Installation Instructions

Original Instructions

FactoryTalk Historian SE

Installation and Configuration Guide

Important User Information

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

Activities including installation, adjustments, putting into service, use, assembly, disassembly, and maintenance are required to be carried out by suitably trained personnel in accordance with applicable code of practice.

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

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

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

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

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

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

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

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

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

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

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

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

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Overview

FactoryTalk Historian Site Edition (SE) provides the capability to collect, store, analyze, and visualize data using a powerful engine and a set of reporting tools such as time-series trends, bar charts, pie charts, Pareto charts, tabular trends, and a method of generating reports using Microsoft Excel. It also uses compressed-storage data algorithms to contain a vast amount of data in a small format.

NOTE For up-to-date information on the product, refer to the *Release Notes*.

FactoryTalk Historian SE is closely integrated with FactoryTalk Security and the following Rockwell Automation applications:

Application	Description
FactoryTalk Live Data (FTLD)	A direct data interface to FTLD delivers FTLD data directly to FactoryTalk Historian SE without requiring intermediate interfaces and standards such as OPC.
FactoryTalk Directory	FactoryTalk Historian SE uses FactoryTalk Directory to look up data points for configuring points to historize. The FactoryTalk Directory is also used for auto-discovering controller data sources and tags in the initial configuration process.
FactoryTalk Activation	FactoryTalk Historian SE is activated by Rockwell Automation's central licensing system based on the FactoryTalk Activation Server.
FactoryTalk Diagnostics	Because of a close integration of FactoryTalk Historian SE with FactoryTalk Diagnostics, all system and diagnostics messages from FactoryTalk Historian SE are centrally stored and maintained in the FactoryTalk Diagnostics database.
FactoryTalk Audit	All FactoryTalk Historian SE Server auditing messages are stored and available in the FactoryTalk Audit database.
FactoryTalk View SE Trending	FactoryTalk View Site Edition trends data from FactoryTalk Historian SE.

Application	Description
FactoryTalk Historian Machine Edition (ME)	FactoryTalk Historian ME provides a Data Transfer service to allow its logged data to be transferred to the FactoryTalk Historian SE for long-term storage and analysis.
FactoryTalk VantagePoint	The data from multiple FactoryTalk Historian SE Servers and FactoryTalk Historian ME Servers can be brought together into a single information management and decision support system using FactoryTalk VantagePoint.
FactoryTalk Batch	The event journal data from your FactoryTalk Batch system can be collected through the FactoryTalk Batch Interface and stored within FactoryTalk Historian SE.

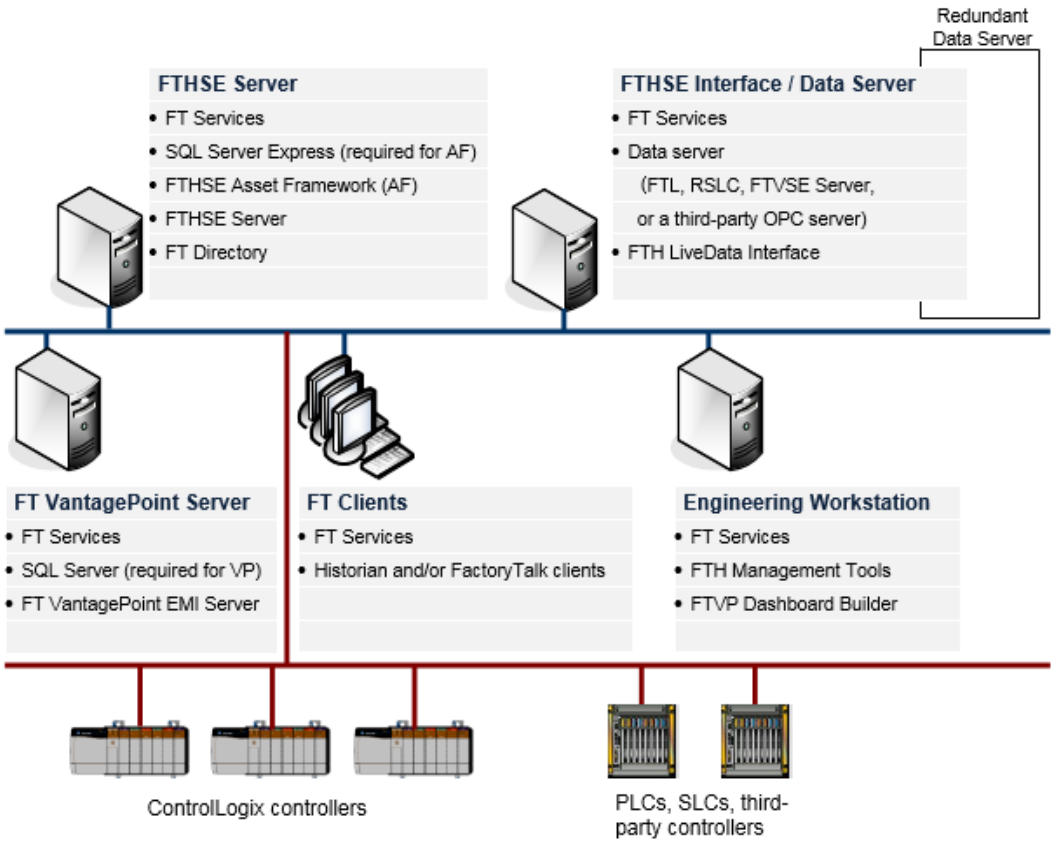
FactoryTalk Historian installation package

The FactoryTalk Historian SE installation media contain the following software products:

- FactoryTalk Services. The set includes:
  - FactoryTalk Services Platform with FactoryTalk Directory
  - FactoryTalk Activation Manager
  - FactoryTalk Linx
- FactoryTalk Historian Asset Framework. This set includes FactoryTalk Historian System SE Explorer.
- FactoryTalk Historian SE. The set includes:
  - FactoryTalk Historian Server
  - FactoryTalk Historian Live Data Interface
- FactoryTalk Historian Analysis Service
- FactoryTalk Historian Management Tools
- FactoryTalk Historian Notifications Service

Typical architecture

The following diagram shows a typical architecture of the FactoryTalk Historian SE environment.



The machines shown in the drawings adopt the following roles:

Role	Description
FTHSE Server	A computer with the following components installed: Required: • FactoryTalk Services, including FactoryTalk Activation Manager • Microsoft SQL Server Express (required for Asset Framework) • FactoryTalk Historian Asset Framework Server • FactoryTalk Historian Analysis Service (optional) • FactoryTalk Historian SE Server • FactoryTalk Historian Notifications Service (optional) Optional: • FactoryTalk Directory **Note:** Alternatively, FactoryTalk Directory may be installed on a separate computer.
FTHSE Interface / Data Server	A computer with the following components installed: • FactoryTalk Services, including FactoryTalk Activation Manager (optional) • Data server (FTL, RSLC, FTVSE Server, or a third-party OPC Server) **Note:** FactoryTalk Linx is a part of the FactoryTalk Services installation. • FactoryTalk Historian Live Data Interface
FT VantagePoint Server	A computer with the following components installed: • FactoryTalk Services, including FactoryTalk Activation Manager • Microsoft SQL Server (required for VantagePoint) • FactoryTalk VantagePoint EMI Server For installation and configuration steps, refer to the *FactoryTalk VantagePoint Getting Results Guide*, available on the FactoryTalk VantagePoint installation DVD. This document assumes that the FTVP Server will be installed on its own computer. If you have a small application and you want to install the FTVP Server on the same computer as the FTHSE server, refer to **KB article 62869** for installation and configuration details.
FT Clients	Computers with the following components installed: • FactoryTalk Services, including FactoryTalk Activation Manager (optional) • Any of the following clients: o FactoryTalk Historian ActiveView o FactoryTalk Historian BatchView o FactoryTalk Historian DataLink

Role	Description
	o FactoryTalk Historian ProcessBook o FactoryTalk View SE (Server, Studio, Client or Network Station). This client requires the Historian Connectivity option, which is a part of the FactoryTalk View installation media. o FactoryTalk VantagePoint Client FTVP clients (Trend, Excel Add-in, or Portal) are not covered in this document because they are web-based clients and their necessary components are downloaded through your web browser.
Engineering Workstation	A computer with the following components installed: • FactoryTalk Services, including FactoryTalk Activation Manager to function as the FactoryTalk Activation Server • FactoryTalk Historian SE Management Tools • FactoryTalk VantagePoint Dashboard Builder This computer is used for the administration of your FTHSE Server. The tasks that may be performed on this computer include: • Assigning FTHSE activations. • Creating points using the auto-discovery feature, searching individual points, using the Excel Tag Configurator.

System requirements

The hardware required with FactoryTalk Historian Site Edition depends on the demands an application places on the system. The greater the demand, the more powerful system is required. In any application, faster processors and more memory will result in better performance. In addition, there should always be sufficient disk space to provide virtual memory that is at least twice the size of the physical memory.

For current information on the system requirements for the individual Historian SE suites, refer to the *FactoryTalk Historian SE Release Notes*.

User documentation

The user documentation on FactoryTalk Historian SE is divided into individual suites, as presented in the following table.

TIP If the PDF file does not open properly, disable Protected Mode in Adobe Reader (Edit > Preferences > Security (Enhanced) and uncheck the **Enable Protected Mode at startup** checkbox).

Legend:

AF: FactoryTalk Historian Asset Framework

AS: FactoryTalk Historian Analysis Service

LDI: FactoryTalk Historian Live Data Interface

MT: FactoryTalk Historian SE Management Tools

Server: FactoryTalk Historian SE Server

These documents	Are available in these suites				
	Server	MT	AF	AS	LDI
root folder:					
AuditingthePIServer.pdf	x	x			
AutidtViewer.chm	x	x			
Buffering-User-Guide_EN.pdf	x	x			x
FTHistorianConfig.chm	x	x			x
FTHistorianSERN.chm	x	x	x	x	x
FT Historian SE Installation Assistant.pdf	x	x	x	x	x
FT Historian SE Installation and Configuration Guide.pdf (this document)	x	x	x	x	x
FT Historian SE Live Data Interface User Guide.pdf	x	x			x
High-Availability-Administrator-Guide_EN.pdf	x	x	x		x
PI-AF-2018-SP3-Patch-2-Release-Notes.htm	x	x	x		
PI-AF-Database-Upgrade.pdf	x	x	x		
PI-AF-2018-R2-Services-Installation-and-Upgrade-Guide-EN.pdf	x	x	x		
PI-AuditViewer-2016-R2-Release-Notes.pdf	x	x			
PI-Builder-2018-SP3-Patch-2-User-Guide-EN.pdf	x	x	x		
PI-Data-Archive-2018-SP3-Applications-Guide-EN.pdf	x	x			
PI-Data-Archive-2018-SP3-Installation-and-Upgrade-Guide-EN.pdf	x	x			

These documents	**Are available in these suites**				
	Server	**MT**	**AF**	**AS**	**LDI**
PI-Data-Archive-2018-SP3-Reference-Guide_EN.pdf	x	x			x
PI-Data-Archive-2018-SP3-Security-Configuration-Guide-EN.pdf	x	x			
PI-Data-Archive-2018-SP3-Release-Notes.pdf	x	x			
PI-Data-Archive-2018-SP3-System-Management-Guide-EN.pdf	x	x			
PI-Interface-Configuration-Utility-(PI-ICU)_1.5.1-User-Guide.pdf	x	x			x
PI-Server-2018-SP3-Patch-1-Installation-and-Upgrade-Guide-EN.pdf	x	x	x	x	x
PI-MDB-to-PI-AF-Transition-Guide_EN.pdf	x	x	x		
PISQLCommanderLite.chm	x	x			
PI-System-Explorer-2018-SP3-User-Guide-EN.pdf	x	x	x		
PI-SMT-2018-SP3-Patch-1-Release-Notes.html	x	x			
PI-Universal-Interface-(UniInt)-Framework-4.7.0-User-Guide.pdf	x	x			x
subfolder **Advanced Server Options**:	**Server**	**MT**	**AF**	**AS**	**LDI**
PI_OPC_DA_Interface_Failover_Manual_2.3.20.9.docx	All documents included.				
PI-ACE-2010-R2-SP2-Release-Notes.pdf					
PI-ACE-2010-R2-User-Guide-for-Visual-Basic-.NET_EN.pdf					
PI-ACE-2010-R2-User-Guide-for-Visual-Basic-6_EN.pdf					
PI-Interface-for-OPC-DA-2.7.0-User-Guide.pdf					
PI-JDBC-2019-Release-Notes.htm					
PI-JDBC-Driver-2019-Administrator-Guide.pdf					
PI-ODBC-2016-R2-Administrator-Guide.pdf					
PI-ODBC-2016-R2-Release-Notes.pdf					
PI-OLEDB-Enterprise-2019-Patch-1-Release-Notes.pdf					
PI-OLEDB-Enterprise-2019-User-Guide.pdf					
PI-OLEDB-Provider-2019-Patch-1-Release-Notes.pdf					
PI-OLEDB-Provider-2019-User-Guide.pdf					
PI-OPC-DA-Server-2018-Patch-1---Release-Notes.docx					
PI-OPC-DA-Server-2018-Patch-1-User-Guide.pdf					
PI-SQL-Client-ODBC-2018-R2-and-Oracle-Database-Gateway-Configuration-Guide.pdf					
PI-SQL-Data-Access-Server-(RTQP-Engine)-2018-SP3-Administrator-Guide.pdf					
PI-SQL-Data-Access-Server-(RTQP-Engine)-2018-SP3-Release-Notes.pdf					
subfolder **Advanced Server Options > OPC HDA Server**:	**Server**	**MT**	**AF**	**AS**	**LDI**

These documents	Are available in these suites				
	Server	**MT**	**AF**	**AS**	**LDI**
Buffering-User-Guide-EN.pdf *DCOM_ Configuration_Guide_2.4.4.pdf* *PI_HDAServerConfigTool_ReleaseNotes.txt* *PI_HDATool_1.1.0.0_ReleaseNotes.txt* *PI_HDATool_1.1.0.0_UserGuide.docx* *PI-API 1.6.9- Release-Notes.htm* *PI-Buffer-Subsystem-2018-SP2-Patch1-Release-Notes.pdf* *PI-OPC-HDA-Server-2016_Release-Notes.docx* *PI-OPC-HDA-Server-2016_User-Manual.docx* *PISDK-2018SP1-Patch-1-ReleaseNotes.pdf*	All documents included.				
subfolder **MCN Health Monitor**:	**Server**	**MT**	**AF**	**AS**	**LDI**
IT-Organizer.doc *MCNHealthMonitor_1.3.5.2.doc* *MCN-Quick-Start-Guide.doc* *PI_PIPerfMon_2.1.0.88.pdf* *PI_PIPing_2.0.0.20.docx* *PI_PISNMP_1.5.1.306.docx* *PI_TCPResponse_1.1.6.0.doc*	All documents included.				

Location of the user documentation

The user documentation is available in the following locations:

- On the installation media (page 16)
- On the local hard drive (page 17)
- In the Start menu (page 18)

On the installation media

There are the following locations on the FactoryTalk Historian SE installation media with the user documentation and documentation-related resources:

- The **Install FactoryTalk Historian Site Edition > Open Installation Instructions > Installation Instructions** page
  On this page you will find the following resources:
  - *FactoryTalk Historian SE Installation Assistant*
  - *FactoryTalk Historian SE Installation and Configuration Guide*
  - Adobe Reader required to open PDF files.
- The **Install FactoryTalk Historian Site Edition > Read Documentation > Documentation** page
  On this page you will find the following resources:
  - *FactoryTalk Historian SE Installation and Configuration Guide*
  - *Historian SE Reference Guide*
  - *FactoryTalk Historian Live Data Interface User Guide*
  - *Historian SE Introduction to System Management Guide*
  - *FactoryTalk Historian SE Release Notes*
  - Adobe Reader required to open the PDF files.
  - A link to the **Redist\Docs** folder on the installation media that stores all the user documentation.
  - A link to the Rockwell Automation Literature Library (http://literature.rockwellautomation.com/idc/groups/public/documents/webassets/browse_category.hcst).

On the local hard drive

To access the user documentation available on your computer, go to the following locations:

- On a 32-bit operating system:

C:\Program Files\Common Files\Rockwell\Help

- On a 64-bit operating system:

  C:\Program Files (x86)\Common Files\Rockwell\Help

The **Help** folder contains one or more of the following subfolders, representing individual FactoryTalk Historian suites:

- FactoryTalk Historian SE <*version*> Analysis Service
- FactoryTalk Historian SE <*version*> Server
- FactoryTalk Historian SE <*version*> Management Tools
- FactoryTalk Historian SE <*version*> Asset Framework
- FactoryTalk Historian SE <*version*> Live Data Interface

Depending on the suite, the subfolders listed above may also contain the **Advanced Server Options** and/or the **MCN Health Monitor** folders.

For details on the division of the user documentation for the individual suites, see "User documentation (page 13)".

In the Start menu

Depending on which suite you have installed on your computer, the **Start** menu or the **Start** screen will contain one or more of the following links:

- FactoryTalk Historian SE Analysis Service documentation
- FactoryTalk Historian SE Server documentation
- FactoryTalk Historian SE Management Tools documentation
- FactoryTalk Historian SE Asset Framework documentation
- FactoryTalk Historian SE Live Data Interface documentation

The links refer to the user documentation folders detailed in "User documentation (page 13)".

Pre-installation tasks

Before you install FactoryTalk Historian SE, do the following:

- Synchronize time settings on Historian system computers (page 21).
- Disable the Windows time zone (page 22).
- Learn about installation-related recommendations (page 22).
- Learn about product compatibility for installing or upgrading FactoryTalk Historian Suites (page 22).

Synchronize time settings on FactoryTalk Historian system computers

For all machines that are part of the FactoryTalk Historian system, you must ensure that the time is set correctly and synchronized with the FactoryTalk Historian server. In addition, make sure that all Windows machines have the proper time-zone settings and that they are set to automatically adjust for daylight-saving changes.

The clocks of the FactoryTalk Historian server computer and client computers should all be synchronized. This is typically done through the domain controller. The domain controller's time is synchronized first by an NTP source. Then, the domain controller synchronizes all other computers that are a part of the FactoryTalk Historian system.

For details, search the Rockwell Automation Technical Support (http://rockwellautomation.custhelp.com/) web site for daylight saving time.

Disable the Windows time zone (TZ) environment variable

The Windows time zone (TZ) environment variable adversely affects the Historian server. You must ensure that TZ is not set on the Historian server computer.

To confirm that the TZ variable is not set on your Windows machine:

1. Display your systems **Properties** dialog (for example, through the **Start** menu or by right-clicking on the computer icon and selecting **Properties**).
2. Click **Advanced system settings**.
3. Click **Environment Variables**.
4. If the **TZ** variable is present, delete it.
5. Restart the computer, if prompted.

Learn about installation-related recommendations

We recommend that you use the default installation options.

If you want to use the SMT software installed on a FactoryTalk Historian SE server computer to manage a FactoryTalk Historian Live Data Interface installed on another computer, you must log on to both computers with the same username. (The user must have administrator privileges on both computers.)

Learn about product compatibility for installing or upgrading FactoryTalk Historian suites

When upgrading your FactoryTalk Historian SE system to version 7.01, all FactoryTalk Historian SE suites need to be upgraded. This includes the FactoryTalk Historian SE, FactoryTalk Historian Asset Framework, FactoryTalk Historian Analysis Service, FactoryTalk Historian Live Data Interface, and FactoryTalk Historian SE Management Tools.

There may be rare times when it is not possible to upgrade the remote Live Data interfaces at the same time as the rest of the FactoryTalk Historian SE system. In such cases it is possible to use

Live Data interfaces in versions from 3.0 to 4.01 with the FactoryTalk Historian SE 7.01.00 Server.

If you decide to use this mixed configuration, you need to be aware of the following limitations:

- The enhanced security between the FactoryTalk Historian Live Data Interface and FactoryTalk Administration Console or FactoryTalk View Studio only exists when 7.01 components are installed on both computers (the Data Server and the Engineering Workstation).

- The FactoryTalk Historian Live Data Interfaces in versions from 3.0 to 4.01 do not contain the new buffer system and do not leverage the increased throughput that the FactoryTalk Historian SE 7.01.00 Live Data Interface has.

- The FactoryTalk Historian SE administration (such as creating points or configuring interfaces) should be performed only on either the FactoryTalk Historian SE 7.01.00 Server or the Engineering Workstation with FactoryTalk Historian SE 7.01.00 Management Tools installed.

- If you administer FactoryTalk Historian SE on the computers with the older versions (from 3.0 to 4.01) of FactoryTalk Historian Live Data Interfaces installed, in particular from within the FactoryTalk Administration Console or FactoryTalk View Studio, the applications will crash.

Installing FactoryTalk Historian

NOTE Before you install any components of FactoryTalk Historian SE, refer to the *Release Notes* for up-to-date information on the installation procedures.

Install Core components

In this section you will find instructions on how to install the following core components of FactoryTalk Historian SE:

- Microsoft SQL Server (page 25)
- FactoryTalk Services (page 26)

Install Microsoft SQL Server

Microsoft SQL Server is a requirement for running FactoryTalk Historian Asset Framework.

This version of FactoryTalk Historian SE supports Microsoft SQL Server Express and Standard Editions. SQL Server Express Edition is available on the FactoryTalk Historian SE installation media. If you choose to use the SQL Standard Edition, please acquire appropriate Client Access Licenses (CAL) and/or processor licenses from Microsoft. For more information, refer to the Microsoft site (http://www.microsoft.com/sqlserver/en/us/get-sql-server/how-to-buy.aspx).

NOTE For information on supported versions of SQL Server, see the FactoryTalk Historian SE Release Notes and/or the Rockwell Automation Product Compatibility and Download Center (https://compatibility.rockwellautomation.com/Pages/home.aspx).

If you already have an SQL Server, you will be able to point to it during the installation of FactoryTalk Historian Asset Framework.

NOTE If you want to install the Asset Framework SQL database only, you need to run the installation on the machine with the Microsoft SQL Server installed.

To install Microsoft SQL Server 2016 Express:

1. Run the FactoryTalk Historian SE installation wizard.
2. On the welcome page of the installation wizard, click **Install FactoryTalk Historian Site Edition > Install FactoryTalk Asset Framework > Install Microsoft SQL Server 2016 Express.**
3. Follow the on-screen instructions to complete the process.

   NOTES
   - For more information on installing Microsoft SQL Server 2016 Express, refer to the product documentation.
   - We recommend that you use the default settings during the installation of Microsoft SQL Server Express

4. Restart the computer, if prompted.

Install FactoryTalk Services

When you select this option, the following components will be installed:

- FactoryTalk Services Platform with FactoryTalk Directory (required - this component is installed by default)

  FactoryTalk Services Platform is an underlying architecture and a set of common services (such as diagnostic messages, health monitoring services, access to real-time data, and shared plant resources such as tags and graphic displays) that Rockwell Automation products build upon. It is a prerequisite for all FactoryTalk-enabled software products.

- FactoryTalk Activation Manager

  FactoryTalk Activation Manager allows you to download activation files using an Internet connection, and transfer the activation files to a computer that does not have an Internet

connection. Install this software on the same computer as the FactoryTalk Directory server.

- FactoryTalk Linx

  FactoryTalk Linx is a FactoryTalk Live Data server and a device-based alarm and event server. FactoryTalk Linx links Allen-Bradley networks and devices to Microsoft Windows products such as the FactoryTalk View SE (HMI software) and the RSLogix family of device programming software. FactoryTalk Linx provides FactoryTalk Historian SE with the data points (tags) it collects from Rockwell Automation controllers.

  NOTE It is recommended to install FactoryTalk Linx (Data Server) on the same machine as FactoryTalk Historian Live Data Interface, remote from the FactoryTalk Historian SE server.

- FactoryTalk Alarms and Events (optional)

  FactoryTalk Alarms and Events provide a common, consistent view of alarms and events throughout a FactoryTalk system.

For more information on FactoryTalk, refer to *FactoryTalk Help*.

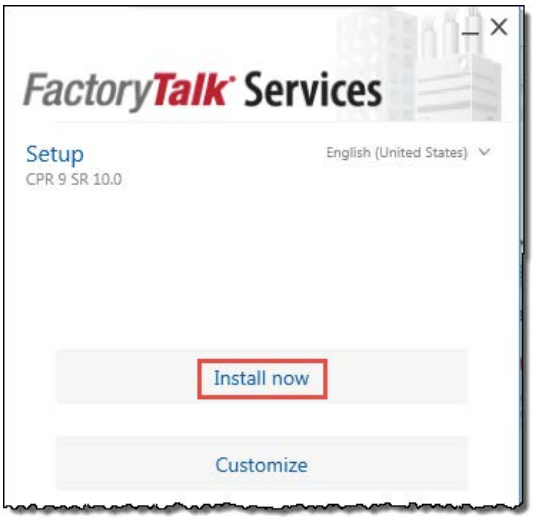
NOTE Make sure to install FactoryTalk Services on all computers, including the computer that will serve as the FactoryTalk Directory.

NOTE To learn about prerequisites regarding specific versions of the applications, see "Learn about product compatibility for installing or upgrading FactoryTalk Historian suites (page 22)".

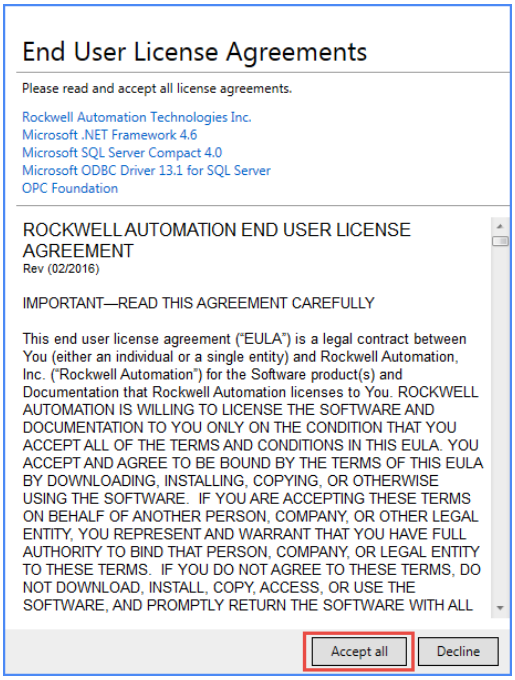
To install FactoryTalk Services:

1. Run the FactoryTalk Historian SE installation wizard.
2. On the welcome page of the installation wizard, click **Install FactoryTalk Historian Site Edition > Install FactoryTalk Services > Install FactoryTalk Services** and follow the screenshots listed:

3.



4.



NOTE FactoryTalk Alarms and Events is not used in the FactoryTalk Historian SE installation.

5. Follow any on-screen instructions.

TIP You may omit restarting the computer after the FactoryTalk Services installation is complete.

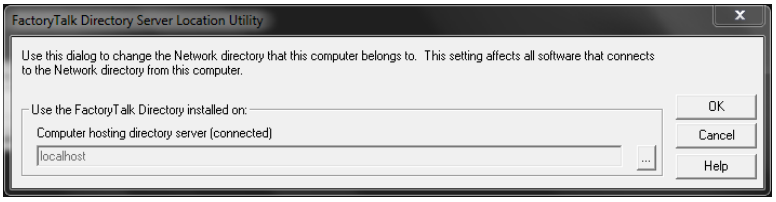
Locate the FactoryTalk Directory server computer

This configuration points your client computer to the FactoryTalk Directory server computer. Once your computer is connected to the FactoryTalk Directory server, you can use the client computer to administer the Network directory on the FactoryTalk Directory server computer. Also, the FactoryTalk Administration Console window on your client computer reflects the content of the Network Directory server computer.

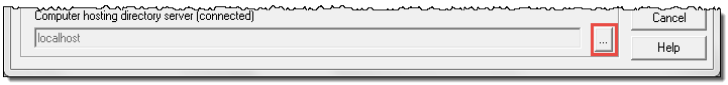
To specify the FactoryTalk Directory server location:

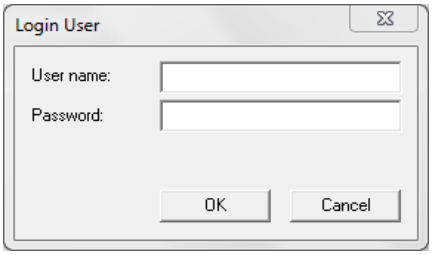
1. Run the FactoryTalk Historian SE installation media.
2. On the welcome page of the installation wizard, click **Install FactoryTalk Historian Site Edition > Install FactoryTalk Services > Specify FactoryTalk Directory Server Location**.

   The **FactoryTalk Directory Server Location Utility** dialog box appears.



3. Identify the computer that hosts the FactoryTalk Directory server.
   - If it is the current computer (**localhost**), click **OK**.
   - If it is a remote computer, point to the proper FactoryTalk Directory computer:



4. 

In the **User name** box, type the account username with which you will log on to the FactoryTalk Directory computer.

In the **Password** box, type the password to the account with which you will log on to the FactoryTalk Directory computer.

Click **OK**.

5. In the **Browse for Computer** dialog box, select the machine that hosts the FactoryTalk Directory, and then click **OK**.

   The name of the machine appears in the **FactoryTalk Directory Server Location Utility** dialog box.

6. Click **OK**.
7. In the message box informing you that you will need to restart the computer, click **OK**.
8. In the **Log On to FactoryTalk (New Server)** dialog box, type the user name and password to the newly selected FactoryTalk Directory machine.
9. Click **OK**. The system connects to the FactoryTalk Directory server.
10. In the message box prompting you to restart the computer, click **No**.

NOTE On the computers that have FactoryTalk Services installed, you can open the **Specify FactoryTalk Directory Server Location Utility** dialog box also from the Start menu.

Install FactoryTalk Historian suites

In this section you will find instructions on how to install the following suites of FactoryTalk Historian SE:

- FactoryTalk Historian Asset Framework (page 31)
- FactoryTalk Historian SE server (page 41)

- (Optional) FactoryTalk Historian Live Data Interface (page 44)
  Applicable only to the customers who want to install the interface on a remote computer.
- (Optional) FactoryTalk Historian SE Management Tools (page 47)
  Applicable only to the customers who want to administer the FactoryTalk Historian SE server from a remote computer.
- FactoryTalk Historian Analysis Service (page 50)
- (Optional) Additional Historian components (page 55)

Before you install FactoryTalk Historian SE, note the following:

- To install FactoryTalk Historian SE, use a local Administrator account or any other account that is a member of the Domain Admins group.
- As a best practice, we suggest that you install the FactoryTalk Historian Live Data Interface on a remote computer.
- The Structured Exception Handling Overwrite Protection (SEHOP) mechanism is enabled for all executable files in the FactoryTalk Historian SE suites.

Install FactoryTalk Historian Asset Framework

When you select this option FactoryTalk Historian Asset Framework Server will be installed.

FactoryTalk Historian Asset Framework (AF) is a prerequisite for installing FactoryTalk Historian SE. AF replaces the Historian module database (MDB). Over time, Rockwell Automation will transform MDB applications into AF applications. To provide backward compatibility, FactoryTalk Historian SE copies the contents of Historian MDB over to AF, in a process called *transition*. After the migration, the Historian server

constantly synchronizes the MDB content with AF, allowing you to access MDB content from AF clients as well as MDB clients. Similarly, you can access AF content from MDB clients, as well as AF clients. This allows you to access your AF content with MDB-based tools, such as ACE, or with an AF client such as FactoryTalk Historian System Explorer.

The complete configuration of FactoryTalk Historian Asset Framework consists of the following components:

- The AF Application service
- The database scripts used to create the AF SQL database
- The Microsoft SQL server

The AF components are installed during the installation of FactoryTalk Historian Asset Framework. The Microsoft SQL server is provided as a separate component on the FactoryTalk Historian SE installation media. It is required by the AF SQL database.

See "Install Microsoft SQL Server (page 25)" for details.

The database scripts and the Microsoft SQL server must always be installed on the same computer to ensure the successful creation of the AF SQL database.

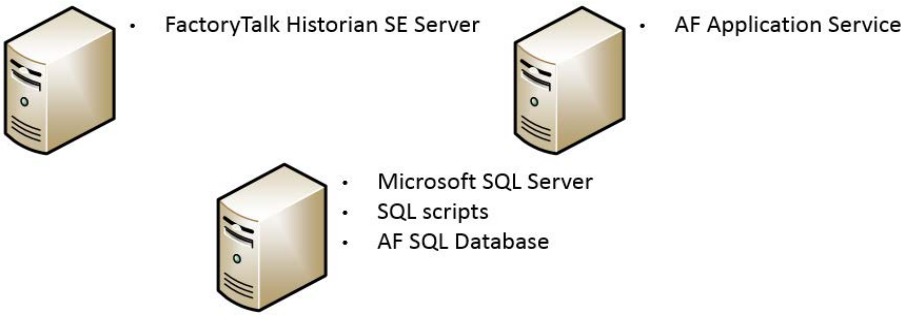
The AF Application service and the FactoryTalk Historian SE server may be installed on the same or separate computers, depending on one of the topologies that you choose:

One computer (all-in-one)

- FactoryTalk Historian SE Server
- AF Application Service
- Microsoft SQL Server
- SQL scripts
- AF SQL Database

Two computers

Three computers



The all-in-one installation is the default one. If you are using a Historian server collective or will be creating large numbers of AF elements, install FactoryTalk Historian Asset Framework and the SQL server on a computer separate from the Historian server. For more information, refer to the section on FactoryTalk Historian Asset Framework system requirements in the *FactoryTalk Historian SE Release Notes*.

NOTE Before installing FactoryTalk Historian Asset Framework, learn about the installation options it offers. See "Installation modes for FactoryTalk Historian Asset Framework (page 33)" for more information.

Installation modes for FactoryTalk Historian Asset Framework

During the installation process, you can decide how the AF service and the AF SQL database will be installed on your computer, by choosing one of five installation modes representing the following scenarios:

- Both the service and the database are located on the same computer:

Installation mode	Description
(1) AF Application Service and AF SQL Database	The service and the database are installed on the same computer. This is the default setting.
(2) AF Application Service and AF SQL Database with unprocessed database scripts	The service is installed on the computer, the system is prepared for the database installation, and the database scripts are copied to the following location in the **Program Files** directory: **Rockwell Software\FactoryTalk Historian\PIPC\AF\SQL**. You must process the provided scripts yourself to create the database. See "Manually create or upgrade the AF SQL Database (page 67)" for more information.

- The service and the database are located on different computers:

Installation mode	Description
(3) AF Application Service	Only the service is installed on the computer.
(4) AF SQL Database	**Note:** This option must be executed on the computer with the Microsoft SQL Server installed. Only the database is installed on the computer. If you select this option, the database scripts will be copied to the computer and executed during the installation. This will result in creating the PIFD Asset Framework SQL database.
(5) AF SQL Database with unprocessed database scripts	**Note:** This option must be executed on the computer with the Microsoft SQL Server installed. The system is prepared for the database installation, and the database scripts are copied to the following location in the **Program Files** directory: **Rockwell Software\FactoryTalk Historian\PIPC\AF\SQL**. You must process the provided scripts yourself to create the database. See "Manually create or upgrade the AF SQL Database (page 67)" for more information.

You may choose to create the AF SQL database manually using the provided scripts, for example, when the configuration of your SQL server does not allow for the integrated Windows authentication. During the execution of the database scripts, you can provide the username and the password to the SQL Server.

Install the FactoryTalk Historian Asset Framework server

Before you begin:

- FactoryTalk Historian Asset Framework must be installed on a computer that runs one of the following Microsoft Windows Server operating systems:
  - Microsoft Windows Server 2019
  - Microsoft Windows Server 2016
  - Microsoft Windows Server 2012 Standard R2 64-bit
- If you choose the installation mode other than **(3) AF Application Service**, you need to run the installation on the computer with Microsoft SQL Server installed.

TIP You can also install the SQL server later and edit the computer and instance names in the **AFService.exe.config** file. See "Modify the AF application service connect string (page 72)" for details.

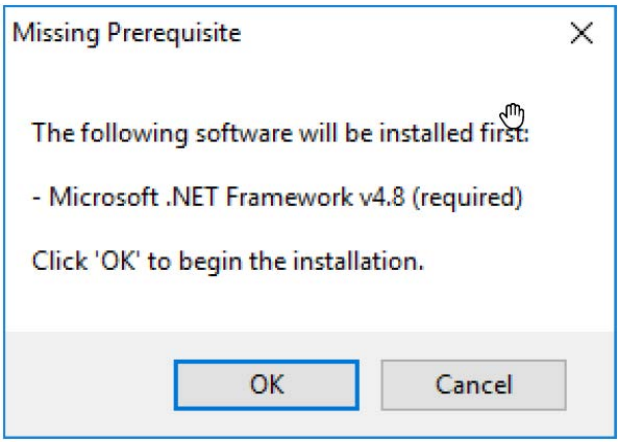
NOTE To learn about prerequisites regarding specific versions of the applications, see "Learn about product compatibility for installing or upgrading FactoryTalk Historian suites (page 22)".

