FactoryTalk Historian ME Configuration Guide

Catalog Number 1756-HIST2G Series B

Rockwell Automation

User Manual Original Instructions

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.

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

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

	**WARNING:** Identifies information about practices or circumstances that can cause an explosion in a hazardous environment, which may lead to personal injury or death, property damage, or economic loss.
	**ATTENTION:** Identifies information about practices or circumstances that can lead to personal injury or death, property damage, or economic loss. Attentions help you identify a hazard, avoid a hazard, and recognize the consequence.
IMPORTANT	Identifies information that is critical for successful application and understanding of the product.

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

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

About this manual

This manual provides procedural instructions for the FactoryTalk Historian ME. It is one of a set of related manuals that describe installing, programming, and operating the FactoryTalk system.

To review FactoryTalk Historian release notes and the latest information regarding product compatibility refer to the Product Compatibility and Download Center) (PCDC).

Legal notices

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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 installation folder on your hard drive. The default location of this file is: C:\Program Files (x86)\Common Files\Rockwell\license.rtf

Other licenses

You can view the Open-Source Software (OSS) licenses used in this product by accessing the FactoryTalk Historian ME Online Help.

Summary of changes

This manual includes new and updated information. Use these reference tables to locate changed information.

Global changes

None for this release.

New or enhanced features

This table contains a list of topics changed in this version, the reason for the change, and a link to the topic that contains the changed information.

Topic name	Reason
SNMP community strings on page 153	New topic.
Enable SNMP on page 154	New topic.
Create SNMP community strings on page 154	New topic.
Delete SNMP community strings on page 154	New topic.
Understand privileges for user groups on page 143	Table updated with SNMP access.

Additional resources

These documents contain additional information concerning related products from Rockwell Automation.

Resource	Description
FactoryTalk Historian Machine Edition Module, 1756-in106	Installation instructions for FactoryTalk Historian ME Series B.

Overview

Chapter 1

Get started

Chapter 2

Chapter 5

Manage points

Chapter 9

Configure system settings

Chapter 10

Manage security

Chapter 14

Use Web Diagnostics

Chapter 15

Troubleshoot

Overview

The FactoryTalk Historian Machine Edition (ME) Module is a fully embedded historian in a ControlLogix module that you can insert into a Rockwell ControlLogix chassis to utilize backplane communications and collect data from multiple controllers. It collects data at very high speeds as well as runs calculations and statistics on the data inside its storage archive, utilizing exception and compression filtering to significantly reduce the data archive space. You can view system and data information through the FactoryTalk Historian ME web interface and all standard FactoryTalk Historian web clients.

In this document you will find information on both hardware and software of FactoryTalk Historian ME.

The FactoryTalk Historian Machine Edition (ME) Module's web interface allows you to do the following:

- View module information, including status, system utilization, and system statistic information.
- View current, archive, and trend data.
- Create, edit, and delete points.
- Start and stop the data collection.
- Configure, start, and stop the data transfer.
- Manage users and groups.
- Configure time synchronization.
- Configure the system settings.
- Upload files to the FactoryTalk Historian ME Module.
- Back up and restore configuration files.
- Restore the default settings.
- Shut down or reboot the FactoryTalk Historian ME Module.
- Manage security.

Features

Key advantages of FactoryTalk Historian ME include:

- Easy, automated installation and configuration as well as interactive browser experience.

  As an embedded historian in a ControlLogix chassis connected to the backplane, FactoryTalk Historian ME is easily installed and configured. It communicates at very high speeds with the controllers in its backplane, reducing implementation time from hours, days, or months to minutes. It quickly auto-detects ControlLogix controllers

and configures all relevant tags to be historized. The web interface provides easy configuration, administration, and reporting.

- High-speed data collection rates that are ten times (or more) faster than traditional historian collection rates.

  FactoryTalk Historian ME is not limited by network bandwidth. It leverages backplane communication to increase the speed of data collection and, with down to a 10 millisecond scan rate, the unit provides more granular data than is possible on a traditional, network-connected plant historian.

- Reliable and robust hardened, embedded appliance with a low total cost of ownership. Only a client computer is needed to install and configure your FactoryTalk Historian ME.

  FactoryTalk Historian ME records data safely and accurately with solid-state data capture. It has no moving parts and requires no operating system or computer maintenance. It is not subject to downtime due to network outage or the need to perform maintenance on any subsequent firmware updates. It can be pre-qualified from an OEM in a Factory Acceptance Test (FAT), thereby significantly reducing overall validation efforts for end users.

- Scalable data collection from machine through enterprise.

  FactoryTalk Historian ME is modular. It is rack-ready to stand alone, or can easily be rolled up and configured into a plant-wide historian for full resolution data collection and data transfer. It can capture data from up to 5 local controllers and 5 remote controllers.

Benefits

FactoryTalk Historian ME provides these benefits:

- Reduces time-to-market by monitoring and analyzing operational and product quality in accord with specifications, operations, and product constraints.
- Helps reduce time to execute product changes by:
  - Assisting with product waste reduction, recycling, and blending.
  - Increasing effective equipment capacity and positively impacting materials cost management.
  - Improving product development as it collects and evaluates data related to new operation actions, materials, equipment, equipment capabilities, and procedures.
  - Identifying operational or production bottlenecks and improving operating efficiency to avoid unnecessary capital spending.
- Increases compliance by:
  - Facilitating, validating, and documenting performance within regulatory or permitted boundaries.
  - Increasing management effectiveness.
  - Reducing validation by including OEM delivery and testing.

- Enhances performance by:
  - Monitoring or calculating effective equipment usage and performance.
  - Detecting degradation of performance and initiating alerts or requests for operations and maintenance actions.
  - Providing real-time, time-stamped operational and production data.
- Maximizes delivery, quality, and continuous process improvement by:
  - Documenting actual versus model production, and identifying deviations.
  - Analyzing for new process and operational boundaries when throughput, material, or equipment changes occur.

Distributed FactoryTalk Historian architecture

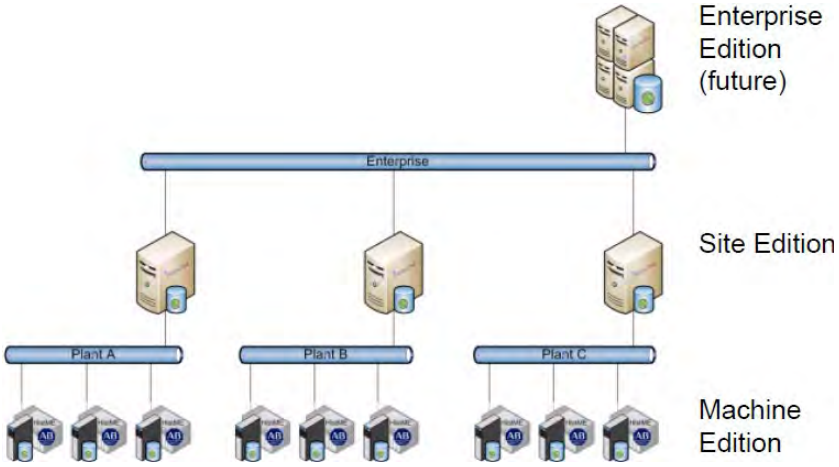
Data or process historians are software applications that log data from process equipment, manufacturing devices, and other main data sources that are important and relevant for the overall manufacturing process and for product quality. The FactoryTalk Historian collects time series data. It collects data points at given intervals whether or not the data points are changing. This allows customers to see how these data points are trending, and allows them to look at correlations of data points.

Because the FactoryTalk Historian continuously collects data, it allows customers to review past data, and view what occurred at a specific past point(s) in time. This means that if a specific event such as a downtime event, a bad batch, or an alarm occurs, an operator can look at any process variable in the FactoryTalk Historian for the same time frame as the event, and search for correlations that might explain the event. This allows the user to improve production and operational processes, eliminating the anomaly in the future.

The FactoryTalk Historian distributed architecture is multi-tiered. It redefines available options for manufacturers who want to maximize their ability to collect and analyze process data. It introduces a scalable, modular, synchronized methodology for collecting, maintaining, and analyzing process data at each level of manufacturing operations - machine or line, plant and enterprise (multi-plant). Specifically, FactoryTalk Historian ME:

- Provides an engine of unmatched performance and scalability, tightly integrated with the FactoryTalk Services Platform to provide data accuracy and availability across the Rockwell Automation® Integrated Architecture.
- Introduces a historian appliance that offers scalable connectivity to Rockwell Automation controllers.
- Offers Rockwell customers a feature-rich set of commercially proven, industry-focused applications that are widely regarded as the de-facto standard for plant and enterprise historian capabilities.

The following diagram depicts the three levels of the FactoryTalk Historian distributed architecture.



FactoryTalk and Logix integration

FactoryTalk Historian ME works with the FactoryTalk product suite and Rockwell ControlLogix and CompactLogix devices. The Logix hardware and software provide easy and secure access to resources (data, status, and configuration) within these.

For the up-to-date information on the product compatibility, see *FactoryTalk Historian ME Release Notes*.

FactoryTalk licensing

FactoryTalk Historian ME limits the clients that can access it. Client connections are limited to Rockwell Automation preferred clients. This means that no anonymous connections will be accepted. The following applications can access FactoryTalk Historian ME:

- FactoryTalk VantagePoint and FactoryTalk VantagePoint EMI
- FactoryTalk Historian DataLink
- FactoryTalk Historian ProcessBook
- FactoryTalk View SE Trending
- FactoryTalk Administration Console
- PI System Management Tools (SMT)
- PI SMT Tag Configurator and PI Builder

License points for the data transfer

The data transfer subsystem works with the data storage and the data collection services to transfer historical and real-time data to a FactoryTalk Historian Site Edition (SE) or PI server. Before you can transfer data to FactoryTalk Historian SE, you must first purchase a point license for FactoryTalk Historian SE. The point license determines the number of points that can be transferred to FactoryTalk Historian SE. For each FactoryTalk Historian ME, the licensed limit is 2500 points.

FactoryTalk Historian ME product number

FactoryTalk Historian ME has the following product number: 1756-HIST2G.

The 2G in the part number indicates how much data storage is associated with the module.

Hard disk

FactoryTalk Historian ME firmware is stored on the mSATA 8GB SLC hard disk along with the customer data.

A minimal amount of data is lost if the module suddenly loses power and the file system remains intact. Archived and snapshot data interruption occurs only during the first minute of downtime.

In addition, power loss may prevent the data collection from restarting, the data transfer from reconnecting if it was running, and other processes from restarting. If power loss occurs, the module may need to be started in the Logix Designer Module Profile. For details, see "Use Studio 5000 Logix Designer Module Profile (page 169)".

Additional resources

These documents contain additional information for FactoryTalk Historian ME. You can view or download publications from the Client Tools DVD shipped with your FactoryTalk Historian ME module.

- FactoryTalk Historian ME Release Notes
- FactoryTalk Historian ME Client Tools Release Notes
- ControlFLASH Firmware Upgrade Kit Quick Start Guide

Get started

In this section you will learn about the following:

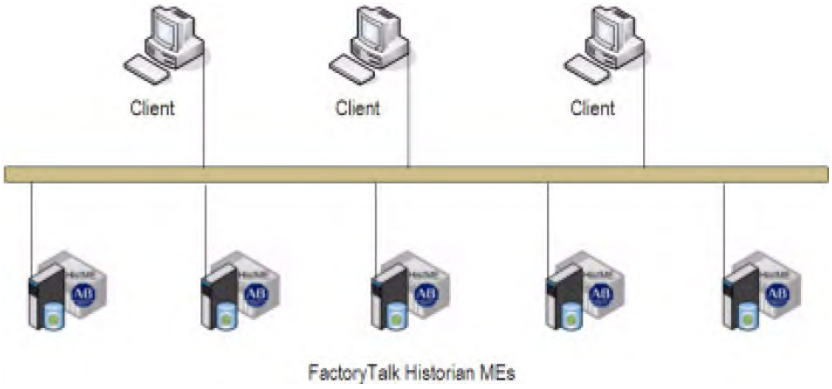
System connectivity

While setting up the FactoryTalk Historian ME environment, pay attention to the following guidelines:

This value:	Is the maximum number of:
2	Modules per chassis.
10	Controllers that can transfer data to a single module. There can be a maximum of 5 controllers in the local chassis and a maximum of 5 controllers in remote chassis.
50	Modules that can be used to transfer data simultaneously from the ME to a single SE server.
5	Clients that can have simultaneous access to the module. This number includes a web browser, the FactoryTalk Historian SE or PI server, and any other client tool. After the limit is reached, any client will be denied access to the module based on the total number of connections exceeded.

Software and hardware requirements for FactoryTalk Historian ME

The hardware and software required for FactoryTalk Historian ME depends on the demands an application places on the system. A simple stand-alone architecture is shown below.



The greater the demand, the more powerful a system must be to support this demand. For large or complex applications, use computers with faster CPUs and more RAM. In addition to this, there should always be sufficient disk space to provide virtual memory that is at least twice the size of the physical RAM.

For up-to-date information on the software and hardware requirements, see *FactoryTalk Historian ME Release Notes*.

Upgrade or reinstall the firmware

You can upgrade or reinstall the firmware of your Historian ME module using ControlFLASH.

For details on differences between upgrade and reinstallation, see "Differences between upgrade and reinstallation (page 21)".

The process consists of the following steps:

1. Prepare the module for the upgrade or reinstallation.
   1. Collect the module-related information (page 21)
   2. Back up the module (page 21)
   3. Prepare the module for the upgrade or reinstallation (page 21)
2. Upgrade or reinstall the firmware of your Historian module (page 22).

IMPORTANT If you click **Restore Defaults** or **Reset Security** from the FactoryTalk Historian ME Logix Designer Module Profile, the module goes into a pending state. The pending state blocks you from upgrading or reinstalling the firmware before one of the following occurs:

- The five (5) minute window expires.
- The module is physically reset in the chassis.
- You power-cycle the module.

Therefore, you can only upgrade or reinstall the firmware when the module is not in a pending state.

For details, see "Use Studio 5000 Logix Designer Module Profile (page 169)".

Differences between upgrade and reinstallation

There are the following differences between upgrading and reinstalling the firmware:

Upgrade

- Updated binary files are installed.
- All log files are deleted.
- The module's configuration data and the archive files are preserved.

Reinstallation

- Updated binary files are installed.
- All log files, module configuration data, and archive files are deleted
- The module's factory settings are restored.

Collect the module-related information

Collect the following information:

- The catalog number of the Historian ME module: 1756-HIST2G.
- The network configuration information.
- The network path to the Historian ME module.
- The firmware version number, which is listed on the Historian ME module's home page.

Back up the module

As a best practice, we suggest that you back up your module configuration and download the backup configuration file to your client computer before performing an upgrade.

For details, see "Back up and restore configuration files (page 131)".

Prepare the module for the upgrade or reinstallation

To prepare the module for the upgrade or reinstallation:

1. In the module web interface, stop the following services:
   - The data collection (**Configure Historian > Data Collection**).
   - The data transfer (**Configure Historian > Data Transfer**).
2. Open the web browser, and type `http://<ModuleIP_address>:8080`. The module Web Diagnostics interface appears.
3. Record the firmware version number from the **Home** page.

4. (Optional) Click **Admin > Download Logs** to download all log files.

   Tip: To access the **Admin** section, you must sign in with administrator privileges. The default login and password are **admin/admin**.

5. Identify the network path across the backplane in the local chassis from the network module to FactoryTalk Historian ME as defined in RSLinx Classic. This is not the path through the front port of the module. To view the network path across the backplane, see the image in step 4 in "Upgrade or reinstall the module's firmware".
6. Log out and disconnect all clients (including web clients).

Upgrade or reinstall the firmware of your Historian module

FactoryTalk Historian ME modules' firmware kits are delivered as individual Device Management Kit (DMK) files. They are compatible with ControlFLASH in version 13.00 and newer. The installation of ControlFLASH is separate from the firmware kits, and you need to install it only once.

Tip: We recommend that you use ControlFLASH in version 14.01 or newer.

A DMK is a single, digitally signed file that contains the firmware binaries. ControlFLASH authenticates DMK's origin and validates its contents, providing enhanced protection against malicious threats. You can just download and use it, no need to install or unzip it. The file is named for easy identification and management, for example, **1756-HIST2G_5.100 (Install).dmk**.

To flash the module firmware, you must have FactoryTalk Linx or RSLinx Classic installed.

The process consists of the following steps:

1. (Optional) Download ControlFLASH (page 23)

   Perform this step, if you don't have the recommended version already installed.

2. (Optional) Install ControlFLASH (page 23)

   Perform this step, if you don't have the recommended version already installed.

3. Download the module firmware kit (page 23)
4. Upgrade or reinstall the module firmware (page 24)

(Optional) Download ControlFLASH

Tip: We recommend that you use ControlFLASH in version 14.01 or newer.

To download ControlFLASH:

1. Open the PCDC page in your web browser:

   http://compatibility.rockwellautomation.com/Pages/home.aspx
   To use this site, you must register and log in.
2. Under **Downloads**, click **Find Downloads**.
3. Under **Find Downloads**, type **ControlFLASH**.

   The search results appear below.
4. Click **ControlFLASH Firmware Upgrade Tool (Accessories/Software)**.

   The package appears in the right pane.
5. Select the package, and then click the download icon.
6. Follow the on-screen instructions to complete the process.

(Optional) Install ControlFLASH

Starting from ControlFLASH version 13.00, when the installation completes, FactoryTalk Security is enabled by default. When launched, ControlFLASH logs on to the FactoryTalk Network Directory.

Tip: For details on using ControlFLASH, see its documentation.

To install ControlFlash:

1. Extract the installation package and double-click setup.exe.

   The ControlFLASH Setup wizard appears.
2. Follow the instructions to complete the installation process.

Download the module firmware kit

To download the module's firmware kit:

1. Open the PCDC page in your web browser:

   http://compatibility.rockwellautomation.com/Pages/home.aspx
   To use this site, you must register and log in.
2. Under **Download**, click **Find Downloads**.
3. In the search field under **FIND DOWNLOADS**, type **1756-HIST**.

   The product name is displayed.
4. Click the product name and choose a version number on the right.

5. Click **DOWNLOADS**.
6. Under **DOWNLOADS**, click **Select Files**.

   The **Available Downloads** window appears.
7. Choose a file that matches the operation that you want to perform on the module (Install or Upgrade).
   For example, click **1756-HIST2G_5.100 (Upgrade).dmk**.
8. Click **Downloads** in the upper right corner of the window.
9. In the window that appears, click **DOWNLOAD NOW**.
10. Follow the on-screen instructions to complete the process.

Upgrade or reinstall the module firmware

Tip: Before you upgrade or reinstall your module, stop **Data Transfer** and **Data Collection**.

To upgrade or reinstall the module's firmware:

1. In the **Start** menu, find and open ControlFLASH.

   The **Welcome to ControlFlash** window appears.
   The **In use** information points you to the version of RSLinx that you currently use. If you have both RSLinx Classic and FactoryTalk Linx installed on your computer, the **Change RSLinx Edition** button will be available and you may choose the edition that you want to use to perform the steps.
2. Click **Next**.

   The **Catalog Number** window appears.
   If you don't see the catalog number of your Historian module, click **Browse**.

   Tip: When you download DMK firmware kits from Rockwell Automation PCDC, ControlFLASH automatically saves the folder location where the DMK files were downloaded to. By default, ControlFLASH monitors two folders:
   - C:\Program Files\ControlFLASH for 32-bit or C:\Program Files (x86)\ControlFlash for 64-bit
   - C:\Users\Public\Downloads\RA0

   For best performance, we recommend you not using shared folders on a network, disk root folders, or a large number of folders.

   The **Firmware Kit Locations** window appears.
3. Click **Add**.

   The **Browse for Folder** window appears.
4. Select the location to which you saved the module's firmware kits, and then click **OK**.

   The location is added to the **Firmware Kit Locations** window.
5. Click **OK**.
6. In the **Catalog Number** window, select your module's type, and then click **Next**.

   The **Select the device to update and click OK** window appears.

7. Choose the device that you want to update with the firmware, and then click **OK**.

   The **Firmware Revision** window appears.
   The window lists the firmware kits that you have downloaded. The list may differ from what you see on the image above.

8. Choose the revision of the firmware kit and the operation type that you want to use, and then click **Next**.

   Tip: To learn about differences between upgrade and reinstallation, see "Differences between upgrade and reinstallation (page 21)".

   The **Summary** window appears.

9. Click **Finish**.
10. In the confirmation message, click **Yes**.
11. In the warning message, click **OK**.

    The process of upgrading or reinstalling the module begins.
    When the process completes, an update status message appears.
    It will take the module a couple of minutes to fully initialize. Once the middle LED (STS) is either flashing or solid color, you can log in to the module.

12. Start **Data Transfer** and **Data Collection**.

Updates and application notes

Rockwell Automation provides technical information on the web to assist you in using its products. Refer to our extensive online Knowledgebase for the most current information about FactoryTalk Historian ME. Visit https://rockwellautomation.custhelp.com/ to:

- View technical and application notes.
- Obtain software patches and firmware updates.
- Subscribe to product and service e-mail notifications.
- Ask questions.

For an additional level of technical phone support for installation, configuration, and troubleshooting, we offer TechConnect support programs. For more information, contact your local distributor or Rockwell Automation representative, or visit the Rockwell Automation Technical Support site (http://www.rockwellautomation.com/support/).

Set up your ControlLogix environment

To set up your ControlLogix environment:

1. Set up the ControlLogix chassis.
2. Insert the ControlLogix controller(s) into the chassis.

   You can connect up to 5 controllers in a single ControlLogix chassis.
3. Power on the system.
4. Configure the ControlLogix device(s).

For details, refer to the ControlLogix Chassis and ControlLogix Controller documentation.

FactoryTalk Historian ME can connect to:

- The controllers in the same chassis in which it is placed.
- The controllers placed in a remote chassis (ControlLogix and controllers from the CompactLogix 5370 family).

Tip: For more information about the supported controllers refer to FactoryTalk Historian ME Release Notes.

If FactoryTalk Historian ME must connect to data in other chassis hardware such as non-ControlLogix or third-party controllers, you can configure a ControlLogix controller to act as a data concentrator in the same chassis. This controller can then be configured to expose the data from the remote controllers to the FactoryTalk Historian ME. However, it is critical to consider the increased load that an extra data server will introduce in a ControlLogix system when configuring the data collection.

FactoryTalk Historian ME's data gathering and trending impact on a Logix controller is dependent on the ControlLogix system configuration. This includes the available Logix controller bandwidth as well as the number of tags being trended and the sample period. The Logix controller bandwidth is determined by the controller type, free memory, the system overhead time slice, and user application programs.

Trending is a higher priority task in the Logix controller than user application programs. Trending too many tags at a too low sample period can impact the Logix controller's ability to execute user application programs and cause task overlaps. When using FactoryTalk Historian ME, you must ensure that there is sufficient Logix controller bandwidth to service trending without negatively impacting user application programs.

Install the module in the chassis

FactoryTalk Historian ME has the following product number: 1756-HIST2G.

The 2G in the part number indicates how much data storage is associated with the module.

To install the FactoryTalk Historian ME Module, follow the instructions presented in the *Installation Instructions for FactoryTalk Historian ME Module*.

FactoryTalk Historian ME receives data from the ControlLogix the data collection interface and stores it locally in the module. The module data and system information can be viewed and managed through the FactoryTalk Historian ME web page.

After you install the module, you can log on to FactoryTalk Historian ME web page. See "Log on to FactoryTalk Historian ME (page 42)" for details.

Install FactoryTalk Historian ME Client Tools

The FactoryTalk Historian ME Client Tools are a set of the following tools:

- FactoryTalk Historian ME Management

  See "Install FactoryTalk Historian ME Management (page 28)".
- FactoryTalk Historian ME Rule Editor

  See "Install FactoryTalk Historian ME Rule Editor (page 30)".
- FactoryTalk Historian ME Logix Designer Module Profile

  See "Install FactoryTalk Historian ME Logix Designer Module Profile (page 31)".

The Client Tools are available on the FactoryTalk Historian ME installation DVD and as a download package on the Rockwell Automation Product Compatibility and Download Center) website.

Tip: If you download the Client Tools from the Rockwell Automation Product Compatibility and Download Center website and cannot extract the content of the package, check the length of the path to the directory to which you want to extract the package. If the length of the path to the directory is longer than 116 characters, you will not be able to extract the package to this location.

Install FactoryTalk Historian ME Management

The FactoryTalk Historian ME Management is available on the FactoryTalk Historian ME Client Tools installation DVD.

Tip: The FactoryTalk Historian ME Management requires FactoryTalk Services Platform version 2.50 (FTSP SR5) or newer to be installed. Refer to FactoryTalk Services Platform documentation for more information.

The package is installed with the following FactoryTalk Historian components:

- PI Software Development Kit (PI SDK)
- FactoryTalk Historian SE RA Components
- MS Runtime Redistributables

For details on the component versions and supported systems, see the *FactoryTalk Historian ME Client Tools Release Notes*.

To install FactoryTalk Historian ME Management:

1. Run the FactoryTalk Historian ME Client Tools DVD.
2. On the welcome page of the installation wizard, click **Install FactoryTalk Historian ME Client Tools > Install FactoryTalk Historian ME Management**.

   The installation wizard appears.
   If there are any software prerequisites missing from the computer or services that must be stopped, they are listed in red at the bottom of the installation wizard **Welcome** page.
   Click **Cancel**, and then click **Finish** to exit the wizard, install the prerequisites and/or stop the services, and then start the installation wizard again.
3. On the **Welcome...** page, click **Next**.
4. On the **License Agreement** page, read and accept the terms of the license agreement, selecting the **I accept...** option.
5. Click **Next**.
6. On the **Review Component Installation** page, review the list of the components that are already installed and those that will be installed during the installation process.
7. Click **Next**.
8. On the **Destination Drive** page, select the drive on which you want to install the product.

   If the space available on the drive is not sufficient for the installation, 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. After you have increased the available space on the selected drive, you can continue with the installation without restarting the installation wizard.

Tip: You can choose the destination drive only if you install a FactoryTalk Historian 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 not be available.

9. Click **Next**.

   The **Installation Progress** page appears. It lists the components that are going to be installed. The status of the installation is displayed in the **Status** column of the component table.

10. Click **Install** to start the installation.

    If there are any applications, interfaces and/or services that are currently running on the computer and need to be stopped so that you can continue with the installation, a message will appear listing the items to be stopped.

11. Stop the items, and then click **Install** again.

    The following message appears:

12. Click **Yes** to continue with the installation.
13. Wait until the components are installed.

    The installation time will vary depending on the number of components being installed and the computer performance.
    Depending on your security settings, you may be prompted to confirm the installation of individual components.
    The installation status is displayed below the component table.

14. 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:

    1. In the **User name** box, type the account username with which you will log on to the FactoryTalk Directory computer.
    2. In the **Password** box, type the password to the account with which you will log on to the FactoryTalk Directory computer.
    3. Click **OK**.

       The **Browse for Computer** dialog box appears.

    4. 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.

    5. Click **OK**.
    6. In the message box informing you that you will need to restart the computer, click **OK**.
    7. In the **Log On to FactoryTalk (New Server)** dialog box, type the user name and password to the newly selected FactoryTalk Directory machine.
    8. Click **OK**. The system connects to the FactoryTalk Directory server.

9. In the message box prompting you to restart the computer, click **No**.
15. On the **Installation Wizard Completed** page, click **Show the installation log**, if you want to view the installation log after the installation wizard closes.

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

    If any of the installed components requires rebooting the computer, a relevant message will appear on the installation wizard page, and you will be prompted to restart the machine after the installation wizard closes.
16. Click **Finish** to exit the installation wizard.
17. Restart the computer.

Install FactoryTalk Historian ME Rule Editor

The Rule Editor allows you to create and edit user-defined rules for the point discovery process. The selections you make in the dialog box are automatically written to this file. The data points matching these rules are found and added to the FactoryTalk Historian server. You can upload the rule file to FactoryTalk Historian ME using the FactoryTalk Historian ME Upload Manager feature.

To install the Rule Editor:

1. Run the FactoryTalk Historian ME Client Tools DVD.

   The installation wizard appears.
2. Click **Install FactoryTalk Historian ME Client Tools** > **Install FactoryTalk Historian ME Rule Editor**.

   The FactoryTalk Historian ME Rule Editor installation wizard appears.
3. Follow the on-screen instructions to complete the process.

Install FactoryTalk Historian ME Logix Designer Module Profile

FactoryTalk Historian ME can be configured to communicate with a ControlLogix controller through the FactoryTalk Historian ME Logix Designer Module Profile.

Tip: Install the Module Profile on the computer with RSLogix 5000 or Studio 5000 installed.

To install the Module Profile:

1. Run the FactoryTalk Historian ME Client Tools DVD.

   The installation wizard appears.
2. Click **Install FactoryTalk Historian ME Client Tools** > **Install FactoryTalk Historian ME Logix Designer Module Profile**.

   The Logix Designer Module Profile installation wizard appears.
3. Follow the on-screen instructions to complete the process.

(Optional) Install FactoryTalk Historian SE patch

If you want to integrate your FactoryTalk Historian ME with FactoryTalk Historian SE 2.1, you need to install the FactoryTalk Historian SE patch. Once installed, FactoryTalk Historian ME can work with FactoryTalk Historian SE to collect, store, analyze, and visualize data using reporting tools such as time-series trends, bar charts, pie charts, pareto, and tabular trends.

The Historian SE patch must be installed on the FactoryTalk Directory and any other computer that will be administering the Historian ME module through the FactoryTalk Administration Console.

The patch is not necessary for machines with FactoryTalk Historian SE 2.2 or newer.

You can download the FactoryTalk Historian SE patch from the Rockwell Automation Knowledgebase page).

EDS files

Electronic Data Sheet (EDS) files are simple text files used by network configuration tools to help you identify products, and easily commission them on a network.

The EDS files for the Historian series A module are located on the FactoryTalk Historian ME installation DVD in the **\5.xx.xx-FTHistorianME\EDS** folder. The files are currently a part of RSLinx Classic product installation.

The EDS files for the Historian series B module can be downloaded directly from the device. The files will be a part of RSLinx Classic product installation for newer versions of RSLinx Classic.

Configure Internet Explorer for FactoryTalk Historian ME

In this section you will learn how to configure Internet Explorer to work with FactoryTalk Historian ME websites.

The following browsers are supported:

- Internet Explorer 11
- Internet Explorer 10

The following operating systems are supported:

- Windows 10
- Windows 8
- Windows 7
- Windows Server 2012
- Windows Server 2008

Tip: This section has been prepared assuming that you access the module by typing its IP address in the browser. If you access the module by typing the Fully Qualified Domain Name (FQDN) of the module in the browser, follow the instructions and type the FQDN instead of the IP address.

Internet Explorer configuration checklist

To configure Internet Explorer to work with FactoryTalk Historian ME websites, you need to perform the following actions:

- Add the module site to the Local intranet or the Trusted sites security zone (page 33).
- Enable the **Initialize and script ActiveX controls not marked as safe for scripting** option (page 35) for the particular security zone.
- Enable Compatibility View for the module site (page 35).
- Disable Pop-up Blocker for the module site (page 36).
- Disable ActiveX Filtering (page 36).
- Install and/or enable the Microsoft XML DOM Document add-on (page 36).
- Enable TLS (page 37)
- If you are using Internet Explorer 10, perform the following in the F12 developer tools (page 37):
  - Select the **Script**, **Pop-Up Blocker**, or **CSS** option on the **Disable** menu.
  - Clear the **Disable images** option on the **Images** menu.
  - Clear the **Disable cookies** option on the **Cache** menu.
- Install the module certificate in Internet Explorer (page 38).
- Clear the browser's cache (page 41).
- Add a registry entry for exporting files to Excel (page 42).

Add the module site to Local intranet or Trusted sites

By default, if you visit a website by typing an IP address in the browser, it is identified as a website in the **Internet** security zone. Thus, if you open the FactoryTalk Historian ME client website using the IP address of the module, the website will be added to the **Internet** security zone. However, to work with the FactoryTalk Historian ME client website, you have to change the security zone and add the module website to:

- The **Local intranet** security zone (page 33).
- The **Trusted sites** security zone (page 34).

By default, the **Local intranet** security level is medium-low. The **Trusted sites** security level is medium.

The medium-low security level is the same as the medium level but without prompts. Use the **Local intranet** zone if you do not want to be prompted when the content of the page is run.

Tip: Internet security is subject to the security policy and it may be changed by the system administrators. The zone that you choose depends on the corporate Internet security policy.

Add the module website to the Local intranet security zone

To add the module website to the Local intranet zone:

1. Open the FactoryTalk Historian ME website using the IP address of the module.
2. On the **Tools** menu, click **Internet Options**.

   The **Internet Options** dialog box appears.

   Tip: If the top menu is not visible, press the left Alt key on your keyboard to bring up the top menu.
3. Click the **Security** tab, and then select **Local intranet**.

4. Click **Sites**.

   The **Local intranet** dialog box appears.
5. Click **Advanced**.

   The **Local intranet** dialog box appears.

6. Verify that in the **Add this website to the zone** text box there is a URL of your module site, and then click **Add**.

   The URL of the module website appears in the **Websites** list. Depending on the security protocol used to communicate with the module, the website URL will be prepended by either the *http* or the *https* prefix. You need to add both URLs, starting with *http* and *https* prefixes, to the **Websites** list.

7. In the **Add this website to the zone** text box, type the IP address of the module with the prefix other than the one of the URL already added to the **Websites** list, and then click **Add**.

   Both URLs for the module website appear in the **Websites** list.

8. Click **Close**, and then click **OK**.

Add the module website to the Trusted sites security zone

To add the module website to the Trusted sites zone:

1. Open the FactoryTalk Historian ME website using the IP address of the module.
2. On the **Tools** menu, click **Internet Options**.

   The **Internet Options** dialog box appears.

   Tip: If the top menu is not visible, press the left Alt key on your keyboard to bring up the top menu.

3. Click the **Security** tab, and then select **Trusted sites**.
4. Click **Sites**.

   The **Trusted sites** dialog box appears.

5. Verify that in the **Add this website to the zone** text box there is a URL of your module site, and then click **Add**.

   The URL of the module website appears in the **Websites** list. Depending on the security protocol used to communicate with the module, the website URL will be prepended by either the *http* or the *https* prefix. You need to add both URLs, starting with *http* and *https* prefixes, to the **Websites** list.

6. In the **Add this website to the zone** text box, type the IP address of the module with the prefix other than the one of the URL already added to the **Websites** list, and then click **Add**.

   Both URLs for the module website appear in the **Websites** list.

7. Click **Close**, and then click **OK**.

Enable Active X controls

When you are interacting with the FactoryTalk Historian ME websites, scripts are run on the page to complete various actions (e.g., uploading a file on the **Upload Management** page). For this reason, FactoryTalk Historian ME requires that you customize the security level and enable the **Initialize and script ActiveX controls not marked as safe for scripting** option.

To enable Active X controls:

1. In the **Internet Options** dialog box, click the **Security** tab, and then click **Custom level**.

   The **Security Settings** dialog box appears.
2. Under **Settings**, browse to the **ActiveX controls and plug-ins** node.
3. Under **Initialize and script ActiveX controls not marked as safe for scripting**, click **Enable**, and then click **OK**.

   Tip: See "Appendix 2: Internet Explorer security zone settings" for a list of all security zone settings configured for FactoryTalk Historian ME websites.
4. Click **OK.**

Enable Compatibility View

To enable Compatibility View:

1. Open the FactoryTalk Historian ME website using the IP address of the module.
2. On the **Tools** menu, click **Compatibility View settings**.

   The **Compatibility View Settings** dialog box appears.

   Tip: If the top menu is not visible, press the left Alt key on your keyboard to bring up the top menu.
3. Verify that in the **Add this website** text box there is the IP address of your module site, and then click **Add**.

   Tip: If you access the website by typing the hostname or DNS name of the module, make sure that they are set in the text box.
4. Click **Close**.

Disable Pop-up Blocker

The FactoryTalk Historian ME website requires pop-up windows to display online help. You must allow the browser to display pop-ups for the module site.

To allow pop-ups in Internet Explorer:

- If a warning message appears informing that Internet Explorer has blocked a pop-up window, in the **Options for this site** list, select **Always allow**.

Disable ActiveX Filtering

ActiveX Filtering allows or filters out the ActiveX controls running in the browser on a website. When you are interacting with the FactoryTalk Historian ME websites, the ActiveX controls are used on the page to complete various actions (e.g., uploading a file on the **Upload Management** page). For this reason, FactoryTalk Historian ME requires that the controls are not filtered out when you visit the website.

To disable ActiveX Filtering:

- On the **Tools** menu, verify that the **ActiveX Filtering** option is cleared.

  Tip: If the top menu is not visible, press the left Alt key on your keyboard to bring up the top menu.

Enable the XML DOM Document add-on

The FactoryTalk Historian ME website requires the Microsoft XML DOM Document add-on to communicate with the module and send data. Make sure that the add-on is installed and enabled.

To enable the XML DOM Document add-on:

1. On the **Tools** menu, click **Manage add-ons**.

   The **Manage Add-ons** dialog box appears.

   Tip: If the top menu is not visible, press the left Alt key on your keyboard to bring up the top menu.
2. Under **Microsoft Corporation**, verify that all XML DOM Document add-ons are enabled.
3. If the add-ons are disabled, under **Show**, select **All add-ons**.
4. Under **Microsoft Corporation**, click each XML DOM Document add-on, and then click **Enable**.
5. Click **Close**.

Enable TLS

The FactoryTalk Historian ME website requires TLS 1.2. Make sure that TLS 1.2 is enabled.

To enable TLS:

1. On the **Tools** menu, click **Internet Options**.

   The **Internet Options** dialog box appears.

   Tip: If the top menu is not visible, press the left Alt key on your keyboard to bring up the top menu.
2. Click the **Advanced** tab, and then under **Settings** select the following check boxes:
   - Use TLS 1.0
   - Use TLS 1.1
   - Use TLS 1.2
3. For security reasons, clear the following check boxes:
   - Use SSL 2.0
   - Use SSL 3.0
4. Click **OK**.

Verify the browser configuration using the F12 developer tools

The F12 developer tools allow you to toggle certain browser features on and off. These features allow you to properly display the content of the FactoryTalk Historian ME websites. Verifying the browser configuration using the developer tools is especially recommended:

- If you are using Internet Explorer 10 or earlier.
- If you are using Windows Server (for more information, see "Appendix 1: Configure Internet Explorer on Windows Server").

To verify the browser configuration using the developer tools:

1. Go to the FactoryTalk Historian ME website, and then press F12.
2. On the **Disable** menu, make sure that the **Script**, **Pop-Up Blocker**, and **CSS** options are cleared.
3. On the **Images** menu, make sure that the **Disable images** option is cleared.
4. On the **Cache** menu, make sure that the **Disable cookies** option is cleared.

Install the module certificate in Internet Explorer

If you are using a secure communication protocol (HTTPS) to communicate with the FactoryTalk Historian ME websites, you need to install a security certificate in the browser. For more information on the security settings available for FactoryTalk Historian ME, see "Manage security (page 141)".

To install the module certificate in Internet Explorer:

1. Open the FactoryTalk Historian ME website using the HTTPS protocol and the IP address of the module (e.g., *https://10.76.38.162*). You should see a screen like the one below because your self-signed certificate is not trusted.
2. Click **Continue to this website (not recommended)**.

   The website is loaded and the address bar is shown in red with a "Certificate error" message in the security status bar next to it.
3. Click **Certificate error**.

   The **Certificate Invalid** message appears.
4. Click **View certificates**.

   The **Certificate** dialog box appears with information that the website's certificate is not trusted.
5. Verify the certificate:
   - Verify that value in the **Issued to** field corresponds to your module IP or hostname.
   - Verify the value in the **Valid to...** field. Check if the certificate has not expired.
6. If the certificate has not expired, click **Install Certificate**, and follow the steps in the **Certificate Import Wizard** to complete the process.

   For details, see "Install the certificate using the Certificate Import Wizard (page 39)".

   If you do not see the **Install Certificate** button:

   1. Close Internet Explorer.
   2. Right click the Internet Explorer icon, and click **Run as administrator**.
   3. Open the FactoryTalk Historian ME website again, and repeat steps 1-6.

Install the certificate using the Certificate Import Wizard

To import the certificate using the Certificate Import Wizard:

1. On the **Welcome...** page, click **Next**.
2. Click the **Place all certificates in the following store** option, and then click **Browse**.

   The **Select Certificate Store** dialog box appears.
3. Select **Trusted Root Certification Authorities**.

   Tip: To show the certificate storage hierarchy and allow you to expand the listed stores, select the **Show physical stores** check box. Then, under **Trusted Root Certification Authorities**, select **Local Computer**.
4. Click **OK**.
5. Verify that the selected certificate store is set to **Trusted Root Certification Authorities**, and then click **Next**.
6. Click **Finish.**

   A warning message appears.
7. Click **Yes**, and wait for a message informing you that the import was successful.
8. Click **OK** to close the message, and then click **OK** to close the **Certificate** dialog box.
9. Exit Internet Explorer.
10. Open the FactoryTalk Historian ME website again.

    The closed padlock icon next to the address indicates that the certificate is installed properly.

Verify the certificate

You can verify the current certificate used by FactoryTalk Historian ME websites in two ways:

- On the security report of the web browser.

