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Data Management

FactoryTalk® Historian ME



VERSION 2.1
USER'S GUIDE

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 *Allen-Bradley • Rockwell Software*

Rockwell
Automation

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1

Overview

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

The screenshot displays the FactoryTalk Historian Machine Edition web interface. The interface includes a navigation menu with options: Home, View Data, Manage Points, Configure Historian, and Advanced. The main content area is divided into several sections:

- Status:** Module Identity, System Utilization, System Statistics.
- Module Information:**

Name	ParimahME2
Firmware Version	2.1
Current Time	11/30/2009 1
Up Time	0 Days, 00:0
- System Status:**

Point Server	Running
Data Collection Service	Running
Data Transfer Service	Running
- System Statistics:**

CPU usage:	1.00%
Memory usage:	7.25%
Collection rate:	7200 Events/Min
Transfer rate:	480 Events/Min
Archive rate:	600 Events/Min
Archive usage:	0.77%
Archive capacity:	186d 4h 37m (Estimated archive overwrite time)

A CPU usage gauge is shown with a red bar at 99%. The interface also features a Rockwell Automation logo and a photograph of the FactoryTalk Historian ME module.

FactoryTalk Historian ME Web Interface

To provide an overview of your FactoryTalk Historian ME this chapter provides the following sections:

- “Features”
- “Benefits”
- “Distributed FactoryTalk Historian Architecture”
- “FactoryTalk and ControlLogix Integration”
- “Hardware Specifications”
- “Where to Start”
- “Additional Information”
- “FactoryTalk Licensing”
- “Technical Support”
- “Consulting Services”
- “Training Programs”

Features

Key advantages of the FactoryTalk Historian ME include:

- Easy, automated installation and configuration and a rich, interactive browser experience

As an embedded historian in a ControlLogix chassis connected to the backplane, the 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

The 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.

The 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

The 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 transfer. It can capture data from up to four controllers in the local backplane.

Benefits

The FactoryTalk Historian ME provides these benefits:

- Reduces time-to-market by monitoring and analyzing operational and product quality in accord with specifications and operations and product constraints.
- Helps reduce time to execute grade or 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 as it:
 - ▣ Facilitates, validates, and documents performance within regulatory or permitted boundaries.
 - ▣ Increases management effectivity.

- Reduces 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

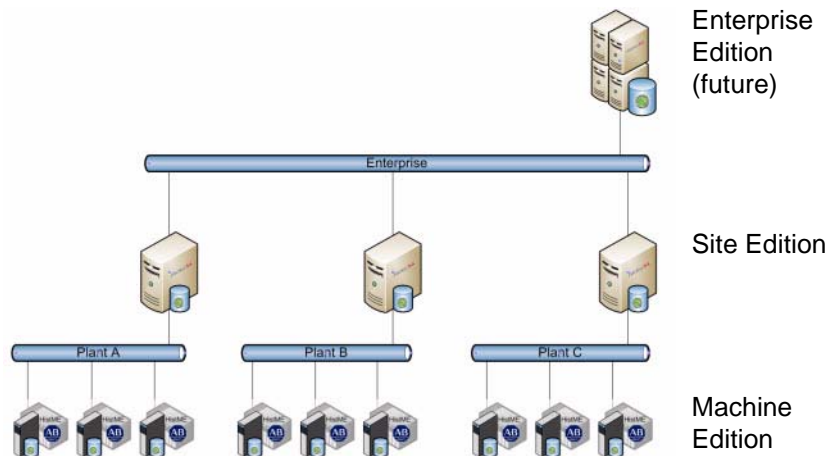
Data or process historians are software applications that log data from process equipment, manufacturing devices, and other main data sources that are important and relevant for the overall manufacturing process and for product quality. The FactoryTalk Historian collects time series data, which is very different from traditional relational data and event data. The FactoryTalk Historian 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, the 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 ControlLogix Integration

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

FactoryTalk Services Platform and FactoryTalk Product Suite

You must install the FactoryTalk Services Platform V2.10.02, Coordinated Product Release 9 (CPR 9) Service Release 2 (SR2) first, on any computer where you plan to run the FactoryTalk Historian ME. Currently, the FactoryTalk Historian ME supports these services:

- FactoryTalk Directory
- FactoryTalk Security
- FactoryTalk Administration Console
- FactoryTalk Web Services



If you are using FactoryTalk Services Platform CPR 9 SR1 (or earlier), you must upgrade to SR2 by installing the FactoryTalk Services Platform CPR 9 SR2 provided on the FactoryTalk Historian ME Client Tools CD that was shipped with your module. If you are upgrading a client computer to FactoryTalk Services Platform version 2.10.02 CPR 9 SR 2, you may also need to upgrade the computer hosting the

FactoryTalk Network Directory Server to FactoryTalk Services Platform version 2.10.02.



For additional information on upgrading a previous version of the FactoryTalk Network Directory Server, see the Rockwell Automation Knowledgebase at <http://www.rockwellautomation.com/resources/support.html>.

The FactoryTalk Services Platform V2.10.02 CPR 9 SR2 includes services and applications listed in the following table.

FactoryTalk Services Platform V2.10.02 CPR 9 SP2	
FactoryTalk Administration Console V2.10.02.24	Provides a way to configure connections to other FactoryTalk applications such as FactoryTalk Security. It also allows FactoryTalk Historian ME and FactoryTalk Historian SE to use FactoryTalk View SE for data monitoring and trending.
FactoryTalk Alarms and Events V2.20.00	Allows multiple FactoryTalk products to produce a common, consistent view of alarms and events that occur in a FactoryTalk system.
FactoryTalk Diagnostics V2.10.02.24	Allows FactoryTalk-enabled products to define, route, and store information about errors or changes that occur in a FactoryTalk system.
FactoryTalk Directory FactoryTalk Security V2.10.02.24	<p>Centralizes access to resources and components for all FactoryTalk products participating in a control system.</p> <p>The FactoryTalk Historian ME supports Network Directory, not Local Directory. Network Directory manages applications that can consist of multiple clients and servers on separate computers connected over a network, such as the FactoryTalk Historian ME's network applications. You must set up all participating computers to point at the same Network Directory computer.</p> <p>FactoryTalk Security centralizes user authentication and authorization for FactoryTalk-enabled system. These security services are fully integrated into the FactoryTalk Directory.</p>

FactoryTalk Services Platform V2.10.02 CPR 9 SP2	
FactoryTalk Live Data V2.10.02.24	Allows FactoryTalk services-enabled products to discover, connect, and share real-time data in a secure, scalable manner.
FactoryTalk Web Services V2.10.02	Provides the ability for thin clients to connect to Web-based Rockwell Automation software products through a Web browser. Before installing FactoryTalk Web Services, install Microsoft Internet Information Services (IIS). The steps for installing IIS may be slightly different depending on your operating system.

The FactoryTalk product suite includes the products listed in the following table.

FactoryTalk Product Suite	
FactoryTalk Activation	Software-based product activation. To access the Rockwell Software Activation website, go to http://www.licensing.rockwellsoftware.com
FactoryTalk Historian SE V2.1	Provides Data Transfer service for data logged by the FactoryTalk Historian ME for long-term storage and analysis. Before using FactoryTalk Historian SE, you must install the FactoryTalk Historian SE patch for FactoryTalk Historian SE Server.
FactoryTalk View SE V5.0 and above	Provides a Trending Object for you to trend FactoryTalk Historian ME data or FactoryTalk Historian SE data acquired using the FactoryTalk Historian ME. FactoryTalk Historian ME can be integrated with FactoryTalk View SE Trending. See “Installing FactoryTalk View SE Patch” for required patch information.

FactoryTalk Product Suite	
FactoryTalk VantagePoint and FactoryTalk VantagePoint EMI V3.1 and above	Allows you to view process data from the FactoryTalk Historian ME in VantagePoint Excel® reports, dashboards, and portals. Integrates the FactoryTalk Historian ME data into the VantagePoint model, allowing you to correlate the data with various other data sources.
FactoryTalk Historian DataLink V3.1 and above	Provides a Microsoft® Excel add-in component that allows you to develop Excel reports based on the data in the FactoryTalk Historian ME.
FactoryTalk Historian ProcessBook V3.0 and above	Provides an ad-hoc data analysis capability in the FactoryTalk Historian ME that allows you to visualize the data in trends and other graphical components.
FactoryTalk Historian Batch View V3.1 and above	Adds advanced batch trending and batch comparison capabilities to FactoryTalk Historian ProcessBook and FactoryTalk Historian DataLink, providing the ability to visualize the batches and events collected in the FactoryTalk Historian batch database. This is a FactoryTalk Historian ProcessBook and a FactoryTalk Historian DataLink add-in component.
FactoryTalk Historian SQC Add-in V3.0 and above	Allows users to visualize historic data in Statistical Quality Chart (SQC) ProcessBook displays. This is a FactoryTalk Historian ProcessBook add-in component.



For help with the FactoryTalk product suite, select Programs > Rockwell Software > FactoryTalk Tools, and then click FactoryTalk Help from the Windows® Start menu.

ControlLogix System Communications

A ControlLogix system consists of anything from your FactoryTalk Historian ME and a stand-alone controller in a single chassis to more complex configurations that include Ethernet/IP communication modules. The ControlLogix system in a chassis uses connections to establish communication links between devices such as a Logix5000 controller-to-local communication modules such as an EN2T or ENBT module. RSLogix™ 5000 programming software and RSLinx Classic™ software are used to facilitate communication and connections in the ControlLogix system.

ControlLogix System Communication Applications		
RSLogix 5000	Without AOP: V13 - V17 With AOP: V16, V17	A programming software for Logix5000 controllers. The FactoryTalk Historian ME Add On Profile (AOP) is a RSLogix 5000 module profile that allows FactoryTalk Historian ME users to perform operations such as tag monitoring, module shutdown, and module restart without using the FactoryTalk Historian ME web interface. Refer to the “RSLogix 5000 Add-on Profile” appendix for information about using AOP.
RSLinx Classic	V2.55	A communications software that provides an easy way to upload and download Ladder logic files from Logix5000 controllers. RSLogix 5000 uses RSLinx Classic to browse your controller.

Hardware Specifications

Refer to the “Hardware Specifications” appendix for a summary of hardware specifications.

Where to Start

This *User's Guide* should be used as a companion to the online help in the FactoryTalk Historian ME web interface. It is not necessary to read it from front to back in sequential order. The following table provides a quick reference for tasks you may want to perform.

If You Want To	Go to This Chapter
<ul style="list-style-type: none"> ■ Read about factors that may influence the design of your FactoryTalk Historian ME environment. 	“Design Considerations and Limitations”
<ul style="list-style-type: none"> ■ Configure the module for the first time. ■ Configure time management. ■ Set up security. ■ Set up users. ■ Use the system log. ■ Backup or restore module configuration files. ■ Upload configuration or other files. ■ Fix archives. 	“Administering the Module”
<ul style="list-style-type: none"> ■ Manage administrative or user passwords. ■ Set up trust connections. ■ Create, edit or delete a trust connection. 	“Managing Security”
<ul style="list-style-type: none"> ■ Configure security with FactoryTalk Directory and FactoryTalk Security. 	“FactoryTalk Directory Integration”
<ul style="list-style-type: none"> ■ View, create, or edit points. ■ Define point attributes. ■ Configure scan classes. ■ Work with exception filtering or compression. 	“Managing Points”

If You Want To	Go to This Chapter
<ul style="list-style-type: none"> ■ Stop or start Data Collection. ■ View the status of Data Collection. ■ Configure disk or log thresholds. ■ Work with Compression or Exception Filtering 	<p>“Collecting Data”</p>
<ul style="list-style-type: none"> ■ Configure Data Transfer. ■ Stop or start Data Transfer. ■ Transfer data to a FactoryTalk Historian SE. 	<p>“Transferring Data”</p>
<ul style="list-style-type: none"> ■ View a model Data Transfer scenario. 	<p>“Data Transfer Sample Scenario”</p>
<ul style="list-style-type: none"> ■ View current or archive data. ■ Create trends in the web interface. ■ Export data to a spreadsheet. 	<p>“Viewing Data”</p>
<ul style="list-style-type: none"> ■ View performance information about your module. ■ View statistics about your module data. 	<p>“Viewing Module Information” “Using Web Diagnostics”</p>
<ul style="list-style-type: none"> ■ Get diagnostic information about your module. 	<p>“Using Web Diagnostics”</p>
<ul style="list-style-type: none"> ■ Find guidance to resolve simple issues. 	<p>“Troubleshooting” “Using Web Diagnostics”</p>
<ul style="list-style-type: none"> ■ Read introductory information about your module. ■ Find related technical publications. ■ Get training information. ■ Contact Technical Support. 	<p>“Overview”</p>

If You Want To	Go to This Chapter
<ul style="list-style-type: none"> ■ Learn about software, hardware, or system requirements. ■ Work with the Client Tools CD. ■ Use your module for the first time. ■ Log In to your module. ■ Log Out of your module. 	“Getting Started”
<ul style="list-style-type: none"> ■ Use the Rule Editor. ■ Create rule files. ■ Create tag attribute files. 	“FactoryTalk Historian ME Rule Editor”
<ul style="list-style-type: none"> ■ Use the Add-on Profile (AOP). ■ Start or stop your module without using the web interface controls. ■ Restore module default settings without using the web interface controls. ■ Reset module security without using the web interface controls. 	“RSLogix 5000 Add-on Profile”
<ul style="list-style-type: none"> ■ View a module hardware summary. ■ Check proper operating temperatures for your module. ■ View environmental certifications for your module. 	“Hardware Specifications”

Additional Information

Click *Browse FactoryTalk Historian ME User Documents* on the FactoryTalk Historian Client Tools CD that is shipped with FactoryTalk Historian ME to access FactoryTalk Historian ME user documentation. In addition to this *User’s Guide*, which explains how to configure your FactoryTalk Historian ME and use its various features, the FactoryTalk Historian ME documentation set includes the following:

- *FactoryTalk Historian ME Quick Start Guide* (1756-QS611A-EN-P) - describes how to quickly install and configure the FactoryTalk Historian ME so that users can start collecting and viewing data without having to configure all features.

The quick start guide is also provided as a printed manual.

- *FactoryTalk Historian ME Installation Instructions (1756-IN611A-EN-P)* - explains how to install FactoryTalk Historian ME. It also includes environmental testing and certification information.

The installation information is provided as a printed manual.

- *FactoryTalk Historian ME Online Help* - describes FactoryTalk Historian ME web interface in detail. Access the help files by clicking the *About...* links in the left-side navigation bar of the individual web interface pages and by clicking the main *Help* link located in the upper right-hand corner of the web interface.
- *FactoryTalk Historian ME Release Notes* - contains the latest information about your FactoryTalk Historian ME including new features and a list of known issues.

FactoryTalk Licensing

The FactoryTalk Historian ME limits the clients that can access it to the following Rockwell Automation clients:

- 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

In addition, you must purchase a point license for FactoryTalk Historian ME-to-FactoryTalk Historian SE Data Transfer. Data Transfer works with the Data Storage and Data Collection services to transfer historical data to a FactoryTalk Historian SE server. 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.

Technical Support

Please visit Rockwell Automation Customer Support Center at **<http://support.rockwellautomation.com/>** for access to user forums, sample code, software and firmware updates, product manuals, and other downloads.

Knowledgebase

The Customer Support Center offers an extensive online knowledgebase that includes frequently asked questions (FAQs) and the latest patches. Please visit **<http://www.rockwellautomation.com/resources/support.html>** and select the Knowledgebase link located under Tools & Resources to:

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

Worldwide Support

If you are not located in North America and want to contact Rockwell Automation Support use the Worldwide Locator at **<http://www.rockwellautomation.com/locations/>** for worldwide contact information.

TechConnect Support

With TechConnect Support, your site has unlimited, real-time access to Rockwell Automation's global network of Customer Support Centers and technical resources. TechConnect service levels are provided at **<http://www.rockwellautomation.com/services/onlinephone/techconnect/>**

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

- Product version number.
- Type of hardware you are using.

The FactoryTalk Historian ME has two product numbers. The 1G or 2G in the part number indicates how much data storage is associated with the module.

Product Catalog Number	Description
1756-HIST1G	FactoryTalk Historian ME 1GB module
1756-HIST2G	FactoryTalk Historian ME 2GB module

- Exact wording of any messages that appeared on your screen.
- Descriptions of:
 - ▣ What happened and what you were doing when the problem occurred.
 - ▣ How you tried to solve the problem.

Consulting Services

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

Training Programs

Rockwell Automation offers a wide range of training programs that include e-learning, regularly scheduled and custom-tailored classes, self-paced training, and certificate programs.

If you would like more information about training, visit the Rockwell Automation Training site at <http://www.rockwellautomation.com/services/training/> or call 1.440.646.3434.

2

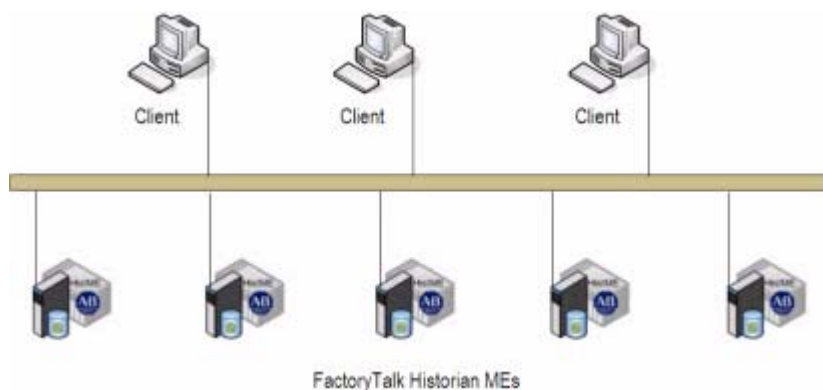
Getting Started

Before installing FactoryTalk Historian Machine Edition (ME), determine your platform requirements and configuration environment. The information in this chapter offers some guidelines as you begin planning.

- “System Requirements”
- “Software Requirements”
- “Hardware Specifications”
- “Setting up Your ControlLogix Environment”
- “Installing the FactoryTalk Historian ME”
- “FactoryTalk Historian ME Web Interface”
- “Installing FactoryTalk Historian ME Client Tools”
- “Logging In to the FactoryTalk Historian ME”
- “Logging Out of the FactoryTalk Historian ME”

System Requirements


The hardware and software required with 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.

Software Requirements

Software requirements include:

- Windows Vista® SP1, Windows XP SP2 or SP3, or Windows Server® 2003 SP2
 -  Windows Vista is only supported for the FactoryTalk Historian ME web interface and FactoryTalk VantagePoint. It is not supported for FactoryTalk Historian DataLink or FactoryTalk ProcessBook.
- Microsoft Excel 2003 for FactoryTalk Historian DataLink
- Microsoft Internet Explorer® (IE) 6 or 7

IE 6 PATCHES

For IE 6, the requirements may include installation of the patch KB974455 (10/12/09) <http://support.microsoft.com/kb/974455>.

- Windows XP SP2

If the `\windows\system32\mshtml.dll` file has a version that is less than or equal to 6.0.2900.2180 or a date that is before or equal to 08/03/2004, apply patch KB974455. After the patch has been applied, the `\windows\system32\mshtml.dll` file will have a version of 6.0.2900.3627 and a date of 09/24/2009.
- Windows XP SP3

If the `\windows\system32\mshtml.dll` file has a version that is less than 6.0.2900.5512 or a date that is before 04/14/2008, apply the patch KB974455. After the patch has been applied, the `\windows\system32\mshtml.dll` file will have a version of 6.0.2900.5880 and a date 09/24/2009.
- Windows Server 2003 SP2

The minimum supported version is 6.0.3790.3959. If the IE 6.0 version is less than the minimum supported version, apply the patch KB974455 SP2.

IE 6 and IE 7 Internet Options

The location of your Internet option settings for IE 6 and IE 7 vary according to which operating system you are using. However, in general, you should:

- Disable any popup blockers to view online help.
- Select the Local Intranet icon (generally located under Security settings), and click [Sites] to use the default setting, “Automatically detect internet network”.

Use the default Security level for this zone. In general, the settings should remain at the default level and setting should not be changed. Use the medium-low default setting.

- Enable the following settings:
 - ▣ Binary and script behaviors
 - ▣ Run ActiveX® controls and plug-ins
 - ▣ Script ActiveX controls marked safe for scripting
 - ▣ Initialize and script ActiveX controls not marked as safe for scripting

IE 7 Hot Fix

If you are using IE 7.0 and want to export to Excel, you must install Microsoft’s IE 7 hot fix 929863 (<http://support.microsoft.com/kb/929863>.) This fix addresses an Excel file export issue on the Current Data and System Log pages the FactoryTalk Historian ME web interface. Installing the hot fix adds these registry values:

- [HKEY_CLASSES_ROOT\.doc] “PerceivedType”=”document
- [HKEY_CLASSES_ROOT\.dot] “PerceivedType”=”document
- [HKEY_CLASSES_ROOT\.xls] “PerceivedType”=”document
- [HKEY_CLASSES_ROOT\.xlt] “PerceivedType”=”document
- [HKEY_CLASSES_ROOT\.ppt] “PerceivedType”=”document
- [HKEY_CLASSES_ROOT\.pot] “PerceivedType”=”document

You must manually add the [HKEY_CLASSES_ROOT\.csv] “PerceivedType”=”document” registry value for the .csv document type.

FactoryTalk Historian SE Patch

FactoryTalk Historian ME can be integrated with FactoryTalk Historian SE 2.1 after you have installed the FactoryTalk Historian SE patch. The FactoryTalk Historian SE patch must be installed on the FactoryTalk Historian SE that will be used with FactoryTalk Historian ME. You can download the FactoryTalk Historian SE patch from the Rockwell Knowledgebase at <http://support.rockwellautomation.com>. Click the Search Answers tab and search for Answer ID 63530.

Once the patch is installed, the FactoryTalk Activation licenses that support the FactoryTalk Historian ME-to-FactoryTalk Historian SE (FTMS) point source can be configured for the FactoryTalk Historian SE server within the FactoryTalk Administration Console. The FactoryTalk Historian SE patch enables the FTMS point source support. A license is a prerequisite for FactoryTalk Historian ME-to-FactoryTalk Historian SE Data Transfer.

In addition, the patch will allow the FactoryTalk Historian ME to work with FactoryTalk Historian SE collecting, storing, analyzing, and visualizing data using reporting tools such as time-series trends, bar charts, pie charts, pareto, and tabular trends.

Client Tools Software

The FactoryTalk Historian ME Client Tools CD shipped with you module includes:

- FactoryTalk Services Platform

V2.10.02 CPR 9 SR2 is supported.

- FactoryTalk Historian Management

If you install the FactoryTalk Historian Management (Admin Console) on a remote client computer that has no previously installed Admin Console, you must make a Windows Registry entry to be able to use a Universal Naming Convention (UNC) path as the current directory. Manually add the key [HKEY_CURRENT_USER\Software\Microsoft\Command Processor\DisableUNCCheck REG_DWORD] and set the value to 0x1 (Hex).

- FactoryTalk Historian ME Rule Editor

- FactoryTalk Historian ME RSLogix 5000 Module Profile

This installs the Add-On Profile (AOP) for your module.

- FactoryTalk Historian ME User Documentation and Release Notes

Hardware Requirements

This section lists client computer and 1756 ControlLogix chassis requirements.

Client Computer Requirements

Client computer requirements include:

- Recommended
 - Intel Celeron
 - 3GHz or higher
 - 1GB of RAM or more

or

- Minimum
 - Intel Pentium III
 - 600MHz
 - 512MB RAM
- Mouse or compatible pointing device

ControlLogix Chassis Requirements

The ControlLogix chassis is part of a modular system that you can create with the FactoryTalk Historian ME, an Ethernet/IP communication module(s), and controller module(s). Chassis are available with 4, 7, 10, 13, and 17 slots. You can place the FactoryTalk Historian ME module into any slot. Slot 0 is the first slot and is always the left-most slot in the rack (the first slot to the right of the power supply.)

The FactoryTalk Historian ME module communicates with the control processor(s) in controller module(s) through the ControlLogix backplane (also known as the *ControlBus*). The backplane is an electrical interface, or bus, to which modules connect when inserted into the rack. The backplane provides a high-speed communication path between modules and distributes power to each of the modules within the chassis. Controller modules on the backplane can send data to and receive data from the module.

Chassis requirements include:

- 1756 ControlLogix Chassis (1756-AXX) and proper chassis power supply for your environment
- RSLogix 5000 software and RSLinx Classic communications software
- An Ethernet/IP communication bridge module (1756-ENBT, 1756-EN2T, 1756-EN2TR, or 1756-EWEB, depending on your environment)
- ControlLogix 55xx (1756-Lxx) controllers, version 13 or higher
- A 1GB or 2GB FactoryTalk Historian ME module



The FactoryTalk Historian ME does not support multiple modules collecting data from a single controller.

UPGRADING AND REINSTALLING THE FIRMWARE

To upgrade the FactoryTalk Historian ME firmware (or reinstall it in case it becomes corrupted), you must use the ControlFlash Firmware upgrade kit.



Any kind of firmware upgrade or reinstall will clear out all logs. A firmware upgrade will preserve archived data and application configuration information, but a reinstall 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.

Before you upgrade ensure that:

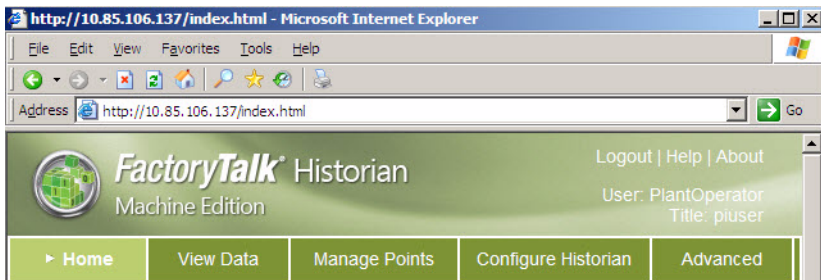
- Data Collection and Data Transfer are stopped.
- All clients (including web clients) are logged out and disconnected.
- Log files are packaged and downloaded from the Logs Download page of the Web Diagnostics interface.



See “Logs Download” for more information about web diagnostics.

- You collect the following information for the upgrade process:
 - ▣ The catalog number of the FactoryTalk Historian ME (1756-HIST1G or 1756-HIST2G, depending on the size of the CompactFlash drive.)
 - ▣ The network configuration information.
 - ▣ The network path to the FactoryTalk Historian ME.

- The firmware version number. Click the *About* link on the on the FactoryTalk Historian ME's home page to access the version number.
- Instructions on how to perform the upgrade, located in the *ControlFLASH Firmware Upgrade Kit Quick Start Guide*, Publication Number 1756-QS105C-EN-E.



Click *About* to see the firmware version

About page
Firmware version

Version: 02.10.10.*build number*
Product ID: 1756-HIST

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Setting up Your ControlLogix Environment

Perform the following steps to set up your ControlLogix environment before installing FactoryTalk Historian ME:

1. Set up the ControlLogix chassis.
2. Insert the ControlLogix controller(s) into the chassis.
3. Power on the system.
4. Configure the ControlLogix device(s).



See your ControlLogix Chassis and ControlLogix Controller documentation for more detailed information.

Installing the FactoryTalk Historian ME

To install the FactoryTalk Historian ME, unpack it and insert it into the chassis.



See your *FactoryTalk Historian ME Installation Instructions* for more hardware information.

FactoryTalk Historian ME Web Interface

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

FactoryTalk Historian ME web interface can be accessed through a web browser after the installation of the module.



See "Logging In to the FactoryTalk Historian ME" for login instructions.

Installing FactoryTalk Historian ME Client Tools

After you have selected the platform that best suits your needs and have installed the FactoryTalk Historian ME into the chassis, you will then determine the configuration environment for the FactoryTalk Historian ME client tools. The client tools can be found on the CD that was shipped with the FactoryTalk Historian ME



If you plan to use FactoryTalk Historian ME Client Tools, such as the FactoryTalk Historian ME Rule Editor, FactoryTalk Directory, and/or FactoryTalk Security, then these tools must be installed before you continue. If you do not plan to use FactoryTalk Historian Client Tools, then skip to “Logging In to the FactoryTalk Historian ME”.

Insert the CD into your computer’s CD drive. If autoplay is turned on, the FactoryTalk Historian ME installation screen will automatically launch and display the FactoryTalk Historian ME installation options. If the screen does not automatically launch, click Start > Run and type D:\setup, where D is the letter of your CD drive.

The FactoryTalk Historian ME Client Tools installation screen allows you to perform the following tasks:

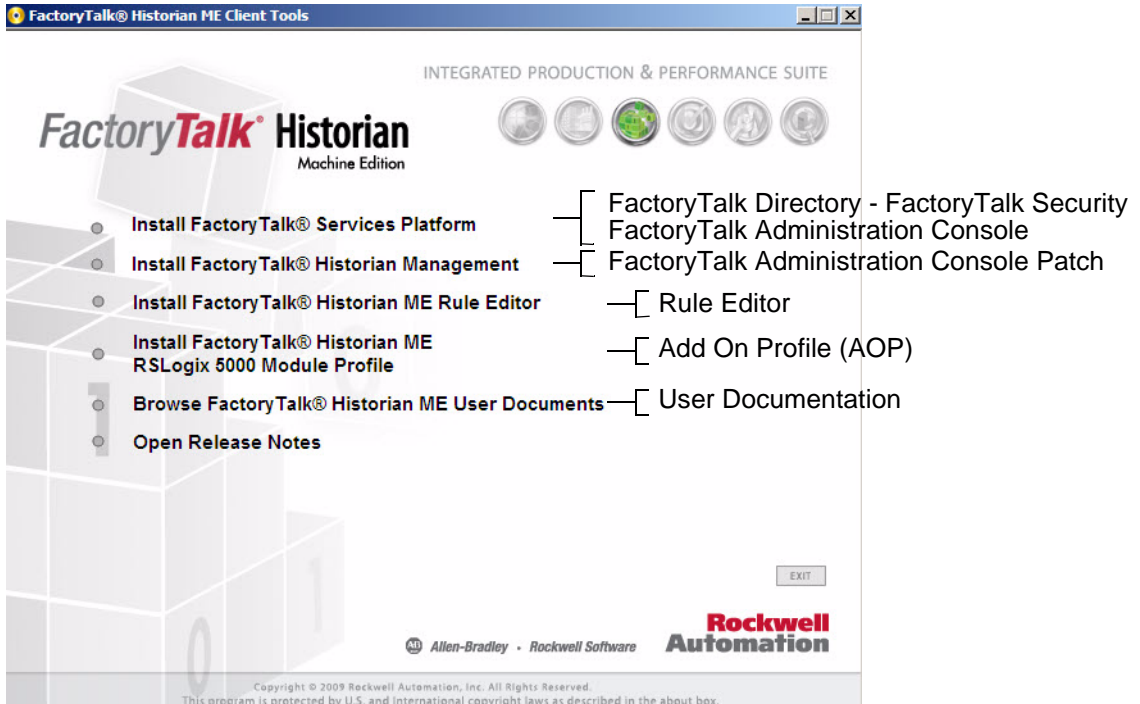
- “Installing FactoryTalk Services Platform”
- “Installing FactoryTalk Historian Management”
- “Installing FactoryTalk Historian ME Rule Editor”
- “Installing FactoryTalk Historian ME RSLogix 5000 AOP”

A patch for FactoryTalk View SE and electronic data sheet (EDS) files are also available on the Client Tools CD. However you should always check the Rockwell Technical Support Knowledgebase to ensure that you have the latest patches.



See the “Installing FactoryTalk View SE Patch” and “FactoryTalk Historian ME EDS Files” sections for information.

In addition to the tools and patches, the FactoryTalk Historian ME release notes and user documentation are available on the CD.



Installing FactoryTalk Services Platform

This option installs FactoryTalk Services Platform CPR 9 SR2. The FactoryTalk Services Platform is an underlying architecture and set of common services that Rockwell Automation products build upon. It must be installed on the computer that hosts the FactoryTalk Directory server. It is also required if you plan to use FactoryTalk Security. However, it is optional if you plan to use the FactoryTalk Historian ME Native security mode.



Refer to the *FactoryTalk Services Platform* online help for detailed information about the FactoryTalk Services Platform.

The following components and services are installed as part of the platform:

- FactoryTalk Directory organizes project information from multiple FactoryTalk products across multiple computers on a network. It allows products to share a common address book, which finds and provides access to plant-floor resources, such as data tags and graphic displays. Only Network Directory is supported.
- FactoryTalk Security can be used to secure your FactoryTalk network after installing FactoryTalk Services Platform.

It is important to select the Custom option to install the FactoryTalk Services Platform Web Services component. Internet Information Services (IIS) must be installed and configured before you install FactoryTalk Services Platform. This must be installed on the computer that hosts the FactoryTalk Directory server and on the secondary server configured for the FactoryTalk Historian ME.

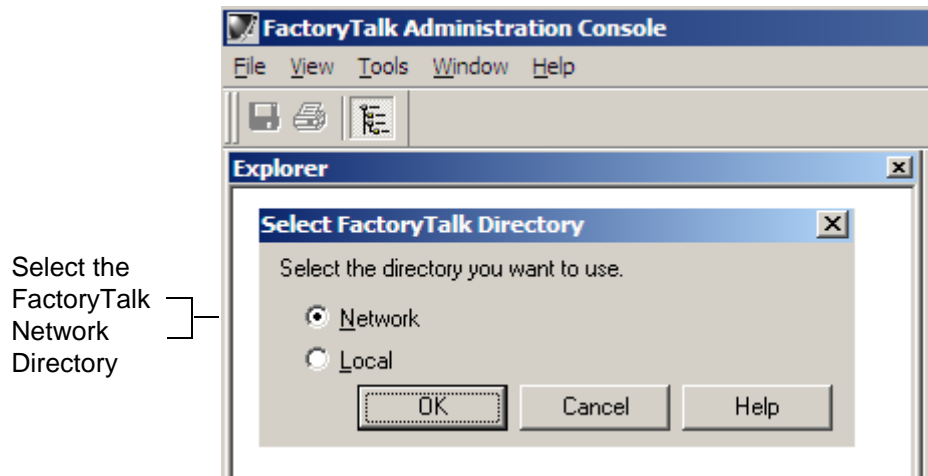



If you are using FactoryTalk Security in your environment, see the “Managing Security” chapter for information on setting up FactoryTalk Security.

Installing FactoryTalk Historian Management

The Management option installs the FactoryTalk Administration Console add-on patch. It provides a method of configuring, managing, and securing applications. To install the patch, click “Install FactoryTalk Historian Management” on the Client Tools CD. An installation wizard will lead you through the setup procedure.


To access the console, go to Programs > Rockwell Software > FactoryTalk Administration Console. Initially, you will be prompted to select a FactoryTalk Directory. Select the Network radio button; FactoryTalk Historian ME supports a Network Directory, not Local Directory.



 See the FactoryTalk Help at Programs > Rockwell Software > FactoryTalk Tools > FactoryTalk Help for information about using the FactoryTalk Administration Console.

Installing 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 the FactoryTalk Historian ME using the FactoryTalk Historian ME Upload Manager feature.

 If you are using the Rule Editor, see the “FactoryTalk Historian ME Rule Editor” appendix for more information.

Installing FactoryTalk Historian ME RSLogix 5000 AOP

The FactoryTalk Historian ME can be configured to communicate with a ControlLogix controller through the Add-on Profile (AOP) add-on in RSLogix 5000 software.



If you are using AOP, see the “RSLogix 5000 Add-on Profile” appendix for more information.

Installing FactoryTalk View SE Patch

The FactoryTalk Historian ME can be integrated with FactoryTalk View SE V5.0 and above. FactoryTalk View SE provides a trend object for FactoryTalk Historian ME users to see visual representations of data. To enable trending of Factory Talk Historian ME points in FactoryTalk View SE, both the FactoryTalk View SE patch and the FactoryTalk Historian Management add-on patch must be applied to your FactoryTalk Historian ME system.



See the “Installing FactoryTalk Historian Management” section for more add-on patch information.

The FactoryTalk View SE patches are available from the Rockwell Automation Knowledgebase at <http://support.rockwellautomation.com>. Click the Search Answers tab for:

- FactoryTalk View SE V5.0 - Answer ID 65614
- FactoryTalk View SE V5.1 - Answer ID 65613

FactoryTalk Historian ME 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 FactoryTalk Historian ME EDS files are located on the Client Tools CD under the Redist/EDS directory.



Avoid configuring the FactoryTalk Historian ME as an Ethernet driver in RSLinx Classic. The module can be recognized the virtual backplane of the RSWho tree pane.

Logging In to the FactoryTalk Historian ME

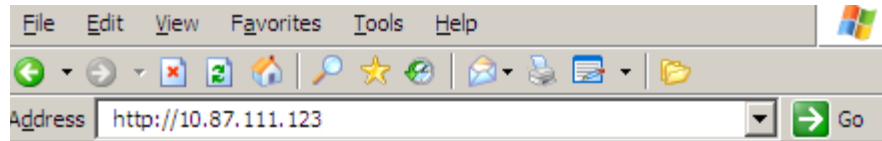
Access FactoryTalk Historian ME through your Microsoft Internet Explorer (IE) browser.



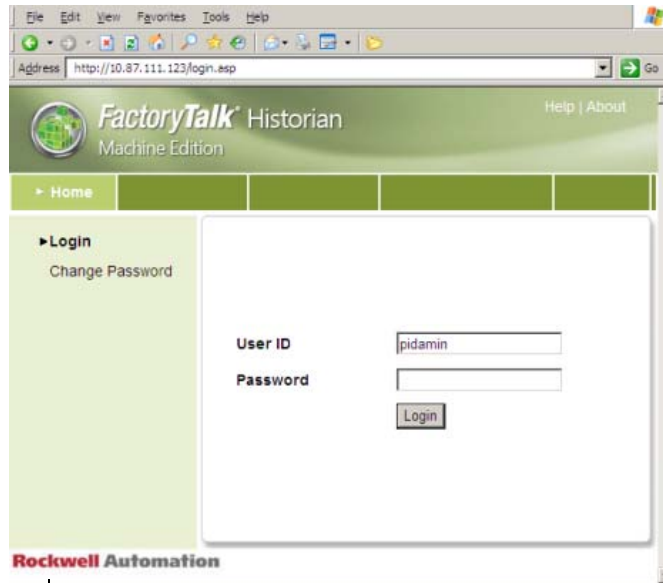
If a large number of tags is being transferred from the Controller to the module when the module is going through an initial bootup, please wait about five to ten minutes before trying to access the web interface.

1. Open your IE browser.
2. Enter the IP address of the FactoryTalk Historian ME in the *Address* field. The IP address scrolls across the LED display on the front panel of the FactoryTalk Historian ME.

Note that the default network configuration type is DHCP. If a DHCP server is not available, then an IP address will not be displayed. You will either need to configure a DHCP server or use the AOP to set the IP address.



- Click [Go] to the right of the Address field, or click [Enter]. This opens the login page.



Home appears in the top main navigation bar of the web interface

Change the blank default *pidamin* user password immediately

Login appears in the left-side navigation bar of the web interface

- Enter the default user name *pidamin* and leave the password field blank.

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



See the “Managing Security” chapter for more information about user and group security.

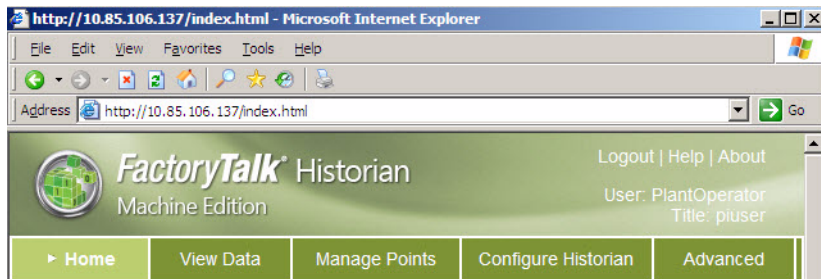
- Click [Login].

Logging Out of the FactoryTalk Historian ME

To log out of the FactoryTalk Historian ME web interface, click *Logout* (in the upper right corner of the web interface) before closing your web browser.

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

To prevent unauthorized access, Rockwell suggests that every user logs out after every session to prevent unauthorized users from accessing the module without logging into the module.



Click *Logout* before closing your browser and after every session

3

Viewing Module Information

The following sections provide information that will assist you in monitoring performance and diagnosing common issues.

- “System Status”
- “Status”
- “Module Identity”
- “System Utilization”
- “System Statistics”

System Status

The System Status information displays when you log in to FactoryTalk Historian ME. It is located on the bottom, left-hand corner of every page and provides the following system status information. It refreshes automatically every 30 seconds.

System Status	
CPU usage:	34.80%
Memory usage:	42.63%
Collection rate:	150000 Events/Min
Transfer rate:	174780 Events/Min
Archive rate:	116100 Events/Min
Archive usage:	0.77%
Archive capacity:	0d 11h 48m
(Estimated archive overwrite time)	

System status features include:

- CPU usage - percentage of the module's CPU that is being used..



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 in the main window 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 the FactoryTalk Historian ME. It is calculated based on the type of data being collected and the rate of Data Collection.
- Archive capacity - the number of days/hours/minutes (dd:hh:mm) until the storage space on the FactoryTalk Historian ME is used. This calculation is based on the module's Data Collection and Data Transfer rates.

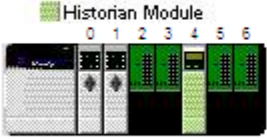
Status

The Status page displays when you log into the FactoryTalk Historian ME web interface. When working in the FactoryTalk Historian ME web interface, you can re-access this page by going to **Home** and clicking *Status* in the left-side navigation bar.

The status information displayed on this page is static. Click the Refresh button on your browser toolbar to show current status information.

Module Information

This section displays the module name, the current firmware version, current time for the module, and the total time the module has been running.



Controllers
 in slots
 0 and 1

FactoryTalk
Historian ME Module
 in slot 4

Module Information

Name	00004929-FTHME
Firmware Version	2.1
Current Time	11/23/2009 07:07:33 PST
Up Time	3 Days, 02:35

System Status

This section displays the current status of the Point Server, Data Collection Service, and the Data Transfer Service.

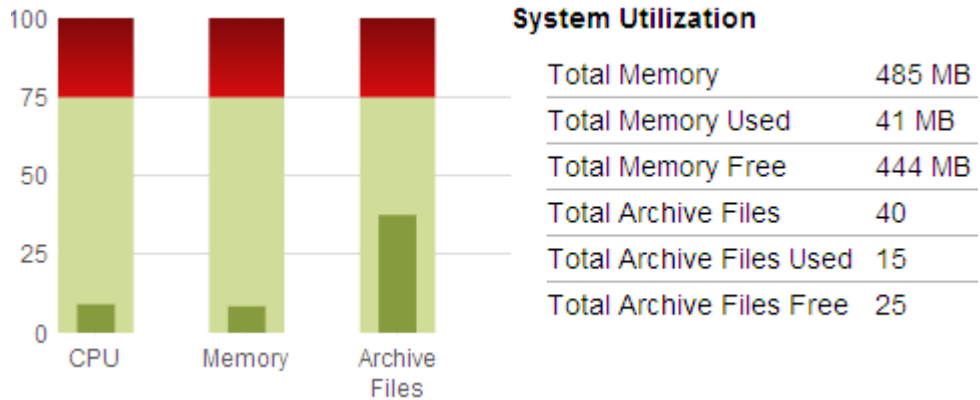
System Status

Point Server	Running
Data Collection Service	Running
Data Transfer Service	Running

- 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.

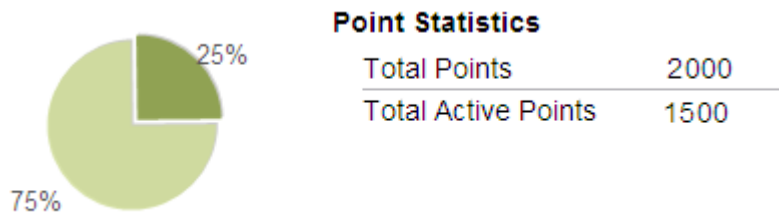
System Utilization

This 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

This section displays the total points in the module and how many are actively receiving data. This information is also represented by a pie chart.



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

Under **Home** on the main navigation, click *Module Identity* in the left-hand navigation to display the module identity information.

Module Information

This section displays the same information found on the *Status* page, as well as the slot number where the module resides and its serial number.



For information on changing these settings, see “Working with System Settings” in the “Administering the Module” chapter. For additional module hardware information, see the *FactoryTalk Historian ME Installation Instructions*.

Module Information

Name	PlantHistorian
Firmware Version	2.1
Current Time	12/15/2009 13:24:21 PST
Up Time	1 Days, 03:04
Module Slot Location	Slot #2
Serial Number	3027

This section displays:

- Name - FactoryTalk Historian ME name. To change your module name, click **Advanced** in the top navigation bar, then click *System Settings*.



See “Configuring the Module Name” for details about the module name and information about the impact of changing the module name.

- Firmware Version - current firmware version.
- Current Time - current time for the module. Click **Advanced** in the top navigation bar, then click *Time Management* to configure time settings.
- Up Time - total time past since the module was started.
- Module Slot Location - slot location of the module in the ControlLogix chassis.
- Serial Number - module serial number. This number cannot be changed.

Network Settings

This section displays the current network settings for the FactoryTalk Historian ME.



For information on changing these settings, see “Working with System Settings”.

Network Settings

MAC Address	00:0d:80:00:0e:70
IP Address	10.85.106.58
IP Configuration	Static
Link Status	Connected

This section displays:

- MAC Address - unique Media Access Control (MAC) address of the module. This number cannot be changed.
- IP Address - Internet Protocol (IP) address of the module. Click **Advanced** in the top navigation bar, then click *System Settings* to configure network settings.
- IP Configuration - Dynamic Host Configuration Protocol (DHCP) or static IP address will display. DHCP is the default configuration. Click **Advanced** in the top navigation bar, then click *System Settings* to configure network settings.
- Link Status - indicates the module's front Ethernet port is connected successfully.

