

EcoStruxure Driver for Niagara N4 & AX

User Guide

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1 Introduction

Schneider Electric series of controllers for EcoStruxure¹ Building Operation – also known as Smart-Struxure, SmartX, Struxureware – include modular AS-P and non-modular AS-B model of automation stations. They are very powerful IP devices with native I/O, multiple communication ports, built-in web-server and can be used as stand-alone controllers or as part of building management system under the supervision of Enterprise Server software.

EcoStruxure driver for Tridium Niagara enables communication with automation stations and enterprise Servers. It allows to read / write not only real time points, but also very complex data structures: point properties, histories and alarms. Now system integrators can combine best features of the two most powerful building management systems on the market.

2 Requirements

- Niagara AX 3.8² / N4 4.0 or later powered device such as Jace 2 / 3 / 6 / 8000, Supervisor or their OEM versions
- EcoStruxure driver license
- EcoStruxure configuration via **Building Operation Workstation**. You will need to know the EcoStruxure system login and password in order to do that.

¹All trademarks or registered trademarks are property of their respective owners

²If support for older Niagara versions is required, please contact the vendor

3 EWS Server Configuration

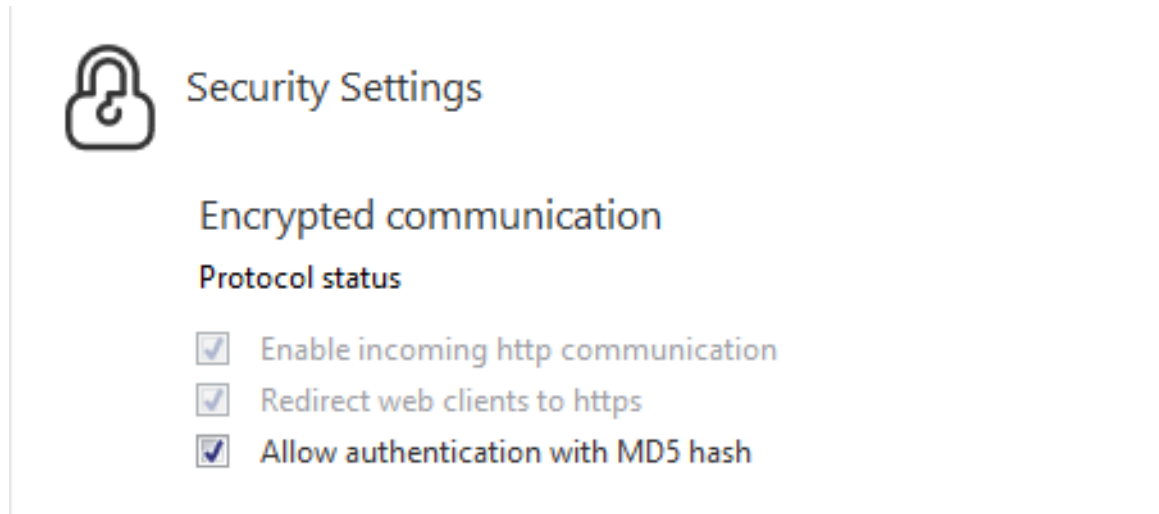
In **Building Operation Workstation** navigate to **EcoStruxure Web Services** and from there to **EWS Server Configuration**. Set the settings as shown on the screenshot below.

The screenshot shows the 'EWS Server Configuration' window with three tabs: 'Basic', 'Filter Hardware Folder', and 'References'. The 'Basic' tab is active. Below the tabs are sections for 'General Information' and 'Configuration Information'. The 'Configuration Information' section contains the following settings:

Enable EWS Server	Enabled
Enforce secure communication	Disabled
Browse	True
Serve Value	True
Value Write Mode	Read/Write
Serve Alarm	True
Forward EWS alarms	False
Alarm Acknowledge	Yes
Serve History	True
Subscription update rate (ms)	500