To install the FactoryTalk Historian Asset Framework server:

NOTE During the installation, the AFServers user group may be created.

TIP The following instruction illustrate typical installation or upgrade steps. Individual steps may differ though, depending on the actual system configuration.

1. Run the FactoryTalk Historian SE installation wizard.
2. On the welcome page of the installation wizard, click **Install FactoryTalk Historian Site Edition > Install FactoryTalk Historian Asset Framework > Install FactoryTalk Historian AF Server**.

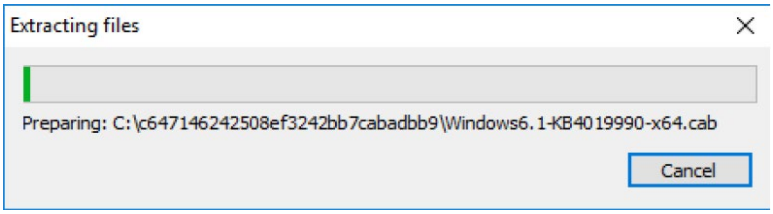


3. The installation of the required version of Microsoft® .NET Framework is performed during the installation of a FactoryTalk Historian SE suite under certain conditions and has a significant impact on the upgrade process of FactoryTalk Historian SE suites. For details, see "About installing Microsoft® .NET Framework" (page 55). If you do not have the required version of Microsoft .NET Framework installed on your system, a message appears indicating this.

NOTE If you click **Cancel**, the installation will be canceled due to the supported Microsoft .NET Framework not being installed.

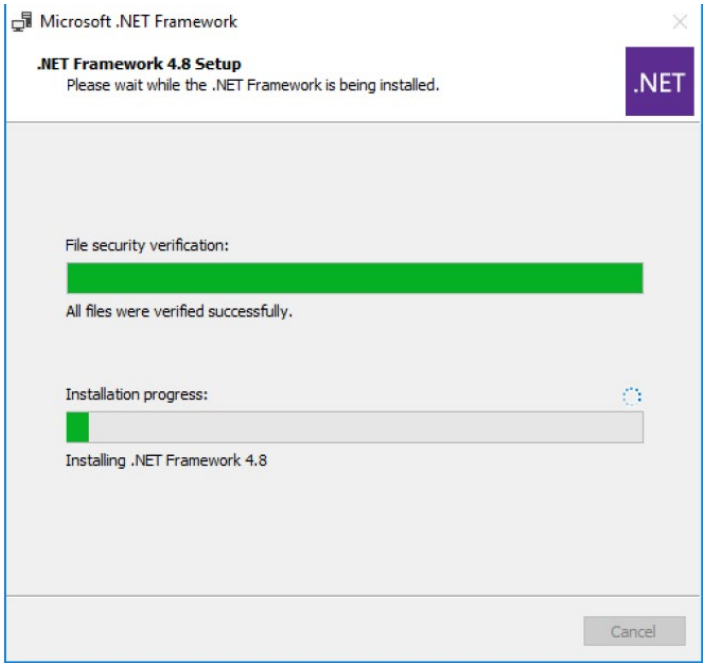
If you are installing the product on Microsoft Windows Server 2012 R2 you may be asked to install the Microsoft April 2014 update rollup. Follow the instructions in the message to install the rollup.

The installation process begins.

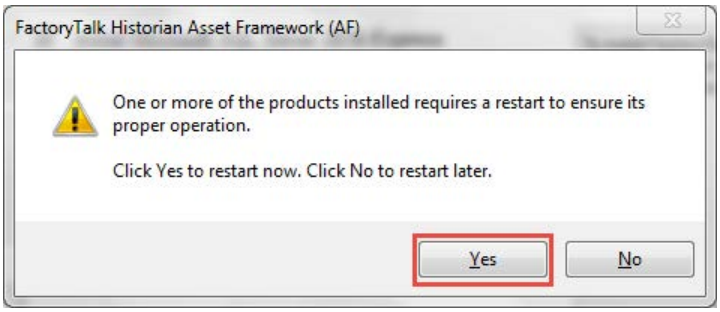


4. Depending on your system configuration, a message may appear during the installation process asking you to close certain programs.

   Click **Yes** to continue with the installation.



You may be prompted to restart the computer once the installation of Microsoft .NET Framework is finished:



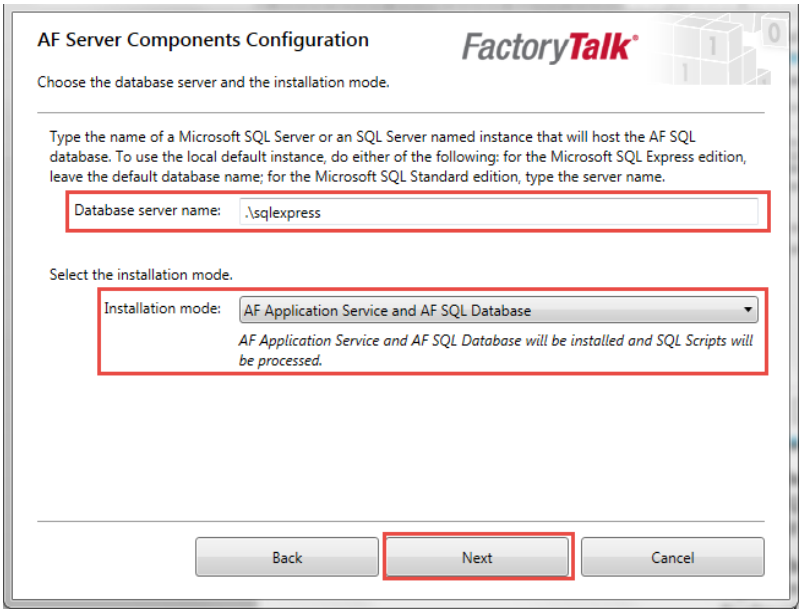
5.
6. In the welcome screen of the Asset Framework Suite installation wizard, click **Next**.
7. In the License agreement screen, accept the license agreement and click **Next**.
8. In the Review Component Installation screen, verify that the components you want installed are listed and click **Next**.
9. In the Destination Drive screen, select the drive where you want AF to be installed and click **Next**.

   If there is not enough free space available on the drive, a warning message will appear below the **Installation drive** list.

In such a case, select another drive or increase the available space on the drive you have originally selected. For more information on disk space requirements, see the *FactoryTalk Historian SE Release Notes*.

TIP You can choose the destination drive only if you install the component on the selected machine for the first time. If there have been any FactoryTalk Historian components installed on the machine before, the **Installation drive** list will appear dimmed.

10.



11. In the AF Server Components Configuration screen, define the following.

12. In the **Database server name** box, type the name of a Microsoft SQL Server or an SQL Server named instance that will host the AF SQL database.

    - To use the local default instance created by Microsoft SQL Server Express, leave the default database name displayed in the text box.
    - To use another SQL Server database instance, type the name of the computer on which the database is located, followed by the name of the instance that hosts the AF

SQL database, if the instance name is different than the default one. For example: `SQLDBSERVER\SQLDBINSTANCE`.

13. From the **Installation mode** list, select one of the following installation modes:

IMPORTANT	Please choose your installation modes with caution. You will not be able to change them for this computer in the future.

14.

Choose this mode:	To:
(1) AF Application Service and AF SQL Database	Install both the service and the scripts for creating the AF SQL database. The scripts will be executed during the installation process, which will result in creating the AF SQL database in the selected instance of the SQL server.
(2) AF Application Service and AF SQL Database with unprocessed database scripts	Install both the service and the scripts for creating the AF SQL database. You will need to process the scripts yourself to create the AF SQL database.
(3) AF Application Service	Install the service only. For this installation mode it is recommended that you already have a separate computer with the SQL server instance and the AF SQL database created.
(4) AF SQL Database	Install the scripts for creating the AF SQL database. The scripts will be executed during the installation process, which will result in creating the AF SQL database in the selected instance of the SQL server.
(5) AF SQL Database with unprocessed database scripts	Install the scripts for creating the AF SQL database. You will need to process the scripts yourself to create the AF SQL database.

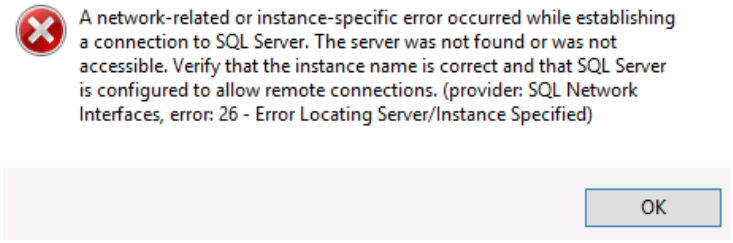
Choose this mode:	To:

NOTES

- For more information on the installation modes, see "Installation modes for FactoryTalk Historian Asset Framework (page 33)".
- For more information on using the database scripts to manually create the database, see "Manually create or upgrade the AF SQL database (page 67)".

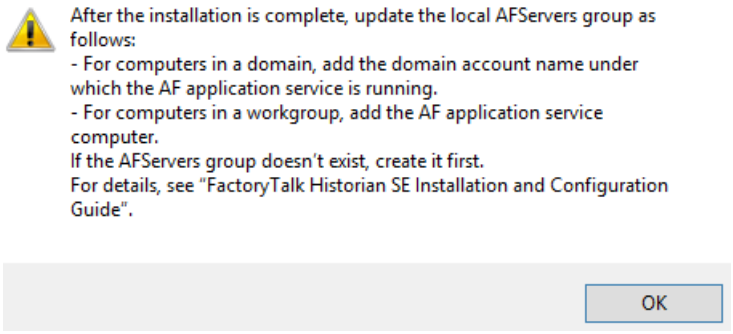
15. Click **Next**.

- If you have selected to install both the AF service and the AF SQL database (**installation mode 1**) or the database only (**installation mode 4**), the installation wizard will test the connection with the database instance. If the connection test fails, an error message generated by the database server appears, for example:



Click **OK**. Follow the instructions provided in the message to verify the connection and then click **Next** on the wizard page to resume the installation.

- If you have selected either to install the AF SQL database only (**installation mode 4**) or the AF SQL database with the unprocessed database scripts (**installation mode 5**), the following message will appear:



See "Manually create or upgrade the AF SQL database (page 67)" for more information.

16. In the Installation Progress screen, click **Install**. A progress bar displays your installation progress.
17. If the release notes display, close the release notes and continue with the installation.
18. Click **Finish**. If you want to view the log, check **Show the installation log** before you click **Finish**.

TIP The installation log, **fth_installer.log**, is available in the following location:
[Drive letter]:\Program Files\Rockwell Software\FactoryTalk Historian\Installation Manager\<Name of the Historian suite>\FTHInstallerLogs\<Date and Time of the Installation>.

Install the FactoryTalk Historian SE server

The FactoryTalk Historian SE Server suite is installed with the following FactoryTalk Historian components:

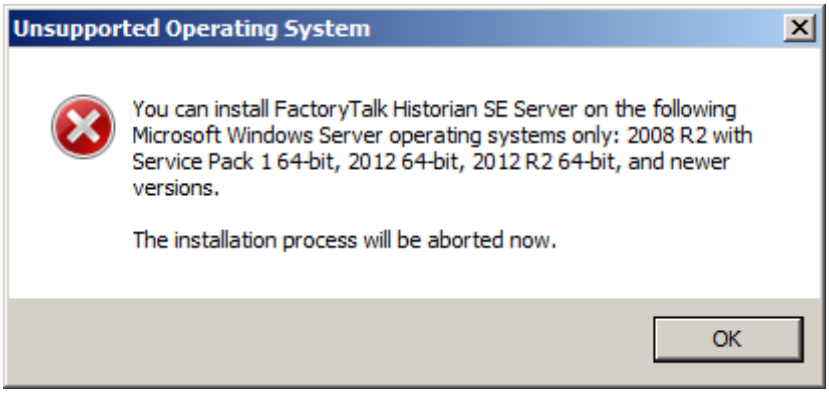
- PI Data Archive
- PI AF Client
- PI GenericNames DLL
- PI Interface Configuration Utility
- FactoryTalk Historian SE RA Components

- FactoryTalk Historian SE WCF Installer
- FactoryTalk Historian SE Core
- FactoryTalk Historian SE x64 Core
- FactoryTalk Historian Live Data Interface Core

NOTE The FactoryTalk Historian SE server must be installed on one of the following operating systems:

- Microsoft Windows Server 2019
- Microsoft Windows Server 2016
- Microsoft Windows Server 2012 Standard R2 64-bit

If you try to install it on any other operating system, the following message will appear and the installation will be canceled.



NOTE To learn about prerequisites regarding specific versions of the applications, see "Learn about product compatibility for installing or upgrading FactoryTalk Historian suites (page 22)".

To install the FactoryTalk Historian SE server:

NOTE During the installation, the PI Buffering Administrators user group is created.

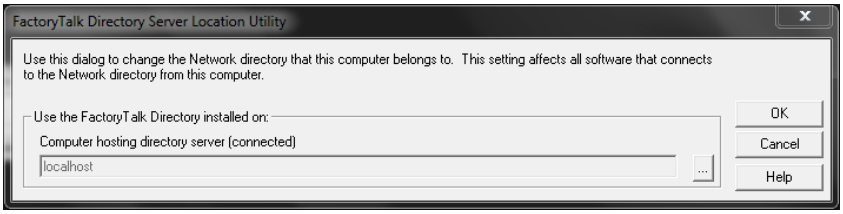
1. Run the FactoryTalk Historian SE installation wizard.
2. On the welcome page of the installation wizard, click **Install FactoryTalk Historian Site Edition > Install FactoryTalk Historian Server**.

3. If you do not have the required version of Microsoft .NET Framework installed on your system, you will be asked to install it. See steps 3-5 of "Install the FactoryTalk Historian Asset Framework server" (page 31).
4. In the welcome screen of the Historian SE Server Suite installation wizard, click **Next**.
5. In the License agreement screen, accept the license agreement and click **Next**.
6. On the **Customer Information** page, enter your username, organization, and the 10-digit product serial number, e.g. *0123456789*.
7. In the Review Component Installation screen, verify that the components you want installed are listed and click **Next**.
8. In the Destination Drive screen, select the drive where you want the Historian SE Server Suite to be installed and click **Next**.

   If there is not enough free space available on the drive, a warning message will appear below the **Installation drive** list. In such a case, select another drive or increase the available space on the drive you have originally selected. For more information on disk space requirements, see the *FactoryTalk Historian SE Release Notes*.

   TIP You can choose the destination drive only if you install the component on the selected machine for the first time. If there have been any FactoryTalk Historian components installed on the machine before, the **Installation drive** list will appear dimmed.
9. In the Installation Progress screen, click **Install**.
10. A message displays indicating that certain components of this installation will require you to reboot the machine after the installation completes. Click **Yes** to start the installation or **No** to cancel.

A progress bar displays your installation progress.

11. If the release notes display, close the release notes and continue with the installation.
12. 

    This step is optional.

    You can perform it after you install the suite.

    For details on locating the FactoryTalk Directory server computer, see "Locate the FactoryTalk Directory server computer (page 29)".
13. Click **Finish**. If you want to view the log, check **Show the installation log** before you click **Finish**.

    TIP The installation log, **fth_installer.log**, is available in the following location:
    [Drive letter]:\Program Files\Rockwell Software\FactoryTalk Historian\Installation Manager\<Name of the Historian suite>\FTHInstallerLogs\<Date and Time of the Installation>.
14. In the Confirm the reboot dialog, click **Yes** to reboot your machine.

Install the FactoryTalk Historian Live Data Interface (optional)

The FactoryTalk Historian Live Data Interface collects data points (tags) from the data server and passes them to the FactoryTalk Historian SE server.

Install the FactoryTalk Historian Live Data Interface component on the same computer as the data server and separate from the computer that has the FactoryTalk Historian SE server installed.

After installing the interface, configure the buffering service on the Historian interface computer. The buffering service stores data in its memory so that in the event the interface is not able to

communicate with the FactoryTalk Historian SE server, the data will not be lost.

By default, the FactoryTalk Historian Live Data Interface is installed during the installation of the FactoryTalk Historian SE Server. Such a configuration is typically used for demonstration purposes rather than real-life production environments. It is recommended to install the FactoryTalk Historian Live Data Interface on a data server computer.

The FactoryTalk Historian Live Data Interface is installed with the following FactoryTalk Historian components:

- PI System Management Tools
- PI AF Client
- PI GenericNames DLL
- PI Interface Configuration Utility
- PI Interface for OPC DA (OPCInt)
- FactoryTalk Historian SE RA Components
- FactoryTalk Historian Live Data Interface Core

NOTE For more information on buffering, see "Enable Buffering (page 134)".

NOTE To learn about prerequisites regarding specific versions of the applications, see "Learn about product compatibility for installing or upgrading FactoryTalk Historian suites (page 22)".

To install the FactoryTalk Historian Live Data Interface on the data server computer:

NOTE During the installation, the PI Buffering Administrators user group is created.

1. Run the FactoryTalk Historian SE installation wizard.

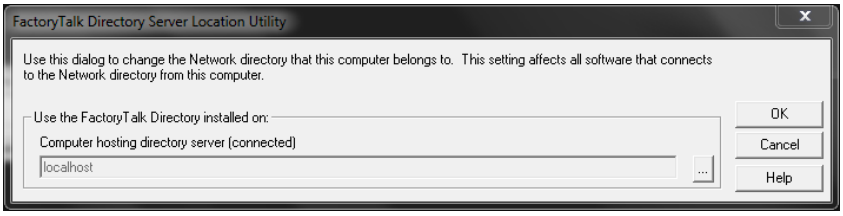
2. On the welcome page of the installation wizard, click **Install FactoryTalk Historian Site Edition** > **Install FactoryTalk Historian Live Data Interface**.
3. If you do not have the required version of Microsoft .NET Framework installed on your system, you will be asked to install it. See steps 3-5 of "Install the FactoryTalk Historian Asset Framework server" (page 31).
4. In the welcome screen of the Live Data Interface Suite installation wizard, click **Next**.
5. In the License agreement screen, accept the license agreement and click **Next**.
6. In the Review Component Installation screen, verify that the components you want installed are listed and click **Next**.
7. In the Destination Drive screen, select the drive where you want the Live Data Interface Suite to be installed and click **Next**.

   If there is not enough free space available on the drive, a warning message will appear below the **Installation drive** list. In such a case, select another drive or increase the available space on the drive you have originally selected. For more information on disk space requirements, see the *FactoryTalk Historian SE Release Notes*.

   TIP You can choose the destination drive only if you install the component on the selected machine for the first time. If there have been any FactoryTalk Historian components installed on the machine before, the **Installation drive** list will appear dimmed.
8. In the Installation Progress screen, click **Install**.

   A message displays indicating that certain components of this installation will require you to reboot the machine after the installation completes. Click **Yes** to start the installation or **No** to cancel.

   A progress bar displays your installation progress.

9. If the release notes display, close the release notes and continue with the installation.
10. Close the Release Notes and continue with the installation.
11. 

    This step is optional.

    You can perform it after you install the suite.

    For details on locating the FactoryTalk Directory server computer, see "Locate the FactoryTalk Directory server computer (page 29)".
12. Click **Finish**. If you want to view the log, check **Show the installation log** before you click **Finish**.

    TIP The installation log, **fth_installer.log**, is available in the following location:
    [Drive letter]:\Program Files\Rockwell Software\FactoryTalk Historian\Installation Manager\<Name of the Historian suite>\FTHInstallerLogs\<Date and Time of the Installation>.
13. In the Confirm the reboot dialog, click **Yes** to reboot your machine.

Install the FactoryTalk Historian SE Management Tools (optional)

The FactoryTalk Historian SE Management Tools are installed automatically as a part of the FactoryTalk Historian SE installation. This option allows you to install just the Management Tools on a non-FactoryTalk Historian Server computer, typically a FactoryTalk View SE client computer or a remote computer, from which you can perform administrative tasks.

The FactoryTalk Historian SE Management Tools are installed with the following FactoryTalk Historian components:

- PI System Management Tools
- PI AF Client

  This component also includes the Analysis Management plug-in to PI System Explorer that lets you manage bulk operation on analyses, edit the service configuration, and view service statistics.
- PI GenericNames DLL
- PI Interface Configuration Utility
- FactoryTalk Historian SE RA Components

NOTE To learn about prerequisites regarding specific versions of the applications, see "Learn about product compatibility for installing or upgrading FactoryTalk Historian suites (page 22)".

To install the FactoryTalk Historian SE Management Tools:

NOTE During the installation, the PI Buffering Administrators user group is created.

TIP The screenshots presented in the following instruction illustrate typical installation or upgrade steps. Individual steps may differ though, depending on the actual system configuration.

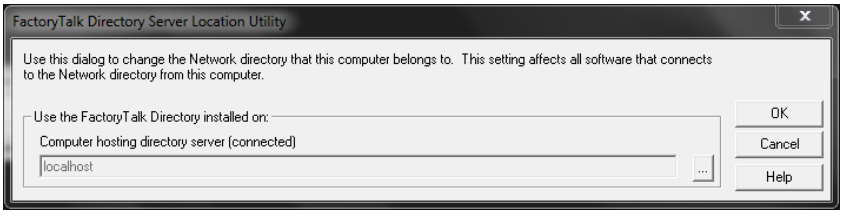
1. Run the FactoryTalk Historian SE installation wizard.
2. On the welcome page of the installation wizard, click **Install FactoryTalk Historian Site Edition** > **Install FactoryTalk Historian Management Tools**.
3. If you do not have the required version of Microsoft .NET Framework installed on your system, you will be asked to install it. See steps 3-5 of "Install the FactoryTalk Historian Asset Framework server" (page 31).
4. In the welcome screen of the Management Tools Suite installation wizard, click **Next**.
5. In the License agreement screen, accept the license agreement and click **Next**.

6. In the Review Component Installation screen, verify that the components you want installed are listed and click **Next**.
7. In the Destination Drive screen, select the drive where you want the Management Tools Suite to be installed and click **Next**.

   If there is not enough free space available on the drive, a warning message will appear below the **Installation drive** list. In such a case, select another drive or increase the available space on the drive you have originally selected. For more information on disk space requirements, see the *FactoryTalk Historian SE Release Notes*.

   TIP You can choose the destination drive only if you install the component on the selected machine for the first time. If there have been any FactoryTalk Historian components installed on the machine before, the **Installation drive** list will appear dimmed.
8. In the Installation Progress screen, click **Install**.

   A message displays indicating that certain components of this installation will require you to reboot the machine after the installation completes. Click **Yes** to start the installation or **No** to cancel.

   A progress bar displays your installation progress.
9. If the release notes display, close the release notes and continue with the installation.
10. 

    This step is optional.

    You can perform it after you install FactoryTalk Historian SE Management Tools.

For details on locating the FactoryTalk Directory server computer, see "Locate the FactoryTalk Directory server computer (page 29)".

11. Click **Finish**. If you want to view the log, check **Show the installation log** before you click **Finish**.

    TIP The installation log, **fth_installer.log**, is available in the following location:
    [Drive letter]:\Program Files\Rockwell Software\FactoryTalk Historian\Installation Manager\<Name of the Historian suite>\FTHInstallerLogs\<Date and Time of the Installation>.

12. In the Confirm the reboot dialog, click **Yes** to reboot your machine.

Install the FactoryTalk Historian Analysis Service

FactoryTalk Historian Analysis Service is a feature in FactoryTalk Historian Asset Framework that lets you create and manage analyses. The feature consists of the following components:

- PI Analysis Service, with which you run the analyses.
- PI System Explorer, with which you configure the analyses. It is installed with PI AF Client.

  Apart from FactoryTalk Historian Analysis Service, PI AF Client is also installed with the following suites:

  - FactoryTalk Historian SE
  - FactoryTalk Historian Live Data Interface
  - FactoryTalk Historian SE Management Tools
- Analysis Management plug-in, with which you can use advanced features related to analysis management and bulk operations.

  It is an optional plug-in to PI System Explorer.

- Apart from FactoryTalk Historian Analysis Service, the plug-in is also installed with FactoryTalk Historian SE Management Tools.

The FactoryTalk Historian Analysis Service suite is installed with the following FactoryTalk Historian components:

- PI AF Client
- PI Analysis Service

  This component also includes the Analysis Management plug-in to PI System Explorer that lets you manage bulk operation on analyses, edit the service configuration, and view service statistics.

NOTE The FactoryTalk Historian SE server must be installed on one of the following operating systems:

- Microsoft Windows Server 2019
- Microsoft Windows Server 2016
- Microsoft Windows Server 2012 Standard R2 64-bit

If you try to install it on any other operating system, a message will appear and the installation will be canceled.

NOTE To learn about prerequisites regarding specific versions of the applications, see "Learn about product compatibility for installing or upgrading FactoryTalk Historian suites (page 22)".

Before you begin, take into account the following:

- Install and configure the FactoryTalk Historian Asset Framework server first.

  If the FactoryTalk Historian Analysis Service is installed on a different computer than the FactoryTalk Historian Asset Framework server, you will need to change the FactoryTalk Historian Analysis Service logon account settings to allow FactoryTalk Historian Analysis Service to fetch analysis data from the FactoryTalk Historian Asset Framework server.

For details, see "Change logon account settings for FactoryTalk Historian Analysis Service" (page 75).

- During the installation, FactoryTalk Historian Analysis Service will open the port 5463. It is required to configure FactoryTalk Historian Analysis Service via PI System Explorer.

  If you encounter any issues with the connection, you can manually open the port. For details, see "Manually configure Windows Firewall for FactoryTalk Historian" (page 92) for more details.

  See "PI Analysis Service Installation Guide" for details how to configure FactoryTalk Historian Analysis Service in PI System Explorer.

NOTE If the installer cannot connect to the specified FactoryTalk Historian Asset Framework server, the installation will not continue.

- There can be only one instance of FactoryTalk Historian Analysis Service associated with a given FactoryTalk Historian Asset Framework server.

IMPORTANT During the installation, you will associate the instance of FactoryTalk Historian Analysis Service with a FactoryTalk Historian Asset Framework server. If you point to a FactoryTalk Historian Asset Framework server that has been associated with another FactoryTalk Historian Analysis Service instance so far, this association will be broken without warning and replaced with the new one.

To install the FactoryTalk Historian Analysis Service:

1. Run the FactoryTalk Historian SE installation wizard.
2. On the welcome page of the installation wizard, click **Install FactoryTalk Historian Site Edition** > **Install FactoryTalk Historian Analysis Service**.
3. If you do not have the required version of Microsoft .NET Framework installed on your system, you will be asked to

install it. See steps 3-5 of "Install the FactoryTalk Historian Asset Framework server" (page 31).

4. In the welcome screen of the Analysis Service Suite installation wizard, click **Next**.
5. In the License agreement screen, accept the license agreement and click **Next**.
6. In the AF Server Connection Configuration screen, enter the server name of your AF server and click **Next**.
7. In the Review Component Installation screen, verify that the components you want installed are listed and click **Next**.
8. In the Destination Drive screen, select the drive where you want the Analysis Service Suite to be installed and click **Next**.

   If there is not enough free space available on the drive, a warning message will appear below the **Installation drive** list. In such a case, select another drive or increase the available space on the drive you have originally selected. For more information on disk space requirements, see the *FactoryTalk Historian SE Release Notes*.

   TIP You can choose the destination drive only if you install the component on the selected machine for the first time. If there have been any FactoryTalk Historian components installed on the machine before, the **Installation drive** list will appear dimmed.
9. In the Installation Progress screen, click **Install**.

   A progress bar displays your installation progress.
10. Click **Finish**. If you want to view the log, check **Show the installation log** before you click **Finish**.

    TIP The installation log, **fth_installer.log**, is available in the following location:
    [Drive letter]:\Program Files\Rockwell Software\FactoryTalk Historian\Installation Manager\<Name of the Historian suite>\FTHInstallerLogs\<Date and Time of the Installation>.

Install Notifications Service

The FactoryTalk Historian SE media provides an option to install a service that allows you to use notification rules to generate alerts.

To install the FactoryTalk Historian Notifications Service:

1. Run the FactoryTalk Historian SE installation wizard.
2. On the welcome page of the installation wizard, click **Install FactoryTalk Historian Site Edition** > **Install FactoryTalk Historian Notifications Service**.
3. If you do not have the required version of Microsoft .NET Framework installed on your system, you will be asked to install it. See steps 3-5 of "Install the FactoryTalk Historian Asset Framework server" (page 31).
4. In the welcome screen of the Notifications Service Suite installation wizard, click **Next**.
5. In the License agreement screen, accept the license agreement and click **Next**.
6. In the AF Server Connection Configuration screen, enter the server name of your Notification service and click **Next**.
7. In the Review Component Installation screen, verify that the components you want installed are listed and click **Next**.
8. In the Destination Drive screen, select the drive where you want the Analysis Service Suite to be installed and click **Next**.

   If there is not enough free space available on the drive, a warning message will appear below the **Installation drive** list. In such a case, select another drive or increase the available space on the drive you have originally selected. For more information on disk space requirements, see the *FactoryTalk Historian SE Release Notes*.

TIP You can choose the destination drive only if you install the component on the selected machine for the first time. If there have been any FactoryTalk Historian components installed on the machine before, the **Installation drive** list will appear dimmed.

9. In the Installation Progress screen, click **Install**.

   A progress bar displays your installation progress.

10. Click **Finish**. If you want to view the log, check **Show the installation log** before you click **Finish**.

TREND The installation log, **fth_installer.log**, is available in the following location:
[Drive letter]:\Program Files\Rockwell Software\FactoryTalk Historian\Installation Manager\<Name of the Historian suite>\FTHInstallerLogs\<Date and Time of the Installation>.

Install additional Historian components

The FactoryTalk Historian SE media contain several optional Historian components used for data management, such as FactoryTalk Historian DataLink (requires the DataLink activation) or PerfMon Health Monitor. These components are located in the **Redist** folder on the installation media.

If you choose to install these components, be sure to install them after you install FactoryTalk Historian SE. For further information regarding these components, refer to the FactoryTalk Historian SE documentation, available in the **Redist\Docs** folder on the FactoryTalk Historian SE installation media.

About installing Microsoft® .NET Framework

Microsoft .NET Framework 4.8 is a prerequisite for installing the FactoryTalk Historian SE 7.01 suites. It is installed automatically during the installation of FactoryTalk Services provided on the installation media.

If the FactoryTalk Services version on the computer is not the same with the one in FactoryTalk Historian SE 7.01 suites installation package, you need to install .NET Framework 4.8 separately.

A prerequisite for installing .NET Framework 4.8 on Microsoft Windows Server 2012 R2 and Microsoft Windows 8.1 is that you have Microsoft April 2014 update rollup installed first. For details, see the Windows RT 8.1, Windows 8.1, and Windows Server 2012 R2 update: April 2014.

Once you have the necessary Microsoft updates installed, .NET Framework 4.8 can be installed. It will require that you restart your computer before you can complete the installation.

Important information for the upgrade process:

The requirement of restarting your computer during the .NET Framework installation has a significant impact on the upgrade process. Because you need to stop certain services before upgrading a FactoryTalk Historian SE suite, you need to stop them again once the .NET Framework 4.8 installation is complete and the computer is restarted.

Advanced Server components (optional)

Advanced Server is a collection of add-on components to FactoryTalk Historian SE Server. The Advanced Server includes:

- ACE Advanced Computation Engine for Visual Basic calculations on Historian data
- Data Access
  - JDBC Data Provider
  - ODBC
  - OLE DB Enterprise
  - OLE DB Provider

- OPC DA and HDA Servers
- SQL Data Access Server

To install the Advanced Server components:

Select the component that you want to install and click the link to learn more.

- ACE (page 59)
- JDBC (page 59)
- ODBC (page 60)
- OLEDB Enterprise (page 60)
- OLEDB Provider (page 61)
- OPC DA/HDA Server (page 62)
- SQL Data Access Server (page 62)

To activate the Advanced Server components:

- See "Activating the FactoryTalk Historian SE server (page 79)" to learn about the activation process.
- See "Types of licenses (page 98)" to learn about the license activation.

To configure the Advanced Server components, see "Configuring the Advanced Server components (page 177)" for details.

Types of licenses activating the Advanced Server components

New users may activate the Advanced Server components with the following license activations:

This license	Activates
FHSE.Advanced FHSE.Enterprise	All the components of the Advanced Server.

This license	Activates
FHSE.OLEDB	• ODBC • OLE DB Enterprise • OLE DB Provider • SQL Data Access Server
FHSE.OPC	• OPC DA Server • OPC HDA Server • OPC HDA DA Server

For users upgrading their license activations from FactoryTalk Historian SE 2.2/2.1, the Advanced Server components are activated automatically when the total license count of the **FHLD** and **PTY3** license activations is at least 250.

Prerequisites for installing the Advanced Server components

You can install the Advanced Server components on computers with the following prerequisites met:

Computer	Description
FactoryTalk Historian SE server computer	Operating system: • Microsoft Windows Server 2019 • Microsoft Windows Server 2016 • Microsoft Windows Server 2012 Standard R2 (64-bit) • Microsoft Windows Server 2012 Standard (64-bit) • Microsoft Windows Server 2008 R2 with Service Pack 1 (64-bit) • Microsoft Windows Server 2008 R2 (64-bit) Software installed and configured: • Microsoft .NET Framework 4.8 or newer versions • FactoryTalk Services (page 26) • Microsoft SQL Server Express (page 25) FactoryTalk Historian suites installed and configured: • FactoryTalk Historian SE server (page 41) • FactoryTalk Historian Asset Framework server (page 31) • The MDB to AF synchronization performed (page 74) and verified (page 74).

Computer	Description
Standalone computer	Operating system: • Microsoft Windows Server 2019 • Microsoft Windows Server 2016 • Microsoft Windows Server 2012 Standard R2 (64-bit) • Microsoft Windows Server 2012 Standard (64-bit) • Microsoft Windows Server 2008 R2 with Service Pack 1 (64-bit) • Microsoft Windows Server 2008 R2 (64-bit) • Microsoft Windows 10 (64-bit) • Microsoft Windows 8.1 (64-bit) • Microsoft Windows 7 Professional with Service Pack 1 (32-bit and 64-bit) Software installed and configured: • Microsoft .NET Framework 4.8 or newer versions • FactoryTalk Services

NOTE For more information on compatible versions of the products listed above, refer to the *Release Notes*.

Install ACE

To install ACE:

1. On your FactoryTalk Historian SE installation media, go to **Redist\Advanced Server Options\PIACESetup**.
2. Double-click **Setup.exe**.

   The installation wizard appears.
3. Follow the on-screen instructions to complete the process.

After the installation is complete, the Advanced Server component is available from the **PI System** item in the **Start** menu.

Install JDBC

NOTE To use PI JDBC Driver, install SQL Data Access Server (page 62) first.

To install PI JDBC Driver:

1. On your FactoryTalk Historian SE installation media, go to **Redist\Advanced Server Options\PIDASSetup\ JDBC**.
2. Double-click **Setup.exe**.

   The installation wizard appears.
3. Follow the on-screen instructions to complete the process.

Install ODBC

NOTE To use ODBC, install SQL Data Access Server (page 62) first.

To install ODBC:

1. On your FactoryTalk Historian SE installation media, go to **Redist\Advanced Server Options\PIDASSetup\ ODBC**.
2. Double-click **Setup.exe**.

   The installation wizard appears.
3. Follow the on-screen instructions to complete the process.

Install OLEDB Enterprise

TIP If you want to have access only to FactoryTalk Historian Time series data, install PI OLEDB Provider (page 61) instead of OLE DB Enterprise.

PI OLEDB Enterprise is an OLE DB data provider which provides access to the PI System in a relational view, accessible through SQL queries. The provider supports read-only access to asset and event data stored in the PI Asset Framework (AF), such as AF Elements, AF Attributes and PI Event Frames. PI OLEDB Enterprise also provides read-only access to time series data from the PI Data Archive, since Attributes can be configured to reference PI points.

To install PI OLEDB Enterprise:

1. On your FactoryTalk Historian SE installation media, go to **Redist\Advanced Server Options\PIDASSetup\ OLEDB Enterprise**.

2. Double-click **Setup.exe**.

   The installation wizard appears.

3. Follow the on-screen instructions to complete the process.

After the installation is complete, the Advanced Server component is available from the **PI System** item in the **Start** menu.

Install OLEDB Provider

TIPS

- If you have already installed PI OLEDB Enterprise (page 60), skip installing PI OLEDB Provider.
- If you install PI OLEDB Provider without PI OLEDB Enterprise, you will have access only to FactoryTalk Historian Time series data.

The classic PI OLEDB Provider, based on the Microsoft Object Linking and Embedding Database (OLE DB) standard, allows relational queries to the PI Server using SQL queries.

Please note there are no more planned releases for the classic PI OLEDB Provider. It is recommended to use PI OLEDB Enterprise, which provides access to the PI System data through PI Asset Framework (AF).

To install PI OLEDB Provider:

1. On your FactoryTalk Historian SE installation media, go to **Redist\Advanced Server Options\PIDASSetup\ OLEDB Provider**.
2. Double-click **Setup.exe**.

   The installation wizard appears.

