Cbus TCP Driver User Guide

Table of Contents

Chapter 1

Installation

Install ifcCbusTcp.jar on the computer where Niagara AX Workbench will run. To install, place a copy of the file in the modules directory of your Niagara AX installation. This is typically C:\Niagara\Niagara-3.n.nnn\modules.

Install ifcCbusTcp.jar module on the target station. Using a Niagara AX workbench where the module has already been installed, connect to the stations platform service. Go to the software manager and install ifcCbusTcp.

Apart from installing the 4.*n.nn* version of the Niagara distribution files in the JACE, make sure to install the ***ifcCbusTcp*** module too (if not already present, or upgrade if an older revision). For more details, see "About the Commissioning Wizard" in the JACE Niagara AX Install and Startup Guide.

Following this, the station is now ready for Cbus software integration, as described in the rest of this document.

Requirement

- AX workbench 3.x.xx or higher.

    1. TCP Port connection.

- AX platform support:

    1. Web Supervisor.
    2. JACE 3E.
    3. JACE 6xx.
    4. JACE 7xx.
    5. JACE 8000 (Titan Jace).

- Compatibility with controllers of Excel 5000 family (XL50, XL80, XL100, XL500, XL600 and Zone Manager).

- Support baud rate 9600, 19200 and 38400.

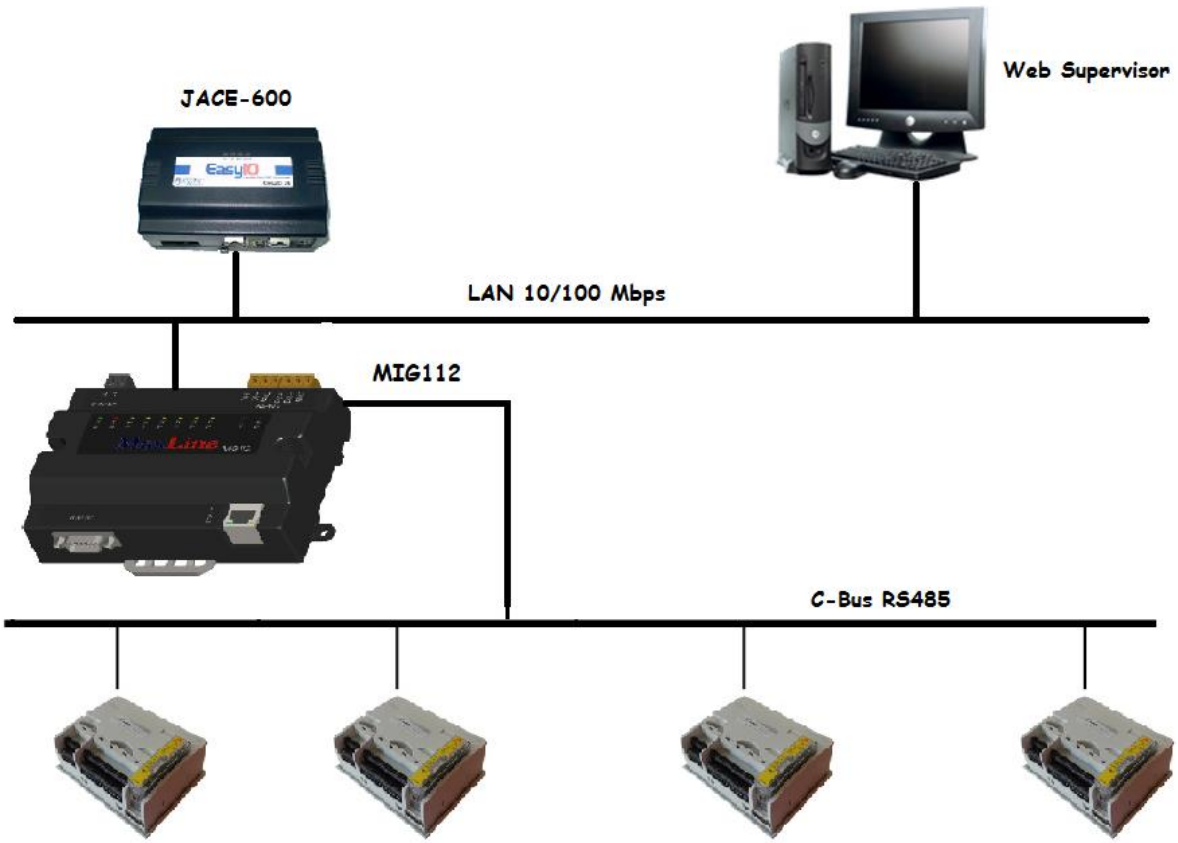
- Support parallel connection to the existing Cbus network (XBS, EBI, SymmetrE).

- Flexible sizing up to max. ***30 C-Bus devices*** per Driver network.

- ***Reading and writing*** from DDC points of type Digital Input, Digital Output, Analog Input, Analog Output, Pseudo Digital, Pseudo Analog and totalizer.

- Support devices alarm such a point overridden, fault alarm, high/low alarm and system alarms.