  It is a recommended method to verify the certificate. This report provides detailed information on both the self-signed certificate and the CA certificate.
  For details, see "Verify the certificate on the security report (page 40)".
- On the **System Security** page of the Historian website.

  This page provides basic information about the self-signed certificate only, and does not provide any details on the CA certificate.
- For details, see "Verify the certificate on the System Security page (page 40)".

Verify the certificate on the security report

To verify the certificate details on the security report:

1. Open the FactoryTalk Historian ME website using the IP address of the module.
2. Click the padlock icon  located to the right of the address field in Internet Explorer.

   The **Website Identification** dialog box appears. This is the security report for the webpage.
3. Click **View certificates**.

   The **Certificate** dialog box appears.
4. On the **General** tab, review the following information:
   - **Issued to**
     By default, the certificate is issued to IP address of the ME module.
   - **Issued by**
     The same as **Issued to**.
   - **Valid from - to:** The validity date of the certificate.
     The certificate is valid for 5 years.
     On the **General tab**, only the date (without the time) is displayed.
     You can see both the date and time on the **Details** tab.
     The **Valid from** value is not only the start date and time of the certificate's validity period, but also the date and time the certificate was created.

   The date and time changes each time you renew the certificate on the **System Security** page.

Verify the certificate on the System Security page

To verify the certificate on the System Security page:

1. Log on to the Historian ME website using your credentials.
2. Click **Configure Historian**, and then click **System Security**.
3. Under **HTTPS Settings**, in the **HTTPS certificate type** list, select **Self-Signed Certificate**.
4. Verify the certificate information.

   Tip: For details on the self-signed certificate, or information about the CA certificate, see "Verify the certificate on the security report (page 40)" of the web browser.

Clear the browser cache

If you have already been using the FactoryTalk Historian ME websites, some of their elements (for example, scripts enabling you to perform actions on the page) may be stored in your browser cache. To get the latest version of these elements, you need to clear the browser cache.

You can clear the browser cache manually or automatically.

For details, see:

- "Clear the browser cache manually (page 41)"
- "Clear the browser cache automatically (page 41)"

Clear the browser cache manually

To clear the browser cache manually:

1. On the **Tools** menu, click **Delete browsing history**.

   Tip: Alternatively, you can press Ctrl + Shift + Delete.

   The **Delete Browsing History** dialog box appears.
2. Select the **Temporary Internet files and website files** check box, and clear all other check boxes.

   Tip: If your FactoryTalk Historian ME site is not added to your Favorites, select the **Preserve Favorites website data** check box.
3. Click **Delete**, and wait for the confirmation message.

Clear the browser cache automatically

To configure the browser to clear the cache automatically every time you visit the site:

1. Open Internet Explorer.
2. On the **Tools** menu, click **Internet options**.

   The **Internet Options** dialog box appears.
3. On the **General** tab, click **Settings**.

   The **Website Data Settings** dialog box appears.
4. On the **Temporary Internet Files** tab, select the **Every time I visit the webpage** option.
5. Click **OK.**

Add a registry entry for exporting files to Excel

In some versions of Internet Explorer there is an issue when you try to export a file to Excel on the **System Log** page of the FactoryTalk Historian ME client website, and the **Save As** dialog box does not appear.

To fix this issue, you need to manually add the `[HKEY_CLASSES_ROOT\.csv] "PerceivedType"="document"` registry value for the .csv document type.

For more information about editing registry entries, refer to Microsoft documentation.

Access the FactoryTalk Historian ME web page

FactoryTalk Historian ME receives data from the ControlLogix through the data collection interface and stores it locally in the module. The module data and system information can be viewed and managed through the FactoryTalk Historian ME web page. The web interface supports multiple layers of firmware applications that are designed to collect data, as well as provide system and module status and statistics.

You can access the FactoryTalk Historian ME web page through a web browser after the installation of the module.

Tip: You have to configure the browser properly to work with the FactoryTalk Historian ME websites. For details, see "Configure Internet Explorer for FactoryTalk Historian ME (page 32)".

Log on to FactoryTalk Historian ME

Tip: If a large number of tags is being transferred from the controller to the module when the module is going through the initial booting up, please wait about five to ten minutes before trying to access the web interface.

To log on to FactoryTalk Historian ME:

1. Open your Internet Explorer browser.
2. In the address bar, type the IP address of FactoryTalk Historian ME, and then press **Enter**.

   The IP address scrolls across the LED display on the front panel of FactoryTalk Historian ME.
   The logon page appears.

   Tips:
   - The default network configuration type is DHCP. If a DHCP server is not available, then the IP address will not be displayed. You will either need to configure a DHCP server or use RSLinx Classic or the FactoryTalk Historian ME Logix Designer Module Profile to set the IP address. For details, see "Use Studio 5000 Logix Designer Module Profile (page 169)".
   - You can also type the Fully Qualified Domain Name (FQDN) of the FactoryTalk Historian ME module in the address bar to access the logon page. Type the FQDN in the following format: *<modulename>.<domainname>.<top-level domain>*
     For example, *module1.mycompany.com*
3. Type the default user name `piadmin` and leave the password text box blank.

The first time you log on, the default user name is `piadmin` and the password is blank (no password). After logging on, it is highly recommended that you change the password for the default `piadmin` user.

Tip: It is recommended that you change the blank default `piadmin` user password immediately.

For details on the user and group security, see "Manage security (page 141)".

4. Click **Login**.

Log out of FactoryTalk Historian ME

To log out of FactoryTalk Historian ME:

- Click **Logout** in the upper right corner of the Historian web page.

If you close your browser without logging out, a cookie will retain the session for twenty minutes, and another user may access FactoryTalk Historian ME without logging into the module.

It is recommended that every user should log out after every session to prevent unauthorized users from accessing the module without logging into the module.

View the module information

The module information is displayed on the following pages of the **Home** tab:

- **Status**

  This page is open by default.
  See "Status (page 46)".
- **Module Identity**

  See "Module identity (page 48)".
- **System Utilization**

  See "System utilization (page 51)".
- **System Statistics**

  See "System statistics (page 51)".

Additionally, there is also the **System Status** (page 45) section in the left bottom corner of every page of the web client.

System status

The system status information appears when you log on to FactoryTalk Historian ME. It is located in the left bottom corner of every page, and provides the system status information detailed in the table below.

The information is refreshed automatically every 30 seconds.

This item:	Displays:
CPU usage	Percentage of the module's CPU that is being used. **Note:** The CPU usage percent listed under the **System Status** section on the left-hand side may display a different percent than what is listed under **CPU and Processes** on the **System Utilization** page (see "System utilization (page 51)"), because the CPU usage listed under **System Status** is updated periodically while the CPU usage listed in the main window is static. It does not change once the page is loaded.
Memory usage	Percentage of the module's system memory that is being used.
Collection rate	Current collection rate from the data collection service in events per minute.
Transfer rate	Current transfer rate from the data transfer service in events per minute.
Archive rate	Current archiving rate from the Archive subsystem through the server variant table in events per minute.
Archive usage	Percentage of used archive files remaining on FactoryTalk Historian ME. It is calculated based on the type of data being collected and the rate of the data collection.
Archive capacity	The number of days/hours/minutes (dd:hh:mm) until the storage space on FactoryTalk Historian ME is used. This calculation is based on the module's data collection and data transfer rates.

Status

To open the **Status** page, click the **Home** tab.

The page displays the following information:

- Module information

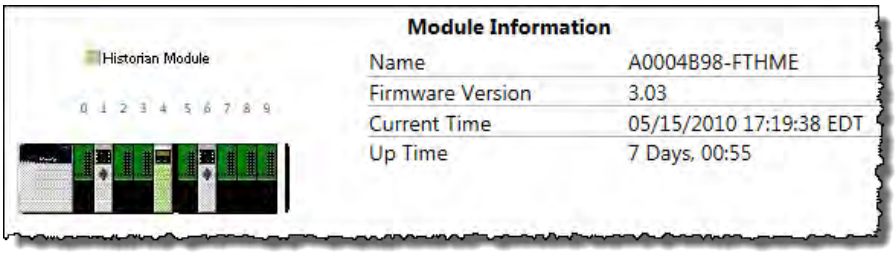
  See "Module information (page 46)".
- System status

  See "System status (page 47)".
- System utilization

  See System utilization (page 47)"".
- Point statistics

  See "Point statistics (page 47)".

Module information

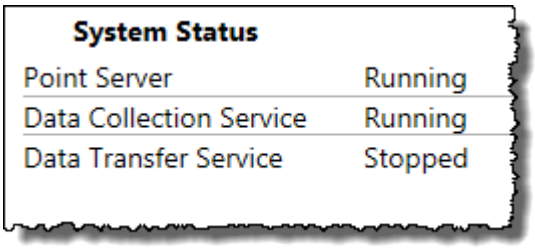


In the ControlLogix chassis figure, the location of the Historian module in the chassis slot is marked with green, while the location of the controller with grey.

The **Module Information** section displays the following information:

This item:	Displays:
Name	The name of the module.
Firmware Version	The version of the firmware.
Current Time	The current time of the module.
Up Time	The total time the module has been running.

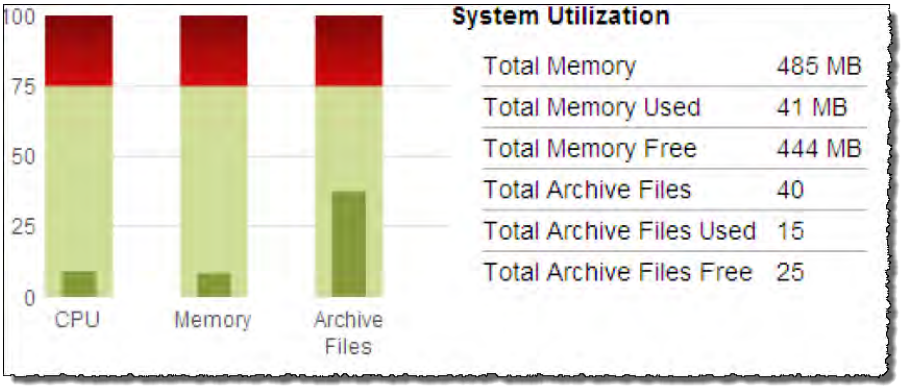
System status



The **System Status** section displays the following information:

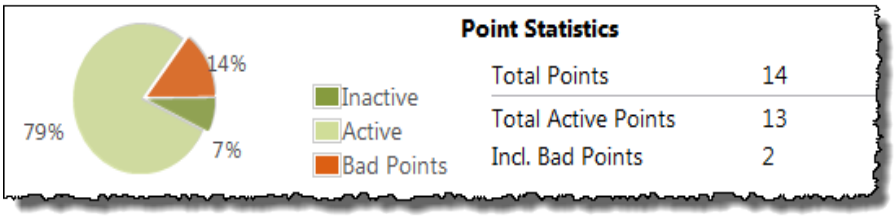
This item:	Displays:
Point Server	FactoryTalk Historian ME server that manages the archives and provides access to historical data. The status may be Running or Error.
Data Collection Service	FactoryTalk Historian ME data collection subsystem. The status may be Running, Stopped, or Error.
Data Transfer Service	FactoryTalk Historian ME data transfer subsystem. The status may be Running, Stopped, or Error.

System utilization



The **System Utilization** section displays the current CPU usage, memory information and storage information, along with a graphical representation of this information. The red portion indicates a critical stage for each component.

Point statistics



The **Point Statistics** section displays information about points configured on the module in the form of statistics and a pie chart.

Review the following for additional information.

Item	Description
Total Points	The number of total points on the module.
Total Active Points	The number of points actively receiving data.
Incl. Bad Points	The number of points out of the Total Active Points which are configured for collecting data but are not actively receiving it because the point is being rejected by the data server with an error.

The pie chart rounds the percentage to the nearest whole percent. For instance, if there are 1000 total points in the system and 995 active points, the pie chart will still display 100%, but if there are 994 active points, the pie chart will display 99% and 1%.

Module identity

To open the **Module Identity** page, click **Module Identity** on the **Home** tab.

The page displays the following information:

- Module information

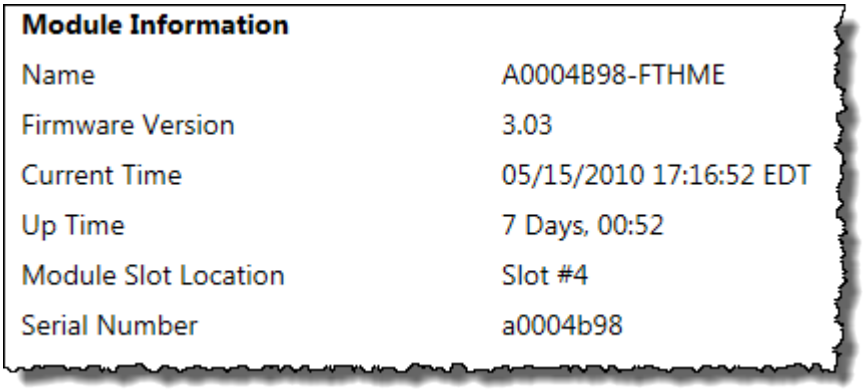
  See "Module information (page 48)".
- Network settings

  See "Network settings (page 49)".
- Security configuration

  See "Security configuration (page 50)".
- Client connections

  See "Client connections (page 50)".

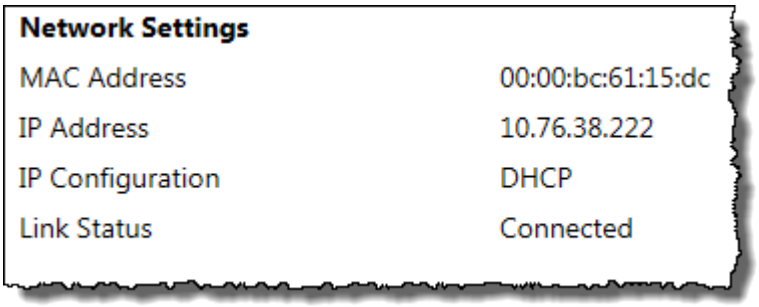
Module information



The **Module Information** section displays the following information:

This item:	Displays:
Name	The name of the module. To change your module name, click the **Advanced** tab, and then click **System Settings**. For details on the module name and information on the impact of changing the module name, see "Change the module name (page 127)" .
Firmware Version	The version of the firmware.
Current Time	The current time of the module. To configure time settings, click the **Advanced** tab, and then click **Time Management**.
Up Time	The total time the module has been running.
Module Slot Location	The location of the module in a slot in the ControlLogix chassis.
Serial Number	The serial number of the module. This number cannot be changed.

Network settings

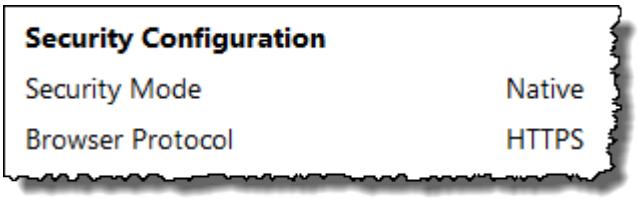


The **Network Settings** section displays the following information:

This item:	Displays:
MAC Address	The Unique Media Access Control (MAC) address of the module. This number cannot be changed.
IP Address	The Internet Protocol (IP) address of the module.
IP Configuration	The Dynamic Host Configuration Protocol (DHCP) or static IP address will display. DHCP is the default configuration.
Link Status	The current connection status of the module's front Ethernet port.

Tip: To change the network settings, click the **Advanced** tab, and then click **System Settings**. For details, see "Configure system settings (page 127)".

Security configuration

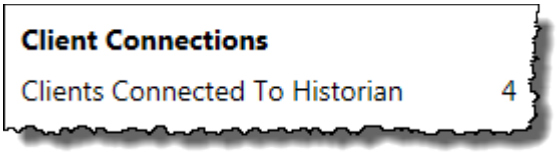


The **Security Configuration** section displays the following information:

This item:	Displays:
Security Mode	The security mode used.
Browser Protocol	The browser protocol used.

Tip: For details on changing the security settings, see "Manage security (page 141)".

Client connections

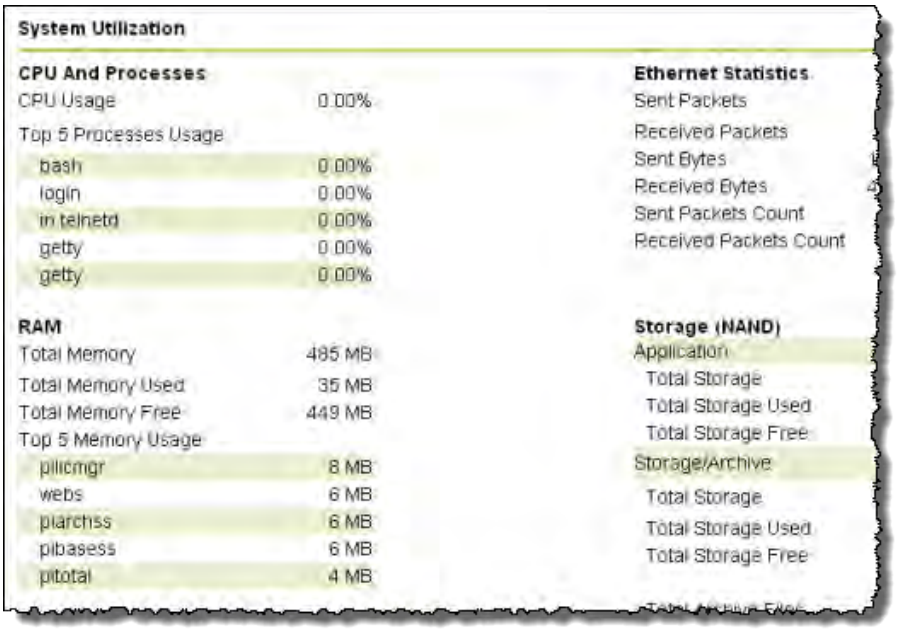


The **Client Connections** section displays the number of clients currently connected to FactoryTalk Historian ME. There may be up to 5 clients connected simultaneously to the Historian module.

The following client applications are supported:

- FactoryTalk VantagePoint
- FactoryTalk VantagePoint EMI
- FactoryTalk Historian DataLink
- FactoryTalk Historian ProcessBook
- FactoryTalk View SE Trending
- FactoryTalk Administration Console
- PI System Management Tools (SMT)

System utilization

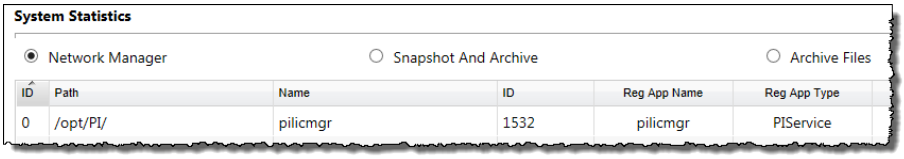


To open the **System Utilization** page, click **System Utilization** on the **Home** tab.

The page displays the following information:

This item:	Displays:
CPU and Processes	The current percent of the CPU in use and the processes currently running. **Note:** The CPU usage percent listed in the **System status** section (see "System status (page 47)") may display a different percent than the percentage listed in the **CPU and Processes** section in the main window. This is because the CPU usage listed in the **System Status** section is updated periodically while the CPU Usage information displayed in the main window is static. It does not change once the page is loaded.
RAM	The memory usage of the module.
Ethernet Statistics	The total amount of data sent and received by the module through the network.
Storage (NAND)	The total storage space used and available on the installed flash drive. This section also displays the total number of archive files and how many of them are free, as well as the archive file size.

System statistics



To open the **System Statistics** page, click **System Statistics** on the **Home** tab.

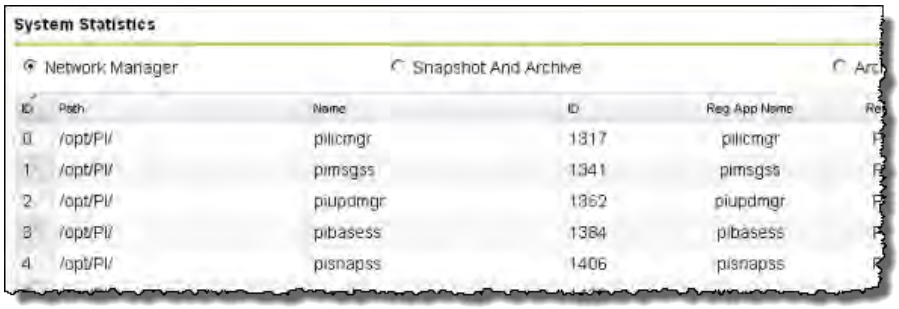
Choose this option:	To display:
Network Manager	The network management statistics. See "Network manager (page 52)".
Snapshot and Archive	The snapshot and archive statistics. See "Snapshot and archive (page 53)".
Archive Files	The archive file statistics. See "Archive files (page 56)".

The information available on this page may be helpful when troubleshooting any issues with your module.

Tip: For details on sorting and viewing information in tables, see "Change views (page 67)".

Network manager

Click the **Network Manager** option to view the current network manager connection statistics.



The **Network Manager** section displays the following information:

Item	Description
ID	The connection ID. This is the primary key.
Path	The root directory on the server. This directory is the same for all connections.
Name	The connection name.
ID	The process ID number.
Reg App Name	The registered application name.
Reg App Type	The registered application type.
Protocol Version	The protocol version of connecting application.
Peer Name	The host name of connecting machine.
Peer Address	The IP address of connecting machine.
Peer Port	The port number of connecting machine.
ConType	The connection type.
Net Type	The network type.
ConStatus	The connection status.
ConTime	The time of the connection.
Last Call	The time of the last call.
Elapsed Time	The amount of time passed.
Bytes Sent	The number of bytes sent.
Bytes Recv	The number of bytes received.
Msg Sent	The number of messages sent.
Msg Recv	The number of messages received.
Errors Recv	The number of errors received.
Errors Sent	The number of errors sent.
API Count	The number of APIs.
SDK Count	The number of SDKs.
Server ID	The identification number of the server.
NetMgr Version	The number of the network manager version.

Item	Description
OS Sys Name	The operating system name.
OS Node Name	The operating system node name.
OS Release	The operating system release number.
OS Version	The operating system version number.
Machine	The system name.
User	The user name.
OS User	The operating system user name.
Trust	The name of the trust connection.

Snapshot and archive

Click the **Snapshot and Archive** option to view the current FactoryTalk Historian ME snapshot and archive statistics.

The **Snapshot And Archive** section displays the following information:

Item	Description
Type	The snapshot or archive file type.
Counter	The performance counter. For details, see "Snapshot and archive counters (page 53)".
Value	The current snapshot and/or archive value.
Change	The value change between updates.

Snapshot and archive counters

The following table presents information on snapshot and archive counters.

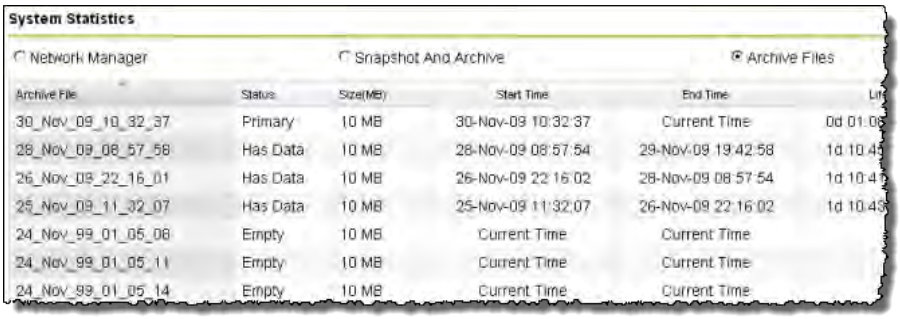
Counter name	Description
Point Count	The Point Count is the number of points that are currently defined in the Point Database. It is incremented when a point is created and decremented when a point is deleted.
Snapshot Events	An "r;event" is the fundamental Historian data element. It represents a value or status of a unique data source at a specific time. Specifically an event is a Value, Timestamp, and PointID. Most events come from Historian API- or Historian SDK-based interfaces. The Historian subsystems ("r;Applications" Historian Batch, Historian Performance Equations, Historian Total, and Historian Alarm), as well as manual input and laboratory systems are also event sources. Every Snapshot event increments the Snapshot Events Counter. The Snapshot Subsystem applies a compression algorithm to every event. The compression algorithm determines if the previous Snapshot event is passed on to the archive.
Out of Order Snapshot Events	Events older than the current Snapshot event are out-of-order events. These events bypass compression and are sent directly to the archive. This counter shows the number of times this has occurred.
Snapshots Events Reads	Count of all Snapshot reads. This is a simple measurement of how many Snapshot values are read by all applications.

Counter name	Description
Events Sent to Queue	Events that pass compression, or are out of order, are sent to the Event Queue, and thus increment this counter. Under normal operating conditions, this count indicates the number of events that passed the compression test (that is, the events were different from existing events and could not be eliminated) and are being sent to the archive. The ratio of Snapshot events to Events Sent to Queue is the system aggregate compression ratio. This ratio gives a quick view of overall system compression tuning. Ratios less than 2:1 indicate low compression; a compression tuning evaluation should be performed. Ratios greater than 10:1 indicate over-compression; a compression tuning evaluation should also be performed. Three Point Database attributes affect compression: CompDev, CompMin, and CompMax. These are known as the compression specifications. If a point has its Compressing point attribute set to FALSE, all new events are sent to the Archive Subsystem.
Events in Queue	Events passed to the EventQueue are put in the First-In-First-Out order. The Events in Queue Counter is incremented when the event is put in the Queue; it is decremented when the Archive Subsystem successfully retrieves and processes the event. When the system is shut down, the Event Queue is preserved in the file **PI\dat\pimapevq.dat**. This assures no data loss when the system shuts down, or when the archive subsystem is not processing events at the same rate as they come in.
Number of Overflow Queues	If the queue **PI\dat\pimapevq.dat** becomes completely full, a new queue is created. This should not occur under normal circumstances and this number will be 0. However, if the archive is not processing events, a number of such queues (up to 65536) can be created. This counter shows how many queues were created. These additional queues are automatically deleted after the archive subsystem processes them. **Note:** When multiple Event Queues exist, the file **pimapevq.dat** is renamed to **pimq0000.dat**, and additional queues are named **pimq<id>.dat** where id is the queue number in hexadecimal representation (from 0000 to FFFF). The piartool &endash;qs command always shows information from the queue to which the Snapshot Subsystem is writing (primary queue).
Total Overflow Events	This is the total number of events in all Overflow Queues. The sum of this counter and the Events in Queue counter are all the events not yet processed by the archive.
Estimated Remaining Capacity	Estimated maximum number of events with the current queue file.
Archived Events	The Archived Events counter is incremented for every new event written to the archive (via the archive cache). This count includes delete and edit events.
Out of Order Events	The Archive Subsystem receives events from the Snapshot Subsystem. If the timestamp of the event is older than the last event in the target record, it is considered an out-of-order event and is added to this counter. Excessive out-of-order events might lead to system problems such as excess processor consumption, excessive disk I/O, and archives filling faster than expected.
Events Cascade Count	Out of order events are inserted into the target record. The insert requires moving other events within the record. If the record is full, one or more events are forced out of the record into the adjacent record. This counter is incremented each time an insertion forces an event out of a record. This counter is an indication of the impact of out of order events on the archive.
Events Read	Number of events read by all applications. For example, a trending application requests an array of events over a specified time period. This counter is incremented for each event returned.
Read Operations	Number of archive read requests. Each archive read request increments this counter once, regardless of the number of events returned.
Cache Record	Archive cache records in memory.
Cache Records Created	Rate at which archive cache records are created in seconds.
Cache Record Memory Reads	Rate of archive cache memory hits in seconds.
Cache Clean	Rate at which archive cache records are removed from memory.
Archive Record Disc Reads	Rate of archive record disc reads in seconds.
Archive Record Disc Writes	Rate of archive record disc writes in seconds.
Unflushed Events	Indicates the total number of events not yet flushed to disk.
Unflushed Points	Indicates the number of points with any number of events not yet flushed.
Point Flush	Number of points flushed to disk. Busy points might get flushed several times per cycle.

Counter name	Description
Primary Archive Number	The archive receiving current data is called the Primary Archive. When the Primary Archive becomes full, an Archive Shift occurs and the next available archive becomes the new Primary Archive. The primary number is the internal index number of archive currently assigned to primary position.
Archive Shift Prediction (min)	Archive Shift (hr) estimates the predicted time to the next archive shift. Use piartool -al to list the target archive file for shift. The target archive will be initialized on shift; if it contains data, make sure it is backed up. If this data is required to remain online, a new archive of adequate size should be created and registered. When the current archive is less than 20% full, the estimate is 0. In order to determine whether a zero estimate means the archive is nearly full or not, run piartool -al. The message will tell you if there is not enough data for a prediction. Shift Time: Not enough information for prediction The shift prediction in piartool -as differs slightly from the one in piartool -al. The piartool -al figure is calculated when called. The `piartool -as` command shows the latest 10 minutes average. The latter number is available as a Windows Performance Counter.
Archiving Flag	Indicates whether or not events may be written to the archive. A value of 1 indicates that events may be written. A value of 0 indicates that events may not be written. The Archiving Flag is set to 1 when there is a mounted Primary Archive. A Primary Archive may be registered but not mounted, for example during an archive shift. In this case, the Archiving Flag would be set to 0. This flag is also set to 0 when in backup mode. All registered archives may be viewed using piartool -al. The Archive Flag is set to 0 if the Primary Archive becomes full and there is no other archive file available into which to shift. Note that the Primary Archive will never overwrite itself.
Archive Backup Flag	This flag is set to 1 when the archive is in the backup mode. The value is 0 when the archive is available for normal access. To enter the backup mode, run the `piartool -bs` command. Toe exist the backup mode, run the `piartool -be` command.
Archive Loaded Flag	This flag is 1 when a valid primary archive is mounted. It is 0 if the primary archive is not mounted.
Shift or System Backup Flag	This flag is 1 when the archive is in the shift mode or the Archive Subsystem has been placed in the backup mode. The shifts occur automatically or can be forced via the `piartool -fs` command. System backup mode is entered with the `piartool -systembackup` command.
Failed Archive Shift Flag	Set to 1 when a shift should occur but no shiftable archive exists. Under normal conditions this flag is 0.
Overflow Index Record	Number of index records. Index records speed up access to overflow records. Index records are created when two overflow records for a point are full, and third one is being created. This counter is a measurement of archive file consumption.
Overflow Data Record	Number of non-primary data records. Each archive has a primary record for each point. When this record is full, data is written to overflow records. This counter gives a measurement of archive consumption.

Archive files

Click the **Archive Files** option to view archived system statistics.



FactoryTalk Historian ME stores your data in archives, which are files that hold FactoryTalk Historian ME data. Archive files are fixed which means that they are always the same size, regardless of how much data they contain.

The archive receiving current data is called the `primary archive`. When the primary archive becomes full, an archive shift occurs, and the next available archive becomes the new primary archive. When the primary archive is being backed up, you cannot modify that archive or the Point database.

Each archive file contains events for a time period specified by the archive start time and end time. The archive files on each FactoryTalk Historian ME server should cover all time ranges, without overlapping time ranges or gaps in time. A list of archive files stored on FactoryTalk Historian ME are displayed by default when you select the **Archive Files** option.

The **Archive Files** section displays the following information:

Item	Description
Archive File	The archive file name, which includes the full path.
Status	The archive status displays one of the following: • Primary - the archive file that is currently receiving data. • Has Data - indicates that the archive file contains data and is full. • Empty - indicates that the archive has no data.
Size (MB)	The archive file size in megabytes.
Start Time	The time that data was first written to the archive file.
End Time	The time that data was last written to the archive file.
Lifetime	The archive file age in days, hours, minutes, and seconds.
Last Modified Time	The last time and date the archive file was modified.
Backup Time	The last time and date the archive file was backed up. Never indicates that the file has never been backed up.
State	The state of the file: • Created • Initialized • Dismounted • Mounted
Type	Indicates the type of file, which is always **Fixed size**.
Write Flag	Specifies if a file is writable or read-only.
Shift Flag	Specifies if a file is shiftable or not shiftable.
Add Rate/Hour	The rate at which files are added to the archive per hour.

Item	Description
% Full	The percentage of the archive that is being used.
Annotations	The size in bytes of the annotation file associated with the archive file.
Annotation File Size	The size in megabytes of the annotation file associated with the archive file.
Shift Prediction	The target archive or the predicted shift time.
Primary Offset	The number that indicates the number of primary archive records in use.
Overflow Offset	The number that indicates the number of overflow records in use.
Record Size	The record size for each archive record.
Version	The version of the archive header.
#	The archive number used by FactoryTalk Historian ME.

View data

You can view the following types of data on the pages of the **View Data** tab:

- Current data

  See "View current data (page 62)".
- Archive data

  See "View archive data (page 62)".
- Trends

  See "View trends (page 63)".

To display data, define your search criteria first. For details, see "Define search criteria (page 59)".

To export data, see "Export data (page 61)".

To change the way in which the data is displayed, see "Change views (page 67)".

Define search criteria

The search rules presented below apply to all the pages on the **View Data** tab.

To search data:

1. Define your search criteria in the boxes at the top of the page.
2. Click **Search**.

   The information specified in the search criteria is displayed.

Using the asterisk (“*”) in the search boxes

The asterisk that appears in the search boxes functions as a wildcard value. You can use it to:

- Represent a contiguous series of characters (for example: *xxx*, *xxx, or xxx*).
- Return data that meets all conditions for the given search box.
- Return ALL points in the system. To do so, leave the asterisk in all the search boxes.

To define search criteria:

1. In the **Point Name** box, type the point name criteria such as the full name, partial name, or wildcard value for the data you would like to search.
2. In the **Point Source** box, type the point source for the current data.

   The point source is the base attribute that identifies the interface or other scanning software responsible for providing data for the associated point. Common point sources depend upon your environment. They include the following:

Point source	Description
FTME	The default point source for FactoryTalk Historian ME.
T	The Totalizer utility subsystem.
C	The Performance Equation subsystem.

3. In the **Point Type** list, select the point type.

   Point types include:

Point type	Description
Int16	A 16-bit integer value.
Int32	A 32-bit integer value.
Float16	A 16-bit floating point value.
Float32	A 32-bit floating point value.
Float64	A 64-bit floating point value.
String	A string value.
Digital	A digital value.
Timestamp	A timestamp value.

4. In the **Scan Rate** list, select a scan rate.

   The scan rate is the rate (in seconds) at which the data is collected.

5. In the **Archiving** list, select one of the following options to display points with a specific archive bit setting:

Option	Description
On	Returns points where the archive is set to On.
Off	Returns points where the archive is set to Off.
Asterisk (*)	Returns points that meet either condition (On or Off) and meet the other search conditions.

6. In the **Scan** list, select one of the following options to search for points with a specific scan bit setting:

Option	Description
On	Returns points where the scan bit is set to On.
Off	Returns points where the scan bit is set to Off.
Asterisk (*)	Returns points that meet either condition (On or Off) and meet the other search conditions.

7. Click **Search** to initiate the tag search.

The search populates the **Points** table with the following information for each data point:

Item	Description
Select column check box	To create a specific list of points to view, check the box in the **Select** column for a specific tag or set of tags, then mark the **Selected Rows** option.
Name	The name of the data point.
Value	The most recently returned value of the data point.
Timestamp	The time that the last value was returned for the specified data point.
Type	The data type for the listed point. If the point is of Boolean or String type, no check box will be displayed in the **Select** column.

To clear all your search criteria, click **Reset**.

Tip: For information on filtering the search results, see "Filter search results data (page 67)".

Export data

You can export all points that are listed in your search results. The data is exported to a CSV (comma-separated values) document that you can open in Microsoft Excel.

To export data:

1. Find the data that you want to export by defining your search criteria.

   For details, see "Define search criteria (page 59)".

2. Export data:

   To export all the data displayed in the search results:

   - Click **Export**.

   To export specific data:

   - Select a check box in the **Select** column next to the data row that you want to export.
   - Click **Export**.

     The **Save HTML Document** dialog box appears.

3. Navigate to the place in which you want to save the file.

   If you change the name of the file, make sure to leave the **.csv** file extension in the **File name** box.
   Leave the default settings in the **Save as type** and **Language** boxes.

4. Click **Save**.

   Tip: The FactoryTalk Historian DataLink Excel Reporting Tool provides a Historian Add-In for Microsoft Excel. If you export more than 65,535 rows of FactoryTalk Historian ME events to FactoryTalk Historian DataLink using the Compressed Data (Start Time/End Time) configuration page, Excel generates an "r;Output exceeds dimension" message.

View current data

To view data that is currently being collected by FactoryTalk Historian ME, click the **View Data** tab, and then click **Current Data**.

To view current data:

1. Under **Current Data**, define your search criteria.

   For details, see "Define search criteria (page 59)".
2. Click **Search**.

   The data is displayed in the search results table.

View archive data

To view archive data in FactoryTalk Historian ME, click the **View Data** tab, and then click **Archive Data**.

The page displays a list of points and the latest value collected for each point.

To view archive data:

1. Under **Select Points For Archive Data**, define your search criteria.

   For details, see "Define search criteria (page 59)".
2. Click **Search**.

   The data is displayed in the **Points** table.
3. Under **Points**, click a point for which you want to view data.

   Tip: You can view archive data only for one point at a time.
4. In the **Start Time** and **End Time** boxes, type the start and end time for which you want to view the data.

   For details, see "Set start and end times (page 69)".
5. Click **View**.

View trends

To view data in trends, click the **View Data** tab, and then click **Trends**.

The page allows you to select multiple points and draw a trend chart to view data. Each trend chart provides a visual representation of the data collected over a specific period of time.

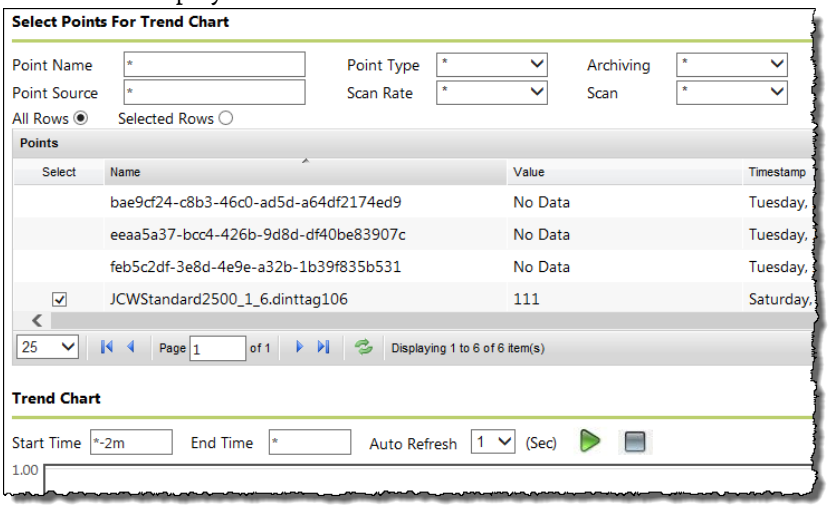
To view a trend:

1. Under **Select Points For Trend Chart**, define your search criteria.

   For details, see "Define search criteria (page 59)".

2. Click **Search**.

   The data is displayed in the **Points** table.



3. Select check boxes in the **Select** column next to the points that you want to present on the trend.
4. (Optional.) In the **Start Time** and **End Time** boxes, type the start and end time for the selected point(s).

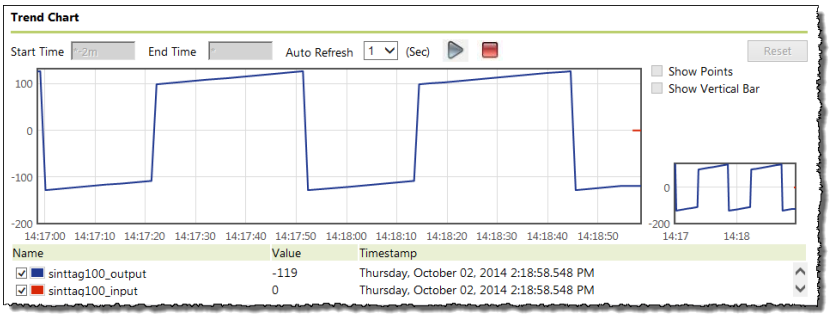
   For details, see "Set start and end times (page 69)".

5. (Optional.) Using the **Auto Refresh** list, define the frequency with which the data in the trend will be refreshed (in seconds).

   The default value is 1 second.

6. Click  .

The button color changes to grey ( ). The trend is drawn. The data in the trend is being refreshed with the frequency specified in the **Auto Refresh** list.



The trend chart displays trends for selected points using colored variants to distinguish between the different points. You will not be able to select the point for viewing in the trend chart until data has been collected for the new point.

The numbers on the horizontal axis at the bottom of the chart represent the point timestamps. The numbers on the vertical axis on the left of the chart represent the point values.

The small window next to the trend displays the chart in the total time period set by the time parameters.

Display points on the trend

Use the **Show Points** option to display individual points on the trend.

