document

Test architecture used to identify used TCP or UDP ports for FactoryTalk Services Platform

Diagram showing where FactoryTalk Services Platform Directory server, and client, are with respect to the firewall in the environment used for creation of this document.

Figure 1. Test Architecture used



Architecture components used to identify used TCP or UDP ports

- FactoryTalk Services Platform 6.60.00 as directory server (CPR9 SR 16)
- FactoryTalk Services Platform 6.60.00 as client
- FactoryTalk Alarms and Events 6.60.00 (CPR9 SR 16)
- FactoryTalk Activation Manager 5.02.00
- FactoryTalk Diagnostics 6.60.00 (CPR9 SR 16)
- FactoryTalk Linx 6.60.00 (CPR9 SR 16)

  We recommend that you install FactoryTalk Services Platform clients with default settings. For FactoryTalk Services Platform server, depending on what services are needed, will require a custom install for the additional web services components such as:
  - FactoryTalk Reverse Proxy
  - FactoryTalk Web Authentication Server
  - FactoryTalk Web Event Server
  - FactoryTalk System Status Portal

Detailed data flows

The diagrams below show data flow, ports, and services used in different scenarios and situations.

FactoryTalk Services Platform - FactoryTalk Directory performs permissions checks and authenticates to the domain

The following sequence occurs when a domain user logs into a FactoryTalk Directory client computer.

Figure 2. Data flow, ports, and services used

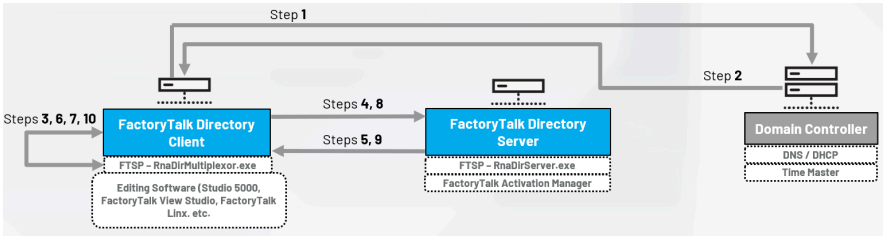


Table 1. Data flow, ports, and services used

Step	Description	Service name	Ports and protocols used
1	FactoryTalk® Directory client computer sends an authentication request to the Active Directory Domain Controller.		Internal to computer
2	If the sign-in is valid, the Active Directory Domain Controller authenticates the user on the FactoryTalk Directory client computer.		Internal to computer
3	The FactoryTalk Directory Multiplexor detects a Windows sign-in event.	RnaDirMultiplexor.exe	Internal to computer
4	The FactoryTalk Directory Multiplexor sends a request to the FactoryTalk Directory server for directory attributes.	RnaDirMultiplexor.exe RnaDirServer.exe	TCP 443 (HTTPS) TCP 80 (HTTP) Dynamic TCP (Socket.IO) Dynamic TCP (DCOM)
5	The FactoryTalk Directory server sends the Directory Attributes to the FactoryTalk Directory client computer.	RnaDirMultiplexor.exe RnaDirServer.exe	TCP 443 (HTTPS) TCP 80 (HTTP) Dynamic TCP (Socket.IO) Dynamic TCP (DCOM)
6	The FactoryTalk Directory client computer then uses a FactoryTalk Directory Multiplexor to compare the FactoryTalk Directory Attributes received by the server to the attributes stored in a local cache.	RnaDirMultiplexor.exe	Internal to computer

Table 1. Data flow, ports, and services used (continued)

Step	Description	Service name	Ports and protocols used
7	If there are no differences, the local FactoryTalk Directory cache is valid.	RnaDirMultiplexor.exe	Internal to computer
8	If there are differences detected, FactoryTalk Directory Multiplexor requests FactoryTalk Directory data from the FactoryTalk Directory server.	RnaDirMultiplexor.exe RnaDirServer.exe	TCP 443 (HTTPS) TCP 80 (HTTP) Dynamic TCP (Socket.IO)
			Dynamic TCP (DCOM)
9	The FactoryTalk Directory server sends current FactoryTalk Directory data to the client computer for FactoryTalk Directory Multiplexor to receive.	RnaDirMultiplexor.exe RnaDirServer.exe	TCP 443 (HTTPS) TCP 80 (HTTP) Dynamic TCP (Socket.IO)
			Dynamic TCP (DCOM)
10	FactoryTalk Directory Multiplexor then updates the local FactoryTalk Directory cache with the updated information received from the FactoryTalk Directory server.	RnaDirMultiplexor.exe	Internal to computer

FactoryTalk Directory performs permissions checks when opening Rockwell Automation editing software with single sign-on

After the domain user and FactoryTalk Directory client computer are authenticated in the Active Directory Domain and in the FactoryTalk Directory, the following sequence occurs between the FactoryTalk Directory server and FactoryTalk Directory client when the domain user opens Rockwell Automation editing software with single sign-on enabled.