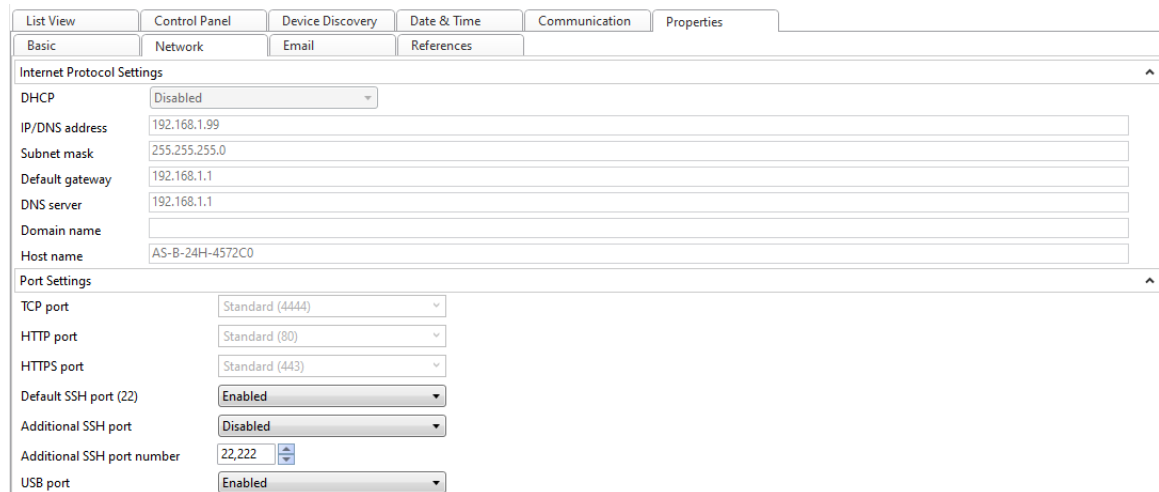
4 Security Manager

In **Building Operation Workstation** control panel navigate to **Security Manager**. Please make sure that **Allow authentication with MD5 hash** has been ticked.



5 Port Check

Port of the Automation Server could be found in **Building Operation Workstation** under **Properties**, **Network** menu. You will need to use the **HTTP Port** for the connection via Niagara.



6 EWS Server Debug

In order to check that EWS server on the Automation Server is operation you have to navigate to the following page in your web browser:

`http://ipAddress:port/EcoStruxure/DataExchange?wsdl`

(e.g. `http://192.168.1.99:80/EcoStruxure/DataExchange?wsdl`).

Once the correct login and password have been entered you will be able to see Web Services version (e.g. EcoStruxure Web Services V1.2). If you are able to see that it means that Automation Server is configured correctly.

7 Network

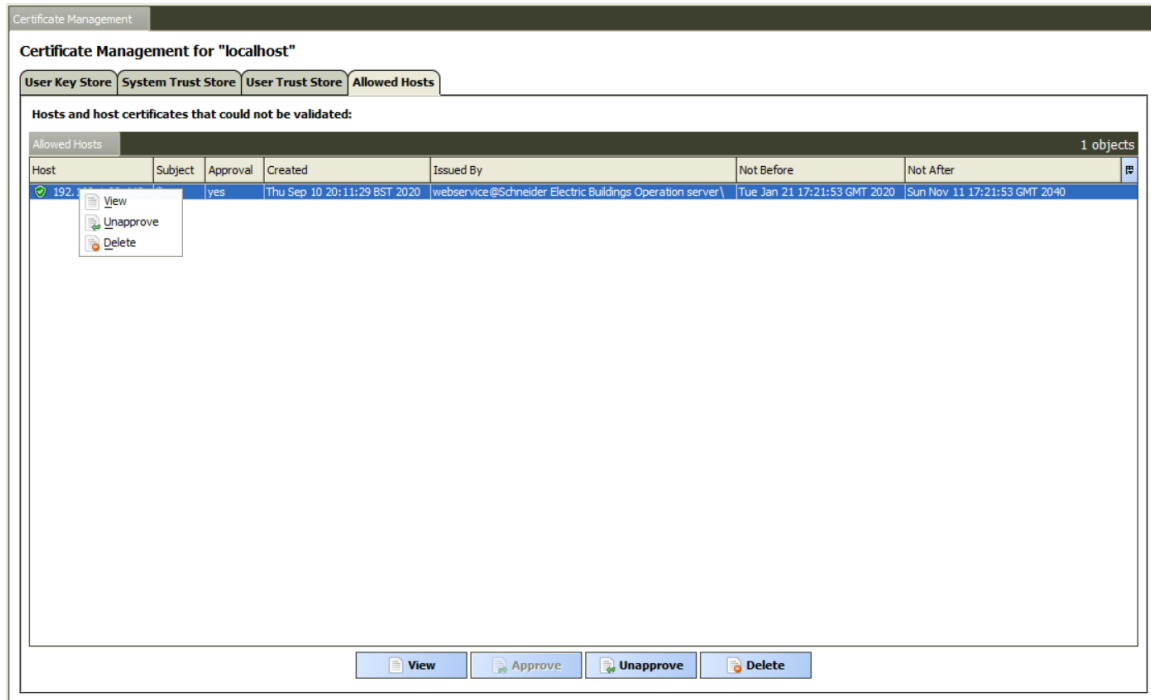
To start communication between Tridium Niagara and EcoStruxure devices, make sure Tridium Niagara and EcoStruxure are in the same ethernet network.