Security Configuration

This section displays the current security settings for the FactoryTalk Historian ME.



For information on changing these settings, see “Managing Security”.

Security Configuration

Security Mode	Native
Browser Protocol	HTTP

This section displays:

- Security Mode - FactoryTalk (FT) Security mode or FactoryTalk Historian ME Native mode.
- Browser Protocol - HTTP or secure HTTP (HTTPS).

Client Connections

This section displays the current number of clients connected to the FactoryTalk Historian ME. Up to 5 clients may be connected simultaneously.

Client Connections

Clients Connected To Historian 4

Supported client applications include:

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

System Utilization

Under **Home** on the main navigation, click *System Utilization* in the left navigation bar to display the System Utilization information.

System Utilization

CPU And Processes

CPU Usage	52.40%
Top 5 Processes Usage	
piarchss	21.40%
datacollection	13.60%
pisnapss	13.60%
datatransfer	1.90%
logixd	1.90%

RAM

Total Memory	485 MB
Total Memory Used	169 MB
Total Memory Free	315 MB
Top 5 Memory Usage	
piarchss	114 MB
datacollection	12 MB
piibasess	11 MB
plilicmgr	8 MB
webs	7 MB

Ethernet Statistics

Sent Packets	42 Pkt/Sec
Received Packets	36 Pkt/Sec
Sent Bytes	15021 Bytes/Sec
Received Bytes	9747 Bytes/Sec
Sent Packets Count	1758085
Received Packets Count	2150799

Storage (NAND)

Application	
Total Storage	290 MB
Total Storage Used	210 MB
Total Storage Free	80 MB
Storage/Archive	
Total Storage	1527 MB
Total Storage Used	1425 MB
Total Storage Free	102 MB
Total Archive Files	
Total Archive Files	130
Total Archive Files Free	129
Archive File Size	10 MB
Log and Core Files	
Total Storage	97 MB
Total Storage Used	12 MB
Total Storage Free	85 MB

Auto Refresh Disable Auto Refresh by setting the value to 0 or leave it blank.

- CPU and Processes - displays the current percent of the CPU in use and the processes currently running.



The CPU usage percent listed in the System Status section 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 - displays the memory usage of the module.
- Ethernet Statistics - displays the total amount of data sent and received by the module through the network.
- Storage (NAND) - displays 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 are free as well as the archive file size.

System Statistics

Under **Home** on the main navigation, click *System Statistics* in the left navigation bar to display the System Statistics information. This information is important when troubleshooting any issues with your module. Three radio buttons appear at the top of the table: Network Manager, Snapshot and Archive, and Archive Files.

System Statistics

Network Manager
 Snapshot And Archive
 Archive Files

Section	Purpose
“Network Manager Statistics”	Displays a network management system statistics.
“Snapshot and Archive Statistics”	Displays a snapshot of the archived system statistics.
“Archive File Statistics”	Displays archived system statistics.

Below the table, the Auto Refresh feature is available. To set the table to auto refresh, enter a refresh interval (in sections) in the Auto Refresh box below the table. Setting the Auto Refresh value to 0 or not entering a value in the box disables the Auto Refresh feature.

Auto Refresh Disable Auto Refresh by setting the value to 0 or leave it blank.

When using the auto refresh feature, follow these guidelines:

- Try to limit the amount of time auto refresh is being used. It is not recommended to keep a page running in auto refresh mode when you are not using it.
- Display the minimum amount of data necessary. This will reduce the amount of memory being used.
- Do not choose a refresh rate that is more frequent than necessary. The faster the auto refresh rate, the more memory will be used.
- Closing the browser or switching the browser to another page will release the memory that was used.

Network Manager Statistics

The Network Manager view retrieves a snapshot of the current Network Manager connection statistics.

System Statistics

Network Manager
 Snapshot And Archive
 Archive Files

ID	Path	Name	ID	Reg App Name	Reg App Type	Protocol Version	Peer Name
0	/opt/PI/	pilicmgr	1595	pilicmgr	PIService	3.3	
1	/opt/PI/	pimsgss	1619	pimsgss	PIService	3.3	
2	/opt/PI/	piupdmgr	1640	piupdmgr	PIService	3.3	
3	/opt/PI/	pibasess	1663	pibasess	PIService	3.3	
4	/opt/PI/	pisnapss	1684	pisnapss	PIService	3.3	
5	/opt/PI/	piarchss	1707	piarchss	PIService	3.3	
15	/opt/PI/	pitotal	1860	pitotal	ServerApp	3.3	
171	/opt/PI/	datatransfer(1784):remote	-1	RA-FHMS	APIApp	3.3	
13	/opt/PI/	webconfiguration	1815	RA-FHMS	APIApp	3.3	
9	/opt/PI/	datacollection	1767	RA-FHMS	APIApp	3.3	
10	/opt/PI/	datatransfer	1784	RA-FHMS	APIApp	3.3	
11	/opt/PI/	datastorage	1796	RA-FHMS	APIApp	3.3	
16	/opt/PI/	PipeE	-1	pipeschd	ServerApp	1.8	127.0.0.1
19	/opt/PI/	PIPESCHD	1842	pipeschd	ServerApp	3.3	
191	/opt/PI/	webdiagnostics	1828	RA-FHMS	APIApp	3.3	
187	/opt/PI/	FTHRdCli.exe(7768):remote	7768	RA-FHCL	SDKApp	3.3	10.85.106.129
	/opt/PI/	PINetMgr		pinetmgr	PIService	3.3	

Auto Refresh Disable Auto Refresh by setting the value to 0 or leave it blank.



If a row does not contain a value for a particular column, then there is no information available for that column heading for that particular connection.

The Network Manager table contains the following fields:

Field	Description
ID	Connection ID. This is the primary key.
Path	Root directory on the server. This directory is the same for all connections.
Name	Connection name.
ID	Process ID number.
Reg App Name	Registered application name.
Reg App Type	Registered application type.
Protocol Version	Protocol version of connecting application.
Peer Name	Host name of connecting machine.
Peer Address	IP Address of connecting machine.
Peer Port	Port number of connecting machine.
ConType	Connection type.
Net Type	Type of network.
ConStatus	Status of connection.
ConTime	Time of connection.
Last Call	Time of last call.
Elapsed Time	Amount of time passed.
Bytes Sent	Number of bytes sent.
Bytes Recv	Number of bytes received.
Msg Sent	Number of messages sent.
Msg Recv	Number of messages received.
Errors Recv	Number of errors received.
Errors Sent	Number of errors sent.
API Count	Number of APIs.

Field	Description
SDK Count	Number of SDKs.
Server ID	Identification number for the server.
NetMgr Version	Network manager version number.
OS Sys Name	Operating system name.
OS Node Name	Operating system node name.
OS Release	Operating system release number.
OS Version	Operating system version number.
Machine	System name.
User	User name.
OS User	Operating system user name.
Trust	Name of the trust connection.

Snapshot and Archive Statistics

The Snapshot and Archive view allows a user to monitor the current FactoryTalk Historian ME snapshot and archive statistics.

System Statistics

Network Manager
 Snapshot And Archive
 Archive Files

Type	Counter	Value	Change
Snapshot	Point Count	2504	0
Snapshot	Snapshot Events	2735962500	25000
Snapshot	Out of Order Snapshot Events	0	0
Snapshot	Snapshot Event Reads	39299450	338
Snapshot	Events Sent to Queue	584466	22134
Snapshot	Events in Queue	0	0
Snapshot	Number of Overflow Queues	0	0
Snapshot	Total Overflow Events	0	0
Snapshot	Estimated Remaining Capacity	27720	0
Archive	Archived Events	2289745173	20877
Archive	Out of Order Events	2949028	0
Archive	Events Cascade Count	0	0
Archive	Events Read	2367330165	11488
Archive	Read Operations	59861998	346
Archive	Cache Record Count	419	-578
Archive	Cache Records Created	68324057	565
Archive	Cache Record Memory Reads	84545433	1172
Archive	Cache Clean Count	3600915	0
Archive	Archive Record Disk Reads	213749901	1763
Archive	Archive Record Disk Writes	212306194	2260
Archive	Unflushed Events	11846	-14725

Auto Refresh Disable Auto Refresh by setting the value to 0 or leave it blank.

The Snapshot and Archive table contains the following fields:

Field	Description
Type	Snapshot or archive file type.
Counter	Performance counter.
Value	Current snapshot and/or archive value.
Change	Value change between updates.

Archive File Statistics

The 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.

System Statistics

Network Manager		Snapshot And Archive				Archive Files		
Archive File	Status	Size(MB)	Write Flag	Shift Flag	Add Rate/Hour	% Full	Annotations	Annotation File Size
28_Dec_09_11_44_22	Has Data	10 MB	Writeable	Shiftable	112567.5	97.71	1/512	2064
28_Dec_09_11_49_44	Primary	10 MB	Writeable	Shiftable	32713.0	12.25	1/512	2064
28_Dec_09_11_39_02	Has Data	10 MB	Writeable	Shiftable	110835.7	97.71	1/512	2064
28_Dec_09_11_33_34	Has Data	10 MB	Writeable	Shiftable	110495.7	97.71	1/512	2064
28_Dec_09_11_28_01	Has Data	10 MB	Writeable	Shiftable	108498.8	97.71	1/512	2064
28_Dec_09_11_22_32	Has Data	10 MB	Writeable	Shiftable	109822.0	97.71	1/512	2064
28_Dec_09_11_17_08	Has Data	10 MB	Writeable	Shiftable	111868.3	97.71	1/512	2064
28_Dec_09_11_11_52	Has Data	10 MB	Writeable	Shiftable	112567.5	97.71	1/512	2064
28_Dec_09_11_06_23	Has Data	10 MB	Writeable	Shiftable	109822.0	97.71	1/512	2064
28_Dec_09_11_00_48	Has Data	10 MB	Writeable	Shiftable	108173.0	97.71	1/512	2064
28_Dec_09_10_59_54	Has Data	10 MB	Writeable	Shiftable	74006.6	12.25	1/512	2064
28_Dec_09_10_54_35	Has Data	10 MB	Writeable	Shiftable	109100.6	92.93	1/512	2064
28_Dec_09_10_49_04	Has Data	10 MB	Writeable	Shiftable	109488.1	97.71	1/512	2064
28_Dec_09_10_43_44	Has Data	10 MB	Writeable	Shiftable	109822.0	97.71	1/512	2064
28_Dec_09_10_38_09	Has Data	10 MB	Writeable	Shiftable	109822.0	97.71	1/512	2064
28_Dec_09_10_32_45	Has Data	10 MB	Writeable	Shiftable	109156.4	97.71	1/512	2064
28_Dec_09_10_27_22	Has Data	10 MB	Writeable	Shiftable	111212.7	95.33	1/512	2064
28_Dec_09_10_21_50	Has Data	10 MB	Writeable	Shiftable	108498.8	97.71	1/512	2064
28_Dec_09_10_16_27	Has Data	10 MB	Writeable	Shiftable	109488.1	97.71	1/512	2064
28_Dec_09_10_10_53	Has Data	10 MB	Writeable	Shiftable	110157.8	97.71	1/512	2064

Auto Refresh Disable Auto Refresh by setting the value to 0 or leave it blank.

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 the FactoryTalk Historian ME are displayed by default when you select the Archive Files option.

The Archive Files table contains the following fields:

Field	Description
Archive File	File archive name, which includes the full path.
Status	Archive status displays one of the following: <ul style="list-style-type: none">■ Primary - the archive file that is currently receiving data.■ Has Data - indicates the archive file contains data and is full.■ Empty - indicates the archive has no data.
Size (MB)	Archive file size in megabytes.
Start Time	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. <i>Never</i> indicates that the file has never been backed up.
State	The state of the file: <ul style="list-style-type: none">■ Created■ Initialized■ Dismounted■ Mounted
Type	Indicates the type of file, which is always <i>Fixed</i> 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.
% Full	The percentage of the archive that is being used.

Field	Description
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 the FactoryTalk Historian ME.

4

Viewing Data

This chapter contains the following sections:

- “Viewing Current Data”
- “Viewing Archive Data”
- “Viewing Trends”
- “Changing the Views”

Viewing Current Data

To view data that is currently being collected by FactoryTalk Historian ME, click on **View Data**, and then click *Current Data* in the left-side navigation.

Current Data

Point Name: Point Type: Archiving:
Point Source: Scan Rate: Scan: Search
All Rows Selected Rows

Select	Name	Value	Timestamp	Type
<input type="checkbox"/>	Standard2000_1_0_dinttag1	14	Wednesday, December 02, 2009 13:32	Int32
<input type="checkbox"/>	Standard2000_1_0_dinttag10	23	Wednesday, December 02, 2009 13:32	Int32
<input type="checkbox"/>	Standard2000_1_0_dinttag100	113	Wednesday, December 02, 2009 13:32	Int32
<input type="checkbox"/>	Standard2000_1_0_dinttag101	114	Wednesday, December 02, 2009 13:32	Int32
<input type="checkbox"/>	Standard2000_1_0_dinttag102	115	Wednesday, December 02, 2009 13:32	Int32
<input type="checkbox"/>	Standard2000_1_0_dinttag103	116	Wednesday, December 02, 2009 13:32	Int32
<input type="checkbox"/>	Standard2000_1_0_dinttag104	117	Wednesday, December 02, 2009 13:32	Int32
<input type="checkbox"/>	Standard2000_1_0_dinttag105	118	Wednesday, December 02, 2009 13:32	Int32
<input type="checkbox"/>	Standard2000_1_0_dinttag106	119	Wednesday, December 02, 2009 13:32	Int32
<input type="checkbox"/>	Standard2000_1_0_dinttag107	120	Wednesday, December 02, 2009 13:32	Int32
<input type="checkbox"/>	Standard2000_1_0_realtag211	292.000000	Wednesday, December 02, 2009 13:32	Float32
<input type="checkbox"/>	Standard2000_1_0_realtag212	293.000000	Wednesday, December 02, 2009 13:32	Float32
<input type="checkbox"/>	Standard2000_1_0_realtag213	294.000000	Wednesday, December 02, 2009 13:32	Float32
<input type="checkbox"/>	Standard2000_1_0_realtag214	295.000000	Wednesday, December 02, 2009 13:32	Float32
<input type="checkbox"/>	Standard2000_1_0_realtag215	296.000000	Wednesday, December 02, 2009 13:32	Float32

25 Page 1 of 2 Displaying 1 to 25 of 30 items
 All/None Auto Refresh Disable Auto Refresh by setting the value to 0 or leave it blank.

Defining Search Criteria

Search criteria entered the Current Data, Archive Data, and Trends pages persists across all three pages. To generate a Current Data, Archive Data, or Trends view, define your search criteria and enter it in the fields at the top of the page, then click [Search]. This information tells the FactoryTalk Historian ME what data you are interested in viewing.

Note that for all fields, the asterisk (“*”) is a wildcard value. You can use it:

- To represent a contiguous series of characters in any search field (such as, **xxx**, **xxx*, or *xxx**).
 - In any of the search fields to return data that meets all conditions for that field.
 - In all fields to return ALL points in the system.
1. Enter the point name criteria such as the full name, partial name or wildcard value for the data you would like to search. “*” is the default.
 2. Enter 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:
 - FTME - the default point source for FactoryTalk Historian ME
 - T - the Totalizer utility subsystem.
 - C - the Performance Equation subsystem.
 3. Enter the point type. Point types include:
 - Int16 - a 16-bit integer value.
 - Int32 - a 32-bit integer value.
 - Float16 - a 16-bit floating point value.
 - Float 32 - 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. Select a scan rate from the drop-down menu. The scan rate is the rate (in seconds) at which the data is collected.
5. Select On, Off, or "*" from the Archiving drop-down menu to display points with a specific archive bit setting.
 - 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. Select On, Off, or "*" from the Scan drop-down menu to search for points with a specific scan bit setting.
 - 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:

- Select column checkbox - 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 radio button.
- Name - name of the data point.
- Value - most recently returned value of the data point.
- Timestamp - time that the last value was returned for the specified data point.
- Type - data type for the listed point. If the point is a Boolean or String type, no checkbox will display in the Select column.



For information on sorting and viewing information in the table grid, see "Changing the Views".

Clicking [Reset] clears any points that you previously checked in the Select column.



For information about filtering search results, see "Filtering Search Results Data".

Exporting Data

Exporting data will export all points that have been returned after you've executed a search. If you have selected a few rows to be displayed and click [Export], all row data will be exported. If you want to export a subset of rows, enter more specific search criteria. To export data:

1. Click [Export].
2. In the Save As dialog, select a location for the data on your client computer.
3. Enter a file name.
4. Click [Save].



If you are using IE 7.0 and want to export to Excel, you must install hot fix 929863 (<http://support.microsoft.com/kb/929863>.) This fix addresses an Excel file export issue on the *Current Data* page. You must manually add the [HKEY_CLASSES_ROOT\.csv] "PerceivedType"="document" registry value for the .csv document type."

To export to an Excel spreadsheet, save your file as a .csv file. This must be manually entered because .csv is not an option from the Save as type drop-down menu.

Viewing Archive Data

To view archived data in FactoryTalk Historian ME, click on **View Data**, and then click *Archive Data* in the left-side navigation. This page displays a list of tags and the latest value collected for each point. By highlighting each point, you can enter a time period and view archive data that was collected for that period. Archive data collected for a point may only be viewed for one point at a time.

Select Points For Archive Data

Enter search criteria

Point Name Point Type Archiving Press [Search]

Point Source Scan Rate Scan [Search]

All Rows Selected Rows

Point highlighted to view archive data

Select	Name	Value	Timestamp	Type
<input type="checkbox"/>	Standard2000_1_0_dinttag100	113	Wednesday, December 02, 2009	Int32
<input type="checkbox"/>	Standard2000_1_0_dinttag101	114	Wednesday, December 02, 2009	Int32
<input type="checkbox"/>	Standard2000_1_0_dinttag102	115	Wednesday, December 02, 2009	Int32
<input type="checkbox"/>	Standard2000_1_0_dinttag103	116	Wednesday, December 02, 2009	Int32
<input type="checkbox"/>	Standard2000_1_0_dinttag104	117	Wednesday, December 02, 2009	Int32
<input type="checkbox"/>	Standard2000_1_0_dinttag105	118	Wednesday, December 02, 2009	Int32

25 Page 1 of 2 Displaying 1 to 25 of 30 items

All/None Start Time End Time Press [View]

Archive data for selected point displays

Value	Timestamp
Pt Created	Wednesday, December 02, 2009 12:46:34.000 PM
106	Wednesday, December 02, 2009 12:46:53.294 PM
115	Wednesday, December 02, 2009 12:47:02.103 PM

25 Page 1 of 1 Displaying 1 to 3 of 3 items

Search criteria entered the Current Data, Archive Data, and Trends pages persists across all three pages. In the search fields, enter the search criteria, and then click [Search].



See "Defining Search Criteria" for information.

Selecting Archive Data Points

Select points for the archived data:

1. Highlight the point by positioning the blue highlight bar over the selected point. You can only view archive data for one highlighted section at a time.
2. Enter a start time and end time.



See the section "Start and End Times" for more details about setting the start and end times.

3. Click [View] to display archived data for the specified time range.

The Archive Data table will display the values collected for the highlighted tag during the specified time period.



For information on sorting and viewing information in the table grid, see “Changing the Views”.

Viewing Trends

FactoryTalk Historian ME Trends page allows you to select multiple tags and draw a trend chart to view data. Each trend chart provides a visual representation of the data collected over a specified time period. To view trend charts, click on **View Data**, and then click *Trends* in the left-side navigation.

Search criteria entered the Current Data, Archive Data, and Trends pages persists across all three pages. In the search fields, enter the search criteria, and then click [Search].



See “Defining Search Criteria” for information.

Displaying the Trend Chart

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. Numbers on the X axis at the bottom of the chart, represent the point timestamps. Numbers on the Y axis at the left of the chart, represent the point values.

The table below chart displays the name, value and timestamp for each point in real-time as the chart is refreshed. Select points to view from the Points table, set a time range (optional), select an Auto Refresh rate (optional), check the Show Points and/or Show Vertical Bar checkboxes (optional), and click the green arrow to draw the trend chart. Use the right-hand scrollbar to view information for more than two points.

Select points to view in Trend Chart

Select Points For Trend Chart

Point Name * Point Type * Archiving *
 Point Source * Scan Rate * Scan *

All Rows Selected Rows

Select	Name	Value	Timestamp	Type
<input checked="" type="checkbox"/>	Standard2000_1_0.dinttag101	113	Friday, November 27, 2009 2:03:04.780 PM	Int32
<input checked="" type="checkbox"/>	Standard2000_1_0.dinttag111	123	Friday, November 27, 2009 2:03:04.780 PM	Int32

25 Page 1 of 1 Displaying 1 to 2 of 2 items

Trend Chart

Start Time * End Time * Auto Refresh 1 (Sec)

Enter Start Time and End Time range Select Auto Refresh rate Click green arrow to draw the trend chart Enable Show Points and Show Vertical Bar

Show Points
 Show Vertical Bar

Name Value Timestamp

AUTO REFRESH

Click the green arrow to generate a trend chart for selected points in the table. Timestamps on the Y axis change as time passes and the chart refreshes. Click the red box to stop Auto Refresh. Auto Refresh must be disabled before you use the Zoom, Show Points, or Show Vertical Bar features.



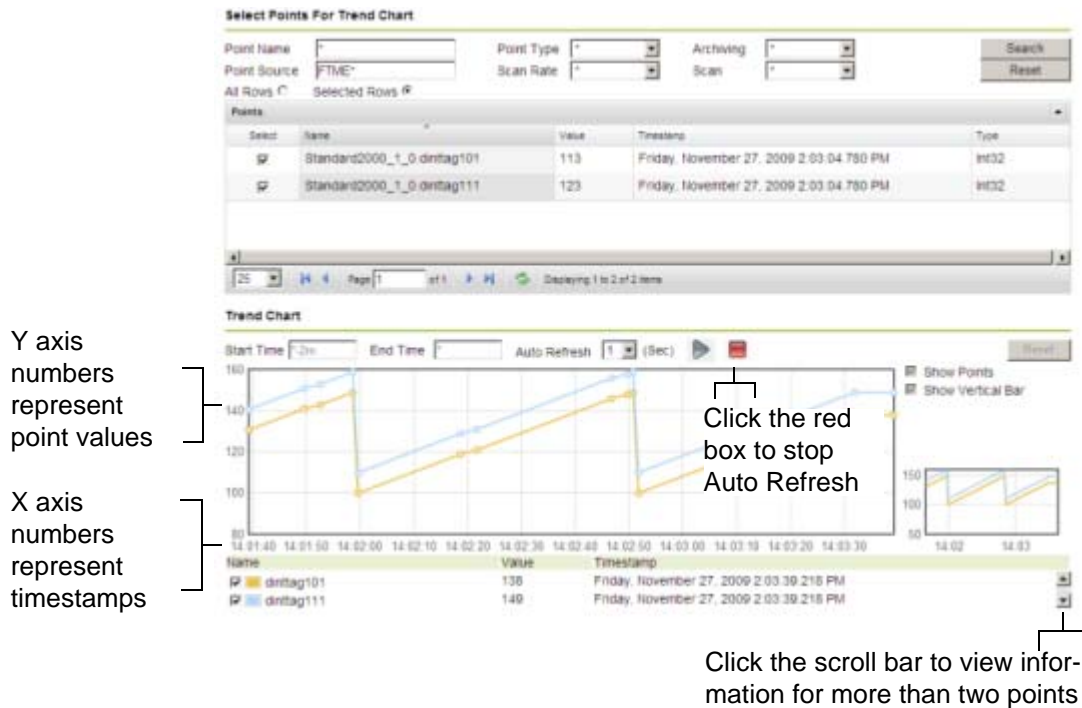
See the section “Start and End Times” for more details about setting the start and end times.

SHOW POINTS

Check the Show Points checkbox to display discrete data points in the trend chart. Each point will be represented in the chart as a bubble. You must disable Auto Refresh (by clicking the red square) before you enable the Show Points feature.



If you want to draw a trend chart that consists of high speed points, avoid checking the Show Points checkbox due to the large number of points that will be displayed.



SHOW VERTICAL BAR

Check the Show Vertical Bar checkbox to display a vertical bar across all points on an X axis. At the bottom of the trend chart, timestamps will be adjusted when you click inside the trend chart and drag the vertical bar across the chart.

When Daylight Savings Time (DST) occurs, the timestamps displayed will automatically update 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.

You must disable Auto Refresh (by clicking the red square) before you enable the Show Vertical Bar feature.

Use the Vertical Bar to align and study points of interest



SMALL WINDOW

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

ZOOM

To zoom in on a specific time span for a set of data, click and drag the mouse to draw a box and release the mouse. The highlighted area will display in the trend chart allowing you to view data in a specific time span more closely.

You must disable Auto Refresh (by clicking the red square) to zoom.

Click and drag the mouse to Zoom in on a specific point or set of points



RESET

Click [Reset] to restore the small window next to the trend chart to its default view.

To remove a point from the chart, clear the checkbox next to its name in the list below the trend chart.

Click [Reset] to reset the small window to its original view

Use the scrollbar to view information for more tags

Uncheck the box to remove a point from the chart

Name	Value	Timestamp
ointtag101	147	Friday, November 27, 2009 2:03:48.093 PM
ointtag111	158	Friday, November 27, 2009 2:03:48.093 PM

Changing the Views

The Current Data, Archive Data, and Trends view can be changed by filtering data, sorting columns, refreshing, and (for Current Data) auto refreshing.

Filtering Search Results Data

To filter search results, select either the All Rows or Selected Rows radio button. Your filter selection will persist as you view data on the Current Data, Archive Data, and Trends pages. If you select the Selected Rows radio button, the table will display all the rows you have selected in all your searches up to that point.

For example:

1. Run a search where the Point Name criteria is entered as *mon*. It returns one match (MonitorTag). Click the Select checkbox.
2. Run another search where the Point Name criteria is entered as *999. It returns one match (int32tag999). Click the Select checkbox.
3. Select the Selected Rows radio button. Both of the rows you selected in the searches ran in steps 1 and 2 are listed.

Choosing the Selected Rows radio button will continue to return the selected rows for each search until [Reset] is clicked. This will return the search parameter fields to their default values and clear all row selections that were made in previous searches.

Sorting Columns

You can sort any table column in the current, archive, or trends table. Simply click the up-down arrow in the column heading.

Current Data

Point Name	*	Point Type	*
Point Source	FTIME*	Scan Rate	*
All Rows	Selected Rows		
Select	Name	Value	
<input type="checkbox"/>	Standard2000_1_0 sinttag371	-126	
<input type="checkbox"/>	Standard2000_1_0 sinttag121	-122	
<input type="checkbox"/>	Standard2000_1_0 sinttag381	-116	
<input type="checkbox"/>	Standard2000_1_0 sinttag131	-112	

Click the Up-Down arrow to toggle the column sort



To reduce the load on the FactoryTalk Historian ME processor, sorting occurs on the client computer. If you are monitoring your CPU through the Windows Task Manager, you may see spikes in resource usage due to sorting.

Mouse over a column name to display the down arrow. Click the down arrow to display the table columns. Check the columns you want to display, and clear the check boxes for the columns you want to hide.

Current Data

Point Name	*	Point Type	*	Archiving	*	Search
Point Source	FTIME*	Scan Rate	*	Scan	*	Reset
All Rows	Selected Rows					Export
Select	Name	Value	Timestamp			
<input type="checkbox"/>	Standard2000_1_0 realtag391	422.000000	Friday, November 27, 2009 4:26:02.475 PM	<input checked="" type="checkbox"/>	Select	
<input type="checkbox"/>	Standard2000_1_0 realtag381	412.000000	Friday, November 27, 2009 4:26:02.475 PM	<input checked="" type="checkbox"/>	Name	
<input type="checkbox"/>	Standard2000_1_0 realtag371	402.000000	Friday, November 27, 2009 4:26:02.475 PM	<input checked="" type="checkbox"/>	Value	
<input type="checkbox"/>	Standard2000_1_0 realtag361	392.000000	Friday, November 27, 2009 4:26:02.475 PM	<input checked="" type="checkbox"/>	Timestamp	
<input type="checkbox"/>	Standard2000_1_0 realtag351	382.000000	Friday, November 27, 2009 4:26:02.475 PM	<input type="checkbox"/>	Type	

Click the Down arrow to display a list of columns

Uncheck a column name(s) to hide a column(s)

Refreshing a View

To refresh a view, click [Search] again.

Auto Refreshing a View

To set the table to auto refresh, enter a refresh interval (in sections) in the Auto Refresh box below the table. Setting the Auto Refresh value to 0 or not entering a value in the box disables the Auto Refresh feature.

Auto Refresh Disable Auto Refresh by setting the value to 0 or leave it blank.

When using the auto refresh feature, note the following:

- Try to limit the amount of time auto refresh is being used. It is not recommended to keep a page running in auto refresh mode when you are not using it.
- Display the minimum amount of data necessary. This will reduce the amount of memory being used.
- Do not choose a refresh rate that is more frequent than necessary. The faster the auto refresh rate, the more memory will be used.
- Closing the browser or switching the browser to another page will release the memory that was used. Before closing or switching the browser, you should stop Auto Refresh.

Start and End Times

The start and end times source is the client computer. The default start time is two minutes before the current time. The default end time is the current time. For example:

Syntax	Definition
-60s	Minus sixty seconds (the past sixty seconds)
+45m	Plus forty-five minutes (the future forty-five minutes)
-5h	Minus five hours (the past five hours)
-3d	Minus three days (the past three days)

Where:

Symbol	Definition
*	Current time

Symbol	Definition
T	Today hh:mm:ss
Y	Yesterday hh:mm:ss
d	Day
Monday or Mon	Last Monday hh:mm:ss
h	Hour
m	Minutes
s	Seconds
+	Future time
-	Past time

5

Managing Points

This chapter contains the following sections:

- “Using the Add Points Wizard”
- “Using the Tag Browser to Create Points”
- “Manually Creating and Editing Points”
- “Defining Point Attributes”
- “Configuring Scan Types”
- “Configuring Trigger Input and Output Points”
- “Working with Scan Classes”

Using the Add Points Wizard

To start the wizard, click **Manage Points** in the top navigation bar, then click the *Add Points Wizard* in the left navigation bar. The Add Points Wizard guides you through the process of discovering and collecting tags in controllers, creating points, and then storing the data from the controller in the FactoryTalk Historian ME. You can create a maximum of 2500 data points per FactoryTalk Historian ME.



Do not use the web interface or the FactoryTalk Historian SE System Management Tools (SMT) Tag Configurator to change the configuration or points when the module is collecting data or data interruption may result.



Never delete the FTMEScanRateDefinition 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 point configuration(s) are changed you should expect data interruption.

Discovering Tags

In Step 1: Discover Tags, set the search parameters for discovery of tags. Parameters include the rule file, tag file, scan rate, and controller.

Add Points Wizard

1 Discover Tags 2 Create Points 3 Review Result

Rule File: Click the arrow icon to view the rule file or the tag attribute file

Tag File:

Scan Rate: (Sec)

Start Search In: FTHME_Automation_1_6 (slot 6) FTHME_Slave_1_5 (slot 5) Check a box to select controller tags to browse

Show Tags

1. Select a Rule file (optional). ADDefault.xml is the default. You may select *None*.

A rule file is an XML file that determines which points will be discovered by the wizard. You can view a rule file by clicking the arrow icon to the right of the drop-down menu.

In addition to the default rule file, you can create and manage custom rule files using the Rule Editor. After a rule file is created, you can upload it to the module.



See “FactoryTalk Historian ME Rule Editor” for more information about using the Rule Editor.

See “Uploading Files to the Module” for more information on uploading rule files to the module.

The search results are based on parameters included in the rule file. Because the search only applies to web client cached information, it is limited to the first 2000 tags from a single controller. Therefore, some controller tags may be filtered out of searches due to count limits. To resolve this search limitation and browse more than 2000 tags per controller:

- Edit the default rule file and change the Item.Count LTE parameter value to a number greater than 2000.

- Create a custom rule file with an Item.Count LTE parameter value that is greater than 2000.

If you select *None* and do not apply rules, clicking [Show Tags] will generate a list of all points from Logix controllers.

2. Select a Tag file.

The Tag (also called *tag attribute*) file is an XML file that determines the properties (attributes) of the points to be created. FTHMETagDefault.xml is the default. You can view the tag properties files by clicking the icon to the right of the drop-down menu.

Tag attribute files are managed through the Rule Editor. Use the Rule Editor to create and edit tag attribute files that you can upload to the module.



See “FactoryTalk Historian ME Rule Editor” appendix for more information about using the Rule Editor.

See “Uploading Files to the Module” for more information on uploading tag attribute files to the module.

3. Set the scan rate.

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

If you use multiple tag attribute files that contain a variety of scan rates, you must select *default* from the drop-down menu to retain the rates configured in the tag attribute files.

The screenshot shows the 'Add Points Wizard' interface with three steps: 1 Discover Tags, 2 Create Points, and 3 Review Result. The 'Discover Tags' step is active. The 'Rule File' is set to 'Auto Discovery and Configuration Rules'. The 'Tag File' is set to 'FTHMETagDefault.xml'. The 'Scan Rate' is set to '1 (Sec)'. A list of scan rate options is displayed, including 1, 0.01, 0.1, 0.2, 0.5, 3, 5, 30, 60, 3600, and 'default' (highlighted).

When selecting a scan rate, it is important to be aware that points that have an invalid scan rate configured will not be created. The valid scan rates are as follows:

- Advised and 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.

Any point that was not created is listed in the Review Results page with the reason it was not created.



See "Reviewing Results" for an image of the Review Results page.

4. Click the checkbox next to the name of the controller that you wish to use for a data search.

A list of all online controllers in the same chassis is displayed next to the Start Search In checkbox by default. FactoryTalk Historian ME supports Data Collection from a maximum of four controllers.

5. Click [Show Tags] to search for tags in the selected controllers.
6. An informational message will appear to indicate data is being retrieved from the controller.

Info: Retrieving data from Standard1000_1_0]

Creating Points

In Step 2: Create Points, the Add Points Wizard returns search results based on the criteria set in Step 1: Discover Tags. To search the results, enter search criteria:

- Name - the name of the tag in the controller. The default is "*", which displays all tags.
- Slot - slot location of the controller in the chassis. Tags from the controller selected in the Start Search In field in Step 1: Discover Tags will display by default.
- Type - displays the controller data types. The default is "*", which displays all data types.

You can create a maximum of 2500 data points per FactoryTalk Historian ME. If you exceed 2500 data points, the Create button will automatically become deactivated. You can deselect points from the Select field to reduce the number of points. When the point count is less than 2501, the Create button will automatically become reactivated.



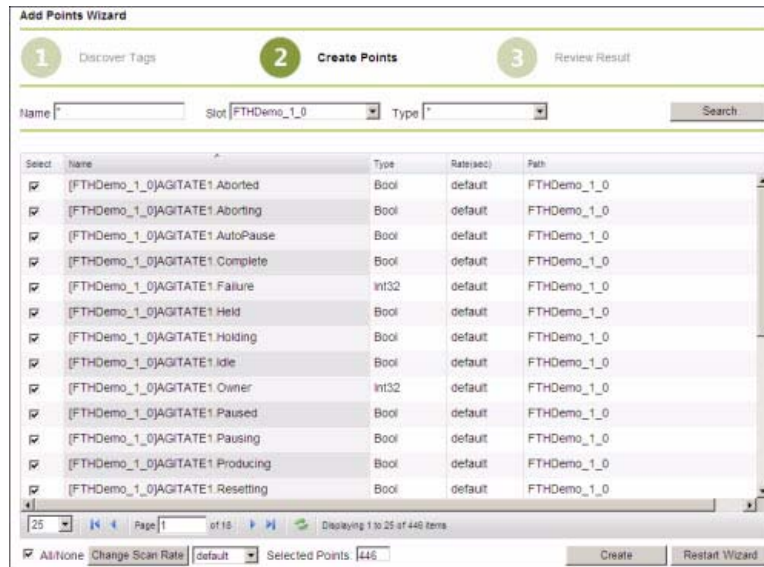
Stop Data Collection before adding and creating points to ensure minimal impact on Logix controller memory.



For information on manually creating individual points, see “Manually Creating and Editing Points”.

The Search Results table contains the following information:

- Select - displays checkboxes that allow you to select or clear which tags to create.
- Name - the name of the tag found in the controller. The name is a combination of the ControlLogix project name added as the prefix to the controller tag name.
- Type - displays the type of data that the controller tag stores.
- Rate - displays the current scan rate for each tag. To change the scan rate, click [Change Scan Rate].
- Path - displays the path to each tag in the device. The path is a combination of the ControlLogix project name and its slot location [also known as its Control and Information Protocol (CIP) path].



You can also use the following features to tune your selections before you create points.

- All/None - toggle the All/None checkbox to select or clear all points. If you select None, the checkboxes are cleared and you must select points individually to create them.
- [Change Scan Rate] - allows you to alter the scan rate set in Step 1: Discover Tags. To change the scan rate for selected tags, select a new scan rate in the drop-down menu and click [Change Scan Rate]. All selected tags will change to the new scan rate.
- Selected Points - displays the number of points selected from the total number of pages.

<input type="checkbox"/>	[standard2500_int32_11172008_1_5]int32tag102	Int32	1	standard2500_int32_11172008_1_5
<input checked="" type="checkbox"/>	[standard2500_int32_11172008_1_5]int32tag1020	Int32	1	standard2500_int32_11172008_1_5
<input checked="" type="checkbox"/>	[standard2500_int32_11172008_1_5]int32tag1021	Int32	1	standard2500_int32_11172008_1_5
<input checked="" type="checkbox"/>	[standard2500_int32_11172008_1_5]int32tag1023	Int32	1	standard2500_int32_11172008_1_5
<input type="checkbox"/>	[standard2500_int32_11172008_1_5]int32tag1024	Int32	1	standard2500_int32_11172008_1_5

25 Page 1 of 80 Displaying 1 to 25 of 2000 items

All/None Change Scan Rate 5 Selected Points: 3 Create Restart Wizard

Alter the original scan rate

Change the number of points

Select the points you want to create by selecting the checkboxes for each point and then clicking [Create]. After all points are created, FactoryTalk Historian ME will display a list of points that were not created in the Points Not Created table if there are any errors.

Click [Restart Wizard] to begin the point creation process again. Your browser will prompt you to verify that you want to recreate points using the wizard. Click [OK] to continue the process. After creating tags, review results in Step 3: Review Results.

Reviewing Results

Step 3: Review Results displays the following information:


- Number of Points Created - number of points created based on the points selected in Step 2: Create Points. Only points that do not yet exist are created.
- Number of Points Not Created - number of selected points that were not created because:
 - These points already exist in the archive and do not need to be created.
 - An error occurred with FactoryTalk Historian ME.



See the "Using the System Log" section for information about error messages.

- Total Number of Points in Module - total number of points in FactoryTalk Historian ME, including the newly created points.

- **Data Collection Status** - indicates whether Data Collection is running or stopped. To stop Data Collection, click [Stop Data Collection]. The button immediately changes to [Start Data Collection].

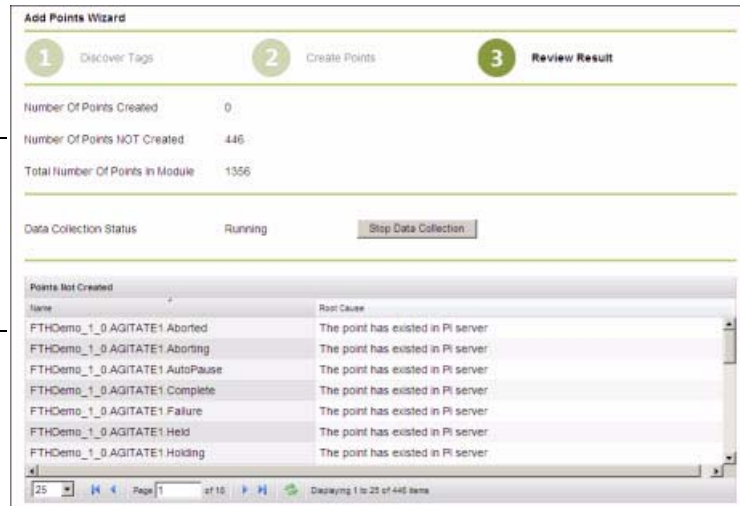
 Make sure that Data Collection is fully stopped before starting it again. This may take a few minutes.

For optimal performance, stopping and re-starting Data Collection is recommended after tags are created.

Failed points generate error messages that appear in the system log. In addition, a Points Not Created table will display a list of failed points after the auto discovery process.

Summary
data
about
points

List of
points
not
created



The screenshot shows the 'Add Points Wizard' interface with three steps: 1. Discover Tags, 2. Create Points, and 3. Review Result. The 'Review Result' step is active, displaying a summary of points created and a table of points not created.

Points Not Created	
Name	Root Cause
FTHDemo_1_0_AGITATE1.Aborted	The point has existed in Pi server
FTHDemo_1_0_AGITATE1.Aborting	The point has existed in Pi server
FTHDemo_1_0_AGITATE1.AutoPause	The point has existed in Pi server
FTHDemo_1_0_AGITATE1.Complete	The point has existed in Pi server
FTHDemo_1_0_AGITATE1.Failure	The point has existed in Pi server
FTHDemo_1_0_AGITATE1.Held	The point has existed in Pi server
FTHDemo_1_0_AGITATE1.Holding	The point has existed in Pi server

Summary data about points:

- Number Of Points Created: 0
- Number Of Points NOT Created: 446
- Total Number Of Points in Module: 1356

Data Collection Status: Running [Stop Data Collection]

List of points not created:

Name	Root Cause
FTHDemo_1_0_AGITATE1.Aborted	The point has existed in Pi server
FTHDemo_1_0_AGITATE1.Aborting	The point has existed in Pi server
FTHDemo_1_0_AGITATE1.AutoPause	The point has existed in Pi server
FTHDemo_1_0_AGITATE1.Complete	The point has existed in Pi server
FTHDemo_1_0_AGITATE1.Failure	The point has existed in Pi server
FTHDemo_1_0_AGITATE1.Held	The point has existed in Pi server
FTHDemo_1_0_AGITATE1.Holding	The point has existed in Pi server

Page 1 of 10, Displaying 1 to 25 of 446 items

Using the Tag Browser to Create Points

The Add Individual Points page provides a consolidated tree view in which you can browse and view controller tags and then select one or more tags for point creation. Click **Manage Points** in the top navigation bar, then click the *Add Individual Points* in the left navigation bar to access the page.

You can create a maximum of 2500 data points per FactoryTalk Historian ME. If you exceed 2500 data points, the following warning will display:

[Warning: You have reached the maximum number of points that can be created.]

You can deselect points from the Contents pane to reduce the number of points.

The screenshot shows the 'Add Individual Points' interface. At the top, there are fields for 'Tag File' (FTHMETagDefault.xml) and 'Scan Rate' (default). Below this are three main panes:

- Folders Pane:** A tree view showing the hierarchy of folders. The selected folder is 'Standard2000_1_3' under 'Program.MainProgram'. Sub-folders include 'strtemp', 'strvallong', 'strvalshort', 'DATA', and 'timer1s'.
- Contents Pane:** A table listing available tags with checkboxes for selection.

Select	Name	Type
<input type="checkbox"/>	ACC	Int32
<input type="checkbox"/>	CTL	UInt32
<input type="checkbox"/>	DN	Bool
<input type="checkbox"/>	EN	Bool
<input type="checkbox"/>	PRE	Int32
<input type="checkbox"/>	TT	Bool
- Selected Tags Pane:** A table showing the tags currently selected for creation.

Name	Type	Scan Rate	Tag File
Standard2000_1_3.Program.MainProgram.timer1s.ACC	Int32	default	FTHMETagDefault.xml
Standard2000_1_3.Program.MainProgram.timer1s.CTL	UInt32	default	FTHMETagDefault.xml
Standard2000_1_3.Program.MainProgram.timer1s.DN	Bool	default	FTHMETagDefault.xml

At the bottom, there are 'Create', 'Remove', and 'Clear' buttons.

- **Tag Attribute File** - use the drop-down list to select a point configuration file that will determine the properties (attributes) of the points to be created. To view the file, expand the blue arrow icon.



See “Creating Tag Attribute Files” appendix for more information about tag attribute files.

See “Uploading Files to the Module” for more information on uploading tag attribute files to the module.

- Scan Rate - use the drop-down list to set the scan rate. The scan rate is the rate (in seconds) at which the data will be collected. This scan rate setting supercedes the scan rate specified in the tag attribute file.

The Add Individual Points page consists of three panes: Folders, Contents, and Selected Tags.

Folders Pane

The Folders pane displays a list of ControlLogix project files.

- Highlight (click) the filename to select a project file and browse tags.
- The white right arrow opens or expands the levels.
- The black down arrow collapses or limits the levels
- Click Refresh to update the project files.

Contents Pane

The Contents pane displays tags from the highlighted node in the Folders pane. The pane contains three sortable columns:

- Select column checkbox - check the box(es) to select a specific tag or list of tags.
- Name - the tag name.
- Type - data type of the tag.
- [Add Tag(s) to List] - allows you to populate the selected tags in the Selected Tags pane.

Selected Tags Pane

The Selected Tags pane displays a list of tags to be created for collecting data. The table contains four sortable columns:

- Name - tag name.
- Type - data type of the tag.
- Scan Rate - tag scan rate.
- Tag File - tag attribute file that determined the properties (attributes) of the point to be created.

Creating Points

To create points in the tag browser:

1. Select the folder that contains tags of interest. The Contents pane displays the tag name and type from the selected folder.