Figure 3. Data flow, ports, and services used.

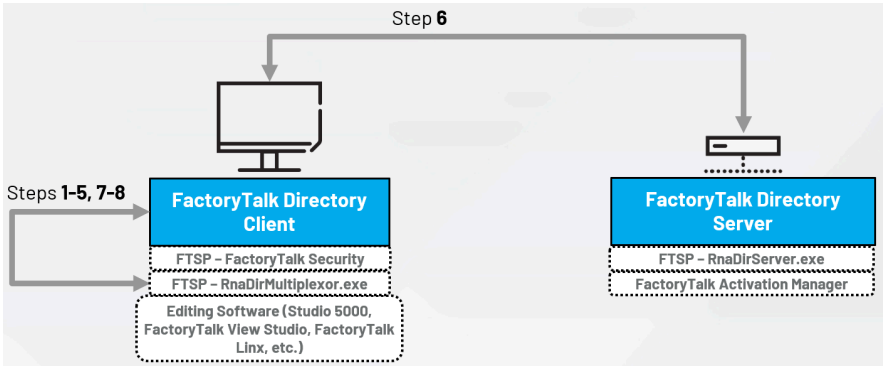


Table 2. Data flow, ports, and services used

Step	Description	Service name	Ports and protocols used
1	A Rockwell Automation software application, such as FactoryTalk AssetCentre Client or Studio 5000 Logix		Internal to computer

Table 2. Data flow, ports, and services used (continued)

Step	Description	Service name	Ports and protocols used
	Designer, is opened on the FactoryTalk Directory client computer.		
2	With single sign-on enabled, the application attempts to sign in to FactoryTalk Directory (using FactoryTalk® Security).		Internal to computer
3	FactoryTalk Security requests an authentication to the Windows Active Directory Domain Controller.		Internal to computer
4	FactoryTalk Security sends a request to the Windows Active Directory Domain Controller to get Windows user and group information once authenticated.		Internal to computer
5	FactoryTalk Security sends a request to FactoryTalk Directory Multiplexor to get stored users and group information.		Internal to computer
6	FactoryTalk Directory Multiplexor checks to see if the local cache needs updated.	RnaDirMultiplexor.exe	TCP 443 (HTTPS) TCP 80 (HTTP) Dynamic TCP (Socket.IO)
			Dynamic TCP (DCOM)
7	If the cache is valid, FactoryTalk Directory Multiplexor sends the users and group information to FactoryTalk Security.	RnaDirMultiplexor.exe	Internal to computer
8	FactoryTalk Security validates the user and group information from Windows Active Directory Domain Controller with FactoryTalk Directory stored users and group information. If the user is a valid member, FactoryTalk Security will generate a FactoryTalk Services Platform token and send to the Rockwell Automation software application, authenticating the user.		Internal to computer

FactoryTalk Directory performs permissions checks when opening Rockwell Automation editing software without single sign-on

After the domain user and FactoryTalk Directory client computer are authenticated in the Active Directory Domain and in the FactoryTalk Directory, the following sequence occurs between the FactoryTalk Directory server and FactoryTalk Directory client when the domain user opens Rockwell Automation editing software with single sign-on disabled.

