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8

TECH NOTE

HOW-TO GUIDE

Store Ignition Historian Data in Canary

This Technical Note contains all the information required to store Ignition historian data in Canary.

Element8 Tech Note

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1.Introduction

Canary can be configured as an Ignition Data Historian. This technical note describes the principal points to follow for a successful configuration.

Canary is a single historian solution which is a performant time-series database. It consists of three components, Data Collection, Data Storage and Data Analytics. Canary's NoSQL data historian is the engine that delivers enterprise level solutions. HTML based trending, dashboarding and automated solutions are delivered through the web-based reporting tool Axiom.

Ignition is an industrial application platform for collecting data, designing and deploying industrial applications throughout an enterprise. It empowers the creation of any kind of industrial application including SCADA, MES, IIoT, reporting, alarming and more.

To set up the connection between these two components, you will need to install a Canary module in Ignition and configure the connection to write the data to Canary.

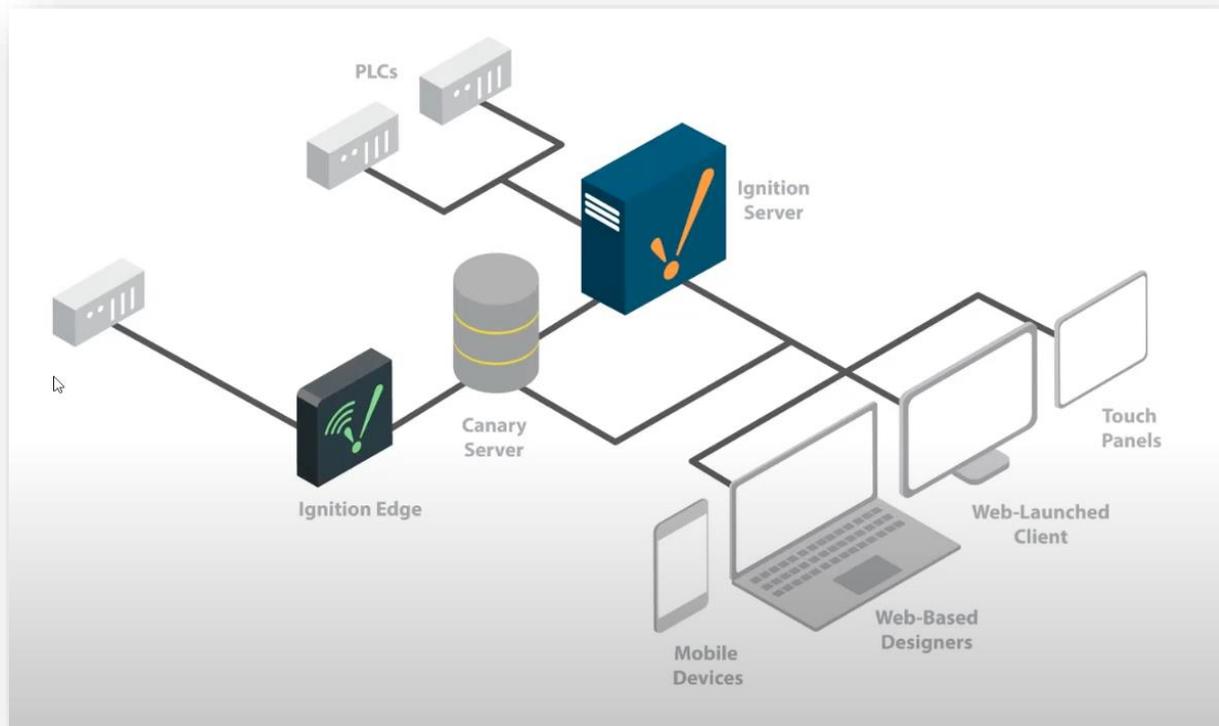
There are 4 main steps that you need to follow to connect, store and forward data from and to Ignition and Canary:

1. Basic Information
2. Download and install Canary module for Ignition
3. Configuration of writing data to Canary
4. Configuration of reading data from Canary

These steps are described in greater detail in the following sections

2. Basic Information

We have a general architecture here with simulated PLC's that are producing data and being forwarded to an Ignition Server. This server has a VM and we will be installing the Canary Module to read data out of that server and move it to another VM, which is the Canary Server where the Canary system is installed.



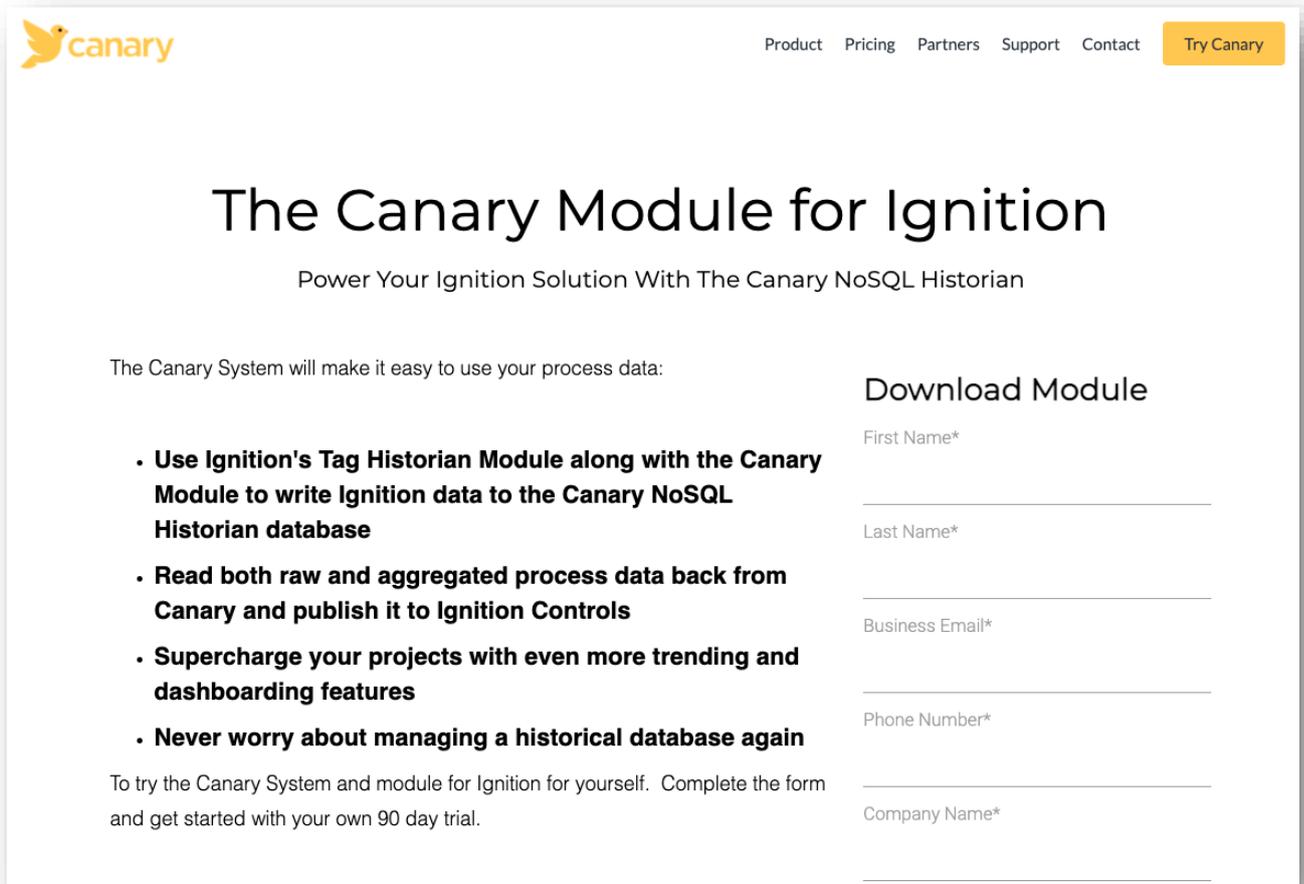
The Canary System will make it easy to process your data by using Ignition's Tag Historian Module along with the Canary Module to write Ignition data to the Canary NoSQL Historian database. It can read both raw and aggregated process data back from Canary and publish it to Ignition controls.