Options 1



Note: Make sure the Cbus RS485 connection is connected at the terminal D2+/D2-:-

Below is the default setting:-

1. *Cbus baud rate by default is 9600 kbps, make sure it is matching with all the controller in the network,*
2. *Cbus bus Id by default is 29 make sure this address is not being use by any Cbus controller in the network.*

Chapter 2

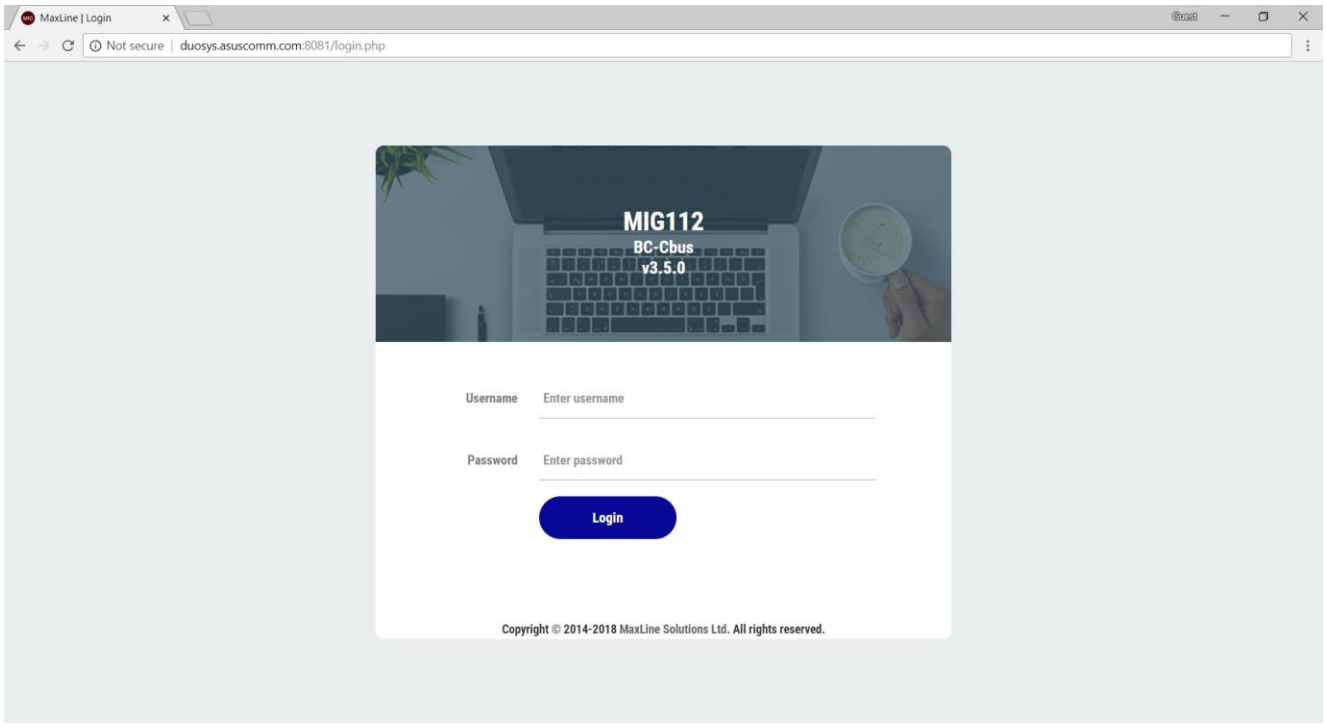
MIG-112 Configuration

This section provides a collection of procedures to configure the MIG-112/FG-20 setting.

Default IP address

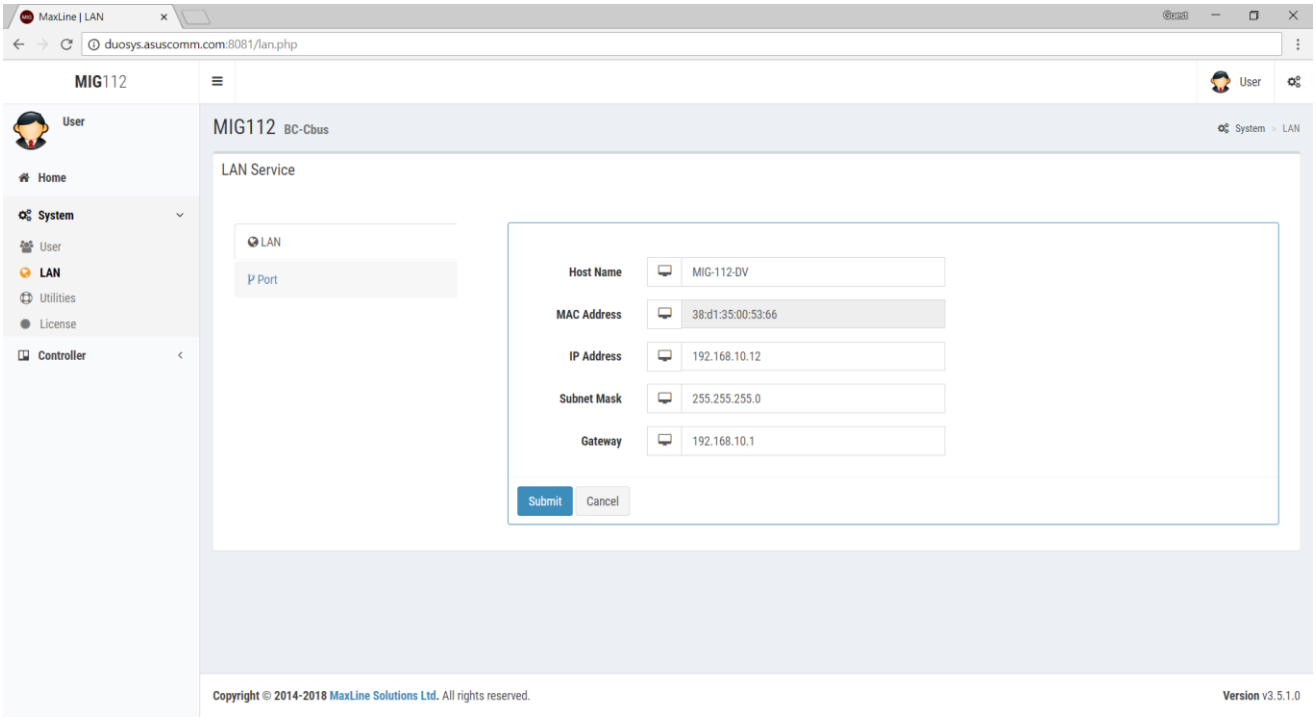
- By the default from the factory the IP address is “192.168.10.11”.
- User may require to change the default IP address to suite the network requirement. To take effect the changes MIG-112 controller required to reboot.
- Run the web browser from the computer and key in the MIG-112 controller IP address with login the user name and password as below:-