Figure 4. Data flow, ports, and services used

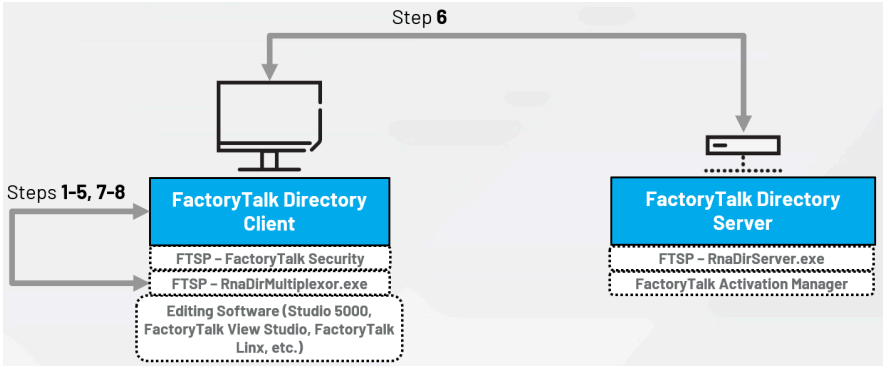


Table 3. Data flow, ports, and services used

Step	Description	Service name	Ports and protocols used
1	A Rockwell Automation software application, such as FactoryTalk AssetCentre Client or Studio 5000 Logix Designer, is opened on the FactoryTalk Directory client computer.		Internal to computer
2	With single sign-on disabled, the application prompts a sign-in UI for credentials to the user, then attempts to sign in to FactoryTalk Directory (using FactoryTalk Security).		Internal to computer
3	FactoryTalk Security requests an authentication to the Windows Active Directory Domain Controller.		Internal to computer
4	FactoryTalk Security sends a request to the Windows Active Directory Domain Controller to get Windows user and group information once authenticated.		Internal to computer
5	FactoryTalk Security sends a request to FactoryTalk Directory Multiplexor to get stored users and group information.		Internal to computer
6	FactoryTalk Directory Multiplexor checks to see if the local cache needs updated.	RnaDirMultiplexor.exe	TCP 443 (HTTPS) TCP 80 (HTTP) Dynamic TCP (Socket.IO) Dynamic TCP (DCOM)
7	If the cache is valid, FactoryTalk Directory Multiplexor sends the users and group information to FactoryTalk Security.	RnaDirMultiplexor.exe	Internal to computer
8	FactoryTalk Security validates the user and group information from Windows Active Directory Domain Controller with FactoryTalk Directory stored users and group information. If the user is a valid member, FactoryTalk Security will generate a FactoryTalk Services Platform token and send to the Rockwell		Internal to computer

Table 3. Data flow, ports, and services used (continued)

Step	Description	Service name	Ports and protocols used
	Automation software application, authenticating the user.		

FactoryTalk Directory performs permissions checks when opening Rockwell Automation editing software using Azure for authentication

When the user attempts to open Rockwell Automation editing software using an Azure authenticated user from a Microsoft® Entra Domain, the following occurs.

Figure 5. Data flow, ports, and services used.

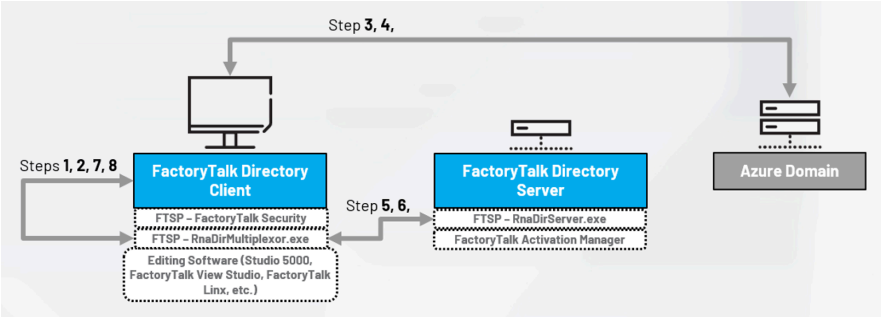


Table 4. Data flow, ports, and services used

Step	Description	Service name	Ports and protocols used
1	A Rockwell Automation software application, such as FactoryTalk AssetCentre Client or Studio 5000 Logix Designer is opened on the FactoryTalk Directory client computer.		Internal to computer
2	With an Azure Active Directory, and single sign-on disabled the application prompts a sign-in UI for credentials to the user, then attempts to sign in to FactoryTalk Directory (using FactoryTalk Security).		Azure API is called.
3	Once sign-in is successful, FactoryTalk Security requests the user information from Azure.		Internal to computer
4	FactoryTalk Security requests group information from Azure.		Internal to computer
5	FactoryTalk Security sends a request to FactoryTalk Directory Multiplexor to get stored users and group information.		Internal to computer
6	FactoryTalk Directory Multiplexor checks to see if the local cache needs updated.	RnaDirMultiplexor.exe	TCP 443 (HTTPS) TCP 80 (HTTP) Dynamic TCP (Socket.IO)
			Dynamic TCP (DCOM)

Table 4. Data flow, ports, and services used (continued)

Step	Description	Service name	Ports and protocols used
7	If the cache is valid, FactoryTalk Directory Multiplexor sends the users and group information to FactoryTalk Security.	RnaDirMultiplexor.exe	Internal to computer
8	FactoryTalk Security validates the user and group information from Windows Active Directory Domain Controller with FactoryTalk Directory stored users and group information. If the user is a valid member, FactoryTalk Security will generate a FactoryTalk Services Platform token and send to the Rockwell Automation software application, authenticating the user.		Internal to computer

FactoryTalk Directory performs permissions checks when opening Rockwell Automation editing software using FactoryTalk for authentication

When the user attempts to open Rockwell Automation editing software using only FactoryTalk users for authentication.

Figure 6. Data flow, ports, and services used.

