



Proficiency Historian for Cloud 2022.1

User Guide



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doc@ge.com

Chapter 1. Release Notes

Introducing Proficy Historian for Cloud

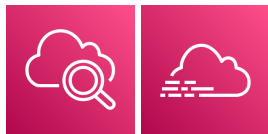
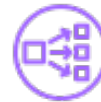
Proficy Historian is a best-in-class historian software solution that collects industrial timeseries data. It is secure, fast, and highly efficient.

Proficy Historian for Cloud allows you to deploy the Historian server and its components on cloud destinations. It supports all the components/tools in the on-premises counterpart of Proficy Historian (such as collectors, Excel Addin). And it offers all the advantages of cloud technologies.



AWS Marketplace: In addition to Proficy Historian for AWS, the Web Admin console and the REST Query service are available in the AWS marketplace.

Load balancing: With the use of Amazon Network Load Balancer (NLB), load balancing is achieved.



Integration with CloudWatch and CloudTrail: Using CloudWatch, you can access logs, which help in troubleshooting issues. Using CloudTrail, you can access events, and thus view the data consumption while reading or writing data samples.

File Storage in Amazon Elastic File System (EFS): Files are stored in EFS, thus achieving scalability and security. It also offers backup and restore options.

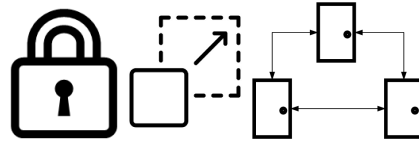


Deployment in Elastic Kubernetes Cluster (EKS): Proficy Historian for AWS is deployed in EKS, thus achieving high availability.

Secure and highly available: Proficy Historian for AWS is deployed on a virtual private cloud (VPC). It

uses private subnets and TLS encryption, thus making it secure.

In addition, Proficy Historian for AWS is deployed on multiple availability zones. If Data Archiver goes down, a new one is created in less than 10 seconds, thus making it highly available.



Known Issues and Limitations

Limitations

The following features available in Proficy Historian (on-premises) are *not* available in Proficy Historian for Cloud:

- Messages and alerts.
- Configuration Hub
- Enumerated data sets, user-defined data types (UDTs), and array tags
- Collector redundancy
- Alarms and events archiver
- Diagnostics Manager
- Historian as an OPC HDA server
- The Calculation collector, the Cygnet collector, the File collector, the iFIX Alarms and Events collector, the HAB collector, the ODBC collector, the OPC Classic Alarms and Events collector, the Server-to-Server distributor, and the Wonderware collector.
- The Windows version of public REST APIs.

Note that the Rest APIs supported for Proficy Historian for Cloud are Predix Timeseries-based REST APIs (that is, the REST Query service used in the Linux version of Proficy Historian); these APIs are different from the ones used by Proficy Historian (used on Windows).

In general, any features/components for which information is not available in the Proficy Historian for Cloud documentation are not supported.

In addition:

- The performance of Historian Administrator when connected to Proficy Historian for Cloud is not good. We recommend using [the Web Admin console \(on page 93\)](#), [Excel Add-in for Historian \(on page 180\)](#), or [the REST Query service \(on page 128\)](#) instead of Historian Administrator.
- Using the Server-to-Server collector, you can only send data from an on-premises Historian server to the Historian server deployed on cloud; you cannot send data if both the servers are on cloud.
- You cannot back up and restore data using any of the clients. This is because the backup and restore functions are performed using [Elastic File System \(EFS\)](#).
- Although you can install collectors on-premises or on an EC2 instance in a VPC, you cannot install the on-premises and cloud versions of collectors on the same machine. You can choose a different machine or uninstall the existing version of collectors.

Known Issues

Description	Tracking ID
Regardless of the security group to which a user belongs, the user has full privileges to the Web Admin console.	DE182555
The context-sensitive Help embedded in the Web Admin console provides information on unsupported features as well. For the most accurate information on the supported features for the Web Admin console, refer to About the Web Admin Console (on page 93) .	DE182556
The uaa_config_tool utility displays NullPointerException until you enter a command and begin using it.	DE182557
<p>If you try to change the destination of a collector from an on-premises Historian server to the cloud counterpart, an error occurs, stating, "Unable To Start the Collector Instance...Please check the parameters provided are valid and edit the Collector Instance...Press any key to exit the Application".</p> <p>This issue occurs only if the collector name does not contain a prefix of the collector type.</p> <p>Workaround:</p> <ol style="list-style-type: none"> 1. Access the registry entry for the collector instance. 2. Rename the instance as follows, and close the registry: <i><collector type><original name of the instance></i> <p>For example, if the instance name of a Simulation collector is <code>sim1</code>, rename it <code>SimulationCollector-sim1</code>.</p>	DE184118

Description	Tracking ID
<p>Use one of the following prefixes based on the collector type:</p> <ul style="list-style-type: none">• SimulationCollector-• OPCCollector-• OPCUACollector-• OPCHDACollector-• PiCollector-• PIDistributor-• iFixCollector-• ServerToServerCollector-• MQTTCollector- <p>3. Change the destination of the collector instance (on page 90). When asked for the name of the collector instance, provide the <i>original</i> name (without the prefix). In the case of the previous example, enter <code>sim1</code>.</p> <p>An error message appears, but it is expected; you can ignore it.</p> <p>4. Close the <code>CloudHistorianConfigurationUtility.exe</code> tool.</p> <p>5. Access the registry entry for the collector instance, and undo the changes you made in step 2 (that is, the collector instance should now contain the original name).</p> <p>6. Close the registry, and start the collector instance.</p>	

Chapter 2. Overview

About Proficy Historian for Cloud

Proficy Historian is a best-in-class historian software solution that collects industrial timeseries data. It is secure, fast, and highly efficient.

Proficy Historian for Cloud allows you to deploy the Historian server and its components on cloud destinations. Specifically, Proficy Historian for AWS allows you to deploy the Historian server on AWS.

You can deploy Proficy Historian for AWS on [your own virtual private cloud \(VPC\) \(on page 20\)](#), or you can [let us create one for you \(on page 15\)](#). You can also [use the Historian license \(on page 24\)](#) if you have one or opt for a consumption-based model (in which the bill is generated based on your data consumption).

It supports all the clients in the on-premises counterpart of Proficy Historian (such as collectors, Excel Addin). You can install them on-premises or on an EC2 instance (either on the same or a different VPC), and then connect to Data Archiver deployed on AWS.

Advantages of using Proficy Historian for AWS:

- **AWS Marketplace:** In addition to Proficy Historian for AWS, the Web Admin console and the REST Query service are available in the AWS marketplace.
- **Load balancing:** With the use of Amazon Network Load Balancer (NLB), load balancing is achieved.
- **Integration with CloudWatch and CloudTrail:** Using CloudWatch, you can [access logs \(on page 367\)](#), which help in troubleshooting issues. Using CloudTrail, you can [access events \(on page 368\)](#), and thus view the data consumption while reading or writing data samples.
- **File Storage in Amazon Elastic File System (EFS):** Files are stored in EFS, thus achieving scalability and security. You can [access the archives and log files \(on page 372\)](#) created by Historian.
- **Secure and highly available:** Proficy Historian for AWS is deployed on a virtual private cloud (VPC). It uses private subnets and TLS encryption, thus making it secure.

In addition, Proficy Historian for AWS is deployed on multiple availability zones. If Data Archiver goes down, a new one is created in less than 10 seconds, thus making it highly available.

Components of Proficy Historian for AWS

Proficy Historian for AWS contains the following components:

- **Collectors:** Collect tag data from various data sources. You can [install collectors \(on page 26\)](#) on multiple Windows machines. These machines can be on-premises or on a virtual private cloud (VPC). For information on the various types of collectors, refer to [Choosing a Collector \(on page 60\)](#).
- **Clients:** Include the Web Admin console, the REST Query service, Excel Addin, and Historian Administrator. You can use them to retrieve and analyze the data stored in Historian. You can install them on multiple Windows machines. These machines can be on-premises or on a VPC.
- **AWS Network Load Balancer (NLB):** Receives data read or write requests from clients or collectors. If user authentication is needed, these requests are sent to UAA for authentication. Otherwise, these requests are sent to Data Archiver.
- **Amazon Elastic Kubernetes Cluster (EKS):** Hosts and maintains scalability and high availability of the following components:
 - **Data Archiver:** Intercepts requests from NLB. Sends user authentication requests to UAA. Sends data read/write requests to Amazon Elastic File System (EFS).
 - **User Account and Authentication (UAA):** An application built using Cloud Foundry that authenticates user credentials and grants access.
 - **PostgreSQL:** A database that stores user credentials.
- **Amazon Elastic File System (EFS):** Stores tag data in .iha files and configuration data in .ihc files, along with log files and buffer files. You can [access these archive files and log files \(on page 372\)](#). It is fully managed, scalable, highly available, and durable.
- **CloudWatch:** Contains the [logs \(on page 367\)](#) generated by Data Archiver. You can also access the dashboard, which contains various widgets for your analysis and monitoring.
- **CloudTrail:** Contains the [events \(on page 368\)](#) generated by Data Archiver, containing information on the data consumption.

Compatibility with Other GE Products

Proficy Historian for AWS is tested with the following products:

Product	Supported Versions
iFIX	2022
Proficy Historian (on-premises)	Collectors: 2022, 9.1 The Excel Add-in for Historian: 2022 Historian Administrator: 2022
Operations Hub	2.7

Product	Supported Versions
	<p>To import Historian data into Operations Hub, add the Historian REST API as a custom data source. For instructions, refer to https://www.ge.com/digital/documentation/opshub/windows/windows/t_oh_add_Historian_datasource.html.</p>

Chapter 3. Pricing and Billing

Access Pricing Information

About this task

To use Historian, you can choose between the following options:

- **License-based (BYOL):** If you want to use the BYOL model, you can use your Proficy Historian for Linux license or buy it, and then [apply it \(on page 24\)](#). You can then proceed to work with Proficy Historian for Cloud. In this case, you can deploy and use Proficy Historian for AWS directly.
- **Consumption-based:** If you want to use the consumption-based model, you must pay for using Proficy Historian for Cloud based on the consumption (that is, the number data samples that are read/written to Data Archiver).

This topic describes how to access the price for fetching or writing data to Data Archiver per million samples. This information is available before you deploy Historian. It helps you estimate the cost of using Historian and plan accordingly.

If, however, you have already begun using Historian, you can [access the cost incurred to fetch or write data to Data Archiver and make payment \(on page 9\)](#).

Procedure

1. Log in to the AWS console.
2. Access the following URL: <https://aws.amazon.com/marketplace/pp/prodview-rbmhtw3icmtqw>.
Or, search for Proficy Historian for AWS.
The pricing information of Proficy Historian for AWS appears in the **Pricing Information** section.

Make Payment for Using Proficy Historian for AWS

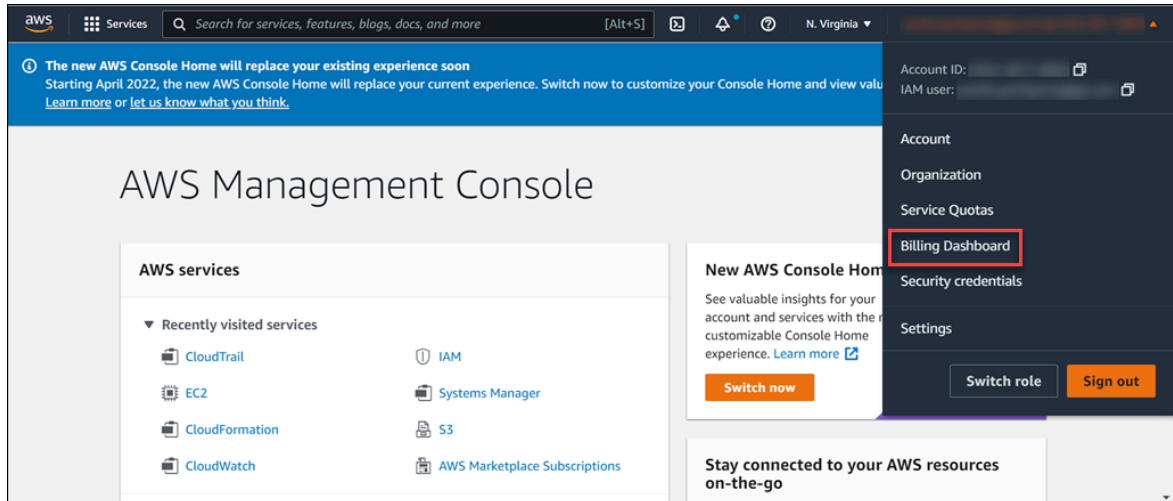
About this task

In a consumption-based model, you can use Proficy Historian for AWS. Based on the data consumption, a bill is generated in the AWS console. You must pay the amount mentioned in the bill to continue using Historian.

This topic describes how to access your bill and make payment. To access the pricing information, refer to [Access Pricing Information \(on page 9\)](#).

Procedure

1. Log in to the AWS console.
2. In the upper-right corner of the page, select your username, and then select **Billing Dashboard**.



The **Billing Dashboard** page appears. You can also [have the invoice emailed to you](#).

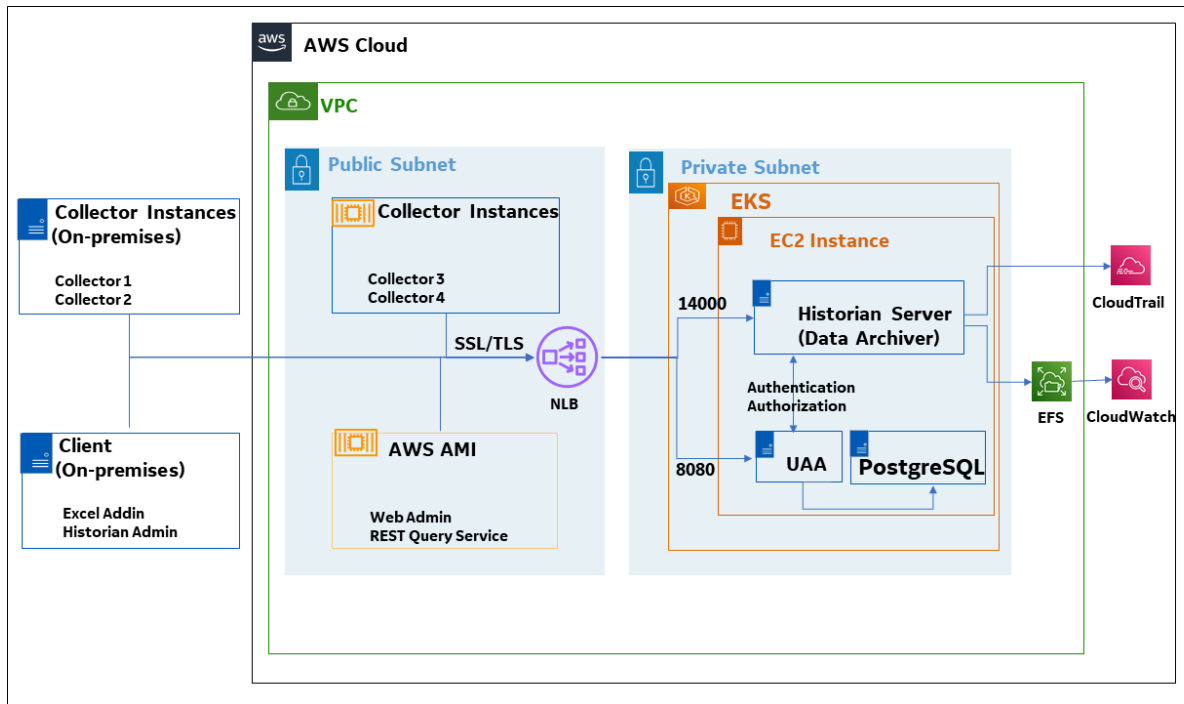
3. [Make the payment](#).

Chapter 4. Deployment

Deployment Architecture

The following diagram shows the deployment architecture of Proficy Historian for AWS. In this diagram:

- Data Archiver, UAA, and PostgreSQL are deployed in an Elastic Cloud Compute (EC2) instance in a private subnet inside Amazon Elastic Kubernetes Service (EKS).
- Amazon Elastic File System (EFS) is connected to Data Archiver.
- Network Load Balancer (NLB), AWS collector instances, the Web Admin console and the REST Query service instances are in a public subnet.
- EFS is in the Virtual Private Cloud (VPC), whereas CloudWatch and CloudTrail are outside the VPC. EFS sends archiver logs to CloudWatch, which you can use for analysis. CloudTrail is used to access events.
- Collector 1 and Collector 2 are collector instances created on an on-premises Windows machine. Similarly, Excel Addin for Historian and Historian Administrator are installed on an on-premises client machine.
- Collector 3 and Collector 4 are collector instances created on an EC2 instance in a VPC (can be a different VPC than the one in which the Historian server is deployed).
- The Web Admin console and the REST Query service are deployed as an AMI on an EC2 instance on a VPC (can be a different VPC than the one in which the Historian server is deployed).



How tag data is stored if using collectors of on-premises Proficy Historian (TLS encryption is not used):

1. Collectors send a request to AWS Network Load Balancer (NLB) to write tag data.
2. NLB sends the request to Data Archiver. If user authentication is needed, Data Archiver sends the request to UAA, which verifies the user credentials stored in PostgreSQL. After authentication, NLB confirms to the collectors that data can be sent.
3. Data collected by the collector instances is sent to NLB.
4. NLB sends the data to Data Archiver directly. After authentication, Data Archiver stores the data in EFS in .iha files.

How tag data is stored if using Historian Collectors for Cloud (TLS encryption is used):

1. Collectors send a request to AWS NLB to write tag data. Since the request is encrypted, port 443 is used.
2. NLB decrypts the request and sends it to Data Archiver. If user authentication is needed, Data Archiver sends the request to UAA, which verifies the user credentials stored in PostgreSQL. After authentication, NLB confirms to the collectors that data can be sent.
3. Data collected by the collector instances is encrypted and sent to NLB using port 443.
4. NLB decrypts the data and sends it to Data Archiver. After authentication, Data Archiver stores the data in EFS in .iha files.

How data is retrieved:

1. Clients (that is, Excel Addin, the Web Admin console, the REST Query service, or Historian Administrator) send a request to NLB to retrieve data.
2. NLB sends the request to Data Archiver, which retrieves data from EFS. If, however, user authentication is needed, Data Archiver sends the request to UAA, which verifies the user credentials stored in PostgreSQL. After authentication, data is retrieved from EFS.

Prerequisites

Hardware Requirements

Proficy Historian for AWS

Proficy Historian for AWS is deployed in an Elastic Cloud Compute (EC2) instance in Elastic Kubernetes Cluster (EKS) inside a Virtual Private Cloud (VPC). During deployment choose an instance type based on your requirement. Our benchmarking results suggest that C5.xLarge supports up to 15 million samples per minute. You can choose an instance of lower or higher capacity based on the rate of collection.

Collectors

You can install collectors on an on-premises Windows machine. Or, you can install them on a machine in the same VPC where the Historian server is deployed, or you can choose to deploy in a different VPC.

The following table provides the hardware requirements for installing collectors on an on-premises Windows machine.

Hardware Component	Recommendation
RAM	8 GB
Disk size	80 GB

The Web Admin Console and the REST Query Service

We recommend that you use an EC2 instance of at least t3.medium to deploy the Web Admin console and the REST Query service Amazon Machine Image (AMI).

Software Requirements

Collectors

Install any of the following operating systems:

- Microsoft® Windows® Server 2019
- Microsoft® Windows® Server 2016
- Microsoft® Windows® Server 2012 Standard (64-bit)
- Microsoft® Windows® Server 2012 R2
- Microsoft® Windows® 10 IoT
- Microsoft® Windows® 10
- Microsoft® Windows® 8.1 Professional (32-bit or 64-bit)

The other requirements, such as Microsoft® .NET Framework, are installed automatically.



Note:

If your machine is Firewall/proxy-enabled, Microsoft .NET Framework may not be installed automatically. In that case, before installing Historian, you must install Microsoft .NET Framework manually (if it is not available).

Excel Add-in for Historian

You can install Excel Add-in for Historian on an on-premises machine or on an EC2 instance in a VPC. To use Excel Add-in for Historian, install any of the following versions of Microsoft® Excel®:

- Microsoft® Excel® 2016 (32 & 64 bit)
- Microsoft® Excel® 2019 (32 & 64 bit)

Deploying Proficy Historian for AWS

To deploy Proficy Historian for AWS, you need a virtual private cloud (VPC), which allows you to deploy Proficy Historian into a virtual network that you have defined. For more information, refer to <https://docs.aws.amazon.com/vpc/latest/userguide/what-is-amazon-vpc.html>.

Applying the license: You can use Proficy Historian for AWS with or without the Historian license. Accordingly, the following products are available in the AWS marketplace:

- **Bring your own license (BYOL):** Use this product if you have the Historian for Linux license (or if you plan to get one). After you deploy Proficy Historian for AWS, [apply the license \(on page 24\)](#).
- **Consumption-based:** Use this product if you do not have the Historian for Linux license. A bill is generated based on your data consumption. For information on the pricing, refer to [Access Pricing Information \(on page 9\)](#).

Deployment options:

- **By creating a new VPC (on page 15):** Use this option if you do not have a VPC, or if you want to create a separate VPC for Proficy Historian. If you choose this option, a new VPC is created, along with the public and private subnets (one for each availability zone), the NAT Gateway, and IGW. Proficy Historian for AWS is then deployed in that VPC.
- **By using an existing VPC (on page 20):** Use this option if you already have a VPC in which you want to deploy Proficy Historian for AWS as well. If you choose this option, Proficy Historian, along with the required resources, is deployed in your VPC.

After you deploy Proficy Historian for AWS, the following resources are deployed in the stack:

- **Elastic Kubernetes Service (EKS):** Contains a cluster of EC2 instances.
- **Elastic File System (EFS):** Stores the tag data and the tag configuration details.
- **Network Load Balancer (NLB):** Receives requests from collector/client machines and directs them to the UAA service. The NLB DNS is also called the public IP address of the NLB. It is used to establish a connection between the Historian server and collectors/clients deployed on an on-premises machine or on a different VPC.
- **EC2 Instance:** Contains the Data Archiver, Proficy Authentication, and PostgreSQL containers.

For more information on these components, refer to [Deployment Architecture \(on page 11\)](#).

Deploy Proficy Historian for AWS in a New VPC

Before you begin

Ensure that you are in the region in which you want to deploy Proficy Historian for AWS. The following regions are supported:

- Asia Pacific (Hong Kong)
- Asia Pacific (Tokyo)
- Asia Pacific (Seoul)
- Asia Pacific (Mumbai)
- Asia Pacific (Singapore)
- Asia Pacific (Sydney)

- Canada (Central)
- Europe (Frankfurt)
- Europe (Stockholm)
- Europe (Ireland)
- Europe (London)
- Europe (Paris)
- Middle East (Bahrain)
- South America (Sao Paulo)
- US East (N. Virginia)
- US East (Ohio)
- US West (N. California)
- US West (Oregon)



Note:

By default, each region can contain up to five VPCs. Therefore, if the region in which you want to deploy Proficy Historian for AWS has already reached the limit, you can [deploy it in an existing VPC \(on page 20\)](#). Or you can choose a different region.

About this task


This topic describes how to deploy Proficy Historian for AWS in a new VPC. Alternatively, you can [deploy Proficy Historian for AWS in an existing VPC \(on page 20\)](#).

Procedure


1. Log in to the AWS marketplace.
2. Search for Proficy Historian.
3. In the list of products that appear, if you have the Historian for Linux license, select **Proficy Historian for AWS**.

proficy historian (3 results) showing 1 - 3


Sort By: Relevance

- 

WebAdmin and Rest API for Proficy Historian
By GE Digital | Ver 2022.1

WebAdmin and REST API containers are deployed on EC2 Instance in the Same VPC of Proficy Historian. This improves the performance in terms of connectivity and response. The deployments connect to Proficy Historian running on EKS through NLB.
- 

Proficy Historian for AWS (Consumption Pricing)
By GE Digital | Ver 2022.1

Proficy Historian is a best-in-class historian software solution that collects industrial time-series data at very high speed, stores it efficiently and securely, distributes it, and allows for fast retrieval and analysis driving greater business value. With decades of experience and thousands of...
- 


Proficy Historian for AWS (Term License)
By GE Digital | Ver 2022.1

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Or, if you want to use the consumption model, select **Proficy Historian for AWS (Consumption Pricing)**.

proficy historian (3 results) showing 1 - 3


Sort By: Relevance

- 

WebAdmin and Rest API for Proficy Historian
By GE Digital | Ver 2022.1

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4. Select **Continue to Subscribe**.

The terms and conditions appear.

5. Select **Continue to Configuration**.

The **Configure this software** page appears.

6. Enter values as described in the following table.

Field	Description
Fulfillment option	Select CloudFormation Template .
Software version	Select 2022.1 .

7. Select **Continue to Launch**.

The **Launch this software** page appears.

8. Under **Deployment template**, select **Deploy Proficiency Historian including the VPC Creation**.

The **Quick create stack** page appears. All the fields in the **Parameters** section are populated automatically.

9. Enter values as described in the following table.

Field/Section	Description
Stack name	Enter a name for the stack. A value is required and must be unique. The value can include all alphanumeric characters and dashes. It must begin with an alphabetic character and cannot exceed 128 characters.
New VPC Configuration	Modify values in the section, or leave the default values as is. You can also choose to disable the client VPN endpoint if needed.
EKS cluster name	Enter a unique name for the Elastic Kubernetes Service (EKS) cluster. A value is required, must be unique, and must be less than 28 characters.
Instance type	Choose an instance type based on your requirement. Our benchmarking results suggest that C5.xLarge supports up to 15 million samples per minute. You can choose an instance of lower or higher capacity based on the rate of collection.
UAA Configuration	Enter a password to connect to UAA. Make a note of this value; you will need it to connect the Historian server with collectors and clients (such as the Web Admin console, the REST Query service, the Excel Add-in for Historian, and so on).

Field/Section	Description
	<p>The value that you enter must contain:</p> <ul style="list-style-type: none"> • Minimum eight characters • At least one each of uppercase and lowercase letters • At least one number • At least one special character from among !@#%*._^+~:~:-
CloudWatch Logging	<p>By default, the option to send logs to CloudWatch is enabled. This will allow you to send Data Archiver logs to CloudWatch; you can later access the logs (on page 367) and monitor them.</p> <p>And, the retention period is set to 30 days, after which the logs are deleted. If needed, you can change the retention period. We strongly recommend that you do not disable logging.</p>
TLS Configuration	<p>Provide the ARN of an SSL certificate. If you leave this field blank, we generate an openSSL certificate. However, we recommend that you provide a trusted certificate.</p>

10. If needed, you can choose to enable the client VPN endpoint for additional security.
11. Select the check boxes to acknowledge the capabilities required by CloudFormation, and then select **Create stack**.

The stack is created, along with a VPC with two private and two public subnets.



CAUTION:

Do not update or delete the stack; you can lose data.

What to do next

1. [Apply the Proficy Historian for Linux license if you have one \(on page 24\)](#).
2. Based on your requirement, install [collectors \(on page 26\)](#) or [the Web Admin console and the REST Query service \(on page 33\)](#).

Deploy Proficy Historian for AWS in an Existing VPC

Before you begin

1. [Create a virtual private cloud \(VPC\)](#), and make a note of the VPC configuration (that is, the IDs of the VPC, subnets, and so on). For instructions, refer to <https://docs.aws.amazon.com/managedservices/latest/userguide/find-vpc.html> and <https://docs.aws.amazon.com/managedservices/latest/userguide/find-subnet.html>.
2. Ensure that you are in the region in which you want to deploy Proficy Historian for AWS. The following regions are supported:
 - Asia Pacific (Hong Kong)
 - Asia Pacific (Tokyo)
 - Asia Pacific (Seoul)
 - Asia Pacific (Mumbai)
 - Asia Pacific (Singapore)
 - Asia Pacific (Sydney)
 - Canada (Central)
 - Europe (Frankfurt)
 - Europe (Stockholm)
 - Europe (Ireland)
 - Europe (London)
 - Europe (Paris)
 - Middle East (Bahrain)
 - South America (Sao Paulo)
 - US East (N. Virginia)
 - US East (Ohio)
 - US West (N. California)
 - US West (Oregon)

About this task


This topic describes how to deploy Proficy Historian for AWS in an existing VPC. Alternatively, you can [deploy Proficy Historian for AWS in a new VPC \(on page 15\)](#).


Procedure


1. Log in to the AWS marketplace.
2. In the list of products that appear, if you have the Historian for Linux license, select **Proficy Historian for AWS**.

proficy historian (3 results) showing 1 - 3

Sort By: Relevance

 **WebAdmin and Rest API for Proficy Historian**
By GE Digital | Ver 2022.1
WebAdmin and REST API containers are deployed on EC2 Instance in the Same VPC of Proficy Historian. This improves the performance in terms of connectivity and response. The deployments connect to Proficy Historian running on EKS through NLB.


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Or, if you want to use the consumption model, select **Proficy Historian for AWS (Consumption Pricing)**.

proficy historian (3 results) showing 1 - 3

Sort By: Relevance

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By GE Digital | Ver 2022.1
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 **Proficy Historian for AWS (Consumption Pricing)**
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3. Select **Continue to Subscribe**.

The terms and conditions appear.

4. Select **Continue to Configuration**.

The **Configure this software** page appears.

5. Enter values as described in the following table.

Field	Description
Fulfillment option	Select CloudFormation Template .
Software version	Select 2022.1

6. Select **Continue to Launch**.

The **Launch this software** page appears.

7. Under **Deployment template**, select **Deploy Proficity Historian in the Existing VPC**.

The **Quick create stack** page appears.

8. Enter values as described in the following table.

Field/Section	Description
Stack name	Enter a name for the stack. A value is required and must be unique. The value can include all alphanumeric characters and dashes. It must begin with an alphabetic character and cannot exceed 128 characters.
VPC ID	Enter the ID of the VPC on which you want to deploy Proficity Historian for AWS. For instructions on how to find the VPC ID, refer to https://docs.aws.amazon.com/managedservices/latest/userguide/find-vpc.html .
Private Subnets and Public Subnets IDs	Enter the IDs of the two private and the two public subnets in your VPC. For instructions on how to find these IDs, refer to https://docs.aws.amazon.com/managedservices/latest/userguide/find-subnet.html .
EKS cluster name	Enter a unique name for the Elastic Kubernetes Service (EKS) cluster. A value is required, must be unique, and must be less than 28 characters.
Instance type	Choose an instance type based on your requirement. Our benchmarking results suggest that C5.xLarge supports up to 15 million samples per minute. You can choose an instance of lower or higher capacity based on the rate of collection.

Field/Section	Description
UAA Configuration	<p>Enter a password to connect to UAA. Make a note of this value; you will need it to connect the Historian server with collectors and clients (such as the Web Admin console, the REST Query service, the Excel Add-in for Historian, and so on).</p> <p>The value that you enter must contain:</p> <ul style="list-style-type: none"> • Minimum eight characters • At least one each of uppercase and lowercase letters • At least one number • At least one special character from among !@#%*_.^+~:~?~-
CloudWatch Logging	<p>By default, the option to send logs to CloudWatch is enabled. This will allow you to send Data Archiver logs to CloudWatch; you can later access the logs (on page 367) and monitor them.</p> <p>And, the retention period is set to 30 days, after which the logs are deleted. If needed, you can change the retention period. We strongly recommend that you do not disable logging.</p>
TLS Configuration	<p>Provide the ARN of an SSL certificate. If you leave this field blank, we generate an openSSL certificate. However, we recommend that you provide a trusted certificate.</p>

- If needed, you can choose to enable the client VPN endpoint for additional security.
- Select the check boxes to acknowledge the capabilities required by CloudFormation, and then select **Create stack**.

The stack is created, along with a VPC with two private and two public subnets.



CAUTION:

Do not update or delete the stack; you can lose data.

What to do next

1. [Apply the Proficy Historian for Linux license if you have one \(on page 24\)](#).
2. Based on your requirement, install [collectors \(on page 26\)](#) or the [Web Admin console and the REST Query service \(on page 33\)](#).

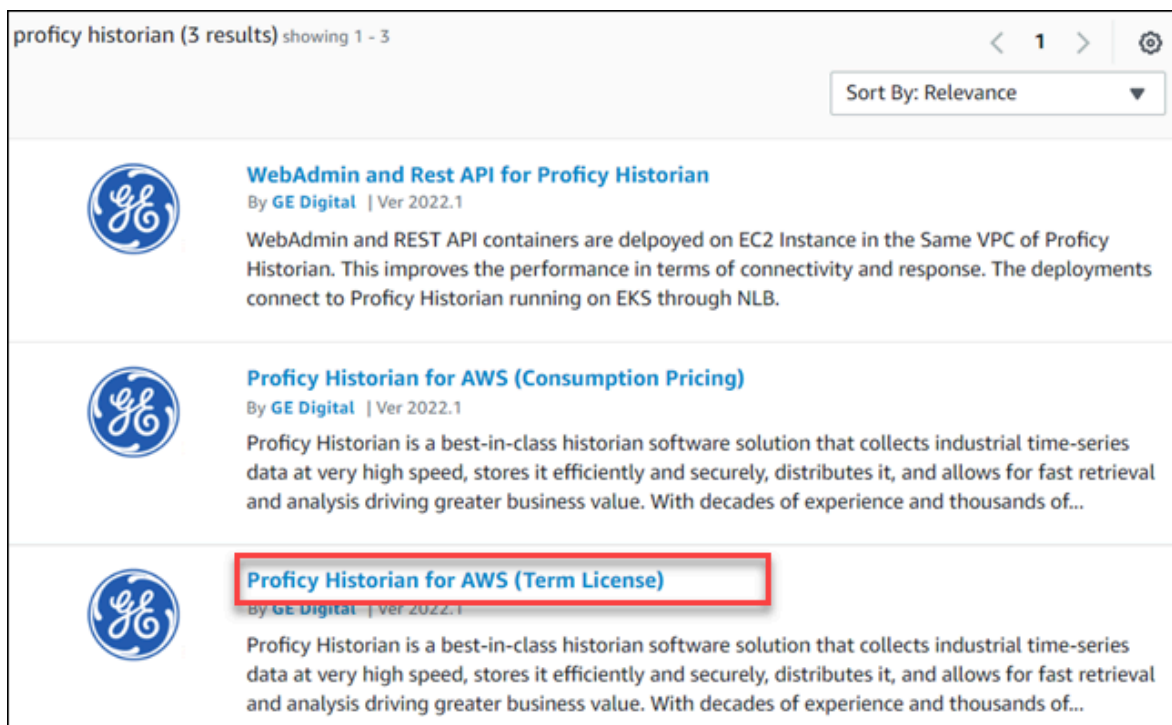
Applying the Historian License (BYOL)

Before you begin

- Upload the Proficy Historian for Linux license in Amazon S3.
- [Deploy Proficy Historian for AWS \(on page 14\)](#).

Procedure


1. Log in to the AWS marketplace. Ensure that you are in the same region in which you have deployed Proficy Historian for AWS.
2. Search for Proficy Historian.
3. In the list of products that appear, select **Proficy Historian for AWS**.



4. Select **Continue to Subscribe**.
The terms and conditions appear.
5. Select **Continue to Configuration**.
The **Configure this software** page appears.
6. Enter values as described in the following table.

Field	Description
Fulfillment option	Select CloudFormation Template .
Software version	Select 2022.1 .

7. Select **Continue to Launch**.
8. Under **Deployment template**, select **Proficy Historian License - BYOL**.
The **Quick create stack** page appears.
9. Enter values as described in the following table.

Field/Section	Description
Stack name	Enter a name for the stack. A value is required and must be unique. The value can include all alphanumeric characters and dashes. It must begin with an alphabetic character and cannot exceed 128 characters.
EKS cluster name	Enter the EKS cluster name in which you deployed Proficy Historian for AWS. A value is required. <div style="border: 1px solid #0070C0; border-radius: 10px; padding: 10px; background-color: #E6F2FF;"> <p> Tip: You can find it in the list of EKS clusters.</p> </div>
S3 URL	Enter the URL of the Historian license that you have uploaded in Amazon S3. A value is required.

10. Select **Create stack**.
The license is applied.

What to do next

Based on your requirement, install [collectors \(on page 26\)](#) or the [Web Admin console and the REST Query service \(on page 33\)](#).

Enable Debugging

Before you begin

[Deploy Proficy Historian for AWS \(on page 14\)](#).

About this task


This topic describes how to turn on the debug mode for archive logs. Using the debug mode helps in troubleshooting issues. However, there can be performance issues.

Procedure

1. Log in to the AWS console. Ensure that you are in the same region in which you have deployed Proficy Historian for AWS.
2. Access one of the following URLs based on your deployment type:
 - For consumption model, access <https://ap-northeast-1.console.aws.amazon.com/cloudformation/home?region=ap-northeast-1#/stacks/quickcreate?templateURL=https://proficy-historian.s3.us-east-2.amazonaws.com/v1.0/historian-configuration-template-meter.yaml>
 - For license-based model (BYOL), access <https://ap-northeast-1.console.aws.amazon.com/cloudformation/home?region=ap-northeast-1#/stacks/quickcreate?templateURL=https://proficy-historian.s3.us-east-2.amazonaws.com/v1.0/historian-configuration-template-BYOL.yaml>

The **Quick create stack** page appears.

3. Enter values as described in the following table.

Field	Description
Stack name	Enter a name for the stack. A value is required and must be unique. The value can include all alphanumeric characters and dashes. It must begin with an alphabetic character and cannot exceed 128 characters.
Cluster name	Enter the EKS cluster name in which you deployed Proficy Historian for AWS. A value is required. <div style="border: 1px solid #00a0e3; border-radius: 10px; padding: 10px; background-color: #e6f2ff;"> <p> Tip: You can find it in the list of EKS clusters.</p> </div>
S3URL	Enter the URL of the Historian license that you have uploaded in Amazon S3. A value is required. This field appears only if you have selected the URL for BYOL.
Debug Mode	Select on .

4. Select **Create stack**.
Debugging is enabled.

About Installing Collectors

Collectors are used to collect data from various data sources and send the data to the Historian server.

You can install collectors on-premises or on an EC2 instance in a VPC (which can be the same one as the Historian server or a different one). However, you cannot install the on-premises and cloud versions of collectors on the same machine. You can choose a different machine or uninstall the existing version of collectors.

You can install collectors [using the installer \(on page 27\)](#) or [at a command prompt \(on page 31\)](#).

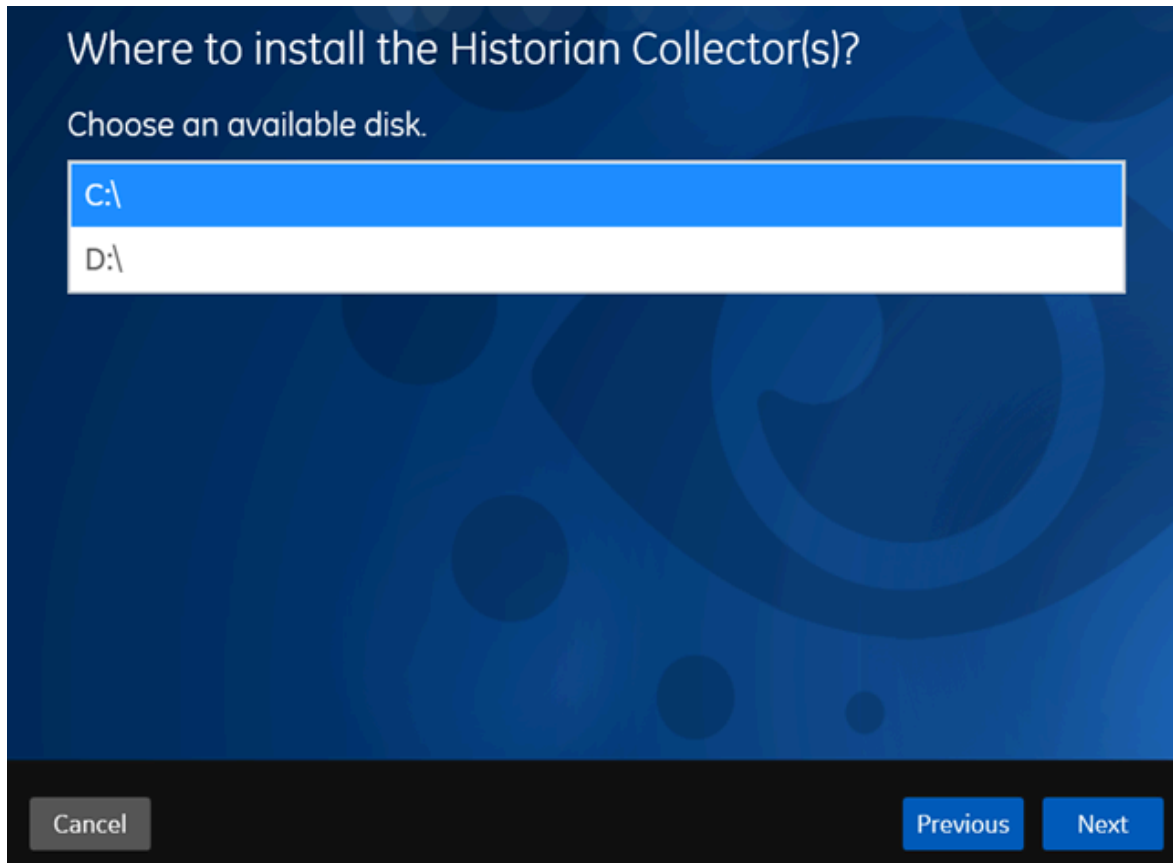
Install Collectors Using the Installer

About this task

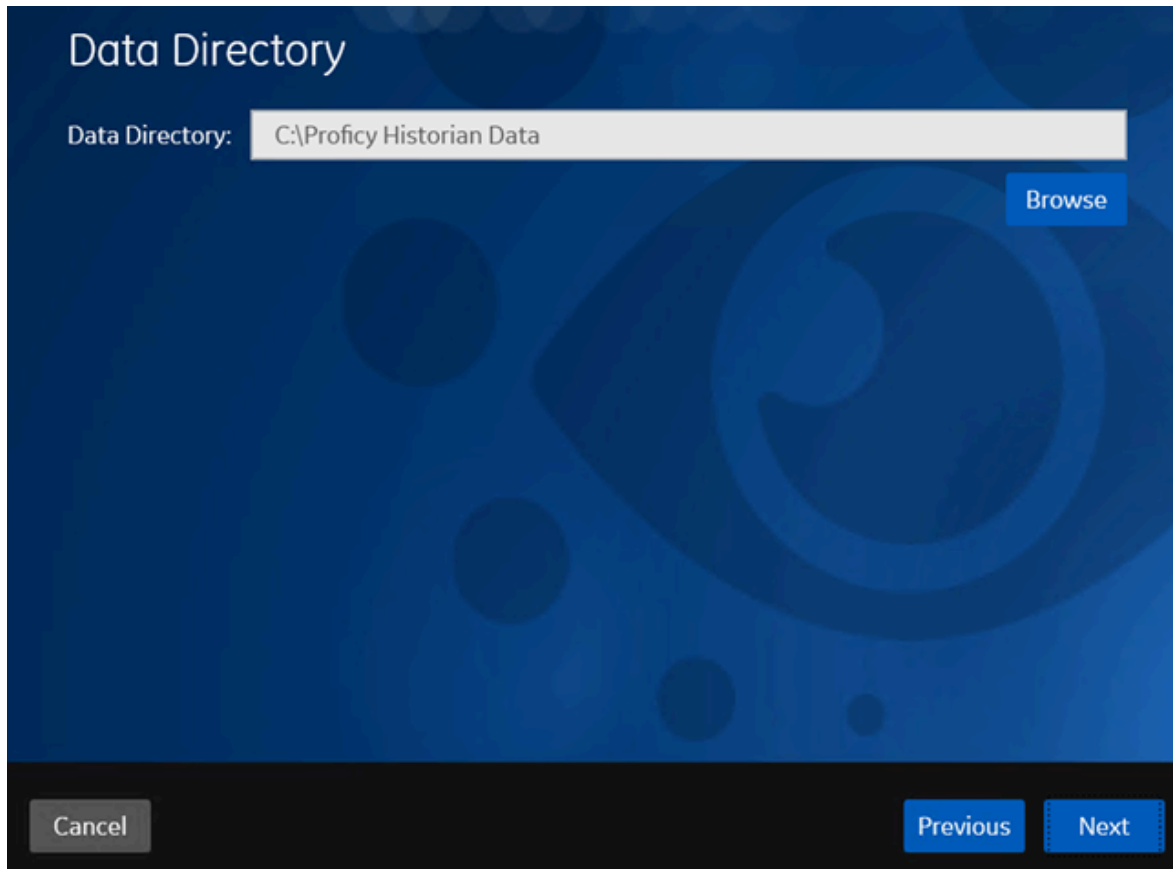
This topic describes how to install collectors using an installer. You can also [install them at a command prompt \(on page 31\)](#).

Procedure

1. Download the collectors installer from the following path: https://historian-collectors-and-clients.s3.us-east-2.amazonaws.com/collectors/Historian_Collectors_For_Cloud.zip
2. Extract the contents, and launch the collectors installer.
The welcome page appears.
3. Select **Next**.
The license agreement appears.
4. Select the **Accept** check box, and then select **Next**.
The installation drive page appears.



5. If needed, change the default installation drive, and then select **Next**.
The data directory page appears.



6. If needed, change the folder for storing the collector log files, and then select **Next**.
The destination Historian server page appears.

Historian Server Details

Provide a valid windows user of the default Historian server to which the Remote Collector Manager will connect.

Historian Server:

User Name:


Password:

Confirm Password:

Note: If the Historian server and collectors are installed on the same machine, you need not provide the details; by default, the machine name of the local Historian server is considered. If, however, they are installed on different machines, you must provide the credentials of the Historian server user.
 If the password changes, you must reinstall Remote Management Agents to reset the password.

7. Enter values as described in the following table.

Field	Description
Historian Server	Enter the Amazon Network Load Balancer (NLB) DNS. <div style="border: 1px solid #0070C0; border-radius: 10px; padding: 10px; margin-top: 10px;"> <p>i Tip:</p> <p>To find the NLB DNS:</p> <ol style="list-style-type: none"> a. Access the EKS cluster on which you have deployed Proficy Historian for AWS. b. Access the EC2 instance. c. In the navigation pane, under Load Balancing, select Load Balancers. d. Select the load balancer for which you want to find the DNS. e. In the Description section, copy the DNS name. </div>
User Name	Enter the username to connect to Proficy Historian for AWS.

Field	Description
Password	Enter the password to connect to Proficy Historian for AWS. <div style="border: 1px solid #0070C0; border-radius: 10px; padding: 10px; margin-top: 10px;">  Tip: This is the value you entered in the Password field under UAA Configuration when you created the stack. </div>
Confirm Password	Reenter the password.

8. Select **Next**.

A message appears, stating that you are ready to install collectors.

9. Select **Install**.

The installation begins. Reboot your system if prompted to do so.

Results

- For Windows 64 bit, the 32-bit collector executable files are installed in the following folder:
`<installation drive>:\Program Files (x86)\GE Digital\<collector name>`,
 and the 64-bit collector executable files are installed here: `<installation drive>:\Program Files\GE Digital\<collector name>`.
- For Windows 32 bit, the 32-bit collector executable files are installed in the following folder:
`<installation drive>:\Program Files\GE Digital\<collector name>`. 64-bit collectors are not supported for Windows 32 bit.

What to do next

Create a collector instance. For information on which collector type to use, refer to [Choosing a Collector \(on page 60\)](#).

Installing a Collector at a Command Prompt


About this task

This topic describes how to install collectors at a command prompt. You can also [install them using the installer \(on page 27\)](#).

Procedure

1. Download the collectors installer from the following path: https://historian-collectors-and-clients.s3.us-east-2.amazonaws.com/collectors/cloud_collector_installer.zip
2. Extract the contents, and access the folder containing the `Collectors_Install.exe` file.
3. At a command prompt, enter:

```
Collectors_Install.exe -s RootDrive=<value> DestinationServerName=<value> DataPath=<value>
UserName1=<value> Password=<value>
```

Parameter	Description	Default Value
RootDrive	The installation drive for the collectors.	C:\
DataPath	The folder for storing the collector log files.	C:\Proficy Historian Data
DestinationServer-Name	<p>Enter the Amazon Network Load Balancer (NLB) DNS.</p> <div style="border: 1px solid #0070C0; border-radius: 10px; padding: 10px; background-color: #E6F2FF;"> <p> Tip: To find the NLB DNS:</p> <ol style="list-style-type: none"> a. Access the EKS cluster on which you have deployed Proficy Historian for AWS. b. Access the EC2 instance. c. In the navigation pane, under Load Balancing, select Load Balancers. d. Select the load balancer for which you want to find the DNS. e. In the Description section, copy the DNS name. </div>	local host name
UserName1	The username to connect to Proficy Historian for AWS.	
Password	The password to connect to Proficy Historian for AWS.	

For example: `Collectors_Install.exe -s RootDrive=C:\ DestinationServerName=myOrg.com DataPath=C:\Proficy Historian Data UserName1=user123 Password=xyz123`

4. Restart the machine. If you uninstall a collector or install another one before restarting the machine, an error may occur.

Results

- For Windows 64 bit, the 32-bit collector executable files are installed in the following folder:
`<installation drive>:\Program Files (x86)\GE Digital\<collector name>`,
and the 64-bit collector executable files are installed here: `<installation drive>:\Program Files\GE Digital\<collector name>`.
- For Windows 32 bit, the 32-bit collector executable files are installed in the following folder:
`<installation drive>:\Program Files\GE Digital\<collector name>`. 64-bit collectors are not supported for Windows 32 bit.

What to do next

Create a collector instance. For information on which collector type to use, refer to [Choosing a Collector \(on page 60\)](#).

Deploying the Web Admin Console and the REST Query Service

Deploy the Web Admin Console and the REST Query Service by Launching through EC2

Before you begin

[Deploy Proficy Historian for AWS \(on page 14\)](#).

About this task

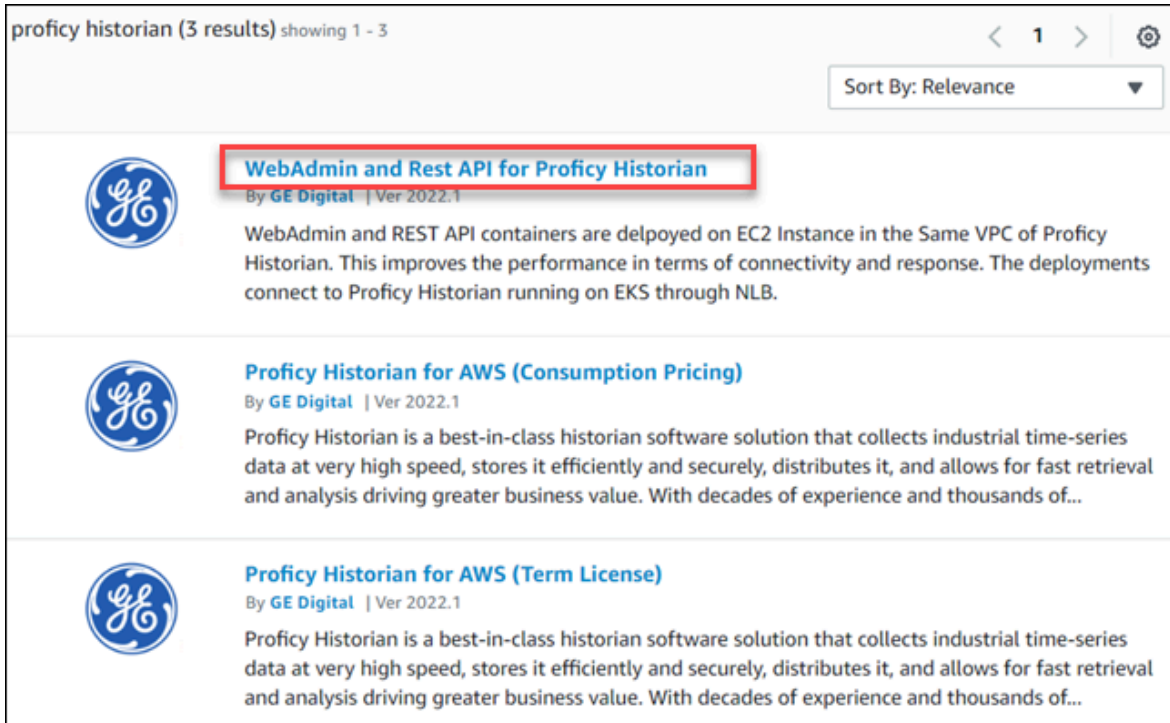
The [Web Admin console \(on page 93\)](#) is a web-based user interface, which you can use to monitor, supervise, archive, retrieve, and control data stored in the Historian server. And, [the REST Query service \(on page 128\)](#) contains APIs to fetch data from the Historian database.

This topic describes how to deploy the Web Admin console and the REST Query service using an Amazon Machine Image (AMI) by launching through EC2. You can also deploy them by [launching from a website \(on page 39\)](#).

When you deploy the AMI, you will create a key pair (or use an existing one), which will be used later to connect the Web Admin console and the REST Query service with the Historian server.

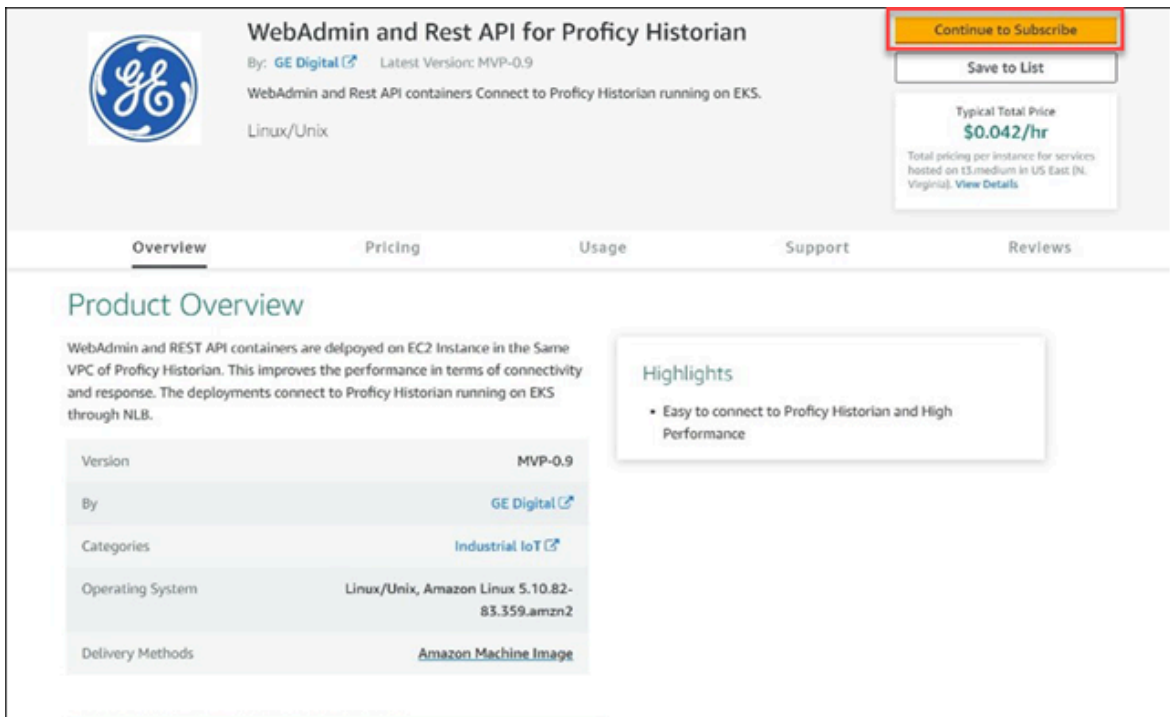
Procedure

1. Log in to the AWS marketplace.
2. Search for Proficy Historian.
A list of products in Proficy Historian appears.
3. Select **WebAdmin and Rest API for Proficy Historian**.



The product overview and other details appear.

4. Select **Continue to Subscribe**.



Your request for subscription is processed.

5. Select **Continue to Configuration**.

WebAdmin and Rest API for Proficy Historian

[Continue to Configuration](#)

< Product Detail [Subscribe](#)

Subscribe to this software

You're subscribed to this software. Please see the terms and pricing details below or click the button above to configure your software.

Terms and Conditions

GE Digital Offer

You have subscribed to this software and agreed that your use of this software is subject to the pricing terms and the seller's [End User License Agreement \(EULA\)](#). You agreed that AWS may share information about this transaction (including your payment terms) with the respective seller, reseller or underlying provider, as applicable, in accordance with the [AWS Privacy Notice](#). AWS will issue invoices and collect payments from you on behalf of the seller through your AWS account. Your use of AWS services remains subject to the [AWS Customer Agreement](#) or other agreement with AWS governing your use of such services.

Product	Effective date	Expiration date	Action
WebAdmin and Rest API for Proficy Historian	5/17/2022	N/A	Show Details

The **Configure this Software** page appears.

6. Enter values as described in the following table.

Field	Description
Fulfilment option	Select 64-bit (x86) Amazon Machine Image (AMI) .
Software version	Select 2022.1 .
Region	Select the region on which you want to deploy the Web Admin console and the REST Query service. For optimum performance, we recommend that you use the same region as the one on which you have deployed Proficy Historian for AWS.

7. Select **Continue to Launch**.

The screenshot shows the AWS Marketplace configuration page for the software 'WebAdmin and Rest API for Proficy Historian'. The page includes a GE logo, navigation links for 'Product Detail', 'Subscribe', and 'Configure', and a 'Continue to Launch' button. The main section is titled 'Configure this software' and prompts the user to 'Choose a fulfillment option and software version to launch this software.' Three dropdown menus are visible: 'Fulfillment option' (64-bit (x86) Amazon Machine Image (AMI)), 'Software version' (MVP-0.9 (May 09, 2022)), and 'Region' (US East (N. Virginia)). Below these are instructions about Local Zones and WaveLength, and technical details for the AMI (Id, Alias, Product Code, and Release notes). A 'Pricing information' sidebar on the right provides an estimate of costs, showing 'Software Pricing' at \$0/hr and 'Infrastructure Pricing' with a 'Monthly Estimate' of \$50.00/month.

The **Launch this software** page appears.

8. In the **Choose Action** field, select **Launch through EC2**, and then select **Launch**.

WebAdmin and Rest API for Proficy Historian

Launch this software

Review the launch configuration details and follow the instructions to launch this software.

Configuration details

Fulfillment option 64-bit (x86) Amazon Machine Image (AMI)
WebAdmin and Rest API for Proficy Historian
running on t3.medium

Software version MVP-0.9

Region US East (N. Virginia)

[Usage instructions](#)

Choose Action

Launch through EC2

Choose this action to launch your configuration through the Amazon EC2 console.

Launch

The **Launch an instance** page appears.

9. Enter values as described in the following table.

Field	Description
Name	Enter a tag name for the instance.
Instance type	Select the instance type for the Web Admin console and the REST Query service. Choose the type based on your data consumption. We recommend a minimum configuration of t3.medium.
Key pair	Select a key pair of the type RSA and format .pem, if you have one. If not, you can create a key pair .

10. Under **Network settings**, select **Edit**.

▼ Network settings
Edit

Network
vpc-fbeb8586

Subnet
No preference (Default subnet in any availability zone)

Auto-assign public IP
Enable

Security groups (Firewall) [Info](#)
 A security group is a set of firewall rules that control the traffic for your instance. Add rules to allow specific traffic to reach your instance.
 We'll create a new security group called 'WebAdmin and Rest API for Proficy Historian-MVP-0.9-AutogenByAWSMP-1' with the following rules:

- Allow SSH traffic from Anywhere
0.0.0.0/0 ▼
Recommended rule from AMI
- Allow CUSTOMTCP traffic from Anywhere
0.0.0.0/0 ▼
Recommended rule from AMI
- Allow CUSTOMTCP traffic from Anywhere
0.0.0.0/0 ▼
Recommended rule from AMI

11. Enter values as described in the following table.

Field	Description
VPC	Select the VPC on which you want to deploy the Web Admin console and the REST Query service.
Subnet	Select the <i>public</i> subnet of the VPC on which you have deployed Proficy Historian for AWS. If you have used the default VPC, you need not provide the subnet details.

12. Under **Inbound security groups rules**, enter the following values for security group rules 1 and 2 respectively:

Type	Protocol	Port Range	Source type
SSH	TCP	22	Select Custom , and enter the public IP address of the machine or network from which you want to access the Web Admin console and the REST Query service. Provide a static IP address, or use the CIDR notation (for example, <IP address>/16).

Type	Protocol	Port Range	Source type
Custom TCP Rule	TCP	9443	Select Custom , and enter the public IP address of the machine or network from which you want to access the Web Admin console. Provide a static IP address, or use the CIDR notation (for example, <IP address>/16). Or, if you want to access the Web Admin console only from your local machine, select My IP .
Custom TCP Rule	TCP	8989	Select Custom , and enter the public IP address of the machine or network from which you want to access the REST Query service. Provide a static IP address, or use the CIDR notation (for example, <IP address>/16). Or, if you want to access the REST Query service only from your local machine, select My IP .

13. As needed, configure storage and advance settings.

14. Select **Launch Instance**.

The Web Admin console and the REST Query service are deployed.

What to do next

[Connect the Web Admin console and the REST Query service with Proficy Historian for AWS. \(on page 109\)](#)

Deploy the Web Admin Console and the REST Query Service by Launching from Website

Before you begin

[Deploy Proficy Historian for AWS \(on page 14\).](#)

About this task

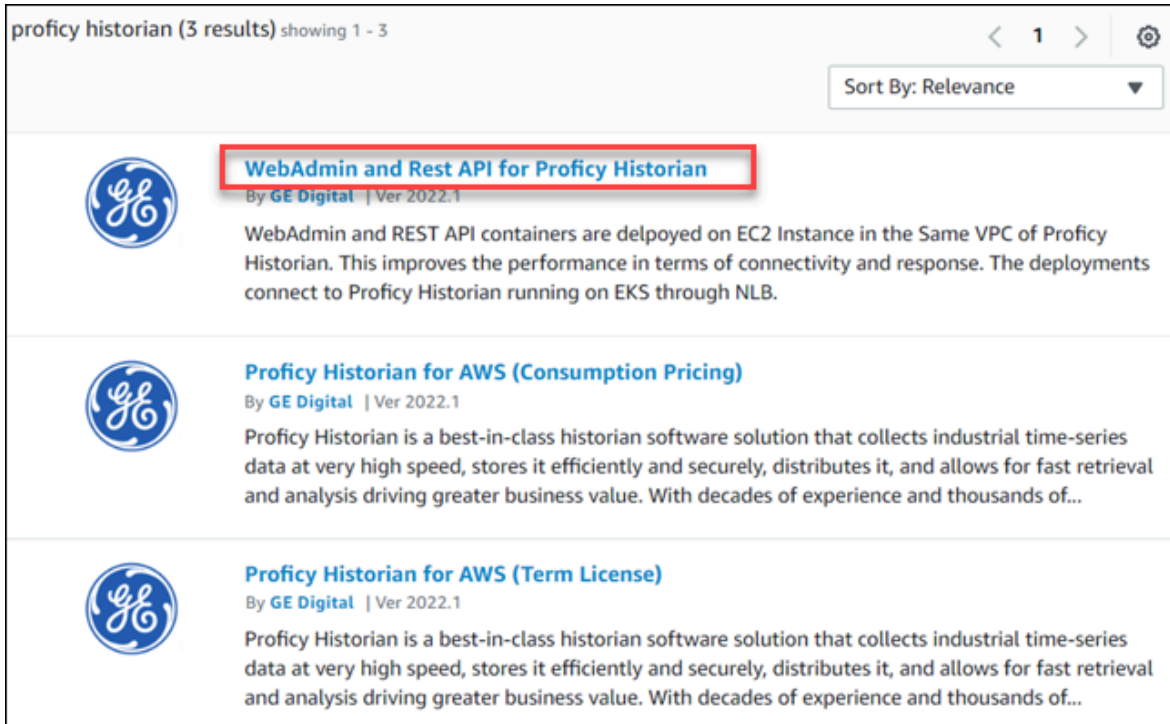
The [Web Admin console \(on page 93\)](#) is a web-based user interface, which you can use to monitor, supervise, archive, retrieve, and control data stored in the Historian server. And, [the REST Query service \(on page 128\)](#) contains APIs to fetch data from the Historian database.

This topic describes how to deploy the Web Admin console and the REST Query service using an Amazon Machine Image (AMI) by launching from a website. You can also deploy them by [launching through EC2 \(on page 33\)](#).

When you deploy the AMI, you will create a key pair (or use an existing one), which will be used later to connect the Web Admin console and the REST Query service with the Historian server.

Procedure

1. Log in to the AWS marketplace.
2. Search for Proficy Historian.
A list of products in Proficy Historian appears.
3. Select **WebAdmin and Rest API for Proficy Historian**.



The product overview and other details appear.

4. Select **Continue to Subscribe**.

The screenshot shows the product page for 'WebAdmin and Rest API for Proficy Historian' by GE Digital. The page includes a navigation bar with 'Overview', 'Pricing', 'Usage', 'Support', and 'Reviews'. The 'Overview' section contains a 'Product Overview' and a 'Highlights' box. A pricing box in the top right corner shows a 'Typical Total Price' of '\$0.042/hr'. A 'Continue to Subscribe' button is highlighted with a red box.

Product Overview

WebAdmin and REST API containers are deployed on EC2 Instance in the Same VPC of Proficy Historian. This improves the performance in terms of connectivity and response. The deployments connect to Proficy Historian running on EKS through NLB.

Highlights

- Easy to connect to Proficy Historian and High Performance

Version	MVP-0.9
By	GE Digital
Categories	Industrial IoT
Operating System	Linux/Unix, Amazon Linux 5.10.82-83.359.amzn2
Delivery Methods	Amazon Machine Image

Your request for subscription is processed.

5. Select **Continue to Configuration**.

The screenshot shows the 'Subscribe to this software' page. It includes a 'Continue to Configuration' button highlighted with a red box. Below the button, there is a 'Terms and Conditions' section with a 'GE Digital Offer' and a table listing the subscription details.

Subscribe to this software

You're subscribed to this software. Please see the terms and pricing details below or click the button above to configure your software.

Terms and Conditions

GE Digital Offer

You have subscribed to this software and agreed that your use of this software is subject to the pricing terms and the seller's [End User License Agreement \(EULA\)](#). You agreed that AWS may share information about this transaction (including your payment terms) with the respective seller, reseller or underlying provider, as applicable, in accordance with the [AWS Privacy Notice](#). AWS will issue invoices and collect payments from you on behalf of the seller through your AWS account. Your use of AWS services remains subject to the [AWS Customer Agreement](#) or other agreement with AWS governing your use of such services.

Product	Effective date	Expiration date	Action
WebAdmin and Rest API for Proficy Historian	5/17/2022	N/A	Show Details

The **Configure this Software** page appears.

6. Enter values as described in the following table.

Field	Description
Fulfilment option	Select 64-bit (x86) Amazon Machine Image (AMI) .
Software version	Select 2022.1 .
Region	Select the region on which you want to deploy the Web Admin console and the REST Query service. For optimum performance, we recommend that you use the same region as the one on which you have deployed Proficy Historian for AWS.

7. Select **Continue to Launch**.

The screenshot displays the AWS Marketplace configuration interface. At the top, the GE logo and product name 'WebAdmin and Rest API for Proficy Historian' are visible. A yellow 'Continue to Launch' button is highlighted with a red border. Below the header, there are navigation links for 'Product Detail', 'Subscribe', and 'Configure'. The main heading is 'Configure this software', followed by the instruction 'Choose a fulfillment option and software version to launch this software.' Three dropdown menus are present: 'Fulfilment option' (64-bit (x86) Amazon Machine Image (AMI)), 'Software version' (MVP-0.9 (May 09, 2022)), and 'Region' (US East (N. Virginia)). Below these, there is a note about Local Zones or WaveLength infrastructure, and fields for 'Ami Id', 'Ami Alias', 'Product Code', and 'Release notes'. On the right, a 'Pricing information' box provides an estimate of costs, including 'Software Pricing' at \$0/hr and 'Infrastructure Pricing' with a 'Monthly Estimate' of \$30.00/month.

The **Launch this software** page appears.

8. In the **Choose Action** field, select **Launch from Website**, and then select **Launch**.

Launch this software

Review the launch configuration details and follow the instructions to launch this software.

Configuration details

Fulfillment option: 64-bit (x86) Amazon Machine Image (AMI)
WebAdmin and Rest API for Proficy Historian
running on t3.medium

Software version: MVP-0.9

Region: US East (N. Virginia)

Usage instructions

Choose Action

Launch from Website

Choose this action to launch from this website

9. Enter values as described in the following table.

Field	Description
EC2 Instance type	Select the instance type for the Web Admin console and the REST Query service. Choose the type based on your data consumption. We recommend a minimum configuration of t3.medium.
VPC Settings	Select the VPC on which you want to deploy the Web Admin console and the REST Query service.
Subnet Settings	Select the <i>public</i> subnet of the VPC on which you have deployed Proficy Historian for AWS. If you have used the default VPC, you need not provide the subnet details.

10. Under **Security Group Settings**, select **Create New Based on Seller Settings**.

WebAdmin and Rest API for Proficity Historian

VPC Settings

* indicates a default vpc

[Create a VPC in EC2](#)

Subnet Settings

IPv4 CIDR block:

[Create a subnet in EC2](#)
(Ensure you are in the selected VPC above)

Security Group Settings

A security group acts as a firewall that controls the traffic allowed to reach one or more instances. You can create a new security group based on seller-recommended settings or choose one of your existing groups. [Learn more](#)

[Create New Based On Seller Settings](#)

11. Enter a name and description for the security group. In the **Source (IP or Group)** column, leave the default value (Anywhere) as is for now. You will change these values later.

WebAdmin and Rest API for Proficy Historian

Security Group Settings

A security group acts as a firewall that controls the traffic allowed to reach one or more instances. You can create a new security group based on seller-recommended settings or choose one of your existing groups. [Learn more](#)

Create new based on seller settings

A new security group will be generated by AWS Marketplace. It is based on recommended settings for WebAdmin and Rest API for Proficy Historian version MVP-0.9.

Name your security Group

Description

Connection Method	Protocol	Port Range	Source (IP or Group)
SSH	tcp	22	Anywhe ▾ 0.0.0.0/0
	tcp	8989	Anywhe ▾ 0.0.0.0/0
	tcp	9443	Anywhe ▾ 0.0.0.0/0

Rules with source of 0.0.0.0/0 allows all IP addresses to access your instance. We recommend limiting access to only known IP addresses.

Cancel Save

12. Select **Save**.
13. Under **Key Pair Settings**, select a key pair of the type RSA and format .pem. If you do not have a key pair, you can [create it](#).
14. Under **Inbound security groups rules**, enter the following values for security group rules 1 and 2 respectively:

Type	Protocol	Port Range	Source type
SSH	TCP	22	Select Custom , and enter the public IP address of the machine or network from which you want to access the Web Admin console and the REST Query service.

Type	Protocol	Port Range	Source type
			Provide a static IP address, or use the CIDR notation (for example, <IP address>/16).
Custom TCP Rule	TCP	9443	Select Custom , and enter the public IP address of the machine or network from which you want to access the Web Admin console. Provide a static IP address, or use the CIDR notation (for example, <IP address>/16). Or, if you want to access the Web Admin console only from your local machine, select My IP .
Custom TCP Rule	TCP	8989	Select Custom , and enter the public IP address of the machine or network from which you want to access the REST Query service. Provide a static IP address, or use the CIDR notation (for example, <IP address>/16). Or, if you want to access the REST Query service only from your local machine, select My IP .

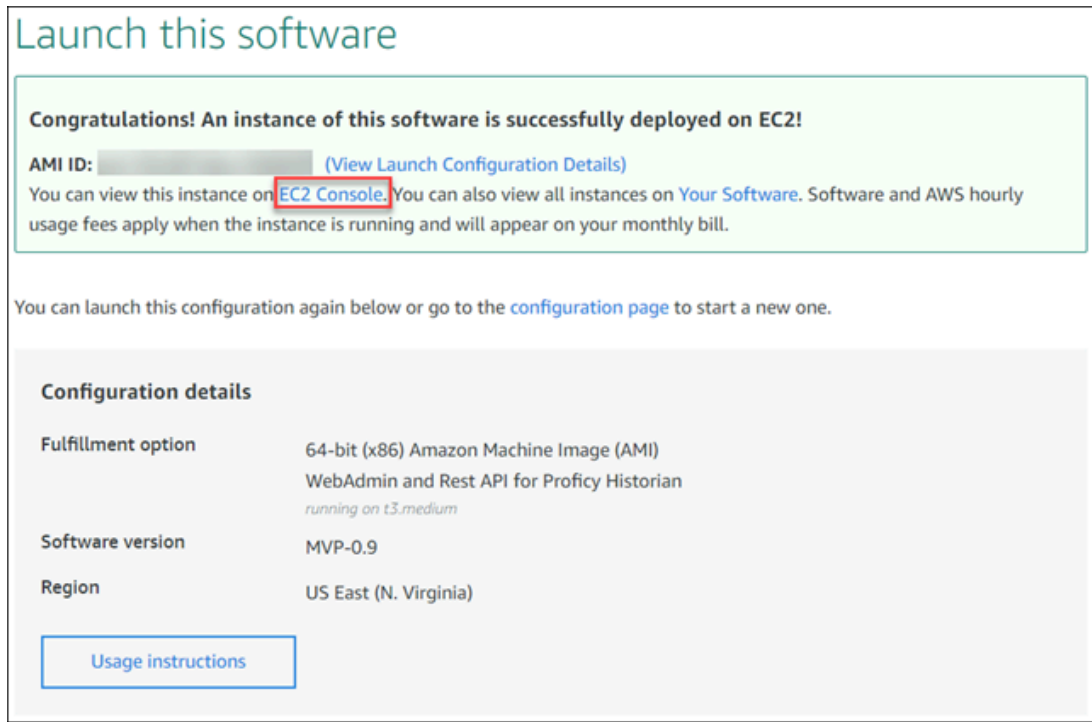
15. Select **Launch**.

The Web Admin console and the REST Query service are deployed.

What to do next

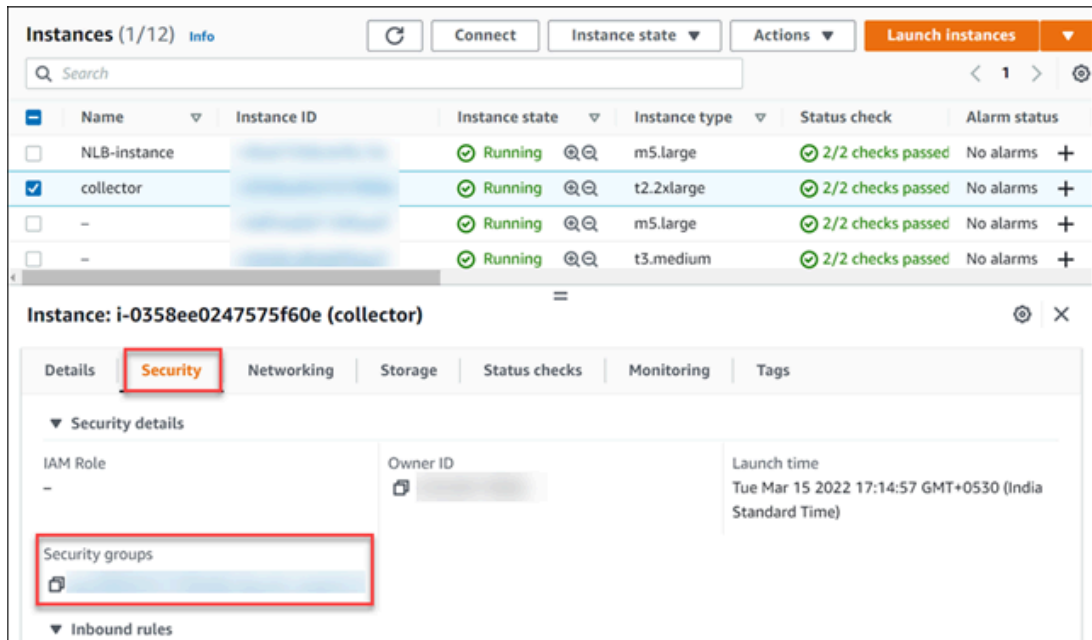
1. Edit the inbound security rules:

a. In the success message that appears at the top of the page, select **EC2 Console**.

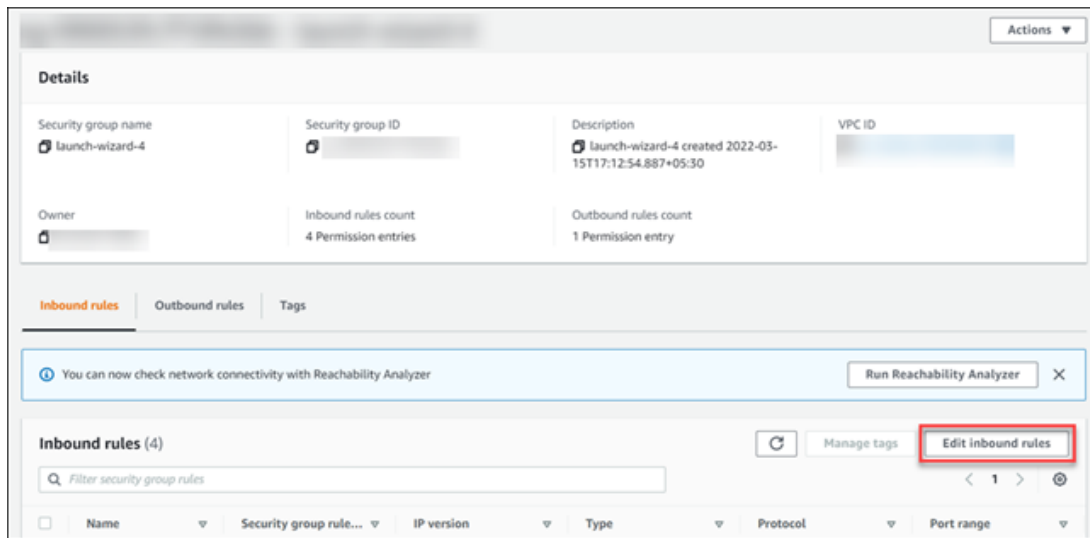


b. In the list of instances that appears, select the one on which you have deployed the Web Admin console and the REST Query service.

c. Select **Security**, and then select the security group.



