Honeywell

Sylk Actuator Analytics Service

USER GUIDE

JUNE 2021

31-00420-01

Disclaimer

The material in this document is for information purposes only. The content and the product described are subject to change without notice. Honeywell makes no representations or warranties with respect to this document. In no event shall Honeywell be liable for technical or editorial omissions or mistakes in this document, nor shall it be liable for any damages, direct or incidental, arising out of or related to the use of this document. No part of this document may be reproduced in any form or by any means without prior written permission from Honeywell.

Software License Advisory

This document supports software that is proprietary to Honeywell International Inc. and/or to third party software vendors. Before software delivery, the end user must execute a software license agreement that governs software use. Software license agreement provisions include limiting use of the software to equipment furnished, limiting copying, preserving confidentiality, and prohibiting transfer to a third party. Disclosure, use, or reproduction beyond that permitted in the license agreement is prohibited.

Trademark Information

Honeywell logo, WEB-8000, WEBs-N4, WEBStation, Sylk, CIPer and Spyder are trademarks of Honeywell, Inc.
LON, LonMark, LonWorks, LNS, and Neuron are registered trademarks of Echelon Corporation. BACnet and ASHRAE are registered trademarks of American Society of Heating, Refrigerating and Air-Conditioning Engineers. Microsoft, Excel, Internet Explorer, Windows, Windows Vista, Windows Server, and SQL Server are registered trademarks of Microsoft Corporation. Oracle and Java are registered trademarks of Oracle and/or its affiliates. Mozilla and Firefox are trademarks of the Mozilla Foundation.
Niagara Framework ®, NiagaraAX Framework are registered trademarks of Tridium, Inc. All other product names and services mentioned in this publication that are known to be trademarks, registered trademarks, or service marks are the property of their respective owners.

Table of Contents

ABOUT THIS GUIDE **4**
Applicable Technical Literature 4
System Requirements 5
NETWORK ARCHITECTURE **5**
INTRODUCTION **6**
PREREQUISITES **6**
Inputs and outputs for Sylk enabled actuators 6
SUPERVISOR STATION CONFIGURATION **7**
Auto Configure Niagara Network 7
Manual Configuration of Niagara Network 9
CONFIGURING BACNET SPYDER CONTROLLER **11**
Adding BACnet Spyder Controller in the Station 11
Adding points to the Spyder Controller 12
Configure Point Database 13
Importing Database to the Supervisor station 14
CONFIGURING CIPER MODEL 30 CONTROLLER **17**
Adding a Device to IPC Network 17
Steps to add points to CIPer Model 30 Controller. 17
Configure Point database 18
Importing Database to the Supervisor station 21
Configuring CIPer Model 30 Controller as a Supervisor 23
DEFAULT TEMPLATE SETTING **24**
STARTING SYLK ACTUATOR SERVICE **26**
SYLK ACTUATOR ANALYTICS DASHBOARD **27**
TROUBLESHOOTING **29**

About this Guide

This document explains about the Sylk Actuator Analytics dashboard and how to configure the dashboard for Sylk Actuator when it is connected to WEB-8000 via Spyder controller, and WEB-8000 is connected to a supervisor and a Sylk Actuator is connected to a supervisor via CIPer Model 30 controller. The dashboard is designed to display information derived from various parameters which help the users to monitor the performance of the Sylk Actuators. Configuration and management are carried out using Sylk Actuator Service which is based on the WEBs-N4 Supervisor.

It is recommended that you have some training or previous experience working with the CIPer Model 30 controller as well as the WEBs-N4 supervisor.

Applicable Technical Literature

For additional information regarding the configuration, refer to the below listed documents.

Document Title	**Document ID**
Sylk Actuator Analytics Service Installation Instructions	31-00421
CIPer Model 30 System Engineering User Guide	31-00237
CIPer Model 30 Installation and Operation Guide	31-00206
CIPer Model 30 Installation Instructions	31-00183
Spyder Tool User Guide for WEBs-N4	31-00089
Spyder® BACnet® Programmable Controllers Installation Instructions	62-0310
Spyder® Lon Programmable Controllers, VAV/Unitary Controllers Installation Instructions	62-0287

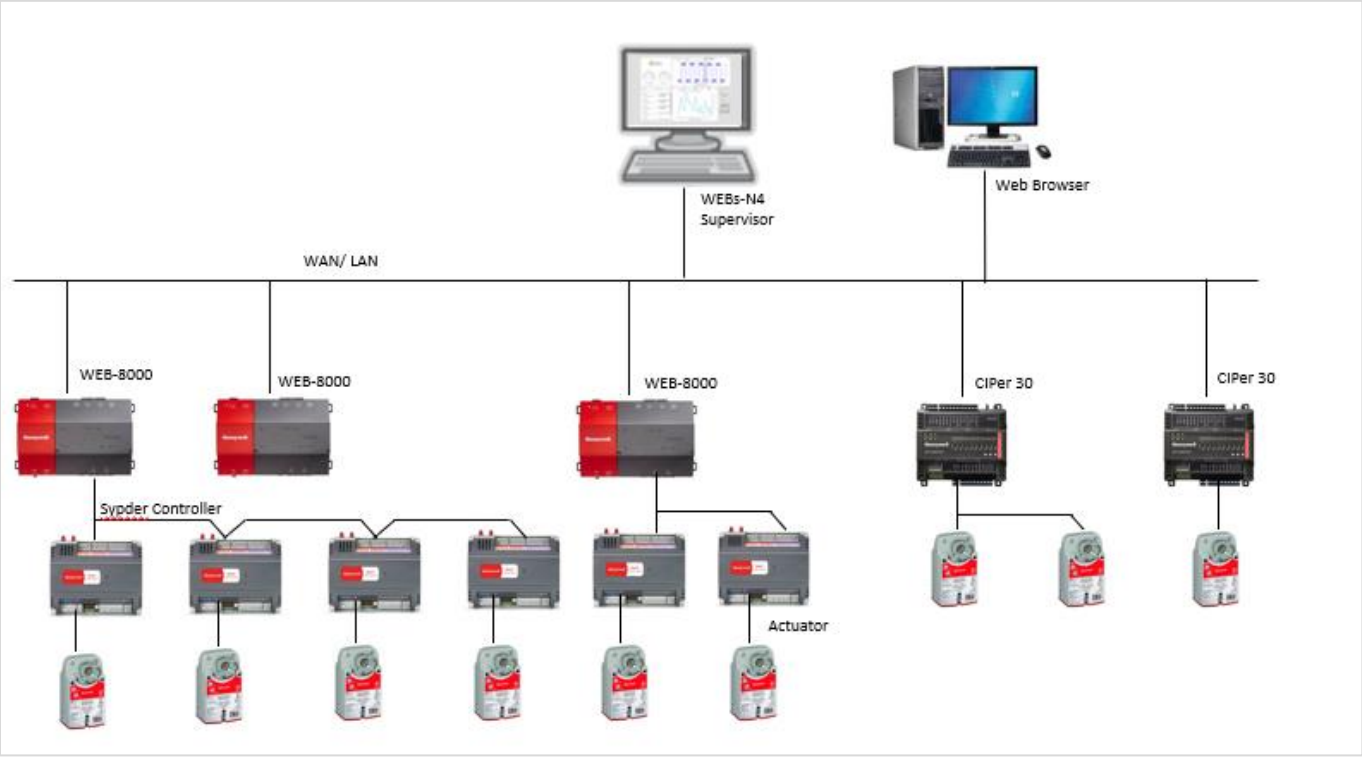
For more information on the other WEBs products described in this guide refer to the **docs** folder of the WEBs-N4 installation (for example, C:\Honeywell\WEBStation-N4-4.X.X.XXX.X\docs) or contact your nearest Honeywell office.

System Requirements

Requirement	Source
Workbench	Honeywell WEBStation-N4. X.
Software	CIPer Model 30 latest released tool
Browser	Latest Google Chrome
Controller	Sylk Actuator is connected to WEB-8000 via Spyder controller, and WEB-8000 is connected to a supervisor. Sylk Actuator is connected to a supervisor via CIPer Model 30 controller.

Network Architecture

The Sylk Actuator Analytics Service supports actuators which are connected to Spyder or CIPer Model 30 controllers via Sylk bus (supported actuators are- Zelix MS3103, MS3105, MS3110, MS3120, and Diamond Sylk Actuator. Sylk Actuator is connected to WEB-8000 via Spyder controller, and WEB-8000 is connected to a supervisor. Sylk Actuator is connected to a supervisor via CIPer Model 30 controller. Refer the figure below to understand the Network Architecture.



Network Architecture

Introduction

The Sylk Actuator Analytics is a service to visualize the actuator performance, health, and predictive analytics of service life. The service can be configured using WEBs-N4 workbench and CIPer Model 30. Once configured, the service is available for use via. WEBs-N4 workbench and web browser.

Prerequisites

Inputs and outputs for Sylk enabled actuators

The Sylk Actuator configured has five inputs and two outputs. All the I/Os communicate with the Spyder and CIPer Model 30 controllers over a Sylk bus.