3. Follow the on-screen instructions to complete the process.

After the installation is complete, the Advanced Server component is available from the **PI System** item in the **Start** menu.

Install OPC DA and OPC HDA Server

The location and the name of the installation file differs depending on the following:

- If you want to use only the OPC DA server, use the PI-OPC-DA-Server-2018-Patch-1-(x64).exe file from the OPC DA Server folder.
- If you want to use both the OPC DA and HDA servers, use the Setup.exe file from the OPC HDA Server folder.

To install the OPC DA server:

1. On your FactoryTalk Historian SE installation media, go to **Redist\Advanced Server Options\PIDASSetup\OPC DA Server**.
2. Double-click **PI-OPC-DA-Server-2018-Patch-1-(x64).exe**.

   The installation wizard appears.
3. Follow the on-screen instructions to complete the process.

To install the OPC DA and OPC HDA servers:

1. On your FactoryTalk Historian SE installation media, go to **Redist\Advanced Server Options\PIDASSetup\OPC HDA Server**.
2. Double-click **Setup.exe**.

   The installation wizard appears.
3. Follow the on-screen instructions to complete the process.

After the installation is complete, the Advanced Server component is available from the **PI System** item in the **Start** menu.

Install SQL Data Access Server

To install PI SQL Data Access Server:

1. On your FactoryTalk Historian SE installation media, go to **Redist\Advanced Server Options\PIDASSetup\PI SQL DAS**.
2. Double-click **Setup.exe**.

   The installation wizard appears.
3. Follow the on-screen instructions to complete the process.

After the installation is complete, the Advanced Server component is available from the **PI System** item in the **Start** menu.

Post-installation tasks

In this chapter you will learn about the following tasks that you should perform after installing FactoryTalk Historian SE:

- View the Historian server installation log file (page 65).
- Verify that Historian services are running (page 65).
- Verify that the Historian server is updating data for default tags (page 66).
- Opening System Management Tools on Windows Server (page 67)
- Manually create or upgrade the AF SQL database (page 67).
- Perform the MDB to AF synchronization (page 74).
- Verify the MDB to AF synchronization (page 74).
- Disable virus scanning (page 74).
- Change logon account settings for FactoryTalk Historian Analysis Service (page 75).

View the installation log file

You can open the installation log, **fth_installer.log**, directly from the installation wizard. If you want to refer to it later, open it from the following location:
C:\Program Files\Rockwell Software\FactoryTalk Historian\Installation Manager\<Name of the Historian suite>\FTHInstallerLogs\<Date and Time of the Installation>.

Verify that Historian services are running

Use Historian Services in System Management Tools to view, configure, start, and stop Historian services for each connected Historian server. The status of each service is updated every 30

seconds by default. You may change this refresh rate. You can also view the status, errors, and thread details for services used by the connected Historian server, and export a list of Historian services.

To open Historian services:

1. Open **System Management Tools**. See Opening System Management Tools on Windows Server (page 67).

   The **System Management Tools** dialog box appears.
2. Under **Collectives and Servers**, select the server for which you want to view the information.
3. Under **System Management Tools**, select **Operation > PI Services**.
4. Verify that the following Historian services and default interfaces are running:
   - Archive Subsystem
   - Backup Subsystem
   - Base Subsystem
   - License Manager
   - Network Manager
   - Snapshot Subsystem
   - SQL Subsystem
   - Update Manager

Depending on your license, you might see additional services.

Verify that the Historian server is updating data for default tags

To verify that the Historian server is updating data for default tags:

1. Install **PI Interface for Random**. (The installation kit is isolated at Redist\Interfaces\Random)

2. Create default tags.

   For detailed steps, refer to Redist\Docs\Interfaces*PI-Interface-for-Random-Simulator-Data-3.5.1-User-Guide.pdf*.

3. Open **System Management Tools**. See Opening System Management Tools on Windows Server (page 67).

   The System Management Tools dialog box appear.

4. Under **Collectives and Servers**, select the Historian server whose data you want to view.

5. Under **System Managements Tools**, select **Data > Archive Editor**.

6. In the **Tag Not Specified** tab, click  .

   The **Tag Search** dialog box appears.

7. In the **Tag Mask** text box, type `cdt158`, and click **Search**.

   The **cdt158** tag appears in the search results list.

8. Click **OK**.

   The list of events of the selected tag is displayed in the tab in the right pane of the **System Management Tools** dialog box.

NOTE For more information on the Archive Editor, click  .

Opening System Management Tools on Windows Server

To open **System Management Tools** using your **Start** menu, enter `System Management Tools` and select the **System Management Tools** result.

Manually create or upgrade the AF SQL database

You can choose to manually install or upgrade the AF SQL database (PIFD) by selecting either of the installation modes during the installation or the upgrade of the AF server:

- AF Application Service and AF SQL Database with unprocessed database scripts.
- AF SQL Database with unprocessed database scripts.

The SQL Server scripts and the `GO.bat` file are placed in the `..\PIPC\AF\SQL` folder. The `GO.bat` file contains the commands that execute the deployed SQL Server scripts manually.

Upon execution, the scripts create the AF SQL database (PIFD) and populate its tables.

The execution of the scripts must occur from an account with `sysadmin` privileges on the SQL Server instance.

In this chapter you will learn how to:

- Create the AFServers local group on the AF application service computer (page 68).
- Execute the SQL scripts to create and populate the AF SQL database (page 69).
- Modify the AF application service connect string (page 71).
- Configure the AF application service to point to a different AF SQL database (page 73).

Create the AFServers local group on the AF application service computer

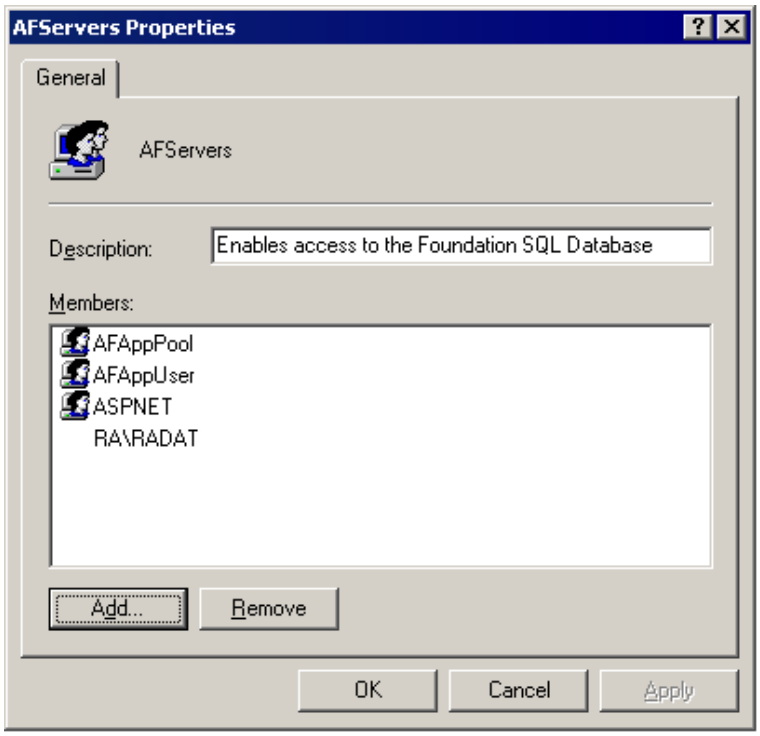
Before you run the SQL scripts, follow these steps to enable interaction between the AF application service and the AF SQL database:

1. On the computer where you installed the AF SQL database, open Computer Management.
2. Create the AFServers local group if it does not already exist.
3. Do either of the following:

- If the AF application service is not running under a domain account, add the AF application service computer name to the AFServers group, using this syntax:

```
DOMAIN\ComputerName
```

In this example, the domain is RA and the computer name is RADAT.



- If the AF application service is running under a domain account, add the name of the domain account under which the AF application service is running to the AFServers group. Be sure to include domain information for the system using this format:

```
DOMAIN\DomainAccount
```

4. Create a SQL Server login and map it to the AFServers local user group.

Execute the SQL scripts to create and populate the AF SQL database

To manually create or upgrade the AF SQL database after installing the SQL scripts, run the SQL scripts from the SQL folder. Here is some example syntax:

- SQL Server authentication example

  The following command is an example of using SQL Server authentication on a SQL Server that includes an instance name:

```
GO.bat MySQL\MyInstance PIFD MySQLLogin MySQLLoginPwd
```

- Windows authentication example

  The following command is an example of using Windows Authentication on a SQL Server that does not include an instance name:

```
GO.bat MySQL PIFD
```

To execute the SQL scripts:

1. If this is an upgrade, stop the AF server services.
2. Open a command prompt window.

   Use **osql** to run these commands if the T-SQL command-line utility, **sqlcmd**, is not installed on your system.
3. Use the following syntax to execute the SQL scripts found in the SQL folder:

```
GO.bat <SQLName>[\<SQLInstanceName>] PIFD [<SQLUserName>
<SQLUserPassword>]
```

   where:

   - `<SQLName>`
     is the name of the SQL Server into which the AF SQL database (PIFD) will be installed.
   - `\<SQLInstanceName>`
     is optional, and should be included if the SQL Server was installed with an instance name.
   - `PIFD`
     is the name of the AF SQL database.
   - `<SQLUserName>` and `<SQLUserPassword>`
     are optional, and should be used if SQL Server authentication is required to connect to the SQL Server.

If not provided, the scripts use Windows authentication to connect to the SQL Server.

The process is complete when the command line looks like:

```
c:\..\PIPC\AF\SQL\PISYSOLEDB>_
```

Modify the AF application service connect string

Modify the AF application service connect string to enable communication between the AF server and the AF SQL database.

On each AF application service computer, follow these steps:

1. In Windows Explorer, navigate to the `..\PIPC\AF` folder.
2. Use a text editor to open the AF application service configuration file, **AFService.exe.config**.
3. Enter the name of the remote SQL Server, and the named instance if applicable, in the connect string server.

   Refer to the following lines of code:

```
<?xml version="1.0" encoding="utf-8"?>
<configuration>
  <appSettings>
              <add key="connectString" value="Persist Security
Info=False;Integrated
Security=SSPI;server=<SQLName>[\SQLInstance];database=PIFD;App
lication Name=AF Application Server;"/>
    <add key="streamedPort" value="5459"/>
```

   If the SQL Server is running on a cluster, it is important to use the clustered resource IP address, instead of a computer name.

```
<?xml version="1.0" encoding="utf-8"?>
<configuration>
  <appSettings>
              <add key="connectString" value="Persist Security
Info=False;Integrated
Security=SSPI;server=<SQLClusterName>[\SQLInstance];database=P
IFD;Application Name=AF Application Server;"/>
    <add key="streamedPort" value="5459"/>
```

   If the SQL Server is configured to use SQL Server mirroring, then add `Failover Partner=<SQLServerName>[\<InstanceName>]` after the `server=`, as shown in the following lines of code:

```
<?xml version="1.0" encoding="utf-8"?>
<configuration>
  <appSettings>
              <add key="connectString" value="Persist Security
Info=False;Integrated
```

```
Security=SSPI;server=<SQLName>[\SQLInstance];failover
partner=<SQLName>[\SQLInstance];database=PIFD;Application
Name=AF Application Server;"/>
    <add key="streamedPort" value="5459"/>
```

To enable encrypted communication, add `encrypt=Yes;` to the code. See the Microsoft SQL Native Client documentation for other options.

4. If the AF application service is running, stop and restart it for your changes to take effect.

Configure the AF application service to point to a different AF SQL database

If you need to direct your AF application service to a different AF SQL database, perform the following instructions to specify a new SQL Server instance and to enable communications.

To specify a new SQL Server instance and enable communications:

1. On the AF application service computer, edit the `AFService.exe.config` file in the `PIPC\AF` folder and replace the server information with the name of the remote SQL Server to be accessed.
2. Restart the AF application service computer.
3. If the AF application service is using the NetworkService or LocalSystem account, add the Domain\Machine Name for the remote AF server to the local AFServers Windows group (on the AF SQL database computer.)
4. If the AF application service has been modified to use any other account, add the account under which it is running to the local AFServers Windows group (on the AF SQL database computer.)

   For details, see "Create the AFServers local group on the AF application service computer (page 68)", step 3.
5. Restart the AF SQL database computer.

Perform the MDB to AF synchronization

Once you have the FactoryTalk Historian Asset Framework and the FactoryTalk Historian SE Server installed, you need to set up synchronization between the AF service and the Historian server. This process is called the *MDB to AF transition*. For more information, refer to the *PI-MDB-to-PI-AF-Transition-Guide_EN.pdf*.

Verify the MDB to AF synchronization

To verify the MDB to AF synchronization:

1. Open System Management Tools. See Opening System Management Tools on Windows Server (page 67).

   The **System Management Tools** dialog box appears.
2. Under **System Management Tools**, select **Operation > AF Link**.
3. Select the Historian server for which you want to verify the synchronization.
   - If the synchronization is operating correctly, a green icon  appears next to the name of the server.
   - If the synchronization fails, a red icon appears. Click  in the **System Management Tools** dialog box for information on how to diagnose and solve the problem.

Disable virus scanning

Rockwell Automation considers it a good practice to exclude the following directories from anti-virus software scanning:

- On Historian server computers, exclude the **Server\arc**, **Server\dat**, **and Server\queue** directories and any directory where archive or event queue files are located.
- For Interface nodes, exclude the **pipc\dat** and **pipc\log** directories, as well as the directory where buffer queue files are located.

By excluding these directories you avoid random signature match incidents, potential performance impacts, and conflicts with locked files.

NOTE For more details, see the *PI-Data-Archive-2018-SP3-Reference-Guide_EN*.pdf. For information on the location of the user documents, see "User documentation (page 13)".

Change logon account settings for FactoryTalk Historian Analysis Service

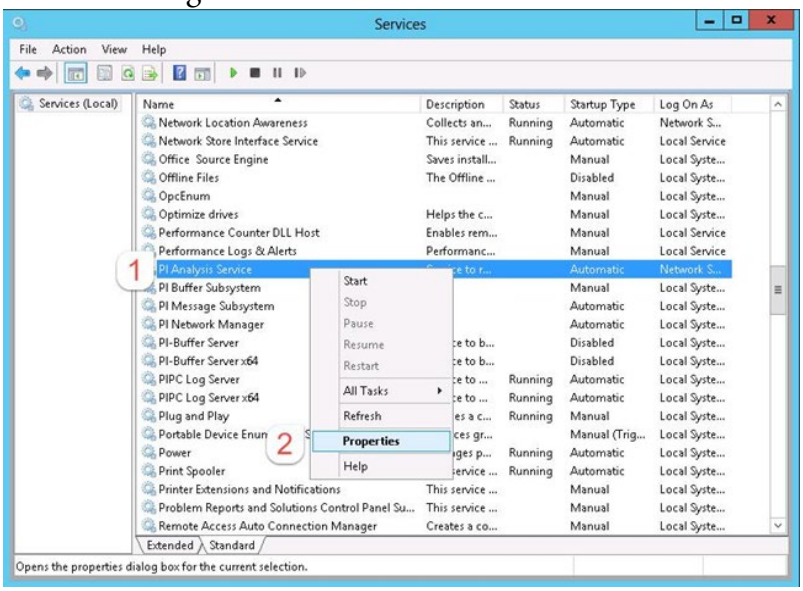
FactoryTalk Historian Analysis Service needs to connect to the FactoryTalk Historian SE server in order to fetch analysis data.

FactoryTalk Historian Analysis Service is installed with the default logon account. You need to change it to a logon account with PI Data Archive and PI AF server access permissions. Otherwise FactoryTalk Historian Analysis Service won't be able to connect to the FactoryTalk Historian SE server.

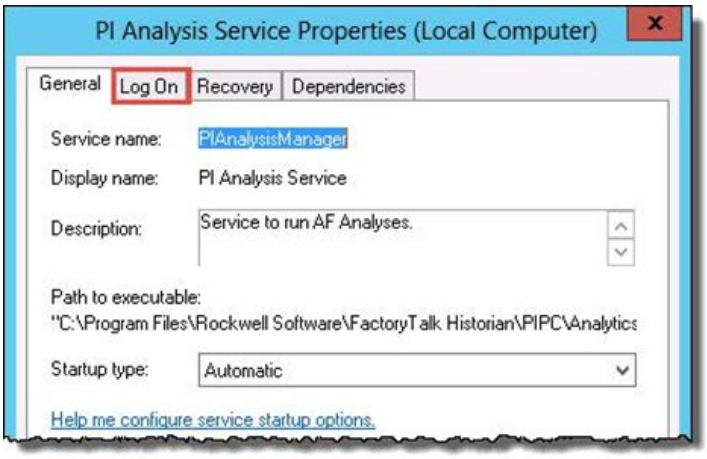
NOTE Follow the *PI-Server-2018-SP3-Patch-1-Installation-and-Upgrade-Guide-EN* for details on how to grant access permissions to service accounts.

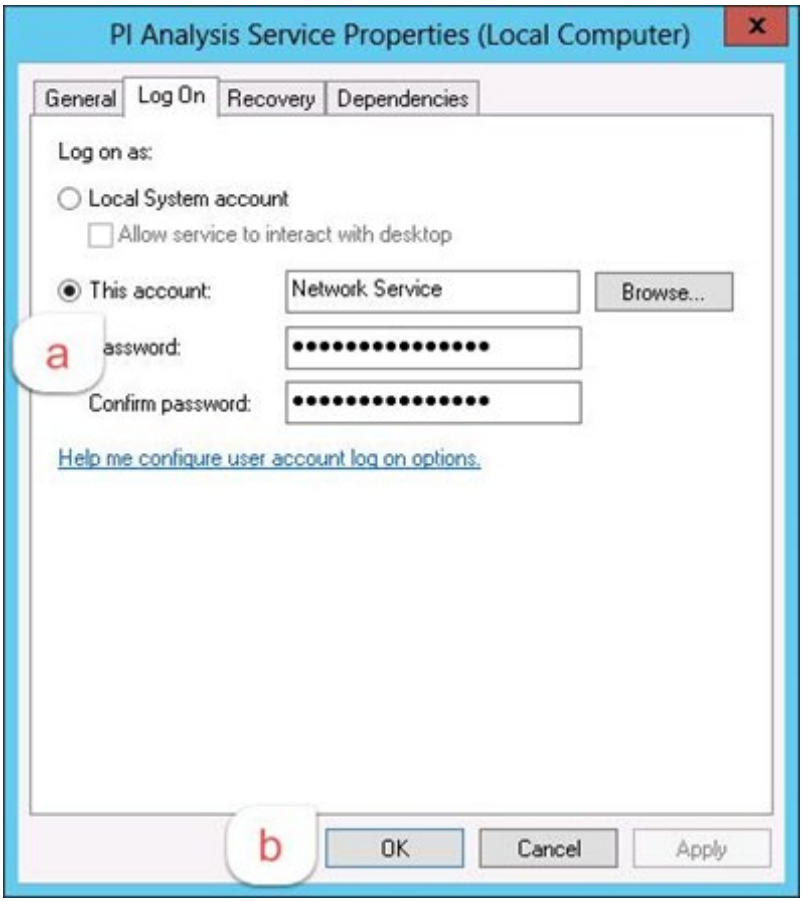
To change the logon account settings for FactoryTalk Historian Analysis Service on Windows Server:

1. In the Windows **Start** menu, enter `Services` to launch the **Services** dialog box.



2. Right click **PI Analysis Service** (1), and then click **Properties** (2).



3. 

In the **This account** box (a), type the name of the account with PI Data Archive and PI AF server access permissions and its password in the Password dialog box and then click **OK** (b).

Configuring FactoryTalk Historian

In this chapter you will find the following information on configuring FactoryTalk Historian SE and its components:

Activating the Historian server

You need to activate the FactoryTalk Historian SE server so that it starts collecting data points (tags) from data servers.

You activate the server by obtaining license activation file(s) from the Rockwell Automation licensing website and assigning them to the server using the FactoryTalk Activation Manager.

To activate the FactoryTalk Historian SE server:

1. Search for and open **FactoryTalk Activation Manager**
2. Follow the instructions displayed in the window to configure your activations.

NOTE Click **Help** for more information, or refer to the instructions from the *Activate Rockwell Software Products* leaflet, available with your product installation package.

Securing the Historian server

FactoryTalk Historian SE allows you to manage the Historian server authentication through Windows and Microsoft Active Directory (AD). This solution improves the Historian server security, reduces your management workload, and provides users with a single sign-on experience.

With Windows authentication for the FactoryTalk Historian SE Server, users log on to their Windows accounts and are automatically authenticated on the Historian server. The Historian server comes with a set of preconfigured security components created to reflect particular roles that may be adopted by users to access the Historian server resources. Each user comes with predefined trusts and is assigned to one or more groups, depending on the scope of privileges they should have. Each group is defined with a different scope of privileges. The users and groups are assigned to individual database tables, creating in this way a system of permissions for accessing the Historian server database resources.

The users are the central components that connect the Windows authentication functionality with the Historian server security model. They determine which Windows users are authenticated on the Historian server and what access permissions they have there (for example, whether the user is allowed to create a point or run a backup).

The connection between the Windows users and/or groups and the Historian server security users is established through mappings. If you want to grant a Windows user or group access to a Historian

server resource (such as a point or a module), you need to create on the Historian server mappings between the Windows users and/or groups and relevant Historian server users or groups. In this way, the Windows users and/or groups adopt the permissions from the Historian users to which they are mapped. This is the safest, quickest, and most convenient way of distributing the Historian server privileges.

You can manage the Historian server security with the System Management Tools.

See the following sections to learn more about the Historian server security model:

- Historian security components and their privileges (page 81)
- Managing Historian security components (page 85)
- Creating security mappings (page 87)
- Managing security of the Historian server database (page 90)

Historian security components and their privileges

The following components constitute the Historian security model:

Identities	Users	Groups
PIEngineers	FTHEngineer	FTHEngineers
PIOperators	FTHOperator	FTHOperators
PISupervisors	FTHSupervisor	FTHSupervisors
PIWorld	pidemo	FTHAdministrators
	piadmin	piusers

The descriptions and privileges of the security components are presented in the following tables:

Identities

Identities	Description and privileges
PIEngineers	A sample identity with engineering duties with no pre-configured

Identities	Description and privileges
	settings.
PIOperators	A sample identity with operational duties with no pre-configured settings.
PISupervisors	A sample identity with supervisory duties with no pre-configured settings.
PIWorld	An identity with preconfigured access permissions to Historian server resources. It represents the "everyone" concept of Windows, and specifies the rights of non-explicit users or groups. All authenticated Historian server users are given at least PIWorld privileges. The **PIWorld** identity has write access to the following table: • PIMSGSS The **PIWorld** identity has read access to the following tables: • PIAUDIT • PIBatch • PIBATCHLEGACY • PICampaign • PIDBSEC • PIDS • PIHeadingSets • PIModules • PIPOINT • PIReplication • PITransferRecords • PIUSER • The **PIWorld** identity does not have access to the following tables: • PIAFLINK • PIARCADMIN • PIARCDATA • PIBACKUP • PIMAPPING • PITRUST • PITuning • You can or cannot do the following with the **PIWorld** identity: • You can fully disable it. • You cannot: • Delete it. • Use it in a mapping. • Use it in a trust.

Users

Users	Description and privileges
FTHEngineer	A preconfigured user, member of the **FTHEngineers** and

Users	Description and privileges
	FTHSupervisors groups.
FTHOperator	A preconfigured user, member of the **FTHOperators** group.
FTHSupervisor	A preconfigured user, member of the **FTHSupervisors** group.

piadmin	A preconfigured administrative PI User with unrestricted access to Historian server resources.
	You can or cannot do the following with the **piadmin** user:
	• You can disable its properties:
	  • To be used in a mapping.
	  • To be used in a trust.
	  • To be used for an explicit logon.
	• You cannot:
	  • Delete it.
	  • Fully disable it.
	You should map it only to a limited group of administrators.
	Piadmin is a member of the **FTHEngineers**, **FTHSupervisors**, and **FTHAdministrators** groups.

Groups

Groups	Description and privileges

FTHAdministrators	It represents Historian server administrators and has read-and-write access to all Historian server resources and default points, except the following database tables:
	• PIDS
	• PIHeadingSets
	• PIPOINT
	You can or cannot do the following with the **FTHAdministrators** group:
	• You can:
	  • Map it to the AD group that represents your Historian server system administrators.
	  • Adjust its access permissions to meet your needs.
	  • Fully disable it.
	• You cannot delete it.

FTHEngineers	A preconfigured group with the following privileges:
	• Create, modify, and delete point definitions.
	• Read and write access to the following database tables:
	  • PIDS
	  • PIHeadingSets
	  • PIPOINT

FTHOperators	A preconfigured group with the following privileges: • Read any point definition. • Read any point's historical data set.
FTHSupervisors	A preconfigured group with the following privileges: • Read any point definition. • Read any point's historical data set. When the users belonging to the **FTHSupervisors** group create points in the FactoryTalk Administration Console, they get the following privileges to these points: • Add new point data to any point's historical data set. • Add, modify, and delete point data.

Groups	Description and privileges
piusers	A generic PI Group formerly named "piuser". This group has no preconfigured access permissions. You can or cannot do the following with the piusers group: • You can fully disable it. • You cannot delete it.

Use the System Management Tools to manage the security components and security of your Historian server database.

Managing Historian security components

NOTE To manage security identities, users, and groups, you need administrative rights to the Historian server.

To manage the Historian server security components:

1. Open **System Management Tools**. See Opening System Management Tools on Windows Server (page 67).

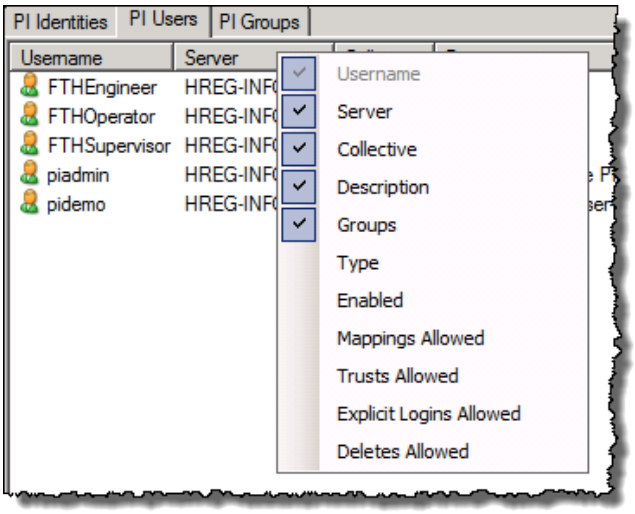
   The **System Management Tools** dialog box appears.

2. Under **Collectives and Servers**, click the check box next to the server for which you want to view and manage the security information.

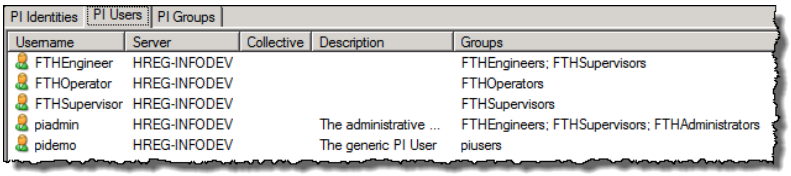
3. Under **System Management Tools**, expand **Security** and select **Identities, Users, & Groups**.

   In the right pane, the **PI Identities**, **PI Users**, and **PI Groups** tabs appear.

   Each tab contains a set of columns with security-related information. To modify the type of information displayed, right-click a column name and add or remove columns from the context menu.

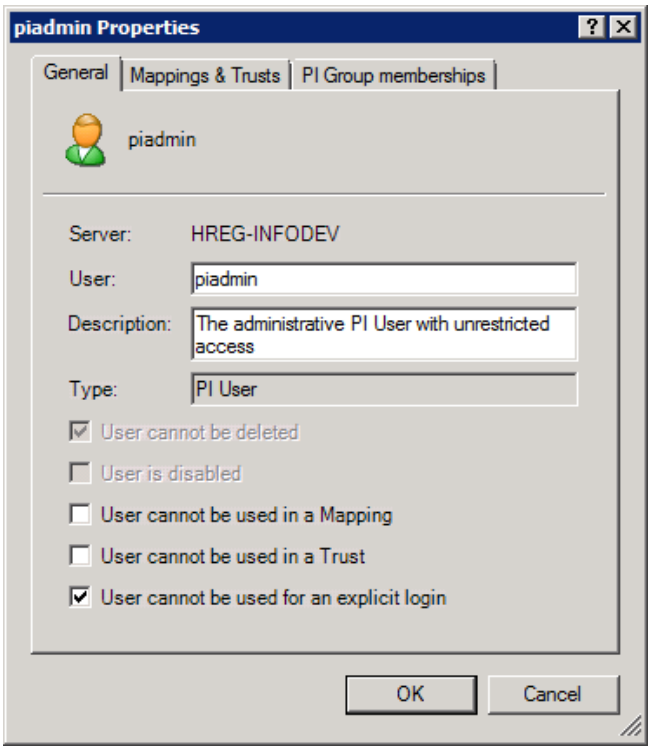


4. Click the tab containing the security component type you want to view and manage.



5. In the selected tab, right-click the security component that you want to view or modify, and select **Properties**.

   The **Properties** dialog box appears.



The content of the dialog box differs depending on the security component type you select.

6. View the settings of the selected security component presented in the tabs.

   You can modify the privileges of the security component to the extent that is allowed by the component's configuration. See "Historian security components and their privileges (page 81)" for more information.

7. Click **OK**.

Creating security mappings

In the FactoryTalk Historian SE security model, if you want to give a Windows user privileges from several Historian groups, create mappings using the System Management Tools following either of the methods:

- Create a mapping between an Active Directory (AD) group and a Historian user. In this way, the Windows user from the AD group used in the mapping gets privileges from all the

Historian groups to which the Historian user referred to in the mapping belongs.

- Create 1-to-1 mappings between each AD group and a corresponding Historian group. If the Windows user is a member of only one AD group for which you have created the mapping, they will get privileges only from the Historian group referred to in the mapping. If you want the Windows user to get privileges from several Historian groups, make sure the user is a member of all the AD groups that are mapped to the Historian groups whose privileges the user should get.

Security mappings are required to establish connections between the FactoryTalk Historian SE server and any remote computer that should be able to communicate with the server (such as the Data Server, the Engineering Workstation, and/or Client Computers).

To create a security mapping between a Windows user and/or group and a Historian server user:

1. Open System Management Tools. See Opening System Management Tools on Windows Server (page 67).

   The **System Management Tools** dialog box appears.
2. Under **Collectives and Servers**, select the server for which you want to create the mapping.
3. Under **System Management Tools**, select **Security > Mappings & Trusts**.
4. In the **Mappings** tab, click  .

   The **Add New Mapping** dialog box appears.
5. Click next to **Windows Account**.

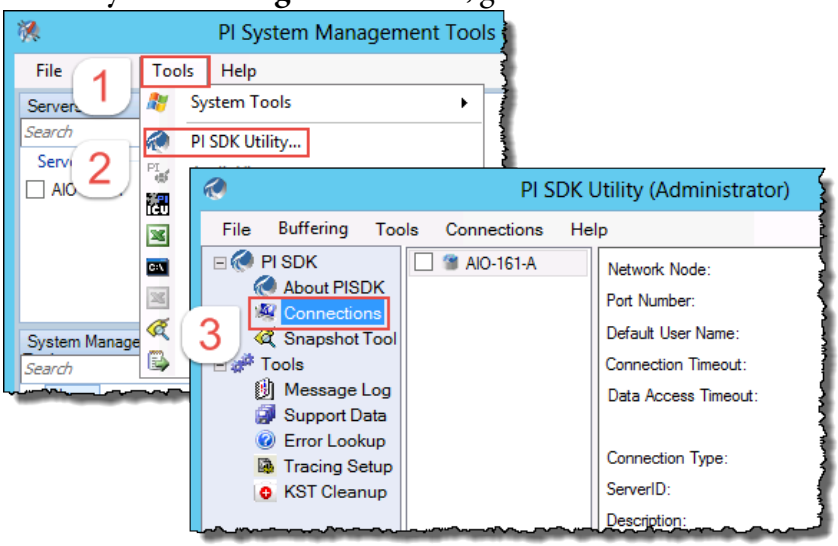
   The **Select User, Computer, or Group** dialog box appears.
6. In the text box, type the name of the user, for which you want to create the mapping.

7. Click **Check Names** to verify the username, and then click **OK**.
8. Click … next to **PI Identity**.

   The **Select PI Identity, PI Group, or PI User** dialog box appears.
9. From the **Type** list, select **PI Users**.
10. Select the PI user, to which you want to map the selected Windows user (e.g. *piadmin*), and click **OK**.
11. Click **OK** to apply the changes. The new mapping is listed in the **Mappings** tab.

To check if a Windows user/group is mapped to a Historian security user:

1. In the **System Management Tools**, go to **Connections**:



2. Select the FactoryTalk Historian SE server to which you want to connect.

   If the server name is not listed, do the following:

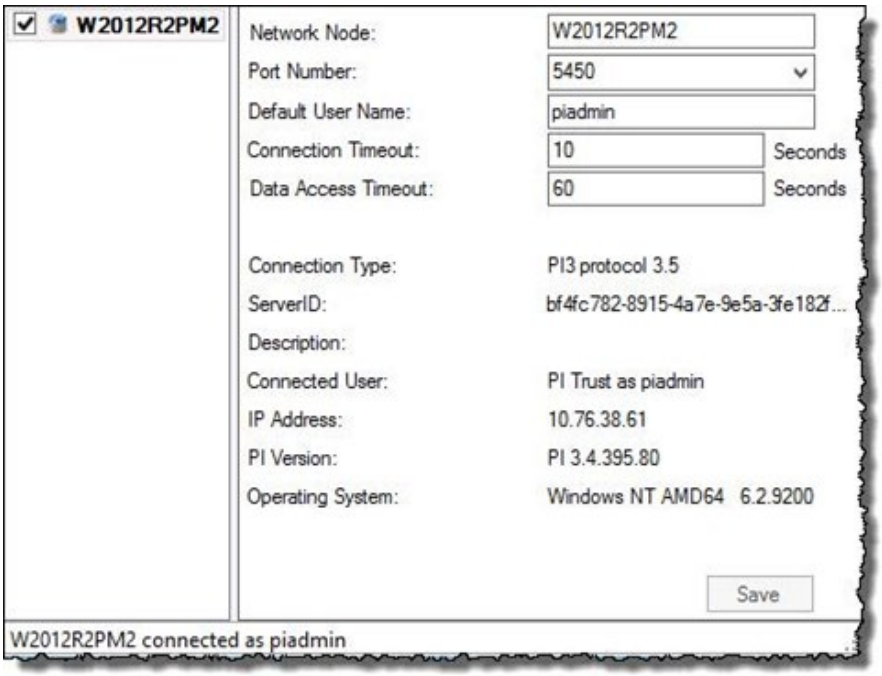
   a. On the **Server** menu, click **Add Server**. The **Add Server** dialog box appears.

b. In the **Network Node** text box, type the fully qualified domain name (FQDN) of the server.

c. Clear the **Confirm** check box, and click **OK**. The new server is added to the server list.

3. Once connected to the server, view its properties.

   The properties contain the domain name, the Windows user/group name, and the name of the Historian security user, to which the Windows user/group is mapped. They also list other Historian server security components, whose privileges are shared by the Windows user/group via the Historian security user.



Managing security of the Historian server database

NOTE To manage security of the Historian server database, you need administrative rights to the Historian server.

To view and manage security privileges of the Historian server database:

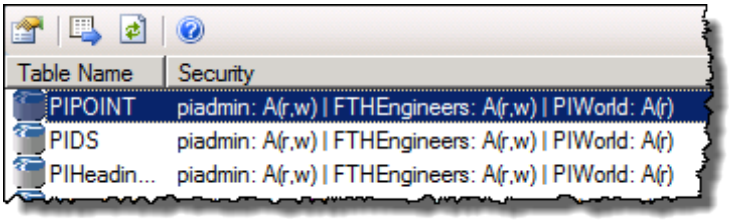
1. Open **System Management Tools**. See Opening System Management Tools on Windows Server (page 67).

The **System Management Tools** dialog box appears.

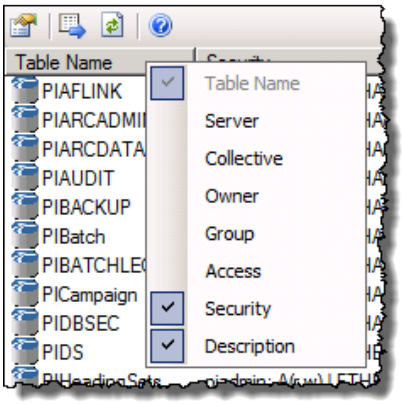
2. Under **Collectives and Servers**, select the server for which you want to manage security.
3. Under **System Management Tools**, select **Security > Database Security**.

   In the right pane of the dialog box, a list of individual database tables is displayed.

   The **Security** column contains a summary of security-related information: a list of the security components (identities, users, and/or groups) assigned to the database table, and their rights displayed in brackets.