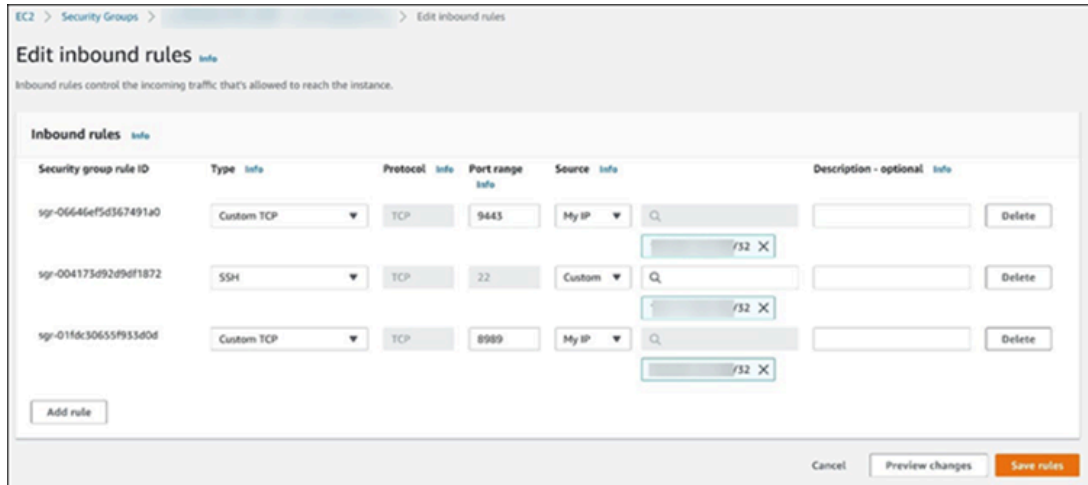
d. Under **Inbound rules**, select **Edit inbound rules**.



e. Edit the security groups as follows, and then select **Save rules**:

Type	Protocol	Port Range	Source type
SSH	TCP	22	Select Custom , and enter the public IP address of the machine or network from which you want to access the Web Admin console and the REST Query service. Provide a static IP address, or use the CIDR notation (for example, <IP address>/16).
Custom TCP Rule	TCP	9443	Select Custom , and enter the public IP address of the machine or network from which you want to access the Web Admin console. Provide a static IP address, or use the CIDR notation (for example, <IP address>/16). Or, if you want to access the Web Admin console only from your local machine, select My IP .
Custom TCP Rule	TCP	8989	Select Custom , and enter the public IP address of the machine or network from which you want to access the REST Query service. Provide a static IP address, or use the CIDR notation (for example, <IP address>/16).

Type	Protocol	Port Range	Source type
			Or, if you want to access the REST Query service only from your local machine, select My IP .



2. [Connect the Web Admin console and the REST Query service with Proficy Historian for AWS \(on page 109\).](#)

Installing Historian Administrator

Install Historian Administrator Using the Installer

About this task

If you already have Historian Administrator on your machine (installed using on-premises Proficy Historian), you can just change the destination to the NLB DNS, and begin using it:

1. Select **Main**.

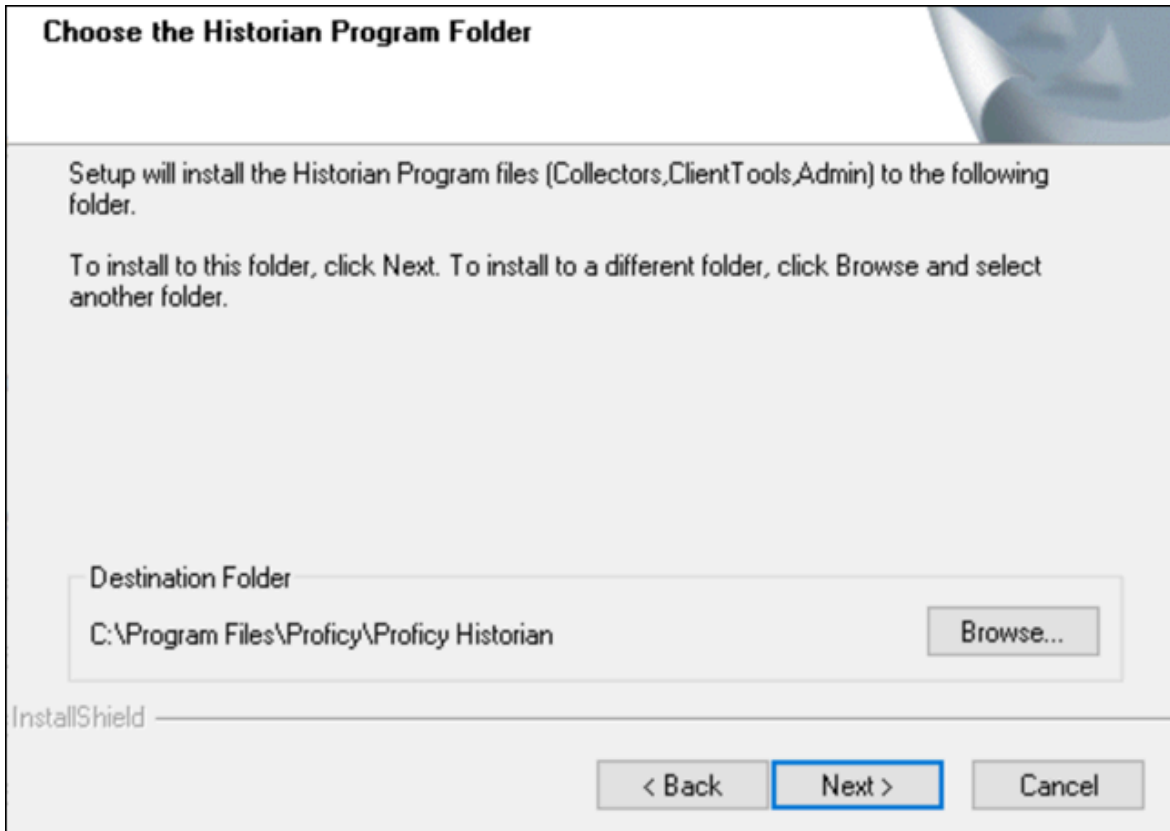
A login window appears.

2. Provide the NLB DNS, username, password, and domain information, and then select **OK**.

This topic describes how to install Historian Administrator using the installer. You can also [install it at a command prompt \(on page 51\)](#).

Procedure

1. Run the `InstallLauncher.exe` file. Contact the support team for this installer.
2. Select **Install Client Tools**.
The **Select Features** page appears, displaying a list of components.
3. Select the **Historian Administrator** check box.
4. Select **Next**.
The **Choose the Historian Program Folder** page appears.



5. As needed, change the destination folder of Historian Administrator, or leave the default folder, and then select **Next**.
The **Historian Server Name** page appears.

Historian Server Name

Enter the Historian Server to be used as the default for client tools.

Name

InstallShield

< Back Next > Cancel

6. Enter the NLB DNS of Proficy Historian for AWS that you want to use with Historian Administrator, and then select **Next**.



Tip:

To find the NLB DNS:

- a. Access the EKS cluster on which you have deployed Proficy Historian for AWS.
- b. Access the EC2 instance.
- c. In the navigation pane, under **Load Balancing**, select **Load Balancers**.
- d. Select the load balancer for which you want to find the DNS.
- e. In the **Description** section, copy the DNS name.

7. When you are asked to reboot your system, select **Yes**.

Install Historian Administrator at a Command Prompt

Before you begin

Install [Historian Administrator using the installer \(on page 49\)](#) on a machine. When you do so, a template file named `setup.iss` is created at `C:\windows`. This file stores the installation options

that you have provided. You can then use this template to install Historian Administrator at a command prompt on other machines.

Procedure

1. Copy the `setup.iss` file to the machine on which you want to install Historian Administrator at a command prompt.
2. In the folder in which you have copied the file, run the following command: `setup.exe /s /sms`
The installer runs through the installation steps.



Note:

If using certain versions of Windows (like Windows 10 or Windows 2019), you may receive an error message, stating that some of the DLL files are not registered. You can ignore these messages.

3. When prompted to reboot your system, select **Yes**.

Results

Historian Administrator is installed.

Installing the Excel Add-in for Historian

Install the Historian Excel Add-in Using the Installer

Before you begin

Install one of the following 32-bit or 64-bit Microsoft® Excel® applications:

- Microsoft® Excel® 2019
- Microsoft® Excel® 2016

About this task

This topic describes how to install Excel Add-In using the installer. You can also [install it at a command prompt \(on page 53\)](#).

Procedure

1. Run the `InstallLauncher.exe` file. Contact the AWS support team for the installer.
2. Select **Historian Excel Add-in**.
The installer runs through the installation steps.

**Note:**

If using certain versions of Windows (like Windows 10 or Windows 2019), you may receive an error message, stating that some of the DLL files are not registered. You can ignore these messages.

3. When prompted to reboot your system, select **Yes**.

Results

Excel Add-In is installed.

What to do next

[Activate Excel Add-In \(on page 183\)](#).

Install the Historian Excel Add-in at a Command Prompt

Before you begin

1. Install one of the following 32-bit or 64-bit Microsoft® Excel® applications:
 - Microsoft® Excel® 2019
 - Microsoft® Excel® 2016
2. [Install Excel Add-in using the installer \(on page 52\)](#) on a machine. When you do so, a template file named `setup.iss` is created at `C:\Windows`. This file stores the installation options that you have provided during the installation. You can then use this template to install Excel Add-in at a command prompt on other machines.

About this task

This topic describes how to install the Excel Addin for Historian at a command prompt. You can also [install it using the installer \(on page 52\)](#).

Procedure

1. Copy the `setup.iss` file to each machine on which you want to install Excel Add-in at a command prompt.
2. In the folder that contains the `setup.iss` file, run the following command: `setup.exe /s /sms`
The installer runs through the installation steps.



Note:

If using certain versions of Windows (like Windows 10 or Windows 2019), you may receive an error message, stating that some of the DLL files are not registered. You can ignore these messages.

3. When prompted to reboot your system, select **Yes**.

Results

Excel Add-In is installed.

What to do next

[Activate Excel Add-In \(on page 183\)](#).

Implementing Security

Default Security Groups

This topic provides a list of the default security groups created in Historian, along with the default user, ihCloudHistAdmin, for the ih_security_admins group. The password for this user is the one you enter in the **UAA Configuration** field while deploying Proficy Historian for AWS.

ih_security_admins

Historian power security users. Security administrators have rights to all Historian functions. By default, a user named ihCloudHistAdmin is added in this group.

ih_collector_admins

Allowed to add collector instances and change their destination.

ih_tag_admins

Allowed to create, modify, and remove tags. Tag-level security can override rights given to other Historian security groups. Tag admins can also browse collectors.

ih_archive_admins

Allowed to create, modify, and remove archives.

ih_unaudited_writers

Allowed to write data without creating any messages.

ih_unaudited_logins

Allowed to connect to Data Archiver without creating login successful audit messages.

ih_audited_writers

Allowed to write data and to produce a message each time a data value is added or changed.

Tag, archive, and collector changes log messages regardless of whether the user is a member of the ih_audited_writers group.

ih_readers

Allowed to read data and system statistics. Also allowed access to Historian Administrator.

The following table provides the types of user groups you must create based on your requirement.

Function	iH Security Admins	iH Un-Audited Writers	iH Un-Audited Login	iH Audited Writers	iH Readers	iH Archive Admins	iH Tag Admins	iH Collector Admins
Manage tags	X						X	
Create archive	X					X		
Read data	X				X			
Write data (unaudited)	X	X	X					
Write data (audited)	X			X				
Modify data	X	X	X	X				
Update tag security	X							
Migrate	X							
Login connect-	X	X		X	X	X	X	X

Function	iH Security Admins	iH Un-Audited Writers	iH Un-Audited Login	iH Audited Writers	iH Readers	iH Archive Admins	iH Tag Admins	iH Collector Admins
tion messages								
Recalculate data	X		X	X				X

**Note:**

Regardless of the security group to which a user belongs, the user has full privileges to the Web Admin console.

For instructions on creating and managing users, refer to [Managing Users and Groups \(on page 56\)](#).

Managing Users and Groups

About this task

Historian provides [default security groups \(on page 54\)](#) and a user, ihCloudHistAdmin, for the ih_security_admins group. This topic describes how to create more users and add them to groups. You can also delete a user or remove the user from a group.

Procedure

1. Access the folder containing the uaa_config_tool.exe file. It is provided with the collectors installer. After you install collectors, it will be available in the C:\Program Files\GE Digital\Historian Cloud Config folder by default.
2. To create a user, run the following command:

```
uaa_config_tool.exe add_user
-u <username>
-p <password>
-s <admin password>
-t https://<NLB DNS>:8080
```

For *<admin password>*, enter the password that you provided in the **UAA Configuration** field while deploying Proficy Historian for AWS.

For *<password>*, enter a value that contains:

- Minimum eight characters
- At least one each of uppercase and lowercase letters

- At least one number
- At least one special character

**Tip:**

To find the NLB DNS:

- Access the EKS cluster on which you have deployed Proficy Historian for AWS.
- Access the EC2 instance.
- In the navigation pane, under **Load Balancing**, select **Load Balancers**.
- Select the load balancer for which you want to find the DNS.
- In the **Description** section, copy the DNS name.

3. To add a user to a group, run the following command:

```
uaa_config_tool.exe add_user_to_group
-g <group name>
-u <username>
-p <password>
-s <admin password>
-t https://<NLB DNS>:8080
```

where *<admin password>* is the password that you provided in the **UAA Configuration** field while deploying Proficy Historian for AWS.

For *<password>*, enter a value that contains:

- Minimum eight characters
- At least one each of uppercase and lowercase letters
- At least one number
- At least one special character

**Tip:**

For a list of default security groups, refer to [Default Security Groups \(on page 54\)](#).

4. To remove a user from a group, run the following command:

```
uaa_config_tool.exe remove_user_to_group
-g <group name>
-u <username>
-t https://<NLB DNS>:8080
```

5. To delete a user, run the following command:

```
uaa_config_tool.exe remove_user  
  
-g <group name>  
  
-u <username>  
  
-s <admin password>  
  
-t https://<NLB DNS>:8080
```

Chapter 5. Sending Data

About Collectors

A collector collects tag data from various data sources.

How tag data is stored if using collectors of on-premises Proficy Historian (TLS encryption is not used):

1. Collectors send a request to AWS Network Load Balancer (NLB) to write tag data.
2. NLB sends the request to Data Archiver. If user authentication is needed, Data Archiver sends the request to UAA, which verifies the user credentials stored in PostgreSQL. After authentication, NLB confirms to the collectors that data can be sent.
3. Data collected by the collector instances is sent to NLB.
4. NLB sends the data to Data Archiver directly. After authentication, Data Archiver stores the data in EFS in .iha files.

How tag data is stored if using Historian Collectors for Cloud (TLS encryption is used):

1. Collectors send a request to AWS NLB to write tag data. Since the request is encrypted, port 443 is used.
2. NLB decrypts the request and sends it to Data Archiver. If user authentication is needed, Data Archiver sends the request to UAA, which verifies the user credentials stored in PostgreSQL. After authentication, NLB confirms to the collectors that data can be sent.
3. Data collected by the collector instances is encrypted and sent to NLB using port 443.
4. NLB decrypts the data and sends it to Data Archiver. After authentication, Data Archiver stores the data in EFS in .iha files.

How data is retrieved:

1. Clients (that is, Excel Addin, the Web Admin console, the REST Query service, or Historian Administrator) send a request to NLB to retrieve data.
2. NLB sends the request to Data Archiver, which retrieves data from EFS. If, however, user authentication is needed, Data Archiver sends the request to UAA, which verifies the user credentials stored in PostgreSQL. After authentication, data is retrieved from EFS.

To send data using a collector, you must:

1. [Install collectors \(on page 26\)](#).

You can install collectors on multiple Windows machines. These machines can be on-premises or on a virtual private cloud (VPC).

2. Create a collector instance.

Choosing a Collector

The following table provides a list of collectors supported by Proficy Historian for AWS, along with their purpose and features.

Collector Type	Purpose	Supported Data Collection	Time Resolution	Supported Data Types
The iFIX collector (on page 67)	Collects data from iFIX.	Only polled	milliseconds or seconds	Boolean, floating point, integer, and string
The MQTT collector (on page 70)	Collects data published to a topic using an MQTT broker. The data should be in Predix time series data format.	Only unsolicited	Seconds, milliseconds, and microsecond	Boolean, floating point, integer, and string
The OPC Classic DA collector (on page 72)	Collects data from any OPC 1.0 or OPC 2.0-compliant OPC Classic DA server.	Both polled and unsolicited (unsolicited for OPC 2.0 only)	1 millisecond	Floating point, integer, binary, and string
The OPC Classic HDA collector (on page 75)	Collects historical data from any OPC HDA 1.2 - compliant OPC server.	Only unsolicited	1 millisecond	Floating point, integer, binary, and string
The OPC UA DA collector (on page 78)	Collects data from any OPC UA 1.0 or OPC 2.0-compliant OPC UA DA server.	Both polled and unsolicited	1 millisecond	Floating point, integer, binary, and string
The OSI PI collector (on page 81)	Collects data from an OSI PI data server.	Only unsolicited	milliseconds and seconds	Floating point, integer, and string

Collector Type	Purpose	Supported Data Collection	Time Resolution	Supported Data Types
The OSI PI Distributor (on page 83)	Collects data from a Historian server and sends it to an OSI PI server.	Only unsolicited	milliseconds and seconds	Floating point, integer, and string
The Server-to-Server collector (on page 85)	Collects data from an on-premises Historian server and sends it to Proficy Historian for AWS, deployed on a VPC.	Only unsolicited	100 milliseconds	Floating point, integer, and string
The Simulation collector (on page 88)	Generates random numbers and string patterns for demonstration/testing purposes. You can configure the number of tags that you want to generate.	Only polled	1 millisecond	Floating point, integer, and string

About Installing Collectors

Collectors are used to collect data from various data sources and send the data to the Historian server.

You can install collectors on-premises or on an EC2 instance in a VPC (which can be the same one as the Historian server or a different one). However, you cannot install the on-premises and cloud versions of collectors on the same machine. You can choose a different machine or uninstall the existing version of collectors.

You can install collectors [using the installer \(on page 27\)](#) or [at a command prompt \(on page 31\)](#).

Install Collectors Using the Installer

About this task

This topic describes how to install collectors using an installer. You can also [install them at a command prompt \(on page 31\)](#).

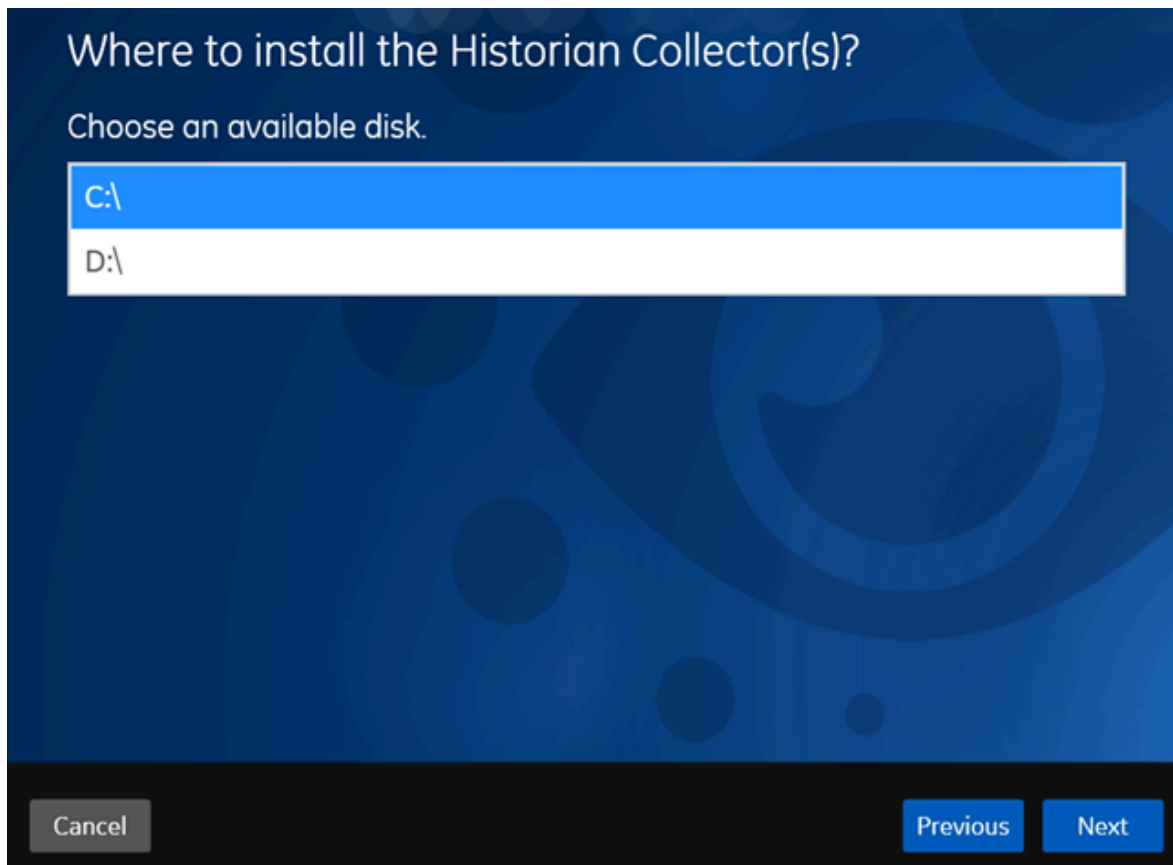
Procedure

1. Download the collectors installer from the following path: https://historian-collectors-and-clients.s3.us-east-2.amazonaws.com/collectors/Historian_Collectors_For_Cloud.zip
2. Extract the contents, and launch the collectors installer.
The welcome page appears.
3. Select **Next**.

The license agreement appears.

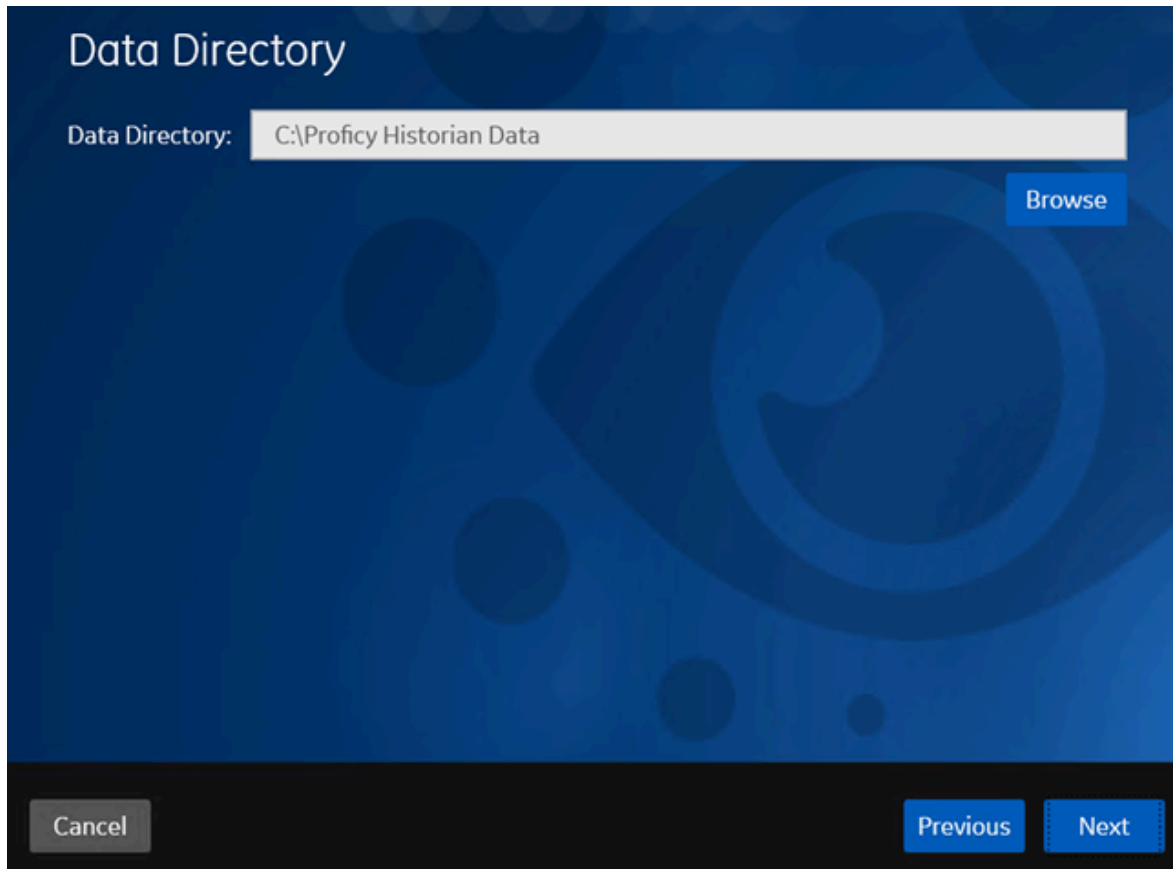
4. Select the **Accept** check box, and then select **Next**.

The installation drive page appears.



5. If needed, change the default installation drive, and then select **Next**.

The data directory page appears.



6. If needed, change the folder for storing the collector log files, and then select **Next**.
The destination Historian server page appears.

Historian Server Details

Provide a valid windows user of the default Historian server to which the Remote Collector Manager will connect.

Historian Server:

User Name:


Password:

Confirm Password:

Note: If the Historian server and collectors are installed on the same machine, you need not provide the details; by default, the machine name of the local Historian server is considered. If, however, they are installed on different machines, you must provide the credentials of the Historian server user.
If the password changes, you must reinstall Remote Management Agents to reset the password.

7. Enter values as described in the following table.

Field	Description
Historian Server	Enter the Amazon Network Load Balancer (NLB) DNS. <div style="border: 1px solid #0070C0; border-radius: 10px; padding: 10px; margin-top: 10px;"> <p>i Tip: To find the NLB DNS:</p> <ol style="list-style-type: none"> a. Access the EKS cluster on which you have deployed Proficy Historian for AWS. b. Access the EC2 instance. c. In the navigation pane, under Load Balancing, select Load Balancers. d. Select the load balancer for which you want to find the DNS. e. In the Description section, copy the DNS name. </div>
User Name	Enter the username to connect to Proficy Historian for AWS.

Field	Description
Password	Enter the password to connect to Proficy Historian for AWS. <div style="border: 1px solid #0070C0; border-radius: 10px; padding: 10px; margin-top: 10px;">  Tip: This is the value you entered in the Password field under UAA Configuration when you created the stack. </div>
Confirm Password	Reenter the password.

8. Select **Next**.

A message appears, stating that you are ready to install collectors.

9. Select **Install**.

The installation begins. Reboot your system if prompted to do so.

Results

- For Windows 64 bit, the 32-bit collector executable files are installed in the following folder:
`<installation drive>:\Program Files (x86)\GE Digital\<collector name>`,
 and the 64-bit collector executable files are installed here: `<installation drive>:\Program Files\GE Digital\<collector name>`.
- For Windows 32 bit, the 32-bit collector executable files are installed in the following folder:
`<installation drive>:\Program Files\GE Digital\<collector name>`. 64-bit collectors are not supported for Windows 32 bit.

What to do next

Create a collector instance. For information on which collector type to use, refer to [Choosing a Collector \(on page 60\)](#).

Installing a Collector at a Command Prompt


About this task

This topic describes how to install collectors at a command prompt. You can also [install them using the installer \(on page 27\)](#).

Procedure

1. Download the collectors installer from the following path: https://historian-collectors-and-clients.s3.us-east-2.amazonaws.com/collectors/cloud_collector_installer.zip
2. Extract the contents, and access the folder containing the `Collectors_Install.exe` file.
3. At a command prompt, enter:

```
Collectors_Install.exe -s RootDrive=<value> DestinationServerName=<value> DataPath=<value>
UserName1=<value> Password=<value>
```

Parameter	Description	Default Value
RootDrive	The installation drive for the collectors.	C:\
DataPath	The folder for storing the collector log files.	C:\Proficy Historian Data
DestinationServer-Name	<p>Enter the Amazon Network Load Balancer (NLB) DNS.</p> <div style="border: 1px solid #0070C0; border-radius: 10px; padding: 10px; background-color: #E6F2FF;"> <p> Tip: To find the NLB DNS:</p> <ol style="list-style-type: none"> a. Access the EKS cluster on which you have deployed Proficy Historian for AWS. b. Access the EC2 instance. c. In the navigation pane, under Load Balancing, select Load Balancers. d. Select the load balancer for which you want to find the DNS. e. In the Description section, copy the DNS name. </div>	local host name
UserName1	The username to connect to Proficy Historian for AWS.	
Password	The password to connect to Proficy Historian for AWS.	

For example: `Collectors_Install.exe -s RootDrive=C:\ DestinationServerName=myOrg.com`

`DataPath=C:\Proficy Historian Data UserName1=user123 Password=xyz123`

4. Restart the machine. If you uninstall a collector or install another one before restarting the machine, an error may occur.

Results

- For Windows 64 bit, the 32-bit collector executable files are installed in the following folder:
`<installation drive>:\Program Files (x86)\GE Digital\<collector name>`,
and the 64-bit collector executable files are installed here: `<installation drive>:\Program Files\GE Digital\<collector name>`.
- For Windows 32 bit, the 32-bit collector executable files are installed in the following folder:
`<installation drive>:\Program Files\GE Digital\<collector name>`. 64-bit collectors are not supported for Windows 32 bit.

What to do next

Create a collector instance. For information on which collector type to use, refer to [Choosing a Collector \(on page 60\)](#).

Creating a Collector Instance

Create an iFIX Collector

Before you begin

1. [Deploy Proficiency Historian for AWS. \(on page 14\)](#)
2. [Install collectors \(on page 26\)](#). You can install them on-premises or on an EC2 instance in a VPC (which can be the same one as the Historian server or a different one).
3. Ensure that the iFIX server is running.

About this task

The iFIX collectors collect data from iFIX and store it in the Historian server.

They use the Easy Data Access (EDA) protocol to retrieve data from a running iFIX system.

Features:



- You can browse the source for tags and their attributes.
- Only the polled data collection is supported; unsolicited collection is not supported. The minimum poll interval is 100ms.
- The supported timestamp resolution is milliseconds or seconds.
- The collector accepts device timestamps.
- Floating point, integer, string, and binary data are supported.
- You can create Python Expression Tags for those collectors that support them.

Supported tag attributes:

- Tagname
- Source Address
- Engineering Unit Description
- Data Type
- Hi Engineering Units
- Lo Engineering Units

Procedure

1. Run Command Prompt as an administrator.
2. Run the `CloudHistorianConfigurationUtility.exe` file. It is provided along with the collectors installer. After you install collectors, it will be available in the `C:\Program Files\GE Digital\Historian Cloud Config` folder by default.
3. Enter the number corresponding to creating a collector instance.
4. Enter the following details:

Field	Description
NLB DNS	Enter the Amazon Network Load Balancer (NLB) DNS. <div style="border: 1px solid #00a0e3; border-radius: 10px; padding: 10px; margin-top: 10px;"> <p> Tip: To find the NLB DNS:</p> <ol style="list-style-type: none"> a. Access the EKS cluster on which you have deployed Proficy Historian for AWS. b. Access the EC2 instance. c. In the navigation pane, under Load Balancing, select Load Balancers. d. Select the load balancer for which you want to find the DNS. e. In the Description section, copy the DNS name. </div>
Username	Enter the username to connect to Proficy Historian for AWS.
Password	Enter the password to connect to Proficy Historian for AWS. <div style="border: 1px solid #00a0e3; border-radius: 10px; padding: 10px; margin-top: 10px;"> <p> Tip: This is the value you entered in the Password field under UAA Configuration when you created the stack.</p> </div>

A list of collector types appears.

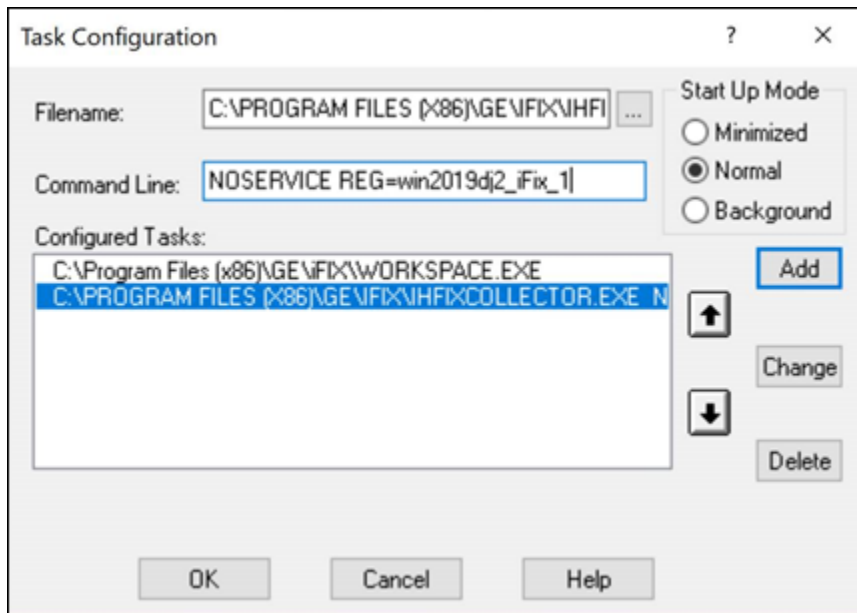
5. Enter the number corresponding to the collector that you want to create.
6. Enter the following details:

Field	Description
Interface name of the collector	Enter the name that you want to provide for the collector instance. A value is required and must be unique in the DNS.
iFIX Server	Enter the host name or IP address of the iFIX server. The default value is FIX, which indicates the local machine.

The iFIX collector is created.

What to do next

Start the collector: Add the collector to the iFIX System Configuration (SCU) startup list. The collector then starts automatically whenever you start iFIX. To do so, set the task parameters to `NOSERVICE` `REG=<collector name>`, as shown in the following image for a collector with the interface name `win2019dj2_iFix_1`.



Note:

If an error occurs, stating that the collector fails to start and prompting you to delete the collector:

1. Select No.
2. In iFIX System Configuration (SCU), set the task parameters as follows:



- **Filename:** Enter `<installation drive>:\Program Files (x86)\GEDigital\Historian iFix Collector`.
- **Command Line:** Enter `NOSERVICE REG=<collector name>`.

Create an MQTT Collector

Before you begin

1. [Deploy Proficy Historian for AWS. \(on page 14\)](#)
2. [Install collectors \(on page 26\)](#). You can install them on-premises or on a VPC (which can be different from the one on which Proficy Historian for AWS is deployed).

About this task

The MQTT collector collects data published to a topic using an MQTT broker. The data should be in Predix time series data format.

Features:

- You can subscribe for multiple-level topics using a wildcard.
- Only the unsolicited data collection is supported; polled collection is not supported.
- The timestamp resolution is seconds, milliseconds, and microseconds.
- Boolean, floating point, integer, and string data types are supported.

How it works:

1. The MQTT collector connects to an MQTT broker and subscribes to a topic. Transport Layer Security (TLS) authentication is used for subscribing the data from message broker to avoid middleware attacks so that the data is securely transferred from message broker to the MQTT collector.
2. The collector converts the data from the Predix Timeseries format to a Historian-understandable format.
3. It verifies whether the tag is available in Historian; if not, it will add the tag and then add the data samples, and streams the data to Data Archiver.

Message format:

```
{  
  "body":  
  [  
    {
```


```
"attributes":{"machine_type":"<value>"},
"datapoints":[[<value>,<value>,<value>]],
"name":"<value>"},
"messageId":"<value>"}
```


The following table describes these parameters.

JSON Parameter	Description	Required/Optional
machine_type	The name of the machine from which you want to collect data.	Optional
datapoints	Time (in epoch format), value, and quality.	Required
name	The tag name	Required
messageId	The type of the message	Optional

Procedure

1. Run Command Prompt as an administrator.
2. Run the `CloudHistorianConfigurationUtility.exe` file. It is provided along with the collectors installer. After you install collectors, it will be available in the `C:\Program Files\GE Digital\Historian Cloud Config` folder by default.
3. Enter the number corresponding to creating a collector instance.
4. Enter the following details:

Field	Description
NLB DNS	<p>Enter the Amazon Network Load Balancer (NLB) DNS.</p> <div style="border: 1px solid #0070C0; border-radius: 10px; padding: 10px; background-color: #E6F2FF;"> <p> Tip: To find the NLB DNS:</p> <ol style="list-style-type: none"> a. Access the EKS cluster on which you have deployed Proficy Historian for AWS. b. Access the EC2 instance. c. In the navigation pane, under Load Balancing, select Load Balancers. d. Select the load balancer for which you want to find the DNS. e. In the Description section, copy the DNS name. </div>

Field	Description
Username	Enter the username to connect to Proficy Historian for AWS.
Password	Enter the password to connect to Proficy Historian for AWS. <div style="border: 1px solid #0070C0; border-radius: 10px; padding: 10px; background-color: #E6F2FF;">  Tip: This is the value you entered in the Password field under UAA Configuration when you created the stack. </div>

5. Enter the number corresponding to the collector that you want to create.
6. Enter the following details:

Field	Description
Interface name of the collector	Enter the name that you want to provide for the collector instance. A value is required and must be unique in the DNS.
MQTT server	Enter the IP address or host name of the MQTT broker using which you want to collect data.
MQTT port	Enter the port number of the MQTT broker.
MQTT topic	Enter the MQTT topic from which you want to collect data.

The MQTT collector is created and started.

Create an OPC Classic Data Access (DA) Collector

Before you begin

1. [Deploy Proficy Historian for AWS. \(on page 14\)](#)
2. [Install collectors \(on page 26\)](#). You can install them on-premises or on a VPC (which can be different from the one on which Proficy Historian for AWS is deployed).

About this task

The OPC Classic DA collector collects data from any OPC 1.0 or OPC 2.0 compliant OPC server. The collector automatically determines the capability of the OPC server to which it is connected and supports appropriate features based on this information.

Features:

- You can browse the source for tags and their attributes on an OPC server that supports browsing.
- Both the polled and unsolicited data collection are supported; when changes to the OPC source tags are detected, they are sent to the Historian server. Unsolicited data collection is supported for OPC 2.0 only. The minimum poll interval is 100ms. The collector duplicates raw samples from the OPC server into the Historian data archive.

For unsolicited data collection, if collector compression is disabled, all new values produce an exception. And, the deadband percentage is determined by the collector deadband percent. You can only configure the collector deadband percent by enabling compression.

- The supported timestamp resolution is 1ms.
- Floating point, integer, binary, and string data are supported.
- Python expression tags are supported.
- Device timestamps are accepted.

Supported data types:

The OPC Data Type	Recommended Data Type in Historian
I1 - 16 bit signed integer	Single Integer
I4 - 32 bit signed integer	Double Integer
R4 - 32 bit float	Single Float
R8 - 64 bit double float	Double Float
UI2 - 16 bit unsigned single integer	Unsigned Single Integer
UI4 - 32 bit unsigned double integer	Unsigned Double Integer
UI8 - 64 bit unsigned quad integer	Unsigned Quad Integer
I8 - 64 bit quad integer	Quad Integer
BSTR	Variable String
BOOL	Boolean
I1 - 8 bit single integer	Byte



Note:

The collector requests data from the OPC server in the native data type. Then the collector converts the received value to a Historian Data Type before sending it to the data archiver.


Supported tag attributes:


- Tagname
- Source Address
- Engineering Unit Description
- Data Type
- Hi Engineering Units
- Lo Engineering Units

The Engineering Unit Description, Hi Engineering Units and Lo Engineering Units vary based on the OPC server vendor.

Procedure

1. Run Command Prompt as an administrator.
2. Run the `CloudHistorianConfigurationUtility.exe` file. It is provided along with the collectors installer. After you install collectors, it will be available in the `C:\Program Files\GE Digital\Historian Cloud Config` folder by default.
3. Enter the number corresponding to creating a collector instance.
4. Enter the following details:

Field	Description
NLB DNS	Enter the Amazon Network Load Balancer (NLB) DNS. <div style="border: 1px solid #0070C0; border-radius: 10px; padding: 10px; margin-top: 10px;">  Tip: To find the NLB DNS: <ol style="list-style-type: none"> a. Access the EKS cluster on which you have deployed Proficy Historian for AWS. b. Access the EC2 instance. c. In the navigation pane, under Load Balancing, select Load Balancers. d. Select the load balancer for which you want to find the DNS. e. In the Description section, copy the DNS name. </div>
Username	Enter the username to connect to Proficy Historian for AWS.
Password	Enter the password to connect to Proficy Historian for AWS.

Field	Description
	 Tip: This is the value you entered in the Password field under UAA Configuration when you created the stack.

A list of collector types appears.

- Enter the number corresponding to the collector that you want to create.
- Enter the following details:

Field	Description
Interface name	Enter a unique interface name for the collector.
OPC server	Enter the prog ID of the OPC Classic server.

The OPC Classic DA collector is created.

- Start the collector instance (as a Windows service).

Create an OPC Classic Historical Data Access (HDA) Collector

Before you begin

- [Deploy Proficy Historian for AWS. \(on page 14\)](#)
- [Install collectors \(on page 26\)](#). You can install them on-premises or on a VPC (which can be different from the one on which Proficy Historian for AWS is deployed).

About this task

The OPC Classic HDA collector collects historical data from any OPC HDA 1.2 - compliant OPC server. The collector automatically determines the capability of the OPC server to which it is connected and supports the appropriate features based on this information.

Features:

- You can browse the source for tags and their attributes on an OPC server that supports browsing.
- Only unsolicited data collection is supported; when changes to the OPC source tags are detected, they are sent to the Historian server. The minimum poll interval is 100ms. The collector duplicates raw samples from the OPC server into the Historian data archive.

For unsolicited data collection, if collector compression is disabled, all new values produce an exception. And, the deadband percentage is determined by the collector deadband percent. You can only configure the collector deadband percent by enabling compression.

- The supported timestamp resolution is 1ms.
- Floating point, integer, binary, and string data are supported.
- Device timestamps are accepted.

Supported data types:

The OPC Data Type	Recommended Data Type in Historian
I1- 16 bit signed integer	Single Integer
I4- 32 bit signed integer	Double Integer
R8- 64 bit double float	Single Float
UI2- 16 bit unsigned single integer	Double Float
UI4- 32 bit unsigned double integer	Unsigned Integer
UI8- 64 bit unsigned quad integer	Unsigned Double Integer
I8- 64 bit quad integer	Quad Integer
BSTR	Variable Sting
BOOL	Boolean
I1- 8 bit single integer	Byte



Note:

The OPC Classic HDA collector requests data from the OPC Classic HDA server in the native data type. The OPC Classic HDA collector then converts the received value to a Historian data type before sending it to Data Archiver.



Supported tag attributes:

- Tagname
- Source Address
- Engineering Unit Description
- Data Type
- Hi Engineering Units
- Lo Engineering Units

The Engineering Unit Description, Hi Engineering Units and Lo Engineering Units vary based on the OPC server vendor.

Procedure

1. Run Command Prompt as an administrator.
2. Run the `CloudHistorianConfigurationUtility.exe` file. It is provided along with the collectors installer. After you install collectors, it will be available in the `C:\Program Files\GE Digital\Historian Cloud Config` folder by default.
3. Enter the number corresponding to creating a collector instance.
4. Enter the following details:

Field	Description
NLB DNS	Enter the Amazon Network Load Balancer (NLB) DNS. <div style="border: 1px solid #0070C0; border-radius: 10px; padding: 10px; margin-top: 10px;"> <p> Tip: To find the NLB DNS:</p> <ol style="list-style-type: none"> a. Access the EKS cluster on which you have deployed Proficy Historian for AWS. b. Access the EC2 instance. c. In the navigation pane, under Load Balancing, select Load Balancers. d. Select the load balancer for which you want to find the DNS. e. In the Description section, copy the DNS name. </div>
Username	Enter the username to connect to Proficy Historian for AWS.
Password	Enter the password to connect to Proficy Historian for AWS. <div style="border: 1px solid #0070C0; border-radius: 10px; padding: 10px; margin-top: 10px;"> <p> Tip: This is the value you entered in the Password field under UAA Configuration when you created the stack.</p> </div>

A list of collector types appears.

5. Enter the number corresponding to the collector that you want to create.
6. Enter the following details:

Field	Description
Interface name of the collector	Enter the name that you want to provide for the collector instance. A value is required and must be unique in the DNS.
OPC HDA server	Enter the prog ID of the OPC HDA server.

The OPC UA HDA collector is created.

7. Start the collector instance (as a Windows service).

Create an OPC UA Data Access Collector

Before you begin

1. [Deploy Proficy Historian for AWS. \(on page 14\)](#)
2. [Install collectors \(on page 26\)](#). You can install them on-premises or on a VPC (which can be different from the one on which Proficy Historian for AWS is deployed).

About this task

The OPC UA DA collector collects data from a OPC UA 1.0 and OPC 2.0-compliant OPC UA DA server. The collector automatically determines the capability of the OPC UA DA server to which it is connected, and supports the appropriate features based on this information.

Features:

- You can browse the source for tags and their attributes on an OPC server that supports browsing.
- Both the polled and unsolicited data collection are supported; when changes to the OPC source tags are detected, they are sent to the Historian server. Unsolicited data collection is supported for OPC 2.0 only. The minimum poll interval is 100ms. The collector duplicates raw samples from the OPC server into Data Archiver.

For unsolicited data collection, if collector compression is disabled, all new values produce an exception. And, the deadband percentage is determined by the collector deadband percent. You can only configure the collector deadband percent by enabling compression.

- The supported timestamp resolution is 1ms.
- Floating point, integer, binary, and string data are supported.
- Python expression tags are supported.
- Device timestamps are accepted.

Supported data types:

OPC UA DA Collector Data Type	Recommended Data Type in Historian
OpcUaType_Null	ihTKVariableString
OpcUaType_Boolean	ihTKBool
OpcUaType_SByte	ihTKByte
OpcUaType_Byte	ihTKByte
OpcUaType_Int16	ihTKInteger
OpcUaType_UInt16	ihTKUInt16
OpcUaType_Int32	ihTKDoubleInteger
OpcUaType_UInt32	ihTKUInt32
OpcUaType_Int64	ihTKInt64
OpcUaType_UInt64	ihTKUInt64
OpcUaType_Float	ihTKFloat
OpcUaType_Double	ihTKDoubleFloat
OpcUaType_DateTime	ihTKVariableString
OpcUaType_Guid	ihTKDataTypeUndefined
OpcUaType_StatusCode	ihTKDataTypeUndefined
OpcUaType_String	ihTKVariableString
OpcUaType_ByteString	ihTKDataTypeUndefined
OpcUaType_XmlElement	ihTKDataTypeUndefined
OpcUaType_NodeId	ihTKDataTypeUndefined
OpcUaType_ExpandedNodeId	ihTKDataTypeUndefined
OpcUaType_DiagnosticInfo	ihTKDataTypeUndefined
OpcUaType_QualifiedName	ihTKDataTypeUndefined
OpcUaType_LocalizedText	ihTKDataTypeUndefined
OpcUaType_ExtensionObject	ihTKDataTypeUndefined
OpcUaType_DataValue	ihTKDataTypeUndefined


Supported tag attributes:


- Tagname
- Source Address
- Engineering Unit Description
- Data Type
- Hi Engineering Units
- Lo Engineering Units

The Engineering Unit Description, Hi Engineering Units and Lo Engineering Units vary based on the OPC server vendor.

Procedure

1. Run Command Prompt as an administrator.
2. Run the `CloudHistorianConfigurationUtility.exe` file. It is provided along with the collectors installer. After you install collectors, it will be available in the `C:\Program Files\GE Digital\Historian Cloud Config` folder by default.
3. Enter the number corresponding to creating a collector instance.
4. Enter the following details:

Field	Description
NLB DNS	Enter the Amazon Network Load Balancer (NLB) DNS. <div style="border: 1px solid #0070C0; border-radius: 10px; padding: 10px; margin-top: 10px;">  Tip: To find the NLB DNS: <ol style="list-style-type: none"> a. Access the EKS cluster on which you have deployed Proficy Historian for AWS. b. Access the EC2 instance. c. In the navigation pane, under Load Balancing, select Load Balancers. d. Select the load balancer for which you want to find the DNS. e. In the Description section, copy the DNS name. </div>
Username	Enter the username to connect to Proficy Historian for AWS.
Password	Enter the password to connect to Proficy Historian for AWS.

Field	Description
	 Tip: This is the value you entered in the Password field under UAA Configuration when you created the stack.

A list of collector types appears.

5. Enter the number corresponding to the collector that you want to create.
6. Enter the following details:

Field	Description
Interface name of the collector	Enter the name that you want to provide for the collector instance. A value is required and must be unique in the DNS.
OPC UA Server URI	Enter the URI to connect to the OPC server in the following format: <code>opc.tcp://<host name or IP address of the OPC UA server>:<port number></code>

The OPC UA DA collector is created and started.

Create an OSI PI Collector

Before you begin

1. [Deploy Proficy Historian for AWS. \(on page 14\)](#)
2. [Install collectors \(on page 26\)](#). You can install them on-premises or on a VPC (which can be different from the one on which Proficy Historian for AWS is deployed).
3. Install PI AF SDK version 2.7.5 or later.

About this task

The OSI PI collector collects data from an OSI PI data server and sends it to Data Archiver. Data is collected directly from OSI PI Data Archive v3.2 or later via OSI PI AOSI PI v1.3.4 or later.

One OSI PI collector can collect data from a single OSI PI data server. To collect from multiple OSI PI data servers, you must create multiple OSI PI collector instances.

Features

- You can browse the source for tags and their attributes.




Note:


Tag browsing performance with OSI PI has been confirmed as satisfactory up to 130,000 tags. Beyond that threshold, OSI PI may take a long time to return the large number of tags. In such a case, we recommend that you first export the tags to an Excel worksheet.

- Only unsolicited data collection is supported.
- The supported timestamp resolution is milliseconds or seconds.
- Python expression tags are supported.
- Floating point, integer, and string data are supported.
- Device timestamps are accepted.

Procedure

1. Run Command Prompt as an administrator.
2. Run the `CloudHistorianConfigurationUtility.exe` file. It is provided along with the collectors installer. After you install collectors, it will be available in the `C:\Program Files\GE Digital\Historian Cloud Config` folder by default.
3. Enter the number corresponding to creating a collector instance.
4. Enter the following details:

Field	Description
NLB DNS	Enter the Amazon Network Load Balancer (NLB) DNS. <div style="border: 1px solid #0070C0; border-radius: 10px; padding: 10px; margin-top: 10px;"> <p> Tip:</p> <p>To find the NLB DNS:</p> <ol style="list-style-type: none"> a. Access the EKS cluster on which you have deployed Proficy Historian for AWS. b. Access the EC2 instance. c. In the navigation pane, under Load Balancing, select Load Balancers. d. Select the load balancer for which you want to find the DNS. e. In the Description section, copy the DNS name. </div>
Username	Enter the username to connect to Proficy Historian for AWS.
Password	Enter the password to connect to Proficy Historian for AWS.

Field	Description
	 Tip: This is the value you entered in the Password field under UAA Configuration when you created the stack.

A list of collector types appears.

5. Enter the number corresponding to the collector that you want to create.
6. Enter the following details:

Field	Description
Interface name of the collector	Enter the name that you want to provide for the collector instance. A value is required and must be unique in the DNS.
OSI PI server	Enter the host name or IP address of the machine on which the OSI PI server is installed.
OSI PI username	Enter the username to connect to the OSI PI server. If you just press ENTER, the default username is used.
OSI PI password	Enter the password to connect to the OSI PI server. If you just press ENTER, the default password is used.
PI source	Specify whether the OSI PI source is archive or snapshot. If you just press ENTER, <i>archive</i> is considered as the PI source.

The OSI PI collector is created and started.

Create an OSI PI Distributor

About this task

The OSI PI distributor collects data from a Historian server and sends it to an OSI PI server. You can use OSI PI v1.3.4 or greater.

The OSI PI distributor uses unsolicited distribution, whereby changes in Historian tags values are detected, and are forwarded to a remote OSI PI data server. The distributor duplicates data from a Historian archive to an OSI PI data archive.

One OSI PI distributor can distribute data to a single OSI PI data archive. To distribute to multiple OSI PI archives from an Historian archive, you must create multiple instances of the OSI PI distributor. You can also configure multiple OSI PI distributors for a single OSI PI data archive.



Note:

The OSI PI distributor can send data only to PI Archive, not to PI Snapshot.

Features:


- You can browse the source for tags and their attributes on an OSI PI server.
- Only unsolicited data collection is supported.


For unsolicited data collection, if collector compression is disabled, all new values produce an exception. And, the deadband percentage is determined by the collector deadband percent. You can only configure the collector deadband percent by enabling compression.

- The supported timestamp resolution is milliseconds or seconds.
- Floating point, integer, and string data are supported.
- Device timestamps are accepted.

Procedure

1. Run Command Prompt as an administrator.
2. Run the `CloudHistorianConfigurationUtility.exe` file. It is provided along with the collectors installer. After you install collectors, it will be available in the `C:\Program Files\GE Digital\Historian Cloud Config` folder by default.
3. Enter the number corresponding to creating a collector instance.
4. Enter the following details:

Field	Description
NLB DNS	Enter the Amazon Network Load Balancer (NLB) DNS. <div style="border: 1px solid #0070C0; border-radius: 10px; padding: 10px; margin-top: 10px;"> <p> Tip:</p> <p>To find the NLB DNS:</p> <ol style="list-style-type: none"> a. Access the EKS cluster on which you have deployed Proficy Historian for AWS. b. Access the EC2 instance. c. In the navigation pane, under Load Balancing, select Load Balancers. d. Select the load balancer for which you want to find the DNS. e. In the Description section, copy the DNS name. </div>

Field	Description
Username	Enter the username to connect to Proficy Historian for AWS.
Password	Enter the password to connect to Proficy Historian for AWS. <div style="border: 1px solid #0070C0; border-radius: 10px; padding: 10px; background-color: #E6F2FF;">  Tip: This is the value you entered in the Password field under UAA Configuration when you created the stack. </div>

A list of collector types appears.

5. Enter the number corresponding to the collector that you want to create.
6. Enter the following details:

Field	Description
Interface name of the collector	Enter the name that you want to provide for the collector instance. A value is required and must be unique in the DNS.
OSI PI server	Enter the host name or IP address of the machine on which the OSI PI server is installed.
OSI PI username	Enter the username to connect to the OSI PI server. If you just press ENTER, the default username is used.
OSI PI password	Enter the password to connect to the OSI PI server. If you just press ENTER, the default password is used.
PI source	Specify whether the OSI PI source is archive or snapshot. If you just press ENTER, <i>archive</i> is considered as the PI source.

The OSI PI distributor is created and started.

Create a Server-to-Server Collector

Before you begin

1. [Deploy Proficy Historian for AWS. \(on page 14\)](#)
2. [Install collectors \(on page 26\)](#). You can install them on-premises or on a VPC (which can be different from the one on which Proficy Historian for AWS is deployed).

About this task

Using the Server-to-Server collector, you can only send data from an on-premises Historian server to the Historian server deployed on cloud; however, you cannot send data if both the servers are on cloud.

Features:

- You can browse the source for tags and their attributes.
- Only unsolicited data collection is supported.
- The supported timestamp resolution is 100 milliseconds.
- Data compression is supported.
- Floating point, integer, and string data are supported.
- Device timestamps are accepted.

When a time-based or an event-based trigger of a destination tag occurs:

1. The calculation formula for the destination tag is executed.

This typically involves fetching data from one or more tags on the source server.

2. A raw sample or calculation error is determined.

You can use conditional logic in your calculation formula to determine if a sample should be sent to the destination.

3. The raw sample is delivered to the destination server, utilizing store and forward when necessary.

- When a tag is added by browsing, only certain tag properties are copied from the source tag to the destination tag. Consider what properties are necessary for your application and configure them manually. For information on which properties are copied, refer to [Tag Properties that are Copied](#).
- If you change a tag property on the source tag (EGU Limits, descriptions, and so on), the property does not automatically change on the destination tag. You can manually change the properties of a destination tag.


Best Practices


- We recommend that you install the Server-to-Server collector on the source Historian machine. When you do so, the collector can preserve the collected data (store and forward) even if the collector and the destination server become disconnected.
- Collection on a tag-by-tag basis is preferred, according to scheduled poll times or upon data changes. One sample is collected for each trigger.
- The Server-to-Server collector can perform calculations on multiple input tags as long as the input tags are on the same source Historian.

- Use polled triggers to perform scheduled data transformations like daily or hourly averages. Use unsolicited triggers to replicate data in real time, as it changes.
- Use event-based triggers to replicate data throughout the day. The samples can be held incoming and outgoing store and forward buffer when necessary. You cannot schedule batch replication of raw samples. For example, you cannot, at the end of the day, send all raw samples for tags to the destination.
- All input source tags for the calculations must originate from the source archiver. For instance, you cannot directly add a tag from `server1` plus a tag from `server2` and place the result on `server2`. You can, however, collect tags from `server1` to `server2`, and then use the Server-to-Server collector to accomplish this. This requires two Server-to-Server collector instances, one running on each machine.

Procedure

1. Run Command Prompt as an administrator.
2. Run the `CloudHistorianConfigurationUtility.exe` file. It is provided along with the collectors installer. After you install collectors, it will be available in the `C:\Program Files\GE Digital\Historian Cloud Config` folder by default.
3. Enter the number corresponding to creating a collector instance.
4. Enter the following details:

Field	Description
NLB DNS	Enter the Amazon Network Load Balancer (NLB) DNS. <div style="border: 1px solid #00a0e3; border-radius: 10px; padding: 10px; margin-top: 10px;">  Tip: To find the NLB DNS: <ol style="list-style-type: none"> a. Access the EKS cluster on which you have deployed Proficy Historian for AWS. b. Access the EC2 instance. c. In the navigation pane, under Load Balancing, select Load Balancers. d. Select the load balancer for which you want to find the DNS. e. In the Description section, copy the DNS name. </div>
Username	Enter the username to connect to Proficy Historian for AWS.
Password	Enter the password to connect to Proficy Historian for AWS.

Field	Description
	 Tip: This is the value you entered in the Password field under UAA Configuration when you created the stack.

A list of collector types appears.

5. Enter the number corresponding to the collector that you want to create.
6. Enter the following details:

Field	Description
Interface name	Enter a unique interface name for the collector.
Source Historian server	Enter the host name or IP address of the source machine on which the Historian server is installed.

The Server-to-Server collector is created and started.

Create a Simulation Collector

Before you begin

1. [Deploy Proficy Historian for AWS. \(on page 14\)](#)
2. [Install collectors \(on page 26\)](#). You can install them on-premises or on a VPC (which can be different from the one on which Proficy Historian for AWS is deployed).

About this task

The Simulation collector generates random numbers and string patterns for demonstration purposes. You can configure the number of tags that you want to generate.

Features:

- The collector generates random scaled values between 0 and 32,767. It uses the high and low engineering units fields of each tag to scale the 0 to 32,767 pre-set values into appropriate engineering units.
- The collector also provides five-string simulation tags that generate random alphanumeric data.
- In addition to generating random values, the collector can generate sequential values for some tags. For a list of such tags, refer to [Tags with Sequential Values](#).
- You can import browse for tags and their attributes.
- The supported timestamp resolution is 1ms.

- Floating point, integer, and string data are supported. Binary data is not supported.
- You can create Python Expression tags.
- Only polled data collection is supported with a minimum poll interval of 100ms.



Note:


You can create more simulation string tags by manually adding string tags with the following naming convention to the collector: `CollectorName.Simulation.StringXXXX`



Supported Tag Attributes:

- Tagname
- Data Type
- Hi Engineering Units
- Lo Engineering Units
- Hi Scale
- Lo Scale

Procedure

1. Run Command Prompt as an administrator.
2. Run the `CloudHistorianConfigurationUtility.exe` file. It is provided along with the collectors installer. After you install collectors, it will be available in the `C:\Program Files\GE Digital\Historian Cloud Config` folder by default.
3. Enter the number corresponding to creating a collector instance.
4. Enter the following details:

Field	Description
NLB DNS	Enter the Amazon Network Load Balancer (NLB) DNS. <div style="border: 1px solid #0070C0; border-radius: 10px; padding: 10px; margin-top: 10px;"> <p> Tip: To find the NLB DNS:</p> <ol style="list-style-type: none"> a. Access the EKS cluster on which you have deployed Proficy Historian for AWS. b. Access the EC2 instance. c. In the navigation pane, under Load Balancing, select Load Balancers. </div>

Field	Description
	 <p>d. Select the load balancer for which you want to find the DNS. e. In the Description section, copy the DNS name.</p>
Username	Enter the username to connect to Proficy Historian for AWS.
Password	Enter the password to connect to Proficy Historian for AWS.  Tip: This is the value you entered in the Password field under UAA Configuration when you created the stack.

A list of collector types appears.

- Enter the number corresponding to the collector that you want to create.
- Enter a unique interface name for the collector instance.

The collector instance is created and started.


Change the Destination of a Collector



About this task

You can change the destination of a collector from Proficy Historian for AWS deployed on one EC2 instance to another.

Procedure

- Run Command Prompt as an administrator.
- Run the `CloudHistorianConfigurationUtility.exe` file. It is provided along with the collectors installer. After you install collectors, it will be available in the `C:\Program Files\GE Digital\Historian Cloud Config` folder by default.
- Enter the number corresponding to changing the destination of a collector.
- Enter the following details:

Field	Description
NLB DNS	Enter the Amazon Network Load Balancer (NLB) DNS of the <i>destination</i> EC2 instance.  Tip: To find the NLB DNS:

Field	Description
	 <ul style="list-style-type: none"> a. Access the EKS cluster on which you have deployed Proficy Historian for AWS. b. Access the EC2 instance. c. In the navigation pane, under Load Balancing, select Load Balancers. d. Select the load balancer for which you want to find the DNS. e. In the Description section, copy the DNS name.
Username	Enter the username to connect to Proficy Historian for AWS.
Password	Enter the password to connect to Proficy Historian for AWS.  Tip: This is the value you entered in the Password field under UAA Configuration when you created the stack.

A list of collectors appears.

5. Enter the number corresponding to the collector instance whose destination you want to change.
6. Enter the interface name of the collector instance whose destination you want to change.

The destination of the collector instance is changed.

If the collector name does not begin with the collector type, an error occurs when you try to change the destination from an on-premises Historian server to a cloud counterpart. If that happens:

- a. Access the registry entry for the collector instance.
- b. Rename the instance as follows, and close the registry: *<collector type>-<original name of the instance>*

For example, if the instance name of a Simulation collector is `sim1`, rename it

`SimulationCollector-sim1`.

Use one of the following prefixes based on the collector type:

- SimulationCollector-
- OPCCollector-
- OPCUACollector-
- OPCHDACollector-
- PiCollector-
- PIDistributor-

- iFixCollector-
 - ServerToServerCollector-
 - MQTTCollector-
- c. Change the destination of the collector instance (by following the preceding steps). When asked for the name of the collector instance, provide the *original* name (without the prefix). In the case of the previous example, enter `siml`.

An error message appears, but it is expected; you can ignore it.

- d. Close the `CloudHistorianConfigurationUtility.exe` tool.
- e. Access the registry entry for the collector instance, and undo the changes you made in step 2 (that is, the collector instance should now contain the original name).
- f. Close the registry, and start the collector instance.

Delete a Collector Instance

About this task

If you no longer want to use a collector instance to collect data, you can delete it. When you delete a collector instance, the Windows service for the collector, the Registry folder, and the buffer files are deleted as well.

Procedure

1. Run Command Prompt as an administrator.
2. Run the `CloudHistorianConfigurationUtility.exe` file. It is provided along with the collectors installer. After you install collectors, it will be available in the `C:\Program Files\GE Digital\Historian Cloud Config` folder by default.
3. Enter the number corresponding to deleting a collector instance.
A list of collector types appears.
4. Enter the number corresponding to the collector type whose instance you want to delete.
5. Enter the interface name of the collector instance that you want to delete.



Tip:

To find the interface name of a collector, access Windows services; each collector instance runs as a service.

The collector instance is deleted.

Chapter 6. Using the Web Admin Console

About the Web Admin Console

The Web Admin console is a web-based user interface, which you can use to monitor, supervise, archive, retrieve, and control data stored in the Historian server. It extends the functionality of Proficy Historian for AWS. It also contains Configuration Manager.

Using the Web Admin console, you can:

- Maintain and configure the Historian System.
- Retrieve and analyze archived information.
- Set up and maintain configuration and other parameters for tags, collectors, and archives.
- Perform specific supervisory and security tasks for the Historian system.

Before you begin using the Web Admin console, [install it \(on page 33\)](#), and [connect it with Proficy Historian for AWS \(on page 109\)](#).

Deployment

Deploy the Web Admin Console and the REST Query Service by Launching through EC2

Before you begin

[Deploy Proficy Historian for AWS \(on page 14\)](#).

About this task

The [Web Admin console \(on page 93\)](#) is a web-based user interface, which you can use to monitor, supervise, archive, retrieve, and control data stored in the Historian server. And, [the REST Query service \(on page 128\)](#) contains APIs to fetch data from the Historian database.

This topic describes how to deploy the Web Admin console and the REST Query service using an Amazon Machine Image (AMI) by launching through EC2. You can also deploy them by [launching from a website \(on page 39\)](#).

When you deploy the AMI, you will create a key pair (or use an existing one), which will be used later to connect the Web Admin console and the REST Query service with the Historian server.

Procedure

1. Log in to the AWS marketplace.
2. Search for Proficy Historian.

A list of products in Proficy Historian appears.

3. Select **WebAdmin and Rest API for Proficy Historian**.

proficy historian (3 results) showing 1 - 3

Sort By: Relevance

WebAdmin and Rest API for Proficy Historian
By GE Digital | Ver 2022.1
WebAdmin and REST API containers are deployed on EC2 Instance in the Same VPC of Proficy Historian. This improves the performance in terms of connectivity and response. The deployments connect to Proficy Historian running on EKS through NLB.

Proficy Historian for AWS (Consumption Pricing)
By GE Digital | Ver 2022.1
Proficy Historian is a best-in-class historian software solution that collects industrial time-series data at very high speed, stores it efficiently and securely, distributes it, and allows for fast retrieval and analysis driving greater business value. With decades of experience and thousands of...

Proficy Historian for AWS (Term License)
By GE Digital | Ver 2022.1
Proficy Historian is a best-in-class historian software solution that collects industrial time-series data at very high speed, stores it efficiently and securely, distributes it, and allows for fast retrieval and analysis driving greater business value. With decades of experience and thousands of...

The product overview and other details appear.

4. Select **Continue to Subscribe**.

WebAdmin and Rest API for Proficy Historian
By: GE Digital | Latest Version: MVP-0.9
WebAdmin and Rest API containers Connect to Proficy Historian running on EKS.
Linux/Unix

Continue to Subscribe
Save to List

Typical Total Price
\$0.042/hr
Total pricing per instance for services hosted on t3.medium in US East (N. Virginia). [View Details](#)

Overview Pricing Usage Support Reviews

Product Overview

WebAdmin and REST API containers are deployed on EC2 Instance in the Same VPC of Proficy Historian. This improves the performance in terms of connectivity and response. The deployments connect to Proficy Historian running on EKS through NLB.

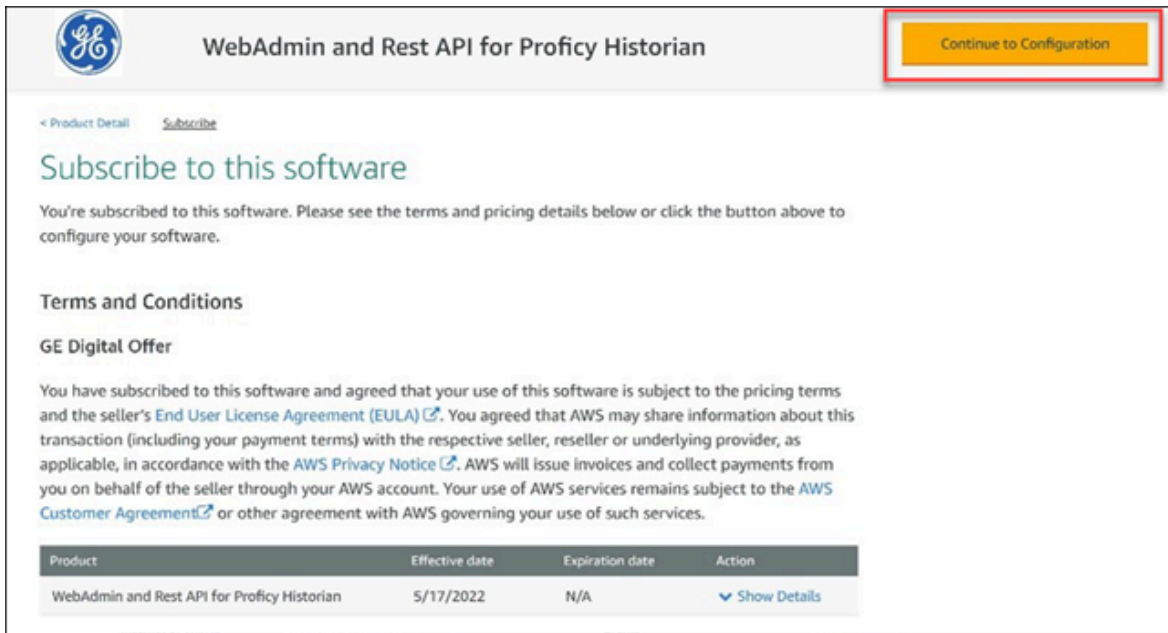
Version	MVP-0.9
By	GE Digital
Categories	Industrial IoT
Operating System	Linux/Unix, Amazon Linux 5.10.82-83.359.amzn2
Delivery Methods	Amazon Machine Image

Highlights

- Easy to connect to Proficy Historian and High Performance

Your request for subscription is processed.

5. Select **Continue to Configuration**.



The **Configure this Software** page appears.

6. Enter values as described in the following table.

Field	Description
Fulfilment option	Select 64-bit (x86) Amazon Machine Image (AMI) .
Software version	Select 2022.1 .
Region	Select the region on which you want to deploy the Web Admin console and the REST Query service. For optimum performance, we recommend that you use the same region as the one on which you have deployed Proficy Historian for AWS.

7. Select **Continue to Launch**.

The screenshot displays the AWS Marketplace configuration page for the software 'WebAdmin and Rest API for Proficy Historian'. The page is titled 'Configure this software' and includes navigation links for 'Product Detail', 'Subscribe', and 'Configure'. A 'Continue to Launch' button is highlighted in the top right corner. The main content area contains three dropdown menus: 'Fulfillment option' (64-bit (x86) Amazon Machine Image (AMI)), 'Software version' (MVP-0.9 (May 09, 2022)), and 'Region' (US East (N. Virginia)). Below these menus, there is a note about Local Zones or WaveLength infrastructure deployment. The page also displays the 'Ami Id', 'Ami Alias', and 'Product Code'. On the right side, there is a 'Pricing information' section with a disclaimer and two pricing tables: 'Software Pricing' and 'Infrastructure Pricing'.

Software Pricing	
WebAdmin and Rest API for Proficy Historian	\$0/hr
consuming on: 13.medium	

Infrastructure Pricing	
EC2:	1 * t3.medium
Monthly Estimate:	\$50.00/month

The **Launch this software** page appears.

8. In the **Choose Action** field, select **Launch through EC2**, and then select **Launch**.

WebAdmin and Rest API for Proficy Historian

Launch this software

Review the launch configuration details and follow the instructions to launch this software.

Configuration details

Fulfillment option 64-bit (x86) Amazon Machine Image (AMI)
WebAdmin and Rest API for Proficy Historian
running on t3.medium

Software version MVP-0.9

Region US East (N. Virginia)

[Usage instructions](#)

Choose Action

Launch through EC2

Choose this action to launch your configuration through the Amazon EC2 console.

[Launch](#)

The **Launch an instance** page appears.

9. Enter values as described in the following table.

Field	Description
Name	Enter a tag name for the instance.
Instance type	Select the instance type for the Web Admin console and the REST Query service. Choose the type based on your data consumption. We recommend a minimum configuration of t3.medium.
Key pair	Select a key pair of the type RSA and format .pem, if you have one. If not, you can create a key pair .

10. Under **Network settings**, select **Edit**.

▼ Network settings

Edit

Network
vpc-fbeb8586

Subnet
No preference (Default subnet in any availability zone)

Auto-assign public IP
Enable

Security groups (Firewall) [Info](#)
 A security group is a set of firewall rules that control the traffic for your instance. Add rules to allow specific traffic to reach your instance.
 We'll create a new security group called 'WebAdmin and Rest API for Proficy Historian-MVP-0.9-AutogenByAWSMP-1' with the following rules:

- Allow SSH traffic from
Recommended rule from AMI

Anywhere
0.0.0.0/0 ▼
- Allow CUSTOMTCP traffic from
Recommended rule from AMI

Anywhere
0.0.0.0/0 ▼
- Allow CUSTOMTCP traffic from
Recommended rule from AMI

Anywhere
0.0.0.0/0 ▼

11. Enter values as described in the following table.

Field	Description
VPC	Select the VPC on which you want to deploy the Web Admin console and the REST Query service.
Subnet	Select the <i>public</i> subnet of the VPC on which you have deployed Proficy Historian for AWS. If you have used the default VPC, you need not provide the subnet details.

12. Under **Inbound security groups rules**, enter the following values for security group rules 1 and 2 respectively:

Type	Protocol	Port Range	Source type
SSH	TCP	22	Select Custom , and enter the public IP address of the machine or network from which you want to access the Web Admin console and the REST Query service. Provide a static IP address, or use the CIDR notation (for example, <IP address>/16).

Type	Protocol	Port Range	Source type
Custom TCP Rule	TCP	9443	Select Custom , and enter the public IP address of the machine or network from which you want to access the Web Admin console. Provide a static IP address, or use the CIDR notation (for example, <IP address>/16). Or, if you want to access the Web Admin console only from your local machine, select My IP .
Custom TCP Rule	TCP	8989	Select Custom , and enter the public IP address of the machine or network from which you want to access the REST Query service. Provide a static IP address, or use the CIDR notation (for example, <IP address>/16). Or, if you want to access the REST Query service only from your local machine, select My IP .

13. As needed, configure storage and advance settings.

14. Select **Launch Instance**.

The Web Admin console and the REST Query service are deployed.

What to do next

[Connect the Web Admin console and the REST Query service with Proficy Historian for AWS. \(on page 109\)](#)

Deploy the Web Admin Console and the REST Query Service by Launching from Website

Before you begin

[Deploy Proficy Historian for AWS \(on page 14\).](#)

About this task

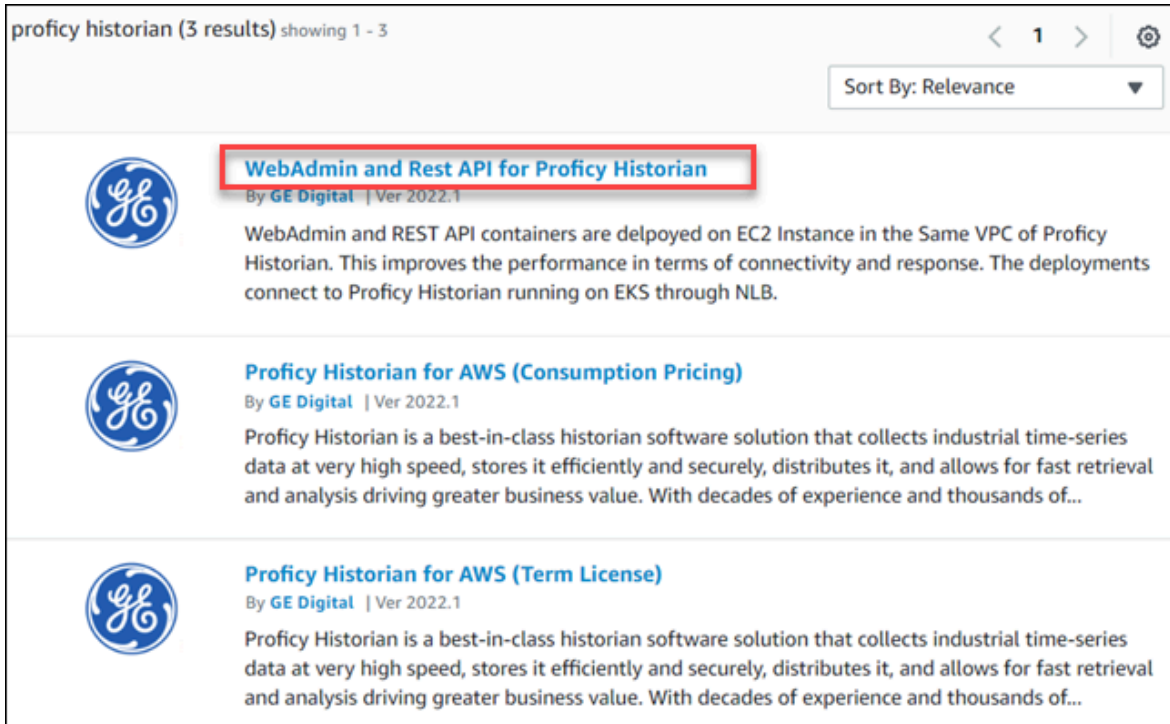
The [Web Admin console \(on page 93\)](#) is a web-based user interface, which you can use to monitor, supervise, archive, retrieve, and control data stored in the Historian server. And, [the REST Query service \(on page 128\)](#) contains APIs to fetch data from the Historian database.