The screenshot shows the 'Add Individual Points' dialog box. The 'Tag File' is 'FTHMETagDefault.xml' and the 'Scan Rate' is '1 (Sec)'. The 'Folders' pane shows a tree view with 'DATA' selected. The 'Contents' pane displays a table of tags:

Select	Name	Type
<input type="checkbox"/>	DATA[0]	Int8
<input type="checkbox"/>	DATA[10]	Int8
<input type="checkbox"/>	DATA[11]	Int8
<input type="checkbox"/>	DATA[12]	Int8
<input type="checkbox"/>	DATA[13]	Int8
<input type="checkbox"/>	DATA[14]	Int8

Below the 'Contents' pane is a 'Tag Filter' field and an 'All/None' checkbox. At the bottom is a 'Selected Tags' table with columns 'Name', 'Type', and 'Scan Rate'. At the very bottom are 'Create', 'Remove', and 'Clear' buttons.

2. Check the box in the Select column to select tags in the Contents pane. You can use the All/None checkbox and the Tag Filter to filter the tags.
 - All/None - toggle the All/None checkbox to select or clear all tags. If you select None, the checkboxes are cleared and you must select tags individually to add them to the Selected Tags table.
 - Tag Filter - tags listed in the Contents pane are filtered based on criteria entered in this field. The asterisk (*) and question mark (?) are valid wildcard characters. The filter condition persists and will be applied to a newly selected folder if it is not cleared before the new folder is selected.
3. Click [Add Tag(s) to List] to move selected tags to the Selected Tags pane.

The Selected Tags pane displays the tag name, type, scan rate, and tag file for each tag, and the most recently added tags appear at the top of the table.

The [Create], [Remove], and [Clear] buttons become active. To remove tags from the list, highlight each tag, and click [Remove]. To empty the table, click [Clear]. To create points, go to the next step.

Add Individual Points [Warning: You have reached the maximum number of points that can be created.]

Tag File: FTHMETagDefault.xml Scan Rate: 1 (Sec)

Select	Name	Type
<input checked="" type="checkbox"/>	DATA[0]	Int8
<input checked="" type="checkbox"/>	DATA[10]	Int8
<input checked="" type="checkbox"/>	DATA[11]	Int8
<input checked="" type="checkbox"/>	DATA[12]	Int8
<input checked="" type="checkbox"/>	DATA[13]	Int8
<input checked="" type="checkbox"/>	DATA[14]	Int8

Tag Filter: All/None

Name	Type	Scan Rate
------	------	-----------

Tune your tag selection with the Tag Filter or the All/None checkbox

Click [Add Tag(s) to List] to move tags to the table below and create points

4. To create points, click [Create].

Add Individual Points

Tag File: FTHMETagDefault.xml Scan Rate: 1 (Sec)

Select	Name	Type
<input type="checkbox"/>	DATA[0]	Int8
<input type="checkbox"/>	DATA[10]	Int8
<input type="checkbox"/>	DATA[11]	Int8
<input type="checkbox"/>	DATA[12]	Int8
<input type="checkbox"/>	DATA[13]	Int8
<input type="checkbox"/>	DATA[14]	Int8

Tag Filter: All/None

Name	Type	Scan Rate	Tag File
DVT_Smart_Sensor_01_1_0.MSG_SINTS.Path.DATA[0]	Int8	default	FTHMETagDefault.xml
DVT_Smart_Sensor_01_1_0.MSG_SINTS.Path.DATA[10]	Int8	default	FTHMETagDefault.xml
DVT_Smart_Sensor_01_1_0.MSG_SINTS.Path.DATA[11]	Int8	default	FTHMETagDefault.xml
DVT_Smart_Sensor_01_1_0.MSG_SINTS.Path.DATA[12]	Int8	default	FTHMETagDefault.xml
DVT_Smart_Sensor_01_1_0.MSG_SINTS.Path.DATA[13]	Int8	default	FTHMETagDefault.xml
DVT_Smart_Sensor_01_1_0.MSG_SINTS.Path.DATA[14]	Int8	default	FTHMETagDefault.xml

List of selected tags

Click [Create]

5. A confirmation dialog box will prompt you with the question, “Are you sure you want to create these points?” Click [Yes] to proceed.

If Data Collection is already running, points will start to collect data.

A result page will display. The first section provides you with the number of points created, number of points not created and the total number of points in the module. The second section provides Data Collection status. The Points Not Created table provides a list of points not created and the error message that explain the reason why the point was not created.

Duplicate tag names are not allowed. Points will not be created for tags that have the same name but different scan rates or source tag files. If duplicate tag names are discovered, the module will display the following message in the Points Not Created table:

Point already exists

For optimal performance, we recommend that you stop and restart Data Collection after you have finished point creation for all tags. If Data Collection is already running, points will start to collect data.

If Data Collection is not running, click [Start Data Collection] to initiate Data Collection.

Click [Back] to return to the first page and continue working with tags.

Add Individual Points [Info: After all points are created, stop and restart the Data Collection service.]

Number of points created	0	
Number of points NOT created	46	
Total number of points in module	2458	

Data Collection Status: Running

Name	Error Message
DVT_Smart_Sensor_01_1_0.MSG_DINTS.Path DATA 0	Point already exists
DVT_Smart_Sensor_01_1_0.MSG_DINTS.Path DATA 1	Point already exists
DVT_Smart_Sensor_01_1_0.MSG_DINTS.Path DATA 10	Point already exists
DVT_Smart_Sensor_01_1_0.MSG_DINTS.Path DATA 11	Point already exists
DVT_Smart_Sensor_01_1_0.MSG_DINTS.Path DATA 12	Point already exists
DVT_Smart_Sensor_01_1_0.MSG_DINTS.Path DATA 13	Point already exists
DVT_Smart_Sensor_01_1_0.MSG_DINTS.Path DATA 14	Point already exists
DVT_Smart_Sensor_01_1_0.MSG_DINTS.Path DATA 15	Point already exists
DVT_Smart_Sensor_01_1_0.MSG_DINTS.Path DATA 16	Point already exists
DVT_Smart_Sensor_01_1_0.MSG_DINTS.Path DATA 17	Point already exists
DVT_Smart_Sensor_01_1_0.MSG_DINTS.Path DATA 18	Point already exists

Page 1 of 2 Displaying 1 to 25 of 46 items

Tag
creation
results

Data
Collection
status

Points
Not
Created
Table

Manually Creating and Editing Points

To manually create new points or edit point attributes, click **Manage Points** in the top navigation bar, and then click *Edit Points* in the left navigation bar.

Point attributes tell FactoryTalk Historian ME how and when the server should collect data from a particular data source. Point attributes specify information such as the data source location, how often the servers should get new values from the data source, which values the server can ignore, and which represent valid data.

To create or edit points:

1. Enter search criteria in the available fields and click [Search].
2. Do one of the following:
 - To create a new point, click [New] at the bottom of the table.
 - To edit an existing point, highlight the point in the table and click [Edit].

The Point Property page displays.

3. Define the point attributes and click [Save].

Edit Points

Point Name Point Type Archiving Search
 Point Source Scan Rate Scan Export

Name	Value	Timestamp	Type
FTHDemo_1_1.AGITATE1.Aborted	Inactive	Thursday, December 03, 2009 7	Digital
FTHDemo_1_1.AGITATE1.Aborting	Inactive	Thursday, December 03, 2009 7	Digital
FTHDemo_1_1.AGITATE1.AutoPause	Inactive	Thursday, December 03, 2009 7	Digital
FTHDemo_1_1.AGITATE1.Complete	Inactive	Thursday, December 03, 2009 7	Digital
FTHDemo_1_1.AGITATE1.Failure	0	Thursday, December 03, 2009 7	Int32
FTHDemo_1_1.AGITATE1.Held	Inactive	Thursday, December 03, 2009 7	Digital
FTHDemo_1_1.AGITATE1.Holding	Inactive	Thursday, December 03, 2009 7	Digital
FTHDemo_1_1.AGITATE1.Idle	Active	Thursday, December 03, 2009 7	Digital
FTHDemo_1_1.AGITATE1.Owner	0	Thursday, December 03, 2009 7	Int32
FTHDemo_1_1.AGITATE1.Paused	Inactive	Thursday, December 03, 2009 7	Digital
FTHDemo_1_1.AGITATE1.Pausing	Inactive	Thursday, December 03, 2009 7	Digital
FTHDemo_1_1.AGITATE1.Producing	Inactive	Thursday, December 03, 2009 7	Digital
FTHDemo_1_1.AGITATE1.Resetting	Inactive	Thursday, December 03, 2009 7	Digital
FTHDemo_1_1.AGITATE1.Restarting	Inactive	Thursday, December 03, 2009 7	Digital
FTHDemo_1_1.AGITATE1.Running	Inactive	Thursday, December 03, 2009 7	Digital
FTHDemo_1_1.AGITATE1.Standby	Inactive	Thursday, December 03, 2009 7	Digital
FTHDemo_1_1.AGITATE1.State	64	Thursday, December 03, 2009 7	Int32

25 Page 1 of 55 Displaying 1 to 25 of 1352 items

New Rename Edit Delete

You can also use the Edit Points page to rename points.

1. Enter search criteria in the available fields and click [Search].
2. In the search results field, highlight the point you want to rename.
3. At the bottom of the table, click [Rename]. The Point Property page opens.
4. Enter the new point name and click [Save]. Click [Reset] to reset the values.

If the Data Transfer service is in Auto Transfer mode, the new points will be created with the new tag names. If the Data Transfer service is not in Auto Transfer mode, the service will continue to transfer points until you stop Data Transfer, manually select points to transfer, and restart the service.

Data Transfer Points

Point Name Point Type Transferred

Point Source Scan Rate

FactoryTalk Historian SE Information

FTHSE Licensed Points 10000 "FTMS" Points Available 2947

FactoryTalk Historian ME Information

Point Selected 2500 Newly Added Points 0

Auto Transfer Mode On

Selected	Name	Type	Source	Created in SE
<input checked="" type="checkbox"/>	FTHME_Slave_1_5.ArrayA.0	Float32	FTME	Y
<input checked="" type="checkbox"/>	FTHME_Slave_1_5.ArrayA.1	Float32	FTME	Y
<input checked="" type="checkbox"/>	FTHME_Slave_1_5.ArrayA.2	Float32	FTME	Y
<input checked="" type="checkbox"/>	FTHME_Slave_1_5.ArrayA.3	Float32	FTME	Y
<input checked="" type="checkbox"/>	FTHME_Slave_1_5.ArrayA.4	Float32	FTME	Y
<input checked="" type="checkbox"/>	FTHME_Slave_1_5.ArrayA.5	Float32	FTME	Y
<input checked="" type="checkbox"/>	FTHME_Slave_1_5.ArrayA.6	Float32	FTME	Y
<input checked="" type="checkbox"/>	FTHME_Slave_1_5.ArrayA.7	Float32	FTME	Y
<input checked="" type="checkbox"/>	FTHME_Slave_1_5.ArrayA.8	Float32	FTME	Y
<input checked="" type="checkbox"/>	FTHME_Slave_1_5.ArrayA.9	Float32	FTME	Y
<input checked="" type="checkbox"/>	FTHME_Slave_1_5.ArrayA.10	Float32	FTME	Y

25 Page 1 of 100 Displaying 1 to 25 of 2500 items

All/None

Auto Transfer Mode On

Points Created with New Tag Names

Defining Point Attributes

The Point Property page allows you to specify settings for each point. It contains four sections: General, Exception Filtering, Compression Filtering, and Snapshot Value. Click [Reset] to clear the sheet and enter new values.

Point Property

General

Name	<input type="text" value="FTHME_Slave_1_5.ArrayA.1018"/>		
Descriptor	<input type="text"/>		
Extended Description	<input type="text"/>		
Instrument Tag	<input type="text" value="FTHME_Slave_1_5.ArrayA[1018]"/>		
Source Tag	<input type="text"/>		
Type	<input type="text" value="Float32"/>	Point Source	<input type="text" value="FTME"/>
Scan Type (Location 3)	<input type="text" value="Polled"/>	Scan Rate (Location 4)	<input type="text" value="1"/>
Scan On	<input type="text" value="On"/>	Span Value	<input type="text" value="525"/>
Typical Value	<input type="text" value="1"/>	Zero Value	<input type="text" value="0"/>

Exception Filtering

Exception Min	Day <input type="text" value="0"/> Hr <input type="text" value="0"/> Min <input type="text" value="0"/> Sec <input type="text" value="0"/>	Exception Deviation	<input type="text" value="1.3125"/> Eng. Units
Exception Max	Day <input type="text" value="0"/> Hr <input type="text" value="0"/> Min <input type="text" value="10"/> Sec <input type="text" value="0"/>		

Compression Filtering

Compression On	<input type="text" value="On"/>	Compression Deviation	<input type="text" value="2.625"/> Eng. Units
Compression Min	Day <input type="text" value="0"/> Hr <input type="text" value="0"/> Min <input type="text" value="0"/> Sec <input type="text" value="0"/>		
Compression Max	Day <input type="text" value="0"/> Hr <input type="text" value="8"/> Min <input type="text" value="0"/> Sec <input type="text" value="0"/>		

Snapshot Value

Value	<input type="text" value="17.593330"/>	Timestamp	<input type="text" value="Monday, December 28, 2009 1:29:18.016 PM"/>
-------	--	-----------	---

GENERAL POINT PROPERTIES

The General section contains the following fields:

- Name - provides a label for the point. Follow these conventions when naming a point:
 - The name must be unique.
 - The first character must be alphanumeric or the percent sign (%).
 - No control characters (such as linefeeds or tabs) are allowed.

- The following characters are not allowed: * ' ? ; { } [] | \ ` ` " ()
- Descriptor - defines the base point attribute that can be used to provide a textual description of a point. The Descriptor is a common attribute to display in various client applications and user reports.
- Extended Description - only used with Trigger Input or Output tags. Use this field to specify:
 - EVENT = *<tag name> <condition>*
where *<condition>* is Increment, Decrement, Nonzero, Any, or Anychange
 - Or
 - TRIG = *<tag name>*



When defining multiple triggers, make sure that each event calls a different tag name.

- Instrument Tag - indicates the controller from which the data is coming. If you replace a 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.


The format of the instrument tag name is:

[*<controllerprojectname>_1_<controllerslotnumber>*][*<controllertagname>*]

- Source Tag - only used with Trigger Input or Output tags. Use this field for the trigger name.
- Type - specifies the data type of the point values. Changing a point's data type causes the Archive subsystem to close the current archive record and start 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.

Type	Int32
Scan Type (Location 3)	Int16
Scan On	Int32
Typical Value	Float16
	Float32
	Float64
	String
	Digital
	Timestamp

Selections include:

- Int16 - used for points whose values are 16-bit integers.
- Int32 - used for points whose values are 32-bit integers.
- Float16 - used for points whose values are 16-bit floating point values.
- Float32 - used for points whose values are 32-bit floating point values.
- Float64 - used for points whose values are 64-bit floating point values.
- String - used to store string data up to 1000 characters.
 -  Strings are not supported for high speed Data Collection.
- Digital - used for points whose value can only be one of several discrete states, such as ON/OFF. Users may define the digital set contents.
- Timestamp - used for points whose values are timestamps.
- Scan Type - determines the scan type for the point.

Scan Type (Location 3)	High Speed
Scan On	Polled
Typical Value	Advised
	Trigger Input
	Output
	High Speed

Selections include:

- Polled - polled tags are scanned and the data event (with value and timestamp) is sent to the local FactoryTalk Historian ME server at the specified scan time interval.

In general, 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.

In general, advised tags are intended for scan rates greater than 0.5 seconds. The Data Collection interface will not put the point on scan if it is configured at a rate faster than 0.5 seconds.

If Data Collection rates faster than 0.5 seconds are required, use high speed tags.

- Trigger Input - triggered input tags are used to collect a data point after a particular triggering event has occurred.



See "Trigger Point Configuration Examples" for a Trigger Input tag configuration sample.

- Output - triggered output tags are used to output (write-back) a data point to a controller after a particular triggering event has occurred.



See "Trigger Point Configuration Examples" for an Output tag configuration sample.

- High Speed- high speed tags are scanned and the data event (with value and timestamp) is logged at the specified scan time interval.

In general, high speed tags are intended for fast Data Collection speeds with scan rates of 10 ms. The Data Collection interface will not put the point 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.

- Scan On - identifies active tags. Points with this flag set to ON and with a point source attribute set to FTME are considered active tags. Points with this flag set to OFF will not update.

- **Typical Value** - provides an example of a reasonable value for this point. For a numeric tag, it must be greater than or equal to the zero, and less than or equal to the zero plus the span.
- **Point Source** - identifies a point as belonging to a particular interface. When you configure an interface, you specify a point source for that interface. All the points that belong to that 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) and C (for the Performance Equation tags.)

- **Scan Rate** - a period of time in seconds, which tells FactoryTalk Historian ME how often to collect the data. Go to the **Manage Points** tab and *Edit Scan Class(es)* page to define scan rates for scan classes. For Trigger Input and Output scan types, it is recommended that the scan rate be defined as two seconds or longer.
- **Span Value** - value for the difference between the top of the range and the bottom of the range. It is required for all numeric data type points.
- **Zero Value** - indicates the lowest value possible. A zero is required for all numeric data type points.

EXCEPTION FILTERING POINT PROPERTIES

The FactoryTalk Historian ME exception-reporting specification determines when to send data to the Snapshot subsystem. The exception-reporting specification consists of a deviation (Exception Deviation), a minimum time (Exception Min), and a maximum time (Exception Max).

The Exception Filtering section contains the following fields:

Field	Description	Default Value
Exception Min	Specifies the minimum time span between exceptions, expressed as dd hh mm ss.	0 seconds
Exception Max	Specifies the maximum time span between exceptions, expressed as dd hh mm ss.	10 minutes
Exception Deviation	Specifies in engineering units how much a value may differ from the previous value before it is considered to be a significant value.	0.25 engineering units

COMPRESSION FILTERING POINT PROPERTIES

When a new Snapshot arrives, the previous one is evaluated according to the compression specifications to see if it is a significant event. If so, it is sent to the Event Queue. If not, it is discarded. The result is that only significant data is written to the archive. This process is called compression.

The Compression Filtering section contains the following fields:

Field	Description
Compression On	<p>This flag should be turned ON for all real-time points in the system.</p> <p>With compression OFF, every value sent to the Snapshot subsystem is saved in the archive.</p>
Compression Min	<p>Value that indicates events are archived if 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.</p> <p>The value is expressed as dd hh mm ss.</p> <p>Typically, the Compression Min should be 0.</p>
Compression Max	<p>Value that indicates events are archived if the elapsed time is greater than the maximum time.</p> <p>The value is expressed as dd hh mm ss.</p> <p>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. Under no circumstances does this cause the FactoryTalk Historian ME server to generate events; it only filters events that are externally generated.</p>
Compression Deviation	<p>Value for the most important compression specification.</p> <p>Setting this value too low causes too little data compression and wastes space in the archive. Setting this value too high causes loss of useful data. For most flows, pressures, and levels, use a deviation specification of 1% or 2% span. For temperatures, the deviation should usually be one or two degrees.</p>

SNAPSHOT VALUE POINT PROPERTIES

The Snapshot Value section contains the following fields:

- Value - the current value of the tag, which is based on the tag type.
- Timestamp - time and date stamp for the current value of the tag.

Configuring Scan Types

The Data Collection service collects points based on scan type and scan rate. You must ensure scan types and scan rates are correctly configured for the Data Collection service. Points may be configured automatically using the Add Points Wizard or manually, using the Edit Points page. In either case, the point scan type must be taken into consideration.

To configure a point scan type manually, click **Manage Points** in the top navigation bar, and then click *Edit Points* in the left navigation bar. Select a point to edit it. The scan type setting is located on the Point Property page and described in the “General Point Properties” section.

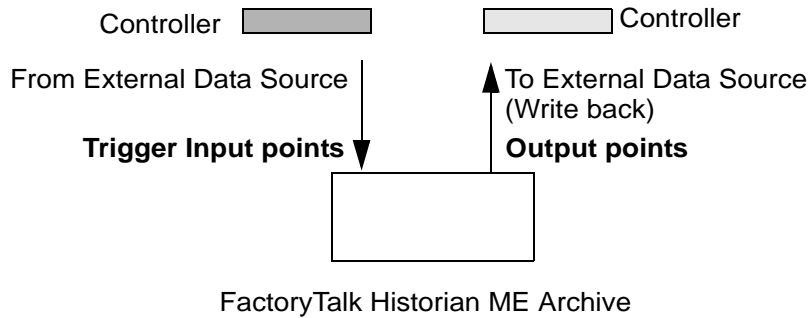
To edit a point scan type automatically using the Add Points Wizard, you must ensure that your XML Rule file properly defines the scan type and scan rate for Data Collection.



For information on manually creating individual points, see “Creating Points”. For information about using the Add Points Wizard to create points, see “Using the Add Points Wizard”.

Configuring Trigger Input and Output Points

This section provides basic information about Trigger Input and Output points. Sample configurations are provided in the “Trigger Point Configuration Examples” section. The trigger mechanism for input points and output points is the same, but the data flow is different. For input points, the data flows from a controller to the FactoryTalk Historian ME archive. For output points, the data flow is to a controller from the FactoryTalk Historian ME archive.



Input Points

An input point is a polled, advised, or high speed or triggered point when the data flow is from a controller to the FactoryTalk Historian ME snapshot and archive. For Trigger Input points, a separate trigger point must be configured. The input point is associated with a trigger point by entering point attributes in the Extended Description field for the input point as follows:

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

where the *keyword* is TRIG or EVENT, *trigger_tag_name* is the name of the trigger point, and *condition* is Any, Anychange, Nonzero, Decrement, or Increment.

The FactoryTalk Historian ME automatically assumes a point is trigger-based, rather than scan-based, when the `<keyword>='<trigger_tag_name>';<condition>` string is found in the Extended Description field. An input is triggered when a new value is sent to the snapshot of the trigger point.

Output Points

A point is an output (also known as a *write back*) point when the data is read from 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. Output points are triggered in two 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 does not have to be same point type as the Output point.

The Output point is associated with the trigger point by setting the Source Tag attribute of the Output point equal to the tag name of the trigger 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 value 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 need not be different from the previous value to trigger an output, but the timestamp of the new value must be more recent than the previous value.

Point Attributes

The Point Property page contains three fields that are used for Trigger Input and Output points:

- Extended Description
- Instrument Tag
- Source Tag

Note that:

- The Scan Rate is not applicable to the Trigger Input tag.
- The Scan On drop-down menu must be set to On.
- The trigger tag name must be in single quotes.

EXTENDED DESCRIPTION: TRIGGER CONDITIONS

The Extended Description field on the Point Property page is used for the trigger condition and the keywords that indicate trigger condition: TRIG or EVENT. Ensure that the words *TRIG* and *EVENT* are uppercase. Condition names are case-insensitive.

The TRIG keyword:

- Does not require any condition.
- Has a default condition of Any.
- Treats conditions other than Any as Any.

The EVENT keyword:

- Requires a trigger condition for it to function properly.

- Allows a space, comma, or semicolon to separate trigger definitions.

Keyword	Trigger Condition	Description	Example
TRIG	The condition is always Any.		
EVENT	Any		
EVENT	Nonzero	Trigger on 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”.
EVENT	Anychange	Trigger on any change as long as the value of the current event is different from the value of the previous event.	An event will be triggered on a value change from 0 to “bad Input” or from “bad Input” to 0.
EVENT	Increment	Trigger on any increase in value.	An event will be triggered on a value change from 0 to 1.
EVENT	Decrement	Trigger on any decrease in value.	An event will be triggered on a value change from 1 to 0.

INSTRUMENT TAG

The Instrument Tag field is used for the full path to the controller. If a source tag receives events from a controller, the tag in this field will read (or write back) events from the controller. The tag name syntax is:

<controller_name>.<tag_name>

SOURCE TAG

The Source Tag field is used to designate a trigger tag. Enter a trigger tag name for the triggered Trigger Input or Output point.

Trigger Point Configuration Examples

This section contains a set of configuration examples for Trigger Input points and Output points.

TRIGGER INPUT POINTS

- Triggered Input Point

Point Property

General

Name	TriggeredInputReadTag3		
Descriptor			
Extended Description			
Instrument Tag	FTHME_Slave_1_3.ArrayA[1002]		
Source Tag	TriggerTag5		
Type	Float32	Point Source	FTIME
Scan Type (Location 3)	Trigger Input	Scan Rate (Location 4)	1
Scan On	On	Span Value	1
Typical Value	0	Zero Value	0

- Triggered Input Point with TRIG Keyword

Point Property

General

Name	TriggeredInputReadTag7		
Descriptor			
Extended Description	TRIG = TriggerTag9		
Instrument Tag	FTHME_Slave_1_3.ArrayA[1002]		
Source Tag	TriggerTag9		
Type	Int32	Point Source	FTIME
Scan Type (Location 3)	Trigger Input	Scan Rate (Location 4)	1
Scan On	On	Span Value	1
Typical Value	0	Zero Value	0

- Triggered Input Point with EVENT Keyword and Increment Condition

Point Property

General

Name	<input type="text" value="TriggeredInputReadTag11"/>		
Descriptor	<input type="text"/>		
Extended Description	<input type="text" value="EVENT = 'TriggerTag13';Increment"/>		
Instrument Tag	<input type="text"/>		
Source Tag	<input type="text" value="TriggerTag13"/>		
Type	<input type="text" value="Float64"/> ▼	Point Source	<input type="text" value="FTIME"/>
Scan Type (Location 3)	<input type="text" value="Trigger Input"/> ▼	Scan Rate (Location 4)	<input type="text" value="1"/> ▼
Scan On	<input type="text" value="On"/> ▼	Span Value	<input type="text" value="1"/>
Typical Value	<input type="text" value="0"/>	Zero Value	<input type="text" value="0"/>

OUTPUT POINTS

- Triggered Output Point

Point Property

General

Name	<input type="text" value="TriggeredOutputTag5"/>		
Descriptor	<input type="text"/>		
Extended Description	<input type="text"/>		
Instrument Tag	<input type="text"/>		
Source Tag	<input type="text" value="TriggerTag7"/>		
Type	<input type="text" value="Int16"/> ▼	Point Source	<input type="text" value="FTIME"/>
Scan Type (Location 3)	<input type="text" value="Output"/> ▼	Scan Rate (Location 4)	<input type="text" value="1"/> ▼
Scan On	<input type="text" value="On"/> ▼	Span Value	<input type="text" value="1"/>
Typical Value	<input type="text" value="0"/>	Zero Value	<input type="text" value="0"/>

■ Triggered Output Point with TRIG Keyword

Point Property

General

Name	<input type="text" value="TriggeredOutputTag9"/>		
Descriptor	<input type="text"/>		
Extended Description	<input type="text" value="TRIG = TriggerTag11"/>		
Instrument Tag	<input type="text"/>		
Source Tag	<input type="text" value="TriggerTag11"/>		
Type	<input type="text" value="Int32"/> ▼	Point Source	<input type="text" value="FTME"/>
Scan Type (Location 3)	<input type="text" value="Output"/> ▼	Scan Rate (Location 4)	<input type="text" value="1"/> ▼
Scan On	<input type="text" value="On"/> ▼	Span Value	<input type="text" value="1"/>
Typical Value	<input type="text" value="0"/>	Zero Value	<input type="text" value="0"/>

■ Trigger Output Point with EVENT Keyword and Anychange Condition

Point Property

General

Name	<input type="text" value="TriggeredOutputTag11"/>		
Descriptor	<input type="text"/>		
Extended Description	<input type="text" value="EVENT = TriggerTag13;Anychange"/>		
Instrument Tag	<input type="text"/>		
Source Tag	<input type="text" value="TriggerTag13"/>		
Type	<input type="text" value="Float32"/> ▼	Point Source	<input type="text" value="FTME"/>
Scan Type (Location 3)	<input type="text" value="Output"/> ▼	Scan Rate (Location 4)	<input type="text" value="1"/> ▼
Scan On	<input type="text" value="On"/> ▼	Span Value	<input type="text" value="1"/>
Typical Value	<input type="text" value="0"/>	Zero Value	<input type="text" value="0"/>

Working with Scan Classes

A scan class is a code that FactoryTalk Historian ME interfaces use to schedule Data Collection. Scan classes consist of 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 remove scan classes.

To create, edit, or remove a scan class, click **Manage Points** in the top navigation bar, then click the *Edit Scan Class(es)* in the left-side navigation.

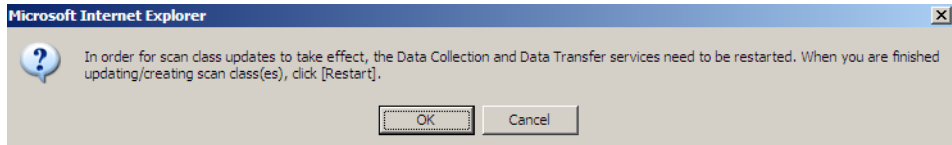
Scan class names cannot be edited in this release

Edit Scan Class

Scan Point Time (Sec)

Name	Time (Sec)
Scan Class 1	1
Scan Class 2	0.01
Scan Class 3	0.1
Scan Class 4	0.2
Scan Class 5	0.5
Scan Class 6	3
Scan Class 7	5
Scan Class 8	30
Scan Class 9	60
Scan Class 10	3600

After creating, editing, or removing a scan class, a dialog displays indicating that Data Collection and Data Transfer must be restarted. When you have finished modifying the scan classes, click [Restart].



Creating a Scan Class

To create a new scan class:

1. Click [New]. The name of the new scan class is entered in the Scan Point field. FactoryTalk Historian ME does not support editing the scan class name.
2. Enter a time value, in seconds, in the Time field.
3. Click [Save]. A dialog displays indicating that Data Collection and Data Transfer must be restarted.
4. Click [OK] to close the dialog and then click [Restart].

Editing a Scan Class

To edit a scan class:

1. In the table, select the scan class you want to edit and click [Edit].
2. Edit the time value, in seconds, in the Time field. FactoryTalk Historian ME does not support editing the scan class name.
3. Click [Save]. A dialog displays indicating that Data Collection and Data Transfer must be restarted.
4. Click [OK] to close the dialog and then click [Restart].

Removing a Scan Class

To remove a scan class:

1. In the table, select the scan class you want to delete and click [Delete]. A dialog displays indicating that Data Collection and Data Transfer must be restarted.
2. Click [OK] to close the dialog and then click [Restart].

6

Collecting Data

This chapter contains the following sections:

- “Collecting Data Overview”
- “Starting and Stopping Data Collection”
- “Viewing Data Collection Status”
- “Storing Data”
- “Exception Filtering”
- “Compression Filtering”

Collecting Data Overview

To view Data Collection information, click **Configure Historian** in the main navigation bar, and then click *Data Collection* in the left navigation bar.

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) and stores the data in the FactoryTalk Historian ME archive. Information provided on the Data Collection page includes:

- Status - indicates whether Data Collection is stopped or running.
- Collection Rate - the number of events per second that 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 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.



See the “Transferring Data” chapter for information about long-term storage on a FactoryTalk Historian SE.

- Total Archive Files - the number of 10-MB archive files residing in the archive.
 - On the 1G FactoryTalk Historian ME, approximately 40 10-MB archive files are pre-allocated as data containers.
 - On the 2G FactoryTalk Historian ME, approximately 130 10-MB archive files are pre-allocated as data containers.
- Total Archive Files Used - the number of archive files currently being used to store data in the Archive subsystem. For a 1G model, the maximum is approximately 40 and for a 2G model the maximum is approximately 130.
- Total Archive Files Free - the number of archive files in the Archive subsystem not being used to store data or containing data that can be overwritten because it has been transferred by the Data Transfer service.

If the Data Transfer service is configured and transferring events to the FactoryTalk Historian SE, the module will free up archive disk space as the events are successfully transferred, increasing the number of total archive files free and reducing the number of total archive files used.

Data Collection

Status:	Running	<input type="button" value="Start"/>	<input type="button" value="Stop"/>
Collection Rate:	2500 (Events/Sec)		
Archive Rate:	1330 (Events/Sec)		
Archive Capacity:	0d 3h 32m		
Total Archive Files:	40		
Total Archive Files Used:	1		
Total Archive Files Free:	39		

When started, Data Collection:

- Identifies all points listed as active (scan flag attribute set to *ON*) in the FactoryTalk Historian ME.
- Identifies (or registers) all controllers in the same Logix chassis by logical names, device IDs, and location (slot numbers). The maximum number of controllers that are supported by the FactoryTalk Historian ME is 4.
- Begins collecting data for all points based on the specified scan rate associated with each point.

Viewing Data Collection Status

The Status section shows whether Data Collection is running or stopped. The Data Collection service is optimized to collect as many points as possible based on scan rates.

- Running - indicates that the Data Collection interface is currently collecting and archiving data.
- Stopped - indicates that the Data Collection interface is currently stopped. Data is not being collected.

Stopping and re-starting Data Collection after creating tags is recommended for optimal performance.

Starting and Stopping Data Collection

You must have administrator privileges to start or stop Data Collection in the module.



Make sure that Data Collection has fully stopped before starting it again. This may take a few minutes.

To start the Data Collection interface:

1. Click **Configure Historian** in the top navigation bar. The Data Collection page opens automatically.
2. Click [Start].

To stop the Data Collection interface:

1. Click **Configure Historian** in the top navigation bar. The Data Collection page opens automatically.
2. Click [Stop].

You can also start and stop Data Collection using the FactoryTalk Historian ME Add-on Profile (AOP) module properties Configuration tab in RSLogix 5000. If the module is running normally the Startup button will not be enabled. It is only enabled if the module is shut down. Starting up the module in AOP will reboot the module and restart the Data Collection service.



See the “Using the AOP Module Properties Configuration Tab” section in the “Collecting Data” appendix for more information.

These Data Collection controls are also available to the controllers (through the master controller in the chassis) using all controller programming languages, such as Ladder logic.

Storing Data

To view FactoryTalk Historian ME data storage information, click **Configure Historian** in the top navigation bar, and then click *Data Storage* in the left navigation bar. The Data Storage service monitors the NAND flash-based storage used in the module. You must have administrator privileges to modify this page.



See the “Managing Security” chapter for information about security privileges.

Data Storage

Archive Statistics

Total Archive	567 MB
Total Archive Used	476 MB
Total Archive Free	91 MB

Archive Information

Total Archive Files	40
Transferred Archives	0
Available Archives	40
Archive File Size	10 MB

Event Queue

Count	1
-------	---

Log Threshold Configuration

Maximum % (Range 95-99)

Archive Disk Threshold Configuration

Maximum % (Range 95-99)

Archive Usage Threshold Configuration

Warning: You risk losing data by checking the Stop Data Collection box. Checking this box will automatically stop data collection if the critical capacity percentage is reached.

Warning % (Range 25-100)

Critical % (Range 25-100)

Stop Data Collection

Save

Reset

Archive Statistics

The Archive Statistics section displays information about file system usage.

- Total Archive - total amount of disk space allocated for the data archive.
- Total Archive Used - total amount of disk space currently in use for archived data on the archive partition.
- Total Archive Free - total disk space available on the archive partition. This space is not currently in use.

Archive Information

As data is received from the Data Collection service, it is stored in the archive files in the NAND memory module. The Archive Information section displays:

- Total Archive Files - number of archive files is determined by the capacity of the NAND (flash) memory.
- Transferred Archives - number of archive files transferred to FactoryTalk Historian SE.
- Available Archives - number of archive files that do not have any data stored in them. This is the number of archive files that are available before they are overwritten.
- Archive File Size - size of the archive files is 10MB.

Archive file sizes are hardware-dependent. The 1GB module has 40 pre-allocated 10MB archive files. The 2GB module has 130 pre-allocated 10MB archive files. They are preset and cannot be changed.

Event Queue

The Event Queue section displays the number of temporary archive files in a transient state. The FactoryTalk Historian ME processes these files as soon as it archives events in the files. Under normal conditions, this count should be under three.



When the count becomes large, it may cause the archive disk to reach its user-configured threshold. If the user-configured threshold is reached, Data Collection will stop automatically and data interruption will occur.



See “Archive Disk Threshold Configuration” for details related to data interruption and stopping Data Collection.

Log Threshold Configuration

The Log Threshold Configuration section allows you to specify a warning level for log files. The range is 95-99%, and the default is 95%.

Log Threshold Configuration

Maximum % (Range 95-99)

When the log storage reaches its configured threshold, the FactoryTalk Historian ME deletes older log files and logs a message in the System Log page:

“<full path> has been removed because the /mnt/log partition is full.”

Archive Disk Threshold Configuration

The Archive Disk Threshold Configuration section allows you to specify a warning level for archive disk usage. The range is 95-99%, and the default is 95%.

Archive Disk Threshold Configuration

Maximum % (Range 95-99)

When the archive disk reaches its configured threshold, FactoryTalk Historian ME stops Data Collection and logs a message in the System Log page:

“Stopping Data Collection because one or more partitions is full.”

It also deletes *pimesslogfile* located under */mnt/appdata/dat* and logs a message in the System Log page:

“<full path> has been removed because the /mnt/appdata partition is full.”

Stopping Data Collection allows the module to process events from transient event files to archive storage and make more storage space available.

Archive Usage Threshold Configuration

The Archive Usage Threshold Configuration section allows you to specify the warning and critical levels for Data Storage.

Archive Usage Threshold Configuration

Warning: You risk losing data by checking the Stop Data Collection box. Checking this box will automatically stop data collection if the critical capacity percentage is reached.

Warning % (Range 25-100)
 Critical % (Range 25-100) Stop Data Collection

- Warning - a capacity percentage between 25 and 100 at which FactoryTalk Historian ME will issue a warning. The default is 50%.
- Critical - a capacity percentage between 25 and 100 at which FactoryTalk Historian ME will issue a critical message. The default is 75%.

You can set FactoryTalk Historian ME to stop Data Collection when it reaches this point. If you do not want Data Collection to stop, then you risk data interruption when all archive files have been filled and the Data Collection service begins overwriting the oldest data.

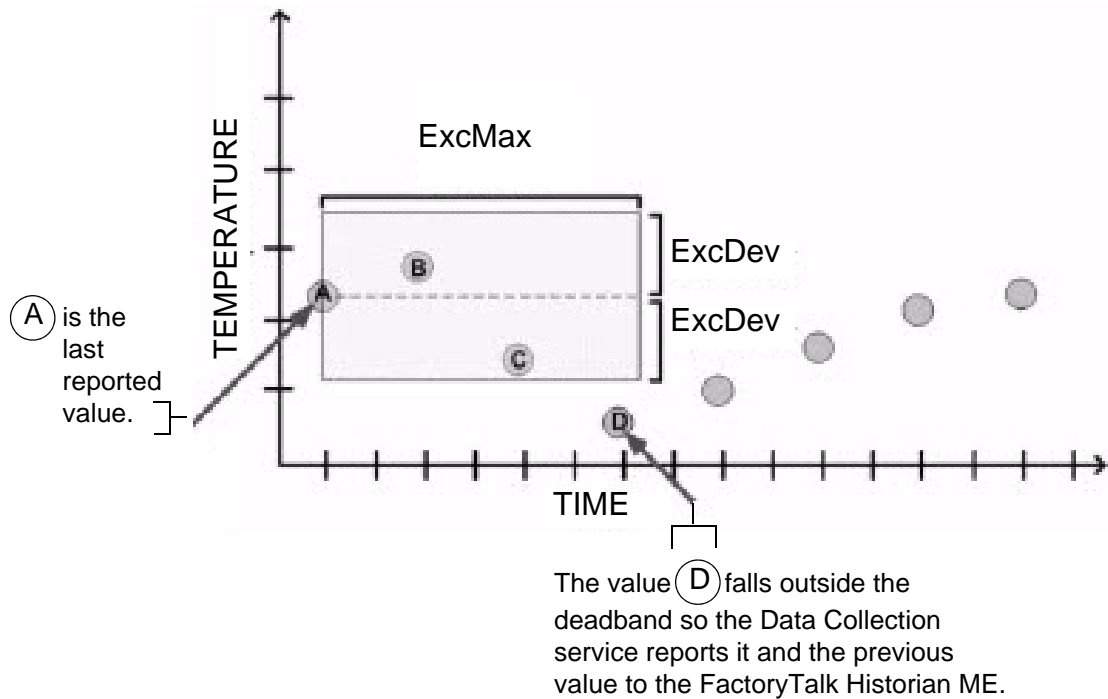


You risk data interruption by checking the Stop Data Collection check box. Checking this box automatically stops Data Collection if the critical capacity percentage is reached.

Exception Filtering

The purpose of Exception Filtering is for the Data Collection service to only collect data you are interested in, rather than taxing the system by collecting a lot of data that is not meaningful.

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 preceding illustration, 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 point's Exception Deviation (ExcDev), Exception Min (ExcMin), and Exception Min (ExcMax) attributes to decide whether to report the new value to the FactoryTalk Historian ME server:

Field	Description
ExcDev	Determines how much a point's value needs to change before the Data Collection service sends it to the FactoryTalk Historian ME server. For example, a 12 bit A/D converter can never be more precise than 1 part in 4096.

Field	Description
ExcMax	<p>Sets a limit on how long the Data Collection service can go without reporting a value to the FactoryTalk Historian ME server. After the ExcMax time period, the Data Collection service sends the next new value to the FactoryTalk Historian ME server, regardless of whether the new value is different from the last reported value.</p> <p>Note that 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. Neither the FactoryTalk Historian ME server nor the Data Collection service will 'create' data.</p>
ExcMin	<p>Sets a limit on how frequently the Data Collection service can report values. For example, if you want the Data Collection service to wait a full ten minutes before reporting a new value to the FactoryTalk Historian ME server, then you would set the ExcMin attribute to ten minutes.</p>

The exception algorithm relies on the following parameters:

Parameter	Description
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 (also called <i>Exception Deviation</i>)	The deadband when exceeded causes an exception. This is configured for each point in either the ExcDev or ExcDevPercent attribute.
OldEvent	The value/status/timestamp of last event sent to the Snapshot. This is the last event that passed exception report.
PrevEvent	The value/status/timestamp of last event compared to determine whether or not to send to the Snapshot.

Parameter	Description
NewEvent	The value/status/timestamp of event to test for exception.

Exception reporting works by comparing the new event to the old event as follows:

- If the time new event timestamp and old event timestamp is greater than or equal to the ExcMax, the new event is sent to the Snapshot.
- For digital points, if the new value differs from the old value, the new event is sent to the Snapshot regardless of excmin time.
- For numeric points, if the status changes from good to bad, or bad to good, the new event is sent to the Snapshot.
- For numeric points, if the time between the old event and the new event is greater than or equal to excmin and the absolute value of the difference between the new value and the old value is greater than excdev, the value is sent to the Snapshot.
- If the new event was sent to the Snapshot, the old event is replaced by the new event.

The last step is a test to see if the PrevEvent should also be sent the Snapshot. If the PrevEvent was not equivalent to the original OldEvent, the PrevEvent is sent to the Snapshot. The only time the PrevEvent is not sent to the Snapshot is when two consecutive exception reports send the new event to the Snapshot. The PrevEvent 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 results in interpolating between the old value and the new value. By also sending the PrevEvent, the step change is stored.

EXCEPTION DEVIATION

The Exception Deviation (ExcDev) attribute specifies in engineering units how much a value may differ from the previous value before it is considered to be a significant value. The exception deviation should be less than the compression deviation by at least a factor of 2.

EXCEPTION MINIMUM

The Exception Minimum (ExcMin) attribute is a deadband after the previous value. This is used to suppress noise. It is specified in seconds. A new data value that is received before the end of the ExcMin interval will be discarded.

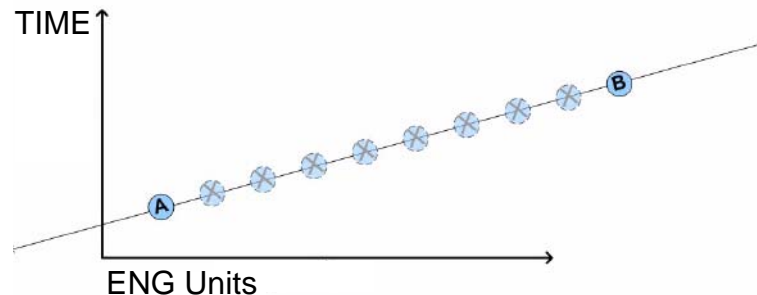
EXCEPTION MAXIMUM

The Exception Maximum (ExcMax) attribute puts a limit on the length of time that values can be discarded due to exception testing. For example, it is possible for the incoming data to be a single value for many days. If ExcMax is set to 28800 seconds (8 hours) then a value will not be discarded due to exception if the previous event timestamp was more than 28800 seconds before that. Note that the Data Collection service does not manufacture data. If there are no incoming values within 28800 seconds, then nothing will be passed to the FactoryTalk Historian ME server.

Compression Filtering

The Snapshot subsystem uses compression filtering to determine which events it should pass to the archive for storage. The point of compression filtering is to store just enough data to accurately reproduce the original signal.

For example, in the following illustration, all the events fall on the same straight line. In a simple case like this, you do not actually need to store all the points on the line. If you store just two points, you can exactly recreate the point value for any other time.



This line can be reconstructed from any two of these events, so the most efficient storage would be to store only the first and last events (A and B) rather than storing all the events. Furthermore, no accuracy is sacrificed. If a user wants to retrieve the value at any point along the line, it can be interpolated from the values that have been stored.

This simple example illustrates how FactoryTalk Historian ME applies data compression. In practice, the curves are more complex than straight lines, and the compression specifications for each tag must be tuned properly to achieve a balance between storage efficiency and accuracy.

The same principle applies to compressing real-world data. FactoryTalk Historian ME uses a compression algorithm to determine which events it needs to keep in order to provide an accurate data history. The CompDev, CompMin, and CompMax attributes allow you to control the granularity of the compression algorithm.

When a new Snapshot arrives, the previous one is evaluated according to the compression specifications to see if it is a significant event. If so, it is sent to the Event Queue. If not, it is discarded. This process is called *compression*.

There are three instances where an event will bypass the compression process and be put in the Event Queue:

- If the Compressing attribute for the point is set to *OFF*.
- If the timestamp is older than the timestamp of the current Snapshot. Such an event is considered out of order.
- If the Status attribute of the point has changed.