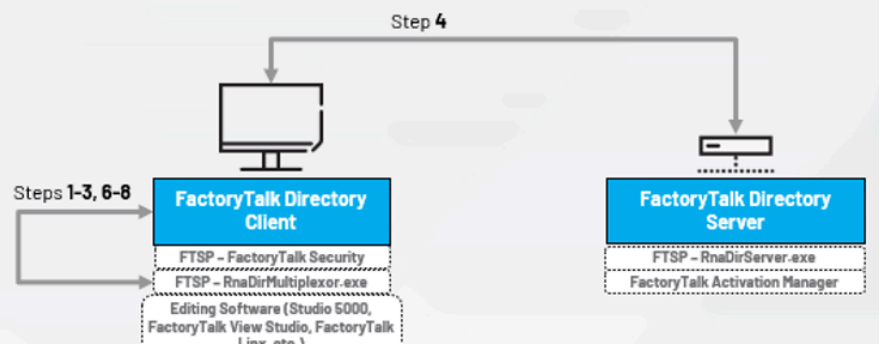


Table 5. Data flow, ports, and services used

Step	Description	Service name	Ports and protocols used
1	A Rockwell Automation software application, such as FactoryTalk AssetCentre Client or Studio 5000 Logix Designer, is opened on the FactoryTalk Directory client computer.		Internal to computer
2	When only FactoryTalk is available as the authentication method, the user is prompted for credentials with a sign-in UI.		Internal to computer
3	FactoryTalk Security requests a FactoryTalk Services Platform token from the FactoryTalk Directory Multiplexor (RnaDirMultiplexor.exe) on the client computer.		Internal to computer

Table 5. Data flow, ports, and services used (continued)

Step	Description	Service name	Ports and protocols used
4	FactoryTalk Security sends a request to FactoryTalk Directory Multiplexor to get stored users and group information.		Internal to computer
5	FactoryTalk Directory Multiplexor checks to see if the local cache needs updated.	RnaDirMultiplexor.exe	TCP 443 (HTTPS) TCP 80 (HTTP) Dynamic TCP (Socket.IO)
			Dynamic TCP (DCOM)
6	If the cache is valid, FactoryTalk Directory Multiplexor sends the users and group information to FactoryTalk Security.	RnaDirMultiplexor.exe	Internal to computer
7	FactoryTalk Security validates the user and group information from Windows Active Directory Domain Controller with FactoryTalk Directory stored users and group information. If the user is a valid member, FactoryTalk Security will generate a FactoryTalk Services Platform token and send to the Rockwell Automation software application, authenticating the user.		Internal to computer

Cache synchronization

The following sequence of events occurs when a client detects a change has occurred.

Figure 7. Data flow, ports, and services used

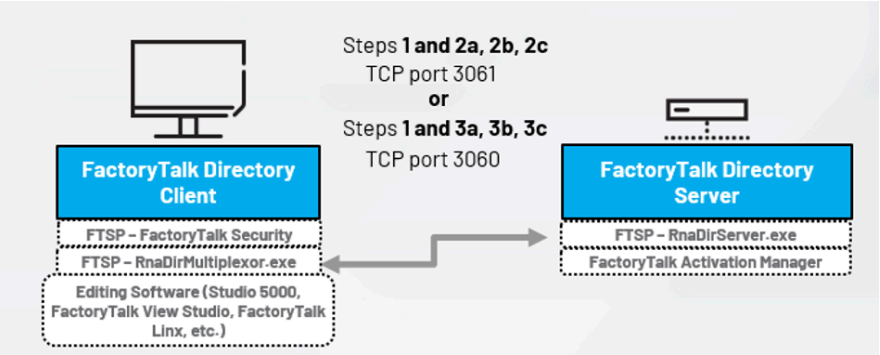


Table 6. Data flow, ports, and services used

Step	Description	Service name	Ports and protocols used
1	RNADirMultiplexor on client attempts to connect using TCP port 3061 to RNADirServer on Server.		TCP port 3061
2a	If successful on TCP port 3061, the cache synchronization begins on TCP port 3061.		TCP port 3061

Table 6. Data flow, ports, and services used (continued)

Step	Description	Service name	Ports and protocols used
2b	The client validates the current cache.		TCP port 3061
2c	The client will update the cache from the server, if the cache is outdated.		TCP port 3061
3a	If TCP port 3061 fails, the cache synchronization begins on TCP port 3060.	RnaDirMultiplexor.exe	TCP port 3060
3b	The client validates the current cache.	RnaDirMultiplexor.exe	TCP port 3060
3c	The client will update a cache from the server, if the cache is outdated.		TCP Port 3060

Joining or enrolling a FactoryTalk Directory client to a FactoryTalk Directory server

The follow occurs, when a user joins a client to a FactoryTalk Directory server.

Figure 8. Data flow, ports, and services used

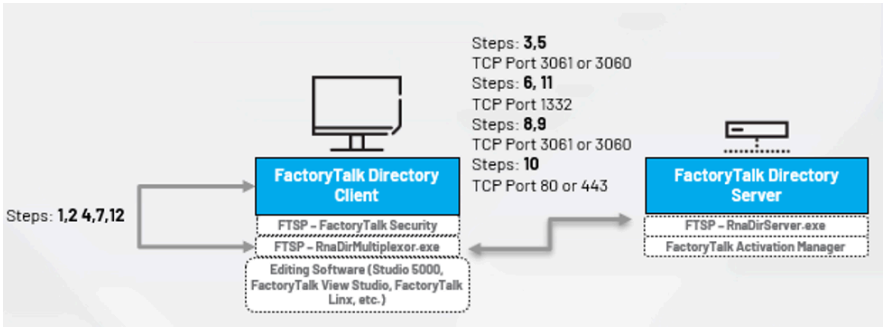


Table 7. Data flow, ports, and services used

Step	Description	Service name	Ports and protocols used
1	The user opens FactoryTalk Directory Server Location Utility and specifies the remote FactoryTalk Directory server.		Internal to computer
2	Prompted for administrator credentials of the selected FactoryTalk Directory.		
3	FactoryTalk Directory authenticates the user on the server.	RNADirServer.exe	TCP port 3061 or 3060
4	The user is confirmed to have administrative access or is denied, and the result is reported.		
5	Request to add temporary the directory agent.		TCP port 3061 or 3060
6	Add the directory agent to the server.		TCP port 1332