This topic describes how to deploy the Web Admin console and the REST Query service using an Amazon Machine Image (AMI) by launching from a website. You can also deploy them by [launching through EC2 \(on page 33\)](#).

When you deploy the AMI, you will create a key pair (or use an existing one), which will be used later to connect the Web Admin console and the REST Query service with the Historian server.

Procedure

1. Log in to the AWS marketplace.
2. Search for Proficy Historian.
A list of products in Proficy Historian appears.
3. Select **WebAdmin and Rest API for Proficy Historian**.



The product overview and other details appear.

4. Select **Continue to Subscribe**.

The screenshot shows the product page for 'WebAdmin and Rest API for Proficy Historian' by GE Digital. The page includes a navigation bar with 'Overview', 'Pricing', 'Usage', 'Support', and 'Reviews'. The 'Overview' section contains a 'Product Overview' and a 'Highlights' box. A pricing box indicates a 'Typical Total Price' of '\$0.042/hr'. A 'Continue to Subscribe' button is highlighted in the top right corner.

Product Overview

WebAdmin and REST API containers are deployed on EC2 Instance in the Same VPC of Proficy Historian. This improves the performance in terms of connectivity and response. The deployments connect to Proficy Historian running on EKS through NLB.

Highlights

- Easy to connect to Proficy Historian and High Performance

Version	MVP-0.9
By	GE Digital
Categories	Industrial IoT
Operating System	Linux/Unix, Amazon Linux 5.10.82-83.359.amzn2
Delivery Methods	Amazon Machine Image

Your request for subscription is processed.

5. Select **Continue to Configuration**.

The screenshot shows the 'Subscribe to this software' page. It includes a 'Continue to Configuration' button highlighted in the top right corner. Below the header, there is a 'Terms and Conditions' section and a 'GE Digital Offer' table.

Subscribe to this software

You're subscribed to this software. Please see the terms and pricing details below or click the button above to configure your software.

Terms and Conditions

GE Digital Offer

You have subscribed to this software and agreed that your use of this software is subject to the pricing terms and the seller's [End User License Agreement \(EULA\)](#). You agreed that AWS may share information about this transaction (including your payment terms) with the respective seller, reseller or underlying provider, as applicable, in accordance with the [AWS Privacy Notice](#). AWS will issue invoices and collect payments from you on behalf of the seller through your AWS account. Your use of AWS services remains subject to the [AWS Customer Agreement](#) or other agreement with AWS governing your use of such services.

Product	Effective date	Expiration date	Action
WebAdmin and Rest API for Proficy Historian	5/17/2022	N/A	Show Details

The **Configure this Software** page appears.

6. Enter values as described in the following table.

Field	Description
Fulfilment option	Select 64-bit (x86) Amazon Machine Image (AMI) .
Software version	Select 2022.1 .
Region	Select the region on which you want to deploy the Web Admin console and the REST Query service. For optimum performance, we recommend that you use the same region as the one on which you have deployed Proficy Historian for AWS.

7. Select **Continue to Launch**.

The screenshot displays the AWS Marketplace configuration page for the product 'WebAdmin and Rest API for Proficy Historian'. The page includes a GE logo and navigation links for 'Product Detail', 'Subscribe', and 'Configure'. The main heading is 'Configure this software', followed by the instruction 'Choose a fulfillment option and software version to launch this software.' Three dropdown menus are visible: 'Fulfillment option' (64-bit (x86) Amazon Machine Image (AMI)), 'Software version' (MVP-0.9 (May 09, 2022)), and 'Region' (US East (N. Virginia)). Below these are details for 'Ami Id', 'Ami Alias', 'Product Code', and 'Release notes'. On the right, a 'Pricing information' box shows 'Software Pricing' at \$0/hr and 'Infrastructure Pricing' with a 'Monthly Estimate' of \$30.00/month. A yellow 'Continue to Launch' button is highlighted with a red border in the top right corner.

The **Launch this software** page appears.

8. In the **Choose Action** field, select **Launch from Website**, and then select **Launch**.

Launch this software

Review the launch configuration details and follow the instructions to launch this software.

Configuration details

Fulfillment option: 64-bit (x86) Amazon Machine Image (AMI)
WebAdmin and Rest API for Proficy Historian
running on t3.medium

Software version: MVP-0.9

Region: US East (N. Virginia)

[Usage instructions](#)

Choose Action

Launch from Website

Choose this action to launch from this website

9. Enter values as described in the following table.

Field	Description
EC2 Instance type	Select the instance type for the Web Admin console and the REST Query service. Choose the type based on your data consumption. We recommend a minimum configuration of t3.medium.
VPC Settings	Select the VPC on which you want to deploy the Web Admin console and the REST Query service.
Subnet Settings	Select the <i>public</i> subnet of the VPC on which you have deployed Proficy Historian for AWS. If you have used the default VPC, you need not provide the subnet details.

10. Under **Security Group Settings**, select **Create New Based on Seller Settings**.

The screenshot shows the 'WebAdmin and Rest API for Proficy Historian' interface. It is divided into three main sections: VPC Settings, Subnet Settings, and Security Group Settings. The VPC Settings section includes a dropdown menu for selecting a VPC, a refresh icon, and a link to 'Create a VPC in EC2'. The Subnet Settings section includes a dropdown menu for selecting a subnet, a refresh icon, an 'IPv4 CIDR block' input field, and a link to 'Create a subnet in EC2'. The Security Group Settings section includes a dropdown menu for selecting a security group, a refresh icon, and a button labeled 'Create New Based On Seller Settings' which is highlighted with a red box.

11. Enter a name and description for the security group. In the **Source (IP or Group)** column, leave the default value (Anywhere) as is for now. You will change these values later.

WebAdmin and Rest API for Proficy Historian

Security Group Settings

A security group acts as a firewall that controls the traffic allowed to reach one or more instances. You can create a new security group based on seller-recommended settings or choose one of your existing groups. [Learn more](#)

Create new based on seller settings

A new security group will be generated by AWS Marketplace. It is based on recommended settings for WebAdmin and Rest API for Proficy Historian version MVP-0.9.

Name your security Group

Description

Connection Method	Protocol	Port Range	Source (IP or Group)
SSH	tcp	22	Anywhere ▾ 0.0.0.0/0
	tcp	8989	Anywhere ▾ 0.0.0.0/0
	tcp	9443	Anywhere ▾ 0.0.0.0/0

Rules with source of 0.0.0.0/0 allows all IP addresses to access your instance. We recommend limiting access to only known IP addresses.

[Cancel](#) [Save](#)

12. Select **Save**.
13. Under **Key Pair Settings**, select a key pair of the type RSA and format .pem. If you do not have a key pair, you can [create it](#).
14. Under **Inbound security groups rules**, enter the following values for security group rules 1 and 2 respectively:

Type	Protocol	Port Range	Source type
SSH	TCP	22	Select Custom , and enter the public IP address of the machine or network from which you want to access the Web Admin console and the REST Query service.

Type	Protocol	Port Range	Source type
			Provide a static IP address, or use the CIDR notation (for example, <IP address>/16).
Custom TCP Rule	TCP	9443	Select Custom , and enter the public IP address of the machine or network from which you want to access the Web Admin console. Provide a static IP address, or use the CIDR notation (for example, <IP address>/16). Or, if you want to access the Web Admin console only from your local machine, select My IP .
Custom TCP Rule	TCP	8989	Select Custom , and enter the public IP address of the machine or network from which you want to access the REST Query service. Provide a static IP address, or use the CIDR notation (for example, <IP address>/16). Or, if you want to access the REST Query service only from your local machine, select My IP .

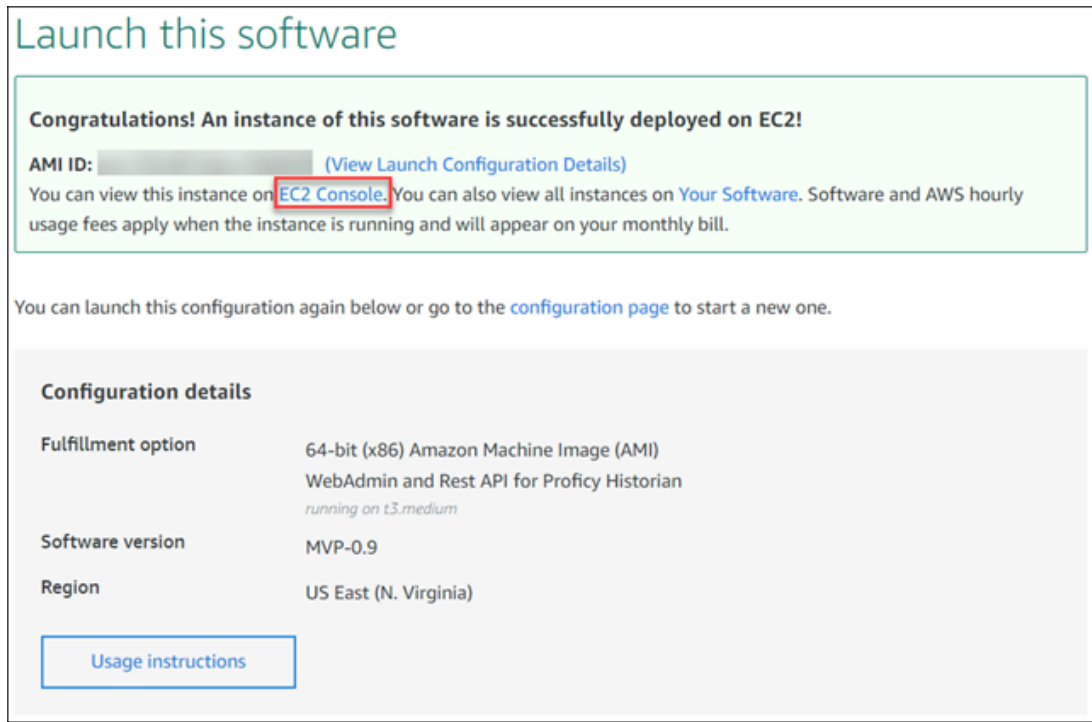
15. Select **Launch**.

The Web Admin console and the REST Query service are deployed.

What to do next

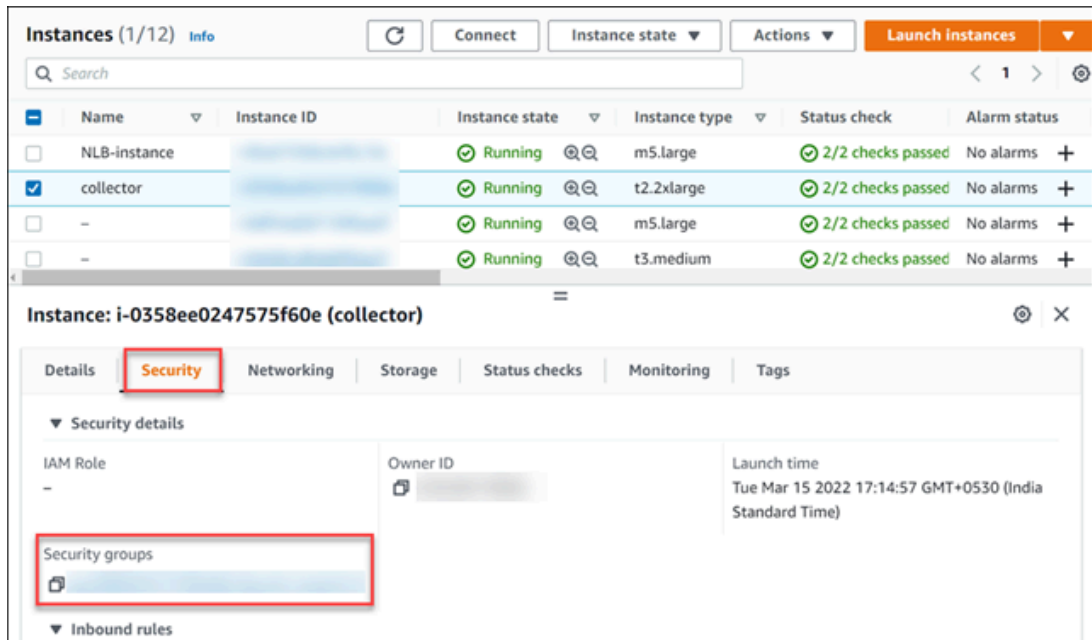
1. Edit the inbound security rules:

a. In the success message that appears at the top of the page, select **EC2 Console**.

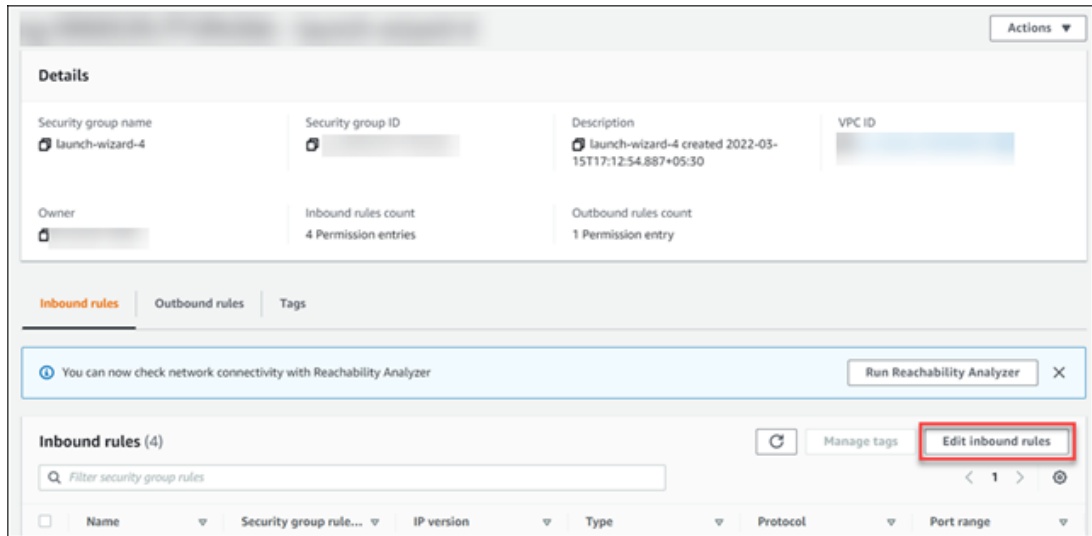


b. In the list of instances that appears, select the one on which you have deployed the Web Admin console and the REST Query service.

c. Select **Security**, and then select the security group.



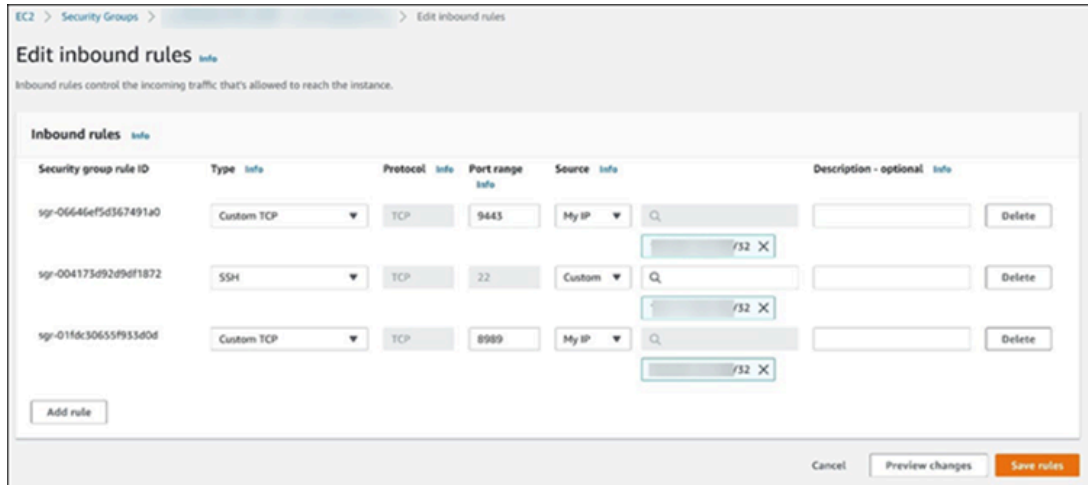
d. Under **Inbound rules**, select **Edit inbound rules**.



e. Edit the security groups as follows, and then select **Save rules**:

Type	Protocol	Port Range	Source type
SSH	TCP	22	Select Custom , and enter the public IP address of the machine or network from which you want to access the Web Admin console and the REST Query service. Provide a static IP address, or use the CIDR notation (for example, <IP address>/16).
Custom TCP Rule	TCP	9443	Select Custom , and enter the public IP address of the machine or network from which you want to access the Web Admin console. Provide a static IP address, or use the CIDR notation (for example, <IP address>/16). Or, if you want to access the Web Admin console only from your local machine, select My IP .
Custom TCP Rule	TCP	8989	Select Custom , and enter the public IP address of the machine or network from which you want to access the REST Query service. Provide a static IP address, or use the CIDR notation (for example, <IP address>/16).

Type	Protocol	Port Range	Source type
			Or, if you want to access the REST Query service only from your local machine, select My IP .



2. [Connect the Web Admin console and the REST Query service with Proficy Historian for AWS \(on page 109\).](#)

Connect the Web Admin Console and the REST Query Service with the Historian Server

Before you begin

- [Deploy the Web Admin console and the REST Query service \(on page 33\).](#)
- Initialize the EC2 instance on which you have deployed Proficy Historian for AWS.

About this task

This topic describes how to generate a configuration file for the Web Admin console and the REST Query service. The configuration file is used to connect these applications with the Historian server.



Note:

If you restart the EC2 instance on which you have deployed the Web Admin console and the REST Query service, you must generate the configuration file once again to connect the Web Admin console and the REST Query service with the Historian server.

Procedure

1. Run Command Prompt as an administrator.
2. Run the `CloudHistorianConfigurationUtility.exe` file. It is provided along with the collectors installer. After you install collectors, it will be available in the `C:\Program Files\GE Digital\Historian Cloud Config` folder by default.
3. Enter the number corresponding to generating a configuration file.
4. Enter the following details:

Field	Description
NLB DNS	Enter the Amazon Network Load Balancer (NLB) DNS. <div style="border: 1px solid #00a0e3; border-radius: 10px; padding: 10px; margin-top: 10px;"> <p>i Tip: To find the NLB DNS:</p> <ol style="list-style-type: none"> a. Access the EKS cluster on which you have deployed Proficy Historian for AWS. b. Access the EC2 instance. c. In the navigation pane, under Load Balancing, select Load Balancers. d. Select the load balancer for which you want to find the DNS. e. In the Description section, copy the DNS name. </div>
Username	Enter the username to connect to Proficy Historian for AWS.
Password	Enter the password to connect to Proficy Historian for AWS. <div style="border: 1px solid #00a0e3; border-radius: 10px; padding: 10px; margin-top: 10px;"> <p>i Tip: This is the value you entered in the Password field under UAA Configuration when you created the stack.</p> </div>
DNS or public IP address of the EC2 instance	Enter the public IP address or DNS of the EC2 instance on which you have installed the Web Admin console and the REST Query service.
Key file path	Enter the path to the <code>.pem</code> file that was downloaded when you created a key pair while installing the Web Admin console and the REST Query service.

The Web Admin console and the REST Query service are connected with the Historian server.

Access the Web Admin Console

Before you begin

Connect the Web Admin console with the Historian server (on page 109).

Procedure

1. Access the following URL: `https://<IP address>:9443/historian-visualization/hwa`, where *<IP address>* is the public IP address of the EC2 instance on which you have installed the Web Admin console.
2. Enter the following credentials:

Field	Description
Username	Enter the username of any user who is part of a Historian security group. By default, the user <code>ihCloudHistAdmin</code> is created.
Password	Enter the password for the user. For <code>ihCloudHistAdmin</code> , enter the value that you provided in the UAA Configuration field while deploying Proficy Historian for AWS.

The Web Admin console appears.

About Data Stores

A data store is logical collection of tags. It is used to store, organize, and manage tags according to the data source and storage requirements. A data store can have multiple archive files (*.IHA), and includes both logical and physical storage definitions.

Tags can be segregated into separate archives through the use of data stores. The primary use of data stores is to segregate tags by data collection intervals. For example, you can put a name plate or static tags where the value rarely changes into one data store, and your process tags into another data store. This can improve query performance.

Historian data stores are stored as archive files that contain data gathered from all data sources during a specific period of time. You can write and read data from the archive files.

You can define two types of data stores:

- **Historical Data Store:** Tags stored under historical data store will store data as long as the disk space is available. Depending on your license, you may be able to create multiple historical data stores. The maximum number of historical data stores supported depends on the license.
- **SCADA Buffer Data Store:** Tags stored under the SCADA buffer data store will store data for a specific duration of time based on license.

When you install the Historian server, two historical data stores are installed by default.

- **System:** Stores performance tags. This is only for internal usage within Historian, and you cannot add tags to this data store. You must not rename or delete the system data store.
- **User:** Stores tag data. This is a default data store. You can rename and delete a user data store as long as there is another default data store set for tag addition.

Based on your license, a SCADA Buffer data store may also be installed. It stores short-term tags and data.

Create a Data Store

Before you begin

[Connect the Web Admin console with the Historian server \(on page 109\).](#)

About this task

The number of data stores that you can create depends on your license.

Procedure

1. [Access the Web Admin console \(on page 111\).](#)
2. Select **Data Stores**.

The screenshot shows the GE Digital Historian Web Admin Console interface. At the top, there is a navigation bar with 'GE Digital | Historian' and a 'Configuration' button. Below the navigation bar, a summary bar displays '5 Data Stores' and '1931 Tags'. The '5 Data Stores' text is highlighted with a red rectangular box. Below the summary bar, there is a section for 'Collectors (4)' with a refresh icon and a timestamp '(Refreshed On - 03/24/2022 01:27:21 PM)'. A table lists the collectors with columns for Name, Rate, Events Collected, Events Reported, Redundancy, Details, and View/Edit.

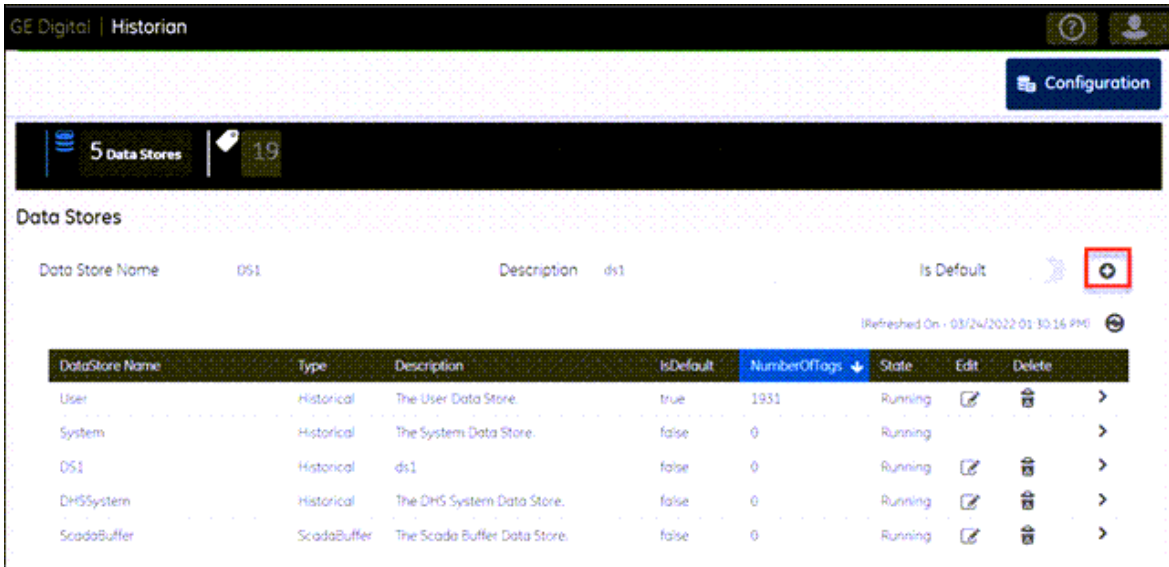
Name	Rate	Events Collected	Events Reported	Redundancy	Details	View/Edit
EC2AMAZ-3OH212D_OPC_Intellution_Intellit...	0	34	34		(i)	>
EC2AMAZ-3OH212D_OPDCE_Intellution_Intel...	0	1	0		(i)	>
EC2AMAZ-3OH212D_Simulation	840	96026	96026		(i)	>
sdsdaddssda	0	0	0		(i)	>

A list of data stores appears.

3. Enter values as described in the following table.

Field	Description
Data Store Name	Enter a unique name for the data store. A value is required. You can use all alphanumeric characters and special characters except / \ * ? < >
Description	Enter a description for the data store.
Is Default	Switch the toggle on if you want to set this data store as the default one. A default data store is the one that is considered if you do not specify a data store while adding a tag. You can set only one data store as default.

4. Select .



The data store is created.

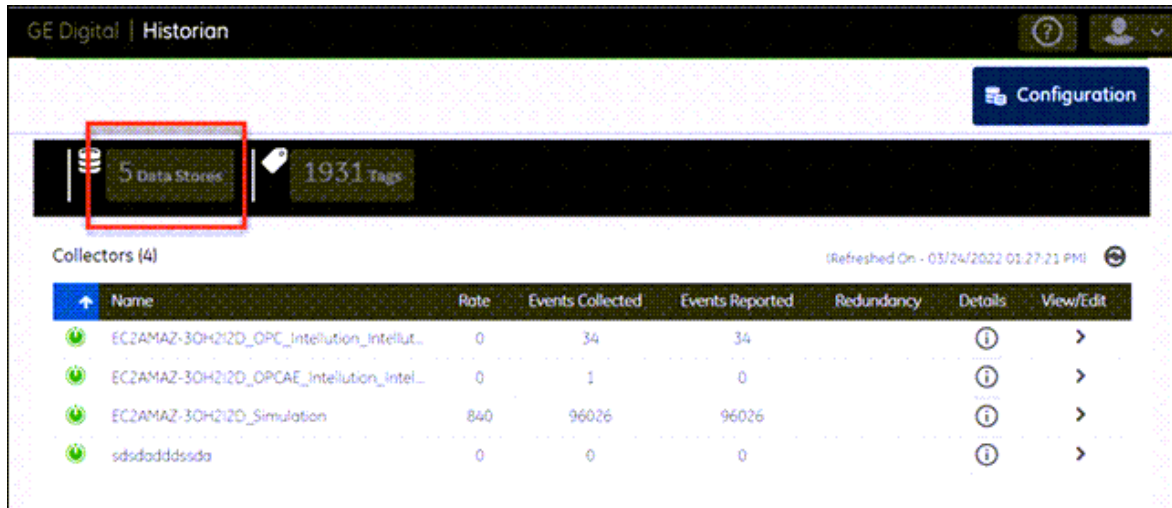
When you add tags to the data store, it will have its own set of .IHA (iHistorian Archive) files.


Ensure that you [back up](#) the new data store archives periodically using EFS.


Access a Data Store

Procedure

1. Access the Web Admin console (on page 111).
2. Select **Data Stores**.



A list of data stores appears. By default, the list is refreshed every 10 minutes. You can, however, refresh it manually by selecting .

3. In the row containing the data store that you want to access, select .

The details of the data store appear, displaying the following information:

Field	Description
Archive Compression	<p>Displays the current effect of archive data compression. If the value is zero, it indicates that archive compression is either ineffective or turned off. To increase the effect of data compression, increase the value of archive compression deadbands on individual tags.</p> <p>In calculating the effect of archive compression, Historian counts internal system tags as well as data source tags. Therefore, when working with a very small number of tags and with compression disabled on data source tags, this field may indicate a value other than zero. If you use a realistic number of tags, however, system tags will constitute a very small percentage of total tags and will therefore not cause a significant error</p>

Field	Description
	in calculating the effect of archive compression on the total system.
Free Space	Not applicable
Consumption Rate	Displays how fast the archive disk space is consumed. If the value is too high, you can reduce it by slowing the poll rate on selected tags or data points or by increasing the filtering on the data (widening the compression deadband to increase compression).
Write Cache Hits	Displays the hit ratio of the write cache in percentage of total writes. It is a measure of how efficiently the system is collecting data. Typically, this value should range from 95 to 99.99%. If the data is changing rapidly over a wide range, however, the hit percentage drops significantly because current values differ from recently cached values. More regular sampling may increase the hit percentage. Out-of-order data also reduces the hit ratio.
Estimated Days to fill	Not applicable
Failed Writes	<p>Displays the number of samples that failed to be written. Since failed writes are a measure of system malfunctions or an indication of offline archive problems, this value should be zero. If you observe a non-zero value, investigate the cause of the problem and take corrective action.</p> <p>Historian also generates a message if a write fails. Note that the message only appears once per tag, for a succession of failed writes associated with that tag. For example, if the number displayed in this field is 20, but they all pertain to one Historian tag, you will only receive one message until that Historian tag is functional again.</p>
Alerts Since Startup	Not applicable
Receive Rate	Displays how busy the server is at a given instance and the rate at which the server is receiving data from collectors.
Messages Since Startup	Not applicable

Field	Description
Number of Archives	The number of archives in the data store.
Number of Tags	The number of tags in the data store.

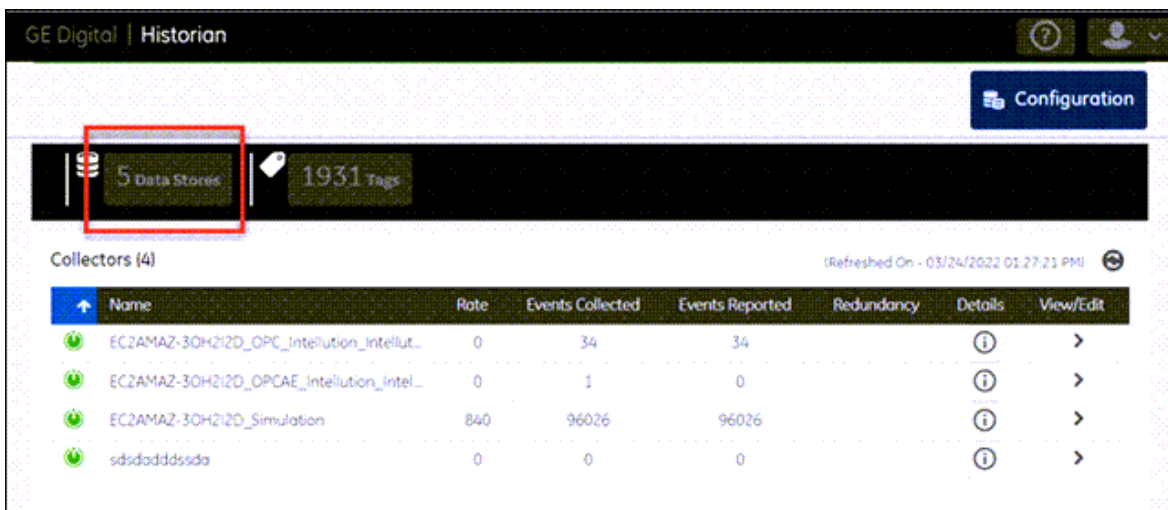
Modify a Data Store

About this task

You can change the name and description of a data store. You can also set a data store as default. In addition, you can configure the default settings of archives.

Procedure

1. Access the Web Admin console (on page 111).
2. Select **Data Stores**.




A list of data stores appears.

3. In the **Edit** column, select .

The **Edit Data Store Configuration** window appears.


4. Modify values as described in the following table.

Field	Description
Data Store Name	Enter a unique name for the data store. A value is required. You can use all alphanumeric characters and special characters except / \ * ? < >

Field	Description
	 Note: You cannot rename the system data store.
Description	Enter a description for the data store.
Is Default	Switch the toggle on if you want to set this data store as the default one. A default data store is the one that is considered if you do not specify a data store while adding a tag. You can set only one data store as default.


5. Select **Save**.

The data store is modified.

6. If you want to modify the default settings of archives in the data store, in the row containing the data store, select .

The details of the data store appear.

7. Select **Configuration**, and then modify values as described in the following table.

Field	Description
Default Archive Path	The default path of the folder in which you want to create the archives for the data store.  Note: We recommend not to use a period in the default archive path field. If you do so, you will not be able to specify a default archive name.
Base Archive Name	A prefix that you want to add to all the archive files.
Use Caching	Indicates whether caching must be enabled. When reading data from the archiver, some data is saved in the system memory and retrieved using caching. This results in faster retrieval as the data is already stored in the buffer. This option is not available for SCADA Buffer data stores.
Default Backup Path	Not applicable. Use EFS to back up and restore archives.

Field	Description
Free Space Required (MB)	Indicates the remaining disk space required after a new archive is created. If the available space is less than the requirement, a new archive is not created.
Generate Message on Data	<p>If this option is enabled, an audit log entry will be made any time the value of a previously archived data point in the Historian archive is overwritten. This log entry will contain both the original and new values.</p> <p>If you want to create multiple archives at the same time, disable this option.</p> <p>This option is not available for SCADA buffer data stores.</p>
Archive Duration	The duration of a newly created archive in days or hours. A new archive will be created after the selected number of days or hours.
Automatically Create Archives	If enabled, the server automatically creates a new archive in the default path directory whenever the current archive is full. If disabled, no new data will be written to the archives after the current archive is full.
Store OPC Quality	<p>Stores the OPC data quality.</p> <p>To create multiple archives at the same time, Store OPC Quality must be <i>Disabled</i>.</p>
Data Read Only After (hrs)	<p>The number of hours, prior to now, for which data can be stored in a read/write archive. After the time expires, that portion of the archive file is automatically made read-only. Incoming data values with timestamps prior to this time are rejected.</p> <p>A single archive file, therefore, may contain a read-only section, another read-write section containing recently written data, and unused free space.</p>
Overwrite Old Archives	When enabled, the system replaces the oldest archived data with new data when the default size has been reached.

Field	Description
	<ul style="list-style-type: none"> • To create multiple archives at the same time, disable this option. • If you enable both Automatically Create Archives and Overwrite Old Archives, you must set <code>ihArchiveFreeSpaceHardLimit</code> to TRUE using APIs.
Stale Period	<p>Specifies the duration in days after which tags are considered stale for this data store. Valid values are:</p> <ul style="list-style-type: none"> • 0: If you enter this value, tags are never considered stale. • 7 to 36500 (100 years) <p>Stale tags are tags that have no new data samples within a specified period of time. These tags add to system overhead and slow down user queries.</p>
Stale Period Check	<p>Specifies the frequency in days with which the staleness of the tag is checked. You can enter a value between 1 and 30.</p> <p>Stale tags are tags that have no new data samples within a specified period of time. These tags add to system overhead and slow down user queries.</p>

8. Select **Update**.

The archive settings of the data store are modified.

Delete Data Store

About this task

You can delete a data store if it is no longer needed. You must not delete the system data store. You cannot delete the last user data store; at least one user data store must exist.

Procedure

1. [Access the Web Admin console \(on page 111\)](#).
2. Select **Data Stores**.

GE Digital | Historian


Configuration

5 Data Stores | 1931 Tags

Collectors (4) (Refreshed On - 03/24/2022 01:27:21 PM)

Name	Rate	Events Collected	Events Reported	Redundancy	Details	View/Edit
EC2AMAZ-3OH212D_OPC_Intellution_Intellut...	0	34	34			
EC2AMAZ-3OH212D_OPCAE_Intellution_Intel...	0	1	0			
EC2AMAZ-3OH212D_Simulation	840	96026	96026			
sdsdadddsda	0	0	0			

A list of data stores appears.

3. In the **Delete** column, select .

A message appears, asking you to confirm that you want to delete the data store.

4. Select **Yes**.

The data store is deleted.

About Tags

A Historian tag is used to store data related to a property.

For example, if you want to store the pressure, temperature, and other operating conditions of a boiler, a tag will be created for each one in Historian.

When you collect data using a collector, tags are created automatically in Historian to store these values. These tags are mapped with the corresponding properties in the source.

For example, suppose you want to store OSI PI data in Historian. You will specify the OSI PI tags for which you want to collect data. The OSI PI collector creates the corresponding tags in Historian, and it stores the values in those tags.

You can also choose to create tags manually.

Add a Tag Manually

Before you begin

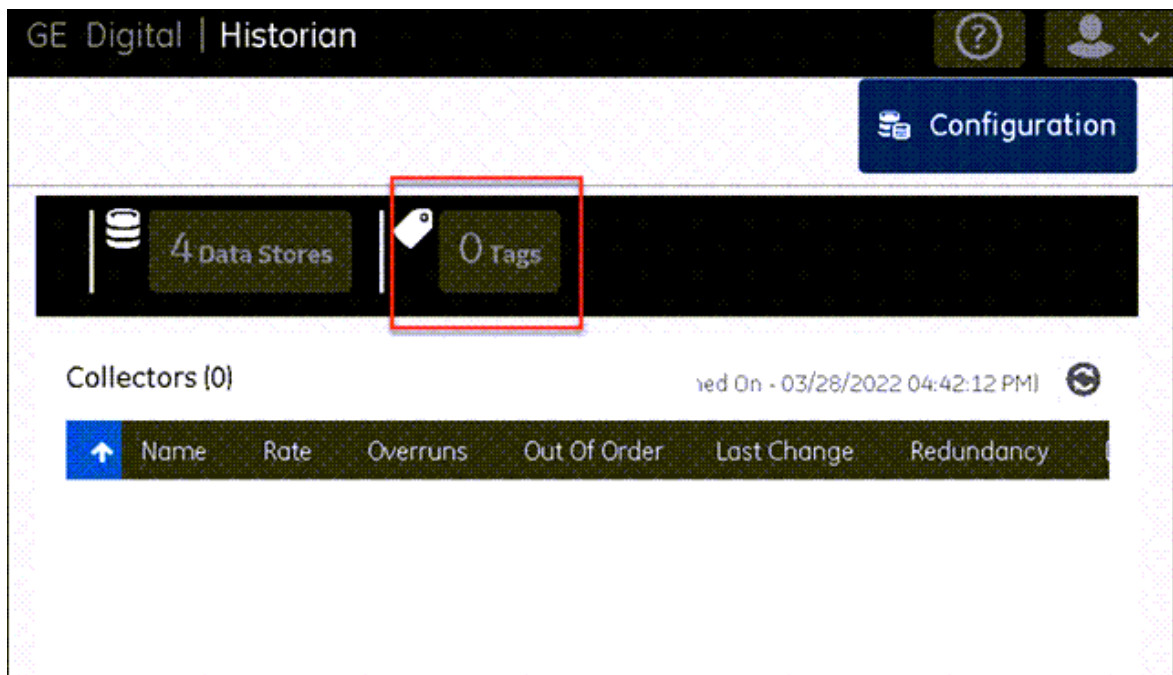
1. [Connect the Web Admin console with the Historian server \(on page 109\)](#).
2. If you want to associate tags with a collector, [install collectors \(on page 26\)](#), and then [create a collector instance \(on page 60\)](#).

About this task


Typically, when you browse a data source for tags, you can choose to [add those tags to Historian \(on page 123\)](#). The corresponding tags are then created in Historian. However, you can also add tags manually (without browsing from a data source). You can choose to associate these tags with a collector, which then collects data for the tag.

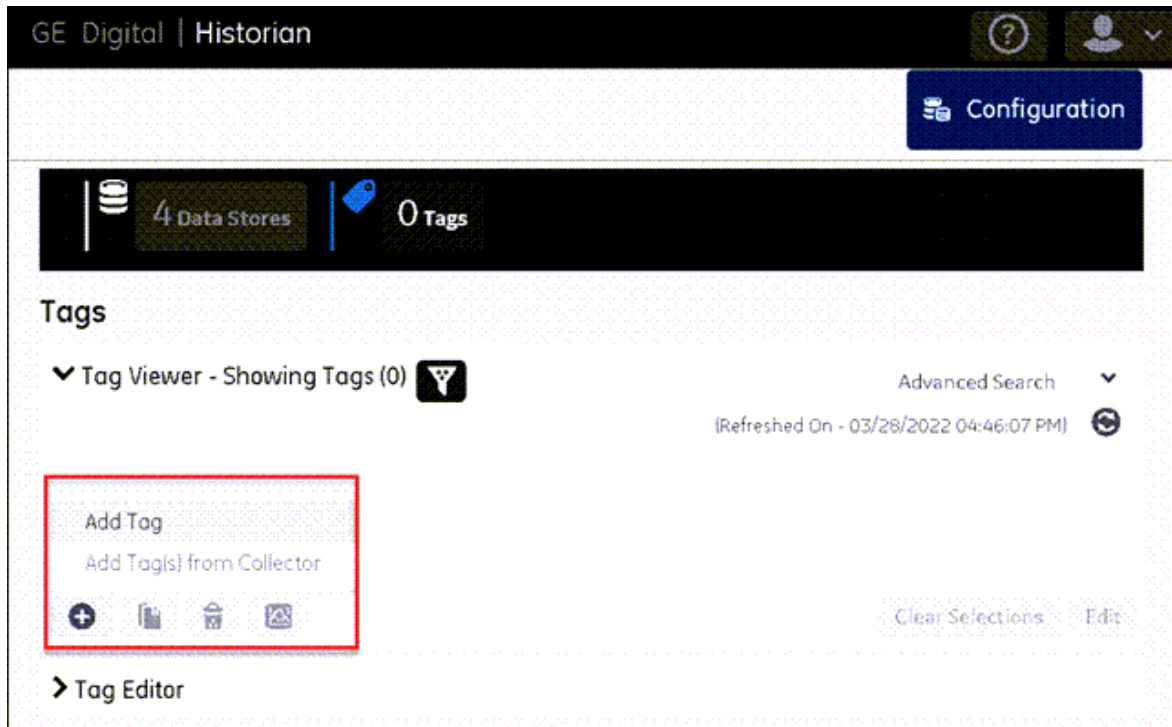
Procedure

1. [Access the Web Admin console \(on page 111\)](#).
2. Select **Tags**.



A list of tags appears.

3. Select , and then select **Add Tag**.



The **Add Tag** window appears.

4. Enter values as described in the following table.

Field	Description
Collector Name	Select the collector instance using which you want to collect the tag data.
Source Address	Enter the host name or IP address of the data source from which you want to collect the tag data.
Tag Name	Enter a tag name. A value is required and must be unique.
Data Store	Select the data store in which you want to store the tag data. By default, the default data store is selected.
Data Type	Enter the data type of the tag.
Time Resolution	Enter the time resolution of the tag. For example, if you select Seconds , tag data is stored every second.

5. Select **Add**.

The tag is added.

Add a Tag from a Collector

About this task


When you add tags from a collector, the collector browses the data source for a list of tags. You can select the ones that you want to add to Historian. These tags are then created in the Historian database. You can also [create tags manually \(on page 121\)](#).

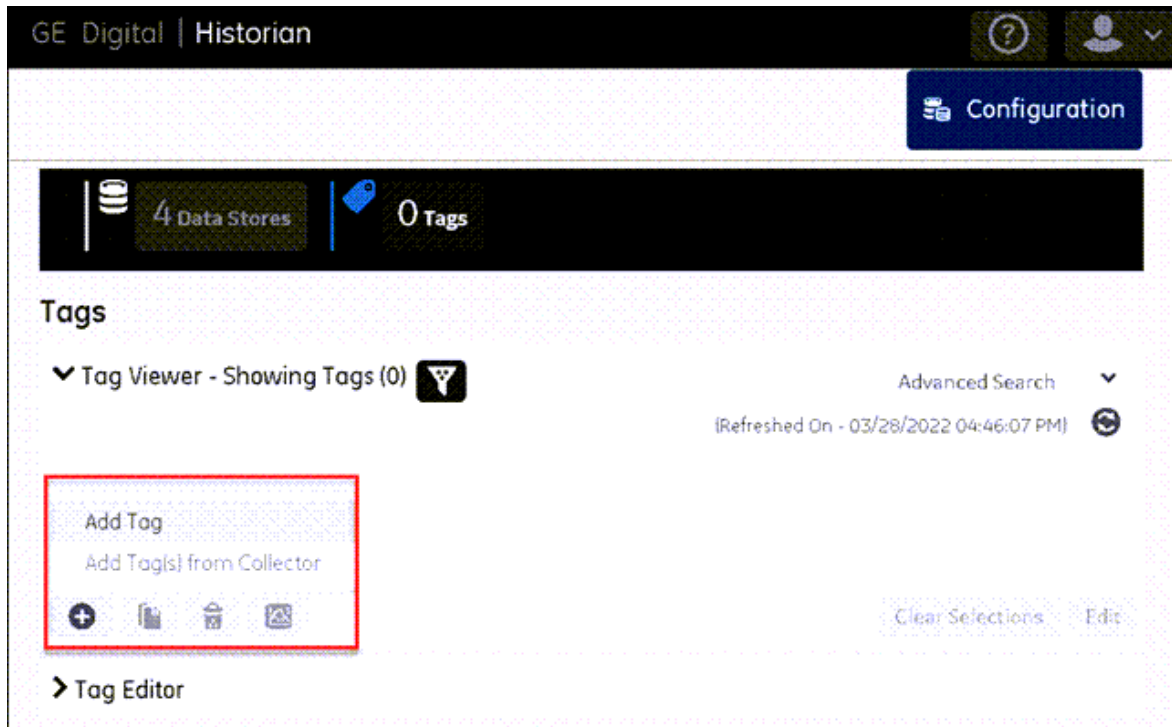
Procedure

1. [Access the Web Admin console \(on page 111\)](#).
2. Select **Tags**.



A list of tags appears.

3. Select , and then select **Add Tag(s) from Collector**.



The **Add Tag(s) from Collector** window appears.

4. Enter values as described in the following table.

Field	Description
Collector	Select the collector using which you want to browse the source.
Source Tag Name	Specify the names of tags that you want to add.

A list of tags that match the criteria appear.

5. Select **Add** or **Add All**.

The selected tags appear in the right section.

6. Select **Add Selected Tags**.

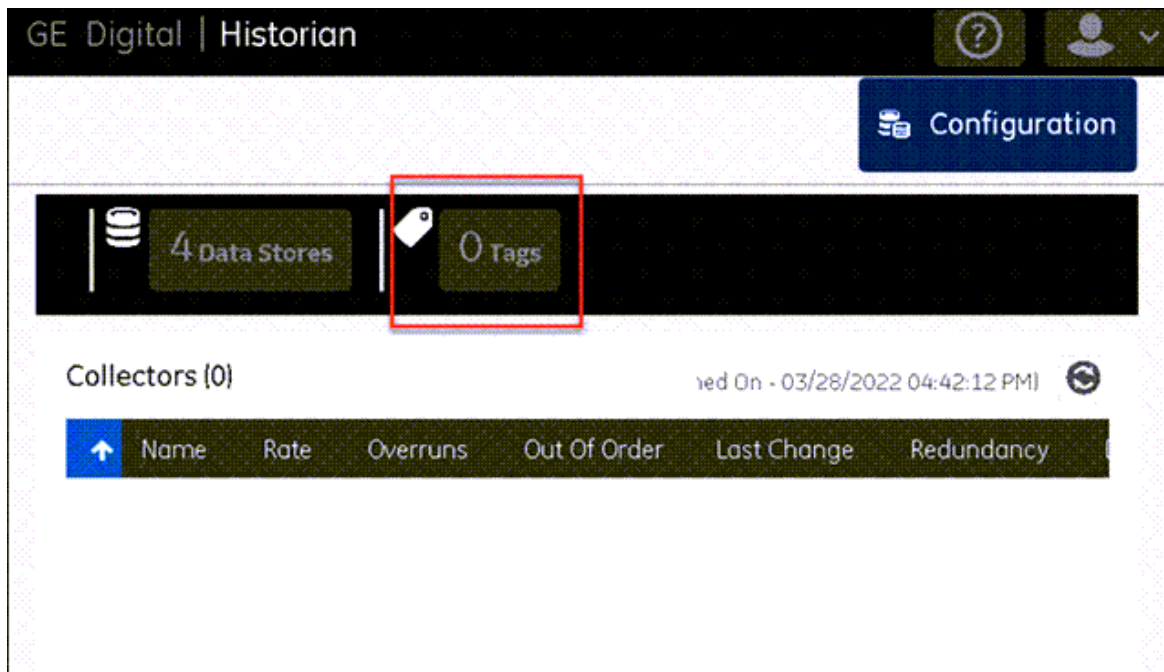
The tags are added.

Copy a Tag


About this task

Procedure

1. [Access the Web Admin console \(on page 111\)](#).
2. Select **Tags**.



A list of tags appears.

3. Select the tag that you want to copy, and then select  .
The **Copy Tag** window appears.
4. In the **New Tag Name** field, enter a unique name for the tag, and then select **Ok**.

Access Tag Values

About this task

You can access tag values in any of the following formats:

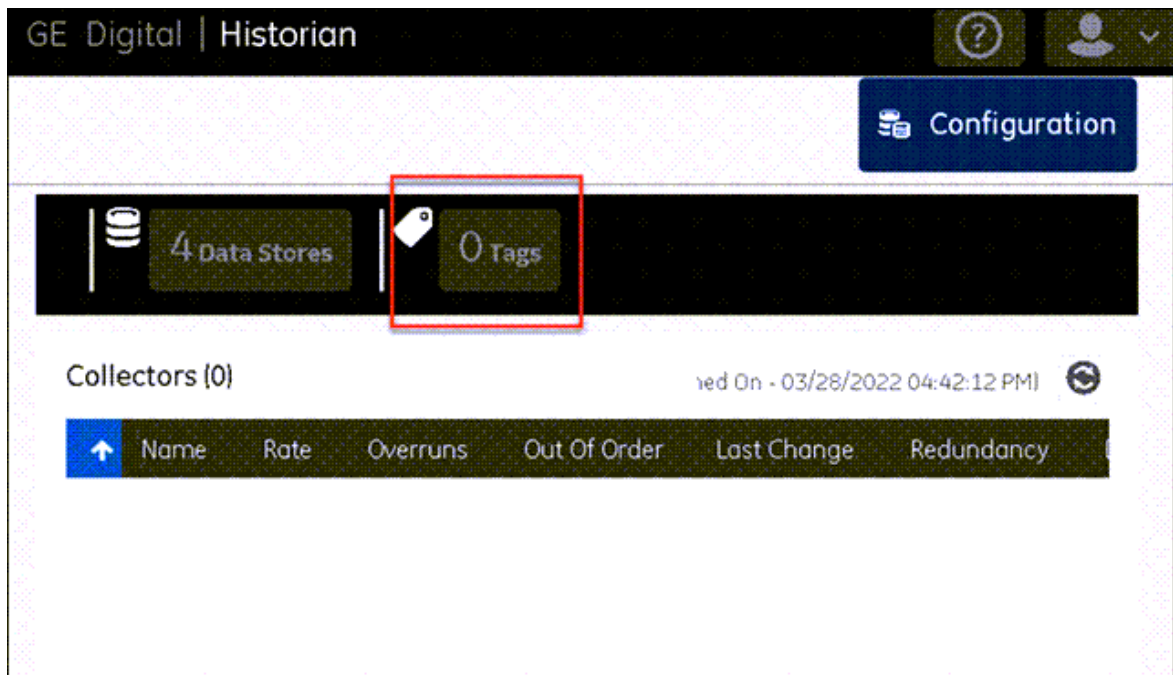
- **Trend chart:** Plots the trend chart of the tag values interpolated in the last 10 minutes. You can choose among a line, column, and an area graph. You can use a trend chart to compare the values of multiple tags.
- **Last 10 raw values:** Displays a list of the last 10 raw values of tags. The values of each tag are displayed separately.

For either of these options, you can select up to 10 tags.

The difference in the timestamp of consecutive values depends on the time resolution of the tag. For example, if the time resolution is seconds, the timestamp of consecutive values of the tag will be one second apart.

Procedure


1. Access the Web Admin console (on page 111).
2. Select **Tags**.



A list of tags appears.

**Tip:**

You can filter the list of tags by selecting or **Advanced Search**.

3. Select the tags whose data you want to access/plot. You can select up to 10 tags at a time.
4. Select , and then select one of the following options:
 - **Trend:** Select this option if you want to plot a trend chart of the tag values. You can choose among a line graph, a bar graph, and an area graph. The data is interpolated for the last 10 minutes.
 - **Last 10 Raw Values:** Select this option if you want to view the last 10 values of each tag.

The trend chart or the last 10 values of the selected tags appear.

Delete a Tag

About this task

When you delete a tag, you can choose between the following options:

- **Remove a tag from the system:** When you remove a tag from a system, the tag and its data will still be available. Therefore, you cannot create a tag with the same name.
- **Delete a tag permanently:** When you delete a tag, it is deleted from Historian, and the tag data will no longer be available.


You can delete multiple tags at a time.

Procedure

1. [Access the Web Admin console \(on page 111\)](#).
2. Select **Tags**.



A list of tags appears.

3. Select the tag that you want to delete, and then select .

A message appears, asking you to choose between the following options:


- **Remove a tag from the system:** When you remove a tag from a system, the tag and its data will still be available. Therefore, you cannot create a tag with the same name.
 - **Delete a tag permanently:** When you delete a tag, it is deleted from Historian, and the tag data will no longer be available.
4. Select the appropriate option, and then select **Ok**.
A message appears, asking you to confirm that you want to remove/delete the tag.
 5. Select **Yes**.
The tag is removed/deleted.

Chapter 7. Using the REST Query Service

Overview of the REST Query Service

The REST Query service contains APIs to fetch data from the Historian database. You can fetch data such as the latest data point of a tag or data points for a duration. Using these APIs, you can also work on aggregation techniques like average, minimum, and maximum values. The REST query container exposes port number 8989 for querying the data.

Workflow for Using the REST Query Service

Step	Description	Notes
1	Deploy Proficy Historian for AWS (on page 14) .	<p>This step is required. Make a note of the NLB DNS of the EC2 instance on which you have deployed Proficy Historian for AWS.</p> <div style="border: 1px solid #0070C0; border-radius: 10px; padding: 10px;"><p> Tip: To find the NLB DNS:</p><ol style="list-style-type: none">1. Access the EKS cluster on which you have deployed Proficy Historian for AWS.2. Access the EC2 instance.3. In the navigation pane, under Load Balancing, select Load Balancers.4. Select the load balancer for which you want to find the DNS.5. In the Description section, copy the DNS name.</div>
2	Deploy the Web Admin console and the REST Query service (on page 33) .	This step is required.

Step	Description	Notes
3	Connect the Web Admin console and the REST Query service with the Historian server (on page 109).	This step is required.
4	Install an API platform, such as POSTMAN.	This step is required. The API platform is used to send API requests and receive responses.
5	<p>Get an authorization token by sending a request with the following parameters:</p> <ul style="list-style-type: none"> • Method: POST • URI: http://<NLB DNS>:8080/oauth/token • Authorization type: Basic Auth • Username: Enter <code>admin</code>. • Password: Enter the password that you provided in the UAA Configuration field while deploying Proficy Historian for AWS. • Body: Select x-www-form-urlencoded, and then enter grant-type and client-credentials as a key-value pair. 	This step is required to establish a connection with the UAA service. Copy the token (the value in the <code>access_token</code> parameter).
6	Using the API platform, send REST queries.	For a list of available queries, refer to REST Queries for Retrieving Data Samples (on page 151) and REST Queries for Data Aggregation (on page 161) . For information on common API parameters, refer to Common API Parameters (on page 147) .

Deployment

Deploy the Web Admin Console and the REST Query Service by Launching through EC2

Before you begin

[Deploy Proficy Historian for AWS \(on page 14\)](#).

About this task

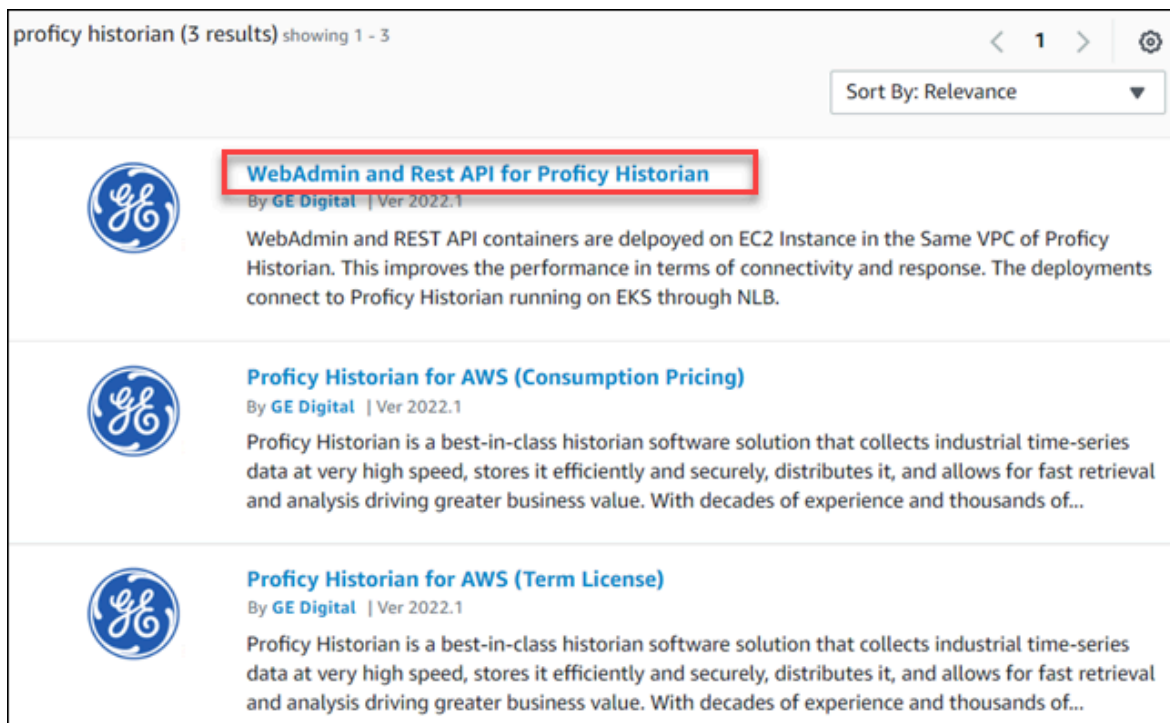
The [Web Admin console \(on page 93\)](#) is a web-based user interface, which you can use to monitor, supervise, archive, retrieve, and control data stored in the Historian server. And, [the REST Query service \(on page 128\)](#) contains APIs to fetch data from the Historian database.

This topic describes how to deploy the Web Admin console and the REST Query service using an Amazon Machine Image (AMI) by launching through EC2. You can also deploy them by [launching from a website \(on page 39\)](#).

When you deploy the AMI, you will create a key pair (or use an existing one), which will be used later to connect the Web Admin console and the REST Query service with the Historian server.

Procedure

1. Log in to the AWS marketplace.
2. Search for Proficy Historian.
A list of products in Proficy Historian appears.
3. Select **WebAdmin and Rest API for Proficy Historian**.



The product overview and other details appear.

4. Select **Continue to Subscribe**.

The screenshot shows the product page for 'WebAdmin and Rest API for Proficy Historian' by GE Digital. The page includes a navigation bar with tabs for Overview, Pricing, Usage, Support, and Reviews. The 'Overview' tab is active. The main content area features a 'Product Overview' section with a description, a 'Highlights' box, and a table of product details. A 'Continue to Subscribe' button is highlighted in the top right corner.

Version	MVP-0.9
By	GE Digital
Categories	Industrial IoT
Operating System	Linux/Unix, Amazon Linux 5.10.82-83.359.amzn2
Delivery Methods	Amazon Machine Image

Your request for subscription is processed.

5. Select **Continue to Configuration**.

The screenshot shows the 'Subscribe to this software' page for 'WebAdmin and Rest API for Proficy Historian'. The page includes a 'Continue to Configuration' button highlighted in the top right corner. Below the button, there is a 'Terms and Conditions' section and a 'GE Digital Offer' table.

Product	Effective date	Expiration date	Action
WebAdmin and Rest API for Proficy Historian	5/17/2022	N/A	Show Details

The **Configure this Software** page appears.

6. Enter values as described in the following table.

Field	Description
Fulfilment option	Select 64-bit (x86) Amazon Machine Image (AMI) .
Software version	Select 2022.1 .
Region	Select the region on which you want to deploy the Web Admin console and the REST Query service. For optimum performance, we recommend that you use the same region as the one on which you have deployed Proficy Historian for AWS.

7. Select **Continue to Launch**.

The screenshot displays the AWS Marketplace configuration interface. At the top, the GE logo and product name 'WebAdmin and Rest API for Proficy Historian' are visible. A yellow 'Continue to Launch' button is highlighted with a red box in the top right. Below the header, there are navigation links for 'Product Detail', 'Subscribe', and 'Configure'. The main heading is 'Configure this software', followed by the instruction 'Choose a fulfillment option and software version to launch this software.' Three dropdown menus are present: 'Fulfilment option' (64-bit (x86) Amazon Machine Image (AMI)), 'Software version' (MVP-0.9 (May 09, 2022)), and 'Region' (US East (N. Virginia)). Below these, there is a note about Local Zones or WaveLength infrastructure, and fields for 'Ami Id', 'Ami Alias', 'Product Code', and 'Release notes'. On the right side, a 'Pricing information' sidebar provides an estimate of costs, including 'Software Pricing' at \$0/hr and 'Infrastructure Pricing' for EC2 at \$30.00/month.

The **Launch this software** page appears.

8. In the **Choose Action** field, select **Launch through EC2**, and then select **Launch**.

WebAdmin and Rest API for Proficy Historian

Launch this software

Review the launch configuration details and follow the instructions to launch this software.

Configuration details

Fulfillment option 64-bit (x86) Amazon Machine Image (AMI)
WebAdmin and Rest API for Proficy Historian
running on t3.medium

Software version MVP-0.9

Region US East (N. Virginia)

[Usage instructions](#)

Choose Action
Launch through EC2

Choose this action to launch your configuration through the Amazon EC2 console.

[Launch](#)

The **Launch an instance** page appears.

9. Enter values as described in the following table.

Field	Description
Name	Enter a tag name for the instance.
Instance type	Select the instance type for the Web Admin console and the REST Query service. Choose the type based on your data consumption. We recommend a minimum configuration of t3.medium.
Key pair	Select a key pair of the type RSA and format .pem, if you have one. If not, you can create a key pair .

10. Under **Network settings**, select **Edit**.

▼ **Network settings**
Edit

Network
vpc-fbeb8586

Subnet
No preference (Default subnet in any availability zone)

Auto-assign public IP
Enable

Security groups (Firewall) [Info](#)
 A security group is a set of firewall rules that control the traffic for your instance. Add rules to allow specific traffic to reach your instance.
 We'll create a new security group called 'WebAdmin and Rest API for Proficy Historian-MVP-0.9-AutogenByAWSMP-1' with the following rules:

- Allow SSH traffic from Anywhere
0.0.0.0/0 ▼
Recommended rule from AMI
- Allow CUSTOMTCP traffic from Anywhere
0.0.0.0/0 ▼
Recommended rule from AMI
- Allow CUSTOMTCP traffic from Anywhere
0.0.0.0/0 ▼
Recommended rule from AMI

11. Enter values as described in the following table.

Field	Description
VPC	Select the VPC on which you want to deploy the Web Admin console and the REST Query service.
Subnet	Select the <i>public</i> subnet of the VPC on which you have deployed Proficy Historian for AWS. If you have used the default VPC, you need not provide the subnet details.

12. Under **Inbound security groups rules**, enter the following values for security group rules 1 and 2 respectively:

Type	Protocol	Port Range	Source type
SSH	TCP	22	Select Custom , and enter the public IP address of the machine or network from which you want to access the Web Admin console and the REST Query service. Provide a static IP address, or use the CIDR notation (for example, <IP address>/16).

Type	Protocol	Port Range	Source type
Custom TCP Rule	TCP	9443	Select Custom , and enter the public IP address of the machine or network from which you want to access the Web Admin console. Provide a static IP address, or use the CIDR notation (for example, <IP address>/16). Or, if you want to access the Web Admin console only from your local machine, select My IP .
Custom TCP Rule	TCP	8989	Select Custom , and enter the public IP address of the machine or network from which you want to access the REST Query service. Provide a static IP address, or use the CIDR notation (for example, <IP address>/16). Or, if you want to access the REST Query service only from your local machine, select My IP .

13. As needed, configure storage and advance settings.

14. Select **Launch Instance**.

The Web Admin console and the REST Query service are deployed.

What to do next

[Connect the Web Admin console and the REST Query service with Proficy Historian for AWS. \(on page 109\)](#)

Deploy the Web Admin Console and the REST Query Service by Launching from Website

Before you begin

[Deploy Proficy Historian for AWS \(on page 14\).](#)

About this task

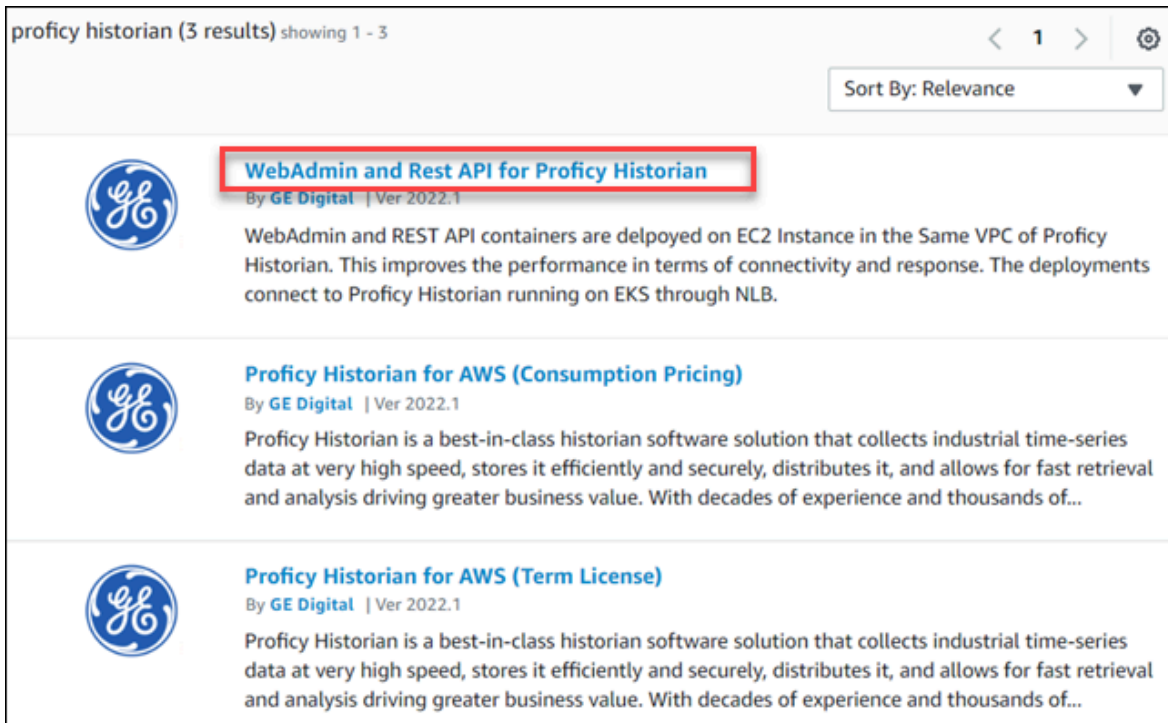
The [Web Admin console \(on page 93\)](#) is a web-based user interface, which you can use to monitor, supervise, archive, retrieve, and control data stored in the Historian server. And, [the REST Query service \(on page 128\)](#) contains APIs to fetch data from the Historian database.

This topic describes how to deploy the Web Admin console and the REST Query service using an Amazon Machine Image (AMI) by launching from a website. You can also deploy them by [launching through EC2 \(on page 33\)](#).

When you deploy the AMI, you will create a key pair (or use an existing one), which will be used later to connect the Web Admin console and the REST Query service with the Historian server.

Procedure

1. Log in to the AWS marketplace.
2. Search for Proficy Historian.
A list of products in Proficy Historian appears.
3. Select **WebAdmin and Rest API for Proficy Historian**.



The product overview and other details appear.

4. Select **Continue to Subscribe**.

The screenshot shows the product page for 'WebAdmin and Rest API for Proficy Historian' by GE Digital. The page includes a navigation bar with 'Overview', 'Pricing', 'Usage', 'Support', and 'Reviews'. A 'Continue to Subscribe' button is highlighted in a red box. Below the navigation bar, there is a 'Product Overview' section with a description and a 'Highlights' box stating 'Easy to connect to Proficy Historian and High Performance'. A table lists product details:

Version	MVP-0.9
By	GE Digital
Categories	Industrial IoT
Operating System	Linux/Unix, Amazon Linux 5.10.82-83.359.amzn2
Delivery Methods	Amazon Machine Image

Additional information includes a 'Typical Total Price' of \$0.042/hr and a 'Save to List' button.

Your request for subscription is processed.

5. Select **Continue to Configuration**.

The screenshot shows the 'Subscribe to this software' page. A 'Continue to Configuration' button is highlighted in a red box. The page includes a 'Terms and Conditions' section with a 'GE Digital Offer' and a table of subscription details:

Product	Effective date	Expiration date	Action
WebAdmin and Rest API for Proficy Historian	5/17/2022	N/A	Show Details

The **Configure this Software** page appears.

6. Enter values as described in the following table.

Field	Description
Fulfilment option	Select 64-bit (x86) Amazon Machine Image (AMI) .
Software version	Select 2022.1 .
Region	Select the region on which you want to deploy the Web Admin console and the REST Query service. For optimum performance, we recommend that you use the same region as the one on which you have deployed Proficy Historian for AWS.

7. Select **Continue to Launch**.

The screenshot displays the AWS Marketplace configuration interface for the product 'WebAdmin and Rest API for Proficy Historian'. The main heading is 'Configure this software'. Below this, there are three dropdown menus: 'Fulfilment option' set to '64-bit (x86) Amazon Machine Image (AMI)', 'Software version' set to 'MVP-0.9 (May 09, 2022)', and 'Region' set to 'US East (N. Virginia)'. A 'Continue to Launch' button is highlighted in a red box in the top right corner. On the right side, there is a 'Pricing information' section showing 'Software Pricing' at \$0/hr and 'Infrastructure Pricing' with a 'Monthly Estimate' of \$30.00/month. The page also includes fields for 'Ami Id', 'Ami Alias', and 'Product Code'.

The **Launch this software** page appears.

8. In the **Choose Action** field, select **Launch from Website**, and then select **Launch**.

Launch this software

Review the launch configuration details and follow the instructions to launch this software.

Configuration details

Fulfillment option: 64-bit (x86) Amazon Machine Image (AMI)
WebAdmin and Rest API for Proficy Historian
running on t3.medium

Software version: MVP-0.9

Region: US East (N. Virginia)

[Usage instructions](#)

Choose Action

Launch from Website

Choose this action to launch from this website

9. Enter values as described in the following table.

Field	Description
EC2 Instance type	Select the instance type for the Web Admin console and the REST Query service. Choose the type based on your data consumption. We recommend a minimum configuration of t3.medium.
VPC Settings	Select the VPC on which you want to deploy the Web Admin console and the REST Query service.
Subnet Settings	Select the <i>public</i> subnet of the VPC on which you have deployed Proficy Historian for AWS. If you have used the default VPC, you need not provide the subnet details.

10. Under **Security Group Settings**, select **Create New Based on Seller Settings**.

WebAdmin and Rest API for Proficy Historian

VPC Settings
* indicates a default vpc
[Dropdown menu] [Refresh icon]
[Create a VPC in EC2](#)

Subnet Settings
[Dropdown menu] [Refresh icon] IPv4 CIDR block: [Text field]
[Create a subnet in EC2](#)
(Ensure you are in the selected VPC above)

Security Group Settings
A security group acts as a firewall that controls the traffic allowed to reach one or more instances. You can create a new security group based on seller-recommended settings or choose one of your existing groups. [Learn more](#)
[Dropdown menu: Select a security group] [Refresh icon]
Create New Based On Seller Settings

11. Enter a name and description for the security group. In the **Source (IP or Group)** column, leave the default value (Anywhere) as is for now. You will change these values later.

WebAdmin and Rest API for Proficy Historian

Security Group Settings

A security group acts as a firewall that controls the traffic allowed to reach one or more instances. You can create a new security group based on seller-recommended settings or choose one of your existing groups. [Learn more](#)

Create new based on seller settings

A new security group will be generated by AWS Marketplace. It is based on recommended settings for WebAdmin and Rest API for Proficy Historian version MVP-0.9.

Name your security Group

Description

Connection Method	Protocol	Port Range	Source (IP or Group)
SSH	tcp	22	Anywhere ▾ 0.0.0.0/0
	tcp	8989	Anywhere ▾ 0.0.0.0/0
	tcp	9443	Anywhere ▾ 0.0.0.0/0

Rules with source of 0.0.0.0/0 allows all IP addresses to access your instance. We recommend limiting access to only known IP addresses.

Cancel Save

12. Select **Save**.
13. Under **Key Pair Settings**, select a key pair of the type RSA and format .pem. If you do not have a key pair, you can [create it](#).
14. Under **Inbound security groups rules**, enter the following values for security group rules 1 and 2 respectively:

Type	Protocol	Port Range	Source type
SSH	TCP	22	Select Custom , and enter the public IP address of the machine or network from which you want to access the Web Admin console and the REST Query service.

Type	Protocol	Port Range	Source type
			Provide a static IP address, or use the CIDR notation (for example, <IP address>/16).
Custom TCP Rule	TCP	9443	Select Custom , and enter the public IP address of the machine or network from which you want to access the Web Admin console. Provide a static IP address, or use the CIDR notation (for example, <IP address>/16). Or, if you want to access the Web Admin console only from your local machine, select My IP .
Custom TCP Rule	TCP	8989	Select Custom , and enter the public IP address of the machine or network from which you want to access the REST Query service. Provide a static IP address, or use the CIDR notation (for example, <IP address>/16). Or, if you want to access the REST Query service only from your local machine, select My IP .

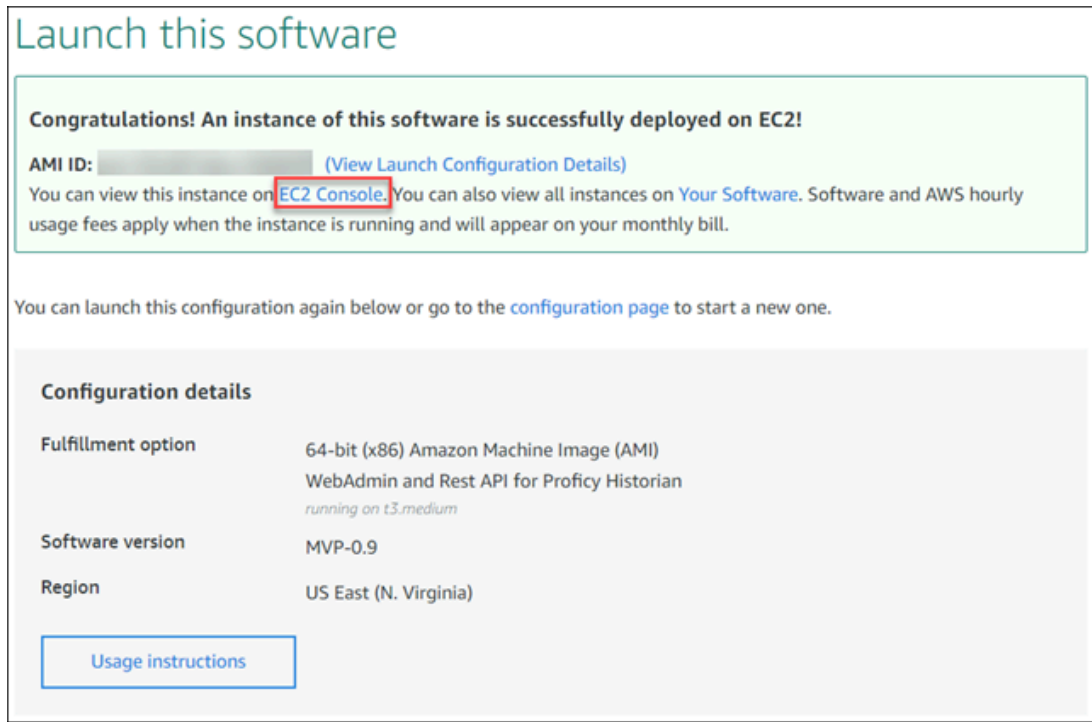
15. Select **Launch**.

The Web Admin console and the REST Query service are deployed.