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

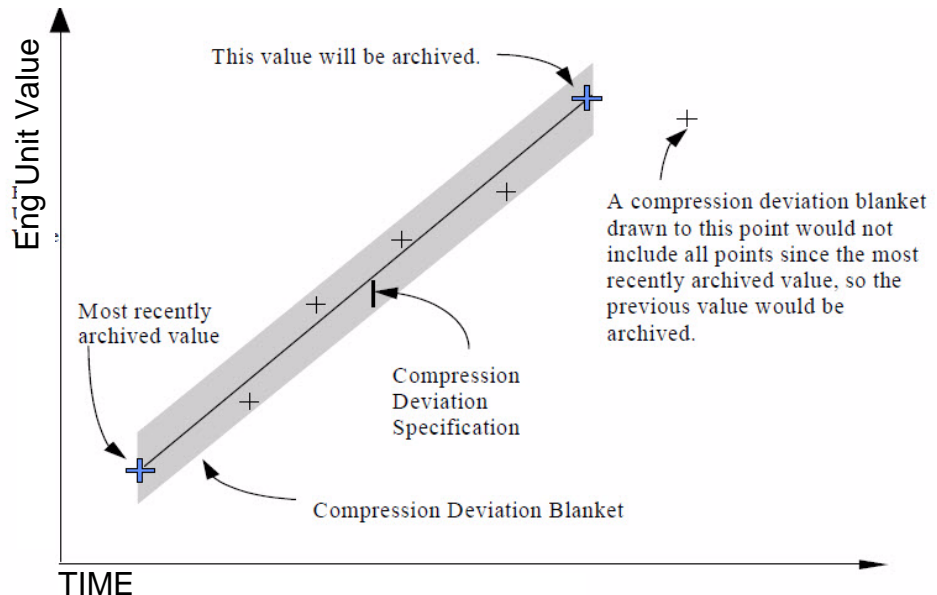
SWINGING DOOR COMPRESSION

The compression method is called *swinging door* compression. Swinging door compression discards values that fall on a line connecting 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 a width equal to twice the compression deviation specification.

Each point has three attributes that comprise the compression specifications:

- Compression Deviation (CompDev)
CompDev is the half-width of the deviation blanket (as shown in the illustration). CompDevPercent is similar to CompDev, but it specifies the compression deviation in percent of Span rather than in engineering units.
- Compression Minimum time (CompMin)

■ Compression Maximum time (CompMax)



The compression specifications work in a similar way to the exception specifications. Just like exception reporting, compression is a filter. The difference is that the exception specifications determine which events should be sent to FactoryTalk Historian ME, whereas the compression specifications determine which of the events sent to FactoryTalk Historian ME should go into the archive.

CompMin and CompMax are limits that refer to the time between events in the archive. A new event is not recorded if the time since the last recorded event is less than the compression minimum time for the point. A new event is always recorded if the time since the last recorded event is greater than or equal to the compression maximum time.



The maximum time specification does not guarantee that a value will be written to the archive within a certain time. The archive waits for events to be sent to it. It does not check to see if a point has timed out. It does not 'create' new values.

You can adjust the compression parameters to produce efficient archive storage without losing significant data. 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. A compression maximum time of one work shift (for example, 8 hours) is often a good choice.

Use the CompMin to prevent an extremely noisy point from using a large amount of archive space. This parameter should be set to zero for any point coming from Data Collection that does exception reporting. In this case, the exception minimum time should be used to control particularly noisy points. For a data acquisition system with a slow scan time, this parameter is not important. There are few cases where you want to use a non-zero compression minimum time.

The most significant compression parameter is the deviation specification, CompDev. This parameter is often adjusted after the point is defined. 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. Only the compression maximum and minimum time are important. The compression deviation specification is ignored for digital points.

7

Transferring Data

This chapter contains the following sections:

- “Transferring Data Overview”
- “Configuring Data Transfer”
- “Selecting Points to Transfer”

Transferring Data Overview

The Data Transfer service works with the Data Storage and Data Collection services to transfer historical data to a FactoryTalk Historian Site Edition (SE) server. The Data Transfer service can only transfer data to one FactoryTalk Historian SE server at a time.

Data Transfer

FactoryTalk Historian SE Parameters

Host Server	<input type="text" value="10.85.106.50"/>	<input type="button" value="Test Connection"/>
Current Time	4-Jan-10 15:32:34 PST	
Time Offset	-30 (Sec)	
FTHSE Licensed Points	10000	
"FTMS" Points Available	2947	

Data Transfer Parameters

Status	Running	<input type="button" value="Start"/>	<input type="button" value="Stop"/>
Maximum Events Per Transfer	<input type="text" value="50000"/>	(Range 5000-150000)	
<input checked="" type="checkbox"/> Enable Auto Transfer			

Data Transfer Statistics

Transfer Rate	0 (Events/Min)
Successful Attempt Rate	0 (Attempts/Hour)

Before transferring data from FactoryTalk Historian ME to FactoryTalk Historian SE, make sure that the FactoryTalk Historian SE server has an archive that covers the data time period you have in FactoryTalk Historian ME. You may need to create an archive for FactoryTalk Historian SE that covers this time period.



See the FactoryTalk Historian SE System Management Tools (SMT) online help for instructions.

Connecting to FactoryTalk Historian SE

The Data Transfer service gets information from the Configuration service for the designated FactoryTalk Historian SE server and makes the connection.

Please note that if the connection between FactoryTalk Historian ME and FactoryTalk Historian SE is lost, it will take some time for the data to synchronize.

Uploading Historical Data

Any data left over from the previous shutdown of the FactoryTalk Historian ME system that was not transferred to the FactoryTalk Historian SE system is transferred when Data Transfer is restarted. The time stamp in the Point ID mapping table determines what data needs to be transferred.

Connecting to a New FactoryTalk Historian SE Server

If the connection information in the Configuration service indicates a new FactoryTalk Historian SE server, the Data Transfer service needs to build a new Point ID mapping table. The Data Transfer service uses the tag information in the Data Storage service to build the new Point ID mapping table.

Failing to Connect

If the Data Transfer service fails to connect to the designated FactoryTalk Historian SE server, an error is recorded and can be viewed in the system log.

To view the FactoryTalk Historian ME log, click **Advanced** in the top navigation bar, and then click *System Log* in the left navigation bar.

Processing Tag Data

The 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 the FactoryTalk Historian ME and sends a request to the FactoryTalk Historian SE server to add a new point. The FactoryTalk Historian SE server responds with a unique Point ID. This information is added to the Point ID mapping table. After the entry has been created, Data Transfer uploads the data to the FactoryTalk Historian SE server.
- **Existing Points** - for new event data from the Data Storage service, if the Point ID is found in the Point ID mapping table, Data Transfer uploads the data to the FactoryTalk Historian SE server. The timestamp data is recorded in the Point ID mapping table.

Monitoring Connections

Data Transfer continuously monitors the connection to the FactoryTalk Historian SE server. If the connection is lost, Data Transfer sends an error message to the System Log and records the time as a reference for transferring data when the connection is restored.



Note that Data Transfer may not restart if the Ethernet connection is lost or if there is a power loss. When power is restored, Data Transfer may not reconnect to the FactoryTalk Historian SE server. User intervention is required to monitor this condition and manually restart Data Transfer.

To view the FactoryTalk Historian ME log, click **Advanced** in the top navigation bar, and then click *System Log* in the left navigation bar.

Shutting Down the Data Transfer Service

When Data Transfer receives a shut down signal from the FactoryTalk Historian ME system, it records it in the system log and changes its status on the Data Transfer page to Stopped.

To view the FactoryTalk Historian ME log, click **Advanced** in the top navigation bar, and then click *System Log* in the left navigation bar.

Configuring Data Transfer

To configure the Data Transfer service, click **Configure Historian** in the top navigation bar, and then click *Data Transfer* in the left navigation bar.

Prerequisite Information

Before transferring data, you must:

- Ensure that you have administrator privileges and other necessary security settings configured to enable the Data Transfer service in the FactoryTalk Historian ME.



See the “Managing Security” chapter for security administration information.

- Ensure that your system has time synchronization setup and configured for the FactoryTalk Historian ME, controllers, the FactoryTalk Historian SE server and clients.



See the “Managing Time” section for more information about trust configuration.

- Ensure that the proper licenses (using FactoryTalk Activation) are installed and configured (through the FactoryTalk Administration Console) on the FactoryTalk Historian SE.



See the “Installing FactoryTalk View SE Patch” section for more information about installing the FactoryTalk Historian SE patch necessary to transfer data from the FactoryTalk Historian ME.

- Ensure that trust connections between the FactoryTalk Historian ME and the FactoryTalk Historian SE are set up and configured properly before you begin transferring data.



See the “Managing Security Trusts” section for more information about trust configuration.

Establishing a FactoryTalk Historian SE Connection

To establish a connection to the FactoryTalk Historian SE server:

1. Enter the server host name or IP address in the Host Server field.

This must be a host name or IP address for a single server. FactoryTalk Historian SE server collectives are not supported.

2. Click [Test Connection] to confirm that the server can be accessed.

Two indicators will confirm that the connection has been established. A green checkmark will appear next to [Test Connection] and an informational message displays:

“The connection to SE was established.”

Note that FactoryTalk Historian SE collectives are not supported.

3. Click [Save].

Data Transfer

FactoryTalk Historian SE Parameters

Host Server	<input type="text" value="10.85.106.151"/>	<input type="button" value="Test Connection"/>
Current Time	1-Dec-09 15:03:26 PST	
Time Offset	-15 (Sec)	
FTHSE Licensed Points	0	
"FTMS" Points Available	0	

Each field in the FactoryTalk Historian SE Parameters section is automatically populated with information from the FactoryTalk Historian SE server once the server connection has been established. Settings determined by the FactoryTalk Historian SE server are:

- Current Time - the FactoryTalk Historian SE server time. It is read-only.
- Time Offset - the time difference in seconds between the FactoryTalk Historian SE server and the FactoryTalk Historian ME times.
- FTHSE Licensed Points - the number of points that have been assigned to the FTMS point source on the FactoryTalk Historian SE server. 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 the 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 server.

Setting Data Transfer Parameters

The Data Transfer service status is either started or stopped. Click the appropriate button to either start or stop Data Transfer.

Data Transfer Parameters

Status	Running	<input type="button" value="Start"/>	<input type="button" value="Stop"/>
Maximum Events Per Transfer	<input type="text" value="50000"/>	(Range 5000-150000)	
<input type="checkbox"/> Enable Auto Transfer			

Maximum Events per Transfer

To configure FactoryTalk Historian ME for Data Transfer, enter the Maximum Events Per Transfer for the maximum number of events that can be transferred to FactoryTalk Historian SE per transfer session. The range is 5,000 to 150,000. The default setting is 50,000.

If you change the Maximum Events Per Transfer value, you need to stop and restart Data Transfer after you click [Save] for the change to take effect.

Status displays the current Data Transfer status (Running or Stopped). If necessary, click [Start] or [Stopped] to start or stop Data Transfer.

Enable Auto Transfer

Clicking the Enable Auto Transfer checkbox provides immediate Data Transfer. Clicking [Save] is not required. However, if you attempt to transfer points and the FactoryTalk Historian SE 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 non-auto transfer mode, and you must manually transfer points by selecting them one-by-one.

If the Data Transfer service is in Auto Transfer mode after points have been created, it may continue running. If Auto Transfer mode is not enabled, you must manually select points to transfer and restart Data Transfer.

Viewing Data Transfer Statistics

The Data Transfer service records performance statistics that determine the connection reliability. These statistics can be used to refine the settings in the Configuration service.

Data Transfer Statistics

Transfer Rate	0 (Events/Min)
Successful Attempt Rate	0 (Attempts/Hour)

- Transfer Rate - number of retrieved events divided by the number of minutes spent retrieving events sent to the FactoryTalk Historian SE.
- Successful Attempt Rate - number of attempts to transfer data to the FactoryTalk Historian SE per hour.

Archive File Time Span for ME-to-SE Data Transfer

When setting up the FactoryTalk Historian SE, the archive file time frame must cover the archive time frame of the FactoryTalk Historian ME. For example, if FactoryTalk Historian ME has been collecting data for the 07/01/2009 to 07/05/2009 time period, the FactoryTalk Historian SE archive time period must also cover the 07/01/2009 to 07/05/2009 time period. Otherwise, event data will be discarded during Data Transfer from the FactoryTalk Historian ME to the FactoryTalk Historian SE.

Selecting Points to Transfer

To assign FactoryTalk Historian ME data for transfer, click **Configure Historian** in the top navigation bar, and then click *Data Transfer Points* in the left navigation bar. The Data Transfer Points page allows you to search for points in the FactoryTalk Historian ME database and assign them for transfer to the selected FactoryTalk Historian SE server.

Data Transfer Points

Point Name Point Type Transferred

Point Source Scan Rate

FactoryTalk Historian SE Information

FTHSE Licensed Points 0 "FTMS" Points Available 0

FactoryTalk Historian ME Information

Point Selected 0 Newly Added Points 0

Auto Transfer Mode Off

Selected	Name	Type	Source	Created in SE
<input type="checkbox"/>	Standard2000_1_0_dinttag1	Int32	FTME	N
<input type="checkbox"/>	Standard2000_1_0_dinttag10	Int32	FTME	N
<input type="checkbox"/>	Standard2000_1_0_dinttag106	Int32	FTME	N
<input type="checkbox"/>	Standard2000_1_0_dinttag107	Int32	FTME	N

25 Page 1 of 1 Displaying 1 to 10 of 10 items

All/None

To populate the Data Transfer Points table:

1. Enter the search criteria in the data fields.
2. Click [Search].



After transferring the data, you can perform a search in FactoryTalk Historian SE [using the FactoryTalk Historian SE System Management Tool (SMT)] to verify the points have been mapped to the FactoryTalk Historian SE.

Viewing FactoryTalk Historian SE Information

The FactoryTalk Historian SE Information section provides the following information:

- FTHSE Licensed Points - FactoryTalk Historian ME scans the FactoryTalk Historian SE server you set in the Data Transfer window to determine the total number of FactoryTalk Historian SE licensed points reserved to the FactoryTalk Historian ME.
- "FTMS" Available Points - represents the number of FTHSE 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 FactoryTalk Historian SE server. It takes approximately fifteen minutes to update the FactoryTalk Historian SE server, so the "FTMS" Available Points value may not update immediately when you click [Search]

Viewing FactoryTalk Historian ME Information

The FactoryTalk Historian ME Information section lists the number of points selected, the number of newly added points, and whether Auto Transfer mode is enabled or not.

Adding Points to Transfer

The table lists all points that fit the search criteria. If the point has been created in the FactoryTalk Historian SE server, this is indicated in the table. All checked points are tagged for transfer to the FactoryTalk Historian SE server.

The table lists the following information:

- Selected - adds the point to Data Transfer. Points that have already been added are checked also.
- Name - name of the data point in FactoryTalk Historian ME.
- Type - the data type of the point.
- Source - indicates the point source of the data point.
- Created in SE - the point has already been matched to the FactoryTalk Historian SE server, as indicated by *Y* in the Created in SE column. If not, this is indicated by *N*.

Manually Transferring Points

To map data points to the FactoryTalk Historian SE server, select the points in the table by checking the checkboxes, and click [Save]. To confirm the points have been mapped to the FactoryTalk Historian SE, click [Search]. The points you selected for mapping should have a *Y* in the Created in SE column.



The "FTMS" Available Points value may not update immediately because it takes approximately fifteen minutes to update the FactoryTalk Historian SE server.

After transferring the data, you can perform a search in FactoryTalk Historian SE [using the FactoryTalk Historian SE System Management Tool (SMT)] to verify the points have been mapped to the FactoryTalk Historian SE.

Removing Points from Data Transfer

If you no longer want to transfer data for a point or points, clear the checkbox in the table for those points. Note that this only removes them from the Data Transfer service. To remove the points from FactoryTalk Historian SE, and thereby free up license space, you must delete the points in FactoryTalk Historian SE.

8

Administering the Module

This chapter contains the following sections:

- “Setting User Security”
- “Managing Users”
- “Managing Groups”
- “Managing Time”
- “Working with System Settings”
- “Uploading Files to the Module”
- “Backing Up and Restoring Module Configuration Files”
- “Using the System Log”
- “Repairing Archives”
- “Restoring Defaults”
- “Shutting Down”
- “Restarting the Module”
- “Rebooting the Module”

Setting User Security

You can configure your module for either FactoryTalk Security (if your module is in a FactoryTalk system) or Native security mode. User security configuration depends upon which security mode the module is configured.

Factory Talk Security

If you are using FactoryTalk Security, user and group management is handled through the FactoryTalk Services Platform and the FactoryTalk Administration Console.



See the “Managing Security” chapter for more information on setting up FactoryTalk Security.

If you plan to use the auditing features of FactoryTalk Historian ME while using FactoryTalk Security, you need to create user IDs in User Management that exactly match user IDs in FactoryTalk Security. This will allow you to track changes through a specific user and not a user group.

Membership in the piadmin group does not automatically give special privileges. However, the piadmin user account does have unlimited access and cannot be deleted. Privileges are defined as follows:

	piadmin	piuser	FTHAdministrators	FTHEngineers	FTHOperators	FTHSupervisors
Manage Points						
Add Points Wizard	All access	View only	All access	All access	View only	View only
Edit Points	All access	View only and Export	All access	All access	View only and Export	View only and Export
Edit Scan Class (es)	All access	View only	All access	All access	View only	View only
Configure Historian						
Data Collection	All access	View only	All access	All access	View only	All access
Data Transfer	All access	View only	All access	All access	View only	View only
Data Transfer Points	All access	View only	All access	All access	View only	View only
Data Storage	All access	View only	All access	All access	View only	View only
System Security	All access	View only	All access	All access	View only	View only
User Management	All access	View only	All access	View only	View only	View only
Group Management	View only	View only	View only	View only	View only	View only
Trust Management	All access	View only	All access	View only	View only	View only
Backup And Restore	All access	View only	All access	All access	View only	View only
Advanced						
System Log	All access	View only and Export	All access	All access	View only and Export	View only and Export
System Setting	All access	View only	All access	All access	View only	View only
Module Shutdown	All access	View only	All access	All access	View only	View only

	piadmin	piuser	FTHAdministrators	FTHEngineers	FTHOperators	FTHSupervisors
Restore Defaults	All access	View only	All access	All access	View only	View only
Upload Management	All access	View only	All access	All access	View only	View only
Time Management	All access	View only	All access	All access	View only	View only

Native Security

If you have administrator privileges, you can create, modify (including password reset), or delete users when the FactoryTalk Historian ME module is configured for the Native security mode.

Managing Users

This section describes how to create and manage user accounts for the FactoryTalk Historian ME Native security mode only. To manage users, click **Configure Historian** in the top navigation bar, and then click *User Management* in the left navigation bar.

You must belong to the piadmin administrator's group to add, modify, or remove users. Any user can change their own password.

To add, modify, or delete users, you must belong to the piadmin or ftadministrators group.

Create User

User Name

Description

Password

Confirm Password

Groups

None
piadmin
piuser

Creating Users

To create a new user.

1. On the User Management page, click [New].
2. Enter a user name. User names must be made up of English alphabet characters and the numeric characters 0-9.
3. Enter a description (optional).
4. Enter a password for the user (optional, but recommended). Passwords cannot be 16 characters long.
5. Confirm the password.
6. Select the group(s) you want this user to belong to (optional).
7. Click [Save].

Modifying Users

To modify a user, highlight the user name on the User Management page. Click [Edit]. In the Edit dialog you can change the user name, description, or group membership.

User Management

Name	Description	Groups
Catherine	User	piadmin
Lenny	User	piadmin
piadmin	PI Administration	piadmin
pidemo	PI Demo	piuser
Sarah	User	piadmin

Select user } [Catherine, Lenny, piadmin, pidemo, Sarah]

Create, edit, or modify selected user } [New, Edit, Delete, Change Password]

Removing Users

To remove a user, highlight the user name on the User Management page. Click [Delete]. Click [OK] to confirm the removal.



See the "Managing Security" chapter for information about changing user passwords.

Managing Groups

FactoryTalk Historian ME groups can only be viewed, not changed. To view groups, click **Configure Historian** in the top navigation bar, and then click *Group Management* in the left navigation bar. Group Management displays the list of groups. This is a read-only page.

Group Management

Name	Description	Users
piadmin	Administration	piadmin
piuser	User	pidemo; PlantOperator

The buttons are inactive because Groups cannot be changed in the web interface

The *piadmin* and *pidemo* users and *piadmin* and *piuser* groups are the only users and groups that exist when you first log in to FactoryTalk Historian ME.

Membership in the *piadmin* group does not automatically give special privileges. However, the *piadmin* user account does have unlimited access. Users added to the *piadmin* group can perform all functions with the exception of deleting the *piadmin* user and group.



See “Understanding User Privileges” for more information.

Managing Time

To manage time in the FactoryTalk Historian ME, click **Advanced** in the main navigation bar, and then click *Time Management* in the left navigation bar. The Modules's Current Time field displays the FactoryTalk Historian ME's current time.

Time Management

Time Synchronization

Module's Current Time	<input type="text" value="01/13/2010 16:44:50 PST"/>
<input type="radio"/> Controller Time	<input type="text" value="FTHDemo_1_0"/>
<input type="radio"/> NTP Server	<input type="text"/>
<input type="radio"/> Historian SE	Data Transfer must be configured
<input checked="" type="radio"/> Manual Set	<input type="text" value="01/13/2010 16:44:50"/>

Time Zone Setting

Current Time Zone	US/Pacific	
Select Time Zone	Region <input type="text" value="US"/>	Time Zone <input type="text" value="Pacific"/>

Save

Precise timing is critical for most module services including Data Collection, Data Transfer, and Data Storage because all events are time-stamped and the order of these events is important. To provide accurate time for these services, you can configure the module to synchronize time with a variety of time sources.

At boot time, the module will read and automatically synchronize its real-time clock with these external time sources. After successfully synchronizing with a time source at boot time, the module will achieve runtime time precision by periodically resynchronizing with the time source.



When changing the module time, do not change the module time to a time earlier than the current module time if Data Collection has already been started.

Clock Drifts

It is generally a good practice to synchronize all devices to a single reliable time source. Even though clock drifts may occur among the module, FactoryTalk Historian SE, and any controllers, efforts should be made to minimize this. To adjust for time variations caused by clock drifts forward or backward in time, the module will slew or step as needed. module log files are provided for time-related warnings and information.

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 or the module has been running for more than six and a half days, a message similar to the following is generated in the system log:

```
27-Jan-10 13:24:09 logixd [WARNING] Logixd detected a controller
time shift greater than thirty seconds on High Speed Trend in-
stance 7 running on Data Source
All_Type_Combination_07072009_v17_1_1. The Trend was restarted.
```

Current Time

The module's current time is displayed in the Current Time field. To update the time, refresh your browser window.

The module's current time cannot be edited through the Current Time field. To edit the module's current time, select the Manual Set option or one of three time synchronization options. When you click [Save], the module will reboot automatically, and the Current Time field will then display the time based on the selected time source.

Battery Clock

The module's real-time clock is maintained by a rechargeable, zero-maintenance battery. It is not field-replaceable. The battery powers the real-time clock for a minimum of 20 days when the module is not powered on. The module requires power for approximately 20 hours before the battery is fully charged.

Time Synchronization Settings

The FactoryTalk Historian ME can periodically check external time sources to synchronize its time settings. Synchronization is based on a single selected time source that coordinates time accuracy among different devices in your FactoryTalk environment. The module's Universal Coordinated Time (UTC) may be synchronized to a Logix5000 Controller, a network NTP time server, or a FactoryTalk Historian SE configured as an NTP time server.



Take appropriate precautions when changing the module time to a past time compared to the current module time. If you perform this operation, the following message displays, "The time you have entered is in the past, This may put the module in safe mode, which would require you to delete all data archives past this time. Are you sure you want to continue?"

If you click [Yes] the module will enter safe mode if the time change results in 1) archive file timestamps are newer than the module's current time or 2) archive files with overlapping time ranges. If the module enters safe mode, go to the Web Diagnostics interface to repair the archive files and exit safe mode.

For NTP Server or FactoryTalk Historian SE time synchronization options, the module obtains the current time for its real-time clock once per minute. The module uses its real-time clock and periodically corrects the clock drift using its NTP Server or Controller Time.

Time Synchronization

Module's Current Time

Select one of four Time Synchronization options

Controller Time

NTP Server

Historian SE Data Transfer must be configured

Manual Set

To synchronize time in the FactoryTalk Historian ME, select one of four options:

- Controller Time

Select the Controller Time radio button, and then select a controller from the drop-down menu.

It is critical that you controller's time is set, configured, and synchronized properly. If your FactoryTalk Historian ME application uses the high speed scan type (collecting data between 10ms and 500ms), the controller generates the timestamp.



The RSLogix 5000 installation CD contains a Logix5000 Clock Update tool. The tool lets you view and synchronize the system time of the controllers and devices on a network, using any PC running Microsoft Windows and RSLinx Classic. For more information about using this tool, see the Logix5000 Clock Update tool online help.

■ NTP Server

Select the NTP Server radio button, and enter the IP address or host name of the NTP server. NTP servers are typically maintained by a corporate IT department and are often the Windows Active Directory server on the network.

■ Historian SE (which must be configured as an NTP server)

Select the Historian SE radio button to synchronize the FactoryTalk Historian ME time with a FactoryTalk Historian SE server's time. Before selecting this option, you must:

- Configure a FactoryTalk Historian SE server as a valid NTP server. Contact your local system administrator to ensure that this NTP server is configured and maintained properly.

and

- Specify the FactoryTalk Historian SE server in Data Transfer.



See the "Connecting to FactoryTalk Historian SE" section in the "Transferring Data" chapter.

When shutting down a FactoryTalk Historian SE server that has been configured as an NTP server, the server may take some time to shut down. Before restarting the FactoryTalk Historian SE server, make sure that the w32time service is running on the FactoryTalk Historian SE server machine. This service must be running for the time to synchronize properly. If the w32time service is not running, start the service, and then start the FactoryTalk Historian SE server.

■ Manual Set

Select the Manual Set radio button to manually set the time of the FactoryTalk Historian ME. The time is kept by the module's real-time clock.

Due to the 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. The FactoryTalk Historian ME will not synchronize with any time source if you set the time using Manual Set.

When setting time manually in the Time Management page, if the new time entered is in the past compared to the current system time, a confirmation dialog will display informing the user that setting the time to the past may potentially put the system into safe mode. If the system goes into safe mode, perform the steps in the “Repairing Archives” section.

Click [Save] after you select a time synchronization option for the module to reboot and for your time synchronization changes to take effect.

Verifying Time Synchronization

To verify time synchronization, go to the FactoryTalk Historian ME Web Diagnostics interface by opening http://<Module IP_address>:8080 in a browser window. Click **Hardware** in the top navigation bar, and then click *Time Management* in the left navigation bar. The Time Management diagnostic page displays.

Verify your NTP server is listed

Note “time reset” and “synchronized to” messages

The screenshot shows the 'Time Management' configuration and 'NTP Logs' section. The 'NTP Server' field is set to '0 north-america.pool.ntp.org'. The 'NTP Logs' section shows a list of messages, including 'time reset' and 'synchronized to' messages.

Time Management	
Time Source	NTP
Current Time Zone	US/Pacific
Module's Current Time	12/04/09 11:51:31 PST
RTC Time	Fri Dec 4 11:51:32 2009 -0.158674 seconds
Last Update Time	Direction: From OS to RTC. The update time is Fri Dec 4 11:50:36 2009
Controller Path	
Update Rate	
NTP Server	0 north-america.pool.ntp.org
NTP Logs	
Time	daemon.log Fri Dec 4 11:51:00 2009
Message	
4-Dec-09 11:51:00	kernel time sync enabled 0001
4-Dec-09 11:51:00	synchronized to 198.186.191.229. stratum 2
4-Dec-09 11:46:42	frequency initialized 60.558 PPM from /var/lib/ntp/ntp.drift
4-Dec-09 11:46:42	kernel time sync status 0040
4-Dec-09 11:46:42	Listening on interface lo, 127.0.0.1#123 Enabled
4-Dec-09 11:46:42	Listening on interface eth0, 10.85.106.137#123 Enabled
4-Dec-09 11:46:42	Listening on interface eth0, fe80::20d:80ff:fe00:1050#123 Enabled
4-Dec-09 11:46:42	Listening on interface lo, ::1#123 Enabled
4-Dec-09 11:46:42	Listening on interface wildcard, ::#123 Disabled
4-Dec-09 11:46:42	Listening on interface wildcard, 0.0.0.0#123 Disabled
4-Dec-09 11:46:42	precision = 1.000 usec
4-Dec-09 11:46:42	ntpd 4.2.2p4@1.1585-o Sun Jan 11 17:05:58 UTC 2009 (1)
4-Dec-09 11:46:41	time reset -10771.811418 s
4-Dec-09 11:46:41	synchronized to 198.186.191.229. stratum 2
4-Dec-09 14:46:04	frequency initialized 60.558 PPM from /var/lib/ntp/ntp.drift
4-Dec-09 14:46:04	kernel time sync status 0040
4-Dec-09 14:46:04	Listening on interface lo, 127.0.0.1#123 Enabled
4-Dec-09 14:46:04	Listening on interface eth0, 10.85.106.137#123 Enabled
4-Dec-09 14:46:04	Listening on interface eth0, fe80::20d:80ff:fe00:1050#123 Enabled
4-Dec-09 14:46:04	Listening on interface lo, ::1#123 Enabled
4-Dec-09 14:46:04	Listening on interface wildcard, ::#123 Disabled

Check the NTP Server field to ensure that your NTP server is properly set. Note the “time reset” and “synchronize to” messages, which indicate successful synchronization.

If the time synchronization with an NTP server (including a FactoryTalk Historian SE server) is not successful, you may see the following error messages in the NTP Logs section. When any of these error messages are logged, check to make sure that the NTP server is running properly, and then reboot the module to synchronize with the NTP server again.

NTP Log Message	Message Information
sendto(“IP”) (fd=-1): bad file descriptor (fd=-1)	Where <i>IP</i> is the IP address of the NTP Server.
frequency error xxx PPM exceeds tolerance 500 PPM	Where <i>xxx</i> is the PPM value that is larger than 500.

NTP Log Message	Message Information
No reply; clock not set.	The time was not synchronized successfully.

Setting the Time Zone

Current Time Zone displays the current time zone. Eastern Standard Time (EST) is the default time zone. To set a new time zone, choose a region and time zone from the drop-down menus, and click [Save].



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

Event timestamps receive timezone 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. You must update both the time zone and the time, which will reboot the module.

Working with System Settings

To modify the system settings, click **Advanced** in the main navigation bar, and then click *System Settings* in the left navigation bar. You must have administrator privileges to make any changes to the system settings.

The FactoryTalk Historian ME allows you to modify the system settings for the module through the web interface. This includes modifying the module name and setting the network settings.

System Settings	
Module Name	<input type="text" value="Build-247"/>
Network Settings	
Configuration	<input checked="" type="radio"/> DHCP <input type="radio"/> Static IP Address
IP Address	<input type="text" value="10.85.107.66"/>
MAC Address	<input type="text" value="00:0d:80:00:10:50"/>
Subnet Mask	<input type="text" value="255.255.252.0"/>
Default Gateway	<input type="text" value="10.85.104.1"/>
Search Domain	<input type="text" value="na.home.ra-int.com"/>
DNS Server	<input type="text" value="10.85.104.60"/>
DNS Server	<input type="text" value="10.85.104.52"/>
Auto-Negotiate	<input checked="" type="checkbox"/>
Speed	<input type="text" value="100MB"/>
Duplex	<input type="text" value="Full"/>

Configuring the Module Name

The default module name has 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 server. The FactoryTalk Historian ME module name is prepended to the FactoryTalk Historian ME tag name to create the FactoryTalk Historian SE tag name. This provides uniqueness and context to the tag.

To change the module name:

1. Click on **Advanced** in the top navigation bar.
2. Click on *System Settings* in the left-hand navigation bar.
3. Enter a name in the *Module Name* field. 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 module name is limited by the following:
 - Maximum of 64 alpha numeric characters in the name.
 - No special characters (e.g., !, @, #, \$, %, ^, &, *) are allowed.
 - Must be unique in relation to other FactoryTalk Historian MEs on the same network.

After entering a new FactoryTalk Historian ME name, click [Save]. FactoryTalk Historian ME will automatically re-boot and generate a new login page after it completes the re-boot cycle.

DNS HOST NAME

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 cannot check the network for a naming conflict. Use the DNS Server to check for naming conflicts. Contact your local IT administrator for more information.

DUPLICATE TAGS

Changing the module name may result in duplicate tags being transferred. When tags are transferred to FactoryTalk Historian SE, the tags are appended with the module name. If the module's name is changed, 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. 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. Because of this, 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.

Configuring Network Settings

Working with network settings may require your local network administrator's expertise. Contact your IT department for assistance if you need help.

- Configuration - select either Dynamic Host Configuration Protocol (DHCP) or Static IP.
 - DHCP - select this option to automate the network parameter assignment to network devices from one or more DHCP servers.
- Static IP Address - select this option to use the same IP address every time it powers up.

DHCP is the default setting, and a DHCP server is required to assign the module its initial IP address. Note that the RSLogix 5000 DHCP Server tool can be used to set the IP address.

If you enter an IP address that is already in use and reboot the module, you will not be able to access the module through the web interface. To repair this, access the module through the Add on Profile (AOP) and reset the network configuration. Please see the AOP documentation for further information.



If you change the default IP address configuration from DHCP to Static IP Address, or if you use BootP through an RSLogix 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.

- IP Address - the module's IP address. Be sure 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. (This comes from the module and cannot be changed.)
- Subnet Mask - the module's subnet mask.

This field is enabled when you select Static IP Address. This value will be unique to your location. Check with your IT department to get the correct value.

- Default Gateway - the network default gateway. This allows data to be passed from one subnet to another subnet in a network.

This field is enabled when you select Static IP Address.

- Search Domain - the DNS search domain. The module appends this suffix when it attempts connecting to a FactoryTalk Historian SE, FactoryTalk Directory server, or others services using a host name instead of an IP address.

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 - the second DNS server.

This field is enabled when you select Static IP Address.(optional)

Auto-Negotiate - check this box if you want Auto Negotiation to determine 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 Auto-Negotiate is not selected.

- Duplex - the duplex parameter determines how communication is sent and received.

- Select Full if you want both ends of the communication to be able to send and receive signals at the same time.

- Select Half if you still want the communication to be bidirectional, but 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.

After modifying the System or Network Settings, click [Save]. A popup message will ask you to confirm your new settings. Click [Yes] or [No]. If you click [Yes], the module will automatically reboot and the changes will take effect. If you click [No], no changes will take effect.

Uploading Files to the Module

To upload files in the FactoryTalk Historian ME, click **Advanced** in the main navigation bar, and then click *Upload Management* in the left navigation bar. The Upload Management section of FactoryTalk Historian ME Web allows users to upload, view, and delete the following file types:

- Auto Discovery Rule Files - the Add Points Wizard uses these files when discovering tags.
- Tag Attribute Files - 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.



See "Managing Security" for more information about security settings.

Upload Management

Please Select File	<input type="text"/>	Browse...	File Type	AutoDiscoveryRuleFile	Upload To Module
FileName	Type	Size	<ul style="list-style-type: none"> AutoDiscoveryRuleFile TagAttributeFile CA Certificate Server Certificate Private Key 		Last Modified Time

Follow these steps to upload a file to the module.

1. Select a file type from the drop-down menu.
2. Enter the name of a file in the Please Select File field, or click [Browse...] to locate the file.
3. Click [Upload To Module] to upload the selected file to the module. The uploaded files are displayed in the table. The information provided includes:
 - File name - the name of the selected file.
 - File type - the selected file's file type.
 - File size - the selected file's file size.
 - Last modified time - the last modification date and time of the file.

Check the Format of an Uploaded File

To check if an XML file is formatted properly, highlight the file and click [Check Format].

Clicking [Check Format] does not check the format of other file types.

Viewing an Uploaded File

To view the file in a new browser window, highlight the file and click [View].

Deleting an Uploaded File

To delete a file from the module, highlight a file in the list and click [Delete]. In the pop-up dialog, click [OK] to confirm or [Cancel].

Backing Up and Restoring Module Configuration Files

To back up or restore FactoryTalk Historian ME files, click **Configure Historian** in the top navigation bar, and click *Backup and Restore* in the left navigation bar. You must have administrator privileges to back up and restore configuration files.

Use Backup and Restore to back up the configuration data of the module to a file and download that file to a remote client. Restoring backed up configuration data is also performed through Backup and Restore. It is a good idea to periodically back up the configuration of the module or whenever changes are made to the configuration. In the event that you need to reset the module, you can restore the configuration after the module resets.

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, 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. 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, go to the *System Settings* page in the **Advanced** tab of the web interface to make sure that the restored module's name is correct after the module has been restored.

Displaying Backup Status

The Backup Status section shows the most recent backup of the system configuration. This includes the backup date, file name, and the size of the backup file. If any changes have been made to the system configuration since the last backup, it is recommended you perform another backup.

Click [Backup] to perform the system backup.

Backup Status

Backup Status	Completed
Backup Date	10-Feb-10 13:28:03
Backup File Name	fthme20100210132803.tar.gz
Backup File Size	129966 Bytes

Backup

The backup file contains configuration information for the following:

- Data Collection
- Data Storage
- Data Transfer
- Security
- Data Server
- Point Server
- Web Server

Downloading Files to a Client Computer

The Download To Client section shows the last time the backup file was downloaded to the client computer as well as the file name. The file name is based on the date and time the file was created, so you can have more than one configuration file.

Download To Client

Last Download	10-Feb-10 13:28:05
Last Download File Name	fthme20100210132803.tar.gz

Click [Download] to download a backed up configuration file. The button is inactive if no backup of the module has occurred.



Rockwell recommends that only advanced users edit XML files.

After downloading the file from the module, users can use an XML parser to modify the configuration. However, users should not change the following files:

- datacollection/dconf.xml
- datastorage/dsconf.xml
- datatransfer/dtconf.xml

Uploading a Backup File to the Module

The Upload To Module section shows the last uploaded file name and timestamp. It also allows you to upload a previously backed up file to the module from the client computer. You can also upload a backup file downloaded from one FactoryTalk Historian ME to quickly configure another module.

You can only have one backup configuration file on the module at a time. If you upload an older backup file, it will overwrite any newer backup file.

Upload To Module

Last Upload	10-Feb-10 13:28:20
Last Upload File Name	Feb10Good.tar.gz
<p>File paths for upload may not exceed 80 characters</p> <input type="text"/>	<input type="button" value="Upload"/> <input type="text"/> <input type="button" value="Browse..."/>

To upload a backup file to the module:

1. Click [Browse...].
2. Locate the file you want to upload and click [Open].

Backup configuration file paths may not exceed 80 characters, and filenames may only contain the following characters:

%, @, -, _, a-z, A-Z, 0-9

3. Click [Upload].

Restoring the Module from a Backup File

To restore the module to a previous configuration, upload the backup file and click [Restore Wizard].

Restore Module From File

Last Restore Status	Completed
Last Restore Date	10-Feb-90 12:39:12
Last Restore File Used	fthme20100209142721.tar.gz

The Restore Configuration Wizard will guide you through a restoration process. After restoring the module configuration, the module will reboot automatically. This may take a few minutes.

If a backup file is not stored on the module, the [Restore Wizard] button is greyed out.

1. Stop the module by clicking [Continue].

Restore Wizard

1 Stop Module

2 Confirm File

3 Restore Progress

In order to restore the FactoryTalk Historian ME Module, the module must be stopped. This will result in stopping the Data Collection, Data Transfer, and Data Storage services.

Are you sure you want to proceed?

Restoring the Module Name

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, 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. 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. Click **Advanced** in the main navigation bar, and then click *System Settings* in the left navigation bar to view the module name.

1. Select the backup file and click [Select].
2. When the configuration table displays, click [Continue]

Restore Wizard



In order to restore the FactoryTalk Historian ME Module, the module must be stopped. This will result in stopping the Data Collection, Data Transfer, and Data Storage services.

Are you sure you want to proceed?

Continue

Cancel

- Click [Confirm] after you have confirmed that the backup file is correct, and then click [Continue].

Restore Wizard

1 Stop Module
2 **Confirm File**
3 Restore Progress

File Name: fthme20100104162829.tar.gz

Restore Parameter	Current Value	Restore Value
<input checked="" type="checkbox"/> Module Name	00003027-FTHME	00003027-FTHME
<input checked="" type="checkbox"/> IP Setting	DCHP	DCHP
IP Address	N/A	N/A
Subnet Mask	N/A	N/A
Default Gateway	N/A	N/A
Search Domain	N/A	N/A
Primary DNS Server	N/A	N/A
Secondary DNS Server	N/A	N/A
<input checked="" type="checkbox"/> Auto-Negotiate	On	On
Speed	N/A	N/A
Duplex	N/A	N/A

4. Wait for key services to stop and the module to reboot.

Restore Wizard

Verify File	Completed
Stop Data Collection	Completed
Stop Data Transfer	Completed
Stop Data Storage	Completed
Stop Subsystems	Completed
Restore	Completed
Fix Snapshot Table	Completed
Reboot Module	Please wait while system reboots...

Do not power down or remove the ME module until the restore operation is completed and the login page displays.

Using the System Log

To work with the FactoryTalk Historian ME system log files, click **Advanced** in the main navigation bar, and then click *System Log* in the left navigation bar. The System Log section of FactoryTalk Historian ME web displays messages reported to system log.



If you are using IE 7.0 and want to export to Excel, you must install Windows hot fix 929863 (<http://support.microsoft.com/kb/929863>). See "IE 7 Hot Fix" for more details.

System Log

Time Source Message Count

Time	Source	Message
29-Dec-09 08:35:23	pibasess	Trust <ft administrators> Granted to: \\00004929-FTHME 10.85.107.43 webs
29-Dec-09 08:35:23	pibasess	Trust <ft administrators> Granted to: \\00004929-FTHME 10.85.107.43 webs
29-Dec-09 08:35:23	pinetmgr	Successful login ID: 13. Address: . Host: . Name: webconfiguration. User: piadmin. Trust: ftadmin
29-Dec-09 08:35:18	pinetmgr	Successful login ID: 13. Address: . Host: . Name: webconfiguration. User: piadmin. Trust: ftadmin
29-Dec-09 08:35:17	pibasess	Trust <ft administrators> Granted to: \\00004929-FTHME 10.85.107.43 webs
29-Dec-09 08:35:16	pibasess	Trust <ft administrators> Granted to: \\00004929-FTHME 10.85.107.43 webs
29-Dec-09 08:35:14	pibasess	Trust <ft administrators> Granted to: \\00004929-FTHME 10.85.107.43 webs
29-Dec-09 08:35:14	pibasess	Trust <ft administrators> Granted to: \\00004929-FTHME 10.85.107.43 webs
29-Dec-09 08:35:14	pibasess	Trust <ft administrators> Granted to: \\00004929-FTHME 10.85.107.43 webs
29-Dec-09 08:35:13	webconfiguration	[INFO] FT user testadmin logged into the Web Configuration successfully.
29-Dec-09 08:35:08	pinetmgr	Access Denied: [-10413] No trust relation for this request ID: 13. Address: . Host: . Name: webco
29-Dec-09 08:35:07	webconfiguration	[ERROR] Login failed. UserName: piadmin. Login Type: FT Security.
29-Dec-09 08:35:07	DataTransfer	[INFO] Sending archived events to SE...
29-Dec-09 08:35:07	pibasess	Trust request from: \\00004929-FTHME 10.85.107.43 webs failed: [-10413] No trust relation for this
29-Dec-09 08:35:07	webconfiguration	[ERROR] Login Failed. UserName: piadmin. Login Type: FTSecurity. Reason: System.Runtime.Inte
29-Dec-09 08:34:52	DataTransfer	[INFO] The total number of events sent to SE is 94853.
29-Dec-09 08:34:24	DataTransfer	[INFO] Sending archived events to SE...
29-Dec-09 08:34:08	DataTransfer	[INFO] The total number of events sent to SE is 95994.
29-Dec-09 08:33:36	DataTransfer	[INFO] Sending archived events to SE...

25 Page 1 of 2 Displaying 1 to 25 of 39 items

When the FactoryTalk Historian ME systems are up and running and 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 once for every 300 errors to keep the log disk space from being flooded with too many error messages.

Sorting the System Log

System log information that meets the specified criteria is displayed in table format. By default the messages will display the oldest time first and the most recent time last. Click on the column heading to sort by heading. For example, click on the Source heading to sort messages by source alphabetically in ascending order.

Defining a System Log View

The following data fields are provided at the top of the System Log page:

- Time - use the Time data field to specify time search criteria.
The table uses *m* for minutes and *d* for days.
The default is *-5m.
- Source - use the Source data field to filter by source.
The default is "*", where "*" or a blank field means no filtering is used and messages from all sources are displayed.
- Message - use the Message data field to filter by message text.
The default is "*", where "*" or a blank field means no filtering is used and all messages are displayed.
- Count - use Count to limit the maximum number of log messages that will be searched out. This field is limited to a maximum value of 5000.

Click [Search] to display messages from the FactoryTalk Historian ME message service using the criteria specified by the user.

Click [Export] to export all search results into a file saved to the client.



Auto Refresh generates messages in the System Log table for each refresh, making the System Log table grow quickly when multiple clients perform this action.

Repairing Archives

Each time you reboot the system, the system will check 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 will be solid red and the LED will display:

SAFE MODE LAN OK <ModuleIP_address>

or

SAFE MODE LAN LOST <ModuleMAC_address>

This indicates that the module is in safe mode.

In safe mode only your module's Web Diagnostics interface can be started, and you must start the archive repair process to leave safe mode.

To initiate the archive repair process:

1. Access the FactoryTalk Historian ME Web Diagnostics interface by opening `http://<ModuleIP_address>:8080` in a browser window.