Outputs	Inputs
• Actuator Position • Actuator Cycle Count • Actuator Status • Actuator Overridden • Actuator Power Report	• Actuator Command • Actuator Travel Time

NOTE

Before running the Sylk Actuator Service, follow the prerequisite as listed below:

- Device engineering logic should be pre-configured in WEBs-N4 station as per standard software programming.
- Refer to “Spyder Tool for WEBs-N4 User Guide - 31-00089” and “CIPer Model 30 System Engineering User Guide - 31-00237” for detailed information on Sylk Actuator I/O configuration.

Supervisor Station configuration

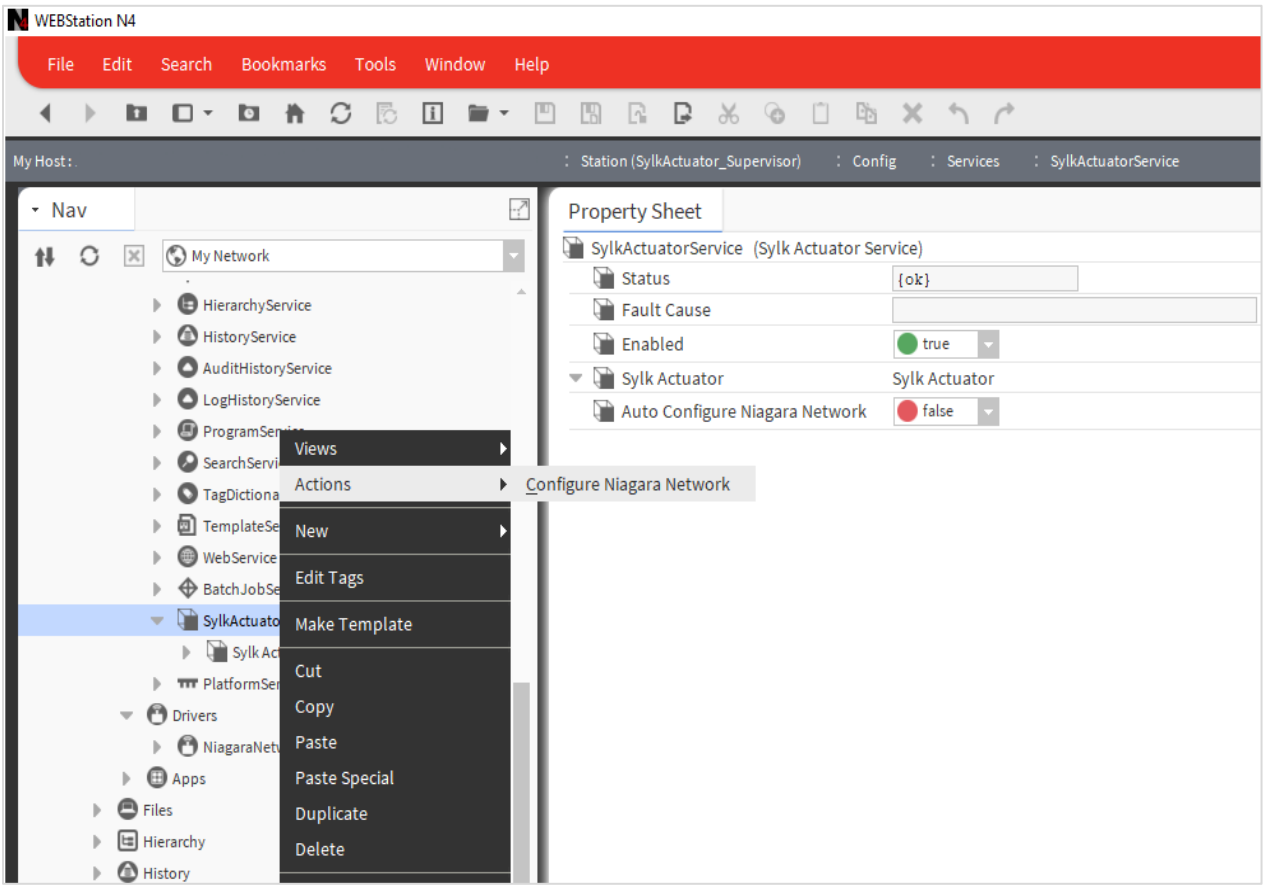
The Niagara Network properties required for Sylk Actuator Analytics can be configured automatically with the Auto-Configure Niagara Network property or using manual configuration options. The Persist Fetched tags property and tagsToFetch slot is configured automatically using auto-configure Niagara network functionality. Right-Click on **SylkActuatorService → Views → AX Property Sheet → Auto Configure Niagara Network**. Set this property as true.

You may also configure the Niagara Network manually using the Manual Configuration of Niagara Network.

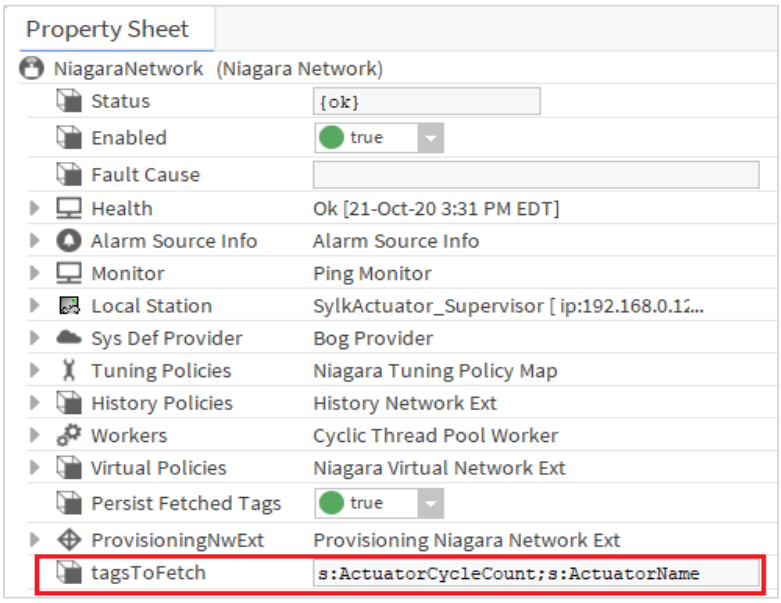
Auto Configure Niagara Network

Use the Sylk Actuator Service property sheet for auto configuration of the Niagara Network properties. Follow the steps mentioned below:

1. Drag and drop the **SylkActuatorService** from the palette to the Supervisor station container.
2. Go to the navigation tree on the left pane and open the AX Property Sheet of the **SylkActuatorService**.
3. Set the Auto Configure Niagara Network property to **true**. This property is set to false by default.
4. As an alternative, right Click on **SylkActuatorService → Actions → Configure Niagara Network**.



5. Once the auto configuration is done, **Persist Fetched Tag** property is enabled and a slot with name **tagsToFetch** will be added. The Slot will have tags **s:ActuatorCycleCount** and **s:ActuatorName** added in it.



NOTE

If there is an existing slot with the name **tagsToFetch**, tags required for SylkActuatorService will be added to the existing slot.

Manual Configuration of Niagara Network

For manual configuration of the Niagara Network properties, follow the steps mentioned below:

1. Right-click on **Config → Drivers → NiagaraNetwork** node in the Navigation tree.
2. Click **Views → AX Slot Sheet**.

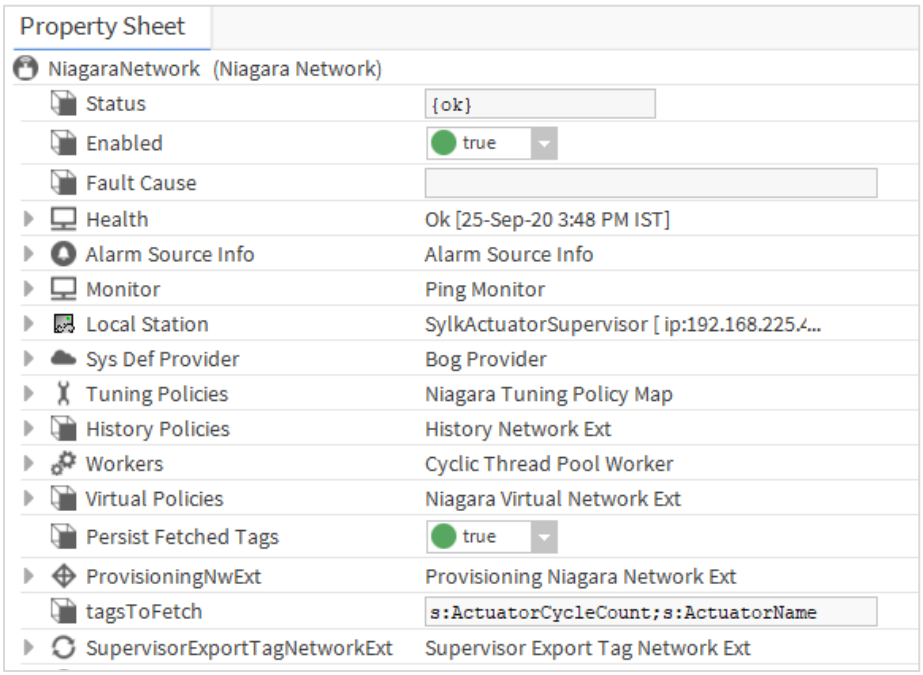
   The AX Slot Sheet view is shown in the figure below.