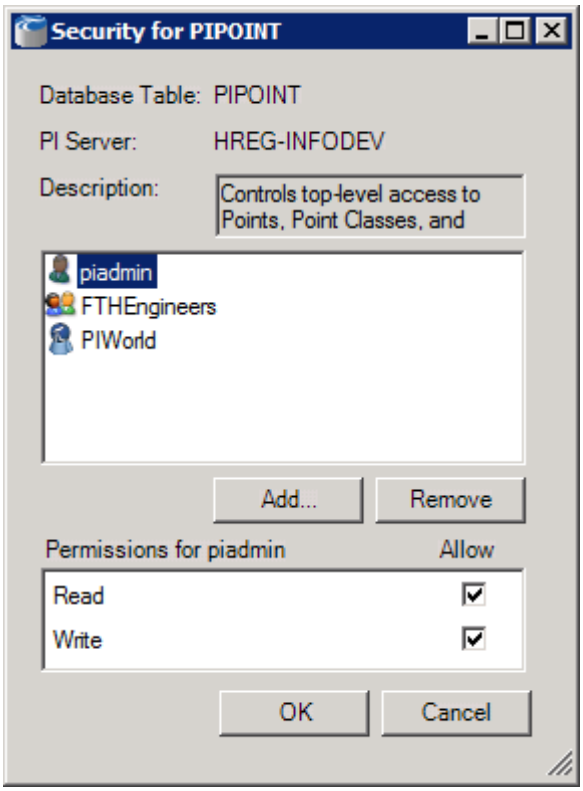


   To modify the type of information displayed, right-click a column name and add or remove columns from the context menu.



4. Right-click the name of the database table for which you want to manage the security information, and select **Properties**.

   The **Security for...** dialog box appears.



5. Click a security component to check its privileges in the **Permissions for...** list.

   You can modify the privileges of the component for the database table to the extent that is allowed by the component's configuration. See "Historian security components and their privileges (page 81)" for more information.

6. Click **OK**.

Manually configuring Windows Firewall for FactoryTalk Historian

If you use Microsoft Windows Firewall on the computers on which you have installed FactoryTalk Historian SE, the firewall configuration is performed automatically during the installation of individual FactoryTalk Historian components, using the Rockwell Firewall Configuration Utility (WFCU).

If you use another utility, you need to configure the firewall manually using the following the steps. Refer to the user

documentation of your firewall configuration utility for more information.

NOTE You need administrator privileges to perform the following steps.

To manually configure the firewall:

- Open TCP/IP ports in the firewall to accept incoming connections:

  See the following table to learn which ports need to be open for individual FactoryTalk Historian suites.

For this FactoryTalk Historian suite:	Open these ports:	Of this type:
Historian to Historian Interface	5450	TCP
Asset Framework	5457 5459	TCP TCP
Analysis Service	5463	TCP
Historian Server	5450 5454 5455 5456 5458 6000	TCP TCP TCP TCP TCP TCP
Live Data Interface	6000	TCP

- For the FactoryTalk Historian SE Server and the FactoryTalk Historian Asset Framework suites, allow incoming ICMP Echo Request messages.
- Allow FactoryTalk Historian Live Data Interface to communicate through the firewall:

  See the following table to learn which settings you need to use when configuring the firewall.

Item	Description
The absolute path to the Live Data interface	`<PIHOME_Value>Interfaces\LDInterface\FTLDInt.exe`, where `<PIHOME_Value>` is the path specified in the following registry key: Computer > HKEY_LOCAL_MACHINE > Software > Wow6432Node > PISystem. For details, see "Checking the location of FactoryTalk Historian Live Data Interface (page 94)".
The name (ID) of the Live Data interface	PIUniint Interface to the PI System.

NOTE For more information on firewall configuration, refer to the documentation of your firewall.

Checking the location of FactoryTalk Historian Live Data Interface

To check the location of the Live Data interface:

1. Open the Windows Registry Editor.
2. Go to **Computer > HKEY_LOCAL_MACHINE > Software > Wow6432Node > PISystem**.
3. Double-click the **PIHOME** value and copy the path from the value data text box.

   The complete path to the Live Data interface will consist of the following parts:

   - The path you get from the registry.
   - **\Interfaces\LDInterface\FTLDInt.exe**

   Example: If the PIHOME value points to the following location:

   C:\Program Files\Rockwell Software\FactoryTalk Historian\PIPC

The complete path to the Live Data interface would be:

C:\Program Files\Rockwell Software\FactoryTalk Historian\PIPC\\Interfaces\LDInterface\FTLDInt.exe

Configuring the Historian server

In the following sections you will learn how to configure and use the FactoryTalk Historian SE server.

1. Add the server to the FactoryTalk Directory (page 95)
2. Verify the FactoryTalk Historian Live Data Local Interface (page 97)
3. Opening FactoryTalk Administration Console on Windows Server (page 97)
4. Manage licenses (page 98)
5. Configure points (page 120)
6. View current and archive data (page 123)
7. Archive and back up (page 125)
8. Restart the FactoryTalk Historian SE server (page 127)

Adding the server to the FactoryTalk Directory

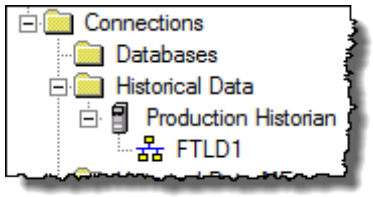
Once the FactoryTalk Historian SE server is installed and running, add it to the FactoryTalk Directory.

To add the FactoryTalk Historian SE server to the FactoryTalk Directory:

1. Open **FactoryTalk Administration Console**. See Opening FactoryTalk Administration Console on Windows Server (page 97).

   The **FactoryTalk Administration Console** dialog box appears.
2. In the **Select FactoryTalk Directory** dialog box, select **Network**, and click **OK**.
3. In the **Explorer** tree, expand **System > Connections**.

4. Right-click **Historical Data** and select **New Historian Server Connection**.
5. In the **New Historian Server Connection** dialog box, select the name of your FactoryTalk Historian SE server from the **Server or Collective name** list, and click **Test Server Connection**.
   - If the connection is successful, the **Server found** message appears next to the **Test Server Connection** button.
   - If the connection is not successful, the **No server found** message appears next to the **Test Server Connection** button. In such a case, check the status of your server in the Connection Manager.
6. Click **Finish**. The new server connection with the default Live Data interface instance *FTLD1* appears under the **Historical Data** folder.



The local interface is now configured to start collecting data points from any data servers that are available to the FactoryTalk Historian SE server.

For more information on the FactoryTalk Historian Live Data Interface, see "Configuring FactoryTalk Historian Live Data Interface (page 129)".

If you want to verify if FTLD Interface is properly configured, see "Verifying the FactoryTalk Historian Live Data Local Interface (page 97)".

IMPORTANT You can use the local interface for data collection. However, we strongly recommend that you create a remote interface on the computer that has the data server installed. Buffering, which ensures that the loss of data does not occur, can only be enabled on a remote interface. To learn more about buffering, see "Enable buffering (page 134)".

Verifying the FactoryTalk Historian Live Data Local Interface

To verify that the FactoryTalk Historian Live Data Local Interface is configured:

1. Open **FactoryTalk Administration Console**. See Opening FactoryTalk Administration Console on Windows Server (page 97).

   The **FactoryTalk Administration Console** dialog box appears.
2. In the **Select FactoryTalk Directory** dialog box, select **Network**, and click **OK**.
3. In the **Explorer** tree, expand **System > Connections > Historical Data**, and the FactoryTalk Historian SE server node.
4. Right-click **FTLD1**, and select **Properties**.

   The **Data Collection Interface Properties** dialog box appears.
5. Go to the **General** tab, and verify in the **Service Status** section that the **Startup Type** is set to **Automatic**.
6. To start the data collection service, click **Start** and wait until the service status changes to **Started**. For more information, click the help icon in the dialog box.
7. Click **OK** to close the dialog box.

Opening FactoryTalk Administration Console on Windows Server

To open **FactoryTalk Administration Console** using your **Start** menu, enter `FactoryTalk Administration Console` and select the **FactoryTalk Administration Console** result.

Managing licenses

Once you have your activations, you can assign them to your Historian server, and allocate tag counts to selected interface types (or point sources).

See the following topics for more information:

- Types of licenses (page 98)
- Learning how licenses are distributed between license pools (page 102)
- Assigning license activations to the FactoryTalk Historian SE server (page 110)
- Allocating licenses to interface types (page 115)
- Viewing allocated licenses (page 118)

Types of licenses

The license activations you get for your Historian server are various types of licenses that you can use in either of the following pools of licenses:

- **Rockwell**

  Groups license activations for Rockwell Data Sources. A Rockwell Data Source is a Rockwell Automation device or data shown on Rockwell Automation HMI as part of a FactoryTalk System.

- **General**

  Groups license activations for tags from both Rockwell and third-party devices.

You may use the following license activations with your FactoryTalk Historian:

Type of license activation	Point sources	Description

Type of license activation	Point sources	Description
FHIST.XXX	FTLD*	FactoryTalk Live Data connector interfaces.
	FTMS	Points transferred from a FactoryTalk Historian ME module.
FHISTPY.2K	Third-party and Rockwell point sources.	See "How licenses are distributed between license pools (page 102)" for details.
FHSE.XXX	FTLD*	FactoryTalk Live Data connector interfaces.
	FTMS	Points transferred from a FactoryTalk Historian ME module.
FHSE.H2H	FTSS	FactoryTalk Server to Server interfaces. The license sets the number of points from the FTH2H interface to unlimited.

FHSE.Advanced	not applicable	Activates the following Advanced Server components for the standard FactoryTalk Historian SE server:
		• ACE Advanced Computation Engine for Visual Basic calculations on Historian data
		• Data Access
		  • JDBC Data Provider
		  • ODBC
		  • OLE DB Enterprise
		  • OLE DB Provider
		  • OPC DA Server
		  • OPC HDA Server
		  • OPC HDA DA Server
		  • PI SQL DAS
		• Notifications for using Microsoft Lync Unified Communication Server
		Note: For users upgrading their license activations from FactoryTalk Historian SE 2.2/2.1, the Advanced Server components are activated automatically when the total license count of the **FHLD** and **PTY3** license activations is at least 250.

Type of license activation	Point sources	Description
FHSE.Enterprise	Default point sources: • FTBOINT • FTLD • FTLD1-99 • FTMS • FTSS • PIFTBOINT Third-party point sources	All the default point sources are set to unlimited. Third party point sources are set to the value that has been assigned in FactoryTalk Administration Console, where the maximum allowed value to set is 1000000000. It means that it is possible to create the unlimited number of points for the default point sources and up to 1000000000 for individual third-party point source. The license also activates all the components of the Advanced Server.
FHSE.OLEDB	not applicable	Activates the following Advanced Server components for the standard FactoryTalk Historian SE server: • ODBC • OLE DB Enterprise • OLE DB Provider • SQL Data Access Server
FHSE.OPC	not applicable	Activates the following Advanced Server components for the standard FactoryTalk Historian SE server: • OPC DA Server • OPC HDA Server • OPC HDA DA Server
FTBAInt.XXX	FTBOINT PIFTBOINT	FactoryTalk Batch Interface. The license sets the number of points from the FTBOINT and PIFTBOINT interfaces to unlimited.
FHSE3ADD.XXX	Third-party and Rockwell point sources.	See "How licenses are distributed between license pools (page 102)" for details.

Type of license activation	Point sources	Description
* The existing default behavior was when a FTLD interface started up, all points that had FTLD as the point source got sent down to the interface from the FactoryTalk Historian Server, and then only the points that matched the interface's unique ID were put on scan. In very large applications, consisting of hundreds of thousands of points, or locations where the network bandwidth is limited, this behavior was not ideal. In version 5.00 or higher, you can edit each FTLD interface point source and make it a unique number so that only the data points that match that unique point source number get sent from the FactoryTalk Historian Server. For details, see the *FactoryTalk Historian Live Data Interface User Guide*, section "Use multiple FTLD point source values".		

The names of the license activations have the following structure: <*Type*>.<*Quantity*>, and contain the following information:

- **<Type>**

  The type of the license activation.

- **<Quantity>**

  The maximum number of individual licenses that can be allocated to an interface type (or point source). Each license corresponds to a single point with which the server can collect data from the interface.

  For example, for the *FTHSE* license activation, the quantity ranges from 250 to 100K points.

- For some types of license activations, instead of the <*Quantity*> part there is a combination of digits and/or characters that further describe the activation, e.g. *FTHSE.H2H*, *FTBAInt.1*.

Each license activation contains a number of individual licenses. The system distributes the licenses between the Rockwell and General license pools, depending on the type of license activations you have. When you allocate licenses to interface types (or point sources), you take the licenses from either of the license pools.

To use the licenses:

1. Learn how licenses are distributed between the license pools. (page 102)
2. Assign the license activations to your Historian server (page 110).
3. Allocate the individual licenses to interface types (or point sources) (page 115).

Learn how licenses are distributed between license pools

When you acquire license activations for your FactoryTalk Historian and assign them to your Historian server, the system automatically distributes individual licenses from the license activations between the General and Rockwell license pools.

The system takes into account the following license activations to calculate the volume of the individual license pools:

- FHIST
- FHISTPY
- FHSE3ADD
- FHSE
- FHLD
- PTY3

If you want to calculate how licenses from your license activations will be distributed between the license pools, perform the following steps.

TIP

The symbols used in the formulas presented here mean:

Σ	"the sum of"
Min	"the lower value of the two in the brackets"
Max	"the greater value of the two in the brackets"

To calculate the distribution of licenses between the General and Rockwell license pools:

NOTE If only using the license activations of **FHIST**, follow the steps as below.

1. Calculate the <BaseLicenseCount> value.

   It is an intermediate value that will be used to calculate the number of licenses of the General pool.

   ```
   <BaseLicenseCount> = Min (6000, Σ <FHIST licenses> * 10%)
   ```

2. Calculate the number of licenses for the Rockwell license pool.

   Take the number of the FHIST licenses and the <BaseLicenseCount> value, and then substitute them into the following equation:

   ```
   <RockwellLicensePool> = Min (60000, ∑ <FHIST licenses>) - <BaseLicenseCount>
   ```

3. Calculate the number of licenses for the General license pool.

   Take the number of the <BaseLicenseCount> value, and then substitute them into the following equation:

   ```
   <GeneralLicensePool> = <BaseLicenseCount>
   ```

TIP License activations of **FHISTPY** can be activated only with at least one of the following license activations: **FHSE**, **FHSE3ADD**, **FHLD**, or **PTY3**.

NOTE If using the license activations of **FHSE3ADD**, **FHSE**, **FHLD**, and **PTY3**, follow the steps as below.

1. Calculate the <BaseLicenseCount> value.

   It is an intermediate value that will be used to calculate the number of licenses of the General pool.

   ```
   <BaseLicenseCount> = Max (Min (5000, Σ <FHSE licenses>), 20% * Σ <FHSE licenses>)
   ```

2. Calculate the number of licenses for the Rockwell license pool.

Take the number of the FHLD licenses, FHSE licenses, and the <BaseLicenseCount> value, and then substitute them into the following equation:

```
<RockwellLicensePool> = ∑ <FHLD licenses> + ∑ <FHSE licenses> - <BaseLicenseCount>
```

3. Calculate the number of licenses for the General license pool.

   Take the number of the PTY3 licenses, the FHSE3ADD licenses, and the <BaseLicenseCount> value, and then substitute them into the following equation:

   ```
   <GeneralLicensePool> = ∑ <PTY3 licenses> + <BaseLicenseCount> + ∑ <FHSE3ADD licenses>
   ```

NOTE If using the license activations of **FHSE3ADD**, **FHSE**, **FHLD**, **PTY3**, **FHIST**, and **FHISTPY**, follow the steps as below.

1. Calculate the following five values before calculating the <BaseLicenseCount> value.

   They are the intermediate values that will be used to calculate the number of licenses of the General pool.

   - `<MaxServerSize> = Max (60000, Σ (<FHLD licenses>, <FHSE licenses>, <PTY3 licneses>, <FHSE3ADD licenses>) * 1.5)`

     TIP The value of <MaxServerSize> is equal to or less than 500,000.

   - `<FHISTPYvar> = Min (6000, <FHISTPY licenses>)`
   - `<LicNewAllowed> = <MaxServerSize> – Σ (<FHLD licenses>, <FHSE licenses>, <PTY3 licenses>, <FHSE3ADD licenses>, <FHISTPYvar>)`
   - `<GenLicOld> = Max (Min (5000, <FHSE licenses>), <FHSE licenses> * 20%)`
   - `<LicNew> = Min (<FHIST licenses>, <LicNewAllowed>)`

2. Calculate the <BaseLicenseCount> value.

It is an intermediate value that will be used to calculate the number of licenses of the General pool.

```
<BaseLicenseCount> = Max (<GenLicOld>, Σ (<FHSE licenses>, <LicNew>) * 10%)
```

3. Calculate the number licenses for the Rockwell license pool.

   Take the number of the FHLD licenses, FHSE licenses, FHIST licenses, the <MaxServerSize> values, and the <BaseLicensCount> value, and then substitute them into the following equation:

   ```
   <RockwellLicensePool> = Min (<MaxServerSize>, Σ (<FHLD licenses>, <FHSE licenses>, <FHIST licenses>) - <BaseLicenseCount>
   ```

4. Calculate the number of licenses for the General license pool.

   Take the number of the PTY3 licenses, FHSE3ADD licenses, the <FHISTPYvar> value, and the <BaseLicenseCount> value, and then substitute them into the following equation:

   ```
   <GeneralLicensePool> = <PTY3 licenses> + <FHSE3ADD licenses> + <FHISTPYvar> + <BaseLicenseCount>
   ```

Distributing licenses

TIP The symbols used in the formulas presented here mean:

Σ	"the sum of"
Min	"the lower value of the two in the brackets"
Max	"the greater value of the two in the brackets"

The following examples show the calculation of how licenses will be distributed between the General and Rockwell license pools.

NOTE If only using the license activations of **FHIST**, the following values will be used.

Activation	Value	Σ (sum)
FHIST.10K	10000	10000
FHIST.20K	20000	40000
FHIST.20K	20000	
Total		50000

To distribute licenses between the license pools:

1. Calculate the <BaseLicenseCount> value.

   ```
   <BaseLicenseCount> = Min (6000, Σ <FHSIST licenses>) * 10%)
   <BaseLicenseCount> = Min (6000, 50000 * 10%)
   <BaseLicenseCount> = Min (6000, 5000)
   <BaseLicenseCount> = 5000
   ```

2. Calculate the number of licenses for the Rockwell license pool.

   ```
   <RockwellLicensePool> = Min (Σ <FTHIST licenses>, 60000) - <BaseLicenseCount>
   <RockwellLicensePool> = Min (50000, 60000) – 5000
   <RockwellLicensePool> = 50000-5000
   <RockwellLicensePool> = 45000
   ```

3. Calculate the number of the licenses for the General license pool.

   ```
   <GeneralLicensePool> = <BaseLicenseCount>
   <GeneralLicensePool> = 5000
   ```

In this example, the total of 50000 licenses has been distributed in the following way:

Licenses and license pools	Values
License total	50000
Rockwell license pool	45000
General license pool	5000

TIP License activations of **FHISTPY** can be activated only with at least one of the following license activations: **FHSE**, **FHSE3ADD**, **FHLD**, or **PTY3**.

NOTE If using the license activations of **FHSE3ADD**, **FHSE**, **FHLD**, and **PTY3**, the following values will be used.

Activation	Value	Σ (sum)
FHSE.1000	1000	12000
FHSE.1000	1000	
FHSE.10K	10000	
FHSE3ADD.2K	2000	2000
FHLD.5K	5000	5000
PTY3.500	500	500
Total		19500

To distribute licenses between the license pools:

1. Calculate the <BaseLicenseCount> value.

   ```
   <BaseLicenseCount> = Max (Min (5000, Σ
   <FHSElicenses>), 20% * Σ <FHSE licenses>)
   ```

   ```
   <BaseLicenseCount> = Max (Min (5000, 12000), 20%
   *12000)
   ```

   ```
   <BaseLicenseCount> = Max (Min (5000, 12000), 2400)
   ```

   ```
   <BaseLicenseCount> = Max (5000, 2400)
   ```

   ```
   <BaseLicenseCount> = 5000
   ```

2. Calculate the number of licenses for the Rockwell license pool.

   ```
   <RockwellLicensePool> = Σ <FHLD licenses> + Σ
   <FHSElicenses> - <BaseLicenseCount>
   ```

   ```
   <RockwellLicensePool> = 5000 + 12000 - 5000
   ```

   ```
   <RockwellLicensePool> = 12000
   ```

3. Calculate the number of licenses for the General license pool.

   ```
   <GeneralLicensePool> = Σ <PTY3 licenses>
   +<BaseLicenseCount> + Σ <FHSE3ADD licenses>
   ```

   ```
   <GeneralLicensePool> = 500 + 5000 + 2000
   ```

   ```
   <GeneralLicensePool> = 7500
   ```

In this example, the total of 19500 licenses has been distributed in the following way:

Licenses and license pools	Values
License total	19500
Rockwell license pool	12000
General license pool	7500

NOTE If using the license activations of **FHSE3ADD**, **FHSE**, **FHLD**, **PTY3**, **FHIST**, and **FHISTPY**, the following values will be used.

Activation	Value	Σ (sum)
FHSE.1000	1000	1000
FHSE3ADD.2K	2000	2000
FHLD.2500	2500	2500
PTY3.500	500	500
FHIST.1000	1000	1000
FHISTPY.2K	2000	2000
Total		9000

To distribute licenses between the license pools:

1. Calculate the following intermediate values that will be used to calculate <BaseLicenseCount> value.

   - `<MaxServerSize> = Max (60000, Σ (<FHLD licenses>, <FHSE licenses>, <PTY3 licneses>, <FHSE3ADD licenses>) * 1.5)`

     `<MaxServerSize> = Max (60000, 6000 * 1.5)`

     `<MaxServerSize> = Max (60000, 9000)`

     `<MaxServerSize> = 60000`

     TIP The value of <MaxServerSize> is equal to or less than 500,000.

   - `<FHISTPYvar> = Min (6000, FHISTPY)`

     `<FHISTPYvar> = Min (6000, 2000)`

     `<FHISTPYvar> = 2000`

- <LicNewAllowed> = <MaxServerSize> – Σ (<FHLD licenses>, <FHSE licenses>, <PTY3 licenses>, <FHSE3ADD licenses>, <FHISTPYvar>)

  <LicNewAllowed> = 60000 – Σ (2500, 1000, 500, 2000, 2000)

  <LicNewAllowed> = 60000 – 8000

  <LicNewAllowed> = 52000

- <GenLicOld> = Max (Min (5000, <FHSE licenses>), <FHSE licenses> * 20%)

  <GenLicOld> = Max (Min (5000, 1000), 1000 * 20%)

  <GenLicOld> = Max (1000, 200)

  <GenLicOld> = 1000

- <LicNew> = Min (<FHIST licenses>, <LicNewAllowed>)

  <LicNew> = Min (1000, 52000)

  <LicNew> = 1000

2. Calculate the <BaseLicenseCount> value.

   <BaseLicenseCount> = Max (<GenLicOld>, Σ (<FHSE licenses>, <LicNew>) * 10%)

   <BaseLicenseCount> = Max (1000, Σ (1000, 1000) * 10%)

   <BaseLicenseCount> = Max (1000, 2000 * 10%)

   <BaseLicenseCount> = Max (1000, 200)

   <BaseLicenseCount> = 1000

3. Calculate the number of licenses for the Rockwell license pool.

   <RockwellLicensePool> = Min (<MaxServerSize>, Σ (<FHLD licenses>, <FHSE licenses>, <FHIST licenses>) - <BaseLicenseCount>

   <RockwellLicensePool> = Min (60000, Σ (2500, 1000, 1000,) - 1000

   <RockwellLicensePool> = Min (60000, 4500) – 1000

   <RockwellLicensePool> = 4500 – 1000

   <RockwellLicensePool> = 3500

4. Calculate the number of licenses for the General license pool.

   <GeneralLicensePool> = <PTY3 licenses> + <FHSE3ADD licenses> + <FHISTPYvar> + <BaseLicenseCount>

   <GeneralLicensePool> = 500 + 2000 + 2000 + 1000

```
<GeneralLicensePool> = 5500
```

In this example, the total of 19500 licenses has been distributed in the following way:

Licenses and license pools	Values
License total	9000
Rockwell license pool	3500
General license pool	5500

Assigning license activations to the Historian server

NOTE In order to assign the activations to a FactoryTalk Historian SE server, the server must be added to the FactoryTalk Directory. See "Adding the server to the FactoryTalk Directory (page 95)" for more information.

To assign the license activations to the server:

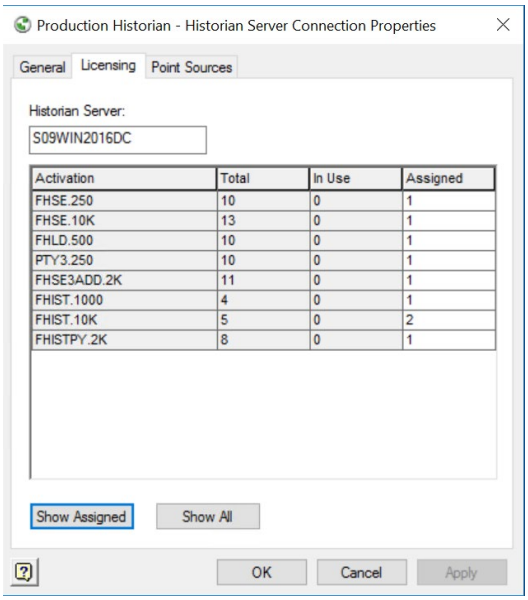
1. Open **FactoryTalk Administration Console**. See Opening FactoryTalk Administration Console on Windows Server (page 97).

   The **FactoryTalk Administration Console** dialog box appears.
2. In the **Select FactoryTalk Directory** dialog box, select **Network**, and click **OK**.
3. In the **Explorer** tree, expand **System > Connections > Historical Data**.
4. Right-click the name of the server to which you want to assign the license activations, and click **Properties**.
5. In the **Historian Server Connection Properties** dialog box, click the **Licensing** tab. The table displayed in the tab provides the following information for the selected server:

Item	Description
Activation	The type of the license activation.
Total	The total number of license activations of the given type.

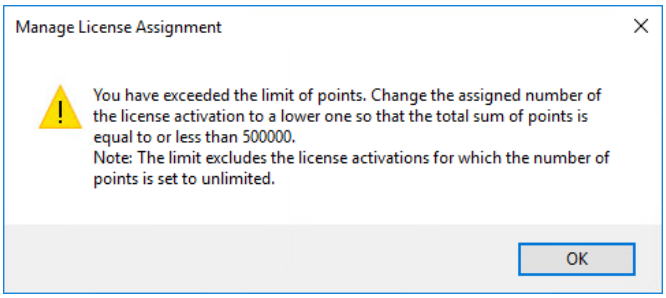
Item	Description
In Use	The number of license activations of the given type that are used by other Historian servers.
Assigned	The number of license activations of the given type that are assigned to the selected server.

6. To assign a license activation to the server, type a number in the **Assigned** column for the selected license activation. The number shows how many licenses of the selected type will be assigned to the server.

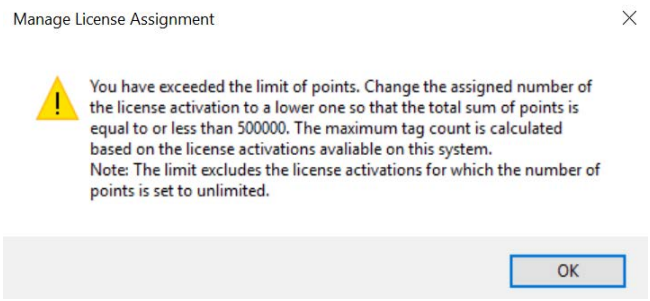


After each license activation assignment, the system checks the sum of points resulting from the assignments. The total sum of points must be equal to or less than 500,000. If you exceed this limit, the following message appears:

- If using license activations of **FHSE3ADD**, **FHSE**, **FHLD**, and **PTY3**:



- If using the license activations of **FHSE3ADD**, **FHSE**, **FHLD**, **PTY3**, **FHIST**, and **FHISTPY**:



Follow the instructions in the message.

If you change the number of assigned license activations to a lower one, the system performs the following checks:

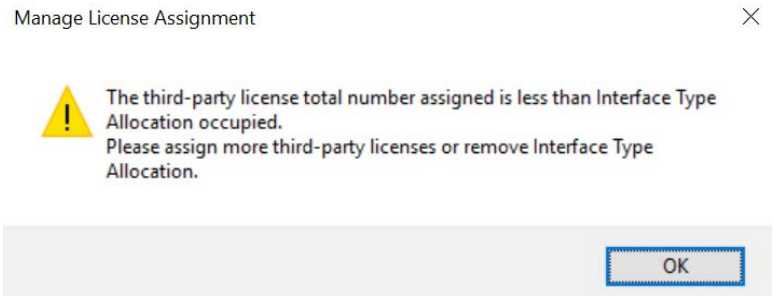
- For license activations of type PTY3 and FHSE3ADD

  The system checks the sum of limits for third-party point sources currently set in the **Point Sources** tab. If the sum exceeds the allowed limit for point sources resulting from the number of relevant license activations that are currently assigned to the Historian server, an error message appears.

- For all license activations

  The system checks the sum of limits for third-party point sources and the FTMS point source currently set in the **Point Sources** tab. If the sum exceeds the allowed limit for point sources resulting from the number of relevant license activations that are currently assigned to the Historian server, an error message appears.

For either of the two limit checks the following message is displayed:

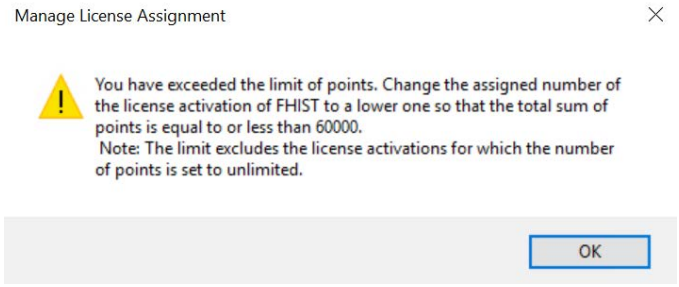


NOTE The following license activations are excluded from the point limit check: AVIEW, FTBAInt, FHSE.H2H, FHSE.Advanced, FHSE.OLEDB, and FHSE.OPC.

There are additional situations after adding the license activations of **FHIST** and **FHISTPY**.

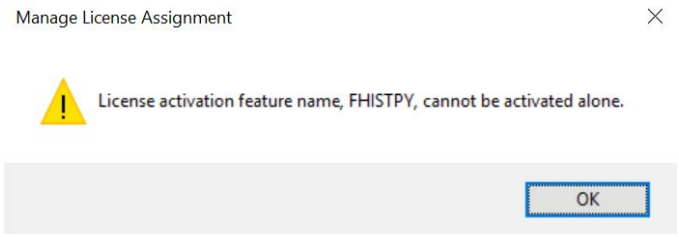
- For license activations of FHIST

  It can be activated alone but has the upper limit points of 60000, or an error message appears.



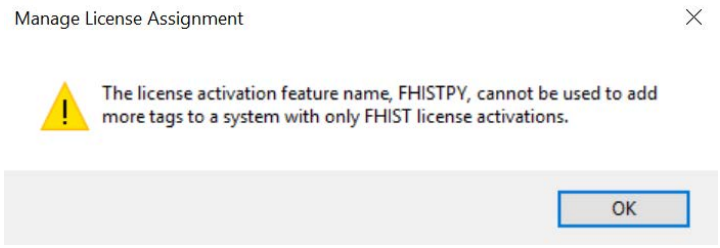
- For license activations of FHISTPY

  It cannot be activated alone, or an error message appears.



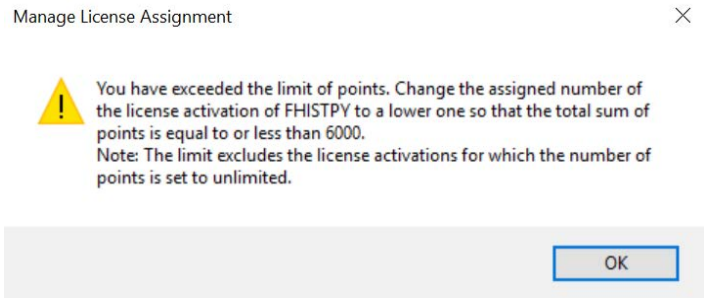
- For license activations of FHIST and FHISTPY

They cannot be activated at the same time unless other license activations are assigned, or an error message appears.



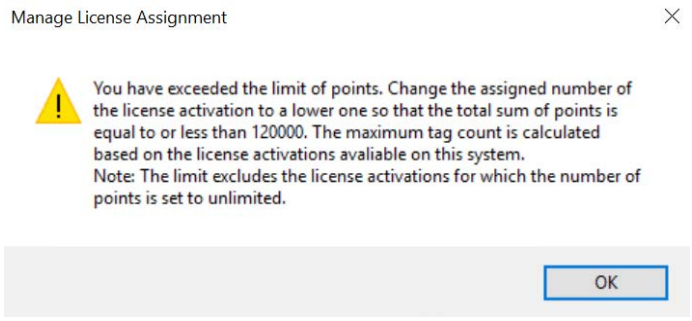
- For license activations of FHISTPY with other license activations (with or without FHIST) assigned

  The number of the value must be less than the upper limit points of 6000, or an error message appears.



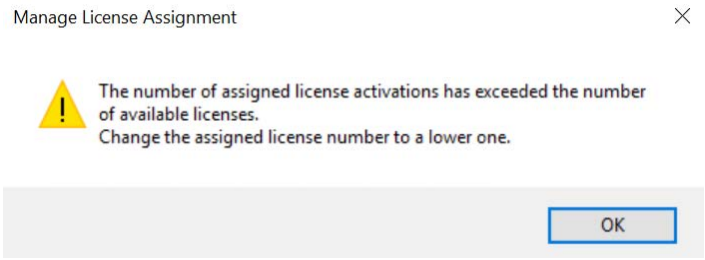
- For all license activations (FHSE3ADD, FHSE, FHLD, PTY3, FHIST, and FHISTPY)

  If all license activations are assigned, the number of points will be a dynamic value. If the actual value is greater than that calculated via algorithm (See “Learn how licenses are distributed between license pools (Page 102)” for more information), an error message appears.



7. Click **Apply**.

   If you have assigned more license activations than you currently have available, the following message appears:



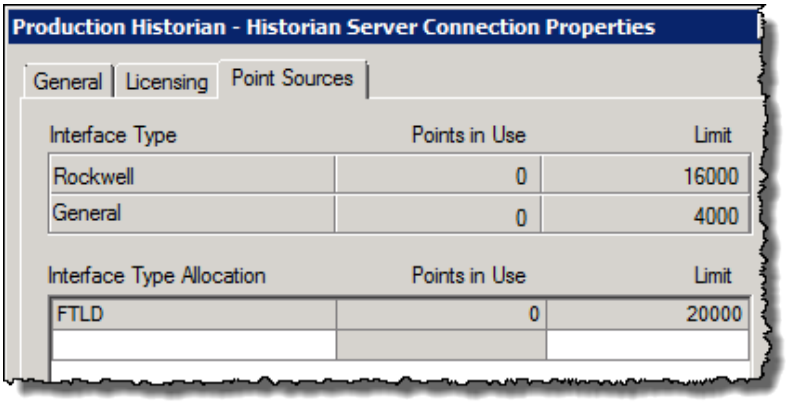
   Change the number of the license activations, and then click **Apply** again.

Allocating licenses to interface types (or point sources)

By allocating a license to an interface type (or point source), you specify the maximum number of points with which the server will collect data from a given interface type (or point source).