To display points on the trend:

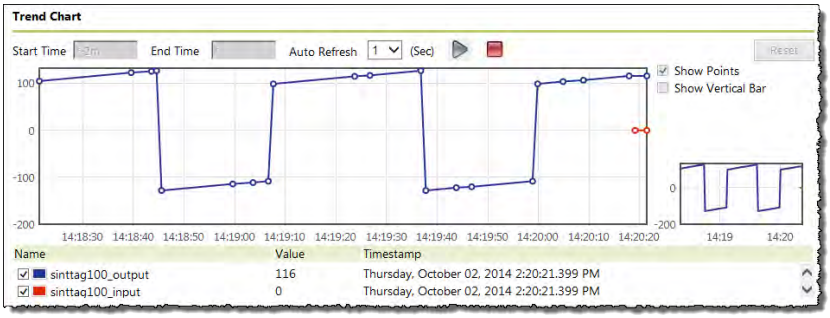
1. Click .

   The button color changes to grey ( ). The data on the trend is no longer refreshed.

2. Select the **Show Points** option next to the trend.

   Individual points are displayed on the trend as small circles.

3. Click .



Tip: If you want to draw a trend chart that consists of high-speed points, avoid selecting the **Show Points** option due to the large number of points that will be displayed.

Display the vertical bar on the trend

Use the **Show Vertical Bar** option to display a vertical bar across all points on the X axis. At the bottom of the trend, timestamps will be adjusted when you click inside the trend and drag the vertical bar across it.

To display the vertical bar on the trend:

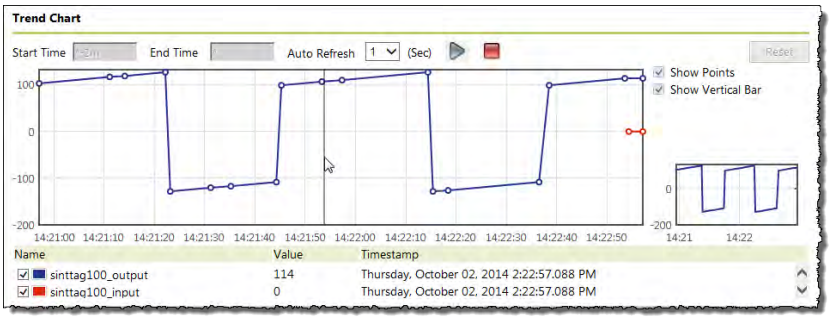
1. Click  .

   The button color changes to grey (). The data on the trend is no longer refreshed.

2. Select the **Show Vertical Bar** option next to the trend.

   When you move the mouse pointer over the trend, a vertical bar moves along with the pointer.

3. Click  .



Tip: When Daylight Savings Time (DST) occurs, the timestamps displayed will be automatically updated to reflect the time change. If you adjust the start time to an earlier start time, the timestamps reflected will coincide with DST even if the DST transfer did not occur until later.

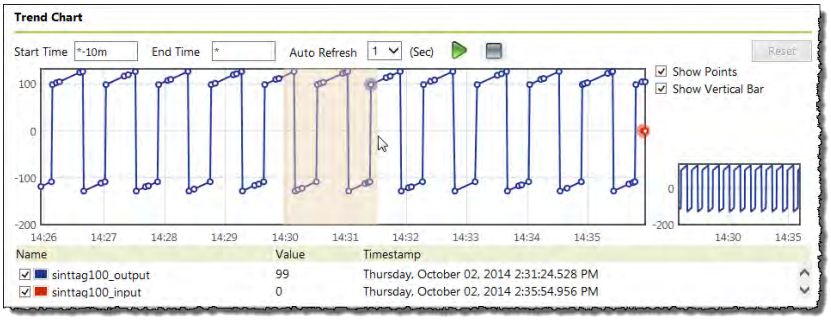
Zoom the trend

To zoom in on a specific time span for a set of data:

1. Click  .

   The button color changes to grey (). The data on the trend is no longer refreshed.

2. Click and drag the mouse pointer to draw a grey box over the time span on which you want to zoom in.



3. Release the mouse pointer.

   The point data from the time span that you marked with the box appears in the trend. The selected time span is highlighted in the total time period window next to the trend.

Reset the trend

To reset the zoomed in trend to the regular view, click **Reset** or  .

Remove points from the trend

To remove a point from the trend:

- In the point list below the trend, clear the check box next to the point name that you want to remove.

Change views

You can modify how the data is displayed on the **Current Data**, **Archive Data**, and **Trends** pages by:

- Filtering search results data.

  See "Filter search results data (page 67)".
- Arranging columns.

  See "Arranging columns (page 67)".
- Refreshing views.

  See "Refreshing views (page 68)".
- Setting start and end times.

  See "Set start and end times (page 69)".

Filter search results data

To filter search results, select either the **All Rows** or the **Selected Rows** option. Your filter selection will apply to all the pages on the **View Data** tab.

If you select the **Selected Rows** option, all the data that you have searched and selected with check boxes on any of the **View Data** tab pages will be listed in the search results table.

For example, if you have selected the `MonitorTag` point on the **Current Data** page, and then the `int32tag999` point on the **Trends** page, both points will be listed in the search results table when you click the **All Rows** option on any page on the **View Data** tab.

To reset the search boxes to their default settings and clear the row selection check boxes, click **Reset**.

Arrange columns

Use the following options to arrange columns and their content.

To change the sorting order in a column:

1. Move the mouse pointer over a column heading.

   An arrow at the top of the column heading indicates its current sorting order:

   The sorting order is ascending.

   The sorting order is descending.
2. Click the column heading to change the sorting order.

   Tip: To reduce the load on the FactoryTalk Historian ME processor, sorting occurs on the client computer. If you are monitoring your processor through the task manager, you may see increased processor usage due to the sorting.

To select columns to display:

1. Move the mouse pointer over a column heading.

   A down arrow appears next to the heading.
2. Click the arrow to list available table columns.
   - To add a column to the table, select the check box next to the column that you want to add.
   - To remove a column from the table, clear the check box next to the column that you want to remove.

Refresh views

You can refresh the content of the search results table either manually or automatically.

To refresh the search results table manually:

- Click **Search**.

To refresh the search results table automatically:

Below the table, in the **Auto Refresh** box, type a refresh interval in seconds.

When using the **Auto Refresh** option, note the following:

- It is recommended that you turn off the option if you do not need it.
- Display the minimum amount of data necessary to reduce the memory consumption.
- Choose the refresh rate prudently. The faster the auto refresh frequency is, the more memory it consumes.
- Turn the auto refresh option off before closing the Internet browser or opening another page to release the memory that was being used.

Set start and end times

The start and end times are set with relation to the time on the client computer.

The default start time is two minutes before the current time on the client computer. The default end time is the current time on the client computer.

You can use the following expressions to set time:

This expression:	Means:
*	The current time.
t	Today at midnight (00:00:00).
y	Yesterday at midnight (00:00:00).
t 15:00:00	Today at 3:00:00 pm.
y 15:00:00	Yesterday at 3:00:00 pm.
-60s	The past 60 seconds.
+45m	The future 45 minutes.
-5h	The past 5 hours.
-3d	The past 3 days.
sun	The most recent Sunday at midnight (00:00:00).
25 8	08:00 on the 25th of the current month.
25 8:10	08:10 on the 25th of the current month.
06-dec-08 15:00:00	3:00:00 p.m. on December 6, 2008.
mon+14.5h	2:30:00 p.m. last Monday.
sat-1m	11:59:00 p.m. last Friday.

Bad quality data

FactoryTalk Historian ME tracks data quality during the data collection and the data transfer. It may happen that data is of bad quality (e.g., if the controller loses its connection to the FactoryTalk Historian ME, or if a running tag is removed from the controller but not from FactoryTalk Historian ME).

Bad quality data is displayed in the point list with the **Bad_Quality** value.

Manage points

In this section you will learn about the following:

Recommendations related to managing points

When managing points, pay attention to the following recommendations:

- Always stop the data collection before you intend to change the Historian configuration or manage points either in the Historian web client or the System Management Tools of FactoryTalk Historian SE.
- Make sure that you never delete the **FTHMEScanRateDefinition** tag or other system-generated tags with names such as **bae9cf24-c8b3-46c0-ad5d-a64df2174ed9** and values such as **No data**. The **FTMEScanRateDefinition** tag is a system-generated tag that contains scan class definitions. If it is deleted, all scan class definitions will be removed. Deleting other system-generated tags will cause the system log to overflow with error messages.
- Every time the point configuration is changed you should expect data interruption.

Add points using the Add Points Wizard page

You can use the **Add Points Wizard** page to add multiple points to your Historian module.

The process consists of the following steps:

1. Discover tags (page 72).
2. Create points (page 74).
3. Review results (page 75).

Discover tags

This is the step 1 of adding points using the Add Points Wizard

IMPORTANT Stop the data collection before adding and creating points to ensure minimal impact on the Logix controller memory.

To discover tags:

1. Click **Manage Points**.

   The **Add Points Wizard** page appears.
2. In the **Rule File** list, do either of the following:
   - To discover specific tags, select a file with tag discovery rules. The default is **ADDefault.xml**.

     To view the content of the file, click next to the list.
     For details on defining rules, see "Define point discovery rules (page 157)".
   - To discover all tags from Logix controllers, select **None**.

   Rule files are managed through the **Rule Editor**. For details, see "Use the Rule Editor (page 155)".
   Since the search only applies to the cached information of the web client, it is limited to the first 2000 tags from a single controller. If you want to browse for more tags, change the tag point discovery limit in the point discovery rule file. For details, see "Define point discovery rules (page 157)".
3. In the **Tag File** list, select a tag attribute file. The default is **FTHMETagDefault.xml**.

   The tag attribute file defines the attributes of the points to be created.
   To view the content of the file, click next to the list.
   Rule files are managed through the **Rule Editor**. For details, see "Use the Rule Editor (page 155)".
4. In the **Scan Rate** list, do either of the following:
   - The scan rate defines how frequently the data is collected.

     If you want to set a global scan rate, select a value in seconds.
     Points with invalid scan rates will not be created.

The valid scan rates are the following:

For this scan type:	Use this scan rate:
• Advised • Polled	Equal to or greater than 0.5 seconds.
• High-speed	Equal to or greater than 0.01 seconds, and equal to or less than 0.5 seconds.

The maximum number of events per second is 2500. For the data collection rates slower than 500 ms, use Polled and Advised tags.

- If you use multiple tag attribute files that define different scan rates, and you want to use these scan rates rather than a global one, select **default**.

5. In the **Start Search In** list, select a check box next to each controller that you want to search.

   The list contains all online controllers from the same chassis. FactoryTalk Historian ME supports the data collection from a maximum of four controllers.

6. Click **Show Tags** in the right bottom corner of the page.

   If the button is disabled, check whether:

   - The selected rule file is valid.
   - The selected tag file is valid.
   - You have selected at least one connector to search.

   Tips:
   - For details on creating and editing rule and tag files, see "Use the Rule Editor (page 155)".
   - For details on uploading the files, see "Upload files to the module (page 129)".

   The discovered tags are listed on the **Create Points** wizard page. The process of retrieving data from a controller is indicated with a message similar to the following:

```
INFO: Retrieving data from JCWStandard2500_1_6
```

   If the number of available points has exceeded the discovery tag limit defined in the rule file, the following message appears:

```
WARNING: You have reached the maximum number of points that
can be created.
```

   The search results are displayed in the table below the search boxes. By default, all the points displayed in the table are selected. The number of selected points is provided in the **Selected Points** box below the table.

Create points

This is the step 2 of adding points using the Add Points Wizard

Tip: You can create a maximum of 2500 data points per Historian module.

To create points:

1. Among the discovered tags, search those that you want to use to create points:
   1. In the **Name** box, type a name of the tag.

      The * symbol displays all the tags.
   2. In the **Controller** list, select the controller from which you want to filter tags.
   3. In the **Type** list, select the type of the tag.

      The * symbol displays all the tag types.
   4. Click **Search**.

      The search results are refined based on the search criteria that you have selected.
2. Select the tags that you want to use to create points.
   - To select all the tags in the search results table, select the **All/None** check box below the table.
   - To select no tags from the search results table, clear the **All/None** check box below the table.
3. (Optional). Change the scan rate of the selected tags:
   1. In the list, select a new scan rate.
   2. Click **Change Scan Rate**.

      Tip: This setting will override the scan rate setting that you have defined on the **Discover tags** wizard page (See "Discover tags (page 72)").
4. Click **Create**, and confirm your action in the message box that appears.

   The result of the point creation process is displayed on the **Review Result** wizard page.
   If you have selected more than 2500 tags, the **Create** button will not be available. To make it available again, reduce the number of selected tags to less than 2501.

   Tip: If you want to restart creating points with the **Add Points Wizard**, click **Restart Wizard**, and confirm your action in the message box that appears. You will return to the **Discover Tags** wizard page.

Review results

This is the step 3 of adding points using the Add Points Wizard

The **Review Result** wizard page contains information on the points that have been processed.

The page contains the following information on points:

- The number of points that were created based on the tags that you have selected on the **Create points** wizard page (See "Create points (page 74)").
- The number of points that were not created because of either of the following reasons:
  - A specific point already exists in the archive.
  - An error occurred.

    For details, see "System log related issues (page 136)".
- The total number of points in the module, including the newly created ones.

The points that have not been created are listed in the **Points Not Created** table, along with an explanation for the point creation failure.

Once you finalize the data point creation, restart the data collection by clicking **Restart Data Collection**. The process may take several minutes.

Tip: If the FactoryTalk Historian ME Module receives an event with a timestamp 10 minutes or more into the future, it will discard that event and log an error message in the system log as follows:

```
[ERROR] TagProcessingForPolledAndAdvised() dropped
future event for point<ID> with <timestamp> with
timeDelta=<number of seconds into future>
```

For example:

```
6-Oct-09 15:54:29 Data Collection [ERROR] TagPr
ocessingForPolledAndAdvised() dropped future event
for point 450 with timestamp 13-Oct-09 00:37:03.89001
with timeDelta=549754
```

Note that if the data transfer service is in the auto transfer mode, it may continue running. If the auto transfer mode is not enabled, you must manually select points to transfer, and then restart the data transfer service.

Add points using the Add Individual Points page

To add points using the Add Individual Points page:

1. Click **Manage Points**, and then click **Add Individual Points**.

   The **Add Individual Points** page appears.

2. In the **Tag File** list, select a tag attribute file. The default is **FTHMETagDefault.xml**.

   The tag attribute file defines the attributes of the points to be created.
   To view the content of the file, click next to the list.
   Rule files are managed through the **Rule Editor**. For details, see "Use the Rule Editor (page 155)".

3. In the **Scan Rate** list, do either of the following:

   - If you want to set a global scan rate, select a value in seconds.

     The scan rate defines how frequently the data is collected.
     Points with invalid scan rates will not be created.
     For tags, the maximum number of events per second is 2500. For the data collection rates slower than 500ms, use Polled and Advised tags.
     The valid scan rates are the following:

For this scan type:	Use this scan rate:
• Advised • Polled	Equal to or greater than 0.5 seconds.
• High-speed	Equal to or greater than 0.01 seconds, and equal to or less than 0.5 seconds.

   - If you use multiple tag attribute files that define different scan rates and you want to use these scan rates rather than a global one, select **default**.

4. Under **Folders**, expand the tree and select the controller from which you want to use tags.

   The controller's tags are displayed under **Contents**.
   To refresh the list of the controllers, click **Refresh**.

5. (Optional.) To further filter the tag search results, filter the tags using the **Tag Filter** box below **Folders**:

   - In the **Tag Filter** box, type a tag name or a part of a tag name with *, and then press Enter.

     The tags that are displayed under **Contents** are filtered using the filter criteria that you have specified in the **Tag Filter** box.
     To display all the tags again with no filter applied, type * in the **Tag Filter** box, and then press Enter.

6. Under **Contents**, select the tags that you want to use to create points.

   To select all the tags, select the **All/None** check box below **Contents**.

7. Click **Add Tag(s) to List**.

   The tags that you have selected are listed in the **Selected Tags** table.

8. Click **Create**, and confirm the action in the message box that appears.

   The points are created.
   The following information is displayed:

   - The number of points that were created based on the tags that you have selected.
   - The number of points that were not created because of either of the following reasons:
     - A specific point already exists in the archive.
     - An error occurred.

     For details, see "System log related issues (page 136)".
   - The total number of points in the module, including the newly created ones.

The points that have not been created are listed in the **Points Not Created** table, along with an explanation for the point creation failure.

Once you finalize the data point creation, restart the data collection by clicking **Restart Data Collection**. The process may take several minutes.

Manage individual points using the Edit Points page

You can perform the following actions on individual points using the **Edit Points** page:

- Create points (page 77)
- Edit points (page 78)
- Rename points (page 78)
- Delete points (page 79)

Create points

To create points:

1. Click **Manage Points**, and then click **Edit Points**.

   The **Edit Points** page appears.
2. At the bottom of the page, click **New**.
3. The **Point Property** page appears.
4. Fill in the point attributes.

   For details, see "Define point attributes (page 79)".
5. Click **Save**.

If the data transfer service is set to the auto transfer mode, the new points will be created with the new tag names automatically. Otherwise, you need to add the new points to the data transfer manually.

To add new points to the data transfer:

1. Click **Configure Historian**, and then click **Data Transfer Points**.

   The **Data Transfer Points** page appears.
2. Using the search boxes, find the points that you want to add to the data transfer.
3. In the search results table, select the points that you want to add to the data transfer.
4. Click **Save**.
5. In the left pane of the window, click **Data Transfer**.
6. Restart the data transfer service.

Edit points

To edit points:

1. Click **Manage Points**, and then click **Edit Points**.

   The **Edit Points** page appears.
2. Using the search boxes, set your point search criteria, and then click **Search**.
3. In the search results table, click the point that you want to edit, and then click **Edit**.

   The **Point Property** page appears.
4. Change the point attributes.

   For details, see "Define point attributes (page 79)".
   If you want to cancel your changes and bring back the original attributes of the point, click **Reset**.

   
   Tip: Resetting will not work after you save the changes using the **Save** button.
5. Click **Save**.

Rename points

To rename points:

1. Click **Manage Points**, and then click **Edit Points**.

   The **Edit Points** page appears.
2. Using the search boxes, set your point search criteria, and then click **Search**.
3. In the search results table, click the point that you want to edit, and then click **Rename**.

   The **Point Property** page appears.
4. Change the point name.

If you want to cancel your changes and bring back the original attributes of the point, click **Reset**.

Tip: Resetting will not work after you save the changes using the **Save** button.

5. Click **Save**.

Delete points

To delete points:

1. Click **Manage Points**, and then click **Edit Points**.

   The **Edit Points** page appears.
2. Using the search boxes, set your point search criteria, and then click **Search**.
3. In the search results table, click the point that you want to edit, and then click **Delete**.
4. The **Point Property** page appears.
5. Confirm the message.

Define point attributes

Point attributes tell FactoryTalk Historian ME how and when the server should collect data from a particular data source. They contain the following information:

- The location of the data source.
- The frequency with which the server should get new values from the data source.
- The value that the server can ignore.
- The data that is valid.

In the Historian web client, the point attributes are presented in the following groups:

- General (page 80)
- Exception filtering (page 82)
- Compression filtering (page 83)
- Snapshot value (page 83)

General

The **General** group contains the following point attributes:

Use this attribute:	To:

Name	Name the point, following these rules:
	• The name must be unique.
	• The first character must be alphanumeric or the percent sign (%).
	• The name must not contain:
	  • Control characters (such as line feeds or tabs).
	  • The following characters: * ' ? ; : { } [ ] | \ / ( ) ` "

Descriptor	Type a basic description of the point. The description will be displayed in client applications and user reports.
Extended Description	Specify a relevant expression or a tag name. For details, see "Configure Trigger Input and Output points (page 85)". Use this attribute only with trigger input and output points.
Instrument Tag	Provide a full path to the controller and the tag from which the data is coming. If you replace the controller with a different one that measures the same process value, it is usually best to continue using the same point. Edit the point as required so that it will collect the new data. Use the following format of the path: `[<controllerprojectname>_1_<controllerslotnumber>][<controllertagname>]` When a source tag receives events from the controller, the tag that you set in this attribute reads (or writes back) events from the controller. **Notes:** • It is recommended that you do not change the tag name in the attribute, since it may make the tag invalid, and make it stop collecting data. • If the full path points to a controller in a remote chassis, and the tag from which data is coming is a high-speed or an output tag, the configuration will not be supported.
Source Tag	Type the trigger tag name. If you type a tag name, the source tag referenced must not be high-speed or have a scan rate of faster than 1 second. Otherwise, the module will generate an error and you will not be able to save the point. Use this attribute only with the Trigger Input or Output tags.
Type	Set the data type of the point values. When you change the point type, the archive subsystem closes the current archive record, and starts a new one with the new type information in the header. For points collected automatically, use the point type that most closely matches the point type in the source system. Choose from the following: • Int16 For points whose values are 16-bit integers. • Int32 For points whose values are 32-bit integers. • Float16 For points whose values are 16-bit floating point values. • Float32 For points whose values are 32-bit floating point values. • Float64 For points whose values are 64-bit floating point values. • String Used to store string data up to 1000 characters. **Note:** Strings are not supported for the high-speed data collection. • Digital For points whose values can only be one of several discrete states, such as ON/OFF. You can define digital set contents. • Timestamp For points whose values are timestamps.

Use this attribute:	To:
Digital Set	Select the type of the digital set for the point. Choose from the following: • SYSTEM • BatchAct • Phases • Modes • RABoolean Use the System Management Tools of FactoryTalk Historian SE to create additional digital sets. For more information, refer to the *PI Data Archive 2015 R2 Introduction to System Management Guide.pdf*. This attribute only appears if the point is of type **digital**.
Scan Type	Determine the scan type for the point. Choose from the following: • Polled • Advised • Trigger Input • Output • High-speed **Note:** For details, see "Configure scan types (page 84)".
Scan On	Identify active tags. The active tags are updated. If you want a point to be the active point, set this attribute to **On** and the point source to **FHTME**.
Typical Value	Type a reasonable value for a point. For a numeric tag, it must be greater than or equal to the value of the **Zero** attribute, and lower than or equal to the sum of the **Zero** and **Span** attribute values. The typical value range is between 0 and 100. The typical value range for the points of type **Digital** is between 0 and 1.
Point Source	Identify the interface to which the point belongs. When you configure an interface, you specify a point source for the interface. All the points that belong to the interface must use that point source code as the value for the **Point Source** attribute. The default point source is **FTME**. Other options include: • T, for the Totalizer utility subsystem in PI. • C, for the Performance Equation tags.
Scan Rate	Set the period of time in seconds, which tells FactoryTalk Historian ME how often to collect the data. For the Trigger Input and Output scan types, it is recommended that the scan rate be defined as two seconds or longer. For details, see "Use scan classes (page 94)".
Span Value	Set the difference between the top and the bottom of the range. This attribute is required for all numeric data type points. For **Float16** point types, the **Span** value is used with the **Zero** value for scaling values in the archive. The **Span** property must be a positive value. If the value for a **Float16** point type is greater than the top of the range, it is recorded in the archive as **Over Range**. For other point types, the **Zero** and **Span** values do not affect the values recorded in the archive. The **Span** property is also used when defining a FactoryTalk Historian ProcessBook trend with a vertical scale of database. This attribute is not used for non-numeric points.

Use this attribute:	To:
Zero Value	Type the lowest value possible. This attribute is required for all numeric data type points. It does not have to be the same as the instrument zero, but that is usually a logical choice. The zero value range is between 0 and 100.

Exception filtering

The exception reporting information determines when to send data to the snapshot subsystem.

The Exception Filtering group contains the following point attributes:

- Exception Min

  This value specifies the minimum time span between the exceptions.
  The default value is 0 seconds.

- Exception Max

  This value specifies the maximum time span between the exceptions.
  The default value is 10 minutes.

- Exception Deviation

  This value specifies how much a point value must change before a new value is reported.
  The default value is 0.25 engineering units.

The following are value ranges that you can use to specify parameter values:

- The range of Exception Min Day and Exception Max Day is between 0 and 100.
- The range of Exception Min Hr and Exception Max Hr is between 0 and 15.
- The range of Exception Min Min and Exception Max Min is between 0 and 59.
- The range of Exception Min Sec and Exception Max Sec is between 0 and 59.
- The Exception Deviation range is between 0 and 100.

Tip: For details on the exception filtering configuration, see "Exception filtering (page 103)".

Compression filtering

When a new snapshot arrives, the previous one is evaluated according to the compression information to check whether it is a significant event. If so, it is sent to the event queue. Otherwise it is discarded. The result is that only significant data is written to the archive. This process is called compression.

The **Compression filtering** group contains the following point attributes:

Use this attribute:	To:
Compression On	Activate the compression for the point. The compression should be activated for all real-time points in the system. If the compression is deactivated, all values sent to the snapshot subsystem are saved in the archive.
Compression Min	Set a value indicating that events are archived when the elapsed time since the previous event is greater than or equal to the minimum time, and the event value has changed by more than the deviation. Compression Minimum sets a minimum limit on the time between events in the archive. Typically, the minimal compression should equal 0.
Compression Max	Set a value indicating that events are archived when the elapsed time is greater than the maximum time. Compression Maximum sets a maximum limit on the time between events in the archive. The recommended maximum time specification is one work shift (such as, eight hours). Duplicate values will be archived if the elapsed time exceeds the Compression Max value. Under no circumstances does this cause the FactoryTalk Historian ME server to generate events; it only filters events that are externally generated.
Compression Deviation	Set a value for the compression deviation. If you set the value too low, too little compression is imposed on data and lot of space is wasted in the archive. If you set the value too high, you may lose important data. For most flows, pressures, and levels, use a deviation of 1% or 2% span. For temperatures, the deviation should usually be one or two degrees.

The following are value ranges that you can use to specify parameter values:

- The Compression Deviation range is between 0 and 100.
- The range of Compression Min Day and Compression Max Day is between 0 and 100.
- The range of Compression Min Hr and Compression Max Hr is between 0 and 23.
- The range of Compression Min Min and Compression Max Min is between 0 and 59.
- The range of Compression Min Sec and Compression Max Sec is between 0 and 59.

Snapshot value

The **Snapshot value** group contains the following point attributes:

Use this attribute:	To:
Value	View the current value of the tag, which is based on the tag type.
Timestamp	View the current time and date of the current tag value.

These attributes do not contain any data when you are creating a new point.

Configure scan types

The points are collected based on the scan type and scan rate. You must ensure that the scan types and scan rates are correctly configured for the data collection service.

When you add points using the **Add Points Wizard** page (see "Add points using the Add Points Wizard page (page 72)"), make sure to set the correct scan type in the rule file.

When you create individual points manually (see "Create points (page 77)"), make sure to set the correct scan type in the point attributes.

The following scan types are available:

Scan type	Description
Polled	Polled tags are scanned and the data event (with a value and a timestamp) is sent to the local FactoryTalk Historian ME server at the specified scan time interval. Usually, polled tags are intended for scan rates greater than 0.5 seconds.
Advised	Advised tags are scanned for new values at timed intervals that are defined by the scan class. However, a new event happens (becomes available) only if the value has changed from the previous event. Usually, advised tags are intended for scan rates greater than 0.5 seconds. A point will not be put on scan if it is configured at a rate faster than 0.5 seconds. If you need data collection rates faster than 0.5 seconds, use high-speed tags.
Trigger Input	Triggered input tags are used to collect a data point after a particular triggering event has occurred. Use this scan type for trigger input tags. For details, see "Configuration example: Trigger Input points (page 87)".
Output	Triggered output tags are used to output (write-back) a data point to a controller after a particular triggering event has occurred. Output scan types are not supported for tags created from shortcuts pointing to remote controllers. For details, see Configuration example: Output points (page 89)".
High-speed	High-speed tags are scanned and the data event (with a value and a timestamp) is logged at the specified scan time interval. Usually, high-speed tags are intended for fast data collection speeds with scan rates of 10 ms. A point will not be put on scan if it is configured at a rate slower than 0.5 seconds. The module will not allow high-speed tags to be created with a scan rate slower than 500ms, or advised or polled tags to be created with a scan rate faster than 500ms.

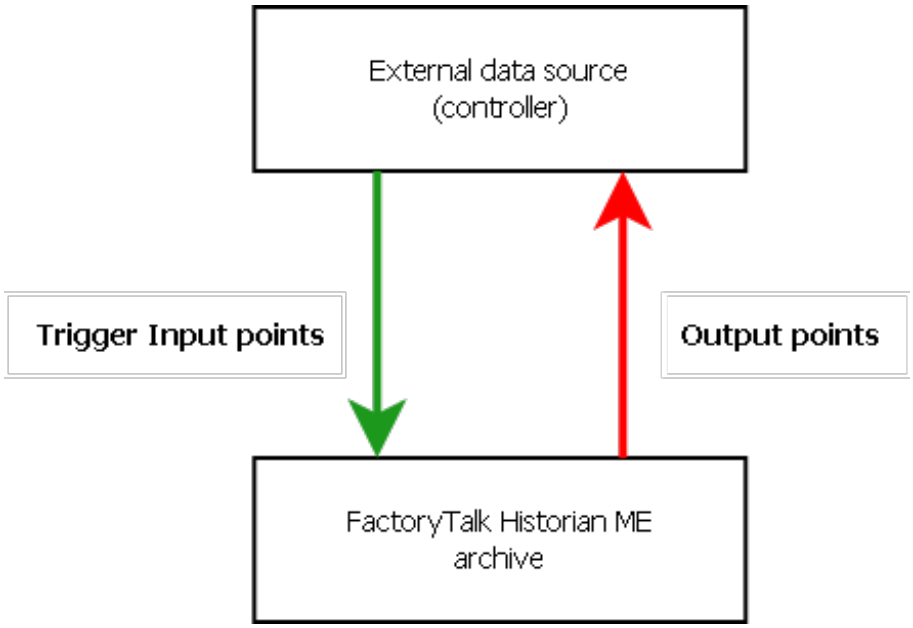
Configure Trigger Input and Output points

Trigger Input points (tags) are points for which data flows from a controller to the FactoryTalk Historian ME archive. For Trigger Input points, you need to configure separate trigger points.

Output points (tags) are points for which data flows from the FactoryTalk Historian ME archive to a controller. For Output points, the timestamp of the trigger value must be greater than the timestamp of the previous value.

IMPORTANT Since the output tag values reach the controller with variable latency, they cannot be used for applications requiring real-time update. The output tags are meant for monitoring purposes only.

The following diagram illustrates the data flow of the trigger mechanism for Trigger Input and Output points:



When you configure the Trigger Input or Output points, pay attention to the following:

- The scan rate is not applicable to the Trigger Input point.
- Set the **Scan On** attribute to **On**.
- Put trigger names in single quotes.

Configure Trigger Input points

You can associate an Input point with a trigger point by defining the **Extended Description** attribute of the Input point using the following expression:

```
<keyword>='<trigger_tag_name>';<condition>
```

Where:

This variable:	Is:
<keyword>	Either of the following: • TRIG • EVENT **Note:** The keywords must be written in uppercase.
<trigger_tag_name>	The name of the trigger point.
<condition>	Any of the following: • Any • Anychange • Nonzero • Decrement • Increment **Note:** The condition names are case-sensitive.

Any scan tag that is referenced in the **Extended Description** or **Scan Tag** point attributes must not be high-speed or have a scan rate higher than 1 second. Otherwise, the module will generate an error and you will not be able to save your point.

If you provide an expression in the **Extended Description** point attribute, the point for which you have defined it is considered by the system to be trigger-based rather than scan-based. As a result, an input is triggered when a new value is sent to the snapshot of the trigger point.

The TRIG keyword in the expression does not require any condition. Its default condition is **Any** and you cannot change it.

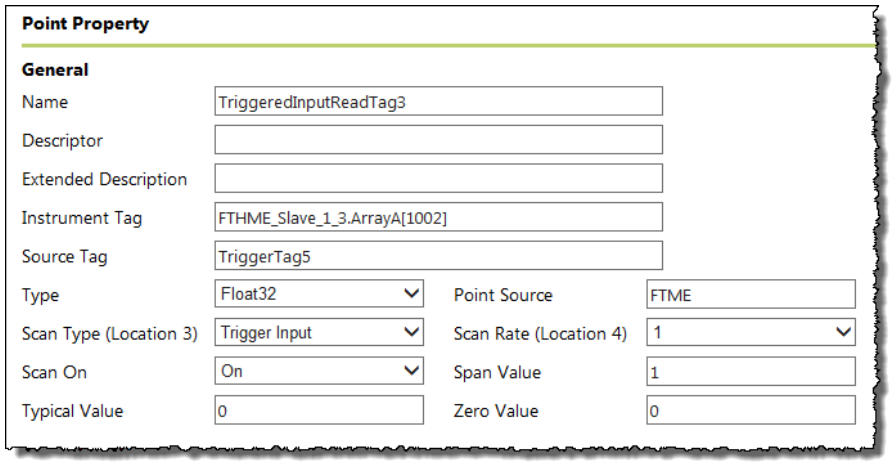
The EVENT keyword requires a trigger condition to function properly. If you use multiple trigger definitions, you can separate them with a space, a comma, or a semicolon.

The following table lists the two keywords and their possible values.

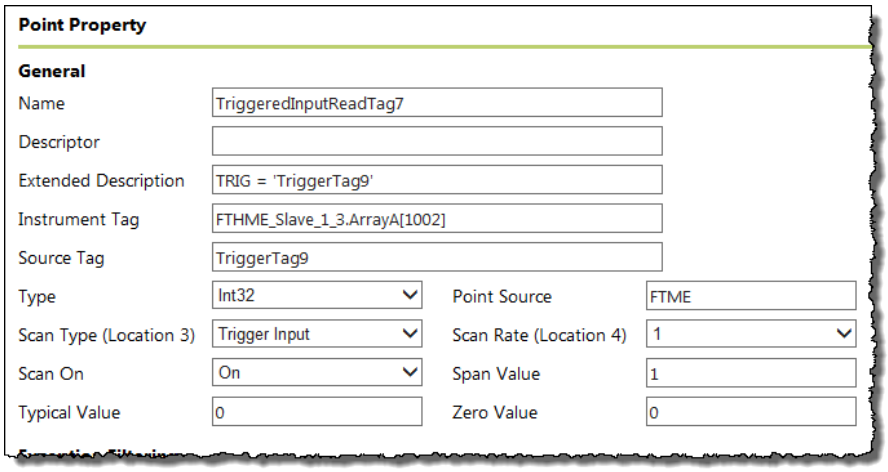
Keyword	Trigger condition	This condition triggers an event on:	Example
TRIG	Any	-	-
EVENT	Any	-	-
	Nonzero	Any non-zero value.	An event is triggered on a value change from "Pt Created" to 1 but it is not triggered on a value change from 1 to "bad Input".
	Anychange	Any change as long as the value of the current event is different from the value of the previous event.	An event is triggered on a value change from 0 to "bad Input" or from "bad Input" to 0.
	Increment	Any increase in the value.	An event is triggered on a value change from 0 to 1.
	Decrement	Any decrease in the value.	An event is triggered on a value change from 1 to 0.

Configuration example: Trigger Input points

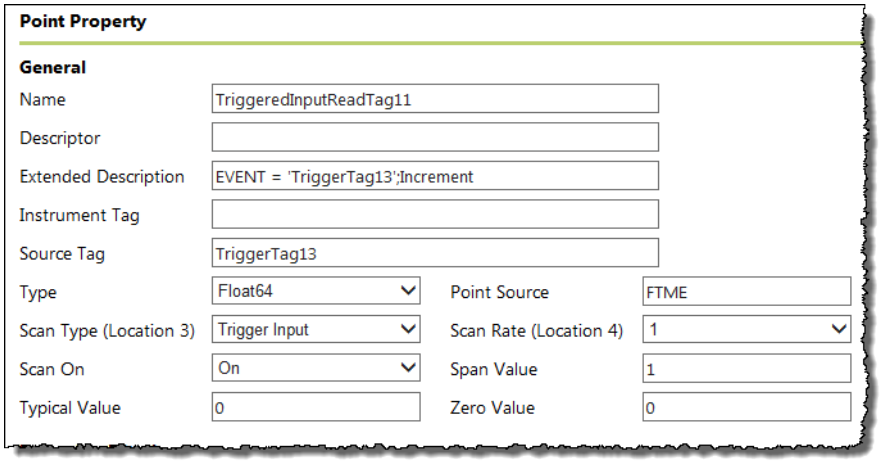
Trigger Input point



Trigger Input point with the TRIG keyword



Trigger Input point with the EVENT keyword and the Increment condition



Configure Output points

IMPORTANT Since the output tag values reach the controller with variable latency, they cannot be used for applications requiring real-time update. The output tags are meant for monitoring purposes only.

You can trigger Output points in the following ways:

- By configuring a separate trigger point.

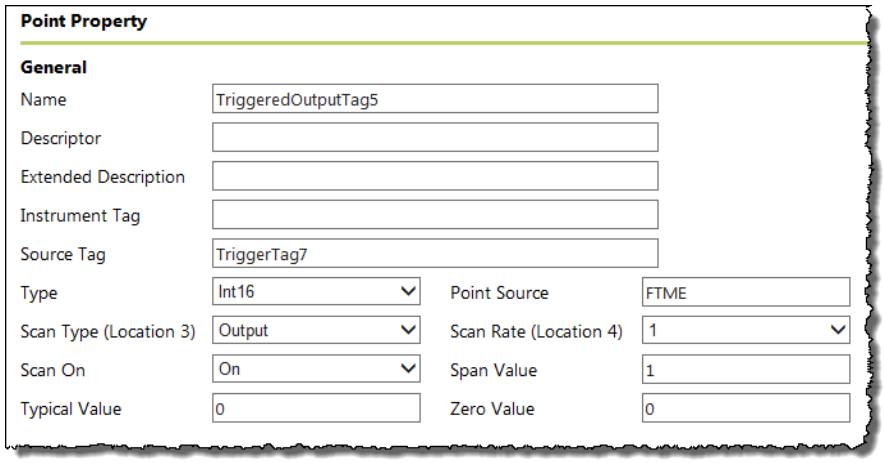
  The Output point must have the same point source as the interface, **FTME**. The trigger point can be associated with any point source. The point type of the trigger point and the point type of the Output point may differ.
  You can associate an Output point with a trigger point by setting the **Source Tag** attribute of the Output point to be the same as the tag name of the trigger point.
  Any scan tag that is referenced in the **Extended Description** or **Scan Tag** attributes must not be high-speed or have a scan rate higher than 1 second. Otherwise, the module will generate an error and you will not be able to save your point.
  An output is triggered when a new value is sent to the snapshot of the trigger point. The new value does not need to be different than the previous one that was sent to the snapshot to trigger an output, but the timestamp of the new value needs to be more recent than the previous value.

- By writing a new value to the snapshot of the output point itself.

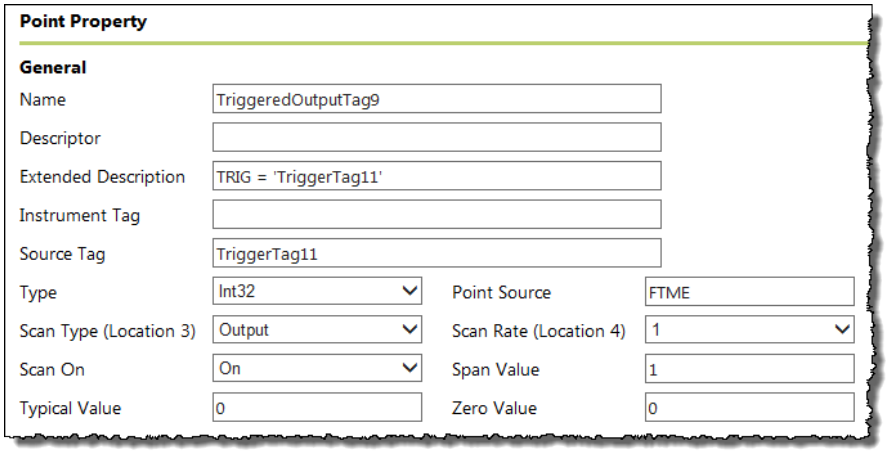
  The new value does not need to be different from the previous one to trigger an output, but the timestamp of the new value must be more recent than the previous value.

Configuration example: Output points

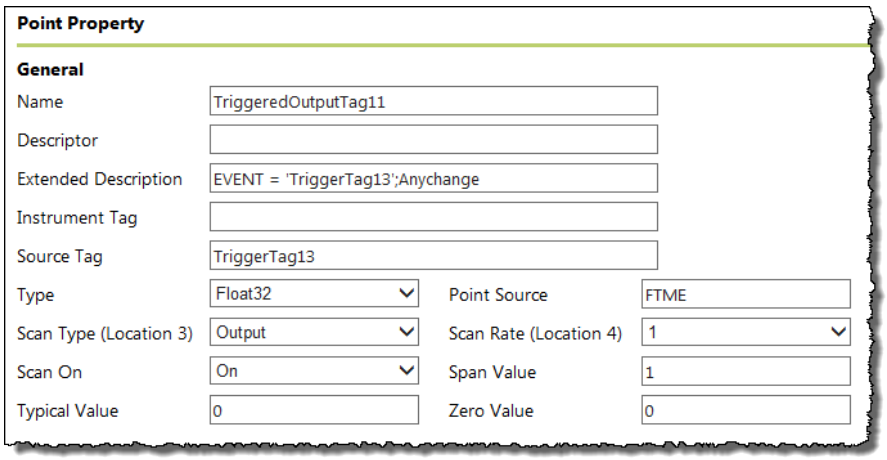
Output point



Triggered Output point with the TRIG keyword



Triggered Output point with the EVENT keyword and the Anychange condition



Manage shortcuts

Shortcuts are user-defined names for connections with controllers located in a local or remote chassis. A shortcut additionally contains the CIP path to a controller in a chassis.