The whole idea is to eliminate the use and management of a traditional historical database.

3. Download and install Canary Module for Ignition

You will need to download the Canary Module for Ignition. It is free to download by clicking on the link below. It will take you to the Canary website where you can download the module:

[The Canary Module for Ignition](#)



The screenshot shows the Canary website's landing page for the Ignition module. The page features the Canary logo in the top left, a navigation menu with links for Product, Pricing, Partners, Support, and Contact, and a prominent yellow 'Try Canary' button. The main heading is 'The Canary Module for Ignition', followed by the sub-heading 'Power Your Ignition Solution With The Canary NoSQL Historian'. A paragraph states that the Canary System will make it easy to use process data. A list of four bullet points highlights key features: using Ignition's Tag Historian Module with the Canary NoSQL Historian database, reading raw and aggregated process data back from Canary and publishing it to Ignition Controls, supercharging projects with more trending and dashboarding features, and never worrying about managing a historical database again. Below this list, a paragraph invites users to try the system for a 90-day trial. On the right side, there is a 'Download Module' section with a form containing input fields for First Name*, Last Name*, Business Email*, Phone Number*, and Company Name*.

canary Product Pricing Partners Support Contact [Try Canary](#)

The Canary Module for Ignition

Power Your Ignition Solution With The Canary NoSQL Historian

The Canary System will make it easy to use your process data:

- **Use Ignition's Tag Historian Module along with the Canary Module to write Ignition data to the Canary NoSQL Historian database**
- **Read both raw and aggregated process data back from Canary and publish it to Ignition Controls**
- **Supercharge your projects with even more trending and dashboarding features**
- **Never worry about managing a historical database again**

To try the Canary System and module for Ignition for yourself. Complete the form and get started with your own 90 day trial.

Download Module

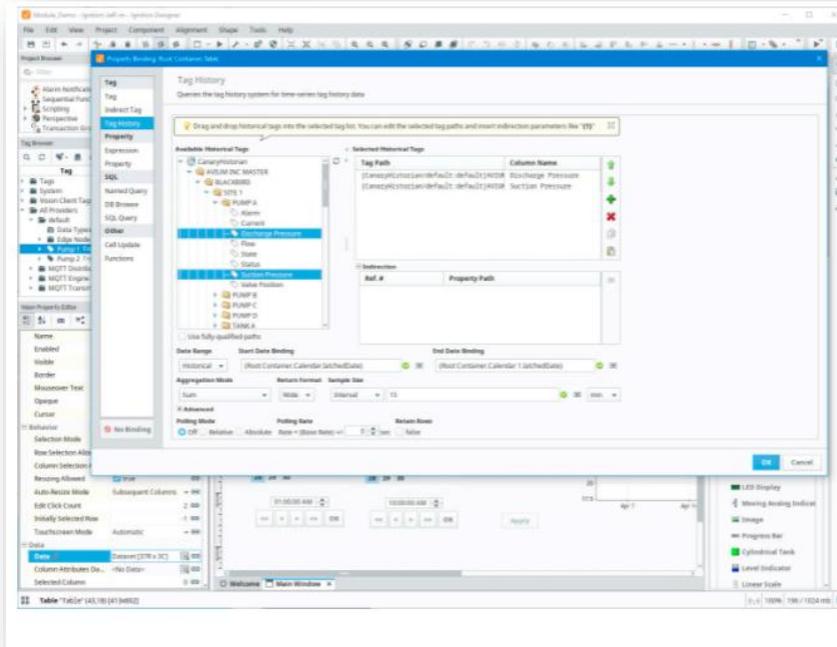
First Name* _____

Last Name* _____

Business Email* _____

Phone Number* _____

Company Name* _____



Region*

Please Select

Your role*

Operator or End User

System Integrator

OEM

Other

Canary Software Needed?

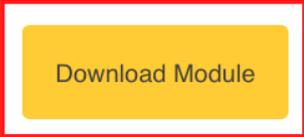
do not have Canary installed

already have Canary installed

[DOWNLOAD NOW](#)

You will need to fill out your details on the right-hand side of the page in order to receive an email with the download link. Once you have received the email, click on the link and a new page will open in your browser. Click on the "Download Module" button and the download will start automatically

The Canary Module for Ignition 8



Current Release - 21.0.0

The Canary Module for Ignition 8 will begin following the same version numbering as the Canary System. For this new module release, you will need to first uninstall your previous Canary module. All previous configurations of Canary Providers and Canary Collectors will remain.

New features include:

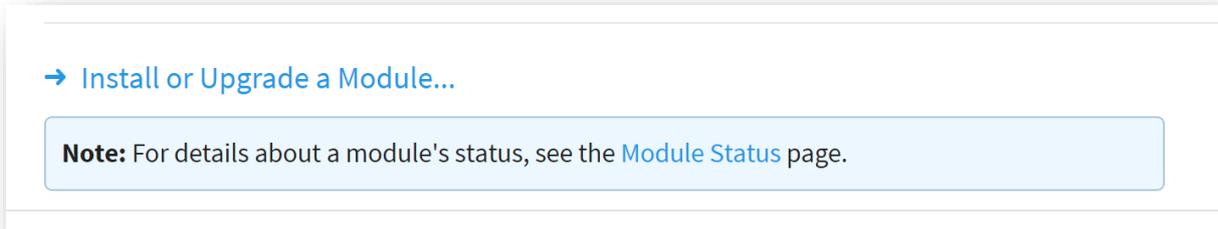
- Supports the Min/Max data aggregate
- Works with Perspectives Power Chart

This documentation assumes that you have Ignition installed and your Gateway configured.