Table 7. Data flow, ports, and services used (continued)

Step	Description	Service name	Ports and protocols used
7	The server will wait until it is available for writing event.		Internal to computer
8	The client begins the cache synchronization.		TCP port 3061 or 3060 (see Cache Synchronization in this document for details)
9	The server transfers the cache to the local client.		
10	Add client computer to FactoryTalk Directory using TCP port 80 or 443 to establish initial connection, then reverse proxy will forward to internal port 7113.		TCP port 80 or 443
11	Success, remove the temporary directory agent from the server.		TCP port 1332
12	Success is reported to the user.		Internal to computer

Application Authorization table synchronization

When a user signs in to an application, the following occurs to evaluate and synchronize client-server data for the Application Authorization table.

Figure 9. Data flow, ports, and services used

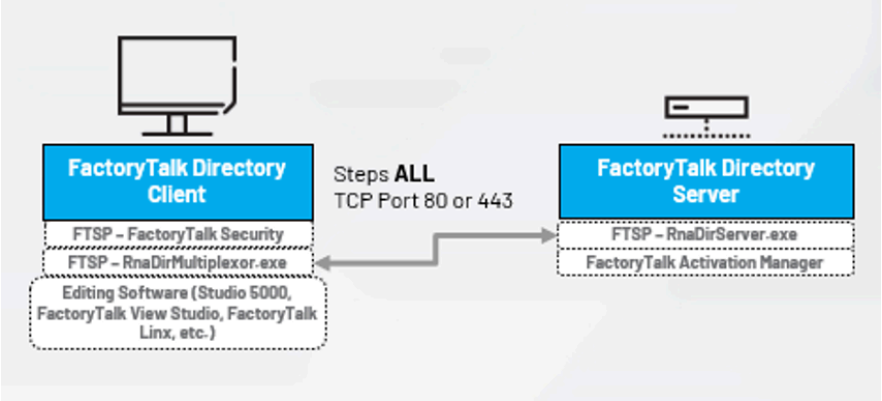


Table 8. Data flow, ports, and services used

Step	Description	Service name	Ports and protocols used
1	The user signs in to an application, sign-in service adds an application entry to the local application authorization table in the client RNADirMultiplexor.		Internal to computer
2	The local cache is updated.		Internal to computer
3a	If a FactoryTalk Directory client is in the read/write mode, update is sent to the server RNADirServer service on TCP port 80 or 443 to establish initial		TCP port 80 or 443

Table 8. Data flow, ports, and services used (continued)

Step	Description	Service name	Ports and protocols used
	connection, then reverse proxy will forward to internal port 7113.		
3b	If a FactoryTalk Directory client is in the read mode, the client will wait until the server is available, then update is sent to the server RNADirServer service on TCP port 80 or 443 to establish initial connection, then reverse proxy will forward to internal port 7113.		TCP port 80 or 443

FactoryTalk Directory eventing using Socket.IO

When a user creates a change to the FactoryTalk Administration Console **Explorer** pane, or settings within the pane, these events are communicated from the client to the server and from the server to the clients. When such eventing occurs, while using Socket.IO, it happens in the following sequence.

Figure 10. Data flow, ports, and services used

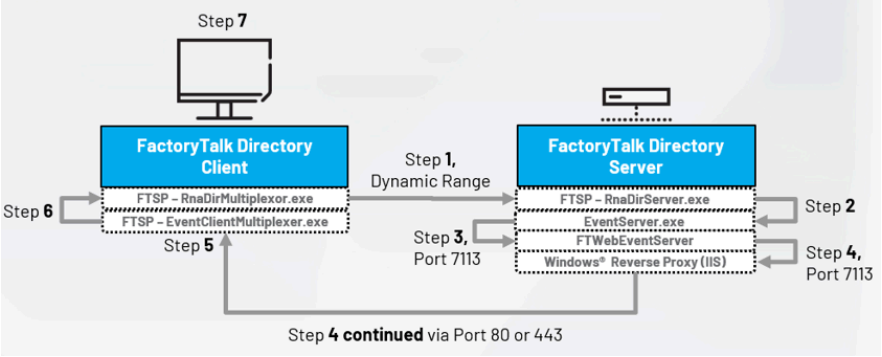


Table 9. Data flow, ports, and services used

Step	Description	Service name	Ports and protocols used
1	The user operating FactoryTalk Directory client makes a change to the FactoryTalk Administration Console **Explorer** pane, a request is sent to the RnaDirServer.exe.	RnaDirMultiplexor.exe RnaDirServer.exe	Socket.IO Dynamic Range
2	The change request is received by the RnaDirServer.exe and pushes the request to the FactoryTalk Event Server.	RnaDirServer.exe EventServer.exe	Internal to computer
3	The Event Server acknowledges the request and pushes the change to FTWebEventServer.		TCP port 7113 (internal to computer)
4	FTWebEventServer pushes the change to all FactoryTalk Directory client's Event Multiplexer via the Windows Reverse Proxy.		TCP port 7113 (internal to computer) and TCP port 80 or 443