Slot Sheet

Slot	#	Name	Display Name	Definition	Flags	Type	Facets
Property	3	health	Health	Frozen	rd	driver:PingHealth	
Property	4	alarmSourceInfo	Alarm Source Info	Frozen		alarm:AlarmSourceInfo	
Property	5	monitor	Monitor	Frozen		driver:PingMonitor	
Action	6	ping	Ping	Frozen	a	void (void)	
Action	7	ackAlarm	Ack Alarm	Frozen	h	baja:Boolean (alarm:AlarmRecord)	
Property	8	localStation	Local Station	Frozen		niagaraDriver:LocalSysDefStation	
Property	9	sysDefProvider	Sys Def Provider	Frozen		niagaraDriver:SysDefProvider	
Property	10	tuningPolicies	Tuning Policies	Frozen		niagaraDriver:NiagaraTuningPolicyMap	
Property	11	historyPolicies	History Policies	Frozen		driver:HistoryNetworkExt	
Property	12	workers	Workers	Frozen		niagaraDriver:CyclicThreadPoolWorker	
Property	13	virtualPolicies	Virtual Policies	Frozen		niagaraDriver:NiagaraVirtualNetworkExt	
Property	14	persistFetchedTags	Persist Fetched Tags	Frozen		baja:Boolean	
Action	15	resetAllConnections	Reset All Connections	Frozen	ac	void (void)	
Action	16	submitStationDiscoveryJob	Submit Station Discovery Job	Frozen		baja:Ord (void)	
Action	17	rebuildStationMap	Rebuild Station Map	Frozen	ha	void (void)	
Action	18	forceUpdateNiagaraProxyPoints	Force Update Niagara Proxy Points	Frozen	c	baja:Ord (void)	
Property	19	ProvisioningNwExt	ProvisioningNwExt	Dynamic		provisioningNiagara:ProvisioningNiagaraNetworkExt	

3. Right-click in the white space and select **Add Slot** option.
4. Name the slot as **tagsToFetch**.
5. Set Type as **baja String**.
6. Click **OK** to proceed.

7. Change the view to AX Property Sheet view.
8. Add tags for actuators in **tagsToFetch** field **s:ActuatorCycleCount;s:ActuatorName**.
9. Enable Persist Fetched Tags property (change the value from false to **true**).


Property Sheet
NiagaraNetwork (Niagara Network)
Status
{ok}
Enabled
true
Fault Cause
Health
Ok [25-Sep-20 3:48 PM IST]
Alarm Source Info
Alarm Source Info
Monitor
Ping Monitor
Local Station
SylkActuatorSupervisor [ip:192.168.225.4...
Sys Def Provider
Bog Provider
Tuning Policies
Niagara Tuning Policy Map
History Policies
History Network Ext
Workers
Cyclic Thread Pool Worker
Virtual Policies
Niagara Virtual Network Ext
Persist Fetched Tags
true
ProvisioningNwExt
Provisioning Niagara Network Ext
tagsToFetch
s:ActuatorCycleCount;s:ActuatorName
SupervisorExportTagNetworkExt
Supervisor Export Tag Network Ext

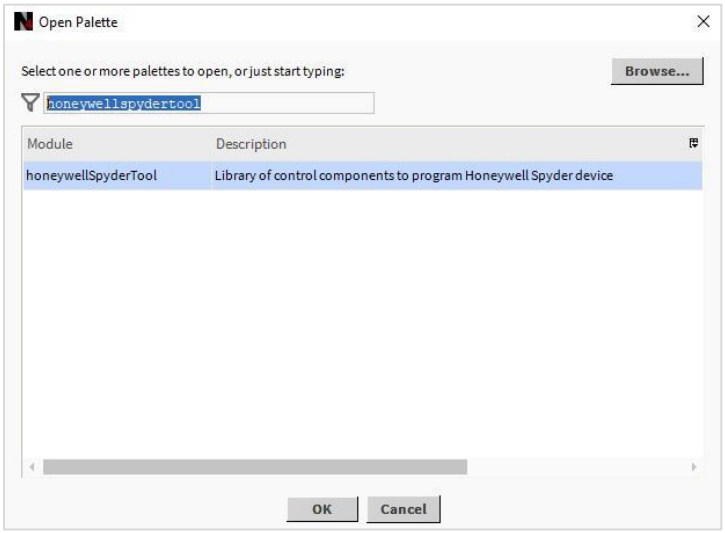
Configuring BACnet Spyder Controller

NOTE

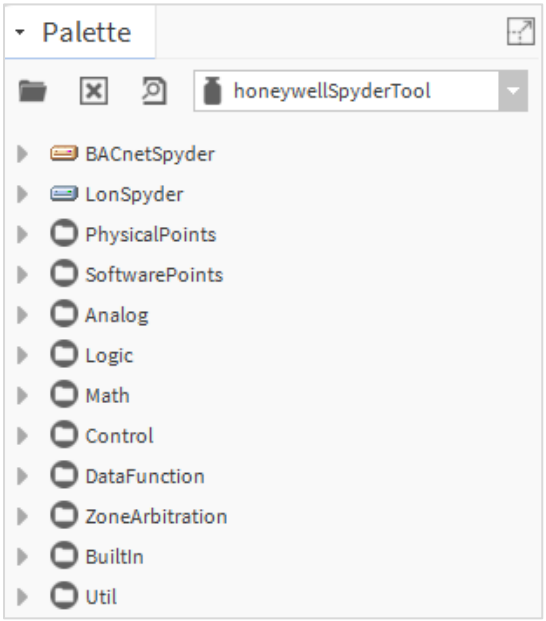
Pre-requisite: Device engineering logic should be created on the BACnet Spyder controller as per its standard software programming. Refer to the “Spyder Tool for WEBs-N4 User Guide - 31-00089” for detailed information on Sylk Actuator I/O configuration.

Adding BACnet Spyder Controller in the Station

1. Click ( ) Open **Palette** button on the **Palette** to launch the **Open Palette** dialog box.
2. Type Honeywell to open the **honeywellSpyderTool** palette and click **OK**.

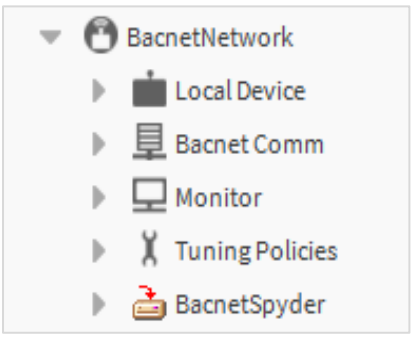


3. Once it is added, the **honeywellSpyderTool** is reflected in **Palette** as shown below.



4. **Add BACnet device**: Select **BACnetSpyder** controller from the **Palette** (tool library) then drag and drop it on the **BacnetNetwork.** The name window will pop up.
5. Enter the name and click **OK** to verify the added controller, expand the Bacnet network tree.

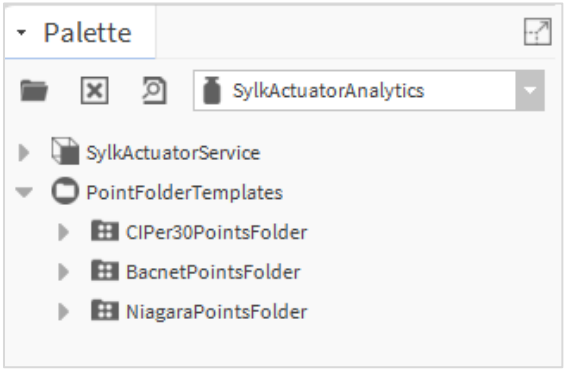
6. The BacnetSpyder device is added to the **BacnetNetwork** as shown below.



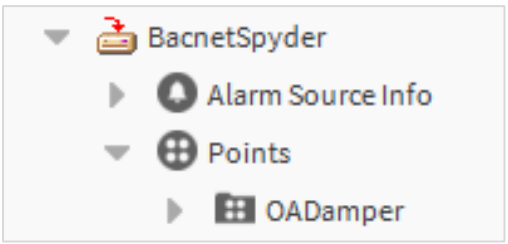
Adding points to the Spyder Controller

The standard point folder templates are available preconfigured with all I/O points. Add the points folder to **BACnetSpyder**. Follow the steps below:

1. Open **Palette** and select **SylkActuatorAnalytics** module in the palette window.

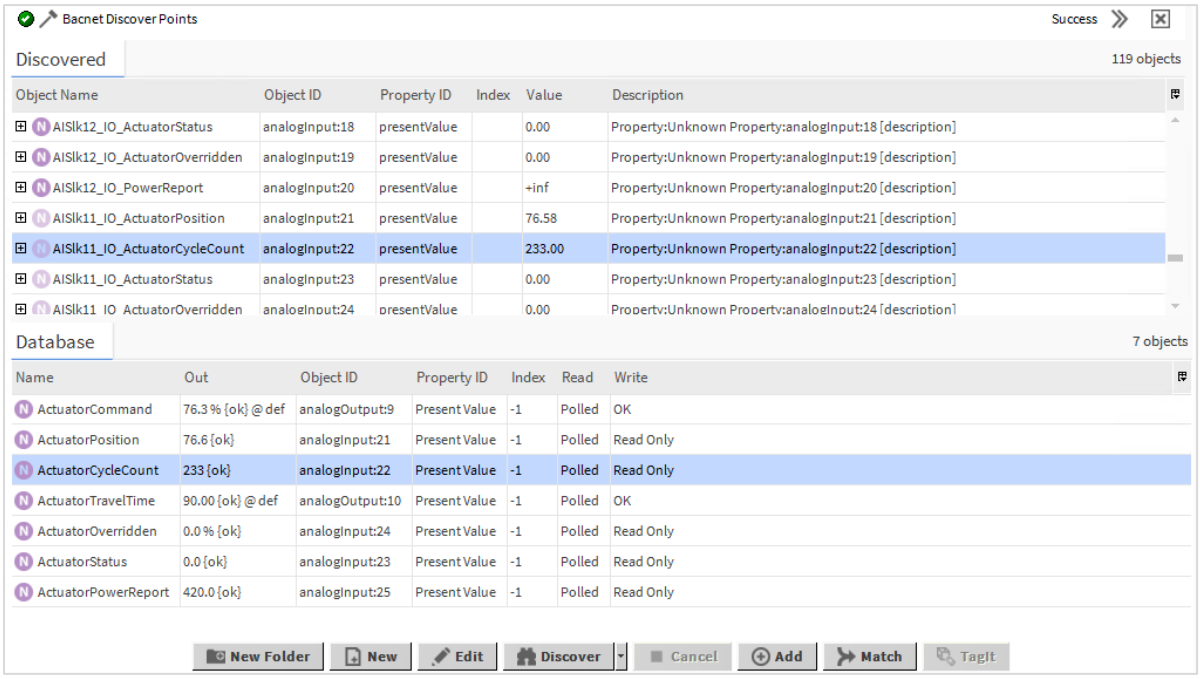


2. Select **BacnetPointsFolde**r.
3. Drop this folder under: **Station→Config→ Drivers→BACnet Network→ BACnet Spyder→ Points.**
4. Name it as per requirement/device to which it's connected. For example, OADamper.

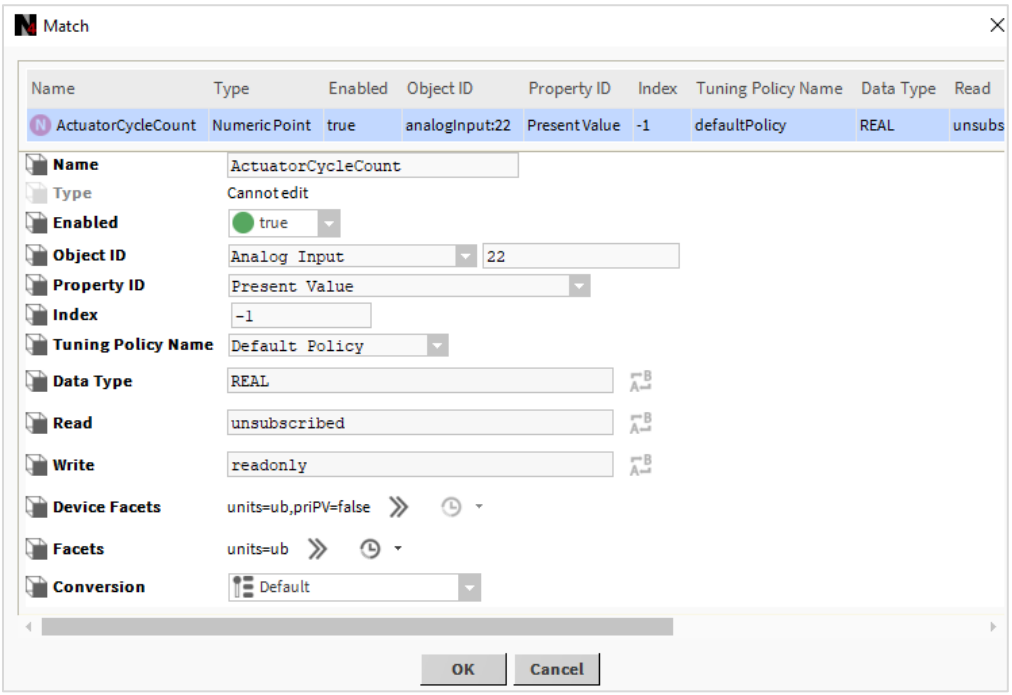


Configure Point Database

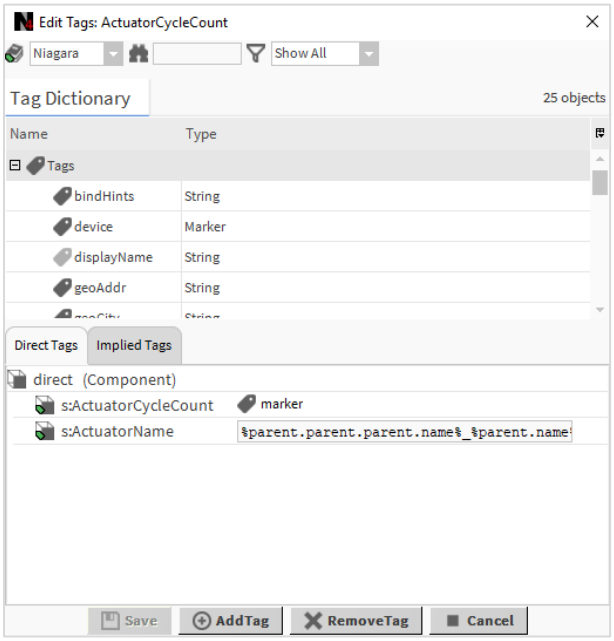
1. Double click on the OADamper folder added and open the BacnetSpyder Point manager.
2. Click the **Discover** button to discover all the points on the device.



3. Select one of the discovered points in the **Discovered** pane and one of the points with a corresponding point from the database pane and click **Match**.
   For example, select AISlk1_IO_ActuatorCycleCount from the Discovered pane and select **ActuatorCycleCount** from the Database pane, click on **Match**. Match the remaining points similarly.



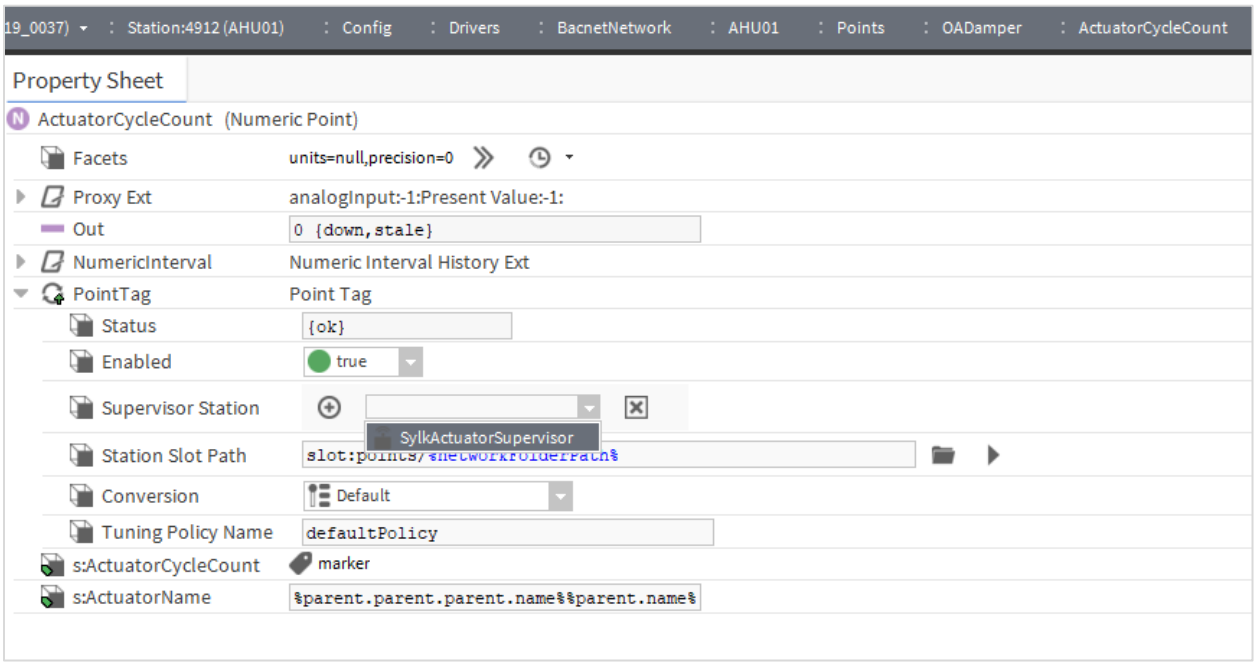
4. The **ActuatorCycleCount** point has a tag with name **s:ActuatorName** which is a string tag. The default string value is **%parent.parent.parent.name%_%parent.name%** which works as a BFormat to read the actuator name.
5. To change the BFormat:
    a. Right-click on **ActuatorCycleCount** point to open the options.
    b. Click on **'Edit Tags'** option
    c. Check for the edit tags popup window to display values.
    d. Change the BFormat in s:ActuatorName field to display the actual name of the Actuator. This will be seen in the chart displayed.
    e. The BFormat should be written considering the point hierarchy in the Supervisor station.
    f. A string without BFormat is also supported.
    g. Click on Save after the changes are complete.