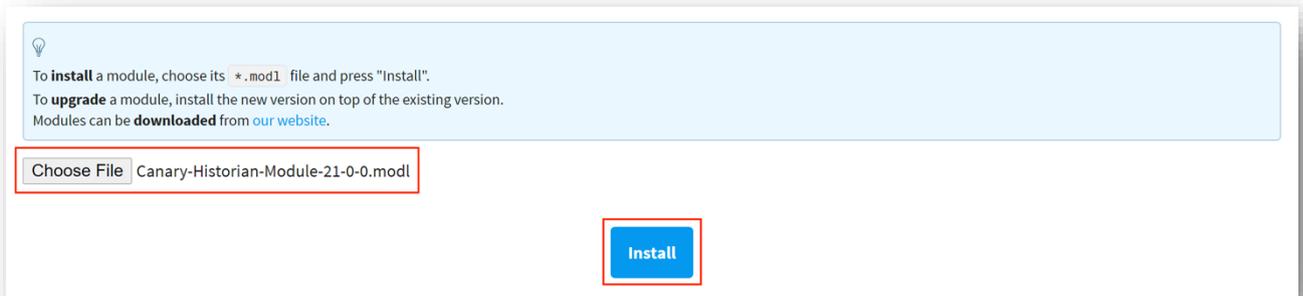
1. Launch your Ignition Gateway. Navigate to the “Config” section and click on the “Modules” option. This is where you need to install the Canary module that you downloaded in the previous section



2. Scroll down the page past all the modules, until you see the option to “Install or Upgrade a Module...”. Click on the link



3. Click on the “Choose File” button, navigate to where you saved the download and open the file. Note that your file needs to have the *.modl extension to be accepted. Click on the “Install” button



4. You will be prompted with a confirmation screen that describes the modules' certificate details. If you agree, tick the checkbox to agree and click on the “Add Certificate and Install Module” button

 This certificate has been signed by a trusted Certificate Authority.

Not Valid Until
 Not Valid After
 Subject Name
 Issuer Name
 Thumbprint

This module's certificate has been signed by a trusted Certificate Authority.

I want to add this certificate to my trusted certificates and install the module

[Add Certificate and Install Module](#)

[< Back](#)

5. Upon successful installation, you will be redirected to the Module page, and when you scroll down to the bottom of the page, you will be able to view the Canary certificate and module there

Par7 LLC

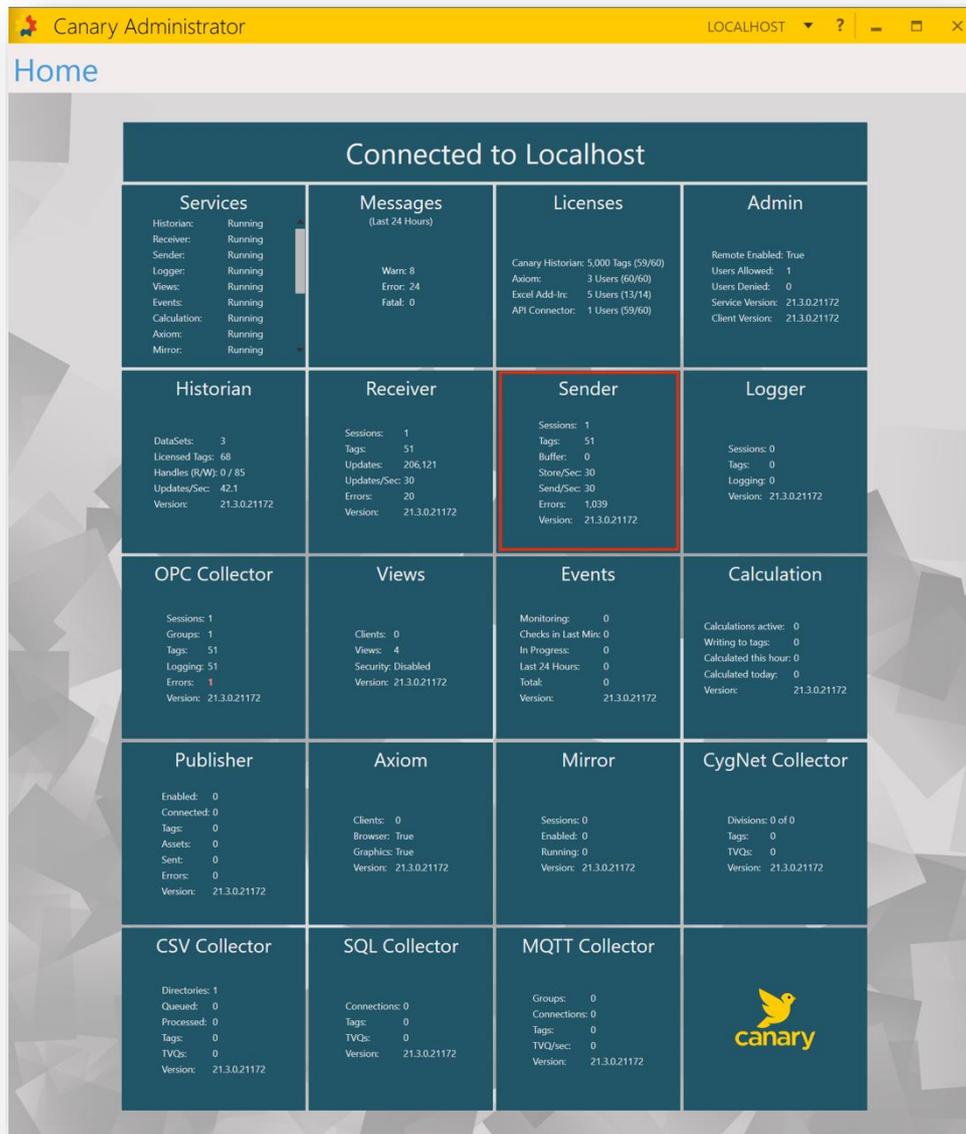
[View Certificate](#)

Name	Version	Description	License	State	
Canary Historian Module	21.0.0 (b20210406)	Integrates the Canary System with Ignition. Allows for the historization of Ignition tags to the Canary Historian while also adding the Canary Historian as a Tag History Provider for Ignition Components.	Free	Running	uninstall restart