  Address : http://192.168.10.11 or https://192.168.10.11 (SSL).
  User : user
  Password : pass

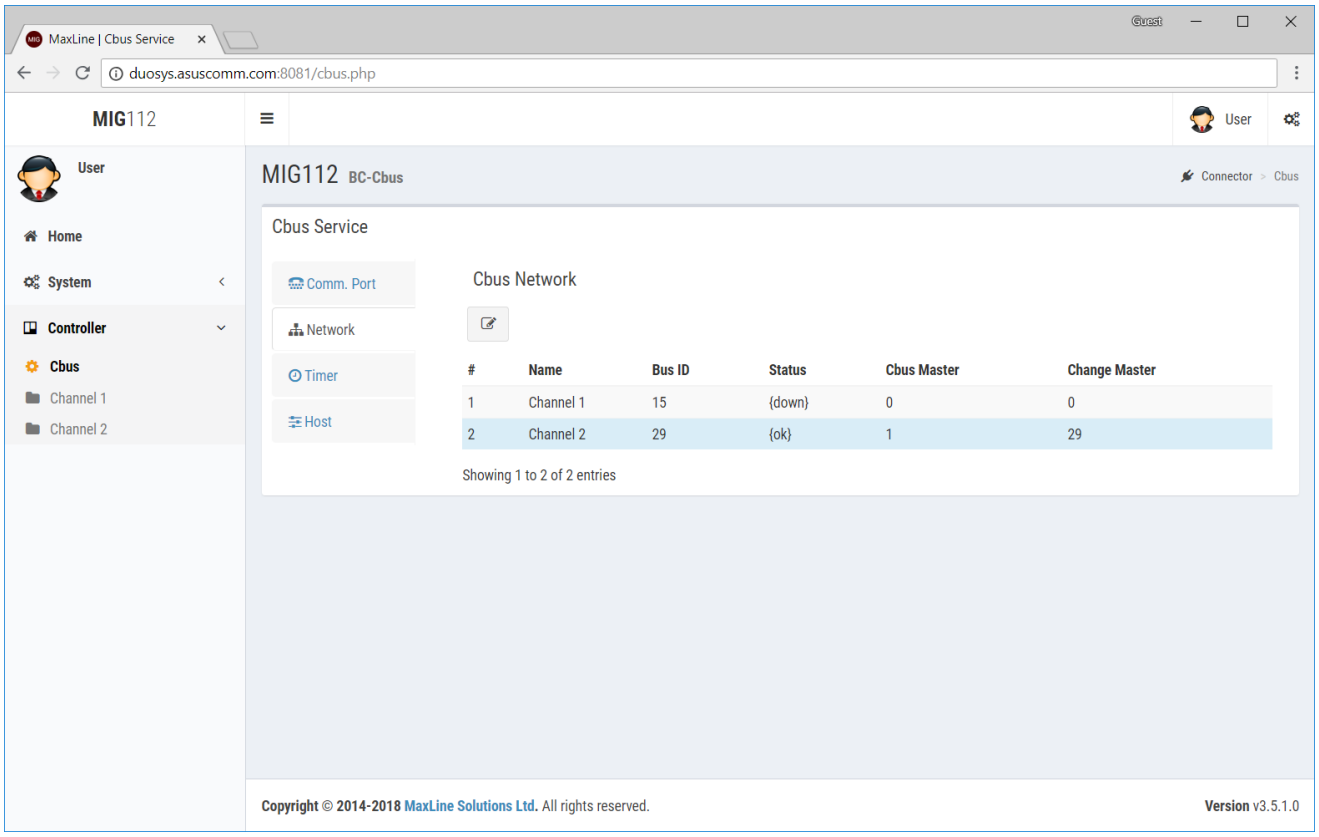

MaxLine | Login
Not secure | duosys.asuscomm.com:8081/login.php
MIG112
BC-Cbus
v3.5.0
Username
Enter username
Password
Enter password
Login
Copyright © 2014-2018 MaxLine Solutions Ltd. All rights reserved.

Change IP address

- After login to the MIG-112 web browser go to the “LAN” from the tree navigation, change the desire IP address and press the button “Submit”. Finally reboot the MIG-112 to take effect.



- Below is to change the Cbus configuration, *baud rate by default is 9600* and *bus id by default is 29*, make sure the bus id is not used by other Cbus controller in the network. Improper setting may cause the communication unstable.


MaxLine | Cbus Service
duosys.asuscomm.com:8081/cbus.php
MIG112
User
Home
System
Controller
Cbus
Channel 1
Channel 2
MIG112 BC-Cbus
Connector > Cbus
Cbus Service
Comm. Port
Network
Timer
Host
Cbus Network
Name Bus ID Status Cbus Master Change Master
1 Channel 1 15 {down} 0 0
2 Channel 2 29 {ok} 1 29
Showing 1 to 2 of 2 entries
Copyright © 2014-2018 MaxLine Solutions Ltd. All rights reserved.
Version v3.5.1.0

Chapter 3

Quick Start

This section provides a collection of procedures to use the AX Cbus Tcp drivers to build networks of devices with proxy points and other components. Like other AX drivers, you can do most configurations from special “manager” views and property sheets using Workbench.