See the "Using Web Diagnostics" more information.

The Diagnostics home page will display with the following error message:

ERROR: Archives are in inaccessible state. Please navigate to 'Archive Repair' to continue.

Archive Repair

2. Click [Archive Repair] and the Archive Repair page displays. The bad archives are listed and selected by default.

Archive Repair

[Info: Please make sure the time source has the correct time to avoid deleting listed archive files.]

Module's Current Time: 02/01/2010 10:42:49 PST

Archives that have future timestamps.

Select	Status	Archive Path	Deleted	Download Link	Start Time	End Time
<input checked="" type="checkbox"/>	Bad	/dev/shm/tr	N	Download	10-Feb-10 09:47:25	Current Time
<input checked="" type="checkbox"/>	Bad	/opt/PI/dat/9	N	Download	8-Feb-10 14:51:32	10-Feb-10 09:47:25
<input checked="" type="checkbox"/>	Bad	/opt/PI/dat/8	N	Download	8-Feb-10 10:25:37	8-Feb-10 14:51:32
<input checked="" type="checkbox"/>	Bad	/opt/PI/dat/8	N	Download	8-Feb-10 10:11:18	8-Feb-10 10:25:37
<input checked="" type="checkbox"/>	Bad	/opt/PI/dat/5	N	Download	3-Feb-10 12:24:15	8-Feb-10 10:11:18
<input checked="" type="checkbox"/>	Bad	/opt/PI/dat/3	N	Download	26-Jan-10 11:17:29	3-Feb-10 12:24:15

All archives in a bad state must be deleted before the repair can be completed.

Please download the archive files before deleting.

Use the Archive Repair page to do the following:

- Download and save an archive file.
 1. Click *Download* in the Download Link column.
 2. Save the file to the desired location.

All archives are downloaded with the extension *.rockwell* by default. It is recommended that you rename the file. Downloading a file is recommended if you are going to delete the archive file from this page. If you need to create the archive, you will have a copy.

- Delete the archive file.
 1. Select the archive file from the list and click [Delete].
 2. You must reboot the module after deleting archive files by clicking [Repair].

If you do not want to delete the archive files that have future timestamps, 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.

■ Repair the archive file.

Click [Repair]. The following happens when an archive is repaired:

- The current archive manager (*piarstat.dat*) is renamed to *piarstat.dat.backup*.
- The current archive manager is deleted.
- The snapshot data is deleted.
- The archive manager is regenerated. If a primary archive entry exists in the primary archive file, then the archive file is registered with this name as the primary archive. If no primary archive entry exists in the primary archive file, then a new primary archive is created.
- A snapshot fix is performed.
- PI is started except for *piupdmgr*.
- All good remaining archive files are registered.
- A new primary archive and backup for the bakup1 folder is created.
- The *piarstat.dat.backup* is deleted.
- The system is rebooted.



Do not power off the module when repairing the archive files. If you power off the module during the repair, the repair will not go through and you will need to go back to the FactoryTalk Historian ME Web Diagnostics interface to repair the archives.

Once the archives are repaired, the system will be brought back to a normal state during the next bootup.

If the module is rebooted and the Archive Repair page has not been refreshed, clicking [Delete], [Reboot], or [Repair] again will result in a message telling the user that there are no archives to repair and to go to the home or login page.



Normally, when Running, the Running bit in AOP Input data value equals 1 and when Shutdown, it equals 0. However, if the FactoryTalk Historian ME module is running in safe mode, the Running bit toggles between 1 and 0.

Restoring Defaults

To restore the FactoryTalk Historian ME to its original configuration, click **Advanced** in the top navigation bar, and then click *Restore Defaults* in the left navigation bar. You must have administrator privileges to restore or reset the module.

Restore Defaults

Note

Restore Defaults will restore the FactoryTalk Historian default configuration. The ME Web will be available after the reset process is complete.

Restore Defaults

Security Reset

Note

Reset Security will reset the administrative account password to null. If you are using FTSecurity, the ME System will be reset to Native mode.

Security Reset

Retaining Backup Files

Any backed up configuration file stored on the FactoryTalk Historian ME will be deleted as a result of the restoration. Be sure to download the backup configuration file(s) before restoring the FactoryTalk Historian ME. You can restore a backed up configuration file stored on your client computer after the module is rebooted.



See "Restoring the Module from a Backup File" for more information.

Resetting the Module

Clicking [Restore Defaults] restores the FactoryTalk Historian ME to its factory default settings. During default restoration, all data will be lost, and the FactoryTalk Historian ME web configuration will be restarted.

Restore Defaults

Note

Restore Defaults will restore the FactoryTalk Historian default configuration. The ME Web will be available after the reset process is complete.

Restore Defaults

If you restore the module defaults, you must also restart all module clients. For example:

- FactoryTalk Historian DataLink
- FactoryTalk Historian ProcessBook
- FactoryTalk View SE Trending
- PI System Management Tools (SMT)
- PI SMT Tag Configurator

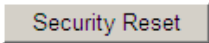
Resetting the Security Mode

The results of resetting security depends on the Security mode you have configured for the module.

Security Reset

Note

Reset Security will reset the administrative account password to null. If you are using FTSecurity, the ME System will be reset to Native mode.

A rectangular button with a light gray background and a thin black border. The text "Security Reset" is centered on the button in a dark gray, sans-serif font.

If the module was configured for FactoryTalk Security, clicking [Security Reset] will result in the following:

- Data Collection stops immediately.
- The module is shut down and restarted using Native security.
- The administrative piadmin user and users that were created in Native security mode are retained.
- The piadmin user password is set to blank.

If the module was configured for Native security, clicking [Security Reset] will reset the piadmin user password to blank and prompt the user to log into the FactoryTalk Historian ME web interface.

Resetting Native security does not require rebooting the module.

Shutting Down

To shut down the module, click **Advanced** in the top navigation bar, and then click *Module Shutdown* in the left navigation bar. The Module Shutdown section displays a message:

“Module shutdown will stop all FTH ME related services. Close Module Shutdown, and then remove and re-insert the ME Module. The FTH ME Web will be available after the ME Module has been re-inserted.”

The Module Shutdown feature allows users to stop all services, including Point Server, Data Collection, Data Transfer, and web configuration. 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.

Module shutdown is complete when the scrolling message on the module displays the module's IP address followed by *SHUTDOWN*.

Module Shutdown

Note

Module shutdown will stop all FTH ME related services. Click Module Shutdown, and then remove and re-insert the ME Module. The FTH ME Web will be available after the ME Module has been re-inserted.

Remove the module from the chassis after executing the [Module Shutdown] command.



You can also shut down the module using the FactoryTalk Historian ME Add-on Profile (AOP) in RSLogix 5000.



See “Using the AOP Module Properties Configuration Tab” for more information.

Restarting the Module

To restart the module, you can:

- Remove it from the chassis and reinsert it into the chassis.
- Cycle the chassis power.



Cycling the power on the chassis will cause FactoryTalk Historian ME to shut down. Do not cycle the power unless you have first shut down the module. To shut down the module, click **Advanced** in the top navigation bar, and go to the *Module Shutdown* page. Press [Module Shutdown].

- Use the FactoryTalk Historian ME AOP in RSLogix 5000.



See “Using the AOP Module Properties Configuration Tab” for more information.

Rebooting the Module

To reboot the module, click **Advanced** in the top navigation bar, and then click *Module Shutdown* in the left navigation bar. The Module Reboot section displays a message:

“Module Reboot will stop all FTH ME related services and reboot the module. The FTH ME Web will be available after a few minutes.”

Module Reboot

Note

Module Reboot will stop all FTH ME related services and reboot the module. The FTH ME Web will be available after a few minutes.

Module Reboot

9

Managing Security

This chapter contains the following sections:

- “Security Overview”
- “FactoryTalk Security Prerequisites”
- “Configuring Security”
- “Managing Passwords”
- “Understanding User Privileges”
- “Managing Security Trusts”

Security Overview

FactoryTalk Historian ME requires a secure user login to access the system. Two types of security can be utilized: Native module security or FactoryTalk Security (FTSecurity).

System Security

Protocol HTTP HTTPS

Security Mode

Native

FTSecurity

FT Directory Server :

Secondary Server :

Certificate Parameters

Verify Certificate Issuer No Yes

CA Certificate

Server Certificate

Private Key

Password

FactoryTalk Security is a set of services integrated into the FactoryTalk Directory. The module only supports Network Directory centralized security services, managed by FactoryTalk Security. These services are configured in the FactoryTalk Administration Console, which is shipped on your module Client Tools CD.



See the FactoryTalk Security documentation for details about FactoryTalk security.

You must have administrator privileges to make any changes to 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.

FactoryTalk Security Prerequisites

Before connecting to FactoryTalk Security ensure the following actions have been performed:

- FactoryTalk Services Platform CPR 9 SR2 is installed on your system.

When installing FactoryTalk Services Platform, you must:

- Select the Custom option.
- Ensure that Web Services are installed and configured.



See the *FactoryTalk Services Platform CPR 9 SR2 Release Notes* for more information.

- Ensure that FactoryTalk Security is running on the network.
- Ensure that Internet Information Service (IIS) is installed and configured on the FactoryTalk Directory computer for FactoryTalk Historian ME to establish a connection to it.

Configuring Security

To configure FactoryTalk Historian ME Security settings, click **Configure Historian** in the top navigation bar, and then click *System Security* in the left navigation bar.

All clients should be logged out before making any changes to the security mode.

Protocol Settings

Setting up a secure server is a very complex process and is outside the scope of this documentation. Therefore, Rockwell highly recommends that you have an IT administrator experienced in setting up secure servers set up secure protocols and assist you with module security configuration. FactoryTalk Historian ME supports the following protocols:

- HTTP - Hypertext Transfer Protocol, an application-level protocol for distributed, collaborative, hypermedia information systems.
- HTTPS - secure HTTP, a combination of the HTTP and a cryptographic protocol. If you choose HTTPS, any communication through the web interface will be encrypted for security purposes. If you select HTTPS protocol, select *Yes* or *No* to verify your Certificate Authority (CA) certificate issuer.



If you try to switch to the HTTPS protocol and your configuration is invalid for any reason, the system will log you out and return to the web interface login page.

Security Modes

This section provides an overview of the security modes available for the FactoryTalk Historian ME:

- FactoryTalk Security
- Native security



Setting up a secure server can be a complex process and set up is outside the scope of this document. Therefore, Rockwell recommends that you work with your local IT administrator experienced in setting up secure servers set up secure protocols to configure security.

The users and user groups available will depend on the security mode selected. The users and user groups created in the FactoryTalk Security mode are only available if the FactoryTalk Security mode is selected. Similarly, the users and groups created in the Native security mode are only available if the Native security mode is selected.

Therefore, switching security modes will change the list of available users and user groups.

NATIVE SECURITY MODE

FactoryTalk Historian ME provides a Native security system so that the module can be used as a standalone device. In this security mode you can set up users and groups to give others access to the FactoryTalk Historian ME system.



See “Managing Users” and “Managing Groups” for information on setting up users and groups in Native security mode.

FACTORYTALK SECURITY MODE

If you are using FactoryTalk Historian ME in a FactoryTalk environment, you must set the security type to FTSecurity for the FactoryTalk Security server.

FactoryTalk environments require FTSecurity mode

Security Mode

Native

FTSecurity

FT Directory Server :

Secondary Server :

FactoryTalk Security authenticates user identities and authorizes user requests to access a FactoryTalk-enabled system. These security services are fully integrated into the FactoryTalk Directory and are included as part of the FactoryTalk Services Platform, which includes the FactoryTalk Administration Console (shipped on your FactoryTalk Historian ME Client Tools CD). The Administration Console is used to set up users and groups.



See “Understanding User Privileges” for more information about user access permissions on the FactoryTalk Historian ME.

FactoryTalk Security includes user authentication that determines who can open, create, modify, and delete application components, and on which computers the actions are allowed. It is also possible to use FactoryTalk Security to add user and

group security accounts as well as Windows-linked accounts, and set up security for common actions such as opening, writing to, deleting tags.



If you are using FTSecurity mode, users must already be created in FTSecurity before being added in the FactoryTalk Historian ME web client.

FactoryTalk Security can prevent the following:

- Writes to specified tags from the FactoryTalk Historian ME client.
- Access to specified displays from the FactoryTalk Historian ME client.



For more information about FactoryTalk Security, refer to the FactoryTalk Security help. From the Windows Start menu, go to Rockwell Software > FactoryTalk Tools > FactoryTalk Help.

CONFIGURING SECURE GROUPS IN FACTORYTALK SECURITY

To use FactoryTalk Security, you need to set up specific groups for use with FactoryTalk Historian ME. If you have FactoryTalk Historian SE installed in your environment, they should already exist. Verify that they exist. If they do not, you must create them.

The FactoryTalk Security groups and their privileges are as follows:

- FactoryTalk Historian ME Administrators (FTHAdministrators) have the following privileges:
 - ▣ Modify FactoryTalk Historian ME settings - including security.
 - ▣ Create, modify, and delete point definitions.
 - ▣ Read and write any point's historical data set.
 - ▣ Add new point data to any point's historical data set.
- FactoryTalk Historian ME Engineers (FTHEngineers) have the following privileges:
 - ▣ Create, modify, and delete point definitions.
 - ▣ Read and write any point's historical data set.
- FactoryTalk Historian ME Supervisors (FTHSupervisors) have the following privileges:
 - ▣ Read any point definition.
 - ▣ Read any point's historical data set.

- FactoryTalk Historian ME Operators (FTHOperators) have the following privileges:
 - ▣ Read any point definition.
 - ▣ Read any point's historical data set.

If you plan to use the auditing features of FactoryTalk Historian ME while using FactoryTalk Security, you must to create user IDs in the *User Management* page that exactly match user IDs in FactoryTalk Security. This will allow you to track changes through a specific user and not a user group.

An admin user who is part of the FTHAdministrators group in the FactoryTalk Administration Console (FTAC) must also belong to the FTHAdministrators, FTHTSupervisors, and FTHTEngineers groups on the FactoryTalk Historian ME. In addition, a user who belongs to FTHTEngineers group must also belong to FTHTSupervisors group to change events on the FactoryTalk Historian ME.

Using FactoryTalk Directory Server

FactoryTalk Directory is the centerpiece of the FactoryTalk Services Platform. FactoryTalk Directory provides a central lookup service for all products participating in an application. Rather than a traditional system design with multiple, duplicated databases or a central, replicated database, FactoryTalk Directory references tags and other system elements from multiple data sources and makes the information available to clients through a lookup service.

The FactoryTalk Services Platform includes two separate directories: a Local Directory and a Network Directory. The FactoryTalk Historian ME only supports Network Directory, which organizes project information from multiple FactoryTalk products across multiple computers on a network.



For more information about FactoryTalk Security Local and Directory options, refer to the FactoryTalk Directory help (Programs > Rockwell Software > FactoryTalk Tools > FactoryTalk Help).

To enable the FactoryTalk Directory server in FactoryTalk Historian ME.

1. Click **Configure Historian** and then click the *System Security* in the left navigation bar.
2. Click the radio button next to FTSecurity.
3. Enter the FactoryTalk Directory server IP address or host name.

4. Select a Secondary server (optional). Enter the IP address or host name of a secondary server.

If the connection between the FactoryTalk Historian ME and the FactoryTalk Directory server is lost or becomes unavailable, then the FactoryTalk Historian ME will attempt to locate a secondary security server. This can be any other system in the network. It is recommended that you use a system that is always up and running to avoid possible failure at login.

The secondary server must have the same configuration as the FactoryTalk Directory server, including the FactoryTalk Services Platform CPR 9 SR2, IIS, and web services.



See the "FactoryTalk Security Prerequisites" section for additional configuration information.

5. If you selected the HTTPS protocol, select Yes or No to verify certificate parameters. If you select Yes, use the drop-down menus to set certificate parameters.
6. When you have finished making changes to the security settings, click [Save].

Selecting Certificate Parameters

When using the HTTPS protocol, you must upload the proper Certificate Authority (CA) files. Before you save Certificate Parameters, go to the **Advanced** tab and upload the certificate files on the *Upload Management* page. Select the appropriate certificate or security file type from the File Type drop-down menu.

Set related certificate parameters as follows:

- Verify Certificate Issuer
 - ▣ Select *No* if you do not want to specify a CA.
 - ▣ Select *Yes* if you want to specify a CA, and then complete the rest of the parameter fields.
- CA Certificate - the certificate of authority. This is necessary for secure HTTP.
- Sever Certificate - this file is a digital certificate that has been issued to a server and contains information about the server.
- Private Key - private key for the web server.
- Password - encryption code for SSL. Enter a password whether you are using a CA or not.

Managing Passwords

To manage passwords, click **Configure Historian** in the top navigation bar, and then click *User Management* in the left navigation bar. This feature is only available if the module is configured in Native security mode.

Changing User Passwords

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

1. On the User Management page, highlight the user whose password you want to reset.
2. Click [Change Password].
3. Do one of the following:
 - If you are changing your own password, enter the user's old password in the Old Password field.
 - If you are changing another user's password, enter “!” in the Old Password field.
4. Enter a new password or leave the field blank. Passwords cannot be 16 characters long.
5. Confirm the new password.
6. Click [Save].

Resetting Passwords

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

1. On the User Management page, highlight the user whose password you want to reset.
2. Click [Change Password]. The selected user's name will appear in a new User Management window.
3. Enter “!” in the Old password field.
4. Enter a new password or leave the field blank.
5. Confirm the new password.
6. Click [Save].

- Click [Back] to return to the User Management page.

Resetting 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.

- On the web interface, go to on the *Restore Defaults* page located under the **Advanced** tab and press [Security Reset].

Security Reset

Note

Reset Security will reset the administrative account password to null. If you are using FTSecurity, the ME System will be reset to Native mode.

Security Reset

- In RSLogix 5000, go to the module properties in AOP. In the Configuration tab, press [Security Reset].



See “Using the AOP Module Properties Configuration Tab” for more information.

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

Understanding User Privileges

The following table displays the privileges for user groups in FactoryTalk Historian ME. The FactoryTalk Historian Security groups are managed through FactoryTalk Services Platform (Administration Console) and FactoryTalk Directory server.



See “Using FactoryTalk Directory Server” for more information.

The *piadmin* group is the default administrative group for FactoryTalk Historian ME. All other groups created through the Group Management page are *piuser* groups.

If the security mode is changed, all groups and users associated with the old security mode is lost.

FTSecurity					Native Security	
<u>Operation</u>	<i>Admini- strator</i>	<i>Engineer</i>	<i>Supervisor</i>	<i>Operator</i>	<i>piadmin</i>	<i>piuser</i>
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
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

FTSecurity					Native Security	
<u>Operation</u>	<i>Administrator</i>	<i>Engineer</i>	<i>Supervisor</i>	<i>Operator</i>	<i>piadmin</i>	<i>piuser</i>
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

Managing Security Trusts

To work with trusts, click **Configure Historian** in the top navigation bar, then click the *Trust Management* option in the left navigation bar. Users typically set up trusts in Native security mode to allow client applications that do not support FactoryTalk Security a secure method of accessing the FactoryTalk Historian ME. For FactoryTalk Historian ME systems that are configured for FactoryTalk Security, trusts may operate, but they are not required because FactoryTalk Security handles authentication.

Trust Management

Trust	<input type="text"/>	PI User	<input type="text" value="OperatorCathy"/>
Domain	<input type="text"/>	OS User	<input type="text"/>
Application Name	<input type="text"/>	IP Address	<input type="text"/>
Network Path	<input type="text"/>	Net Mask	<input type="text"/>

Trust	User	Domain	OS User	Application Name	Network Path	IP Address	NetMask
ToSEFromPlantME	piadmin		MainOperator	datatransfer	00003027-FTHME	10.85.35.98	255.255.255.255
!Proxy_localhost!	piadmin				localhost	0.0.0.0	0.0.0.0
!Proxy_127!	piadmin					127.0.0.1	255.255.255.255
!Default_ServerIP!	piadmin					10.85.106.137	255.255.255.255

Both default trust and client application trusts can be viewed in the trust table on the Trust Management page, which displays:

- Trust name
- Associated user names
- IP address information (If the IP Address and Net Mask fields are blank, they appear as 0.0.0.0.)
- Windows account information
- Application information

Default Trusts

Default Trust records are recreated or edited every time the FactoryTalk Historian ME starts. This guarantees access to all applications running on the local machine, even if:

- The system's network configuration changes.
- The address changes as a result of a new network card.

The FactoryTalk Historian ME server compares incoming connection credentials with every trust login record. Each field in a Trust record is compared to the corresponding credential field. Every field that is not blank in the Trust record must exactly match the passed credentials. Otherwise, the authorization is not granted. When an authorization is refused for one Trust record, the FactoryTalk Historian ME server continues to search the other records until it has exhausted the possibilities.

Client Application Trusts

When using Native security mode you can create explicit individual Trust records for each client application or you can group them according to subnet address, host machine, or user name. A group of applications can share the same privileges, based on matching a name in the user database.

The FactoryTalk Historian ME supports trusts for the following client applications:

FactoryTalk Historian ME Client Name	Application Name for Trust
FactoryTalk Historian ProcessBook	Procbook.exe
FactoryTalk Historian DataLink	EXCEL.exe
FactoryTalk VantagePoint Windows 2003 Windows XP	w3wp.exe aspnet_wp.exe
TrendX	FTHRdCli.exe
FactoryTalk Administration Console/ FactoryTalk View Studio	VStudio.exe
ActiveX	acview.exe
System Management Tools	SMTHost.exe
PI-SDK	AboutPI-SDK.exe

Creating a Trust

To create a trust in the module web interface:

1. Click **Configure Historian** and then click the *Trust Management* in the left navigation bar.
2. Click [New].
3. Enter the name of the trust in the Trust field.

The Trust field is required. It is a record name that must be unique within the Trust table. Any alphanumeric combination is acceptable for the name of the trust. Trust names must be made up of English alphabet characters and the numeric characters 0-9.

4. Select a FactoryTalk Historian ME user from the PI User drop-down menu.

The drop-down menu contains valid users that have been defined in the user database (with one exception which is described in the “OS User” step.) This field specifies the FactoryTalk Historian ME server user whose privileges will be assigned to the incoming connection when the connection credentials match the specifications in the Trust record.

5. Enter the name of the domain in the Domain field.

A Windows Domain name may be used only for Trust logins for SDK client applications running on Windows. The domain must be the same for the FactoryTalk Historian ME server and the connecting application.

6. Enter the operating system user in the OS User name field.

This field is used only for SDK applications running within a Windows domain.

7. Enter the application name in the Application Name field. A blank value indicates the match is not required. Otherwise, a case-insensitive match is required.

For a API application to match the Application Name, the Application Name must be specified as the 4-character application name (with an *e* at the end of the name).

For a SDK application to match the Application Name, the Application Name must be specified as the filename of the application executable with a file extension and without the directory path.



See “Client Application Trusts” section for more information.

8. Enter the name of the network path in the Network Path field.
9. Enter an IP address in the IP Address field, and enter a subnet mask address in the NetMask field.

The IP Address and Net Mask fields are optional and may be used for either PI API or PI-SDK applications. This pair of fields allows matching of exact machine IP addresses or specific subnets.

10. Click [Save] to apply the entered information and submit it to the web server.

The newly entered Trust information is displayed in the table.

Editing a Trust

Highlight a trust in the table, and click [Edit] to change information for a specific trust.

Deleting a Trust

To delete a trust, highlight the trust in the table and click [Delete]. A pop-up window will display asking you to confirm the action.

Creating a Trust Connection with FactoryTalk Historian SE

Setting up trust connections between the FactoryTalk Historian ME and the FactoryTalk Historian SE is required for Data Transfer. As a prerequisite, you will also need to assign FactoryTalk Activation licenses to support the FTMS point source. Activation licenses are assigned for FactoryTalk Historian SE in the FactoryTalk Administration Console (on the Client Tools CD shipped with your FactoryTalk Historian ME).



Refer to the FactoryTalk Activation online help for more information about activation. From the Windows Start menu: Start > All Programs > Rockwell Software > FactoryTalk Activation > FactoryTalk Activation Tool.

First, log into the FactoryTalk Historian SE System Management Tools (SMT) application and set up two trust connections in the FactoryTalk Historian SE server:

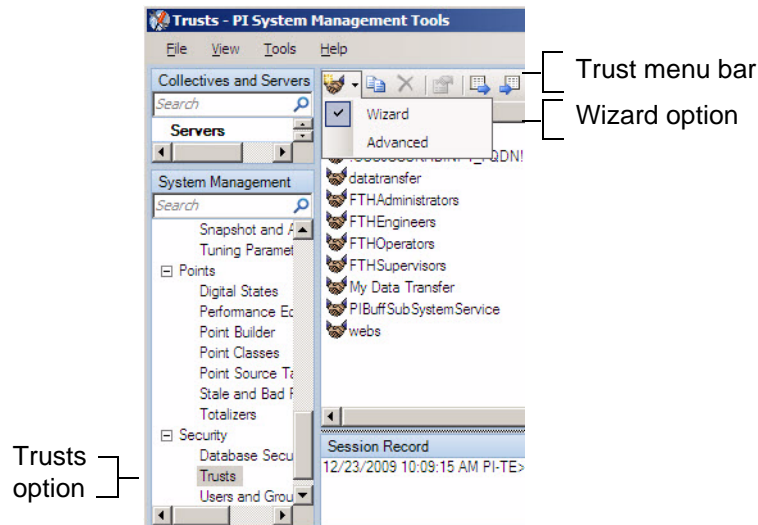
- *datatransfer* trust
- *webs* trust

Then go to the module web interface and test the module connection to the FactoryTalk Historian SE server.

APPLICATION TRUSTS

To successfully transfer data between FactoryTalk Historian ME and FactoryTalk Historian SE, you must create two application trusts on the FactoryTalk Historian SE server: webs and datatransfer.

1. Launch the FactoryTalk Historian SE SMT application. From the Windows Start menu run Programs > Rockwell Software > FactoryTalk Historian SE > System Management Tools.
2. After SMT launches, go to the left-side System Management pane and click [+] next to the [Security] item.
3. From the list of Security plug-ins, click the Trusts option.
4. From the Trust menu bar in the main window, select the drop-down menu on the [New] option. The Wizard option is checked by default.
5. The Add Trust Wizard window is launched. The Trust Wizard will ask for various pieces of information to create a trust on a the FactoryTalk Historian SE server that is currently connected.

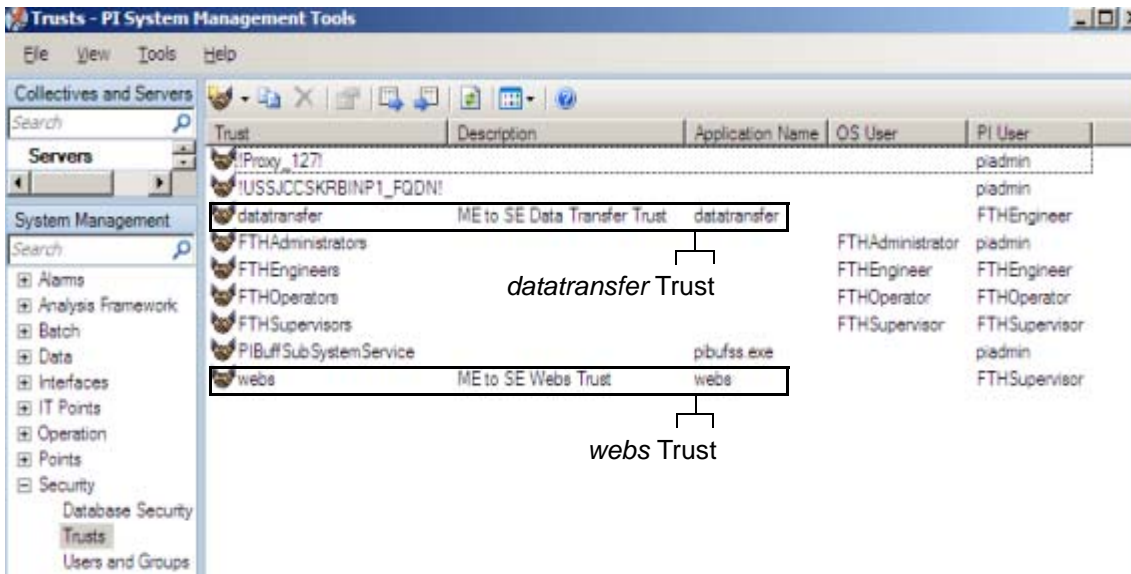


6. Select your FactoryTalk Historian SE server from the drop-down menu in the FactoryTalk Historian ME server field.

You must create a trust for Data Transfer (*datatransfer*) and a trust for web applications (*webs*). This procedure describes creating a Data Transfer trust first. Use this procedure to create a web application trust after you create the Data Transfer trust.

Select your FactoryTalk Historian SE server

7. Enter a name for the *datatransfer* trust in the Trust Name field. Click [Next].
The trust description is optional.
8. Select “PI-API application” for the trust type. Click [Next].
9. Enter *datatransfer* for the application name in the Application Name field.
10. Specify client connection information such as the network path, IP address, and subnet mask the *datatransfer* trust. Click [Next].
11. Select a PI user from the drop-down menu.
12. Click [Finish]. The trust will display in the list of trusts as shown in the following image.



13. Repeat steps 3-12 to create a *webs* trust. Replace *datatransfer* with *webs* and add the appropriate information.

14. Select File > Exit from the drop-down menu to exit the SMT application.

If you are configuring Data Transfer in the FactoryTalk Historian ME web interface next, you need to ensure that your FactoryTalk Historian SE is configured for Data Transfer. For example, the FactoryTalk Activation licenses that support the FTMS point source should be installed for the FactoryTalk Historian SE server within the FactoryTalk Administration Console. The FactoryTalk Historian SE patch enables the FTMS point source support.



See "Installing FactoryTalk View SE Patch" for more information about patch that enables FTMS point source support.

Open the FactoryTalk Historian ME web interface in your browser. Click **Configure Historian** and go to the *Data Transfer* page.

Ensure that licenses to support the FTMS point source have been activated on the FactoryTalk Historian SE server before you configure Data Transfer.

Data Transfer [Info: The connection to SE was established.]

FactoryTalk Historian SE Parameters

Host Server	<input type="text" value="10.85.106.48"/>	<input type="button" value="Test Connection"/> ✓
Current Time	23-Dec-09 11:07:32 PST	
Time Offset	-1 (Sec)	
FTHSE Licensed Points	0	
"FTMS" Points Available	0	

Data Transfer Parameters

Status	Stopped	<input type="button" value="Start"/>	<input type="button" value="Stop"/>
Maximum Events Per Transfer	<input type="text" value="50000"/>	(Range 5000-150000)	
<input checked="" type="checkbox"/> Enable Auto Transfer			

Data Transfer Statistics

Transfer Rate	0 (Events/Min)
Successful Attempt Rate	0 (Attempts/Hour)

To test the module's connection to the FactoryTalk Historian SE server where the webs and datatransfer trusts you just created reside

1. Go to the FactoryTalk Historian SE Parameters section.
2. Enter the host name or IP address of your FactoryTalk Historian SE server in the Host Server field.
3. Click [Test Connection].

An informational message that states, "The connection to SE was established." will display at the top of the page if the connection is successful. In addition, a green checkmark will display next to the [Test Connection] button. This indicates that the module can establish a connection to you FactoryTalk Historian SE server.

4. Click [Save].

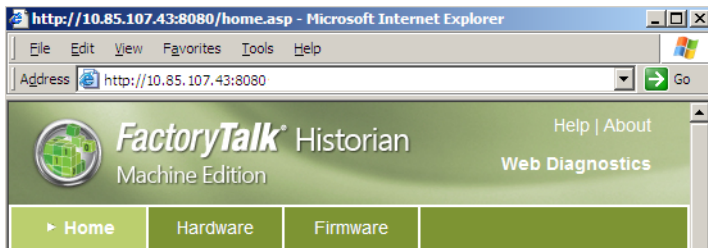
You have completed the trust configuration process.

10 Using Web Diagnostics

The FactoryTalk Historian ME is an embedded system with multiple layers of firmware applications. Firmware applications and hardware components can be found on the FactoryTalk Historian ME Web Diagnostic interface. Information contained in these pages can aid in troubleshooting and performance tuning your module.

To access the interface, open `http://<ModuleIP_address>:8080` in a browser window. From here, three main tabs are available:

- Home
- Hardware
- Firmware



Click [Help] for web diagnostics online help

Click [About] for the firmware version and product ID

Web Diagnostics Home

The FactoryTalk Historian ME Web Diagnostics home page displays the following information:

- Device Name - the name of the FactoryTalk Historian ME.
- Device Description - the version number for the 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 the FactoryTalk Historian ME.
- Production Revision - the revision number of the FactoryTalk Historian ME.

- Firmware Version - the version number of the firmware.
- Serial Number - the serial number of the FactoryTalk Historian ME.
- Up Time - the amount of CPU time used.

▶ Home	Hardware	Firmware																		
▶ Home	System Overview <table border="1"> <tr> <td>Device Name</td> <td>00003019-FTHME</td> </tr> <tr> <td>Device Description</td> <td>02.10.00.0306</td> </tr> <tr> <td>Device Location</td> <td>Slot #3</td> </tr> <tr> <td>Ethernet Address(MAC)</td> <td>00:0d:80:00:10:42</td> </tr> <tr> <td>IP Address</td> <td>10.85.106.24</td> </tr> <tr> <td>Production Revision</td> <td>2</td> </tr> <tr> <td>Firmware Version</td> <td>2.1</td> </tr> <tr> <td>Serial Number</td> <td>3019</td> </tr> <tr> <td>Up Time</td> <td>2 Days, 17h.9m.23s</td> </tr> </table>		Device Name	00003019-FTHME	Device Description	02.10.00.0306	Device Location	Slot #3	Ethernet Address(MAC)	00:0d:80:00:10:42	IP Address	10.85.106.24	Production Revision	2	Firmware Version	2.1	Serial Number	3019	Up Time	2 Days, 17h.9m.23s
Device Name	00003019-FTHME																			
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IP Address	10.85.106.24																			
Production Revision	2																			
Firmware Version	2.1																			
Serial Number	3019																			
Up Time	2 Days, 17h.9m.23s																			

Hardware Diagnostics

Hardware components are located on the FactoryTalk Historian ME Web Diagnostics interface under the Hardware tab. To access the page, click **Hardware** in the top navigation bar of the Web Diagnostics interface.

Click the links in the left navigation bar to view the following hardware component diagnostic pages:

- “Overview”
- “CPU, RAM”
- “NAND”
- “Controller Statistics”
- “ControlBus Statistics”
- “EtherNet/IP”
- “Display LED”
- “Time Management”
- “Hosts”



The screenshot shows the FactoryTalk Historian Machine Edition Web Diagnostics interface. The top navigation bar includes 'Home', 'Hardware' (selected), and 'Firmware'. The left sidebar lists various diagnostic categories, with 'Overview' expanded. The main content area displays the 'Hardware Overview' table.

Hardware Overview	
CPU Usage	53.92 %
RAM Usage	468 MB (96.53 %)
NAND Usage	782 MB (81.97 %)
Ethernet Link	Connected
LED Static Display	N/A
LED Scroll Display	LAN OK 10.85.107.43 COLLECT OK UPLOAD OK STORAGE FULL

Overview

The Hardware Overview page displays the following information:

- 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.

CPU, RAM

The CPU, RAM page displays the CPU and RAM statistics as well as results from the Linux *top* command. To access the page, click **Hardware** in the top navigation bar of the Web Diagnostics interface, and then click *CPU, RAM* in the left navigation bar.

CPU, RAM

CPU Statistics

Cache	128 KB
Model	Geode(TM) Integrated Processor by AMD PCS
Speed	498.063 MHz
Usage	24.75 %

RAM Statistics

Buffers	4 MB
Cached	262 MB
Active	323 MB
Inactive	134 MB
Usage	96.73 %

Top Result

```

top - 13:40:42 up 2 days, 17:11,  0 users,  load average: 8.67, 6.62, 6.26
Tasks: 45 total,  1 running, 44 sleeping,  0 stopped,  0 zombie
Cpu(s): 55.5%us,  9.0%sy,  0.0%ni, 33.4%id,  1.4%wa,  0.2%hi,  0.4%si,  0.0%st
Mem:   496684k total,  480484k used,  16200k free,  4848k buffers
Swap:   0k total,    0k used,    0k free,  269308k cached

  PID USER      PR  NI  VIRT  RES  SHR  S  %CPU  %MEM    TIME+  COMMAND
 1747 root        15   0 13380 5440 3692  S  23.4   1.1  490:38.97  pisanpss
 1770 root        15   0 165m 155m 4204  S 19.5  32.0   1179:25  piarchss
 1830 root        15   0 16140 7744 3380  S   9.8   1.6  191:03.29  datacollection
 1633 root        15   0 12152 5312 3664  S   3.9   1.1  284:26.72  pinetmgr
 1858 root        15   0 11844 4484 3356  S   2.0   0.9   9:27.00  datastorage
    1 root        15   0  1944   664  576  S   0.0   0.1   0:00.35  init
    2 root        39  19   0     0     0  S   0.0   0.0   0:00.02  ksoftirqd/0
    3 root        10  -5   0     0     0  S   0.0   0.0   0:00.01  events/0
    4 root        20  -5   0     0     0  S   0.0   0.0   0:00.01  khelper
    5 root        10  -5   0     0     0  S   0.0   0.0   0:00.00  kthread
    8 root        10  -5   0     0     0  S   0.0   0.0   0:00.12  kblockd/0
   11 root        10  -5   0     0     0  S   0.0   0.0   0:00.00  khubd
   13 root        10  -5   0     0     0  S   0.0   0.0   0:00.00  kseriod
   76 root        15   0     0     0     0  S   0.0   0.0   0:00.00  pdfflush
   77 root        15   0     0     0     0  S   0.0   0.0   0:01.30  pdfflush

```

Auto Refresh (Sec) Disable Auto Refresh by setting the value to 0 or leave it blank.

The CPU, RAM page lists the following information under CPU Statistics:

- Cache - the amount of CPU cache present on the module.
- Mode 1 - CPU information.
- Speed - CPU speed.
- Usage - current snapshot of CPU utilization (as a percentage.)

The CPU, RAM page lists the following information under RAM Statistics:

- 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.

The Top Result section displays results of the Linux *top* command. This command generates dynamic views of frequently-updated processes in summary form for module administration, configuration, and troubleshooting.

To set the table to auto refresh, enter a refresh interval (in sections) in the Auto Refresh box below the table. Setting the Auto Refresh value to 0 or not entering a value in the box disables the Auto Refresh feature.

Auto Refresh Disable Auto Refresh by setting the value to 0 or leave it blank.

NAND

The NAND (Not AND) page displays information about the NAND flash memory used for data storage. It contains three sections: Application, Archive, and Log and Core File. To access the page, click **Hardware** in the top navigation bar of the Web Diagnostics interface, and then click *NAND* in the left navigation bar.

NAND

Application

Total Storage	290 MB
Total Storage Used	208 MB (71.72 %)
Total Storage Free	82 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	17 MB (17.52 %)
Total Storage Free	80 MB

The Application section provides FactoryTalk Historian ME server binary files' disk space allocation statistics.

- Total Storage - total amount of space allocated for server binary files.
- Total Storage Used - amount of space in megabytes (and percentage) currently used for server binary files.
- Total Storage Free - amount of space in megabytes available for server binary files.

The Archive section provides archive storage disk space allocation statistics.

- Total Storage - total amount of space allocated for archive files.
- Total Storage Used - amount of space in megabytes (and percentage) currently used for archive files.
- Total Storage Free - amount of space in megabytes available for archive files.

The Log and Core File section provides log and core file storage disk space allocation statistics.

- Total Storage - total amount of space allocated for log and core files.
- Total Storage Used - amount of space in megabytes (and percentage) currently used for log and core files.
- Total Storage Free - amount of space in megabytes available for log and core files.

Controller Statistics

The Controller Statistics page displays controller-related information. To access the page, click **Hardware** in the top navigation bar of the Web Diagnostics interface, and then click *Controller Statistics* in the left navigation bar.

Controller Statistics

Slot Number	Application Name	Fault Status	Total Active Points	Point Event Rate/Sec	Point Failure Rate/Sec	Cpu Loading
0	FTHDemo_1_0	Minor Fault	1184	1184	0	0

Page 1 of 1
Displaying 1 to 1 of 1 items

Auto Refresh (Sec). Disable Auto Refresh by setting the value to 0 or leave it blank.

The Controller Statistics page provides information about Logix Controllers in the chassis.

- 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
- Total Active Points - the total number of active tags 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 general status and diagnostic-related information about the ControlLogix backplane. To access the page, click **Hardware** in the top navigation bar of the Web Diagnostics interface, and then click *ControlBusStatistics* in the left navigation bar.

ControlBus Statistics	
RX Bad Multicast CRC	0
Multicast CRC Error Threshold	8
RX Bad CRC	0
RX Bus Timeouts	0
TX Bad CRC	0
TX Bus Timeouts	0
TX Retry Limit	45
Status	0

The ControlBus Statistics page lists the following information:

- 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 entering 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 - 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 displays information on the network settings and statistics. To access the page, click **Hardware** in the top navigation bar of the Web Diagnostics interface, and then click *EtherNet/IP* in the left navigation bar.

EtherNet/IP

Network Settings

Link Status	Connected
IP Address	10.85.106.24
Ethernet Address(MAC)	00:0d:80:00:10:42
IP Configuration Mode	DHCP

Network Statistics

Sent Packets	51 pkt/Sec
Received Packets	56 pkt/Sec
Sent Bytes	51017 bytes/Sec
Received Bytes	15975 bytes/Sec
Sent Packets Count	12404951
Received Packets Count	14029272

The EtherNet/IP page lists the following information under Network Settings:

- Link Status - indicates if the 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.

The EtherNet/IP page lists the following information under Network Statistics:

- 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

This page displays the current message being displayed or scrolled on the module LED in further detail and the LED statistics. To access the page, click **Hardware** in the top navigation bar of the Web Diagnostics interface, and then click *Display LED* in the left navigation bar.

Display LED

Current Display

LED Static Display	N/A
LED Scroll Display	LAN OK 10.85.106.137 COLLECT OK NO UPLOAD

LED Statistics

Application LED State	Flashing Green
-----------------------	----------------

The Display LED 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.

- 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:

- Solid green - indicates that both Data Collection and Data Transfer are active.
- Flashing green - indicates Data Collection is active but Data Transfer is not configured.
- Solid red - indicates Data Collection is inactive.
- Flashing red - indicates Data Collection is active but Data Transfer is inactive.

Time Management

To access the page, click **Hardware** in the top navigation bar of the Web Diagnostics interface, and then click *Time Management* in the left navigation bar.

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
21-Dec-09 15:32:38	Listening on interface eth0, 10.85.106.137#123 Enabled
21-Dec-09 15:32:38	Listening on interface eth0, fe80::20d:80ff:fe00:1050#123 Enabled
21-Dec-09 15:32:38	Listening on interface lo, ::1#123 Enabled
21-Dec-09 15:32:38	Listening on interface wildcard, ::#123 Disabled
21-Dec-09 15:32:38	Listening on interface wildcard, 0.0.0.0#123 Disabled
21-Dec-09 15:32:38	precision = 1.000 usec
21-Dec-09 15:32:38	ntpd 4.2.2p4@1.1585-o Sun Jan 11 17:05:58 UTC 2009 (1)
21-Dec-09 15:32:38	time reset -3.516926 s
21-Dec-09 15:32:38	synchronized to 66.117.11.206, stratum 3
21-Dec-09 15:32:32	frequency initialized 139.232 PPM from /var/lib/ntp/ntp.drift
21-Dec-09 15:32:32	kernel time sync status 0040
21-Dec-09 15:32:32	Listening on interface lo, 127.0.0.1#123 Enabled
21-Dec-09 15:32:32	Listening on interface eth0, 10.85.106.137#123 Enabled
21-Dec-09 15:32:32	Listening on interface eth0, fe80::20d:80ff:fe00:1050#123 Enabled
21-Dec-09 15:32:32	Listening on interface lo, ::1#123 Enabled

— Select an NTP log file to view

The Time Management page displays the following information:

- Time Source - the source of the module's current time.



See the "Managing Time" section for information about time source options.

- 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 of when 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 - the IP address of the NTP server from an external time source.
- NTP Logs - If NTP or Sync to SE is configured on your module, NTP log files will display in this section.

Hosts

The Hosts page lists the contents of the module's hosts file. The hosts file can be used to provide host name-to-IP address resolution for networks that do not have reliable DNS servers available. To access the page, click **Hardware** in the top navigation bar of the Web Diagnostics interface, and then click *Hosts* in the left navigation bar.

Hosts

Host Name Ip Address

Host Name	Ip Address
localhost	127.0.0.1
PlantHistorian	10.85.106.137
TestHost	10.89.90.87

Use this page to do the following:

- To add a new host, click [New]. Enter the new host name 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 fields 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.

Firmware Diagnostics

Firmware components are located on the FactoryTalk Historian ME Web Diagnostics interface under the Firmware tab. To access the interface, open `http://<ModuleIP_address>:8080` in a browser window and click the **Firmware** tab in the top navigation bar.

The screenshot displays the FactoryTalk Historian Machine Edition Web Diagnostics interface. The top navigation bar includes 'Home', 'Hardware', and 'Firmware' (selected). The main content area is titled 'Firmware Overview' and is divided into three sections: Overview, Component Status, and Top Processes.