1. Install **ecoStruxure.jar** or **ecoStruxure-rt.jar** and all dependent modules via Software Manager
2. Start the station and add a new **EcoStruxure Network**
3. In the network **Properties** enter the license number and press **Save**

EcoStruxureNetwork (Eco Struxure Network)	
Status	{fault}
Enabled	<input checked="" type="checkbox"/> true
Fault Cause	No valid license or demo expired
▶ Health	Ok [10-Sep-20 8:52 PM BST]
▶ Alarm Source Info	Alarm Source Info
▶ Monitor	Ping Monitor
▶ Tuning Policies	Tuning Policy Map
▶ Poll Scheduler	N Poll Scheduler
▶ Http Config	Http Comm Config
Use Ssl	<input checked="" type="checkbox"/> true
License	Enter license code
▶ EcoStruxureDevice	Eco Struxure Device

By default the SSL communication is disabled. In order to enable it:

1. Set **Use Ssl** flag under network to **true**
2. Try to ping the device, it will fail due to Niagara security features
3. Go to the **Certificate Manager** and you will see your communication entity under the **Allowed Hosts** section, right click to approve it



8 Devices

Open the **Device Manager** and press **New** to add the **EcoStruxure Device**. Enter relevant IP address, port (443 for SSL and 80 for non-SSL), login and password. If the device is shown offline please right click on the device and ping it. If the device is still offline please check the EcoStruxure configuration as described in EcoStruxure Specifics section. press **Discover** button.

Name	Type	Status	Ip Address	Port	User Name And Password
EcoStruxureDevice	Eco Struxure Device	{ok}	192.168.1.99	80	Username And Password