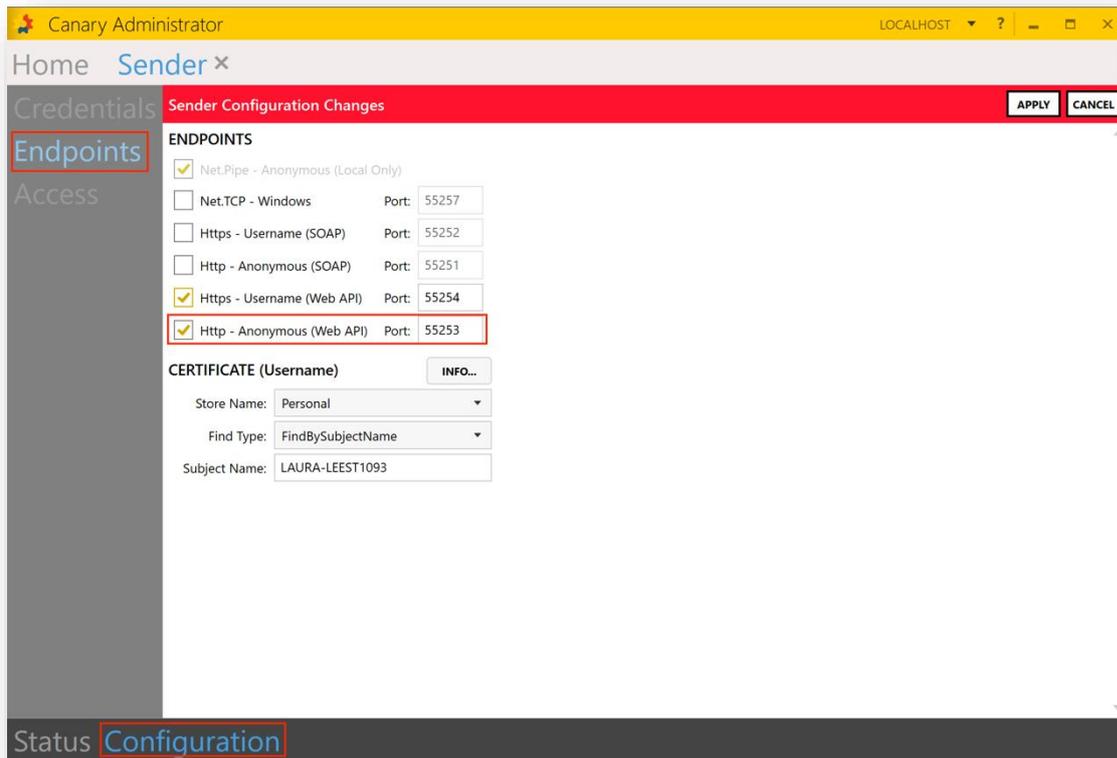
4. Configuration of writing data to Canary

This documentation assumes your Canary Historian Server is already configured, which will include the Canary Admin and Sender Service.

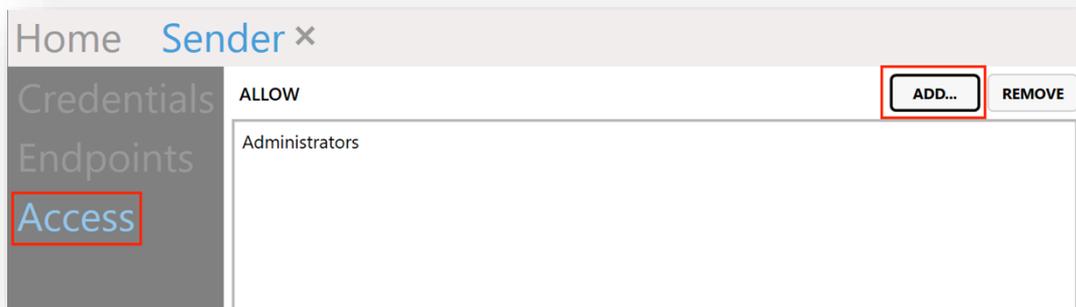
1. Open the Canary Admin application on your Ignition Gateway and navigate to the Sender file



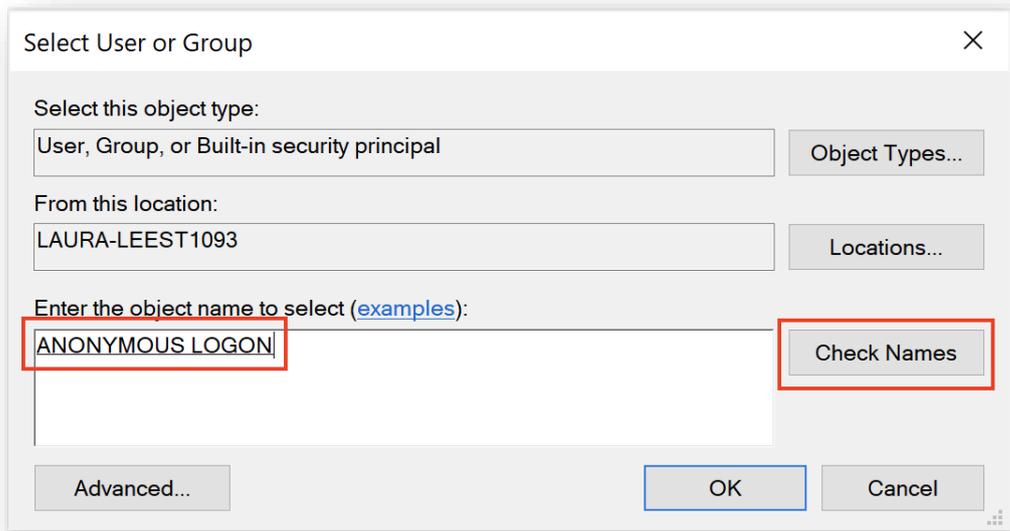
2. Use the "Configuration" menu at the bottom of the screen and open the "Endpoints" menu on the left-hand side. Click on "Https – Anonymous (Web API)" to enable it, and make sure it uses port 55253. Click on the "Apply" button at the top of the red bar to apply the changes



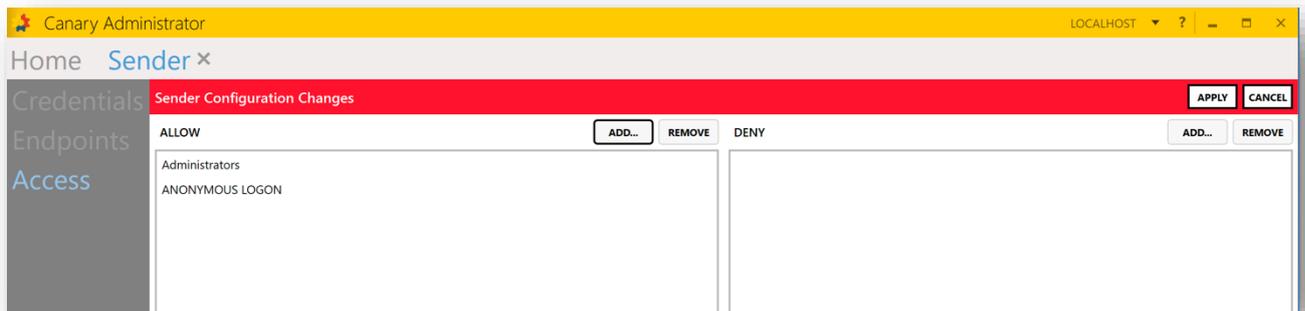
3. Select the "Access" menu on the left-hand side and click on the "Add" button in the Allow window