Overview

- Historian Server
- CIP
- Data Server
- Data Collection
- Data Transfer
- Data Storage
- Web Configuration Server
- Web Diagnostics Server
- Startup Log
- Core Dump Directory
- PI Commands
- Logs Download

Component Status

Historian Server Status	Running
CIP Status	Running
Data Server Status	Running
Data Collection Status	Running
Data Transfer Status	Running
Data Storage Status	Running
Web Configuration Server Status	Running
Web Diagnostics Server Status	Running

Security Mode

Current Security Mode	FTSecurity
FT Directory Server	10.85.106.48
FT Directory Server Port	80
Timeout	30 (Sec)

Last Backup

Backup Status	None
Backup Date	None
Backup File Name	None
Backup File Size	None

Top Processes

Process Name	CPU Used
pimsgss	13.70 %
datatransfer	13.70 %
pinetmgr	9.80 %
piarchss	7.80 %
logixd	3.90 %
init	0.00 %
ksoftirqd/0	0.00 %
events/0	0.00 %
khelper	0.00 %
kthread	0.00 %
kblockd/0	0.00 %
khubd	0.00 %
kseriod	0.00 %
kswapd0	0.00 %
aio/0	0.00 %
udev	0.00 %
scsi_eh_0	0.00 %
usb_l	0.00 %

Click the links in the left navigation bar to view the following firmware component diagnostic pages:

- “Overview”
- “Historian Server”
- “CIP”
- “Data Server”
- “Data Collection”
- “Data Transfer”
- “Data Storage”
- “Web Configuration Server”
- “Web Diagnostics Server”
- “Startup Log”
- “Core Dump Directory”
- “PI Commands”
- “Logs Download”

Overview

The Firmware Overview page displays the following information:

- 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 about the FactoryTalk Historian ME server Linux operating system, its functioning subsystems, and its tuning parameters. You cannot configure settings on this page.

To access the page, click **Firmware** in the top navigation bar of the Web Diagnostics interface, and then click *Historian Server* in the left navigation bar.

Historian Server

Module OS

OS Name	GNU/Linux
OS Version	2.6.18

Running Subsystem

ID	PI Path	Name	PID	Reg App Name	Reg App Type	Protocol Version	Peer Name	Peer Address
9	/opt/PI/	datacollection	1650	RA-FHMS	APIApp	3.3		
11	/opt/PI/	datastorage	1679	RA-FHMS	APIApp	3.3		
10	/opt/PI/	datatransfer	1667	RA-FHMS	APIApp	3.3		
5	/opt/PI/	piarchss	1590	piarchss	PIService	3.3		
3	/opt/PI/	piabasess	1546	piabasess	PIService	3.3		
0	/opt/PI/	pilicmgr	1478	pilicmgr	PIService	3.3		
1	/opt/PI/	pimsgss	1502	pimsgss	PIService	3.3		

Page 1 of 2 Displaying 1 to 15 of 16 items

Tuning Parameters

Name	Value
Archive_BackupLeadTime	60
Archive_EnableAutoDynamic	0
Archive_FlushQueueSize	32
Archive_FlushThreadCount	2
Archive_MaxWriteCachePerPoint	32
Archive_MinMemAvail	64
Archive_MinPercentMemAvail	10

Page 1 of 3 Displaying 1 to 15 of 35 items

This page displays the following information:

- Module OS - displays the operating system name and version.
- Running Subsystem - lists all runnings 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. To access the page, click **Firmware** in the top navigation bar of the Web Diagnostics interface, and then click *CIP* in the left navigation bar.

CIP	
Process Name	cipapplication
CPU Usage	0.00 %
Memory Used	2 MB
Up Time	0:52:65
Priority	15
Nice Value	0
Restart CIP	<input type="button" value="Restart"/>

The CIP page lists the following information:

- 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.
- Restart CIP - clicking [Restart] resets the CIP process.

Data Server

The Data Server page displays the Data Server process name, CPU usage, memory used, up time, priority, and Nice value. To access the page, click **Firmware** in the top navigation bar of the Web Diagnostics interface, and then click *Data Server* in the left navigation bar.

Data Server	
Process Name	logixd
CPU Usage	0.00 %
Memory Used	7 MB
Up Time	39:23.32
Priority	24
Nice Value	0

The Data Server page lists the following information:

- 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. To access the page, click **Firmware** in the top navigation bar of the Web Diagnostics interface, and then click *Data Collection* in the left navigation bar.

Data Collection	
Process Name	datacollection
CPU Usage	0.00 %
Memory Used	7 MB
Up Time	194:14.03
Priority	15
Nice Value	0
Collection Rate	121020 (Events/Min)

The Data Collection page lists the following information:

- 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 - current collection rate from the Data Collection service in events per minute.

Data Transfer

The Data Transfer page displays the Data transfer process name, CPU usage, memory used, up time, priority, Nice value, transfer rate, and successful attempts rate. To access the page, click **Firmware** in the top navigation bar of the Web Diagnostics interface, and then click *Data Transfer* in the left navigation bar.

Data Transfer

Process Name	datatransfer
CPU Usage	7.00 %
Memory Used	5 MB
Up Time	325:45.43
Priority	15
Nice Value	0
Transfer Rate	145560 (Events/Min)
Successful Attempt Rate	208020 (Attempts/Hour)

The Data Transfer page lists the following information:

- 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 - number of attempts to transfer data to the FactoryTalk Historian SE per hour.

Data Storage

The Data Storage page storage-related information. To access the page, click **Firmware** in the top navigation bar of the Web Diagnostics interface, and then click *Data Storage* in the left navigation bar.

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)

The Data Storage page displays the following information:

- **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 file transferred, total available, 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.

Web Configuration Server

The Web Configuration Server page displays the Web Configuration Server process name, CPU usage, memory used, up time, priority, Nice value, and a button to restart the web configuration server process. To access the page, click **Firmware** in the top navigation bar of the Web Diagnostics interface, and then click *Web Configuration Server* in the left navigation bar.

Web Configuration Server	
Process Name	webs
CPU Usage	0.00 %
Memory Used	6 MB
Up Time	1:27.01
Priority	15
Nice Value	0
Restart Webs	<input type="button" value="Restart"/>

The Web Configuration Server page lists the following information:

- 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.
- Restart Webs - restarts the web configuration server process.

Web Diagnostics Server

The Web Diagnostics Server page displays the Web Diagnostics Server process name, CPU usage, memory used, up time, priority, and Nice value. To access the page, click **Firmware** in the top navigation bar of the Web Diagnostics interface, and then click *Web Diagnostics Server* in the left navigation bar.

Web Diagnostics Server	
Process Name	webdiagnostics
CPU Usage	0.00 %
Memory Used	4 MB
Up Time	0:03.07
Priority	17
Nice Value	0

The Web Diagnostics Server page lists the following information:

- 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

Each time the module is rebooted, the time, source (server), and message are recorded in the startup log. To access the page, click **Firmware** in the top navigation bar of the Web Diagnostics interface, and then click *Startup Log* in the left navigation bar.

To search the startup log, enter the time parameters, the source you want to search for, and the maximum number of records you want the search to return. Click [Search].



See “Start and End Times” for more details about time options.

Startup Log

Time Source Message Count

Time	Source	Message
18-Dec-09 19:28:31	ME-Installation	[INFO] Upgrade platform drivers and library...
18-Dec-09 19:28:32	ME-Installation	[INFO] Removing old firmware...
18-Dec-09 19:28:33	ME-Installation	[INFO] Checking piadmin user...
18-Dec-09 19:30:33	ME-Installation	[INFO] Copied datatransfer to me.
18-Dec-09 19:30:33	ME-Installation	[INFO] Copied identity_2g.xml for dataserver.
18-Dec-09 19:30:33	ME-Installation	[INFO] Copied lib to me.
18-Dec-09 19:30:33	ME-Installation	[INFO] Copied webconfiguration to me.
18-Dec-09 19:30:33	ME-Installation	[INFO] Copied webdiagnostics to me.
18-Dec-09 19:30:33	ME-Installation	[INFO] Linked /mnt/applog/PIlog to /opt/PI/log.
18-Dec-09 19:30:33	ME-Installation	[INFO] Use new GUI.
18-Dec-09 19:30:34	ME-Installation	[INFO] Copied pinapplication to me.

25 Page 1 of 7 Displaying 1 to 25 of 174 items

Core Dump Directory

This list contains all core dumps stored on the FactoryTalk Historian ME. To access the page, click **Firmware** in the top navigation bar of the Web Diagnostics interface, and then click *Core Dump Directory* in the left navigation bar.

To download a core dump file, highlight it in the list and click [Download]. To delete a core dump file, highlight the file and click [Delete].

Core Dump Directory

File Name	Size	Last Modification Time
core.webs.2230	4.9 M	18-Dec-09 20:27:22

25 Page 1 of 1 Displaying 1 to 1 of 1 items

Download Delete

PI Commands



Executing some PI commands can irreparably damage the data server, stored data, and possibly the FactoryTalk Historian ME module. Rockwell recommends you consult with Rockwell Technical Support before executing any PI command.

The PI commands page lists all available PI commands. To access the page, click **Firmware** in the top navigation bar of the Web Diagnostics interface, and then click *PI Commands* in the left navigation bar. If the Options field remains blank and you click [Execute], a list of valid PI options will display. To execute a command, enter the command in the options field and click [Execute].

PI Commands

Command:

Options:

Execution Result:

```
Usage: pidiag [opts]
-ad          dump archive manager data file
-adg <version> 'path' downgrade archive file(s) to a specific version
-and 'path'  dump the archive file header
-ar ['path'] recover archive manager data file
-ara        auto recover archive manager data file
-archk 'path' archive integrity check
-assert     Force an assertion. Note: should be a no-op for release builds.
-cid [<ServerID> <APIServerID>][[-install]][[-upgrade]]
            Create Server ID file optionally passing Server ID and API ID.
            API ID must be an integer.
            Server ID may be a GUID or an integer.
            -upgrade option creates Server ID file for a system upgrade.
            Server ID and API ID are set to integer based on host name.
            -install option creates Server ID file for a new installation.
            Server ID is set to a UID.
            API ID is set to integer based on host name.
-crash      simulate a process crash
-dapi [hostname]
            Create and display API Server ID based on supplied host name.
            Machine host name is used if host name is not supplied.
-did        Dump Server ID file.
-e code     translate error code
-fb 'path'  dump file base data file
-fbc 'path' compact a file base data file
-fbf 'path' <'outpath'> recover (fix) file base data file index
            optionally copying recoverable records to another file.
-getpipcpath display the PIPC home directory
-host       display host information as used for Trust-Login
-host -file <filename> Produce machine signature file (for licensing)
-host -compare <filename[,filename]> Compare a machine signature file
            to the local machine or to another signature file
-machine    machine and compile information
-n number   format and display number as various types
-stack <0|1> Purposely over-write the stack. If non-zero arg is passed
            stack protection pages are inserted before the over-write.
```

Logs Download




Any kind of firmware upgrade or reinstall will clear out all logs. A firmware upgrade will preserve archived data and application configuration information, but a reinstall 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.

To access the page, click **Firmware** in the top navigation bar of the Web Diagnostics interface, and then click *Logs Download* in the left navigation bar.

This list 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.

Logs Download


 Info: Log file packaged successfully.
The packaged log file would be removed automatically in 1 hour!

Existed Packaged Log File	loginfo.tar.gz
Package Time	21-Dec-09 11:24:44
Size	31.9 K

A

FactoryTalk Historian ME Rule Editor

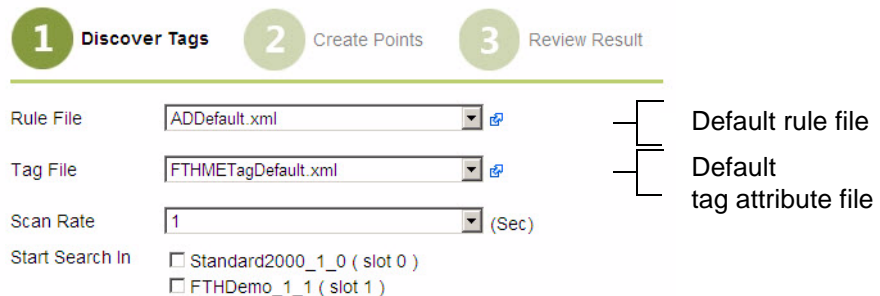
The FactoryTalk Historian ME Rule Editor allows you to create, change, and delete custom rules for use in the point discovery process. After you create rule files, you can upload them to the module using the Upload Management section of FactoryTalk Historian ME web interface. Tags that match the rules you create will be found and added to the FactoryTalk Historian ME server as part of the tag discovery process in the Add Points Wizard.

 See “Managing Points” for further information about the Add Points Wizard.


This appendix contains the following sections:


- “Rule Editor Overview”
- “Defining Rule Files”
- “Defining Rules”
- “Creating Tag Attribute Files”

Add Points Wizard



1 Discover Tags 2 Create Points 3 Review Result

Rule File: 

Tag File: 

Scan Rate: (Sec)

Start Search In: Standard2000_1_0 (slot 0)
 FTHDemo_1_1 (slot 1)

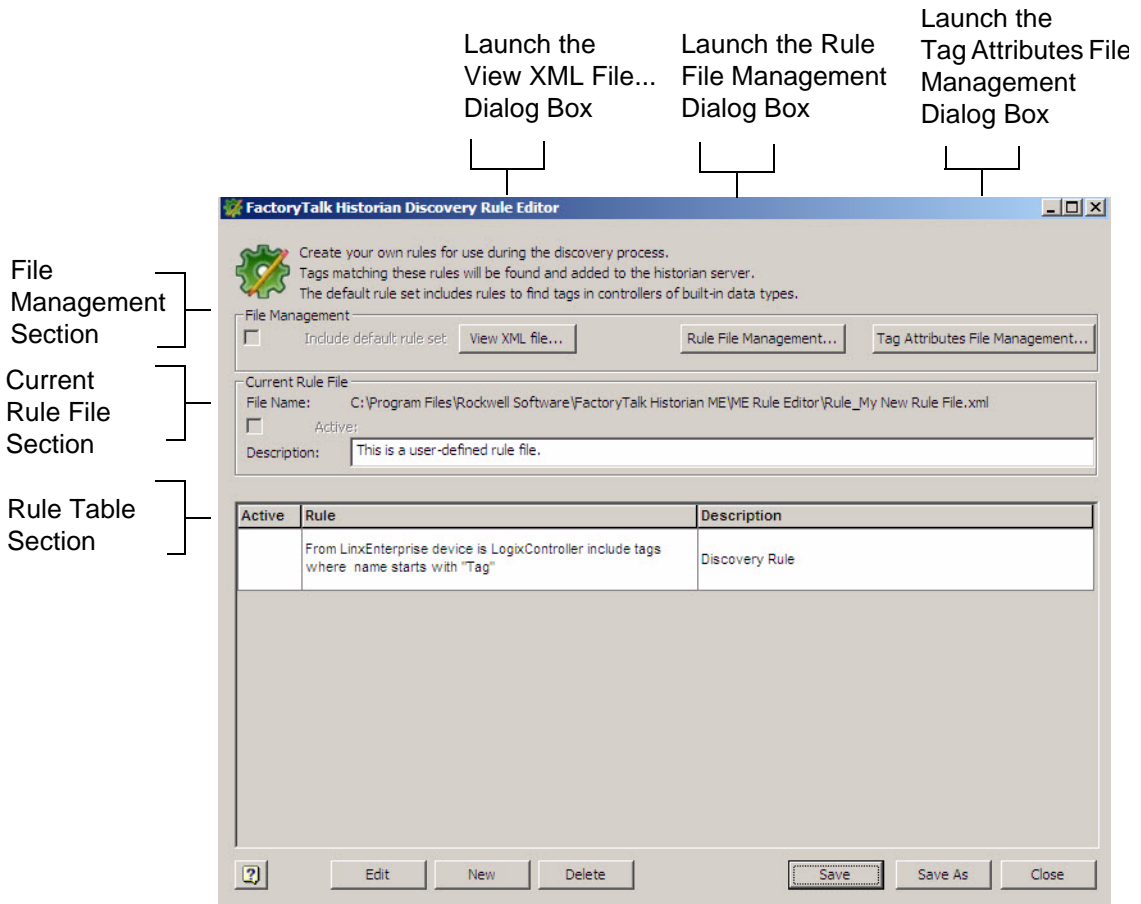
Default rule file
Default tag attribute file

The Rule Editor is shipped as part of the Client Tools CD included with your module. To use the Rule Editor, first install it from the CD. See “Installing FactoryTalk Historian ME Rule Editor” for installation instructions.

If you are using FactoryTalk Historian ME with FactoryTalk Historian SE, you can use the FactoryTalk Historian SE Rule Editor.

Rule Editor Overview

To launch the Rule Editor, go to the Start menu, and click Programs > Rockwell Software > FactoryTalk Historian ME > Rule Editor. The initial Rule Editor dialog box contains three sections, 1) File Management, 2) Current Rule File, and 3) the Rule table, as well as links to three dialog boxes, 1) View XML File..., 2) Rule File Management, and 3) Tag Attributes File Management.



File Management Settings

The File Management section contains the following information:

- Include default rule set

Select this option if you want to use the default rules during point discovery. Clear this option if you do not want the default rule set to be used during the discovery process. The default rule set includes rules to find tags in controllers using the built-in data types such as SINT, DINT, REAL. It also includes other rules such as those that identify tag members.

For a complete list of the default rules, read the ADDefault.xml file, by clicking either [View XML file...] or the View icon in Step 1: Discover Tags of the Add Points Wizard.

When working with user-defined and default rule files, note the following:

- The rule(s) defined in the user-defined rule file take precedence over the rules defined in the default rule file if there is a conflict. For example, assume the user-defined rule file has a rule where it wants to include tags whose name contains the alphabetical character *p*. Also assume that the default rule file excludes tags whose name contains the word *program* and the Include program default rule set option is selected.
- During the point discovery process, both rule files are used. However, the rules from the user-defined rule file take precedence over rules from the default rule file. As a result data points whose name contains the letter *p* will be discovered, even though the default rule file excludes tags with names containing the word *program* in them.
- Duplicate tags (that is, tags found by both rule files) are displayed only once. For example, if the user-defined rule file discovers five data points (tags) that the default rule file also finds, those five tags will be displayed, not two sets of five identical tags.

- View XML file...

Click to view the default rule file, ADDefault.xml.

- Rule File Management...

Click to view the User Defined Rule File List dialog box, which provides a means to create and manage your rule files.

- Tag Attributes File Management...

Click to view the Tag Attribute File List dialog box, which provides a means to create and manage your Tag Attributes files.

Current Rule File Settings

The Current Rule File section contains the following information:

- File Name - displays the location of the user-defined rule file you selected from the FactoryTalk Historian ME User Defined Rule File List dialog box.
- Active - if selected, indicates that the current user-defined rule file will be used during the discovery process. This field is read-only.
- Description - enter a description of the user-defined rule file up to 200 characters.

Rule Table Settings

The Rule table contains the following information:

- Active - select to use the rule during the point discovery process.
- Rule - displays the rule file name. It is automatically populated from the Define Discovery Rule dialog box. Any rules you have created are listed here.
- Description - displays the rule description. This column is automatically populated from the Define Discovery Rule dialog box when you create a new rule using the New button.

Defining Rule Files

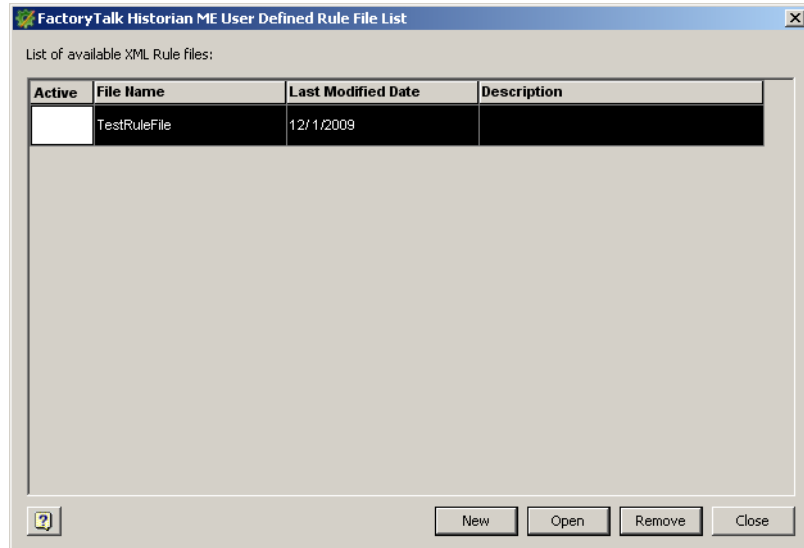
By default, FactoryTalk Historian ME provides a rule file named *ADDefault.xml*, but you can create your own rule file. The rule file you create is stored on the client computer and must be uploaded to the module before you can use it for discovering tags. Rule files are used to discover data points that exist within the controller by using the rules you create.

The Tag Attribute files are created in the Tag Attribute File dialog box. They are used to assign specific attributes to the points that are discovered. If you choose not to create a Tag Attribute file, FactoryTalk Historian ME will use a default Tag Attribute file named *FTHMETagDefault.xml*.

By default, rule files are stored in the C:\Program Files\Rockwell Software\FactoryTalk Historian M\Rule Editor directory.

To create a new rule file:

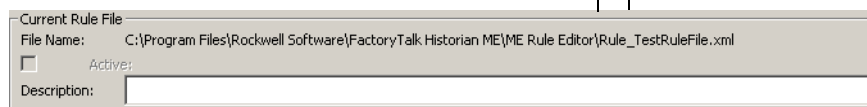
1. Click [Rule File Management...]. This opens the User Defined Rule File List dialog.



The dialog box contains a list of available user-defined You can create multiple user-defined rule files. Within each user-defined file, you can create multiple rules and associate each rule with a Tag Attribute file. However, you can only use one rule file at a time using the Add Points Wizard in the FactoryTalk Historian ME web interface.

2. Click [New] to add a new rule file.
3. Enter a rule file name and optional description, and then click [OK].
4. Select the new rule file in the User Defined Rule File List dialog and click [Open]. This closes the dialog and sets the selected rule file as the current rule file. Notice that the newly created file is prepended with "Rule_".

Note that "Rule_" is prepended to the newly created rule filename

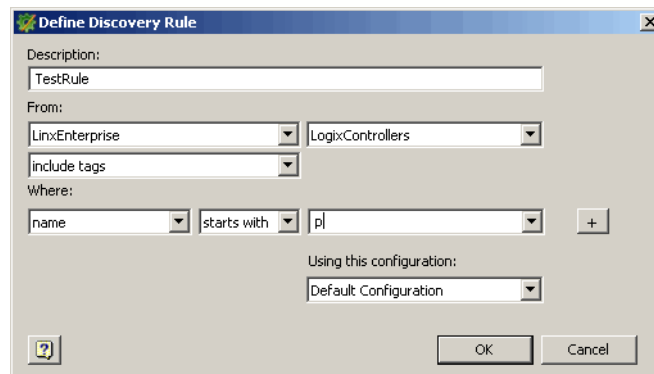


5. (Optional) Create a tag attribute file. Go to “Creating Tag Attribute Files” for details.
6. Add a rule to the current rule file. See “Defining Rules” for more details.
7. Click [Save] to save your work.

Defining Rules

Once you have your rule file created, use the following steps to add rules to the file. When defining rules, note the following:

- The data point (tag) name in a FactoryTalk Historian ME consists of multiple nodes separated by a period “.”
 - When you search with a rule that has more than one condition defined, all conditions have to be met within a single controller.
1. Click [New]. This opens the Define Discovery Rule dialog.



Use this dialog to specify the rule or condition for use in the point discovery process. The data points (tags) that are found during the discovery process are listed and can then be added to the FactoryTalk Historian ME server. This is also where you associate a Tag Attribute file with a rule. The result of associating a Tag Attribute file with a point discovery rule is that all FactoryTalk Historian ME points discovered using that rule take on the attributes defined in the Tag Attribute file. This is useful in cases where you want all points that were discovered using the same rule to have the same set of attributes.

2. Define a description for the rule. This description displays in the FactoryTalk Historian ME Rule Editor list.
3. In the From: section, select the source of historical data.
 - First drop-down menu
Use the default selection, LinxEnterprise.
 - Second drop-down menu
Use the default selection, LogixController. By default, FactoryTalk Historian ME limits its discovery to 2000 tag points because the default item count in the user-defined rule file is set to 2000 tag points when LogixControllers is selected as a data source. The LogixController option includes all ControlLogix controllers. To change the item count, and, therefore, change the tag point discovery limit, change the value in the following rule in the user-defined rule file:

```
Rule where="Item.Count LTE ('2000')"
```

The XML file is located in the FactoryTalk Historian ME Rule Editor install folder (C:\Program Files\Rockwell Software\FactoryTalk Historian ME\Rule Editor). This is the only default install folder for the Rule Editor. You must open the file from that folder to edit it.
 - Third drop-down menu
Select one of the following:
 - ▣ include tags
Select if this is an inclusion rule.
 - ▣ exclude tags
Select if this is an exclusion rule.
4. In the Where: section, define the conditions of the rule.
 - First drop-down menu - Select one of the following:
 - ▣ name
Select this option to discover tags based on a match to a tag name.
 - ▣ member
Select this option to discover tags based on a match to a member name. Member is the element of a user-defined tag (UDT). If you select this option, another row of fields displays that enable you to further filter your search

based on the sub-elements of the UDT. See “Add these historian points” below.

- data type
Select this option to discover tags based on a match to a data type.
- Second drop-down menu: select one of the following:
 - starts with
Select if the name or data type should start with the string in the string entry field. This option is only available if you have selected Where: name from the list above.
 - contains
Select if the name or data type should contain the string in the string entry field. This option is only available if you have selected Where: name from the list above.
 - ends with
Select if the name or data type should end with the string in the string entry field. This option is only available if you have selected Where: name from the list above.
 - is
Select if the name or data type should be the same as the string in the string entry field.
- Third drop-down menu
Select a string to match in the rule. The list displays the last ten strings used in any of the string fields (strings are shared between all string fields on the dialog boxes).
- Add these historian points
(Displays only if you select Where: member from the list above.) Select the element within the member (UDT) on which you want to search.
- [+] button
Click to enable a new row of fields that allow entry of another set of rule criteria. From the and drop-down, select and to include the next rule in the discovery process, or select or to meet any of the rules in the discovery process.

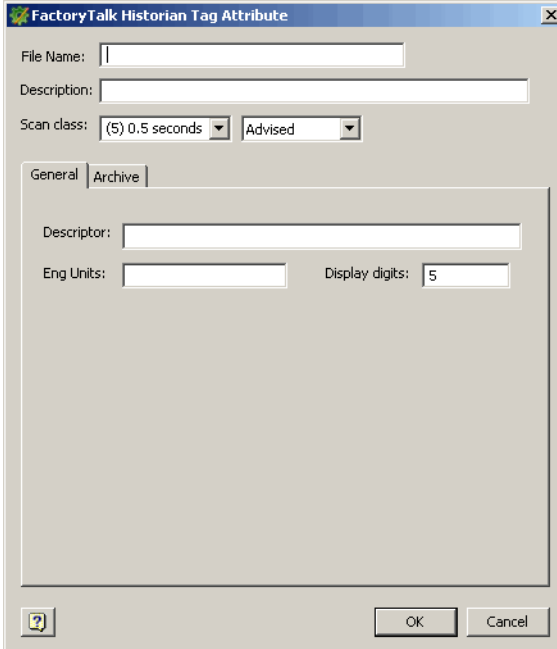
- Using this configuration

Select a Tag Attribute File from the list. If you do not select a Tag Attribute file, the default configuration file (FTHMETagDefault.xml) will be used.

5. Click [OK]. The new rule displays in the Rule Table of the FactoryTalk Historian ME Rule Editor.

Creating Tag Attribute Files

FactoryTalk Historian ME uses a Tag Attribute file named FTHMETagDefault.xml by default. However, you can create your own Tag Attribute files. Use the Tag Attribute File List dialog to create a new tag attribute file or edit an existing file. The Tag Attribute File dialog provides a subset of all of the available attributes that can be assigned. You associate a Tag Attribute file with a discovery rule, which results in all points discovered using that rule acquiring the attributes defined in the Tag Attribute file.



The screenshot shows the 'FactoryTalk Historian Tag Attribute' dialog box. It has a title bar with a question mark icon and a close button. The dialog contains the following fields and controls:

- File Name:** A text input field.
- Description:** A text input field.
- Scan class:** Two dropdown menus. The first is set to '(5) 0.5 seconds' and the second is set to 'Advised'.
- General / Archive:** Two tabs. The 'General' tab is selected.
- Descriptor:** A text input field.
- Eng Units:** A text input field.
- Display digits:** A text input field with the value '5'.
- Buttons:** A help icon (question mark in a square) on the bottom left, and 'OK' and 'Cancel' buttons on the bottom right.

1. Access this dialog by clicking [Tag Attributes File Management...] in the Rule Editor.
2. Click either [New] to add a new tag attribute file or select a file and click [Edit] to edit an existing tag attribute file.
3. Define the following properties:

- ▣ File Name

Enter a name for the attribute file.

- ▣ Description

Enter a description for the attribute file. A maximum of 80 characters is allowed.

- ▣ Scan class

Select a scan rate and scan class. The number shown in parentheses in the left-hand Scan class drop-down menu is associated with a scan frequency value that indicates how often the Data Collection interface reads values from the Controller.

- ▣ Select a scan rate from the left-hand Scan class drop-down menu. The scan rate is the time interval at which points will be collected.

- ▣ Select a scan type from the right-hand Scan class drop-down menu.

4. Specify the following general tag attributes under the General tab:

- ▣ Descriptor

Specifies a text field that appears on various client application displays and may be used in reports. The descriptor defined here will be listed under the Extended Description field for the point. For example, this text can be used as a basis for a tag search or in a trend display. It may be of any length up to 65,535 characters. When this value is read, it is truncated to 26 characters. Some interfaces use the descriptor for tag configuration on an external system. For those cases, do not use quotes or wild card characters.



See "Extended Description: Trigger Conditions" for more details on defining the descriptor.

- ▣ Eng Units

Specifies the unit of measurement in string format. The string may be of any length; however, the PI API will retrieve only the first 12 characters. Engineering

unit strings are case-preserving and case-insensitive. The system trims leading and trailing blank spaces during input.

A single quote (') in a string must be preceded by a double quote ("). Similarly, a double quote in a string must be preceded by a single quote. Long strings can be used for more readable engineering units.

■ Display Digits

Controls the format of numeric values on screens and in reports. A zero or positive number indicates the number of digits to display to the right of the decimal point. A negative number indicates the number of significant digits to display. In this case, the absolute value of Display digits is the number of significant digits.

The following table shows how a value of 23.45 would appear on the screen for different values of Display digits:

Display Digits Value	Displayed Value
3	23.450
2	23.45
1	23.5
0	23.
-1	2E+001

- Specify the following attributes for tags you want archived under the Archive tab.

■ Typical value

Enter a reasonable value for a point. For a numeric tag, it must be greater than or equal to the value of the **Zero** property, and less than or equal to the value of the Zero property plus the value of the **Span** property.

■ Zero

Enter 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.

■ Span

Enter 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, Span is used with Zero for scaling values in the archive. Span must be a positive value. If the value for a point type float16 point is greater than the top of range, it is recorded in the archive as “Over Range”. For other point types, Zero and Span do not affect the values recorded in the archive. The span is also used when defining a

FactoryTalk Historian ME ProcessBook trend with a vertical scale of database. This attribute is not used for non-numeric points.

■ Step

Defines how numeric archived values are interpolated. The Step flag affects only numeric points. The default behavior, OFF (0), treats archived values as a continuous signal. Adjacent archived values are linearly interpolated. For example, at 12:00:00, the value 101.0 is archived and at 12:01:00, the value 102.0 is archived. A request for the archive value at 12:00:30 would return 101.5.

Step ON (1) treats the archived values discretely. Adjacent archived values are not interpolated; 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 continuous signals should be archived in points with the step flag OFF. Examples might include signals from thermocouples, flow meters, etc. Data coming from discrete measurements should be archived in points with the step flag ON. Examples are sampled laboratory data, batch charge weight. In addition, the step flag affects the compression calculation. When it is ON (1), a linear change of value greater than or equal to CompDev attribute passes compression. This is essentially the same as the exception reporting. When the step flag is OFF, the complete swinging door algorithm is applied.

■ Shutdown

Specifies whether the FactoryTalk Historian ME will automatically add a shutdown event with the time stamp of the FactoryTalk Historian ME server shutdown. 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.

Set Shutdown to ON (1) to record shutdown events for this data point (tag). The default is ON.

■ Compressing

The 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, you get more efficient Archive storage. This process is also called compression testing. The name of the compression testing algorithm used for this process is called the swinging door compression algorithm.

- To set compression specification attributes, you must set the Compressing Flag to ON (1). Turn the Compression Flag to ON (1) for all real-time points in the system.
- Set compressing to OFF (0) for laboratory and manually entered points so all values are archived. Setting compressing OFF means all points will be archived.

Compression affects points of type Digital, since a new value is recorded only when the current value changes. Points of type String have a similar behavior; new points pass compression only when the value changes. Exception Deviation.

The 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.

- Exception Deviation (ExcDev attribute)

Specifies in engineering units how much a point's value must change before the interface considers it as a significant value, and sends it to the server. As a general rule, you should set the exception slightly smaller than the precision of the instrument system.

You can also specify Exception Deviation as a percentage of the Span attribute. A typical value is 1% of Span. Exception Deviation should be less than Compression Deviation by at least a factor of 2. When Exception Deviation is expressed in percentage, it is known as ExDevPercent attribute.

- Exception Minimum (ExcMin attribute)

Specifies a limit on how frequently the interface can report values to the server. For example, if you want the interface to wait a full ten minutes before reporting a new value to the server, then you would set the ExcMin attribute to ten minutes. ExcMin is typically set to zero.

- Exception Maximum (ExcMax attribute)

Specifies a limit on how long the interface can go without reporting a value to the FactoryTalk Historian ME server. After the ExcMax time period, the interface sends the next new value to the server, regardless of whether the new value is different from the last reported value.

For Digital or String points, only the exception maximum and exception minimum attributes are important. FactoryTalk Historian ME ignores the exception deviation specification for them.



See "Exception Filtering" for more information.

- Compression Deviation (CompDev attribute)

Specifies in engineering units how much a value may differ from the previous value before it is considered to be a significant value. As a rule of thumb, set CompDev to the precision of the data source or hardware (instrument). Set it a little "loose" to err on the side of collecting, rather than losing data. After collecting data for a while, go back and check the data for your most important tags and adjust CompDev if necessary.

Setting the CompDev attribute value too low causes too little data compression and wastes space in the archive. Setting the value too high causes loss of useful data. For typical flows, pressures, and levels, a typical deviation specification of 1% or 2% of Span is used. For temperatures, the typical deviation is usually 1 or 2 degrees. However, each installation is unique and these values should be tuned to your specific application.

You can also specify Compression Deviation as a percentage of the Span attribute. When Compression Deviation is expressed in percentage, it is known as CompDevPercent attribute.

- Compression Minimum (CompMin attribute)

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. For data points associated with interfaces that send exception reports, set CompMin to 0.

- Compression Maximum (CompMax attribute)

A point is archived if the elapsed time since the previous time a point was saved is greater than the maximum time. The recommended maximum time

specification is one work shift (for example, 8 hours). Duplicate values will be archived if the elapsed time exceeds CompMax. You typically set CompMax to the same value for all points in the system.

For Digital or String points, only the compression maximum and compression minimum attributes are important. FactoryTalk Historian ME ignores the compression deviation specification for them.



See "Compression Filtering" for more information.

6. Click [OK] to save the file and return to the Tag Attribute File List dialog box. By default, tag attribute files are stored in the same location as the rule file. Tag attribute file names have a TCFG prefix. The tag attribute file is displayed in the Tag Attribute File List dialog box where you can open it for editing or delete it.
7. After the tag attribute file has been created, you must upload the file to the FactoryTalk Historian ME. You must have administrator privileges to upload files.

After you create the Tag Attribute file, go to the FactoryTalk Historian ME web interface. Select **Advanced** in the top navigation, then click *Upload Management*, and upload the file to the FactoryTalk Historian ME. You must have administrator privileges to upload files. Ensure that you select the proper file type for the uploaded file. Select *DiscoveryRuleFile* from the drop-down menu for rule files, and select *TagAttributeFile* for tag attribute files.

You must select the File Type that matches the uploaded file:
AutoDiscoveryRuleFile or *TagAttributeFile*

The screenshot shows the 'Upload Management' interface. At the top, there is a header 'Upload Management'. Below it, there is a text field 'Please Select File' containing 'iesEtc\NewerRuleFile.xml' and a 'Browse...' button. To the right is a 'File Type' dropdown menu currently set to 'AutoDiscoveryRuleFile'. A dropdown list is open, showing options: 'AutoDiscoveryRuleFile', 'TagAttributeFile', 'CA Certificate', 'Server Certificate', and 'Private Key'. An 'Upload To Module' button is to the right of the dropdown. Below these elements is a table with columns 'Filename', 'Type', and 'Last Modified Time'. At the bottom, there are three buttons: 'Check Format', 'View', and 'Delete'.

B

Data Transfer Sample Scenario

The FactoryTalk Historian ME 1G and 2G modules use a CompactFlash memory card to store logged data. Once the module archive becomes full of logged data, it automatically begins overwriting the oldest data. To preserve data collected by the module for long-term storage, you can transfer it to the FactoryTalk Historian SE server.

This section provides a sample scenario for transferring the data logged in the FactoryTalk Historian ME module to the FactoryTalk Historian SE server. It includes the following sections:

- “Configuring Data Transfer Settings”
- “Initiating Data Transfer”
- “Using FactoryTalk Historian DataLink”

Configuring Data Transfer Settings

For the FactoryTalk Historian SE server to receive data from a FactoryTalk Historian ME module, you must ensure that:

- Necessary licenses are installed and assigned on the FactoryTalk Historian SE server.
- Network connections and associated security configurations are set up and functioning properly between the FactoryTalk Historian ME and the FactoryTalk Historian SE.
- Trust connections between the FactoryTalk Historian ME module and the FactoryTalk Historian SE server are configured for data transfer and webs (application).



See “Managing Security Trusts” for more details on trusts.

- Sufficient disk space is available on the FactoryTalk Historian SE server.
- Start time of the archives on the FactoryTalk Historian SE server must be earlier than that of the data to be transferred.

In the sample scenario described in this chapter, a 2500 tag license has been assigned against the FTMS point source in the FactoryTalk Administration Console for the FactoryTalk Historian SE server.

1. Log into the in FactoryTalk Historian ME web interface as a FactoryTalk Security user with Administrator privileges.
2. Click **Configure Historian**, and then click *Data Transfer* in the left navigation bar of the web interface.
3. Enter the host name or IP address of the FactoryTalk Historian SE server in the Host Server field. Rockwell suggests you use the host name.
4. Click [Test Connection].
5. Click [Save].

Values appear in the following fields:

- **FTHSE Licensed Points** - the maximum number of points that have been assigned within that FactoryTalk Historian SE server for FactoryTalk Historian ME points. The values displayed here are read from the FactoryTalk Historian SE server.
- **“FTMS” Points Available** - the number of remaining licensed points that can still be configured for Data Transfer. *FTMS* means **F**actory**T**alk **H**istorian **M**E-to-FactoryTalk Historian **S**E.

For example, when a 2500 tag license has been assigned in the FactoryTalk Historian SE server and 1001 points are used against that license, 1499 points remain to be configured for transfer. These 1499 points are available FTMS points.

6. Make sure Auto Transfer is enabled. This feature is enabled by default.

Auto Transfer allows any point configured for Data Collection to be transferred automatically to the FactoryTalk Historian SE server.

Data Transfer**FactoryTalk Historian SE Parameters**

Host Server	<input type="text" value="10.85.106.50"/>	<input type="button" value="Test Connection"/>
Current Time	9-Jan-10 16:32:41 PST	
Time Offset	0 (Sec)	
FTHSE Licensed Points	10000	
"FTMS" Points Available	3427	

Data Transfer Parameters

Status	Running	<input type="button" value="Start"/>	<input type="button" value="Stop"/>
Maximum Events Per Transfer	<input type="text" value="50000"/>	(Range 5000-150000)	
<input checked="" type="checkbox"/>	Enable Auto Transfer		

Data Transfer Statistics

Transfer Rate	100020 (Events/Min)
Successful Attempt Rate	179040 (Attempts/Hour)

Initiating Data Transfer

To start the transfer of data to the FactoryTalk Historian SE server, select **Configure Historian** from the top navigation bar and then select *Data Transfer* from the left navigation bar.

1. Go to the Data Transfer Parameters section and click [Start].
2. The Status section changes from Stopped to Running.

If the FactoryTalk Historian SE server becomes unavailable, the data will continue to be stored on the module. When the FactoryTalk Historian SE becomes available again, it will automatically reconnect, and the Data Transfer will continue. The Data Transfer process makes a copy of the data. It remains on the module and also exists on the FactoryTalk Historian SE for centrally accessed data and long-term storage.

Using FactoryTalk Historian DataLink

This section presents an example of how to use FactoryTalk Historian DataLink to visualize data from both the FactoryTalk Historian ME and the FactoryTalk Historian SE. It is one of several client applications that can be used with your FactoryTalk Historian ME.



See the “Overview” chapter for more information about supported services, clients, and applications.

FactoryTalk Historian DataLink is a Microsoft Excel add-in and supported client for the FactoryTalk Historian ME. With FactoryTalk Historian DataLink, a user running Excel can exchange information directly with the FactoryTalk Historian system databases.



See the *FactoryTalk Historian SE DataLink User's Guide* for more information about FactoryTalk Historian DataLink.

Defining the Server Connection

Create a server connection to the module and the FactoryTalk Historian SE server:

1. Run Start > Programs > Rockwell Software > FactoryTalk Historian SE > FactoryTalk Historian SE System > About PI-SDK.

You may also open the connection from the PI Add-In menu within Excel.

2. Click on Connections.
3. Select the Server drop-down menu.
4. Define new server connections that point to the IP addresses for:

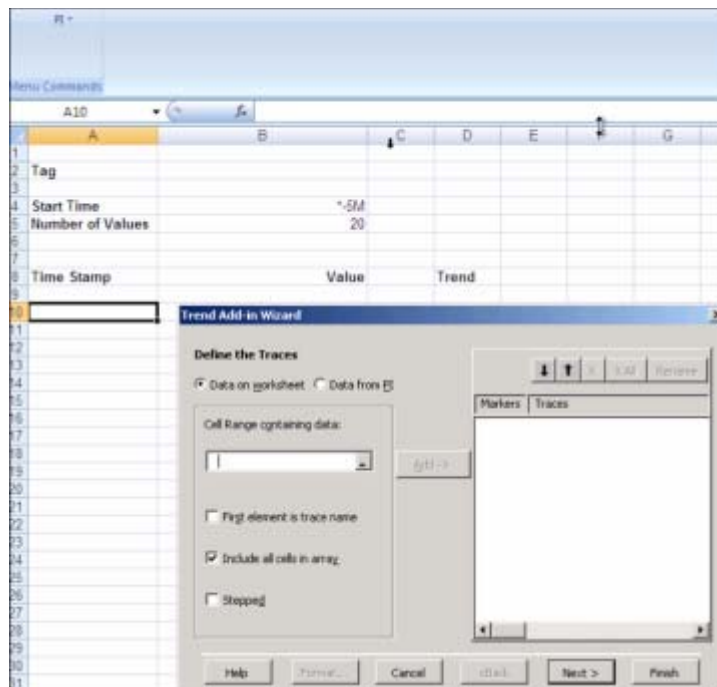
- FactoryTalk Historian SE server
- FactoryTalk Historian ME

The Connections Settings pane will appear for each server checkbox that you select.

Using Excel as an Add-In: Example Scenario

Open Microsoft Excel where FactoryTalk Historian DataLink is registered as an Add-In.

1. Select cell A10.
2. Navigate to the PI Add-In menu.
3. Select PI > Insert Trend...



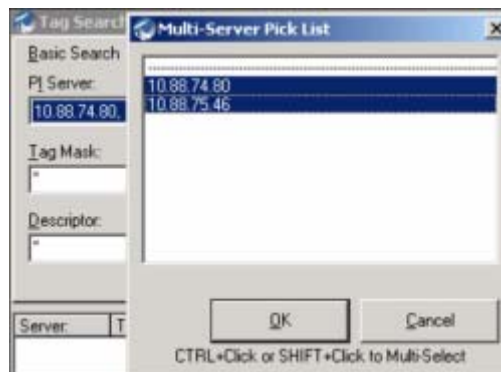
In this example, *MonitorTag* is an example tag that is already created in the FactoryTalk Historian ME module. This tag will be trended and compared to the transferred data for the MonitorTag from the FactoryTalk Historian SE server. Both points will be plotted on the same trend.

4. In the Trend Add-in Wizard dialog, define the following:
 - a. Select the Data from PI radio button.
 - b. Select the IP address of your module in the Server name: drop-down menu.
 - c. Select the Tag Search picker in the Tag name: section.

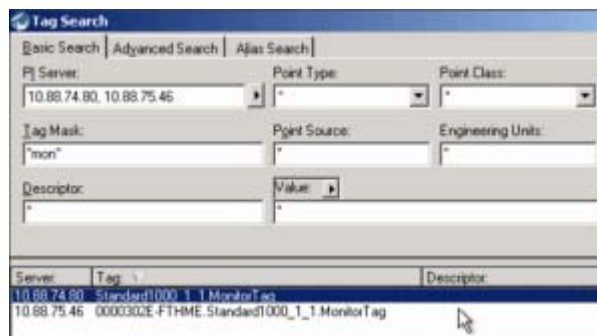


5. Under the FactoryTalk Historian ME server option, select the module IP address from the drop-down menu.
6. Click in the FactoryTalk Historian ME server field.

The Multi-Server Pick List dialog appears.



7. Click [Ctrl]+ and also select the FactoryTalk Historian SE IP address. The FactoryTalk Historian ME server: field will be populated with two IP addresses:
 - One FactoryTalk Historian ME module IP address
 - One FactoryTalk Historian SE server IP address
8. Click [OK] to save the selection.
9. In the Tag Mask: section, type *mon* and click [Search].