Name EcoStruxureDevice

Type Eco Struxure Device

Status {ok}

Ip Address 192.168.1.99

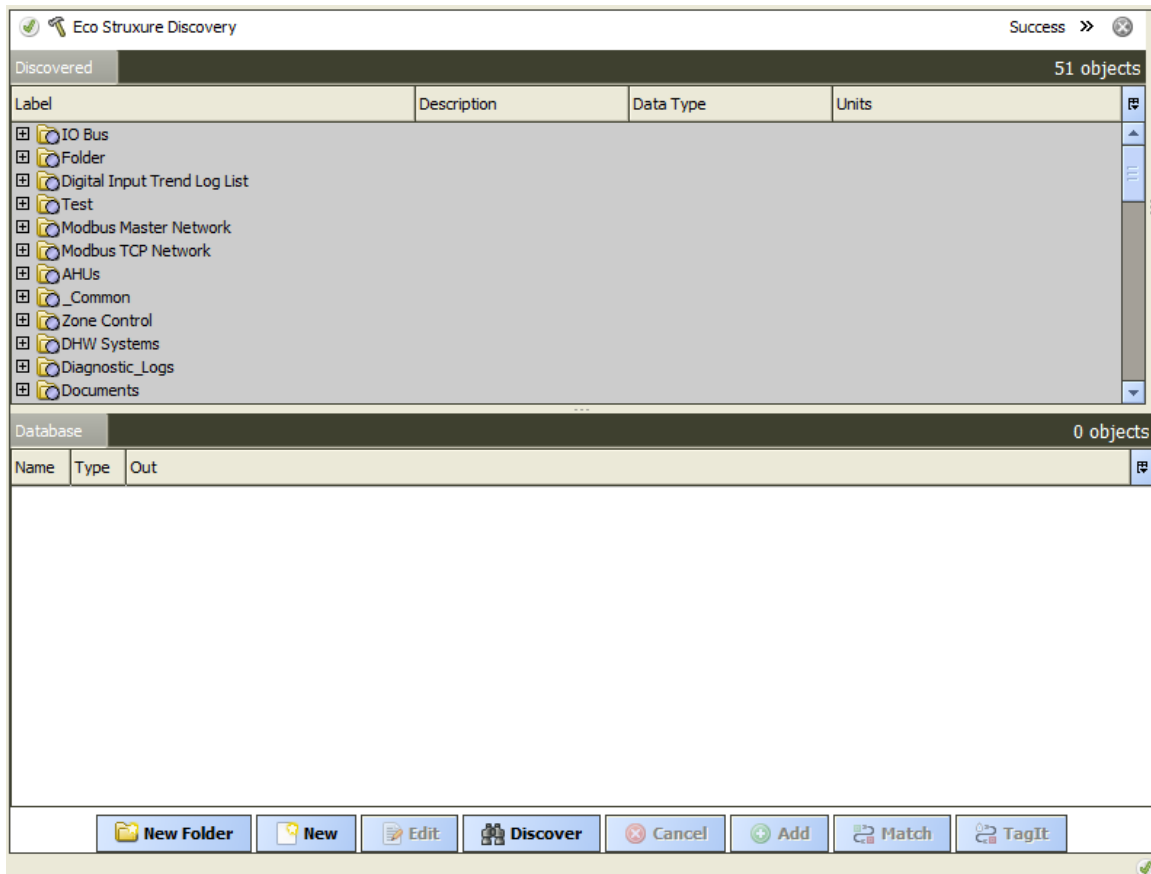
Port 80

User Name And Password
Username admin
Password

OK Cancel

9 Point Discovery

Open device **EcoStruxure Point Manager** and click **Discover** to start point discovery.



The discovered points will mimic the **Building Operation Workstation** data tree structure. Niagara will find all available folders, points, their types, units and attributes. Every folder can be expanded, by pressing the + Niagara will discover a next layer of the EcoStruxure folder. Please note that even if the folders are empty the + will still be shown. If during the discovery there were changes to the EcoStruxure data tree you can press **Discover** button again to restart the discovery from the root level.

10 Points

Every EcoStruxure point extension contains the following properties:

- ID – specify the unique ID of the EcoStruxure point.
- Data Type – EcoStruxure point data type
- Writable – point can be forced when the Writable parameter is “true”.
- Forceable – point can be forced when the Forceable parameter is “true”. If Forceable is “true” it is possible to write to the point even if Writable is “false”.

All the above parameters are set automatically for the points created via the point discovery.

Please note that some of the EcoStruxure points could be discovered as Integer type while in EcoStruxure environment the are represented as Boolean (e.g. Sigma controller values). In this case, when the points are added it is possible to change a point type to boolean and set the correct **trueValue** and **falseValue** device facets under the point extension. In order to understand correct **trueValue** and **falseValue** it is possible to import point as Numeric Point and monitor the values changing them from the EcoStruxure environment, example values could be 0 and 1 or 0 and 100.

● FBD-counter_output1 (Boolean Writable)