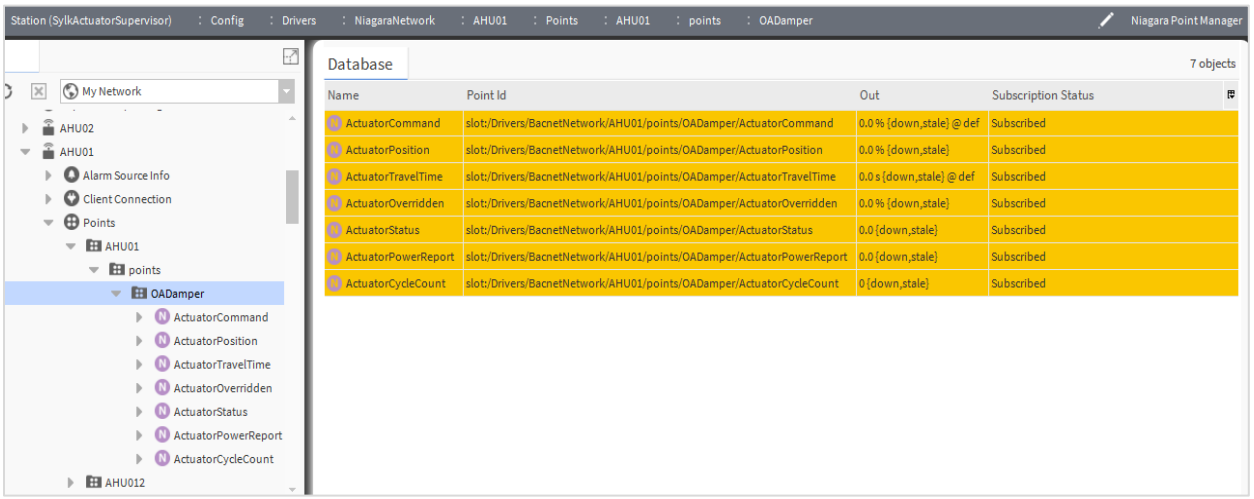
Importing Database to the Supervisor station

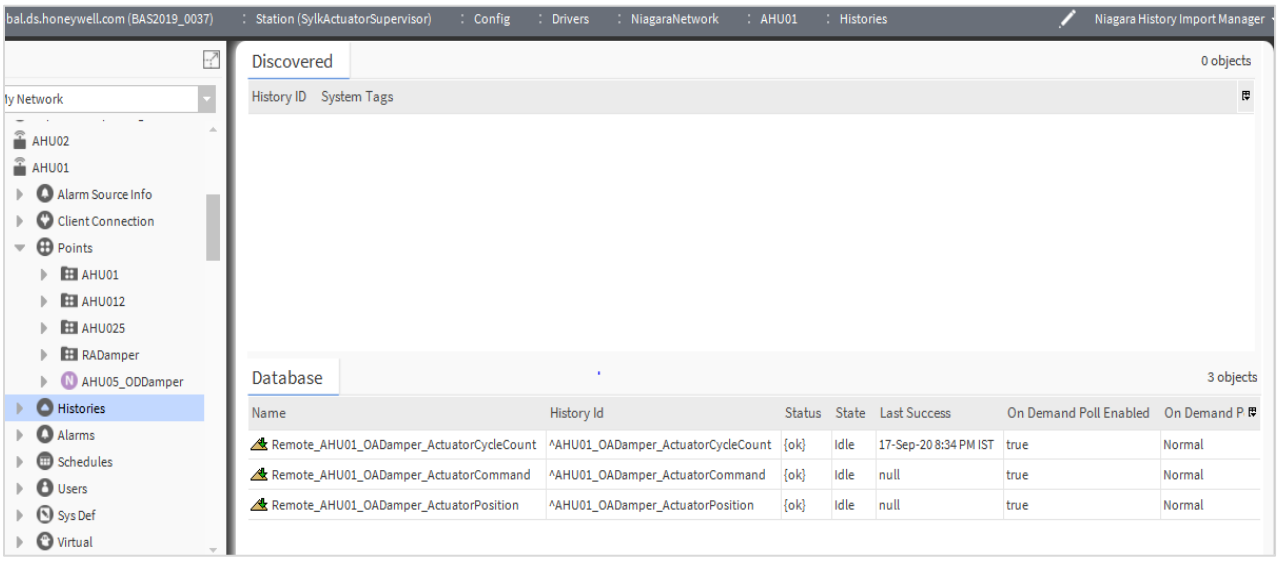
The points are added using a template. They are pre-configured with history extensions and tags.

1. Go to **Window > Side Bars > Palette >** enter **exportTags**.
2. Add the **SupervisorExportTagNetworkExt** to the **NiagaraNetwork** of Supervisor station**.**
3. Add the **SubordinateExportTagNetworkExt** to the **NiagaraNetwork** of the controller station**.**
4. The Supervisor station field in the **PointTag** and **HistoryImportTag** is empty by default and must be configured to push the points to the Supervisor station**.**



5. Configure the export tag extensions using the **Join Profile manager view** and right-click on the **SubordinateExportTagNetworkExt → Actions → Join**
   a. The Join action adds the points and histories in the Supervisor station.





6. The history capacity is set as unlimited by default.
7. Configure the capacity from record count option to a specific number and the default execution time is set to daily by default. This will update the wizard once a day.
8. Change the execution time to shorter interval for more frequent update.

NOTE

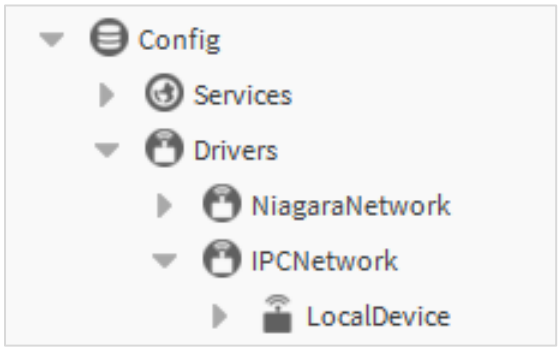
If any changes to the tags are made in a controller station, right click on the NiagaraNetwork of Supervisor station and click **Actions > Force Update Niagara Proxy Points**.

Configuring CIPer Model 30 Controller.

Adding a Device to IPC Network

LocalDevice is present by default when the network is added. To manually add a device:

- Select the IPCNetwork from the **ipcProgrammingTool** Palette (tool library).
- Drag-drop the LocalDevice to the IPCNetwork in Drivers under Station.



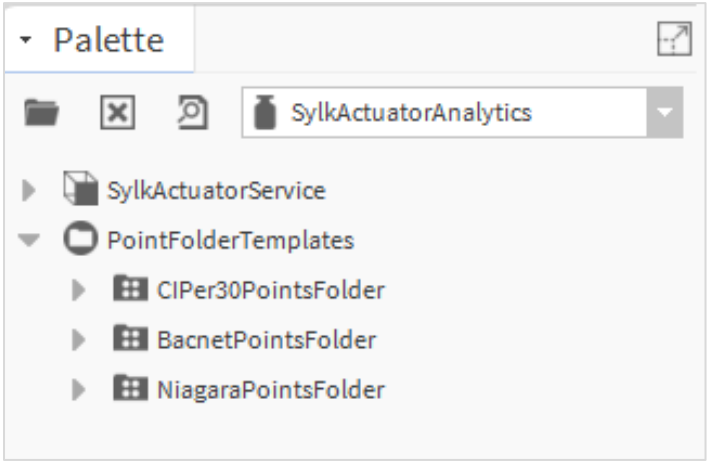
NOTE

Pre-requisite: Device engineering logic should be created on CIPer Model 30 controller as per its standard software programming. Refer to “CIPer Model 30 System Engineering User Guide - 31-00237” for detailed information on Sylk Actuator’s I/O configuration.

Steps to add points to CIPer Model 30 Controller.

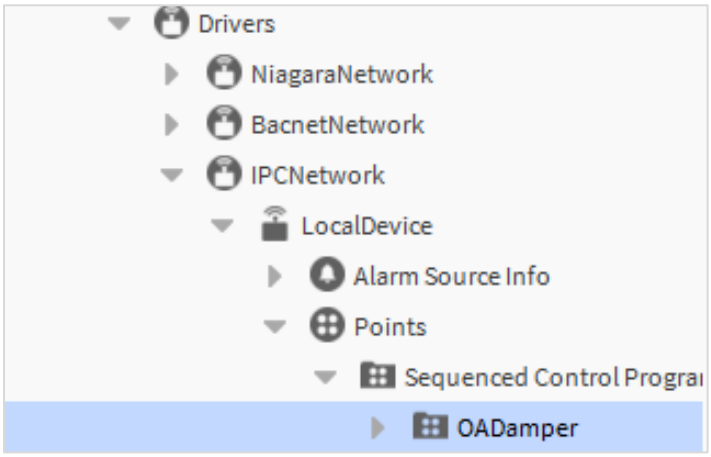
Standard point folder templates are available preconfigured with all I/O points. To add the points folder to CIPer Model 30 Controller, follow the below mentioned steps:

1. Open the SylkActuatorAnalytics module using the palette and expand the point folder templates.



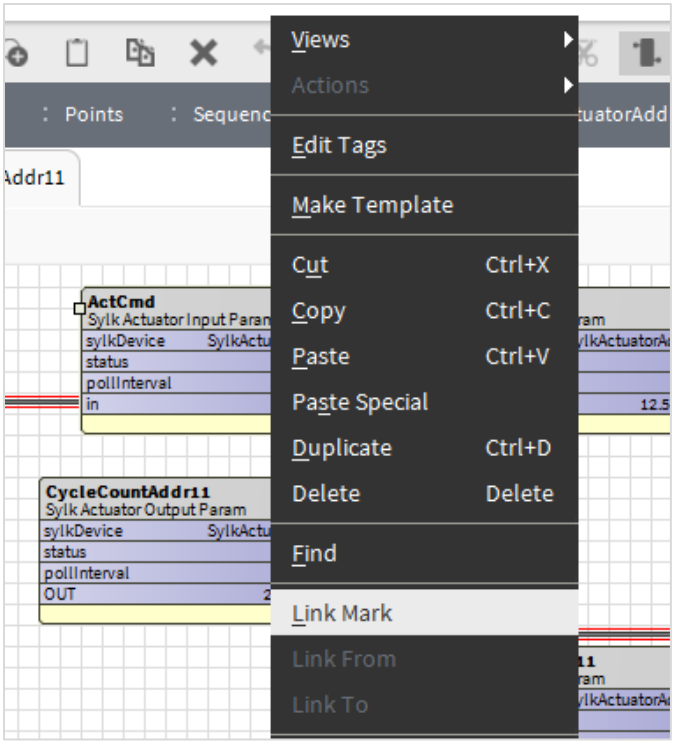
2. Select **CIPer30PointsFolder.**

3. Drop this folder under: **Station → Config → Drivers → IPCNetwork → LocalDevice → Points → Sequenced Control Program.**
4. Name it as per requirement/device to which it's attached. For example, **OADamper**.

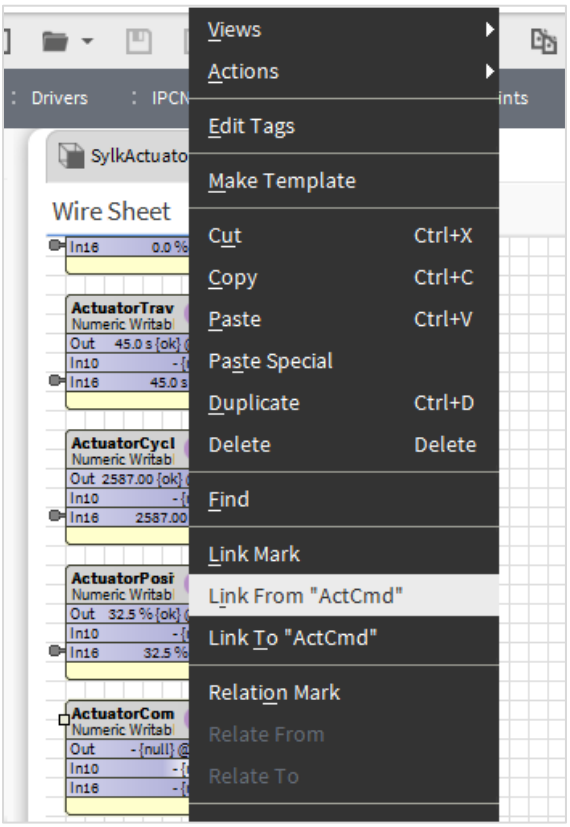


Configure Point database

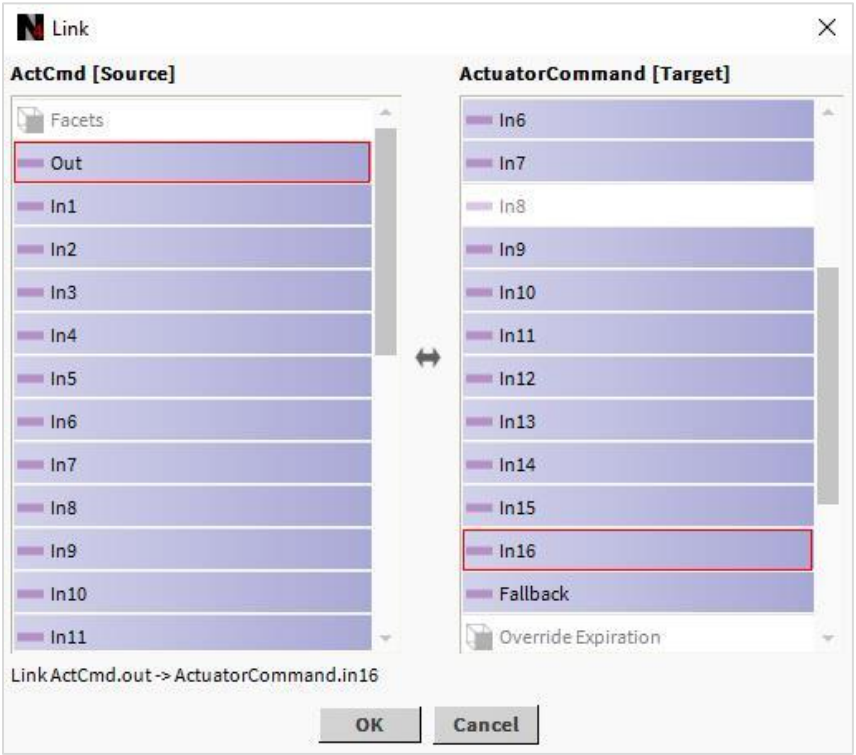
1. Navigate to the configured device **Sylk I/O** points and open the **Wire Sheet** view.
2. Right-click on Sylk IO point and select **Link Mark**. For example, **ActCmd** as shown below. This will serve as the source point.



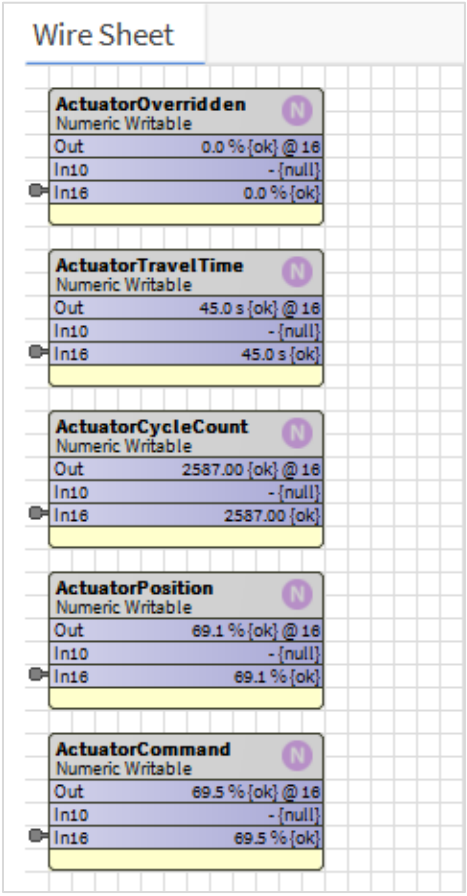
3. Double click on the "**OA Damper**" point folder to open. Right-click on the corresponding point added from the point template - **ActuatorCommand**. Select **Link From** "**ActCmd**" option.



4. Define the source and target pin slots.

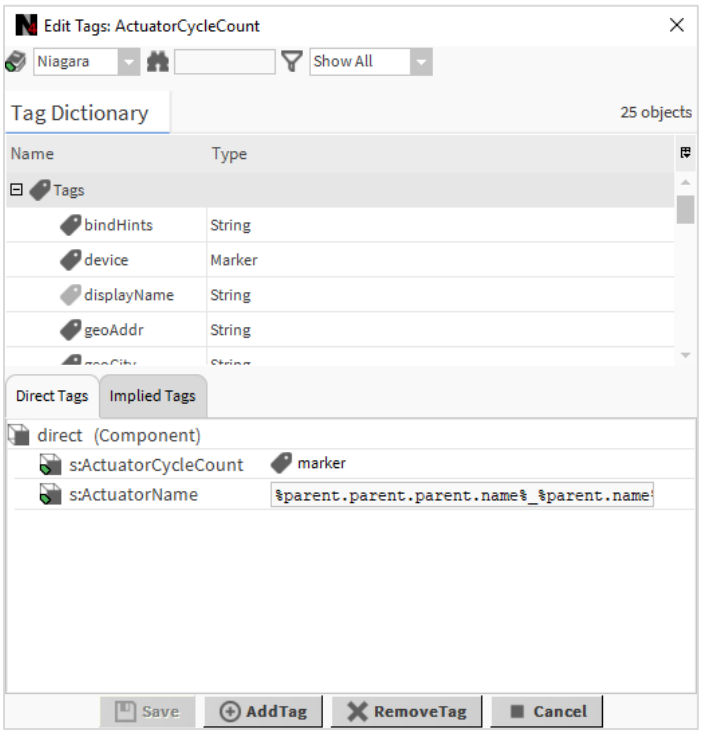


5. A link will be created to the point added from the template. Similarly link all the other points.



6. The **ActuatorCycleCount** point has a tag with name **s:ActuatorName** which is a string tag. The default string value is **%parent.parent.parent.name%_%parent.name%** which works as a BFormat to read the Actuator name.