- For any of the Cbus TCP networks:
  - “Configure the Cbus Tcp network”
  - “Add Cbus devices”
  - “Create Cbus proxy points”

Configure Cbus Tcp Network

To add and configure a Cbus Tcp network, perform the following main tasks:

- Add the Cbus TCP network, as needed:
  - Add a CbusTcpNetwork

Add a CbusTcpNetwork

To add a CbusTcpNetwork in the station

Use the following procedure to add a CbusTcpNetwork component under the station's Drivers container.

Note : If the host JACE has plan to connect to multiple MIG112 Cbus Gateway to be used for client (master) access of Cbus networks, add one CbusTcpNetwork for each MIG112 Cbus Gateway. Note that for each CbusTcpNetwork, you must Configure the Ip Address and TCP port parameters.(by default the port is 10101).

Note : Only single connection can be made at once into the MIG112 controller TCP port connection, multiple connection from the multiple software or computer will not allowed.

To add a CbusTcpNetwork in the station:

- Double-click the station's **Drivers** container, to bring up the **Driver Manager**.
- Click the **New** button to bring up the New network dialog. For more details, see "Driver Manager New and Edit" in the *Drivers Guide*.
- Select "Cbus Tcp Network," number to add: 1 (or more if multiple networks) and click **OK**. This brings up a dialog to name the network(s).
- Click **OK** to add the CbusTcpNetwork(s) to the station. You should have a CbusTcpNetwork named "CbusTcpNetwork" (or whatever you named it),under your Drivers folder, initially showing a status of "{ok}" and enabled as "true."

Configure the Ip Address and TCP port parameters

In the CbusTcpNetwork property sheet for each network, you must set the Ip Address and Tcp port configuration to match communications parameters.

To set the Ip Address and Tcp port parameters

To set the Ip Address and Tcp port parameters for a CbusTcpNetwork:

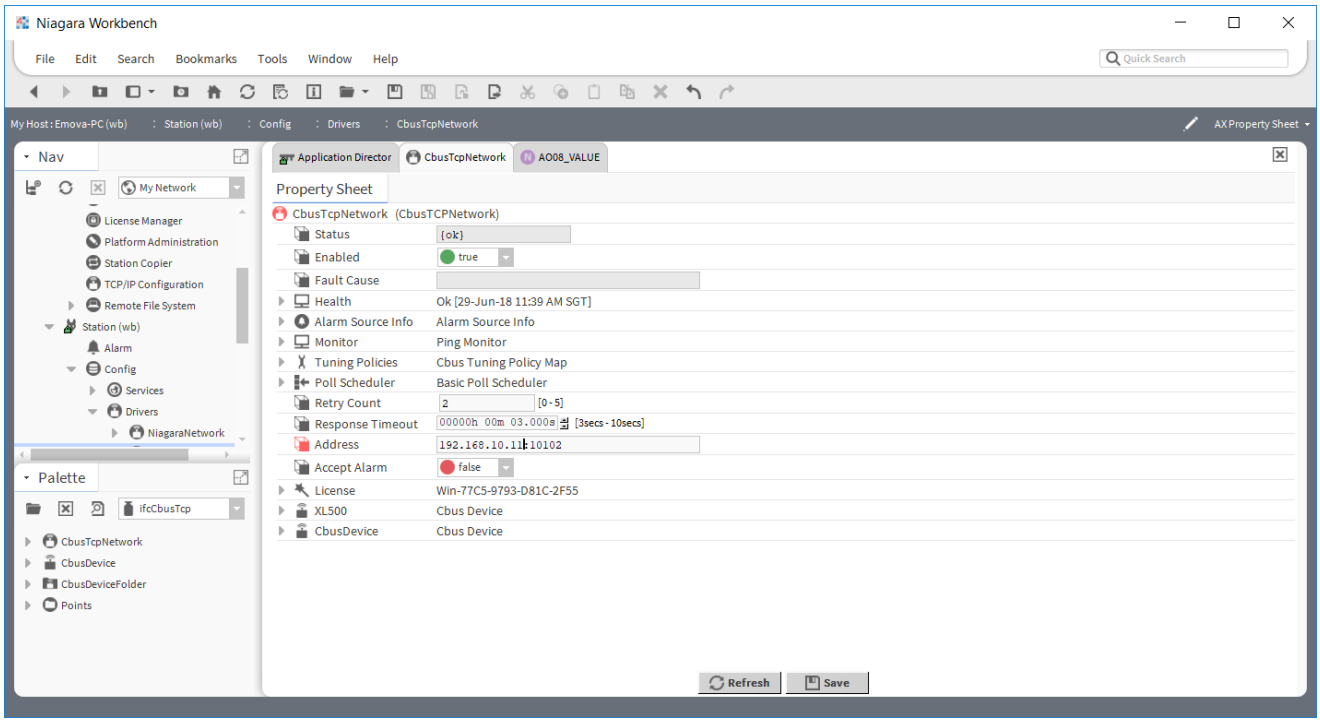
- Right-click the CbusTcpNetwork and select **Views > Property Sheet**.

  The **Property Sheet** appears.

- Scroll down

Set the properties for the MIG112 Cbus Gateway connection, where defaults are:

- Ip Address: 192.168.10.11 — Enter the MIG112 Cbus Gateway ip address
- TCP Port: 10101 – Bind to RS485 D1+/D1-.
- TCP Port: 10102 – Bind to RS485 D2+/D1-.



- Click the **Save** button.

Add a Cbus Devices

After adding a Cbus Tcp network, you can use the network's default "device manager" view to add the appropriate Cbus devices. You also could use discover the device automatically by pressing the button "discover".