4. Add "Anonymous Logon" to the Allow window and click on the "Check Names" button. When the name is underlined, you can click on the "OK" button



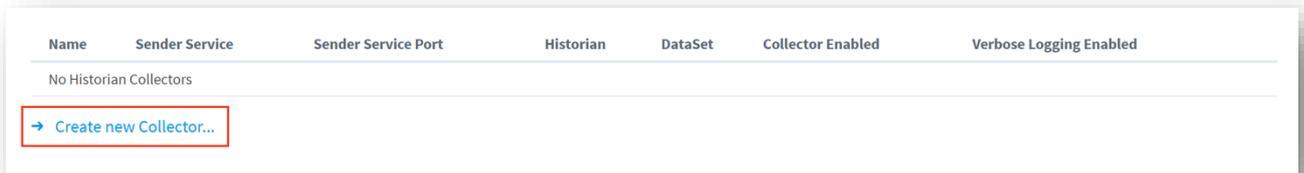
5. Once added to the Allow window, click on the "Apply" button at the top of the window



6. Navigate to the Ignition Gateway and open the Config menu like before. Scroll down until you find the "Configure Collectors" option under the "CANARY" heading



7. Select "Create New Collector"



Configure Canary as a tag Storage Provider within Ignition by completing the following fields:

Name:

The display name of the Storage Provider instance.

Sender Service:

Assuming you are following best practices and your Ignition Gateway is running on a Windows platform, this should be 'localhost', otherwise enter the machine name or IP address of where the Sender Service is located

Sender Service Port:

55253 by default

Anonymous:

Enabled by default

Username, Change Password, and Password:

All unnecessary if Anonymous is enabled. Leave blank.

Historian:

The machine name or IP address of your Canary Historian. It is recommended this not be the same machine as your Ignition Gateway.

DataSet:

The name of the DataSet you wish to log all tags from this Storage Provider to. As a best practice it is recommended to keep each DataSet to less than 25,000 tags. Additionally, the DataSet is part of a tag's name. Logging the same tag to more than one DataSet will result in more than one historical record. The DataSet will automatically be corrected for you within Canary as soon as you begin logging.

Lower Case Tag Paths:

By default Canary will copy the case structure of your Ignition tag names. If you enable this field you will force all upper case to lower case and will result in your Canary tag names being entirely lower case. Note, Canary is case sensitive and will create separate historical tags if case does not match.

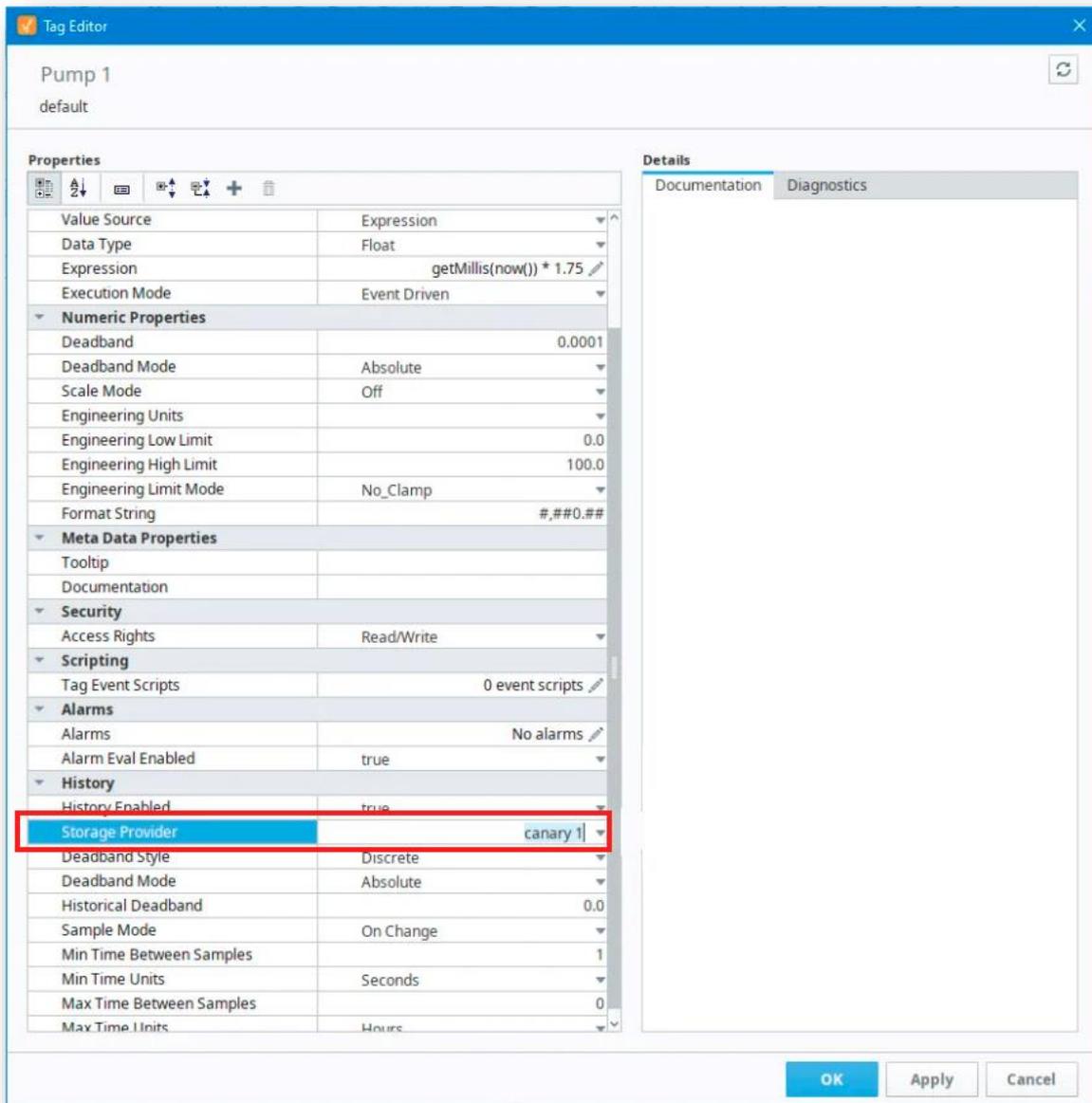
The page will look something like this. Click on "Save Changes" when complete