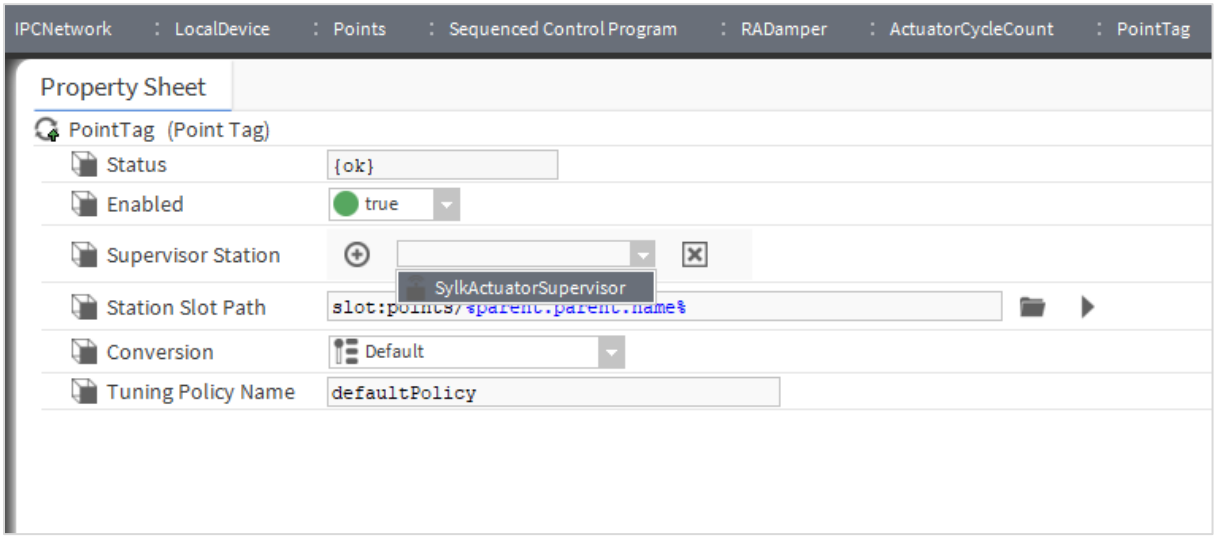
7. To change the BFormat:
   a. Right click on **ActuatorCycleCount** point.
   b. Click on Edit Tags to open edit popup for editing the tags.
   c. Change the BFormat in the string field to display the point name as actuator name on the chart.
   d. The BFormat should be written considering the point hierarchy in the Supervisor. A string without BFormat is also supported.
   e. Click on Save after the changes are complete.



Importing Database to the Supervisor station

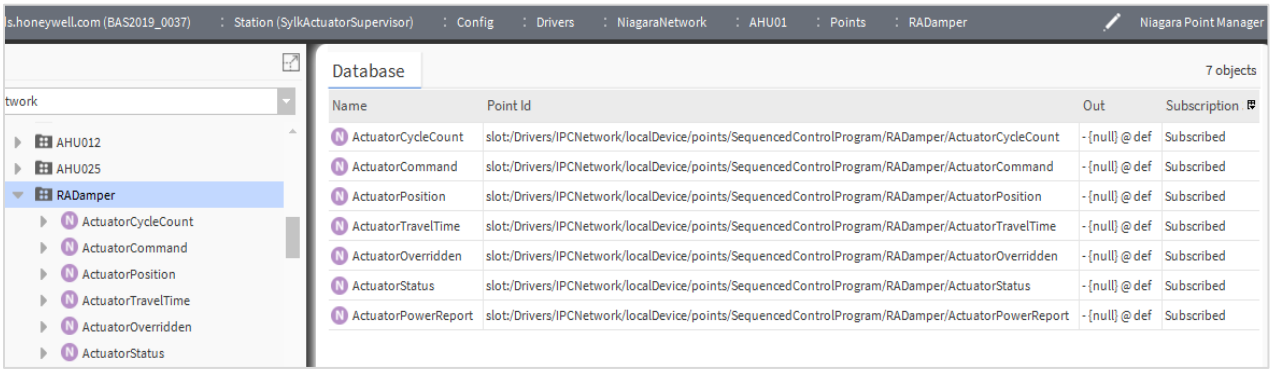
The database points are added using a template and are preconfigured with history extensions and tags.

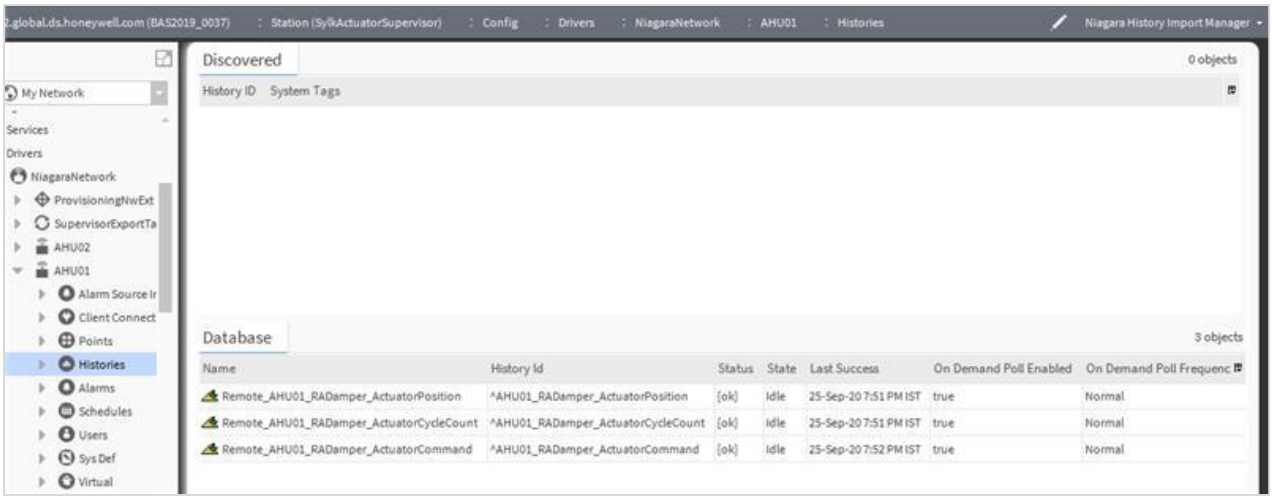
1. Go to **Window > Side Bars > Palette >** enter **exportTags.**
2. Add the **SupervisorExportTagNetworkExt** to the **NiagaraNetwork** of Supervisor station.
3. Add the **SubordinateExportTagNetworkExt** to the **NiagaraNetwork** of the controller station.
4. The Supervisor station field in the **point tags** and **HistoryImportTag** is empty and should be configured to push the points to the Supervisor station.



5. Configure the export tag extensions using the **Join Profile manager** view and right-click on the **SubordinateExportTagNetworkExt > Actions > Join.**

6. Join action will add the points and histories in the Supervisor station.





7. The history capacity is set as unlimited by default.

8. Configure the capacity using record count option to a specific number and the default execution time. If it's set to **daily**, it will update the wizard once a day. Change the execution time to a shorter interval for frequent updates.

> **NOTE**
>
> If any changes to the tags are made in a controller station, right-click on the NiagaraNetwork of Supervisor station and click **Actions > Force Update Niagara Proxy Points**.

Configuring CIPer Model 30 Controller as a Supervisor

The Sylk Actuator Service can be included to enable the analytics on the CIPer Model 30 Controller. The analytics wizard will display the actuators connected to the CIPer Model 30 Controller. Steps given in the *Supervisor Station* Configuration section are not required to configure a CIPer Model 30 Controller. Add the SylkActuatorService to the station and follow the steps mentioned in the section *Configuring CIPer Model 30 Controller*.

Adding a Device to IPC Network.

For Already Existing Controllers

For Controllers which are not included using the template and exist already in the system, use the following steps to configure them. Refer to Default Template Settings for more details on the history and alarm configuration required for the points.

1. Add an adhoc **baja:marker** tag to the Actuator Cycle Count point as **s:ActuatorCycleCount.**
2. Add an adhoc **baja:string** tag to the Actuator Cycle Count point as **s:ActuatorName** when creating point database in the controller.
3. Make sure that the Actuator Cycle Count point has history configured in the controller and imported to the Supervisor station. The imported point should have **n:history** tag.
4. After adding the controller and completing the configuration, follow the below step:

   Right-click on the **NiagaraNetwork**-> **Actions**-> **Force Update Niagara Proxy Points**

> **NOTE**
>
> Click on Force Update Niagara Proxy Points after completing configuration for all controllers. A frequent Force Update Niagara Proxy Points would affect the station performance.

Default Template setting

After successfully adding the corresponding points under Point Manager, you can **verify or modify** the settings mentioned here for history extensions, alarm extensions, history import tags, tags, and point tags.

- **Mandatory** settings for Sylk Actuator Service to run are **highlighted in bold.** Refer table below for details on the necessary settings.
- Other settings are set only as default and can be modified by the user.
- The template has 7 points out of which, one point from the template i.e., ActuatorCycleCount point is used for analytics. The users can use the remaining points or remove as necessary.

The table below indicates all the points available in the template.

Point Name	Tag	History	Alarm
Actuator Command	Not required	Not required	Not required
Actuator Position	Not required	Not required	Not required
Actuator Cycle Count	s:ActuatorCycleCount – baja:marker s:ActuatorName – baja:string	Required	Not required
Actuator Travel Time	Not required	Not required	Not required
Actuator Overridden	Not required	Not required	Not required
Actuator Status	Not required	Not required	Not required
Actuator Status	Not required	Not required	Not required

NOTE

If points are created manually, add an adhoc baj:marker tag to the ActuatorCycleCount point as s:ActuatorCycleCount and adhoc baja:string tag to Actuator Name point as s:ActuatorName. To configure the existing controllers, refer to the topic **Configuring BACnet Spyder**.