Note: *You need the address information for each Cbus device you are adding, as well as for later procedures to add proxy points under devices.*

To add a Cbus device in the network

Use the following procedure to add the correct type of Cbus device in the network. To add a Cbus device:

- In the Nav tree or in the Driver Manager view, double-click the client network, to bring up the device manager (Cbus Device Manager). All of these device manager views operate in a similar fashion.

Note: *For general device manager information, see the "About the Device Manager" section in the Drivers Guide.*

- Click the **New** button to bring up the **New** device dialog.

- Select for number to add: 1 (or more, if multiple) and click **OK**.
  This brings up a dialog to name the device(s), enter Cbus device.

  - Any *Cbus Device* needs the unique address in use.

- Click **OK** to add the Cbus device(s) to the network.
  You should see the device(s) listed in the Cbus Device Manager view, showing a status of "{ok}" and enabled as "true."

  If a device shows "down" check the configuration of the network and/or Cbus device address. You can simply double-click a device in the device manager to review settings in an **Edit** dialog, identical to the **New** dialog when you added it.

  After making any address changes, click **Save**, then right-click the device and select **Actions > Ping**.

Create Cbus Proxy Point

As with device objects in other drivers, each Cbus device has a **Points** extension that serves as the container for proxy points. The default view for any Points extension is the Point Manager (and in this case, the "**Cbus Point Manager**"). You use it to add Cbus proxy points under any Cbus device.

Note: *Unlike the point managers in many other drivers, the* **Cbus Point Manager** *does offer a "Learn mode" with a* **Discover** *button and pane. Otherwise you can simply use the* **New** *button to create proxy points, referring to the vendor's documentation for the addresses of data items in each Cbus device.*

To add Cbus proxy points

Once a Cbus device is added, you can add proxy points to read and write data. If programming online (and the device shows a status of "{ok}"), you can get statuses and values back immediately, to help determine if point configuration is correct. Use the following procedure:

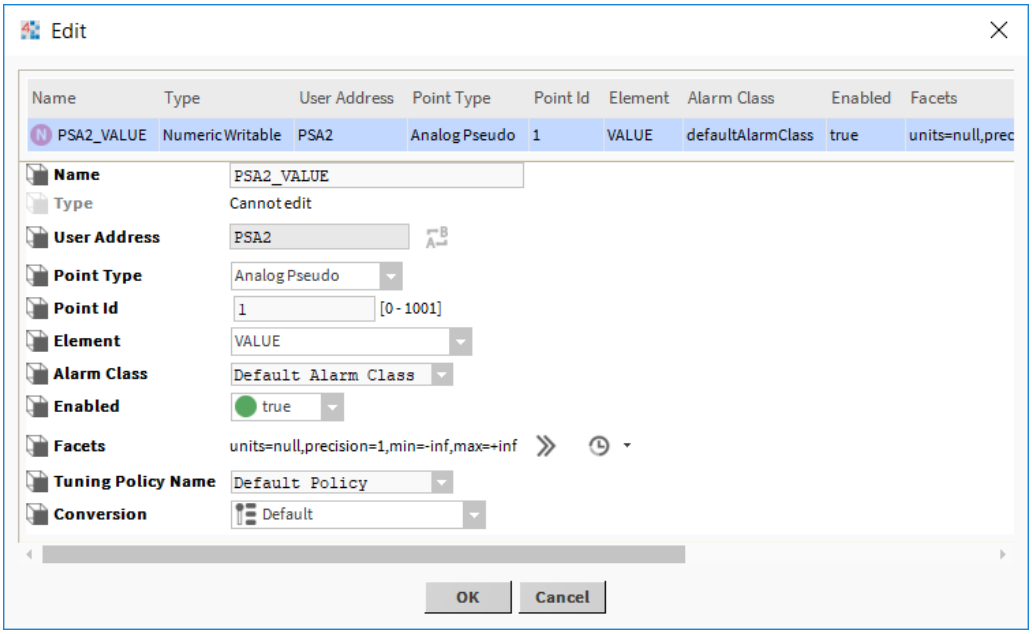
To create Cbus proxy points in a device:

- In the **Device Manager**, in the **Exts** column, double-click the Points icon in the row representing the device you wish to create proxy points.

This brings up the **Cbus Point Manager**.

- (Optional) Click the **New Folder** button to create a new points folder to help organize points, and give it a short name, such as “TempNo1”, or whatever name works for your application. You can repeat this to make multiple points folders, or simply skip this step to make all proxy points in the root of **Points**. Note that all points’ folders have their own **Cbus Point Manager** view, just like **Points**. If making points folders, double-click one to move to its location (and see the point manager).

- At the location needed (**Points** root, or a points folder), click the **New** button. The **New** points dialog appears, in which you select a “Point Type,” “Number to Add,” “Point Id and Element”.



For more details, see “About Cbus proxy points”

- Click **OK** to add the proxy point(s) to the Points extension (or to the current points folder), where each shows as a row in the point manager.

  If parameter correctly, each point should have a status of “{ok}” with a polled value displayed.

- If a point shows a “{fault}” status, check its ProxyExt “Fault Cause” property value, which typically includes a Cbus “exception code” string, such as “Read fault” In such a case, re-check the address in the point against the documented address for the data item.

- Continue to add proxy points as needed under the **Points** extension of each Cbus device. As needed, double-click one or more existing points for the **Edit** dialog, similar to the **New** dialog used to create the points. This is commonly done for re-editing items like data addresses, names, or facets.