Configuration	
Name	<input type="text" value="Canary 1"/> Name of the Sender Service to create.
Sender Service	<input type="text" value="localhost"/> Location of Canary Sender Service (default: localhost)
Sender Service Port	<input type="text" value="55253"/> Canary Sender Service Port (default: 55,253)
Anonymous	<input checked="" type="checkbox"/> Sender Service security disabled? (default: true)
Username	<input type="text"/> Username for authentication (only if security is enabled)
Change Password?	<input type="checkbox"/> Check this box to change the existing password.
Password	<input type="password"/> Password for authentication (only if security is enabled)
Password	<input type="password"/> Re-type password for verification.
Historian	<input type="text" value="canaryhistorian"/> Location of Canary Historian
DataSet	<input type="text" value="Ignition 1"/> DataSet within Canary Historian in which to log data
Lower Case TagPaths	<input type="checkbox"/> Force TagPaths to Lower Case (default: false)

[Save Changes](#)

You may create additional Collectors to enable additional logging to additional datasets. It is recommended that you keep a one-to-one relationship for your Collectors sessions to datasets, meaning do not create multiple Collectors logging to the same dataset.

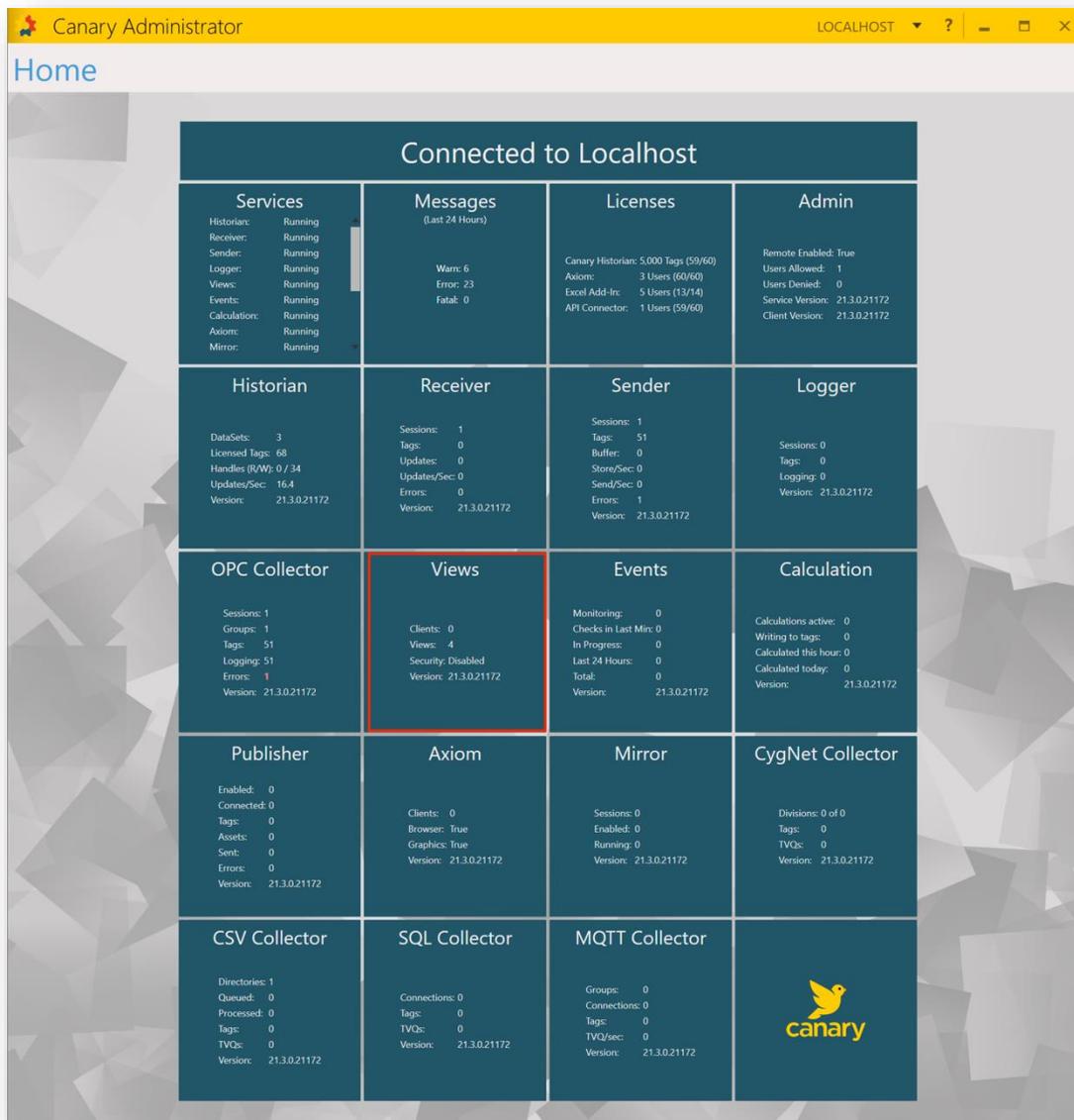
- Open an Ignition project and navigate to a tag you wish to enable history for. Right-click on the tag and select "Edit Tag"