You can use shortcuts to:

- Assign meaningful names to controller connections.
- Search for data points in the Add Points Wizard and on the **Add Individual Points** page.

In FactoryTalk Historian ME, you can perform the following actions on shortcuts:

- Create shortcuts to the local chassis (page 90)
- Create shortcuts to a remote controller (page 91)
- Edit shortcuts (page 92)
- Delete shortcuts (page 93)

Tip: All actions performed on shortcuts are logged. You can view the logged information under **Advanced** > **System Log**.

Create shortcuts to the local chassis

When creating local shortcuts, take into consideration the following points:

- You can create up to 5 shortcuts to the local chassis.
- The shortcut paths must be unique. This means that each shortcut must point to a different controller or have a different CIP path.
- If you create a shortcut to a controller which is used for time synchronization, the time will no longer be synchronized with this controller after you save your changes.

  This is because adding a shortcut to a controller changes the name structure of the tags from the controller, which means previously defined tags will be disabled. For details, see "Tag naming conventions (page 94)".
- If you create a shortcut to a controller which is used for collecting data, the data will no longer be collected from this controller after you save your changes.

  This is because adding a shortcut to a controller changes the name structure of the tags from the controller, which means previously defined tags will be disabled. For details, see "Tag naming conventions (page 94)".
- Creating shortcuts to local controllers is optional.

To create a shortcut to the local chassis:

1. Click **Manage Points**, and then click **Manage Shortcuts**.
2. Click **Add**.
3. Select the controller to which you want to create a shortcut.

   Alternatively, select the **Add the shortcut using a CIP path instead** option, and type the CIP path to the controller.
4. Type the name of the shortcut.

   When typing the name, take into consideration the following points:

   - The name can contain only the characters a-z, A-Z, 0-9 and an underscore.

     Tip: To learn about the convention of naming tags added to the Historian module using the shortcuts, see "Tag naming conventions (page 94)".
   - The maximum length of the name is 40 characters.

     Tip: To minimize the complexity of tag names, we recommend that you keep the shortcut names short.
   - The name must start with a letter or an underscore.
   - The name cannot contain two underscores side by side, or an underscore with a number at the end of the name (e.g., shortcut_12).
   - The shortcut name must be unique.
5. Click **Save**.

   The shortcut is added to the shortcut table.

   Tip: If any error occurs when creating the shortcut, it is indicated with a message displayed at the top of the page.

Create shortcuts to a remote controller

When creating shortcuts to remote controllers, take into consideration the following points:

- The remote controller should be located in a local area network (LAN) rather than a wide area network (WAN) or a low-speed network.
- You can create up to 5 shortcuts to remote controllers.
- The shortcut paths must be unique. This means that each shortcut must point to a different controller or have a different CIP path.

To create a shortcut to a remote controller:

1. Click **Manage Points**, and then click **Manage Shortcuts**.
2. Click **Add**.
3. Under **Add New Shortcut**, click **Remote controller**.
4. Select a local communication module.
5. Type the IP address of a remote communication module, and then click **Load Controllers**.

   Controllers will not be loaded if:

   - The IP address is incorrect.

- There are no supported controllers detected in the remote chassis.

  Tip: For a list of supported controllers, refer to the FactoryTalk Historian ME Release Notes.

6. Select the remote controller to which you want to create the shortcut.

   Alternatively, select the **Add the shortcut using a CIP path instead** option, and type the CIP path to the controller.

7. Type the name of the shortcut.

   When typing the name, take into consideration the following points:

   - The name can contain only the characters a-z, A-Z, 0-9 and an underscore.

     Tip: To learn about the convention of naming tags added to the Historian module using the shortcuts, see "Tag naming conventions (page 94)".

   - The maximum length of the name is 40 characters.

     Tip: To minimize the complexity of tag names, we recommend that you keep the shortcut names short.

   - The name must start with a letter or an underscore.
   - The name cannot contain two underscores side by side, or an underscore with a number at the end of the name (e.g., shortcut_12).
   - The shortcut name must be unique.

8. Click **Save**.

   The shortcut is added to the shortcut table.

   Tip: If any error occurs when creating the shortcut, it is indicated with a message displayed at the top of the page.

Edit shortcuts

To edit a shortcut:

1. Click **Manage Points**, and then click **Manage Shortcuts**.
2. In the table, click the shortcut that you want to edit, and then click **Edit**.
3. Under **Edit Shortcut**, make your changes to the shortcut.

   Tips:

   - You can make all the changes to the shortcut except for changing its name.
   - If any change to the shortcut might result in a change in the functionality of time synchronization or data collection, you will be prompted for confirmation.

4. Click **Save**.

When editing shortcuts, take into consideration the following points:

- If you select a new controller from the list and that controller is already used for time synchronization, the time will no longer be synchronized with this controller after you save your changes to the shortcut.

  This is because adding a shortcut to a controller changes the name structure of the tags from the controller, which means previously

defined tags will be disabled. For details, see "Tag naming conventions (page 94)".

- If you select a new controller from the list and that controller is used for collecting data, the data will no longer be collected from this controller after you save your changes to the shortcut.

  This is because adding a shortcut to a controller changes the name structure of the tags from the controller, which means previously defined tags will be disabled. For details, see "Tag naming conventions (page 94)".
- If you change the type of a local shortcut used for time synchronization to remote, the time will no longer be synchronized after you save your changes.
- If you edit a shortcut used for time synchronization and change the controller to a different one, the time synchronization may be broken. To correct the time synchronization, you may have to restart the module.

Delete shortcuts

To delete a shortcut:

1. Click **Manage Points**, and then click **Manage Shortcuts**.
2. In the table, click the shortcut that you want to delete, and then click **Delete**.

   If you want to delete the shortcut, click **OK**.
   Otherwise, click **Cancel**.

   Tip: If deleting the shortcut might result in a change in the functionality of time synchronization or data collection, you will be prompted for confirmation.

When deleting shortcuts, take into consideration the following points:

- If you delete a shortcut used for time synchronization, the time will no longer be synchronized after you save your changes.
- If you delete a shortcut used for collecting data, the data will no longer be collected from this shortcut after you save your changes. However, the data will be collected from the controller used in this shortcut if data points were defined for the controller before the shortcut was created.

Tag naming conventions

Tag names are created following certain conventions that depend on whether a tag has been added to the Historian module from a controller for which there exists or does not exist a controller shortcut:

- The names of the tags from controllers for which no shortcuts exist on the Historian module have the following structure:
  `<Controller name>_1_<Slot number>.<Tag name>`
  Example: Standard2500_1_2.booltag1
- The names of the tags from controllers for which shortcuts exist on the Historian module have the following structure:
  `<Controller shortcut name>.<Tag name>`
  Example: ShortcutToStandard2500.booltag1

Use scan classes

FactoryTalk Historian ME uses scan classes to schedule the data collection. A scan class provides a period of time in seconds, which tells FactoryTalk Historian ME how often to collect the data.

You must have administrator privileges to create, edit, or delete scan classes.

Create scan classes

Tip: You must have administrator privileges to create scan classes.

To create a scan class:

1. Click **Manage Points**, and then click **Edit Scan Class(es)**.
2. At the bottom of the page, click **New**.

   The new consecutive name of the scan class appears in the **Scan Point** box.
3. At the top of the page, in the **Time** text box, type a time value in seconds.
4. Click **Save**.
5. Click **OK** to close the dialog box, and then click **Restart**.

Edit scan classes

Tip: You must have administrator privileges to edit scan classes.

To edit a scan class:

1. Click **Manage Points**, and then click **Edit Scan Class(es)**.
2. In the table, select the scan class that you want to edit.
3. At the bottom of the page, click **Edit**.
4. At the top of the page, in the **Time** text box, change the scan rate value.
5. Click **Save**.
6. Click **OK** to close the dialog box, and then click **Restart**.

Delete scan classes

Tip: You must have administrator privileges to delete scan classes.

To delete a scan class:

1. Click **Manage Points**, and then click **Edit Scan Class(es)**.
2. In the table, select the scan class that you want to edit.
3. At the bottom of the page, click **Delete**.
4. Click **OK** to close the dialog box, and then click **Restart**.

Collect and store data

In this section you will learn about the following:

Collect data

The FactoryTalk Historian ME server collects data from the Logix controller through the chassis backplane. The data collection service then optionally performs a series of deadband tests on the data (exception and compression tests) and stores the data in the FactoryTalk Historian ME archive.

When started, the data collection service performs the following actions:

- Identifies all points listed as active, based on the value of the **Scan** property in the points definition.
- Identifies (or registers) all controllers in the same Logix chassis by logical names, device IDs, and location (slot numbers).

  FactoryTalk Historian ME supports up to 10 controllers. There is a maximum of 5 controllers in the local chassis and a maximum of 5 controllers in the remote chassis.
- Begins collecting data for all points based on the specified scan rate associated with each point.

Access the data collection information

To access the information on the data collection:

1. Click the **Configure Historian** tab.

   The **Data Collection** page appears.

The page provides the following information:

This item:	Displays:
Status	The current status of the data collection: • Stopped The data is not being collected or archived. • Running The data is being collected and archived.
Collection Rate	The number of events per second that the data collection receives for configured ports.
Archive Rate	The number of events per second that pass exception and compression tests and are committed to the archive.
Archive Capacity	The number of days, hours, and minutes until all available archive files are full. This number is an estimate. When all archive files are full, data interruption may occur. **Note:** For details on long-term storage on a FactoryTalk Historian SE or PI server, see "Transfer data to FactoryTalk Historian SE or PI servers (page 109)".
Total Archive Files	The total number of archive files residing in the archive. The size of each archive file is 10 MB. Approximately 130 archive files are preallocated as data containers.
Total Archive Files Used	The number of archive files currently being used to store data in the archive subsystem.
Total Archive Files Free	The number of archive files in the archive subsystem that neither store data nor contain data to be overwritten once it is transferred by the data transfer service. If the data transfer service is configured and it is transferring events to the FactoryTalk Historian SE or PI server, the module frees the archive disk space once the events are successfully transferred. It results in increasing the number of total archive files free and reducing the number of total archive files used.

Start and stop the data collection

Tip: You must have administrator privileges to start and stop the data collection.

To start the data collection:

1. Click the **Configure Historian** tab.

   The **Data Collection** page appears.
2. Click **Start**.

To stop the data collection:

1. Click the **Configure Historian** tab.

   The **Data Collection** page appears.

2. Click **Stop**.

   Make sure that that data collection is fully stopped before you start it again.

Tip: You can also start and stop the data collection using:

- Controller programming languages (the Ladder logic).
- FactoryTalk Historian ME Logix Designer Module Profile.

For details, see "Configure the module properties (page 169)".

View the data storage information

Tip: You must have administrator privileges to modify the data storage information.

The data storage service in FactoryTalk Historian ME monitors the NAND flash-based storage used in the module.

To view the data storage information:

1. Click the **Configure Historian** tab, and then click **Data Storage**.

   The **Data Storage** page appears.

2. Review the following for additional information.

Use this section:	To:
Archive Statistics	View the information on the current usage of the disk space allocated to the archive.
Archive Information	View the following information on the archive: • Total Archive Files The number of archive files. • Transferred Archives The number of archive files transferred to a Historian SE or PI server. • Available Archives The number of archive files that do not have any data stored in them. These files are available before they are overwritten. • Archive File Size The size of a single archive file. It is fixed and it equals 10 MB. The FactoryTalk Historian ME module has 130 preallocated archive files.
Event Queue	View the number of temporary files in a transient state. The module processes the files as soon as it archives events in the files. Usually, the event queue count should be less than 3. **Note:** When the count gets bigger, it may cause the archive disk to reach its threshold. In such case, the data collection will be automatically stopped and data interruption will occur. You may set a warning level for the archive disk usage in the **Archive Disk Threshold Configuration** box to prevent this situation.
Log Threshold Configuration	Set a threshold for the log files disk usage. The default setting is 95%. When the log storage reaches its threshold, FactoryTalk Historian ME deletes older log files and logs the following message on the **System Log** page: `<Log file name and path> has been removed because the /mnt/log partition is full.`

Use this section:	To:

Archive Disk Threshold Configuration	Set a threshold for the archive disk usage. The default setting is 95%.
	When the archive disk reaches its threshold, FactoryTalk Historian ME performs the following actions:
	• Stops the data collection and logs the following message on the **System Log** page:
	`Stopping Data Collection because one or more partitions are full.`
	Stopping the data collection allows the module to process events from transient event files to archive storage and make more storage space available.
	• Deletes a message log file located under **/mnt/appdata/dat**, and logs the following message on the **System Log** page:
	`<File name and path> has been removed because the /mnt/appdata partition is full.`

Active Usage Threshold Configuration	Set a warning and critical thresholds for the data disk usage, with the following default settings: • 50% for the warning. • 75% for the critical level. For the critical level setting, choose either of the following options: • Select the **Stop Data Collection** check box, if you want the data collection to be automatically stopped when the critical level is reached. With this setting, you may lose data, because it is no longer being collected. • Clear the **Stop Data Collection** check box, if you do not want the data collection to be automatically stopped when the critical level is reached. With this setting, you may risk data interruption, because the data collection service will start overwriting the oldest data, once all archive files are filled. This is the default setting.

FactoryTalk Historian ME storage capacity

The FactoryTalk Historian ME module has 2GB of total storage. It has an effective archive storage capacity of 1.5GB.

There are the following archive file size limits:

- File size: 10 MB
- Number of files: 130
- Disk space for archives: 1.3 GB

The on-board data storage for FactoryTalk Historian ME is limited. When you use a data collection rate of 2500 events per second (i.e., the maximum collection rate available) without the compression or exception filtering, the on-board storage capacity is approximately 14 hours. Therefore, it is highly recommended that you include the FactoryTalk Historian SE or PI server for data aggregation when long-term storage is required. By applying the compression and exception filtering, you can significantly increase the archive space from approximately two to ten times, depending on variables (e.g., how much the data varies between scans). To estimate the archive performance with and without the compression and exception filtering, you can use a typical factor of 5. For more information on the compression and exception filtering, see "Filter data (page 101)".

Use the table below to estimate the performance impact. Note that the data storage information in this table is an estimate. The actual compressed data storage ranges will vary depending on the volatility of the data collected.

Sample Application	Estimate
2500 events per second without Compression or Exception Filtering	14 hours
2500 events per second with Compression and Exception Filtering	3 days
500 events per second with Compression and Exception Filtering	2 weeks
100 events per second with Compression and Exception Filtering	3 months
2500 events per minute without Compression or Exception Filtering	1 month
2500 events per minute with Compression and Exception Filtering	6 months
500 events per minute with Compression and Exception Filtering	2.5 years
100 events per minute with Compression and Exception Filtering	10+ years

To calculate the total events per second, the tags divided by the scan rate have to be summed up per scan class for the module:

$$\sum_{All\ Scan\ Rates} Number\ of\ points\ on\ scan\ rate * \frac{1}{Scan\ rate}$$

For example, if the data collection configuration is based on two scan classes (one with 200 tags at a 250ms scan rate, and one with 600 tags at a 2s scan rate), the total events per second is 1100.

```
200/250ms + 600/2sec <-> 200/.25sec + 600/2sec <-> 800 +
300 events/sec = 1100 events/sec
```

Filter data

FactoryTalk Historian ME provides two functionalities that let you decide which data collected by controllers you want to display in the module and then archive:

- **Exception filtering**

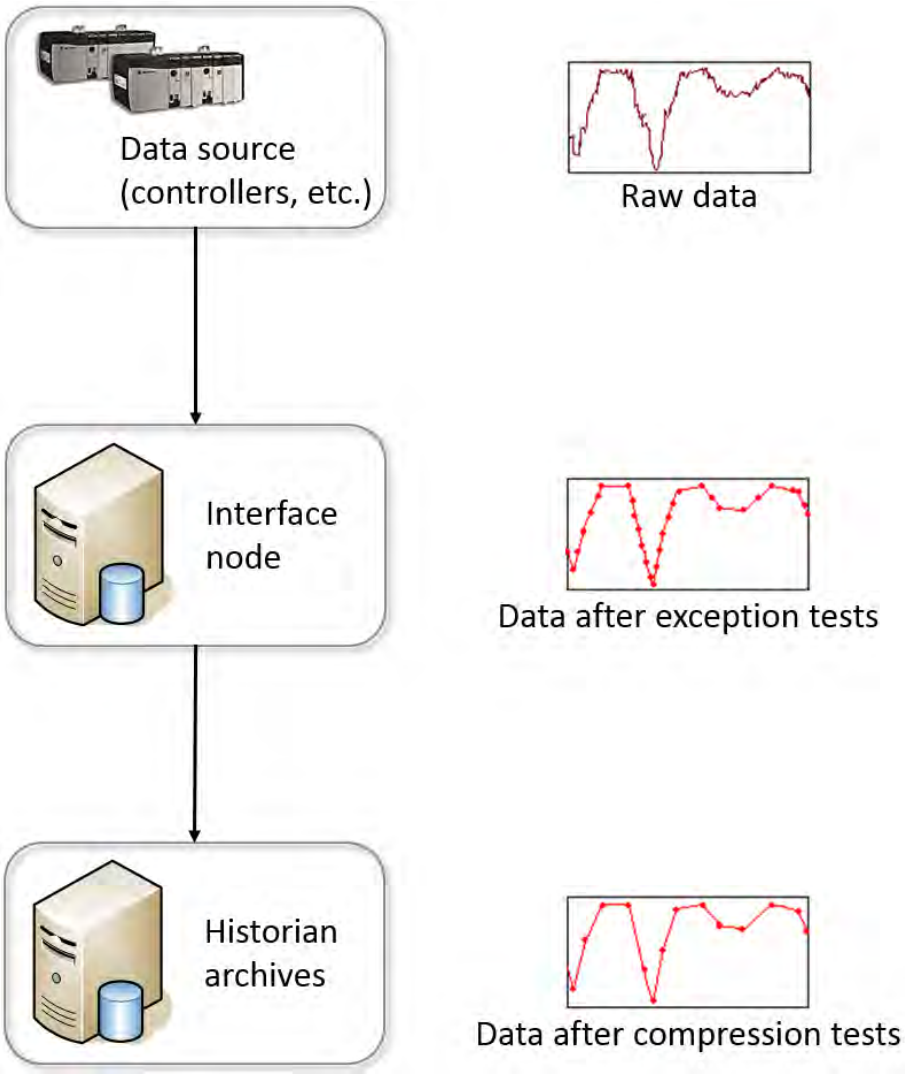
  The exception tests determine which events are sent to the Historian ME module from the data source.
  The exception filtering contributes to relieving your network traffic by sending only the important data to the module.
  See "Exception filtering (page 103)".

- **Compression filtering**

  The compression tests determine which of the events sent to the Historian ME module are archived on the Historian server.
  The compression filtering helps you find a balance between the archive size and the data complexity.
  See "Compression filtering (page 105)".

Through the exception and compression filtering, the amount of data points stored in order to represent actual data trends are significantly reduced.

The two processes are illustrated in the following diagram:



The process starts with collecting all data from the data source for all the points that you have defined in your Historian ME, based on their scan class definitions.

On the Interface node, the collected data undergoes the exception tests. The tests result in sending significant data to the Historian server, and discarding all other data.

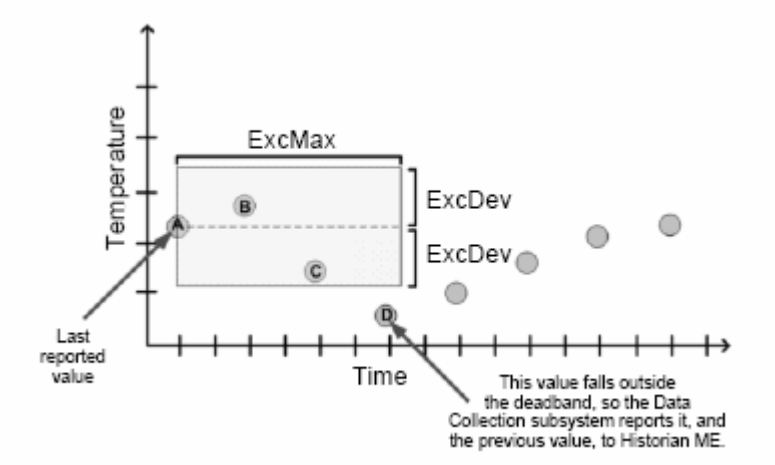
On the Historian server, the significant data undergoes compression tests. The tests result in archiving the significant data that match the compression specifications, and discarding all other data.

The following point types are excluded from both the exception and compression tests:

- Digital
- String

Exception filtering

Exception filtering uses a deadband algorithm to determine whether to collect data and store it in the FactoryTalk Historian ME archive. For each point, you can set exception reporting specifications that create the deadband. The data collection service throws out values that fall inside the deadband and does not pass it to the archive.



In the figure above, values A, D, and C are reported to the FactoryTalk Historian ME server. Value A is the last reported value, and values B and C fall within the exception deadband. However, value D falls outside the deadband, so the data collection service reports value D as well as the previous value (in this case, value C).

The data collection service uses the following point attributes to choose the values that will be reported to the Historian ME server:

- **Exception Deviation (ExcDev)**

  It determines in engineering units how much a point value needs to change before the data collection service sends it to the Historian ME server.
  The exception deviation should be less than the compression deviation by at least a factor of 2.
  For example, a 12 bit A/D converter can never be more precise than 1 part in 4096.
  This attribute is used with the ExcDevPercent value.
  You can set either the ExcDev or the ExcDevPercent attribute. If you change one, the other is automatically adjusted. If you change both at once, the value of the ExcDevPercent attribute takes precedence.

- **Exception Max (ExcMax)**

  It sets a limit on how long the data collection service can go without reporting a value to the Historian ME server.
  Once the value of the attribute exceeded, the data collection service sends the next new value to the Historian ME server, regardless of whether the value is different from the last reported value.

The time between exception reports might be greater than the exception maximum time if no new values are received by the data collection service for a point.

- **Exception Min (ExcMin)**

  It sets a limit in seconds on how frequently the data collection service reports values.
  For example, if you want the data collection service to wait full ten minutes before reporting a new value to the Historian ME server, set the ExcMin attribute to ten minutes.
  A new data value that is received before the end of the ExcMin interval is discarded.

The exception algorithm relies on the following parameters:

This parameter:	Defines:
Exception Maximum	The maximum time span between exceptions, expressed in seconds. This value is configured for each point in the ExcMax attribute.
Exception Minimum	The minimum time span between exceptions, expressed in seconds. This value is configured for each point in the ExcMin attribute.
ExcDev (Exception Deviation)	The deadband which causes an exception when it is exceeded. This value is configured for each point in either the ExcDev or ExcDevPercent attribute.
OldEvent	The value/status/timestamp of the last event sent to the snapshot subsystem. This is the last event that passed the exception report.
PrevEvent	The value/status/timestamp of the last event used for the comparison of the event value so as to determine whether the new value should be sent to the snapshot subsystem.
NewEvent	The value/status/timestamp of the event that is to be tested for the exception.

In the exception reporting the new event (NewEvent) is sent to the snapshot subsystem, provided that:

- The time between the timestamps of the new and old event is greater than or equal to the ExcMax value.
- For digital points, the new value differs from the old value. The ExcMin value is disregarded.
- For numeric points, the status changes from good to bad, or bad to good.
- For numeric points, the following conditions are met:
  - The time between the old event and the new event is greater than or equal to the ExcMin value.
  - The absolute value of the difference between the new value and the old value is greater than the ExcDev value.

The new event sent to the snapshot subsystem replaced the old event.

The previous event (PrevEvent) is sent to the snapshot subsystem, provided that:

- The PrevEvent value does not equal the original OldEvent value.

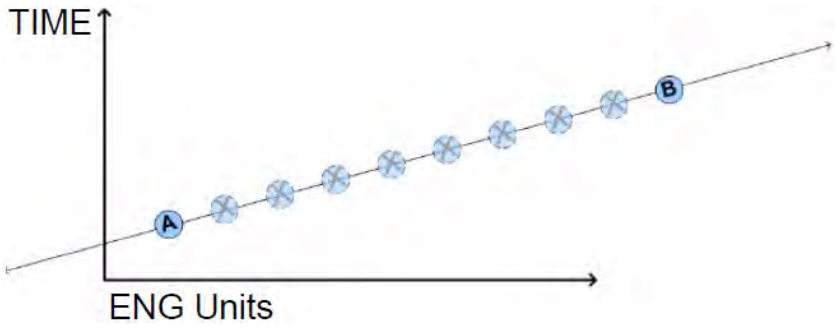
The only time the previous event is not sent to the snapshot subsystem is when two consecutive exception reports send there the new event. The PrevEvent value is used to accurately indicate what really happened to the value. Without it, a step change would look like a ramp change. Basically, if a measurement holds steady for hours, then makes a step change, just sending the new value to the snapshot subsystem, results in interpolating between the old value and the new value. By also sending the PrevEvent value, the step change is stored.

Compression filtering

The compression filtering, called the **swinging door compression**, is used by the snapshot subsystem to determine which events should be archived. The idea behind the compression filtering is to store just enough data to accurately reproduce the original signal.

The compression method used by FactoryTalk Historian ME allows it to keep more data online than conventional scanned systems. The data is also much more detailed than in an archiving system based on averages or periodic samples.

The following figure shows events that fall on the same straight line. In this case, in order to recreate any point along the line, it is enough to archive just two values - the first and the last one (A and B). The other point values can be interpolated from the values that have been stored.



In practice, the subsequent changes in the point values form curves rather than straight lines, so the compression specifications for each point must be properly configured to achieve a balance between the storage efficiency and accuracy.

FactoryTalk Historian ME uses a compression algorithm to determine which events should be archived in order to provide an accurate data history. The compression attributes allow you to control the granularity of the compression algorithm.

During the compression process, when a new snapshot arrives, the previous one is evaluated according to the compression specifications to verify whether it is a significant event. If it is, the event is sent to the event queue. Otherwise, it is discarded.

An event is sent to the event queue disregarding the compression process, provided that:

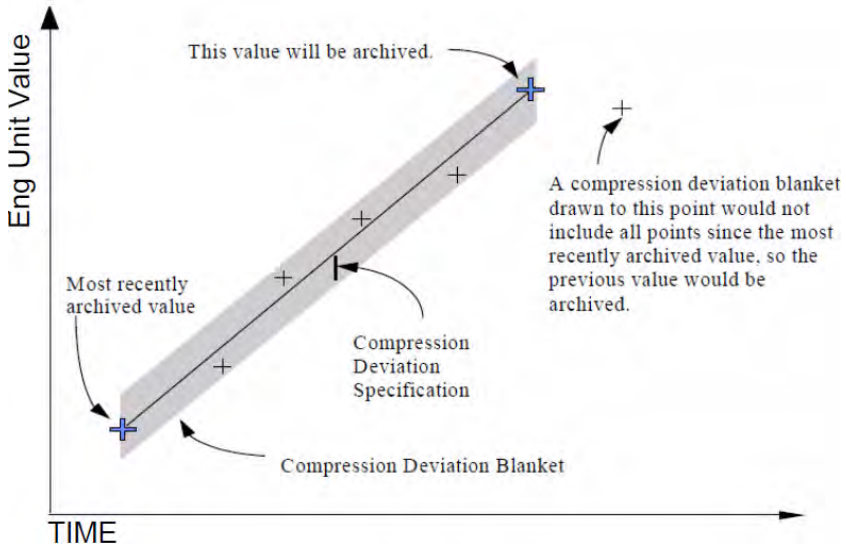
- The **Compression On** attribute of the point is set to **Off**.
- The timestamp is older than the timestamp of the current snapshot. An event with such as timestamp is considered out of order.
- The status of the point has changed.

The swinging door compression discards values that fall on a line connecting the values that are recorded in the archive. When a new value is received by the snapshot subsystem, the previous value is recorded only if any of the values since the last recorded value do not fall within the compression deviation blanket. The deviation blanket is a parallelogram extending between the last recorded value and the new value with the width equal to twice the compression deviation specification.

Each point has three attributes that comprise the compression specifications:

- **Compression Deviation (CompDev)**

  The CompDev attribute is the half-width of the deviation blanket. It is provided in engineering units.
  The CompDevPercent attribute is similar to the CompDev attribute, but it specifies the compression deviation in percent of the span.
- **Compression Minimum time (CompMin)**
- **Compression Maximum time (CompMax)**



The compression specifications work similarly to the exception specifications. Just like the exception reporting, the compression is a filter. While the exception specifications determine which events are sent to FactoryTalk Historian ME, the compression specifications determine which of the events sent to FactoryTalk Historian ME should go ne archived.

The **Compression Min** and **Compression Max** attributes are limits that refer to the time between events in the archive. A new event is always recorded if

the time since the last recorded event is greater than or equal to the compression maximum time.

You can adjust the compression parameters to maintain significant data and keep a reasonable archive space at the same time. The compression maximum time is usually set to one value for all points in the system. It should be large enough that a point that does not change at all uses very little archive space. The compression maximum time of one work shift (for example, 8 hours) is often a good choice.

Use the **Compression Min** attribute with points that produce frequent value changes so as to ensure that they do not occupy too much archive space. Set the attribute value to 0 for any point coming from the data collection that does the exception reporting. For a data acquisition system with slow scan time, this attribute is not important. There are few cases where you want to use non-zero compression minimum time.

For the **Compression Deviation** attribute a reasonable starting point is one or two percent of span for transmitters and 0.5 to 1.0 degrees for thermocouples. Look at trend displays to find points for which the reproduction of the data is not acceptable. The goal is to filter out instrument and process noise and still record significant process changes. The effect of changing the compression deviation is not predictable.

For digital points, any change is a significant change. That is why only the values of the compression maximum and minimum attributes are taken into account, while the compression deviation value is disregarded.

Transfer data to FactoryTalk Historian SE or PI servers

Use the data transfer to transfer the data collected by your FactoryTalk Historian ME to a FactoryTalk Historian SE or PI server. You can transfer data to a single FactoryTalk Historian SE or PI server. Server collectives are not supported.

Once you have started the data transfer and selected the data points to be transferred to your FactoryTalk Historian SE or PI server, you can check the transferred points in the System Management Tools.

To visualize the data transfer, you can create a trend in Microsoft Excel using the FactoryTalk Historian DataLink Add-in. For details, see "Create trends visualizing the data transfer (page 179)".

Data transfer prerequisites

You can use the data transfer functionality to copy the FactoryTalk Historian ME data to a single FactoryTalk Historian SE or PI server.

Tip: To transfer FactoryTalk Historian ME data to a FactoryTalk Historian Server Collective, use the FTH H2H Interface. To transfer FactoryTalk Historian ME data to an OSI PI Collective, use a PItoPI Interface from OSI Soft.

Before transferring data, you must ensure that:

- You have administrator privileges and other necessary security settings configured to enable the data transfer service in FactoryTalk Historian ME.

  For details, see "Manage security (page 141)".

- Your system has time synchronization set up and configured for FactoryTalk Historian ME, controllers, the FactoryTalk Historian SE or PI server and clients.

  For details, see "Manage time (page 121)".

- The licenses for FTMS point sources are installed and configured on FactoryTalk Historian SE, and there are enough licensed points available for the data transfer.

  For details, see the FactoryTalk Activation Manager and the FactoryTalk Historian SE user documentation.
  For details on enabling the data transfer to FactoryTalk Historian SE 2.1 or 2.2, see "(Optional) Install FactoryTalk Historian SE patch (page 31)".

- Trust connections between FactoryTalk Historian ME and the FactoryTalk Historian SE or PI server are set up and configured properly before you begin transferring data.

  For details, see "Create trusts for the data transfer (page 147)".

- The archive file time frames on FactoryTalk Historian ME and the FactoryTalk Historian SE or PI server are synchronized.

  When setting up the FactoryTalk Historian SE or PI server for the data transfer, you must ensure that the archive file time frame covers the archive time frame of FactoryTalk Historian ME. For example, if FactoryTalk Historian ME has been collecting data from 07/01/2014 to 07/05/2014, the FactoryTalk Historian SE or PI server archive time period must also cover the same time range. Otherwise, event data will be discarded during the data transfer from FactoryTalk Historian ME to the FactoryTalk Historian SE or PI server.

Configure the data transfer

To configure the data transfer:

1. Click the **Configure Historian** tab, and then click **Data Transfer**.

   The **Data Transfer** section of the page displays the following information:

Item	Description
Host Server	The host name or IP address of the FactoryTalk Historian SE or PI server.
Current Time	The FactoryTalk Historian SE or PI server time. It is read-only.
Time Offset	The time difference in seconds between the FactoryTalk Historian SE or PI server and the FactoryTalk Historian ME times.
FactoryTalk Historian SE Licensed Points	(FactoryTalk Historian SE) The number of points that have been assigned to the FTMS point source on FactoryTalk Historian SE. It is based on the currently active license for FactoryTalk Historian SE and is an indication of the number of FactoryTalk Historian ME points that can be transferred to FactoryTalk Historian SE.
"FTMS" Points Available	The total number of points assigned by the license minus the number of points that are already being transferred to the FactoryTalk Historian SE or PI server.

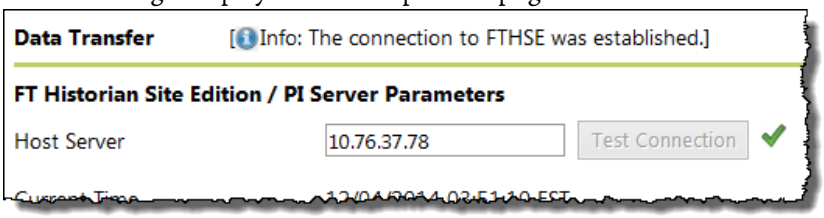
2. Under **Data Transfer**, in the **Host Server** text box, type the host name or IP address of the FactoryTalk Historian SE or PI server.

   Tip: FactoryTalk Historian SE server collectives are not supported.

3. Click **Test Connection**.

A successful connection to the FactoryTalk Historian SE or PI server is indicated with a green check mark next to the **Test Connection** button, and a message displayed at the top of the page.



4. Under **Data Transfer Parameters**, in the **Maximum Events Per Transfer** text box, type the value for the maximum number of events that can be transferred to the FactoryTalk Historian SE or PI server per transfer session.

   The range is 5,000 to 150,000. The default setting is 50,000. The best number of events to transfer per session varies based on your network bandwidth and the volume of data being collected.

   Tip: If you change the **Maximum Events Per Transfer** value, click **Save**, and then stop and restart the data transfer.

5. Select the **Enable Auto Transfer** check box.

   With this option selected, any point configured for the data collection will be automatically transferred to the FactoryTalk Historian SE or PI server.

   If you clear the **Enable AutoTransfer** check box, the points that were previously transferred will continue to be transferred, but you will have to manually add new points to the data transfer, and then restart the data transfer service.

   If you attempt to transfer points and the FactoryTalk Historian SE or PI server is not licensed to receive the points, a message will be sent to the system log:

```
The new points number is greater than what is allowed by
the SE license. Please change to NonAutoTransfer mode.
```

   The configuration then switches to the non-auto transfer mode, and you must manually transfer the points by selecting them one-by-one.

   Tip: The status of the auto transfer mode is also displayed on the **Data Transfer Points** page. For details, see "View the data transfer information (page 114)".

Now you are ready to start the data transfer.

For details, see "Start the data transfer (page 112)".

Start the data transfer

To start the data transfer:

1. Click the **Configure Historian** tab, and then click **Data Transfer**.
2. Configure the data transfer (page 110).
3. Under **Data Transfer Parameters**, click **Start**.

   The status changes from **Stopped** to **Running**.
   If the FactoryTalk Historian SE or PI server becomes unavailable, the data will continue to be stored on the module. When the server becomes available again, it will automatically reconnect, and the data transfer will continue.

Stop the data transfer

To stop the data transfer:

1. Click the **Configure Historian** tab, and then click **Data Transfer**.
2. Under **Data Transfer Parameters**, click **Stop**.

   The status changes from **Running** to **Stopped**.

View data transfer statistics

The data transfer service records performance statistics that determine the connection reliability. You can use the statistics to refine the data transfer configuration.

The **Data Transfer Statistics** section of the page displays the following information:

Item	Description
Transfer Rate	The number of retrieved events divided by the number of minutes spent on retrieving events sent to the FactoryTalk Historian SE or PI server.
Successful Attempt Rate	The number of attempts to transfer data to the FactoryTalk Historian SE or PI server per hour.

Add points to the data transfer

To add points to the data transfer:

1. Click the **Configure Historian** tab, and then click **Data Transfer Points**.
2. Under **Data Transfer Points**, type the search criteria, and then click **Search**.

   The search results are displayed in the table.
   The table lists all points that fit the search criteria, with the following information:

Item	Description
Selected	A check box that indicates whether a data point has been added to the data transfer.
Name	The name of the data point in FactoryTalk Historian ME.

Item	Description
Type	The type of the data point.
Source	The source of the data point.
Created in SE/PI Server	• **Y** - indicates a data point that has already been transferred to the FactoryTalk Historian SE or PI server. • **N** - indicates a data point that has not been transferred to the FactoryTalk Historian SE or PI server yet.

3. Select the check box next to each data point that you want to add to the data transfer.

   If you want to add all the data points listed, select the **All/None** check box at the bottom of the table.

4. Click **Save**.
5. Click **OK**.

   The outcome of the operation is indicated with a message displayed at the top of the page:

```
INFO: Save operation successful.
```

Remove points from data transfer

To remove points from the data transfer:

1. Click the **Configure Historian** tab, and then click **Data Transfer Points**.
2. Under **Data Transfer Points**, type the search criteria, and then click **Search**.

   The search results are displayed in the table.

3. Clear the check box next to each data point that you want to remove from the data transfer.

   If you want to remove all the data points listed, clear the **All/None** check box at the bottom of the table.

4. Click **Save**.
5. Click **OK**.

   The outcome of the operation is indicated with a message displayed at the top of the page:

```
INFO: Save operation successful.
```

Tip: This way you only remove the data points from the data transfer service. If you want to remove the data points from the FactoryTalk Historian SE or PI server (for example, in order to free some licenses), you must delete the points on the FactoryTalk Historian SE or PI server.

View the data transfer information

To view the data transfer information:

- Click the **Configure Historian** tab, and then click **Data Transfer Points**.

The **Data Transfer Points** page provides the following information related to the data transfer service on both the FactoryTalk Historian SE or PI server and the Historian module:

Information on the FactoryTalk Historian SE or PI server

FactoryTalk Historian SE server item	PI server item	Description
Current Time		The time on the FactoryTalk Historian SE or PI server.
Time Offset		The time difference in seconds between the FactoryTalk Historian SE or PI server and the FactoryTalk Historian ME times.
FTHSE Licensed Points	-	The number of points that have been assigned to the FTMS point source on FactoryTalk Historian SE. It is based on the currently active license for FactoryTalk Historian SE and is an indication of the number of FactoryTalk Historian ME points that can be transferred to FactoryTalk Historian SE.
-	Total Licensed Points	The number of points that have been assigned to the PI server. It is an indication of the number of FactoryTalk Historian ME points that can be transferred to the PI server.
"FTMS" Points Available	Available License Points	The total number of points assigned by the license minus the number of points that are already being transferred to the FactoryTalk Historian SE or PI server. The value may not get updated immediately because it takes approximately fifteen minutes to update the FactoryTalk Historian SE or PI server.

Information on the FactoryTalk Historian ME module

The section on the Historian module provides the following information:

- The number of data points selected.
- The number of data points newly added to the data transfer.
- The status of the auto transfer mode.

Check the data transfer status in the system log

To check the data transfer status:

1. Click the **Advanced** tab, and then click **System Log**.
2. In the **Time** boxes, set that time range in which you want to view the messages.
3. In the **Source** box, type `DataTransfer`, and then click **Search**.

   The search results table is populated with messages related to the data transfer.

For details on the system log, see "Use the system log (page 135)".

Data transfer considerations

When using the data transfer functionality, pay attention to the following considerations:

Monitoring connections

The data transfer continuously monitors the connection to the FactoryTalk Historian SE or PI server. If the connection is lost, the data transfer service sends an error message to the system log (see "System log related issues (page 136)"), and records the timestamp in the point ID mapping table as a reference for transferring data when the connection is restored.

The data transfer service may not restart if the Ethernet connection is lost or if there is a power loss. When power is restored, the data transfer may not reconnect to the server. In such cases it may be required to restart the data transfer manually.

Transferring data to a new FactoryTalk Historian SE or PI server

If the data is to be transferred to a new FactoryTalk Historian SE or PI server, the data transfer service needs to build a new point ID mapping table using the tag information in the data storage service.

Processing tag data

FactoryTalk Historian ME processes new and existing point data:

- **New points**

  For new event data from the data storage service, if the point ID is not in the point ID mapping table, the data transfer service gets the point ID from FactoryTalk Historian ME, and sends a request to the FactoryTalk Historian SE or the PI server to add a new point. The server responds with a unique point ID. This information is added to the point ID mapping table. After the entry has been created, the data transfer uploads the data to the server.