To allocate licenses to interface types:

1. In the **Historian Server Connection Properties** dialog box, click the **Point Sources** tab.

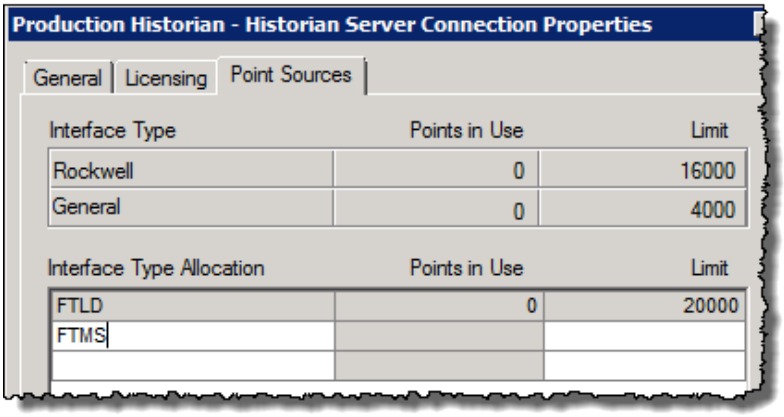


   The tab contains two tables that display the following information:

Item name	Description

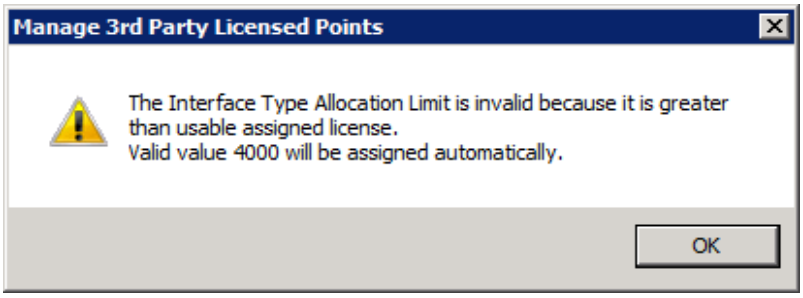
Item name	Description
Interface Type	Pools of licenses (Rockwell and General) assigned to the server. This information cannot be edited.
Interface Type Allocation	Abbreviated names of interface types (or point sources) to which you can allocate licenses from the license pools. The *FTLD* interface type is the default type and it cannot be edited.
Points in Use	The number of points already configured for collecting data from a given interface type. This information is updated automatically and cannot be edited.
Limit	The maximum number of licenses that is allocated to a license pool or an interface type. • For the license pools, the limits are collected from the license activations. This information cannot be edited. • For the *FTLD* interface type, the limit equals the total number of unallocated licenses from both *Rockwell* and *General* license pools. This information is updated automatically and cannot be edited.

2. In the **Interface Type Allocation** column, type the abbreviated name of the interface type (or point source) to which you want to allocate a license limit. See "Types of Licenses (page 98)" for more information on the interface types.



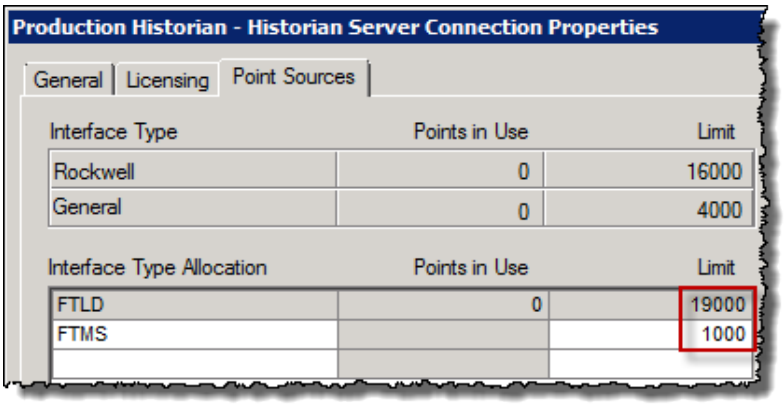
3. In the **Limit** column, type the maximum number of licenses for points that the server will use to collect data from the selected interface type. The number must be a multiple of 50.

   If you type incorrect information in the **Interface Type Allocation** or **Limit** columns, a relevant message will appear. Read the message to learn about the error, for example:



NOTE For PI Notifications, you allocate the maximum number of licenses for individual notifications instead of points. The licenses are taken from the Rockwell pool.

4. Click **Apply**. The license limit of the *FTLD* interface type is updated accordingly:



5. Repeat the steps for other interface types that you want to add.
6. Click **OK**.
7. Restart the FactoryTalk Historian SE server (page 127) for the changes to take effect.

You can view the information on the allocated licenses in System Management Tools (page 118).

NOTE If you allocate point sources FTLD1-99 and/or FTMS with the license activation of type FHSE.XXX, you will be able to edit the point limit for them. Once you change their license activation from FHSE.XXX to FHSE.ENTERPRISE, they will not be editable anymore and their limit will be set to unlimited. See "Types of licenses (page 98)" for more information.

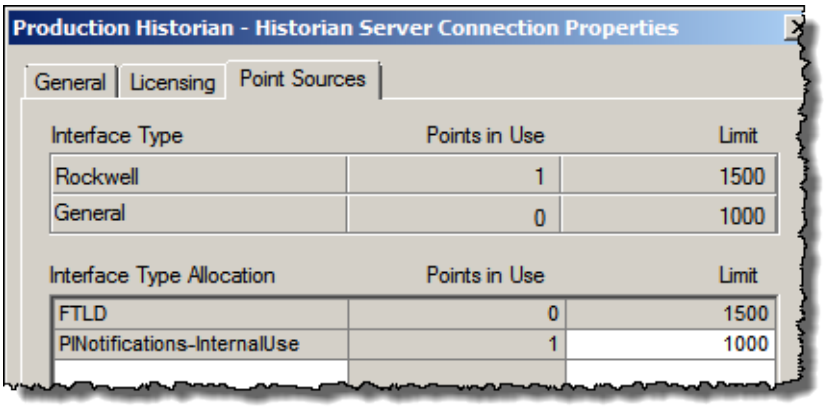
Viewing allocated licenses

To view the information on the allocated licenses in the FactoryTalk Administration Console:

1. Open **FactoryTalk Administration Console**. See Opening FactoryTalk Administration Console on Windows Server (page 97).

   The **FactoryTalk Administration Console** dialog box appears.
2. Log on to the FactoryTalk Directory.
3. In the **Explorer** tree of the **FactoryTalk Administration Console** dialog box, go to **System > Connections > Historical Data**.
4. Right-click **Production Historian**, and select **Properties**. The **Historian Server Connection Properties** dialog box appears.
5. Click the **Point Sources** tag.

   Under **Points in Use**, the number of currently used licenses is displayed.



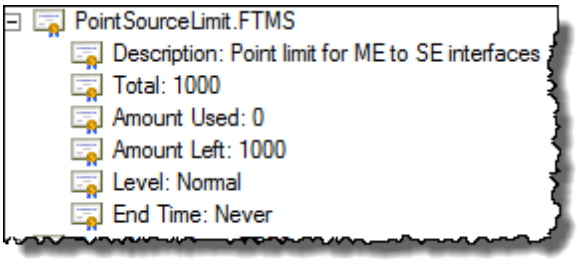
NOTE For PI Notifications, each notification consumes 1 point in the FactoryTalk Administration Console.

To view the information on the allocated licenses in the System Management Tools:

1. Open System Management Tools. See Opening System Management Tools on Windows Server (page 67).

   The **System Management Tools** dialog box appears.

2. Under **Collectives and Servers**, select the server for which you want to view the license information.
3. Under **System Management Tools**, select **Operation > Licensing**.
4. Click **Resources > PointSourcesLimit.**<InterfaceTypeName>.



NOTES *<InterfaceTypeName>* is the abbreviated name of the interface type you added to the **Point Sources** tab when allocating points.

The node contains the following information:

Item name	Description
Description	The description of the license limit assigned to the interface type (point source).
Total	The total number of licenses allocated to the interface type**.** It corresponds to the **Limit** value in the FactoryTalk Administration Console.
Amount Used	The number of points already configured for collecting data from the interface type. It corresponds to the **Point in Use** value in the FactoryTalk Administration Console.

Item name	Description
Amount Left	The number of licenses still available for the interface type.
Level	The license enforcement level.
End Time	The license expiration date.

NOTE

The numbers provided for PI Notifications in **Total**, **Amount Used**, and **Amount Left** are multiplied by 7 against those set in the FactoryTalk Administration Console. It is because each notification uses 7 points from the Rockwell pool.
For example, if you set the limit for notifications to 50 in the FactoryTalk Administration Console, the **Total** number of allocated licenses in the System Management Tools will equal 350.
Similarly, if you enable 50 notifications, the **Amount Used** value will equal 350.

Configuring points

Use the FactoryTalk Administration Console to configure your FactoryTalk Historian SE server to start collecting data points. You can add data points to the server in either of the following ways:

- Adding individual data points manually (page 121).
- Adding multiple data points automatically (page 121).

In order to add individual or multiple data points to your Historian server, you need first to define point sources, in which you want to search for data points. The point sources may include FactoryTalk Linx, RSLinx Classic, other OPC DA servers (for example, *Kepware OPC*), and HMI/ Alarm servers (for example, *FactoryTalk View*).

For more information on adding point sources, refer to the *FactoryTalk Help*, available from the **Help > Contents** menu in the FactoryTalk Administration Console.

Once you have added the data points to the server, you can verify if the points are collected by the server correctly. See "Viewing archive data (page 124)" for more information.

Adding individual data points manually

To add individual data points to the FactoryTalk Historian SE server:

1. Open **FactoryTalk Administration Console**. See Opening FactoryTalk Administration Console on Windows Server (page 97).

   The **FactoryTalk Administration Console** dialog box appears.
2. In the **Select FactoryTalk Directory** dialog box, choose the **Network** directory that you want to use, and click **OK**.
3. In the **Explorer** tree, right-click the application from which you want to collect points, and select **Add Individual Historian Points**.

   The **Add Historian Points** dialog box appears.
4. In the **Add points to server** list, select the FactoryTalk Historian SE server to which you want to add the points.
5. In the respective lists, select the data collection interface, default scan rate, and tag attributes for new points.
6. Click **Browse Tags**. The **Tag Browser** dialog box appears.
7. In the **Tag Browser** dialog box, select the folder from which you want to collect data points. The data points from the selected folder are displayed in the right pane of the dialog box.
8. Select the data points that you want to add, and click **Add Tag(s) to List**. The tags appear in the **Selected tag(s)** list at the bottom of the **Tag Browser** dialog box.
9. Click **OK** until you return to the FactoryTalk Administration Console.

Adding multiple data points automatically

The point discovery wizard uses discovery rules to search for Historian points. Creating the rules is a part of the discovery process. The data points (tags) that match the rules you create are

added to the FactoryTalk Historian SE server. The default rules are stored in the following XML file:

C:\ProgramData\Rockwell Automation\FactoryTalk Historian\Auto Discovery and Configuration Rules.xml

The rules that you define are saved in a user-defined XML file. The file is stored in the same location as the file with the default set of rules. The point discovery wizard uses the rules from both files. However, the rules defined in the user-defined XML file take precedence over the rules defined in the default XML file.

To automatically discover Historian points with the wizard:

1. Open **FactoryTalk Administration Console**. See Opening FactoryTalk Administration Console on Windows Server (page 97).

   The **FactoryTalk Administration Console** dialog box appears.
2. In the **Select FactoryTalk Directory** dialog box, choose the **Network** directory that you want to use, and click **OK**.
3. In the **Explorer** tree, right-click the application or area from which you want to search for data points, and select **Discover Historian Points**. The **Discover New Historian Points** dialog box appears.

   NOTE For more information on the point discovery wizard, click the help icon in the **Discover New Historian Points** dialog box.
4. In the **Add points to server** list, select the FactoryTalk Historian SE server to which you want to add the points.
5. In the **Using data collection interface** list, select the appropriate data collection interface.
6. In the **Default scan rate** list, select the time interval at which points will be collected.

7. Under **Add points from these sources**, select the sources from which you want to add the points.
8. Under **Start searching from**, click the tree at the starting point for the point search. If this is a new server, the root node in the tree is selected by default.
9. Click **Edit Discovery Rules** to create rules to be used during the discovery process. The **FactoryTalk Historian Discovery Rule Editor** dialog box appears.

   NOTE For more information on the Discovery Rule Editor click the help icon in the dialog box.

10. Select **Enable data type filter** to perform the search using the default discovery rule.

    NOTE When you check the **Enable data type filter** option, the auto-discovery mechanism will get all attributes that match the name, UDT, and data type rule. When you leave the option cleared, the mechanism will ignore the data type filter and only check the name and the UDT rule.

11. Click **Next** to begin discovering points. The **Discovering Historian Points** dialog box displays the progress of point discovery.

    The discovered points are listed in the **Confirm New Historian Points** dialog box.

12. Click **Confirm Points** to accept the search result.
13. In the **New Historian Points Discovery Complete** dialog box, click **Start**. The FactoryTalk Historian SE server starts collecting the discovered points.
14. Click **OK**.

View current and archive data

You can view current and archive data using System Management Tools. In this section you will learn how to:

- View current data (page 124).
- View archive data (page 124).

View current data

To view current data being collected by the FactoryTalk Historian SE server:

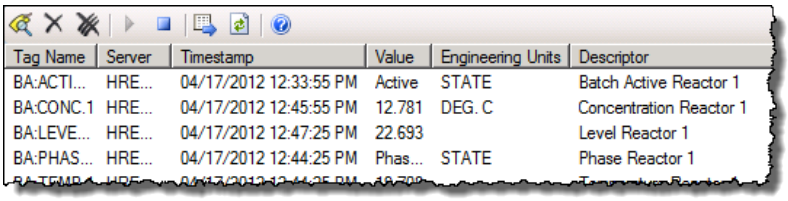
1. Open System Management Tools. See Opening System Management Tools on Windows Server (page 67).

   The **System Management Tools** dialog box appears.

2. Under **Collectives and Servers**, select the FactoryTalk Historian SE server whose data you want to view.
3. Under **System Management Tools**, select **Data > Current Values**.
4. On the **Tools** menu, click **Tag Search**.

   The **Tag Search** dialog box appears.

5. Use the default settings and click **Search**.
6. From the list of tags that appears in the search results, select the tags you want to view, and click **OK**. The current values of the tags are displayed in the right pane of the **System Management Tools** dialog box.



Tag Name	Server	Timestamp	Value	Engineering Units	Descriptor
BA:ACTI...	HRE...	04/17/2012 12:33:55 PM	Active	STATE	Batch Active Reactor 1
BA:CONC.1	HRE...	04/17/2012 12:45:55 PM	12.781	DEG. C	Concentration Reactor 1
BA:LEVE...	HRE...	04/17/2012 12:47:25 PM	22.693		Level Reactor 1
BA:PHAS...	HRE...	04/17/2012 12:44:25 PM	Phas...	STATE	Phase Reactor 1

   If you want the server to start updating the values for the tag, right-click it and select **Start Updating Values**.

View archive data

To view archive data that has been collected by the FactoryTalk Historian SE server:

1. Open System Management Tools. See Opening System Management Tools on Windows Server (page 67).

   The **System Management Tools** dialog box appears.

2. Under **Collectives and Servers**, select the FactoryTalk Historian SE server whose data you want to view.
3. Under **System Management Tools**, select **Data > Archive Editor**.
4. In the **(Tag Not Specified)** tab, click  .

   The **Tag Search** dialog box appears.
5. Use the default settings, and click **Search**.
6. From the list of tags that appears in the search results, choose one of the tags you have selected in "Adding individual data points manually (page 121)", and click **OK**.

   The list of events of the selected tag is displayed in the tab in the right pane of the **System Management Tools** dialog box.

   NOTE For more information on the Archive Editor, click  .
7. Verify that the system has returned archived values, and close the System Management Tools.

Archives and backups

After you have installed and verified the Historian server, configure your Historian server automatic daily backups. You must specifically schedule a backup task on the Historian server.

TIP For more information on configuring automatic backups, refer to *PI Data Archive 2018 SP3 Introduction to System Management Guide*, chapter "Back up PI Data Archive".

Historian Archive files store the historical record of process data maintained by the Historian server. By default, the Historian server setup program creates one archive file. Make sure that the location of the archive directory contains enough free space for these files.

For new installations, the installation wizard calculates the default archive size based on the physical memory that is available on the computer. The recommended archive size will equal approximately one-third of the physical memory. It will also never be smaller than

256 MB or greater than 8192 MB. The actual recommendation will always be a power of 2.

Example

The physical memory available on the computer equals 8192 MB.

One-third of it equals 2730 MB.

The result will be rounded down to 2048 MB, which is a power of 2.

Conclusion: The recommended archive size on a computer with 8192 MB of the physical memory equals 2048 MB.

The default archive file size might be too small for most systems. Rockwell Automation recommends that you change the default size based on the number of Historian Points, according to the recommendations in the *PI Data Archive 2018 SP3 Introduction to System Management Guide*.

NOTE The complete user documentation on FactoryTalk Historian SE is divided into individual suites and is available in the following subfolders of the **Common Files\Rockwell\Help** folder in your **Program Files (x86)** directory:

- FactoryTalk Historian SE <*version*> Server
- FactoryTalk Historian SE <*version*> Management Tools
- FactoryTalk Historian SE <*version*> Asset Framework
- FactoryTalk Historian SE <*version*> Live Data Interface
- FactoryTalk Historian SE <*version*> Analysis Service

The documentation is also available in the **Redist\Docs** folder on your FactoryTalk Historian SE installation media.

The location for archives is typically on the largest drive on the server.

NOTE Use the Windows File System Compression feature with caution; it might slow down the access of the Historian server to archive files. The compression can save disk space, but it requires more CPU resources.

Restart the FactoryTalk Historian SE server

NOTE You need administrative rights to perform these steps.

To restart the server:

1. Stop the server:
   a) Search for **Stop FactoryTalk Historian SE** in Windows Search, right-click it, and then select **Run as administrator**.

      The server stopping process begins. The progress is displayed in the Command Prompt window.

   b) Wait until the server is stopped and the Command Prompt window is closed.
2. Start the server by searching for **Start FactoryTalk Historian SE** in Windows Search, right-clicking it and then selecting **Run as administrator**.

   The server starting process begins. The progress is displayed in the Command Prompt window.
3. Wait until the server is started and the Command Prompt window is closed.

Configure the data server

Use the FactoryTalk Administration Console to configure the data server by adding new applications, areas, data server instances, and shortcuts to controllers.

To configure the data server:

1. Open **FactoryTalk Administration Console**. See Opening FactoryTalk Administration Console on Windows Server (page 97).

   The **FactoryTalk Administration Console** dialog box appears.

Under **Explorer**, the tree of the FactoryTalk Directory you have selected using the FactoryTalk Directory Server Location Utility (page 29) is displayed.

2. On the **Help** menu, click **Contents** to open *FactoryTalk Help* and learn more about configuring the data server.

Configure Historian interface connections

NOTE Refer to the information on configuring Historian interface connections in PI-Data-Archive-2018-SP3-Security-Configuration-Guide-EN.pdf for details associated with the following procedure. For information on the location of the user documents, see "User documentation (page 13)".

To configure your Historian server to provide access for Historian Interfaces:

1. Identify all the Historian Interfaces that need access to the Historian server.
2. Consult the documentation for each interface and gather the information you need to configure the trust. You need to know the connection type. The type of connection determines what information you can use to define the trust. You also need to specify at least one of the following:
   - The correct application name to define the trust.
   - IP information for the connecting computer.
3. Decide how many trusts you will create. You can create explicit individual trusts for each Historian interface, or you can group them by subnet, host machine, or username. A group of Historian interfaces can share the same privileges.
4. For each trust, create a PI identity.
5. Give that PI identity all the access permissions required by the trust.
6. Create a trust based on that PI identity.

Configure FactoryTalk Historian Live Data Interface

The interface collects data points (tags) from the data server and passes them to the FactoryTalk Historian SE server. Install the FactoryTalk Historian Live Data Interface component on the same computer as the data server. After installing the interface, configure the buffering service on the data server computer. The buffering service stores data in its buffer so that in the event the interface is not able to communicate with the FactoryTalk Historian SE server, the data will not be lost.

In this section you will learn how to:

- Create security mappings for remote interfaces (page 129)
- Set up connection between the FTLD interface and the FactoryTalk Historian SE server computers (page 129)
- Register Live Data interfaces (page 132)
- View the status of Live Data interface services (page 133)
- Verify that points are being collected (page 134)
- Enable buffering (page 134)

Create security mappings for remote interfaces

In the FactoryTalk Historian SE security model, in order to give a Windows user privileges from several Historian groups, you need to create mappings using the System Management Tools following either of the methods:

- Create a mapping between an Active Directory (AD) group and a Historian user. In this way, the Windows user from the AD group used in the mapping gets privileges from all the Historian groups to which the Historian user referred to in the mapping belongs.
- Create 1-to-1 mappings between each AD group and a corresponding Historian group. If the Windows user is a member of only one AD group for which you have created the mapping, they will get privileges only from the Historian

group referred to in the mapping. If you want the Windows user to get privileges from several Historian groups, make sure the user is a member of all the AD groups that are mapped to the Historian groups whose privileges the user should get.

Security mappings are required to establish connections between the FactoryTalk Historian SE server and any remote computer that should be able to communicate with the server (such as the Data Server, the Engineering Workstation, and/or Client Computers).

To create a security mapping between a Windows user and/or group and a Historian server user:

1. Open **System Management Tools**. See Opening System Management Tools on Windows Server (page 67).

   The **System Management Tools** dialog box appears.
2. Under **Collectives and Servers**, select the FactoryTalk Historian SE server for which you want to create the mapping.
3. Under **System Management Tools**, select **Security > Mappings & Trusts**.
4. In the **Mappings** tab, click  .

   The **Add New Mapping** dialog box appears.
5. Click  next to **Windows Account**.

   The **Select User, Computer, or Group** dialog box appears.
6. In the text box, type the name of the user, for which you want to create the mapping.
7. Click **Check Names** to verify the username, and click **OK**.
8. Click  next to **PI Identity**.

   The **Select PI Identity, PI Group, or PI User** dialog box appears.
9. From the **Type** list, select **PI Users**.

10. Select the PI user to which you want to map the selected Windows user (e.g., piadmin), and click **OK**.
11. Click **OK** to apply the changes. The new mapping is listed in the **Mappings** tab.

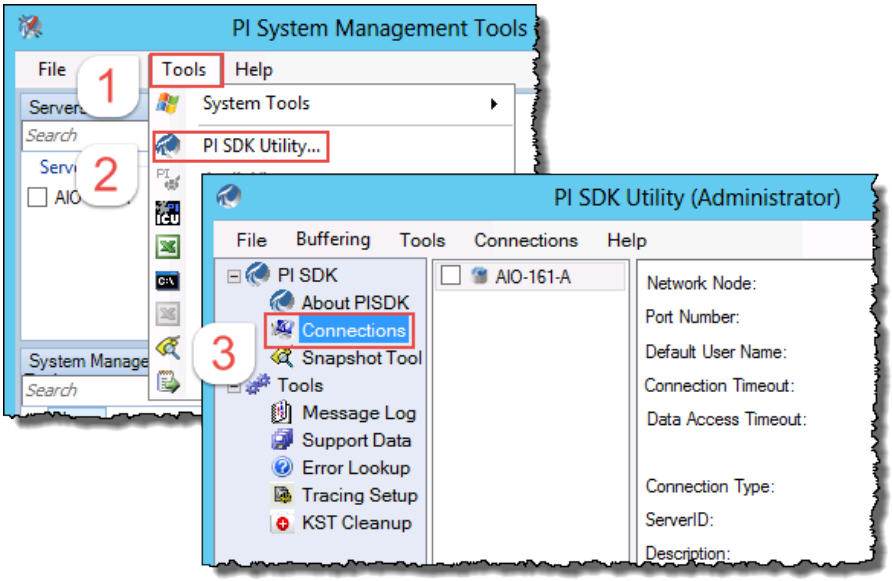
Set up a connection between the FTLD interface and the FactoryTalk Historian SE server computers

Perform these steps on your FTLD interface computer(s). Log on to the computer using the user for which you have created the security mapping. For details, see "Create security mappings for remote interfaces" (page 129).

1. Open **System Management Tools**. See Opening System Management Tools on Windows Server (page 67).

   The **System Management Tools** dialog box appears.

2. Under **System Management Tools**, go to **Connections**.



3. Select the FactoryTalk Historian SE server to which you want to connect.

   If the server name is not listed, do the following:

   a. On the **Server** menu, click **Add Server**. The **Add Serve** dialog box appears.

   b. In the **Network Node** text box, type the fully qualified domain name (FQDN) of the server.

c. Clear the **Confirm** check box, and click **OK**. The new server is added to the server list.

Register Live Data interfaces

When you create a Historian server connection in the FactoryTalk Administration Console (page 95), a default Live Data interface instance *FTLD1* is created and registered.

If your Live Data interface is located on a remote computer, you need to register this interface as well.

Before you begin:

1. Create security mappings for your remote interfaces (page 87).
2. Set up connection between the FTLD interface and the FactoryTalk Historian SE server computers (page 129).

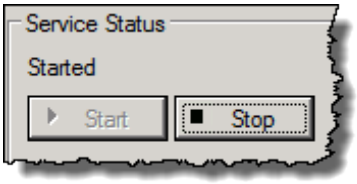
To register a remote FactoryTalk Historian Live Data Interface:

1. Open **FactoryTalk Administration Console**. See Opening FactoryTalk Administration Console on Windows Server (page 97).

   The **FactoryTalk Administration Console** dialog box appears.
2. In the **Select FactoryTalk Directory** dialog box, click **Network**.
3. In the **Explorer** tree of the **FactoryTalk Administration Console** dialog box, go to **System > Connections > Historical Data**, right-click the FactoryTalk Historian server connection name, and select **New Data Collection Interface**.

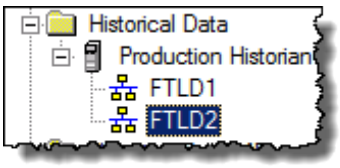
   The **Data Collection Interface Properties** dialog box appears.

4. In the **Computer hosting the interface** list, select the name of the computer on which you have installed the data server and the FactoryTalk Historian Live Data Interface.
5. From the **Startup Type** list, choose **Automatic**.
6. Click **Apply**.
7. Click **Start** to start the data collection service. Wait until the service status changes to **Started**.



8. Click **OK**.

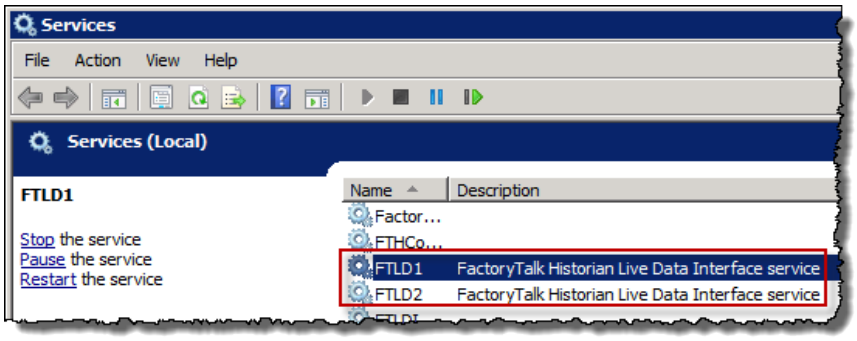
   The new Live Data interface instance is added to the server connection branch.



View the status of Live Data interface services

For each instance of the FactoryTalk Historian Live Data Interface, a service (*FTLD*) is created and started when you start the interface. You define the service startup type (page 132) in the **Data Collection Interface Properties** dialog box in the FactoryTalk Administration Console.

To view the status of the services, open the **Services** dialog box.



The services are removed when you delete the interface instances in FactoryTalk Administration Console.

Verify that points are being collected

Follow these steps after you set up or upgrade your FactoryTalk Live Data interface. The steps should be performed on the FactoryTalk Historian SE server computer or the engineering workstation computer.

To verify that points are being collected:

1. Open System Management Tools. See Opening System Management Tools on Windows Server (page 67).

   The **System Management Tools** dialog box appears.
2. Under **System Management Tools**, expand **Data** > **Current Values**.
3. In the right pane, verify that points are logging data. For the verification, choose the point that:
   - Had been created before you set up your FactoryTalk Live Data interface.
   - Have the scan setting turned on.
   - Their values change frequently on the controller.

Enable buffering

NOTE If you want to take advantage of the buffering feature, Rockwell Automation recommends that you install the FactoryTalk Historian Live Data Interface on a remote computer, typically the computer where the data server is installed.

The buffering subsystem stores time-series values to the buffer when the remote interface computer cannot communicate with the FactoryTalk Historian SE server.

NOTE FactoryTalk Historian SE supports the PI Buffer Subsystem only. It does not support the API Buffer Subsystem.

Before you begin:

1. Create security mappings for your remote interfaces (page 87).
2. Set up connection between the FTLD interface and the FactoryTalk Historian SE server computers (page 129).

The process of enabling the buffering on the computer with the FactoryTalk Historian Live Data Interface (FTLD interface) installed consists of the following steps:

1. Verify that there is a buffering trust created (page 135)
2. Run the first-time buffering configuration (page 136)
3. Specify the FactoryTalk Historian SE that will receive the buffered data (page 140)
4. Configure the FTLD service (page 142)
5. Verify that buffering is working correctly (page 144)

NOTE If you want to configure a remote FactoryTalk Historian Live Data Interface to start from a local cache file with or without a valid connection to the host FactoryTalk Historian Server, enable the Disconnected Startup feature. For more information, refer to KB article 66883.

Verify that there is a buffering trust created

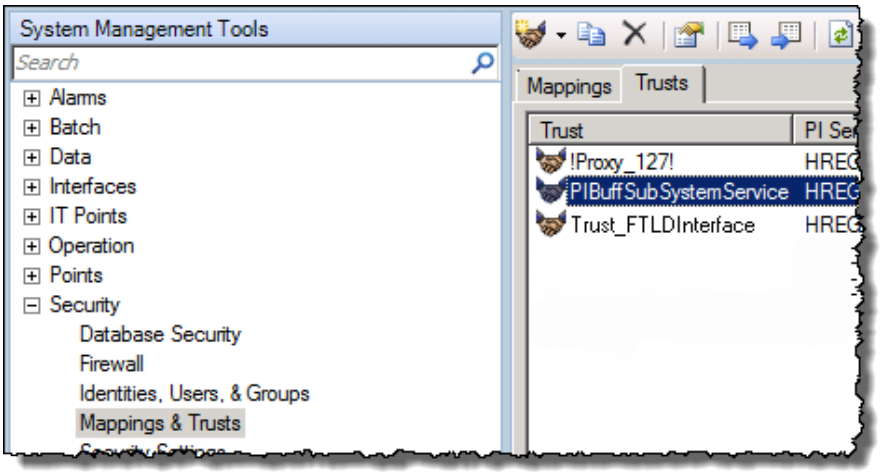
During the installation of the FactoryTalk Historian SE server a PIBuffSubSystemService trust is created for the buffering purposes.

To verify that there is a buffering trust created:

1. Open **System Management Tools**. See Opening System Management Tools on Windows Server (page 67).

The **System Management Tools** dialog box appears.

2. Under **System Management Tools**, expand **Security** > **Mappings & Trust**.
3. Verify that **PIBuffSubSystemService** is listed in the **Trusts** tab.



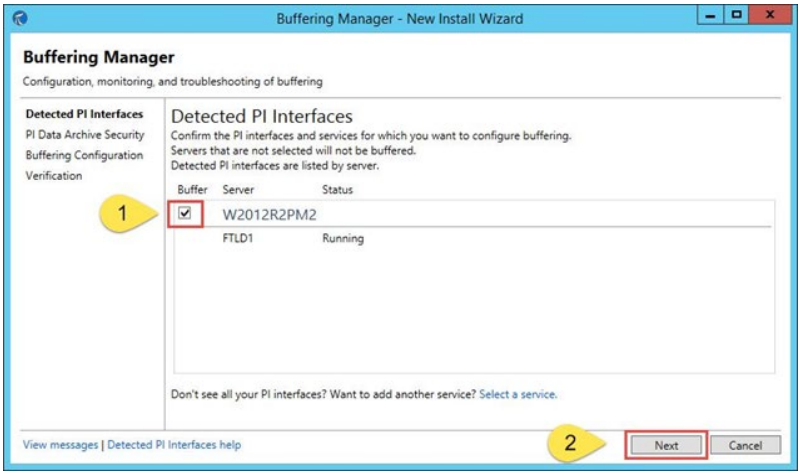
Run the first-time buffering configuration

To run the first-time buffering configuration:

1. In the **System Management Tools**, on the **Tools** menu, click **Interface Configuration Utility**.

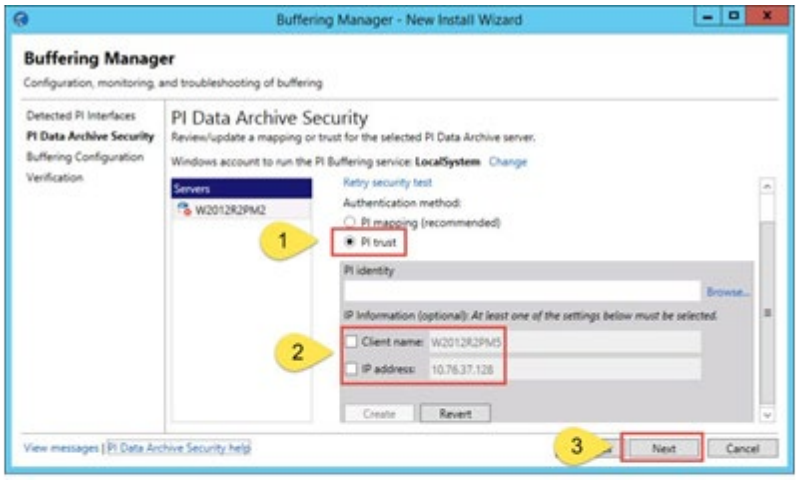
   The **Interface Configuration Utility** dialog box appears.
2. From the **Interface** list, select the name of the FactoryTalk Historian Live Data Interface.
3. On the **Tools** menu, click **Buffering**. The following message appears:

4. Click **Yes**, and then follow the listed screenshots.
5. 

6. 

7. Under **PI Data Archive Security**, configure a trust between the FTLD interface and the FactoryTalk Historian SE server that will receive the buffered data.

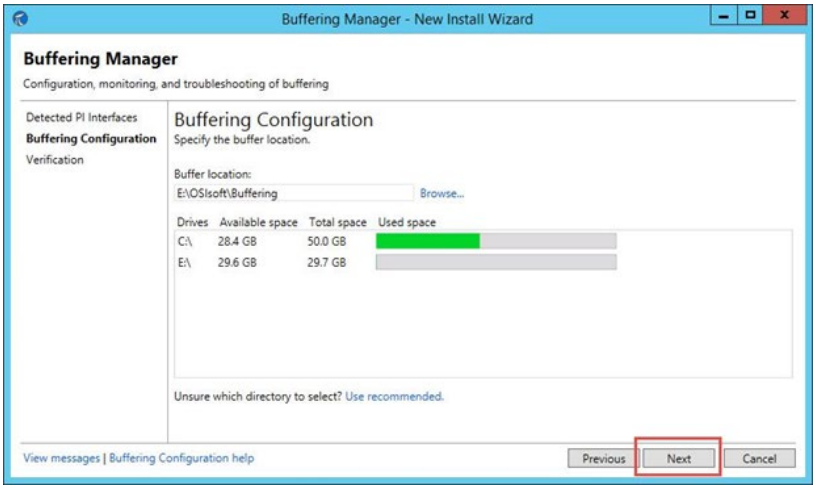
   Clear the **Client name** and the **IP address** check boxes.

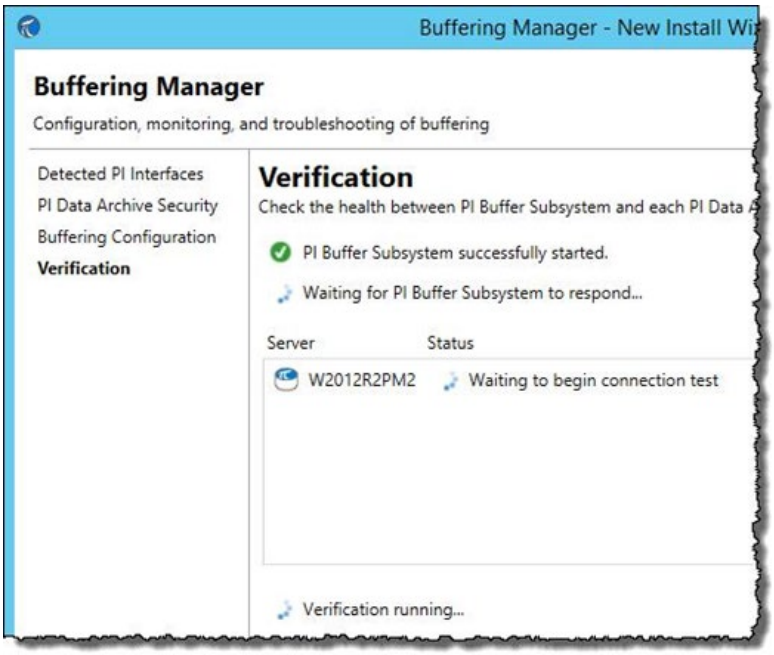

Buffering Manager - New Install Wizard
Buffering Manager
Configuration, monitoring, and troubleshooting of buffering
Detected PI Interfaces
PI Data Archive Security
Buffering Configuration
Verification
PI Data Archive Security
Review/update a mapping or trust for the selected PI Data Archive server.
Windows account to run the PI Buffering service: LocalSystem Change
Servers
W2012R2PM2
Retry security test
Authentication method:
PI mapping (recommended)
PI trust
PI identity
Browse...
IP Information (optional): At least one of the settings below must be selected.
Client name: W2012R2PM5
IP address: 10.76.37.128
Create
Revert
1
2
3
View messages | PI Data Archive Security help
Next
Cancel

8.