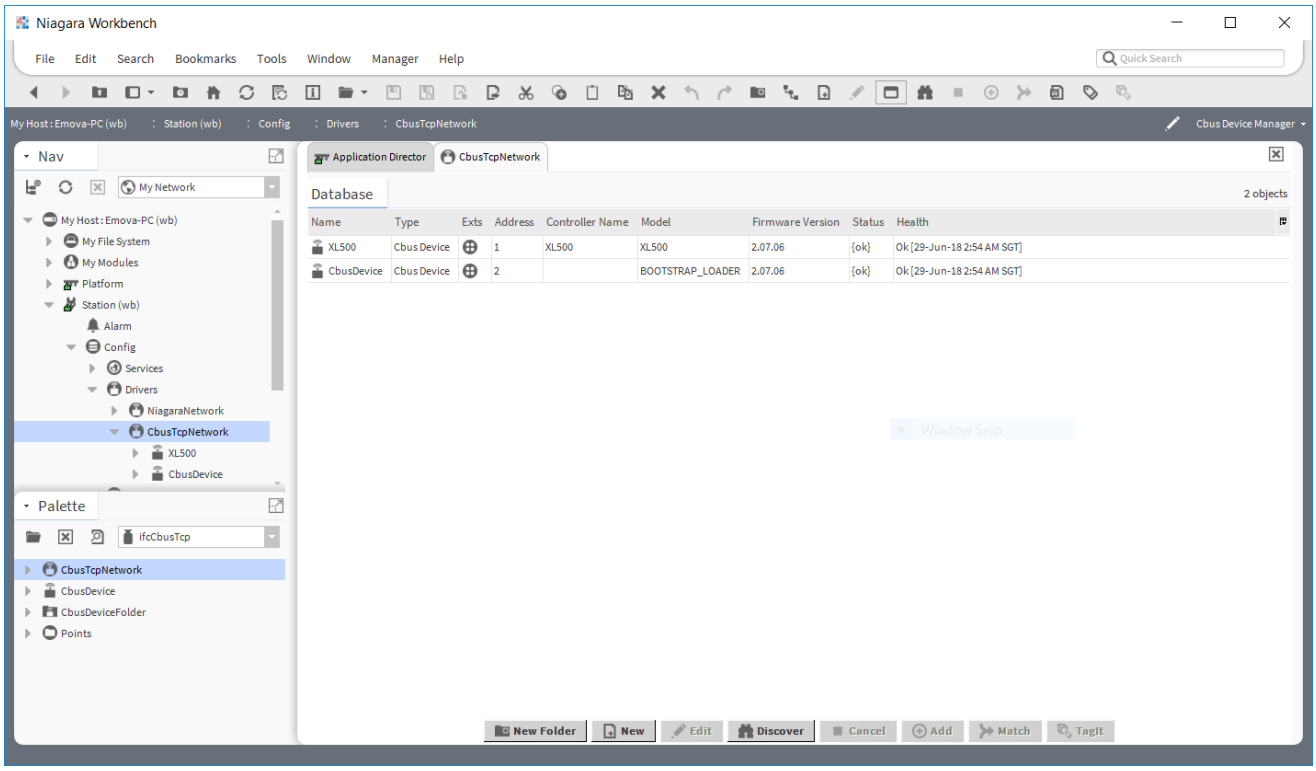
Chapter 4

FG Cbus View

Cbus Device Manager

The Cbus Device Manager is the default view when you double-click on a Cbus Tcp Network in the Nav tree. This manager view provides a quick and easy way to display.

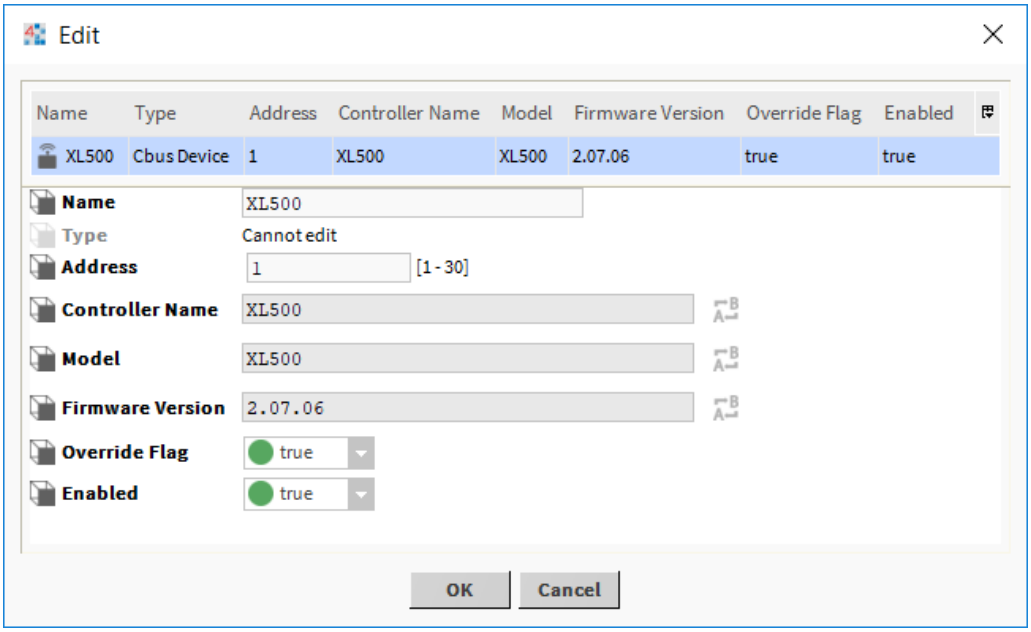
The Cbus Device Manager is the default view for any Cbus Tcp Network container. The Cbus Device Manager is a table-based view, where each row represents a unique device. When building a network in the station, you use this view to create, edit, and delete device-level components. Below is an example Cbus Device Manager view.