What to do next

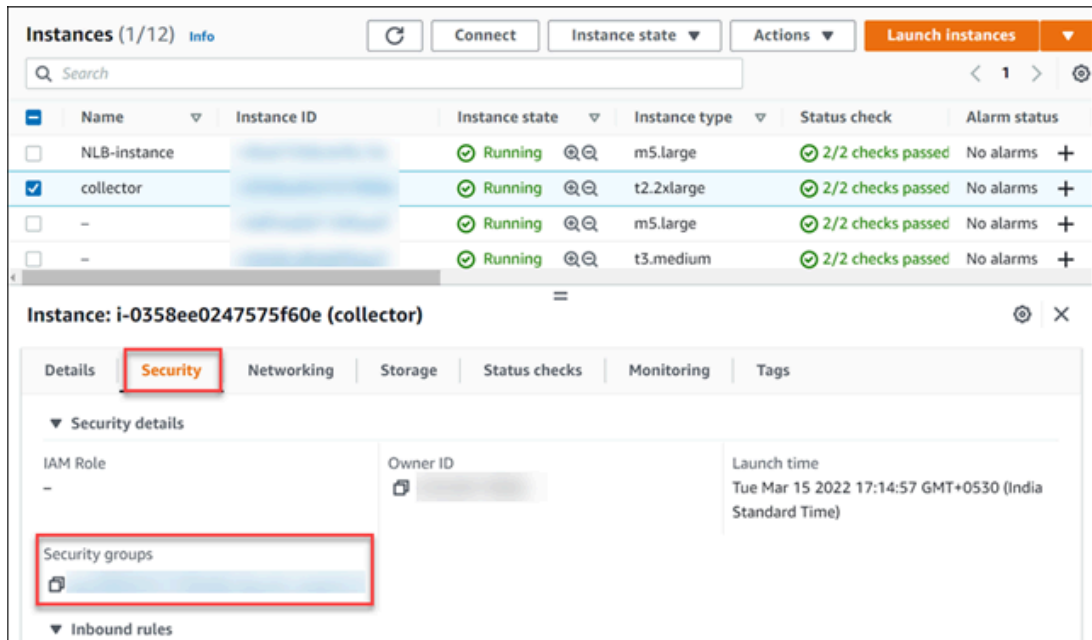
1. Edit the inbound security rules:

a. In the success message that appears at the top of the page, select **EC2 Console**.

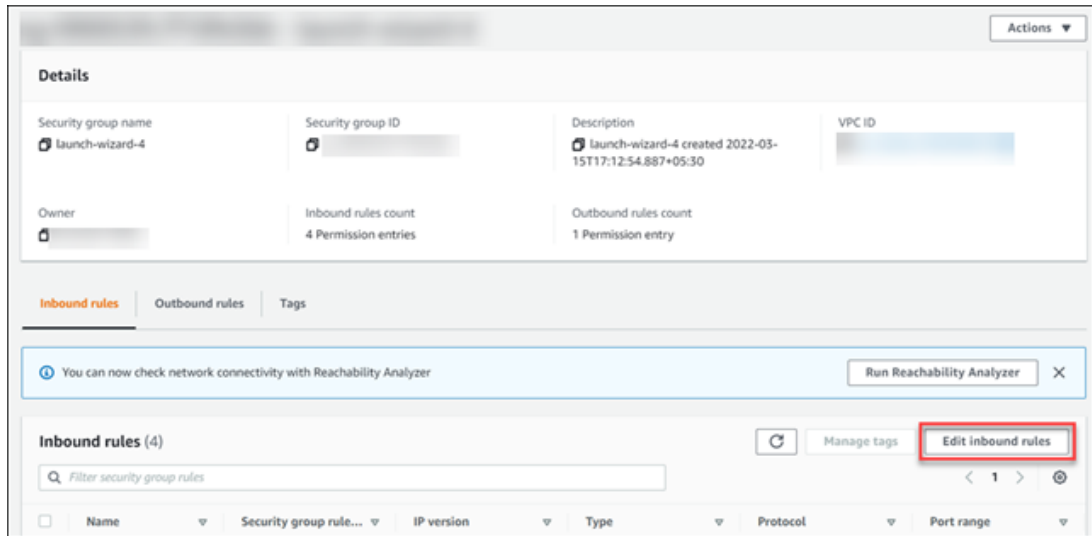


b. In the list of instances that appears, select the one on which you have deployed the Web Admin console and the REST Query service.

c. Select **Security**, and then select the security group.



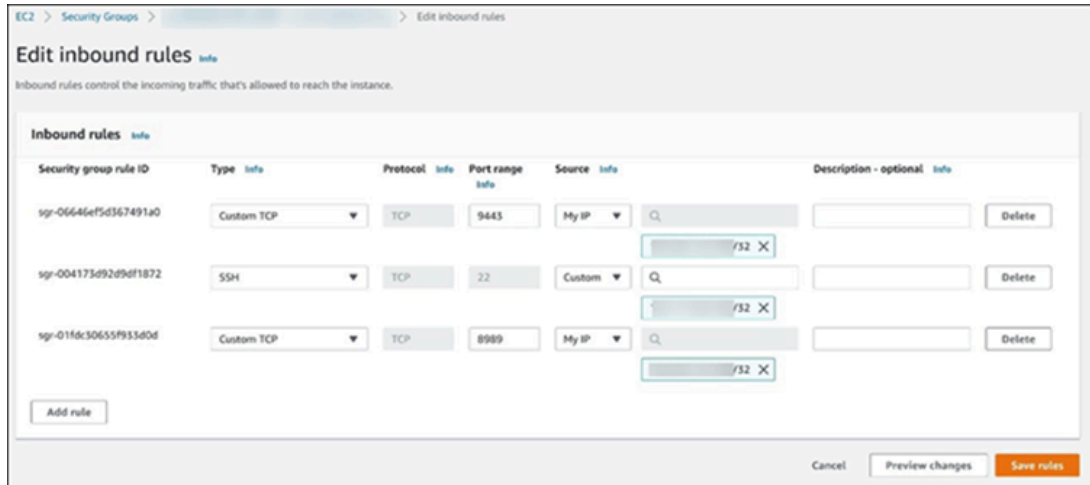
d. Under **Inbound rules**, select **Edit inbound rules**.



e. Edit the security groups as follows, and then select **Save rules**:

Type	Protocol	Port Range	Source type
SSH	TCP	22	Select Custom , and enter the public IP address of the machine or network from which you want to access the Web Admin console and the REST Query service. Provide a static IP address, or use the CIDR notation (for example, <IP address>/16).
Custom TCP Rule	TCP	9443	Select Custom , and enter the public IP address of the machine or network from which you want to access the Web Admin console. Provide a static IP address, or use the CIDR notation (for example, <IP address>/16). Or, if you want to access the Web Admin console only from your local machine, select My IP .
Custom TCP Rule	TCP	8989	Select Custom , and enter the public IP address of the machine or network from which you want to access the REST Query service. Provide a static IP address, or use the CIDR notation (for example, <IP address>/16).

Type	Protocol	Port Range	Source type
			Or, if you want to access the REST Query service only from your local machine, select My IP .



2. [Connect the Web Admin console and the REST Query service with Proficy Historian for AWS \(on page 109\).](#)

Connect the Web Admin Console and the REST Query Service with the Historian Server

Before you begin

- [Deploy the Web Admin console and the REST Query service \(on page 33\).](#)
- Initialize the EC2 instance on which you have deployed Proficy Historian for AWS.

About this task

This topic describes how to generate a configuration file for the Web Admin console and the REST Query service. The configuration file is used to connect these applications with the Historian server.



Note:

If you restart the EC2 instance on which you have deployed the Web Admin console and the REST Query service, you must generate the configuration file once again to connect the Web Admin console and the REST Query service with the Historian server.

Procedure

1. Run Command Prompt as an administrator.
2. Run the `CloudHistorianConfigurationUtility.exe` file. It is provided along with the collectors installer. After you install collectors, it will be available in the `C:\Program Files\GE Digital\Historian Cloud Config` folder by default.
3. Enter the number corresponding to generating a configuration file.
4. Enter the following details:

Field	Description
NLB DNS	<p>Enter the Amazon Network Load Balancer (NLB) DNS.</p> <div style="border: 1px solid #0070C0; border-radius: 10px; padding: 10px; background-color: #E6F2FF;"> <p>i Tip: To find the NLB DNS:</p> <ol style="list-style-type: none"> a. Access the EKS cluster on which you have deployed Proficy Historian for AWS. b. Access the EC2 instance. c. In the navigation pane, under Load Balancing, select Load Balancers. d. Select the load balancer for which you want to find the DNS. e. In the Description section, copy the DNS name. </div>
Username	Enter the username to connect to Proficy Historian for AWS.
Password	<p>Enter the password to connect to Proficy Historian for AWS.</p> <div style="border: 1px solid #0070C0; border-radius: 10px; padding: 10px; background-color: #E6F2FF;"> <p>i Tip: This is the value you entered in the Password field under UAA Configuration when you created the stack.</p> </div>
DNS or public IP address of the EC2 instance	Enter the public IP address or DNS of the EC2 instance on which you have installed the Web Admin console and the REST Query service.
Key file path	Enter the path to the .pem file that was downloaded when you created a key pair while installing the Web Admin console and the REST Query service.

The Web Admin console and the REST Query service are connected with the Historian server.

Common API Parameters

Table 1. Query Time Frame Parameters

Parameter	Description	Valid Values	Required?
start	The start time of the query.	<ul style="list-style-type: none"> • Timestamp in milliseconds in Unix Epoch format -or- • <value><unit>-ago (for example: 12h-ago; choose from ms, s, mi, h, d, w, mm, y) 	Required
end	The end time of the query.	<ul style="list-style-type: none"> • Timestamp in milliseconds in Unix Epoch format -or- • <value><unit>-ago (for example: 12h-ago; choose from ms, s, mi, h, d, w, mm, y) 	Optional; if not provided, the current time is considered
tags	Contains the tag details.		Required
name	The name of the tag.		Required
limit	The maximum number of query results to return.	Any number	Optional
order	The order of the query results	<ul style="list-style-type: none"> • asc • desc 	Optional (if not provided, the ascending order is considered)

Table 2. Tags Parameters

Parameter	Description	Valid Values	Required?
tags	Contains the tag details.		Required
name	The name of the tag.		Required

Table 2. Tags Parameters (continued)

Parameter	Description	Valid Values	Required?
limit	The maximum number of query results to return.	Any number	Optional
order	The order of the query results	<ul style="list-style-type: none"> • asc • desc 	Optional (if not provided, the ascending order is considered)

Table 3. Aggregation Parameters

Parameter	Description	Valid Values	Required?
aggregations	Contains calculation parameters. By default, aggregation is performed on good quality data only unless you specify otherwise in the filtering parameters.		Optional
aggregation-s:type	The type of the aggregation.	<ul style="list-style-type: none"> • avg • sum • count • dev (for standard deviation) • gaps (to identify null values in data) • least_squares (to get the best-fit line) • max • min • trendmode (to get both max and min values) • div (to get the result of a division) • percentile • rate • sampler • scale 	Required if aggregations is defined

Table 3. Aggregation Parameters (continued)

Parameter	Description	Valid Values	Required?
aggregation-s:interval	The time interval for which each aggregated value must be returned. For example, if you specify "interval": "1h", one value is returned each hour, beginning with the start time.	<number><unit>	Required if aggregation-s:count is not provided.
aggregation-s:count	The number of aggregated values that you want to return. For example, if you specify "count":3, the result will contain 3 points evenly dispersed over the time window.	Any number	Required if aggregation-s:interval is not provided.

Table 4. Filtering Parameters

Parameter	Description	Valid Values	Required?
filters	Contains filter parameters		Optional
filters:attributes	Filters the results by arrays of the attribute host, metric-Name, or queryIndex.		Optional
filters:measurements	Filters the results based on a condition.		Optional
filter-s:measurements:condition	The condition used for filtering.	<ul style="list-style-type: none"> • lt • gt • eq • le • ge • ne 	Required if filters:measurements is defined.
filter-s:measurements:values	The value for the filtering condition. For example, if you want only the data sam-	Any number	Required if filters:mea-

Table 4. Filtering Parameters (continued)

Parameter	Description	Valid Values	Required?
	ples that are greater than 10, enter ge for condition and 10 for values		surements is defined.
filters:qualities	Filters query results based on the data quality.		Optional (if not provided, only good quality is considered)
filters:qualities:value	Filters query results based on the data quality.	<ul style="list-style-type: none"> • 0 (for bad quality) • 3 (for good quality) 	Required if filters:qualities is defined.

Table 5. Grouping Parameters

Parameter	Description	Valid Values	Required?
groups	Contains grouping parameters		Optional
groups:name	The name of the attribute using which you want to group the results.		Required if groups is defined.
groups:values	The values of the attribute using which you want to group the results. For example, if you want to group the results based on the host names, enter attribute for the name and host for the values parameters.		Required if groups is defined.

Table 5. Grouping Parameters (continued)

Parameter	Description	Valid Values	Required?
groups:rangeSize	The number of data samples to be placed in a group. For example, if you want 10 data samples in each group, enter measurement for the name and 10 for the rangeSize parameters.		Required if groups is defined.
groups:rangeSize:group-Count	The time range that you want to use while grouping. For example, if you want one-hour groups for data samples collected in a day, enter measurement, 1h, 24 for the name, rangeSize, and groupCount parameters, respectively.		Required if groups is defined.

REST Queries for Retrieving Data Samples

This topic provides REST queries that you can use to retrieve data samples. You can limit the number of samples, retrieve them in a specific order or for a specific duration, and so on.

Table 6. Limit the Number of Data Samples

Parameter	Value
Method	POST
URI	http://<Public IP address of the REST Query service>:8989/v1/data-points?query=
Authorization	Bearer <token>
Content-Type	application/json
Predix-Zone-Id	uaa

Table 6. Limit the Number of Data Samples (continued)

Parameter	Value
Body	<pre>{ "start": <start time>, "end": <end time>, "tags": [{ "name": "<tag name>", "limit": <number> }] }</pre>
Example	<pre>{ "start": 1639973114000, "end": 1641182964000, "tags": [{ "name": "GF260PF2E_Simulation.Simulation00004", "limit": 5000 }] }</pre>

Table 7. Specify the Order of Data Samples

Parameter	Value
Method	POST
URI	http://<Public IP address of the REST Query service>:8989/v1/data-points?query=
Authorization	Bearer <token>
Content-Type	application/json
Predix-Zone-Id	uaa
Body	<pre>{ "start": <start time>,</pre>

Table 7. Specify the Order of Data Samples (continued)

Parameter	Value
	<pre> "end": <end time>, "tags": [{ "name": "<tag name>", "order": "<order>" } //valid values: asc, desc] } </pre>
Example	<pre> { "start": 1639973114000, "end": 1641182964000, "tags": [{ "name": "GF260PF2E_Simulation.Simulation00004", "order": "desc" }] } </pre>

Table 8. Get All Tags

Parameter	Value
Method	GET
URI	http://<Public IP address of the REST Query service>:8989/v1/tags
Authorization	Bearer <token>
Content-Type	application/json
Predix-Zone-Id	uaa

Table 9. Get Data Samples After a Timestamp

Parameter	Value
Method	GET
URI	http://<Public IP address of the REST Query service>:8989/v1/tags

Table 9. Get Data Samples After a Timestamp (continued)

Parameter	Value
Authorization	Bearer <token>
Content-Type	application/json
Predix-Zone-Id	uaa
Body	<pre>{ "start": <start time>, "direction": "forward", "tags": [{ "name": "<tag name>", "limit": <number of data samples> }] }</pre>
Example	<pre>{ "start": 1641182964000, "direction": "forward", "tags": [{ "name": "GF260PF2E_Simulation.Simulation00002", "limit": 3 }] }</pre>

Table 10. Get Data Samples up to a Timestamp

Parameter	Value
Method	GET
URI	http://<Public IP address of the REST Query service>:8989/v1/tags
Authorization	Bearer <token>
Content-Type	application/json
Predix-Zone-Id	uaa
Body	<pre>{ "start": <start time>, "direction": "backward",</pre>

Table 10. Get Data Samples up to a Timestamp (continued)

Parameter	Value
	<pre> "tags": [{ "name": "<tag name>", "limit": <number of data samples> }] </pre>
Example	<pre> { "start": 1641182964000, "direction": "backward", "tags": [{ "name": "GF260PF2E_Simulation.Simulation00002", "limit": 3 }] } </pre>

Table 11. Get Interpolated Data for a Specific Duration

Parameter	Value
Method	GET
URI	http://<Public IP address of the REST Query service>:8989/v1/tags
Authorization	Bearer <token>
Content-Type	application/json
Predix-Zone-Id	uaa
Body	<pre> { "start":<start time>, "end":<end time>, "tags":[{ "name": "<tag name>", "aggregations":[{ "type": "interpolate", "interval": "<duration>" }] }] } </pre>

Table 11. Get Interpolated Data for a Specific Duration (continued)

Parameter	Value
	<pre> //examples: 1h, 1d, 1mm, 1y }] }] } </pre>
<p>Example</p>	<pre> { "start":1641177806000, "end":1641185006000, "tags":[{ "name":"GF260PF2E_Simulation.Simulation00004", "aggregations":[{ "type":"interpolate", "interval": "1h" }] }] } </pre> <p>Output:</p> <pre> { "tags": [{ "name": "GF260PF2E_Simulation.Simulation00004", "results": [{ "groups": [{ "name": "type", "type": "number" }] }] }] } </pre>

Table 11. Get Interpolated Data for a Specific Duration (continued)

Parameter	Value
	<pre>], "values": [[1641181406000, 0, 0], [1641185006000, 129227.5781, 3]], "attributes": {} }], "stats": { "rawCount": 3269 } }] } </pre>

Table 12. Retrieve Interpolated Data for a Specified Data Samples

Parameter	Value
Method	GET
URI	http://<Public IP address of the REST Query service>:8989/v1/tags
Authorization	Bearer <token>
Content-Type	application/json
Predix-Zone-Id	uaa
Body	<pre> { "start":<start time>, </pre>

Table 12. Retrieve Interpolated Data for a Specified Data Samples (continued)

Parameter	Value
	<pre> "end":<end time>, "tags":[{ "name":"<tag name>", "aggregations":[{ "type":"interpolate", "sampling": { "datapoints": <number> } }] }] </pre>
Example	<pre> { "start":1640931121000, "end":1640935148000, "tags":[{ "name":"GF260PF2E_Simulation.Simulation00002", "aggregations":[{ "type":"interpolate", "sampling": { "datapoints": 100 } }] }] } </pre>

Table 13. Retrieve the Latest Value

Parameter	Value
Method	POST
URI	http://<Public IP address of the REST Query service>:8989/v1/data-points/latest
Authorization	Bearer <token>
Content-Type	application/json
Predix-Zone-Id	uaa
Body	<pre>{ "tags": [{ "name": "<tag name>" }] }</pre>
Example	<pre>{ "tags": [{ "name": "GF260PF2E_Simulation.Simulation00004" }] }</pre>

Table 14. Retrieve the Latest Value by Applying a Condition

Parameter	Value
Method	POST
URI	http://<Public IP address of the REST Query service>:8989/v1/data-points/latest
Authorization	Bearer <token>
Content-Type	application/json
Predix-Zone-Id	uaa

Table 14. Retrieve the Latest Value by Applying a Condition (continued)

Parameter	Value
Body	<pre> { "tags": [{ "name": "<tag name>", "filters": { "measurements": { "condition": "<condition>", //valid values: lt,gt,eq,le,ge,ne "values": ["<number>"] }, "qualities": { "values": ["<number>" //Enter 0 for bad and 3 for good quality] } } }] } </pre>
Example	<pre> { "tags": [{ "name": "GF260PF2E_Simulation.Simulation00004", "filters": { "measurements": { "condition": "ge", "values": ["1000"] }, "qualities": { "values": ["3"] } } }] } </pre>

Table 14. Retrieve the Latest Value by Applying a Condition (continued)

Parameter	Value
	<pre> } } }]] } </pre>

REST Queries for Data Aggregation

This topic provides REST queries that you can use to retrieve aggregated data, such as average, minimum, maximum, count, standard deviation, and so on.

Table 15. Retrieve the Average Value

Parameter	Value
Method	GET
URI	http://<Public IP address of the REST Query service>:8989/v1/tags
Authorization	Bearer <token>
Content-Type	application/json
Predix-Zone-Id	uaa
Body	<pre> { "start": <start time>, "end": <end time> "tags": [{ "name": "<tag name>", "aggregations": [{ "type": "avg", "sampling": { "unit": "<units for data interval>", //valid values: ms, s, mi, h, d, w, mm, y "value": "<data interval>" } }] }] </pre>

Table 15. Retrieve the Average Value (continued)

Parameter	Value
	}
Example	<pre> { "tags": [{ "name": "GF260PF2E_Simulation.Simulation00004", "aggregations": [{ "type": "avg", "sampling": { "unit": "s", "value": "30" } }] }, { "start": 1641177806000, "end": 1641185238000 } } { "start": 1641178610000, "end": 1641185810000, "tags": [{ "name": "GF260PF2E_Simulation.Simulation00004", "aggregations": [{ "type": "avg", "sampling": { "datapoints": 1 } }] } } </pre>

Table 16. Retrieve the Sum of Values

Parameter	Value
Method	GET

Table 16. Retrieve the Sum of Values (continued)

Parameter	Value
URI	http://<Public IP address of the REST Query service>:8989/v1/tags
Authorization	Bearer <token>
Content-Type	application/json
Predix-Zone-Id	uaa
Body	<pre> { "start": <start time>, "end": <end time>, "tags": [{ "name": "tag name", "aggregations": [{ "type": "sum", "sampling": { "datapoints": <number> } }] }] } </pre>
Example	<pre> { "start": 1641178610000, "end": 1641185810000, "tags": [{ "name": "GF260PF2E_Simulation.Simulation00004", "aggregations": [{ "type": "sum", "sampling": { "datapoints": 1 } }] }] } </pre> <p>Output:</p>

Table 16. Retrieve the Sum of Values (continued)

Parameter	Value
	<pre> { "tags": [{ "name": "GF260PF2E_Simulation.Simulation00004", "results": [{ "groups": [{ "name": "type", "type": "number" }], "values": [[1641178610000, 4.073673509635417E8, 3]], "attributes": {} }], "stats": { "rawCount": 4073 } }] } </pre>

Table 17. Retrieve the Count of Data Samples

Parameter	Value
Method	GET
URI	http://<Public IP address of the REST Query service>:8989/v1/tags

Table 17. Retrieve the Count of Data Samples (continued)

Parameter	Value
Authorization	Bearer <token>
Content-Type	application/json
Predix-Zone-Id	uaa
Body	<pre>{ "start": <start time>, "tags": [{ "name": "<tag name>", "aggregations": [{ "type": "count", "sampling": { "datapoints": 1 } }] }] }</pre>
Example	<pre>{ "start": 1641178610000, "tags": [{ "name": "GF260PF2E_Simulation.Simulation00004", "aggregations": [{ "type": "count", "sampling": { "datapoints": 1 } }] }] }</pre>

Table 18. Retrieve the Count of Data Samples

Parameter	Value
Method	GET

Table 18. Retrieve the Count of Data Samples (continued)

Parameter	Value
URI	http://<Public IP address of the REST Query service>:8989/v1/tags
Authorization	Bearer <token>
Content-Type	application/json
Predix-Zone-Id	uaa
Body	<pre> { "start": <start time>, "tags": [{ "name": "<tag name>", "aggregations": [{ "type": "count", "sampling": { "datapoints": 1 } }] }] </pre>
Example	<pre> { "start": 1641178610000, "tags": [{ "name": "GF260PF2E_Simulation.Simulation00004", "aggregations": [{ "type": "count", "sampling": { "datapoints": 1 } }] }] </pre>

Table 19. Retrieve the Count of Data Samples

Parameter	Value
Method	GET
URI	http://<Public IP address of the REST Query service>:8989/v1/tags
Authorization	Bearer <token>
Content-Type	application/json
Predix-Zone-Id	uaa
Body	<pre>{ "start": <start time>, "tags": [{ "name": "<tag name>", "aggregations": [{ "type": "count", "sampling": { "datapoints": 1 } }] }] }</pre>
Example	<pre>{ "start": 1641178610000, "tags": [{ "name": "GF260PF2E_Simulation.Simulation00004", "aggregations": [{ "type": "count", "sampling": { "datapoints": 1 } }] }] }</pre>

Table 20. Retrieve the Standard Deviation of Data Samples

Parameter	Value
Method	GET
URI	http://<Public IP address of the REST Query service>:8989/v1/tags
Authorization	Bearer <token>
Content-Type	application/json
Predix-Zone-Id	uaa
Body	<pre> { "start": <start name>, "tags": [{ "name": "<tag name>", "aggregations": [{ "type": "dev", "sampling": { "datapoints": 1 } }] }] } </pre>
Example	<pre> { "start": 1641178610000, "tags": [{ "name": "GF260PF2E_Simulation.Simulation00004", "aggregations": [{ "type": "dev", "sampling": { "datapoints": 1 } }] }] } </pre>

Table 21. Retrieve Gaps (Null Data) in Data Samples

Parameter	Value
Method	GET
URI	http://<Public IP address of the REST Query service>:8989/v1/tags
Authorization	Bearer <token>
Content-Type	application/json
Predix-Zone-Id	uaa
Body	<pre>{ "start": <start time>, "tags": [{ "name": "<tag name>", "aggregations": [{ "type": "gaps", "sampling": { "datapoints": <number> } }] }] }</pre>
Example	<pre>{ "start": 1641178610000, "tags": [{ "name": "GF260PF2E_Simulation.Simulation00004", "aggregations": [{ "type": "gaps", "sampling": { "datapoints": 9000 } }] }] }</pre>

Table 22. Retrieve Least Squares

Parameter	Value
Description	This query returns the best-fit line through a set of data points.
Method	GET
URI	http://<Public IP address of the REST Query service>:8989/v1/tags
Authorization	Bearer <token>
Content-Type	application/json
Predix-Zone-Id	uaa
Body	<pre>{ "start": <start time>, "tags": [{ "name": "<tag name>", "aggregations": [{ "type": "least_squares", "sampling": { "datapoints": 1 } }] }] }</pre>
Example	<pre>{ "start": 1641178610000, "tags": [{ "name": "GF260PF2E_Simulation.Simulation00004", "aggregations": [{ "type": "least_squares", "sampling": { "datapoints": 1 } }] }] }</pre>

Table 23. Retrieve the Maximum Value

Parameter	Value
Method	GET
URI	http://<Public IP address of the REST Query service>:8989/v1/tags
Authorization	Bearer <token>
Content-Type	application/json
Predix-Zone-Id	uaa
Body	<pre>{ "start": 1641178610000, "tags": [{ "name": "GF260PF2E_Simulation.Simulation00004", "aggregations": [{ "type": "max", "sampling": { "datapoints": 1 } }] }] }</pre>
Example	<pre>{ "start": 1641178610000, "tags": [{ "name": "GF260PF2E_Simulation.Simulation00004", "aggregations": [{ "type": "max", "sampling": { "datapoints": 1 } }] }] }</pre>

Table 24. Retrieve the Minimum Value

Parameter	Value
Method	GET
URI	http://<Public IP address of the REST Query service>:8989/v1/tags
Authorization	Bearer <token>
Content-Type	application/json
Predix-Zone-Id	uaa
Body	<pre>{ "start": <start time>, "tags": [{ "name": "tag name", "aggregations": [{ "type": "min", "sampling": { "datapoints": 1 } }] }] }</pre>
Example	<pre>{ "start": 1641178610000, "tags": [{ "name": "GF260PF2E_Simulation.Simulation00004", "aggregations": [{ "type": "min", "sampling": { "datapoints": 1 } }] }] }</pre>

Table 25. Retrieve the Maximum and Minimum Values

Parameter	Value
Method	GET
URI	http://<Public IP address of the REST Query service>:8989/v1/tags
Authorization	Bearer <token>
Content-Type	application/json
Predix-Zone-Id	uaa
Body	<pre>{ "start": <start time>, "tags": [{ "name": "<tag name>", "aggregations": [{ "type": "trendmode", "sampling": { "datapoints": 1 } }] }] }</pre>
Example	<pre>{ "start": 1641178610000, "tags": [{ "name": "GF260PF2E_Simulation.Simulation00004", "aggregations": [{ "type": "trendmode", "sampling": { "datapoints": 1 } }] }] }</pre>

Table 26. Retrieve the Quotient of a Division

Parameter	Value
Method	GET
URI	http://<Public IP address of the REST Query service>:8989/v1/tags
Authorization	Bearer <token>
Content-Type	application/json
Predix-Zone-Id	uaa
Body	<pre>{ "start": <start time>, "end": <end time> "tags": [{ "name": "<tag name>", "aggregations": [{ "type": "div", "divisor": <divisor> }] }], }</pre>
Example	<pre>{ "start": 1641177806000, "end": 1641185238000 "tags": [{ "name": "GF260PF2E_Simulation.Simulation00004", "aggregations": [{ "type": "div", "divisor": 3 }] }], }</pre>

Table 27. Retrieve the Percentile

Parameter	Value
Description	This query determines the probability distribution of a set of data, and returns the percentile. The percentile value ranges between 0 and 1, where .5 is 50% and 1 is 100%.
Method	GET
URI	http://<Public IP address of the REST Query service>:8989/v1/tags
Authorization	Bearer <token>
Content-Type	application/json
Predix-Zone-Id	uaa
Body	<pre> { "start": "<start time>" "tags": [{ "name": "<tag name>", "aggregations": [{ "type": "percentile", "percentile": 1.0 }] }], }</pre>
Example	<pre> { "start": "15mi-ago" "tags": [{ "name": "GF260PF2E_Simulation.Simulation00004", "aggregations": [{ "type": "percentile", "percentile": 1.0 }] }], }</pre>

Table 28. Retrieve the Rate of Change

Parameter	Value
Method	GET
URI	http://<Public IP address of the REST Query service>:8989/v1/tags
Authorization	Bearer <token>
Content-Type	application/json
Predix-Zone-Id	uaa
Body	<pre> { "start":<start time>, "end":<end time>, "tags":[{ "name":<tag name>, "aggregations":[{ "type":"rate", "sampling": { "unit": "<units for the time interval>", "value": <time interval>, "datapoints": <number> } }] }] } </pre>
Example	<pre> { "start":1640931121000, "end":1640935148000, "tags":[{ "name":"GF260PF2E_Simulation.Simulation00002", "aggregations":[{ </pre>

Table 28. Retrieve the Rate of Change (continued)

Parameter	Value
	<pre> "type": "rate", "sampling": { "unit": "mi", "value": 2, "datapoints": 100 } }] }] } </pre>

Table 29. Retrieve the Sampling Rate of Change

Parameter	Value
Method	GET
URI	http://<Public IP address of the REST Query service>:8989/v1/tags
Authorization	Bearer <token>
Content-Type	application/json
Predix-Zone-Id	uaa
Body	<pre> { "start": <start time>, "end": <end time>, "tags": [{ "name": "<tag name>", "aggregations": [{ "type": "sampler" }] }] } </pre>
Example	<pre> { "start": 1641178610000, </pre>

Table 29. Retrieve the Sampling Rate of Change (continued)

Parameter	Value
	<pre> "end": 1641185810000, "tags": [{ "name": "GF260PF2E_Simulation.Simulation00004", "aggregations": [{ "type": "sampler" }] }] } </pre>

Table 30. Scale Data Points by a Factor

Parameter	Value
Method	GET
URI	http://<Public IP address of the REST Query service>:8989/v1/tags
Authorization	Bearer <token>
Content-Type	application/json
Predix-Zone-Id	uaa
Body	<pre> { "start": <start time>, "end": <end time>, "tags": [{ "name": "<tag name>", "aggregations": [{ "type": "scale", "factor": <number> }] }] } </pre>
Example	<pre> { "start": 1641178610000, "end": 1641185810000, "tags": [{ </pre>

Table 30. Scale Data Points by a Factor (continued)

Parameter	Value
	<pre> "name": "GF260PF2E_Simulation.Simulation00004", "aggregations": [{ "type": "scale", "factor": 2 }] }] } </pre>

Chapter 8. Using The Excel Add-In for Historian

About The Excel Add-In for Historian

The Excel Add-In for Historian enhances the power and benefits of using the Historian data archiving and retrieval system.

Features:

- You can add tags to Historian by generating a tag worksheet using the standard Excel tools, editing the parameters, and then importing the information in bulk directly into Historian.
- You can export tag parameters from Excel, make bulk changes using similar techniques, and then import the changes back into Historian.
- You can retrieve selected data from any archive file and include it in a customized report.
- You can plot the data in any of the standard chart formats.
- You can calculate derived variables from raw data values.
- You can perform mathematical functions to smooth or characterize data.
- You can import, export, and modify tags and data — all with familiar Excel commands, macros, and computational techniques.
- You can create dynamic reports that you can share among users.

Excel Add-In Conventions

The Excel Add-In uses several conventions that allow you to take full advantage of the features of the Historian Excel Add-In:

- You can select tags and times either by cell references or by manually entering the values.
- You can select multiple statistics or attributes.
- Specifying an output cell is optional. If you do not specify an output cell, the active cell is used as the starting point for output. When you specify an output cell, that cell is used as the starting point for output. If you select a range for an output cell, the top left cell in the range is used as the starting point for output.
- Specifying an output range determines how many data points are retrieved from a given query. It is important for these functions to specify whether you want the data points to be sorted in ascending or descending order by selecting the appropriate option.
- When you specify an output range or an output cell, ensure that the active cells are not the same cells that you specified with tag name cell references. Otherwise, it will lead to circular cell referencing and incorrect values.

- Specifying data retrieval into rows or columns determines how multiple attributes or statistics are displayed in the worksheet.
- Specifying data retrieval into rows or columns only applies when the window inserts a single function into the worksheet. When you select a multi-cell output range, the orientation of that range determines whether the requested data is returned into rows or columns.
- If no parameters in an Excel formula change, the formula does not recalculate unless you edit the formula. For example, if you change a Hi Scale value from 100 to 50 and then import a tag, the Hi Scale field will still display 100 when looking at the tag information.
- When retrieving data, leave at least one blank line at the top of the output display for the column header labels. If you do not, the header labels will not appear.
- When you retrieve data for more than one tag, if you choose to display the timestamp in the output, then the timestamp will be displayed only once and the parameter values of the selected tags will be shown based on the orientation selected.
- In several fields, an underscore appears at the right side of the field. If you select the underscore, the window instantly changes to a minimized display. You can return to the original display by selecting the box again. The purpose of this feature is to allow you to see an unobstructed view of your worksheet or other windows as you work your way through the window and to allow you to select a cell or range of cells in the worksheet.

Installation

Install the Historian Excel Add-in Using the Installer

Before you begin

Install one of the following 32-bit or 64-bit Microsoft® Excel® applications:

- Microsoft® Excel® 2019
- Microsoft® Excel® 2016

About this task

This topic describes how to install Excel Add-In using the installer. You can also [install it at a command prompt \(on page 53\)](#).

Procedure

1. Run the `InstallLauncher.exe` file. Contact the AWS support team for the installer.
2. Select **Historian Excel Add-in**.

The installer runs through the installation steps.



Note:

If using certain versions of Windows (like Windows 10 or Windows 2019), you may receive an error message, stating that some of the DLL files are not registered. You can ignore these messages.

3. When prompted to reboot your system, select **Yes**.

Results

Excel Add-In is installed.

What to do next

[Activate Excel Add-In \(on page 183\)](#).

Install the Historian Excel Add-in at a Command Prompt

Before you begin

1. Install one of the following 32-bit or 64-bit Microsoft® Excel® applications:
 - Microsoft® Excel® 2019
 - Microsoft® Excel® 2016
2. [Install Excel Add-in using the installer \(on page 52\)](#) on a machine. When you do so, a template file named `setup.iss` is created at `C:\Windows`. This file stores the installation options that you have provided during the installation. You can then use this template to install Excel Add-in at a command prompt on other machines.

About this task

This topic describes how to install the Excel Addin for Historian at a command prompt. You can also [install it using the installer \(on page 52\)](#).

Procedure

1. Copy the `setup.iss` file to each machine on which you want to install Excel Add-in at a command prompt.
2. In the folder that contains the `setup.iss` file, run the following command: `setup.exe /s /sms`
The installer runs through the installation steps.

**Note:**

If using certain versions of Windows (like Windows 10 or Windows 2019), you may receive an error message, stating that some of the DLL files are not registered. You can ignore these messages.

3. When prompted to reboot your system, select **Yes**.

Results

Excel Add-In is installed.

What to do next

[Activate Excel Add-In \(on page 183\)](#).

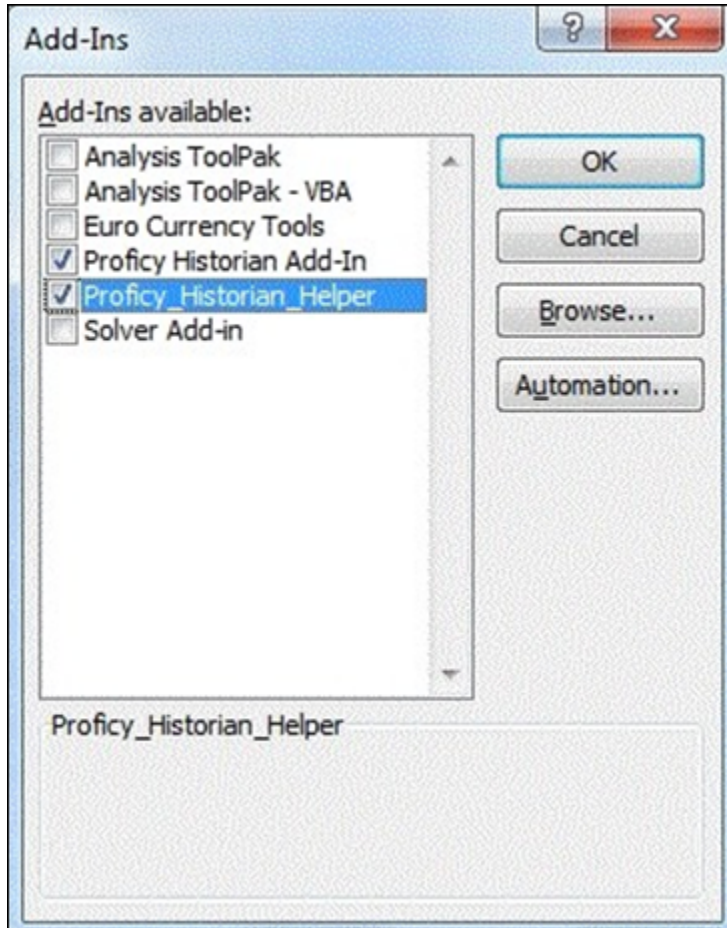
Activate Excel Add-In

Before you begin

[Install Excel Add-In \(on page 52\)](#).

Procedure

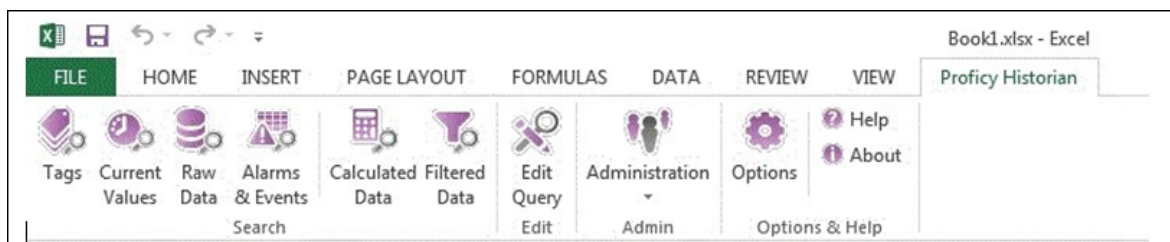
1. Open a new Microsoft Excel worksheet.
2. Select **File > Options**.
The **Excel Options** window appears.
3. Select **Add-Ins**.
4. In the **Manage** box, select **Excel Add-ins**, and then select **Go**.
The **Add-Ins** window appears.



5. Select the **Proficy Historian Add-In** and **Proficy_Historian_Helper** check boxes, and then select **OK**.

If the **Proficy Historian Add-In** and **Proficy_Historian_Helper** check boxes do not appear, select **Browse** to locate the `Historian.xla` file for the check boxes to appear. This file is created if you have installed Microsoft Excel after installing Excel Add-In. By default, the `Historian.xla` file is located in the `C:\Program Files\Proficy\Historian` or `C:\Program Files (x86)\Proficy\Historian` folder.

Excel Add-In is now ready to use and the **Proficy Historian** menu is now available in the Microsoft Excel toolbar.



What to do next

Connect the Excel Add-in with a Historian server ([on page 185](#)).

Connect the Excel Add-in with the Historian Server

Before you begin

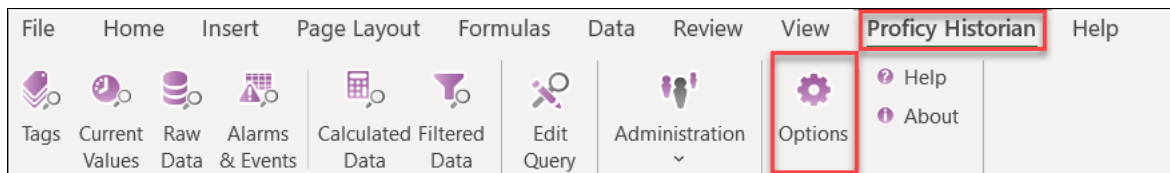
Activate the Excel Add-in for Historian ([on page 183](#)).

About this task

This topic describes how to add an NLB DNS in the Excel Add-in for Historian. You can add multiple NLBs; however, you can connect with a single NLB at a time.

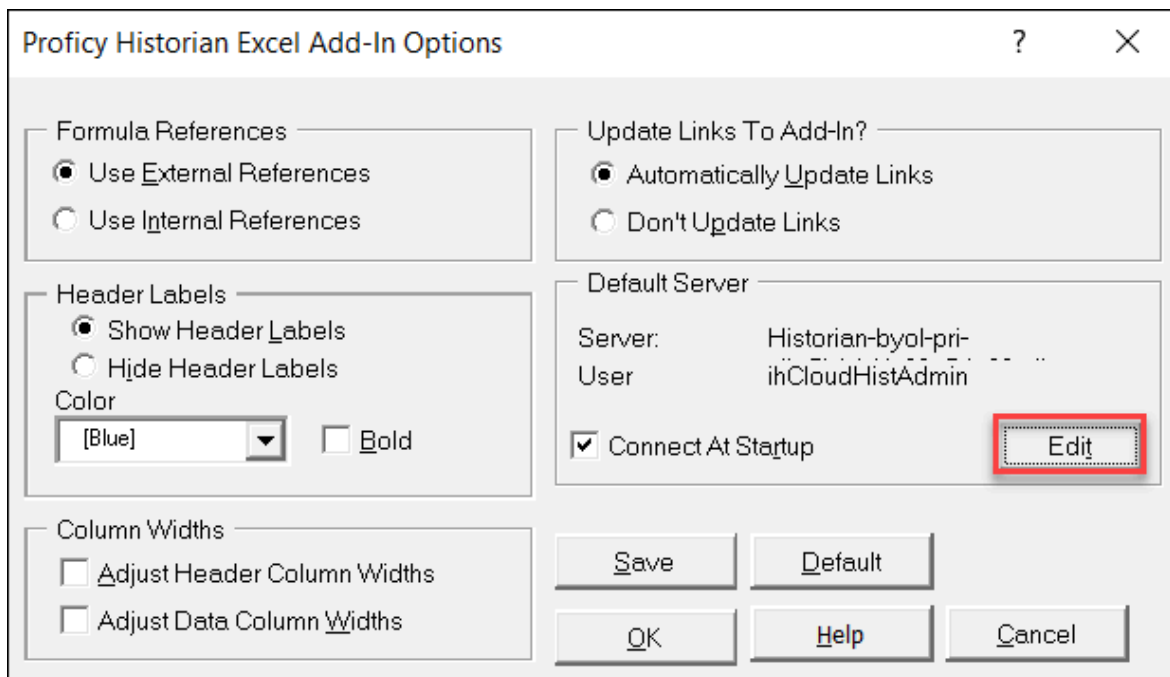
Procedure

1. Open an Excel worksheet.
2. Select **Proficy Historian > Options**.

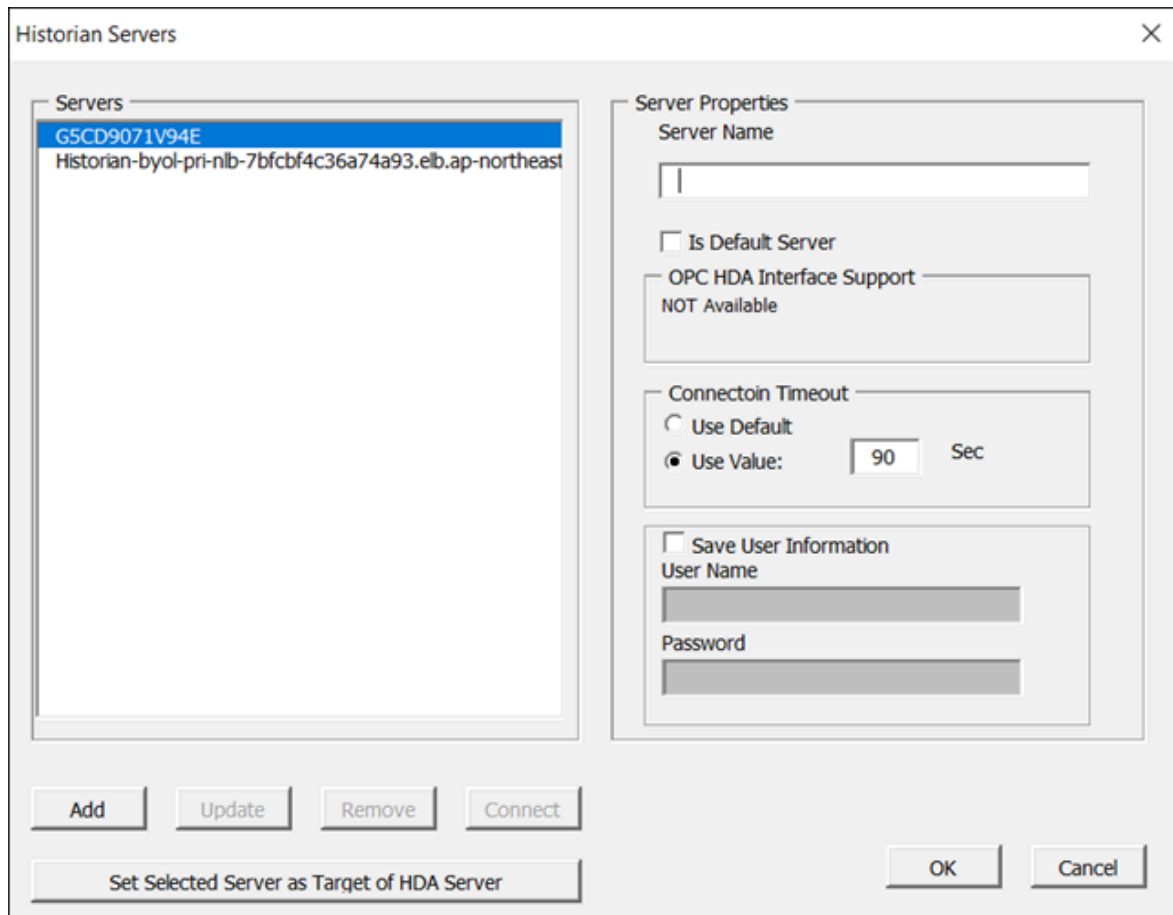


The **Proficy Historian Excel Add-in Options** window appears.

3. In the **Default Server** section, select **Edit**.





The **Historian Servers** window appears.



4. Enter values as described in the following table.

Field	Description
<p>Server Name</p>	<p>Enter the Amazon Network Load Balancer (NLB) DNS.</p> <div style="border: 1px solid #0070C0; border-radius: 10px; padding: 10px; background-color: #E6F2FF;"> <p>i Tip: To find the NLB DNS:</p> <ol style="list-style-type: none"> a. Access the EKS cluster on which you have deployed Proficy Historian for AWS. b. Access the EC2 instance. c. In the navigation pane, under Load Balancing, select Load Balancers. </div>

Field	Description
	 <p>d. Select the load balancer for which you want to find the DNS. e. In the Description section, copy the DNS name.</p>
Is Default Server	Select this check box if you want to set this Historian server as the default one.
Connection Timeout	Specify the time after which the connection will time out.
User Name	Enter the username to connect to Proficy Historian for AWS.
Password	Enter the password to connect to Proficy Historian for AWS.  <p>Tip: This is the value you entered in the Password field under UAA Configuration when you created the stack.</p>

5. Select **OK**.

The Excel Addin is connected to the Historian server. You can now query data or manage tags.

Querying Data

Query Current Values

About this task

You can query the following types of data using the add-in:

- **Current values:** Retrieves the most recently updated value of one or more tags or process variables.



Note:


If you attempt to perform a query with two worksheets open, the add-in may become unstable and unresponsive. This is a known Microsoft Excel issue. To avoid this issue, work with only one Excel spreadsheet at a time.

- **Raw data:** Raw data values are the values actually stored in the archive, after applying collector and archive compression, but before applying any interpolation, smoothing, or other signal processing calculations. Querying raw data retrieves these values for a selected tag.

In addition, you can query [filtered data \(on page 189\)](#) and [calculated data \(on page 191\)](#).

Procedure

1. Open an Excel worksheet.
2. If you want to query current values, select **Historian > Query Current Value**. If you want to query raw data, select **Historian > Query Raw Data**.
The **Historian Current Value Query** or the **Historian Raw Data Query** window appears.
3. Select the Historian server from the drop-down list box. If you do not specify a server, the default server is considered.

 **Tip:**
To set the selected server as default, ensure that the **Set Server to Default** option is enabled.

4. Select a tag on your worksheet, and then place the cursor in the **Tag Name** field.
Optionally, you can select the tag from the **Advance Tag Search** window. For more information, refer to [Advanced Tag Search \(on page 202\)](#).
The tag name is automatically entered. You can also enter a tag name manually in the **Tag Name** field.
5. Enter values as described in the following table.

Field	Description
Query Type	Select the type of data search: <ul style="list-style-type: none"> • By Time: Using this option, you can search for data values between a start time and an end time. You can also use relative time entries to this field. • By Number Forward: Using this option, you can search for a number of values after a specified time. Enter values into the After Time and Number of Values fields. • By Number Backward: Using this option, you can search for a number of values before a specified time. Enter values in the Values Before Time and Number of Values fields.
Query Criteria String	Enter the query criteria along with the # symbol. For example, if the query criteria string is to retrieve only good data quality values, enter #ONLYGOOD. For more information, see Query Modifiers (on page 194) .

Field	Description
Output Display	Select one or more parameters for the output.
Output Range	Select a range of cells in a single row or column to determine where the returned data is placed.
Rows or Columns	Select either Columns or Rows for the output display. Selecting Columns displays a table of values with parameters arranged in columns with header labels at the top. Selecting Rows rotates the table 90 degrees.
Ascending or Descending	Specify the order of the retrieved data.

6. Select **OK**.

The query returns a number of data points based on the number of rows or columns specified in the output range. If all the data points do not appear, select enough rows or columns to display all the data.

Query Filtered Data

About this task

You can filter tag data based on a specific batch ID, lot number, or product code. You can also filter data that meets certain limits (for example, all the data points in which the temperature exceeds a certain value).

When querying filtered data, you can use a **Filter Expression** instead of **FilterTag**, **FilterMode**, and **FilterValue** parameters. You can use multiple filter conditions in the filter expression. For more information and examples on filter expression, refer to *Advanced Topics*.



Note:

Do not use the **Desc** option for the **Output Range** in the **Filtered Data Query** window. Using this option may cause the Excel Add-In to become unstable. If you use this option and find that Excel is unstable, try minimizing the Excel application window, expose the **Filtered Data Query** window, and close the window. Excel should then function normally.

Procedure

1. Open an Excel worksheet.
2. Select **Historian > Query Filtered Data**.
The **Historian Filtered Data Query** window appears.

3. Select the Historian server from the drop-down list box. If you do not specify a server, the default server is considered.



Tip:

To set the selected server as default, ensure that the **Set Server to Default** option is enabled.

4. Select a tag on your worksheet, and then place the cursor in the **Tag Name** field.
If entering multiple tag names manually, separate each tag name with a colon. If your tag name has a colon within it, then select the tag names via cell references only.

Do not use wildcards in this field. If you use a tag mask instead of a tagname, Historian only returns the first possible match.

Optionally, you can select the tag from the **Advance Tag Search** window. For more information, refer to [Advanced Tag Search \(on page 202\)](#).

The tag name is automatically entered. You can also enter a tag name manually in the **Tag Name** field.

5. Enter values as specified in the following table.

Field	Description
Query Time	Enter the start time and end time for the query. You can also use relative time entries.
Query Criteria String	Enter the query criteria along with the # symbol. For example, if the query criteria string is to retrieve only good data quality values, enter #ONLYGOOD. For more information, see Query Modifiers (on page 194) .
Sampling Type	Select the sampling type.
Calculation Field	Select a calculation algorithm. This field is enabled only if you select Calculated Sampling in the Sampling Type field.
Sampling Interval	Select one of the following options:

Field	Description
	<ul style="list-style-type: none"> • By Interval: Using this option, you can query the data for a specific interval. For example, if you want to query the data for 10-minute intervals, enter 10 in the Interval field, and select Minutes in the Time Unit field. • By Samples: Using this option, you can query the data for a specific number of samples. For example, to query 100 samples, enter 100 in the Number of Samples field.
State Value	Enter the state value. This field is enabled only if you selected Calculated in the Sampling Type field and if you selected State Count or State Time in the Calculation Field field.
Output Display	Select one or more parameters for the output.
Filter Definition	Enter the filter parameters in the available fields.
Output Range	Select a range of cells in a single row or column to determine where the returned data is placed.
Rows or Columns	Select either Columns or Rows for the output display. Selecting Columns displays a table of values with parameters arranged in columns with header labels at the top. Selecting Rows rotates the table 90 degrees.
Ascending or Descending	Specify the order of the retrieved data.

6. Select **OK**.

The query returns a number of data points based on the number of rows or columns specified in the output range. If all the data points do not appear, select enough rows or columns to display all the data.

Query Calculated Data

About this task

You can query data that is the result of performing calculations on raw data.




Note:

If you attempt to perform a query with two worksheets open, the add-in may become unstable and unresponsive. This is a known Microsoft Excel issue. To avoid this issue, work with only one Excel spreadsheet at a time.

Procedure

1. Open an Excel worksheet.
2. Select **Historian > Query Calculated Value**.
The **Historian Calculated Query** window appears.
3. Select the Historian server from the drop-down list box. If you do not specify a server, the default server is considered.

 **Tip:**
To set the selected server as default, ensure that the **Set Server to Default** option is enabled.

4. Select a tag on your worksheet, and then place the cursor in the **Tag Name** field.
Optionally, you can select the tag from the **Advance Tag Search** window. For more information, refer to [Advanced Tag Search \(on page 202\)](#).
The tag name is automatically entered. You can also enter a tag name manually in the **Tag Name** field.
5. Enter values as described in the following table.

Field	Description
Query Time	Enter the start time and end time for the query. You can also use relative time entries.
Query Criteria String	Enter the query criteria along with the # symbol. For example, if the query criteria string is to retrieve only good data quality values, enter #ONLYGOOD. For more information, see Query Modifiers (on page 194) .
Sampling Type	Select the sampling type.
Calculation	Select a calculation algorithm. This field is enabled only if you select Calculated Sampling in the Sampling Type field.
Sampling Interval	Select one of the following options: <ul style="list-style-type: none"> • By Interval: Using this option, you can query the data for a specific interval. option displays two entry fields, and . Enter values in both. For example, if you want to query

Field	Description
	<p>the data for 10-minute intervals, enter 10 in the Interval field, and select Minutes in the Time Unit field.</p> <ul style="list-style-type: none"> • By Samples: Using this option, you can query the data for a specific number of samples. For example, to query 100 samples, enter 100 in the Number of Samples field.
State Value	Enter the state value. This field is enabled only if you selected Calculated in the Sampling Type field and if you selected State Count or State Time in the Calculation Field field.
Output Display	Select one or more parameters for the output.
Output Range	Select a range of cells in a single row or column to determine where the returned data is placed.
Rows or Columns	Select either Columns or Rows for the output display. Selecting Columns displays a table of values with parameters arranged in columns with header labels at the top. Selecting Rows rotates the table 90 degrees.
Ascending or Descending	Specify the order of the retrieved data.

6. Select **OK**.


The query returns a number of data points based on the number of rows or columns specified in the output range. If all the data points do not appear, select enough rows or columns to display all the data.

Modify a Query

About this task

You can change query parameters such as tag name, start time, end time, and so on. You cannot, however, narrow down the output range. For example, you cannot reduce the number in the **NumberOfSamples** field, or you cannot change the **Output Orientation** to values that result in fewer rows or columns.

Procedure

1. Open an Excel worksheet.
2. Access the query that you want to modify.
3. In the **Add-In** drop-down list box, select **Edit Query** or  icon. Or you can double-select any cell that has the query formula.

The **Edit Query** window appears.

4. Modify the query, and then select **OK**.

Query Modifiers

Query modifiers are used to retrieve data that has been stored in the archive. They are used along with sampling and calculation modes to get a specific set of data.

If you want to use a query modifier, when you create or modify a query, in the **Query Criteria String** field, enter #, and then enter the query modifier. For example, if you want to retrieve only good data quality values, enter #ONLYGOOD.

Query Modifier	Results
ONLYGOOD	<p>The ONLYGOOD modifier excludes bad and uncertain data quality values from retrieval and calculations.</p> <p>Although you can use this modifier with any sampling or calculation mode, it is most useful with raw and current Value queries. All the calculation modes such as minimum or average exclude bad values by default, so this modifier is not required with those cases.</p>
INCLUDE- EREPLACED	<p>Normally,when you query raw data, any values that have been replaced with a different value for the same timestamp are not returned.</p> <p>The INCLUDEEREPLACED modifier is used to specify that you want replaced values to be returned, in addition to the updated values. However, you cannot query only the replaced data and the retrievable values that have replaced the other values. You can query all currently visible data and get the data that has been replaced.</p> <p>This modifier is only useful with the rawbytime or rawbynumber retrieval. Do not use it with any other sampling or calculation mode.</p>
INCLUDE- ELETED	<p>The INCLUDEELETED modifier retrieves the value that was previously deleted. Data that has been deleted from the archiver is never actually removed but is marked as hidden. Use the INCLUDEELETED modifier to retrieve the values that were deleted, in addition to the current values.</p> <p>This modifier is only useful with the rawbytime or rawbynumber retrieval. Do not use it with any other sampling or calculation mode.</p>

Query Modifier	Results
<p><code>ONLYIF-CONNECTED/ONLYIFUPTODATE</code></p>	<p>The <code>ONLYIFCONNECTED</code> and <code>ONLYIFUPTODATE</code> modifiers can be used on any sampling or calculation mode to retrieve bad data if the collector is not currently connected and sending data to the archiver.</p> <p>The bad data is not stored in the IHA file but is only returned in the query. If the collector reconnects and flushes data and you run the query again, the actual stored data is returned in the following situations:</p> <ul style="list-style-type: none"> • Collector loses connection to the archiver • Collector crashes • Collector compression is used and no value exceeds the deadband
<p><code>ONLYRAW</code></p>	<p>The <code>ONLYRAW</code> modifier retrieves only the raw samples. It does not add interpolated or lab sampled values at the beginning of each interval during calculated retrieval such as average, minimum, or maximum.</p> <p>Normally, a data query for minimum value will interpolate a value at the start of each interval and use that together with any raw samples to determine the minimum value in the interval. Interpolation is necessary because some intervals may not have any raw samples stored.</p> <p>Use this query modifier with calculation modes only, not with raw or sampled retrieval like interpolated modes.</p>
<p><code>LABSAMPLING</code></p>	<p>The <code>LABSAMPLING</code> modifier affects the calculation modes that interpolate a value at the start of each interval.</p> <p>Instead of using interpolation, lab sampling is used. When querying highly compressed data you may have intervals with no raw samples stored.</p> <p>For example, an average from 2 pm to 6 pm on a one-hour interval will interpolate a value at 2 pm, 3 pm, 4 pm, and 5 pm, and uses those in addition to any stored samples to compute averages. When you specify <code>LABSAMPLING</code>, the lab sampling mode is used instead of the interpolated sampling mode to determine these hourly values. A lab sampled average is used when querying a tag that never ramps up but changes in a step pattern such as a state value or a set point. Use this query modifier with calculation modes only, not raw or sampled retrieval like interpolated modes.</p>
<p><code>INCLUDEBAD</code></p>	<p>Normally, when you query calculated data from Historian, only good data quality raw samples are considered. <code>INCLUDEBAD</code> modifier includes bad data quality values in calculations.</p>

Query Modifier	Results
	You can use <code>INCLUDEBAD</code> with any sampling or calculation mode.
<code>FILTERINCLUDEBAD</code>	Normally, while filtering, we use only good data quality values. When we use <code>FILTERINCLUDEBAD</code> , the bad data quality values are considered when filtering to determine time ranges. This query modifier is not always recommended.
<code>USEMASTERFIELDTIME</code>	The <code>USEMASTERFIELDTIME</code> query modifier is used only for the MultiField tags. It returns the value of all the fields at the same timestamp of the master field time, in each interval returned.
<code>HONORENDTIME</code>	<p>Normally, a query keeps searching through archives until the required number of samples has been located, or until it gets to the first or last archive. However, there are cases where you would want to specify a time limit as well. For example, you may want to output the returned data for a <code>RawByNumber</code> query in a trend page, in which case there is no need to return data that would be offpage.</p> <p>If you want to specify a time limit, provide an end time in your <code>RawByNumber</code> query and include the <code>HONORENDTIME</code> query modifier. Since <code>RawByNumber</code> has direction (backwards or forwards), the end time must be older than the start time for a backwards direction or later than the start time for a forwards direction. Use this query modifier only with the <code>RawByNumber</code> sampling mode.</p>
<code>EXAMINEFEW</code>	<p>Queries using calculation modes normally loop through every raw sample, between the given start time and end time, to compute the calculated values.</p> <p>When using <code>FirstRawValue</code>, <code>FirstRawTime</code>, <code>LastRawValue</code>, and <code>LastRawTime</code> calculation modes, we can use only the raw sample near each interval boundary and achieve the same result. The <code>EXAMINEFEW</code> query modifier enables this. If you are using one of these calculation modes, you may experience better read performance using the <code>EXAMINEFEW</code> query modifier.</p> <p>Using this query modifier is recommended when:</p> <ul style="list-style-type: none"> • The time interval is great than 1 minute. • The collection interval is greater than 1 second. • The data node size is greater than the default 1400 bytes. • The data type of the tags is String or Blob. Query performance varies depending on all of the above factors.

Query Modifier	Results
	Use this query modifier only with <code>FirstRawValue</code> , <code>FirstRawTime</code> , <code>LastRawValue</code> , and <code>LastRawTime</code> calculation modes.

Export Data

About this task

The Export Data function allows you to move values from the Historian Server to your Excel worksheet or to another system in the same way you move tag information with Export Tags.



Note:

Before importing or exporting tags or data, you should be aware of a convention used with the Historian application. The Server is the reference point for all import and export functions. If you want to move tag information from the Server into your worksheet, you must use the **Export Tags** command. Conversely, if you want to move data from your worksheet to the server, you must use the **Import Data** command.

Procedure

1. Select **Administration > Export Raw Data** from the **Historian** menu.
The **Export Data from Historian** window appears.
2. If you want to specify a server, select a server from the drop down list. If you do not specify a server, the Add-In uses the default server.
3. Select a tag on your worksheet or enter the tag names manually.



Note:

If your tag name has a colon within it, then you should select the tag names via cell references only.

4. Optionally, you can select the tag name from the **Advance Tag Search** window.
See [Search for a Tag \(Advanced\) \(on page 202\)](#)
5. In the **Query Criteria String**, enter the query criteria along with the # symbol.
For example, if the query criteria string is to retrieve only good data quality values, then you should specify `#ONLYGOOD` as the **Query Criteria String**. See [Query Modifiers \(on page 194\)](#).
6. In the **Query Time** section enter values of time in the **Start Time** and **End Time** fields.
You can also use relative time entries to this field. See [Relative Time Entries \(on page 222\)](#).
7. In the **Sampling Type** section, select a type from the drop-down list.

8. The **Calculation** field is active only after you select **Calculated Sampling** as the **Sample Type**. Select a **Calculation Algorithm** type from the drop-down list.
9. In the **Sampling Interval** section, select either the **By Interval** or **By Samples** option. The **By Interval** option displays two entry fields, **Interval** and **Time Unit**. Enter values in both. For example, to sample at 10 minute intervals, enter 10 in the interval field and select Minutes in the Time Unit field. The **By Samples** option displays a **Number of Samples** field.

To specify a number of samples for the data query, enter a number in this field. For example, to query 100 samples, enter 100 in this field.

10. In the **Filter Definition** section, enter filter parameters in the fields for **Filter Tag**, **Filter Comparison**, **Include Date Where Value Is Equal To**, and **Include Times**.

These fields are optional. If you do not enter any values, the query returns all values without filtering.

11. In the **Fields To Export** section, select one or more fields.

To select multiple individual tags, press the **Control** key and select the tagnames. To select a sequence of tags, press the **Shift** key and select the first and last tagname of the sequence.

12. In the **Export Options** section, select one of three options:

- **To New Worksheet**
- **To CSV File** or
- **To XML File**

13. If you select **To CSV File** or **To XML File**, you must enter a file name and path for the new file in the **File Name** field.

14. Select **OK** to initiate the export. Select **Cancel** to abort the operation and close the window.

Import Data

About this task

The **Import Data** command is the converse of the **Export Data** command. It moves selected information from your current worksheet into the specified Server in the same way the **Import Tags** command functions.



Note:

If you use the **Active Hours** setting while importing data using the Excel Add-In, note that if the first tags imported are not within the **Active Hours** settings, no subsequent tags will be returned on that import (even if they are within the set active hours).

Procedure

1. Select **Administration** and then select **Import Data** from the **Historian** menu.

A message box appears.

2. Select **Yes** to initiate the operation. If successful, a window appears confirming the completion of the import function.

Select **OK** to close the window. If errors occur on the import, a window appears detailing the issues encountered in the import. If an error occurs in any line of the import, the whole import is aborted.


Access Archive Statistics

About this task

You can access a list of selected statistics about an archive file. You can specify the server, the archive file name, and the type of information you want to access (such as start time, end time, file name, target file size, current file size, and current or read-only status). You can also specify a range of cells for the display.

Procedure

1. Open an Excel worksheet.
2. Select **Historian > Administration > List Archives**.
The **Historian Archive List** window appears.
3. Select a server from the drop-down list. If you do not specify a server, the default server is considered.
4. Enter values as described in the following table.

Field	Description
Archive Name	Enter a archive name. Do not use wildcards in this field. <div style="border: 1px solid #0070C0; border-radius: 10px; padding: 10px; margin-top: 10px;">  Tip: To return details for more than one item, specify a sub-string in the Archive Name field that exists in each archive you want listed. For example, if you have archive files named from <code>Hero5_Archive001</code> to <code>Hero5_Archive010</code>, enter <code>Hero5_Archive</code> to return the details for all those archives. </div>
Output Display	Select one or more parameters for the output display.
Output Range	Select a range of cells in a single row or column to determine where the returned data is placed.

5. Select **Asc** or **Desc** to sort the archives in ascending or descending order.
6. Select either **Columns** or **Rows** for the output display.



Note:

When selecting multiple tags, the orientation of the return data is based on the orientation of the selected tags and the Row/Col selection is ignored.

7. Select **OK**.

The statistics of the selected archives appear.


Access Collector Statistics

About this task

You can access a list of selected statistics of a collector instance. You can specify the server, the collector instance, and the type of information you want to access. You can also specify the range of cells for the display.

Procedure

1. Open an Excel worksheet.
2. Select **Historian > Administration > List Collectors**.
The **Historian Collector List** window appears.
3. Select a server from the drop-down list. If you do not specify a server, the default server is considered.
4. Enter values as described in the following table.

Field	Description
<p>Collector Name</p>	<p>Enter a collector instance name. Do not use wildcards in this field.</p> <div style="border: 1px solid #0070C0; border-radius: 10px; padding: 10px; margin-top: 10px;"> <p> Tip:</p> <p>To return details for more than one item, specify a substring in the Collector Name field that exists in each collector you want listed. For example, if you have collectors named from <code>Hero5_Collector0001</code> to <code>Hero5_Collector010</code>, enter <code>Hero5_Collector</code> to return the details for all those collectors.</p> </div>
<p>Output Display</p>	<p>Select one or more parameters for the output display.</p>

Field	Description
Output Range	Select a range of cells in a single row or column to determine where the returned data is placed.

5. Select either **Columns** or **Rows** for the output display.

**Note:**

When selecting multiple tags, the orientation of the return data is based on the orientation of the selected tags and the Row/Col selection is ignored.

6. Select **OK**.
The statistics of the selected collector instances appear.

Managing Tags

Search for a Tag (Basic)

About this task

You can search for tags and perform actions on them.

This topic describes how to perform a basic search of tags. You can also [perform an advanced search \(on page 202\)](#).

Procedure

1. Open an Excel worksheet.
2. Select **Historian > Search Tags**.
The **Historian Tag Search** window appears.
3. In the **Server** field, select a server from the drop-down list. If you do not specify a server, the default server is considered.
4. In the **Tag Mask**, enter a wildcard character to search for tags (for example, *).
5. Select **Search**.
The **Historian Tag Search** window is populated with a tag list.
6. Move tags from the left section to the right section to add them to the search query.
7. Use the **Search Display** section to choose whether you want to display tag names or tag description. It also displays the number of tags returned.
8. Use the **Output With** to choose whether the output shows the names of the selected tags or the cell computation formulas.

You can use the **Output with Formula** to place a dynamic formula in the worksheet instead of just copying the selected tag names. When you do so, the list of tags returned are dynamic based on

the tag mask criteria. This is useful when selecting a cell reference for the tag mask as opposed to typing in a tag mask directly in the window.

9. Use the **Output Range** field to determine where in the worksheet the output data must appear.
10. Use the **Output Display** section to select the type of data to be displayed.
11. Select **OK** to apply your choices and initiate the query.

A list of tags appears based on your search criteria.

Search for a Tag (Advanced)

About this task

You can search for tags and perform actions on them.

This topic describes how to perform an advanced search of tags. You can also [perform a basic search \(on page 201\)](#).

When you perform an advanced search, the most recently used search criteria are saved in a file named `DefaultSearchCriteria.xml` in `c:\user- s\\AppData`. These criteria are automatically loaded into the window the next time you access the Excel worksheet. You can reuse or modify the criteria rather than entering them each time. If you want to reset your criteria, delete the XML file.

While performing an advanced search, you can:

- Add multiple search criteria.
- Modify the existing criteria.
- Delete the unwanted search criteria from the list.
- Save the criteria to a file and reuse it.
- View the details of a tag in the search results.

Procedure

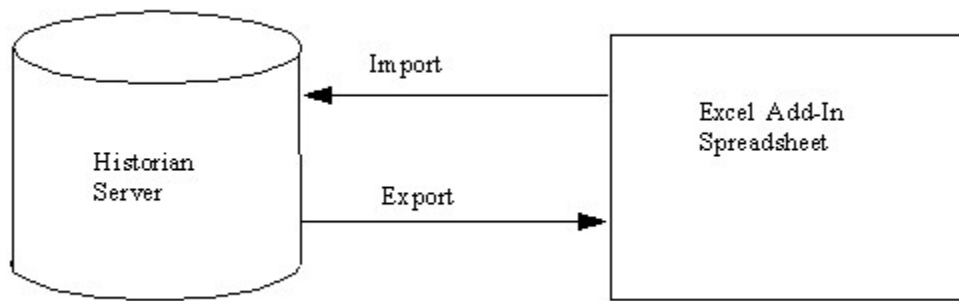
1. Open an Excel worksheet.
2. Select **Historian > Search Tags > Advanced Tag Search**.
3. In the **Tag Criteria** field, specify one or more [tag criteria \(on page 229\)](#).
4. Provide values in the **Tag Criteria Value** field.
5. Select **Add Criteria**.
The criteria are listed in the **Search Criteria** section.
6. Select **Search**.
All tags that satisfy the query criteria are displayed in the **Available** section.
7. Move tags from the **Available List** section.
8. To modify the **Tag Criteria Value** already entered:

- a. Double-click the criteria from the list.
 - b. Change the **Tag Criteria Value**.
 - c. Select **Update Criteria**. The criteria value is updated with the new value.
9. To delete the search criteria from the list, select the criteria from the list, and then select **Delete**.
10. To save a search criteria list to be reused:
 - a. Create your search criteria list.
 - b. Select **Save**.
The **Save As** window appears.
 - c. Enter the file name, and select **Save**.
Your criteria list is saved.
11. To load an existing criteria list:
 - a. Select **Load**.
The **Open** window appears.
 - b. Choose the XML file you saved earlier, and then select **Open**.
The criteria list is loaded to the **Advanced Tag Search** window.
12. To view the tag attributes, double-click the tag from the available section or from the selected section.
The **Tag Attributes** window appears with the attribute details.
13. Select **OK**.

Export Tags

About this task

You can export tags from a Historian server into an Excel worksheet or to another system (either local or remote). After you export tags into an Excel worksheet, you can [add/modify tags \(on page 205\)](#) in bulk, and then [import them \(on page 205\)](#).




Note:

You cannot enter more than 32,767 characters in a single cell in an Excel worksheet.

Procedure

1. Open an Excel worksheet.
2. Select **Historian > Administration > Export Tags**.
The **Export Tags from Historian** window appears.
3. Select a server from the drop-down list. If you do not select a server, the add-in uses the default server.
4. Enter values as described in the following table.

Field	Description
Filter Criteria	Enter the name or description of the tag you want to export. You can use a tag mask to select a group of tags. To select a tag, use cell references instead of manually typing them. <div style="border: 1px solid #0070C0; border-radius: 10px; padding: 10px; margin-top: 10px;"> <p> Note: You cannot export multiple tags when tag names are read from multiple cells. If you specify a range of tag names to read from multiple cells in the Tag Mask or Tag Name(s) fields, only the first tag in the range will be exported.</p> </div>
Collector	Enter the collector name.
Data Type	Enter the data type.

5. Select one or more field names from the list in the right hand window. Always include tag names in the list of fields to export.
6. In the **Export Options** section, specify whether you want to export tags into a new Excel worksheet, a CSV file, or an XML file. If you select CSV or XML, you must also enter a path and file name for the destination file.
7. Select **OK**.
The data is exported.

Add/Modify Tags

About this task

Using the add-in, you can add tags to Historian or modify existing tags. To do so, include the tags in an Excel worksheet either automatically or manually, and then import them in bulk into Historian.

This can be a very convenient mechanism when you are working with large numbers of tags. If any conflicting names or parameters occur, an error occurs; you can then resolve the conflict and try again.

Procedure

1. Create a tags worksheet in Excel either manually or automatically (using macros or any other tools).
Since Historian requires information about each tag that varies with the type of the tag, ensure that you have included all the required information in the worksheet before attempting to import it into Historian. To determine what specific tag information is required, refer to the documentation provided with your SCADA application.
2. [Import the tags into Historian \(on page 205\)](#).



Note:

If any errors on the import occur, a window appears, specifying the issues encountered during the import. If an error occurs with any line of the import, the whole import is aborted.

Import Tags

Before you begin

In an Excel worksheet, [add/modify the tags that you want to import \(on page 205\)](#).

About this task

Using the add-in, you can add tags to Historian or modify existing tags. To do so, include the tags in an Excel worksheet either automatically or manually, and then import them in bulk into Historian (either local or remote).

**Note:**

Do not add or update the spare configurations as the data may get corrupted or overwritten. For example, the **Spare 5** field is used by the Server-to-Server collector for internal purposes.

Procedure

1. Open an Excel worksheet.
2. Select **Historian > Administration > Import Tags**.

A message appears.

3. Select **Yes** to initiate the operation.

A message appears, confirming that the import is complete.

4. Select **OK**.

If errors occur, a window appears detailing the issues encountered during the import. If an error occurs with any line of the import, the whole import operation is aborted.

If you export all the fields and attempt to import the read-only fields **LastModified** and **LastModifiedUser**, you may receive the following error message: Import failed, Error with Import Header. To avoid this issue, export the tags without selecting the read-only fields, and then import the tags.

Rename Tags

Before you begin

To rename a tag, you must be a member of the administrator's group with tag-level security.

About this task

When you rename a tag, you can choose between the following options:

- **Rename using an alias:** In this case, the old name is called the tag alias. You can retrieve tag data using the tag alias as well. When you copy a tag, the tag alias is captured as well to aid in an audit trail.
- **Rename permanently:** In this case, the old name is no longer captured. Therefore, you can create another tag with this old name. You cannot store and forward data using the old name. This implies that data for the tag is collected separately for the new name.

Procedure

1. [Export the tags \(on page 203\)](#) that you want to rename.

**Important:**

You must only include tag name in the list of fields to export.

2. In the Excel worksheet, to the right of the **Tagname** column, insert a column named New Tagname.
3. For each tag that you want to rename, enter the new name in the **New Tagname** column.



Important:

You must specify a tag name in all the rows of the **New Tagname** column. If you do not want to rename any of those exported tags, you must delete that row.

4. If you want to rename the tags permanently, to the right of the **New Tagname** column, insert a column named **Permanent Rename**.
5. For each tag that you want to rename permanently, enter `TRUE` in the **Permanent Rename** column. For the remaining tags, enter `FALSE`.
6. Select **Historian > Administration > Rename Tags**.
A message appears, asking you to confirm that you want to rename the tags.
7. Select **Yes**.
The tags are renamed.