- **Existing points**

  For new event data from the data storage service, if the point ID is found in the point ID mapping table, the data transfer uploads the data to the FactoryTalk Historian SE or PI server. The timestamp is recorded in the point ID mapping table.

Stopping the data transfer service

When the data transfer receives a shutdown signal from the FactoryTalk Historian ME system, the signal is recorded in the system log, and the status of the service on the **Data Transfer** page is changed from **Running** to **Stopped**.

Administer the module

In this section you will learn about the following:

Manage users

This section describes how to manage user accounts (i.e., add, modify, and remove users) in FactoryTalk Historian ME using the **User Management** page.

To access the **User Management** page, click the **Configure Historian** tab, and then click **User Management**.

Tips:

- You must have administrator privileges to manage user accounts.
- The **User Management** page is intended primarily to manage user credentials used for logging on to the module in the FactoryTalk Historian native security mode.
  However, in some cases you may want to recreate on the module the user credentials configured on the FactoryTalk Directory server in the FactoryTalk Administration Console. For more information, refer to the FactoryTalk Directory and FactoryTalk Security documentation.

Create users

To create a user:

1. Click the **Configure Historian** tab, and then click **User Management**.
   The **User Management** page appears.
2. Click **New**.

The **Create User** page appears.

3. In the **User Name** box, type the user name.

   The user name must be any combination of lowercase and uppercase characters (a-z, A-Z) and digits (0-9).

4. (Optional). In the **Description** box, type a description.
5. In the **Password** box, type the user password.

   The password must be any combination of lowercase and uppercase characters (a-z, A-Z) and digits (0-9).

6. In the **Confirm Password** box, confirm the password.
7. (Optional). In the **Groups** box, select the group(s) that you want the user to belong to. For details, see "View groups (page 120)".
8. Click **Save** to create the user.
9. Click **Back** to return to the **User Management** page.

   The newly created user is displayed in the user list.

Modify users

To modify a user:

1. Click the **Configure Historian** tab, and then click **User Management**.

   The **User Management** page appears.

2. Select the name of the user you want to modify, and then click **Edit**.

   The **Edit User** page appears.

3. Modify the user settings according to your needs. You can change the user name, description, and group membership.
4. Click **Save**.

Tip: For details on changing user passwords, see "Change user passwords (page 119)".

Remove users

To remove a user:

1. Click the **Configure Historian** tab, and then click **User Management**.

   The **User Management** page appears.

2. Select the name of the user you want to remove, and then click **Delete**.

   A message appears asking you to confirm that you want to remove the user.

3. Click **OK**.

   The user is removed and is no longer visible in the user list.

Change user passwords

Any user can change their own password, but only members of the *piadmin* group can reset passwords for other users.

To change the user password:

1. On the **User Management** page, highlight the user whose password you want to change.
2. Click **Change Password**.
3. Do one of the following:
   - If you are changing your own password, type the old password in the **Old Password** text box.
   - If you are changing another user's password, type "!" in the **Old Password** text box.
4. Type a new password or leave the text box blank.

   The password must be any combination of lowercase and uppercase characters (a-z, A-Z) and digits (0-9).
5. Confirm the new password.
6. Click **Save**.

Reset passwords

Members of the *piadmin* group can reset passwords for other users.

To reset the password:

1. On the **User Management** page, click the user whose password you want to reset.
2. Click **Change Password**. The **Change Password** page appears.
3. Type "!" in the **Old Password** text box.
4. Type a new password or leave the text box blank.

   The password must be any combination of lowercase and uppercase characters (a-z, A-Z) and digits (0-9).
5. Confirm the new password.
6. Click **Save**.

Reset the default admin password

If the default administrator (*piadmin*) password is lost or forgotten and you cannot make administrator level changes to FactoryTalk Historian ME, you must reset the *piadmin* user password and security settings.

To reset the default admin password:

1. Click the **Advanced** tab and then click **Restore Defaults**.

   The **Restore Defaults** page appears.
2. Click **Reset Security**.

   A message appears asking you to confirm the action.
3. Click **OK**.

You can now access default administrator functions. The default password for the *piadmin* user is empty. It is important to change the default *piadmin* password after you log on.

Tip: You can also reset the password from the Logix Designer interface. For details, see "Configure the module properties (page 169)".

View groups

To view groups:

1. Click the **Configure Historian** tab.
2. Click **Group Management**.

   The **Group Management** page appears.

Depending on the way you choose to log on to the module, there will be different users and user groups listed:

- If you log on to the module using the FactoryTalk Historian native security credentials, the following groups are listed in FactoryTalk Historian ME:

Group	Description
piadmin	The default administrative group for FactoryTalk Historian ME. Initially, the group contains only the default *piadmin* user. For details on adding users to the group, see "Manage users (page 117)". The *piadmin* group membership does not automatically give you special privileges. However, the *piadmin* user account has unlimited access to all functions available on the module. The users added to the *piadmin* group can perform all functions, with the exception of deleting the *piadmin* user and group.
piuser	The group which can contain users without administrative privileges. Initially, the group contains only the default *pidemo* user. See "Manage users (page 117)" for more information on adding users to the group.

- If you log on to the module using the FactoryTalk Directory security credentials, the available groups will correspond to groups set in the FactoryTalk Administration Console on the FactoryTalk Directory

server computer. For details, see "Configure secure groups in the FactoryTalk Administration Console (page 153)".

For details on logon options, see "Configure how to log on to the module (page 141)".

For details on privileges and access for each group, see "Understand privileges for user groups (page 143)".

Manage time

Precise timing is critical for most module services including data collection, data transfer, and data storage because all events are time stamped and their order is important. To provide accurate time for these services, you can configure the module to synchronize time with a variety of time sources.

FactoryTalk Historian ME can periodically check external time sources to synchronize its time settings. The synchronization is based on a single selected time source that coordinates time accuracy among different devices in your FactoryTalk environment. You can synchronize the module's Universal Coordinated Time (UTC) with a controller (preferred solution) or a network NTP time server computer. Alternatively, you can set the time manually.

Changing the module time may affect its performance and services. If you change the module time to a past time compared to the current module time, the module will reboot into safe mode if the time change results in either of the following:

- The new time is in the past compared to the timestamps of the archive files.
- There are archive files with overlapping time ranges.

If the module enters safe mode, repair the archive files and get the module out of safe mode.

For details, see "Repair archives using safe mode (page 136)".

View and edit the current time

To view and edit the current time in FactoryTalk Historian ME:

1. Click the **Advanced** tab, and then click **Time Management**.

   The **Time Management** page appears.
   You can view the module's current time in the **Module's Current Time** box.

2. Select one of the time synchronization options:

   - **Controller Time**

     In the list, select a controller or a shortcut to a local controller which will be used for the time synchronization.

     Tip: The Logix Designer installation DVD contains the Logix Designer Clock Update Tool. The tool lets you view and synchronize the system time of the controllers and devices on a network, using any computer with a Microsoft Windows operating system and RSLinx Classic installed. For details, see the Logix Designer Clock Update Tool online help.

     If you use a shortcut to a local controller as the time source, and this shortcut or the controller to which the shortcut is pointing is removed, an error message appears informing you that this time source is no longer available.

   - **NTP Server**

     In the box, type the IP address or the hostname of the NTP server computer which will be used for the time synchronization.
     For details on using this option, see "Considerations for using an NTP server as the time source (page 123)".

   - **Manual Set**

     In the box, type the new time in the same format as the one displayed in the **Module's Current Time** box. The time is kept by the module's real-time clock.

     Tip: With this option selected, the module's time is not synchronized with any time source. As it may result in a potential drift of the real-time clock over time, the **Manual Set** option should only be used in rare cases such as demonstrations or troubleshooting associated with maintenance.
     For details, see "Clock drifts (page 125)".

3. Click **Save.**

   The module is automatically rebooted, and the updated time is displayed in the **Module's Current Time** box.

   Tip: It may happen that the time on the selected time source is in the past compared to the current module time. Using such a time source will cause the module time to be in the past, and will cause the module to reboot into safe mode. In such a case, you need to repair the archive files and get the module out of safe mode.
   For details, see "Repair archives using safe mode (page 136)".

Considerations for using an NTP server as the time source

When you set the time synchronization with an NTP server computer, keep the following in mind:

Configuration requirements

- You can type up to 7 IP addresses or hostnames of NTP server computers, separated by a semicolon.
- The server name can only contain letters A-Z, a-z, numbers, and the "-" and "." characters.
- The server name cannot be longer than 99 characters.
- The server(s) you provide will be validated to check if the configuration is correct.
- It is critical to have good network connectivity to properly synchronize the module time with the NTP server.

The module behavior

- Every 15 minutes, and each time that you access the **Time Management** page on the module and the **Time Management** page on the FactoryTalk Historian ME Web Diagnostics client, the system checks if:
  - The time synchronization with the NTP server computer is correct.
  - The data packets are transferred from and to the NTP server computer correctly.
- If data packets are lost, a message appears on the **Time Management** page on the Historian website and the **Time Management** page on the FactoryTalk Historian ME Web Diagnostics client, as well as in the FactoryTalk Historian ME log. The packets may be lost due to the following reasons:
  - Problems with the network connection.
  - Start of the background computer program monitoring the NTP synchronization.

  In such a case, you should check the log and/or the **Time Management** page on the FactoryTalk Historian ME Web Diagnostics client for any error messages which may have occurred before this situation.
- If there occurs a clock drift of 500 ppm or the NTP server cannot be reached to synchronize the time, an error message appears:
  - On the **Time Management** page on the Historian website.
  - On the **Time Management** page on the FactoryTalk Historian ME Web Diagnostics client.
  - In the FactoryTalk Historian ME log.
- If you used a FactoryTalk Historian SE server for time synchronization, and you upgrade your system to the current

FactoryTalk Historian ME version, your setting will be visible under the **NTP Server** option, and the time will be synchronized with the server automatically, provided that it had been configured correctly.

- If you restore a configuration which used a FactoryTalk Historian SE server for time synchronization, your setting will be visible under the **NTP Server** option, and the time will be synchronized with the server automatically, provided that it had been configured correctly.

The NTP server-related information

- NTP server computers are typically maintained by a corporate IT department and are often used as the Windows Active Directory server computer on the network.

Verify time synchronization

To verify time synchronization:

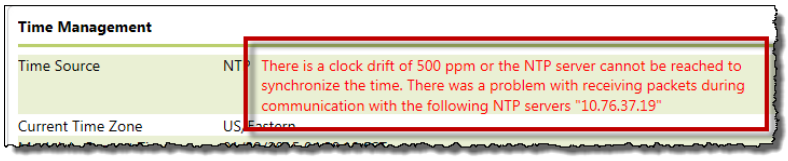
1. Open the web browser, and type either of the following, depending on your security settings for the Historian webpages:
   - *http://<Module IP_address>:8080*
   - *https://<Module IP_address>:8443*

   Tip: For details, see "Configure where to use the secure communication protocol (HTTPS) (page 144)".

   The FactoryTalk Historian ME Web Diagnostics client appears.
2. Click the **Hardware** tab, and then click **Time Management**.

   The **Time Management** page appears.
3. Under **Time Management**, verify the settings for the NTP server computer.

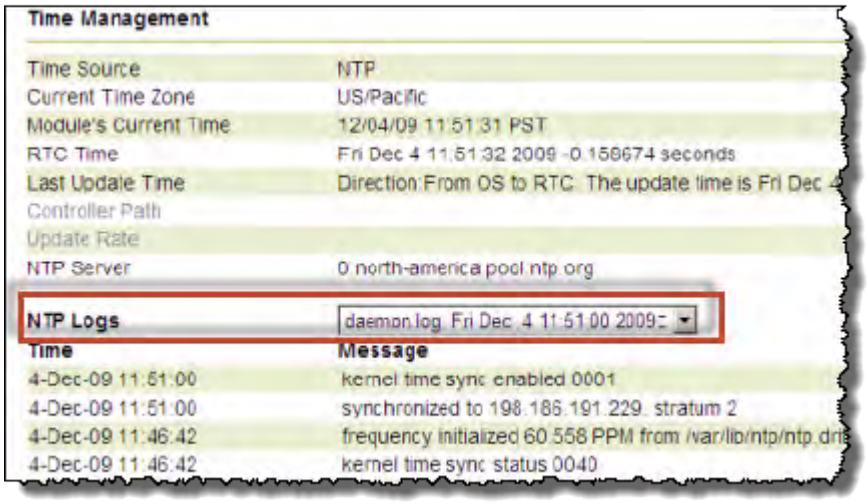
If there are any problems with the synchronization, an error message appears next to the **Time Source** box.



The time synchronization status is additionally indicated by:

- Messages on the **Time Management** page on the Historian client page.
- Messages in the FactoryTalk Historian ME log.
- The **Fault** tag in the FactoryTalk Historian ME Logix Designer Module Profile. For details, see "Use the input and output tags to read the Historian ME status (page 175)".

You can find additional details about the synchronization under **NTP Logs**.



Set the time zone

To set the time zone:

1. Click the **Advanced** tab, and then click **Time Management**.

   The **Time Management** page appears.
   The current time zone is displayed under **Time Zone Setting**.
   The default time zone is **US/Eastern** (Eastern Standard Time).
2. In the **Region** list, select the region.
3. In the **Time Zone** list, select the time zone.
4. Click **Save**.

   Tip: Time zone settings for the module affect the time displayed on the **Home** page and on the system log message timestamps.

   Event timestamps receive the time zone settings from the client.

   If you have moved your module to a different time zone, updating only the time will not automatically update the time zone in the module information. To have the correct time after the reboot of the module, you need to update both the time zone and the time.

Clock drifts

It is recommended to synchronize all devices with a single reliable time source. You should try to minimize the clock drifts that may occur among the module, the FactoryTalk Historian SE or PI server, and any controllers. To adjust for any time variations caused by clock drifts, the module will slew or step as needed.

You can find any time-related information and warnings in the module's log files.

If you have configured your points to have a high-speed scan type and the controller time drifts more than 30 seconds (either forwards or backwards), a message similar to the following appears in the system log:

```
27-Nov-09 13:24:09 logixd [WARNING] Logixd detected a
controller time shift greater than thirty seconds on High
```

```
Speed Trend instance 7 running on Data Source
All_Type_Combination_07072009_v17_1_1.
```

Battery clock

The Historian module's real-time clock is maintained by the replaceable lithium battery.

The battery is non-rechargeable and field-replaceable. It powers the real-time clock for two years when the module is not powered on and for twelve years with power to the module on.

For information on replacing the battery, see the *Installation Instructions for FactoryTalk Historian ME Module*, section "Replace the battery".

Configure system settings

In this section you will learn about the following:

Change the module name

The default module name consists of the FactoryTalk Historian ME module serial number prepended to "-FTHME", (for example, A0003027-FTHME).

This guarantees a unique name, which is important when the module transfers data to a FactoryTalk Historian SE or PI server. The FactoryTalk Historian ME module name is prepended to the FactoryTalk Historian ME tag name to create the FactoryTalk Historian SE or PI server tag name. This provides the tag with uniqueness and context.

Changing the module name may result in duplicate tags being transferred. When tags are transferred to FactoryTalk Historian SE or PI server, they are appended with the module name. If the module name has changed, the tags will be transferred again with a different name, for example:

- Tags from the module FTHME1 are being transferred to the server. When transferred, the module name is added to the tag name (e.g., FTHME1.<tag_name>).
- The module name is changed from FTHME1 to FTHME2. Consequently, the tags that have already been transferred will be transferred again because now their tag name is FTHME2.<tag_name>. These duplicate tags will be counted against your allotted number of points.

Tip: You must have administrator privileges to change the module name.

To change the module name:

1. Click Advanced, and then click System Settings.

   The System Settings page appears.

2. In the Module Name text box, enter a new name.

   The name should be descriptive enough to make it easily identifiable. This is especially useful when transferring data to a FactoryTalk Historian SE server. The name is limited by the following rules:

- The name must not contain:
  - More than 64 alphanumeric characters.
  - Any special characters (such as !, @, #, $, %, ^, &, *).
  - Only digits.
  - Only the following expression: oooooooo-FTHME.
- The name must be unique in relation to other FactoryTalk Historian MEs on the same network.

3. Click Save.

   A message appears asking you to confirm that you want to proceed with the changes.

4. Click OK.

   The module name is changed and the following message appears:

```
INFO: The module name has been configured successfully.
Please stop and start Data Transfer.
```

Tip: The module name is also used as the DNS host name of the module and should be unique on the network. The FactoryTalk Historian ME Module is not able to check the network for naming conflicts. You need to use the DNS Server to check for such conflicts. Contact your local IT administrator for more information.

Configure network settings

Tip: You must have administrator privileges to configure network settings.

To configure network settings:

1. Click **Advanced**, and then click **System Settings**.

   The **System Settings** page appears.

2. Review the following for additional information.

Item	Description
Configuration	Select **Dynamic Host Configuration Protocol (DHCP)** or **Static IP**. **DHCP** is selected by default.
DHCP	Leave this option selected to automate the network parameter assignment to network devices from one or more DHCP servers. A DHCP server is required to assign the module its initial IP address. Note that the Logix Designer DHCP Server tool can be used to set the IP address.
Static IP Address	Select this option to use the same IP address every time the module powers up. If you type an IP address that is already in use, and then reboot the module, you will not be able to access the module through the web interface. To repair this, access the module through FactoryTalk Historian ME Logix Designer Module Profile and reset the network configuration. For details, see "Use Studio 5000 Logix Designer Module Profile (page 169)".
IP Address	The module's IP address. Make sure that the IP address you use is not assigned to another device in your network. This field is enabled when you select **Static IP Address**.
MAC Address	The module's Media Access Control (MAC) address. The address comes from the module and cannot be changed.

Item	Description
Subnet Mask	The module's subnet mask. The value is unique to your location. To get the correct value, consult your IT department. This field is enabled when you select **Static IP Address**.
Default Gateway	The network default gateway. This allows data to be passed from one subnet to another in a network. This field is enabled when you select **Static IP Address**.
Search Domain	The DNS search domain. This field is enabled when you select **Static IP Address**.
Primary DNS Server	The first Domain Name System (DNS) server. This field is enabled when you select **Static IP Address**.
Secondary DNS Server	(Optional) The secondary DNS server. This field is enabled when you select **Static IP Address**.
Auto-Negotiate	Select this check box if you want the Autonegotiation to determine the speed and duplex parameters. The speed and duplex parameters must match the parameters on the router switch.
Speed	The network speed. Ensure that this setting matches the speed set on the switch port that your module is connected to. This field is enabled when the **Auto-Negotiate** check box is not selected.
Duplex	The duplex parameter determines how communication is sent and received. • In the list, select **Full** if you want both communication ends to be able to send and receive signals at the same time. • In the list, select **Half** if you want the communication to be bidirectional. However, note that the signals can only flow in one direction at a time. Ensure that this setting matches the speed set on the switch port that your module is connected to. This field is enabled when the **Auto-Negotiate** check box is not selected.

3. Click **Save**.

   A message appears asking you to confirm that you want to change the settings.

4. Click **OK**.

   Tip: If you change the default IP address configuration from DHCP to Static IP Address, or if you use BootP through Logix Designer and a BOOTP/DHCP server, you cannot access the module using its host name. The new IP address is not associated with the module host name on the DNS server, and the host name does not resolve. To avoid this issue, consult your local IT department to register the new IP address with the DNS server.

Upload files to the module

To upload a file to the FactoryTalk Historian ME Module:

1. Click the **Advanced** tab, and then click **Upload Management**.

   The **Upload Management** page appears.

2. In the **File Type** list, select the file type.

   For details on the file types you can select, see "File types (page 130)".

3. In the **Please Select File** box, type the file name, or click **Browse** to locate the file.

   The file name may only contain the following characters: `@, ., -, _, a-z, A-Z, 0-9`, and must not contain any spaces.

4. Click **Upload To Module** to upload the selected file to the module.

The uploaded file is displayed in the table. The table includes the name, type, and size of the file, as well as the time the file was last modified.

Tip: Files of type *Ca Certificate*, *Server Certificate*, and *Private Key* must have the **.pem** extension. Files of type *AutoDiscoveryRuleFile*, *TagAttributeFile*, and *User-defined Timeouts* must have the **.xml** extension.

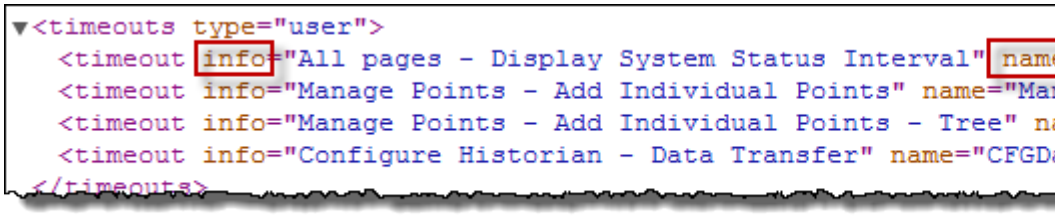
The maximum size of the file you want to upload may not exceed 500 KB.

If you use HTTPS, do not delete files of type *CA Certificate*, *Server Certificate*, and *Private Key* after uploading them.

For details on security settings, see "Manage security (page 141)".

File types

The following table lists the file types that you can select in the **File Type** list:

File type	Description
Auto Discovery Rule File	The **Add Points Wizard** uses these files when discovering tags.
Tag Attribute File	The **Add Points Wizard** uses these files when creating tags.
CA Certificate	This file is necessary if you have the protocol set to HTTPS.
Server Certificate	This file is necessary if you have the protocol set to HTTPS.
Private Key	This file is necessary if you have the protocol set to HTTPS.
User-defined Timeouts	Use this file to modify the default timeout settings if your internet connection is slow. The **UserDefinedTimeouts.xml** file includes a set of default timeouts that you can customize. The timeouts are classified into several groups based on the system areas in which they occur. The file contains the following information: • info: the location of the timeout group in the module's web interface. • name: the unique name of the timeout group. • value: the timeout value provided in seconds.  To customize the file, open this help topic on the **Upload Management** page in your module. Right-click "this link", and then click **Save Target As** to save the file on your computer. Modify the content in a text editor. When modifying the file, take into account the following: • If you change the default value of the timeout, the system will compare the default value and the new one, and use the greater one for the timeout. If you do not change the default value, the value will still be used by the system. • If you do not modify all the entries, you can delete the unchanged ones, or leave them with the default values. Once you have modified the file, save it, and then upload it to the module. Even if you have changed the name of the file, it will revert to *UserDefinedTimeouts* during the upload. If you have changed the timeout settings only for one location in the module's web interface (e.g., on the **Add Points Wizard** page) press Ctrl+F5 for the changes to take effect. If you have changed the timeout settings in several locations in the module's web interface, clear the cache of the browser. For detailed information on clearing the browser's cache, refer to the browser documentation. **Note:** Please note that modifying timeout settings is not recommended, and you should use this feature carefully as it directly influences the behavior of the ME module.

Manage the uploaded files

Once you have uploaded the files to the FactoryTalk Historian ME Module (see "Upload files to the module (page 129)"), you can manage them on the **Upload Management** page. Managing the uploaded files includes:

- **Viewing the files**

  To view a file in a new browser window, select a file in the list, and then click **View**.

- **Deleting the files**

  To delete a file from the module, select a file in the list, and then click **Delete**. Click **OK** to confirm the action.

- **Checking the format of XML files**

  To check if an XML file is formatted properly, select an XML file in the list, and then click **Check Format**. This does not check the format of other file types.

Back up and restore configuration files

It is recommended that you periodically back up the module configuration. You should also back up the configuration whenever changes are made to it. In case you need to reset the module, you will be able to restore the configuration after the module resets.

You can restore the series A backup configuration on either the series A or B Historian module. The series B backup configuration should only be restored on the series B module.

Tip: You must have administrator privileges to back up or restore the module's configuration files.

View the backup status and perform backup

To view the backup status:

1. Click the **Configure Historian** tab, and then click **Backup And Restore**.

   The **Backup and Restore** page appears.

2. Under **Backup Status**, view the details of the most recent backup of the system configuration:
   - The status of the backup.
   - The date of the backup.
   - The name of the backup file.
   - The size of the backup file.

The backup file contains configuration information for the following:

- Data collection.
- Data storage.
- Data transfer.
- Security.
- Data server.
- Point server.
- Web server.

Tip: If any changes have been made to the system configuration since the last backup, it is recommended to perform another backup.

3. Click **Backup** to perform the system backup.

Download the backup file to a client computer

To download the backup file to a client computer:

1. Click the **Configure Historian** tab, and then click **Backup And Restore**.

   The **Backup and Restore** page appears.
   Under **Download to Client**, the details of the last download are displayed:

   - The time the backup configuration file was last downloaded to the client computer.
   - The name of the last downloaded backup configuration file.
     The name is based on the date and time the file was created.

2. Click **Download**.

   The button is inactive if no backup of the module has occurred.

IMPORTANT Editing the xml files is not recommended.

After downloading the file from the module, you can use an XML parser to modify the configuration. However, you should not change the following files:

- datacollection/dconf.xml
- datastorage/dsconf.xml
- datatransfer/dtconf.xml

Upload the backup file to the module

To upload the backup file from the client computer to the module:

1. Click the **Configure Historian** tab, and then click **Backup And Restore**.

   The **Backup and Restore** page appears.
   Under **Upload to Module**, the details of the last upload are displayed:

   - The time the backup file was last uploaded to the module.
   - The name of the last uploaded backup file.

2. Click **Browse**.
3. Locate the file you want to upload, and then click **Open**.
4. Click **Upload**.

   Tips:

   - You can also upload the backup file downloaded from one FactoryTalk Historian ME Module to quickly configure another FactoryTalk Historian ME Module.
   - Please take the following into consideration:
     - You can only have one backup configuration file at a time on the FactoryTalk Historian ME Module.
       Only the last version of the backup configuration is stored.
     - The name of the backup file may not exceed 80 characters.
     - The backup file must contain the **.tar.gz** extension in its file name.
     - If you upload an older backup file, it will overwrite any newer backup file.
     - The backup file cannot contain a space in its name.

Restore the module from the backup file

To restore the module from the backup file:

1. Click the **Configure Historian** tab, and then click **Backup And Restore**.

   The **Backup and Restore** page appears.
   Under **Restore Module From File**, the details of the last restoration process are displayed:

   - The status of the last restore.
   - The date of the last restore.
   - The file used in the last restore.

2. Click **Restore Wizard**.

   Tip: If there is no backup file stored on the module, the **Restore Wizard** button is inactive.
   For details on uploading backup files, see "Upload the backup file to the module (page 133)".

   The **Stop Module** step of the wizard appears.

3. Click **Continue**.

   The **Confirm File** step of the wizard appears.

4. Check if the name of the backup file is correct, and then click **Confirm**.

   A list of parameters appears, displaying their current and restore values.

5. Select the check boxes for the parameters that you want to restore.

Tips:

- For details on restoring the name of the module, see "Check and restore the module name (page 135)".
- For details on restoring PI Server ID (ServerID), see "Why restoring PI Server ID? (page 134)".

6. Click **Continue**.

   The **Restore Progress** step of the wizard appears.

7. Wait until the key services stop and the module reboots automatically.

   Tip: The key services are stopped within a predefined time period. However, stopping the subsystems may sometimes take longer than the predefined time. To make sure that the subsystems are stopped accordingly, the timeout value for stopping the subsystems is extended 1.5 times.

   If you are using a custom timeout defined in the **AllPagesTimeout** xml key in the UserDefinedTimeouts.xml file and stopping the subsystems fails, extend the **AllPagesTimeout** value. For details on user-defined timeouts, see "File types (page 130)".

Why restoring PI Server ID?

Before restoring an ME module configuration from a backup file, you should decide whether you want to restore its PI Server ID (ServerID) or not.

Tips:

- If different modules have the same ServerID, client applications such as DataLink may connect to other modules than expected.
- On the **Backup and Restore** page, **Current Value** and **Restore Value** are always set to **N/A**. Whether the ServerID is restored or not depends on the setting of the **ServerID** check box.

Consider the following use cases:

Use case 1

You have created a backup of the configuration of an ME module. The module gets damaged. You take out the broken module and replace it with a new one. You restore the backup files of the broken module on the new module. While configuring the restore process, you leave the **ServerID** check box selected, because you want the new module to have the ServerID of the original module. PI Server ID will be restored with the configuration.

Use case 2

You want to copy the configuration of one of your ME modules (Module 1) to other ME modules that will function simultaneously along with Module 1. You create a backup of the Module 1 configuration and restore it on the other modules. While configuring the restore process, you clear the **ServerID** check box, because you don't want to replace PI Server IDs of these modules with the Module 1 ID. PI Server ID won't be restored with the configuration.

Check and restore the module name

Tip: The name of the module is automatically restored when you use a backup file in the restore wizard.

When restoring a module, make sure that the restored module's name is the same as the original module's name. When tags are transferred to FactoryTalk Historian SE or PI server, the tags are appended with the module name. If the restored module's name is different, the same tags will be transferred again with a different name. For example:

- Tags from the module FTHME1 are being transferred to FactoryTalk Historian SE or PI server. When transferred, the module name is added to the tag name (e.g., FTHME1.<tag_name>).
- FTHME1 is backed up and restored. However, the module name is now FTHME2. The same tags that were already transferred will be transferred again because now their tag name is FTHME2.<tag_name>. These duplicate tags will be counted against your allotted number of points.

To avoid this issue, ensure that the restored module's name is correct after the restoration process.

To check the module name and restore it from the backup file:

1. Click the **Advanced** tab, and then click **System Settings**.

   The **System Settings** page appears.
   The name of the module is displayed under **System Settings** in the **Module Name** box.
2. Perform steps 1-4 listed in "Restore the module from the backup file (page 133)".
3. Make sure that the **Module Name** check box is selected under **Restore Parameter**.
4. Verify that the correct module name is displayed under **Restore Value**.
5. Click **Continue**.

   The **Restore Progress** step of the wizard appears.
6. Wait until the key services stop and the module reboots automatically.

Use the system log

To search for messages reported to the system log, and export the search results:

1. Click the **Advanced** tab.

   The **System Log** page appears.
2. Review the following for additional information.

Item	Description
Time	Use the **Time** box to specify time search criteria. The table uses *m* for minutes and *d* for days. The default value is **-5m*.
Source	Use the **Source** box to filter by source. The default value is "*", which means that no filtering is used and messages from all sources are displayed.

Item	Description
Message	Use the **Message** box to filter by message text. The default value is "*", which means that no filtering is used and all messages are displayed.
Count	Use the **Count** box to limit the maximum number of log messages that will be searched out. The default value is 1000. The maximum value you can enter is 5000.

3. Specify the search criteria.
4. Click **Search** to display the messages using the criteria specified.

   The messages are displayed in a table. By default, the messages are displayed sorted by time, from oldest to newest. You can sort the messages by heading. For example, click the **Source** heading to sort the messages by source alphabetically, in ascending order.
5. Click **Export** to export all search results to a file.

System log related issues

Keep in mind the following system log related issues:

- If you are using IE 7.0 and want to export to Excel, you must install Windows hotfix 929863. This fix addresses an Excel file export issue on the **System Log** page. You need to manually add the `[HKEY_CLASSES_ROOT\.csv] "PerceivedType"="document"` registry value for the .csv document type.
- If you use the **Auto Refresh** feature, new messages will appear in the **System Log** table each time data is refreshed. When multiple clients perform the refresh action, the **System Log** table will grow very quickly.
- When the FactoryTalk Historian ME systems are up and running, and the connection to the data source is lost, a message similar to the following will be logged:

  `0 DataCollection 28-Dec-09 19:00:47 [ERROR] HandleNotification() detected erroneous return condition from notify_on_event API.`

  This message is logged every 300 errors to prevent the log disk space from being filled with too many error messages.

Repair archives using safe mode

Each time you reboot the system, the system checks to see if your archive files contain any data that has a timestamp for a time in the future. If future timestamps are found upon rebooting, the module's STS light is solid red and the LED displays either `SAFE MODE LAN OK <IP_address>` or `SAFE MODE LAN LOST <MAC_address>`. Both messages indicate that the module is in safe mode. When this happens, the module web interface is inaccessible and you must go to the **Web Diagnostic** page to repair the archive files. When the module is in safe mode, PI commands cannot be executed.

When the module is in safe mode, the following error message appears on the **Web Diagnostics** page:

```
ERROR: Archives are in inaccessible state. Please navigate
to "Safe Mode" or click on "Repair" to continue.
```

To access the bad archives information, follow the message instructions.

The bad archives are listed and selected by default.

You can repair the bad archives by repairing the time setting. For details, see "Repair the time setting (page 137)".

Repair the time setting

To repair the time setting:

1. On the **Safe Mode** page, select the **Repair Time** option.
2. In the **Time** text box, type the correct time.
3. Choose the time zone and the region from the provided lists.
4. Click **Change Time**. A message appears:

```
INFO: The time sync is successful. Please wait while system
reboots...
```

1. Wait for the module to reboot. The archives have been repaired.

IMPORTANT If you choose to repair time, be aware that if you have previously synched your ME module to an external time source such as a controller or an NTP server, clicking Repair Time will reset your time source to manual. We recommend, therefore, that before you perform this step, you attempt to fix the problem with your original time source first. For details, see "Manage time (page 121)".

Tip: If you do not want to repair the time, you can wait until the time listed in the timestamp is no longer in the future. Once that occurs, click Reboot to reboot the module. When the archives are checked again, no future timestamps will be found in the archive files and no repair is needed.

Restore and reset module-related settings

You can reset or restore the following module-related settings:

- The module's defaults.

  See "The module's defaults (page 138)".
- The security mode.

  See "Reset the security mode (page 138)".
- The Web Diagnostics password.

  See "Reset the Web Diagnostics password (page 139)".

Restore the module's defaults

Tip: You must have administrator privileges to restore the module.
When you restore the module, all data stored on FactoryTalk Historian ME is deleted, including any backed up configuration file. Make sure that you download the backup configuration file(s) before restoring FactoryTalk Historian ME. For details, see "Restore the module from the backup file (page 133)".

To restore FactoryTalk Historian ME to its original configuration:

1. Click the **Advanced** tab, and then click **Restore Defaults**.

   The **Restore Defaults** page appears.
2. Click **Restore Defaults**.

   FactoryTalk Historian ME is restored to its default settings.

When you restore the module to the default configuration, you must also restart all module clients (for example, FactoryTalk Historian DataLink, FactoryTalk Historian ProcessBook, FactoryTalk View SE Trending, PI System Management Tools (SMT), or PI SMT Tag Configurator).

Tip: Alternatively, you can perform the Restore Defaults and Reset Security actions on your Historian module in the Logix Designer Module Profile.
If the Restore Defaults or Reset Security actions are being executed in the Module Profile, you will not be able to restore the default settings, reset the security configuration, or reboot the module from the web client.
For details, see "Configure the module properties (page 169)".

Reset the security mode

If the module has been configured for FactoryTalk Security, resetting the security mode results in the following:

- The data collection stops immediately.
- The module is shut down and then restarted using the Native security.
- The administrative *piadmin* user, and the users that were created in the Native security mode are retained.
- The *piadmin* user password becomes empty.

If the module has been configured for the Native security, resetting the security mode results in the following:

- The *piadmin* user password becomes empty.
- The user is prompted to log on to the FactoryTalk Historian ME web interface.

Regardless of which security mode has been configured, resetting security always results in resetting the Web Diagnostics administrator password. For details, see "Reset the Web Diagnostics password (page 139)".

Resetting the Native security mode does not require rebooting the module.

To reset the security mode:

1. Click the **Advanced** tab, and then click **Restore Defaults**.

   The **Restore Defaults** page appears.
2. Click **Reset Security**.

   A message appears asking you to confirm the action.
3. Click **OK**.

Tip: Alternatively, you can perform the Restore Defaults and Reset Security actions on your Historian module in the Logix Designer Module Profile.

If the Restore Defaults or Reset Security actions are being executed in the Module Profile, you will not be able to restore the default settings, reset the security configuration, or reboot the module from the web client.

For details, see "Configure the module properties (page 169)".

Reset the Web Diagnostics password

To reset the Web Diagnostics administrator (admin) password to the default one (admin):

1. Click the **Advanced** tab, and then click **Restore Defaults**.

   The **Restore Defaults** page appears.
2. Click **Reset Web Diagnostics Password**.

   A message appears asking you to confirm the action.
3. Click **OK**.

Close and start the module

You can perform the following actions on the module using the **Module Shutdown** page:

- Shut down the module (page 139)
- Reboot the module (page 140)
- Restart the module (page 140)

Shut down the module

The module shutdown allows you to stop all FactoryTalk Historian ME related services (including the point server, the data collection, the data transfer, and the web configuration server). It is recommended that you shut down the module if you plan to remove it from the chassis or if you are going to power down the chassis.

To shut down the module:

1. Click the **Advanced** tab, and then click **Module Shutdown**.

   A message appears asking you to confirm the action.

2. Click **OK**.

   The module shutdown is complete when the scrolling message on the module displays the module's IP address followed by SHUTDOWN.

   Tip: Alternatively, you can shut down the module using the FactoryTalk Historian ME Logix Designer Module Profile.
   For details, see "Configure the module properties (page 169)".

Reboot the module

To reboot the module:

1. Click the **Advanced** tab, and then click **Module Shutdown**.
2. Under **Module Reboot**, click **Module Reboot**.

   A message appears asking you to confirm the action.

3. Click **OK**.

   Tip: Alternatively, you can reboot the module using the FactoryTalk Historian ME Logix Designer Module Profile.
   If the Restore Defaults or Reset Security actions are being executed on your Historian module in the Logix Designer Module Profile, you will not be able to restore the default settings, reset the security configuration, or reboot the module from the web client.
   For details, see "Configure the module properties (page 169)".

Restart the module

To restart the module:

1. Shut down the module.

   See "Shut down the module (page 139)".

2. Click the **Advanced** tab, and then click **Module Shutdown**.
3. Go to the module, and do either of the following:
   - Cut off and restore the power to the module by turning off and on the power switch on the chassis.
   - Unplug and insert the module to the chassis.

Manage security

Security of the FactoryTalk Historian ME module is managed on the **System Security** page. To access the **System Security** page, click the **Configure Historian** tab, and then click **System Security**.

Any changes to module security settings will automatically log out the current user because the users and user groups available depend on the security mode selected. Changing the security mode will also cause the module to reboot. This process may take a few minutes.

Configure security

Tips:

- You must have administrator level privileges to make any changes to security.
- All clients should be logged out before making any changes to the security settings.

You can configure the following security areas:

1. Configure how to log on to the module (page 141)
2. Configure where to use the secure communication protocol (HTTPS) (page 144)

Configure how to log on to the module

FactoryTalk Historian ME requires secure credentials (user logon and password) to access the system. You can log on to FactoryTalk Historian ME in two ways:

Use:	If you want to:
FactoryTalk Historian Native Security	Log on to the module with the credentials configured directly on the Historian module. For more information, see "Manage users (page 117)". With this option the module can function as a stand-alone device, and its security settings are managed on the FactoryTalk Historian ME client page.
The FactoryTalk Directory	Log on to the module with the credentials configured on the FactoryTalk Directory server in the FactoryTalk Administration Console. With this option, the module can be integrated into a complex FactoryTalk environment, and its security settings are managed in the FactoryTalk Administration Console. For details, see "Log on using the FactoryTalk Directory with FactoryTalk Historian ME (page 142)" and "Integrate the module into a FactoryTalk environment with the FactoryTalk Directory (page 150)".

The logon method influences the list of available users and user groups:

- If you are using the FactoryTalk Historian native security option to log on, the available users will be the ones created on the module and added to the default *piadmin* or *piuser* group.
- If you are using the FactoryTalk Directory option to log on, the available users and groups correspond to the ones set on the FactoryTalk Directory server computer in the FactoryTalk Administration Console.

For details, see "View groups (page 120)" and "Understand privileges for user groups (page 143)".

To log on with the FactoryTalk Historian native security credentials:

- On the **System Security** page, under **System Security**, click **FactoryTalk Historian Native Security**.

To log on with the FactoryTalk Directory security credentials:

1. On the **System Security** page, under **System Security**, click **FactoryTalk Directory**.
2. Type the IP address or hostname, and the port number for the FactoryTalk Directory server.

   The default HTTP port is 80. The port for HTTPS communication is 443.
3. (Optional). Type the IP address or hostname, and the port number for the secondary server.

   For details on using a secondary server, see "Log on using the FactoryTalk Directory with FactoryTalk Historian ME (page 142)".

Log on using the FactoryTalk Directory with FactoryTalk Historian ME

The FactoryTalk Directory is a centerpiece component of the FactoryTalk Services Platform. It uses integrated FactoryTalk Security services which are installed with the FactoryTalk Services Platform and managed from the FactoryTalk Administration Console.

Tip: Refer to the FactoryTalk Security documentation for details about FactoryTalk Security.

The FactoryTalk Directory provides a central lookup service for tags and other system elements from multiple data sources, and makes the information available to clients in a FactoryTalk environment.

If you use the FactoryTalk Directory server, you can enable a primary and a secondary server.

If the connection between FactoryTalk Historian ME and the FactoryTalk Directory server is lost or becomes unavailable, FactoryTalk Historian ME will attempt to locate a secondary security server. It is recommended that you use

a system that is always up and running to avoid possible failure at logon. The secondary server must have the same configuration as the FactoryTalk Directory server.