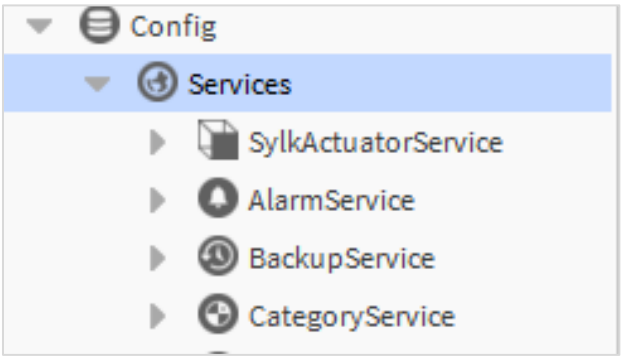
The below table lists the mandatory settings to be configured for the Sylk Actuator Service.

Point Template	History Extension	Point Tag	History Tag
BacnetPointsFolder	**Numerical Interval History Ext** ***Interval*** – 15 min ***Record Count*** – 8640 records ***HistoryNameB-format***: %parent.parent.parent.parent.name%_ %parent.parent.parent.name%_%parent.name%	Station Slot Path: slot:points/%networkFolderPath%	Station Slot Path: slot:histories History Import Name: %defaultHistoryImportName%
CIPer30PointsFolder	**Numerical Interval History Ext** ***Interval*** – 15 min ***Record Count*** –8640 records ***HistoryNameB-format***: %sys().station.stationName%_%parent.parent.name%_%parent.name%	Station Slot path: Slot:points/%parent.parent.name%	Station Slot Path: slot:histories History Import Name: %defaultHistoryImportName%
NiagaraPointsFolder	**Numerical Interval History Ext** ***Interval*** – 15 min ***Record Count*** –8640 records ***HistoryNameB-format***: %sys().station.stationName%_%parent.parent.name%_%parent.name%	Station Slot path: Slot:points/%parent.parent.name%	Station Slot Path: slot:histories History Import Name: %defaultHistoryImportName%

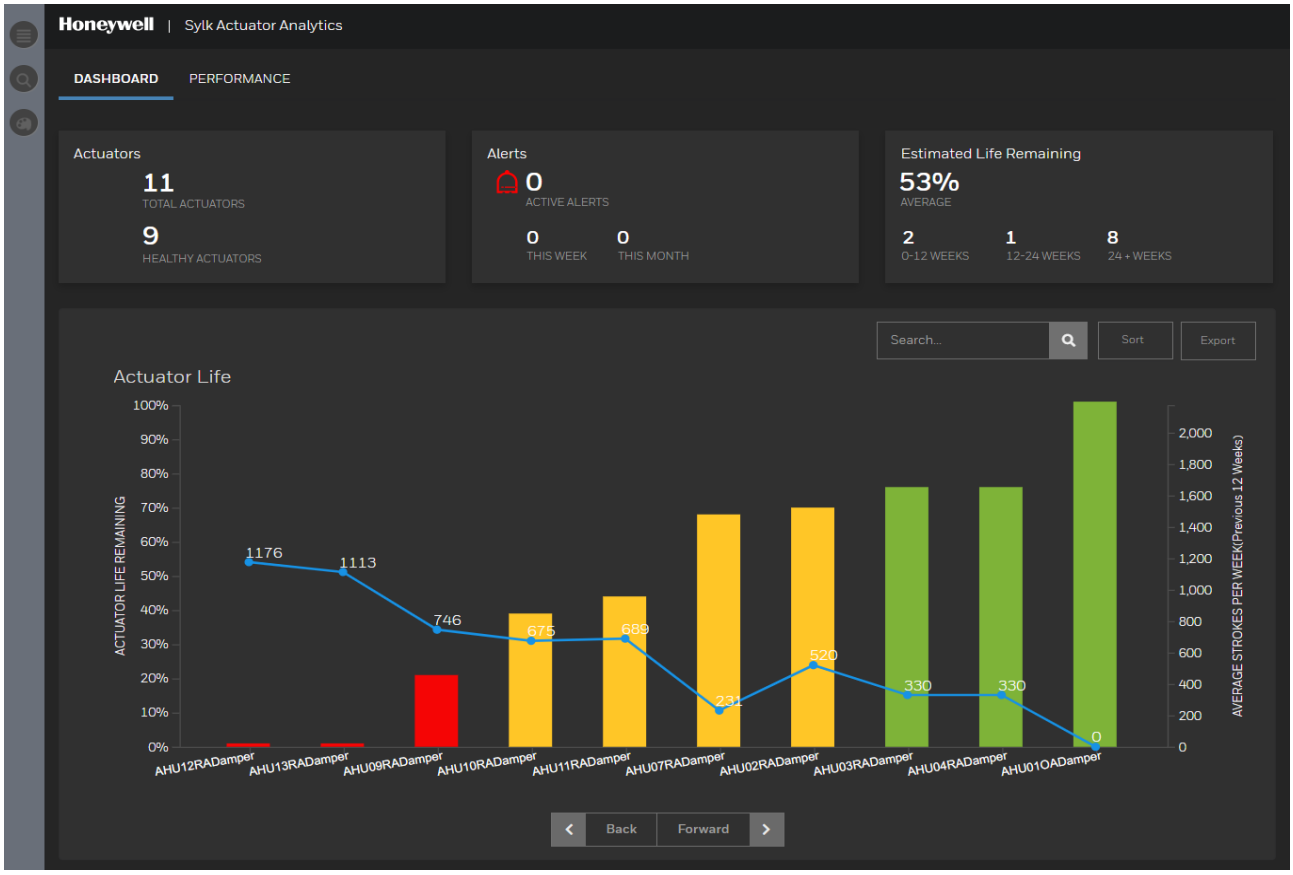
Starting Sylk Actuator Service

Follow these steps to launch the Sylk Actuator Analytics Dashboard.

1. Navigate to the SylkActuatorService by the route: **Station→Config→ Service→SylkActuatorService.**



2. Double click on the **SylkActuatorService** to launch the SylkActuator dashboard.
3. Check for actuator parameters using the SylkActuatorAnalytics dashboard.



Sylk Actuator Analytics Dashboard

The below description details the various fields and widgets available on the Sylk Actuator Analytics Dashboard.

1. **Title Bar –** It displays the dashboard name as 'Sylk Actuator Analytics'.
2. **Navigation Pane –** It displays the list of pages available for navigation – Dashboard pane, Performance pane.
3. **Dashboard –**. The dashboard pane has multiple widgets.
   i. **Actuators:** This widget displays the count of the total actuator and the healthy actuator.
   ii. **Alerts:** This widget displays the number of Actuators currently in the Alarm. It also displays the Alarm count for This Week and This Month
   iii. **Estimated Life Remaining:** This widget displays the average life remaining of all the actuators and displays the actuators that would need replacement within 0-12 Weeks, 12-24 Weeks, and >24 Weeks in terms of percentage out of 100.
   iv. **Actuator Life** chart:
      a. **Y-axis**
         i. Actuator life remaining in the percentage out of 100 (Bar graph).
         ii. Average strokes per week (Line graph).
         iii. The life remaining bar will have different colors based on the remaining life of the Actuators as per the below legend:

- Green: 100 – 71%
- Yellow: 70 – 21%
- Red: 20 – 0%

b. **X-axis**: All the Actuators will be populated on the Graph and the user can filter the Actuators based on the name of Actuators.

v. **Dashboard Pane Filters**

a. **Sort**: It allows the user to sort the actuators based on the life remaining and the name of actuators. The default sort is set to ascending order of life remaining of actuators.

b. **Export Actuator Life Report:** The report can be exported in csv format. The report will have columns to display the Actuator name, Life remaining in percentage, and Average Strokes per week.

4. **Performance Monitoring:** The performance chart can display the following parameters.

Daily Average Actuator Strokes: This widget displays the daily average actuator stroke count of up to 10 actuators at a time. Every data point represents the average number of strokes for the selected actuator in one day.

a. **Y-axis** - Average actuator strokes per day during the selected time range (Individual Line graph for each selected actuator)

b. **X-axis:** The time scale represents the selected time range for which the daily average actuator stroke is displayed.

c. **Add Actuator:** This selection allows to select of up to 10 actuators from the available dropdown list.

d. **Time range:** Time range can be selected for This Month, Last Month, This Year, Last Year, or Custom range. For custom selection, the date range can be selected to start from any date to the following duration for 30 days. The default time range for the chart is This Month.

Troubleshooting

Issue/ Problem Statement	Troubleshooting
The actuator is added in the station but does not appear on the dashboard charts	1. The actuator cycle count point should have s:ActuatorCycleCount, s;ActuatorName and n:history tag assigned to it. 2. Right-click on Niagara Network -> Actions -> Force update Niagara Proxy points.
The Sylk Actuator dashboard does not open	Make sure the SylkActuatorAnalytics feature is available in the license.

Honeywell Building Technologies
1985 Douglas Drive North
Golden Valley, MN 55422
customer.honeywell.com

31-00420-01 | Rev-06-2021