Reference

Excel Add-In Options

Field	Description
<p>Internal vs. External References</p>	<p>Choosing Use External References allows your application to reference cells in other worksheets and workbooks in addition to the current one. If you choose Use Internal References instead, you can only access cells in the current worksheet. The default setting is Use External References.</p>
<p>Automatically Update Links to Add- In (Yes/No)</p>	<p>Add-In functions are maintained as worksheet links. If users who share worksheets do not have Microsoft Office installed the same way, it is necessary to turn this feature on. When on, this feature automatically re-establishes any formula links that may be broken due to differences among users in Microsoft Office installation. The default setting enables this feature.</p> <p>The Auto Update feature allows sharing of worksheets. You must, however, install the Excel Add-In in the exact same Microsoft Office Library Path as the other worksheets if you want to use the sharing feature.</p> <p>When opening a worksheet with links to another worksheet, you may receive a message prompting you to update all linked information in the workbook (Yes) or keep the existing information (No). It is recommended that you se-</p>

Field	Description
	lect No and keep the existing information. The links will be automatically updated for your worksheet. Save your worksheet after the links have been updated.
Show/Hide Header Labels	This option lets you display or suppress the column header labels that are automatically placed in the worksheet when entering formulas throughout the Historian windows. The default setting is Show Labels .
Color	Allows you to select the header name color from the drop-down list: black, blue, red, green, magenta, cyan, or yellow.
Assign Default Server	This window shows the current server assignment. You can modify the setting by selecting the Edit button and accessing the Historian Server Managers window. This window allows you to save user connection information, add or connect to a new server, delete a server, and modify the default server.
Adjust Column Widths	This option lets you automatically adjust the width of columns in your worksheet as formulas are inserted by Historian windows. Select Adjust Header Column Width to modify the width of header labels; select Adjust Data Column Width to modify the data column widths to accommodate the data values. Enabling these options usually makes the worksheet much more readable. However, doing so can sometimes make the worksheet calculate too much when building a large report. In such cases, disable the automatic feature and adjust individual columns manually.
Save/Default/Cancel	These action buttons let you apply your choices of options. Select Save to apply the settings you entered, select Default to select default settings for all options, and select Cancel to close the window.

Reports

You can generate a wide range of custom reports. You can use all the standard, familiar Excel tools and techniques to access the Historian archives and build reports and charts of all types to fit your specific needs. You can use the sample reports included with Historian almost as is — just change the tags to fit your application. As an alternative, use the setup worksheets as a starting point and adapt them to your particular situation.

Defining Reports

You can define a report so that Excel recalculates the worksheet whenever the contents of specific cells, such as start times or dates, change. In this way, the report generates a

dynamic snapshot of process performance, updated regularly in real time. You can also manually initiate recalculation at anytime.

Building Dynamic Reports

The primary rule to follow in building a dynamic report is to use formulas with cell references that contain variable information rather than fixed data, so that recalculation produces new data each time it occurs. You then initiate recalculation by changing certain inputs manually or automatically.

Sharing Reports

You can share any Excel reports you develop with the Historian Excel Add-In as you would any other Excel workbook. For each client using the worksheets, set up the Excel Add-In for Historian.

Using the Sample Reports

The Historian application includes three typical sample reports that demonstrate the power and ease-of-use of the Excel Add-In. Use them directly in your application or modify them to fit your requirements.

The three sample Excel reports are built using tags from the Simulation collector. You must create an instance of the Simulation collector and start it in order for these reports to work. The `Historian Batch Report Sample.xls` file also uses Batch ID and Product ID tags from the Simulation collector. These are Simulation Collector points that are configured to store string data types.

To ensure that the sample reports work correctly, you must add the string tags. These are the last five tags in the tag collector list. Add the string tags by browsing the Simulation collector and adding all of the tags by selecting the **Add All Tags** check box. Alternatively, you can run the `Add Tags to Simulation Collector.bat` batch file in the `Historian\Server` directory of the machine that has the Simulation collector.

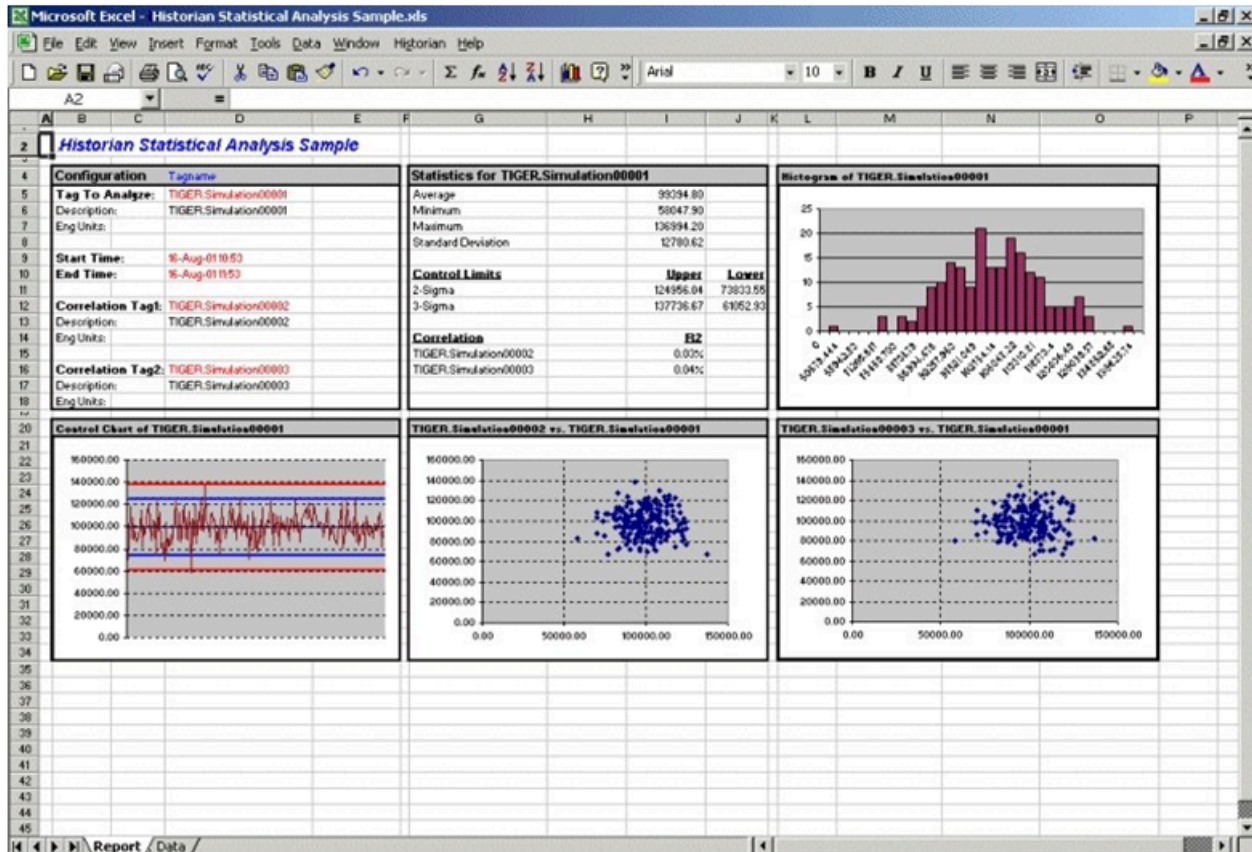
In addition, when you create an instance of the Simulation collector, it prompts you for the number of simulation tags it should create (but you must still add the tags for collection using one of the two methods above). The default is 1000. Do not enter a value less than 30.

When opening a sample Excel report, you may receive a message prompting you to update all linked information in the workbook or keep the existing information. It is recommended that you select No (that is, keep the existing information). The links will be automatically updated for your worksheet. Save your worksheet after the links have been updated.

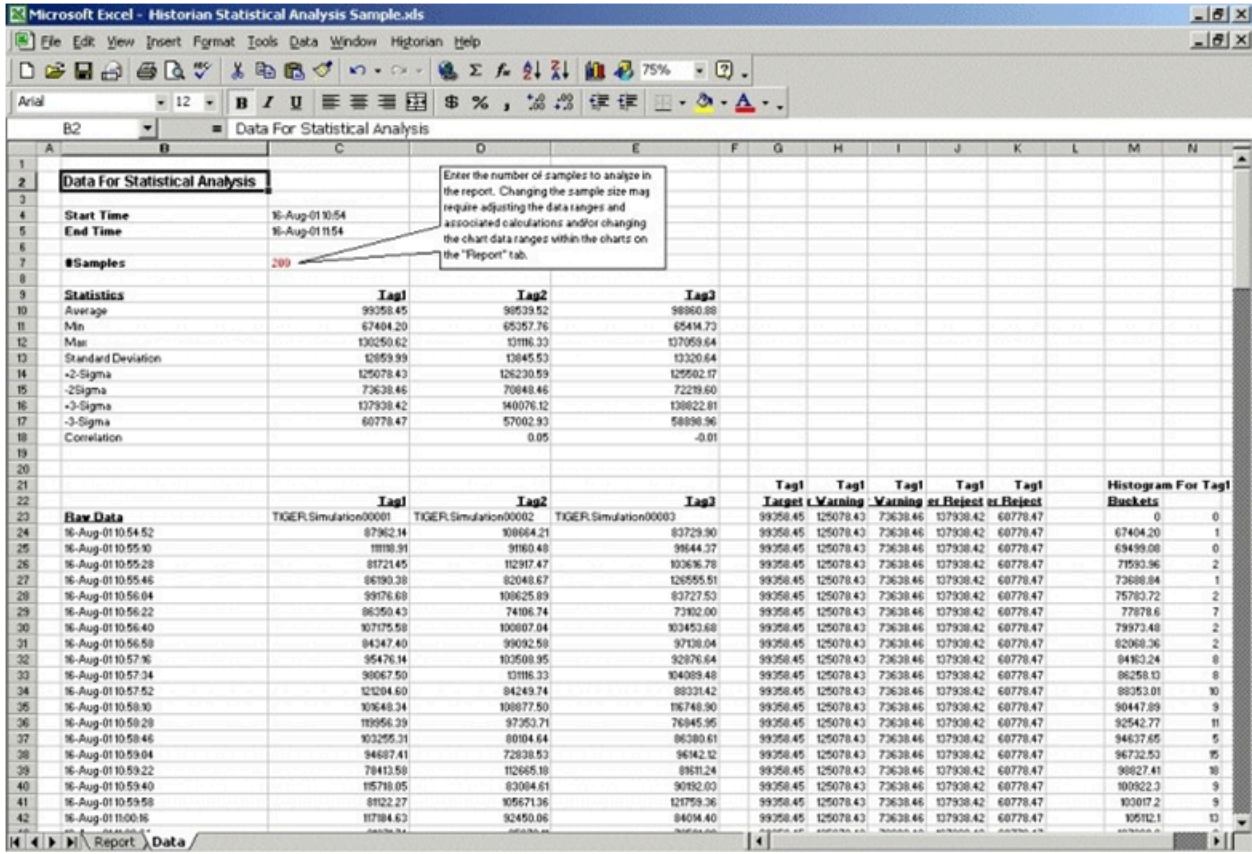
Historian Statistical Analysis Sample Report

For a specific duration, this report calculates a number of statistical properties of a tag, such as the average, maximum, minimum, standard deviation, 2 sigma and 3 sigma control limits, and correlation coefficients for other tags. It displays charts of various types for several of these variables.

The chart at the lower left is a plot of the main variable vs. time with sigma control limits indicated by the straight lines. The two charts to the right are scatter diagrams that show the correlation between the main variable and two other variables. The chart at the top right is a histogram of data values of the main variable that shows how the data points are distributed.



The following figure shows the worksheet associated with the sample report that contains the data used to generate the report.

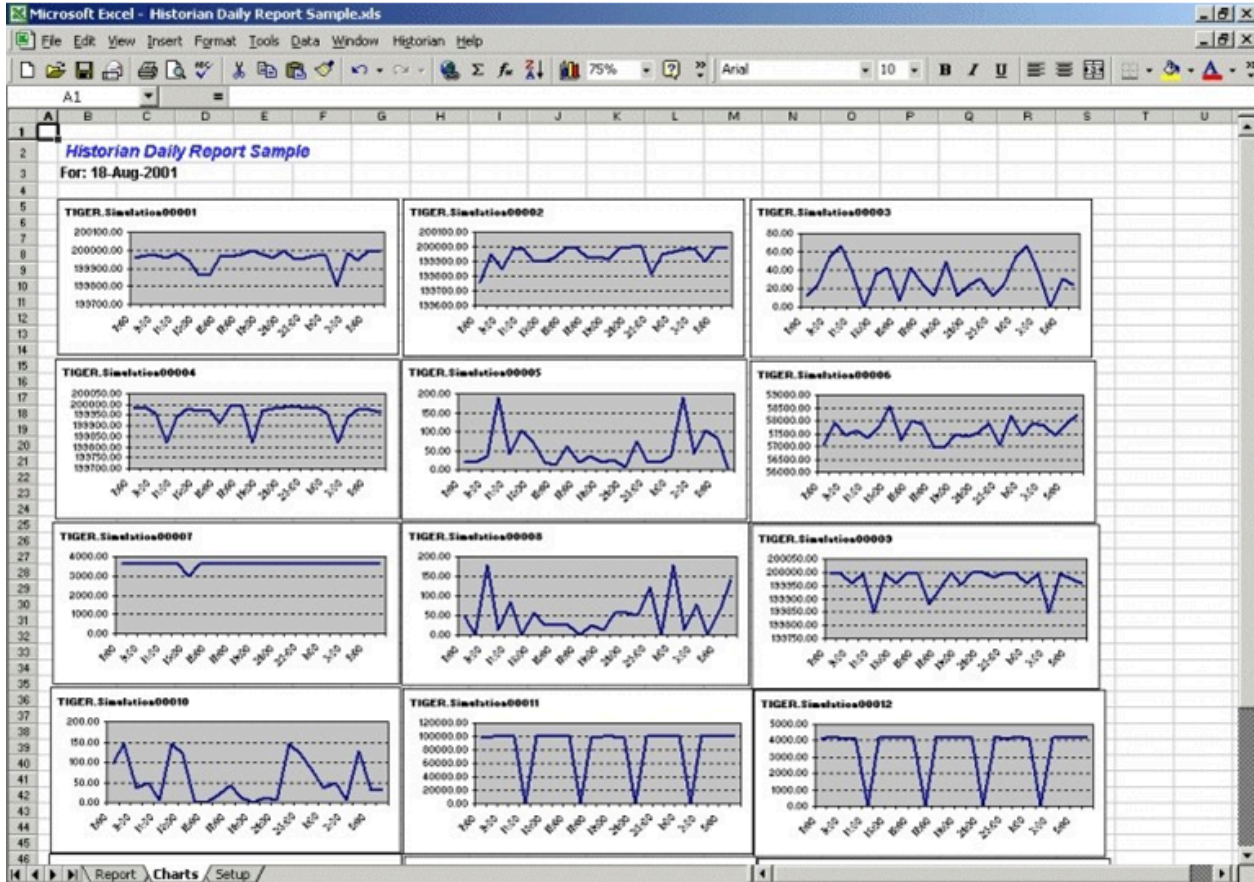


Daily Performance Sample Report

This sample report shows how the measured values and selected statistical properties of specified tags have varied in the last 24 hours. This sample is an example of a typical daily performance report in an industrial plant.

	TIGER.Simulation0001	TIGER.Simulation0002	TIGER.Simulation0003	TIGER.Simulation0004	TIGER.Simulation0005	TIGER.Simulation0006	TIGER.Simulation0007	TIGER.Simulation0008
7:00	199957.28	199761.95	12.21	199981.69	18.31	57050.91		3600.0
8:00	199969.48	199951.17	24.41	199987.80	18.31	57907.26		3600.0
9:00	199969.48	199847.41	54.93	199957.28	36.62	57451.76		3600.0
10:00	199957.28	199981.69	67.14	199823.00	189.21	57638.78		3600.0
11:00	199981.69	199993.89	36.62	199938.97	42.73	57334.71		3600.0
12:00	199945.06	199902.34	0.00	199981.69	103.76	57779.99		3600.0
13:00	199869.61	199902.34	36.62	199969.48	73.24	58555.56		2995.0
14:00	199869.61	199932.86	42.73	199975.58	18.31	57235.52		3600.0
15:00	199969.48	199993.89	6.10	199914.55	12.21	57998.48		3600.0
16:00	199963.38	199993.89	42.73	199993.89	61.04	57853.26		3600.0
17:00	199975.58	199926.75	24.41	200000.00	18.31	56965.60		3600.0
18:00	200000.00	199932.86	12.21	199823.00	36.62	56999.84		3600.0
19:00	199975.58	199920.66	48.83	199969.48	18.31	57462.40		3600.0
20:00	199957.28	199993.89	12.21	199981.69	24.41	57373.37		3600.0
21:00	200000.00	200000.00	24.41	199987.80	6.10	57509.65		3600.0
22:00	199951.17	200000.00	30.52	199993.89	73.24	57914.51		3600.0
23:00	199957.28	199816.89	12.21	199981.69	18.31	57068.75		3600.0
0:00	199969.48	199951.17	24.41	199987.80	18.31	58169.76		3600.0
1:00	199969.48	199969.48	54.93	199957.28	36.62	57433.42		3600.0
2:00	199804.69	199981.69	67.14	199823.00	189.21	57912.77		3600.0
3:00	199981.69	199993.89	36.62	199938.97	42.73	57802.84		3600.0
4:00	199945.06	199902.34	0.00	199981.69	103.76	57436.26		3600.0
5:00	200000.00	200000.00	30.52	199975.58	85.45	57837.37		3600.0
6:00	199993.89	199993.89	24.41	199963.38	0.00	58223.36		3600.0
Average	199954.73	199943.54	30.26	199953.71	51.88	57621.50		3574.0
Std Dev	47.55	63.54	19.34	54.20	51.54	415.21		123.6
Min	199804.69	199761.95	0.00	199823.00	0.00	56965.60		2995.0
Max	200000.00	200000.00	67.14	200000.00	189.21	58555.56		3600.0

The report shown in the following image is a collection of chart plots of the data displayed in the report of the previous image.



The following figure shows the worksheet used to set up the Daily Sample Report. Edit the worksheet to adapt this report to your application.

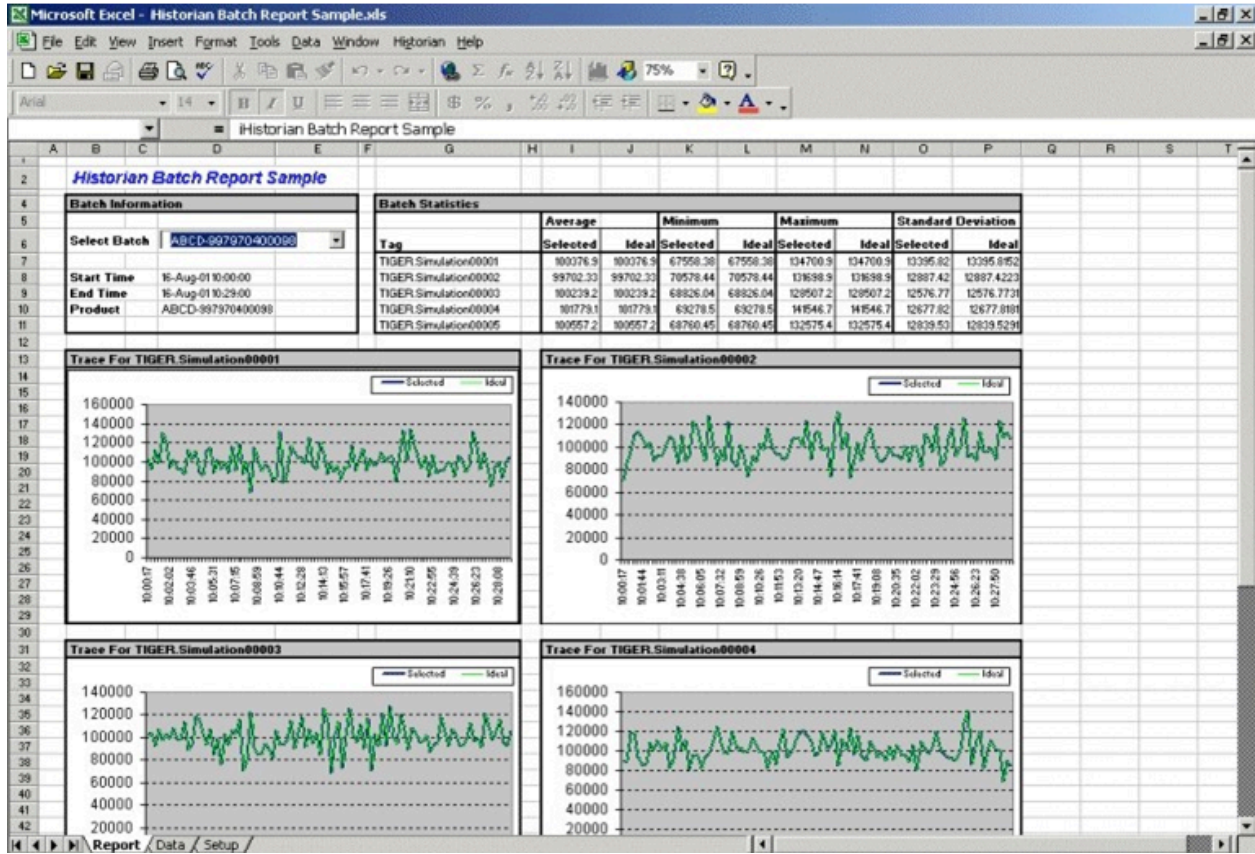
Configuration For Daily Report

Report Date:	18-Aug-01	(entered)		
Production Day Start Time (hrs):	6	(entered)		
Start Time:	18-Aug-01 06:00	(calculated)		
End Time:	19-Aug-01 06:00	(calculated)		

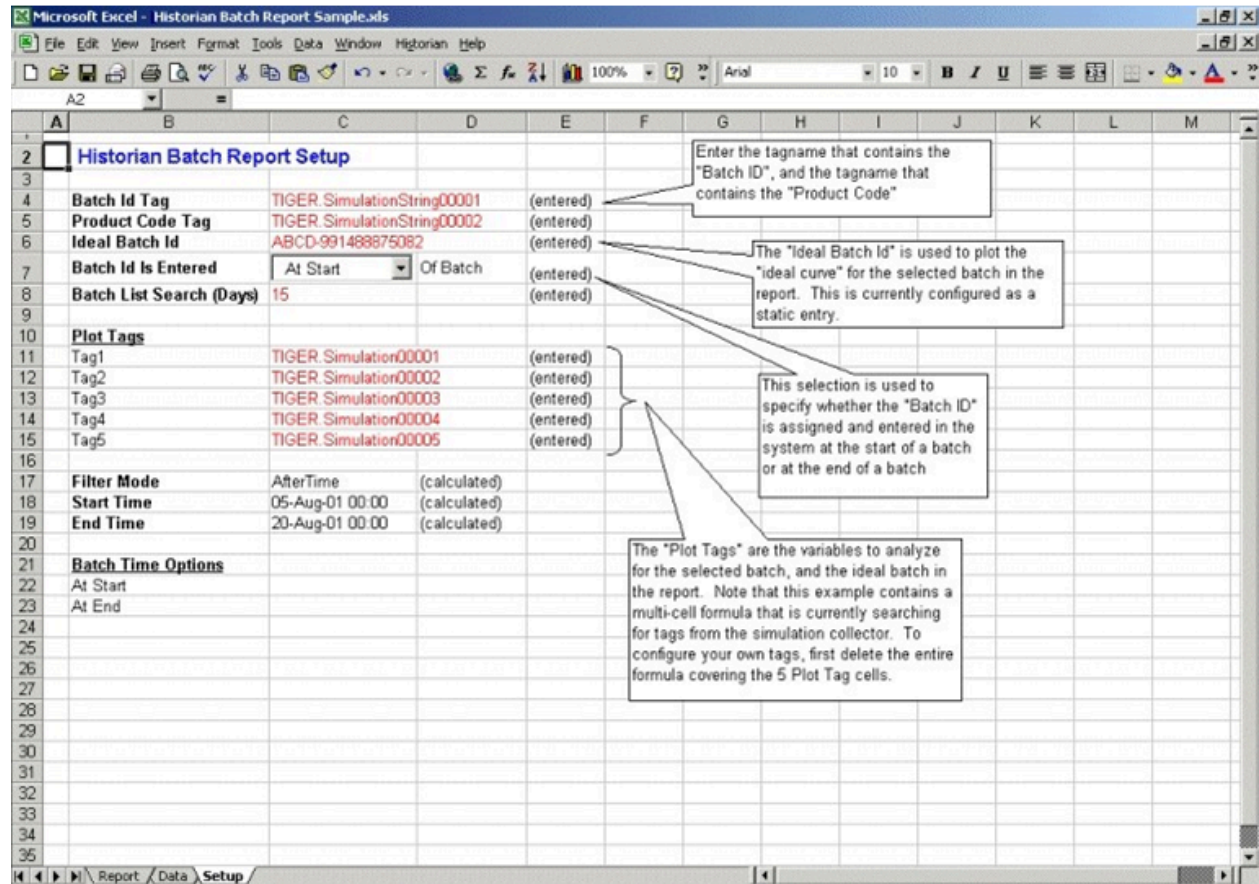
Tags	Tagname	Description	Eng Units	Statistic
Tag1	TIGER.Simulation00001	TIGER.Simulation00001		Maximum
Tag2	TIGER.Simulation00002	TIGER.Simulation00002		Maximum
Tag3	TIGER.Simulation00003	TIGER.Simulation00003		Minimum
Tag4	TIGER.Simulation00004	TIGER.Simulation00004		Maximum
Tag5	TIGER.Simulation00005	TIGER.Simulation00005		Minimum
Tag6	TIGER.Simulation00006	TIGER.Simulation00006		StandardDeviation
Tag7	TIGER.Simulation00007	TIGER.Simulation00007		Count
Tag8	TIGER.Simulation00008	TIGER.Simulation00008		Minimum
Tag9	TIGER.Simulation00009	TIGER.Simulation00009		Maximum
Tag10	TIGER.Simulation00010	TIGER.Simulation00010		Minimum
Tag11	TIGER.Simulation00011	TIGER.Simulation00011		Average
Tag12	TIGER.Simulation00012	TIGER.Simulation00012		Total
Tag13	TIGER.Simulation00013	TIGER.Simulation00013		Average
Tag14	TIGER.Simulation00014	TIGER.Simulation00014		Maximum
Tag15	TIGER.Simulation00015	TIGER.Simulation00015		Maximum

Batch Sample Report

This is an example of a report that might be used with a batch type of industrial process. The table at the top of the report shows the batch identification, the start and end times, product name, and computed statistics for several process variables. The charts show how selected process parameters varied during the batch cycle.



This is the configuration worksheet used to generate the report shown in the previous image. Modify this worksheet to adapt it to your requirements.



Troubleshooting the Excel Add-In Sample Reports

If you follow the recommended installation procedures, you should not have any difficulty in running the sample reports. If you do encounter any problems, they are likely to relate to the locations of files and the links to those files.

When opening a sample Excel report, you may receive a message prompting you to update all linked information in the workbook or keep the existing information. We recommend that you select No (that is, keep the existing information). The links will be automatically updated for your worksheet. Save your worksheet after the links have been updated.

For problems in the worksheets themselves, refer to Excel online Help for assistance.

Running a Report Using Visual Basic

The following Visual Basic example shows you how to create a hidden instance of Microsoft Excel, open a preconfigured Historian report in that instance, and then print the report to the default printer. To use the

example, you must modify the path of the .XLA and .XLS files. The paths that you need to edit are in bold font in the following example.

To use this example, you must have the privileges to run the collector as a Windows service and a default printer must be installed. If Historian security is enabled, you must be a member of the iH Readers group. Tag-level security can override this privilege.

You can trigger this example to run on an event basis or on a polled basis. Most likely, you would run this example on an event basis. However, you can run it on a polled basis using Windows Task Scheduler.

```
Sub CreateExcelObjects()
Dim xlApp As Excel.Application Dim wkbNewBook As Excel.Workbook Dim wksSheet As Excel.Worksheet Dim strBookName As
String
' Create new hidden instance of Excel. Set xlApp = New Excel.Application
' Open the preconfigured Historian Excel Add-in report.
Workbooks.Open "C:\Program Files\Microsoft Office\Office11\Library\iHistorian.xla"
Set wkbNewBook = Workbooks.Open("c:\testih.xls", 0, False)
'xlApp.Visible = True
With wkbNewBook
For Each wksSheet In .Worksheets
Select Case wksSheet.Name Case "tag1" wksSheet.Select
.RefreshAll
.PrintOut End Select Next wksSheet
.Close False
End With
Set wkbNewBook = Nothing xlApp.Quit
Set xlApp = Nothing
End Sub
```

Array Formulas for the Historian Excel Add-In

In Excel, an array formula is a data request that inputs a set of parameters and returns results. The Historian Excel Add-In uses the following array formulas:

```
ihSearchTags
(pServer,pTagMask,pDescriptionMask,pCollector,pArraySize,pSort,pRowCol,Parameters())

ihQueryData
(pServer-,pTagName,pStartTime,pEndTime,pSamplingMode,pCalculationMode,pSamplingInterval,pNumberOfSamples,pDirection,pFi
lterTag,pFilterMode,pFilterComparisonMo ( ))
```

```

ihQueryData3
(pServer,pTagName,pStartTime,pEndTime,pSamplingMode,pCalculationMode,pSamplingInterval,pNumberOfSamples,pDirection,pFilterTag,pFilterMode,pFilterComparisonMo ( ))

ihQueryMessages
(pServer,pTopic,pStartTime,pEndTime,pSearchText,pArraySize,pSort,pRowCol,Parameters ( ))

ihListArchives
(pServer,pArchiveNameMask,pArraySize,pSort,pRowCol,Parameters ( ))

ihListCollectors
(pServer,pCollectorNameMask,pArraySize,pSort,pRowCol,Parameters ( ))
    
```

When inserting an array formula, you cannot overwrite part of the range of another array formula in your worksheet. The range includes cells without data displayed. An error message appears if you try to do so. Reselect a different output range to insert the formula.

Array Formula Parameters

The following table describes the parameters for the array formulas for the add-in.

Parameter	Description
pArchiveNameMask	A search mask you can use to browse the archivers. Use standard Windows wildcard characters.
pArraySize	The number of cells that the array spans.
pCalculationMode	The type of the calculation mode.
pCollector	The collector or collector mask that you want to query.
pCollectorMask	A search mask for browsing collectors. Use standard Windows wildcard characters.

Parameter	Description
Name-Mask	
pDescription-Mask	A search mask for browsing tag descriptions. Use standard Windows wildcard characters.
pDirection	The direction (forward/backward from the start time) of data sampling from the archive.
pEndTime	The end time used to refine your query.
pFilter-Comparison-Mode	<p>The type of comparison to be made on the filter comparison value:</p> <ul style="list-style-type: none"> • Equal: Filter condition is True when the <code>FilterTag</code> is equal to the comparison value. • EqualFirst: Filter condition is True when the <code>FilterTag</code> is equal to the first comparison value. • EqualLast: Filter condition is True when the <code>FilterTag</code> is equal to the last comparison value. • NotEqual: Filter condition is True when the <code>FilterTag</code> is NOT equal to the comparison value. • LessThan: Filter condition is True when the <code>FilterTag</code> is less than the comparison value. • GreaterThan: Filter condition is True when the <code>FilterTag</code> is greater than the comparison value. • LessThanEqual: Filter condition is True when the <code>FilterTag</code> is less than or equal to the comparison value. • GreaterThanEqual: Filter condition is True when the <code>FilterTag</code> is greater than or equal to the comparison value. • AllBitsSet: Filter condition is True when the binary value of the <code>FilterTag</code> is equal to all the bits in the condition. It is represented as <code>^</code> to be used in Filter Expression. • AnyBitSet: Filter condition is True when the binary value of the <code>FilterTag</code> is equal to any of the bits in the condition. It is represented as <code>~</code> to be used in Filter Expression.

Parameter	Description
	<ul style="list-style-type: none"> • <code>AnyBitNotSet</code>: Filter condition is True when the binary value of the <code>FilterTag</code> is not equal to any one of the bits in the condition. It is represented as <code>!~</code> to be used in Filter Expression. • <code>AllBitsNotSet</code>: Filter condition is True when the binary value of the <code>FilterTag</code> is not equal to all the bits in the condition. It is represented as <code>!^</code> to be used in Filter Expression.
<p><code>pFilterComparisonValue</code></p>	<p>The value to compare the filter tag with when applying the appropriate filter to the DataRecordset query (to determine the appropriate filter times).</p>
<p><code>pFilterExpression</code></p>	<p>An expression that includes multiple filter conditions. The type of conditions used are:</p> <ul style="list-style-type: none"> • <code>AND</code> condition • <code>OR</code> condition • Combination of both <code>AND</code> and <code>OR</code> <p>You can use a filter expression instead of <code>FilterTag</code>, <code>FilterComparisonMode</code> and <code>FilterValue</code> parameters. While using <code>FilterExpression</code>, the expression is passed within single quotes, and for complex expressions, enclose the conditions in parentheses. There is no maximum length for a filter expression.</p>
<p><code>pFilterMode</code></p>	<p>The type of the time filter:</p> <ul style="list-style-type: none"> • <code>ExactTime</code>: Retrieves data for the exact times that the filter condition is True (only True). • <code>BeforeTime</code>: Retrieves data from the time of the last False filter condition up until the time of the True condition (False until True). • <code>AfterTime</code>: Retrieves data from the time of the True filter condition up until the time of the next False condition (True until False). • <code>BeforeAndAfterTime</code>: Retrieves data from the time of the last False filter condition up until the time of next False condition (While True). • The <code>FilterMode</code>: Defines how time periods before and after transitions in the filter condition should be handled. <p>For example, <code>AfterTime</code> indicates that the filter condition should be True starting at the timestamp of the archive value that triggered the True condition and leading up to the timestamp of the archive value that triggered the False condition.</p>

Parameter	Description
pFilterTag	The single tagname used when applying the filter criteria.
pNumberOfSamples	Number of samples from the archive to retrieve. Samples will be evenly spaced within the time range defined by start time and end time for most sampling modes. For the <code>RawByNumber</code> sampling mode, the <code>NumberOfSamples</code> column determines the maximum number of values to retrieve. For the <code>RawByTime</code> sampling mode, the <code>NumberOfSamples</code> is ignored.
pRowCol	The sorting criteria used: 0 for columns and 1 for rows.
pSamplingInterval	For non-raw sampled data, this column represents a positive integer for the time interval (in milliseconds) between returned samples.
pSamplingMode	The type of the sampling mode used by the query.
pSearchText	The text or mask that you want to search for in the message.
pServer	Name of the server from which you are retrieving data. If you are running Excel on the same server from which you are retrieving data, you need not enter a string, as the default server is used.
pSort	The sorting criteria used for the rows or columns: 0 for descending and 1 for ascending.
pStartTime	The start time used to refine your query.
pTagMask	A search mask for browsing tagnames. Use standard Windows wildcard characters.
pTagName	The tagname or tagname mask that you want to query.
pTopic	The message topic:

Parameter	Description
	<ul style="list-style-type: none"> • Connections • Configuration • General • Services • Performance • Security
Parameters()	Output display of the array formula. This field can include be one or more parameters.

Relative Time Entries

When entering the Start and End times for Excel Add-in queries and exports, you can already enter them as exact literal dates and times such as "1/28/14 09:00:00" in the query windows like **Query Calculated Data**, or you can use a cell reference to an exact time, or use an Excel function such as =Now() or =Today(). Apart from the mentioned ways, you can use relative time entries using a base value and an offset value as described in the following tables.

For example, you can use Yesterday+8H for 8am yesterday or Now-15m for 15 minutes before the current time. The typical use of a relative time entry, is to type the time values using a base and an offset into the start and end time of the **Query** window or the **Export** window, instead of having to put =Now() or =Today() in a cell and making a cell reference to that, or use the base Monday to produce weekly reports.

Base Values


Base Value	Description
Now	The current date and time.
Today	The current date at midnight.
Yesterday	The previous day at midnight.
Sunday	Today or the most recent Sunday at midnight.
Monday	Today or the most recent Monday at midnight.
Tuesday	Today or the most recent Tuesday at midnight.

Base Value	Description
Wednesday	Today or the most recent Wednesday at mid-night.
Thursday	Today or the most recent Thursday at midnight.
Friday	Today or the most recent Friday at midnight.
Saturday	Today or the most recent Saturday at midnight.



Offset Values

Offset Value	Description
d	One 24 hour day
h	One hour
m	One minute
s	One second

Filter Parameters for Data Queries

Parameters	Description
Filter Tag	<p>The single tag name used when applying the filter criteria.</p> <div style="border: 1px solid #00a0e3; border-radius: 10px; padding: 10px; margin-top: 10px;"> <p> Note: You can enter your filter conditions using Filter tag, Filter Comparison Mode, and Filter Comparison Value or you can put that all that information in a single Filter Expression.</p> </div>
Filter Expression	<p>An expression that includes one or more filter conditions. The types of conditions used are:</p> <ul style="list-style-type: none"> • AND Condition • OR Condition • Combination of both AND and OR

Parameters	Description
	FilterExpression can be used instead of FilterTag, FilterComparisonMode and FilterValue parameters. There is no maximum length for a filter expression.
Filter Mode	<p>The type of time filter:</p> <ul style="list-style-type: none"> • ExactTime – Retrieves data for the exact times that the filter condition is True (only True). • BeforeTime – Retrieves data from the time of the last False filter condition up until the time of the True condition (False until True). • AfterTime – Retrieves data from the time of the True filter condition up until the time of next False condition (True until False). • BeforeAndAfterTime – Retrieves data from the time of the last False filter condition up until the time of next False condition (While True). <p>The Filter Mode defines how time periods before and after transitions in the filter condition should be handled.</p> <p>For example, AfterTime indicates that the filter condition should be True starting at the timestamp of the archive value that triggered the True condition and leading up to the timestamp of the archive value that triggered the False condition.</p>
Filter Com- par- ison Mode	<p>The type of comparison to be made on the filter comparison value:</p> <ul style="list-style-type: none"> • Equal – Filter condition is True when the Filter Tag is equal to the comparison value. • EqualFirst – Filter condition is True when the Filter Tag is equal to the first comparison value. • EqualLast – Filter condition is True when the Filter Tag is equal to the last comparison value. • NotEqual – Filter condition is True when the Filter Tag is NOT equal to the comparison value. • LessThan – Filter condition is True when the Filter Tag is less than the comparison value. • GreaterThan – Filter condition is True when the Filter Tag is greater than the comparison value. • LessThanEqual – Filter condition is True when the Filter Tag is less than or equal to the comparison value.

Parameters	Description
	<ul style="list-style-type: none"> • GreaterThanOrEqualTo – Filter condition is True when the Filter Tag is greater than or equal to the comparison value. • AllBitsSet – Filter condition is True when the binary value of the Filter Tag is equal to all the bits in the condition. It is represented as <code>&</code> to be used in Filter Expression. • AnyBitSet – Filter condition is True when the binary value of the Filter Tag is equal to any of the bits in the condition. It is represented as <code>&</code> to be used in Filter Expression. • AnyBitNotSet – Filter condition is True when the binary value of the Filter Tag is not equal to any one of the bits in the condition. It is represented as <code>!&</code> to be used in Filter Expression. • AllBitsNotSet – Filter condition is True when the binary value of the Filter Tag is not equal to all the bits in the condition. It is represented as <code>!&</code> to be used in Filter Expression. • Alarm Condition – Specifies an alarm condition to filter data by. For example, Level. • Alarm SubCondition – Specifies an alarm sub-condition to filter data by. For example, HIHI. <p>The Filter Comparison Mode defines how archive values for the Filter Tag should be compared to the Filter Value to establish the state of the filter condition. If a Filter Tag and Filter Comparison Value are supplied, time periods are filtered from the results where the filter condition is False.</p> <div style="border: 1px solid #0070C0; border-radius: 10px; padding: 10px; background-color: #E6F2FF;">  Note: Filter Comparison Mode is only used if Filter Tag is filled in. </div>
Filter Comparison Value	<p>The value to compare the filter tag with when applying the appropriate filter to the data record set query (to determine the appropriate filter times).</p> <div style="border: 1px solid #0070C0; border-radius: 10px; padding: 10px; background-color: #E6F2FF;">  Note: Filter Comparison Value is only used if Filter Tag is filled in. </div>

Batch IDs

If you had a `BatchID` going into a Historian tag, that `BatchID` will either have a timestamp at the beginning of the batch or at the end of the batch. Different batch systems report the `BatchID` as the batch is started, and other systems do not report the `BatchID` until the batch is finished.

If your `BatchID` is reported at the beginning of a batch, you would need to use the **AfterTime** option because you would want to include all data for a particular `BatchID` after the time the `BatchID` was reported up until the next `BatchID` was reported. If your `BatchID` was being reported at the end of the batch, you would want to use the **BeforeTime** option because you would want to include all data for a particular `Batch ID` before the time the `Batch ID` was reported back to the previous `BatchID` being reported.

Sampling Types

Interpolated Sampling

Calculates values between two data points using a linear interpolation algorithm.

Calculated Sampling

Computes values using an algorithm selected in the Calculation field.

Lab Sampling

Computes intermediate values between two data points by using the last actual value. This type of sampling displays as a stair step type of curve.

Trend Sampling

Returns the raw minimum and raw maximum value for each specified interval. Use the Trend sampling mode to maximize performance when retrieving data points for plotting. For the Trend sampling mode, if the sampling period does not evenly divide by the interval length, **Historian** ignores any leftover values at the end, rather than putting them into a smaller interval.

InterpolatedtoRaw Sampling

Provides raw data in place of interpolated data when the number of samples fall lesser than the available samples.

TrendtoRaw Sampling

The TrendtoRaw sampling mode almost always produces the same results as the Trend sampling mode. The exception is that, when more samples are requested than there are raw data points, the TrendtoRaw sampling mode returns all of the available raw data points with

no further processing. TrendtoRaw is therefore used rather than Trend when the number of actual data samples are fewer than the requested number of samples.

LabtoRaw Sampling

Provides raw data for the selected calculated data over the plot, when the number of samples fall lesser than the available samples.

RawByFilterToggle Sampling

Returns filtered time ranges with values 0 and 1. If the value is 1, then the filter condition is true and 0 means false. This sampling mode is used with the time range and filter tag conditions. The result starts with a starting time stamp and ends with an ending timestamp.

Trend2 Sampling

Returns the raw minimum and raw maximum value for each specified interval. Use the Trend2 sampling mode to maximize performance when retrieving data points for plotting. Also, if the sampling period does not evenly divide by the interval length, Historian creates as many intervals of the interval length as will fit into the sampling period, and then creates a remainder interval from whatever time is left. Trend2 sampling mode is more suitable than Trend sampling mode for analysis of minutes and maxes and for plotting programs that can handle unevenly spaced data.

TrendtoRaw2 Sampling

The TrendtoRaw2 sampling mode almost always produces the same results as the Trend2 sampling mode. The exception is that, when more samples are requested than there are raw data points, the TrendtoRaw2 sampling mode returns all of the available raw data points with no further processing. TrendtoRaw2 is therefore used rather than Trend2 when the number of actual data samples are fewer than the requested number of samples.

Calculation Algorithm Types

Average

A time weighted arithmetic mean.

Minimum

The lowest value in the group.

Maximum

The highest value in the group.

Standard Deviation

The square root of the arithmetic mean of deviations from the time-weighted arithmetic mean of all values in the group.

Total

The time-weighted total of all values in the group. Note that Engineering Units are assumed to be in Units/Day. If your Engineering Units were not measured in Units/Day, you must scale your total to the actual time units of the measurement. For example, if the measurement were in Units/Minute (such as GPM), you would multiply the total number by 1440 (minutes in a day) to scale the value into the correct time units.

Count

The total number of values in the group.

Raw Average

The unweighted arithmetic mean of all values in the group.

Raw Standard Deviation

The square root of the arithmetic mean of deviations from the unweighted arithmetic mean of all values in the group.

Raw Total

The unweighted total of all values in the group.

Time of Minimum Value

The time at which the minimum value occurred. | Time of Maximum Value - the time at which the maximum value occurred.

Time Good

The amount of time (in milliseconds) during the interval when the data quality is good.

State Count

Displays the number of times a tag has transitioned to another state from a previous state. A state transition is counted when the previous good sample is not equal to the state value and the next good sample is equal to state value.

State Time

Displays the duration that a tag was in a given state within an interval.

First Raw Value

Returns the first good raw sample value in the given time interval.

First Raw Time

Returns the time stamp of the first good raw sample in the given time interval.

Last Raw Value

Returns the last good raw sample value in the given time interval.

Last Raw Time



Returns the time stamp of the last good raw sample in the given time interval.



TagStats

Returns the values of multiple calculation modes in a single query.

Tag Criteria List

The following table outlines the tag criteria available:

Criteria	Description
Tagname	Tagname or tag mask property of the tag.
Description	User description of the tag.
Data Type	The data type of the tag.
Collector Name	Name of the collector responsible for collecting data for the specified tag.
Collector Type	The type of collector responsible for collecting data for the tag. <div style="border: 1px solid #0070C0; border-radius: 10px; padding: 5px; background-color: #E0F0FF;">  Note: Do not use wildcards in this field. </div>
Collection Type	Type of collection used to acquire data for the tag.
Data Store Name	Indicates the name of the data store to which the tag belongs to.
EGU Description	Indicates the engineering units assigned to the tag. <div style="border: 1px solid #0070C0; border-radius: 10px; padding: 5px; background-color: #E0F0FF;">  Note: Do not use wildcards in this field. </div>
Comment	Comments that is applied to the tag.

Criteria	Description
	 Note: Do not use wildcards in this field.
Source Address	The address for the selected tag in the data store.  Note: Do not use wildcards in this field.
Collection Interval	The time interval between the readings of data. The value entered is in milliseconds.
Collector Compression	Whether or not collector compression is enabled as a default setting.
Archive Compression	Indicates the current effect of archive data compression.
Last Modified User	The name of the person who last modified the tag configuration parameters.

Troubleshooting Issues with the Add-In

Troubleshooting General Imports

- Review the `HistorianSDKErrors.log` file. This file is usually located in the `LogFiles` folder in your Historian program folder. Historian records additional information for some errors in this file. Sometimes, by reviewing this file, you can determine the cause of the error.
- If using Historian security, verify that the user has the appropriate security rights. If the rights are incorrect, log in as a user with the correct privileges or change the rights for the current user.
- Verify that there are no empty rows between valid rows in your spreadsheet. These empty rows can cause issues.
- Note if any errors occur. If an error occurs with any line of the import, Historian aborts the whole import.

Troubleshooting Tag Imports

- If you remove or add Historian servers, and then if you attempt to search for tags, the add-in may not recognize the default server, and may display a message, stating that the default server has not been set. To avoid this issue, close and reopen the **Search Tags** window.
- Make sure that you are not trying to import the Calculation Execution Time, Last Modified, or Last Modified User fields for each tag. These fields are read-only. As such, you can export them but cannot import them.
- Verify that your collector does not contain any duplicate tagnames.
- Verify that the number of tags that you want to import does not exceed the maximum licensed tag count. If it does, you will not be able to import the tags.

Troubleshooting Data Imports

- Ensure that the time stamps of any online archives are not prior to the start time of the oldest online archive.
- Ensure that the time stamps are not for a time greater than 15 minutes ahead of the system time on the Historian server.
- Ensure that the tags are valid Historian tags. To do this, import your tags before importing their associated data.

Troubleshooting Data or Tag Exports

You cannot export data or tags to a remote path using the add-in.

You can export a 64-bit tag, include it in a report and perform calculations on it. However, there will be a minor precision loss while retrieving the data due to a Visual Basic limitation.

Importing Tags Fails

Description: If you export all the fields and attempt to import the read-only fields **LastModified** and **LastModifiedUser**, you may receive an error message.

Error Message: Import failed, Error with Import Header.

Workaround: Export the tags without selecting the read-only fields, and then import the tags.

Unable to Run Sample Reports

Description: If you follow the recommended installation procedures, you should not have any difficulty in running the sample reports. If you do encounter any problems, they are likely to relate to the locations of files and the links to those files.

Workaround: When opening a sample Excel report, you may receive a message prompting you to update all linked information in the workbook or keep the existing information. We recommend that you select No (that is, keep the existing information). The links will be automatically updated for your worksheet. Save your worksheet after the links have been updated.

For problems in the worksheets themselves, refer to Excel online Help for assistance.

Error Occurs While Inserting an Array Formula

When inserting an array formula, you cannot overwrite part of the range of another array formula in your worksheet. The range includes cells without data displayed. An error message appears if you try to do so. Reselect a different output range to insert the formula.

Chapter 9. Using Historian Administrator

Historian Administrator

Introduction to Historian Administrator

Historian Administrator is a Windows-based application, which allows you to access administrative functions. Using Historian Administrator, you can monitor, supervise, archive, retrieve, and control data gathering functions from the server, a client, or one or more remote non-web-based nodes.

**Note:**

You can install multiple instances of Historian Administrator. Changes that you make to parameters on one instance are not automatically updated in other instances.

Historian Administrator communicates with the Historian server using the Historian API. You can install Historian Administrator on a local or a remote machine that has a TCP/IP connection to the Historian server.

Intended Audience

This guide is intended for people who need to:

- Retrieve and analyze archived information.
- Set up and maintain configuration and other parameters for tags, collectors, and archives.
- Perform specific supervisory and security tasks for Historian.
- Maintain and troubleshoot Historian.

About Historian Administrator

Using Historian Administrator, you can:

- Examine key operating statistics for archives and collectors.
- Perform archive maintenance, including:
 - Setting archive size.
 - Selecting options and parameters.
 - Accessing security parameters.
 - Adding archives.
- Perform tag maintenance, including:

- Adding, deleting, and copying tags.
- Searching for tags in a data source or in the Historian database.
- Starting and stopping data collection for a tag.
- Configuring, displaying, and editing tag parameters and options.
- Displaying trend data for selected tags.
- Perform collector maintenance, including:
 - Adding or deleting collectors.
 - Configuring, displaying, and editing parameters for all types of collectors.
 - Displaying performance trends for selected collectors.



Note:

You can back up and restore archives directly using [Elastic File System \(EFS\)](#). If you try to back up archives using Historian Administrator, an error occurs.

Limitations

If the number of archives is large (that is, more than 5,000), Historian Administrator takes a long time to start.

Access Historian Administrator

Before you begin

- [Install Historian Administrator Using the Installer \(on page 49\)](#).
- [Create a Windows user on the Historian server \(on page 56\)](#).
- Use a page with a resolution of 1024 x 768 or above.

Procedure

From the Start menu, select **Historian Administrator**.



Note:

By default, The system attempts to connect to the default server using the username and password of the currently logged-in user. If you want to use a different server or user account:



a. Select **Main**.

A login window appears.

b. Provide the server name, username, password, and domain information, and then select **OK**.

The **Proficy Historian Administrator** window appears, displaying the following pages.

- **System Statistics:** Contains system status indicators, data collector performance indicators, collector maintenance, tag maintenance, and help pages.
- **Tag Maintenance:** Contains tag names, parameters, and controls.
- **Collector Maintenance:** Contains collector names, parameters, and controls.
- **Data Store Maintenance:** Contains archive names, parameters, alarms, security, and controls.
- **Message Search:** Not applicable

Installing Historian Administrator

Install Historian Administrator Using the Installer

About this task

If you already have Historian Administrator on your machine (installed using on-premises Proficy Historian), you can just change the destination to the NLB DNS, and begin using it:

1. Select **Main**.

A login window appears.

2. Provide the NLB DNS, username, password, and domain information, and then select **OK**.

This topic describes how to install Historian Administrator using the installer. You can also [install it at a command prompt \(on page 51\)](#).

Procedure

1. Run the `InstallLauncher.exe` file. Contact the support team for this installer.

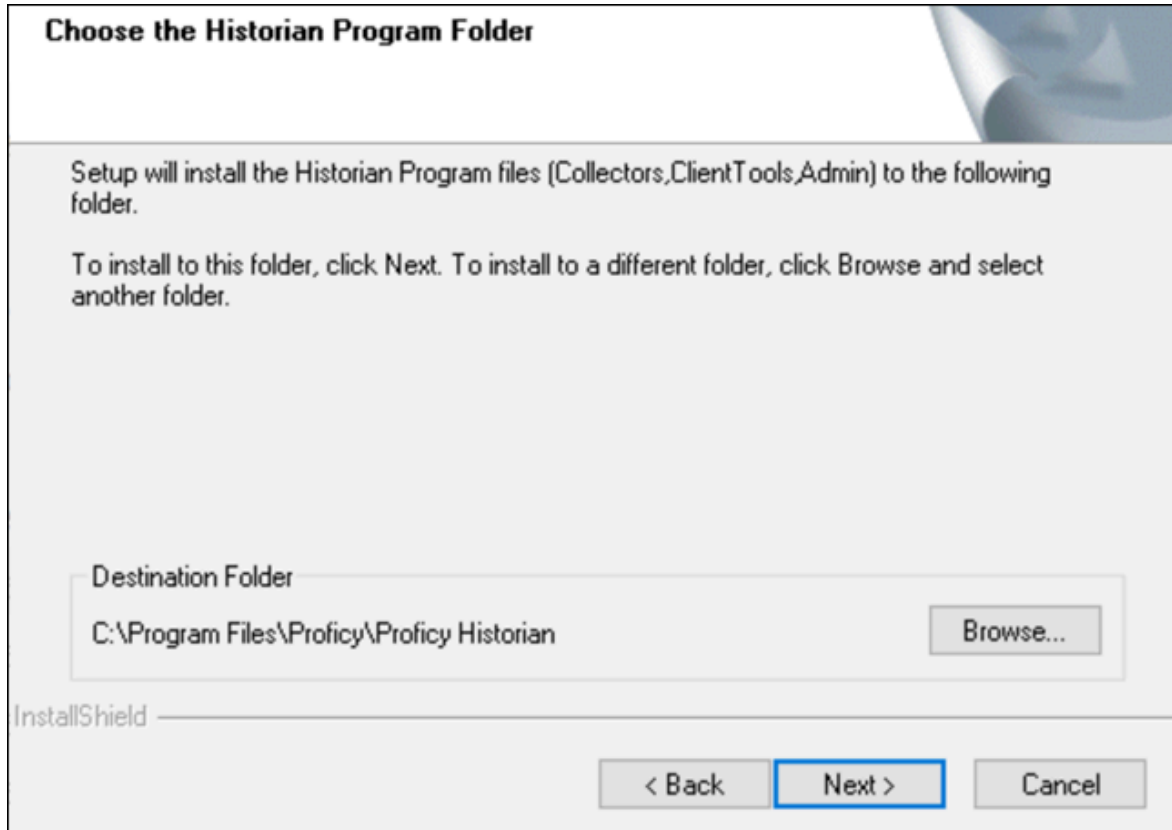
2. Select **Install Client Tools**.

The **Select Features** page appears, displaying a list of components.

3. Select the **Historian Administrator** check box.

4. Select **Next**.

The **Choose the Historian Program Folder** page appears.



5. As needed, change the destination folder of Historian Administrator, or leave the default folder, and then select **Next**.

The **Historian Server Name** page appears.

6. Enter the NLB DNS of Proficy Historian for AWS that you want to use with Historian Administrator, and then select **Next**.



Tip:

To find the NLB DNS:

- a. Access the EKS cluster on which you have deployed Proficy Historian for AWS.
- b. Access the EC2 instance.
- c. In the navigation pane, under **Load Balancing**, select **Load Balancers**.
- d. Select the load balancer for which you want to find the DNS.
- e. In the **Description** section, copy the DNS name.

7. When you are asked to reboot your system, select **Yes**.

Install Historian Administrator at a Command Prompt

Before you begin

Install [Historian Administrator using the installer \(on page 49\)](#) on a machine. When you do so, a template file named `setup.iss` is created at `C:\windows`. This file stores the installation options that you have

provided. You can then use this template to install Historian Administrator at a command prompt on other machines.

Procedure

1. Copy the `setup.iss` file to the machine on which you want to install Historian Administrator at a command prompt.
2. In the folder in which you have copied the file, run the following command: `setup.exe /s /sms`
The installer runs through the installation steps.



Note:

If using certain versions of Windows (like Windows 10 or Windows 2019), you may receive an error message, stating that some of the DLL files are not registered. You can ignore these messages.

3. When prompted to reboot your system, select **Yes**.

Results

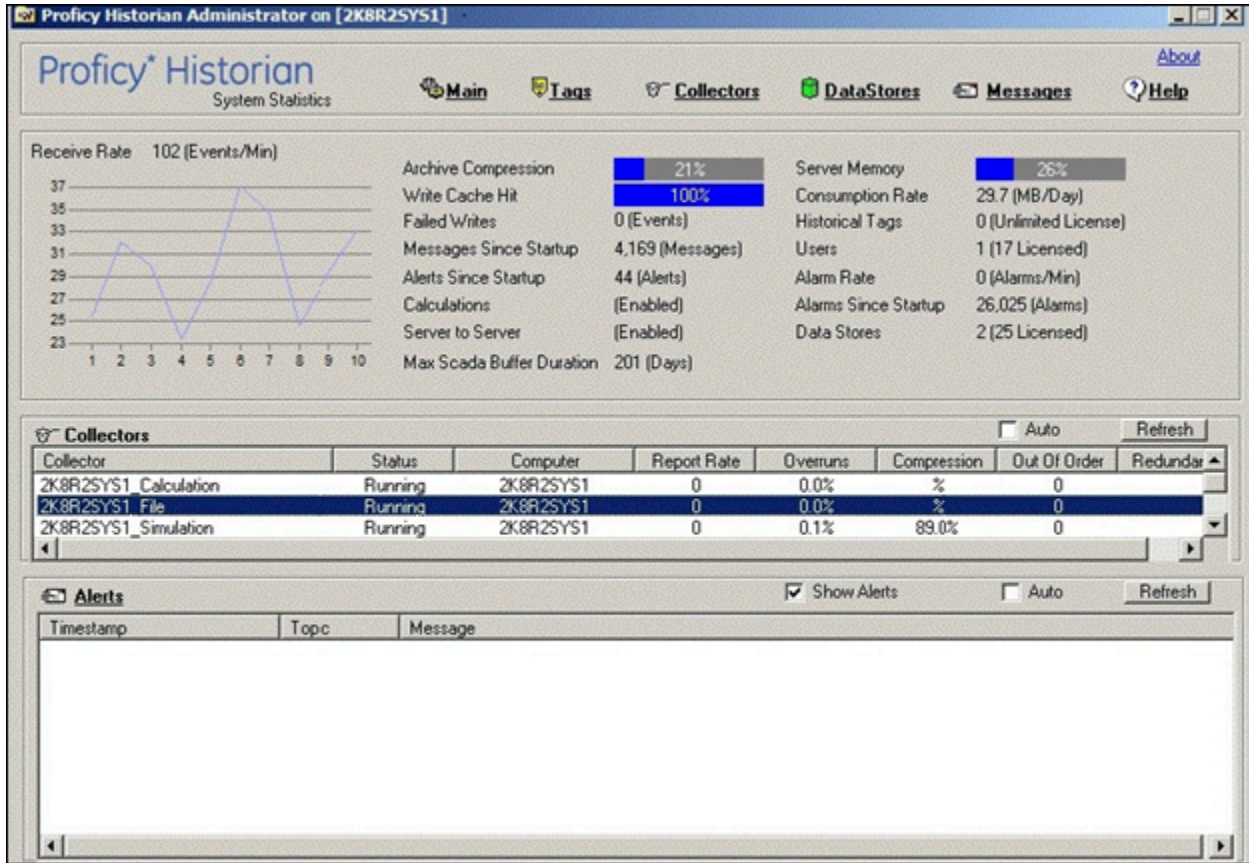
Historian Administrator is installed.

Historian Administrator - Pages

The Main Page

The **Main** page of Historian Administrator displays the system statistics, which contains the current system status and performance statistics. It provides an overall view of the system health. The page has the following sections:

- [The System Statistics section \(on page 239\)](#)
- [The Collectors section \(on page 242\)](#)



The System Statistics Section

The following table describes the fields in the **System Statistics** section.





Note:

The statistics displayed in this section are calculated independently on various time scales and schedules. As a result, they may be updated at different times.

Field	Description
Receive Rate (a time-based chart in events/minute)	Not applicable
Archive Compression (% compression)	Displays the current effect of archive data compression. If the value is zero, it indicates that archive compression is either ineffective or turned off. To increase the effect of data compression, increase the

Field	Description
	<p>value of archive compression deadbands on individual tags in the Tag Maintenance section to activate compression.</p> <p>In calculating the effect of archive compression, Historian counts internal system tags as well as data source tags. Therefore, when working with a very small number of tags and with compression disabled on data source tags, this field may indicate a value other than zero. If you use a realistic number of tags, however, system tags will constitute a very small percentage of total tags and will therefore not cause a significant error in calculating the effect of archive compression on the total system.</p>
Write Cache Hit	<p>Displays the hit ratio of the write cache in percentage of total writes. It is a measure of how efficiently the system is collecting data. Typically, this value should range from 95 to 99.99%. If the data is changing rapidly over a wide range, however, the hit percentage drops significantly because current values differ from recently cached values. More regular sampling may increase the hit percentage. Out-of-order data also reduces the hit ratio.</p>
Failed Writes	<p>Displays the number of samples that failed to be written. Since failed writes are a measure of system malfunctions or an indication of offline archive problems, this value should be zero. If you observe a non-zero value, investigate the cause of the problem and take corrective action.</p> <p>Historian also generates a message if a write fails. Note that the message only appears once per tag, for a succession of failed writes associated with that tag. For example, if the number displayed in this field is 20, but they all pertain to one Historian tag, you will only receive one message until that Historian tag is functional again.</p>
Messages Since Startup	Not applicable
Alerts Since Startup	Not applicable
Calculations	Not applicable
Server-to-Server	Displays the value Enabled if the Server-to-Server collector is licensed on the software key.

Field	Description
Alarms since Startup	Not applicable
Server Memory	Displays how much of the server memory the data archiver consumes.
Free Space (MB)	Displays how much disk space (in MB) is left in the current archive.
Consumption Rate (MB/day)	Displays how fast the archive disk space is consumed. If the value is too high, you can reduce it by slowing the poll rate on selected tags or data points or by increasing the filtering on the data (widening the compression deadband to increase compression).
Est. Days to Full (Days)	Not applicable
Active Tags	Displays number of tags in your configuration.
Licensed Tags	<p>Displays the number of tags authorized for this Historian installation by the software key and license.</p> <div style="border: 1px solid #00a0e3; border-radius: 10px; padding: 10px; background-color: #e6f2ff;"> <p> Note: If this field displays 100 tags and the licensed users field displays 1 client, you are likely running in demonstration mode and may have incorrectly installed your hardware key.</p> </div>
Active Users	Displays the number of users currently accessing the Historian system.
Licensed Users	<p>Displays the number of users authorized to access Historian using the software key and license.</p> <p>The number of users that are authorized to access Historian is strictly based on the software key and license. However, if you have utilized your available Client Access Licenses (CAL) and need an additional one to administer the system in an emergency, you have an option to reserve a CAL. This reserved CAL allows you to access the server. To do so, provide the reserved CAL to the system administrators and add them to the <code>ih Security Admins</code> group. A system administrator can then connect to Historian in an emergency.</p> <p>This facility is optional and does not provide a guaranteed connection. It only eliminates the emergency situations when a CAL is pre-</p>

Field	Description
	<p>venting you from accessing the system and may not work if there are other conditions. For example, if the Historian server is busy, you will not be able to connect using this feature.</p> <div style="border: 1px solid #0070C0; border-radius: 10px; padding: 10px; background-color: #E6F2FF;"> <p> Note: If this field displays 1 client and the Licensed Tags field displays 100 tags, you are likely running in demonstration mode and you may have incorrectly installed your hardware key.</p> </div>
Alarm Rate	Not applicable
SCADA Tags	Displays the number of CIMPLICITY or iFIX tags.
Tags Consumed by Arrays	Not applicable

The **Collectors** Section

The **Collectors** section shows current statistics on the operation of all the connected collectors in the system. In this section, you can:

- Access the **Collector Maintenance** page of a collector by selecting the collector name. You can also access the **Collector Maintenance** page by selecting the collector link at the beginning of the **System Statistics** section.
- Automatically refresh the data every 45 seconds by selecting the **Auto** check box.
- Manually refresh the data by selecting **Refresh**.

The following table describes the fields in the **Collectors** section.

Field	Description
Collector	Displays the collector ID, which is used to identify the collector in Historian.
Status	Displays the current status of collection. This field contains one of the following values:

Field	Description
	<ul style="list-style-type: none"> • Running: Indicates that the collector is running. • Stopped: Indicates that the collector is not collecting data. • Unknown: Indicates that status information about the collector is unavailable, perhaps as a result of a lost connection between the collector and the server.
Computer	Displays the name of the computer on which the collector is running.
Report Rate	<p>Displays the number of samples per minute that the server is receiving data from the collector. It is a measure of the collection rate and data compression. If the collector compression percent is zero, and if the value in this field is equal to the data acquisition rate, it indicates that every data point received from the collector is being reported to the server. This means that the collector is not performing any data compression. You can lower the report rate, and make the system more efficient, by increasing the data compression at the collector. To do this, widen the collection compression deadbands for selected tags.</p>
Overruns	Not applicable
Compression %	<p>Displays the percentage of how effective compression is at present for the specific collector since collector startup. A value of zero indicates that compression is either turned off or not effective. To increase the value, enable compression on the collector's associated tags and increase the width of the compression deadband on selected tags.</p> <p>The collector keeps track of how many samples it collected from the data source (for example, the OPC server) and keeps track of how many samples it reported to the Data Archiver (after collector compression is complete).</p> <p>A low number or zero means almost everything coming from the data source is being sent to the data archiver. The reason for the low number or zero is that too many samples are exceeding compression or you are not using collector compression.</p> <p>A high number or 100 means you are collecting a lot of samples, but they are not exceeding collector compression and therefore are not being sent to server.</p>

Field	Description
Out of Order	Displays the number of samples within a series of timestamped data values normally transmitted in sequence that have been received out of sequence since collector startup. This field applies to all collectors.
Redundancy	Not applicable

The Data Store Page

Using the **Data Store** page, you can read and modify the parameters of archives, data stores, global options, security, and alarms.

The Archive Details Section

In the **Archive Details** section, a list of all the archives in your system appears. To access an archive, select it. In this section, you can:

- Close an archive by selecting **Close Archive**.

This topic describes the fields in each subsection in the **Archive Details** section.





Note:

You cannot back up and restore data using Historian Administrator. This is because the backup and restore functions are performed using [Elastic File System \(EFS\)](#).

The Status Subsection

Field	Description
Status	The current operating state of the archive. This field contains one of the following values: <ul style="list-style-type: none"> • Current: Indicates that the archive is actively accepting data. • Active: Indicates that the archive contains data but is not currently accepting data. • Empty: Indicates that the archive has never accepted data.
Start Time	The time of the oldest sample in the archive.
End Time	The time the archive is closed (automatically or manually).

Table 31. Resources

Field	Description
File Location	The path and name of the archive file.
File Size	<p>The size (in MB) of the archive file.</p> <div style="border: 1px solid #0070C0; border-radius: 10px; padding: 10px; background-color: #E6F2FF;">  Note: Historian supports a maximum archive size of 256 GB per archive. </div>
File Attribute	<p>The attribute to set a closed archive to read-only or read/write.</p> <div style="border: 1px solid #0070C0; border-radius: 10px; padding: 10px; background-color: #E6F2FF;">  Note: To create multiple archives at the same time, set the value of this field to Read/Write. </div>

The **Data Store Details** Section

This topic describes the fields in each subsection in the **Data Store Details** section.

Data Store Settings

Archive Details
Data Store Details
Data Store Options
Global Options
Security
Alarms

Statistics

Archive Compression	0%
Write Cache Hit	0%
Receive Rate	(Events/Min)
Free Space	(MB)
Consumption Rate	(MB/Day)
Messages Since Startup	(Messages)
Failed Writes	(Events)
Est. Days to Full	(Days)
Alerts Since Startup	(Alerts)

User Details

Data Store State	Running
Is System	No
Number Of Tags	1
Is Default	<input checked="" type="radio"/> Yes <input type="radio"/> No
Storage Type	<div style="border: 1px solid black; padding: 2px; display: inline-block;">Historical Store</div>
Description	<div style="border: 1px solid black; padding: 2px; display: inline-block;">The User Data Store.</div>

Add Tags
Update
Delete


The Statistics Subsection

Field	Description
Archive Compression (% compression)	<p>Displays the current effect of archive data compression. If the value is zero, it indicates that archive compression is either ineffective or turned off. To increase the effect of data compression, increase the value of archive compression deadbands on individual tags in the Tag Maintenance section to activate compression.</p> <p>In calculating the effect of archive compression, Historian counts internal system tags as well as data source tags. Therefore, when working with a very small number of tags and with compression disabled on data source tags, this field may indicate a value other than zero. If you use a realistic number of tags, however, system tags will</p>

Field	Description
	constitute a very small percentage of total tags and will therefore not cause a significant error in calculating the effect of archive compression on the total system.
Write Cache Hit	Displays the hit ratio of the write cache in percentage of total writes. It is a measure of how efficiently the system is collecting data. Typically, this value should range from 95 to 99.99%. If the data is changing rapidly over a wide range, however, the hit percentage drops significantly because current values differ from recently cached values. More regular sampling may increase the hit percentage. Out-of-order data also reduces the hit ratio.
Receive Rate	Displays how busy the server is at a given instance and the rate at which the server is receiving data from collectors.
Free Space (MB)	Displays how much disk space (in MB) is left in the current archive.
Consumption Rate (MB/day)	Displays how fast the archive disk space is consumed. If the value is too high, you can reduce it by slowing the poll rate on selected tags or data points or by increasing the filtering on the data (widening the compression deadband to increase compression).
Messages Since Startup	Not applicable
Failed Writes	<p>Displays the number of samples that failed to be written. Since failed writes are a measure of system malfunctions or an indication of offline archive problems, this value should be zero. If you observe a non-zero value, investigate the cause of the problem and take corrective action.</p> <p>Historian also generates a message if a write fails. Note that the message only appears once per tag, for a succession of failed writes associated with that tag. For example, if the number displayed in this field is 20, but they all pertain to one Historian tag, you will only receive one message until that Historian tag is functional again.</p>
Est Days to Full (Days)	Displays how much time is left before the archive is full, based on the current consumption rate. This value is dynamically calculated by the server and becomes more accurate as an archive file gets closer to completion. This value is only an estimate and will vary based on a number of factors, including the current compression ef-

Field	Description
	<p>fectiveness. The System sends messages notifying you at 5, 3, and 1 days until full. After the archive is full, a new archive must be created (could be automatic).</p> <p>To increase this value, you must reduce the consumption rate. To ensure that collection is not interrupted, make sure that the Automatically Create Archives option is enabled in the Data Store Maintenance section (under Global Options). You may also want to enable the Overwrite Old Archives option if you have limited disk capacity. Enabling overwrite, however, means that some old data will be lost when new data overwrites the data in the oldest online archive. Use this feature only when necessary.</p>
Alerts Since Startup	Not applicable

The User Settings Subsection

Field	Description
Data Store State	The current state of the data store. The value in this field is Running until you delete the data store.
Is System	<p>Indicates whether this data store is the system data store.</p> <div style="border: 1px solid #00a0e3; border-radius: 10px; padding: 10px; background-color: #e6f2ff;"> <p> Note: By default, the Is System value of the system data store is set to yes. You cannot set the Is System value of any historical data store to yes.</p> </div>
Number of Tags	Displays the number of tags the data store contains.
Is Default (Yes/No)	Indicates whether the data store is the default store. Select Yes to set this data store as default one.
Storage Type	Indicates whether the storage type is historical or SCADA buffer.
Description	The description of the data store.

The Data Store Options Section

This topic describes the fields in each subsection in the **Data Store Options** section.

Archive Details | Data Store Details | **Data Store Options** | Global Options | Security | Alarms

Archive Creation

Automatically Create Archives Enabled Disabled

Overwrite Old Archives Enabled Disabled

Default Size (MB) ▾

Maintenance

Default Archive Path

Default Backup Path

Base Archive Name

Free Space Required (MB)

Store OPC Quality Enabled Disabled

Use Caching Enabled Disabled


Security


Data is Read-only After (Hours)

Generate Message on Data Update Enabled Disabled


The Archive Creation or the SCADA Buffer Subsection



The **Archive Creation** subsection appears only if the data store type is historical. The **SCADA Buffer** subsection appears only if the data store type is SCADA buffer.

Field	Description
Automatically Create Archives	Identifies whether the server must automatically create an archive file whenever the current archive file is full. The archive files are created in the default path directory. <div style="border: 1px solid #00a0e3; border-radius: 10px; padding: 10px; margin-top: 10px;">  Note: If you plan to create multiple archives at the same time, select the Disabled option. </div>


Field	Description
Overwrite Old Archives	<p>When enabled, the system replaces the oldest archived data with new data when the default size has been reached. Since this action deletes historical data, exercise caution in using this feature. We recommend that you back up the archive using EFS so that you can restore it later.</p> <div style="border: 1px solid #0070C0; border-radius: 10px; padding: 10px; margin-top: 10px;"> <p> Note: To create multiple archives at the same time, select the Disabled option. If both the Automatically Create Archives and Overwrite Old Archives are enabled, set the ihArchiveFreeSpaceHardLimit parameter to TRUE using the Historian APIs.</p> </div>
Default Size (MB)	<p>The default size of a newly created archive or the duration of a newly created archive in days or hours. Select one of the following options:</p> <ul style="list-style-type: none"> • BySize: A new archive file is created after the current archive reaches the default size. The recommended default archive size is at least 500 MB for systems with 1000 tags or more. • Days: A new archive file is created after the number of days that you specify in the Archive Duration field that will appear. • Hours: A new archive file is created after the number of hours that you specify in the Archive Duration field that will appear.
SCADA Buffer Duration (Days)	<p>Indicates the maximum number of days you want to store the trend data. The maximum number of days is 200.</p>
Archive Duration (Days/Hours)	<p>Indicates the days or hours for which the duration of the archive is set.</p>



The Maintenance Subsection

Field	Description
Default Archive Path	<p>The folder path to store newly created archives.</p> <div style="border: 1px solid #0070C0; border-radius: 10px; padding: 10px; margin-top: 10px;"> <p> Note: We recommend not to use a period in the default archive path field. If you do so, you will not be able to specify a default archive name.</p> </div>

Field	Description
Default Backup Path	Not applicable
Base Archive Name	A prefix that you want to add to all the archive files.
Free Space Required (MB)	Indicates the remaining disk space required after a new archive is created. If the available space is less than the requirement, a new archive is not created. The default value is 5000 MB.
Store OPC Quality	Indicates whether to store the OPC data quality. <div style="border: 1px solid #0070C0; border-radius: 10px; padding: 10px; background-color: #E6F2FF;">  Note: To create multiple archives at the same time, select the Disabled option. </div>
Use Caching	Indicates whether caching must be enabled. When reading data from the archiver, some data is saved in the system memory and retrieved using caching. This results in faster retrieval as the data is already stored in the buffer. <div style="border: 1px solid #0070C0; border-radius: 10px; padding: 10px; background-color: #E6F2FF;">  Note: This option is not available for SCADA Buffer data stores. </div>

The Security Subsection

Field	Description
Data is Read-only After (Hours)	The number of hours for data to be stored in a read/write archive. After the time lapses, that portion of the archive file is automatically made read-only. Incoming data values with timestamps prior to this time are rejected. A single archive file, therefore, may have a portion made read-only, another portion that is read/write containing recently written data, and another that is unused free space. <div style="border: 1px solid #0070C0; border-radius: 10px; padding: 10px; background-color: #E6F2FF;">  Note: If an archive file is read-only, you cannot move the file in Windows File Explorer. To be able to move a read-only archive file, you must </div>

Field	Description
	 first remove the archive by selecting the file and selecting Remove in the Archive Maintenance page.
Generate Message on Data Update	Indicates whether an audit log entry will be made any time the value of a previously archived data point is overwritten. This log entry will contain both the original and new values. <div style="border: 1px solid #0070C0; border-radius: 10px; padding: 10px;">  Note: To create multiple archives at the same time, select the Disabled option. This option is not available for SCADA Buffer data store. </div>

The Global Options Section

This topic describes the fields in each subsection in the **Global Options** section.

Archive Details
Data Store Details
Data Store Options
Global Options
Security
Alarms

Data Queries

Maximum Query Time (seconds)

Maximum Query Intervals

Memory/Recovery

Buffer Memory Max (MB)

Archiver Memory Size (MB)

Maintain Auto Recovery Files Enabled Disabled


Data Store


Default Data Store For Tag Add

The Data Queries Subsection

Field	Description
Maximum Query Time (seconds)	Specifies the maximum time that a data point or query can take before it is terminated. Use this setting to limit query time and provide balanced read access to the archiver. This is applicable to all query types.
Maximum Query Intervals	Specifies the maximum number of samples per tag that Historian can return from a non-raw data query. Use this setting to throttle query results for non-raw data queries. This setting is not applicable to filtered data queries or raw data queries. If the number of returned samples exceeds the value in this field, the query fails and no data is returned.