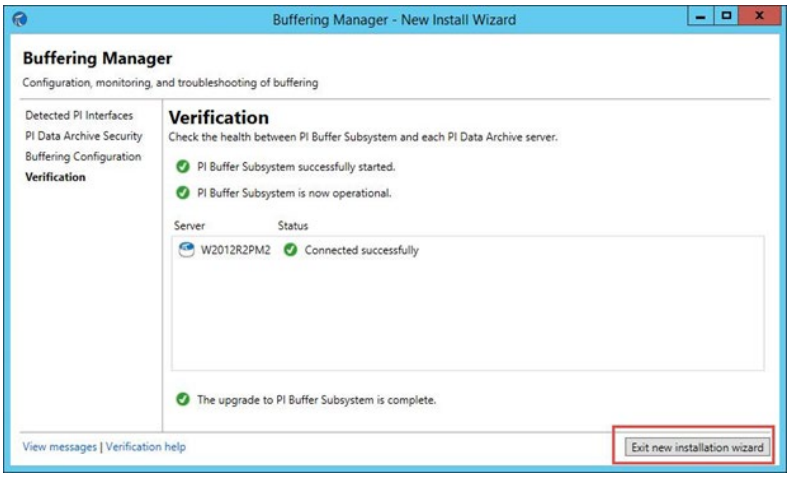

Buffering Manager
The PI Buffer Subsystem has not passed all security tests. Would you like to continue anyway?
Yes
No

9.

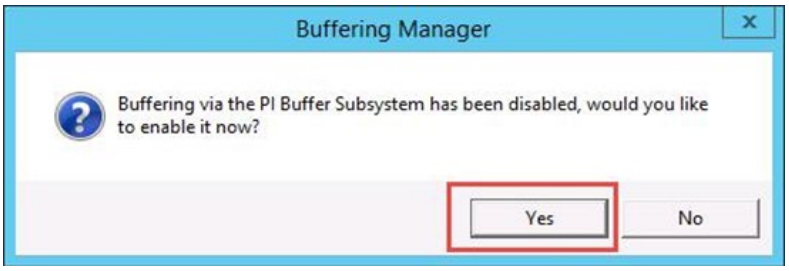

Buffering Manager - New Install Wizard
Buffering Manager
Configuration, monitoring, and troubleshooting of buffering
Detected PI Interfaces
Buffering Configuration
Verification
Buffering Configuration
Specify the buffer location.
Buffer location:
E:\OSIsoft\Buffering
Browse...
Drives Available space Total space Used space
C:\ 28.4 GB 50.0 GB
E:\ 29.6 GB 29.7 GB
Unsure which directory to select? Use recommended.
View messages | Buffering Configuration help
Previous
Next
Cancel


Buffering Manager - New Install Wi
Buffering Manager
Configuration, monitoring, and troubleshooting of buffering
Detected PI Interfaces
PI Data Archive Security
Buffering Configuration
Verification
Verification
Check the health between PI Buffer Subsystem and each PI Data A
PI Buffer Subsystem successfully started.
Waiting for PI Buffer Subsystem to respond...
Server
Status
W2012R2PM2
Waiting to begin connection test
Verification running...

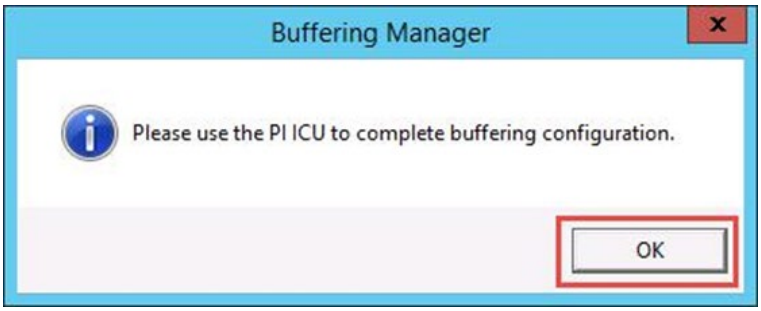
10.


Buffering Manager - New Install Wizard
Buffering Manager
Configuration, monitoring, and troubleshooting of buffering
Detected PI Interfaces
PI Data Archive Security
Buffering Configuration
Verification
Verification
Check the health between PI Buffer Subsystem and each PI Data Archive server.
PI Buffer Subsystem successfully started.
PI Buffer Subsystem is now operational.
Server
Status
W2012R2PM2
Connected successfully
The upgrade to PI Buffer Subsystem is complete.
View messages | Verification help
Exit new installation wizard

11.


Buffering Manager
Buffering via the PI Buffer Subsystem has been disabled, would you like to enable it now?
Yes
No

12.



Specify the FactoryTalk Historian SE that will receive the buffered data

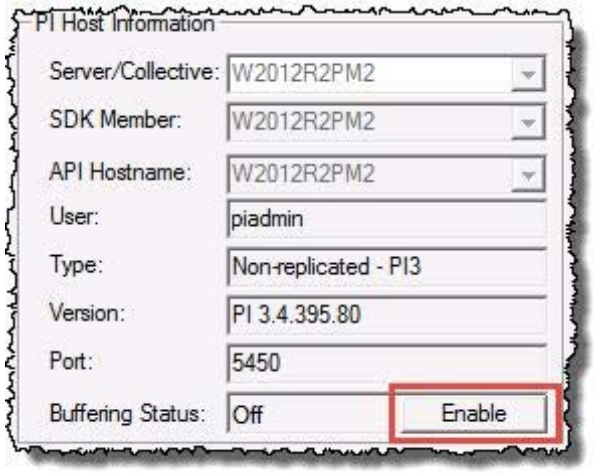
To specify the FactoryTalk Historian SE that will receive the buffered data:

1. In the **Interface Configuration Utility**, on the **Tools** menu, click **Buffering**.

   The **Buffering Manager** window appears.

   In the **Interface Configuration Utility**, under **PI Host Information**, the **Buffering Status** box appears with the status **Off**.

2. Click **Enable**.



   The **Buffering Manager - Add Data Server Wizard** window appears.

3. Under **Server Selection**, in the **Server** box, do either of the following:

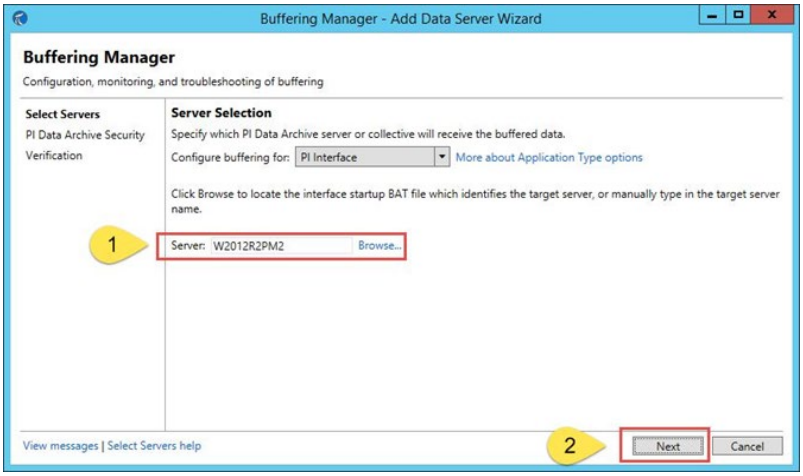
   - Type the server name.

- Click **Browse** next to the box, and then select the FTLD interface .bat file.

  The name of the file is the name of the interface (for example *FTLDInt1.bat*).

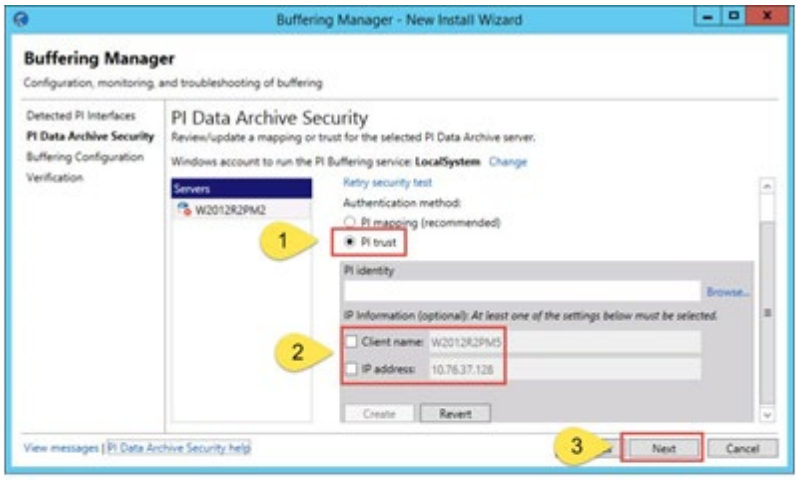
  The file is located in the following location:

  ...\Program Files (x86)\Rockwell Software\FactoryTalk Historian\PIPC\Interfaces\LDInterface\



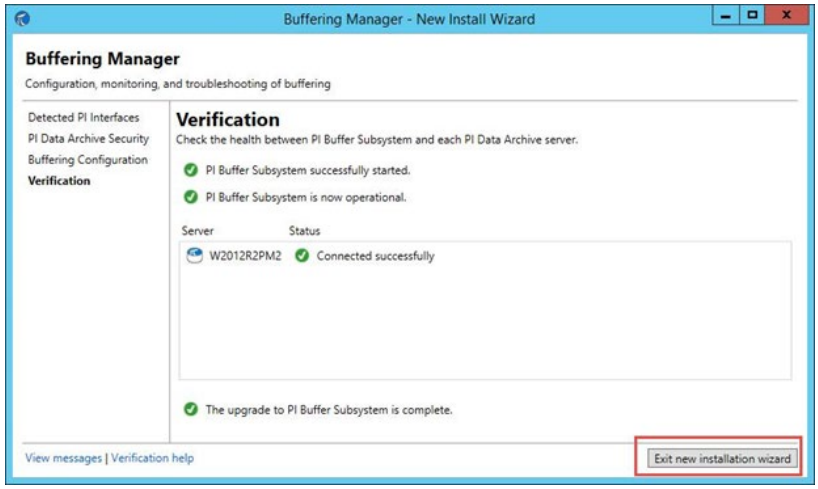
4. Under **PI Data Archive Security**, configure a trust between the FTLD interface and the FactoryTalk Historian SE server that will receive the buffered data.

   Clear the **Client name** and the **IP address** check boxes.



5.

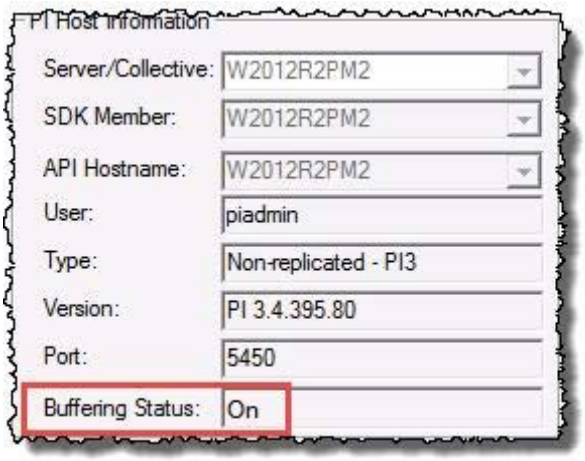
6.



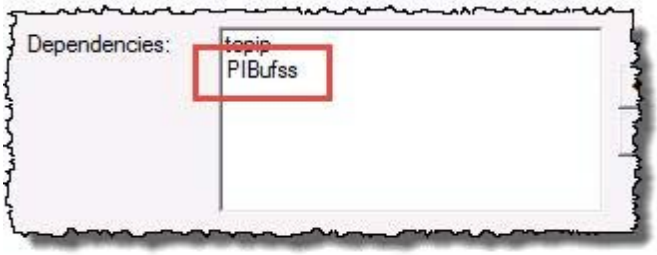
Configure the FTLD service

To configure the FTLD service:

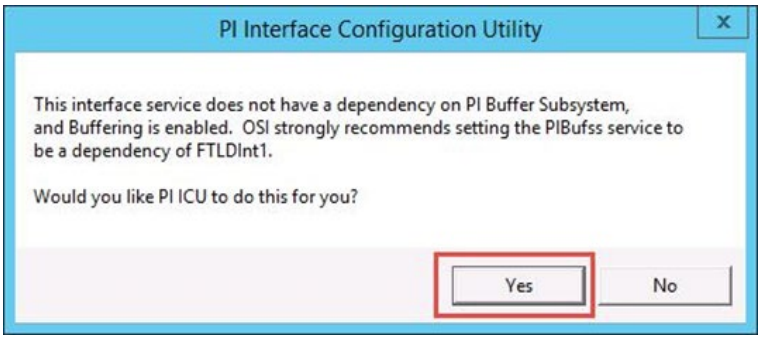
1. Close the **Interface Configuration Utility**, and then open it again.
2. Select your FTLD interface from the list. The buffering status is now set to **On**.



3. In the left pane of the window, click **Service**. Under **Service Configuration**, in the **Dependencies** box, the PIBufss service should be listed:



- If it is, the configuration is complete.
- If it is not, the following message appears, Click **Yes**.



Verify that buffering is working correctly

Verify that buffering is working correctly:

1. In the **Interface Configuration Utility**, on the **Tools** menu, click **Buffering**. The **Buffering Manager** window appears.

   Buffering should be running, and the number of events in queue should equal 0 or be close to 0:

2. Open a Command Prompt window and run the following command:

   ```
   pibufss -bc stop
   ```

   Once the command is executed, sending data to the specified FactoryTalk Historian SE server is stopped. The number of the events in queue should increase, while the total number of events should stay unchanged:

3. In the Command Prompt window and run the following command:

   ```
   pibufss -bc start
   ```

   Once the command is executed, sending data to the specified FactoryTalk Historian SE server is started. The number of the events in queue should equal 0 or be close to 0, and the total number of events should continue to increment:

Enabling Excel add-ins for FactoryTalk Historian DataLink

NOTE In order to use the functionality provided with the add-ins, make sure that all the add-ins that you want to use are registered in Microsoft Excel.

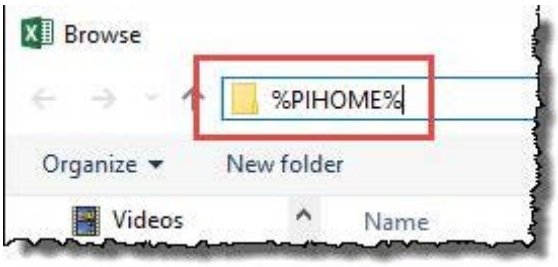
To enable Excel add-ins for FactoryTalk Historian DataLink:

1. Start Microsoft Excel.
2. Select **File > Options**.

   The **Excel Options** dialog box appears.
3. Click **Add-Ins**.
4. At the bottom of the page, from the **Manage** list, select **Excel Add-ins**, and click **Go**.

   The **Add-Ins** dialog box appears.
5. Click **Browse**.

   The **Browse** dialog box appears.
6. In the path box, type **%PIHOME%**, and then press **Enter**:



The variable points to the location of the PIPC folder.

Because the location of the PIPC folder differs depending on the type of the operating system that you use (32-bit or 64-bit) and the client version, by typing the %PIHOME% variable, you open the PIPC folder from the correct location.

7. In the PIPC folder, open the Excel folder. This folder contains the following files:
   - pidldialogs.xla
   - PITrendXL.xla
   - pipc32.xll (for the 32-bit installation)
   - pipc64.xll (for the 64-bit installation)

NOTE The PI Tag Configuration add-in (PITagCnf.xla) is now replaced with PI Builder. PI Builder must be installed manually using the PI-AF-Services_2018-SP3-Patch-1_.exe file located at \Redist\PIServer\. PI Builder requires Excel 2010 SP2 or later.

8. Select one file at a time, and then click **OK**. Each file that you select is added to the Add-Ins available list.
9. Click **OK** to close the dialog box.

   The tabs with the selected Excel add-ins are added to the ribbon in Excel.

Activating Excel COM add-ins for FactoryTalk Historian DataLink

If you want to use tag functions, module database objects, or trends in FactoryTalk Historian DataLink, activate the DataLink COM add-ins in Microsoft Excel first.

To activate COM add-ins in Microsoft Excel:

1. Start Microsoft Excel.
2. Select **File** > **Options**. The **Excel Options** dialog box appears.
3. Click **Add-Ins**.
4. At the bottom of the page, from the **Manage** list, select **COM Add-ins**, and then click **Go**.

   The **COM Add-ins** dialog box appears.

   Under **Add-Ins available**, find the following add-ins:

   - PI DataLink
   - PI DataLink (Legacy)
5. Check the box next to each add-in, and then click **OK**.

   The add-ins are activated and their tabs are added to the ribbon.

Recording messages using FactoryTalk Diagnostics

FactoryTalk Historian SE uses the FactoryTalk Diagnostics component of the FactoryTalk Services to record messages sent by the FactoryTalk Historian SE server. In the event of a message, the FactoryTalk server logs it in the FactoryTalk Diagnostics service.

If the FactoryTalk Historian SE server cannot connect to the FactoryTalk Diagnostics service, the server will log the messages in the Windows Event log and continue to reconnect to FactoryTalk Diagnostics service. Once the server reconnects to the FactoryTalk Diagnostics service, a message is logged indicating that some messages may not have been logged and will advise you to check the local Windows Event log.

Understand message parameters

Each message logged to the FactoryTalk Diagnostics service contains the following information:

Item name	Description
Date/Time	The date and time the message was recorded. The time is the local time of the server. This is important to note if you are in a different time zone than the server.
User Name	The name of the user that performed or requested an operation that generated the error message. **Note:** If you plan to track user IDs in FactoryTalk Diagnostics for auditing purposes, you must create identical user IDs in the FactoryTalk Historian SE. Refer to *PI-Data-Archive-2018-SP3-System-Management-Guide-EN.pdf* for information on creating user IDs in the Historian server.
User Description	The full name of the user.
Severity	All messages are logged as *Warning* or *Informational*.
Audience	*Engineer* is the default audience type for all messages.
Message text	A description of the error that occurred.
Location	The name of the computer where the diagnostic message was generated.
Provider	The name of the FactoryTalk product or subsystem that generated the message.

TIP For information on the location of the user documents, see "User documentation (page 13)".

Viewing messages

To view the messages in FactoryTalk Diagnostics, run the FactoryTalk Diagnostics Viewer tool. See the *FactoryTalk Diagnostics Viewer Help* for more information.

To view messages stored in the Windows Event log, open Event Viewer.

TIP To learn how to open Event Viewer, see "Opening Event Viewer on Windows Server (page 150)".

Opening Event Viewer on Windows Server

To open **Event Viewer** using your **Start** menu, enter `Event Viewer` and select the **Event Viewer** result.

Troubleshooting FactoryTalk Historian

In this chapter you will learn how to:

- Use FactoryTalk Historian ME modules with FactoryTalk Security (page 151).
- Verify the Windows Administrator privileges (page 153).
- Resolve error and warning messages (page 153).

Using FactoryTalk Historian ME modules with FactoryTalk Security

If you are using FactoryTalk Security to authenticate your FactoryTalk Historian ME 1756-HISTxG module, and you want to establish a connection between the Historian ME and SE modules, you need to make sure the following FactoryTalk Security groups are created in FactoryTalk Directory:

- FTHAdministrators
- FTHEngineers
- FTHSupervisors
- FTHOperators

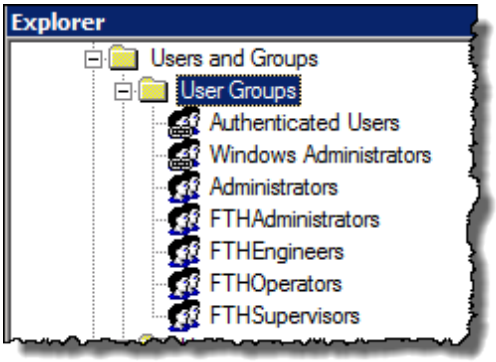
To verify that these four user groups were created:

1. Open **FactoryTalk Administration Console**. See Opening FactoryTalk Administration Console on Windows Server (page 97).

   The **FactoryTalk Administration Console** dialog box appears.
2. In the **Select FactoryTalk Directory** dialog box, select **Network**, and click **OK**.

3. In the **Explorer** tree, expand **Users and Groups > User Groups**.

   The folder should include the four FactoryTalk Historian user groups:



If you do not see the four user groups, do the following on the FactoryTalk Directory server computer:

1. Log on to Windows as the local Administrator.
2. Log on to FactoryTalk as a member of the FactoryTalk Administrators user group.
3. Open the **FactoryTalk Administration Console**, and create a computer account for each FactoryTalk Historian SE host.
4. On your FactoryTalk Historian SE installation media, navigate to *Redist* > *FTHME Security*.
5. Double-click the **FTHMESecurityUpdate.bat** file.
6. Return to **FactoryTalk Administration Console** and verify that the user groups have been created.

Verifying the Windows Administrators privileges

To verify that the Windows Administrators group is part of the FTHAdministrators group:

1. In **FactoryTalk Administration Console**, expand **Users and Groups > User Groups**.
2. Double-click the **FTHAdministrators** group.

   The **FTHAdministrators Properties** dialog box appears.

   The Windows Administrators group should appear in the **Members** list. If it does not, do the following:

   a. Click **Add**. The **Select User or Group** dialog box appears.

   b. Select **Windows Administrators** and click **OK**. The group is added to the FTHAdministrators group.

   c. Click **OK** to close the dialog box.

Resolving error and warning messages

Use this section to find information about the following types of error and warning messages:

- General (page 153)
- No connection to FactoryTalk Directory (page 156)
- Firewall-related errors (page 158)

General

Use this section to find information about the following error messages:

- Error: system is a PINs node (page 154)
- Error: server not found (page 154)
- Error: failure to retrieve interface information (page 155)

Error: system is a PINs node

Message	FactoryTalk Historian SE server setup has determined that this is a PINS node. The FactoryTalk server installation cannot continue. Please completely remove the Historian SDK and rerun setup.
Cause	The error occurs if you install a FactoryTalk Historian SE server on a computer that already has FactoryTalk Historian SE Clients (ProcessBook, DataLink) or components (System Management Tools) installed.
Resolution	Remove the Historian Software Development Kit (Historian SDK) using *Control Panel* > *Programs* > *Programs and Features*.

Error: server not found

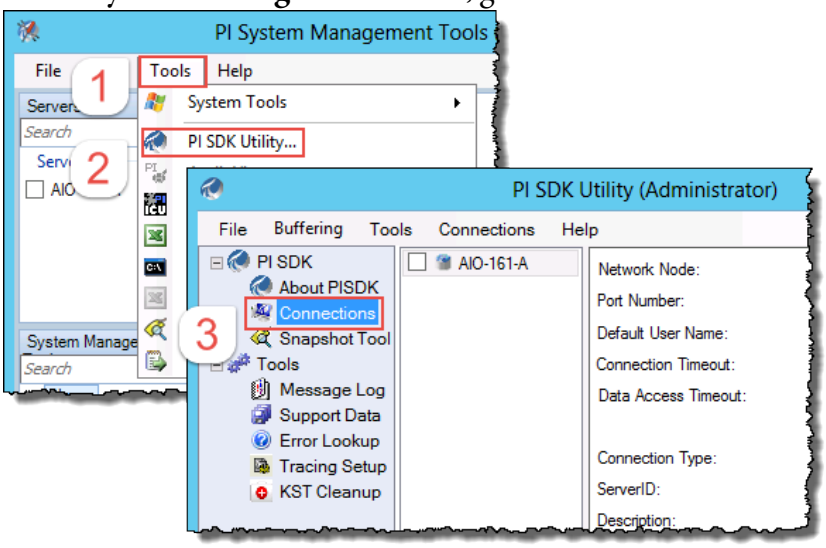
Message	The requested server <FTHSE-SRV> was not found in the known servers table.
Cause	The error occurs when you try to create a new Data Collection Interface from a computer that has FactoryTalk Historian SE Live Data Interface installed. Your client computer could not locate the FactoryTalk Historian SE server.
Resolution	Manually create a connection to the FactoryTalk Historian SE server computer. See the following instructions.

To manually create a connection to the FactoryTalk Historian SE server computer from your client computer:

1. Open **System Management Tools**. See Opening System Management Tools on Windows Server (page 67).

   The **System Management Tools** dialog box appears.

2. In the **System Management Tools**, go to **Connections**:



3. Select the FactoryTalk Historian SE server to which you want to connect.

   If the server name is not listed, do the following:

   a. On the **Server** menu, click **Add Server**. The **Add Server** dialog box appears.

   b. In the **Network Node** text box, type the fully qualified domain name (FQDN) of the server.

   c. Clear the **Confirm** check box, and click **OK**. The new server is added to the server list.

Error: failure to retrieve interface information

Message	Failure to get/update interface information because the Historian MDB content was bad.
Cause	The error occurs if, during an upgrade, you manually remove the earlier version of FactoryTalk Historian SE server using ***Control Panel > Programs > Programs and Features***.
Resolution	Delete the FTLD1 interface and create it again. See the following instruction.

To delete the FTLD1 interface:

1. Open **FactoryTalk Administration Console**. See Opening FactoryTalk Administration Console on Windows Server (page 97).

   The **FactoryTalk Administration Console** dialog box appears.
2. In the **Select FactoryTalk Directory** dialog box, select **Network**, and click **OK**.
3. In the **Explorer** tree, expand **System > Connections > Historical Data**, and the FactoryTalk Historian SE server node.
4. Right-click **FTLD1** and select **Delete**.
5. Click **Yes** in the confirmation message box.
6. Right-click the FactoryTalk Historian SE server and select **New Data Collection Interface** to create a new interface.

NOTE: During upgrades, use the installation media to install the latest version of FactoryTalk Historian SE server. The older version is removed during the setup procedure.
Avoid removing the FactoryTalk Historian SE server with *Control Panel > Programs > Programs and Features*.

No connection to FactoryTalk Directory

Use this section to find information about the following warning messages:

- Schema creation (page 157)
- Folders creation (page 158)

Schema creation

Message	Due to the lack of connection to the network, some of the FactoryTalk Historian components have not been correctly configured.
Cause	The warning occurs if you try to create the schema in the FactoryTalk Directory when your client computer is not connected to the network.
Resolution	Manually create a connection to the FactoryTalk Directory and add the schema information. See the following instruction.

To add the schema information to the FactoryTalk Directory, we recommend that you execute the **FTHMESecurityUpdate.bat** file. It is located in the **Redist\FTHME Security** directory on your FactoryTalk Historian SE installation media. The file automatically adds schema information and folders to the FactoryTalk Directory on your client computer.

To manually add the schema information to the FactoryTalk Directory:

Open the Command Prompt window and type the following:

```
"[ProgramFilesFolder]Rockwell Software\Management
Tools\FTHistorianInstallSetup.exe"
"[CommonAppDataFolder]Rockwell Automation\FactoryTalk
Historian\FTHistorianSchema.xml"
"[CommonAppDataFolder]Rockwell Automation\FactoryTalk
Historian\FTHistorianStrings.xml" -G,
```

where:

- `[ProgramFilesFolder]` is the **Program Files (x86)** directory (e.g., *C:\Program Files (x86)*).
- `[CommonAppDataFolder]` is the **ProgramData** directory (e.g., *C:\ProgramData).*

Folders creation

Message	Due to the lack of connection to the network, some of the FactoryTalk Historian components have not been correctly configured.
Cause	The warning occurs if you try to create new folders in the FactoryTalk Directory when your client computer is not connected to the network.
Resolution	Manually create a connection to the FactoryTalk Directory and add folders. See the following instructions.

To add the schema information to the FactoryTalk Directory, we recommend that you execute the **FTHMESecurityUpdate.bat** file. It is located in the **Redist\FTHME Security** directory on your FactoryTalk Historian SE installation media. The file automatically adds schema information and folders to the FactoryTalk Directory on your client computer.

To manually add folders to the FactoryTalk Directory:

Open the Command Prompt window and type the following:

```
"[ProgramFilesFolder]Rockwell Software\Management
Tools\FTHistorianInstallSetup.exe"
"[CommonAppDataFolder]Rockwell Automation\FactoryTalk
Historian\FTHistorianFolders.xml" -G,
```

where:

- `[ProgramFilesFolder]` is the **Program Files (x86)** directory (e.g., *c:\Program Files (x86)*).
- `[CommonAppDataFolder]` is the **ProgramData** directory (e.g., *c:\ProgramData*) on your client computer.

Firewall-related errors

During the installation, the FactoryTalk Historian suites attempt to update the configuration of the system firewall using the Rockwell Firewall Configuration Utility (WFCU) that has been installed along with FactoryTalk Services.

If the update of the firewall configuration cannot be completed during the installation, a relevant error message is displayed on the last page of the FactoryTalk Historian installation wizard.

The errors fall into the following categories, depending on the firewall configuration you have:

- The errors that may appear if you use Windows Firewall to configure network security on the computer with FactoryTalk Historian installed:

Error number	Description
20	The user has insufficient permissions to modify Windows Firewall rules.
200	The user has declined to make the changes to the configuration of Windows Firewall.
320	The network connection specified in WFCU could not be found. Cause: No network connection is configured. Resolution: Configure the network connection and then configure Windows Firewall.

See "Configuring Windows Firewall with WFCU (page 160)" for details.

- The errors that may appear if you use another firewall utility to configure network security on the computer with FactoryTalk Historian installed:

Error number	Description
10	The version of Windows Firewall is not supported by WFCU.
100	Some parameters of the WFCU configuration are missing.
110	Some parameters of the WFCU configuration are incorrect.
120	The .WFCU file contains incorrect data.
130	The .WFCU file is missing.
300	The configuration of Windows Firewall is not supported by WFCU.

Error number	Description
310	The .WFCU file contains incorrect configuration settings.
400	The Microsoft Firewall service is stopped.
-999	Rockwell Windows Firewall Configuration Utility (WFCU) could not be found.

See "Configuring Windows Firewall for FactoryTalk Historian (page 92)" for details.

If the error message does not contain the error number, refer to the FactoryTalk Historian log for the error details.

Configuring Windows Firewall with WFCU

NOTE You need administrator privileges to perform the following steps.

TIP If you prefer, you may manually configure the firewall settings described here (page 92).

To automatically configure Windows Firewall with WFCU:

1. Go to the computer on which you have the particular Historian suite installed.
2. Check the location of the **Common Files** folder on the computer for the 32-bit operating system. You will need it in the command line.
3. Open the Command Prompt window.
4. Type the command provided in the following table.

For this FactoryTalk Historian suite:	Run these commands:
Historian to Historian Interface	%COMMONFILESFOLDERX86%\Rockwell\WFCU\wfcu.exe -I "%COMMONFILESFOLDERX86%\Rockwell\WFCU\FTH2HInterface.wfcu"
Asset Framework	%COMMONFILESFOLDERX86%\Rockwell\WFCU\wfcu.exe -I "%COMMONFILESFOLDERX86%\Rockwell\WFCU\FTHistorianSEAF.wfcu"
Historian Server	%COMMONFILESFOLDERX86%\Rockwell\WFCU\wfcu.exe -I "%COMMONFILESFOLDERX86%\Rockwell\WFCU\FTHistorianSEServer.wfcu"
Live Data Interface	%COMMONFILESFOLDERX86%\Rockwell\WFCU\wfcu.exe -I "%COMMONFILESFOLDERX86%\Rockwell\WFCU\FTHistorianSELiveDataInterface.wfcu" -s

The *%COMMONFILESFOLDERX86%* variable stands for the location of the **Common Files** folder on the computer.

Example: If the **Common Files** folder is in the following location:

C:\Program Files\Common Files

The complete path to the command that you need to run for the Historian to Historian Interface is:

C:\Program Files\Common Files\Rockwell\WFCU\wfcu.exe -I "C:\Program Files\Common Files\Rockwell\WFCU\FTH2HInterface.wfcu"

5. Press Enter.

   The firewall is configured.

Appendix A: Configuring Historian servers in high availability mode

In this chapter you will learn about the following:

NOTE For detailed information on the high availability functionality, refer to the *High-Availability-Administrator-Guide_EN.pdf*. For information on the location of the user documents, see "User documentation (page 13)".

High availability (HA) architecture

You can configure high availability (HA) features on appropriate Historian components. To ensure the high availability of FactoryTalk Historian server data, you must configure three types of components:

- **A FactoryTalk Historian server collective**

To implement HA, install two FactoryTalk Historian servers and configure the FactoryTalk Historian SE system to store and write identical data on each server. Together, this set of servers, called a *FactoryTalk Historian server collective*, acts as the logical FactoryTalk Historian server for your system. The server collective receives data from one or more interfaces and responds to requests for data from one or more clients. Because more than one server contains your system data, system reliability increases. When one server becomes unavailable, for planned or unplanned reasons, another server contains the same data and responds to requests for that data. Similarly, when the demand for accessing data is high, you can spread that demand among the servers.

- **Redundant interfaces**

  To implement HA, configure interfaces to support failover and n-way buffering:

  - *Failover* ensures that time-series data reaches the FactoryTalk Historian server even if one interface fails.

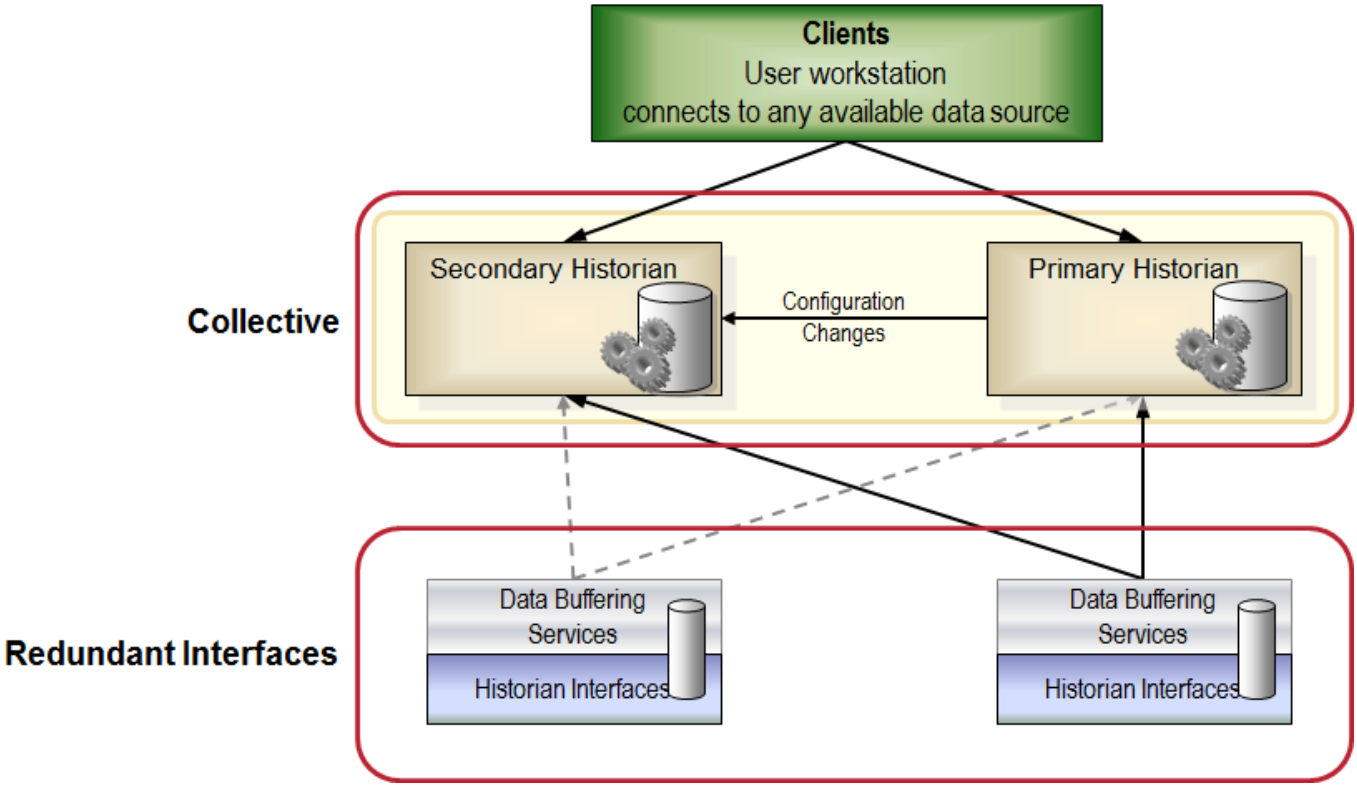
    To support failover, install a redundant copy of an interface on a separate computer. When one interface is unavailable, the redundant interface automatically starts collecting, buffering, and sending data to the FactoryTalk Historian server.

  - *N-way buffering* ensures that identical time-series data reaches each FactoryTalk Historian server in a collective.

    To support n-way buffering, configure the buffering service on interface computers to queue data independently to each FactoryTalk Historian server in a collective.

- **Clients (user workstations)**

  To implement HA, configure clients to connect to either server in a collective and seamlessly switch to another server if necessary.



Working with server collectives

A server collective consists of two FactoryTalk Historian SE servers (primary and secondary) that have the same configuration database. This provides the same association between the key values in the FactoryTalk Historian SE tables on all of the servers. This also ensures that the archive data files have the same structure on all of the servers.