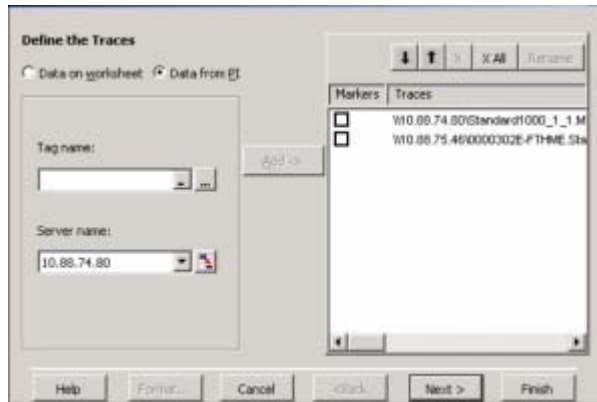


Note that at least two matches appear. One match is from FactoryTalk Historian ME and one from FactoryTalk Historian SE. The FactoryTalk Historian SE point name is the module name (0000302E-FTHME) added as a prefix to the front of the module tag name:

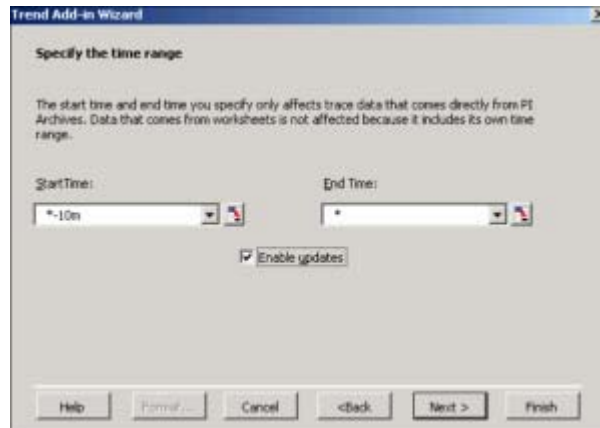
FTHSE_<TagName> = FTHME _<Module_Name>.FTHME _<TagName>

10. Select the MonitorTag from the module.
11. Click [OK] to populate the Trend Add-in Wizard.
12. Repeat steps 4-11 to select the MonitorTag from the FactoryTalk Historian SE server.

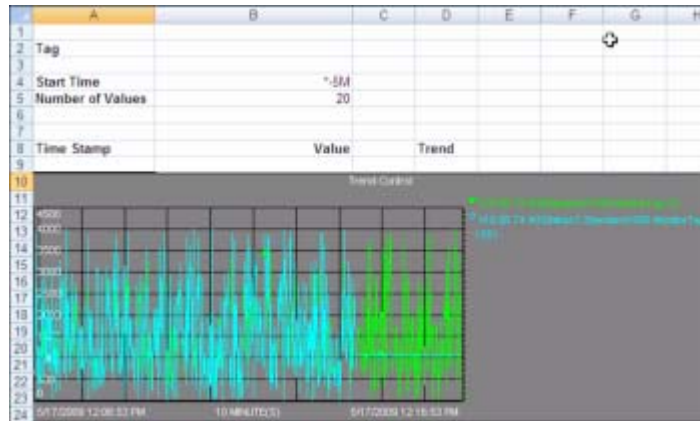
The Trend Add-in Wizard screen should appear as follows:



13. Click [Next >] and modify the Start Time from *-8h to *-10m (the last 10 minutes).
14. Check the Enable updates checkbox.
15. Click [Finish].



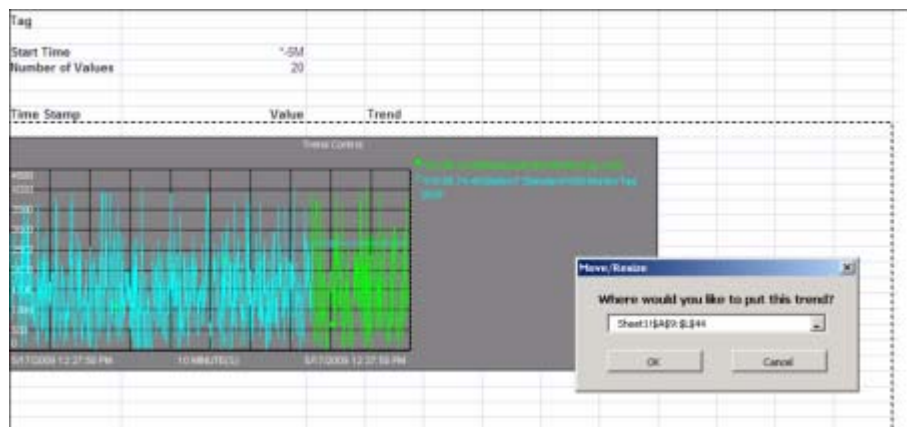
The report should appear as follows:



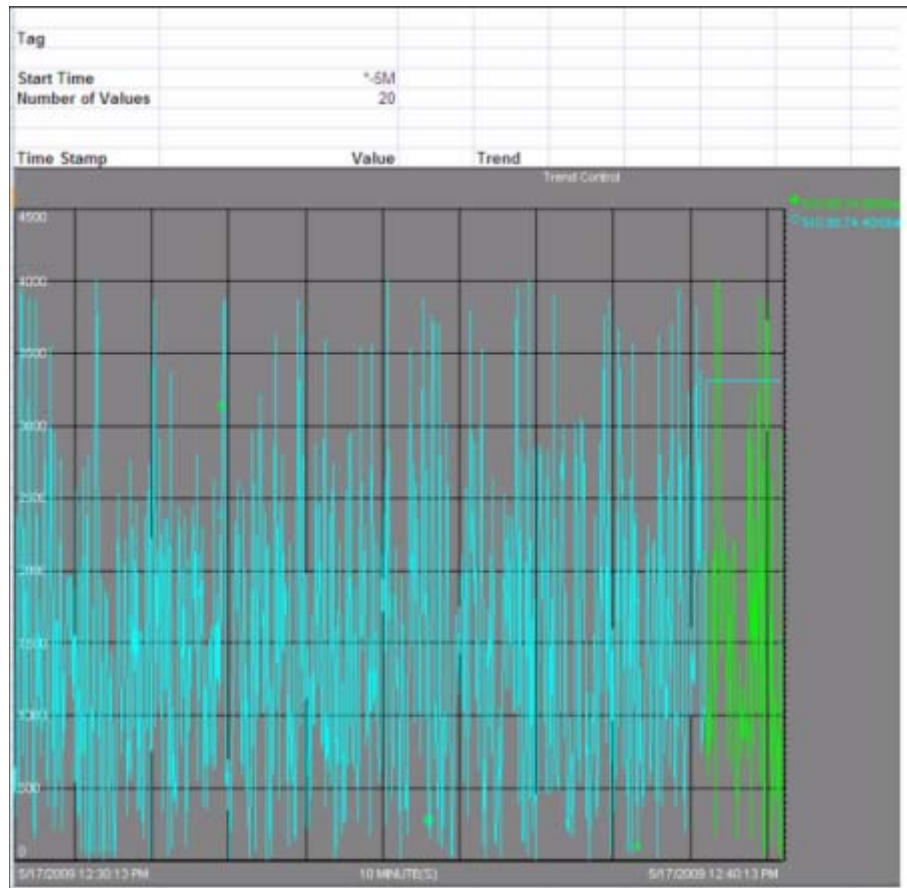
Note that the green line extends from the FactoryTalk Historian ME module and the blue line extends from the FactoryTalk Historian SE server. The module point is a real-time display and the FactoryTalk Historian SE point lags by a couple of minutes. However, the data is identical. Therefore, the point is positioned directly on top of the FactoryTalk Historian ME module point.

16. To enlarge the trend, right-click on it and select Move/Resize...

17. Click and hold the mouse down starting in the bottom right corner and drag to the top left corner to size the area.



18. Click [OK] to view the enlarged trend.



This concludes the sample scenario for transferring the data logged in the FactoryTalk Historian ME module to the FactoryTalk Historian SE server.



FactoryTalk Directory Integration

This appendix describes how to integrate a standalone FactoryTalk Historian ME module into an existing FactoryTalk system using FactoryTalk Directory. Integrating a stand-alone module into an existing FactoryTalk system allows you to perform centralized security administration, and it allows existing FactoryTalk clients to connect to the FactoryTalk Historian ME module.

This appendix also provides an example of how to visualize logged data using a Microsoft Excel add-in and FactoryTalk Historian DataLink. You can also use other FactoryTalk Historian clients (such as FactoryTalk View SE, FactoryTalk VantagePoint, and FactoryTalk Historian ProcessBook) to visualize logged data from a FactoryTalk Historian ME.

This appendix contains the following sections:

- “Integration Prerequisites”
- “Registering the Module in FactoryTalk Directory”
- “Creating a New User”
- “Using FactoryTalk Historian DataLink”

Integration Prerequisites

To register the module in FactoryTalk Directory from a client computer, you must first install:

- FactoryTalk Services Platform CPR 9 SR2
- FactoryTalk Historian Management (located on the Client Tools CD shipped with you module)



See “Client Tools Software” for more information about the client tools.

Before you create a connection and register the module in FactoryTalk Directory, you must set the module security mode in the FactoryTalk Historian ME Web.

1. Click **Configure Historian**, and then click *System Security* in the left navigation bar of the FactoryTalk Historian ME web interface.
2. Go to the Security Mode section and select the FTSecurity radio button (for FactoryTalk Security).

Security Mode

Native

FTSecurity

FT Directory Server :

Secondary Server :

3. Enter IP address of the FactoryTalk Directory server.
4. Enter the IP address of a Secondary Server.
5. Click [Save].

The module will automatically reboot, and the IP address will be verified to determine that it is a valid FactoryTalk Directory computer.



Only Native mode or FactoryTalk Security mode can be active at any one time. If you change the security mode from Native to FactoryTalk Security, the Native security mode will not authenticate. Only FTUsers can use FactoryTalk Security.

Registering the Module in 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.



The FactoryTalk Directory computer must have both FactoryTalk Services Platform installed and Internet Information Service (IIS) configured. In addition, you must install FactoryTalk Web Services to authenticate the security calls from the module. Be sure to install FactoryTalk Security web services during your FactoryTalk Services Platform installation.

Creating the Server Connection

To create the server connection:

1. From your Windows Start menu, navigate to Programs > Rockwell Software > FactoryTalk Historian SE > FactoryTalk Historian SE System > About PI-SDK.
2. Click *Connections* to open the Connection Manager.



3. From the Server drop-down menu, select Add Server...
4. In the Add Server dialog box, enter the module's IP address in the Network Node field.
5. Click [OK].

If a connection was successfully established, the IP address will appear on the left side. If an error occurs, the module might be rebooting. 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.

6. Close the About PI-SDK window.

Creating a FactoryTalk Historian ME Connection

To register the module in the FactoryTalk Directory, you must create a connection for the module.

1. Launch the FactoryTalk Administration Console. From your Windows Start menu, navigate to Programs > Rockwell Software > FactoryTalk Administration Console.

2. Select [OK] to use the Network Directory.

FactoryTalk Historian ME and FactoryTalk Historian SE only support the Network option in FactoryTalk Directory.

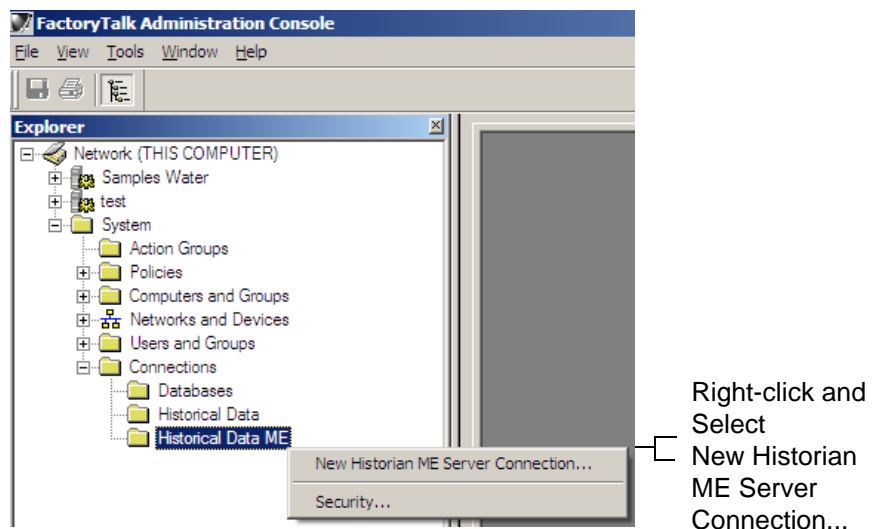
3. In the FactoryTalk Administration Console Explorer window, go to System > Connections.

- ▣ The FactoryTalk Historian SE will be listed under the Historical Data section.
- ▣ The FactoryTalk Historian ME will be listed in the Historical Data ME section.

4. Go to System > Connections > Historical Data ME to register the FactoryTalk Historian ME.

5. Right-click on Historical Data ME.

6. Select New Historian ME Server Connection...



7. Enter 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.
8. Under Server or Collective Name, select your FactoryTalk Historian ME IP address. This address is generated from the server connection just configured.
9. Click [Test Server Connection].

You should receive a *Server found* message. If you do not receive this message within a few minutes, the module is still rebooting. Wait a few more minutes and try again.

10. Click [OK].

After the module is registered within the FactoryTalk Directory, its name appears in the Historical Data ME folder. You may need to expand the folder to display your registered module.

Creating a New User

You can view preconfigured user groups from the FactoryTalk Administration Console. Each user group is created automatically when the FactoryTalk Historian Management Tools are installed. The FTHAdministrators, FTHEngineers, FTHOperators, and FTHSupervisors user groups represent different levels of user security.



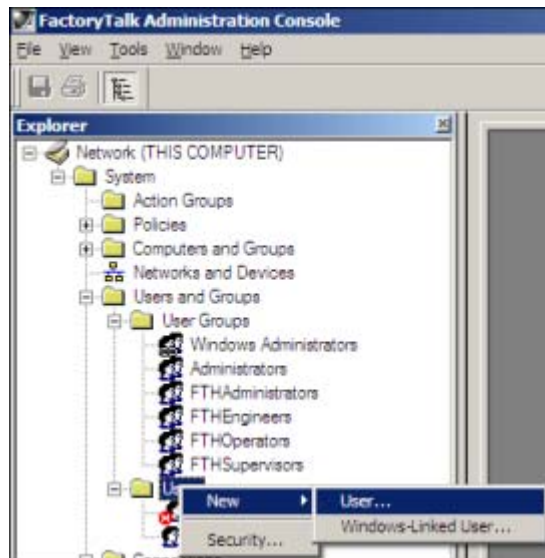
For more information about FactoryTalk Security users and groups, see the *FactoryTalk Security User's Guide*.

The FactoryTalk Historian ME Web login page shows the current FactoryTalk user and the highest privileged group membership.

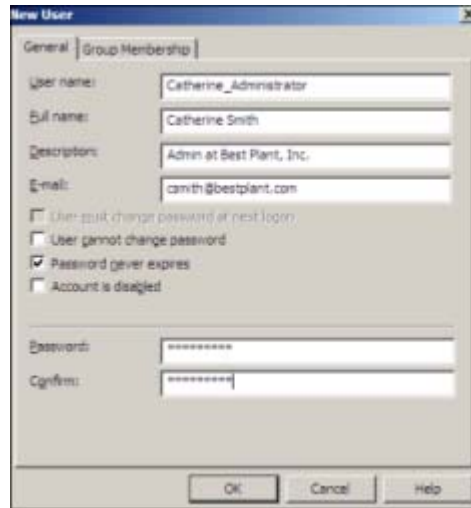


To create a new FactoryTalk Historian ME user in the FactoryTalk Administration Console:

1. Launch the FactoryTalk Administration Console. Go to Start > Programs > Rockwell Software > FactoryTalk Administration Console.
2. Right-click on Users > New > User...

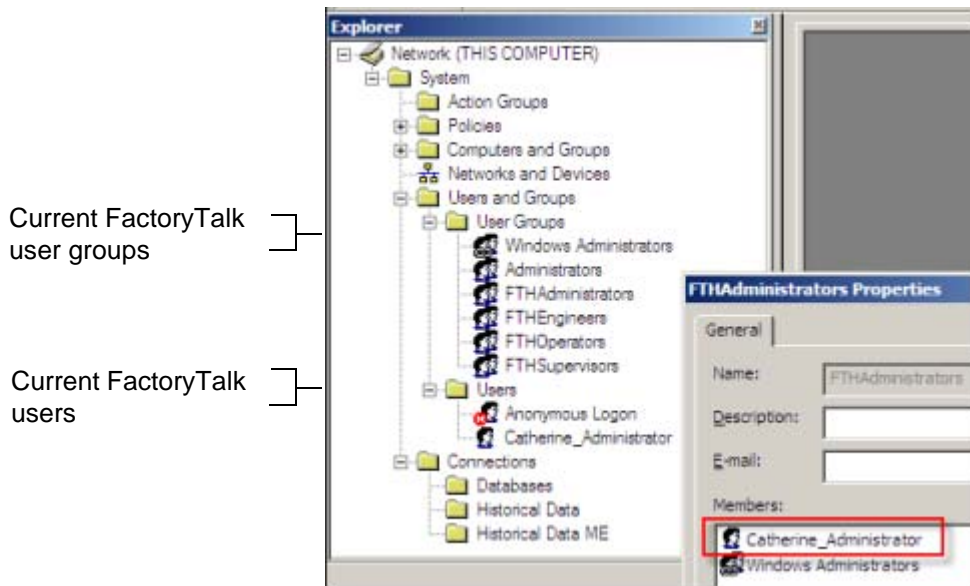


A new user property sheet displays.



3. Populate the new user property sheet with user information.
4. Click the Group Membership tab.
5. Click [Add].
6. Select the FTHAdministrators group.
7. Click [OK] twice.
8. Click the FTHAdministrators option under User Groups.

The FTHAdministrators Properties window will open and the new user is listed as a member in the General tab.



Current FactoryTalk user groups

Current FactoryTalk users

9. Select File > Exit to close the FactoryTalk Administration Console.

You have registered the FactoryTalk Historian ME module within the FactoryTalk Directory, and you have created a new FactoryTalk user in the FactoryTalk Administration Console. Next, FactoryTalk Historian DataLink will be used to demonstrate how you can use one FactoryTalk Historian ME client application to retrieve and display module data.



This example is applicable to native FactoryTalk users. However, Windows-linked users are also supported.

Using FactoryTalk Historian DataLink

FactoryTalk Historian DataLink consists of an add-in for Microsoft Excel. With FactoryTalk Historian DataLink, a user running Excel can exchange information directly with the FactoryTalk Historian ME.



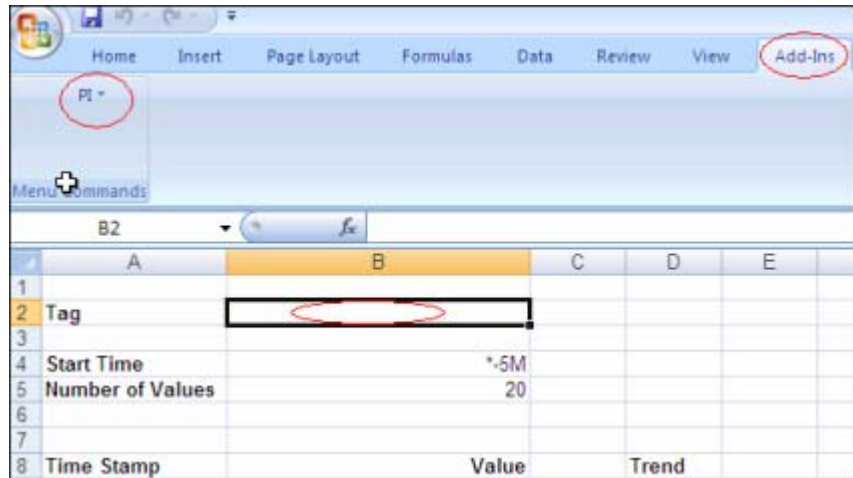
For additional information on FactoryTalk Historian DataLink, see the *FactoryTalk Historian SE DataLink User's Guide*.

This section presents an example of how to use FactoryTalk Historian DataLink to retrieve data from module in both trend and columnar forms. Users are not expected to use the configurations provided in this scenario and sample files are not currently available to users.

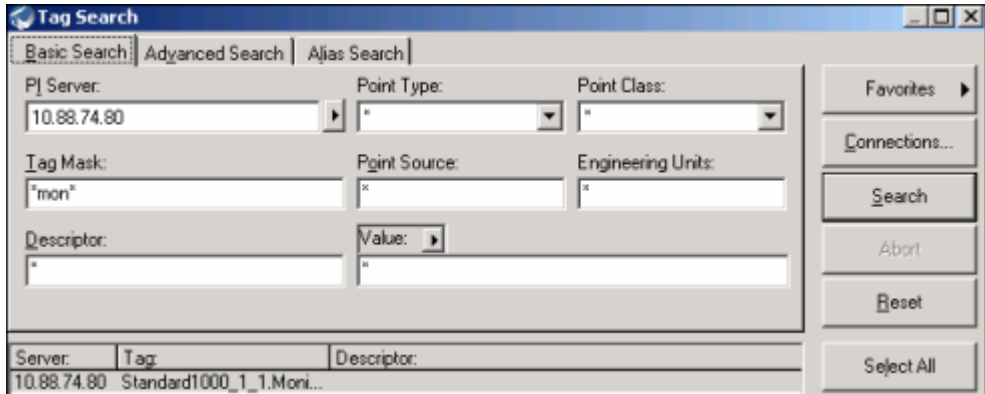
Using DataLink as an Add-In: Sample Scenario

Open Microsoft Excel, where FactoryTalk Historian DataLink is registered as an Add-In. The tag, *MonitorTag*, is a sample tag for a particular time span; it is used to demonstrate the visual data.

1. Select cell B2.
2. Select the Add-Ins tab.
3. Select PI > Tag Search.



4. Verify that the proper server is selected in the FactoryTalk Historian ME server field of the Tag Search dialog. The FactoryTalk Historian ME server field should contain the module IP address.
5. Type in “*mon*” for the Tag Mask and click [Search].

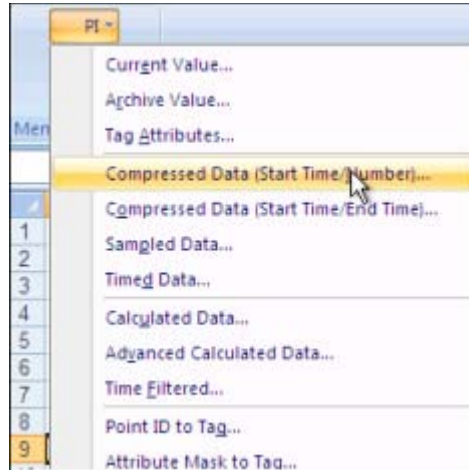


6. Select the Monitor tag and click [OK]. The complete tag name should appear in cell B2.
7. Observe that cells B4 and B5 are pre-populated with the start time (five minutes past) and number of values (20). These values are used when the module is queried in the next step for Monitor tag values.

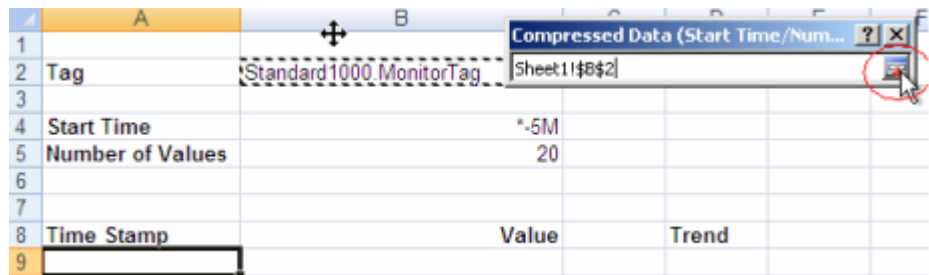
	A	B	C	D
1				
2	Tag	Standard1000_1_1.MonitorTag		
3				
4	Start Time		*-5M	
5	Number of Values		20	
6				
7				
8	Time Stamp		Value	Trend

8. Select cell A9.

9. From the PI menu, select Compressed Data (Start Time/Number)...

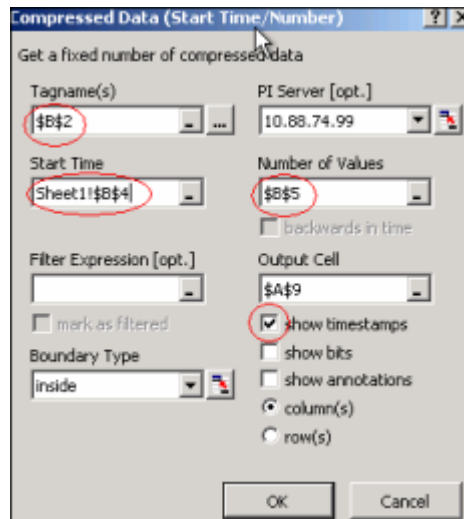


10. Use the cell pick button “_” to populate the Tag Name field cell B2 of the spreadsheet:
- Click the “_” button under the tag name.
 - Select cell B2.
 - Click [Accept].



11. Use the cell pick button “_” to populate the Start Time field from cell B4 of the spreadsheet:
- Click the “_” button under the start time.
 - Select cell B2.

- c. Click [Accept].
 12. Use the cell pick button “_” to populate the Number of Values field from cell B5 of the spreadsheet:
 - a. Click the “_” button under the number of values.
 - b. Select cell B5.
 - c. Click [Accept].
 13. Check the *show timestamps* option.



14. Check the FactoryTalk Historian ME server [opt.] IP Address field to verify that the correct FactoryTalk module server is queried.

15. Click [OK].

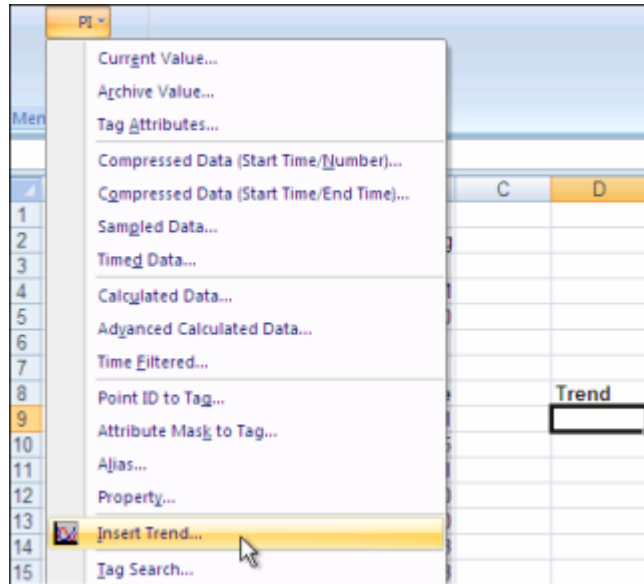
The Time Stamp and Value columns in the spreadsheet are populated with data.

2	Tag	Standard1000_1_1.MonitorTag		
3				
4	Start Time		*-5M	
5	Number of Values		20	
6				
7				
8	Time Stamp		Value	Trend
9	15-Sep-09 18:12:13		2953	
10	15-Sep-09 18:12:14		388	
11	15-Sep-09 18:12:15		829	
12	15-Sep-09 18:12:16		2395	
13	15-Sep-09 18:12:17		2665	
14	15-Sep-09 18:12:18		1210	
15	15-Sep-09 18:12:19		964	
16	15-Sep-09 18:12:20		2395	
17	15-Sep-09 18:12:21		3955	
18	15-Sep-09 18:12:22		1210	
19	15-Sep-09 18:12:23		1993	
20	15-Sep-09 18:12:24		1393	
21	15-Sep-09 18:12:25		988	
22	15-Sep-09 18:12:26		931	
23	15-Sep-09 18:12:27		964	
24	15-Sep-09 18:12:28		1861	
25	15-Sep-09 18:12:29		595	
26	15-Sep-09 18:12:30		1441	
27	15-Sep-09 18:12:31		2833	
28	15-Sep-09 18:12:32		1861	

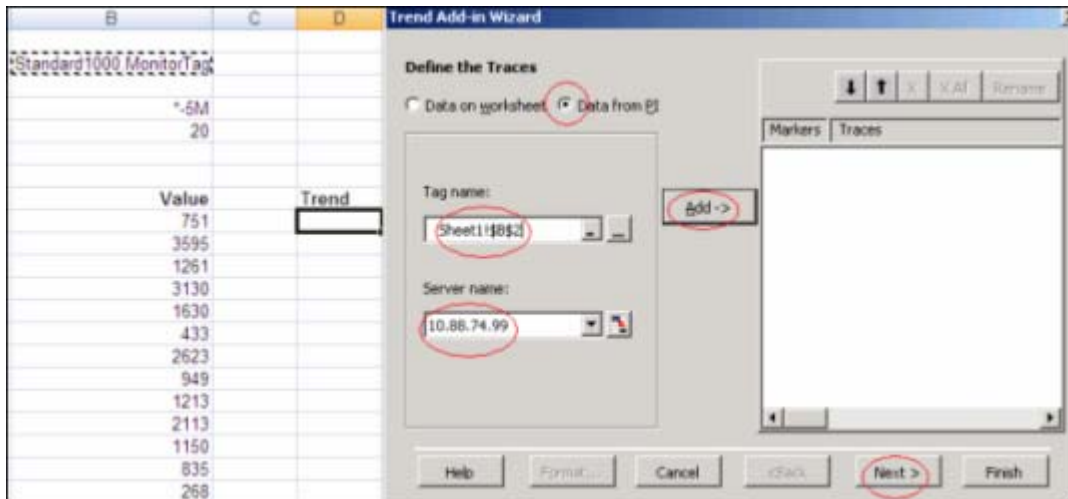
Inserting Trends with the Trend Add-In Wizard

Insert trends using the Trend Add-In wizard.

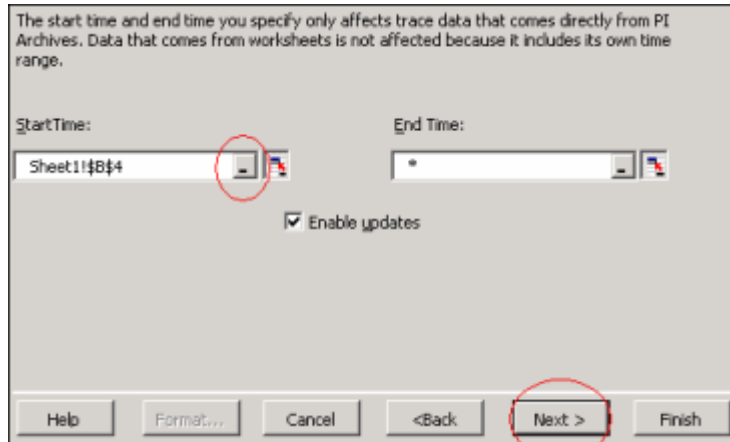
1. Select cell D9.
2. From the PI menu, choose Insert Trend...



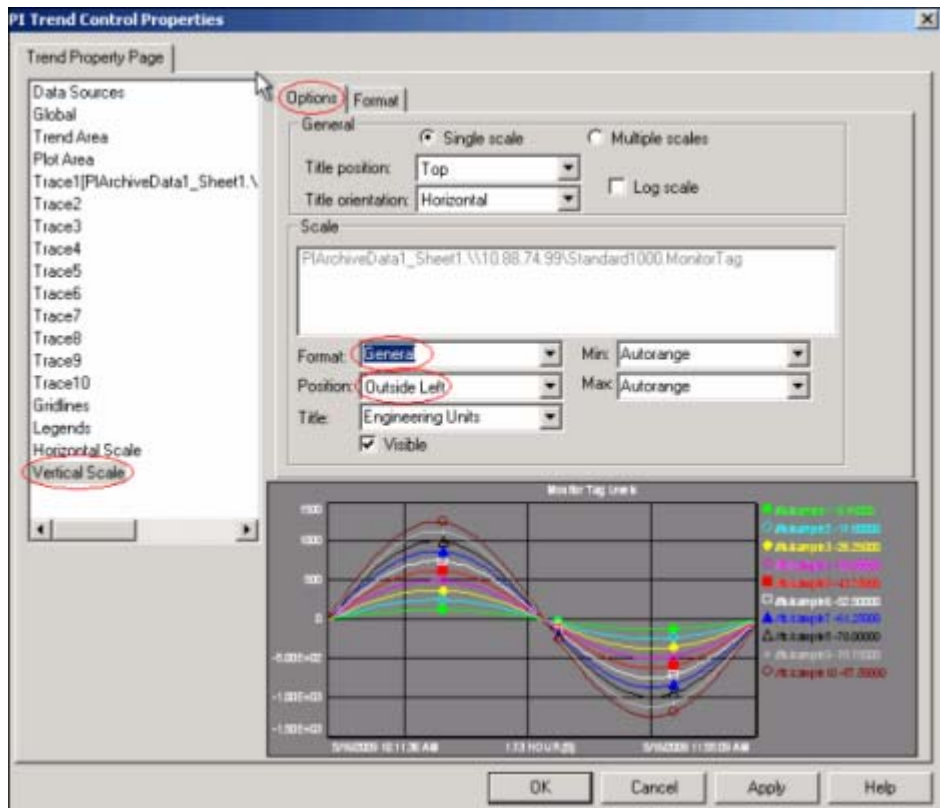
3. In the Trend Add-in Wizard dialog box:
 - a. Select the Data from PI radio button.
 - b. Use the cell picker “_” button to select cell B4 for the tag name.
 - c. Click [Add >].



- d. In the Server name: field, enter the IP address of your module.
 - e. Click [Next >].
 - f. Check Enable updates.
4. Click the reference worksheet button for Start Time.
 - a. Use the cell picker “_” button to select cell B4 for the Start Time.
 - b. Click [Next >].



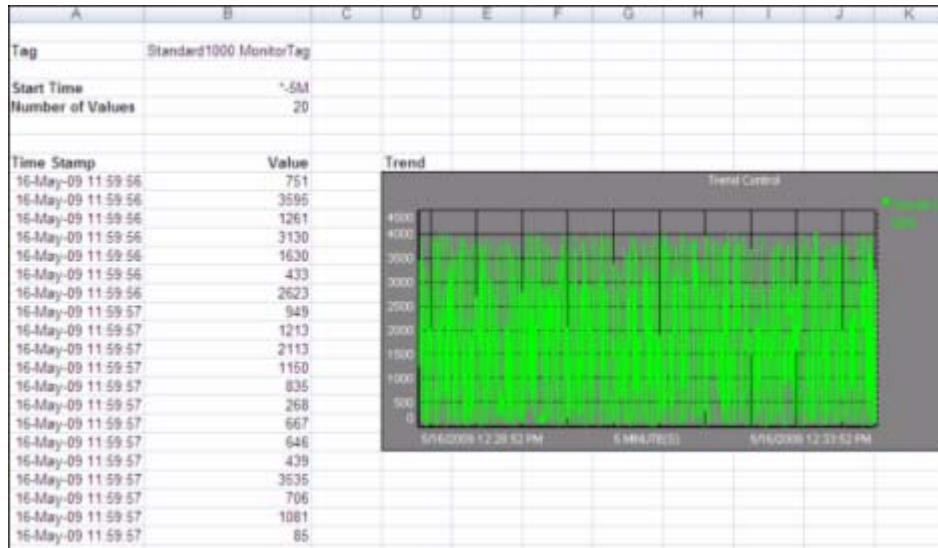
5. Set the optional Trend title to Monitor Tag Levels.
6. Click [Format].
7. Select the Vertical Scale property and in the Options tab:
 - a. Select General from the Format drop-down menu.
 - b. Select Outside Left from the Position drop-down menu.
8. Click [OK].



9. Click [Finish].



The final spreadsheet displays as follows:



This concludes the example description of how to:

- Integrate a standalone FactoryTalk Historian ME module into an existing FactoryTalk system using FactoryTalk Directory.
- Visualize logged data using FactoryTalk Historian DataLink registered as a Microsoft Excel Add-in component.

D

RSLogix 5000 Add-on Profile

The RSLogix 5000 Add-on Profile (AOP) enables integration between a ControlLogix controller and the FactoryTalk Historian ME module. To configure your module in AOP, you need to add the module to the I/O Configuration folder of a project in RSLogix 5000, and then add Ladder logic to your project.

This appendix includes these sections:

- “Using AOP: Sample Scenario”

This section illustrates a sample scenario in which AOP allows a controller in the local chassis to monitor key FactoryTalk Historian ME statistics and control Data Collection start and stop. It demonstrates that a Ladder programmer can write controller logic that uses:

- Input tags to the FactoryTalk Historian ME to monitor key statistics.
- Output tags to make control decisions. The Output tags can determine whether or not to allow Data Collection to start or stop in the FactoryTalk Historian ME. They can also determine if the FactoryTalk Historian ME shuts down or starts up.

- “Using the AOP Module Properties Configuration Tab”

This section describes how to use AOP to restore defaults, reset security, shut down or start up your FactoryTalk Historian ME module after it has been configured in AOP.

The FactoryTalk Historian ME AOP is available on the module Client Tools CD. Click *Install FactoryTalk Historian ME RSLogix 5000 Module Profile* to install AOP. Using the Modules Profiles Setup Wizard, install Rockwell Automation 1756 Historian Module Profiles.



Using AOP: Sample Scenario

This section contains a sample scenario for using AOP with your module. It includes:

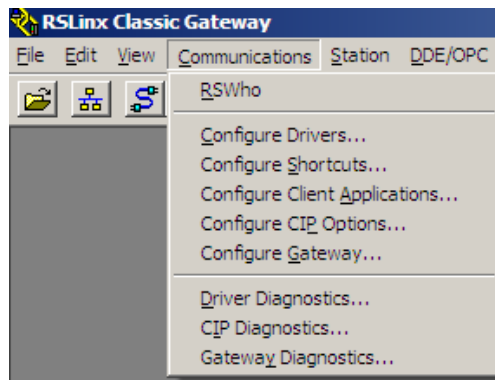
- “Setting Up an Ethernet Driver”
- “Configuring the Module in RSLogix 5000”
- “Starting and Stopping Data Collection: Ladder Logic Control Example”

Setting Up an Ethernet Driver

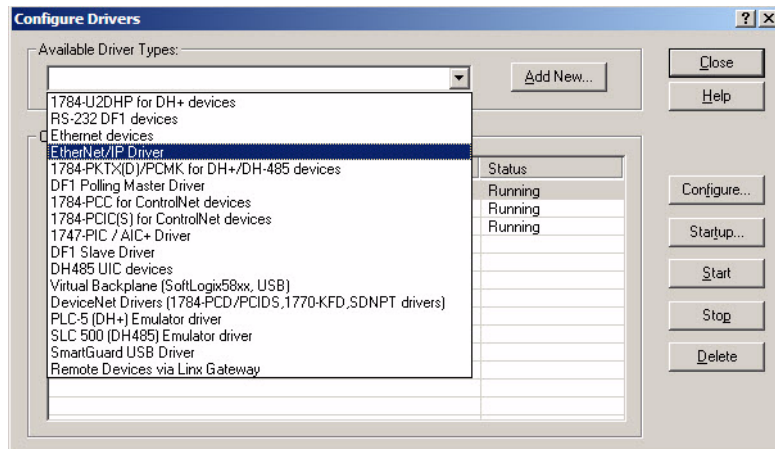
After installing AOP, ensure that you install and configure an Ethernet driver using RSLinx Classic. This allows you to connect to your processor and download Ladder logic to the controller.

 See the RSLinx Classic online help for additional information.

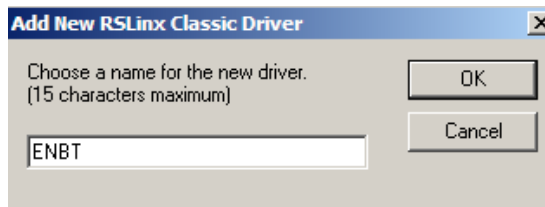
1. Launch RSLinx Classic by going to Start > Programs > Rockwell Software > RSLinx > RSLinx Classic.
2. Configure an Ethernet driver.
 - a. From the Communications drop-down menu, select Configure Drivers.



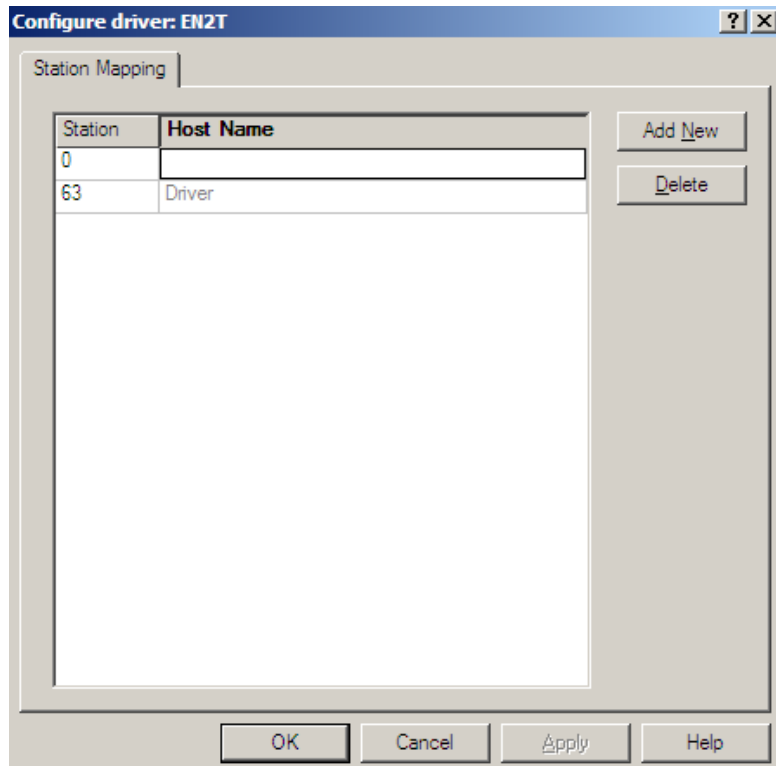
- b. From the Available Driver Types drop-down menu, select Ethernet devices.



- c. Click [Add New].
- d. Enter the name of the Ethernet module (ENBT or EN2T) in your chassis and click [OK]



- e. Enter the Ethernet module IP address in station 0 (the left-most module).



- f. Click [OK] to save the configuration.
g. Click [Close] to exit the Configure Drivers dialog.
h. Exit RSLinx Classic.

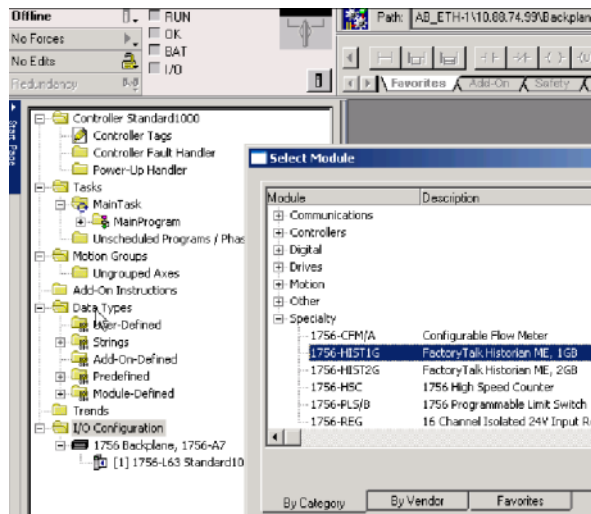
Configuring the Module in RSLogix 5000

This section assumes that:

- The project file that contains the controller programming and configuration information (also called *the .ACD file*) already exists in RSLogix 5000.
- Communication devices have already been added to the I/O Configuration folder.
- Logic, tags, and communication path are defined
- The processor is in Remote Run mode.

To configure the module in RSLogix 5000:

1. Launch RSLogix 5000 by going to Start > Programs > Rockwell Software > RSLogix 5000 Enterprise Series > RSLogix 5000. You can also double-click on an .ACD file to launch RSLogix 5000.
2. Open the RSLogix 5000 project file. Select File > Open.
3. Right-click on the I/O Configuration folder and select New Module.
4. Under Specialty, select the module. You may select either the 1G or the 2G module, depending on your installation.
5. Click [OK] and the module property sheet will open allowing you to configure the module.



6. Enter the following module properties on the General tab:

a. Name

This step is optional. Enter the host name for the module.

b. IP address

This step is optional. This field will not set the IP address. It simply displays the information. The IP address is located in the scrolling text across your module's LED.

c. Slot

Select the slot number that the module is installed in from the Slot drop-down menu.

The screenshot shows the 'New Module' dialog box with the following details:

- General Tab:**
 - Type: 1756-HIST2G FactoryTalk Historian ME, 2GB
 - Vendor: Allen-Bradley
 - Parent: Local
 - Name: [Empty text box]
 - Description: [Empty text box with scroll arrows]
 - Ethernet Address:
 - Private Network: 192.168.1. [Empty text box]
 - IP Address: [Empty text box]
 - Host Name: [Empty text box]
 - Slot: 1 (dropdown menu)
- Module Definition:**
 - Revision: 2.1 (with 'Change...' button)
 - Electronic Keying: Compatible Module
 - Connection: Data
- Status:** Creating
- Buttons:** OK, Cancel, Help

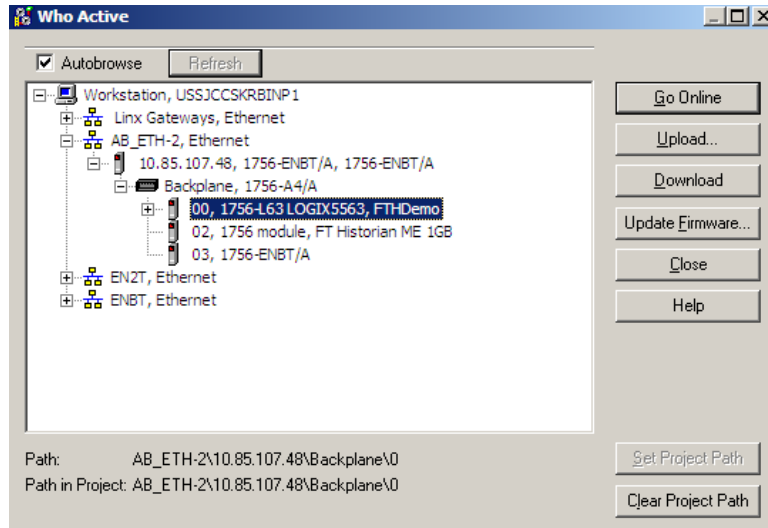


Note that under module Definition, [Change] launches a screen to configure Electronic Keying and the Connection Type. The Connection Type is important because you can select a module by which a Logix controller cannot control the output bits for the module data or a listen-only mode for monitoring its status.