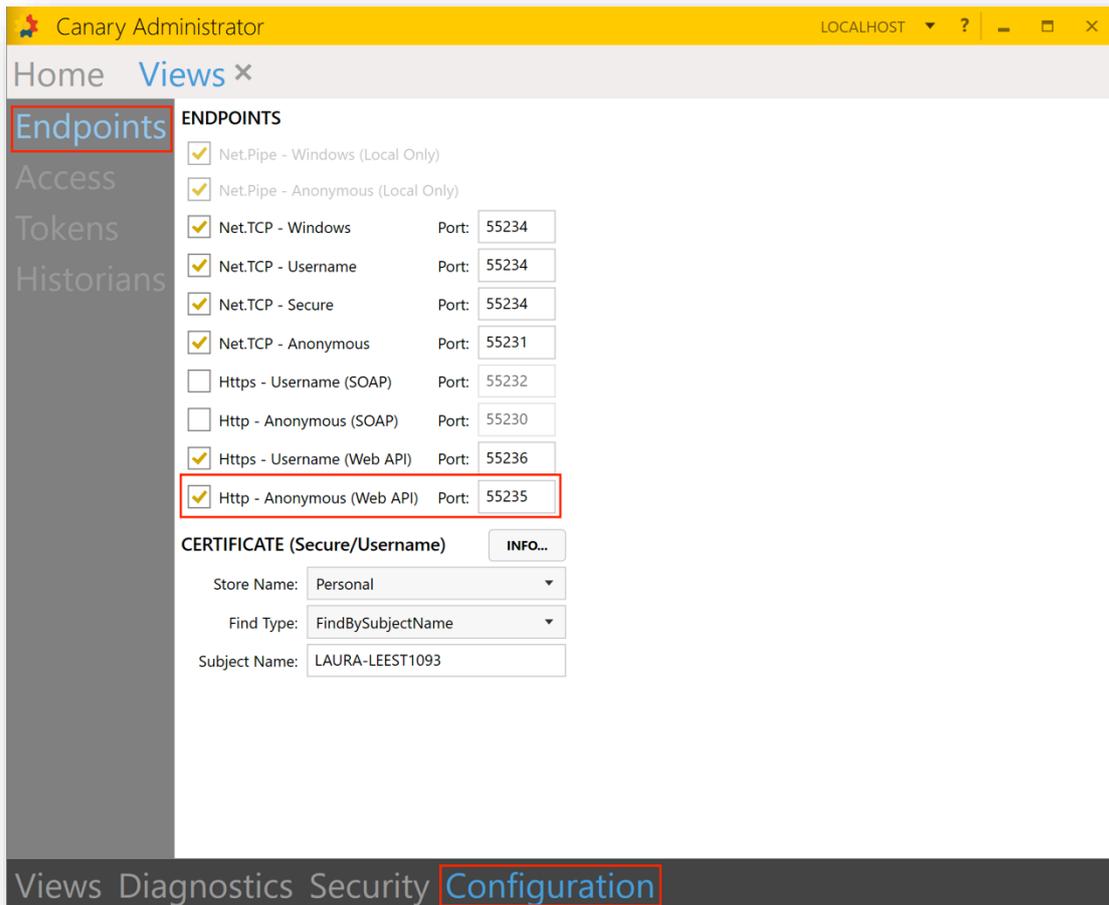
You can enable history for a tag and select the newly created Canary Collector as the Storage Provider. Since the module is built on top of Ignition's Tag History Module you can take advantage of all the history settings that include deadbands, tag groups and min/max times between samples.

5. Configuration of reading data from Canary

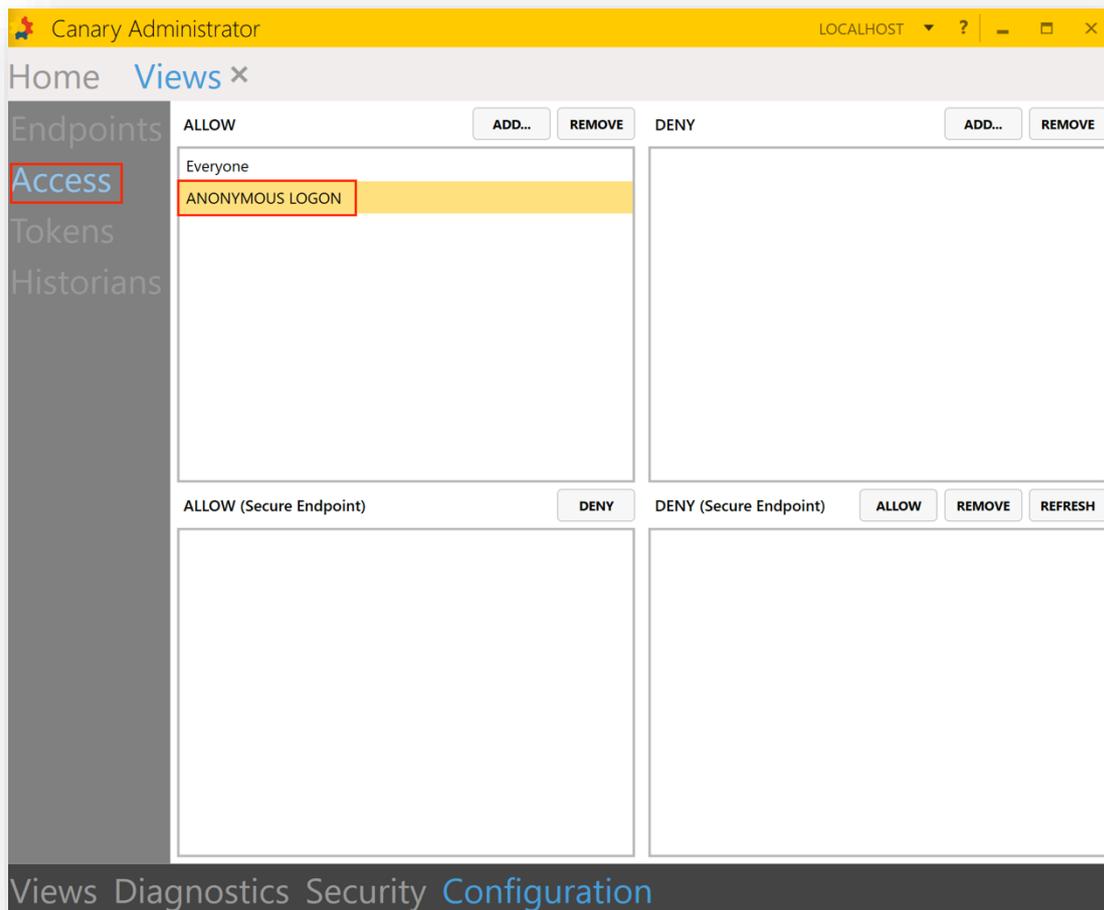
1. Open the Canary Admin application on your Ignition Gateway and navigate to the Views tile



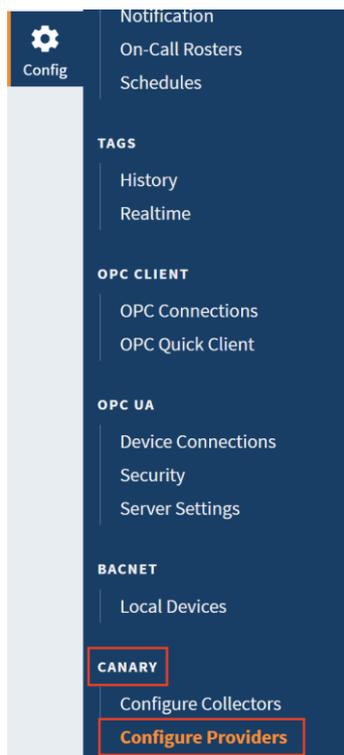
2. Use the "Configuration" menu at the bottom of the screen and open the "Endpoints" menu on the left-hand side. Click on "Https – Anonymous (Web API)" to enable it, and make sure it uses port 55253. Click on the "Apply" button at the top of the red bar to apply the changes



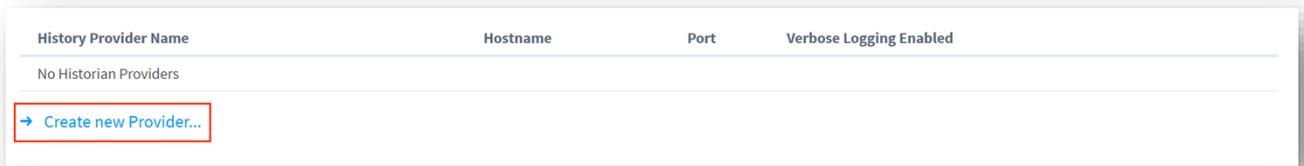
3. Add "Anonymous Logon" to the Allow window in the "Access" menu like before



4. Navigate to the Ignition Gateway and open the Config menu like before. Scroll down until you find the "Configure Providers" option under the "CANARY" heading



5. Select "Create new Provider"



Configure Canary as a tag History Provider within Ignition by completing the following fields:

History Provider Name:
The name you wish to be displayed as a Tag History Provider.