Table 9. Data flow, ports, and services used (continued)

Step	Description	Service name	Ports and protocols used
5	The change is received at each FactoryTalk Directory client's EventClientMultiplexer.exe and is executed.		TCP port 80 or 443
6	The cache is updated for RnaDirMultiplexor.exe to confirm the change.	RnaDirMultiplexor.exe	Internal to computer
7	The FactoryTalk Administration Console **Explorer** pane is refreshed to reflect the change.		Internal to computer

FactoryTalk Directory eventing using DCOM

When a user creates a change to the FactoryTalk Administration Console **Explorer** pane, or settings within the pane, these events are communicated from the client to the server and from the server to the clients. When such eventing occurs, while using DCOM, it happens in the following sequence.

Figure 11. Data flow, ports, and services used

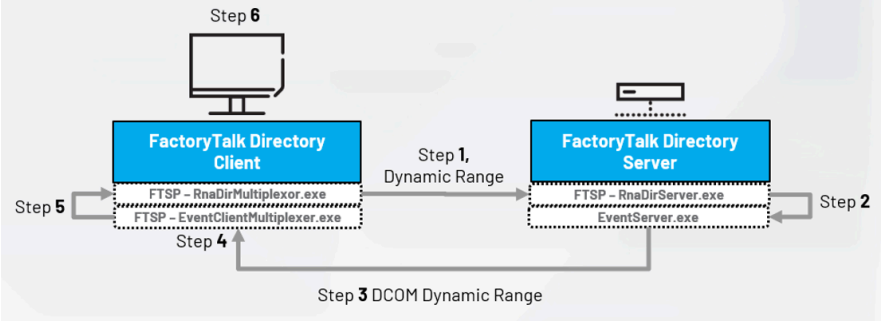


Table 10. Data flow, ports, and services used

Step	Description	Service name	Ports and protocols used
1	The user operating FactoryTalk Directory client makes a change to the FactoryTalk Administration Console **Explorer** pane, a request is sent to the RnaDirServer.exe.	RnaDirMultiplexor.exe RnaDirServer.exe	DCOM Dynamic Range
2	The change request is received by the RnaDirServer.exe and pushes request to the FactoryTalk Event Server.	RnaDirServer.exe EventServer.exe	Internal to computer
3	The Event Server acknowledges the request and pushes the change to all FactoryTalk Directory client's EventClientMultiplexer.exe.		DCOM Dynamic Range
4	The change is received at each FactoryTalk Directory client's EventClientMultiplexer.exe and is executed.		
5	The cache is updated for RnaDirMultiplexor.exe to confirm the change.	RnaDirMultiplexor.exe	Internal to computer

Table 10. Data flow, ports, and services used (continued)

Step	Description	Service name	Ports and protocols used
6	FactoryTalk Administration Console **Explorer** pane is refreshed to reflect the change.		Internal to computer

FactoryTalk Services Platform services and ports

FactoryTalk Services Platform server ports list

Ports required to be open per service on the FactoryTalk Services Platform Server. Note that the server or directory also needs all client ports open as well.

Table 11. Application, port number, protocol type, and comments for various services

Application	Port number	Type	Notes
EventServer.exe	Dynamic Range	TCP	Version 6.21.00 and later
FactoryTalk Web Authentication port (custom install on the server)	7110	TCP	Version 6.30.00 and later
FactoryTalk Web Support Service port (custom install on the server)	7111	TCP	Version 6.30.00 and later
ftsvchost.exe	7113	TCP	Version 6.31.00 and later
General HTTPS	443*	TCP	Only needed if TLS is enabled.
Reverse Proxy Server or HTTPS Enabled	80 (HTTP) 443* (HTTPS)	TCP	If 443 is enabled, the custom port will not be used.
RNADiagnosticsSrv.exe	7147	TCP	Version 6.21.00 and later
RnaDirServer.exe	3060	TCP	Version 6.21.00 and later
RnaDirServer.exe	3061	TCP	Version 6.40.00 and later
Syslog Collector	514	TCP or UDP	Version 6.50.00 and later
OKTA	443	TCP	Version 6.60.00 and later
MyRockwell	443	TCP	Version 6.60.00 and later
LDAP or LDAPS	389 (disable TLS) 636 (enable TLS)	TCP	Version 6.60.00 and later

* The port number can be modified.