Before using the FactoryTalk Directory for logging on to the module, ensure that:

- The FactoryTalk Services Platform is installed on the FactoryTalk Directory server computer using the **Custom** option.

  Tip: Refer to the *FactoryTalk Services Platform Release Notes* for more information.

- FactoryTalk Web Services is installed and configured on the FactoryTalk Directory server computer to authenticate the security calls from the module.
- FactoryTalk Security services are running on the network.
- Internet Information Services (IIS) are installed and configured on the FactoryTalk Directory server computer so that FactoryTalk Historian ME can establish a connection to it.

Understand privileges for user groups

The following table displays the privileges for user groups configured in the FactoryTalk Historian ME Module or on the FactoryTalk Directory server in the FactoryTalk Administration Console.

Depending on the way you log on to the module, you will have different user groups at your disposal, and you will manage them differently:

- If you are using FactoryTalk Historian native security credentials, you can manage the user groups on the **Group Management** page.

  For details, see "View groups (page 120)".

- If you are using the FactoryTalk Directory security credentials, you can manage the user groups in the FactoryTalk Administration Console on the FactoryTalk Directory server computer.

  For details, see "Log on using the FactoryTalk Directory with FactoryTalk Historian ME (page 142)" and "Configure secure groups in the FactoryTalk Administration Console (page 153)".

If the logon mode is changed, all groups and users associated with the previous logon mode are lost.

Operation	The FactoryTalk Directory security groups				Native security groups	
	FTHAdministrators	FTHEngineers	FTHSupervisors	FTHOperators	piadmin	piuser
Manage SNMP	Yes	**No**	**No**	**No**	Yes	**No**
Create tag	Yes	Yes	**No**	**No**	Yes	**No**
Read status	Yes	Yes	Yes	Yes	Yes	Yes
Start data collection	Yes	Yes	Yes	**No**	Yes	**No**
Stop data collection	Yes	Yes	Yes	**No**	Yes	**No**
Read point definition	Yes	Yes	Yes	Yes	Yes	Yes
Modify point properties	Yes	Yes	**No**	**No**	Yes	**No**

Operation	The FactoryTalk Directory security groups				Native security groups	
Read point historical data	Yes	Yes	Yes	Yes	Yes	Yes
Export point historical data	Yes	Yes	Yes	Yes	Yes	Yes
Read system log	Yes	Yes	Yes	Yes	Yes	Yes
Read user information	Yes	Yes	Yes	Yes	Yes	Yes
Create/modify/delete user	Yes	**No**	**No**	**No**	Yes	**No**
Change password (self)	Yes	Yes	Yes	Yes	Yes	Yes
Change password (other users)	Yes	**No**	**No**	**No**	Yes	**No**
Read group information	Yes	Yes	Yes	Yes	Yes	Yes
Create/modify/delete group	**No**	**No**	**No**	**No**	Yes	**No**
Create/modify/delete trust	Yes	**No**	**No**	**No**	Yes	**No**
Save NTP server	Yes	Yes	**No**	**No**	Yes	**No**
Synchronize time	Yes	Yes	**No**	**No**	Yes	**No**
Read backup status	Yes	Yes	Yes	Yes	Yes	Yes
Backup configuration	Yes	Yes	**No**	**No**	Yes	**No**
Download backup file	Yes	Yes	**No**	**No**	Yes	**No**
Upload backup file	Yes	Yes	**No**	**No**	Yes	**No**
Restore configuration	Yes	Yes	**No**	**No**	Yes	**No**
Reset module	Yes	Yes	**No**	**No**	Yes	**No**
Reset security	Yes	Yes	**No**	**No**	Yes	**No**
Read security mode	Yes	Yes	Yes	Yes	Yes	**No**
Change security mode	Yes	Yes	**No**	**No**	Yes	**No**
Change protocol	Yes	Yes	**No**	**No**	Yes	**No**
Manage shortcuts	Yes	Yes	**No**	**No**	Yes	**No**

Configure where to use the secure communication protocol (HTTPS)

The secure communication protocol HTTPS is a combination of the HTTP and a cryptographic protocol. If you choose to use HTTPS, communication through the web interface will be encrypted for security purposes.

To configure where to use the secure communication protocol (HTTPS):

1. On the **System Security** page, under **HTTPS Settings**, select the check box next to the item(s) which will use HTTPS. The list of options depends on the way you chose to log on to the model under System Security. For details, see "Configure how to log on to the module (page 141)".

This option:	Is available when you choose this logon method:	
	FactoryTalk Historian Native Security	The FactoryTalk Directory
The FactoryTalk Historian web pages	x	x
The FactoryTalk Directory	-	x

Tip: The FactoryTalk Historian web pages include the client page and the Web Diagnostics page.

2. Select the type of the HTTPS certificate:

Certificate type	Description
Self-signed certificate	A certificate issued by the module, which holds its own private key. This type is chosen by default to provide a secure connection out of the box. The certificate is valid for 5 years.
CA certificate	A certificate issued by a trusted third party, for example the IT security department in your organization. To use the CA certificate, you have to manually upload the CA certificate, server certificate, and private key files to the module. For details, see "Upload files to the module (page 129)".

3. Depending on the type of certificate, do either of the following:

- For the **Self-signed certificate** type, complete the following:

Item	Description
Issued to	Choose the method with which you access the Historian web pages: • IP address. The certificate will be issued to the IP address of the module. This is the default setting. The IP address is provided by the system automatically. • Module name. The certificate will be issued to the module name. The module name is provided by the system automatically. • Domain name. The certificate will be issued to the fully qualified domain name of the module. Type the domain name in the following format: *<modulename>.<domainname>.<top-level domain>* For example, *module1.mycompany.com*
Renew Certificate	Use this button if: • You change the method with which you access the Historian web pages. In this way, a new certificate will be issued. • Your certificate has expired, and you want to issue a new one.

Tip: If you renew the certificate for your module, you have to install it in the browser. To install the certificate in the browser, consult your network administrator.

- For the **CA certificate** type, complete the following:

Item	Description
CA certificate file	Select the certificate authority. This is necessary for using HTTPS.
Sever certificate file	Select the file which contains the digital certificate that has been issued to a server and contains information about the server.
Private key file	Select the file which contains the private key for the web server.
Private key password	Type the encryption password used to secure the private key file.

Item	Description
Verify the FactoryTalk Directory certificate	Select the check box to verify if the FactoryTalk Directory certificate is valid. The module will check if there is a certificate for the FactoryTalk Directory issued by a certificate authority. This option is only available if you set HTTPS for communication with the FactoryTalk Directory.

4. Click **Save**.

   If the configuration is incomplete, an error message appears prompting you to provide missing information.
   If the configuration is complete, a message appears.

5. Click **OK**.

   The configuration will be validated.
   If the configuration is successful, you will be logged out and taken to the logon page.
   Otherwise, an error message appears.

   Tip: If the configuration of the module is restored from a backup file, the communication is automatically set to HTTPS for connections with the Historian web pages.
   If the backup file contains security certificates, they will be used in the restored configuration. Otherwise, a default self-signed certificate will be generated and used.
   For more information on restoring configurations, see "Back up and restore configuration files (page 131)".

Manage security trusts

Trusts authorize connections between computers.

FactoryTalk Historian ME uses the following types of trusts:

- Default trusts (page 147)
- User-defined trusts (page 147)

To view trusts defined on the Historian ME module:

- Click the **Configure Historian** tab, and then click **Trust Management**.

  The **Trust Management** page appears.
  The page displays both the default and the user-defined trusts.

  Tip: If the **IP Address** and **NetMask** boxes are left blank in trust definitions, they appear as 0.0.0.0.

The FactoryTalk Historian ME server compares incoming connection credentials with every trust login record. Each setting in a trust configuration is compared to the corresponding credential setting. Every setting that is not blank in the trust configuration must exactly match the passed credentials. Otherwise, the authorization is not granted. When authorization is refused for one trust, the FactoryTalk Historian ME server continues to search the other records until it has exhausted the possibilities.

Default trusts

The default trusts are recreated or edited every time FactoryTalk Historian ME starts. This guarantees access to all applications running on the local machine, even if:

- The system network configuration changes.
- The IP address changes as a result of a new network card.

User-defined trusts

If you have configured to log on to your Historian module using the FactoryTalk Historian native security credentials (see "Configure how to log on to the module (page 141)"), you will need to configure trusts for:

- Transferring data from FactoryTalk Historian ME to FactoryTalk Historian SE.

  The trust configuration is performed on FactoryTalk Historian SE. For details, see "Create trusts for the data transfer (page 147)".
  For other data transfer prerequisites, see "Data transfer prerequisites (page 109)".
- Using data from FactoryTalk Historian ME in FactoryTalk Historian clients.

  The trust configuration is performed on FactoryTalk Historian ME. For details, see "Create trusts for FactoryTalk Historian clients (page 148)".

If you have configured to log on to your Historian module using the Configure how to log on to the module (page 141), the authorization is handled by FactoryTalk Security.

Create trusts for the data transfer

To ensure a secure connection between FactoryTalk Historian ME and FactoryTalk Historian SE, you need to create the following trusts in System Management Tools on the FactoryTalk Historian SE server:

1. A trust for **webs**.

   This trust is required so that you can select points for the data transfer on your Historian ME web page.
   When configuring the trust, provide the following information:

   - The IP address of your Historian ME module.
   - The trust name: **webs**.
   - The trust type: **PI-API application**.
   - The application name: **webs**.
   - A PI user as the PI Identity.
2. A trust for **datatransfer**.

   This trust is required so that the selected points are transferred to FactoryTalk Historian SE.

When configuring the trust, provide the following information:

- The IP address of your Historian ME module.
- The trust name: **datatransfer**.
- The trust type: **PI-API application**.
- The application name: **datatransfer**.
- A PI user as the PI Identity.

For other data transfer prerequisites, see "Data transfer prerequisites (page 109)".

For details on creating trusts in System Management Tools, refer to the System Management Tools and FactoryTalk Historian SE user documentation.

Create trusts for FactoryTalk Historian clients

To create a trust between FactoryTalk Historian ME and a FactoryTalk Historian client:

1. Click the **Configure Historian** tab, and then click **Trust Management**.

   The **Trust Management** page appears.
2. At the bottom of the page, click **New**.
3. In the **Trust** text box, type the name of the trust.

   To create a trust name, use English alphabet letters and numbers from 0 to 9.
4. From the **PI User** list, select a FactoryTalk Historian ME user.

   The privileges of the selected user will be assigned to the incoming connection when the connection credentials match the specifications in the trust.
5. In the **Domain** box, type the name of the domain.

   A Windows Domain name may be used only for trusts for SDK client applications running on Windows. The domain must be the same for the FactoryTalk Historian ME server and the connecting application.
6. In the **OS User** text box, type the operating system user.

   This text box is used only for SDK applications running within a Windows domain.
7. In the **Application Name** box, type the application name.

   The format of the application name depends on the application type:

   - If the application is an API application, its name consists of the first 4 characters of the executable file name of the application. The last character in the name must be a capital "E".

     For example: FT-PE (for the Historian to Historian interface).

- If the application is an SDK application, its name is the full executable file name of the application (including the file extension):

For this FactoryTalk Historian ME client:	Use this application name:
FactoryTalk Historian ProcessBook	Procbook.exe
FactoryTalk Historian DataLink	EXCEL.exe
FactoryTalk VantagePoint	• w3wp.exe, if you are running the Internet Information Services (IIS) 6.0 or 7.0. • aspnet_wp.exe, if you are running an earlier version of the IIS.
TrendX	FTHRdCli.exe
FactoryTalk Administration Console/FactoryTalk View Studio	VStudio.exe
ActiveX	acview.exe
System Management Tools	SMTHost.exe
PI-SDK	PI-SDK Utitliy.exe

8. In the **Network Path** box, type the name of the network path.
9. (Optional) In the **IP Address** box, type an IP address.
10. (Optional) In the **Net Mask** box, type a subnet mask address.

    Tip: The **IP Address** and **Net Mask** text boxes are optional and may be used for either API or SDK applications. You can fill these boxes to point to exact IP addresses or specific subnets.

11. Click **Save**.

    The new trust is displayed in the table.

Edit trusts

To edit a trust:

1. Click the **Configure Historian** tab**,** and then click **Trust Management**.

   The **Trust Management** page appears.
2. In the table, click the trust that you want to edit.
3. At the bottom of the page, click **Edit**.

   The trust settings are displayed in the boxes at the top of the screen.
4. Make the changes, and then click **Save**.
5. Click **OK**.

Delete trusts

To delete a trust:

1. Click the **Configure Historian** tab, and then click **Trust Management**.

   The **Trust Management** page appears.
2. In the table, click the trust that you want to delete.
3. At the bottom of the page, click **Delete**.

   A message appears prompting you to confirm the action.
4. Click **OK**.

Integrate the module into a FactoryTalk environment with the FactoryTalk Directory

In this section you will learn how to integrate a standalone FactoryTalk Historian ME module into an existing FactoryTalk system using the FactoryTalk Directory. Integrating a standalone module into an existing FactoryTalk system allows:

- Centralized administration of security credentials, performed in the FactoryTalk Administration Console.
- FactoryTalk clients (for example, FactoryTalk View SE or FactoryTalk Batch) to connect to the FactoryTalk Historian ME module.

Integration prerequisites

Before you register the module in FactoryTalk Directory from a client computer, ensure that:

- The FactoryTalk Services Platform is installed and configured on the client computer.
- FactoryTalk Historian ME Management is installed on the client computer.
- You are using the FactoryTalk Directory security credentials to log on to the module. For details, see "Configure how to log on to the module (page 141)".

Register the module in the FactoryTalk Directory

You can register the FactoryTalk Historian ME module in the FactoryTalk Directory using the FactoryTalk Administration Console. To register the module, you must create an initial server connection.

Tip: For a list of prerequisites needed to use the FactoryTalk Directory, see "Log on using the FactoryTalk Directory with FactoryTalk Historian ME (page 142)".

Add the Historian ME module in the PI SDK Utility

To add the Historian ME module in the PI SDK Utility:

1. Go to **Start > All Programs > Rockwell Software > FactoryTalk Historian SE > FactoryTalk Historian SE System > About PI-SDK**.

   The **PI SDK Utility** window appears.
2. On the **File** menu, click **Connections**.

The **PI Connection Manager** dialog box appears.

3. On the **Server** menu, click **Add server**.

   The **Add PI Server** dialog box appears.

4. In the **Network Path/FQDN** box, type the IP address of the Historian module.
5. Click **OK**.

   If a connection was successfully established, the IP address will appear in the **PI Connection Manager** dialog box. If an error occurs, the module might be restarting. Ensure that the middle STS LED is flashing green on the module. This indicates that the module has fully initialized and a connection can be established.

Register the Historian ME module in the FactoryTalk Administration Console

If you want to add your Historian ME module to the FactoryTalk Directory, you need to register it in the FactoryTalk Administration Console.

To register the Historian ME module in the FactoryTalk Administration Console:

1. Go to **Start > All Programs > Rockwell Software > FactoryTalk Administration Console**.

   The **FactoryTalk Administration Console** window appears.

2. In the **Select FactoryTalk Directory** dialog box, click **Network**, and then click **OK**.

   Tip: FactoryTalk Historian ME and FactoryTalk Historian SE support only the **Network** option in the FactoryTalk Directory.

3. In the **Explorer** pane, expand **System > Connections**.
4. Right-click **Historical Data ME**, and then click **New Historian ME Server Connection**.

   The **Historian ME Server** dialog box appears.

5. In the **Name** text box, type a name for the new server connection.

   We suggest that you match the server connection name to your module name. The server connection name must begin with a letter or a number and contain only letters, numbers, underscores, and spaces.

6. Under **Server or Collective Name**, do either of the following:

   - Select your FactoryTalk Historian ME IP address from the list.
   - Type a new server name or IP address.

7. Click **Test Server Connection**.

   You should receive a **Server found** message. If you do not receive this message within a few minutes, the module may still be restarting. Wait a few more minutes, verify the server name or IP address, and try again.

8. Click **OK**.

   After the module is registered with the FactoryTalk Directory, its name appears under **Historical Data ME** in the **Explorer** pane.

Create users in the FactoryTalk Administration Console

You can add users to preconfigured user groups in the FactoryTalk Administration Console. Each user group is created automatically when the FactoryTalk Historian ME Management is installed. The FTHAdministrators, FTHEngineers, FTHOperators, and FTHSupervisors user groups represent different levels of user security. For details, see "Understand privileges for user groups (page 143)".

Tip: For more information on FactoryTalk Security users and groups, see the *FactoryTalk Security User Guide*.

To create a new FactoryTalk Historian ME user in the FactoryTalk Administration Console:

1. Go to **Start > All Programs > Rockwell Software > FactoryTalk Administration Console**.

   The **FactoryTalk Administration Console** window appears.

2. In the **Select FactoryTalk Directory** dialog box, click **Network**, and then click **OK**.

   Tip: FactoryTalk Historian ME and FactoryTalk Historian SE support only the **Network** option in the FactoryTalk Directory

3. In the **Explorer** pane, expand **User and Groups**.
4. Right-click **Users**, and then click **New > User**.

   The **New User** dialog box appears.

5. Complete the user information.
6. Click the **Group Membership** tab, and then click **Add**.

   The **Select User Group** dialog box appears.

7. Select the group to which you want the user to belong, and then click **OK**.
8. In the **New User** dialog box, click **OK**.
9. In the **Explorer** pane, expand **User Groups**, and then double-click the group to which you added the new user.

   The new user is listed under **Members**.

Configure secure groups in the FactoryTalk Administration Console

To use the FactoryTalk Directory with FactoryTalk Historian ME, you need to configure specific user groups in the FactoryTalk Administration Console. If you have FactoryTalk Historian SE installed in your environment, the secure groups should already exist in the FactoryTalk Administration Console. Otherwise, you need to create them.

There are the following secure user groups configured in the FactoryTalk Administration Console:

- FTHAdministrators
- FTHEngineers
- FTHSupervisors
- FTHOperators

IMPORTANT If your user belongs to a different security group than the groups listed above, you will not be able to log on to the FactoryTalk Historian ME client website. To manage your group access, contact the administrator.

If you plan to use the auditing features of FactoryTalk Historian ME while using FactoryTalk Security, you must create user IDs on the **User Management** page that exactly match user IDs in the FactoryTalk Directory. This will allow you to track changes through a specific user and not a user group. An admin user who is a part of the FTHAdministrators group in the FactoryTalk Administration Console must also belong to the FTHAdministrators, FTHSupervisors, and FTHEngineers groups on FactoryTalk Historian ME. In addition, a user who belongs to the FTHEngineers group must also belong to the FTHSupervisors group to change events on FactoryTalk Historian ME.

SNMP community strings

The Simple Network Management Protocol (SNMP) is a protocol for communication between devices connected in a network. SNMP uses community strings as passwords that allow a get-request to access the statistics of a module.

Tips:

- The Backup and Restore function does not include the SNMP community strings.
- Restoring FactoryTalk Historian ME defaults disables SNMP and deletes the existing community strings. The system creates the default community string: `public`.

Enable SNMP

Enable SNMP to allow the devices to use community strings for communication.

Prerequisites

Enable HTTPS protocol. See: Configure where to use the secure communication protocol (HTTPS) on page 144

To enable SNMP:

1. Select the **Advanced** tab, then select **SNMP Management**.
2. Select the **Enable SNMP** checkbox.

Create SNMP community strings

Create SNMP community strings to use them as passwords to enable access to a device's statistics.

Tips:

- Only accounts with piadmin or FTHAdministrators privileges can modify the contents of **SNMP Management** page.
- While SNMP is enabled, it is not possible to add or delete community strings.
- The string can contain up to 35 alphanumeric characters (A-Z, a-z, 0-9).
- FactoryTalk Historian ME supports a maximum of 5 community strings.

To create SNMP community strings:

1. Select the **Advanced** tab, then select **SNMP Management**.
2. Uncheck the **Enable SNMP** checkbox.
3. Select **Create**.
4. In the next screen, enter the community string.
5. Select **Save**.
6. Repeat steps 3-5 as needed.
7. Re-check the **Enable SNMP** checkbox.

Delete SNMP community strings

Delete SNMP community strings that you no longer need.

To delete SNMP community strings:

1. Select the **Advanced** tab, then select **SNMP Management**.
2. Uncheck the **Enable SNMP** checkbox.
3. In the table, select a string to delete.
4. Select **Delete** and confirm.
5. Repeat steps 3 and 4 as needed.
6. Re-check the **Enable SNMP** checkbox.

Use the Rule Editor

FactoryTalk Historian ME Rule Editor is a component of the FactoryTalk Historian ME Client Tools suite. You can use it to create, edit, and delete custom rules for the point discovery process. The selections you make in the dialog box are automatically written to the point discovery rule file. After you create rule files, you can upload them to the module with the upload manager (see "Upload files to the module (page 129)"). Tags that match the rules you create will be found and added to the FactoryTalk Historian ME server as part of the tag discovery process (see "Add points using the Add Points Wizard page (page 72)").

With the Rule Editor, you can perform the following:

View the default point discovery rule file

By default, FactoryTalk Historian ME provides a point discovery rule file named **ADDefault.xml**. It contains search criteria with which you find tags for the point creation process.

The path to the **ADDefault.xml** file is the following:

<Program Files>\Rockwell Software\FactoryTalk Historian ME\ME Rule Editor\ADDefault.xml

You can open the file from the Rule Editor, or in an XML editor.

To view the default rule file in the Rule Editor:

1. Go to **Start > All Programs > Rockwell Software > FactoryTalk Historian ME Rule Editor > Launch Rule Editor**.

   The FactoryTalk Historian ME Rule Editor window appears.
2. Under **File Management**, click **View XML file**.

   The file is displayed in your Internet browser.

Create point discovery rule files

Instead of using the default point discovery rule file, you can create your own.

To create a point discovery rule file:

1. Go to **Start > All Programs > Rockwell Software > FactoryTalk Historian ME Rule Editor > Launch Rule Editor**.

   The FactoryTalk Historian ME Rule Editor window appears.
2. Under **File Management**, click **Rule File Management**.

   The **FactoryTalk Historian ME User Defined Rule File List** dialog box appears.
3. Click **New**.

   The **FactoryTalk Historian ME User Defined Rule File** dialog box appears.
4. Under **Rule File Name**, type a name for the rule.

   When typing the name, keep in mind the following points:

   - The file name may only contain the following characters: @, ., -, _, a-z, A-Z, 0-9, and must not contain any spaces.
   - You may include the "Rule_" phrase at the beginning of the name, however, only once.
   - You cannot include the "Rule_" phrase inside the rule name.

     Adding it will cause problems with creating and viewing the rule file.
5. (Optional). Under **Description**, type a description for the rule.
6. Click **OK**.

   The rule appears in the **FactoryTalk Historian ME User Defined Rule File List** dialog box.
7. Select the rule, and then click **Open**.

   The rule file is listed under **Current Rule File** in the **FactoryTalk Historian ME Rule Editor** window.
   The following information is provided on the current rule file:

   - The file name.

     Note that the name of the rule file that you have typed when creating the file is prepended with the `Rule_` prefix, unless you have already included it while naming the rule.
   - The description.

   By default, the point discovery rule files are stored in the following location:

   - **<Program Files Path>\Rockwell Software\FactoryTalk Historian ME\ME Rule Editor**

     Tip: The `<Program Files Path>` variable stands for the path to the program files folder in which you have installed your Historian ME suite.

On certain operating systems, if you are using the Rule Editor without administrative privileges, the files will be saved to a folder within your user directory.
For example, on Windows Server 2008 R2, the files are saved to the following location:

- **C:\Users\<User Name>\AppData\Local\VirtualStore\<Program Files>\Rockwell Software\FactoryTalk Historian ME\ME Rule Editor**

Tip: The `<Program Files>` variable stands for the name of the program files folder. Depending on the type of the operating system, it may be **Program Files** or **Program Files (x86)**.

The names of the custom point discovery rule files are preceded with a **Rule_** prefix.

Now you can add components to your rule file. For details, see:

- Define point discovery rules (page 157)
- Create tag attribute files (page 160)

Define point discovery rules

Use the rules to define which tags from the data source should be listed for the point discovery process so that you can create points for them in your Historian module.

To define a rule:

1. In the **FactoryTalk Historian ME Rule Editor** window, click **Rule File Management**.

   The **FactoryTalk Historian ME User Defined Rule File List** dialog box appears.
2. Select the rule file for which you want to add rules, and then click **Open**.
3. In the **FactoryTalk Historian ME Rule Editor** window, click **New**.

   The **Define Discovery Rule** dialog box appears.
4. Under **Description**, type a description for the rule.

   The description will be listed in the FactoryTalk Historian ME Rule Editor list.
5. Define the data source:
   - Under **From**, leave the default settings for the data source: **LinxEnterprise** and **LogixControllers**.
6. Define the type of the rule:
   - If you are creating an inclusion rule, choose **include tags**.
   - If you are creating an exclusion rule, choose **exclude tags**.
7. Under **Where**, define the condition with tag search criteria:

a. Choose one of the following:

Choose this item:	To discover tags that match:
name	A tag name.
member	A member name. A member is an element of a user-defined tag (UDT).
data type	A data type.

Choose one of the following:

Choose this item:	If you want your:	To:
starts with	• name	Start with a specific string.
contains		Contain a specific string.
ends with		End with a specific string.
is	• name • member • data type	Be a specific string.

Provide the string:

For this item:	Do the following:
name	Type the string in the box.
member	
data type	Choose the data type from the list.

If you have chosen **member**, under **Add these historian points**, select an element within the member with which you want to perform the search.

Click  to add another search criterion to the condition.

 Tip: To remove a search criterion, click 

From the list, choose either of the following to define the relation between the search criteria:

Choose this item:	If you want that:
and	All the search criteria from the condition are met in the point discovery process.
or	Any search criterion from the condition is met in the point discovery process.

8. Under **Use this configuration**, choose the tag attribute file that you want to use with the rule.

   If there are no files available, chose **<New Configuration>** to create one.
   For details, see "Create tag attribute files (page 160)".
   If you do not choose any file, the default tag attribute file, **FTHMETagDefault.xml**, will be used.

9. Click **OK**.

The rule appears in the **FactoryTalk Historian ME Rule Editor** window.

10. Upload your file to the Historian module. See "Upload files to the module (page 129)".

Change the point discovery limit

By default, FactoryTalk Historian ME limits the point discovery to 2000 tags because it is the item count set in the default rule file (**ADDefault.xml**) for the data source defined as **LogixController**.

To change the point discover limit in the rule file:

1. Open the rule file in an XML editor.
2. Find the following rule:

```
<Rule where="Item.Count LTE ('2000')">
```

1. Change the value in the brackets to a higher value.
2. Save the file.

If you use the default rule file, change the value in this file:

<Program Files>\Rockwell Software\FactoryTalk Historian ME\ME Rule Editor\ADDefault.xml

If you create your custom rule file, add the rule with the higher item count.

Edit point discovery rule files

To edit a point discovery rule file:

1. In the **FactoryTalk Historian ME Rule Editor** window, click **Rule File Management**.

   The **FactoryTalk Historian ME User Defined Rule File List** dialog box appears.

2. Select the rule file that you want to edit, and then click **Open**.

   The rule file appears in the **FactoryTalk Historian ME Rule Editor** window.
   The rules defined in the file appear in the table.

3. Make your changes to the rule file:
   - To change the file description, type a new one in the **Description** box.
   - To add a rule, click **New**.

     For details, see "Define point discovery rules (page 157)".
   - To edit a rule, select the rule, and then click **Edit**.

     For details, see "Define point discovery rules (page 157)".
   - To remove a rule, select the rule, and then click **Delete**.

     In the message box that appears, click **Yes**.
4. Click **Save**.

Remove point discovery rule files

To remove a point discovery rule file:

1. In the **FactoryTalk Historian ME Rule Editor** window, click **Rule File Management**.

   The **FactoryTalk Historian ME User Defined Rule File List** dialog box appears.
2. Select the rule file that you want to remove, and then click **Remove**.
3. In the message box that appears, click **Yes**.

Create tag attribute files

Tip: To perform these steps, you need to run the Rule Editor with administrative privileges.

By default, FactoryTalk Historian ME uses a tag attribute file named **FTHMETagDefault.xml**. It defines point attributes that will be assigned to the new points in the point creation process.

When you associate the tag attribute file with a rule file and use them to create points, all the points discovered with the rules from the rule file will take on the attributes defined in the tag attribute file.

Instead of using the default tag attribute file, you may create your own.

To create a tag attribute file:

1. Go to **Start > All Programs > Rockwell Software > FactoryTalk Historian ME Rule Editor > Launch Rule Editor**.

   Tip: If you have logged on to the computer without administrative privileges, hold down Shift while clicking **Launch Rule Editor** with the right mouse button, and then click **Run as administrator**. Follow the on-screen instructions to run the program with administrative privileges.

   The **FactoryTalk Historian ME Rule Editor** window appears.
2. Click **Tag Attributes File Management**.

The **FactoryTalk Historian ME Tag Attribute File List** dialog box appears.

3. Click **New**.

   The **FactoryTalk Historian Tag Attribute** dialog box appears.

4. In the **File Name** box, type a name for the file.

   The file name may only contain the following characters: @, ., -, _, a-z, A-Z, 0-9, and must not contain any spaces.

5. In the **Description** box, type a description for the file.

   You can use up to 80 characters.

6. In the **Scan class** list, select a scan class, and the scan type.

   For details on scan classes, see "Use scan classes (page 94)".
   For details on scan types, see "Configure scan types (page 84)".

7. In the **Descriptor** box, type a basic description of the point.

   The description will be displayed in client applications and user reports.
   The descriptor defined here will be listed in the **Extended Description** attribute of the point. For example, you can use this text as a basis for a tag search or in a trend display. It may be up to 65,535 characters long. When this value is read, it is truncated to the first 26 characters. Some interfaces use the descriptor for tag configuration in an external system. For those cases, do not use quotes or wildcards.

8. In the **Eng Units** box, specify the unit of measure in the string format.

   The string may be of any length. However, when it is read, it is truncated to the first 12 characters. Engineering unit strings are case-preserving and case-insensitive. The system trims leading and trailing blank spaces during the input.
   If you use a single quote (') in a string, precede it with a double quote ("). Similarly, if you use a double quote in a string, precede it with a single quote.

9. In the **Display digits** box, specify the format of numeric values in the Historian web client and in reports.

   A value equal to or greater than zero indicates the number of digits to display to the right of the decimal point.
   A value lower than zero indicates the number of significant digits to display. The number of significant digits that will be used is determined by calculating the absolute value of the value set in the **Display digits** box.
   The following table shows how 23.45 would appear on the screen depending on the value format set in the **Display digits** box:

When Display digits is set to:	The value on the screen appears as:
3	23.450
2	23.45
1	23.5
0	23.
-1	2E+001

10. Click the **Archive** tab.
11. In the **Typical value** box, type a reasonable value for a point.
    For a numeric tag, it must be greater than or equal to the value of the **Zero** attribute, and lower than or equal to the sum of the **Zero** and **Span** attribute values.
    The typical value range is between 0 and 100.
    The typical value range for the points of type **Digital** is between 0 and 1.
12. In the **Zero** box, type the lowest value possible.
    This attribute is required for all numeric data type points. It does not have to be the same as the instrument zero, but that is usually a logical choice.
    The zero value range is between 0 and 100.
13. In the **Span** box, set the difference between the top and the bottom of the range.
    This attribute is required for all numeric data type points.
    For **Float16** point types, the **Span** value is used with the **Zero** value for scaling values in the archive. The **Span** property must be a positive value. If the value for a **Float16** point type is greater than the top of the range, it is recorded in the archive as **Over Range**.
    For other point types, the **Zero** and **Span** values do not affect the values recorded in the archive. The **Span** property is also used when defining a FactoryTalk Historian ProcessBook trend with a vertical scale of database. This attribute is not used for non-numeric points.
14. Under **Step**, choose either of the following to define the interpolation of numeric archived values:

    The value of the **Step** attribute also affects the compression calculation. When it is set to **On**, a linear change of a value greater than or equal to the value of the **Compression Deviation** attribute passes compression. This is essentially the same as the exception reporting. When the value of the **Step** attribute is set to **Off**, the complete swinging door algorithm is applied.

Choose this item:	To treat the archived value as:
On	A discrete value. Adjacent archived values are not interpolated and an archived value is assumed constant until the next archived value. For example: • At 12:00:00, the value 101.0 is archived. • At 12:01:00, the value 102.0 is archived. A request for the value at 12:00:30 would return 101.0. In general, data coming from discrete measurements, such as sampled laboratory data, batch charge weight, etc., should be archived in points with the **Step** attribute set to **On**.
Off	A continuous signal. Adjacent archived values are linearly interpolated. For example: • At 12:00:00, the value 101.0 is archived. • At 12:01:00, the value 102.0 is archived. A request for the archive value at 12:00:30 would return 101.5. In general, data coming from continuous signals, such as signals from thermocouples, flow meters, etc., should be archived in points with the **Step** attribute set to **Off**. This is the default setting.

15. Under **Shutdown**, choose either of the following to configure shutdown events for a point:

Choose this item:	To do the following:
On	Record shutdown events for a data point. FactoryTalk Historian ME will automatically add a shutdown event with the timestamp of the Historian ME server shutdown to a point. In some cases, it is useful to record to FactoryTalk Historian ME points when the archive was shut down to indicate a gap in the data collection. This is the default setting.
Off	Leave a data point without recording the shutdown events.

16. Under **Compressing**, set the data compression configuration.

    FactoryTalk Historian ME uses compression specifications to filter the data passed from the snapshot subsystem to the archive subsystem. The snapshot subsystem stores the most recent value for each data point. This most recent value is called the snapshot for that point. The snapshot subsystem uses compression specifications to determine which of the values that it has received get saved in the archive subsystem. By filtering out data that you do not need, your archive storage gets more efficient.
    The compression affects **Digital** point types, since a new value is recorded only when the current value changes. For **String** point types, new points pass compression only when the value changes.
    Choose either of the following:

Choose this item:	To:
On	Turn the data compression on for all real-time points in the system. This is the default setting,

Choose this item:	To:
Off	Turn the data compression off for laboratory and manually entered points so that all values are archived. When the **Compressing** attribute is set to **Off**, all points are archived.

17. Under **Exception Deviation**, configure which point values are sent to the server:

    FactoryTalk Historian ME uses exception specifications so that the interface sends the data you are interested in to the server, rather than sending a lot of data that is not meaningful. The process of using exception specification to control the flow of data from the interface to the server is called exception reporting. It takes place on the interface before the data is sent to the server.

    1. In the first text box, type a value for the exception deviation.

       The value defines how much a value of a point must change before it is considered a significant value and sent to the server.
       As a general rule, set the exception deviation slightly smaller than the precision of the instrument system.
       You can set the value in engineering units or as a percentage of the **Span** value.

    2. In the list, choose either of the following:

       - If you have set the **Exception Deviation** value in engineering units, choose **Eng. Units**.
       - If you have set the **Exception Deviation** value as a percentage, choose **% of Span**.

    3. In the **Min Time** boxes, specify how frequently the interface can report values to the server.

       For example, if you want the interface to wait full 10 minutes before reporting a new value to the server, set the attribute to 10 minutes. Usually, this attribute is set to 0.

    4. In the **Max Time** boxes, specify how long the interface can go without reporting a value to the server. As soon as the time limit set in this attribute elapses, the interface sends the next new value to the server regardless of whether the new value is different from the last reported value. This may result in sending duplicated data.

    For **Digital** or **String** point types, only the exception maximum and exception minimum attributes are important. The exception deviation value is ignored by the Historian module.
    See also "Exception filtering (page 82)".

18. Under **Compression Deviation**, configure which point values are sent to the archive.

    FactoryTalk Historian ME uses the compression configuration to specify which data is archived.

    1. In the first text box, type a value for the compression deviation.

The value defines how much a value of a point must change before it is considered a significant value and sent to the archive.
As a general rule, set the compression deviation to the precision of the data source or hardware (instrument). After collecting data for a while, go back and check the data for your most important tags and adjust the value of the attribute, if necessary.
Set the value with care. If you set the value too low, too little compression is imposed on data and a lot of space is wasted in the archive. If you set the value too high, you may lose important data.
You can set the value in engineering units or as a percentage of the **Span** value.
For regular flows, pressures, and levels, you can set the compression deviation to 1% or 2% of the **Span** attribute value. For temperatures, use 1 or 2 degrees.

2. In the list, choose either of the following:
   - If you have set the **Compression Deviation** value in engineering units, choose **Eng. Units**.
   - If you have set the **Compression Deviation** value as a percentage, choose **% of Span**.
3. In the **Min Time** boxes, specify how frequently the data is archived.

   A point is archived if the time that elapsed since the last archiving equals to or is greater than the **Min Time** value, and the value of the point has changed by more than the value of the **Exception Deviation** attribute.
   For data points associated with interfaces that send exception reports, set this value to 0.
4. In the **Max Time** boxes, specify the time break without archiving the data.

   A point is archived if the time that elapsed since the last archiving is greater than the **Max Time** value. As soon as the time limit set in this attribute elapses, the data is archived regardless of whether the new value is different from the last archived value. This may result in archiving duplicated data.
   The recommended value is one work shift (for example, 8 hours). Typically, you should set the same **Max Time** value to all the points in the system.

For **Digital** or **String** point types, only the compression maximum and compression minimum attributes are important. The compression deviation value is ignored by the Historian module.
See also "Compression filtering (page 83)".

19. Click **OK**.
20. The file is listed in the **FactoryTalk Historian Tag Attribute File List** dialog box.

By default, tag attribute files are stored in the same location as the point discovery rule files:

- **<Program Files Path>\Rockwell Software\FactoryTalk Historian ME\ME Rule Editor**

  Tip: The `<Program Files Path>` variable stands for the path to the program files folder in which you have installed your Historian ME suite.

On certain operating systems, if you are using the Rule Editor without administrative privileges, the files will be saved to a folder within your user directory.
For example, on Windows Server 2008 R2, the files are saved to the following location:

- **C:\Users\<User Name>\AppData\Local\VirtualStore\<Program Files>\Rockwell Software\FactoryTalk Historian ME\ME Rule Editor**

  Tip: The `<Program Files>` variable stands for the name of the program files folder. Depending on the type of the operating system, it may be **Program Files** or **Program Files (x86)**.

The names of the custom tag attribute files are preceded with a **TCFG_** prefix.

21. After the tag attribute file has been created, you must upload the file to FactoryTalk Historian ME. You must have administrator privileges to upload files.

Now you can upload your file to the Historian module. For details, see "Upload files to the module (page 129)".

Edit tag attribute files

To edit a tag attribute file:

1. In the **FactoryTalk Historian ME Rule Editor** window, click **Tag Attributes File Management**.

   The **FactoryTalk Historian ME Tag Attribute File List** dialog box appears.

2. Select the file that you want to edit, and then click **Edit**.

   For details, see "Create tag attribute files (page 160)".

3. Click **OK**.

Remove tag attribute files

To remove a tag attribute file:

1. In the **FactoryTalk Historian ME Rule Editor** window, click **Tag Attributes File Management**.

   The **FactoryTalk Historian ME Tag Attribute File List** dialog box appears.
2. Select the file that you want to remove, and then click **Remove**.
3. In the message box that appears, click **Yes**.

Use Studio 5000 Logix Designer Module Profile

The FactoryTalk Historian ME Logix Designer Module Profile allows you to integrate a ControlLogix controller with the FactoryTalk Historian ME module.

The Module Profile is available on the FactoryTalk Historian ME Client Tools DVD.

You can use the Module Profile with either RSLogix 5000 or Logix Designer, depending on your firmware version:

- For the firmware 20 and older versions, use RSLogix 5000.
- For the firmware 21 and newer versions, use Logix Designer.

The instructions presented in this chapter are based on RSLogix 5000. You may reuse them for Logix Designer.

Configure your Historian module in the Module Profile

To configure the Historian module in the Module Profile:

1. Add the Historian module to a project in Logix Designer.
2. Add the Ladder logic to the controller.

   For details, see "Example: Use the Module Profile (page 171)".

Configure the module properties

Use the **Module Properties** dialog box to perform the following actions on your Historian module:

- Restore the default settings.
- Reset the security configuration.
- Shut down the module.
- Start up the module.
- Refresh data about the module.
- Reset the module.

Tip: Before you modify the module properties, back up your current module configuration.

To configure the module properties:

1. In RSLogix 5000/Logix Designer, in the Controller Organizer, expand **I/O Configuration**.
2. Right-click your Historian module, and then click **Properties**.

   The **Module Properties** dialog box appears.
3. Click the **Configuration** tab.

   Tip: The blue arrows next to the buttons indicate that the given action will be immediately committed, without pressing the **Apply** button first.
4. Choose any of the following options:

   - **Restore Defaults**

     Click this button to restore the module back to its original configuration.
     All configuration data, archives, and logs are deleted and reset. This process may take some time. While restoring the default settings, the Historian web page will not be available.
     After you click **Restore Defaults**, a message appears:

Click:	To:
Yes	Perform the restore defaults action. You will have 5 minutes to do either of the following: • Cut off and restore the power to the module by turning off and on the power switch on the chassis. • Unplug and insert the module to the chassis. Otherwise, the action will be aborted.
No	Abort the restore defaults action.