The Memory/Recovery Subsection

Field	Description
Buffer Memory Max (MB)	<p>The maximum memory buffer size that an archiver queue will use before starting to use disk buffering. The default value is 100 MB.</p> <div style="border: 1px solid #0070C0; border-radius: 10px; padding: 10px; background-color: #E6F2FF;"> <p> Note:</p> <ul style="list-style-type: none"> You can monitor your collector data write queue using the <code>Perftag_CollectorDataWriteQueueSize</code> tag. If you find that the queue is exceeding 10,000 items, such as during a store and forward flush, change the value of this field to 500 or more to maintain Historian performance. If you are upgrading from a previous version of Historian, the value in this field remains the same. You can change the value as needed. </div>
Archiver Memory Size (MB)	The target memory usage of the archive. The default value is 0, which indicates the system will manage the memory usage. If the archiver is running on a 32-bit operating system and you want to keep more data in memory, you can enter a value up to 1800 MB. If

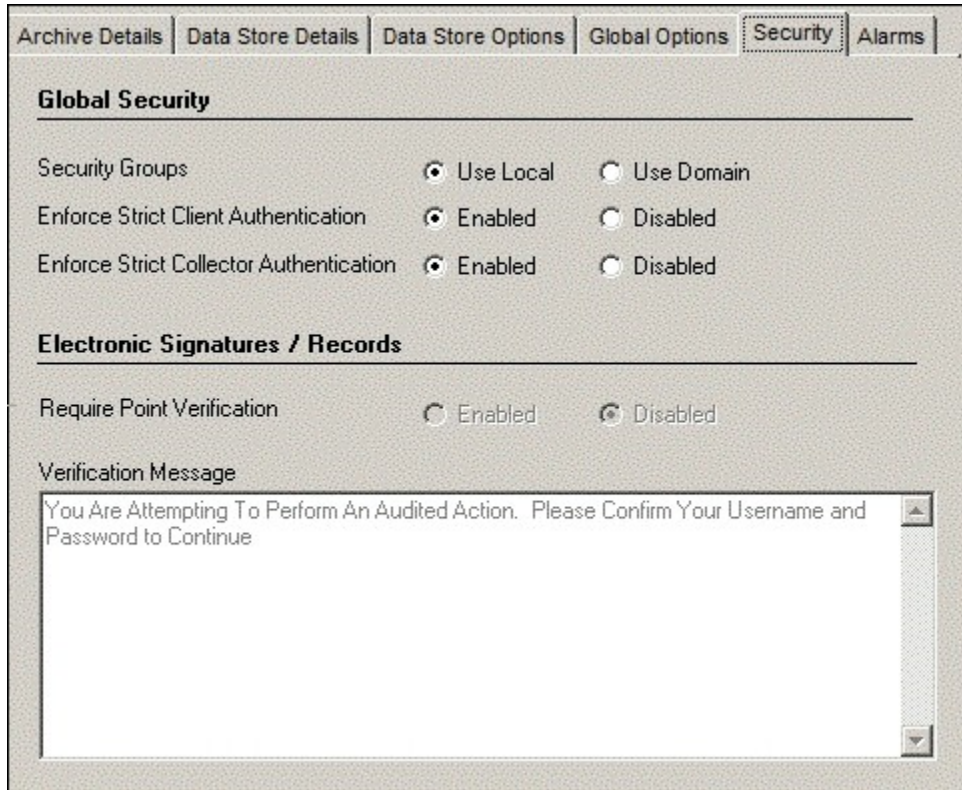
Field	Description
	the archiver is running on a 64-bit operating system, we recommend that you use the default value.
Maintain Auto Recovery Files	<p>Indicates whether high availability of the latest archive (.iha) and Historian configuration (.ihc) files must be enabled. When enabled, a copy of the latest .iha and .ihc file is made once every hour.</p> <div style="border: 1px solid #0070C0; border-radius: 10px; padding: 10px; background-color: #E6F2FF;"> <p> Note: These files are managed internally by Historian, and should not be used as backup files. To create multiple archives at the same time, select the Disabled option. By default, this field is set to Disabled on a 64-bit operating system. On a large-scale system, we recommend that you disable this option for better performance.</p> </div>

The Data Store Subsection


Field	Description
Default Data Store For Tag Add	The name of the default data store to which you want to add tags.

The Security Section

This topic describes the fields in each subsection in the **Security** section




The Global Security Subsection


Field	Description
Security Groups	<p>Indicates whether to use the local security groups or the domain security groups.</p> <div style="border: 1px solid #0070C0; border-radius: 10px; padding: 10px; background-color: #E6F2FF;"> <p> Note: To ensure a secure environment when using Historian, do not create any local user accounts unless Historian is set up on a standalone computer and the guest account is disabled.</p> </div>
Enforce Strict Client Authentication	<p>Indicates whether to use strict client authentication. If you enable this option, only clients using the security-token-based authentication protocol can connect. Clients using Historian versions prior to 6.0 and other Proficiency software they connect to may not be able to connect unless they have the latest updates for that version. If you disable this option, clients of any version can connect if they use a valid user name and password.</p>

Field	Description
Enforce Strict Collector Authentication	Indicates whether to use strict collector authentication. If you enable this option, only collectors using the security-token-based authentication protocol can connect. Collectors using Historian versions prior to 6.0 and the other Proficy software they connect to may not be able to connect unless they have the latest updates for that version. If you disable this option, collectors of any version can connect.

The Electronic Signatures / Records Subsection

The electronic signatures/records option assists users with government regulations such as the United States Food and Drug Administration's (FDA) 21 CFR Part 11 regulation or any site interested in added security by providing the ability to require a signature and password every time a change in data or configuration is requested. If you did not purchase the Electronic Signatures and Electronic Records option, the Electronic Signatures/Records field is disabled.

Field	Description
Require Point Verification	<p>Indicates whether you must enter identifying information whenever you attempt a restricted action. Whenever you attempt to change the system configuration (for the tag, archive, or collector), a tag value, or another record, you must electronically sign the action with a username and password. If the user is authorized to make this change, the identity of the person, the action performed, and the time it was performed, are all recorded in the audit trail.</p> <div style="border: 1px solid #0070C0; border-radius: 10px; padding: 10px; background-color: #E6F2FF;"> <p> Note:</p> <ul style="list-style-type: none"> The audit features are not dependent on this feature being enabled. Historian audits all user actions regardless of whether this option is enabled. If you plan to create multiple archives at the same time, select the Disabled option. </div> <p>Enabling electronic signatures and electronic records also requires you to reverify your identity when you use the Historian Excel add-in, modify or create a tag, or import data.</p>

Field	Description
	 Note: This feature is available only if you have purchased the Electronic Signatures and Electronic Records option.
Verification Message	When point verification is enabled, you are prompted to enter the username and password whenever you attempt to perform an action specified as requiring point verification.

Managing Data Stores

About Data Stores

A data store is a logical collection of tags. It is used to store, organize, and manage tags according to the data source and storage requirements. A data store can have multiple archive files (*.IHA), and includes both logical and physical storage definitions.

Tags can be segregated into separate archives through the use of data stores. The primary use of data stores is to segregate tags by data collection intervals. For example, you can put a name plate or static tags where the value rarely changes into one data store, and your process tags into another data store. This can improve query performance.

Historian data stores are stored as archive files that contain data gathered from all data sources during a specific period of time. You can write and read data from the archive files.

You can define two types of data stores:

- **Historical Data Store:** Tags stored under historical data store will store data as long as the disk space is available. Depending on your license, you may be able to create multiple historical data stores. The maximum number of historical data stores supported depends on the license.
- **SCADA Buffer Data Store:** Tags stored under the SCADA buffer data store will store data for a specific duration of time based on license.

When you install the Historian server, two historical data stores are installed by default.

- **System:** Stores performance tags. This is only for internal usage within Historian, and you cannot add tags to this data store. You must not rename or delete the system data store.
- **User:** Stores tag data. This is a default data store. You can rename and delete a user data store as long as there is another default data store set for tag addition.

Based on your license, a SCADA Buffer data store may also be installed. It stores short-term tags and data.

Create a Data Store

About this task

Depending on your license, you can create or add multiple data stores.

Procedure

1. Access [Historian Administrator](#) (on page 234).
2. Select **DataStores**.

The screenshot displays the Proficy Historian System Statistics interface. The 'DataStores' tab is selected and highlighted with a red box. The interface includes a navigation bar with 'Main', 'Tags', 'Collectors', 'DataStores', 'Messages', and 'Help'. Below the navigation bar, there are several performance metrics and a table of collectors.

System Statistics Metrics:

- Receive Rate: ? (Events/Min)
- Archive Compression: 0%
- Write Cache Hit: 0%
- Failed Writes: ? (Events)
- Messages Since Startup: ? (Messages)
- Alerts Since Startup: ? (Alerts)
- Calculations: (Enabled)
- Server to Server: (Enabled)
- Max Scada Buffer Duration: 201 (Days)
- Server Memory: 28%
- Consumption Rate: ? (MB/Day)
- Historical Tags: 8 (8 Used of 1,000,000 Licensed)
- SCADA Tags: 0 (0 Used of 2,400 Licensed)
- Users: 1 (15 Licensed)
- Alarm Rate: ? (Alarms/Min)
- Alarms Since Startup: ? (Alarms)
- Data Stores: 4 (20 Licensed)

Collectors Table:

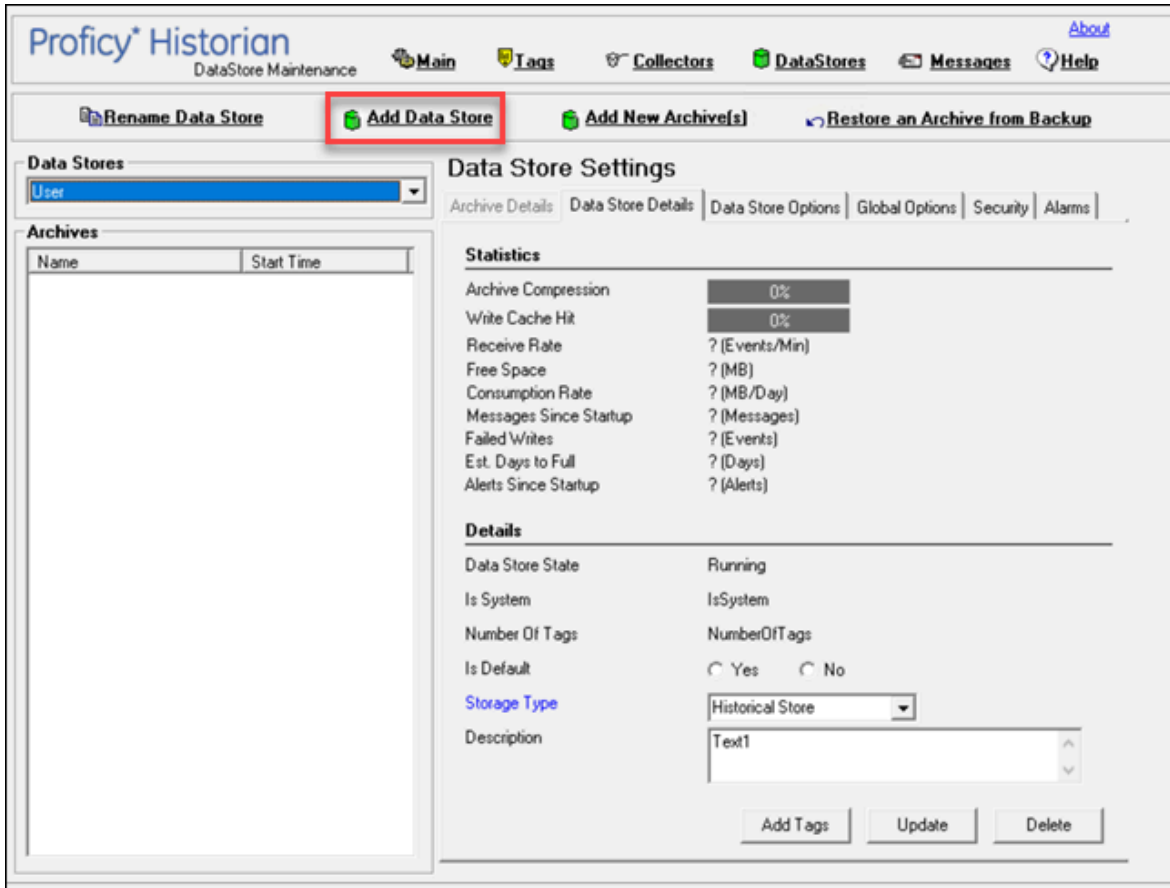
Collector	Status	Computer	Report Rate	Overruns	Compression	Out Of Order	Redundancy
SAN-JAVA-DEV Simulation	Unknown	SAN-JAVA-DEV	0	0	%	0	

Alerts Section:

Alerts: Show Alerts Auto

Timestamp	Topic	Message
-----------	-------	---------

3. Select **Add Data Store**.



The **Add New Data Store** window appears.

4. Enter values as described in the following table.

Field	Description
Data Store Name	Enter a unique name for the data store. The following characters are not allowed: <code>\ \ * ? < > </code>
Default Data Store	Select this check box to set this data store as the default one for adding tags. A default data store is the one that is considered if you do not specify a data store while adding a tag. You can set only one data store as default.
Description	Enter a description for the data store.

5. Select **OK**.

The data store is created.

When you add tags to the data store, it will have its own set of .IHA (iHistorian Archive) files.

Ensure that you [back up](#) the new data store archives periodically using EFS.

Rename a Data Store

Procedure

1. Access Historian Administrator ([on page 234](#)).
2. Select **DataStores**.

The screenshot shows the Proficy Historian System Statistics interface. The 'DataStores' tab is selected and highlighted with a red box. The interface displays various system metrics and a table of collectors.

System Statistics:

- Receive Rate: ? (Events/Min)
- Archive Compression: 0%
- Write Cache Hit: 0%
- Failed Writes: ? (Events)
- Messages Since Startup: ? (Messages)
- Alerts Since Startup: ? (Alerts)
- Calculations: (Enabled)
- Server to Server: (Enabled)
- Max Scada Buffer Duration: 201 (Days)
- Server Memory: 28%
- Consumption Rate: ? (MB/Day)
- Historical Tags: 8 (8 Used of 1,000,000 Licensed)
- SCADA Tags: 0 (0 Used of 2,400 Licensed)
- Users: 1 (15 Licensed)
- Alarm Rate: ? (Alarms/Min)
- Alarms Since Startup: ? (Alarms)
- Data Stores: 4 (20 Licensed)

Collectors Table:

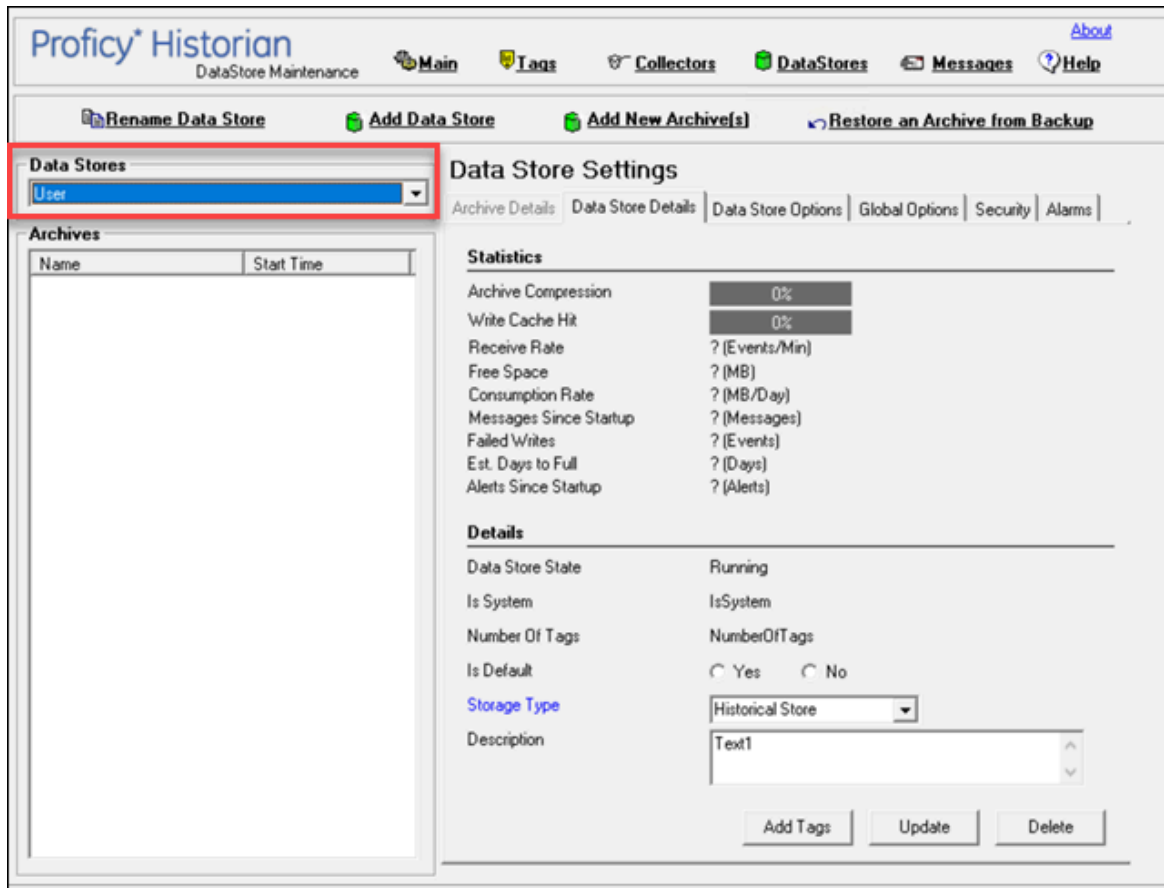
Collector	Status	Computer	Report Rate	Overruns	Compression	Out Of Order	Redundancy
SAN-JAVA-DEV_Simulation	Unknown	SAN-JAVA-DEV	0	0	%	0	

Alerts Section:

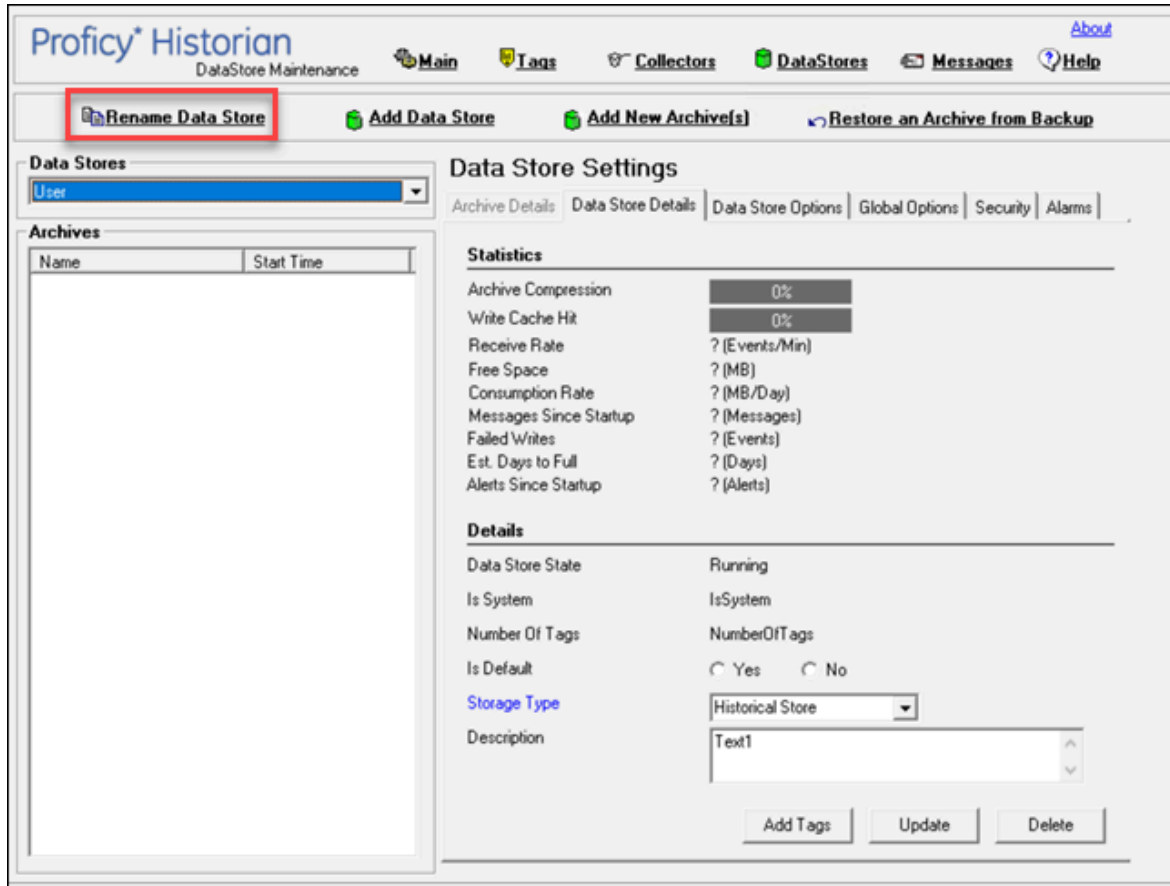
Alerts: Show Alerts Auto Refresh

Timestamp	Topic	Message
-----------	-------	---------

3. In the **Data Stores** field, select the data store that you want to rename.



4. Select **Rename Data Store**.



The **Rename New Data Store** window appears.

5. In the **New Data Store Name** field, enter the new name. The following special characters cannot be used in data store names: `/ \ * ? < > |`

6. Select **Rename**.

The data store is renamed.

Move a Tag to Another Data Store

About this task

You can move tags from one data store to another. However, moving a tag does not automatically move the data associated with it. If you want to retrieve the data stored before the tag was moved, you have to move the data manually using the migration utility tool.

Procedure

1. [Access Historian Administrator \(on page 234\)](#).
2. Select **Tags**.

Proficy Historian
System Statistics

[Main](#)
Tags
[Collectors](#)
[DataStores](#)
[Messages](#)
[Help](#)

Receive Rate ? (Events/Min)

1 _____

0 1 2 3 4 5 6 7 8 9 10

Archive Compression	0%	Server Memory	28%
Write Cache Hit	0%	Consumption Rate	? (MB/Day)
Failed Writes	? (Events)	Historical Tags	8 (8 Used of 1,000,000 Licensed)
Messages Since Startup	? (Messages)	SCADA Tags	0 (0 Used of 2,400 Licensed)
Alerts Since Startup	? (Alerts)	Users	1 (15 Licensed)
Calculations	(Enabled)	Alarm Rate	? (Alarms/Min)
Server to Server	(Enabled)	Alarms Since Startup	? (Alarms)
Max Scada Buffer Duration	201 (Days)	Data Stores	4 (20 Licensed)

Collectors Auto

Collector	Status	Computer	Report Rate	Overruns	Compression	Out Of Order	Redundancy
SAN-JAVA-DEV Simulation	Unknown	SAN-JAVA-DEV	0	0	%	0	

Alerts Show Alerts Auto

Timestamp	Topic	Message
-----------	-------	---------

3. Select the tag that you want to move to a different data store.

The screenshot displays the Proficy Historian Tag Maintenance interface. The top navigation bar includes links for Main, Tags, Collectors, DataStores, Messages, and Help. Below this, there are several action buttons: Search Historian Tag Database, Copy/Rename Tag, Add Tag Manually, Add Tags From Collector, Define Enumerated Set, and Define User-Defined Types. The main content area is divided into two sections. On the left, a table titled 'Tags (1)' lists the tag 'Tag322'. This table is highlighted with a red border. On the right, the configuration page for 'Tag: Tag322' is shown, with tabs for General, Collection, Scaling, Compression, Calculation, and Advanced. The 'Advanced' tab is selected. The configuration options are grouped into sections: Data Collection Options (Time Assigned By: Collector, Time Zone Bias (min): 0, Time Adjustment: Do Not Adjust For Source Time Difference, Data Store: User), Security (Read Group, Write Group, Administer Group), and Audit (Last Modified: Never, Modified By). At the bottom right, there are 'Update' and 'Delete' buttons. A footer note at the bottom left of the table area reads: 'Right Mouse For Additional Options * User-Defined and Array tags'.

4. Select **Advanced**.

The screenshot shows the Proficy Historian Tag Maintenance interface. The 'Advanced' tab is selected and highlighted with a red box. The 'Data Store' dropdown menu is set to 'User'. The interface includes a navigation menu at the top with options like Main, Tags, Collectors, DataStores, Messages, and Help. Below the navigation menu are several action buttons: Search Historian Tag Database, Copy/Rename Tag, Add Tag Manually, Add Tags From Collector, Define Enumerated Set, and Define User-Defined Types. The main area is divided into a 'Tags (1)' list on the left and a 'Tag: Tag322' configuration panel on the right. The configuration panel has tabs for General, Collection, Scaling, Compression, Calculation, and Advanced. The 'Data Collection Options' section includes fields for Time Assigned By (Collector), Time Zone Bias (min) (0), Time Adjustment (Do Not Adjust For Source Time Difference), and Data Store (User). The 'Security' section includes Read Group, Write Group, and Administer Group dropdowns. The 'Audit' section includes Last Modified (Never) and Modified By fields. At the bottom right of the configuration panel are 'Update' and 'Delete' buttons.

5. In the **Data Store** field, select the data store to which you want to move the tag.
A message appears, asking you to confirm that the you want to move the tag.
6. Select **Yes**, and then select **Update**.
The tag has been moved. The new data for the tag will be stored in the new data store. However, if you want to store the old data as well in the new data store, you must manually migrate the tag data.

Delete a Data Store

About this task

You can delete a data store when it is no longer needed.



Note:

- You can only delete user data stores. You must not delete the system data store.
- If you have only one user data store, you cannot delete it.

Before you begin

If there are any tags assigned to the data store, reassign them and manually move the data to another data store.

Procedure

1. [Access Historian Administrator \(on page 234\)](#).
2. Select **DataStores**.

The screenshot shows the Proficy Historian System Statistics interface. At the top, there are navigation tabs: Main, Tags, Collectors, **DataStores** (highlighted with a red box), Messages, and Help. Below the tabs, there are several performance metrics:

- Receive Rate: ? (Events/Min) with a graph showing a value of 1.
- Archive Compression: 0%
- Write Cache Hit: 0%
- Failed Writes: ? (Events)
- Messages Since Startup: ? (Messages)
- Alerts Since Startup: ? (Alerts)
- Calculations: (Enabled)
- Server to Server: (Enabled)
- Max Scada Buffer Duration: 201 (Days)
- Server Memory: 28%
- Consumption Rate: ? (MB/Day)
- Historical Tags: 8 (8 Used of 1,000,000 Licensed)
- SCADA Tags: 0 (0 Used of 2,400 Licensed)
- Users: 1 (15 Licensed)
- Alarm Rate: ? (Alarms/Min)
- Alarms Since Startup: ? (Alarms)
- Data Stores: 4 (20 Licensed)

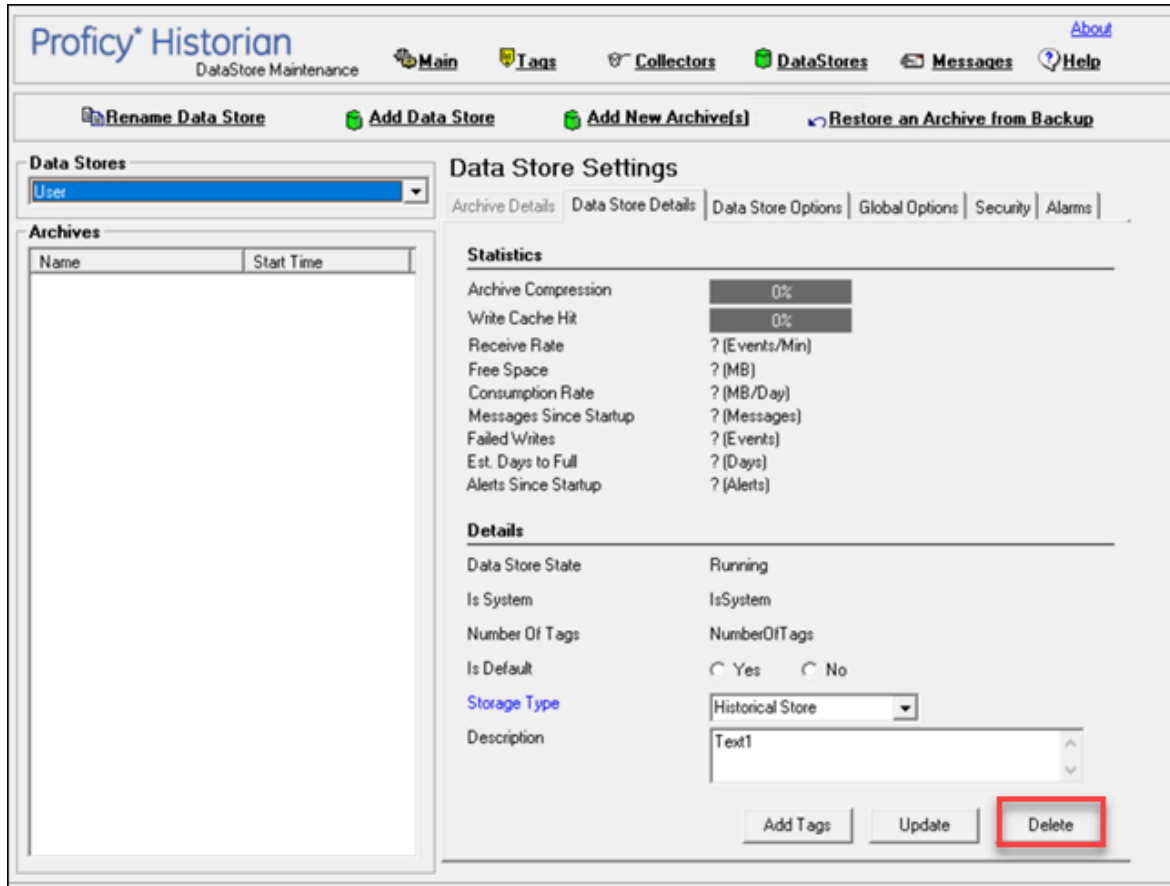
Below the metrics, there are two sections:

- Collectors**: A table with columns: Collector, Status, Computer, Report Rate, Overruns, Compression, Out Of Order, Redundancy. One entry is visible: SAN JAVA-DEV Simulation, Unknown, SAN JAVA-DEV, 0, 0, %, 0.
- Alerts**: A section with a "Show Alerts" checkbox checked and "Auto" and "Refresh" buttons. It has columns for Timestamp, Topic, and Message.

3. In the **Data Stores** field, select the data store that you want to delete.

The screenshot shows the Proficy Historian Data Store Maintenance interface. At the top, there are navigation tabs for Main, Tags, Collectors, DataStores, Messages, and Help. Below these are action buttons: Rename Data Store, Add Data Store, Add New Archive(s), and Restore an Archive from Backup. The main content area is titled 'Data Store Settings' and includes a 'Data Stores' dropdown menu (highlighted with a red box) showing 'User' selected. To the left of the settings is an 'Archives' table with columns for Name and Start Time. The settings are organized into sections: Statistics (Archive Compression, Write Cache Hit, Receive Rate, Free Space, Consumption Rate, Messages Since Startup, Failed Writes, Est. Days to Full, Alerts Since Startup) and Details (Data Store State, Is System, Number Of Tags, Is Default, Storage Type, Description). At the bottom right, there are buttons for Add Tags, Update, and Delete.

4. Select **Delete**.



A message appears, asking you to confirm that you want to delete the data store.

5. Select **Yes**.

The data store is deleted.

Managing Archives

About Archives

Historian archives are data files, each of which contains data gathered from all data sources during a specific period of time.

Types of Archive Files:

- **machine name_Config.ihc**: Contains information about the archiver, tag configuration, and collector configuration.
- **machine name_ArchiveXXX.iha**: Contains tag data, where x is a number indicating the place of the file in a time-based sequence.

Creation of Archive Files Automatically

Archive files grow to a user-configured maximum size as data is recorded by the server. When data starts loading into an archive file, Historian will automatically create a new blank archive file. When the current archive file becomes full, Historian will immediately serve data to the newly created archive file. This significantly reduces archive creation and transition time.

If, however, the option to automatically create archive files is not enabled, you must [create an archive file manually \(on page 271\)](#).



Important:

- If the option to automatically create an archive is not enabled and you do not create a new archive manually, or if the available disk space is less than the required amount of free disk space, a new archive file will not be created.
- Ensure that the number of archive files does not exceed 1024. Otherwise, the archiver will crash. This is because 1024 is the default number of file descriptors a process can open on Linux. We recommend that you create archive files daily or by size so that you can monitor the number of archive files created.

Overriding Old Archive Files

If you enable the **Overwrite Old Archives** option, the system replaces the oldest archived data with new data when the latest archive default size has been reached. Since this action deletes historical data, exercise caution in using this feature. Be sure that you have a [backup of the archive](#) so that you can restore it later. Best practice is to create an additional archive to prevent premature loss of data due to overwriting. For example, if you want to save 12 months of data into 12 archives, create 13 archives.

During archiver startup and every 60 seconds while the server is running, Historian verifies that you have configured enough free disk space to save the archives, buffer files, and log files. If there is insufficient disk space, the Data Archiver shuts down and a message is logged into the log file. By default, you can view the Historian archiver log file in `C:\Historian Data\LogFiles`.

```
[03/03/10 15:28:41.398] Insufficient space available in [d:\Historian\Archives\]
[03/03/10 15:28:41.399] The server requires a minimum of [5000 MB] to continue
[03/03/10 15:28:41.679] USER: DataArchiver TOPIC: ServiceControl MSG: DataArchiver(DataArchiver)
Archiver shutdown at 03/03/10 15:28:41.653
[03/03/10 15:28:41.807] DataArchiver Service Stopped.
[03/03/10 15:28:41.809] [d:\Historian\LogFiles\DataArchiver-34.log] Closed.
```

Guidelines for Setting Archive Size

Since archived data files can become quite large, you must adjust system parameters carefully to limit data collection to meaningful data only and thus minimize the required size of system storage. You can allocate up to 256 GB per archive.

For each archive, you need approximately 1MB of archive space for every 1000 tags to store tag information. Archive size is a function of the rate at which you archive data and the time period you want the archive to cover. A typical user wants the archive to cover a time period of, say, 30 days.

The following factors affect the rate at which you archive data:

- Number of tags
- Polling frequency of each tag
- Compression settings
- Data types

Based on these parameters, the archive size is calculated as follows:

$$\#Tags \times \frac{Values}{Tag} \times \frac{Tags}{Second} \times \%PassComp \times \frac{Bytes}{Value} \times \frac{Seconds}{Hour} \times \frac{Hours}{Day} \times \frac{MB}{Bytes} = \frac{MB}{Day}$$

Calculating Archive Size

Suppose you want to store data, and you have the following parameters:

- Number of tags: 5000
- Polling rate: 1 value/5 seconds
- Pass compression: 5%.

Pass compression is the number of data values archived relative to the number of values read.

- Bytes/value: 4
- Duration: 30 days

Based on the preceding formula, for the given parameters, the archive size is calculated as follows:

$$5000 \times \frac{1}{1} \times \frac{1}{5} \times \frac{5}{100} \times \frac{4}{1} \times \frac{3600}{1} \times \frac{24}{1} \times \frac{1}{1024 \times 1024} \times 30 = 494 \frac{MB}{Month}$$

The calculation shows that a file size of 500 MB is adequate for archiving one month of data for this application.

Therefore, we recommend that you set the default archive size to 500 MB for systems with 1000 tags or more. If you believe the computed size is too large for your application, you can modify parameters as follows:

- Decrease the polling frequency.
- Increase compression deadband, reducing the pass percentage.
- Reduce the number of tags.
- Add more disk capacity to your computer.

Archive Size Calculator

An archive size calculator tool is available to estimate archive size and collector compression based on a tag that has already been configured or based on your inputs. Log on to <http://digitalsupport.ge.com> to download this tool and other GE Intelligent Platforms freeware product solutions.

Create an Archive Automatically

About this task

When the current archive reaches a specified size or duration, you can configure Historian to create a new archive automatically. You can also [create an archive manually \(on page 275\)](#). When the current archive is full, the new one is used.

You can allocate maximum 256 GB for an archive.

Procedure

1. [Access Historian Administrator \(on page 234\)](#).
2. Select **DataStores**.

The screenshot shows the Proficy Historian System Statistics page. The 'DataStores' menu item is highlighted with a red box. The page displays various system metrics and configuration options.

System Statistics:

- Receive Rate: ? (Events/Min)
- Archive Compression: 0%
- Write Cache Hit: 0%
- Failed Writes: ? (Events)
- Messages Since Startup: ? (Messages)
- Alerts Since Startup: ? (Alerts)
- Calculations: (Enabled)
- Server to Server: (Enabled)
- Max Scada Buffer Duration: 201 (Days)
- Server Memory: 28%
- Consumption Rate: ? (MB/Day)
- Historical Tags: 8 (8 Used of 1,000,000 Licensed)
- SCADA Tags: 0 (0 Used of 2,400 Licensed)
- Users: 1 (15 Licensed)
- Alarm Rate: ? (Alarms/Min)
- Alarms Since Startup: ? (Alarms)
- Data Stores: 4 (20 Licensed)

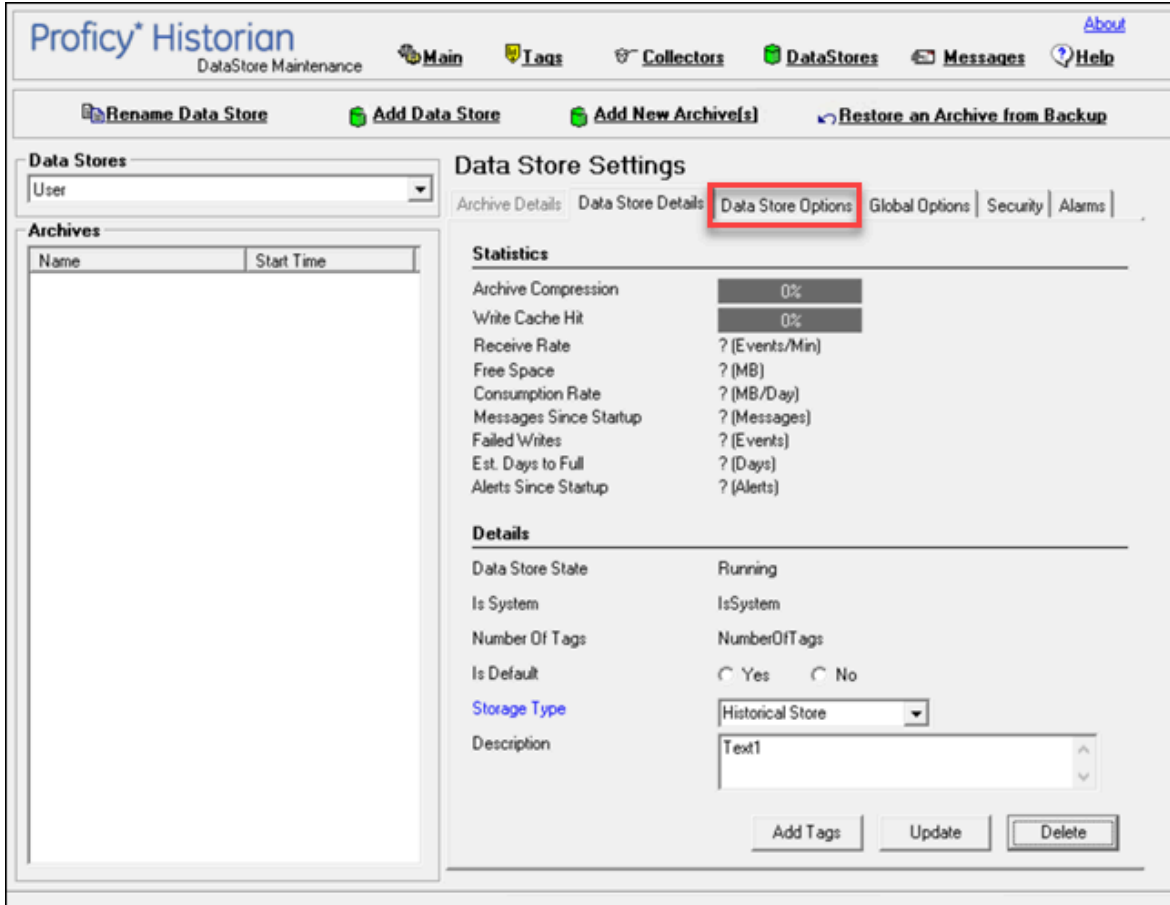
Collectors Table:

Collector	Status	Computer	Report Rate	Overruns	Compression	Out Of Order	Redundancy
SAN-JAVA-DEV Simulation	Unknown	SAN-JAVA-DEV	0	0	%	0	

Alerts Table:


Timestamp	Topic	Message
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3. Select **Data Store Options**.



4. Enter values as described in the following table.

Field	Description
Automatically Create Archives	Select Enabled . <div style="border: 1px solid yellow; padding: 10px; margin-top: 10px;"> <p>! Important:</p> <ul style="list-style-type: none"> • If the option to automatically create an archive is not enabled and you do not create a new archive manually, or if the available disk space is less than the required amount of free disk space, a new archive file will not be created. • Ensure that the number of archive files does not exceed 1024. Otherwise, the archiver will crash. This is because 1024 is the default number of file descriptors a process can open on Linux. We </div>

Field	Description
	 recommend that you create archive files daily or by size so that you can monitor the number of archive files created.
Overwrite Old Archives	Specify whether you want to overwrite old archives with new ones. Exercise caution in enabling this option. We recommend that you back up archives if you want to enable this option.
Default Size	<p>Enter the size of the current archive after which you want to create a new archive. This field is available only if you have selected By Size in the adjacent drop-down list box.</p> <p>If, however, you want to create archives after a duration, select Days or Hours, and then enter the value in the Archive Duration field.</p>
Archive Duration	<p>Enter the duration after which you want to create a new archive. This field is available only if you select Days or Hours in the adjacent drop-down list box.</p> <p>If, however, you want to create an archive when the current one reaches a particular size, select By Size, and then enter the value in the Default Size field.</p>
Default Archive Path	Enter the path to the folder in which you want to store the archive files.
Default Backup Path	Not applicable. Use EFS to back up and restore archives.
Base Archive Name	Not applicable. Use EFS to back up and restore archives.
Free Space Required	Enter the free space that is required to create the archives.
Store OPC Quality	Specify whether you want to store OPC quality in the archive.
Use Caching	Specify whether you want to use caching in the archive.
Data is Read-Only After (Hours)	Specify the duration, in hours, after which you want to archive to be read-only.
Generate Message on Data Update	Specify whether you want to generate a message when data is updated in the archive.

5. Select **Update**.

Archives will be created automatically when the current one reaches the size (or after the duration) that you have specified.

Create Archives Manually

Before you begin

If you want to create multiple archives at the same time, access Historian Administrator, and set values for the following fields:

Field	Value
The Details Section	
File Attribute	Read/Write
The Global Options Section	
Maximum Query Time (seconds)	60
Maximum Query Intervals	100000
Automatically Create Archives	Disabled
Overwrite Old Archives	Enabled
Maintain Auto Recovery Files	Enabled
Store OPC Quality	Disabled
The Security section	
Data is Readonly After (Hours)	1 month
Security Groups	Use local
Generate Message on Data Update	Disabled
Require Point Verification	Disabled

About this task

This topic describes how to create archives manually. You can also [create them automatically \(on page 271\)](#). When the current archive is full, a new archive is used (in a sequential order).

You can create multiple archives at the same time.

Procedure

1. Access Historian Administrator (on page 234).
2. Select **DataStores**.

The screenshot displays the Proficy Historian System Statistics interface. At the top, there are navigation tabs: Main, Tags, Collectors, **DataStores** (highlighted with a red box), Messages, and Help. Below the tabs, there is a 'Receive Rate' graph and a list of system statistics including Archive Compression (0%), Write Cache Hit (0%), Failed Writes (?), Messages Since Startup (?), Alerts Since Startup (?), Calculations (Enabled), Server to Server (Enabled), Max Scada Buffer Duration (201 Days), Server Memory (28%), Consumption Rate (?), Historical Tags (8), SCADA Tags (0), Users (1), Alarm Rate (?), Alarms Since Startup (?), and Data Stores (4).

Below the statistics, there are two tables:

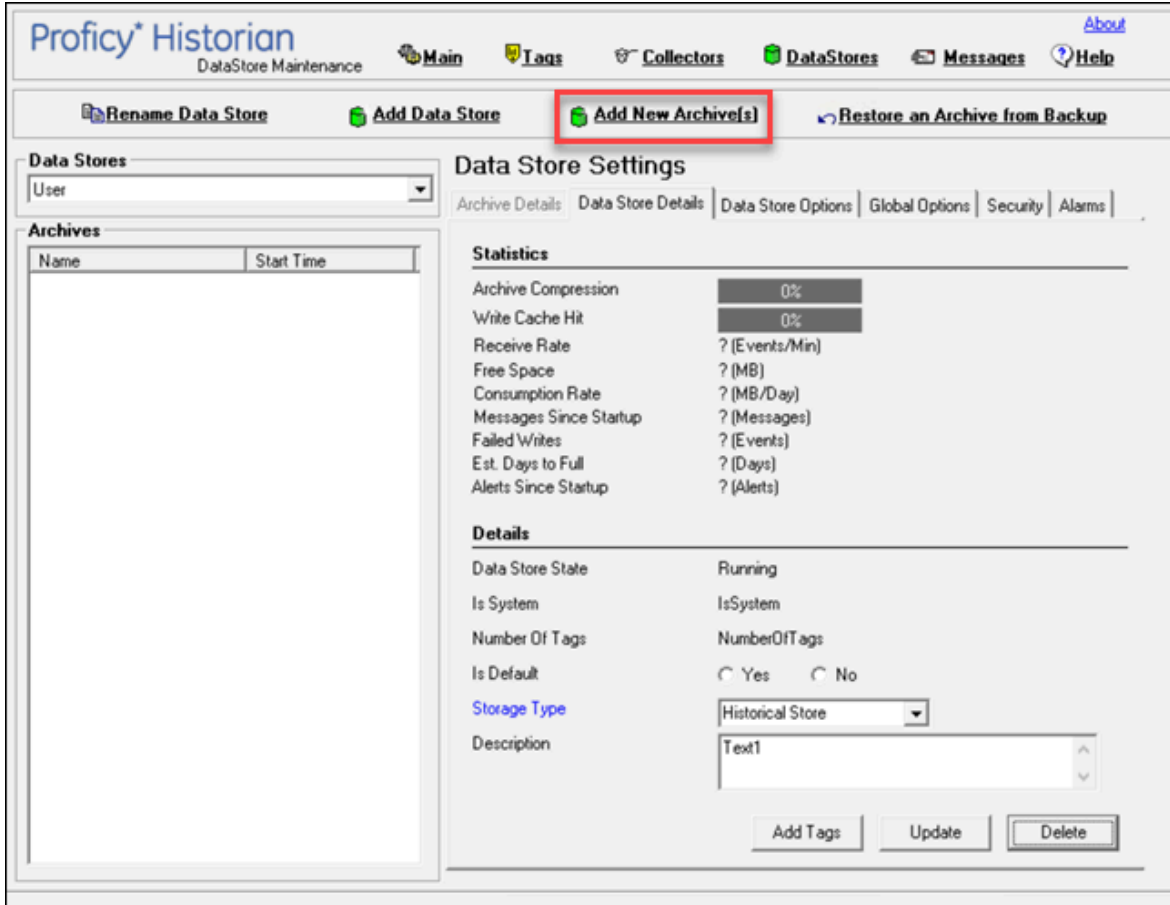
Collectors Table:

Collector	Status	Computer	Report Rate	Overruns	Compression	Out Of Order	Redundancy
SAN-JAVA-DEV_Simulation	Unknown	SAN-JAVA-DEV	0	0	%	0	

Alerts Table:

Timestamp	Topic	Message
-----------	-------	---------



3. Select **Add New Archive(s)**.



The **Add New Archive(s)** window appears.

4. Enter values as described in the following table.

Field	Description
Archive Name	Enter a unique name for the archives. The value must be the same as the file name. When multiple archives are created, a number is appended to the name to make each name unique (and to maintain a sequence).
Data Store	Select the data store in which you want to create the archives.
File Location	Enter the path to the folder in which you want to store the archives, or specify a UNC path.
EachArchive Size (MB)	Enter the size, in MB, that you want to allocate to the archives.
Number of Archives	Enter the number of archives you want to create.

Field	Description
	<div style="border: 1px solid #ccc; padding: 10px;">  Important: Ensure that the number of archive files does not exceed 1024. Otherwise, the archiver will crash. This is because 1024 is the default number of file descriptors a process can open on Linux. We recommend that you create archive files daily or by size so that you can monitor the number of archive files created. </div>
Allocate Space	<p>Specify the percentage of the disk space that you want to allocate for archives. As you increase the space, the number of archives increases accordingly.</p> <div style="border: 1px solid #ccc; padding: 10px;">  Note: The Allocate Space field does not display a remote machine's hard disk space; if you are creating multiple archives on a remote machine, you must ignore the "r;percentage of available disk space will be used" message displayed by the Allocate Space slider. </div>

5. Select **OK**.

The archives are created.

Managing Tags

About Tags

A Historian tag is used to store data related to a property.

For example, if you want to store the pressure, temperature, and other operating conditions of a boiler, a tag will be created for each one in Historian.

When you collect data using a collector, tags are created automatically in Historian to store these values. These tags are mapped with the corresponding properties in the source.

For example, suppose you want to store OSI PI data in Historian. You will specify the OSI PI tags for which you want to collect data. The OSI PI collector creates the corresponding tags in Historian, and it stores the values in those tags.

You can also choose to create tags manually.

About Collector and Archive Compression

Collector Compression

Collector compression applies a smoothing filter to data retrieved from the data source. By ignoring small changes in values that fall within a deadband centered around the last reported value, only significant changes are reported to the archiver. Fewer samples reported yields less work for the archiver and less archive storage space used.

You can specify the deadband value. For convenience, if you enter a deadband percentage, Historian Administrator shows the deadband in engineering units. For example, if you specify a 20% deadband on 0 to 500 EGU span, it is calculated and shown as 100 engineering units. If you later change the limits to 100 and 200, the 20% deadband is now calculated as 20 engineering units.

The deadband is centered around the last reported sample, not simply added to it or subtracted. If your intent is to have a deadband of 1 unit between reported samples, you must enter a compression deadband of 2 so that it is one to each side of the last reported sample. In the previous example of 0 to 500 EGU range, with a deadband of 20%, the deadband is 100 units; This means that only if the value changes by more than 50 units, it is reported.

Changes in data quality from good to bad, or bad to good, automatically exceed collector compression and are reported to the archiver. Any data that comes to the collector out of time order will also automatically exceed collector compression.

It is possible for collected tags with no compression to appear in Historian as if the collector or archive compression options are enabled. If collector compression occurs, you will notice an increase in the percentage of the compression value in the **Collectors** section of the **System Statistics** page in Historian Administrator. When archive compression occurs, you will notice the archive compression value and status bar change on the **System Statistics** page.

For instructions on setting collector compression, refer to [Access/Modify a Tag \(on page 286\)](#).

Even if collector compression is not enabled, you may notice it in the following scenarios:

- When a succession of bad data quality samples appears, Historian collects only the first sample in the series. No new samples are collected until the data quality changes. Historian does not collect the redundant bad data quality samples, and this is reflected in the collector compression percentage.
- For a Calculation or Server-to-Server collector, when calculations fail, producing no results or bad quality data, collector compression is used. The effect of Collector Compression Timeout is to behave, for one poll cycle, as if the collector compression feature is not being used. The sample collected from the data source is sent to the archiver. Then the compression is turned back on, as configured, for the next poll cycle with new samples being compared to the value sent to the archiver.

Handling Value Step Changes with Collector Data Compression

If you enable collector compression, the collector does not send values to the archiver any new input values if the value remains within its compression deadband. Occasionally, after several sample intervals inside the deadband, an input makes a rapid step change in value during a single sample interval. Since there have been no new data points recorded for several intervals, an additional sample is stored one interval before the step change with the last reported value to prevent this step change from being viewed as a slow ramp in value. This value marks the end of the steady-state, non-changing value period, and provides a data point from which to begin the step change in value.



Note:

You can configure individual tags can be configured to retrieve step value changes.

The collector uses an algorithm that views the size of the step change and the number of intervals since the last reported value to determine if a marker value is needed. The following is an example of the algorithm:

```
BigDiff=abs(HI_EGU-LO_EGU)*(CompressionDeadbandPercent/(100.0*2.0))*4.0
If ( Collector Compression is Enabled )
If ( Elapsed time since LastReportedValue>=( SampleInterval * 5 ) )
If ( abs(CurrentValue-LastReportedValue) > BigDiff )
Write LastReportedValue,Timestamp=(CurrentTime-SampleInterval)
```

In the example above, if a new value was not reported for at least the last 4 sample intervals, and the new input value is at least 4 deltas away from the old value (where a single delta is equal to half of the compression deadband), then a marker value is written.



Note:

These settings are also adjustable from the Registry. Please contact [technical support](#) for more information.

Value Spike with Collector Compression

For example, a collector reads a value X once per second, with a compression deadband of 1.0. If the value of X is 10.0 for a number of seconds starting at 0:00:00 and jumps to 20.0 at 0:00:10, the data samples read would be:

Time	X Value
0:00:00	10.0 (steady state value)
0:00:01	10.0
0:00:02	10.0
0:00:03	10.0
0:00:04	10.0
0:00:05	10.0
0:00:06	10.0
0:00:07	10.0
0:00:08	10.0
0:00:09	10.0
0:00:10	20.0 (new value after step change)

To increase efficiency, the straightforward compression would store only 2 of these 11 samples.

Time	X Value
0:00:00	10.0 (steady state value)
0:00:10	20.0 (new value after step change)

However, without the marker value, if this data were to be put into a chart, it would look like the data value **ramped** over 10 seconds from a value of 10.0 to 20.0, as shown in the following chart.



The addition of a **marker value** to the data being stored results in the following data values:

Time	X Value
0:00:00	10.0 (steady state value)
0:00:09	10.0 (inserted Marker value)
0:00:10	20.0 (new value after step change)

If you chart this data, the resulting trend accurately reflects the raw data and likely real world values during the time period as shown in the following chart.



Evaluating and Controlling Data Compression

You can achieve optimum performance in Historian by carefully controlling the volume of dynamic data it collects and archives. You need enough information to tell you how the process is running, but you do not need to collect and store redundant or non-varying data values that provide no useful information.

Control Data Flow

You can control the amount of online or dynamic data the system handles at a given time by adjusting certain system parameters. The general principle is to control the flow of data into the archive either by adjusting the rate at which the collectors gather data or by adjusting the degree of filtering (compression) the system applies to the data collected.

Adjust the following parameters to *reduce* the rate of data flow into the server.

- Reduce the polling rate by increasing the collection interval for unsolicited and polled collection.
- Enable collector compression and optionally use compression timeout.
- Set the compression deadband on the collectors to a wider value.
- Use the collector compression timeout.

Adjust the following parameters to *increase the filtering* applied by the archiver in the server.

- Enable archive (trend) compression.
- Set the archive compression deadband to a wider value.
- Where possible, use the scaled data type and enable input scaling on selected tags.
- Where possible, select milliseconds or microseconds rather than seconds for time resolution.
Seconds is optimum for most common devices. This affects disk space.

Evaluate Data Compression Performance

You can determine how effectively data compression is functioning at any given time by examining the system statistics displayed on the **System Statistics** page of Historian Administrator.

The compression field at the top of the page shows the current effect of archive compression. Values for this parameter should typically range from 0 to 9%. If the value is zero, it indicates that compression is either ineffective or turned off. If it shows a value other than zero, it indicates that archive compression is operating and effective. The value itself indicates how well it is functioning. To increase the effect of data compression, increase the value of archive compression deadband so that compression becomes more active.

Archive Compression

Archive compression is used to reduce the number of samples stored when data values for a tag form a straight line in any direction. For a horizontal line (non-changing value), the behavior is similar to collector compression. But, in archive compression, it is not the *values* that are being compared to a deadband, but the *slope of line* those values produce when plotted value against time. Archive compression logic is executed in the data archiver and, therefore, can be applied to tags populated by methods other than collectors.

You can use archive compression on tags where data is being added to a tag by migration. Each time the archiver receives a new value for a tag, the archiver computes a line between this incoming data point and the last archived value.

The deadband is calculated as a tolerance centered about the slope of this line. The slope is tested to see if it falls within the deadband tolerance calculated for the previous point. If the new point does not exceed the tolerance, it is not stored in the archive. This process repeats with subsequent points. When an incoming value exceeds the tolerance, the value held by the archiver is written to disk and the incoming sample is withheld.

The effect of the archive compression timeout is that the incoming sample is automatically considered to have exceeded compression. The withheld sample is archived to disk and the incoming sample becomes the new withheld sample. If the Archive Compression value on the System Statistics page indicates that

archive compression is occurring, and you did not enable archive compression for the tags, the reason could be because of internal statistics tags with archive compression enabled.

For instructions on setting archive compression, refer to [Access/Modify a Tag \(on page 286\)](#).

About Scaling

Scaling converts a data value from a raw value expressed in an arbitrary range of units, such as a number of counts, to one in engineering units, such as gallons per minute or pounds per square inch. The scaled data type can serve as a third form of data compression, in addition to collector compression and archive compression, if it converts a data value from a data type that uses a large number of bytes to one that uses fewer bytes.

For instructions on setting the scaling parameters, refer to [Access/Modify a Tag \(on page 286\)](#).

About Condition-Based Collection

Condition based collection is a method to control the storage of data for data tags by assigning a condition. Data is always collected but it is only written to the Data Archiver if the condition is true; otherwise, the collected data is discarded.

This condition is driven by a trigger tag; a tag collected by the collector evaluating the condition. Ideally, Condition based Collection should be used only with tags that are updating faster than the trigger tag. Condition based collection can be used to archive only the specific data which is required for analysis, rather than archiving data at all times, as the collector is running.

For example, if a collector has tags for multiple pieces of equipment, you can stop collection of tags for one piece of equipment during its maintenance. It is typically used on tags that use fast polled collection but you don't want to use collector compression. While the equipment is running, you want all the data but when the equipment is stopped, you don't want any data stored. The trigger tag would also typically use polled collection. But, either tag could use unsolicited collection.

The condition is evaluated every time data is collected for the data tag. When a data sample is collected, the condition is evaluated and data is either queued for sending to archiver, or discarded. If the condition cannot be evaluated as true or false, like if the trigger tag contains a bad data quality or the collector is not collecting the trigger tag, the condition is considered true and the data is queued for sending.

No specific processing occurs when the condition becomes true or false. If the condition becomes true, no sample is stored to the data tag using that condition, but the data tag will store a sample next time it collects. When the condition becomes false, no end of the collection marker is stored until the data tag is collected.

For example, if the condition becomes false at 1:15 and the data tag gets collected at 1:20, the end of collection marker will be created at 1:20 and have a timestamp of 1:20, not 1:15.

Condition based collection is supported by only archiver and collectors of Historian version 4.5 and above. Condition based collection does not apply to alarm collectors. This condition based collection is applicable to the following collectors only:

- Simulation Collector
- OPC Collector
- iFIX Collector
- PI Collector

For instructions on setting the condition-based collection, refer to [Access/Modify a Tag \(on page 286\)](#).

Access/Modify a Tag

Before you begin

To modify a tag, you must be a member of the administrator's group with tag-level security (that is, the iH Security Admins or the iH Tag Admins group).

About this task

Using Historian Administrator, you can access a list of tags in the Historian database by their name, description, or both.



Note:

By default, maximum one million tags are retrieved. If the Historian clients are configured to retrieve more than a million tags, to retrieve all of them, add the `MaxTagsToRetrieve` registry key under `HKEY_LOCAL_MACHINE\SOFTWARE\Intellution, Inc.\iHistorian\Services\DataArchiver\`, and then set the maximum number of tags that you want to retrieve. Restart the Historian Data Archiver service for the change to reflect.

Procedure

1. [Access Historian Administrator \(on page 234\)](#).
2. Select **Tags**.

Proficy Historian
System Statistics

[Main](#)
Tags
[Collectors](#)
[DataStores](#)
[Messages](#)
[Help](#)

Receive Rate ? (Events/Min)

Archive Compression: 0%
 Write Cache Hit: 0%
 Failed Writes: ? (Events)
 Messages Since Startup: ? (Messages)
 Alerts Since Startup: ? (Alerts)
 Calculations: (Enabled)
 Server to Server: (Enabled)
 Max Scada Buffer Duration: 201 (Days)

Server Memory: 28%
 Consumption Rate: ? (MB/Day)
 Historical Tags: 8 (8 Used of 1,000,000 Licensed)
 SCADA Tags: 0 (0 Used of 2,400 Licensed)
 Users: 1 (15 Licensed)
 Alarm Rate: ? (Alarms/Min)
 Alarms Since Startup: ? (Alarms)
 Data Stores: 4 (20 Licensed)

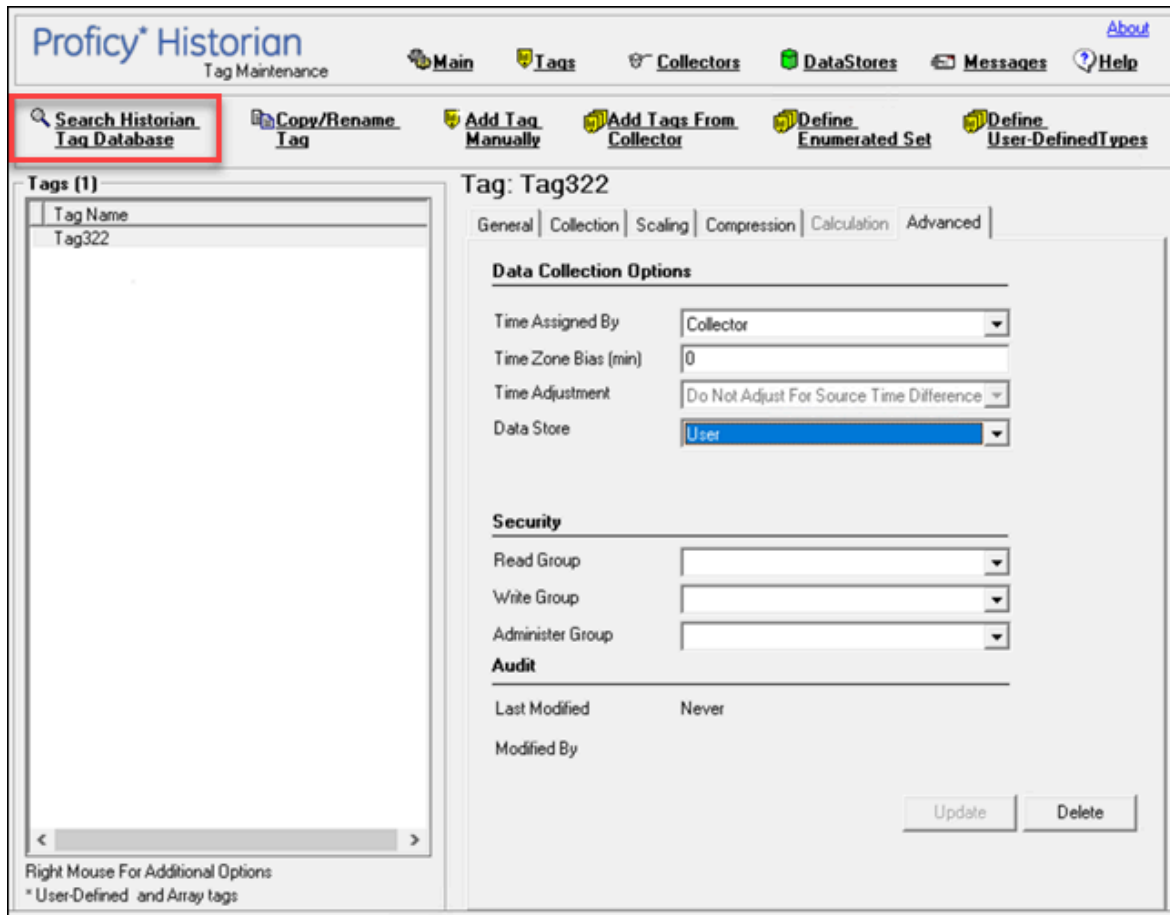
Collectors Auto

Collector	Status	Computer	Report Rate	Overruns	Compression	Out Of Order	Redundancy
SAN-JAVA-DEV Simulation	Unknown	SAN-JAVA-DEV	0	0	%	0	

Alerts Show Alerts Auto

Timestamp	Topic	Message
-----------	-------	---------

3. Select **Search Historian Tag Database**.

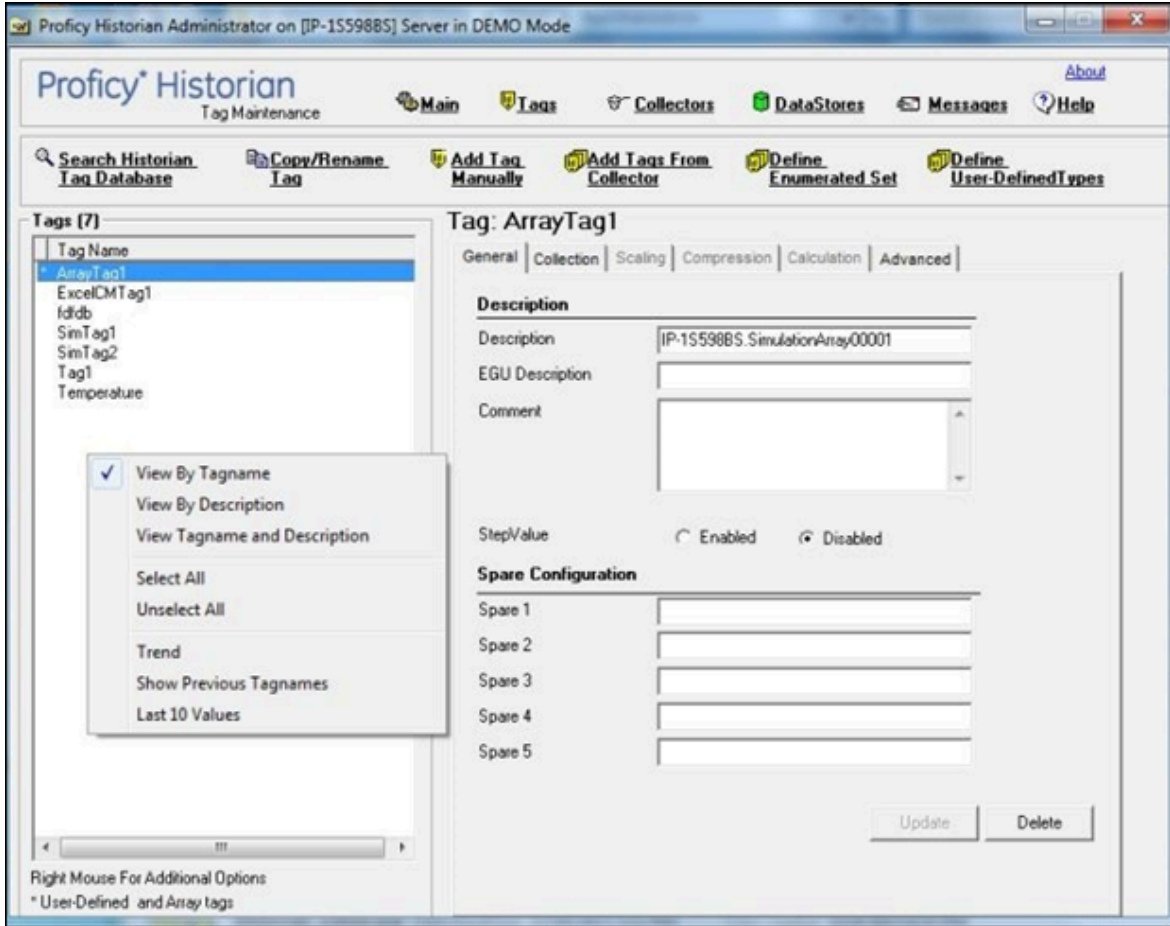


The **Search Historian Tag Database** window appears.

4. Enter values in the available fields to search for the tag, and then select **OK**. You can use the wildcard character asterisk (*).

A list of tags that meet the search criteria appear in the **Tags** section.

5. Right-click the **Tags** section, and then select one of the following values:
 - **View By TagName:** Select this option to view only the names of the tags.
 - **View By Description:** Select this option to view only the descriptions of the tags.
 - **View Tagname and Description:** Select this option to view both the names and descriptions of the tags.



6. As needed, modify values as described in the following tables, and then select **Update**.

Table 32. The General Section

Field	Description
Description	The description of the tag.
EGU Description	The engineering units assigned to the tag.
Comment	Comments that apply to the tag.
StepValue	Indicates that the actual measured value changes in a sharp step instead of a smooth linear interpolation. This option is applicable only for numeric data. Enabling this option only affects data retrieval; it has no effect on data collection or storage.
Spare Configuration	The Spare 1 through Spare 5 fields list any configuration information stored in these fields.





Field	Description
	<div style="border: 1px solid #0070C0; border-radius: 10px; padding: 10px;">  Note: Do not add or update the spare configurations as the data may get corrupted or overwritten. For example, the Spare 5 field is used by the Server-to-Server collector for internal purposes. </div>

Table 33. The Collection Section

Field	Description
Collector	The name of the collector that collects data for the selected tag.
Source Address	<p>The address for the tag in the data source. Leave this field blank for tags associated with the Calculation or Server-to-Server collector.</p> <p>For Python Expression tags, this field contains the full applicable JSON configuration, which includes an indication of the source address.</p> <div style="border: 1px solid #0070C0; border-radius: 10px; padding: 10px;">  Note: When exporting or importing tags using the EXCEL Add-In, the Calculation column, not the SourceAddress column, holds the formulas for tags associated with the Calculation or Server-to-Server collector. </div>
Data Type	<p>The data type of the tag.</p> <p>The main use of the scaled data type is to save space, but this results in a loss of precision. Instead of using 4 bytes of data, it only uses 2 bytes by storing the data as a percentage of the EGU limit. Changing the EGU limits will result in a change in the values that are displayed. For example, if the original EGU values were 0 to 100 and a value of 20 was stored using the scaled data type and if the EGUs are changed to 0 to 200, the original value of 20 will be represented as 40.</p> <div style="border: 1px solid #0070C0; border-radius: 10px; padding: 10px;">  Note: If you change the data type of an existing tag between a numeric and a string or binary data type (and vice versa), the tag's compression and scaling settings will be lost. </div>

Field	Description
Data Length	The number of bytes for a fixed string data type. This field is enabled only for fixed string data types.
Is Array Tag	Not applicable
Collection	Indicates whether data collection is enable or disable for the tag. If you disable collection for the tag, Historian stops collecting data for the tag, but does not delete the tag or its data.
Collection Type	The type of data collection used for this tag, which can be polled or unsolicited. Polled means that the data collector requests data from the data source at the collection interval specified in the polling schedule. Unsolicited means that the data source sends data to the collector whenever necessary (independent of the data collector polling schedule).
Collection Interval	The time interval between readings of data from this tag. With Unsolicited Collection Type, this field defines the minimum interval at which unsolicited data should be sent by the data source.
Collection Offset	<p>Used with the collection interval to schedule collection of data from a tag. For example, to collect a value for a tag every hour at thirty minutes past the hour (12:30, 1:30, 2:30, and so on), enter a collection interval of 1 hour and an offset of 30 minutes. Similarly, to collect a value each day at 8am, enter a collection interval of 1 day and an offset of 8 hours.</p> <div style="border: 1px solid #0070c0; border-radius: 10px; padding: 10px; background-color: #e6f2ff;"> <p> Note: If you enter a value in milliseconds, the value must be in intervals of 1000 ms. For example, 1000, 2000, and 3000 ms are valid values, but 500 and 1500 ms are invalid. The minimum value is 1000 ms.</p> </div>
Time Resolution	The precision for timestamps, which can be either seconds, milliseconds or microseconds.
Condition-Based	Indicates whether condition-based data collection (on page 285) is enabled.
Trigger Tag	The name of the trigger tag used in the condition.


Field	Description
Comparison	<p>The comparison operator that you want to use in the condition. Select one of the following options:</p> <ul style="list-style-type: none"> • Undefined: Collection will resume only when the value of the triggered tag changes. This is considered an incomplete configuration, so condition-based collection is turned off and all the collected data is sent to archiver. • < =: Setting condition as trigger tag value less than or equal to the compare value. • > =: Setting condition as trigger tag value greater than or equal to the compare value. • <: Setting condition as trigger tag value less than the compare value. • >: Setting condition as trigger tag value greater than the compare value. • =: Setting condition as trigger tag value equals compare value. • !=: Setting condition as trigger tag value not the same as compare value.
Compare Value	<p>A target value that you want to compare with the value of the trigger tag. If using = and != comparison parameters, ensure that the format of the compared value and triggered tag are the same. For example, for a float type trigger tag, the compare value must be a float value; otherwise, the condition result is an invalid configuration. When the configuration is invalid, condition-based collection is disabled and all data is sent to archiver.</p>
End of Collection Markers	<p>Indicates whether end-of-collection markers are enabled. This will mark all the tag's values as bad, and sub-quality as ConditionCollectionHalted when the condition becomes false. Trending and reporting applications can use this information to indicate that the real-world value was unknown after this time until the condition becomes true and a new sample is collected. If disabled, a bad data marker is not inserted when the condition becomes false.</p>

Table 34. The Scaling Section

Field	Description
Hi Engineering Units	<p>The current value of the upper range limit of the span for this tag.</p> <p>Engineering Hi and Lo are retrieved automatically for F_CV fields for iFIX tags; all others are left at default settings. When adding tags from the server using an OPC Collector, the OPC Collector queries the server for the EGU units and EGU Hi/Lo limits. Not all OPC Servers make this information available, however. Therefore, if the server does not provide the limits when requested to do so, the collector automatically assigns an EGU range of 0 to 10,000.</p>
Lo Engineering Units	<p>The current value of the lower range limit of the span for this tag.</p>
Input Scaling	<p>Indicates whether input scaling is enabled, which converts an input data point to an engineering units value.</p> <p>For example, to rescale and save a 0 - 4096 input value to a scaled range of 0 - 100, enter 0 and 4096 as the low and high input scale values and 0 and 100 as the low and high engineering units values, respectively.</p> <p>If a data point exceeds the high or low end of the input scaling range, Historian logs a bad data quality point with a ScaledOutOfRange subquality. In the previous example, if your input data is less than 0, or greater than 4096, Historian records a bad data quality for the data point.</p> <p>OPC Servers and TRUE Values: Some OPC servers return a TRUE value as -1. If your OPC server is returning TRUE values as -1, modify the following scaling settings in the Tag Maintenance page of Historian Administrator:</p> <pre> Hi Engineering Units = 0 Lo Engineering Units = 1 Hi Scale Value = 0 </pre>

Field	Description
	<pre>Lo Scale Value = - 1 Input Scaling = Enabled</pre>
Hi Scale Value	The upper limit of the span of the input value.
Lo Scale Value	The lower limit of the span of the input value.


Table 35. The Compression Section


Field	Description
Collector Compression	Indicates whether collector compression (on page 279) is enabled.
Collector Deadband	<p>The current value of the compression deadband. This value can be computed as a percent of the span, centered around the data value or given as an absolute range around the data value.</p> <div style="border: 1px solid #0070C0; border-radius: 10px; padding: 10px; margin: 10px 0;"> <p> Note: Some OPC servers add and subtract the whole deadband value from the last data value. This effectively doubles the magnitude of the deadband compared to other OPC servers. To determine how your specific server handles deadband, refer to the documentation of your OPC server.</p> </div> <p>Example:</p> <p>Suppose the engineering units are 0 to 200. Suppose the deadband value is 10%, which is 20 units. If the deadband value is 10% and the last reported value is 50, the value will be reported when the current value exceeds $50 + 10 = 60$ or is less than $50 - 10 = 40$. Note that the deadband (20 units) is split around the last data value (10 on either side.)</p> <p>Alternatively, you could specify an absolute deadband of 5. In this instance, if the last value was 50, a new data sample will be reported when the current value exceeds 55 or drops below 45.</p> <p>If compression is enabled and the deadband is set to zero, the collector ignores data values that do not change and records any that do change. If you set the deadband to a non-zero value, the collector records any</p>

Field	Description
	value that lies outside the deadband. If the value changes drastically, a pre-spike point may be inserted. For information, refer to Enable Spike Logic (on page 342) .
Engineering Unit	<p>Converts the deadband percentage into engineering units and displays the result. This value establishes the deadband range that is centered around the new value.</p> <p>This field represents a calculated number created to give an idea of how large a deadband you are creating in engineering units. The deadband is entered in percentage and Historian converts the percentage in to engineering units.</p>
Collector Compression Timeout	<p>Indicates the maximum amount of time the collector will wait between sending samples for a tag to the archiver. This time is maintained per tag, as different tags report to the archiver at different times.</p> <p>For polled tags, this value should be in multiples of your collection interval. After the timeout value is exceeded, the tag stores a value at the next scheduled collection interval, and not when the timeout occurred. For example, if you have a 10-second collection interval, a 1-minute compression timeout, and a collection that started at 2:14:00, if the value has not changed, the value is logged at 2:15:10 and not at 2:15:00.</p> <p>For unsolicited tags, a value is guaranteed in, at most, twice the compression timeout interval.</p> <p>A non-changing value is logged on each compression timeout. For example, an unsolicited tag with a 1-second collection interval and a 30-second compression timeout is stored every 30 seconds.</p> <p>A changing value for the same tag may have up to 60 seconds between raw samples. In this case, if the value changes after 10 seconds, then that value is stored, but the value at 30 seconds (if unchanged) will not be stored. The value at 60 seconds will be stored. This leaves a gap of 50 seconds between raw samples which is less than 60 seconds.</p> <p>Compression timeout is supported in all collectors except the PI collector.</p>

Field	Description
Archive Compression	Indicates whether archive compression (on page 279) is enabled. If enabled, Historian applies the archive deadband settings against all reported data from the collector.
Archive Deadband	The current value of the archive deadband, expressed as a percent of span or an absolute number.
Engineering Unit	Converts the deadband percentage into engineering units and displays the result. This value establishes the deadband range that is centered around the new value.
Archive Compression Timeout	<p>The maximum amount of time from the last stored point before another point is stored, if the value does not exceed the archive compression deadband.</p> <p>The data archiver treats the incoming sample after the timeout occurs as if it exceeded compression. It then stores the pending sample.</p>

Table 36. The Advanced Section

Field	Description
Time Assigned By	<p>The source of the timestamp for a data value is either the collector or the data source.</p> <p>All tags, by default, have their time assigned by the collector. When you configure a tag for a polled collection rate, the tag is updated based on the collection interval. For example, if you set the collection interval to 5 seconds with no compression, then the archive will be updated with a new data point and timestamp every 5 seconds, even if the value is not changing.</p> <p>However, if you set the Time Assigned By field to Source for the same tag, the archive only updates when the device timestamp changes. For example, if the poll time is still 5 seconds, but if the timestamp on the device does not change for 10 minutes, no new data will be added to the archive for 10 minutes.</p> <div style="border: 1px solid #0070C0; border-radius: 10px; padding: 10px; margin-top: 10px;">  Note: This field is disabled for Calculation and Server-to-Server tags. </div>

Field	Description
Time Zone Bias	<p>The number of minutes from GMT that should be used to translate time-stamps when retrieving data from this tag. For example, the time zone bias for Eastern Standard time is -300 minutes (GMT-5).</p> <p>This field is not used during collection. Use this option if a particular tag requires a time zone adjustment during retrieval other than the client or server time zone. For example, you could retrieve data for two tags with different time zones by using the tag time zone selection in the iFIX chart.</p>
Time Adjustment	<p>If the Server-to-Server collector is not running on the source computer, select the Adjust for Source Time Difference option to compensate for the time difference between the source archiver computer and the collector computer.</p> <div style="border: 1px solid #0070C0; border-radius: 10px; padding: 10px; margin-top: 10px;">  Note: This field only applies to tags associated with the Server-to-Server collector that use a polled collection type. </div>
Data Store	Displays the data store to which the tag belongs.
Read Group	The Windows security group assigned to the selected tag.
Write Group	The Windows security group assigned to the selected tag.
Administer Group	The Windows security group assigned to the selected tag.
Last Modified	The date the last tag parameter modification was made.
Modified By	The name of the person who last modified the tag configuration parameters.