The view above shows a typical Cbus Device Manager view.

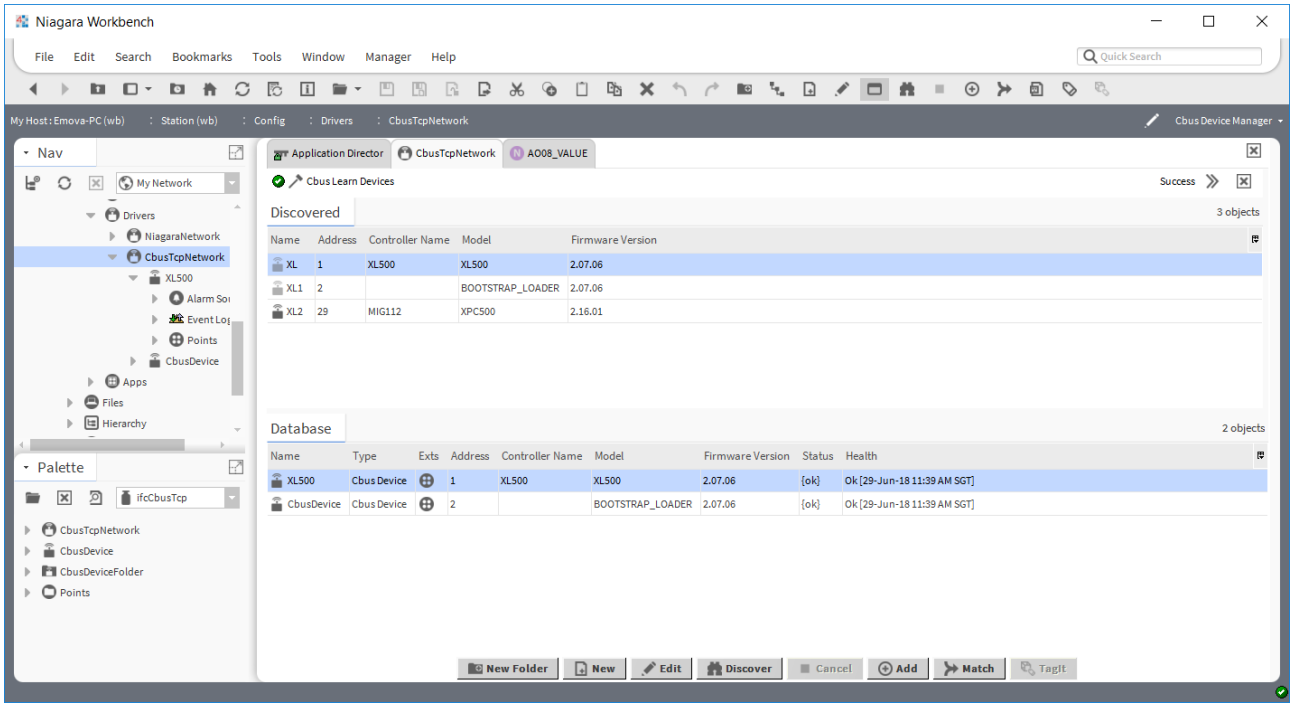
The “New Folder”, “New”, and “Edit” buttons are not unique to the Cbus Device Manager, and are explained in the “AX User’s Guide” in the “Driver Architecture” section. The “Match” button is not used for the Cbus driver.

You can now add the devices to the station database by clicking the “Add” button. This will pop up the “Add” dialog box:



The “Add” dialog box affords you the opportunity to tweak the display name, enabled state, and/or address of each of the selected devices. Click the “OK” button to add the devices to the database, or click “Cancel” to bail out.

The “Discover” button implements functionality that is unique and tailored to discovering Cbus devices. By clicking the “Discover” button, the “learn” mode of the manager is invoked (the panes will be split, and a “discovery” table will be displayed in the top pane) .



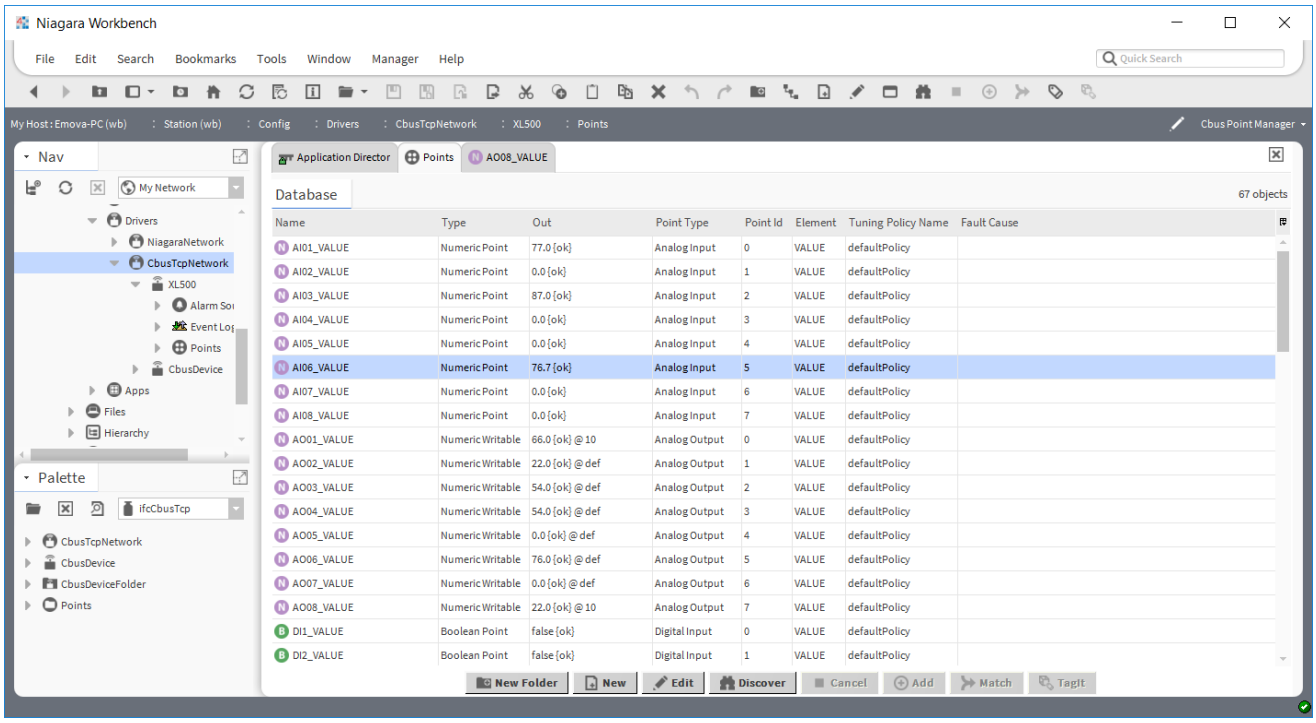
Single or multiple Cbus devices can be added as device by selecting the discovered row(s) in the top pane, and clicking add. Doing so will cause the “Add” dialog box to appear: Once the device(s) are satisfactorily edited, click “OK” to create the device corresponding to the device property.