FactoryTalk Services Platform server services list

FactoryTalk Services Platform 6.60.00 server services list: Services to be configured to pass via firewall, clients. From firewall configuration files.

Table 12. Service name, Executable Name, and Display name of various services

Service name	Executable name	Display name
EventServer	EventServer.exe	Rockwell Event Server
FTSvcHost**	ftsvchost.exe	FactoryTalk Web Support Service
FtSysDiagSvcHost	FTSysDiagSvcHost.exe	FtSysDiagSvcHost
FTWebEventServer*	ftsvchost.exe	FactoryTalk Web Event Server
FTWebServer*	ftsvchost.exe	FactoryTalk Web Server
RNADiagnosticsService	RNADiagnosticsSrv.exe	FactoryTalk Diagnostics Local Reader
RNADirMultiplexor	RNADirMultiplexor.exe	Rockwell Directory Multiplexer

* The service name can be modified.

** The service name equals to the programs x86.

FactoryTalk Services Platform client ports list

Ports required to be open per service on the FactoryTalk Services Platform clients. These are client specific services and ports that must be open. Note that the server or directory also needs all client ports open as well.

Table 13. Application, port number, protocol type, and comments for various services

Application	Port number	Type	Notes
CmWebAdmin.exe	22352	TCP	
CodeMeter.exe	22350*	TCP or UDP	
DataAccessServiceHost.exe	12315	TCP	
DataAccessServiceHost.exe	12315	TCPv6	
DataAccessServiceHost.exe	Dynamic Range	TCP	
EventClientMultiplexer.exe	Dynamic Range	TCP	
EventClientMultiplexer.exe	Dynamic Range	TCPv6	
FTActivationBoost.exe	54967**	TCP	
FTAE.Web.DataProvider.Service.exe	21027	TCPv6	
FTAE.Web.DataProvider.Service.exe	21027	TCP	
FTAE.Web.DataProvider.Service.exe	49784	TCP	
FTAE.Webservice.exe	7150	TCP	

Table 13. Application, port number, protocol type, and comments for various services (continued)

Application	Port number	Type	Notes
FTAE.Webservice.exe	49710	TCP	
FTAE_HistServ.exe	403	TCP	
FTLDTagBrowser.exe	7159	TCP	
FTLDTagBrowserUISvc.exe	5898	TCPv6	
FTLDTagBrowserUISvc.exe	5898	TCP	
FTLinxServices.exe	5698	TCP	
FTLinxServices.exe	Dynamic Range	TCP	
FTLShortcutEditorUISvc.exe	5798	TCP	
FTLShortcutEditorUISvc.exe	5799	TCP	
General HTTP	80	TCP	
General Remote Procedure Call (RPC)	135	TCP	
lmgrd.exe	27000 - 27009	TCP	FT Activation
lmgrd.exe	Dynamic Range	TCP	FT Activation
LocalOPCServer.exe	4244	TCP	
NmspHost.exe	Dynamic Range	TCP	
RdcyHost.exe	1332	TCP	
RdcyHost.exe	Dynamic Range	TCP	
RdcyHost.exe	Dynamic Range	TCP	
RnaAeServer.exe	6543	TCP	
RnaAeServer.exe	9111	TCP	
RNADiagnosticsSrv.exe	8082	TCP	Earlier than version 6.21.00
RNADiagReceiver.exe	4445	TCP	
RNADirMultiplexor.exe	Dynamic Range	TCP	
RnaDirServer.exe	Dynamic Range	TCP	
RSLINX.EXE	Dynamic Range	UDP	
RSLINX.EXE	Dynamic Range	TCP	

Table 13. Application, port number, protocol type, and comments for various services (continued)

Application	Port number	Type	Notes
RSLinxNG.exe	2221	TCP	
RSLinxNG.exe	2222	TCP	
RSLinxNG.exe	4241	TCP	
RSLinxNG.exe	7153	TCP	
RSLinxNG.exe	44818	TCP	
RSLinxNG.exe	44818	UDP	
RSLinxNG.exe	Dynamic Range	TCP	
RSLinxNGO2.exe	4245	TCP	
RSLinxNGO2.exe	49680	TCP	
RSLinxNGO2.exe	49690	TCP	
RsvcHost.exe	4255	TCP	
RsvcHost.exe	5241	TCP	QA55096
RsvcHost.exe	60093	TCP	
RsvcHost.exe	6904	UDP	
UpdaterAgent.exe	3702	UDP	
UpdaterAgent.exe	30064	TCP	
UpdaterAgent.exe	30064	TCPv6	

* The port can be user modified.

** If port 54967 is unavailable, it will try 54977, 54987, 55967, 55977, 55987, 61967, 61977, 61987, and dynamic range.

FactoryTalk Services Platform client services list

FactoryTalk Services Platform 6.60.00 client services list: Services to be configured to pass via firewall, clients. From firewall configuration files.