Add Tags from Source

Before you begin

- Ensure that you are a member of the administrator's group with tag-level security (that is, the iH Security Admins or the iH Tag Admins group).
- [Create a collector instance \(on page 60\)](#) using which you want to browse the source for tags.

About this task

This topic describes how to browse for source tags and add them to Historian. These tags are then created automatically in the Historian database. You can also [create tags manually \(on page 301\)](#).

Procedure

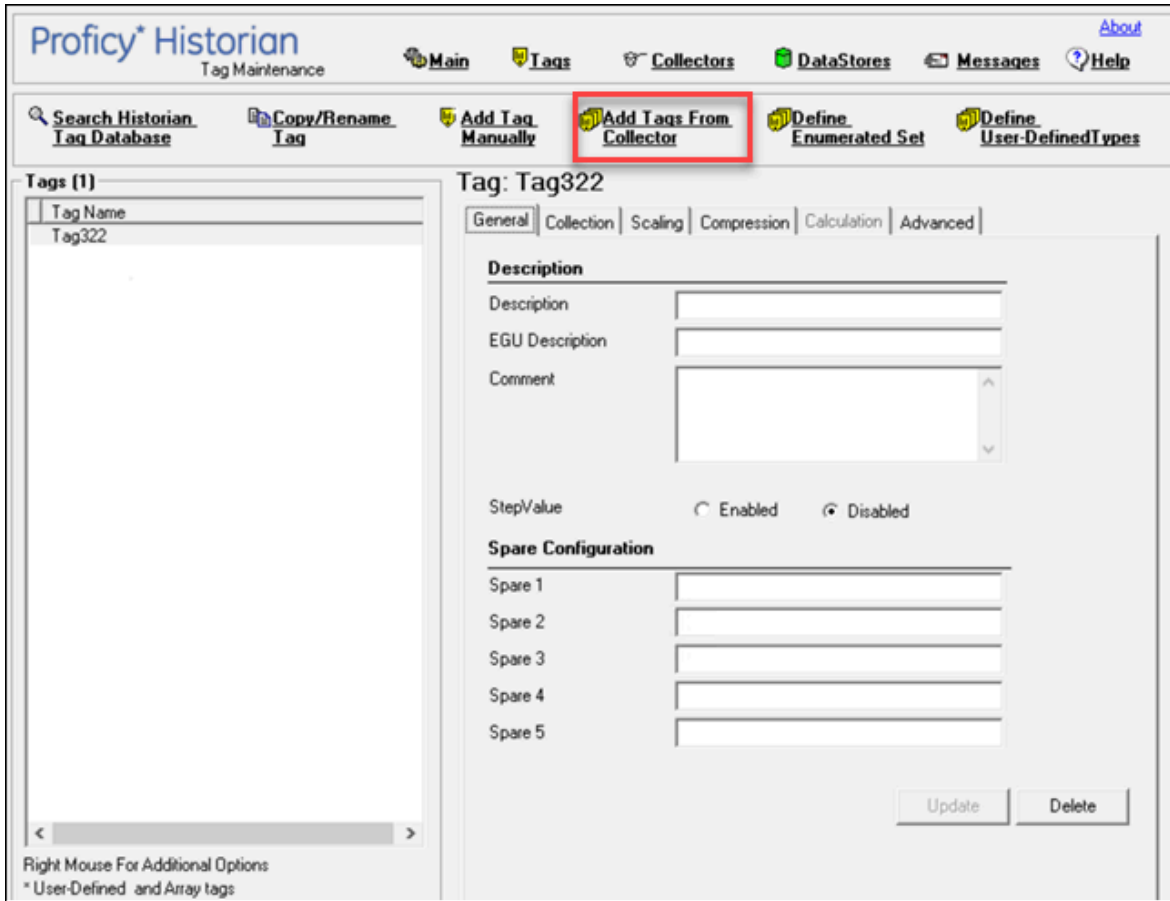
1. [Access Historian Administrator \(on page 234\)](#).
2. Select **Tags**.

The screenshot shows the Proficy Historian System Statistics page. The 'Tags' menu item in the top navigation bar is highlighted with a red box. Below the navigation bar, there are several performance metrics including Receive Rate, Archive Compression, Write Cache Hit, Failed Writes, Messages Since Startup, Alerts Since Startup, Calculations, Server to Server, Max Scada Buffer Duration, Server Memory, Consumption Rate, Historical Tags, SCADA Tags, Users, Alarm Rate, Alarms Since Startup, and Data Stores. Below these metrics are two tables: 'Collectors' and 'Alerts'.

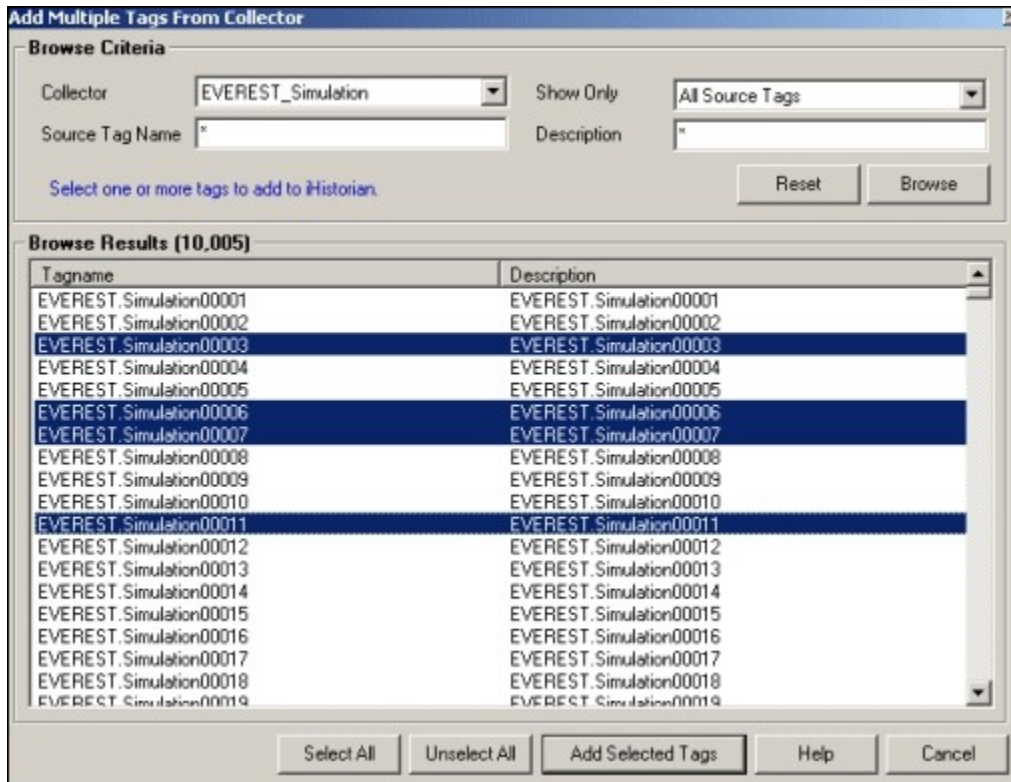
Collector	Status	Computer	Report Rate	Overruns	Compression	Out Of Order	Redundancy
SAN JAVA-DEV_Simulation	Unknown	SAN JAVA-DEV	0	0	%	0	

Timestamp	Topic	Message

3. Select **Add Tags from Collector**.



The **Add Multiple Tags from Collector** window appears.



4. Enter values as described in the following table.

Field	Description
Collector	Select the collector instance using which you want to browse the source for tags.
Show Only	Specify whether you want to see all tags or only the ones that have not been added yet.
Source Tag Name	Enter the string to narrow down the search results based on the tag name. You can use wildcard characters.
Description	Enter the string to narrow down the search results based on the tag description. You can use wildcard characters.

5. Select **Browse**.

A list of tags based on the search criteria appear.

6. Select the tags that you want to add to Historian.

- Select a single tag by selecting the name of the tag.
- Select multiple tags by pressing the **Control** key and selecting the tags.

- Select a contiguous group by pressing the **Shift** key and selecting the first and last tag of the group.
 - Select all tags by selecting **Select All**.
7. Select **Add Selected Tags**.

The selected tags are added to the Historian database.

Create a Tag Manually

Before you begin

You must be a member of the administrator's group with tag-level security (that is, the iH Security Admins or the iH Tag Admins group).

About this task

This topic describes how to create a tag manually. You can also [add tags from source \(on page 297\)](#); these tags are then automatically created in the Historian database.

Whenever you add tags, delete tags, or modify certain tag properties, the following collectors reload only the modified tags without restarting the collectors.

- OPC Collector
- iFIX Collector
- Simulation Collector
- Server-to-Server Collector
- OSI PI Collector
- OSI PI Distributor

The dynamic collector update feature ensures that any modifications to the tag configuration do not affect all the tags in a collector. Tags that stop data collection may record zero data and bad quality without restarting the collector. Tags that do not stop data collection do not record bad data samples to the collection.

By default, the On-line Tag Configuration Changes option is enabled, which allows a tag to stop and restart data collection without restarting the collector. If you disable the On-line Tag Configuration Changes option, any changes you make to the tags do not affect collection until after you restart the collector. To enable or disable the On-line Tag Configuration Changes option, select **Advanced** on the **Collector Maintenance** page.

To restart the collector you must stop and start the collector service or executable. Restarting the collector stops and restarts the tag(s) collection and may record bad data samples to the collection.

All the collector configuration changes done within a 30 second time frame are batched up together. To collect the modified data faster, update/modify a small set of tags at a time.



Note:

When updating large sets of tags at the same time, best practice is to disable the On-line Tag Configuration Changes option and restart the collector after modification.

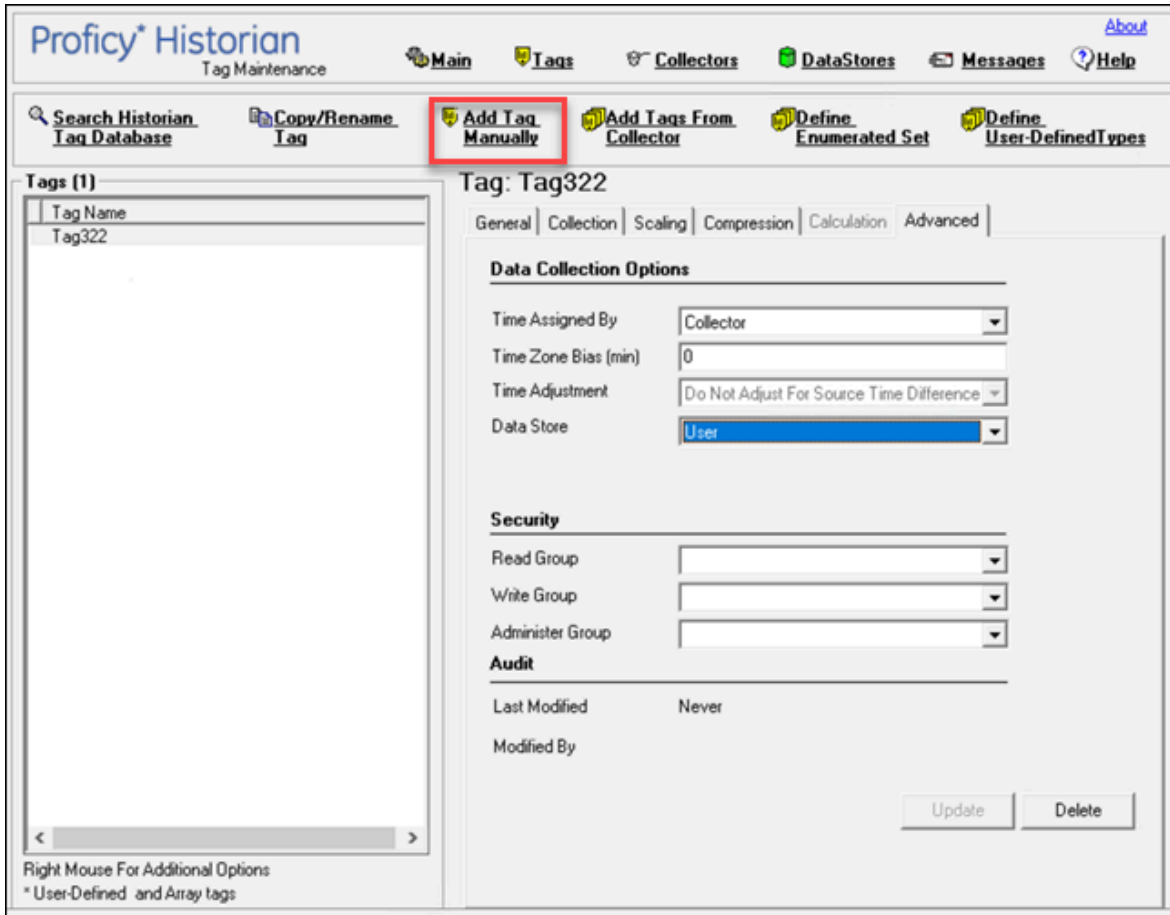
Procedure

1. Access [Historian Administrator](#) (on page 234).
2. Select **Tags**.

The screenshot shows the Proficy Historian System Statistics interface. The 'Tags' menu item is highlighted with a red box. Below the navigation bar, there are several performance metrics and a table of collectors.

Collector	Status	Computer	Report Rate	Overruns	Compression	Out Of Order	Redundancy
SAN-JAVA-DEV_Simulation	Unknown	SAN-JAVA-DEV	0	0	%	0	

3. Select **Add Tag Manually**.



The **Add Tag Manually** window appears.

4. Enter values as described in the following table.

Field	Description
Collector Name	Select the collector using which you want to collect data for the tag.
Source Address	Enter the source address for the tag.
Tag Name	Enter a unique name for the tag.
Data Store	Select the data store in which you want to store the tag data.
Data Type	Select the data type of the tag data.
Is Array Tag	Not applicable

Field	Description
Time Resolution	Select the duration at which you want to collect data for the tag. For example, if you select Seconds , data is collected every second.

**Note:**

If you add a tag for a Server-to-Server collector, set the **Time Adjustment** field for the tag to **Adjust for Source Time Difference** after you add the tag. This field is available under **Tags > Advanced**. This is applicable only for polled data collection.

5. Select **OK**.

The tag is created.

Copy a Tag

Before you begin

You must be a member of the administrator's group with tag-level security (that is, the iH Security Admins or the iH Tag Admins group).

Procedure

1. [Access Historian Administrator \(on page 234\)](#).
2. Select **Tags**.

Proficy Historian
System Statistics

[Main](#)

[Tags](#)
[Collectors](#)
[DataStores](#)
[Messages](#)
[Help](#)

Receive Rate ? (Events/Min)
 1 _____
 0 1 2 3 4 5 6 7 8 9 10

Archive Compression	0%	Server Memory	28%
Write Cache Hit	0%	Consumption Rate	? (MB/Day)
Failed Writes	? (Events)	Historical Tags	8 (8 Used of 1,000,000 Licensed)
Messages Since Startup	? (Messages)	SCADA Tags	0 (0 Used of 2,400 Licensed)
Alerts Since Startup	? (Alerts)	Users	1 (15 Licensed)
Calculations	(Enabled)	Alarm Rate	? (Alarms/Min)
Server to Server	(Enabled)	Alarms Since Startup	? (Alarms)
Max Scada Buffer Duration	201 (Days)	Data Stores	4 (20 Licensed)

Collectors Auto

Collector	Status	Computer	Report Rate	Overruns	Compression	Out Of Order	Redundancy
SAN-JAVA-DEV Simulation	Unknown	SAN-JAVA-DEV	0	0	%	0	

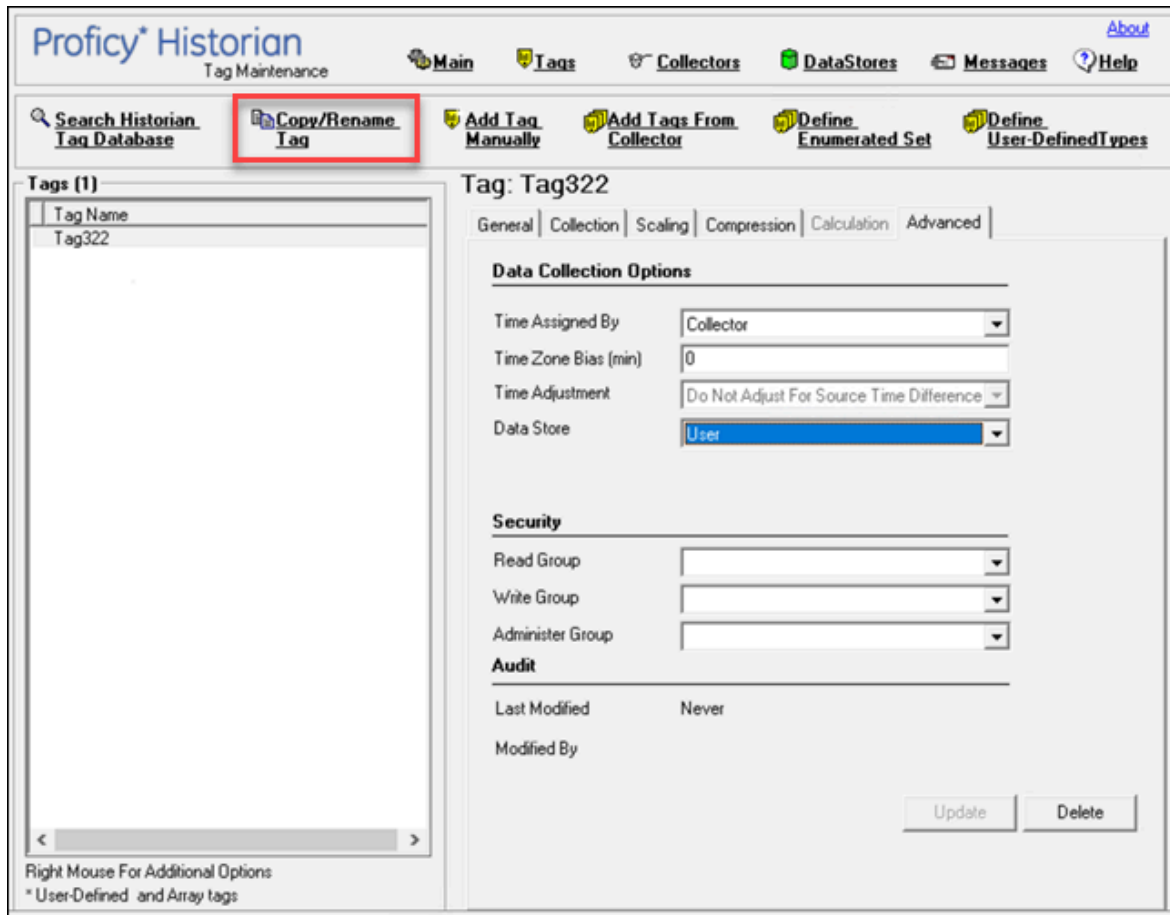
Alerts Show Alerts Auto

Timestamp	Topic	Message
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3. Select the tag that you want to copy.

The screenshot displays the Proficy Historian Tag Maintenance interface. At the top, the application title 'Proficy Historian' is shown with the subtitle 'Tag Maintenance'. A navigation bar includes links for 'Main', 'Tags', 'Collectors', 'DataStores', 'Messages', and 'Help'. Below this, a secondary navigation bar contains icons and labels for 'Search Historian Tag Database', 'Copy/Rename Tag', 'Add Tag Manually', 'Add Tags From Collector', 'Define Enumerated Set', and 'Define User-Defined Types'. The main content area is split into two panes. The left pane, titled 'Tags (1)', contains a table with one entry: 'Tag Name' and 'Tag322'. This pane is highlighted with a red border. The right pane, titled 'Tag: Tag322', features several tabs: 'General', 'Collection', 'Scaling', 'Compression', 'Calculation', and 'Advanced'. The 'General' tab is active, showing 'Data Collection Options' with fields for 'Time Assigned By' (set to 'Collector'), 'Time Zone Bias (min)' (set to '0'), 'Time Adjustment' (set to 'Do Not Adjust For Source Time Difference'), and 'Data Store' (set to 'User'). Below this are 'Security' options for 'Read Group', 'Write Group', and 'Administer Group', and an 'Audit' section with 'Last Modified' (set to 'Never') and 'Modified By'. At the bottom right of the right pane are 'Update' and 'Delete' buttons. A footer note at the bottom left of the interface reads: 'Right Mouse For Additional Options * User-Defined and Array tags'.

4. Select **Copy/Rename Tag**.



The **Copy/RenameTag** window appears.

5. Select **Copy**.
6. Enter a new tag name.
7. Select **OK**.

The tag is copied.

Rename a Tag

Before you begin

- You must be a member of the administrator's group with tag-level security (that is, the iH Security Admins or the iH Tag Admins group).
- If you want to rename a tag permanently, to avoid loss of data, stop the collector instance.

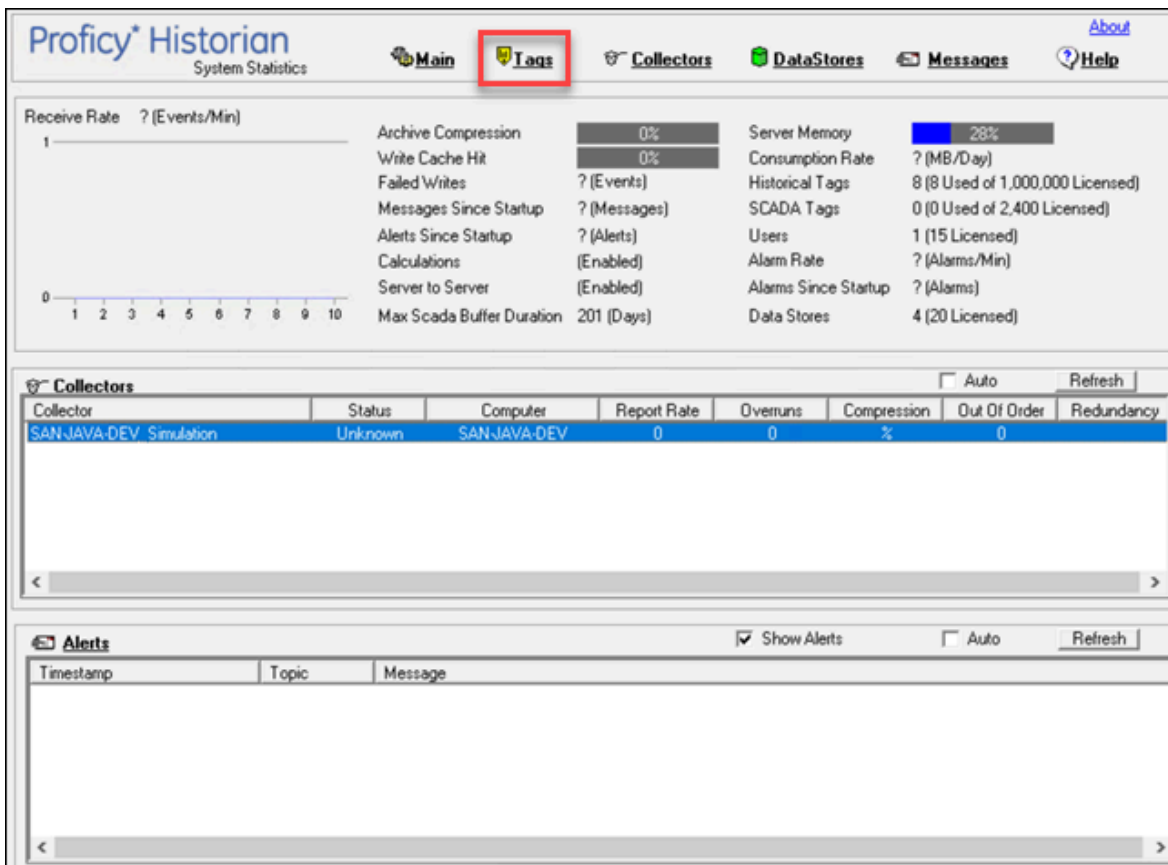
About this task

When you rename a tag, you can choose between the following options:

- **Rename using an alias:** In this case, the old name is called the tag alias. You can retrieve tag data using the tag alias as well. When you copy a tag, the tag alias is captured as well to aid in an audit trail.
- **Rename permanently:** In this case, the old name is no longer captured. Therefore, you can create another tag with this old name. You cannot store and forward data using the old name. This implies that data for the tag is collected separately for the new name.

Procedure

1. Access Historian Administrator (on page 234).
2. Select **Tags**.



3. Select the tag that you want to rename.

The screenshot displays the Proficy Historian Tag Maintenance interface. At the top, the application title "Proficy Historian" is shown with the subtitle "Tag Maintenance". Navigation icons for "Main", "Tags", "Collectors", "DataStores", "Messages", and "Help" are present. Below the navigation bar, several action buttons are visible: "Search Historian Tag Database", "Copy/Rename Tag", "Add Tag Manually", "Add Tags From Collector", "Define Enumerated Set", and "Define User-Defined Types".

The main content area is divided into two sections. On the left, a "Tags (1)" list contains a single entry: "Tag322". This list is highlighted with a red border. Below the list, a note reads: "Right Mouse For Additional Options * User-Defined and Array tags".

On the right, the configuration page for "Tag: Tag322" is shown. It features several tabs: "General", "Collection", "Scaling", "Compression", "Calculation", and "Advanced". The "Data Collection Options" section includes the following fields:

- Time Assigned By: Collector
- Time Zone Bias (min): 0
- Time Adjustment: Do Not Adjust For Source Time Difference
- Data Store: User

The "Security" section includes:

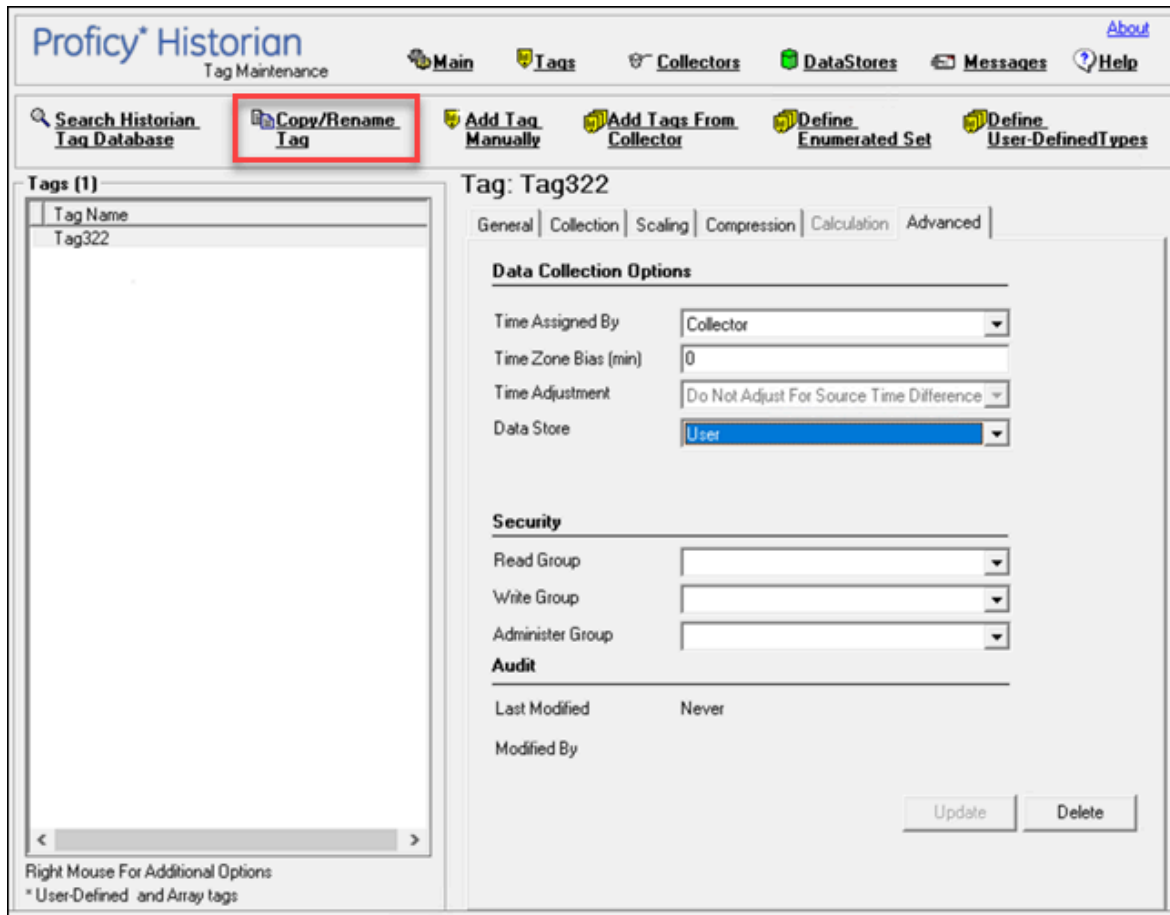
- Read Group: [Empty]
- Write Group: [Empty]
- Administer Group: [Empty]

The "Audit" section shows:

- Last Modified: Never
- Modified By: [Empty]

At the bottom right of the configuration area, there are "Update" and "Delete" buttons.

4. Select **Copy/Rename Tag** .



The **Copy/RenameTag** window appears.

5. If you want to rename the tag using an alias, select **Rename (Alias)**. If you want to rename the tag permanently, select **Permanent Rename**.
6. Select **OK**.

What to do next

If you have renamed the tag permanently:

- If the tag is used as a trigger, reassign the trigger.
- Restart the collector instance.

View Tag Trends and Raw Data

About this task

This topic describes how to access the trend chart of tag data. Note that the tag trend should not be used for detailed data.

Procedure

1. Access Historian Administrator (on page 234).
2. Select **Tags**.

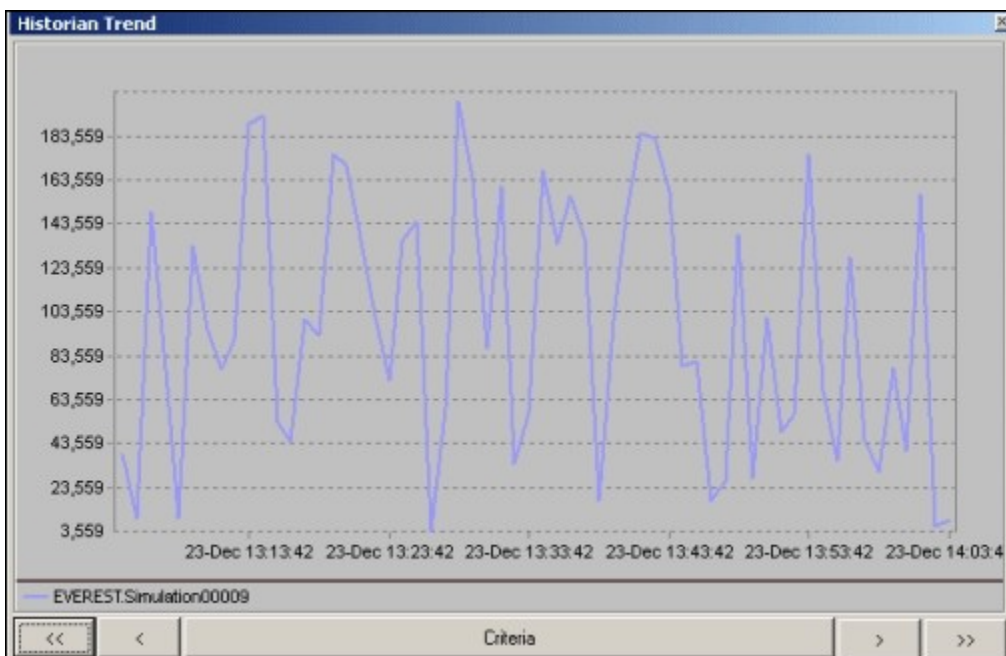
The screenshot shows the Proficy Historian System Statistics interface. The top navigation bar includes 'Main', 'Tags' (highlighted with a red box), 'Collectors', 'DataStores', 'Messages', and 'Help'. The main content area is divided into several sections:

- Receive Rate ? (Events/Min):** A line graph showing a rate of 1 over a 10-minute period.
- System Metrics:** A grid of metrics including Archive Compression (0%), Write Cache Hit (0%), Failed Writes (? (Events)), Messages Since Startup (? (Messages)), Alerts Since Startup (? (Alerts)), Calculations (Enabled), Server to Server (Enabled), Max Scada Buffer Duration (201 (Days)), Server Memory (28%), Consumption Rate (? (MB/Day)), Historical Tags (8 (8 Used of 1,000,000 Licensed)), SCADA Tags (0 (0 Used of 2,400 Licensed)), Users (1 (15 Licensed)), Alarm Rate (? (Alarms/Min)), Alarms Since Startup (? (Alarms)), and Data Stores (4 (20 Licensed)).
- Collectors:** A table with columns: Collector, Status, Computer, Report Rate, Overruns, Compression, Out Of Order, and Redundancy. The table contains one entry: SAN-JAVA-DEV_Simulation, Unknown, SAN-JAVA-DEV, 0, 0, %, 0.
- Alerts:** A section with a 'Show Alerts' checkbox (checked) and 'Auto'/'Refresh' buttons. It has columns for Timestamp, Topic, and Message.

3. Right-click the tag whose trend chart you want to access, and then select **Trend**.

The screenshot shows the Proficy Historian Tag Maintenance interface. At the top, there are navigation tabs: Main, Tags, Collectors, DataStores, Messages, and Help. Below these are action buttons: Search Historian Tag Database, Copy/Rename Tag, Add Tag Manually, Add Tags From Collector, Define Enumerated Set, and Define User-Defined Types. The main area is titled 'Tag: Tag322' and has several tabs: General, Collection, Scaling, Compression, Calculation, and Advanced. The 'General' tab is active, showing 'Data Source' (collector: SYSTEM4_IFX, source Address: [empty], data Type: Single Float, enumerated Set Name: [empty]) and 'Is Array Tag' (unchecked). The 'Collection Options' section shows 'collection' (radio buttons for Enabled and Disabled, with Enabled selected), 'collection Type' (Polled), 'Collection Interval' (5 Seconds), 'Collection Offset' (0 Seconds), and 'Time Resolution' (Seconds). The 'Condition Based Collection' section shows 'Condition Based' (radio buttons for Enabled and Disabled, with Disabled selected), 'Trigger Tag' ([empty]), 'Comparison' (=), 'Compare Value' ([empty]), and 'End of Collection Markers' (radio buttons for Enabled and Disabled, with Enabled selected). A context menu is open over the 'Tags (1)' list, with 'Trend' highlighted in a red box. Other menu items include View By Tagname, View By Description, View Tagname and Description, Select All, Unselect All, Show Previous Tagnames, and Last 10 Values. At the bottom, there are 'Update' and 'Delete' buttons.

The trend chart of the tag values appears.



**Note:**

To change the criteria, select **Criteria**, and then enter values as described in the following table.

Field	Description
Start Time	Select the start time of the trend chart.
End Time	Select the end time of the trend chart.
Sampling	Select the data type that you want to use.
Interval	Enter the interval at which you want to plot the tag data.
Criteria Strings	Enter the sampling mode, calculation mode, and/or query modifiers. Query modifiers are used to specify various ways of retrieving data from Historian. For example, you can request raw data with good quality only by specifying the criteria string as: <code>RAWBYTIME#ONLYGOOD</code> . The sampling mode specified with criteria strings takes precedence over the mode specified in the Sampling field.

You can also scroll back and forth on the x-axis time scale by selecting on the single and double left and right arrows at the bottom of the page.

View the Last 10 Raw Values of a Tag

Procedure

1. [Access Historian Administrator \(on page 234\)](#).
2. Select **Tags**.

Proficy Historian
System Statistics

[Main](#)
Tags
[Collectors](#)
[DataStores](#)
[Messages](#)
[Help](#)

Receive Rate ? (Events/Min)

1 _____

0 1 2 3 4 5 6 7 8 9 10

Archive Compression	0%	Server Memory	28%
Write Cache Hit	0%	Consumption Rate	? (MB/Day)
Failed Writes	? (Events)	Historical Tags	8 (8 Used of 1,000,000 Licensed)
Messages Since Startup	? (Messages)	SCADA Tags	0 (0 Used of 2,400 Licensed)
Alerts Since Startup	? (Alerts)	Users	1 (15 Licensed)
Calculations	(Enabled)	Alarm Rate	? (Alarms/Min)
Server to Server	(Enabled)	Alarms Since Startup	? (Alarms)
Max Scada Buffer Duration	201 (Days)	Data Stores	4 (20 Licensed)

Collectors Auto

Collector	Status	Computer	Report Rate	Overruns	Compression	Out Of Order	Redundancy
SAN-JAVA-DEV_Simulation	Unknown	SAN-JAVA-DEV	0	0	%	0	

Alerts Show Alerts Auto

Timestamp	Topic	Message
-----------	-------	---------

3. Right-click the tag whose last 10 values you want to access, and then select **Last 10 Values**.

The screenshot displays the Proficy Historian Tag Maintenance interface. At the top, there are navigation tabs: Main, Tags, Collectors, DataStores, Messages, and Help. Below these are action buttons: Search Historian Tag Database, Copy/Rename Tag, Add Tag Manually, Add Tags From Collector, Define Enumerated Set, and Define User-Defined Types. The main area is divided into two sections. On the left, under 'Tags (1)', a list shows 'Tag322' selected. A context menu is open over this tag, listing options: View By Tagname (checked), View By Description, View Tagname and Description, Select All, Unselect All, Trend, Show Previous Tagnames, and 'Last 10 Values' (highlighted with a red box). On the right, the 'Tag: Tag322' configuration panel is shown with tabs for General, Collection, Scaling, Compression, Calculation, and Advanced. The 'Collection' tab is active, showing settings for Data Source (collector: SYSTEM4_IFX), Data Type (Single Float), Collection Options (Enabled), and Condition Based Collection (Disabled).

The last 10 values of the tag appear.

Historian Trend			
Tagname	Timestamp	Value	Quality
DestAvgTag	12/23/2002 2:11:50 PM	97.41665	Good
DestAvgTag	12/23/2002 2:11:49 PM	97.41665	Good
DestAvgTag	12/23/2002 2:11:48 PM	97.41665	Good
DestAvgTag	12/23/2002 2:11:47 PM	47.41589	Good
DestAvgTag	12/23/2002 2:11:46 PM	47.41589	Good
DestAvgTag	12/23/2002 2:11:45 PM	47.41589	Good
DestAvgTag	12/23/2002 2:11:44 PM	47.41589	Good
DestAvgTag	12/23/2002 2:11:43 PM	47.41589	Good
DestAvgTag	12/23/2002 2:11:42 PM	47.41589	Good
DestAvgTag	12/23/2002 2:11:41 PM	97.41665	Good

Criteria

Stop Data Collection

Procedure

1. [Access Historian Administrator \(on page 234\)](#).
2. Select **Tags**.

Proficy Historian
System Statistics

[Main](#)
Tags
[Collectors](#)
[DataStores](#)
[Messages](#)
[Help](#)

Receive Rate ? (Events/Min)

Archive Compression: 0%
 Write Cache Hit: 0%
 Failed Writes: ? (Events)
 Messages Since Startup: ? (Messages)
 Alerts Since Startup: ? (Alerts)
 Calculations: (Enabled)
 Server to Server: (Enabled)
 Max Scada Buffer Duration: 201 (Days)

Server Memory: 28%
 Consumption Rate: ? (MB/Day)
 Historical Tags: 8 (8 Used of 1,000,000 Licensed)
 SCADA Tags: 0 (0 Used of 2,400 Licensed)
 Users: 1 (15 Licensed)
 Alarm Rate: ? (Alarms/Min)
 Alarms Since Startup: ? (Alarms)
 Data Stores: 4 (20 Licensed)

Collectors Auto

Collector	Status	Computer	Report Rate	Overruns	Compression	Out Of Order	Redundancy
SAN-JAVA-DEV Simulation	Unknown	SAN-JAVA-DEV	0	0	%	0	

Alerts Show Alerts Auto

Timestamp	Topic	Message
-----------	-------	---------

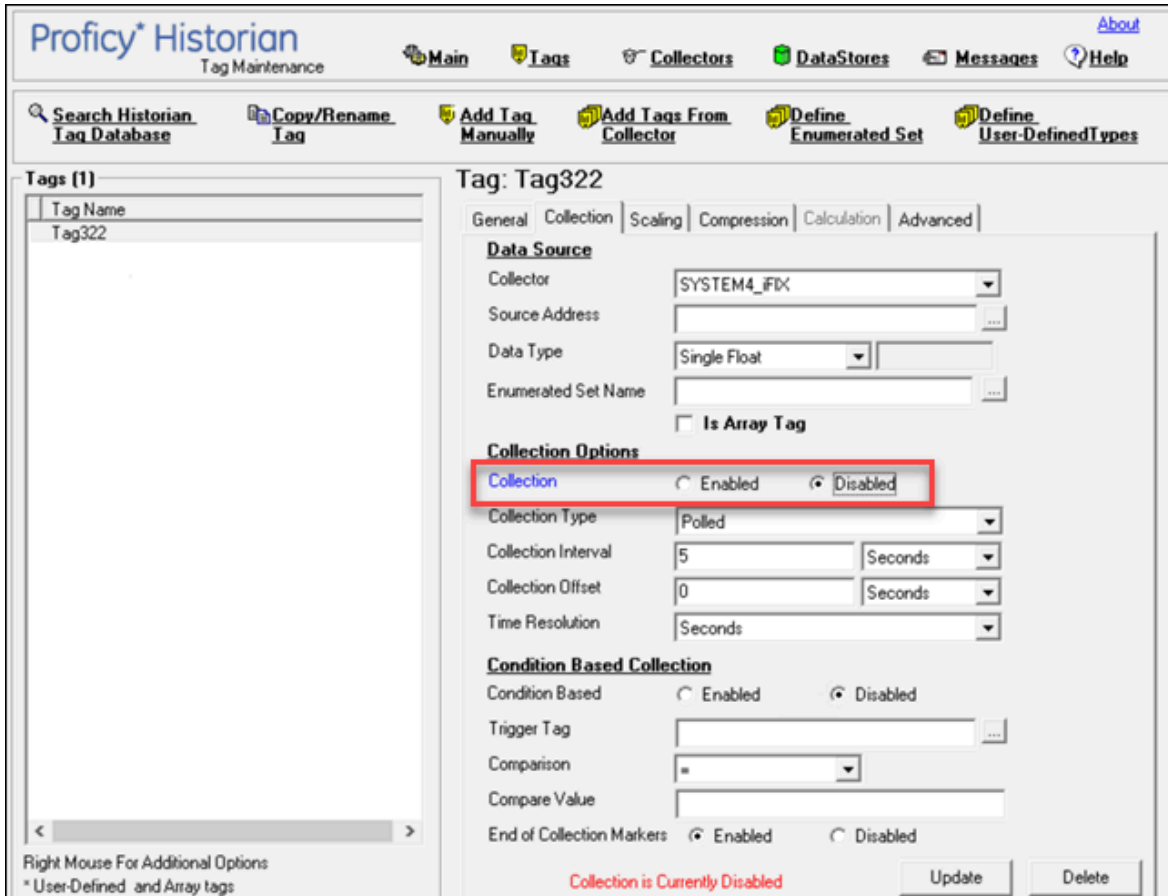
3. Select the tag whose data collection you want to stop.

The screenshot displays the Proficy Historian Tag Maintenance interface. At the top, the application title 'Proficy Historian' is shown with the subtitle 'Tag Maintenance'. A navigation bar includes links for 'Main', 'Tags', 'Collectors', 'DataStores', 'Messages', and 'Help'. Below this, a secondary navigation bar contains icons and labels for 'Search Historian Tag Database', 'Copy/Rename Tag', 'Add Tag Manually', 'Add Tags From Collector', 'Define Enumerated Set', and 'Define User-Defined Types'. The main content area is split into two panes. The left pane, titled 'Tags (1)', contains a table with one entry: 'Tag322'. This pane is highlighted with a red border. The right pane, titled 'Tag: Tag322', features several tabs: 'General', 'Collection', 'Scaling', 'Compression', 'Calculation', and 'Advanced'. The 'Collection' tab is active. Under the heading 'Data Collection Options', there are four fields: 'Time Assigned By' (set to 'Collector'), 'Time Zone Bias (min)' (set to '0'), 'Time Adjustment' (set to 'Do Not Adjust For Source Time Difference'), and 'Data Store' (set to 'User'). Below this is the 'Security' section with three dropdown menus for 'Read Group', 'Write Group', and 'Administer Group'. The 'Audit' section shows 'Last Modified' as 'Never' and 'Modified By' as an empty field. At the bottom right of the configuration area are 'Update' and 'Delete' buttons. A footer note at the bottom left of the interface reads: 'Right Mouse For Additional Options * User-Defined and Array tags'.

4. Select **Collection**.

The screenshot shows the Proficy Historian Tag Maintenance interface. At the top, there is a navigation bar with icons for Main, Tags, Collectors, DataStores, Messages, and Help. Below this is a secondary navigation bar with buttons for Search Historian Tag Database, Copy/Rename Tag, Add Tag Manually, Add Tags From Collector, Define Enumerated Set, and Define User-Defined Types. The main area is titled 'Tag: Tag322' and contains several tabs: General, Collection (highlighted with a red box), Scaling, Compression, Calculation, and Advanced. Under the 'Collection' tab, there is a 'Description' section with fields for Description, EGU Description, and Comment. Below this is a 'StepValue' section with radio buttons for 'Enabled' and 'Disabled', where 'Disabled' is selected. There is also a 'Spare Configuration' section with five input fields labeled Spare 1 through Spare 5. At the bottom right of the main area are 'Update' and 'Delete' buttons. On the left side, there is a 'Tags (1)' list showing 'Tag322' under the 'Tag Name' column. At the bottom left, there is a note: 'Right Mouse For Additional Options * User-Defined and Array tags'.

5. For the **Collection** field, select **Disabled**.



6. Select **Update**.

7. To stop data collection on a tag:

- a. From the list in the left-hand window of the page, select a tag.
- b. In the window on the right side of the page, select **Collection**.
- c. For the **Collection** field, select the **Disabled** option.
- d. Select **Update**.

Proficy Historian
Tag Maintenance

Main Tags Collectors DataStores Messages Help

Search Historian Tag Database Copy/Rename Tag Add Tag Manually Add Tags From Collector Define Enumerated Set Define User-Defined Types

Tags (1)
Tag Name
Tag322

Tag: Tag322

General Collection Scaling Compression Calculation Advanced

Data Source
 Collector: SYSTEM4_IFX
 Source Address:
 Data Type: Single Float
 Enumerated Set Name:

Is Array Tag

Collection Options
 Collection: Enabled Disabled
 Collection Type: Polled
 Collection Interval: 5 Seconds
 Collection Offset: 0 Seconds
 Time Resolution: Seconds

Condition Based Collection
 Condition Based: Enabled Disabled
 Trigger Tag:
 Comparison: =
 Compare Value:
 End of Collection Markers: Enabled Disabled

Collection is Currently Disabled

Update Delete

Right Mouse For Additional Options
* User-Defined and Array tags

The data collection for the tag is stopped.

Resume Data Collection

Procedure

1. Access [Historian Administrator \(on page 234\)](#).
2. Select **Tags**.

Proficy Historian
System Statistics

[Main](#)
Tags
[Collectors](#)
[DataStores](#)
[Messages](#)
[Help](#)

Receive Rate ? (Events/Min)

1 _____

0 1 2 3 4 5 6 7 8 9 10

Archive Compression	0%	Server Memory	28%
Write Cache Hit	0%	Consumption Rate	? (MB/Day)
Failed Writes	? (Events)	Historical Tags	8 (8 Used of 1,000,000 Licensed)
Messages Since Startup	? (Messages)	SCADA Tags	0 (0 Used of 2,400 Licensed)
Alerts Since Startup	? (Alerts)	Users	1 (15 Licensed)
Calculations	(Enabled)	Alarm Rate	? (Alarms/Min)
Server to Server	(Enabled)	Alarms Since Startup	? (Alarms)
Max Scada Buffer Duration	201 (Days)	Data Stores	4 (20 Licensed)

Collectors Auto

Collector	Status	Computer	Report Rate	Overruns	Compression	Out Of Order	Redundancy
SAN-JAVA-DEV Simulation	Unknown	SAN-JAVA-DEV	0	0	%	0	

Alerts Show Alerts Auto

Timestamp	Topic	Message
-----------	-------	---------

3. Select the tag whose data collection you want to resume.

The screenshot displays the Proficy Historian Tag Maintenance interface. The top navigation bar includes links for Main, Tags, Collectors, DataStores, Messages, and Help. Below this, there are several action buttons: Search Historian Tag Database, Copy/Rename Tag, Add Tag Manually, Add Tags From Collector, Define Enumerated Set, and Define User-Defined Types. The main content area is divided into two sections. On the left, a table titled 'Tags (1)' lists the tag 'Tag322'. On the right, the configuration page for 'Tag: Tag322' is shown, with tabs for General, Collection, Scaling, Compression, Calculation, and Advanced. The 'Collection' tab is active, showing 'Data Collection Options' with fields for Time Assigned By (Collector), Time Zone Bias (min) (0), Time Adjustment (Do Not Adjust For Source Time Difference), and Data Store (User). Below this are 'Security' options for Read Group, Write Group, and Administer Group, and an 'Audit' section with Last Modified (Never) and Modified By fields. At the bottom right, there are 'Update' and 'Delete' buttons. A red box highlights the 'Tags (1)' table.

Proficy* Historian
Tag Maintenance

Main Tags Collectors DataStores Messages Help

Search Historian Tag Database Copy/Rename Tag Add Tag Manually Add Tags From Collector Define Enumerated Set Define User-Defined Types

Tags (1)

Tag Name
Tag322

Tag: Tag322

General Collection Scaling Compression Calculation Advanced

Data Collection Options

Time Assigned By: Collector

Time Zone Bias (min): 0

Time Adjustment: Do Not Adjust For Source Time Difference

Data Store: User

Security

Read Group: []

Write Group: []

Administer Group: []

Audit

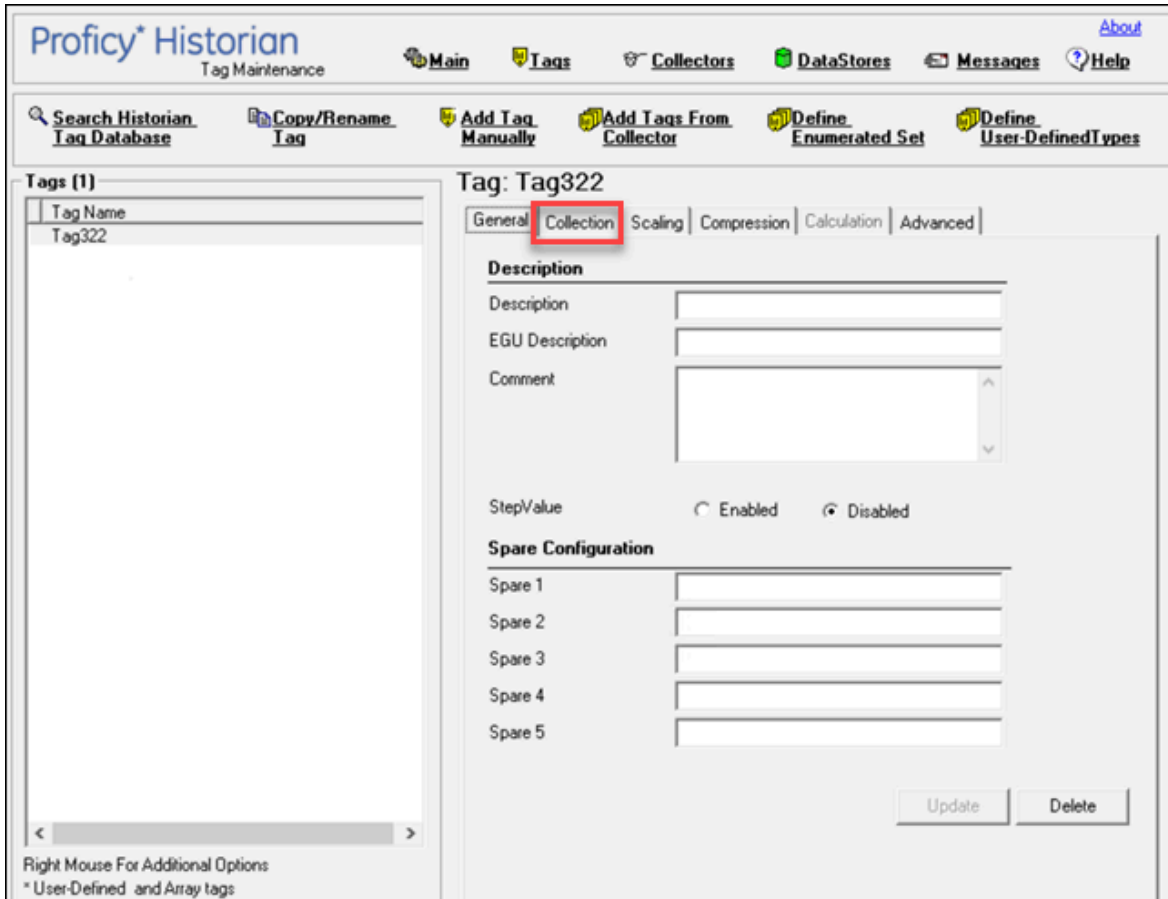
Last Modified: Never

Modified By: []

Update Delete

Right Mouse For Additional Options
* User-Defined and Array tags

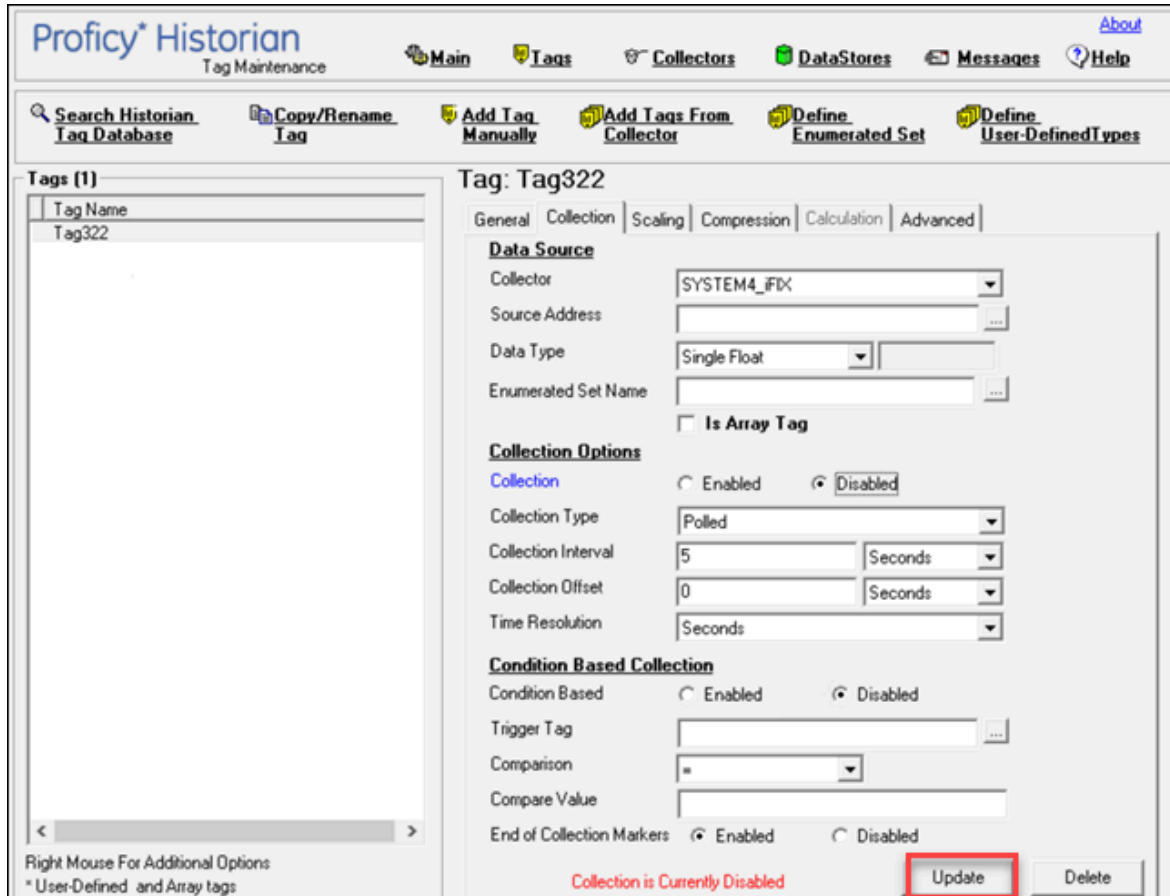
4. Select **Collection**.



5. For the **Collection** field, select **Enabled**.

The screenshot shows the Proficy Historian Tag Maintenance interface. The main window is titled "Tag: Tag322" and has several tabs: "General", "Collection", "Scaling", "Compression", "Calculation", and "Advanced". The "Collection" tab is selected. Under the "Data Source" section, the "Collector" is set to "SYSTEM4_IFX", "Data Type" is "Single Float", and "Is Array Tag" is unchecked. The "Collection Options" section has the "Collection" radio button selected and highlighted with a red box. Below it, "Collection Type" is "Polled", "Collection Interval" is "5" seconds, "Collection Offset" is "0" seconds, and "Time Resolution" is "Seconds". The "Condition Based Collection" section has "Condition Based" set to "Disabled", "Trigger Tag" is empty, "Comparison" is "=", and "End of Collection Markers" is "Enabled". At the bottom right, there are "Update" and "Delete" buttons. On the left, a "Tags (1)" list shows "Tag322".

6. Select **Update**.



The data collection for the tag is resumed.

Get all the Fields Related to a Tag

Procedure

1. Access Registry Editor.
2. Create a DWORD (32-bit) registry entry named GetAllTagProps for the collector in the following registry path: `HKEY_LOCAL_MACHINE\SOFTWARE\Wow6432Node\Intellution, Inc.\iHistorian\Services\OPCCollector*_OPC_Intellution_IntellutionGatewayOPCServer`
3. Provide the value 1 for the registry entry.

Remove A Tag

About this task

When you remove a tag, it is removed from the tag database, but all data for that tag is retained in the archive and the tag name cannot be reused. Since the tag data is still available from the archive, you can still reference that tag from within a calculation formula, for example, or by using the Excel Add-In. If, however, you want to remove the tag data as well from the archive, you can [delete it permanently \(on page 330\)](#).

Whenever you delete/remove tags, the following collectors reload only the modified tag(s) without restarting the collectors.

- OPC Collector
- iFIX Collector
- Simulation Collector
- Server-to-Server Collector
- OSI PI Collector

By default, the On-line Tag Configuration Changes option is enabled, which allows a tag to stop and restart data collection without restarting the collector. If you disable the On-line Tag Configuration Changes option, any changes you make to the tags do not affect collection until you restart the collector. To enable or disable the On-line Tag Configuration Changes option, access Historian Administrator, and then select **Collectors > Advanced**.

Restarting the collector stops and restarts the tag(s) collection and may record bad data samples to the collection. All the collector configuration changes done within a 30-second time frame are batched up together. To collect the modified data faster, update/modify a small set of tags at a time. If the modified tags get zero bad markers and available runtime values at the same time, then precedence is given to available runtime values instead of zero bad markers.



Tip:

- To collect the modified data faster, update/modify a small set of tags at a time.
- When updating large sets of tags at the same time, the best practice is to disable the **On-line Tag Configuration Changes** option and restart the collector after modification.

Procedure

1. Access Historian Administrator (on page 234).
2. Select **Tags**.

The screenshot shows the Proficy Historian System Statistics page. The 'Tags' menu item in the top navigation bar is highlighted with a red box. Below the navigation bar, there are several performance metrics including Receive Rate, Archive Compression, Write Cache Hit, Failed Writes, Messages Since Startup, Alerts Since Startup, Calculations, Server to Server, Max Scada Buffer Duration, Server Memory, Consumption Rate, Historical Tags, SCADA Tags, Users, Alarm Rate, Alarms Since Startup, and Data Stores. Below these metrics are two tables: 'Collectors' and 'Alerts'.

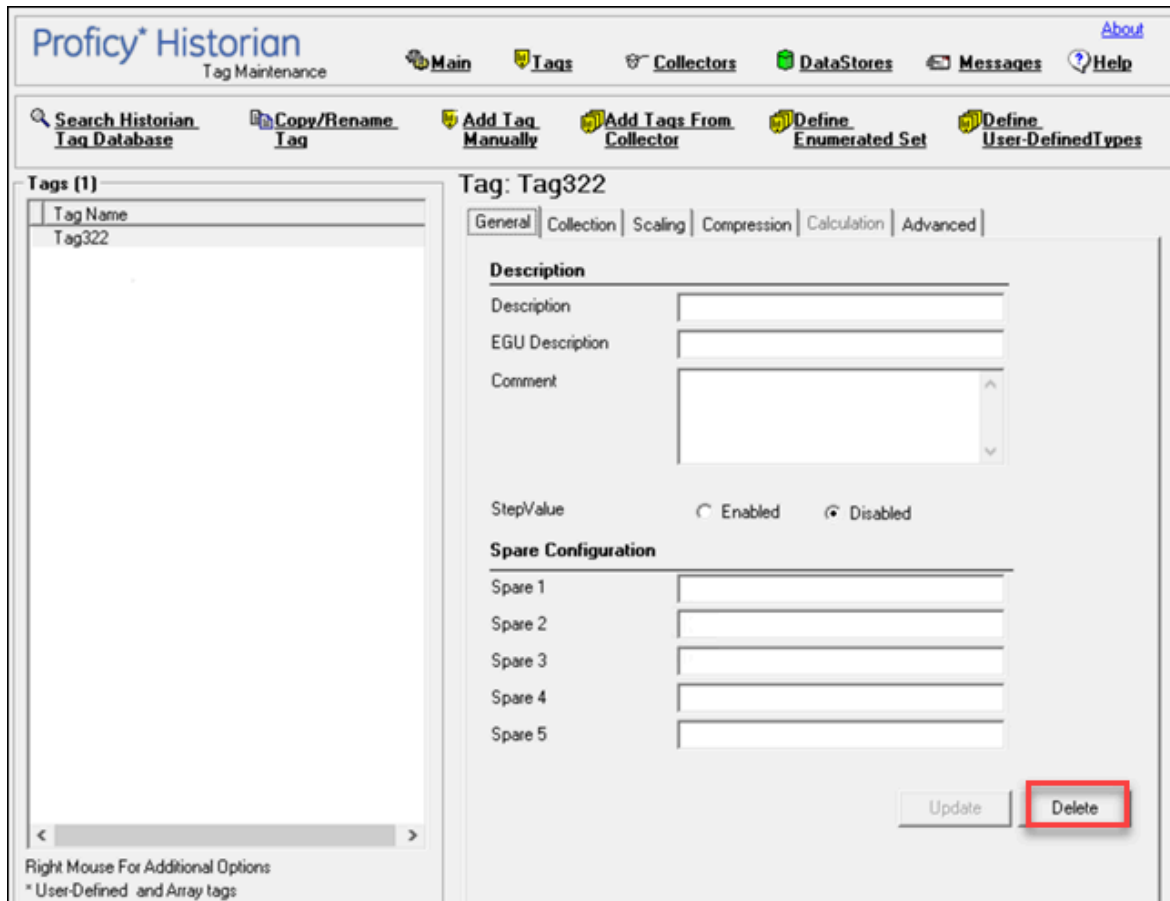
Collector	Status	Computer	Report Rate	Overruns	Compression	Out Of Order	Redundancy
SAN-JAVA-DEV_Simulation	Unknown	SAN-JAVA-DEV	0	0	%	0	

Timestamp	Topic	Message

3. Select the tag that you want to remove.

The screenshot displays the Proficy Historian Tag Maintenance interface. The top navigation bar includes links for Main, Tags, Collectors, DataStores, Messages, and Help. Below this, there are several action buttons: Search Historian Tag Database, Copy/Rename Tag, Add Tag Manually, Add Tags From Collector, Define Enumerated Set, and Define User-Defined Types. The main content area is split into two panes. The left pane, titled 'Tags (1)', contains a table with one entry: Tag Name: Tag322. This pane is highlighted with a red border. The right pane, titled 'Tag: Tag322', shows configuration options for this tag. It has tabs for General, Collection, Scaling, Compression, Calculation, and Advanced. The 'Data Collection Options' section includes: Time Assigned By (Collector), Time Zone Bias (min) (0), Time Adjustment (Do Not Adjust For Source Time Difference), and Data Store (User). The 'Security' section includes Read Group, Write Group, and Administer Group, each with a dropdown menu. The 'Audit' section shows Last Modified (Never) and Modified By. At the bottom right of the configuration pane are 'Update' and 'Delete' buttons.

4. Select **Delete**.



The **Delete Tags** window appears.

5. Select **Remove Tag from System**, and then select **OK**.

A message box appears, asking you to confirm that you want to remove the tag.

6. Select **Yes**.

The tag is removed.

Deleting Tags Permanently

About this task

When you delete a tag, the tag as well as all the data for that tag is removed from the archive and the tag name is available for reuse. You can no longer query the data for that tag. If, however, you want to just remove the tag, but retain the tag data, refer to [Remove A Tag \(on page 327\)](#).

Procedure

1. [Access Historian Administrator \(on page 234\)](#).
2. Select **Tags**.

Proficy Historian
System Statistics

[Main](#)

[Tags](#)
[Collectors](#)
[DataStores](#)
[Messages](#)
[Help](#)

Receive Rate ? (Events/Min)
 1 _____
 0 1 2 3 4 5 6 7 8 9 10

Archive Compression	0%	Server Memory	28%
Write Cache Hit	0%	Consumption Rate	? (MB/Day)
Failed Writes	? (Events)	Historical Tags	8 (8 Used of 1,000,000 Licensed)
Messages Since Startup	? (Messages)	SCADA Tags	0 (0 Used of 2,400 Licensed)
Alerts Since Startup	? (Alerts)	Users	1 (15 Licensed)
Calculations	(Enabled)	Alarm Rate	? (Alarms/Min)
Server to Server	(Enabled)	Alarms Since Startup	? (Alarms)
Max Scada Buffer Duration	201 (Days)	Data Stores	4 (20 Licensed)

Collectors Auto

Collector	Status	Computer	Report Rate	Overruns	Compression	Out Of Order	Redundancy
SAN-JAVA-DEV Simulation	Unknown	SAN-JAVA-DEV	0	0	%	0	

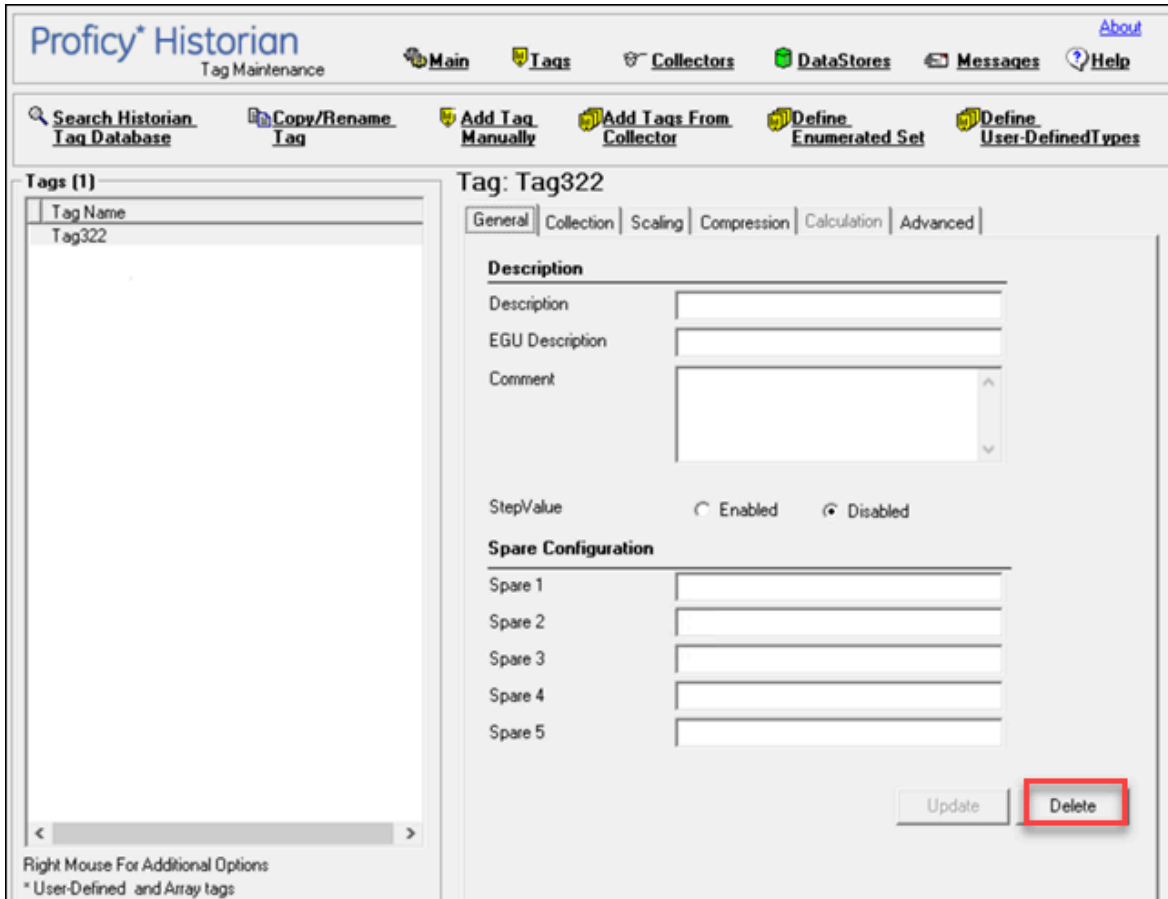
Alerts Show Alerts Auto

Timestamp	Topic	Message
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3. Select the tag that you want to delete.

The screenshot displays the Proficy Historian Tag Maintenance interface. The top navigation bar includes links for Main, Tags, Collectors, DataStores, Messages, and Help. Below this, there are several action buttons: Search Historian Tag Database, Copy/Rename Tag, Add Tag Manually, Add Tags From Collector, Define Enumerated Set, and Define User-Defined Types. The main content area is divided into two sections. On the left, a table titled 'Tags (1)' lists the tag 'Tag322'. This table is highlighted with a red border. On the right, the configuration page for 'Tag: Tag322' is shown, with tabs for General, Collection, Scaling, Compression, Calculation, and Advanced. The 'Data Collection Options' section includes fields for Time Assigned By (Collector), Time Zone Bias (min) (0), Time Adjustment (Do Not Adjust For Source Time Difference), and Data Store (User). The 'Security' section has fields for Read Group, Write Group, and Administer Group. The 'Audit' section shows Last Modified (Never) and Modified By. At the bottom right, there are 'Update' and 'Delete' buttons.

4. Select **Delete**.



The **Delete Tags** window appears.

5. Select **Permanently Remove Tags From System**, and then select **OK**.

A message box appears, asking you to confirm that you want to delete the tag.

6. Select **Yes**.

The tag is deleted.

Managing Collectors

About Collectors

A collector collects tag data from various data sources.

How tag data is stored if using collectors of on-premises Proficy Historian (TLS encryption is not used):

1. Collectors send a request to AWS Network Load Balancer (NLB) to write tag data.
2. NLB sends the request to Data Archiver. If user authentication is needed, Data Archiver sends the request to UAA, which verifies the user credentials stored in PostgreSQL. After authentication, NLB confirms to the collectors that data can be sent.
3. Data collected by the collector instances is sent to NLB.
4. NLB sends the data to Data Archiver directly. After authentication, Data Archiver stores the data in EFS in .iha files.

How tag data is stored if using Historian Collectors for Cloud (TLS encryption is used):

1. Collectors send a request to AWS NLB to write tag data. Since the request is encrypted, port 443 is used.
2. NLB decrypts the request and sends it to Data Archiver. If user authentication is needed, Data Archiver sends the request to UAA, which verifies the user credentials stored in PostgreSQL. After authentication, NLB confirms to the collectors that data can be sent.
3. Data collected by the collector instances is encrypted and sent to NLB using port 443.
4. NLB decrypts the data and sends it to Data Archiver. After authentication, Data Archiver stores the data in EFS in .iha files.

How data is retrieved:

1. Clients (that is, Excel Addin, the Web Admin console, the REST Query service, or Historian Administrator) send a request to NLB to retrieve data.
2. NLB sends the request to Data Archiver, which retrieves data from EFS. If, however, user authentication is needed, Data Archiver sends the request to UAA, which verifies the user credentials stored in PostgreSQL. After authentication, data is retrieved from EFS.

To send data using a collector, you must:

1. [Install collectors \(on page 26\)](#).

You can install collectors on multiple Windows machines. These machines can be on-premises or on a virtual private cloud (VPC).

2. Create a collector instance.

Access/Modify a Collector

Procedure

1. Access Historian Administrator (on page 234).
2. Select **Collectors**.

The screenshot shows the Proficy Historian System Statistics interface. The 'Collectors' tab is highlighted with a red box in the top navigation bar. Below the navigation bar, there is a 'Receive Rate' graph showing 155 Events/Min. To the right of the graph are various system statistics, including Archive Compression (39%), Write Cache Hit (100%), Failed Writes (0), Messages Since Startup (24), Alerts Since Startup (13), Calculations (Enabled), Server to Server (Enabled), Max Scada Buffer Duration (201 Days), Server Memory (32%), Consumption Rate (0.3 MB/Day), Historical Tags (5), SCADA Tags (0), Users (1), Alarm Rate (0), Alarms Since Startup (0), and Data Stores (3).

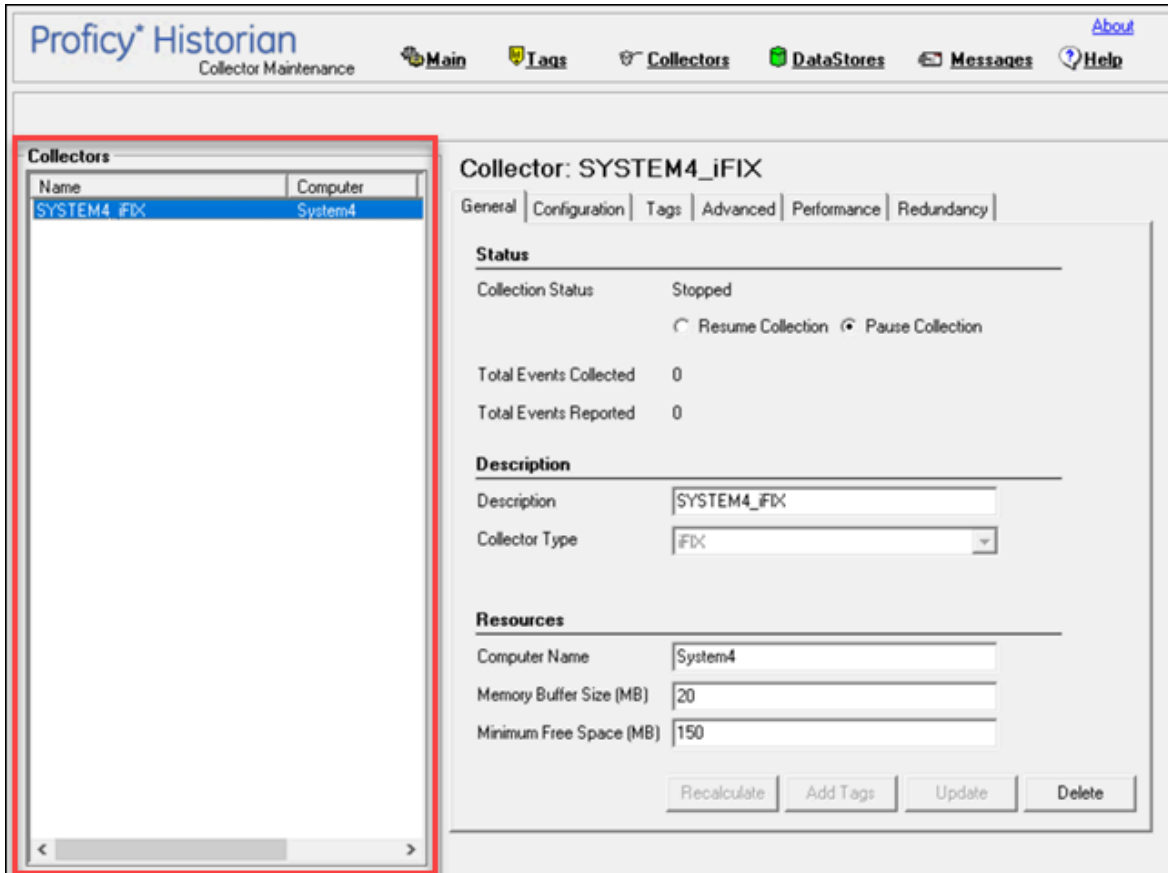
Below the statistics is a table titled 'Collectors' with the following data:

Collector	Status	Computer	Report Rate	Overruns	Compression	Out Of Order	Redundancy
SYSTEM4 #FX	Stopped	System4	0	0	%	0	

Below the Collectors table is an 'Alerts' section with a 'Show Alerts' checkbox checked and an 'Auto' checkbox unchecked. The Alerts table has columns for Timestamp, Topic, and Message, but it is currently empty.