   - **Reset Security**

     Resets the module security back to the FactoryTalk Historian Native security mode and makes the *piadmin* user the password empty.
     If the Historian module is in the safe mode, clicking **Reset Security** will have no effect. For details, see "Repair archives using safe mode (page 136)".
     After you click **Reset Security**, a message appears:

Click:	To:
Yes	Perform the reset security action. You will have 5 minutes to do either of the following: • Cut off and restore the power to the module by turning off and on the power switch on the chassis. • Unplug and insert the module to the chassis. Otherwise, the action will be aborted.
No	Abort the reset security action.

   - **Shutdown**

     Shut the module down. This process may take some time.
     The module shutdown allows you to stop all FactoryTalk Historian ME related services (including the point server, the data collection, the data transfer, and the web configuration server). It is

recommended that you shut down the module if you plan to remove it from the chassis or if you are going to power down the chassis. Before you perform any other operations in the **Configuration** tab, wait until the shutdown is complete.

- **Startup**

  Start the module after it was shut down.
  When you click the **Startup** button, the module is rebooted, and the data collection service is restarted.
  The button is available only when the module is shut down.
  If Logix Designer Module Profile loses communication with the module at the startup time, the message "Requested message timed out" appears. Click **OK** and retry.

  Tip: Alternatively, you can execute the Restore Defaults, Reset Security, and Shutdown actions using the FactoryTalk Historian ME web client.
  For details, see "Restore and reset module-related settings (page 137)", "Reset the security mode (page 138)", and "Close and start the module (page 139)".

5. Click the **Module Info** tab.
6. Choose any of the following options:

   - **Refresh**

     Click this button to refresh the tab with new data from the module.

   - **Reset Module**

     Click this button to reset the module.

Example: Use the Module Profile

In this example you will learn about the following:

- Setting up a controller in the local chassis to monitor key FactoryTalk Historian ME statistics, and control the data collection service using the Module Profile.
- Writing the controller logic for:
  - Monitoring key statistics of the Historian module with input tags.
  - Making control decisions using output tags.

    You can use the output tags to control the status of the data collection (running or stopped) and the status of the Historian module (running or shut down).

Add an Ethernet driver

After installing the Module Profile, make sure that you install and configure an Ethernet driver using RSLinx Classic. You will use the driver to connect to your processor and download the Ladder logic to the controller.

For details, see the RSLinx Classic user documentation.

To add the Ethernet driver:

1. Go to **Start > All Programs > Rockwell Software > RSLinx > RSLinx Classic**.

   RSLinx Classic appears.
2. On the **Communications** menu, click **Configure Drivers**.

   The **Configure Drivers** dialog box appears.
3. In the **Available Driver Types** list, click **Ethernet devices**.
4. Click **Add New**.

   The **Add New RSLinx Classic Driver** dialog box appears.
5. In the text box, type the name of the Ethernet module (`ENBT` or `EN2T`) from your chassis.
6. Click **OK**.

   The **Configure driver** dialog box appears.
7. Next to the `0` station, type the IP address of the Ethernet module (the leftmost module).
8. Click **OK**.

   The new driver appears under **Configured Drivers**.

Add the module to Studio 5000 Logix Designer

Before you add your Historian module, make sure that the following prerequisites are met:

- The project file that contains the controller programming and configuration information (the **.ACD** file) already exists in Logix Designer.
- Communication devices are added to the **I/O Configuration** folder.
- Logic, tags, and communication path are defined.
- The controller is manually set to the remote run mode.

To add the module to Logix Designer:

Tip: The following steps may vary depending on your version of Logix Designer.

1. Go to **Start > Programs > Rockwell Software > Studio 5000**.

   Logix Designer appears.

   Tip: Alternatively, double-click the **.ACD** file to open Logix Designer.
2. On the **File** menu, click **Open**, and then browse for the Logix Designer project file.
3. Click **Open**.

   The project is loaded.
4. In the Controller Organizer, right-click the **I/O Configuration** folder, and then click **New Module**.

The **Select Module Type** dialog box appears.

5. Select the Historian module that you want to add to the Logix Designer project.
6. Click **Create**.
7. The **New Module** dialog box appears.
8. In the **Name box**, type the name of the module.

   The name will appear in the Controller Organizer.
   For information on naming conventions, see the Logix Designer user documentation.
9. Under **Ethernet Address**, click **IP Address**, and then type the IP address of the module.
10. In the **Slot** list, select the number of the slot in which the module is located.
11. (Optional.) Click **Change**, to configure the electronic keying, the connection type, and/or the revision number.

    The **Module Definition** dialog box appears.
12. In the **Series** list, select the series of the Historian module.
13. In the **Revision** lists, select the revision numbers of the firmware installed on the module.
14. In the **Electronic Keying** list, select the desired option.

    For details, see the Logix Designer user documentation.
15. In the **Connection** list, select the connection type, and then click **OK**.

    The **New Module** dialog box appears.
16. Click **OK**.

    The module appears in the Controller Organizer, under **I/O Configuration**.
17. On the **Communications** menu, click **Who Active**.

    The **Who Active** dialog box appears.
18. Select the controller to which you will download the Logix Designer project.
19. Click **Set Project Path** to provide the path to the controller in the project.

    The path in the projects points now to the location of the controller.
20. Click **Download** to download the project to the controller.
21. Verify the controller information.
22. Click **Download**.

    The Logix Designer project is downloaded to the controller.
23. Click **Yes**.

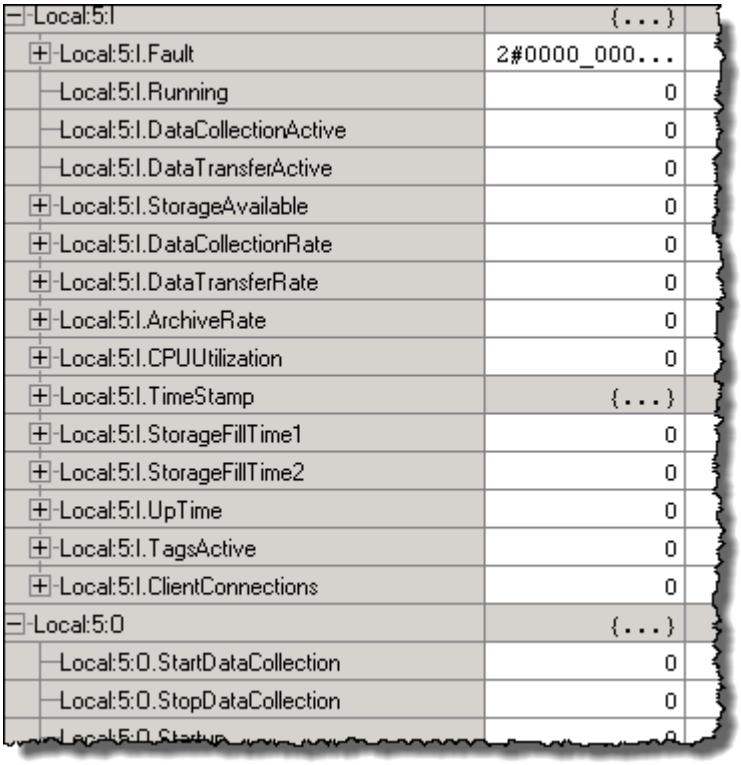
Use output tags to start and stop the data collection

To stop the data collection:

1. In the Controller Organizer, under the folder of the controller to which you have downloaded the project, double-click **Controller Tags**.

   The list of tags appears.

2. Expand input tags (**Local: <Slot number> I**) and output tags (**Local: <Slot number > O**).



   For details on input tags and their values, see "Use the input and output tags to read the Historian ME status (page 175)".

3. Under output tags, next to the **StopDataCollection** tag, change its value from **0** to **1**, and then press Enter.

   The following actions take place:

   - The value of the **DataCollectionActive** input tag changes from **1** to **0**.
   - The value of the **TagsActive** input tag changes from its current value to **0**, because the scanning of all the points is stopped.

To start the data collection:

1. Under output tags, next to the **StartDataCollection** tag, change its value from **0** to **1**, and then press Enter.

   The following actions take place:

   - The value of the **DataCollectionActive** input tag changes from **0** to **1**.
   - The value of the **TagsActive** input tag changes from **0** to its current value.

- The values of the **DataCollectionRate**, **DataTransferRate**, and **ArchiveRate** input tags are updated, provided that these services are configured on your module.

You can write Ladder logic programs to monitor these statistics and programmatically start and stop the data collection and/or stop and start batches depending on the status of the module.

To reset the output tags back to **0**, write the Ladder logic or manually set them to **0**.

Use the input and output tags to read the Historian ME status

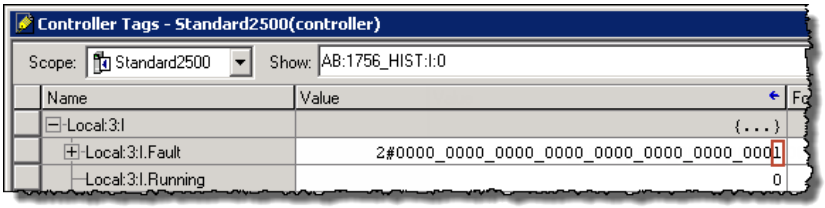
With the Module Profile you can view the current status of your Historian ME module directly in Logix Designer. The status is presented with input and output tags. Each tag corresponds with a specific functionality of FactoryTalk Historian ME.

Tip: The bits referenced in this section are indexed from right to left, with the least significant bit indexed as **a0**, and the adjoining bits indexed as **a1**, **a2**, etc.

The **Fault** tag may indicate the following activities of the module:

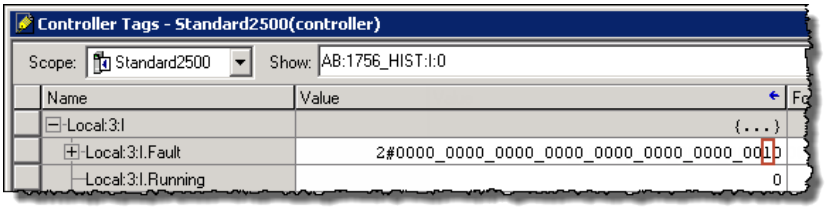
- The module has entered safe mode.

  The safe mode is indicated with the least significant bit (**a0**) in the **Fault** word set to **1**.

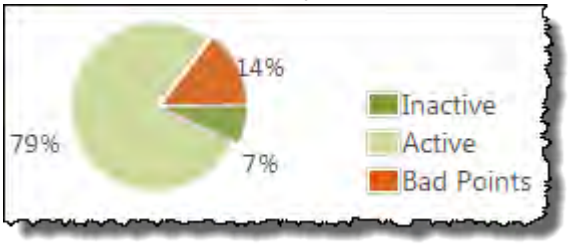


- There is at least one bad point on the module.

  The bad points are indicated with the **a1** bit in the **Fault** word set to **1**.

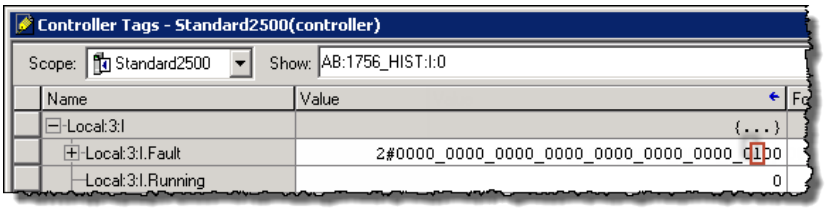


  This reflects the information available on the **Home** tab of FactoryTalk Historian ME module page under **Point Statistics**.



- The time synchronization with the NTP server does not work correctly.

The time synchronization error is indicated with the **a2** bit in the **Fault** word set to **1**.



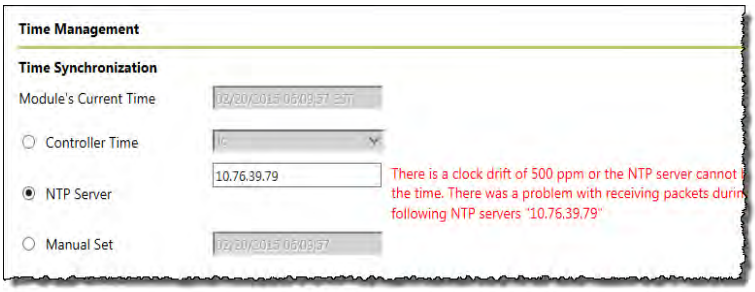
The update of the time synchronization status in the tag value may be delayed by several minutes after the actual status change.

The indication of the NTP time synchronization status is correlated with the following message:

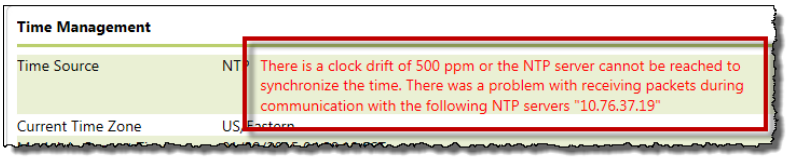
`There is a clock drift of 500 ppm or the NTP server cannot be reached to synchronize the time.`

The message appears on the **Time Management** page in the following locations in the Historian module web interface:

- On the **Advanced** tab in the Historian web client.

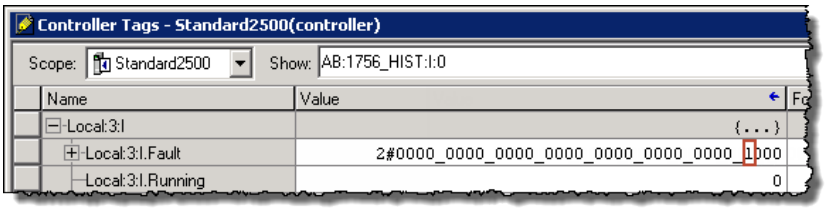


- On the **Hardware** tab in the Web Diagnostics client.



- At least one required PI process and/or FactoryTalk Historian ME specific process is not running.

  This is indicated with the **a3** bit in the **Fault** word set to **1**.



Create trends with the FactoryTalk Historian DataLink Add-in

FactoryTalk Historian DataLink is a client application that you can use with your FactoryTalk Historian ME. It is a Microsoft Excel Add-in for exchanging information directly with FactoryTalk Historian ME. It provides powerful tools for gathering, visualizing, monitoring, analyzing, and reporting data from FactoryTalk Historian ME and FactoryTalk Historian SE.

For more information on FactoryTalk Historian DataLink, refer to the *FactoryTalk Historian DataLink User Guide*.

In this chapter you will learn about the following:

Prerequisites

In order to use the FactoryTalk Historian DataLink Add-in, you should have:

1. Installed Microsoft Excel in a version compatible with your version of FactoryTalk Historian DataLink.

   For details, see the *FactoryTalk Historian DataLink Release Notes*.

2. Installed FactoryTalk Historian DataLink Add-in.

   For details, see the FactoryTalk Historian DataLink user documentation.

3. Enabled the FactoryTalk Historian DataLink Add-in tab in Microsoft Excel.

   For details, see the FactoryTalk Historian DataLink user documentation.

   Tip: If you cannot see the tab, refer to the *FactoryTalk Historian SE Installation and Configuration Guide*, section "Enable Excel add-ins for FactoryTalk Historian DataLink" and to "Activate Excel COM add-ins for FactoryTalk Historian DataLink" to learn how to enable it manually.

Define the server connection

Before you begin using an Excel Add-in, you need to configure a connection to each FactoryTalk Historian ME and FactoryTalk Historian SE server that you are going to use with the Add-in.

To define a server connection to FactoryTalk Historian SE or FactoryTalk Historian ME:

1. Go to **Start > Programs > Rockwell Software > FactoryTalk Historian SE > FactoryTalk Historian SE System > About PI-SDK**.

   The **PI SDK Utility** window appears.
2. On the **Connections** menu, click **Add server**.

   The **Add PI Server** dialog box appears.
3. In the **Network Path/FQDN** box, type the IP address of your FactoryTalk Historian SE or FactoryTalk Historian ME.
4. Click **OK**.

   The server is added to the server list.
5. Select the check box next to the server.

   The connection details appear in the right pane of the **PI SDK Utility** window.
   The connection status appears at the bottom of the window.
6. Repeat the steps for each server that you are going to use with the Add-in.

Insert trends in a Microsoft Excel workbook

To insert a trend in a Microsoft Excel workbook:

Tip: The following steps may vary depending on your version of Microsoft Excel.

1. Open Microsoft Excel.
2. Select the cell in which you want the trend chart to appear.
3. Click the **PI DataLink** tab.

   Tip: For details, see the prerequisites in "Create trends with the FactoryTalk Historian DataLink Add-in (page 177)".
4. In the **Tag Functions** group, click **Insert Trend**.

   The **Trend Add-in Wizard** dialog box appears.
5. On the **Define the Traces** page, click **Data from PI**.
6. In the **Server name** box, type the IP address of your module, or select a module from the list.
7. Next to the **Tag name** box, click ....

   The **Tag Search** dialog box appears.
8. In the **PI Server** box, select the server on which you want to search the tags for your trend.

9. Specify the other filtering criteria, and then click **Search**.

   The table below the search boxes is populated with the search results.

10. Select the name of the tag for your trend, and then click **OK**.

    The selected tag appears in the right pane of the **Define the Traces** page.

11. Select the check box next to the tag name, and then click **Next**.

    The **Specify the time range** page appears.

12. In the **Start Time** and **End Time** check boxes, set the time range from which the data will be displayed.

    The default value for **Start Time** is ***-8h**.
    The default value for **End Time** is * (current time).

13. Select the **Enable updates** check box, and then click **Next**.
14. In the **Trend title (optional)** box, type a name for your trend.
15. Click **Format**.

    The **PI Trend Control Properties** dialog box appears.

16. Select the **Vertical Scale** property.
17. On the **Options** tab, under **Scale**:
    1. In the **Format** list, select **General**.
    2. In the **Position** list, select **Outside Left**.
18. Click **OK**.
19. In the **Trend Add-in Wizard** window, click **Finish**.

    The trend chart appears in your Excel spreadsheet.

Create trends visualizing the data transfer

In this exercise, you will choose a data point that you have added to the data transfer, and you will create a trend that displays this point data from both FactoryTalk Historian ME and FactoryTalk Historian SE.

To create a trend visualizing the data transfer between FactoryTalk Historian ME and FactoryTalk Historian SE:

Tip: The following steps may vary depending on your version of Microsoft Excel.

1. Open Microsoft Excel.
2. Select the cell in which you want the trend chart to appear.
3. Click the **PI DataLink** tab.

   Tip: For details, see the prerequisites in "Create trends with the FactoryTalk Historian DataLink Add-in (page 177)".

4. In the **Tag Functions** group, click **Insert Trend**.

   The **Trend Add-in Wizard** dialog box appears.

5. On the **Define the Traces** page, click **Data from PI**.

6. In the **Server name** box, type the IP address of your module, or select a module from the list.
7. Next to the **Tag name** box, click ....

   The **Tag Search** dialog box appears.
8. Click the **PI Server** box.

   The **Multi-Server Pick List** dialog box appears.
9. Choose the FactoryTalk Historian SE server and the Historian module for which you have enabled the data transfer:
   1. Click the IP address of your FactoryTalk Historian SE server, and then hold down the Ctrl key while you click the IP address of your Historian module.
   2. Click **OK**.
10. Configure your search criteria, and then click **Search**.
11. There will be two matches for the same point listed: one from FactoryTalk Historian ME, and the other from FactoryTalk Historian SE.

    The name of the point transferred to FactoryTalk Historian SE is prefixed with the Historian module name. In this example, the Historian module name is `A0004B97-FTHME`.
12. Click a point data from your Historian module, and then hold down the Ctrl key while you click the same point transferred to the FactoryTalk Historian SE server.
13. Click **OK**.

    The selected data points appear in the right pane of the **Define the Traces** page.
14. Select the check boxes next to the data point names, and then click **Next**.

    The **Specify the time range** page appears.
15. In the **Start Time** and **End Time** check boxes, set the time range from which the data will be displayed.

    When setting the **End Time** value, take into account the fact that the data from the FactoryTalk Historian SE server will appear with a slight delay.
    In this example, we set the **End Time** value to 5 minutes (***-5m**).
16. Select the **Enable updates** check box, and then click **Next**.
17. In the **Trend title (optional)** box, type a name for your trend.
18. Click **Format**.

    The **PI Trend Control Properties** dialog box appears.
19. Select the **Vertical Scale** property.
20. On the **Options** tab, under **Scale**:
    1. In the **Format** list, select **General**.

2. In the **Position** list, select **Outside Left**.

21. Click **OK**.
22. In the **Trend Add-in Wizard** window, click **Finish**.

    The trend chart appears in your Excel spreadsheet.
    The trend displays the following data:

     - the data from FactoryTalk Historian SE.

     - the data from FactoryTalk Historian ME.

    The module data point is a real-time display, while the FactoryTalk Historian SE data point lags by a couple of minutes. However, the data is identical.

Use Web Diagnostics

In this chapter you will learn how to troubleshoot and tune your Historian ME module using the FactoryTalk Historian ME Web Diagnostics page.

FactoryTalk Historian ME is an embedded system with multiple layers of firmware applications. Firmware applications and hardware components are available via the FactoryTalk Historian ME Web Diagnostics page.

To access the page, open the web browser, and type either of the following, depending on your security setting for the Historian webpages:

- *http://<Module IP_address>:8080*
- *https://<Module IP_address>:8443*

  Tip: For details, see "Configure where to use the secure communication protocol (HTTPS) (page 144)".

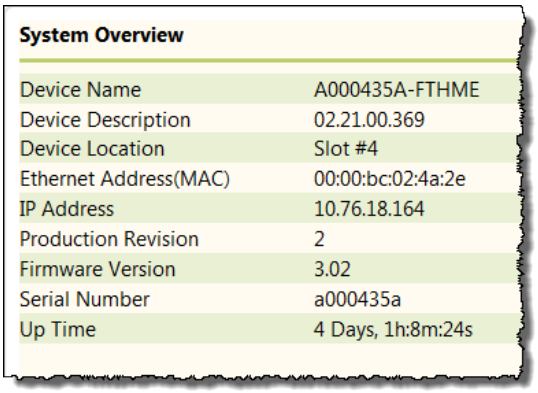
  You can also use the Fully Qualified Domain Name instead of the IP address of the module. Type the domain name in the following format:
  <modulename>.<domainname>.<top-level domain>
  For example, *module1.mycompany.com*

The page contains the following tabs:

- Home (page 184)
- Hardware (page 184)
- Firmware (page 191)
- Admin (page 196)

  Tips:
  - To open the web diagnostics online help, click **Help**.
  - To check the firmware version and product ID, click **About**.

Home



System Overview	
Device Name	A000435A-FTHME
Device Description	02.21.00.369
Device Location	Slot #4
Ethernet Address(MAC)	00:00:bc:02:4a:2e
IP Address	10.76.18.164
Production Revision	2
Firmware Version	3.02
Serial Number	a000435a
Up Time	4 Days, 1h:8m:24s

The **Home** tab displays the following information:

Item	Description
Device Name	The name of FactoryTalk Historian ME.
Device Description	The version number of FactoryTalk Historian ME.
Device Location	The physical slot location of the FactoryTalk Historian ME module in the chassis.
Ethernet Address (MAC)	The MAC address of the Ethernet port.
IP Address	The IP address of FactoryTalk Historian ME.
Production Revision	The revision number of FactoryTalk Historian ME.
Firmware Version	The version number of the firmware.
Serial Number	The serial number of FactoryTalk Historian ME.
Up Time	The amount of CPU time used.

Hardware

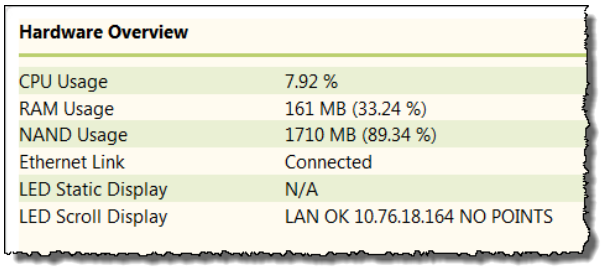
The **Hardware** tab contains the following information:

- Overview (page 184)
- CPU, RAM (page 185)
- NAND (page 186)
- Controller statistics (page 187)
- ControlBus statistics (page 188)
- EtherNet/IP (page 189)
- Display LED (page 189)
- Time management (page 190)

Overview

The **Overview** page displays the following information:

Item	Description
CPU Usage	The percent of CPU utilization for the module.
RAM Usage	The RAM (physical memory) usage in megabytes (and percentage).
NAND Usage	NAND usage (storage) in megabytes (and percentage).
Ethernet Link	Displays the module's Ethernet connection status.
LED	Information for either the static or the scroll display will be available. If a static message is available, there is no scrolling display. If a message is scrolling in the module LED, no static message is available. • Static Display The current message being displayed on module LED. • Scroll Display The current message being scrolled on module LED.



Hardware Overview	
CPU Usage	7.92 %
RAM Usage	161 MB (33.24 %)
NAND Usage	1710 MB (89.34 %)
Ethernet Link	Connected
LED Static Display	N/A
LED Scroll Display	LAN OK 10.76.18.164 NO POINTS

CPU, RAM

The **CPU, RAM** page contains the following sections:

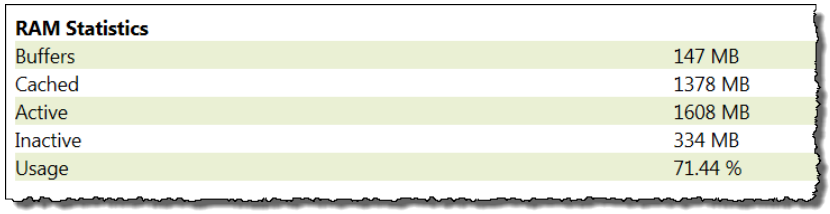
- **CPU Statistics**

CPU, RAM	
CPU Statistics	
Cache	512 KB
Model	Intel(R) Atom(TM) CPU E3826 @ 1.46GHz
Speed	Varying
Usage	21.50 %

This section displays the following information:

Item	Description
Cache	The amount of CPU cache present on the module.
Model	CPU information.
Speed	CPU speed. The field always displays *Varying*.
Usage	Current snapshot of CPU utilization (as a percentage).

- **RAM Statistics**

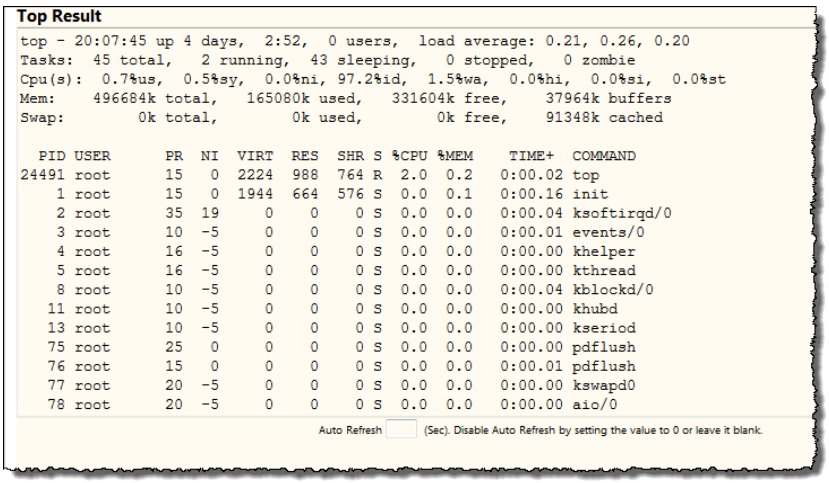


RAM Statistics	
Buffers	147 MB
Cached	1378 MB
Active	1608 MB
Inactive	334 MB
Usage	71.44 %

This section displays the following information:

Item	Description
Buffers	Total amount of RAM in megabytes that is buffered.
Cached	Total amount of RAM in megabytes that is cached.
Active	Total amount of RAM in megabytes that is in use.
Inactive	Total amount of RAM in megabytes that is not in use.
Usage	The percent of total memory utilization for the module.

- **Top Results**



This section displays the results of the Linux **top** command, which is automatically invoked by the system when you visit the **CPU, RAM** page. The command retrieves data on frequently-updated processes. The results displayed in the **Top Results** section are calculated from a 1 second time period.
You can use this information to administer, configure, and troubleshoot your Historian ME module.
If you want the information to be automatically refreshed and generated dynamically on the page, type the refresh interval in seconds in the **Auto Refresh** box below the table.
To disable the auto refresh option, type *0* in the text box.

NAND

The **NAND** page (Not AND) displays information on the NAND flash memory used for data storage. It contains the following sections:

- **Application**

  This section provides statistics on disk space allocated to the Historian ME server binary files. In particular, it displays the following information:

Item	Description
Total Storage	Total amount of space allocated for server binary files.
Total Storage Used	The amount of space in megabytes (and percentage) currently used for server binary files.
Total Storage Free	The amount of space in megabytes available for server binary files.

- **Archive**

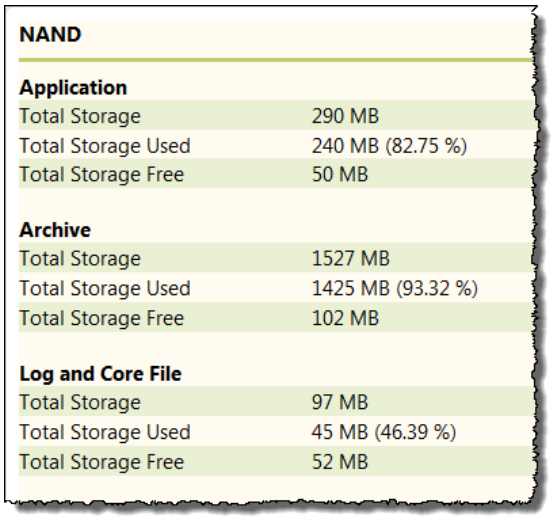
  This section provides statistics on disk space allocated to archives. In particular, it displays the following information:

Item	Description
Total Storage	Total amount of space allocated for archive files.
Total Storage Used	The amount of space in megabytes (and percentage) currently used for archive files.
Total Storage Free	The amount of space in megabytes available for archive files.

- **Log and Core File**

  This section provides statistics on disk space allocated to log and core files. In particular, it displays the following information:

Item	Description
Total Storage	Total amount of space allocated for log and core files.
Total Storage Used	The amount of space in megabytes (and percentage) currently used for log and core files.
Total Storage Free	The amount of space in megabytes available for log and core files.

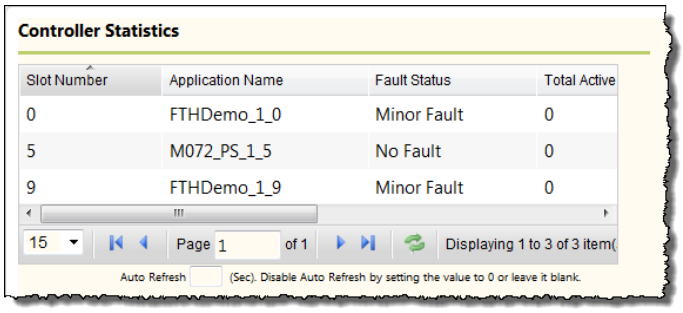


NAND	
Application	
Total Storage	290 MB
Total Storage Used	240 MB (82.75 %)
Total Storage Free	50 MB
Archive	
Total Storage	1527 MB
Total Storage Used	1425 MB (93.32 %)
Total Storage Free	102 MB
Log and Core File	
Total Storage	97 MB
Total Storage Used	45 MB (46.39 %)
Total Storage Free	52 MB

Controller statistics

The **Controller Statistics** page provides the following information on Logix Controllers in the chassis:

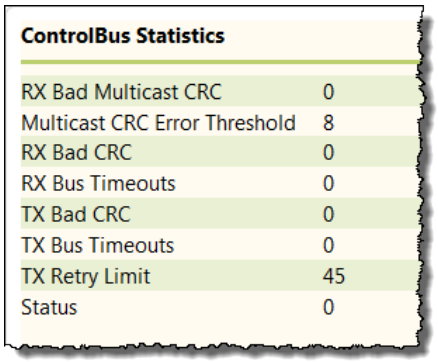
Item	Description
Slot Number	The chassis slot in which the Logix Controller is installed.
Application Name	The name of the program running on the Logix Controller.
Fault Status	The Logix Controller's current fault status is one of the following: • No Fault • Minor Fault • Major Fault
Collected Points	The total number of tags actively collected between the module and this controller.
Point Event Rate/Sec	The number of tag reads from this controller, per second, accumulated over a rolling 10 second period. Therefore, the value is the average tag reads per second over the previous 10 seconds.
Point Failure Rate/Sec	The number of tag read failures from this controller, per second, accumulated over a rolling 10 second period. Therefore, the value is the average tag read failures per second over the previous 10 seconds.
CPU Loading	The controller's CPU utilization in tenths of a percent. For example, the range of 0 - 100 representing 0 to 100%.



ControlBus statistics

The **ControlBus Statistics** page provides the following information on the ControlLogix backplane:

Item	Description
RX bad Multicast CRC	The number of multicast received cyclic redundancy check (CRC) errors since the last power on, module reset, or Internet Cache Protocol (ICP) Object Reset Service received.
Multicast CRC Error Threshold	The threshold value for typing a fault state due to multicast CRC errors.
RX bad CRC	The number of directed receiver CRC errors since the last power on, module reset, or ICP Object Reset Service received.
RX Bus Timeouts	The number of receiver bus timeouts since the last power on, module reset, or ICP Reset Service received.
TX bad CRC	The number of transmit CRC errors since the last power on, module reset, or ICP Object Reset Service received.
TX Bus Timeouts	The number of transmit bus timeouts since the last power on, module reset, or ICP Reset Service received.
TX Retry Limit	The number of times to retry a frame if any transmit error occurs.
Status	The current status of the ICP object: • 0 (for bit 0) = Normal communications; RX disabled; reflects the current status of all receivers. • 1 (for bit 1) = Multicast RX disabled: reflects the current status of the multicast receiver. • 2 (for bit 2) = RA/GA miscompare; a persistent indication of a RA/GA miscompare.



EtherNet/IP

The **EtherNet/IP** page contains the following sections:

- **Network Settings**

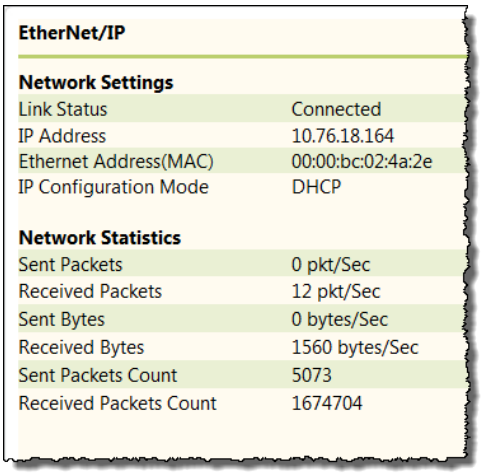
  This section displays the following information:

Item	Description
Link Status	Indicates if FactoryTalk Historian ME is connected to the Ethernet network.
IP Address	The FactoryTalk Historian ME IP address.
Ethernet Access (MAC)	The FactoryTalk Historian ME MAC address.
IP Configuration Mode	Indicates the network setting used for the FactoryTalk Historian ME module.

- **Network Statistics**

  This section displays the following information:

Item	Description
Sent Packets	The number of network packets sent per second.
Received Packets	The number of network packets received per second.
Sent Bytes	The number of bytes sent per second.
Received Bytes	The number of bytes received per second.
Sent Packets Count	The cumulative number of total network packets sent.
Received Packets Count	The cumulative number of total network packets received.



Display LED

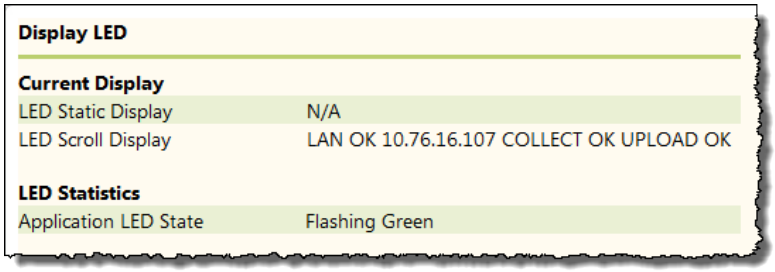
The **Display LED** page displays the current message being displayed or scrolled on the module LED in further detail and the LED statistics.

The page lists **Current Display** and **LED Statistics** information. Data for either the static or the scroll display will be available. If a static message is available, there is no scrolling display. If a message is scrolling in the module LED, no static message is available.

Item	Description
LED Static Display	The current message being displayed on module LED.
LED Scroll Display	The current message being scrolled on module LED.

The Display LED page lists the Application LED State information under **LED Statistics**. Values include:

Item	Description
Solid green	Indicates that both data collection and data transfer are active.
Flashing green	Indicates that the data collection is active but the data transfer is not configured.
Solid red	Indicates that the data collection is inactive.
Flashing red	Indicates that the data collection is active but the data transfer is inactive.



Time management

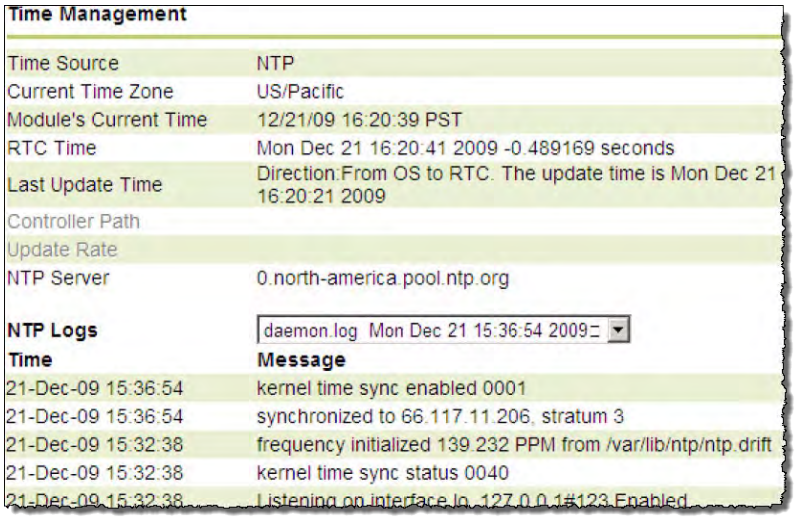
The **Time Management** page displays the following information:

Item	Description
Time Source	The source of the module's current time. **Note:** For details on time source options, see "Manage time (page 121)".
Current Time Zone	The current time zone for the module.
Module's Current Time	The current date and time of the module.
RTC Time	The current time of the Real Time Clock (RTC).
Last Update Time	The date and time the module time was last updated.
Controller Path	The path to the Controller system from an external time source.
Update Rate	How often the time is updated from an external time source.
NTP Server	(Appears only if the time source is an NTP server). The IP address of the NTP server from an external time source.
NTP Logs	If your module is synchronized to an NTP, FactoryTalk Historian SE, or PI server, NTP log files will appear in this section. If you want to view an NTP log, select it from the **NTP Logs** list.

If the time synchronization with an NTP server (including a FactoryTalk Historian SE or PI server) is not successful, you may see the following error messages on this page:

```
sendto("IP") (fd=-1): Bad file descriptor (fd=-1) ("IP" is
the NTP server's IP address).
frequency error xxx PPM exceeds tolerance 500 PPM ( "xxx"
is the PPM value that is larger than 500).
No reply; clock not set. (The time was not synchronized
successfully).
```

When any of these error messages are logged, check to make sure that the NTP server is running properly, and then reboot the ME module to synchronize with the NTP server again.