Keep the following in mind about server collectives:

- When creating server collectives, you must always use fully qualified host names, not IP addresses. Therefore, the name resolution functionality must work on the network.
- If you make one or more FactoryTalk Historian SE servers members of a collective, you must restart them after a server collective is created. Otherwise, FactoryTalk Administration Console will not recognize any of the third-party tag licenses you may have on your servers.
- To create a server collective on computers that have Windows Firewall turned on, you must manually open the TCP 445 port between the two computers. Please refer to the Microsoft documentation for more information.
- The Windows user that configures server collectives must be a domain user and must be mapped to the *piadmin* user. See "Create security mappings (page 87)" for more information.
- The same *Windows user to piadmin user* mapping must be performed on both the primary and secondary server in a collective.
- Activate your server collective in the FactoryTalk Administration Console.

Creating server collectives

To create a collective:

1. Open Collective Manager. See Opening Collective Manager on Windows Server (page 176).

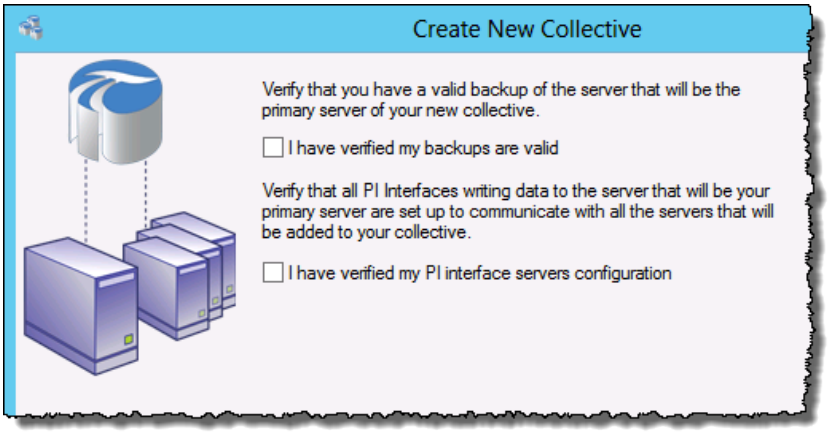
   The **Collective Manager** dialog box appears.
2. On the **File** menu, click **Connections**.

   The **Connection Manager** dialog box appears.
3. On the **Server** menu, click **Add Server**.

   The **Add Server** dialog box appears.

4. In the **Network Node** text box, type the name of the other server that you want to add to your collective.
5. Click **OK**, and then **Save**.
6. On the **File** menu, click **Create New Collective**.

   The **Create New Collective** wizard appears.



7. Select both check boxes, and then click **Next**.
8. On the **Existing Or New Primary** page, select **A newly installed server**, and click **Next**.

   The **Select Primary and Collective Name** page appears.
9. Review the following for additional information.

Item name	Description
Collective Primary	From the list, select the name of the server you want to make primary. If the name is not in the list, click ..., and select the server from the **Connection Manager** dialog box.
Primary Description	(Optional) Type a description of the primary server.
Collective Name	Type a name of the collective. The name must be unique.
Collective Description	(Optional) Type a description of the collective.

10. Click **Next**.

    The **Select Secondary Servers** page appears.

11. From the **Server** list, select the name of the server you want to add as secondary.

    If the name is not in the list, click ..., and select the server from the **Connection Manager** dialog box.

12. Click **Add** to add the selected server to the secondary servers list, and click **Next**.

13. On the **Select Archives** page, select the archives from your primary server which you want to copy to your secondary server. We recommend that you back up all your primary server archives onto your secondary server.

    Click **Next**.

14. On the **Select Backup Location** page, leave the default location, or click ... and browse to the location to which you want to back up the content of your primary server.

15. Click **Refresh** to check the space available in the selected location. Make sure that the space available is larger than the space required.

    Click **Next**.

16. On the **Verify Selections** page, verify the collective data, and click **Next**.

    The **Conversion Progress** page displays the status and individual steps of the conversion process. Wait until the conversion is complete.

17. If the **Server ID Mismatch** dialog box appears, select **Accept the new ID**, and click **OK**.

18. On the **Finished** page, click **Finish**. The new collective is displayed in the **Collective Manager** dialog box.

TIP For more information on collectives, refer to the Collective Manager Help. To access it, on the **Help** menu of the **Collective Manager** dialog box, click **Contents**.

Configure Windows Firewall for collectives

You need to open specific TCP ports for a FactoryTalk Historian SE collective to be able to communicate through Windows Firewall.

For details, see KB article 335447 in the Rockwell Automation Knowledgebase.

Verifying communication between server collective members

Use the Collective Manager to verify that the members of your server collective are communicating.

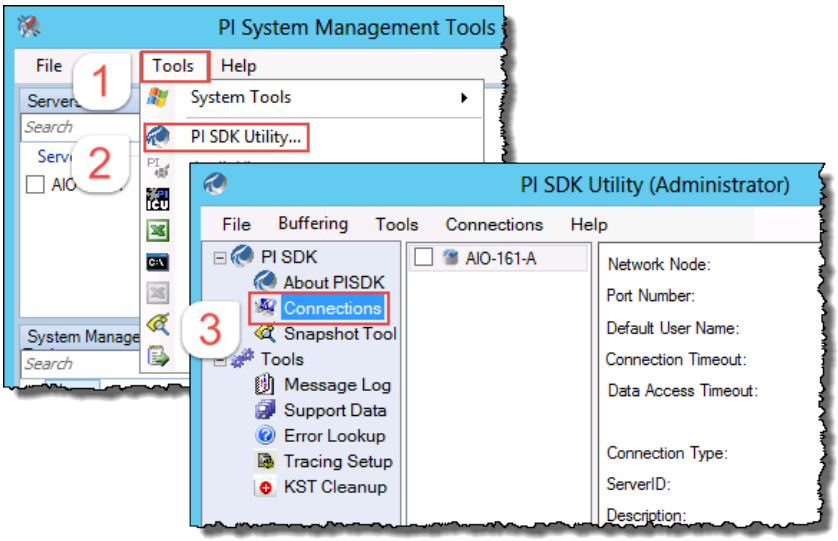
To check communication of the members of a server collective:

1. Open Collective Manager. See Opening Collective Manager on Windows Server (page 176).

   The **Collective Manager** dialog box appears.

   If the server collective does not appear under **Collectives**, you must enable communication between the Collective Manager and the collective:

   a. In the **System Management Tools**, go to **Connections**:



   b. Click the check box next to the name of the server collective to select it.

If the server collective is not listed in the Connection Manager, add it:

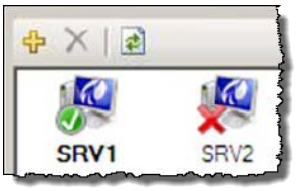
1. Select **Server** > **Add Server**.
2. In the **Network Node** text box, type the fully qualified domain name (FQDN) for the primary server in the collective.
3. Click **OK**.

c. Select the server collective.

d. Click **Save** to close the Connection Manager.

2. Under **Collectives**, select your server collective.

The right pane of the dialog box displays the current status of the connection between the members of the selected server collective. The Collective Manager shows a diagram of server collective members. An icon represents each server in the collective. A green check mark on the icon indicates that the server is communicating correctly. A red x mark indicates that the server is not communicating correctly.



If a server icon is not communicating correctly, you can:

- Wait a few moments. Occasionally, the status of the secondary server will get updated at the next attempt to synchronize.
- Try to reinitialize the server. To do so, right-click the server icon and select **Reinitialize Server**.
- Restart the primary and secondary server.

  For details, see "Restart the Historian server" (page 185).

Verifying replication of configuration changes in the primary server

To verify that a Historian server collective replicates primary server configuration changes to all secondary servers, you can edit a point on the primary server and verify the change on the secondary server in the collective.

To verify configuration replication in a Historian server collective:

1. Open **System Management Tools**. See Opening System Management Tools on Windows Server (page 67).

   The **System Management Tools** dialog box appears.
2. Under **Collectives and Servers**, select all the servers that are members in the collective.
3. Under **System Management Tools**, select **Points > Point Builder**.
4. Add a point found in all the servers to the list of points:
   1. On the toolbar, click  . The **Tag Search** dialog box appears.
   2. In **Tag Mask**, type `sinusoid`.
   3. Click **Search** to find all instances of this built-in point on the selected servers.
   4. Click **Select All** to choose all instances.
   5. Click **OK** to add these points to the list of points in the Point Builder.
5. Edit the point on the primary server:
   a. Select the point on the primary server. The Point Builder shows the configuration of the selected point in the tabs at the bottom of the **System Management Tools** dialog box.
   b. In the **General** tab, change the text in the **Descriptor** text box. For example, change *12 Hour Sine Wave* to *12-hour sine wave*.

c. Click . The Point Builder shows the updated **Descriptor** text for this point on the primary server.

6. Click .

   If the replication is working properly, the modified **Descriptor** text appears for the sinusoid point on all the servers in the collective.

   If the replication fails, refer to the *High-Availability-Administrator-Guide_EN*, section "PI Collective Health". For information on the location of the user documents, see "User documentation (page 13)".

Assigning license activations to server collectives

NOTE In order to assign the activations to a FactoryTalk Historian SE server, the server must be added to the FactoryTalk Directory. See "Adding the server to the FactoryTalk Directory (page 95)" for more information.

Depending on the type of license activations, you may need to acquire a single or double number of license activations of a given type for your Historian server collective.

- For the following license activations, you need a single activation of a given type assigned to the Historian server collective. A second unassigned activation is not required (as it is for the point count activations):
  - FHSE.Advanced
  - FHSE ENTERPRISE
  - FHSE.OLEDB
  - FHSE.OPC
  - FHSE.H2H
  - FTBAInt.*
  - AVIEW.*

  NOTE The asterisk (*) stands for any count of FTBAInt and AVIEW license activations.

If you assign any of the license activations listed above to a Historian server collective, the primary server retrieves (checks out) the license activations from the FactoryTalk Activation server to be used by both servers in a collective. In the FactoryTalk Activation Manager, the number of activations in use is reflected only for the primary server in a collective. It is because the assignment of activations to the secondary server in a collective is performed outside the FactoryTalk Activation mechanism.

For example, if you want to assign 1 license activation of type *FHSE.H2H* to your Historian server collective, you need to acquire 1 license activation of this type and then assign it to the primary server in your collective.

- For all other license activations, you need a separate activation of a given type for each server in a collective.

  If you assign any license activations other than those listed above to a Historian server collective, the primary server retrieves (checks out) the license activations from the FactoryTalk Activation, and the second license activation of the same type is automatically checked out for the secondary server in a collective. In the FactoryTalk Activation Manager, the number of activations in use is reflected for both servers in the collective.

  For example, if you want to assign 2 license activations of type *FHLD.5000* to your Historian server collective, you need to acquire 4 license activations of this type and then assign 2 activations to the primary server. The other 2 activations will be automatically assigned to the secondary server in your collective. You will be able to assign license activations of a given type to your server collective only if you have a sufficient number of them available.

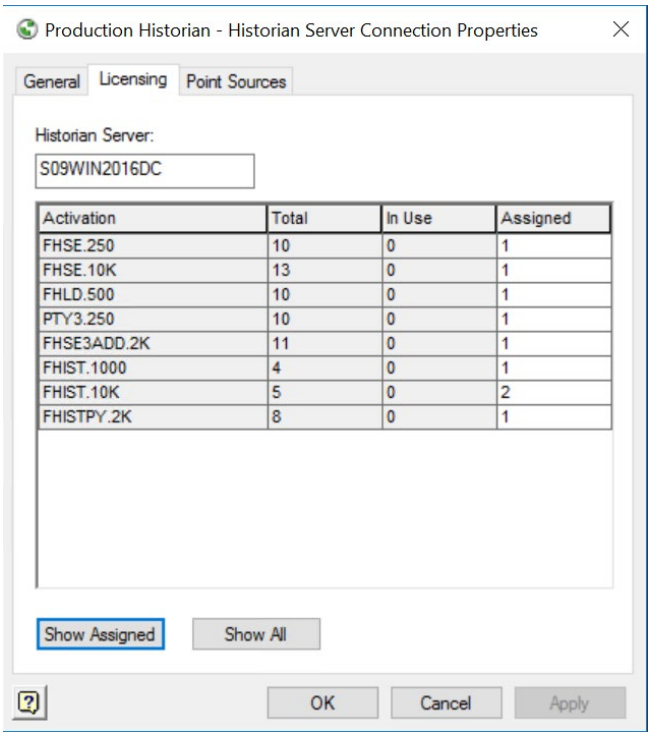
To assign license activations to the primary server in a collective:

1. Open **FactoryTalk Administration Console**. See Opening FactoryTalk Administration Console on Windows Server (page 97).

   The **FactoryTalk Administration Console** dialog box appears.
2. In the **Select FactoryTalk Directory** dialog box, select **Network**, and click **OK**.
3. In the **Explorer** tree, expand **System > Connections > Historical Data**.
4. Right-click the name of the server to which you want to assign the license activations, and click **Properties**.
5. In the **Historian Server Connection Properties** dialog box, click the **Licensing** tab. The table displayed in the tab provides the following information for the selected server:

Item	Description
Activation	The type of the license activation.
Total	The total number of license activations of the given type.
In Use	The number of license activations of the given type that are used by other Historian servers.
Assigned	The number of license activations of the given type that are assigned to the selected server.

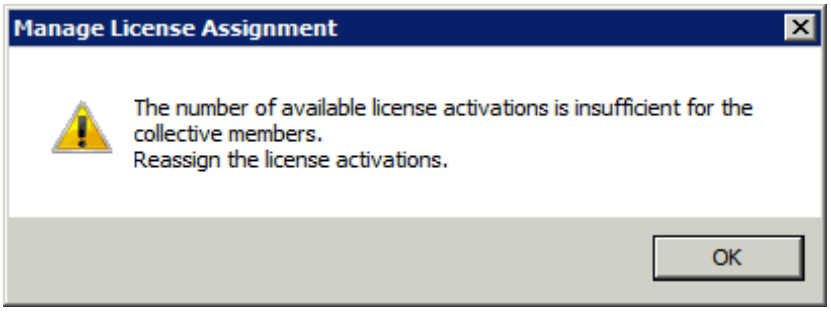
6. To assign a license activation to the server, type a number in the **Assigned** column for the selected license activation. The number shows how many licenses of the selected type will be assigned to the server.



After each license activation assignment, the system checks the sum of points resulting from the assignments. For more details of the license activations, please refer to "Assigning license activations to the Historian server (page 110)".

7. Click **Apply**.

   If you have an insufficient number of the license activations that need to be assigned to the primary and secondary server in a collective, you are prompted to reassign the licenses:



   Reassign the licenses, and then click **Apply** again.

Configuring interfaces and buffering services for Historian server collectives

To implement HA, configure interfaces to support failover and n-way buffering. Failover ensures that time-series data reaches the Historian server even if one interface fails; n-way buffering ensures that identical time-series data reaches each Historian server in a collective.

To support failover, install a redundant copy of an interface on a separate computer. When one interface is unavailable, the redundant interface automatically starts collecting, buffering, and sending data to the Historian server. To support n-way buffering, configure the buffering service on interface computers to queue data independently to each Historian server in a collective.

In some deployments, interfaces send outputs (that is, data from the Historian server) to the data source. With a proper configuration, failover considers the availability of the Historian server for outputs in addition to the availability of the interface.

NOTE For more information, refer to the *High-Availability-Administrator-Guide_EN.pdf*, chapter "Interfaces". For information on the location of the user documents, see "User documentation (page 13)".

Opening Collective Manager on Windows Server

To open **Collective Manager** using your **Start** menu, enter `Collective Manager` and select the **Collective Manager** result.

Appendix B: Configuring the Advanced Server components

NOTE For details on the types of licenses that activate the Advanced Server components, see "Types of licenses activating the Advanced Server components (page 57)".

In this chapter you will learn about the following:

Configuring ACE

In this section you will learn about the following:

The procedures presented in the following sections contain only basic information on configuring the component. For detailed information on PI ACE, refer to the following documents:

Document	Location
PI-ACE-2010-R2-SP2-Release-Notes.pdf *PI-ACE-2010-R2-User-Guide-for-Visual-Basic-.NET_EN.pdf* *PI-ACE-2010-R2-User-Guide-for-Visual-Basic-6_EN.pdf*	The following subfolders of the **Common Files\Rockwell\Help** folder in your **Program Files (x86)** directory: • FactoryTalk Historian SE <*version*> Server\Advanced Server Options\ • FactoryTalk Historian SE <*version*> Management Tools\Advanced Server Options\ The availability of each folder depends on which FactoryTalk Historian suite you have installed on your computer.
Word and help documents for PI ACE	c:\Program Files (x86)\Rockwell Software\FactoryTalk Historian\PIPC\ACE\Help\

Configure the ACE Manager

To configure ACE:

1. Open **PI ACE Manager**. See Opening PI ACE Manager on Windows Server (page 180).
2. The **PI ACE Manager** dialog box appears.

   In the explorer tree, the detected Historian server is listed.
3. On the **Server** menu, click **Add New Server**, if there is no server listed, or you want to add another one.

   The **Add Server** dialog box appears.
4. Under **PI Server Name**, select the server that you want to add, and then click **OK**.

Verify the connection with the Historian server

To verify the connection in the System Management Tools:

1. Open **System Management Tools**. See Opening System Management Tools on Windows Server (page 67).

   The **System Management Tools** dialog box appears.

2. Under **Collectives and Servers**, select the Historian server whose data you want to check.
3. Under **System Management Tools**, select **Operation > Network Manager Statistics**.
4. In the right pane, find **PIACEManager.exe**.

   The connection status (**ConStatus**) for this service should be **[0] Success**.

Start the ACE Scheduler

To start the ACE Scheduler:

1. Open **Services** (see Opening Services on Windows Server on page 180).

   The **Services** dialog box appears.
2. In the right pane, find the **PI ACE 2.x Scheduler** service.
3. Right-click the service, and then click **Start**.

   The service is started, and its status is changed to **Started**.

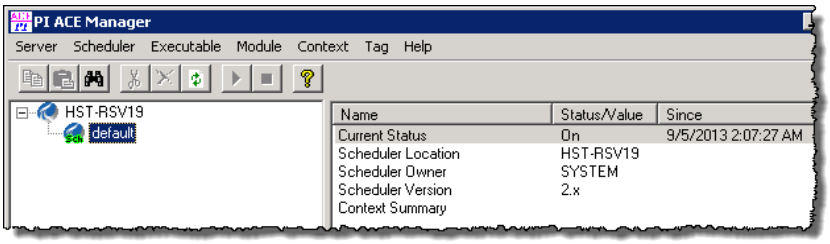
Verify the ACE Scheduler status

To verify the ACE Scheduler status in the ACE Manager:

1. Open **PI ACE Manager**. See Opening PI ACE Manager on Windows Server (page 180).

   The **PI ACE Manager** dialog box appears.
2. In the explorer tree, expand the server item, if the scheduler item is not visible.
3. Click the scheduler item.

   A running PI ACE Scheduler is marked in green (), and the current status is set to **On**.



To verify the ACE Scheduler status in the System Management Tools:

1. Open **System Management Tool**s. See Opening System Management Tools on Windows Server (page 67).

   The **System Management Tools** dialog box appears.
2. Under **Collectives and Servers**, select the Historian server whose data you want to check.
3. Under **System Management Tools**, select **Operation > Network Manager Statistics**.
4. In the right pane, find **PIACENetScheduler.exe**.

   The connection status (**ConStatus**) for this service should be **[0] Success**.

Opening PI ACE Manager on Windows Server

To open **PI ACE Manager** using your **Start** menu, enter `PI ACE Manager` and select the **PI ACE Manager** result.

Opening Services on Windows Server

To open **Services** using your **Start** menu, enter `Services` and select the **Services** result.

Configuring JDBC

For detailed information on JDBC, refer to the following documents:

Document	Location
PI-JDBC-Driver-2019-Administrator-Guide.pdf *PI-JDBC-2019-Release-Notes.pdf*	The following subfolders of the **Common Files\Rockwell\Help** folder in your **Program Files (x86)** directory: • FactoryTalk Historian SE <*version*> Server\Advanced Server Options\ • FactoryTalk Historian SE <*version*> Management Tools\Advanced Server Options\ The availability of each folder depends on which FactoryTalk Historian suite you have installed on your computer.

Verify the notifications services status

To verify the notifications status in the Administrative Tools:

1. Open **Services** (see Opening Services on Windows Server on page 180).

   The **Services** dialog box appears.
2. In the right pane, find the **PI Notifications Scheduler** service.
3. Make sure that its status reads **Started** or **Running** (depending on the operating system version). If it does not, right-click the service, and then click **Start**.
4. Right-click **PI Notifications Scheduler**, and then click **Properties**.
5. Click the **Log On** tab. Make sure that the settings on this tab allow the service to connect to the FactoryTalk Historian SE server.

Create and configure module database attributes

To create and configure a module database attribute:

1. Open **PI System Explorer**. See Opening System Explorer on Windows Server (page 189).

   The **PI System Explorer** dialog box appears.
2. On the **File** menu, click **Connections**.

The **Servers** dialog box appears.

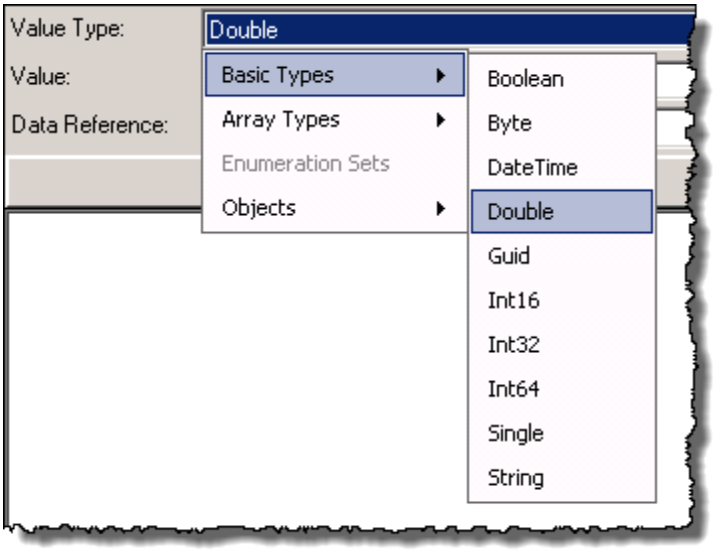
3. Right-click the name of your Asset Framework server, and then click **Connect**.

   The connection is indicated with a green dot on the AF server icon.

4. Click **Close**.
5. Under **Elements**, click your Historian module database.
6. Click the **Attributes** tab.
7. Right-click in the tab area, and select **New Attribute**.

   A new row is added for the new attribute, and the new attribute's properties are displayed in the right pane.

8. In the **Name** text box, change the name of the attribute to one of your choosing.
9. From the **Value Type** list, select the type of the attribute value.



10. From the **Data Reference** list, select **PI Point**.
11. Click **Settings**.

    The **PI Point Data Reference** dialog box appears.

12. Click  .

The **Tag Search** dialog box appears.

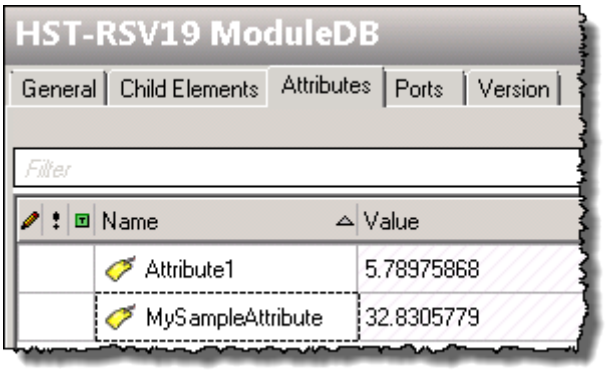
13. Type the name of the tag in the text box, or click **Search**.
14. Select the tag from the tag list, and then click **OK**.

    The name of the selected tag appears in the **Tag name** text box.
15. Click **OK**.

    The tag you have selected is listed under **Settings**.

    In this way, you have created a reference between the database attribute and the Historian tag.

    The newly created attribute is listed on the **Attributes** tab.



The attribute value reflects the value of the Historian tag that you have assigned to the attribute.

Now you can create a notification rule (page 183) for the tag defined in the newly created attribute.

Create a notification rule

To create a notification rule:

NOTE For complete instructions on creating and configuring notifications, please see *PI-System-Explorer-2018-SP3-User-Guide-EN.pdf*.

1. In PI System Explorer, select the element on which you want to create notification rules.

2. From either the **Notifications Rules** tab or from an existing event frame analysis, select **Create a new notification rule**.
3. Enter a name for the new notification rule and (optionally) select a category.
4. In the **Trigger Criteria** pane, specify the set of conditions that causes a notification to be sent.
5. In the **Subscriptions** pane, select **Manage Formats** and specify the format for notifications.
6. In the **Subscriptions** pane, select **View/edit subscriptions** and specify the contacts to which notifications will be sent.
7. Test that the notification is triggered when an event occurs that satisfies all of the trigger criteria specified.

Now you can assign licenses (page 184) to your notifications.

Assign licenses to notifications

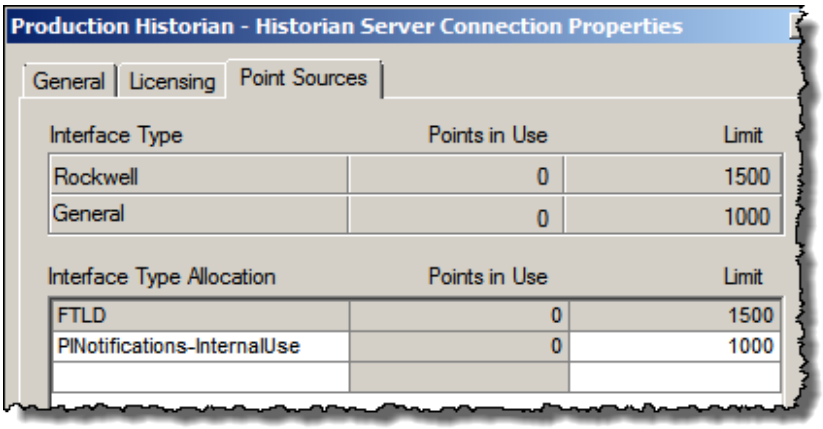
To assign licenses to notifications:

1. Open **FactoryTalk Administration Console**. See Opening FactoryTalk Administration Console on Windows Server (page 97).

   The **FactoryTalk Administration Console** dialog box appears.
2. Log on to the FactoryTalk Directory.
3. In the **Explorer** tree of the **FactoryTalk Administration Console** dialog box, go to **System > Connections > Historical Data**.
4. Right-click **Production Historian**, and select **Properties**.

   The **Historian Server Connection Properties** dialog box appears.
5. Click the **Point Sources** tag.

6. Under **Interface Type Allocation**, type `PINotifications-InternalUse`.
7. Under **Limit**, type the limit for the notification licenses.
8. Click **Apply**.



Restart the Historian server (optional)

This step is optional. If you do not restart the server, the license-related information will be propagated in up to 20 minutes.

To restart the Historian server:

1. Stop the server:
   a. Search for **Stop FactoryTalk Historian SE** in Windows Search, right-click it, and then select **Run as administrator**.

      The server stopping process begins. The progress is displayed in the Command Prompt window.

   b. Wait until the server is stopped and the Command Prompt window is closed.
2. Start the server:
   a. Search for **Start FactoryTalk Historian SE** in Windows Search, right-click it and then select **Run as administrator**.

The server starting process begins. The progress is displayed in the Command Prompt window.

b. Wait until the server is started and the Command Prompt window is closed.

Start notifications

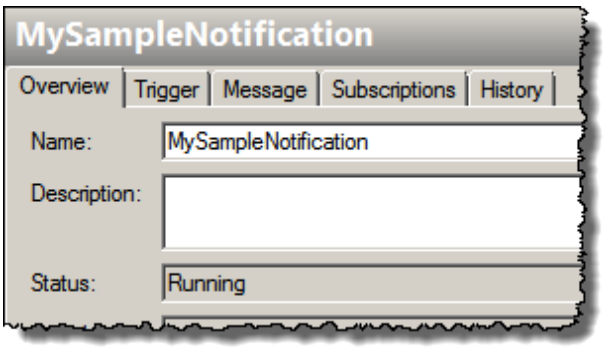
To start a notification:

1. Open **PI System Explorer**. See Opening System Explorer on Windows Server (page 189).

   The **PI System Explorer** dialog box appears.

2. In the navigation pane on the left, click **Notifications**.
3. Select the notification that you want to start.
4. On the toolbar, click  .

   The notification is started.



Verify the notifications services status in System Management Tools

To verify the notifications status in the System Management Tools:

1. Open **System Management Tools**. See Opening System Management Tools on Windows Server (page 67).

   The **System Management Tools** dialog box appears.

2. Under **Collectives and Servers**, select the Historian server whose data you want to check.

3. Under **System Management Tools**, select **Operation** > **Network Manager Statistics**.
4. In the right pane, find the following services:
   - PINotificationsManager.exe
   - PINotificationsHistoryProvider.exe

   The connection status (ConStatus) for these services should be [0] Success.

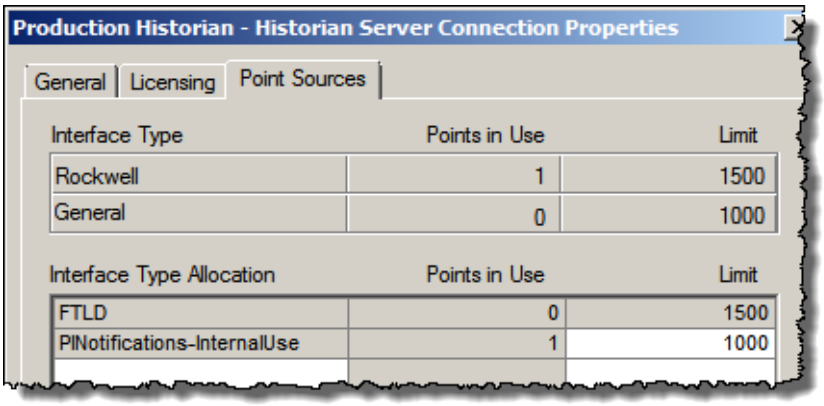
Verify the license consumption by notifications

To verify the license consumption by the notification in the FactoryTalk Administration Console:

1. Open **FactoryTalk Administration Console**. See Opening FactoryTalk Administration Console on Windows Server (page 97).

   The **FactoryTalk Administration Console** dialog box appears.
2. Log on to the FactoryTalk Directory.
3. In the **Explorer** tree of the **FactoryTalk Administration Console** dialog box, go to **System > Connections > Historical Data**.
4. Right-click **Production Historian**, and select **Properties**. The **Historian Server Connection Properties** dialog box appears.
5. Click the **Point Sources** tag.

   Under **Points in Use**, the number of currently used licenses is displayed.



NOTE For PI Notifications, each notification consumes 1 point in the FactoryTalk Administration Console.

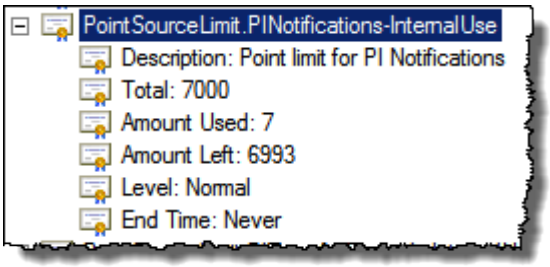
To verify the license consumption by the notification in the System Management Tools:

1. Open System Management Tools. See Opening System Management Tools on Windows Server (page 67).

   The **System Management Tools** dialog box appears.

2. Under **Collectives and Servers**, select the Historian server whose data you want to check.
3. Under **System Management Tools**, select **Operation > Licensing**.
4. Expand your Historian server item.
5. Go to **Resources > PointSourceLimit.PINotifications-InternalUse**.

   The **Amount Used** property indicates the number of licenses used for the notifications: it is 7 points per notification.



NOTE

The numbers provided for PI Notifications in **Total**, **Amount Used**, and **Amount Left** are multiplied by 7 against those set in the FactoryTalk Administration Console. It is because each notification uses 7 points from the Rockwell pool.
For example, if you set the limit for notifications to 50 in the FactoryTalk Administration Console, the **Total** number of allocated licenses in the System Management Tools will equal 350.
Similarly, if you enable 50 notifications, the **Amount Used** value will equal 350.

Opening System Explorer on Windows Server

To open **System Explorer** using your **Start** menu, enter `PI System Explorer` and select the **System Explorer** result.

Configuring ODBC

For detailed information on ODBC, refer to the following documents:

Document	Location
PI-ODBC-2016-R2-Administrator-Guide.pdf *PI-ODBC-2016-R2-Release-Notes.pdf*	The following subfolders of the **Common Files\Rockwell\Help** folder in your **Program Files (x86)** directory: • FactoryTalk Historian SE <*version*> Server\Advanced Server Options\ • FactoryTalk Historian SE <*version*> Management Tools\Advanced Server Options\ The availability of each folder depends on which FactoryTalk Historian suite you have installed on your computer.

Configuring OLEDB

In this section you will learn about the following:

The procedures presented in the following sections contain only basic information on configuring the component. For detailed information on PI OLEDB, refer to the following documents:

Document	Location
PI-OLEDB-Enterprise-2019-User-Guide.pdf *PI-OLEDB-Provider-2019-Patch-1-Release-Notes.pdf* *PI-OLEDB-Provider-2019-User-Guide.pdf*	The following subfolders of the **Common Files\Rockwell\Help** folder in your **Program Files (x86)** directory: • FactoryTalk Historian SE <*version*> Server\Advanced Server Options\ • FactoryTalk Historian SE <*version*> Management Tools\Advanced Server Options\ The availability of each folder depends on which FactoryTalk Historian suite you have installed on your computer.
User guides and release notes for OLE DB Enterprise and OLE DB Provider	<HistorianInstallationDirectory>\PIPC\OLEDB\Doc\

Verify the OLEDB Enterprise installation

To verify the OLEDB Enterprise installation:

1. Open Services (see Opening Services on Windows Server on page 180).

   The **Services** dialog box appears.
2. In the right pane, find the **PI OLEDB Enterprise Agent** service.
3. Make sure that its status reads **Started**.

Verify the connection with the Historian server

To verify the connection with the Historian Server in the OLEDB MMC Snap-in:

1. Open **PI OLEDB MMC Snap-in**. See Opening PI OLEDB MMC Snap-in on Windows Server (page 192).

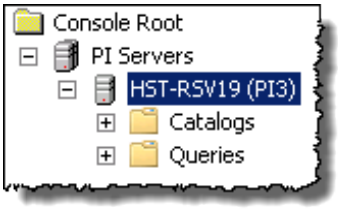
   The **PIOLEDB** window appears.
2. Under **PI Servers**, right-click the Historian server name, and select **Connect**.

   The **PI Server Login** dialog box appears.

3. Type the user credentials, and then click **OK**.

   TIP Check the authentication settings on your Historian server to find out whether or not you need to check the **Use Windows NT Integrated security** option for a successful logon.

   Once the connection is established, the Historian server tree node gets populated with its child items.



Verify the OLEDB MMC Snap-in status

To verify the OLEDB MMC Snap-in status in the System Management Tools:

1. Open **System Management Tools**. See Opening System Management Tools on Windows Server (page 67).

   The **System Management Tools** dialog box appears.

2. Under **Collectives and Servers**, select the Historian server whose data you want to check.
3. Under **System Management Tools**, select **Operation > Network Manager Statistics**.
4. In the right pane, find **mmc.exe**. The connection status (**ConStatus**) for this service should be **[0] Success**.

Opening PI OLEDB MMC Snap-in on Windows Server

To open **PI OLEDB MMC Snap-in** using your **Start** menu, enter `PI OLEDB MMC Snap-in` and select the **PI OLEDB MMC Snap-in** result**.**

Configuring OPC DA and HDA servers

In this section you will learn about the following:

- Verify the status of the OPC DA and HDA servers (page 194)

- Connect to the OPC DA and HDA servers with the PI OPC Client Tool (page 195)
- Opening PI OPC Tool on Windows Server (page 196)

For detailed information on OPC DA and HDA servers, refer to the following documents:

- DA:
  - PI_OPC_DA_Interface_ Failover_Manual_2.3.20.9. docx
  - PI-OPC-DA-Server-2018-Patch-1---User-Manual.pdf
  - PI-OPC-DA-Server-2018 Patch-1---Release-Notes.pdf
- HDA:
  - DCOM_Configuration_Guide_2.4.4.pdf
  - PI_ HDAServerConfigTool_ReleaseNotes.txt
  - PI_HDATool_1.1.0.0_ReleaseNotes.txt
  - PI_HDATool_1.1.0.0UserGuide.txt
  - PI-API-1.6.9-Release-Notes.htm
  - PI-Buffer-Subsystem-2018-SP2-Patch1-Release-Notes.pdf
  - PI-OPC-HDA-Server-2016_Release-Notes.docx
  - PI-OPC-HDA-Server-2016_User-Manual.docx
  - PISDK-2018SP1-Patch-1-ReleaseNotes.pdf

You can find these documents in the following subfolders of the Common Files\Rockwell\Help folder in your Program Files (x86) directory:

- FactoryTalk Historian SE <*version*> Server\Advanced Server Options\
- FactoryTalk Historian SE <*version*> Management Tools\Advanced Server Options\

The availability of each folder depends on which FactoryTalk Historian suite you have installed on your computer.