A list of collectors appears.

3. Select the collector whose details you want to access/modify.



4. As needed, modify values as described in the following tables, and then select **Update**.

Table 37. The General Section

Field	Description
Collection Status Field	<p>The current operating status of the collector. Contains one of the following values:</p> <ul style="list-style-type: none"> • Running: The collector is operating and collecting data. • Stopped: The collector is in pause mode and not collecting data. • Unknown: The status information about the collector is unavailable at present, perhaps as a result of a lost connection between collector and server or because the collector was shut down improperly. <p>You can specify whether you want to pause or resume data collection.</p>
Total Events Collected	Not applicable
Total Events Reported	Not applicable



Field	Description
Description	The name of the collector.
Collector Type	The type of the collector.
Computer Name	The machine name of the computer on which the collector is installed.
Memory Buffer Size (MB)	<p>The size of the memory buffer currently assigned to the store-and-forward function. The memory buffer stores data during short-term or momentary interruptions of the server connection; the disk buffer handles long duration outages. To estimate the size you need for this buffer, you need to know how fast the collector is trying to send data to the server and how long the server connection is likely to be down. With those values and a safety margin, you can compute the required size of the buffer.</p> <div style="border: 1px solid #0070C0; border-radius: 10px; padding: 10px; margin-top: 10px;">  Note: If you enter a new value for this parameter, the change is effective the next time you restart the collector. </div>
Minimum Free Space (MB)	The minimum free disk space that must be available on the computer. If the minimum space required is not available when the collector starts, the collector will shut down.

Table 38. The Tags Section

Field	Description
Add Prefix to Tag	A prefix that is automatically added to all tag names when you add tags.
Collection Interval	<p>The time required to complete a poll of a given tag on the collector. It is also used in unsolicited collection. In effect, it specifies how frequently data can be read from a tag. The collection interval can be individually configured for each tag.</p> <div style="border: 1px solid #0070C0; border-radius: 10px; padding: 10px; margin-top: 10px;">  Note: To avoid collecting repeat values with the OPC collector when using device timestamps, specify a collection interval that is greater than the OPC server update rate. </div>

Field	Description
Collection Type	Indicates whether this collector is configured for polled or unsolicited data collection.
Time Assigned By	Indicates whether the timestamp for the data value is provided by the collector or the data source.
Collector Compression	Indicates whether collector compression (on page 279) is enabled as a default setting. This option is overridden by tag-level settings.
Deadband	The default setting of the collector compression deadband in absolute or percentage range values.
Compression Timeout	The default setting for the collector compression time-out for tags added through the Add Multiple Tags From Collector window. You must enable collector compression to use this field.
Spike Logic Control	Indicates whether incoming data samples for spikes are captured in tag values. If spike logic is enabled, a sample of equal value to the previously archived sample is inserted into the archive in front of the spike value. For more information, refer to Enable Spike Logic (on page 342) .

Table 39. The Advanced Section

Field	Description
On-line Tag Configuration Changes	Indicates whether you can make changes to tags without having to restart the collector. If you disable this option, any changes you make to tags do not affect collection until you restart the collector.
Browse Source Address Space	Indicates whether you want the collector to respond to requests to browse the tags in the source. You may sometimes want to disable this feature to reduce processing load on the collector.
Synchronize Timestamps to Server Time	Adjusts all outgoing data timestamps to match the server clock. This option is not applicable when you configure timestamps to be provided by the data source. Note that this does not change collector times to match the server time; it adds or subtracts an increment of time to compensate for the relative difference between the clocks of the server and collector, independent of time zone or day light savings time (DST) differences. If the collector system clock is greater than 15 minutes ahead

Field	Description
	of the archiver system clock, and the Synchronize Timestamps to Server option is disabled, data will not be written to the archive.
Source/Device Timestamps	The time source for the timestamps. This field applies only if you are using source timestamps. The collector uses this field to determine whether the timestamps coming from the data source are in local machine time or UTC.
Delay Collection at Startup	The number of seconds to delay collection on startup (after loading its tag configuration).
Rate Output Address	Not applicable
Status Output Address	<p>Address in the source database into which the collector writes the current value of the collector status, letting an operator or the HMI/SCADA application know the current status of the collector.</p> <p>This address should be connected to a writable text field of at least 8 characters. This value is only updated upon a change in status of the collector.</p> <p>For an iFIX collector, use TX tag for the output address. Enter the address in the following format: NODE.TAG.FIELD (for example, MyNode.MyCollector_TX.A_CV).</p> <p>For an OPC collector, use an OPC address in the server. Refer to your OPC documentation for more information.</p>
Heartbeat Output Address	<p>Address in the source database into which the collector writes the heartbeat signal output. This address should be connected to a writable analog field.</p> <p>For an iFIX collector, use an iFIX tag for the output address. Enter the address in the following format: NODE.TAG.FIELD (for example, MyNode.MyCollector_AO.F_CV).</p> <p>For an OPC collector, use the OPC address in the server. Refer to your OPC documentation for more information.</p> <p>The data collector writes the value of 1 to this location every 60 seconds while it is running. You can program the iFIX database to generate an</p>

Field	Description
	alarm if the Heartbeat Output Address is not written once every 60 seconds, notifying you that the data collector has stopped.

Table 40. The Performance Section

Section	Description
Report Rate	Displays the average rate at which data is coming into the server from the collector. This is a general indicator of load on the Historian collector. Since this chart displays a slow trend of compressed data, it may not always match the instantaneous value of report rate.
Compression	Displays the effectiveness of collector compression. If the chart displays a low current value, you can widen the compression deadbands to pass fewer values and increase the effect of compression.
Overruns	Not applicable

Delete a Collector

About this task

When you delete a collector, all of its tags are deleted from the Historian database.

Procedure

1. [Access Historian Administrator \(on page 234\)](#).
2. Select **Collectors**.

Proficy Historian
System Statistics

Main Tags **Collectors** DataStores Messages Help

Receive Rate 155 (Events/Min)

Archive Compression 39%
Write Cache Hit 100%
Failed Writes 0 (Events)
Messages Since Startup 24 (Messages)
Alerts Since Startup 13 (Alerts)
Calculations (Enabled)
Server to Server (Enabled)
Max Scada Buffer Duration 201 (Days)

Server Memory 32%
Consumption Rate 0.3 (MB/Day)
Historical Tags 5 (5 Used of 1,000,000 Licensed)
SCADA Tags 0 (0 Used of 2,400 Licensed)
Users 1 (15 Licensed)
Alarm Rate 0 (Alarms/Min)
Alarms Since Startup 0 (Alarms)
Data Stores 3 (20 Licensed)

Collectors Auto Refresh

Collector	Status	Computer	Report Rate	Overruns	Compression	Out Of Order	Redundancy
SYSTEM4 #FX	Stopped	System4	0	0	%	0	

Alerts Show Alerts Auto Refresh

Timestamp	Topic	Message
-----------	-------	---------

A list of collectors appears.

3. Select the collector whose details you want to delete.

The screenshot displays the Proficy Historian Collector Maintenance interface. On the left, a table titled 'Collectors' is highlighted with a red border. It contains one entry: 'SYSTEM4_IFX' with 'System4' as the computer name. The right pane shows the configuration for 'Collector: SYSTEM4_IFX'. It includes tabs for 'General', 'Configuration', 'Tags', 'Advanced', 'Performance', and 'Redundancy'. The 'Status' section shows 'Collection Status' as 'Stopped' with options to 'Resume Collection' or 'Pause Collection'. The 'Description' section has a text field for 'SYSTEM4_IFX' and a dropdown for 'IFX'. The 'Resources' section includes fields for 'Computer Name' (System4), 'Memory Buffer Size (MB)' (20), and 'Minimum Free Space (MB)' (150). At the bottom, there are buttons for 'Recalculate', 'Add Tags', 'Update', and 'Delete'.

4. Select **Delete**.

A message appears, asking you to confirm that you want to delete the collector.

5. Select **Yes**.

The collector is deleted.

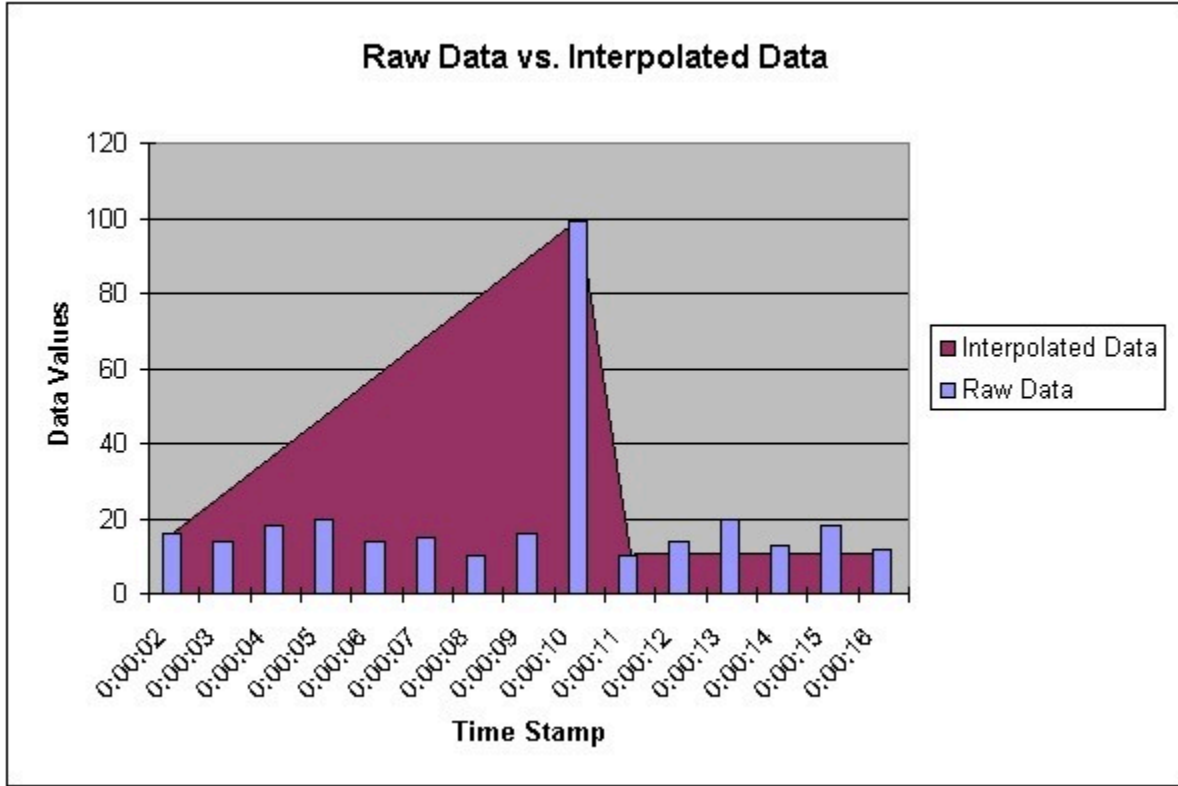
Enable Spike Logic

About this task

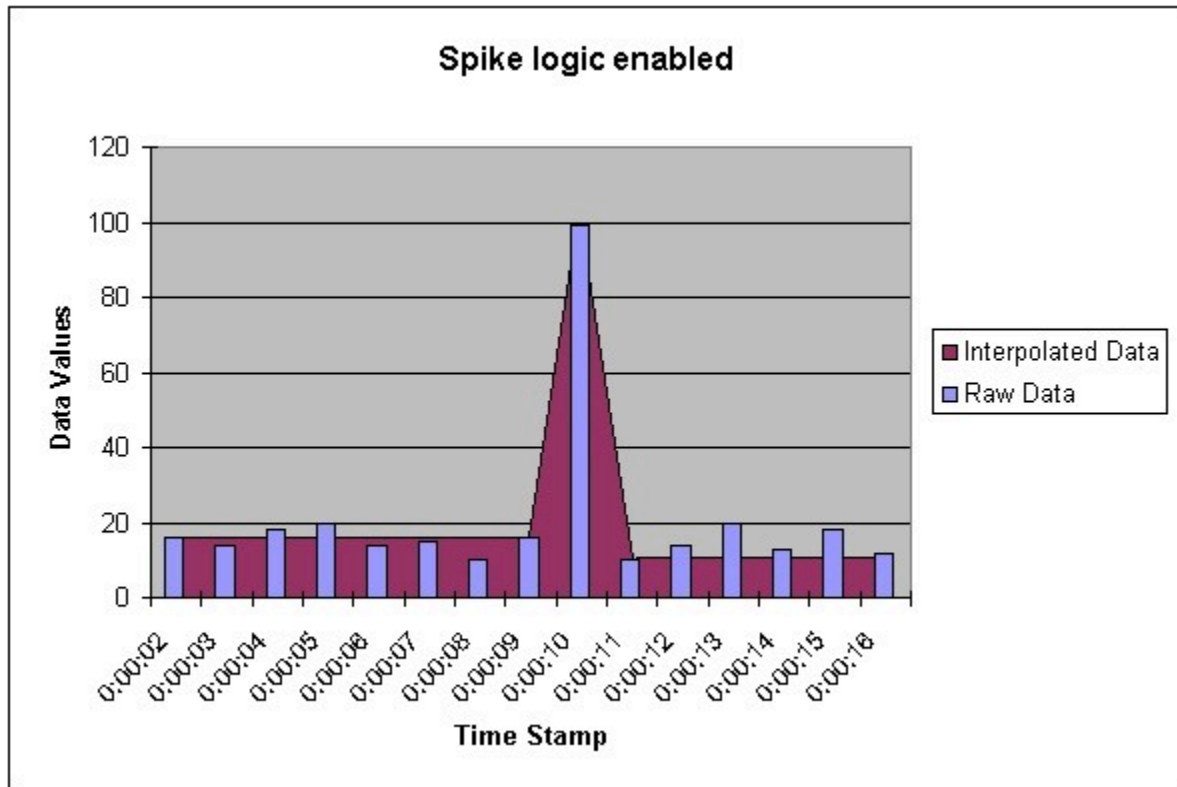
When compression is enabled in the Historian archive, only the first instance in a series of data falling within a deadband range will be collected to the Historian archive. When that data is plotted using interpolation, false values are inserted into the chart to create a smooth trend between intervals in a given time period. In most cases, interpolation gives a reasonable portrayal of the actual data for a given time period.

Unfortunately, in the event of a spike in data values, an unrealistic set of samples is created when the data is plotted. Instead of showing the results of compression (the same values over a series of intervals), a rising or falling slope is created in the chart. This gives the impression that values for a given time stamp are higher or lower than they actually were. The figure below shows the difference between the raw

data for a series of samples, and how the samples would be plotted if data compression were enabled, assuming all values between 10 and 20 are in the deadband range.



Spike logic monitors incoming data samples for spikes in a tag's values. If spike logic is enabled, a sample of equal value to the previously archived sample is inserted into the archive in front of the spike value. The time stamp of the inserted value is determined by your polling interval. If samples are collected at one-second intervals, the inserted sample's time stamp will be one second before the spike. This helps identify the spike, and retains a more accurate picture of the data leading up to it, as shown in the following image.



Procedure

1. Access [Historian Administrator](#) (on page 234).
2. Select **Collectors**.

Proficy Historian
System Statistics

Main Tags **Collectors** DataStores Messages Help

Receive Rate 155 (Events/Min)

Archive Compression 39%
Write Cache Hit 100%
Failed Writes 0 (Events)
Messages Since Startup 24 (Messages)
Alerts Since Startup 13 (Alerts)
Calculations (Enabled)
Server to Server (Enabled)
Max Scada Buffer Duration 201 (Days)

Server Memory 32%
Consumption Rate 0.3 (MB/Day)
Historical Tags 5 (5 Used of 1,000,000 Licensed)
SCADA Tags 0 (0 Used of 2,400 Licensed)
Users 1 (15 Licensed)
Alarm Rate 0 (Alarms/Min)
Alarms Since Startup 0 (Alarms)
Data Stores 3 (20 Licensed)

Collectors Auto Refresh

Collector	Status	Computer	Report Rate	Overruns	Compression	Out Of Order	Redundancy
SYSTEM4 #FX	Stopped	System4	0	0	%	0	

Alerts Show Alerts Auto Refresh

Timestamp	Topic	Message
-----------	-------	---------

A list of collectors appears.

3. Select the collector to which you want to apply spike logic.

The screenshot displays the Proficy Historian Collector Maintenance interface. The top navigation bar includes links for Main, Tags, Collectors, DataStores, Messages, and Help. The main content area is divided into two sections. On the left, a table titled 'Collectors' lists the collector 'SYSTEM4_iFIX' associated with the computer 'System4'. This table is highlighted with a red border. On the right, the configuration page for 'Collector: SYSTEM4_iFIX' is shown, with tabs for General, Configuration, Tags, Advanced, Performance, and Redundancy. The 'Status' section indicates the collection is 'Stopped' and provides options to 'Resume Collection' or 'Pause Collection'. The 'Description' section shows the collector name and type. The 'Resources' section includes fields for 'Computer Name', 'Memory Buffer Size (MB)', and 'Minimum Free Space (MB)'. At the bottom, there are buttons for 'Recalculate', 'Add Tags', 'Update', and 'Delete'.

Name	Computer
SYSTEM4_iFIX	System4

Collector: SYSTEM4_iFIX

General | Configuration | **Tags** | Advanced | Performance | Redundancy

Status

Collection Status: Stopped
 Resume Collection Pause Collection

Total Events Collected: 0
Total Events Reported: 0

Description

Description: SYSTEM4_iFIX
Collector Type: iFIX

Resources

Computer Name: System4
Memory Buffer Size (MB): 20
Minimum Free Space (MB): 150

Recalculate Add Tags Update Delete

4. Select **Tags**.

The screenshot shows the Proficy Historian Collector Maintenance interface. On the left, a table lists collectors:

Name	Computer
SYSTEM4_iFIX	System4

The main area displays the configuration for the selected collector, **Collector: SYSTEM4_iFIX**. The **Tags** sub-tab is active. The configuration is organized into sections:

- Status:** Collection Status is **Stopped**. There are radio buttons for **Resume Collection** and **Pause Collection** (which is selected).
- Description:** Description is **SYSTEM4_iFIX**. Collector Type is **iFIX**.
- Resources:** Computer Name is **System4**. Memory Buffer Size (MB) is **20**. Minimum Free Space (MB) is **150**.

At the bottom, there are buttons for **Recalculate**, **Add Tags**, **Update**, and **Delete**.

5. Under **Default Compression**, in the **Spike Logic Control** field, select **Enabled**, and then select one of the following options:

- **Multiplier:** Specifies how much larger a spike value must be than the deadband range before spike logic will be invoked. For example, if you enter 3, and the deadband percentage was set to 5%, spike logic will not be invoked until the difference between the spike value and the previously archived data point is 15% of the EGU range.
- **Interval:** Specifies how many samples must have been compressed before the spike logic will be invoked. For example, if you enter 4, and 6 values have been compressed since the last archived data sample, spike logic will be invoked.

6. Select **Update**.

The spike logic is enabled.

Maintaining, Operating, and Monitoring Historian

Maintain, Operate, and Monitor Historian

To ensure reliable, error-free operation over a long period of time, develop and execute a consistent maintenance program for the Historian system and the data it collects. The subsequent topics provide guidelines for setting up such a plan and for monitoring and interpreting system performance indicators.

Data Types

Historian uses the following data types.

Data Type	Size	Description	Valid Values
Single Float	4 bytes	Stores decimal values up to 6 places.	1.175494351e-38F to 3.402823466e+38F
Double Float	8 bytes	Stores decimal values up to 15 places.	2.2250738585072014e-308 to 1.7976931348623158e+308
Single Integer	2 bytes	Stores whole numbers.	-32767 to +32767
Double Integer	4 bytes	Stores whole numbers.	-2147483648 to +2147483648
Quad Integer	8 bytes	Stores whole numbers.	-9,223,372,036,854,775,808 (negative 9 quintillion) to +9,223,372,036,854,775,807 (positive 9 quintillion)
Unsigned Single Integer	2 bytes	Stores whole numbers.	0 to 65535
Unsigned Double Integer	4 bytes	Stores whole numbers.	0 to 4,294,967, 295 (4.2 billion)
Unsigned Quad Integer	8 bytes	Stores whole numbers.	0 to 18,446,744,073,709,551,615 (19 quintillion)
Byte	1 byte	Stores integer values.	-128 to +127
Boolean	1 byte	Stores boolean values.	0=FALSE and 1=TRUE (any value other than zero is treated as one)

Data Type	Size	Description	Valid Values
Fixed String	Configured by user	Stores string data of a fixed size.	0 and 255 bytes
Variable String	No fixed size	Stores string values of undetermined size. This data type is useful if you cannot rely on a constant string length from your data source.	
Binary Object	No fixed size	Stores binary data. This is useful for capturing data that can not be classified by any other data type.	
Scaled	2 bytes	Stores a 4 byte float as a 2 byte integer. The scaled data type saves disk space but sacrifices data precision as a result.	

**Note:**

Tags associated with Quad Integer, Unsigned Double Integer, or Unsigned Quad Integer data types may suffer a loss of precision value due to a Visual Basic limitation.

Scaled Data Types

Historian uses the high and low EGU values to store and retrieve archived values for the scaled data type. This allows you to store 4 byte floats as 2 byte integers in the archive. Though this saves disk space, it sacrifices data precision. The smaller the span is between the high and low EGU limits, the more precise the retrieved value will be. When calculating the value of a scaled data type, you can use this formula:

```
ArchivedValue = (((RealWorldValue - EngUnits->Low) /
(EngUnits->High - EngUnits->Low) * (float) HR_SCALED_MAX_VALUE) + .5);
```

For example: A value of 12.345 was stored in a scaled tag whose high EGU was 200 and low EGU was 0. When later retrieved from the Historian archive, a value of 12.34473 will be returned.



Important:

Values that are outside of the EGU range of a scaled data type tag are stored as bad, scaledoutofrange in Historian. Changing either the High or Low EGU tags does not affect existing data, but only affects the new data with new timestamps. You cannot correct values for scaled data types that were inserted while EGUs were incorrect. If necessary, contact technical support for additional information.

Quad Integer Data Types: The high and low EGU limits for Quad Integer, Unsigned Single Integer, Unsigned Double Integer, Unsigned Quad Integer are between $2.2250738585072014e-308$ to $1.7976931348623158e+308$.

Set the Size of a Fixed String Data Type

About this task

Using the fixed string data type, you can store string data of a fixed size. This is useful when you know exactly what data will be received by Historian. If a value is larger than the size specified in the **Data Length** field, it will be truncated.

Procedure

1. [Access Historian Administrator \(on page 234\)](#).
2. Select **Tags**.

Proficy Historian
System Statistics

[Main](#)

[Tags](#)
[Collectors](#)
[DataStores](#)
[Messages](#)
[Help](#)

Receive Rate ? (Events/Min)
 1 _____
 0 1 2 3 4 5 6 7 8 9 10

Archive Compression	0%	Server Memory	28%
Write Cache Hit	0%	Consumption Rate	? (MB/Day)
Failed Writes	? (Events)	Historical Tags	8 (8 Used of 1,000,000 Licensed)
Messages Since Startup	? (Messages)	SCADA Tags	0 (0 Used of 2,400 Licensed)
Alerts Since Startup	? (Alerts)	Users	1 (15 Licensed)
Calculations	(Enabled)	Alarm Rate	? (Alarms/Min)
Server to Server	(Enabled)	Alarms Since Startup	? (Alarms)
Max Scada Buffer Duration	201 (Days)	Data Stores	4 (20 Licensed)

Collectors Auto

Collector	Status	Computer	Report Rate	Overruns	Compression	Out Of Order	Redundancy
SAN-JAVA-DEV Simulation	Unknown	SAN-JAVA-DEV	0	0	%	0	

Alerts Show Alerts Auto

Timestamp	Topic	Message
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3. Select the tag for which you want to set a fixed string data type.

The screenshot displays the Proficy Historian Tag Maintenance interface. The top navigation bar includes links for Main, Tags, Collectors, DataStores, Messages, and Help. Below this, there are several action buttons: Search Historian Tag Database, Copy/Rename Tag, Add Tag Manually, Add Tags From Collector, Define Enumerated Set, and Define User-Defined Types. The main content area is divided into two sections. On the left, a table titled 'Tags (1)' lists 'Tag322' under the 'Tag Name' column. This table is highlighted with a red border. On the right, the configuration page for 'Tag: Tag322' is shown, with tabs for General, Collection, Scaling, Compression, Calculation, and Advanced. The 'Collection' tab is active. Under 'Data Collection Options', there are dropdown menus for 'Time Assigned By' (set to 'Collector'), 'Time Zone Bias (min)' (set to '0'), 'Time Adjustment' (set to 'Do Not Adjust For Source Time Difference'), and 'Data Store' (set to 'User'). Below this is the 'Security' section with dropdowns for 'Read Group', 'Write Group', and 'Administer Group'. The 'Audit' section shows 'Last Modified' as 'Never' and 'Modified By' as an empty field. At the bottom right of the configuration area are 'Update' and 'Delete' buttons. A footer note at the bottom left of the interface states: 'Right Mouse For Additional Options * User-Defined and Array tags'.

4. Select **Collection**.

Proficy Historian
Tag Maintenance

Main Tags Collectors DataStores Messages Help

Search Historian Tag Database Copy/Rename Tag Add Tag Manually Add Tags From Collector Define Enumerated Set Define User-Defined Types

Tags (1)
Tag Name
Tag322

Tag: Tag322

General **Collection** Scaling Compression Calculation Advanced

Data Source
Collector SYSTEM4_IFX
Source Address
Data Type Single Float
Enumerated Set Name

Is Array Tag

Collection Options
Collection Enabled Disabled
Collection Type Polled
Collection Interval 5 Seconds
Collection Offset 0 Seconds
Time Resolution Seconds

Condition Based Collection
Condition Based Enabled Disabled
Trigger Tag
Comparison =
Compare Value
End of Collection Markers Enabled Disabled

Update Delete

Right Mouse For Additional Options
* User-Defined and Array tags

5. In the **Data Type** box, select **Fixed String**.
6. Enter a value in bytes in the adjacent field.
The fixed string data type is set for the tag.

Develop a Maintenance Plan

The primary goal of a maintenance plan is to maintain integrity of the data collected. If you are successful in this regard, you will always be able to recover from a service interruption and continue operation with minimal or no loss of data. Since you can never ensure 100% system uptime, you must frequently and regularly back up current data and configuration files, and maintain non-current archive files in a read-only state, following the guidelines for backup and routine maintenance.

Routine Maintenance: On a regular schedule, examine and analyze the system performance indicators displayed on the System Statistics page of Historian Administrator as follows.

Table 41. System Statistics Performance Indicators

Field	Recommended Action
Consumption Rate of Archive Storage	If the rate is excessively high, reduce the rate at which data flows into the system or increase the filtering applied to the data to lower the rate of archiving. To reduce the collection rate, slow the polling rate on some or all tags. To increase filtering, enable compression at the collector and/or archiver and widen the compression deadbands.
Failed Writes	<p>If the display shows a significant number of failed writes, investigate the cause and take corrective action to eliminate the malfunctions. Refer to the <code>DataArchiver-XX.log</code> file or query the message database to determine the tags for which failed writes occurred.</p> <p>For example, trying to write values to a deleted archive causes failed writes. Trying to archive data with a timestamp that precedes the start time of the first archive, trying to write to a read-only archive, or trying to write a value with a timestamp more than 15 minutes ahead of the current time on an archiver will produce a failed write.</p>
System Alerts	Not applicable

On a regular schedule, examine and analyze the performance indicators displayed in the **Performance** section.

Table 42. Collector Performance Indicators

Field	Recommended Actions
Avg. Event Rate Chart	Not applicable
Compression Chart	<p>Is compression effectiveness acceptable?</p> <p>If not, verify that compression is enabled and then widen the deadbands to increase the effect of compression.</p>
Overruns Chart	If the value is anything other than zero, determine the severity and cause of the problem and take corrective action.

Troubleshooting

Solve Minor Operating Problems

The following is a table of troubleshooting tips for solving minor operating problems with Historian.

Issue	Suggested Action
After setting the system clock back, browsing the collector from Historian Administrator produces a Visual Basic script error.	Delete temporary Internet files and restart Internet Explorer.
With the Historian Administrator, switching usernames causes the system to reject the login if the User must change password at next login option is selected at time of user creation.	New users with this setting must log in to the appropriate Windows operating system at least once. If the login attempt fails, run Historian Administrator as an administrator, and log in with a new username and password.
Excel Sample Reports do not display data.	When opening a Sample Excel report, you may receive a message prompting you to update all linked information in the workbook (Yes) or keep the existing information (No). It is recommended that you select No and keep the existing information. The links will be automatically updated for your worksheet. Save your worksheet after the links have been updated.
Need to connect an Historian Server to an Historian Client through a firewall.	Open port 14000 to enable client to server connection through a firewall.
Receiving archive offline failed writes messages.	These occur when the timestamps of data being sent to the archiver are not in the valid time range of any online archives. For example, failed writes occur when the timestamps appear <i>before</i> the oldest archive, the archive is offline, or timestamps are more than 15 minutes <i>past</i> the current time on another archiver.

FAQ: Run a Collector as a Service

The following list is frequently asked questions about running a collector as a service.

Can all collectors be run as a Windows service? If not, which ones cannot?

The OPC Collector, Simulation collector, and Server-to- Server collector can be run as services. The iFIX collector run as a background task and cannot be run as a service.

Can all collectors be run as an application? If not, which ones cannot?

All collectors can run as applications (console programs). This includes the Simulation Collector. To make a collector run as a console program, pass a RUNASDOS command line parameter.

What does "running as a service" mean?

It means that the collector appears in the Control Panel list of services. It can run at system boot or be run with a different username and password from the currently logged-in user.

How can the iFIX collector be set up to run when no one is logged in?

It can be set up to run without a user login by adding it to the iFIX SCU task list as a background task and by configuring iFIX to continue running after logging off in local startup.

How do you shut down a collector running as console application?

Collectors started as console applications should be shut down by typing S at the command prompt in the DOS window and pressing Enter.

Can a collector be run as a Windows service and then stopped and restarted?

Yes. Collectors that can run as a service can be stopped and started in Control Panel Services. They can be paused/resumed through Historian Administrator.

What is the difference between running a collector to start as a service on boot up using the Services applet in Control Panel versus running iFIX as a service, which starts the collector through the startup task configuration in the SCU?

The collectors that can run as a service would not be started from iFIX. They can be started from the Control Panel start at system boot. Although you cannot run an iFIX collector as a service, you can log off and on while it is running.

Changing the Base Name of Automatically Created Archives

About this task

When the IHC file is created, it stores the name of the server inside the IHC file. Automatically created archives use that server name from the IHC file as a base name, not the Base Archive Name configured in Historian Administrator.

When you *manually* create an archive, however, the archive uses the Base Archive Name from Historian Administrator.

If you move an IHC file from one machine to another, you may want to change the default base archive name to match the new server. To change the default Base Archive Name, create a new .IHC file.

Procedure

1. Export your tags using the Excel Add-in.
The Fields to Export window appears.
2. Select all tag attributes and select **OK**.
The data is exported to a new Excel worksheet.
3. Examine the **Comments** column in the new worksheet. To ensure a clean import, the Comments column must be completely full or completely empty. If no comments are found, this column must be deleted to ensure a clean import. If only some comments are missing, the missing fields must be filled out with comments.
4. Save the Excel spreadsheet.
5. Stop the Data Archiver service.
6. Open the default archive path in Windows Explorer and rename the .IHC file.
Rename `MyMachine.IHC` to `MyMachine.OLD`.
7. Restart the Data Archiver service.
A new, blank IHC file is created for the machine.
8. Import your tags to this new configuration using the Excel Add-In.

Configuring the Inactive Timeout Value

About this task

The Non-Web Administrator offers a configurable timeout. This configurable timeout determines how long the Non-Web Administrator will wait before severing its connection to an inactive Historian archive. The default timeout value is 90 seconds.

Procedure

1. Assuming Historian is already open, double-click on the **Main** button to open Historian Administrator Login window.
2. Select the **Browse for Server** button.
3. Select the Historian server you wish to configure from the **Servers** list.
4. In the **Connection Timeout** field, select the **Use Value** option and enter a timeout value in seconds.

Configuring Deep Data Tree Warnings

About this task

Reading and writing to deep trees with large time ranges can be very inefficient. Create a **MaxIndexRecursionDepth** registry key to configure the depth at which the archiver will warn about deep data trees.

Procedure

1. From the **Start** menu, select **Run**, and then enter `Regedit`.
2. Open the following key folder: `HKEY_LOCAL_MACHINE\SOFTWARE\Intellution, Inc.\iHistorian\Services\DataArchiver`
3. Create a value as DWORD called **MaxIndexRecursionDepth**.
4. Set **MaxIndexRecursionDepth** to a number higher or lower than the default value of 900.
To get more warning messages, set a smaller number if you have an archive which is 10 to 100 deep.
5. Select **OK**.
6. Close the Registry Editor.
7. Restart the archiver for the changes to take effect.

Control Data Flow Speeds with Registry Keys

Configure buffer flush speed with the BufferFlushMultiplier key

Store-and-forward buffering is a key feature of Historian collectors. It prevents data loss during planned or unplanned network outages between a collector and Historian server.

If the collector is disconnected from the archiver for several hours or days, many megabytes of data can be buffered and must be delivered by the collector to the Data Archiver upon reconnect. Since all data is sent from the collector to the archiver in time order, the design goal has been to catch up to real time as quickly as possible by sending data as fast as possible.

If this is not the desired behavior because you want to limit the network load on a slow, shared Wide Area Network (WAN) or you want to limit the CPU load on the Data Archiver caused by the incoming data, you can configure the collector to throttle the data it is sending.



Important:

Because data is sent in time order (oldest first), you will not be able to retrieve current historical data until the throttled flush is complete.

Configuring the throttle is easy, but it requires modifying a registry key, so it should be done with caution.

A DWORD registry key called **BufferFlushMultiplier** is present under each collector. For Windows 32-bit, it is located under `HKey_Local_Machine\Software\Intellution, Inc.\iHistorian\Services\YOUR_COLLECTOR_TYPE`. For Windows 64-bit, it is located under `HKEY_LOCAL_MACHINE\SOFTWARE\Wow6432Node\Intellution, Inc.\iHistorian\Services\YOUR_COLLECTOR_TYPE`.

- To **slow** the store and forward throttling, set the value of **BufferFlushMultiplier** to 2. The 2 means that the collector should never send data at more than 2 times its normal rate to limit network and CPU load.
- To **disable** throttling, set the value of **BufferFlushMultiplier** to 0 or delete the registry key.

Control archiver speed with the NumIntervalsFlush registry key

The NumIntervalsFlush registry key controls how quickly the collector sends data to the archiver. The collector collects from the data source at the user configured rate, but for efficiency it bundles data samples in a single write to archive. By default, the collector will send data to archiver every 2 seconds or 10,000 samples, whichever happens first. Most often, it sends every 2 seconds because the collector is not collecting that many samples that fast.

If you need collected data sent to archiver right away, so that it is available for retrieval or for calculations, use the NumIntervalsFlush registry key.

You will have to create the registry key, as it does not exist by default. Create a DWORD value called **NumIntervalsFlush** under the collector, in the same place as HISTORIANNODENAME and INTERFACENAME. On a 64-bit Windows Operating System, all 32-bit component-related registry keys (such as collectors, Client Tools, and APIs) will be located under `HKEY_LOCAL_MACHINE\SOFTWARE\Wow6432Node\Intellution, Inc.\iHistorian\`.

The preferred setting for **Num Intervals Before Flush** is 5. The intervals are 100 millisecond increments. The default of 20 means $(20 * 100\text{msec}) = 2000 \text{ msec} = 2 \text{ seconds}$. Set the value to 5 and the collector will send every 500msec.



Note:

Changes to the registry key do not take effect until the collector is restarted. This setting affects the sending of data whether it was collected polled or unsolicited.

Configure Inactive Server Reset Timeout

You can configure inactive server connections to reset automatically with the SocketRecvTimeOut registry key. SocketRecvTimeOut configures a timeout that forces the connection to drop and re-establish if no

data is received during the specified time. Consider this configuration when your collector goes to status Unknown for long periods of time even when the connection between collector and archiver is good.

Create a DWORD registry key **SocketRecvTimeOut** under the collector where the problem is occurring and set to a value greater than 90 seconds. A typical value would be 300 seconds. If no bytes are received by the collector for 300 seconds, then the network connection will be closed and re-established.

Historian Errors and Message Codes

When you review errors and messages, for example, in an Historian archiver log file, full descriptions are usually included. If a number appears instead of a description, use the following table to determine the meaning of the error or message.

Table 43. Historian Error Codes and Messages

Number	Description
-32	Operation not permitted
-31	The requested data store was not found
-29	A supplied argument is outside the valid range
-28	A supplied argument is NULL
-27	A supplied argument is invalid
-25	Attempted data delete outside allowed modification interval
-24	Data Retrieval Count Exceeded
-23	Invalid Server Version
-21	Calculation Circular Reference
-20	Not Licensed
-19	Duplicate Interface
-18	No Value
-17	License: Invalid License DLL
-16	License: Too Many Users
-15	License: Too Many Tags
-14	Invalid Tagname

Table 43. Historian Error Codes and Messages (continued)

Number	Description
-13	Write No Archive Available
-12	Write Outside Active
-11	Archive Read Only
-10	Write Archive Offline
-9	Write in Future
-8	Access Denied
-7	Not Valid User
-6	Duplicate Data
-5	Not Supported
-4	Interface Not Found
-3	Not Connected
-2	API Timeout
-1	FAILED
0	OK
0	Undefined
1	Connection Successful
2	Connection Unsuccessful
3	Audited Write
4	Audited Write Update
5	Audited Write Out Of Order
6	Audited Write Update Out Of Order
7	Message On Update
8	Message On Update Out Of Order
9	License Library Function Missing
10	License Library Missing

Table 43. Historian Error Codes and Messages (continued)

Number	Description
11	Failed Write
12	Tag Added
13	Tag Modified
14	Tag Deleted
15	Interface Added
16	Interface Modified
17	Interface Deleted
18	Archive Added
19	Archive Add Failure Time Overlap
20	Archive Deleted
21	Archive Overwritten
25	Archive Five Days Till Closing
26	Archive Three Days Till Closing
27	Archive One Day Till Closing
28	License Key Removed
29	License Max Tags Exceeded
30	License Max Users Exceeded
31	License Max Tags Exceeded Shutdown
32	License Max Users Exceeded Shutdown
33	License Library Invalid
34	Buffer Normal
35	Buffer On Disk
36	Buffer Out Of Space
37	Incomplete Shutdown
38	Archive Modified

Table 43. Historian Error Codes and Messages (continued)

Number	Description
39	License Expired
40	Buffer Could Not Create
41	Archiver Startup
42	Archiver Shutdown
43	Audit Status Changed
44	Option Modified
45	Write Processing Stopped
46	Write Processing Resumed
47	Interface Status Unknown
48	Archive Closed
49	Interface Stopped
50	Interface Started

Scheduled Software Performance Impact

Running continuous disk scan software applications such as anti-virus scans, or any other software that accesses disk drives to a high degree may affect the overall performance of your Historian System by competing with Historian for disk resources.

If your Historian System requires that you need an extremely high throughput (20k/sec or greater), consider **disabling** the scheduled software execution.

Intellution 7.x Drivers as OPC Servers

The ABR and the ABC drivers are OPC v2.0 compliant. All other Intellution 7.x drivers, including the MB1, support OPC v1.0 compliance.

Version 7.x drivers also comply with the OLE for Process Control (OPC) v1.0a standard. Any 1.0-compliant OPC client application can access process hardware data through the I/O Server.

Troubleshooting Failed Logins

The following is a table of error messages, possible causes, and recommended corrective actions for failed logins sometimes experienced with Historian Administrator.

Error Message	Suggested Action
User does not have authority to read messages.	The user is NOT a member of iH Readers nor a member of the iH Security Admins security groups. To access the Main Page, the user must have read access.
[07/18/2001 03:00:46.071 PM] USER: DOMAIN1\administrator TOPIC: Security MSG: DOMAIN1\administrator(administrator) unsuccessfully connected at 07/18/2001 03:00:46.071 PM. Not able to establish session to the server from a remote Web-based Clients. Page cannot be displayed.	Error in Internet Explorer. Check network connection or IIS on the server.
[07/17/2001 07:56:06.950 PM] USER: DataArchiver TOPIC: Security MSG: DataArchiver(DataArchiver) Exceeded number of licensed users at 07/17/2001 07:56:06.950 PM (NumUsers=0 MaxUsers=0)	Outdated or failed HASP key is attached. Obtain new key from technical support.
[07/17/2001 07:58:18.980 PM] USER: \baduser TOPIC: Security MSG: \baduser(baduser) unsuccessfully connected at 07/17/2001 07:58:18.980 PM.	Bad password for user account. Enter correct password.
[07/17/2001 07:58:48.712 PM] USER: \administrator TOPIC: Security MSG: \administrator(administrator) unsuccessfully connected at 07/17/2001 07:58:48.712 PM.	DataArchiver service is not running. Results in a Failed to connect to server error. Make sure data archiver service is running and that the user did not enter a bad password.
[07/17/2001 07:23:44.397 PM] USER: DataArchiver TOPIC: Security MSG: DataArchiver(DataArchiver) Exceeded number of licensed tags at 07/17/2001 07:23:44.397 PM (NumTags=1021 MaxTags=0) Must Shutdown	Number of configured tags exceeds number of tags allowed by the key. Delete enough tags to meet the license limit or obtain a license for more tags from technical support.

Error Message	Suggested Action
[07/17/2001 07:35:32.134 PM] USER: DataArchiver TOPIC: Security MSG: DataArchiver(DataArchiver) Licensed expired. Must shutdown 07/17/2001 07:35:32.134 PM. To troubleshoot, refer to the DataArchiver.log file.	License on key has expired (archiver will not start). Obtain a new license from technical support.

Troubleshoot Data Collector Configuration

Troubleshooting Data Collector configuration and/or performance requires a thorough understanding of how Historian works and how the various parameters affect system operation. Armed with this knowledge, you can usually localize a problem to one or more functions or parameter settings and take effective corrective action.

Historian offers several tools to help find the cause of an operating problem.

LOG files

The system creates a new log file each time an archiver or collector is started. You can open these files in Notepad or another text editor. The `-nn` suffix in the file name indicates the place of each log file in the time sequence.

The data collector log files, located in the `LogFiles` folder within the Historian program folder, are a historical journal of every event affecting operation of the collector.

The `DataArchiver-nn.LOG` files are sequential files for the archiver only.

The `iFIX collector-nn.LOG` files contain performance information on iFIX collector functioning.

SHW file

The Data Collector `.SHW` file shows configuration data for collectors and is also located in the `LogFiles` directory under Historian. Verify that the parameter and configuration settings match what you configured. You can open this file in Notepad or another text editor.

Collector Maintenance Performance Indicators

These performance and status indicators can be a major aid in identifying, localizing, and diagnosing a problem with a collector.

Collector Maintenance pages

The Collector Maintenance pages can provide useful information about settings and selections of various options and parameter values. Examine each field and verify that it is appropriate for the current application.

Troubleshoot Tags

Tag Configuration

To diagnose a problem in tag configuration, examine the .LOG and .SHW files in the Historian/Logfiles directory. Since these files are a journal record of all system events and parameter modifications important to a system administrator, they can be helpful in identifying and localizing the source of a system malfunction or data error.

Stale Tags

If you are not seeing all stale tags in the Historian Web Admin, the ClientManager service may be down. If so, the thread that processes stale tags is suspended until connection is restored.

Chapter 10. Monitoring

Access Logs

Before you begin

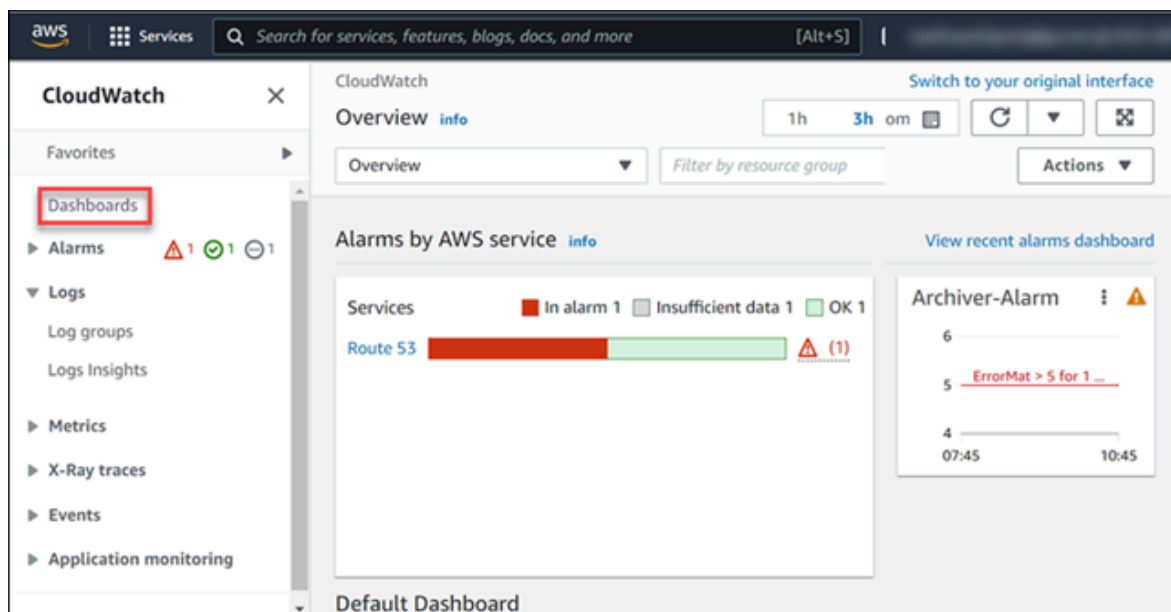
[Deploy Proficiency Historian for AWS \(on page 14\)](#).

About this task

You can access and analyze logs using CloudWatch. Historian also provides a custom dashboard, which contains a few important widgets to monitor memory utilization, etc.

Procedure

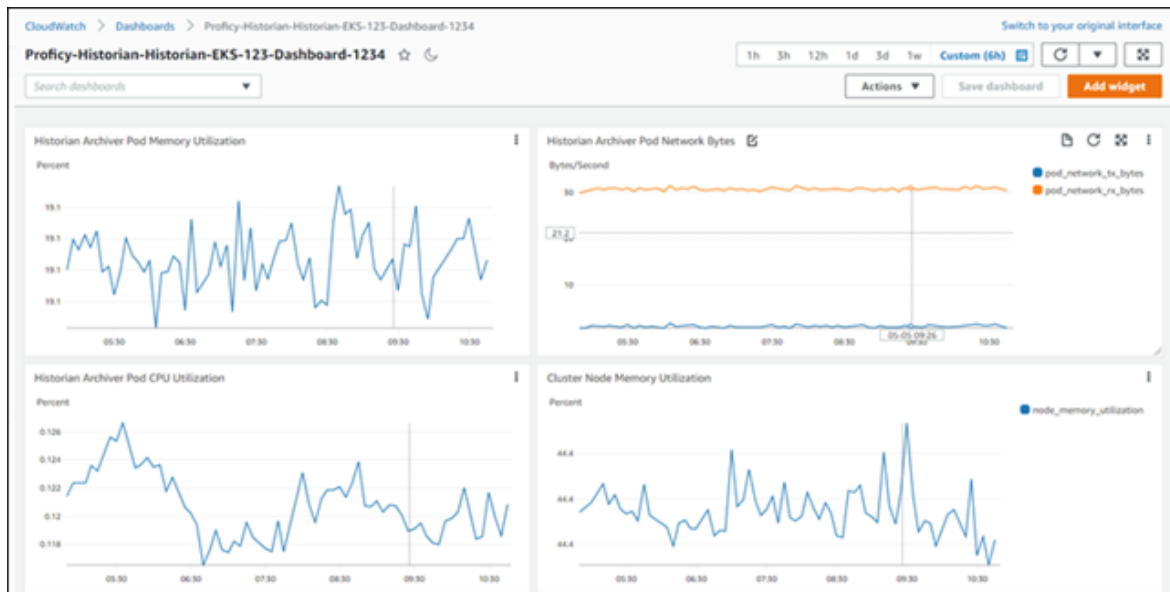
1. Log in to AWS Management Console.
2. Under **All Services > Management & Governance**, select **CloudWatch**.
The **CloudWatch** page appears.
3. In the left section, select **Dashboards**.



4. From the list of dashboards, select the one that contains the EKS cluster name.

The following widgets appear.

- Historian Archiver Pod Memory Utilization
- Historian Archiver Pod Network Bytes
- Historian Archiver Pod CPU Utilization
- Cluster Node Memory Utilization
- Cluster Node CPU Utilization



You can add more widgets as needed. For information on dashboards and widgets, refer to https://docs.aws.amazon.com/AmazonCloudWatch/latest/monitoring/CloudWatch_Dashboards.html.

5. Under **Logs**, select **Log groups**.
6. From the list of log groups, select the one that contains the EKS cluster name.
The logs generated by Data Archiver appear.

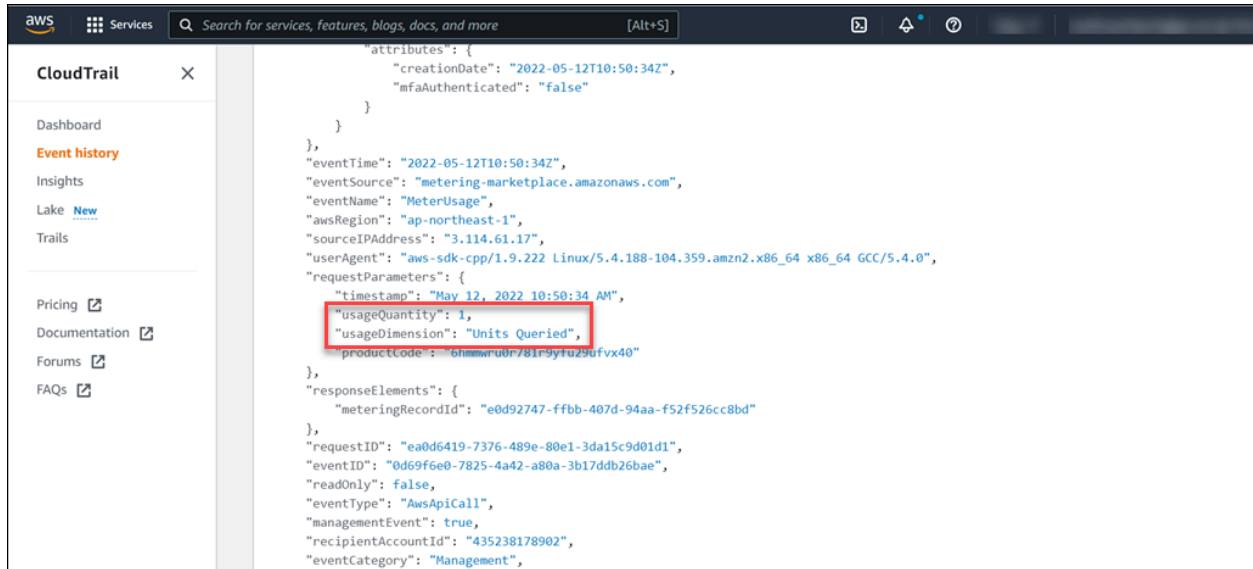
The logs are retained for the retention period you set while deploying Proficy Historian for AWS (by default, 30 days). You can change the retention period by selecting the link in the **Retention** column in the list of log groups.

Access Events

About this task

Historian uses AWS CloudTrail to capture the consumption of data. Using CloudTrail, you can view the amount of tag data that is written to Data Archiver and the tag data that you fetch from Data Archiver. An event is generated every hour in CloudTrail, containing the total number of data samples (in millions) that are *fetched* from Data Archiver in that hour.

For example, suppose you plot the trend chart of tag values in the past hour, and 10,45,000 samples are fetched from Data Archiver. In the event, the usageQuantity is set to `1` (indicating 1 million), and the usageDimension is set to `Units Queried` (indicating that this event is for *fetching* data from Data Archiver). The remaining 45,000 samples are added to the ones collected in the next hour.



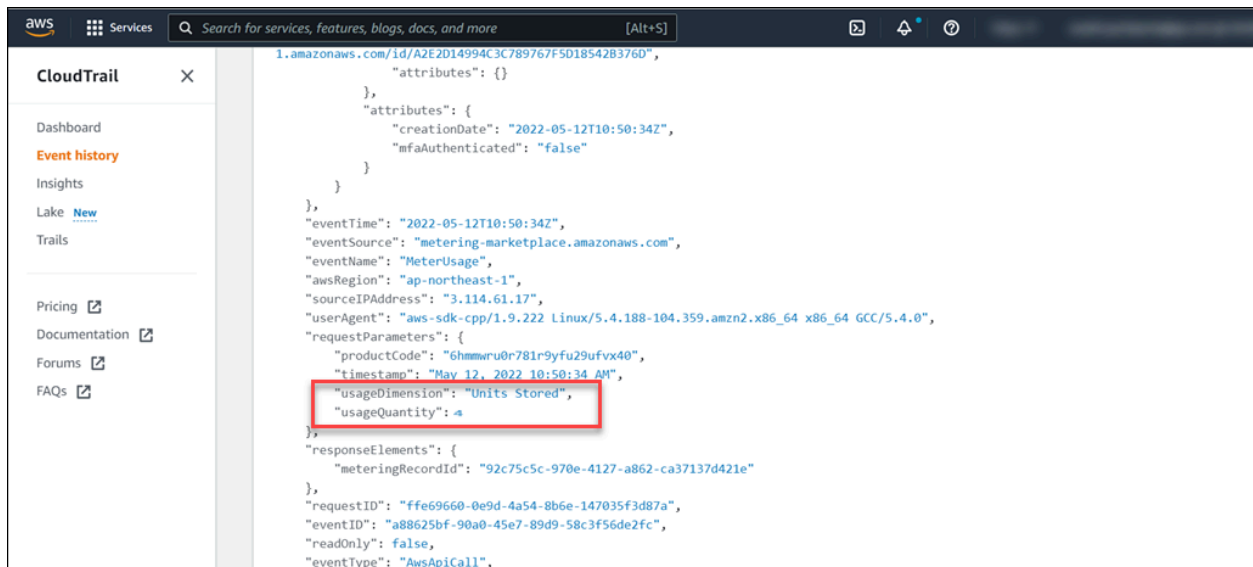
```

"attributes": {
  "creationDate": "2022-05-12T10:50:34Z",
  "mfaAuthenticated": "false"
}
},
"eventTime": "2022-05-12T10:50:34Z",
"eventSource": "metering-marketplace.amazonaws.com",
"eventName": "MeterUsage",
"awsRegion": "ap-northeast-1",
"sourceIPAddress": "3.114.61.17",
"userAgent": "aws-sdk-cpp/1.9.222 Linux/5.4.188-104.359.amzn2.x86_64 x86_64 GCC/5.4.0",
"requestParameters": {
  "timestamp": "May 12, 2022 10:50:34 AM",
  "usageQuantity": 1,
  "usageDimension": "Units Queried",
  "productCode": "6hmmvr0r781r9yfu29ufvx40"
},
"responseElements": {
  "meteringRecordId": "e0d92747-ffbb-407d-94aa-f52f526cc8bd"
},
"requestID": "ea0d6419-7376-489e-80e1-3da15c9d01d1",
"eventID": "0d69f6e0-7825-4a42-a80a-3b17ddb26bae",
"readOnly": false,
"eventType": "AwsApiCall",
"managementEvent": true,
"recipientAccountId": "435238178902",
"eventCategory": "Management",

```

Similarly, an event is generated every hour, containing the total number of samples (in millions) that are sent to Data Archiver.

For example, if you have 1000 tags, each one set to a resolution of 1 second, 36,00,000 data samples are written to Data Archiver per hour. In the event, usageQuantity is set to 3, and usageDimension is set to Units Stored. The remaining 6,00,000 samples are added to the next hour.



```

1.amazonaws.com/id/A2E2D14594C3C789767F5D18542B376D",
"attributes": {}
},
"attributes": {
  "creationDate": "2022-05-12T10:50:34Z",
  "mfaAuthenticated": "false"
}
},
"eventTime": "2022-05-12T10:50:34Z",
"eventSource": "metering-marketplace.amazonaws.com",
"eventName": "MeterUsage",
"awsRegion": "ap-northeast-1",
"sourceIPAddress": "3.114.61.17",
"userAgent": "aws-sdk-cpp/1.9.222 Linux/5.4.188-104.359.amzn2.x86_64 x86_64 GCC/5.4.0",
"requestParameters": {
  "productCode": "6hmmvr0r781r9yfu29ufvx40",
  "timestamp": "May 12, 2022 10:50:34 AM",
  "usageDimension": "Units Stored",
  "usageQuantity": 3
},
"responseElements": {
  "meteringRecordId": "92c75c5c-970e-4127-a862-ca37137d421e"
},
"requestID": "ffe69660-0e9d-4a54-8b6e-147035f3d87a",
"eventID": "a88625bf-90a0-45e7-89d9-58c3f56de2fc",
"readOnly": false,
"eventType": "AwsApiCall",

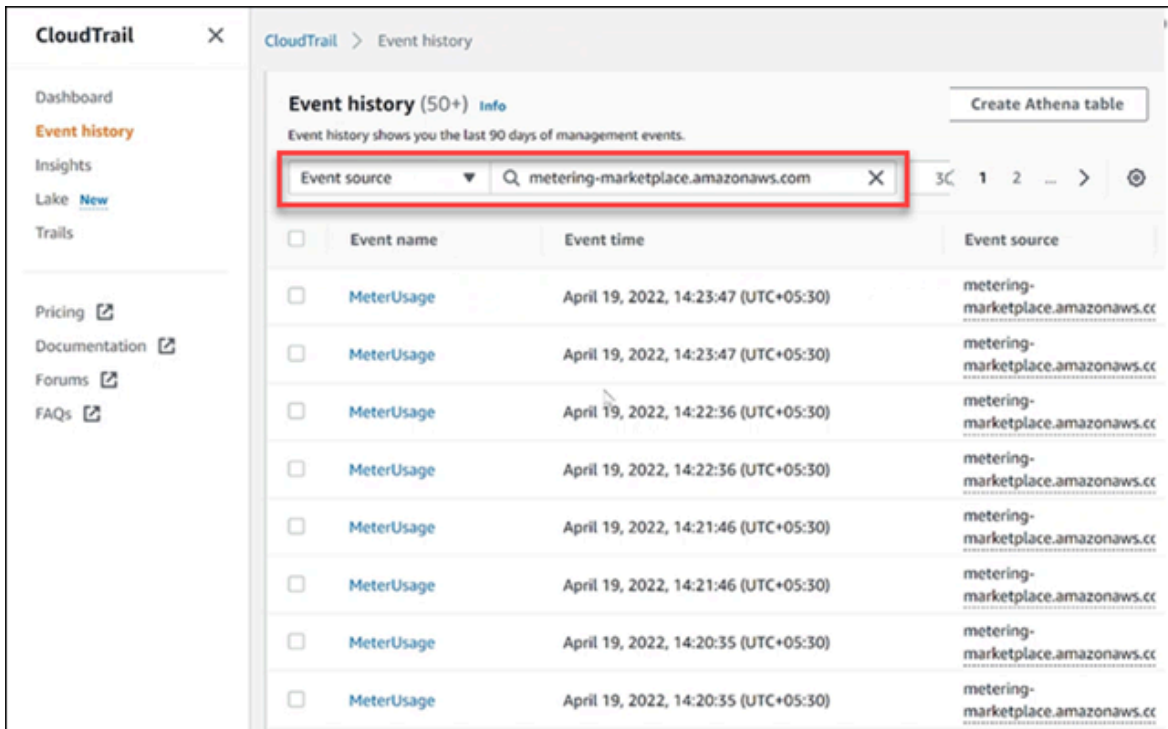
```

Events are also generated when Data Archiver is started or stopped.

Depending on the data samples sent or fetched from Data Archiver, the [price \(on page 9\)](#) of using Proficy Historian for Cloud is calculated. You can then [make the payment \(on page 9\)](#) to continue using Historian. If, however, you have [applied a Historian license \(on page 24\)](#), you are not required to pay for the consumption.

Procedure

1. Log in to the AWS console.
2. Under **All Services > Management & Governance**, select **CloudTrail**.
3. In the left section, select **Event history**.
4. Set the **Event source** to **metering-marketplace.amazonaws.com**.



The screenshot shows the AWS CloudTrail console interface. On the left is a navigation menu with options like Dashboard, Event history, Insights, Lake, Trails, Pricing, Documentation, Forums, and FAQs. The main content area is titled 'Event history (50+) Info' and includes a search bar for 'Event source' which is filtered to 'metering-marketplace.amazonaws.com'. Below the search bar is a table with columns for 'Event name', 'Event time', and 'Event source'. The table contains several rows of 'MeterUsage' events, all originating from 'metering-marketplace.amazonaws.com'.

Event name	Event time	Event source
MeterUsage	April 19, 2022, 14:23:47 (UTC+05:30)	metering-marketplace.amazonaws.cc
MeterUsage	April 19, 2022, 14:23:47 (UTC+05:30)	metering-marketplace.amazonaws.cc
MeterUsage	April 19, 2022, 14:22:36 (UTC+05:30)	metering-marketplace.amazonaws.cc
MeterUsage	April 19, 2022, 14:22:36 (UTC+05:30)	metering-marketplace.amazonaws.cc
MeterUsage	April 19, 2022, 14:21:46 (UTC+05:30)	metering-marketplace.amazonaws.cc
MeterUsage	April 19, 2022, 14:21:46 (UTC+05:30)	metering-marketplace.amazonaws.cc
MeterUsage	April 19, 2022, 14:20:35 (UTC+05:30)	metering-marketplace.amazonaws.cc
MeterUsage	April 19, 2022, 14:20:35 (UTC+05:30)	metering-marketplace.amazonaws.cc

A list of read/write events to Data Archiver appears. If needed, you can filter the events for a specific time duration.

5. Select the event whose details you want to access.

The **Meter Usage** page appears, displaying the event details. In the **Event Record** section, the `usageDimension` parameter indicates whether the event is for fetching data or writing data. The `usageQuantity` parameter contains the number of samples that are fetched or written in that duration.

Chapter 11. Troubleshooting

Access Logs

Before you begin

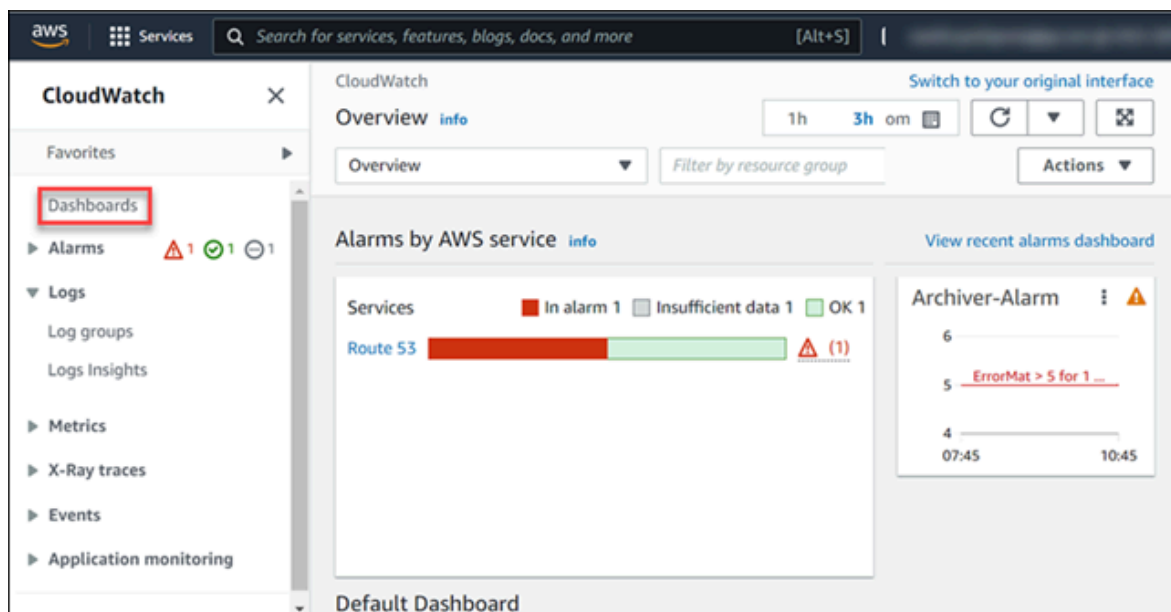
[Deploy Proficiency Historian for AWS \(on page 14\)](#).

About this task

You can access and analyze logs using CloudWatch. Historian also provides a custom dashboard, which contains a few important widgets to monitor memory utilization, etc.

Procedure

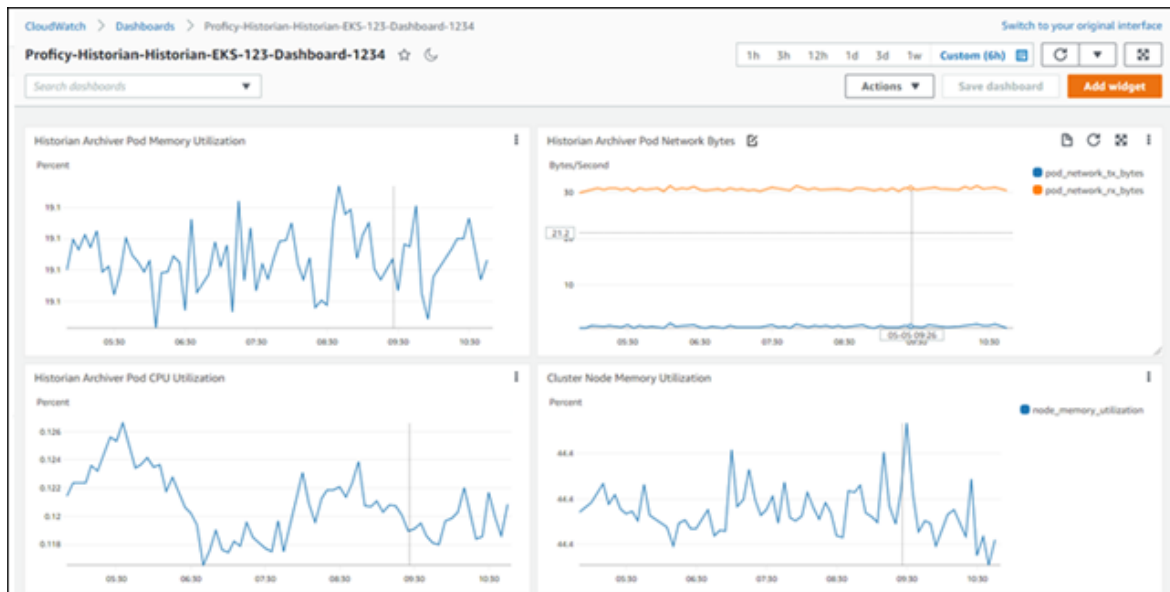
1. Log in to AWS Management Console.
2. Under **All Services > Management & Governance**, select **CloudWatch**.
The **CloudWatch** page appears.
3. In the left section, select **Dashboards**.



4. From the list of dashboards, select the one that contains the EKS cluster name.

The following widgets appear.

- Historian Archiver Pod Memory Utilization
- Historian Archiver Pod Network Bytes
- Historian Archiver Pod CPU Utilization
- Cluster Node Memory Utilization
- Cluster Node CPU Utilization



You can add more widgets as needed. For information on dashboards and widgets, refer to https://docs.aws.amazon.com/AmazonCloudWatch/latest/monitoring/CloudWatch_Dashboards.html.

5. Under **Logs**, select **Log groups**.
6. From the list of log groups, select the one that contains the EKS cluster name.
The logs generated by Data Archiver appear.

The logs are retained for the retention period you set while deploying Proficy Historian for AWS (by default, 30 days). You can change the retention period by selecting the link in the **Retention** column in the list of log groups.

Access Archives

Before you begin

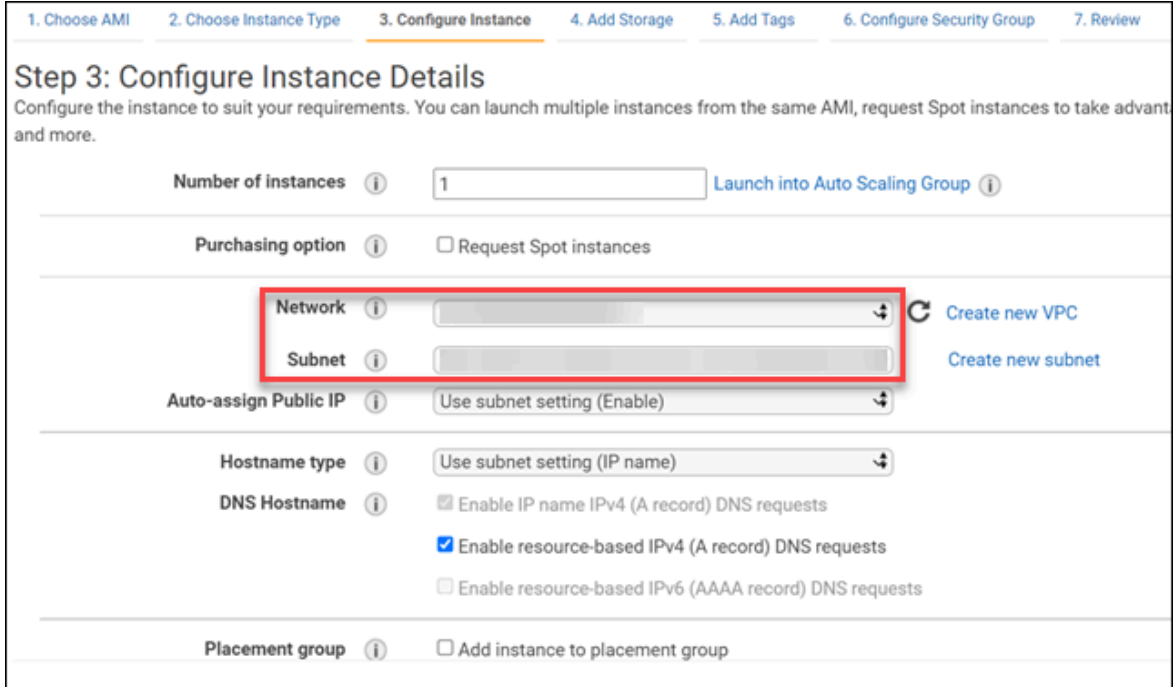
[Deploy Proficy Historian for AWS \(on page 14\)](#).

About this task

Archives and log files are stored in Elastic File System (EFS). This topic describes how to access them for troubleshooting, monitoring, etc.

Procedure

1. [Launch an EC2 instance](#). While launching the EC2 instance, under **Configure Instance Details**, in the **Network** field, select the VPC in which you have deployed Proficy Historian for AWS. In addition, in the **Subnet** field, select the public subnet of the VPC.



Step 3: Configure Instance Details
Configure the instance to suit your requirements. You can launch multiple instances from the same AMI, request Spot instances to take advantage and more.

Number of instances [Launch into Auto Scaling Group](#)

Purchasing option Request Spot instances

Network [Create new VPC](#)

Subnet [Create new subnet](#)

Auto-assign Public IP

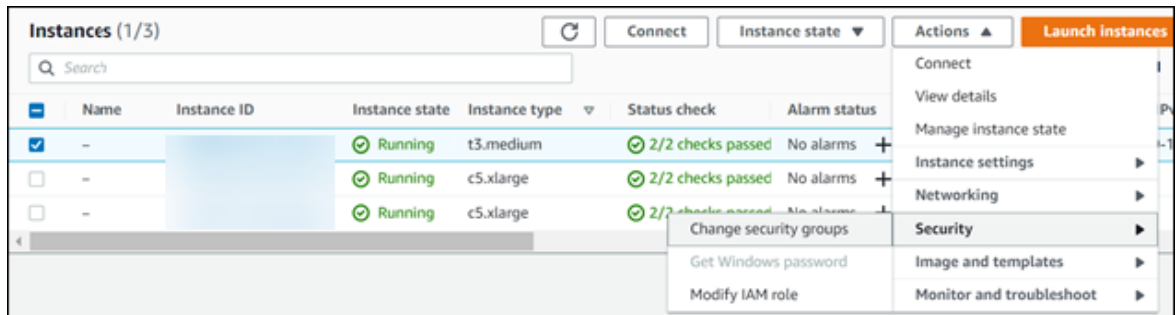
Hostname type

DNS Hostname Enable IP name IPv4 (A record) DNS requests
 Enable resource-based IPv4 (A record) DNS requests
 Enable resource-based IPv6 (AAAA record) DNS requests

Placement group Add instance to placement group

Note down the path to the .pem key file and the public IP address or DNS of the EC2 instance.

2. In the list of EC2 instances, select the check box corresponding to the one that you have created.
3. Select **Actions > Security > Change security groups**.



The **Change security groups** window appears.

4. In the **Select security groups** field, select the EKS cluster that you have created while deploying Proficy Historian for AWS, select **Add security group**, and then select **Save**.

Change security groups [Info](#)

Instance details

Instance ID

Network interface ID

Associated security groups

Security groups associated with the network interface ()

Security group name	Security group ID	
launch-wizard-5	sg-0c8c29a4dc6c2cfd4	<input type="button" value="Remove"/>

**CAUTION:**

Do not remove any security group.

- From the machine using which you want to access archive files, run the following command to connect to the EC2 instance:

```
ssh -i <path to your .pem key file> ec2-user@<public IP/DNS of the EC2 instance>
```

- Create a directory in the EC2 instance.
- Access the AWS console.
- Select **EFS**, and then select the EFS instance that contains the EKS cluster name.
- Select **Attach**.

Amazon EFS > File systems > fs-0dc8664a6e5b42c73

Historian-KJ ([redacted])

[Delete](#) [Attach](#)

General [Edit](#)

Performance mode	Automatic backups
General Purpose	✔ Enabled
Throughput mode	Encrypted
Bursting	No
Lifecycle management	File system state
Transition into IA: None	✔ Available
Transition out of IA: None	DNS name
Availability zone	[redacted]
Regional	

10. Copy the value in the **Using the NFS client** field.

Attach [Close]

Mount your Amazon EFS file system on a Linux instance. [Learn more](#)

Mount via DNS Mount via IP

Using the EFS mount helper:

```
sudo mount -t efs -o tls [redacted] / efs
```

Using the NFS client:

```
sudo mount -t nfs4 -o nfsvers=4.1,rsize=1048576,wsize=1,retrans=2,noresvport [redacted] / efs
```

See our user guide for more information. [User guide](#)

[Close]

11. Paste the value in the EC2 instance terminal.

12. Access the directory that you have created in step 6.

The directory contains a folder named `historian`, which contains the archives and log files.

Troubleshoot Connection Issues

Unable to Connect the Web Admin Console and the REST Query Service with the Historian Server

Suggested solution: If you restart the EC2 instance on which you have deployed the Web Admin console and the REST Query service, you must generate the configuration file once again to connect the Web Admin console and the REST Query service with the Historian server.

Unable to Start the iFIX Collector

Description: Sometimes, an error occurs while starting the iFIX collector, stating that the collector fails to start and prompting you to delete the collector. This happens because the iFIX collector service is created with the default path set to `C:\Program Files (x86)\GE\iFIX\ihFIXCollector.exe`, which does not exist.

Workaround:

1. Select No in the error message.
2. In iFIX System Configuration (SCU), set the task parameters as follows:
 - **Filename:** Enter `<installation drive>:\Program Files (x86)\GE Digital\Historian iFix Collector`.
 - **Command Line:** Enter `NOSERVICE REG=<collector name>`.

Unable to Change the Destination of a Collector

If you try to change the destination of a collector from an on-premises Historian server to the cloud counterpart, an error occurs, stating, "Unable To Start the Collector Instance...Please check the parameters provided are valid and edit the Collector Instance...Press any key to exit the Application".

This issue occurs only if the collector name does not contain a prefix of the collector type.

Workaround:

1. Access the registry entry for the collector instance.
2. Rename the instance as follows, and close the registry: `<collector type>-<original name of the instance>`

For example, if the instance name of a Simulation collector is `sim1`, rename it `SimulationCollector-sim1`.

Use one of the following prefixes based on the collector type:

- SimulationCollector-
 - OPCCollector-
 - OPCUACollector-
 - OPCHDACollector-
 - PiCollector-
 - PIDistributor-
 - iFixCollector-
 - ServerToServerCollector-
 - MQTTCollector-
3. [Change the destination of the collector instance \(on page 90\)](#). When asked for the name of the collector instance, provide the *original* name (without the prefix). In the case of the previous example, enter `siml`.

An error message appears, but it is expected; you can ignore it.

4. Close the `CloudHistorianConfigurationUtility.exe` tool.
5. Access the registry entry for the collector instance, and undo the changes you made in step 2 (that is, the collector instance should now contain the original name).
6. Close the registry, and start the collector instance.