Table 14. Service name, Executable Name, and Display name of various services

Service name	Executable name	Display name
CmWebAdmin.exe	CmWebAdmin.exe	CmWebAdmin
CodeMeter.exe	CodeMeter.exe	CodeMeter Runtime Server

Table 14. Service name, Executable Name, and Display name of various services (continued)

Service name	Executable name	Display name
EventClientMultiplexer	EventClientMultiplexer.exe	Rockwell Event Multiplexer
FactoryTalk Activation Service	Lmgrd.exe	FactoryTalk Activation Service
FactoryTalk Linx Browser UI	ftsm.exe	FactoryTalk Linx Browser UI
FactoryTalk Linx CIP Security Service	FTLinxSecurityServer.exe	FactoryTalk Linx CIP Security Service
FactoryTalk Linx Service Supervisor	FT.Service.Supervisor.exe	FactoryTalk Linx Service Supervisor
FactoryTalk LiveData Supervisor	FT.Service.Supervisor.exe	FactoryTalk LiveData Supervisor
FTActivationBoost	FTActivationBoost.exe	FactoryTalk Activation Helper
FTAE.Web.DataProvider.Historian	FTAE.Web.DataProvider.Historian.exe	Rockwell Alarm Web Historian Data Provider
FTAE.Web.DataProvider.RunTime	FTAE.Web.DataProvider.RunTime.exe	Rockwell Alarm Web Real-time Data Provider
FTAE_Archiver	FTAEArchiver.exe	Rockwell Alarm History Archiver
FTAE_HistServ	FTAE_HistServ.exe	Rockwell Alarm Historian
FTAECommandServer	FTAECommandServer.exe	Rockwell Alarm Command Server
FTAEExpressionServer	FTAEExpressionServer.exe	Rockwell Alarm Expression Server
FTAEHistorianDataProvider	FTAEHistorianDataProvider.exe	Rockwell Alarm Historian Data Provider
FTAEWebDPService	FTAE.Web.DataProvider.Service.exe	Rockwell Alarm Web Data Provider Service
FTAEWebService	FTAE.WebService.exe	Rockwell Alarm Web Service
Harmony	RSOBSERV.EXE	Harmony
LocalOPCServer	LocalOPCServer.exe	LocalOPCServer
NmspHost	NmspHost.exe	Rockwell Namespace Services
RdcyHost	RdcyHost.exe	Rockwell Redundancy Services
RnaAeServer	RnaAeServer.exe	Rockwell Alarm Server
RnaAlarmMux	RnaAlarmMux.exe	Rockwell Alarm Multiplexer
RNADiagReceiver	RNADiagReceiver.exe	FactoryTalk Diagnostics CE Receiver
RNADirectory	RNADirServer.exe	Rockwell Directory Server

Table 14. Service name, Executable Name, and Display name of various services (continued)

Service name	Executable name	Display name
Rockwell Data Access Service	DataAccessServiceHost.exe	Rockwell Data Access Service
RSLinxNG	RSLinxNG.exe	FactoryTalk Linx Instance01 Service
RSLinxNG02	RSLinxNG02.EXE	FactoryTalk Linx Instance02 Service
RsvcHost	RsvcHost.exe	Rockwell Application Services
UpdaterAgent	UpdaterAgent.exe	FactoryTalk Updater Agent

Additional information about Dynamic Ports

Dynamic port usage

The dynamic ports used by Rockwell Automation are 49152–65535. In our test reference architecture, 51 dynamic ports have been observed as allocated and in use. If the range is restricted too much it may result in performance issues or time outs, in which case the range would have to be widened. Additional software Rockwell Automation or others may increase the number of dynamic ports required. The dynamic port range is the same when using Socket.IO or DCOM, the only difference is the dynamic TCP ports do not require DCOM to be in use when using Socket.IO only.

Protocols in use per service by dynamic ports, 51 ports dynamically opened in testing:

Table 15. Service name, and Protocol notes for Dynamic Range when using Socket.IO

Service	Protocol
[System Process]	TCP
ActivationNotifier.exe	TCP
CodeMeterCC.exe	TCP
EventClientMultiplexer.exe	TCP (when Socket.IO connection unavailable)
EventServer.exe	TCP (when Socket.IO connection unavailable)
flexsvr.exe	TCP
FTActivationBoost.exe	TCP
FTCounterMonitor.exe	TCP
FTLinxServices.exe	TCP
ftsp-web-server.exe	TCP
RdcyHost.exe	TCP

Table 15. Service name, and Protocol notes for Dynamic Range when using Socket.IO (continued)

Service	Protocol
RNADirMultiplexor.exe	TCP
RnaDirServer.exe	TCP
RSLINX.EXE	TCP
RSLinxNG.exe	TCP
RSLinxNGO2.exe	TCP
RsvcHost.exe	TCP

Rockwell Automation Support

Use these resources to access support information.

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

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Waste Electrical and Electronic Equipment (WEEE)

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

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

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