□ Facets trueText=true,falseText=false >> ⚙️

□ Proxy Ext Eco Struxure Proxy Ext

□ Status {ok}

□ Fault Cause

□ Enabled true

□ Device Facets trueValue=100,falseValue=5 >> ⚙️

□ Conversion Default

□ Tuning Policy Name Default Policy

□ Read Value true {overridden}

□ Write Value true {overridden} @ 1

□ Id 11/Automation Server/Folder/FBD/counter

□ Data Type Eco Integer

□ Forceable true

□ Writable false

Config Facets

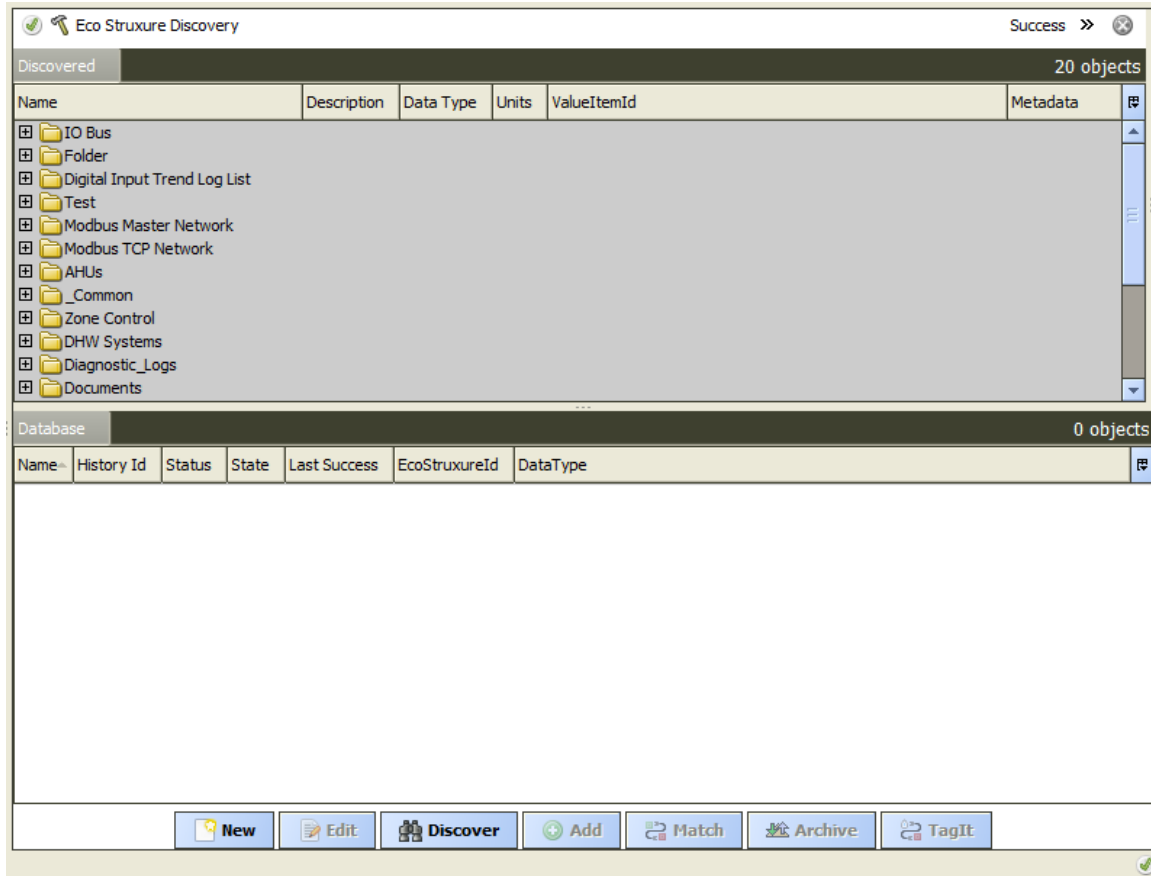
Key	Type	Value
trueValue	Integer	100
falseValue	Integer	0

OK Cancel

11 History Discovery

Every EcoStruxure device in Niagara has History extension, which contains History Imports – components, which connect generic EcoStruxure histories with Niagara histories.

Open device **EcoStruxure History Manager** and click **Discover** to start point discovery.



The Niagara will discover histories similar way as described in the point discovery.

In order to import the history press **Add**. You can modify **Name** and **History ID**. Please do not modify **EcoStruxureId** and **dataType**.

Name	History Id	Execution Time	Enabled	Capacity	Full Policy	EcoStr
Manual Trend Log	/EcoStruxureDevice/Manual Trend Log	2:00 AM {Sun Mon Tue Wed Thu Fri Sat}	true	Unlimited	Roll	03/Aut

Name Manual Trend Log
 History Id / EcoStruxureDevice / Manual Trend Log
 Time Of Day 02:00:00 AM GMT
 Execution Time Daily Randomization +000000h 00m 00s
 Days Of Week Sun Mon Tue Wed Thu Fri Sat
 Enabled true
 Capacity Unlimited
 Full Policy Roll
 EcoStruxureId 03/Automation Server/Folder/Manual Trend
 DataType double

OK Cancel

After the history has been added press **Archive** and the history data will be imported into Niagara.

12 Alarm Import

Every EcoStruxure device in Niagara has Alarm extension. In order to enable periodic history import please configure the Import Interval. In order to collect alarms in Niagara with the same alarm priorities as in EcoStruxure please add the EcoStruxureAlarmClass to the AlarmService as per screenshot.

EcoStruxureDevice (Eco Struxure Device)

Status	{unackedAlarm}
Enabled	<input checked="" type="radio"/> true
Fault Cause	
Health	Ok [29-Jun-20 7:22 PM GMT]
Alarm Source Info	Alarm Source Info
Poll Frequency	Normal
Ip Address	192.168.1.99
Port	80
User Name And Password	Username: admin Password:
Points	Eco Struxure Point Device Ext
Histories	Eco Struxure History Device Ext
Alarms	Eco Struxure Alarm Device Ext
Alarm Class	EcoStruxureAlarmClass
Last Received Time	29-Jun-2020 07:14:52.479 PM GMT
Import Interval	Periodic Interval
Alarm Priority Conversion	Default
Supported Methods	00000000000000000000000000000000