Hostname:
Machine name or IP address of the Canary Historian.

Port:
Default to 55235.

Anonymous:
Enabled by default.

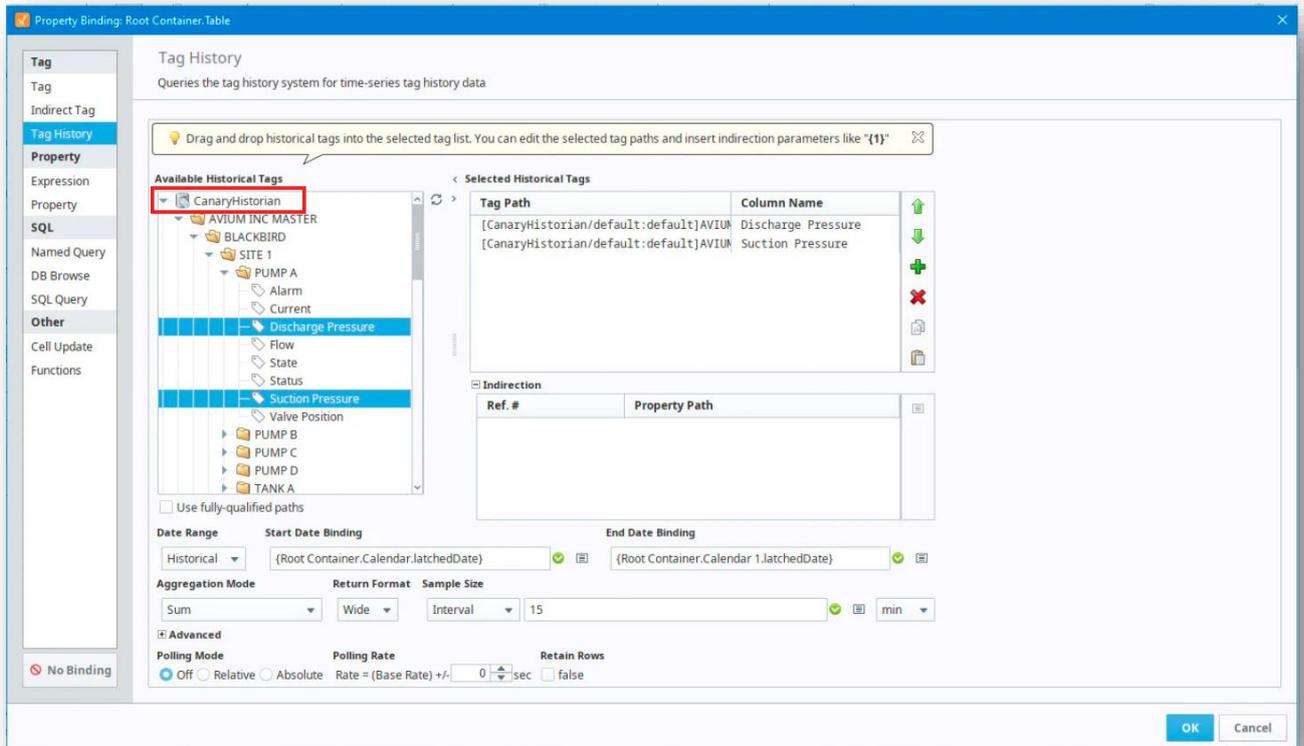
Username, Change Password, and Password:
Blank by default.

The page will look something like this. Click on "Save Changes" when complete

Configuration	
History Provider Name	<input type="text" value="CanaryHistorian"/> Name of the history provider to create. <small>(default:)</small>
Hostname	<input type="text" value="canaryhistorian"/> Hostname/IP address of the Canary Historian. <small>(default: localhost)</small>
Port	<input type="text" value="55235"/> The port to connect to. <small>(default: 55,235)</small>
Anonymous	<input checked="" type="checkbox"/> Connect using http when true. <small>(default: true)</small>
Username	<input type="text"/> Username of a windows user account. Will only be used when not anonymous.
Password	<input type="password"/>
Password	<input type="password"/> Re-type password for verification.
Verbose Logging Enabled	<input type="checkbox"/> Additional logging will be enabled with debug. <small>(default: false)</small>

[Create New CanaryProviders](#)

- Open your Ignition Designer and browse the Canary Historian referenced above as Tag History Provider. Note, not only will you be able to browse the historian archive, but Canary will also expose any Virtual Views and Asset Models created on top of the historical record



Known Issues

Historical Data and Perspectives

Currently Canary can only function as a Tag History Provider for Perspective projects through the scripting of tag paths. The Tag History Provider UI that was used for Vision has not yet been added to Perspectives limiting your ability to browse Canary tags. To overcome this, prepend your Canary tag paths with the following:

```
[CanaryHistorian/default:default]canaryhistorian/ignition 1/Pump 1
```

The above example indicates 'CanaryHistorian' is the name of your Provider as configured within the History Provider Name field. Keep the 'default:default' and '[' part of the path the same. 'canaryhistorian/ignition 1/Pump 1' indicates the name of the Canary Historian Server (canaryhistorian), the DataSet (ignition 1), and the tag name (Pump 1). Note, your tag name will likely be much longer as Canary respects the folder structure found within Ignition. Add the '/' between each part of tag name hierarchy.

Deleting Tags

Deleting a tag currently does not pass a NoData value to the tag within Canary. This means the tag will continue to have the timestamp extended and will appear to still be logging data. This can be fixed with a module restart.

Releasing Tag Licenses

There is currently not a mechanism within the module to release a tag license. This will be added to the next major release.

6. Summary

To follow to connect, store and forward data from and to Ignition and Canary, here is a summary of what you need to do:

1. Some basic Information
2. Download and install Canary module for Ignition
3. Configuration of writing data to Canary
4. Configuration of reading data from Canary

For additional resourcing, please direct yourself to the help center:

<https://help.canarylabs.com/hc/en-us/articles/360049539433-How-to-Install-and-Configure-the-Canary-Module-for-Ignition>



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