Verify the status of the OPC DA and HDA servers

To verify the status of the OPC DA and HDA servers in the Administrative Tools:

1. Open Services (see Opening Services on Windows Server on page 180).

   The **Services** dialog box appears.
2. In the right pane, find the following:
   - **DA**: PI OPC DA Server
   - **HAD**: PI OPC HDA Server for PI service
3. Make sure that its status reads **Started**.

To verify the status of the OPC DA and HDA servers in the System Management Tools:

1. Open System Management Tools. See Opening System Management Tools on Windows Server (page 67).

   The **System Management Tools** dialog box appears.
2. Under **Collectives and Servers**, select the Historian server whose data you want to check.
3. Under **System Management Tools**, select **Operation > Network Manager Statistics**.
4. In the right pane, find the following:
   - **DA**: OPCDA2_Service64.exe service
   - **HDA**: PI_OSIHDA.exe service

   The connection status (**ConStatus**) for these services should be **[0] Success**.

Connect to the OPC DA and HDA servers with the PI OPC Client Tool

To connect to the OPC DA and HDA servers with the PI OPC Client Tool:

1. Open **PI OPC Tool**. See Opening PI OPC Tool on Windows Server (page 196).

   The **PIOPCTool** window appears.

2. Under **Server Name**, select the following from the list, and then click **Connect**.

   - **DA**: OSISoft.OPCDA2.DA.1
   - **HDA**: OSI.HDA.1

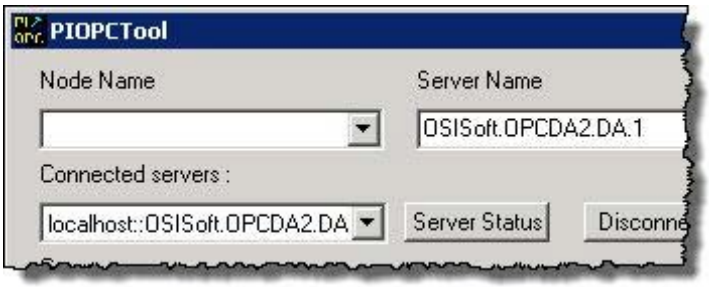
   The PI_OSIHDA.exe console application is opened and the connection is established.

   NOTE On Windows Server 2012 R2 and Windows Server 2012 the PI_OSIHDA.exe application will not start automatically. In order to start it, go to the %pihome%\PI_OSIOPC\ folder, and double-click the file there.

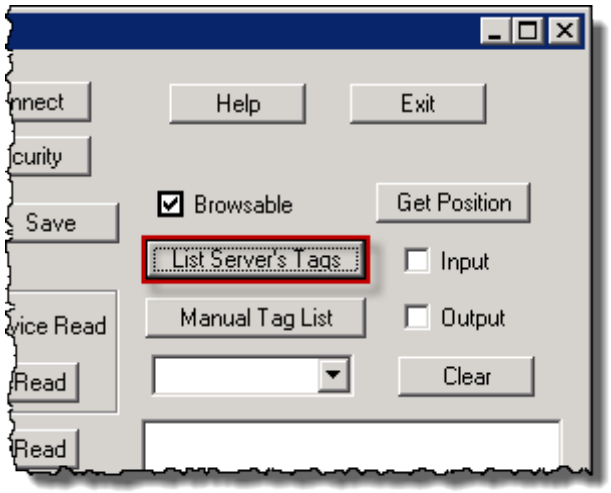
3. Click **OK** in the confirmation message, and leave the console window open.

   In the **PIOPCTool** dialog box, under **Connected servers**, the following server is listed.

   - **DA**: OSISoft.OPCDA2.DA.1
   - **HDA**: OSI.HDA.1

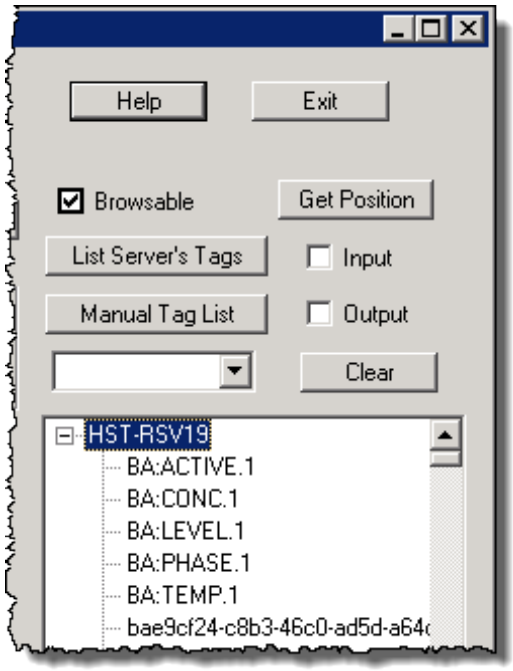


4. Click **List Server's Tags**.



In the following box, the button a tree item with the name of your Historian server appears.

5. Expand the item to see a complete list of the Historian tags.



Opening PI OPC Tool on Windows Server

To open **PI OPC Tool** using your **Start** menu, enter `PI OPC Tool` and select the **PI OPC Tool** result.

Configuring SQL Data Access Server

For detailed information on the SQL Data Access server, refer to the following documents:

Document	Location
PI-SQL-Data-Access-Server-(RTQP-Engine)-2018-SP3-Administrator-Guide.pdf *PI-SQL-Data-Access-Server-(RTQP-Engine)-2018-SP3-Release-Notes.pdf*	The following subfolders of the **Common Files\Rockwell\Help** folder in your **Program Files (x86)** directory: • FactoryTalk Historian SE <*version*> Server\Advanced Server Options\ • FactoryTalk Historian SE <*version*> Management Tools\Advanced Server Options\ The availability of each folder depends on which FactoryTalk Historian suite you have installed on your computer.

Verify the SQL Data Access Server status

To verify the SQL Data Access Server status:

1. Open **Services** (see Opening Services on Windows Server on page 180).

   The **Services** dialog box appears.
2. In the right pane, find the **PI SQL Data Access Server** service.
3. Make sure that its status reads **Started**.

Configure Web API Service

In this section you will learn about the following:

- Verify the Web API services status in Services (page 198)
- Verify the Web API services status in Internet Explorer (page 198)
- Open PI Web API Admin Utility on Windows Server (page 200)

The procedures presented in the following sections contain only basic information on configuring the component. For detailed

information on the Web API service, refer to the following documents:

Document	Location
PI-Web-API-2019-SP1-Release-Notes.pdf *PI-Web-API-2019-User-Guide.pdf*	The following subfolders of the **Common Files\Rockwell\Help** folder in your **Program Files (x86)** directory: • FactoryTalk Historian SE <*version*> Server\Advanced Server Options\ • FactoryTalk Historian SE <*version*> Management Tools\Advanced Server Options\ The availability of each folder depends on which FactoryTalk Historian suite you have installed on your computer.

Verify the Web API services status in Services

To verify the Web API Server status in Services:

1. Open **Services** (see Opening Services on Windows Server on page 180).

   The **Services** dialog box appears.
2. In the right pane, find the following services:
   - PI Web API 2019 SP1
   - PI Web API 2019 SP1 Crawler
3. Make sure that their statuses read **Started** or **Running** (depending on the operating system version). If they do not, right-click each service, and then click **Start.**

Verify the Web API services status in Internet Explorer

To verify the Web API Server status in Internet Explorer:

1. Open **PI Web API Admin Utility**. See Open PI Web API Admin Utility on Windows Server (page 200).

   The **Change PI Web API Installation Configurations** dialog box appears.

2. Go through the configuration until the **Configure the PI Indexed Search Crawler Submit Url** page appears.
3. Copy the link displayed on the page.
4. Open **Internet Explorer**.
5. Add the page to **Compatibility View**:
   a. On the toolbar, click  , and then click **Compatibility View Settings**. The **Compatibility View Settings** window appears.
   b. Under **Add this website**, paste the link from PI Web API Admin Utility.
   c. Click **Add**. The link appears under **Websites you've added...**
   d. Click **Close**.
6. Close Internet Explorer, and then open it again.
7. In the address bar, paste the link from PI Web API Admin Utility. You may need to type your username and password to access the page.

   If the Web API services are running, you will see a page similar to the following:

   Otherwise, you will see a **This page can't be displayed** message. For details on starting the services, see "Verify the Web API services status in Services" (page 198).

   If you start the Web API services, repeat the steps presented in this section, and the Web API page still does not appear, see the services documentation for troubleshooting. For details on

the Web API documentation, see "Configure Web API Service" (page 197).

Open PI Web API Admin Utility on Windows Server

To open **PI Web API Admin Utility** using your **Start** menu, enter `PI Web API Admin Utility` and select the **PI Web API Admin Utility** result**.**

Appendix C: Configuring and upgrading Live Data interface redundancy

Overview

For detailed information on the installation and configuration of the interface redundancy, refer to KB article 59932.

For detailed information on upgrading the interface redundancy, see KB article 1032534.

Appendix D: FactoryTalk View SE TrendX and TrendPro

The FactoryTalk View TrendX and TrendPro display objects support FactoryTalk Historian SE server as a data source. In this chapter you will learn how to configure FactoryTalk View TrendX and TrendPro to trend the data points (tags) from FactoryTalk Historian SE server. A trend is a visual representation or a chart of real-time or historical data. It provides a way to track plant activity as it is happening.

Before you start using the TrendX/TrendPro object with your FactoryTalk Historian SE server, do the following:

- Install the Historian connectivity from the FactoryTalk View SE installation media on the FactoryTalk View SE Server, Studio, and client computers.
- Either use a Windows user (page 87) mapped in the System Management Tools or create a trust (page 204) between the device on which you will use the TrendX/TrendPro object and the FactoryTalk Historian SE server that will be used as the data source of the object.

  NOTE: The preferred connection method is through Windows users mapped to Historian groups. If the HMI users are not Windows users, then configure a trust to allow connectivity.
- Add the FactoryTalk Historian SE server to the FactoryTalk Directory (page 95).
- Make sure both the client and the FactoryTalk Historian SE server point to the same FactoryTalk Directory (page 29).

  TIP For more information on FactoryTalk View TrendX and TrendPro, refer to the product documentation.

Creating security trusts for FactoryTalk View TrendX/TrendPro display object

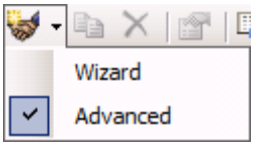
If you intend to use the FactoryTalk View TrendX/TrendPro display object to trend data points (tags) from the FactoryTalk Historian SE server, you need to establish a security connection between the device on which you use the TrendX/TrendPro object (e.g., a computer with FactoryTalk View running) and the FactoryTalk Historian SE server. You can achieve it by creating a trust between the IP address of the device and the **FTHOperator** user of the FactoryTalk Historian SE server security model.

NOTE For more information on the FactoryTalk Historian SE server users, see "Historian security components and their privileges (page 81)".

To create a security trust for FactoryTalk View TrendX/TrendPro object on the computer with the FactoryTalk Historian SE server installed:

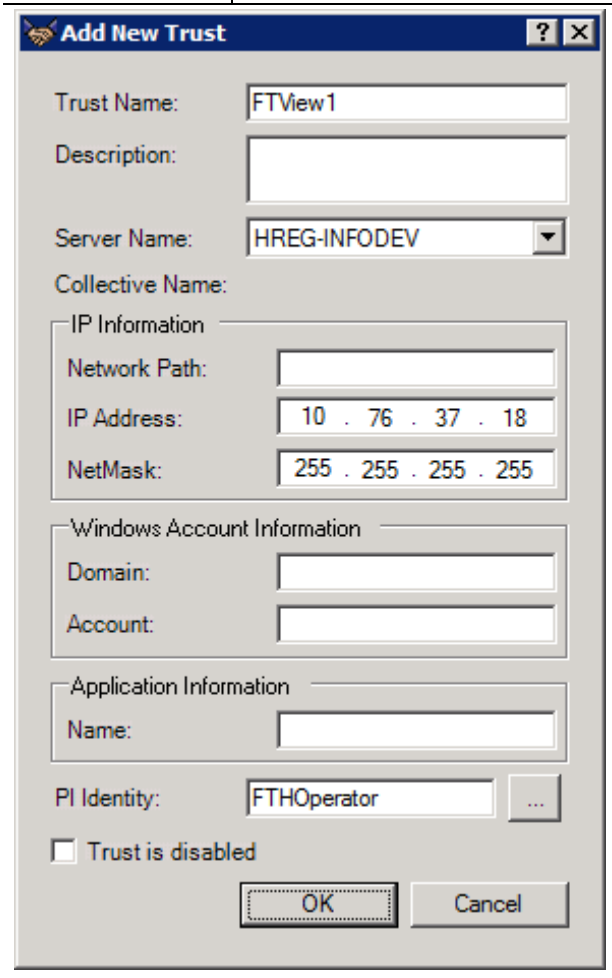
1. Open **System Management Tools**. See Opening System Management Tools on Windows Server (page 67).

   The **System Management Tools** dialog box appears.
2. Under **Collectives and Servers**, select the FactoryTalk Historian SE server, for which you want to create the trust.
3. Under **System Management Tools**, select **Security > Mappings & Trust**.
4. Go to the **Trusts** tab.
5. On the toolbar, click the arrow next to  , and select **Advanced**.

6. In the **Add New Trust** dialog box, provide the following information:

Item name	Description
Trust Name	Type a name of the trust.
Server Name	Select from the list the FactoryTalk Historian SE server for which you want to create the trust.
IP Address	Type the IP address of the device on which you will use the FactoryTalk View TrendX/TrendPro objects.
NetMask	Type *255.255.255.255*.
PI Identity	**1.** Click ... The **Select PI Identity, PI Group, or PI User** dialog box appears. **2.** From the **Type** list, select **PI Users**. **3.** From the list, select **FTHOperator**, and click **OK**.



7. Click **OK**. The new trust appears in the **Trusts** tab.

Now you can start using the FactoryTalk View TrendX/TrendPro object with your FactoryTalk Historian SE server.

Configuring trend properties for TrendX

To configure trend properties for an existing application:

1. Open FactoryTalk View Studio.
2. In the **Application Type Selection** dialog box, select the type of the application, and click **Continue**.
3. In the application dialog box, select the existing application name, the language for the application, and click **Open**.
4. In the **Explorer** tree, expand an HMI project, and select a display.
5. Right-click the display and select **Open**. The display canvas appears in the right pane of the dialog box.
6. Click in the canvas to display additional menu items in the menu bar.
7. On the **Objects** menu, click **Advanced** > **Trend**. The object type name appears next to the mouse pointer.
8. Place the mouse pointer on the display canvas, press and hold the left mouse button and drag the mouse pointer to create a trend.
9. Double-click the trend object.

   The **Trend Properties** dialog box appears.

   NOTE For more information on the trend properties, refer to the *FactoryTalk View SE Help*. To access it, click **Help** in the **Trend Properties** dialog box.

10. In the **General** tab, select either of the following options from the **Data Server** list:

Item name	Description
Real-time data server	Retrieves data from the snapshot subsystem. This option is preferred for points that change infrequently, e.g., setpoints.

Item name	Description
Poll historical data	Retrieves data from the archive files. This option is preferred for points that change faster than a second.

11. In the **Pens** tab, select **Historian Server** from the **Pen Source** list.
12. Click **Add Pen(s)**.

    The **Add Pen Configuration** dialog box appears.

    NOTE You can add new or existing FactoryTalk Historian data points (tags) in pen for trending - one pen per tag.
13. From the **FT Historian Server** list, select the FactoryTalk Historian SE server for which you have created the trust (page 204).

    NOTE The TrendX object supports pens that come from different FactoryTalk Historian SE servers. For example, you can add a *Pen 1* tag from the Server A and a *Pen 2* tag from the Server B. The tag names must be unique.
14. In the **Enter or Select Tag** text box:
    - Type the name of the data point (tag) you want to add, or
    - Search for a tag by clicking ....

      The **Tag Search** dialog box appears.

      TIP For information on how to use the **Tag Search** dialog box, click **Help** in the dialog box.
15. Once you have selected the tag, click **OK**.
16. In the **Add Pen Configuration** dialog box, click **Add**.

    The tag name is validated.
    - If validation fails, a relevant message appears. Correct the tag name and click **Add** again.
    - If validation succeeds, the tag is added to the list box, and the **Enter or Select Tag** text box is cleared.
17. Click **OK**.

The tag is displayed in the **Pens** tab of the **Trend Properties** dialog box.

18. Click **OK**.

    The tag is added to the trend object in the display.

19. Click  on the toolbar to test the display.

    The trend starts displaying data from the selected tag.

Configuring trend properties for TrendPro

To configure trend properties for an existing application:

1. Open FactoryTalk View Studio.
2. In the **Application Type Selection** dialog box, select the type of the application, and click **Continue**.
3. In the application dialog box, select the existing application name, the language for the application, and click **Open**.
4. In the **Explorer** tree, expand a HMI project, and expand **Graphics**.
5. Right-click **Displays** and select **New**. The display canvas appears in the right pane of the dialog box.
6. Click in the canvas to display additional menu items in the menu bar.
7. On the **Objects** menu, click **Trending** > **TrendPro**. The object type icon appears next to the mouse pointer.
8. Place the mouse pointer on the display canvas, press and hold the left mouse button and drag the mouse pointer to create a trend.
9. The **TrendPro Properties** dialog box appears. If not, double-click the trend object.

   NOTE For more information on the TrendPro properties, refer to the *FactoryTalk View SE Help*. To access it, click **Help** in the **Trend Properties** dialog box.

10. In the **General** tab, define which trend settings are available to operators at runtime. To prevent operators from changing

these options, this tab is not available at runtime. The following table defines the available settings.

Settings	Description
Trend Setup	Click this button to open the **Properties** dialog box and configure the detailed trend appearances and behaviors at runtime. The **Properties** dialog box is also available at runtime if the **Context menu** option is enabled.
Chart	Specify which trend panes are displayed and whether the context menus are available to operators at runtime. The panes include **Tag explorer**, **Toolbar**, **Timebar**, **Context menu**, **Tag list,** and **Alarm event list**. You can also specify whether to collapse the tag list or alarm event list when the trend first runs.
Properties Dialog	Specify which trend property tabs are available to operators at runtime. By default, the runtime **Properites** dialog box includes the **General** and **Traces** tabs. The **General** tab includes **Time Period**, **Application**, **Chart**, **Retrieval**, **X-Axis**, and **Shape**.

11. Use the **Common** tab in the **TrendPro Properties** dialog box to set up the properties common to all graphic objects, such as size and position.
12. In the **General** tab, click **Trend Setup**. The **Properties** dialog box appears.
13. In the **Traces** tab, select **Trace for Show**.
14. Click the + button in the toolbar. The **Select Item** dialog box appears.
15. Select **Tag** for **Add as**. The existing application is listed under **Items**.
16. Select **Historical Data** > **Production Historian**.
17. Select the tags you want to add from the items list
18. Click **OK**.

The tag is displayed in the **Trace** tab of the **Properties** dialog box.

19. Click **Close** to close the **Properties** dialog box, and then click **OK** to close the **TrendPro Properties** dialog box.

    The tag is added to the TrendPro object in the display.

20. Click  on the toolbar to test the display.

    The trend starts displaying data from the selected tag.

Appendix E: Upgrading FactoryTalk Historian SE

In this chapter you will learn about upgrade procedures for individual suites of FactoryTalk Historian SE.

The upgrade procedure differs depending on the version of FactoryTalk Historian SE you are currently using. See each procedure for details.

NOTE Before you upgrade any components of FactoryTalk Historian SE, refer to the *Release Notes* for up-to-date information on the upgrade procedures.

Upgrading the FactoryTalk Historian server

The upgrade procedure differs depending on the FactoryTalk Historian server version that you currently use:

For this Historian server version	Do the following
• 2.10 • 2.20	**1.** Migrate your Historian server to the version 3.01. **Note:** For more information on the migration process, refer to KB article 491889 on the Rockwell Automation Knowledgebase site. **2.** Perform the following steps.
3.0 and higher	Perform the following steps.

NOTE To learn about prerequisites regarding specific versions of the applications, see "Learn about product compatibility for installing or upgrading FactoryTalk Historian suites (page 22)".

To upgrade the FactoryTalk Historian server:

1. Upgrade **FactoryTalk Services**.

   For details, see "Install FactoryTalk Services (page 26)".

2. Stop the FactoryTalk Historian server.

   TIP To learn how to stop the Historian server, see "Stopping the Historian server on Windows Server (page 213)".

3. In **Services** (see Opening Services on Windows Server on page 180), find and stop the following services, if they are present in the system and running.

   The service listed as **Required** must be stopped manually before the upgrade. The services listed as **Optional** can either be stopped manually or automatically during the installation. In this case, you will be asked to confirm the action of stopping them. The upgrade will not be performed without stopping these services.

   - Required:
     - OPC interfaces
   - Optional:
     - FTHConnector
     - FTLDIntAgent
     - All FTLD interface services (for example FTLD1, FTLD2, etc.)
     - IIS Admin Service
     - PI Base Subsystem
     - PI Network Manager with PI Message Subsystem (stopped automatically)
     - PI Performance Monitor

   TIP To stop a service, right-click it, and then click **Stop**.

4. Wait until all the services are stopped.
5. Install the FactoryTalk Historian server:

See "Install the FactoryTalk Historian SE server (page 41)" for details.

Stopping the Historian server on Windows Server

To stop the Historian server...

1. Using your **Start** menu, enter `Stop`.

   Search results are displayed on the screen.

2. Search for **Stop FactoryTalk Historian SE** in Windows Search, right-click it, and then select **Run as administrator**.

   The server stopping process begins. The progress is displayed in the Command Prompt window.

3. Wait until the server is stopped and the Command Prompt window is closed.

Upgrading FactoryTalk Historian Asset Framework

The upgrade will be performed according to the following rules:

- It will be installed on the same installation drive that you originally chose for any of the FactoryTalk Historian SE components.
- It will use the same installation mode that you selected during the first installation of FactoryTalk Historian Asset Framework. See "Installation modes for FactoryTalk Historian Asset Framework (page 33)" for details.
- It will use the same configuration that you set for the previous version of FactoryTalk Historian Asset Framework.

The upgrade procedure differs depending on the FactoryTalk Historian server version that you currently use:

For this Historian server version	Do the following

For this Historian server version	Do the following
• 2.10 • 2.20	**1.** Migrate your Historian server to the version 3.01. **Note:** For more information on the migration process, refer to KB article 491889 on the Rockwell Automation Knowledgebase site. **2.** Perform the following steps.
3.0 and higher	Perform the following steps.

NOTE To learn about prerequisites regarding specific versions of the applications, see "Learn about product compatibility for installing or upgrading FactoryTalk Historian suites (page 22)".

Before you begin:

1. To avoid losing any data, back up your PIFD database.

   For details, see the *PI-AF-Installation-and-Upgrade-Guide-EN*, chapter "PI AF server maintenance".

   TIP For information on the location of the documents, see "User documentation (page 13)".

2. Stop PI AF Application Service using **Services** from the **Administrative Tools** folder in Control Panel, if the service exists.

   For details on how to open the Services window, see "Opening the Services window on Windows Server (page 67)".

   NOTE If you do not stop the service manually, the service will be stopped automatically during the installation. You will be asked to confirm the action of stopping it. The upgrade will not be performed without stopping the service.

3. Upgrade **FactoryTalk Services**.

   For details, see "Install FactoryTalk Services (page 26)".

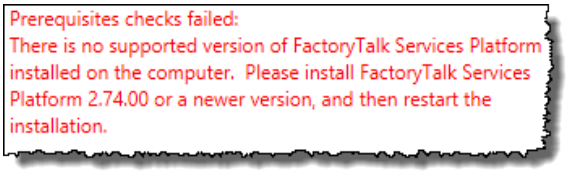
To upgrade FactoryTalk Historian Asset Framework:

NOTE You need administrative rights to perform the upgrade steps.

TIP The descriptions presented in the following instruction illustrate typical installation or upgrade steps. Individual steps may differ though, depending on the actual system configuration.

1. Run the FactoryTalk Historian SE installation wizard
2. On the welcome page of the installation wizard, click **Install FactoryTalk Historian Site Edition > Install FactoryTalk Historian Asset Framework > Install FactoryTalk Historian AF Server**.

   If detected, a list of prerequisites to be met may appear, as presented in the following example:

   In such a case, follow the instructions displayed on the screen, close the installation wizard window, and then start the installation wizard again.
3. In the welcome screen of the Asset Framework Suite installation wizard, click **Next**.
4. In the License agreement screen, accept the license agreement and click **Next**.
5. In the Review Component Installation screen, verify that the components you want installed are listed and click **Next**.
6. In the Destination Drive screen, select the drive where you want AF to be installed and click **Next**.
7. In the Installation Progress screen, click **Install**. A progress bar displays your installation progress.
8. If the release notes display, close the release notes and continue with the installation.
9. Click **Finish**. If you want to view the log, check **Show the installation log** before you click **Finish**.

TIP The installation log, **fth_installer.log**, is available in the following location:
[Drive letter]:\Program Files\Rockwell Software\FactoryTalk Historian\Installation Manager\<Name of the Historian suite>\FTHInstallerLogs\<Date and Time of the Installation>.

NOTE If you have upgraded Asset Framework without executing the database scripts, see "Manually create or upgrade the AF SQL database (page 67)".

Verifying the Asset Framework upgrade

To verify if you have upgraded Asset Framework successfully:

1. On the computer with FactoryTalk Historian SE server installed, search for and open **System Management Tools**. See Opening System Management Tools on Windows Server (page 67).

   The **System Management Tools** dialog box appears.
2. Under **Servers**, select the server for which you want to check the AF upgrade status.
3. Under **System Management Tools**, go to **Operation > AF Link**.

   A successful upgrade will be indicated with the **InSync** status and a green symbol next to the server name.

   NOTE The synchronization process may take several minutes.
4. If the server has not synchronized, restart the **PI AF Link Subsystem** service, and check the synchronization again.

Upgrading FactoryTalk Historian SE Management Tools

The upgrade procedure differs depending on the version of FactoryTalk Historian SE Management Tools that you currently use:

For this version of FactoryTalk Historian SE Management Tools	Do the following
• 2.10 • 2.20	**1.** Back up your discovery rule and tag attribute XML files, if you have defined them. **2.** Remove FactoryTalk Historian SE Management Tools from your computer. **3.** Perform the following steps.
3.0 and higher	Perform the following steps.

NOTE To learn about prerequisites regarding specific versions of the applications, see "Learn about product compatibility for installing or upgrading FactoryTalk Historian suites (page 22)".

To upgrade FactoryTalk Historian SE Management Tools:

1. In **Services** (see Opening Services on Windows Server on page 180), find and stop the following services, if they are present in the system and running.

   The service listed as **Required** must be stopped manually before the upgrade. The services listed as **Optional** can either be stopped manually or automatically during the installation. In this case, you will be asked to confirm the action of stopping them. The upgrade will not be performed without stopping these services.

   - Required:
     - OPC interfaces
   - Optional:
     - FTHConnector
     - FTLDIntAgent

- All FTLD interface services (for example FTLD1, FTLD2, etc.)
- IIS Admin Service
- PI Base Subsystem
- PI Network Manager with PI Message Subsystem (stopped automatically)
- PI Performance Monitor

TIP To stop a service, right-click it, and then click **Stop**.

2. Wait until all the services are stopped.
3. Install the FactoryTalk Historian SE Management Tools.

   See "Install FactoryTalk Historian SE Management Tools (page 47)" for details.

Upgrading FactoryTalk Historian Live Data Interface

The upgrade procedure differs depending on the version of FactoryTalk Historian Live Data Interface that you currently use:

For this version of FactoryTalk Historian Live Data Interface	Do the following
• 2.10 • 2.20	**1.** Back up your discovery rule and tag attribute XML files, if you have defined them in FactoryTalk Historian SE Rule Editor. **2.** Remove FactoryTalk Historian Live Data Interface from your computer. **3.** Perform the following steps.
3.0 and higher	Perform the following steps.

NOTE To learn about prerequisites regarding specific versions of the applications, see "Learn about product compatibility for installing or upgrading FactoryTalk Historian suites (page 22)".

To upgrade FactoryTalk Historian Live Data Interface:

1. In **Services** (see Opening Services on Windows Server on page 180), find and stop the following services, if they are present in the system and running.

   The service listed as **Required** must be stopped manually before the upgrade. The services listed as **Optional** can either be stopped manually or automatically during the installation. In this case, you will be asked to confirm the action of stopping them. The upgrade will not be performed without stopping these services.

   - Required:
     - OPC interfaces
   - Optional:
     - FTHConnector
     - FTLDIntAgent
     - All FTLD interface services (for example FTLD1, FTLD2, etc.)
     - IIS Admin Service
     - PI Base Subsystem
     - PI Network Manager with PI Message Subsystem (stopped automatically)
     - PI Performance Monitor

   TIP To stop a service, right-click it, and then click **Stop**.

2. Wait until all the services are stopped.
3. Install the FactoryTalk Historian Live Data Interface.

   See "Install the FactoryTalk Historian Live Data Interface (page 44)" for details.
4. Verify that buffering is working.

For details, see "Verify that buffering is working correctly" (page 144).

5. Verify that points are being collected.

   For details, see "Verify that points are being collected" (page 134).

Appendix F: Removing FactoryTalk Historian SE

IMPORTANT Do not remove FactoryTalk Historian SE unless you have decided not to use Historian SE server or you are resetting your FactoryTalk Historian plant floor operations. Removing FactoryTalk Historian SE will result in the loss of data.

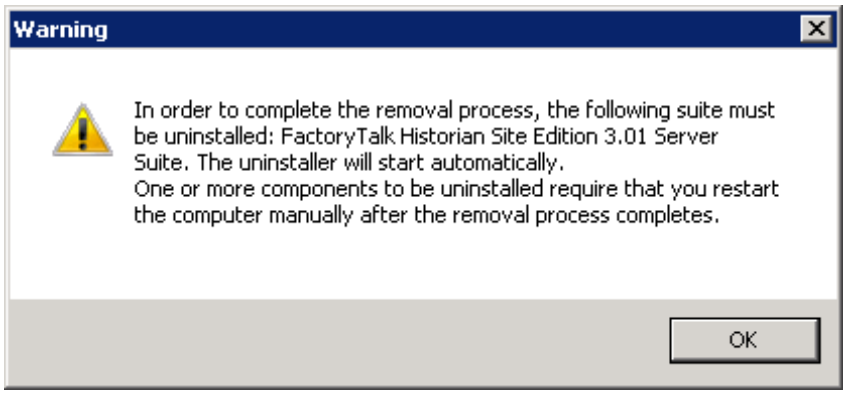
Before you begin, stop Batch Interface if it is present in the system and running.

To remove FactoryTalk Historian SE, choose one of the following methods:

- Using the Start screen or the Start menu (page 222).
- Using Control Panel (page 223).
- Using the FactoryTalk Historian SE installation media (page 224).

During the removal of FactoryTalk Historian SE from your computer, all the files from the current and previous versions of the product that are still located on your computer are removed, starting from the newest version that you have installed.

After the newest version is removed, a message similar to the following message appears before each previous version of the suite is about to be removed:



Each message contains the name of the suite that is about to be removed and its version number.

Click **OK** to complete the removal process.

NOTES

- The FactoryTalk Historian removal wizard for FactoryTalk Historian SE Management Tools, FactoryTalk Historian Live Data Interface, and FactoryTalk Historian Asset Framework doesn't remove the components that are shared by other FactoryTalk products. If you want to remove them as well, you need to do it manually using Control Panel.
- The FactoryTalk Historian removal wizard for FactoryTalk Historian SE Server removes all the components that are shared by PI applications.

Removing a suite using the Start screen or the Start menu

The removal process differs depending on the version of the operating system that you use.

To remove a suite using the Start menu (Windows 2012 and 2016:

1. Enter `Uninstall`.
2. Choose the "Uninstall..." item of the FactoryTalk Historian suite that you want to remove from your computer, for example, **Uninstall FactoryTalk Historian Asset Framework**.

The removal wizard appears.

3. On the wizard pages, click **Next** and then **Uninstall** to start the removal process.
4. Follow the on-screen instructions to complete the process.

To remove a suite using the Start menu (Windows 2008 R2 and Windows 7):

NOTE The removal steps on Windows 7 apply to FactoryTalk Historian SE Management Tools and FactoryTalk Historian Live Data Interface.

1. Go to **Start > All Programs > Rockwell Software > FactoryTalk Historian SE**.
2. Click the **Uninstall** link of the FactoryTalk Historian suite that you want to remove from the computer, for example, **Uninstall FactoryTalk Historian Asset Framework**.

   The removal wizard appears.
3. On the wizard pages, click **Next** and then **Uninstall** to start the removal process.
4. Follow the on-screen instructions to complete the process.

Removing a suite using Control Panel

The removal process differs depending on the version of the operating system that you use.

To remove a suite using Control Panel (Windows 2012, 2012 R2, and 2016):

1. From your **Start** menu, access the **Control Panel**.
2. Do one of the following depending on your environment:
   - Click **Programs and Features**.
   - Under **Programs**, click **Uninstall a program**.

   Programs and Features appear.

3. Under **Uninstall or change a program**, select the name of the FactoryTalk Historian suite that you want to remove from the computer, and then click **Uninstall/Change**.

   The removal wizard appears.

4. On the wizard pages, click **Next** and then **Uninstall** to start the removal process.
5. Follow the on-screen instructions to complete the process.

To remove a suite using Control Panel (Windows 2008 R2):

1. Go to **Start > Control Panel > Programs > Programs and Features**.
2. Under **Uninstall or change a program**, select the name of the FactoryTalk Historian suite that you want to remove from the computer, and then click **Uninstall/Change**.

   The removal wizard appears.

3. On the wizard pages, click **Next** and then **Uninstall** to start the removal process.
4. Follow the on-screen instructions to complete the process.

Removing a suite using the installation media

To remove a suite using the FactoryTalk Historian SE installation media:

1. Run the FactoryTalk Historian SE installation wizard.
2. On the welcome page of the installation wizard, click **Install FactoryTalk Historian Site Edition > Uninstall FactoryTalk Historian Site Edition > Uninstall FactoryTalk Historian Server**.

   The names of all the suites that you can remove will be active.

   In this example, you will remove FactoryTalk Historian Asset Framework.

3. In the welcome screen of the selected suite, click **Next**.

4. Click **Uninstall** to begin the removal.
5. Click **Finish**. If you want to view the log, check **Show the installation log** before you click **Finish**.

TIP The installation log, **fth_installer.log**, is available in the following location:
[Drive letter]:\Program Files\Rockwell Software\FactoryTalk Historian\Installation Manager\<Name of the Historian suite>\FTHInstallerLogs\<Date and Time of the Installation>.

Technical support and resources

Rockwell Automation provides 24/7 dedicated technical support internationally.

You can read complete information about technical support options, and access all of the following resources at the Rockwell Automation Support Web site (http://www.rockwellautomation.com/support/).

Before you call or write for help

When you contact Rockwell Automation Technical Support, please provide:

- Product name, version, and/or build numbers.
- Computer platform (CPU type, operating system, and version number).
- The time that the difficulty started.
- The message log(s) at that time. Consult your product documentation on the location of the message log files.

Find the version and build numbers

To find version and build numbers for each Historian Server subsystem (which vary depending on installed upgrades, updates, or patches), use either of the following methods:

To check the numbers with System Management Tools (SMT):

1. Search for **System Management Tools** in Windows Search, and then open it. See Opening System Management Tools on Windows Server (page 67).

2. Under **Collectives and Servers**, select the name of the server you want to check.
3. Under **System Management Tools**, select **Operation > PI Version**.

   The **Version in Memory** and **Version on Disk** columns display information on versions of all the server subsystems.

If you do not have System Management Tools installed, open a command prompt, change to the **pi\adm** directory, and type *piversion -v*. To see individual version numbers for each subsystem, change to the **pi\bin** directory and type the subsystem name followed by the option *-v* (for example, *piarchss.exe -v*).

View computer platform information

To view platform specifications, press **Windows + R** to open the **Run** dialog box, and then type `msinfo32.exe`.

Legal Notices

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

End User License Agreement (EULA)

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

The default location of this file is:

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

Open Source Software Licenses

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

You can view a full list of all open source software used in this product and their corresponding licenses by opening the release notes.chm file located on your hard drive.

The default location of this file is:

C:\Program Files (x86)\Common Files\Rockwell\Help\<*ComponentName*>\FTHistorianSERN.chm

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

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Rockwell Automation support

Use these resources to access support information.

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

Documentation feedback

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

Waste Electrical and Electronic Equipment (WEEE)

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

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