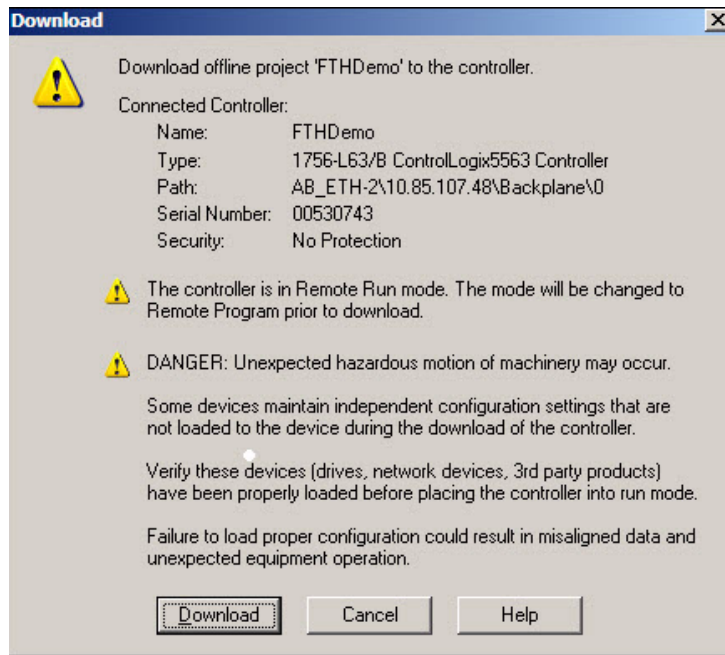
7. Click [OK] to save the definition for the new module.

8. Go to the I/O Configuration folder, select your controller, right-click to access the Controller Properties dialog and ensure that your controller slot number and all other controller properties are properly configured.

9. From the Communications drop-down menu, select *Who Active*.
10. Select the controller.



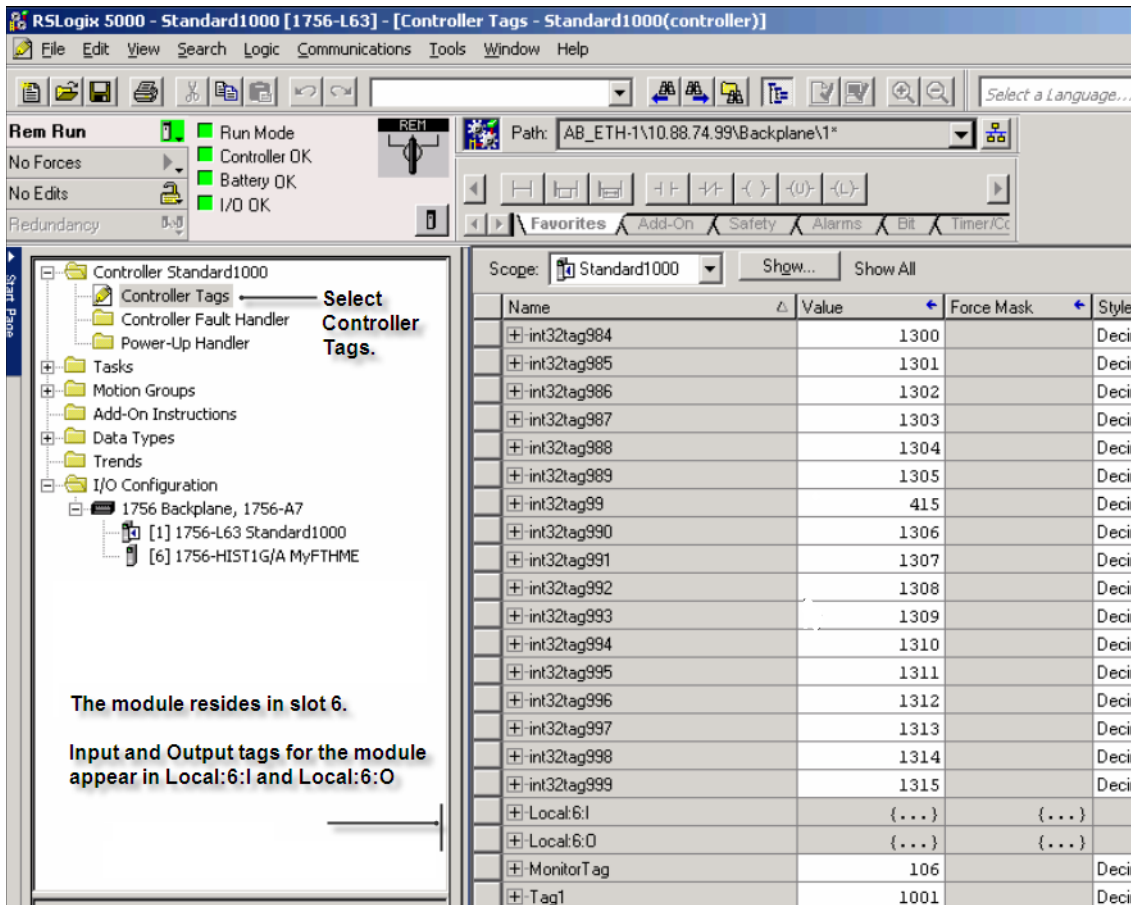
11. Click [Set Project Patch] and ensure that the path is correct.
12. Click [Download] to download to place the controller in Remote Run mode.
13. A window will open. Verify the controller information. The other information in the window warns that the processor will change from Remote Run to Remote Program mode and informs the user that it should be returned to Remote Run mode when the download completes.



14. To complete the download process, click [Download].
15. Click [Yes] when the download is complete to change the mode back to Remote Run mode. The controller will execute the Ladder program.
16. Next, navigate to the Controller <name> folder to find the new tags that were created when the module was added to the I/O Configuration. In the Controller <name> folder, double-click on the Controller Tags folder to list the tags in right-side pane.
17. In the vertical scroll bar, right-click and select *Bottom*.

If the tags do not display when you select *Bottom*, browse through the tag list to find the Input and Output tags.

In the following sample output, the module is shown in slot 6, and its Input and Output tags appear under the folders Local:6.I and Local:6.O. In this view you can review the list of tags and their status.



Starting and Stopping Data Collection: Ladder Logic Control Example

In this example, the AOP output tags are used to stop and restart Data Collection.

1. Enter “1” in the StopDataCollection Value field and click [ENTER]. The following occurs:
 - The DataCollectionActive Input status tag will change from 1 to 0.

- The TagsActive Input tag will change from 1001 to 0 because all points are taken off of the scan. This is the number of tags that have been created in the FactoryTalk Historian ME with scan set to *ON*.
2. Enter “1” in the StartDataCollection Value field and click [ENTER]. The following occurs:
- TagsActive will increase to 1001.
 - DataCollectionActive will change to 1.
 - DataCollectionRate, DataTransferRate, and ArchiveRate will update.

int32tag999	1029		Decimal	DINT
Local:6:I	{...}	{...}		AB:175
Local:6:I.Fault	2#0000_000...		Binary	DINT
Local:6:I.Running	1		Decimal	BOOL
Local:6:I.DataCollectionActive	1		Decimal	BOOL
Local:6:I.DataTransferActive	1		Decimal	BOOL
Local:6:I.StorageAvailable	38		Decimal	INT
Local:6:I.DataCollectionRate	1009		Decimal	INT
Local:6:I.DataTransferRate	849		Decimal	INT
Local:6:I.ArchiveRate	975		Decimal	INT
Local:6:I.CPUUtilization	30		Decimal	SINT
Local:6:I.TimeStamp	{...}	{...}	Decimal	DINT[2
Local:6:I.StorageFillTime1	35513		Decimal	DINT
Local:6:I.StorageFillTime2	35513		Decimal	DINT
Local:6:I.UpTime	78740		Decimal	DINT
Local:6:I.TagsActive	1001		Decimal	DINT
Local:6:I.ClientConnections	15		Decimal	SINT
Local:6:O	{...}	{...}		AB:175
Local:6:O.StartDataCollection	1		Decimal	BOOL
Local:6:O.StopDataCollection	1		Decimal	BOOL
Local:6:O.Startup	0		Decimal	BOOL
Local:6:O.Shutdown	0		Decimal	BOOL

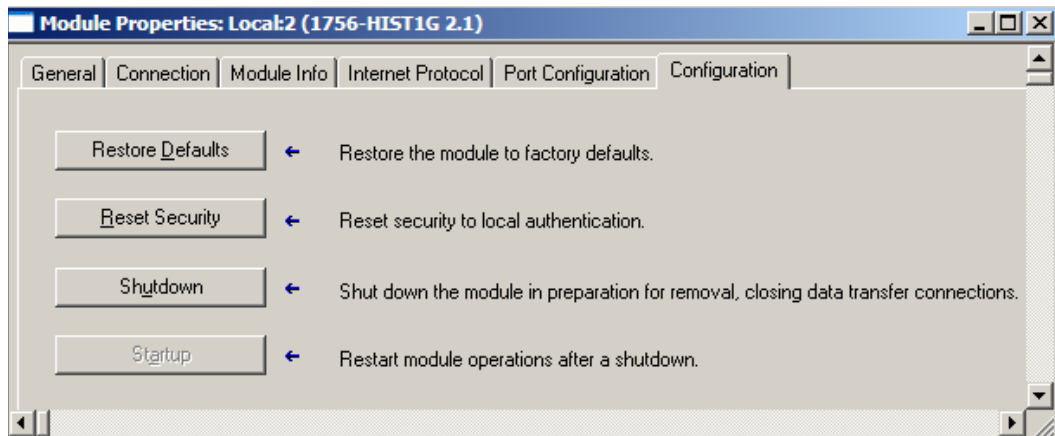
Insert "1" to stop or start Data Collection.

You can write Ladder logic programs to monitor these statistics and programmatically start and stop Data Collection and/or stop and start batches depending on the status of the module. You must write Ladder logic (or manually set tags to 0) to reset the Output tags back to 0.

This concludes the sample scenario demonstrating how to use AOP with your FactoryTalk Historian ME.

Using the AOP Module Properties Configuration Tab

Users can configure the FactoryTalk Historian ME module to restore defaults, reset security, shut down or start up from the Module Properties window in AOP. Before clicking any of the buttons on this dialog box, be sure to backup your FactoryTalk Historian ME configuration. The blue left arrow indicates an 'immediate commit' of the specified action, overriding the standard Apply functionality.



To open the Module Properties window, right-click on the module name in the left-side pane.

1. Select Properties.



Click [Help] in the Module Properties dialog for more information.

2. Select the Configuration tab.

Four built-in functions display, and each function requires a user to initiate it.

- [Restore Defaults] resets the module back to the factory defaults. All configuration data, archives, and logs are deleted and reset. From the keyboard, press [Alt] D.

If you click the Restore Defaults button and then try to refresh your FactoryTalk Historian ME software, a no page found error is displayed. This

occurs because the Restore Defaults process takes several minutes to complete. During that time, your web browser will not be available.

- [Reset Security] resets the module security back to Native mode and sets the piadmin user password to blank. From the keyboard, press [Alt] R.
- [Shutdown] shuts down the module for removal. From the keyboard, press [Alt] U.

Keep in mind that the FactoryTalk Historian ME shutdown will take a few minutes. Before you perform any additional operations on the Configuration tab, please wait until the shutdown has completed.

- [Startup] restarts module operations after a shutdown. From the keyboard, press [Alt] A.

The message, `Requested message timed out`, will display if RSLogix 5000 loses communication with the module at boot time. Click [OK] and retry if you receive this message.



Normally, when Running, the Running bit in AOP Input Data value equals 1 and when Shutdown, it equals 0. However, if the FactoryTalk Historian ME module is running in safe mode, the Running bit toggles between 1 and 0.



Hardware Specifications

This appendix contains a summary of the FactoryTalk Historian ME hardware specifications.



For more hardware information, see the *FactoryTalk Historian ME Module Installation Instructions* included on the Client Tools CD shipped with your module.

Specification	Description	
CPU Processor	AMD LX800 500MHz x86	
Memory	System	AMD LX800 500MHz x86
	Battery-backed	512 Kbytes SRAM
	Cache	128K L1 / 128K L2
Flash Memory	CompactFlash Type II with DMA Only a special secured CompactFlash card from Rockwell Automation can be used.	
Ports	One Ethernet 10/100T IEEE 802.3	
Battery	Rechargeable Lithium (not removable)	
Jumpers	Battery enabled/clear CMOS	
Clock	Precision Real-time clock (RTC) accurate to +/- 4 minutes/year	
Fan	Fanless operation	
Indicators	4-character alphanumeric display	IP address and status messages
	Status LEDs	BAT - battery status
		STS - application status
		OK - module status

Specification	Description	
Certifications (when product is marked)	CE: European Union 2004/108/EC EMC Directive	EN61000-6-2, EN61000-6-4, EN61326-1 (Industrial), and EN61131-2 (Clause 8, Zones A&B)
	c-UL-us	UL Listed Industrial Control Equipment, certified for US and Canada UL Listed for Class I, Division 2 Group A,B,C,D Hazardous Locations, certified for U.S. and Canada
	C-Tick (Australia)	AS/NZS CISPR11
Power	Consumption	7 Watts Max / 5 Watts Typical
	All supply voltages and/or current ratings	5.1 V DC @800 mA 24 V DC @3 mA
Temperature	Non-operating	-40° to 85° C (-40° to 185 °F)
	Operating	0 to 60° C (32° to 140 °F)
Physical	Form factor	Single-slot ControlLogix Module
	Dimensions (Height/Width/Depth)	145mm / 35mm / 140 mm 5.6 in / 1.4 in / 5.5 in



Design Considerations and Limitations

To design and configure a FactoryTalk Historian ME system successfully, please observe the architectural considerations described in the following sections:

- “Point Configuration”
- “Data Collection”
- “Data Transfer”
- “Data Storage”
- “Time Synchronization”
- “Backup and Recovery”
- “System Connectivity”
- “Hardware”
- “Performance”
- “FactoryTalk Product Suite”

Point Configuration

This section lists considerations related to point configuration.

Point Creation

- You can create a maximum of 2500 data points per module. If you exceed 2500 data points, the Create button will automatically become deactivated. You can deselect points from the Selectfield. The Create button will automatically become reactivated when the point count is less than 2510 data points.
- The maximum number of events per second for tags is 2500. For Data Collection rates slower than 500ms, use Polled and Advised tags.
- Avoid using High Speed points for Trigger Input and Output tags.

Scan Types	Scan Rate Recommendation
High Speed	Equal to or greater than 0.01 seconds and Equal to or less than 0.5 seconds
Advised Polled	Equal or greater than 0.5 seconds
Trigger Input Output	Avoid using High Speed points

Add Points Wizard

If Data Collection is running during the Add Points Wizard process, you will be prompted to stop and restart Data Collection after creating points for optimal performance.

Point Properties

This section describes settings found on the Point Property page that you should consider when configuring tags.

GENERAL

The General section of the Point Property page allows you to configure the following parameters:

- Typical Value is between 0 and 100
- Typical Value for Digital point types is between 0 and 1
- Span value range is always positive.
- Zero value range is between 0 and 100

EXCEPTION FILTERING

Exception Deviation specifies how much a point value must change before a new value is reported. Exception Min limits how often a new event is reported. Exception Max is the maximum length of time the system will run without reporting a new event. Exc Max thus effectively limits the length of time that events can be discarded because their values did not exceed exception deviation.

The Exception Filtering section allows you to configure the following parameters:

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

COMPRESSION FILTERING

Compression deviation is generally set to the precision of the instrument. It is set “loosely” to err on the side of collecting data. Compression minimum sets a minimum limit on the time between events in the archive. Compression maximum sets a maximum limit on the time between events in the archive.

The Compression Filtering section allows you to configure the following parameters:

- Compression Deviation range is between 0 and 100.
- Compression Min Day and Compression Max Day is between 0 and 100.

- Compression Min Hr and Compression Max Hr is between 0 and 23.
- Compression Min Min and Compression Max Min is between 0 and 59.
- Compression Min Sec and Compression Max Sec is between 0 and 59.

Data Collection

This section contains Data Collection service considerations.

Scan Types

Observe the following scan type recommendations:

- Polled tags are for Data Collection are intended for scan rates greater than 0.5 seconds.
- Advised tags are for Data Collection are intended for scan rates greater than 0.5 seconds.
- High Speed tags are for Data Collection are intended for scan rates as fast as 10 ms.

High Speed Trend Pace Error

If the message “[ERROR] Unable to keep pace with High Speed Trend causing data loss” message is logged in the System Log page, potential data loss may occur. Due to performance issues with the controller, the backplane or the module, the module cannot receive new high-speed events from the controller. Stop and start Data Collection to mitigate the impact.

Data Types

The int64 (LINT) data type is not supported at this time.

Data Quality

FactoryTalk Historian ME tracks data quality during Data Collection and Data Transfer. For example, poor quality data can occur if the controller loses its connection to the FactoryTalk Historian ME or if a running tag is removed from the controller but not from the FactoryTalk Historian ME. Poor quality data displays in red in the point list.

Data Transfer

This section describes Data Transfer service considerations.

- The initial release of FactoryTalk Historian ME only supports Data Transfer to a single FactoryTalk Historian SE server. Collectives are not supported. If data is required in third-party historians or other upstream servers, use FactoryTalk Historian DataLink to move data out of the module. Upcoming product releases will support alternate Data Transfer destinations.

Observe the following Data Transfer subsystem limits on the module:

- Transfer a minimum of 5,000 events per second to the FactoryTalk Historian SE archive.
- Transfer a maximum of 150,000 events FactoryTalk Historian SE archive.

Data Storage

This section contains Data Storage considerations. The FactoryTalk Historian ME is available in two versions: one with 1GB of total storage, and one with 2GB of total storage.

- Observe the following archive file size limits on the module:

Module Type	File Size	Number of Files	Disk Space for Archive
1G	10MB	40 files	400MB
2G	10MB	130 files	1.3GB

- The 1GB module has an effective archive storage capacity of 0.5GB because approximately 500MB is used for the operating system, firmware, and log files. The 2GB module has an effective archive storage capacity of 1.5GB.
- The on-board data storage for the FactoryTalk Historian ME is limited. using a Data Transfer rate of 2500 events per second (the maximum transfer rate available) without Compression or Exception Filtering, the on-board storage capacity is approximately four hours for the 1GB module and 14 hours for the 2GB module. Therefore, Rockwell highly recommends that you include the

FactoryTalk Historian SE for data aggregation when long-term storage is required.

By applying Compression and Exception Filtering, you can significantly improve archive space from approximately two to ten times, depending on variables such as how much the data varies between scans. To estimate archive performance with and without Compression and Exception Filtering, can use a typical factor of 5.

Use the table below to estimate performance impact. Note that Compression and Exception Filtering data storage information in this table is an estimate. Actual compressed data storage ranges will vary with the volatility of the data collected.

Sample Application	Estimate	
	1GB Module	2GB Module
2500 events per second without Compression or Exception Filtering	4 hours	14 hours
2500 events per second with Compression and Exception Filtering	1 day	3 days
500 events per second with Compression and Exception Filtering	5 days	2 weeks
100 events per second with Compression and Exception Filtering	1 month	3 months
2500 events per minute without Compression or Exception Filtering	10 days	1 month
2500 events per minute with Compression and Exception Filtering	2 months	6 months
500 events per minute with Compression and Exception Filtering	10 months	2.5 years
100 events per minute with Compression and Exception Filtering	4 years	10+ years

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

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

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.

$$200/250\text{ms} + 600/2\text{sec} \leftrightarrow 200/.25\text{sec} + 600/2\text{sec} \leftrightarrow 800 + 300 \text{ events/sec} = 1100 \text{ events/sec}$$

Time Synchronization

This section lists considerations related to time synchronization.

- For information about how configure the FactoryTalk Historian SE as an NTP time server, refer to Microsoft's knowledgebase article "How to Configure an Authoritative Time Server in Windows" at <http://support.microsoft.com/kb/816042/en-us>

A sample public NTP server is located here: 0.north-america.pool.ntp.org.

Backup and Recovery

Module configuration data can be backed up to a compressed file.

- Only the last version of the backup configuration is stored.
- Do not edit the backup and recover XML files.

System Connectivity

This section lists considerations related to system connectivity.

- The maximum number of modules per chassis is 2.
- Number of controllers that can transfer data to one module is 4.

- The maximum number of modules that can be used to transfer data simultaneously from the ME to one SE server is 20.
- The maximum number of clients that can have simultaneous access to the module is 5. This number includes a web browser, the FactoryTalk Historian SE, and any other client tool. After the limit is reached, any client will be denied access to the module based on total number of connections exceeded.

Hardware

ControlLogix Chassis

This section lists considerations related to the ControlLogix chassis.

- Connect up to a maximum of 4 controllers in the same ControlLogix chassis.
- A maximum of 2 FactoryTalk Historian ME modules in a single chassis.
- The module does not support a redundant controller chassis.

Once the FactoryTalk Historian ME module is running in a particular slot, Rockwell does not recommend moving the module to a new slot because this may result in the same tags being considered as different points.

Logix Controllers

This section lists considerations related to the Logix controllers.

- The number of controllers that can transfer data to one Factory Talk Historian ME is 4.
- Data Collection should be stopped before creating tags to avoid creating excess trend objects in the controller, consuming more controller memory.
- The FactoryTalk Historian ME can only connect to the controllers in the chassis it is placed in. This means it can only connect to ControlLogix controllers; it cannot connect to either ControlLogix or other controllers in another chassis.

If the 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 concentrator in the same chassis. This controller can then be configured to expose the data from the remote controllers to the Factory Talk Historian ME. However, it is critical to consider the increased load that an extra data server will introduce in a ControlLogix system when configuring Data Collection.

- The FactoryTalk Historian ME's data gathering and trending impact on a Logix controller is dependent on the configuration of the ControlLogix system. 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 type of controller, free memory, communication 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 too low of a sample period can impact the Logix controller's ability to execute user application programs and cause task overlaps.

When using the FactoryTalk Historian ME, the user must ensure there is sufficient Logix controller bandwidth to service trending without negatively impacting user application programs.

CompactFlash Firmware

This section lists considerations related to the ControlFlash firmware.

ADDITIONAL MEMORY

Because the memory modules are special industrial grade modules, they are locked to the FactoryTalk Historian ME, and users can only purchase memory modules for the FactoryTalk Historian ME module from Rockwell Automation.

FactoryTalk Historian ME firmware is stored in the CompactFlash along with the customer's data. The information cannot be read in other devices to protect the intellectual property of Rockwell and its partners.

The CompactFlash meets higher thermal, shock and vibration specifications than consumer grade flash memory.

POWER LOSS

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 Data Collection from restarting, Data Transfer from reconnecting if it was running, and other processes from restarting. If power loss occurs, the module may need to be started using AOP in RSLogix 5000.

Performance

This section lists considerations related to performance.

View Data

If you are monitoring your CPU through the task manager while using View Data, you may see spikes in resource usage due to sorting. To reduce the load on the FactoryTalk Historian ME processor, sorting occurs on the client computer.

Web Interface

This section contains web interface considerations.

- The System Status will refresh every 30 seconds to show the current status of several key module services.



See the "System Status" section for a description of the status information.

- The FactoryTalk Historian ME web interface supports two primary methods for IP address configuration, DHCP (the default) and Static. If you change the module's default IP address configuration from DHCP to Static, or if you use BOOTP through an RSLogix 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 work around this issue, we suggest you work with your local IT department to register the new IP address with the DNS server.

FactoryTalk Product Suite

This section lists considerations related to FactoryTalk Historian ME interoperability with other FactoryTalk products.

FactoryTalk Historian SE

The following FactoryTalk Historian SE applications are not included in FactoryTalk Historian ME:

- AF
- Notification
- System Management Tools (SMT)
- Batch Database
- RT-SQC Engine



Troubleshooting

This appendix lists some common issues that may occur with your FactoryTalk Historian ME and how to solve them. It includes the following sections:

- “General Guidelines”
- “Hardware Issues”
- “Web Client Issues”
- “Data Collection Issues”
- “Data Storage Issues”
- “Data Transfer Issues”
- “Auto Recovery Issues”
- “Time Management Issues”
- “Point Server Issues”
- “Related FactoryTalk Product Issues”

General Guidelines

Providing Issue Information

When your FactoryTalk Historian ME is not operating properly, you should collect the following information for Technical Support before rebooting 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.



See "Using Web Diagnostics" information about the web diagnostics interface.

- Go to the Web Diagnostics **Firmware** tab and click *Logs Download* 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 - <http://www.rockwellautomation.com/support/>



See "Technical Support" for more information about working with Rockwell Technical Support.

Rebooting the Module

The 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.



See “Rebooting the Module” for more information.

- Go to the FactoryTalk Historian ME Module Properties page in RSLogix5 000 AOP and click [Reset Module].



See “RSLogix 5000 Add-on Profile” for more information.

Working in Safe Mode

Safe mode is discussed in the “Repairing Archives” section.

Hardware Issues

This section contains information that may help you troubleshoot your FactoryTalk Historian ME hardware.



For any issue, follow the guidelines provided in the “General Guidelines” section of this appendix.

Hardware Symptom	Solution
If the FactoryTalk Historian ME module display is not responding:	<ul style="list-style-type: none"> ■ 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.
If you have already synchronized the clock time in manual mode but the time displayed on the web client is wrong:	The battery may need to be replaced, which should only be done at the factory. It is not field-replaceable. The battery charges fully in the ControlLogix rack in twenty-four hours, and will maintain its clock time for twenty days.

Hardware Symptom	Solution
<p>If the four-character LED display stops scrolling:</p>	<ul style="list-style-type: none"> ■ Check to see if the data server has stopped functioning. Go to the Web Diagnostics Firmware tab, and check the <i>Data Server</i> page. If the data server has stopped functioning, reboot the module. ■ Check to see if the CIP application has crashed. If so, go to the Web Diagnostics Firmware tab, and check the <i>CIP</i> page for errors. If there are any, click [Restart].
<p>Ethernet port lights are not illuminated:</p>	<ul style="list-style-type: none"> ■ Contact your IT department to verify that your system is properly connected to your network. ■ For more information about the Ethernet cable, refer to the <i>FactoryTalk Historian ME Installation Instructions</i>.
<p>The module's CPU is experiencing continuous high usage (90-100%):</p>	<p>Go to the Web Diagnostics Hardware tab, and check the <i>CPU, RAM</i> page to find out each service's usage and determine which processes are the most CPU intensive.</p>
<p>If the FactoryTalk Historian ME module's power is down after loss of power:</p>	<p>Follow the directions in the <i>FactoryTalk Historian ME Installation Instructions</i> (included on the Client Tools CD) to remove and reset the module in its chassis.</p>
<p>If the FactoryTalk Historian ME module cannot obtain an IP address from a DHCP server:</p>	<ul style="list-style-type: none"> ■ 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, reboot the module. ■ If the port LEDs are not lit, the module may require service by Rockwell Technical Support.

Hardware Symptom	Solution
If the MAC address scrolls across the display:	<ul style="list-style-type: none"> ■ The Ethernet port has failed to acquire an IP address. ■ Reboot the module.

Web Client Issues

This section contains information that may help you troubleshoot your FactoryTalk Historian ME web client.



For any issue, follow the guidelines provided in the “General Guidelines” section of this appendix.

Web Client Symptom	Solution
If 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. Reboot the module.
If the web client is unresponsive:	<ul style="list-style-type: none"> ■ Go to Web Diagnostics, Firmware tab, <i>Web Server Configuration</i> page and click [Restart Webs]. <p>or</p> <ul style="list-style-type: none"> ■ Go to the FactoryTalk Historian ME Module Properties page in AOP. In the Configuration tab, click [Restore Defaults].

Web Client Symptom	Solution
<p>If you can access the FactoryTalk Historian ME web client but cannot log in:</p>	<ul style="list-style-type: none"> ■ 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 <i>piadmin</i>. ■ If the module has been configured with FactoryTalk Security (FTSecurity), you must ensure that the user has been configured in FTSecurity. To find the current security mode, go to the Web Diagnostics, Firmware Overview. Check the Security Mode section for the configured security information. ■ Go to the FactoryTalk Historian ME Module Properties page in AOP. In the Configuration tab, click [Reset Security].
<p>If the administrator forgets the login name and/or password:</p>	<ul style="list-style-type: none"> ■ Reset security to factory settings. Click Advanced in the top navigation bar, and then click <i>Restore Defaults</i>. In the Security Reset section, press [Security Reset]. <p style="text-align: center;">or</p> <ul style="list-style-type: none"> ■ Go to the FactoryTalk Historian ME Module Properties page in AOP. In the Configuration tab, click [Reset Security].
<p>If you using the host name as a URL and cannot access the web client:</p>	<ul style="list-style-type: none"> ■ 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.
<p>If the web home page is slow to respond:</p>	<ul style="list-style-type: none"> ■ If you have downloaded a large .ACD file to the controller at bootup 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, reboot the module. ■ Keep in mind that the module requires some initialization time to respond to the controller.

Data Collection Issues

This section contains information that may help you troubleshoot FactoryTalk Historian ME Data Collection.



For any issue, follow the guidelines provided in the “General Guidelines” section of this appendix.

Data Collection Symptom	Solution	
<p>The System Status section on the Home page shows that Data Collection is in “Stopped” mode:</p>	<ul style="list-style-type: none"> ■ Check the module STS LED light. Solid red indicates that Data Collection is inactive. ■ Go to the Advanced tab to view the <i>System Log</i> page. Check the log for messages about the issue and export log data. 	<ul style="list-style-type: none"> ■ If Data Collection does not appear to have stopped due to a user configuration, go to the <i>Data Collection</i> page. Click [Start] to restart Data Collection.
	<ul style="list-style-type: none"> ■ Data Collection may have stopped because it reached the user-configured Archive Usage Threshold percentage on the Data Storage page. <p>Wait for the system to process overflow events and return to a state that allows you to restart Data Collection.</p> <p>or</p> <p>Increase the Archive Usage Threshold percentage.</p> <ul style="list-style-type: none"> ■ Go to the <i>Data Collection</i> page. Click [Start] to restart Data Collection. 	

Data Collection Symptom	Solution
<p>The System Status section on the Home page shows that Data Collection is in “Error” mode:</p>	<ul style="list-style-type: none"> ■ Check the module STS LED light. Solid red indicates that Data Collection is inactive. ■ Go to the Advanced tab to view the <i>System Log</i> page. Check the log for messages about the issue and export log data. ■ Go to the Web Diagnostics Firmware tab, and check the <i>Data Collection</i> page. Process information can confirm whether or not Data Collection is in a undesirable state. N/A indicates an error state. ■ Download additional information that will assist in troubleshooting as described in “General Guidelines”. ■ Reboot the module. ■ Contact Technical Support if the issues persists.

Data Collection Symptom	Solution							
<p>Snapshot data points displayed on the <i>Current Data</i> page contain timestamps that are not being updated:</p>	<p>Check the status of Data Collection on the Home page.</p>							
	<p>Navigate to Time Source > Controller in the web interface. Check for a message that indicates that data collection has discarded data.</p>							
	<p>If Data Collection status is “Running”, check the Collection Rate in the System Status section in the left navigation bar.</p>							
	<table border="0"> <tr> <td> <ul style="list-style-type: none"> ■ Ensure that the Collection Rate is zero; this confirms that Data Collection is not collecting data. </td> <td> <ul style="list-style-type: none"> ■ If the Collection Rate is not zero, check the status of the Data Server on the Home page. </td> </tr> <tr> <td> <ul style="list-style-type: none"> ■ Go to the Web Diagnostics Firmware tab, and check the <i>Data Server</i> page. N/A indicates an error state. </td> <td> <ul style="list-style-type: none"> ■ If the Point Server status is “Stopped” or “Error”, reboot the module. </td> </tr> <tr> <td> <ul style="list-style-type: none"> ■ Reboot the module. </td> <td></td> </tr> <tr> <td> <ul style="list-style-type: none"> ■ If Data Collection stops again, go to the Configure Historian tab, and click <i>Data Storage</i>. 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 Data Collection. </td> <td></td> </tr> </table>	<ul style="list-style-type: none"> ■ Ensure that the Collection Rate is zero; this confirms that Data Collection is not collecting data. 	<ul style="list-style-type: none"> ■ If the Collection Rate is not zero, check the status of the Data Server on the Home page. 	<ul style="list-style-type: none"> ■ Go to the Web Diagnostics Firmware tab, and check the <i>Data Server</i> page. N/A indicates an error state. 	<ul style="list-style-type: none"> ■ If the Point Server status is “Stopped” or “Error”, reboot the module. 	<ul style="list-style-type: none"> ■ Reboot the module. 		<ul style="list-style-type: none"> ■ If Data Collection stops again, go to the Configure Historian tab, and click <i>Data Storage</i>. 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 Data Collection.
<ul style="list-style-type: none"> ■ Ensure that the Collection Rate is zero; this confirms that Data Collection is not collecting data. 	<ul style="list-style-type: none"> ■ If the Collection Rate is not zero, check the status of the Data Server on the Home page. 							
<ul style="list-style-type: none"> ■ Go to the Web Diagnostics Firmware tab, and check the <i>Data Server</i> page. N/A indicates an error state. 	<ul style="list-style-type: none"> ■ If the Point Server status is “Stopped” or “Error”, reboot the module. 							
<ul style="list-style-type: none"> ■ Reboot the module. 								
<ul style="list-style-type: none"> ■ If Data Collection stops again, go to the Configure Historian tab, and click <i>Data Storage</i>. 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 Data Collection. 								
<p>If the Data Collection status is “Stopped”, go to the <i>Data Collection</i> page and restart Data Collection.</p>								
<p>A single point has not collected data for a significant time period:</p>	<ul style="list-style-type: none"> ■ 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. 							

Data Collection Symptom	Solution
<p>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:</p> <pre>[ERROR] TagProcessingForPollingAndAdvised() dropped future event for point<ID> with <timestamp> with timeDelta=<number of seconds into future>.</pre>	<ul style="list-style-type: none"> ■ Check the controller time. ■ Ensure that the controller time is correct.

HIGH SPEED TREND PACE ERROR

If the message “[ERROR] Unable to keep pace with High Speed Trend causing data loss” message is logged in the System Log page, potential data loss may occur. Due to performance issues with the controller, the backplane or the module, the module cannot receive new high-speed events from the controller. Stop and start Data Collection to mitigate the impact.

Data Storage Issues

This section contains information that may help you troubleshoot FactoryTalk Historian ME data storage.



For any issue, follow the guidelines provided in the “General Guidelines” section of this appendix.

Data Storage Symptom	Solution
The Data Storage page provides information about archive statistics. If unexpected information displays:	<ul style="list-style-type: none"> ■ Go to the Web Diagnostics Firmware tab,. Check the <i>Data Storage</i> page. Process information can confirm whether or not Data Storage is in a undesirable state. N/A indicates an error state. ■ Reboot the module.

Data Transfer Issues

This section contains information that may help you troubleshoot FactoryTalk Historian ME Data Transfer.



For any issue, follow the guidelines provided in the “General Guidelines” section of this appendix.

Data Transfer Symptom	Solution
<p>The System Status section on the Home page shows that Data Transfer is in “Stopped” mode:</p>	<p>Go to the Advanced tab to view the <i>System Log</i> page. Check the log for messages about the issue and export log data.</p> <ul style="list-style-type: none"> ■ Go to the Configure Historian tab. On the <i>Data Transfer</i> page, click [Start] to restart Data Transfer. ■ If Data Transfer does not start: <ul style="list-style-type: none"> ■ 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 can be established.
<p>The System Status section on the Home page shows that Data Transfer is in “Error” mode:</p>	<ul style="list-style-type: none"> ■ Go to the Advanced tab to view the <i>System Log</i> page. Check the log for messages about the issue and export log data. ■ Check the module STS LED light. Flashing red indicates that Data Transfer is inactive (and Data Collection is active.) ■ Go to the Web Diagnostics Firmware tab, and check the <i>Data Transfer</i> page. Process information can confirm whether or not Data Transfer is in a undesirable state. N/A indicates an error state. ■ Download log files that will assist in troubleshooting as described in “General Guidelines”. ■ Reboot the module. ■ Contact Technical Support if the issues persists.

Data Transfer Symptom	Solution
<p>If Data Collection is running on one or more modules and these modules are transferring data to a FactoryTalk Historian SE, the FactoryTalk Historian SE will experience a large load and overflow events if Data Transfer is stopped for some time and then restarted:</p>	<p>To minimize the load and number of overflow events on the FactoryTalk Historian SE, go to the Configure Historian tab. On the <i>Data Transfer</i> page, reduce the Maximum Events per Transfer value. This parameter controls the number of events transferred.</p>
<p>If Data Transfer and 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:</p>	<ul style="list-style-type: none"> ■ Restarting 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 Data Transfer remains running so that transferred events eventually match the archive event timestamps.

Data Transfer Symptom	Solution			
<p>If data in the FactoryTalk Historian SE contains timestamps that are not being updated:</p>	<p>Check the status of Data Transfer on the Home page.</p> <table border="1"> <tr> <td> <ul style="list-style-type: none"> ■ If Data Transfer status is “Running”: <ul style="list-style-type: none"> ■ Go to the Advanced tab to view the <i>System Log</i> 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. </td> <td> <ul style="list-style-type: none"> ■ If Data Transfer status is “Error”: <ul style="list-style-type: none"> ■ Go to the Web Diagnostics Firmware tab,. Check the <i>Data Transfer</i> page. Process information can confirm whether or not Data Transfer is in a undesirable state. N/A indicates an error state. ■ Reboot the module. </td> </tr> </table>		<ul style="list-style-type: none"> ■ If Data Transfer status is “Running”: <ul style="list-style-type: none"> ■ Go to the Advanced tab to view the <i>System Log</i> 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. 	<ul style="list-style-type: none"> ■ If Data Transfer status is “Error”: <ul style="list-style-type: none"> ■ Go to the Web Diagnostics Firmware tab,. Check the <i>Data Transfer</i> page. Process information can confirm whether or not Data Transfer is in a undesirable state. N/A indicates an error state. ■ Reboot the module.
<ul style="list-style-type: none"> ■ If Data Transfer status is “Running”: <ul style="list-style-type: none"> ■ Go to the Advanced tab to view the <i>System Log</i> 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. 	<ul style="list-style-type: none"> ■ If Data Transfer status is “Error”: <ul style="list-style-type: none"> ■ Go to the Web Diagnostics Firmware tab,. Check the <i>Data Transfer</i> page. Process information can confirm whether or not Data Transfer is in a undesirable state. N/A indicates an error state. ■ Reboot the module. 			
<p>If the FactoryTalk Historian SE rejects points from a new module that has been added to an existing collection of modules transferring data to that server:</p>	<ul style="list-style-type: none"> ■ Ensure that the points are created in the FactoryTalk Historian SE before Data Transfer is started. This will ensure that the point database and the archive can be synchronized. ■ The FactoryTalk Historian SE rejects the points because the archives have shifted several times and are outside the range of the existing archives. 			
<p>If fewer events than expected have been transferred to the FactoryTalk Historian SE:</p>	<ul style="list-style-type: none"> ■ Check the module CPU load. 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 <i>Data Transfer</i> page, increase the Maximum Events per Transfer value to allow events to transfer more quickly. 			

Data Transfer Symptom	Solution
If no events are being transferred to FactoryTalk Historian SE:	Make sure that enough disk space is being allocated in FactoryTalk Historian SE to allow the transfer.

Auto Recovery Issues

This section contains information that may help you troubleshoot FactoryTalk Historian ME auto recovery.



For any issue, follow the guidelines provided in the “General Guidelines” section of this appendix.

Auto Recovery Symptom	Solution
The time on the module has moved to a past time. This causes existing archives to have future timestamps or overlapping archives:	<ul style="list-style-type: none"> ■ First, check the module’s time source to ensure that it is correct. See information in “Time Management Issues” to resolve time source issues. ■ 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 the [Repair Archive] button that initially displays when the module is rebooted. (The [Repair Archive] button display 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. See “Repairing Archives” for more information.

Time Management Issues

This section contains information that may help you troubleshoot FactoryTalk Historian ME time management.



For any issue, follow the guidelines provided in the “General Guidelines” section of this appendix.

Time Management Symptom	Solution
You have forgotten the module’s time synchronization source:	Go to Web Diagnostics, Hardware tab, <i>Time Management</i> 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:	<ul style="list-style-type: none"> ■ Correct the controller time. Download archives to save the archive data with future timestamps. ■ Click [Repair Archive] that initially displays when the module is rebooted. ([Repair Archive] 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 not correct.	<ul style="list-style-type: none"> ■ 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, <i>Time Management</i> screen. Select the NTP Server radio button, re-enter the NTP server address, and click [Save]. This will reboot the module and may take several minutes to complete. If the module was never successfully synchronized, then you must do so now. Refer to “Managing Time” for more information.
The module is synchronized to a Historian SE server and the module time is incorrect:	Verify that the FactoryTalk Historian SE is configured as an NTP server. For more information, refer to “Managing Time”.

Time Management Symptom	Solution
The module starts in safe mode after a reboot because the user accidentally entered a past time when configuring the module time:	<ul style="list-style-type: none"> ■ The Time Management page will display a warning message. Correct the module time configuration on the Time Management page. ■ Reboot the module.

Point Server Issues

This section contains information that may help you troubleshoot FactoryTalk Historian ME Point Server.



For any issue, follow the guidelines provided in the “General Guidelines” section of this appendix.

Point Server Symptom	Solution
The System Status section on the Home page shows that the Point Server is in “Error” mode:	This indicates the Point Server is in an undesirable state. Reboot the module.

Related FactoryTalk Product Issues

This section describes issues related to other FactoryTalk products when they interact with the FactoryTalk Historian ME.

FactoryTalk Historian DataLink

The FactoryTalk Historian DataLink Excel reporting tool provides a FactoryTalk Historian Add-In for Microsoft Excel. If you export more than 65,535 rows of FactoryTalk Historian ME events to DataLink using the Compressed Data (Start Time/End Time) configuration page, Excel generates an “Output exceeds dimension” message. This error message is generated by Excel because the amount of data exported to the application exceeds Excel’s 65,535 row limit for data.

FactoryTalk Security

This section addresses two issues related to FactoryTalk Security.

- Before connecting to FactoryTalk Security, you must install the FactoryTalk Services Platform CPR 9 SR2 that is provided on the CD that was shipped with your module. Select the Custom option to install the web services component.

The Custom option includes installation and configuration of Internet Information Services (IIS). IIS must be installed on the computers that host the FactoryTalk Directory Server.



See the *FactoryTalk Services Platform CPR 9 SR2 Release Notes* for IIS installation details.

- If a user attempts to switch to FTSecurity mode but receives an “Invalid FactoryTalk Security Server” error in the *System Security* page under the **Configure Historian** tab, use this procedure to resolve the issue:

1. From Control Panel > Administrative Tools, run the IIS Admin Manager.

Expand the virtual directory FactoryTalk/Security/Web Service, then right click on FactoryTalk\Security\WebService\200810.asmx to select *Browse*. You can now test the FactoryTalk Security (FTSecurity) service interfaces.

2. From Control Panel > Administrative Tools, run Services.

Change the startup type for ASP.NET State Service to automatic. Ensure that the asp.net service is started. This deploys the web service to the following URL:

`http://<host name>:<port_number>/ FactoryTalk/Security/WebService/200810.asmx.`

3. Configure FactoryTalk Directory.
 - a) Create an administrative user on the local machine that hosts the FactoryTalk Historian servers.
 - b) Open the FactoryTalk Administration Console, and create a corresponding user with the same name and password. Add it to Administrator group.
4. From the Windows menu, go to FactoryTalk Tools > FactoryTalk Directory Configuration Wizard and select *Network Directory*.

Enter the administrator user and password, and re-enter it. Wait for a moment and check the summary. If all is successful, close the Network Directory.

Glossary

This appendix contains a list of terms and definitions used with the FactoryTalk Historian ME.

Term	Definition
.ACD	The file extension used for project files created by RSLogix 5000 software.
Add-on Profile (AOP)	AOP is used by ControlLogix processors to identify and determine characteristics of FactoryTalk Historian ME modules.
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 nonoverlapping. 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 such 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.

Term	Definition
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.
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, CompMin. Although it is technically not included in the specification, Span affects CompDev, and Compressing determines whether the specification is needed at all.
Connection Credentials	The set of identifying information about a client application seeking connection to the FactoryTalk Historian ME server. This information can include the client computer's IP address or hostname, 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.

Term	Definition
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 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 are fully integrated into the FactoryTalk Directory.

Term	Definition
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.
FTMS Available Points	The number of FactoryTalk Historian Machine Edition (ME)-to-FactoryTalk Historian Site Edition (SE) 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 FactoryTalk Historian SE server.
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 such as the CompactFlash cards used to upgrade the module firmware. NAND is best suited to a flash device requiring high capacity data storage. This is the data storage architecture for the FactoryTalk Historian ME.
Offset	An optional field 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.

Term	Definition
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 RSLogix 5000 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.
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.

Term	Definition
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 ProcessBook that enables users to create and view a variety of SQC charts on their FactoryTalk ProcessBook displays.
String Point Type	The point type used for storing strings, sequences of alphanumeric characters, up to 976 characters in length.
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.

Term	Definition
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).
Trust	A trust allows a system administrator to configure the FactoryTalk Historian ME or the FactoryTalk Historian SE 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 server.

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