Time Management	
Time Source	NTP
Current Time Zone	US/Pacific
Module's Current Time	12/21/09 16:20:39 PST
RTC Time	Mon Dec 21 16:20:41 2009 -0.489169 seconds
Last Update Time	Direction:From OS to RTC. The update time is Mon Dec 21 16:20:21 2009
Controller Path	
Update Rate	
NTP Server	0.north-america.pool.ntp.org
NTP Logs	daemon.log Mon Dec 21 15:36:54 2009
Time	**Message**
21-Dec-09 15:36:54	kernel time sync enabled 0001
21-Dec-09 15:36:54	synchronized to 66.117.11.206, stratum 3
21-Dec-09 15:32:38	frequency initialized 139.232 PPM from /var/lib/ntp/ntp.drift
21-Dec-09 15:32:38	kernel time sync status 0040
21-Dec-09 15:32:38	Listening on interface lo, 127.0.0.1#123 Enabled

Firmware

The **Firmware** tab contains the following information:

- Overview (page 191)
- Historian server (page 192)
- CIP (page 192)
- Data server (page 193)
- Data collection (page 193)
- Data transfer (page 194)
- Data storage (page 194)
- Web configuration server (page 195)
- Web diagnostics server (page 196)
- Startup log (page 196)

Overview

The **Overview** page displays the following information:

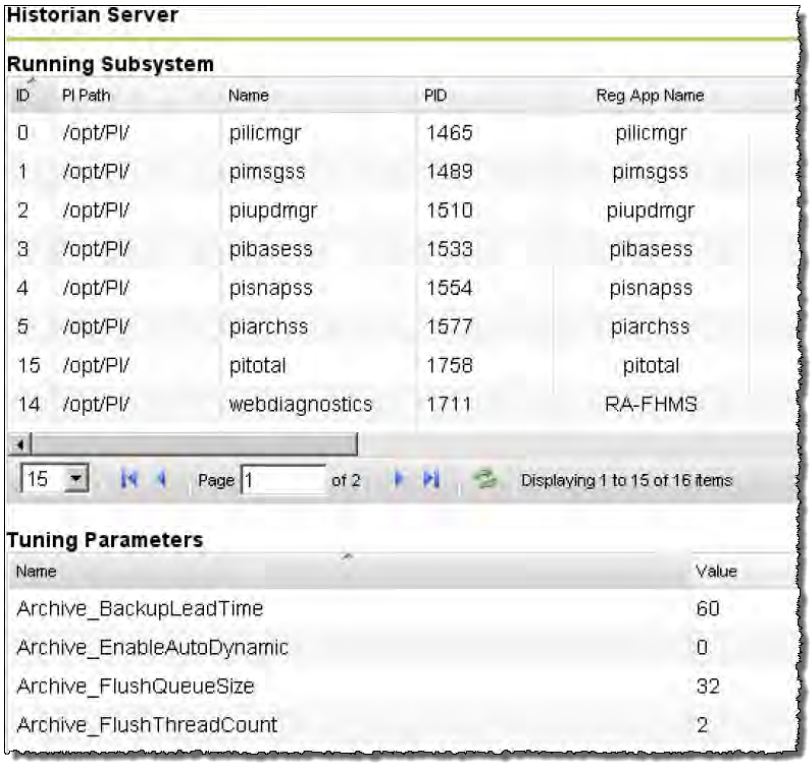
Item	Description
Component Status	Displays the current status of all firmware components, either Running or Stopped.
Security Mode	Displays the current security mode, either Native or FactoryTalk (FT) Security.
Last Backup	Displays status, date, file name and file size of the last backup.
Top Processes	Displays the running processes in descending order based on CPU usage.

Historian server

The **Historian Server** page displays information on the FactoryTalk Historian ME server Linux operating system, its functioning subsystems, and its tuning parameters.

This page displays the following information:

Item	Description
Running Subsystem	Lists all running subsystems.
Tuning Parameters	Lists the PI tuning parameters.

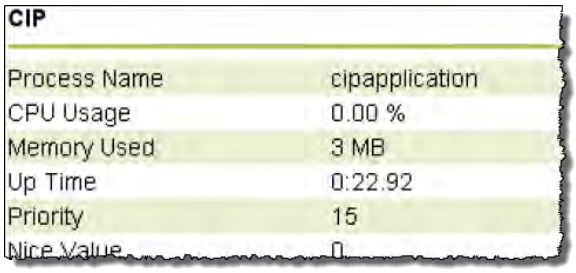


CIP

The **Control and Information Protocol (CIP)** page displays the CIP process name, CPU usage, memory used, up time, priority, Nice value, and a restart button for the CIP process.

The page lists the following information:

Item	Description
Process Name	The title of the process.
CPU Usage	The percent of CPU utilization.
Memory Used	The amount of memory (in megabytes) utilized by CIP.
Up Time	The amount of CPU time used.
Priority	Indicates the precedence order for the process.
Nice Value	A value that indicates the CPU process priority. The default value is zero. A high Nice value indicates a lower priority for the process. Negative Nice values are higher priority.

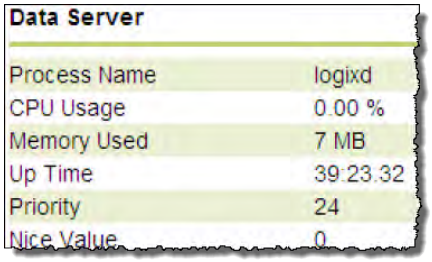


Data server

The **Data Server** page displays the Data Server process name, CPU usage, memory used, up time, priority, and Nice value.

The page lists the following information:

Item	Description
Process Name	The title of the process.
CPU Usage	The percent of CPU utilization.
Memory Used	The amount of memory (in megabytes) utilized by the data server.
Up Time	The amount of CPU time used.
Priority	Indicates the precedence order for the process.
Nice Value	A value that indicates the CPU process priority. The default value is zero. A high Nice value indicates a lower priority for the process. Negative Nice values are higher priority.

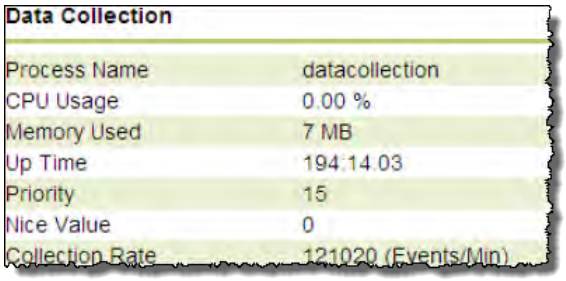


Data collection

The **Data Collection** page displays the data collection process name, CPU usage, memory used, up time, priority, Nice value, and collection rate.

The page lists the following information:

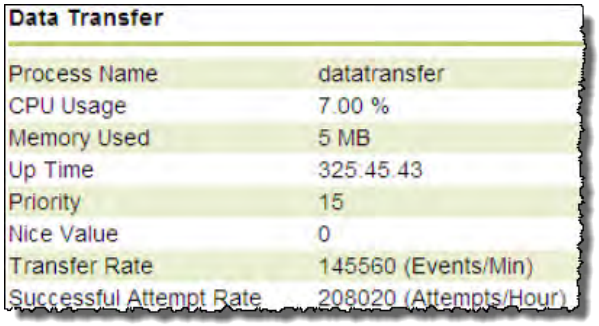
Item	Description
Process Name	A label for the process.
CPU Usage	The percent of CPU utilization.
Memory Used	The amount of memory (in megabytes) utilized by the data collection service.
Up Time	The amount of CPU time used.
Priority	Indicates the precedence order for the process.
Nice Value	A value that indicates the CPU process priority. The default value is zero. A high Nice value indicates a lower priority for the process. Negative Nice values are higher priority.
Collection Rate	The current collection rate from the data collection service in events per minute.



Data transfer

The **Data Transfer** page lists the following information:

Item	Description
Process Name	The title of the process.
CPU Usage	The percent of CPU utilization.
Memory Used	The amount of memory (in megabytes) utilized by the data transfer service.
Up Time	The amount of CPU time used.
Priority	Indicates the precedence order for the process.
Nice Value	A value that indicates the CPU process priority. The default value is zero. A high Nice value indicates a lower priority for the process. Negative Nice values are higher priority.
Transfer Rate	Current transfer rate from the data transfer service in events per minute.
Successful Attempt Rate	The number of attempts to transfer data to the FactoryTalk Historian SE or PI server per hour.

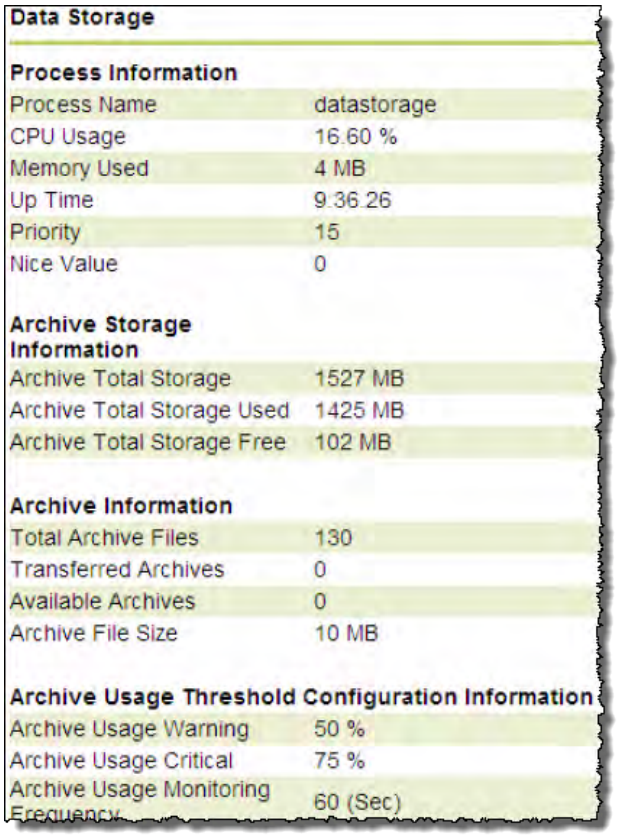


Data storage

The **Data Storage** page displays storage-related information.

The page displays the following information:

Item	Description
Process Information	Contains the process name, CPU usage, memory used, up time, priority, and Nice value.
Archive Storage Information	Displays total archive space, the amount used, and the amount of archive storage space available.
Archive Information	Displays the total number of archive files, the number of transferred files, total available files, and the archive file size.
Archive Usage Threshold Configuration Information	Displays the percent level at which a warning is triggered and when the archive reaches critical size. The monitoring frequency refers to how often the archive is scanned for size limits.

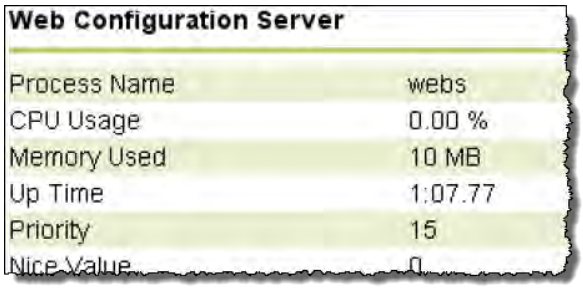


Data Storage	
Process Information	
Process Name	datastorage
CPU Usage	16.60 %
Memory Used	4 MB
Up Time	9:36.26
Priority	15
Nice Value	0
Archive Storage Information	
Archive Total Storage	1527 MB
Archive Total Storage Used	1425 MB
Archive Total Storage Free	102 MB
Archive Information	
Total Archive Files	130
Transferred Archives	0
Available Archives	0
Archive File Size	10 MB
Archive Usage Threshold Configuration Information	
Archive Usage Warning	50 %
Archive Usage Critical	75 %
Archive Usage Monitoring Frequency	60 (Sec)

Web configuration server

The **Web Configuration Server** page lists the following information:

Item	Description
Process Name	The title of the process.
CPU Usage	The percent of CPU utilization.
Memory Used	The amount of memory (in megabytes) utilized by the web configuration server.
Up Time	The amount of CPU time used.
Priority	Indicates the precedence order for the process.
Nice Value	A value that indicates the CPU process priority. The default value is zero. A high Nice value indicates a lower priority for the process. Negative Nice values are higher priority.

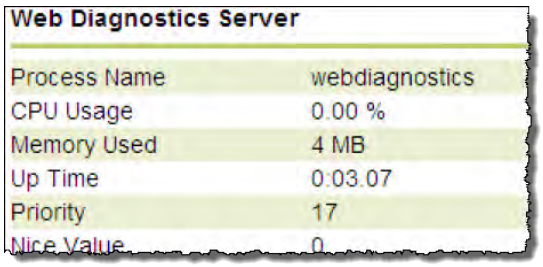


Web Configuration Server	
Process Name	webs
CPU Usage	0.00 %
Memory Used	10 MB
Up Time	1:07.77
Priority	15
Nice Value	0

Web diagnostics server

The **Web Diagnostics Server** page lists the following information:

Item	Description
Process Name	The title of the process.
CPU Usage	The percent of CPU utilization.
Memory Used	The amount of memory (in megabytes) utilized by the web diagnostics server.
Up Time	The amount of CPU time used.
Priority	Indicates the precedence order for the process.
Nice Value	A value that indicates the CPU process priority. The default value is zero. A high Nice value indicates a lower priority for the process. Negative Nice values are higher priority.



Startup log

The **Startup Log** page lists logs recorded each time the module is rebooted.

To search the startup log:

1. In the **Time** text box, type the time parameters.
2. In the **Source** text box, type the source you want to search for.
3. In the **Message** text box, type the type of message you want to search for.
4. In the **Count** text box, type the maximum number of records you want the search to return.
5. Click **Search**. The selected records appear in the list on the Startup Log page.

Tip: For details on time options, see "Set start and end times (page 69)".

Admin

The **Admin** tab contains components that require administrative privileges. You need to log on to open it. The default user name and password are *admin/admin*.

The administrator session expires after 20 minutes, however it is renewed each time you perform an action on the **Admin** tab or each time you access other tabs on the FactoryTalk Historian ME Web Diagnostics page and/or perform actions there. If your session expires on the **Admin** tab, you will be automatically logged out and taken to the **Home** tab.

Tip: For security reasons, we recommend that you log out of the FactoryTalk Historian ME Web Diagnostics when you finish working with it.

The tab contains the following information:

Tip: If you want to simultaneously log in to the web diagnostics clients for multiple FactoryTalk Historian ME modules, please note the following:

- If you are using Internet Explorer version 7 or version 8 (compatibility mode), logging out of one tab from a single Internet Explorer session causes all other logged-in tabs to log out as well.
- If you are using Internet Explorer version 8 (compatibility mode), logging out of one session will also trigger the other logged-in sessions to log out as well.

For either of these scenarios, if you get logged out unexpectedly, just log back in to the tab you want to view.

Hosts

The **Hosts** page lists the contents of the module's hosts file. The hosts file can be used to provide hostname-to-IP address resolution for networks that do not have reliable DNS servers available.

Use this page to do the following:

- To add a new host, click **New**. Type the new hostname and IP address and click **Save**.
- To edit a host, select the host in the list and click **Edit** to make the **Host Name** and **IP Address** bars editable. Update the host name and IP address, and click **Save**.
- To delete a host, select the host in the list and click **Delete**. You will be asked to confirm the deletion. Click **OK** to delete the host.

Restart services

The **Restart Services** page allows you to restart the web configuration server and CIP:

Item	Description
Restart web	Click this button to restart the web configuration server process. To reboot the web configuration server, you must reboot the module by going to **Advanced** in the web interface, and clicking **Module Shutdown** in the left navigation bar. To restart the web configuration server without rebooting the entire module, click **Restart**. Please note that the restart is done without authentication.
Restart CIP	Click this button to reset the CIP process. To reboot CIP, you must reboot the module by going to **Advanced** in the web interface, and clicking **Module Shutdown** in the left navigation bar. To restart CIP without rebooting the entire module, click **Restart**. Please note that the restart is done without authentication.

Core dump directory

The **Core Dump Directory** page contains all core dumps stored on FactoryTalk Historian ME.

To download a core dump file, highlight it in the list, and then click **Download**.

To delete a core dump file, highlight the file, and then click **Delete**.

PI commands

IMPORTANT Executing some PI commands can irreparably damage the data server, stored data, and possibly the FactoryTalk Historian ME module. Consult with Rockwell Technical Support before executing any PI command.

The **PI commands** page lists all available PI commands.

If the **Options** text box remains blank and you click **Execute**, a list of valid PI options will appear. To execute a command, type the command in the **Options** text box and click **Execute**.

Tip: When the FactoryTalk Historian ME module is in Safe Mode, PI commands cannot be executed. For details on how to get the module out of Safe Mode, see "Repair archives using safe mode (page 136)."

Download logs

IMPORTANT Any kind of firmware upgrade or reinstallation will clear out all logs. A firmware upgrade will preserve archived data and application configuration information, but a reinstallation will clear out all application configuration information and archived data. If you want to save your settings, download and back up your configuration and logs.

The **Download Logs** page contains the name of the existing packaged log file, the time when it was packaged, and the size of the file. Use the provided buttons to package log files, download packaged log files, and delete packaged log files.

After the packaged logs are downloaded, the packaged export can be deleted so that it does not utilize space on the FactoryTalk Historian ME module. The original log files are not deleted.

Change password

The **Change Password** page allows you to change the password for the logged-in user.

To change the password:

1. In the **Current Password** box, type the current password.
2. In the **New Password** box, type the new password.
3. In the **Confirm New Password** box, type the new password again.
4. Click **Change Password**.

A message appears telling you that your password change was successful and that you should now log in with your new password.

If you forget your Web Diagnostics login and password, you can reset it in the FactoryTalk Historian ME Web interface.

To reset the password:

1. In the ME module web interface, click **Advanced** in the main navigation, and then click **Restore Defaults**.
2. Click **Reset Web Diagnostics Password**. A dialog box appears asking if you are sure you want to reset the Web Diagnostics password.
3. Click **OK**.

   The Web Diagnostics login and password revert to `admin/admin`.

Troubleshoot

In this section you will learn about the following:

Provide issue information

When your FactoryTalk Historian ME is not operating properly, you should collect the following information for Technical Support before restarting the module or changing the module configuration. This information will assist the Support team in troubleshooting your issues.

- Check the system log and export log data.

  Go to the **Advanced** tab, view the System Log page, and export log data.

- Check for core dump files and download them if there are any.

  Go to the **Web Diagnostics Firmware** tab and click **Core Dump Directory** to collect the core dump files.

  Tip: For details on the web diagnostics interface, see "Use Web Diagnostics (page 183)".

- Go to the **Web Diagnostics Firmware** tab and click **Download Logs** to package the log files and download them.

- Record the firmware information.

  Go to the **Web Diagnostics Firmware** tab. Check the **Overview** page for the firmware information.

To contact Rockwell Customer Support:

- Telephone - 1.440.646.3434
- Online)

  Tip: For details on working with Rockwell Technical Support, see "Technical support".

Reboot the module

FactoryTalk Historian ME can be rebooted in two ways:

- In the web interface, go to **Advanced** in the top navigation bar, and then click **Module Shutdown** in the left navigation bar. Click **Module Reboot** to reboot the module.

  For details, see "Reboot the module (page 140)".
- In the Logix Designer Module Profile, click **Reset Module**.

  For details, see "Use Logix Designer Module Profile".

Work in the safe mode

For details, see "Repair archives using safe mode (page 136)".

Hardware issues

Symptom	Solution
The FactoryTalk Historian ME module display is not responding.	• Check to see that both the module and the chassis have power and that the LED display is *on*. • Check the Ethernet cable port. Be sure that the Ethernet display LED lights are lit normally and that the messages scrolling on the display are OK.
The time displayed on the web client is wrong, even if the clock time has already been synchronized in the manual mode.	The battery may need to be replaced. The battery is non-rechargeable and field-replaceable. For information on replacing the battery, see the *Installation Instructions for FactoryTalk Historian ME Module*, section "Replace the battery".
The four-character LED display stops scrolling.	• Check to see if the data server has stopped functioning. Go to the **Web Diagnostics Firmware** tab, and check the Data Server page. If the data server has stopped functioning, restart the module. • Check to see if the CIP application has crashed. If so, go to the **Web Diagnostics Firmware** tab, and check the CIP page for errors. If there are any, click **Restart**.
The Ethernet port lights are not illuminated.	• Contact your IT department to verify that your system is properly connected to your network. • For details on the Ethernet cable, see "Wire the Ethernet connector".
The module's CPU is experiencing continuous high usage (90-100%).	Go to the **Web Diagnostics Hardware** tab, and check the CPU, RAM page to find out each service's usage and determine which processes are the most CPU intensive.

Symptom	Solution
The FactoryTalk Historian ME module cannot obtain an IP address from a DHCP server.	• Ensure that the network cables are properly connected and that the module is properly connected to the network. • Contact your IT department to verify that a DHCP server is running on the same network as the module. • Ensure that the port LEDs on the module are lit. If so, restart the module. • If the port LEDs are not lit, the module may require service by Rockwell Technical Support.
The MAC address scrolls across the display.	• The Ethernet port has failed to acquire an IP address. • Restart the module.
The ME module is online but you cannot access it through its host name.	The FactoryTalk Historian ME module host name may have a "_" in its name. According to Microsoft DNS server naming standards, this prevents the module from being recognized by its host name. To solve this problem, the underscore "_" must be removed from the module's name. For details on naming the ME module, see "Change the module name (page 127)". For details on DNS naming standards, see the Microsoft TechNet site) and search for "DNS naming standards".

Web client issues

Symptom	Solution
You cannot access the FactoryTalk Historian ME web client.	First check that the IP address you are trying to connect to is the same as the one scrolling across the FactoryTalk Historian ME module's display. If you see a MAC address instead, that means that the module can't find the IP address from the DHCP server. Restart the module.
The web client is unresponsive.	In the Logix Designer Module Profile, in the **Configuration** tab, click **Restore Defaults**.
You can access the FactoryTalk Historian ME web client but cannot log on.	• First check that you are using the correct security mode. By default, FactoryTalk Historian ME web client uses Native security, with the administrative user name *piadmin*. • If the module has been configured with FactoryTalk Directory security mode, you must ensure that the user has been configured in the FactoryTalk Administration Console on the FactoryTalk Directory server. To find the current security mode, go to the **Web Diagnostics**, **Firmware Overview**. Check the **Security Mode** section for the configured security information. • In the Logix Designer Module Profile, in the **Configuration** tab, click **Reset Security**.
The administrator forgot the login name and/or password.	• Reset security to factory settings. Click **Advanced** in the top navigation bar, and then click **Restore Defaults**. In the **Reset Security** section, click **Reset Security**. or • In the Logix Designer Module Profile, in the **Configuration** tab, click **Reset Security**.
You are using the host name as a URL and cannot access the web client.	• Try to navigate to the page using the IP address of the module. If this works, then be sure that the host name you typed in is not misspelled. • Check that the DNS server is running.
The web home page is slow to respond.	• If you have downloaded a large .ACD file to the controller at boot time and tried to add more than 2500 points, you may need to wait for the module to respond. If it does not respond after several minutes, restart the module. • Keep in mind that the module requires some initialization time to respond to the controller.

Data collection issues

Symptom	Solution	
The **System Status** section on the Home page shows that the data collection is in the "Stopped" mode.	• Check the module STS LED light. Solid red indicates that the data collection is inactive. • Go to the **Advanced** tab to view the System Log page. Check the log for messages about the issue and export log data.	
	• The data collection may have stopped because it reached the user-configured Archive Usage Threshold percentage on the Data Storage page. Wait for the system to process overflow events and return to a state that allows you to restart the data collection. or Increase the Archive Usage Threshold percentage. • Go to the **Data Collection** page. Click **Start** to restart the data collection.	• If the data collection does not appear to have stopped due to a user configuration, go to the **Data Collection** page. Click **Start** to restart the data collection.
The **System Status** section on the Home page shows that the data collection is in the "Error" mode.	• Check the module STS LED light. Solid red indicates that the data collection is inactive. • Go to the **Advanced** tab to view the System Log page. Check the log for messages about the issue and export log data. • Go to the **Web Diagnostics Firmware** tab, and check the **Data Collection** page. Process information can confirm whether or not the data collection is in an undesirable state. N/A indicates an error state. • Download additional information that will assist in troubleshooting as described in the "Provide issue information (page 201)", "Reboot the module (page 202)", and "Work in the safe mode (page 202)" sections. • Reboot the module. • Contact Technical Support if the issue persists.	
Tags are collecting bad quality data.	If you change a tag's external access attribute to *none*, then the data collected by that tag for FactoryTalk Historian ME will be bad quality. To fix this issue, you must change the tag external access attribute to either *Read/Write* or *Read only*.	
Snapshot data points displayed on the Current Data page contain timestamps that are not being updated.	Check the status of the data collection on the Home page.	
	Go to **Time Source > Controller** in the web interface. Check for a message that indicates that data collection has discarded data.	
	If the data collection status is "Running", check the Collection Rate in the **System Status** section in the left navigation bar.	

Symptom	Solution	
	• Ensure that the Collection Rate is zero; this confirms that the data collection is not collecting data. • Go to the **Web Diagnostics Firmware** tab, and check the Data Sever page. *N/A* indicates an error state. • Reboot the module. • If the data collection stops again, go to the **Configure Historian** tab, and click **Data Storage**. Ensure that the Archive Disk Threshold and Archive Usage Threshold are still valid. If these thresholds have been reached, wait for the system to process overflow events and return to a state that allows you to restart the data collection.	• If the Collection Rate is not zero, check the status of the Data Server on the Home page. • If the Point Server status is "Stopped" or "Error", reboot the module.
	If the data collection status is "Stopped", go to the **Data Collection** page and restart the data collection.	
A single point has not collected data for a significant time period.	• Check the point configuration on the Point Property page. • Ensure that the scan rate is not set too low, and ensure that the Exception and Compression values are configured properly for the point.	
The module receives a high-speed event with a timestamp 10 minutes into the future, discards that event, and logs the following error message into the system log: `[ERROR] TagProcessingForPolledAndAdvised() dropped future event for point<ID> with <timestamp> with timeDelta=<number of seconds into future>.`	• Check the controller time. • Ensure that the controller time is correct.	
The following message is logged on the **System Log** page: `[ERROR] Unable to keep pace with High Speed Trend causing data loss.`	Due to performance issues with the controller, the backplane or the module, the module cannot receive new high-speed events from the controller. To mitigate the impact, stop and restart the data collection.	

Data storage issues

Symptom	Solution
The Data Storage page provides information on archive statistics. Unexpected information appears on the page.	• Go to the **Web Diagnostics Firmware** tab and check the Data Storage page. Process information can confirm whether or not Data Storage is in an undesirable state. *N/A* indicates an error state. • Reboot the module.

Data transfer issues

Symptom	Solution	
The System Status section on the Home page shows that the data transfer is in the "Stopped" mode.	Go to the **Advanced** tab to view the **System Log** page. Check the log for messages about the issue and export log data.	

	• Go to the **Configure Historian** tab. On the **Data Transfer** page, click **Start** to restart Data Transfer.
	• If Data Transfer does not start:
	  • Ensure that the FactoryTalk Historian SE host name or IP address is correct.
	  • Ensure that all security settings, including trust connections (if required), have been properly configured.
	• Click Test Connection to ensure a connection to the FactoryTalk Historian SE or PI server can be established.	

The System Status section on the Home page shows that the data transfer is in the "Error" mode.	• Go to the **Advanced** tab to view the **System Log** page. Check the log for messages about the issue and export log data. • Check the module STS LED light. Flashing red indicates that the data transfer is inactive (and the data collection is active.) • Go to the **Web Diagnostics Firmware** tab and check the **Data Transfer** page. Process information can confirm whether or not the data transfer is in an undesirable state. • N/A indicates an error state. • Download log files that will assist in troubleshooting as described in the "Provide issue information (page 201)", "Reboot the module (page 202)", and "Work in the safe mode (page 202)" sections. • Reboot the module. • Contact Technical Support if the issue persists.	
If the data collection is running on one or more modules and these modules are transferring data to a FactoryTalk Historian SE or PI server, the FactoryTalk Historian SE or PI server will experience a large load and overflow events if the data transfer is stopped for some time and then restarted.	To minimize the load and number of overflow events on the FactoryTalk Historian SE or PI server, go to the **Configure Historian** tab. On the **Data Transfer** page, reduce the Maximum Events per Transfer value. This parameter controls the number of events transferred.	
If data transfer and the data collection are running on one or more modules, and data transfer is stopped and then started on one module after some time has passed, the module may experience data interruption.	• Restarting the data transfer on the module may cause data interruption because old timestamps cannot be written to the current archive. • After it is restarted, ensure that the data transfer remains running so that transferred events eventually match the archive event timestamps.	
Data in the FactoryTalk Historian SE or PI server contains timestamps that are not being updated.	Check the status of the data transfer on the **Home** page.	
	If the data transfer status is **Running**: • Go to the **Advanced** tab to view the **System Log** page. Check the log for messages about the issue and export log data. • Ensure that the CPU load is at a normal rate and not preventing data from being transferred. • Ensure that points are properly configured with scan rates that are not too low. • Ensure that Exception and Compression values are properly configured for points.	If the data transfer status is **Error**: • Go to the **Web Diagnostics Firmware** tab. Check the **Data Transfer** page. Process information can confirm whether or not the data transfer is in an undesirable state. N/A indicates an error state. • Reboot the module.

Symptom	Solution
The FactoryTalk Historian SE or PI server rejects points from a new module that has been added to an existing collection of modules transferring data to that server.	• Ensure that the points are created in the FactoryTalk Historian SE or PI server before the data transfer is started. This will ensure that the point database and the archive can be synchronized. • The FactoryTalk Historian SE or PI server rejects the points because the archives have shifted several times and are outside the range of the existing archives.
Fewer events than expected have been transferred to the FactoryTalk Historian SE or PI server.	• Check the module CPU load. The data transfer checks the module CPU load before transferring data. If the load is high, events are transferred at a slower rate. • Try changing the rate at which events are transferred. Go to the **Configure Historian** tab. On the **Data Transfer** page, increase the Maximum Events per Transfer value to allow events to transfer more quickly.
No events are being transferred to FactoryTalk Historian SE or PI server.	Make sure that enough disk space is being allocated in the FactoryTalk Historian SE or PI server to allow the transfer.

Data export issues

Symptom	Solution
The export function in the FactoryTalk Historian ME web interface does not work.	• Open the Registry Editor, navigate to the HKEY_CLASSES_ROOT > .csv folder, and verify that the PerceivedType key is present and has a value of text or document. For details, see "Add a registry entry for exporting files to Excel (page 42)".

Auto recovery issues

Symptom	Solution
The time on the module has moved to a past time. This causes existing archives to have future timestamps or overlapping archives.	• First, check the module's time source to ensure that it is correct. To resolve time source issues, see "Time management issues (page 207)". • If the issue is not a time source issue, restore the module to its proper state by rebooting it. The module will start in safe mode. • Click **Safe Mode** that initially appears when the module is rebooted. (Safe Mode indicates that your system is in safe mode.) • Download archives to retain the archive data for your records. • Next, delete the archives with future timestamps or overlapping archives. For details, see "Repair archives using safe mode (page 136)".

Time management issues

Symptom	Solution
You have forgotten the module's time synchronization source.	Go to **Web Diagnostics**, and under the **Hardware** tab check the **Time Management** page. The time source is listed in the **Time Source** section.
The module is synchronized to a controller time source and the controller time is moving back, causing the module time to move back.	• Correct the controller time. Download archives to save the archive data with future timestamps. • Click **Safe Mode** that initially appears when the module is restarted. (Safe Mode indicates that your system is in safe mode.) Do not delete the archive files.

The module is synchronized to an NTP time source, and the module time is incorrect.	• Check that the NTP server is running properly. • If the NTP server is running properly, check the NTP log; this indicates if the NTP time was successfully synchronized during initial configuration or not. If it was, then it must be resynchronized. Navigate to the **Advanced** tab, **Time Management** screen. Select the **NTP Server** option, retype the NTP server address, and click **Save**. This will restart the module and may take several minutes to complete. If the module was never successfully synchronized, then you must do so now. For details, see "Manage time (page 121)".
The module starts in safe mode after a restart because the user accidentally typed a past time when configuring the module time.	• The **Time Management** page will display a warning message. Correct the module time configuration on the Time Management page. • Restart the module.

Client computer issues

Symptom	Solution
The client computer's performance has become degraded and slow.	Open the Windows Task manager. If Internet Explorer is using the most memory, the problem may be an Internet-Explorer-related memory leak. To free up the memory, you can: • Close and reopen Internet Explorer. • Turn off auto refresh. • Minimize the number of points you create in the **Add Points Wizard**.

Point server issues

Symptom	Solution
The **System Status** section on the Home page shows that the Point Server is in the "Error" mode.	This indicates the Point Server is in an undesirable state. Restart the module.

Related FactoryTalk product issues

This section describes issues related to other FactoryTalk products when they interact with FactoryTalk Historian ME.

Glossary

The glossary contains a list of terms and definitions used with FactoryTalk Historian ME.

Glossary terms

Term	Definition
.ACD	The file extension used for project files created by Logix Designer software.
Archive	The historical record of time-series data maintained by the FactoryTalk Historian ME server. It is the fundamental and most important information store of the FactoryTalk Historian ME server that contains the historical data record of all events for all points.
Archive Event	Any event that is stored in the archive.
Archive File	A binary file that contains a section of the data archive covering some finite time range. These files, defined by start and end times, should be contiguous and non-overlapping. Only fixed archive files may be created.
Archive Gap	A gap between the end time of one archive file and the start time of the chronologically next archive file. Archive gaps are not desirable because archive events with a timestamp during the gap cannot be stored on disk in an archive file and will be discarded. To avoid archive gaps, archive files should always be created in such a way that the end time of one archive equals the start time of the chronologically next archive.
Archive Shift	The process of clearing the oldest writable and shiftable archive file and making it the new primary archive. An archive shift typically happens automatically when the previous primary archive becomes full, but it sometimes must be performed manually for maintenance and troubleshooting purposes.
Attribute, Point	A characteristic or parameter of a point that directs an interface and the FactoryTalk Historian ME server in the collection and processing of data values for that point.
Available Licensed Points	The number of licensed points minus the total number of points already tagged for transfer. This includes tagged points from all modules that are set up to transfer data to the same PI server.
Chassis	The hardware assembly that houses the FactoryTalk Historian ME module, ControlLogix processors, and other I/O modules.
Common Industrial Protocol (CIP)	An open industrial communication network initially created by Allen-Bradley/Rockwell Automation.
CompDev	The base attribute that specifies the compression deviation in engineering units. This attribute specifies how much a value may differ from the previous value before it is considered to be a significant value.
CompMax	The base attribute that specifies the compression maximum time, in seconds. CompMax is the maximum time difference from the previous archive event before the next event will be sent to the archive. A point is archived if the elapsed time since the previous time a point was saved is greater than the maximum time.
CompMin	The base attribute that specifies the compression minimum time, in seconds. CompMin is the minimum time difference from the previous archive event before the next event is eligible to be archived. A point is archived if the elapsed time since the previous time a point was saved is greater than or equal to the minimum time and the value has changed by more than the deviation.
Compression	The process of selecting which Snapshot events will be sent to the archive for storage. Applying compression is one of the main responsibilities of the Snapshot subsystem, and the specific algorithm used is known as Swinging Door Compression.
Compression Deviation	See CompDev.
Compression Maximum	See CompMax.
Compression Minimum	See CompMin.

Term	Definition
Compression Specification	The three base attributes that control the compression process for a particular point: CompDev, CompMax, and CompMin. Although it is technically not included in the specification, Span affects CompDev, and Compression determines whether the specification is needed at all.
Connection Credentials	The set of identifying information on a client application seeking connection to the FactoryTalk Historian ME server. This information can include the client computer's IP address or host name, the client application's name, or the Windows Domain name and Windows user name under which the client application is running. The FactoryTalk Historian ME server uses connection credentials to determine if there is a matching trust.
ControlBus	The backplane used by the FactoryTalk Historian ME module chassis.
Data Type	The kind of value that will be used. Both points and point attributes have a data type. Some of the possible types include several kinds of numbers, digital, and string.
Deadband	A threshold, within the alarm limit, that the rate point must pass after an alarm is triggered before the point is considered not to be in alarm.
Digital Point Type	A point type typically used when values can only be one of several discrete states, such as ON/OFF or red/green/yellow.
Event	The fundamental unit of information used in the FactoryTalk Historian ME server. Each event consists of two main components: a value and a timestamp. The value can be one of several different data types (such as string, digital, int32, float64). The timestamp is always represented as UTC seconds and can contain a sub-second component.
Event Scheduling	A method of triggering program execution when some specific condition occurs, such as the arrival of a new Snapshot event for a particular point. Event scheduling is one method available for triggering PE or Advanced Computing Engine (ACE) calculations.
ExcDev	The base attribute that specifies exception deviation in engineering units. ExcDev specifies the deadband or how much a new value must differ from the previous value sent to the Snapshot subsystem on the FactoryTalk Historian ME server in order to determine whether the new value is significant and should also be sent.
ExcMax	The base attribute that specifies exception maximum time, in seconds. ExcMax is the maximum time difference from the last sent event before the next event will be sent. ExcMax thus effectively limits the length of time that events can be discarded because their values did not exceed exception deviation.
ExcMin	The base attribute that specifies exception minimum time, in seconds. ExcMin is the minimum time difference from the last sent event before the next event is eligible to be sent. Thus, the send rate of events for the associated point can be at most one event every ExcMin seconds.
Exception Deviation	See ExcDev.
Exception Maximum	See ExcMax.
Exception Minimum	See ExcMin.
Exception Reporting	The process, executed internally by the data collection, of sending events to the Snapshot subsystem on the FactoryTalk Historian ME server only when there has been a significant change in the monitored value. Significance is determined with a simple deadband algorithm.
Exception Specification	The three base attributes that control the exception reporting process for a particular point: ExcDev, ExcMax, and ExcMin. Although it is technically not included in the specification, Span affects ExcDev.
FactoryTalk Historian ME server	The set of several software subsystems packaged together that constitute a single logical server application capable of storing time-series data from distributed data sources and serving this same data to client applications in real time.
FactoryTalk Security	A set of security services fully integrated into the FactoryTalk Directory.
Fixed Archive	A type of archive file that allocates all of its disk space at creation time. Thus, both an empty and full archive occupy the same amount of disk space. Unless shifting has explicitly been disabled, non-empty fixed archives will participate in archive shifts.
Ladder Logic	A program written in a format resembling a ladder-like diagram. A programmable controller uses this program to control devices.
LED	Light emitting diode. It is used as a status indicator on the module.
NAND	The NAND Flash architecture is one of two flash technologies (the other being NOR) used in memory cards. NAND is best suited to a flash device requiring high capacity data storage. This is the data storage architecture for FactoryTalk Historian ME.

Term	Definition
Offset	An optional text box used when defining a scan class that specifies the first time at which a scan should occur. If no offset is specified, the first scan occurs immediately after the specified interval. After the initial scan, subsequent scans continue to occur after every specified interval.
Out of Order Event	An incoming event whose timestamp is prior to the timestamp of the event currently residing in the Snapshot table for a particular point. All such events bypass compression and are written directly to the event queue.
Performance Equation (PE)	An expression that allows a user to implement an arbitrary and potentially sophisticated calculation without formal programming. A performance equation has an intuitive syntax and may consist of standard mathematical and logical operators as well as a wide variety of built-in functions. The result of a performance equation can be archived for a PE point just like data for any other point.
Point	A variable whose value is measurable and typically dynamic. Examples include transmitter readings, status indicators, manual inputs, control limits, etc. Each point must be assigned a unique tag on the FactoryTalk Historian ME server, and measurements of the point captured over time are effectively stored as an array of timestamped values in the data archive.
Point Configuration	The complete list of attributes characterizing a point.
Point Type	The base attribute that specifies the data type for the values that a point stores. The possible point types include the following: int16, int32, float16, float32, float64, digital, string, and timestamp. Point types can be edited after point creation, but not all type transitions are allowed.
Project File	The file that Logix Designer software uses to store a controller's programming and configuration information. The file extension must be .ACD; if you change the extension, the file will not open.
RSLogix 5000 Module Profile	The Module Profile is used by ControlLogix processors to identify and determine characteristics of FactoryTalk Historian ME modules.
Scan	The base attribute that specifies whether or not the interface or scanning program should collect new data for the associated point. If Scan is disabled (set to 0), then new data will not be collected.
Scan Class	A specification that provides an interface with the schedule for performing data collection for its associated points. The scan class specification consists of a period and an optional offset. The period determines the recurring interval when data collection should occur, and the offset determines when data collection should first start. A scan class can also optionally contain a code to force the interface to use UTC time for scheduling. A point can only be in one scan class.
Slot Number	The number that indicates the physical location of the slot in the chassis where the module or controller resides.
Snapshot Event	Either any event sent to the Snapshot subsystem or the event currently residing in the Snapshot table for a particular point. The event stored in the Snapshot table for each point has the most recent timestamp of all events received so far for that point; when a new event arrives with a more recent timestamp, the previous event is passed through the compression filter.
Snapshot Subsystem	The core component of the FactoryTalk Historian ME server that receives all the new data events for all points regardless of the sending application. The most recent of these events for each point is maintained in the Snapshot table along with additional information necessary to perform compression.
Span	The base point attribute that specifies the range or the difference between the maximum and minimum values for a point.
SQC	See Statistical Quality Control.
Statistical Quality Control (SQC)	The SDK-based Add-In to FactoryTalk Historian ProcessBook that enables users to create and view a variety of SQC charts on their FactoryTalk Historian ProcessBook displays.
Swinging Door Compression	A data compression algorithm used by the Snapshot subsystem that guarantees all of the original samples were within a specified value, the compression deviation, of a straight line drawn between any two events selected for archiving. In other words, this compression algorithm allows for the reconstruction of the original signal as a series of straight lines, and the maximum error between the reconstructed and original signals is guaranteed to be no more than the compression deviation.
Tag	The base attribute that is the unique alphanumeric name for a point. Certain characters are not allowed like '*', '?', '\', and ';'. The terms *Tag* and *Point* are often used interchangeably.
Timestamp	A date and time, almost always associated with a data value through an event. The FactoryTalk Historian ME server stores timestamps internally in Universal Coordinated Time (UTC).

Term	Definition
Trust	A trust allows a system administrator to configure FactoryTalk Historian ME, FactoryTalk Historian SE, or PI server to automatically allow and assign certain credentials to an incoming connection that meets the criteria defined in the trust definition without requiring user authentication. Trusts can be used to allow connections from specific computers, applications, users, or a combination of criteria without an interactive login. Trusts are typically used to facilitate connections between background tasks such as between data and its target SE or PI server.

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Rockwell Automation support

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

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

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Rockwell Automation maintains current product environmental information on its website at http://www.rockwellautomation.com/rockwellautomation/about-us/sustainability-ethics/product-environmental-compliance.page.

Waste Electrical and Electronic Equipment (WEEE)

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

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

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