Cbus Point Manager

The Cbus Point Manager is the default view when you double-click on a “points” folder (a CbusPointDeviceExt type folder) under a CbusDevice in the Nav tree. This manager view provides a quick and easy way to display and learn Cbus points in a Cbus device.

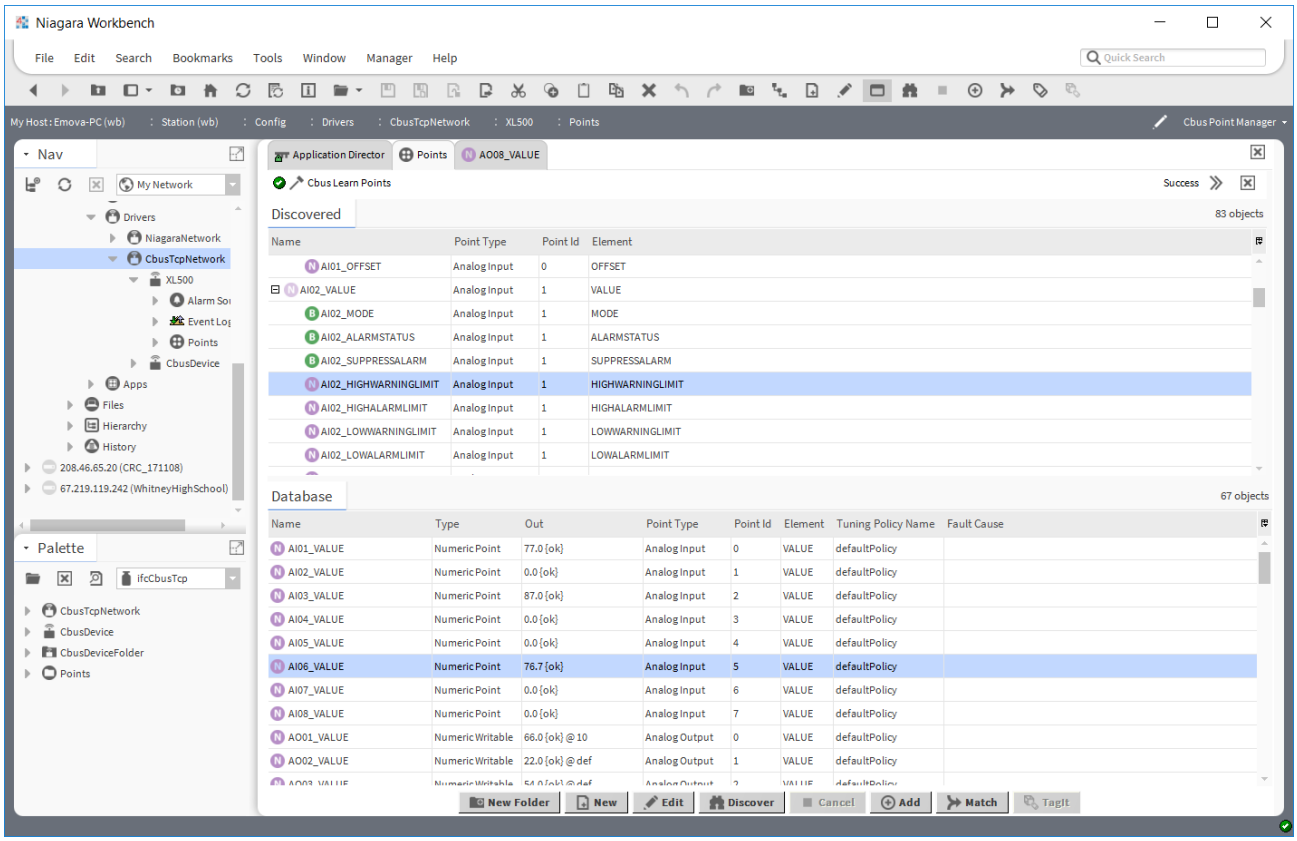
The Cbus Point Manager is the default view for any CbusPointDeviceExt container. The Cbus Point Manager is a table-based view, where each row represents a unique Cbus address within a device.

Below is an example Cbus Point Manager view.

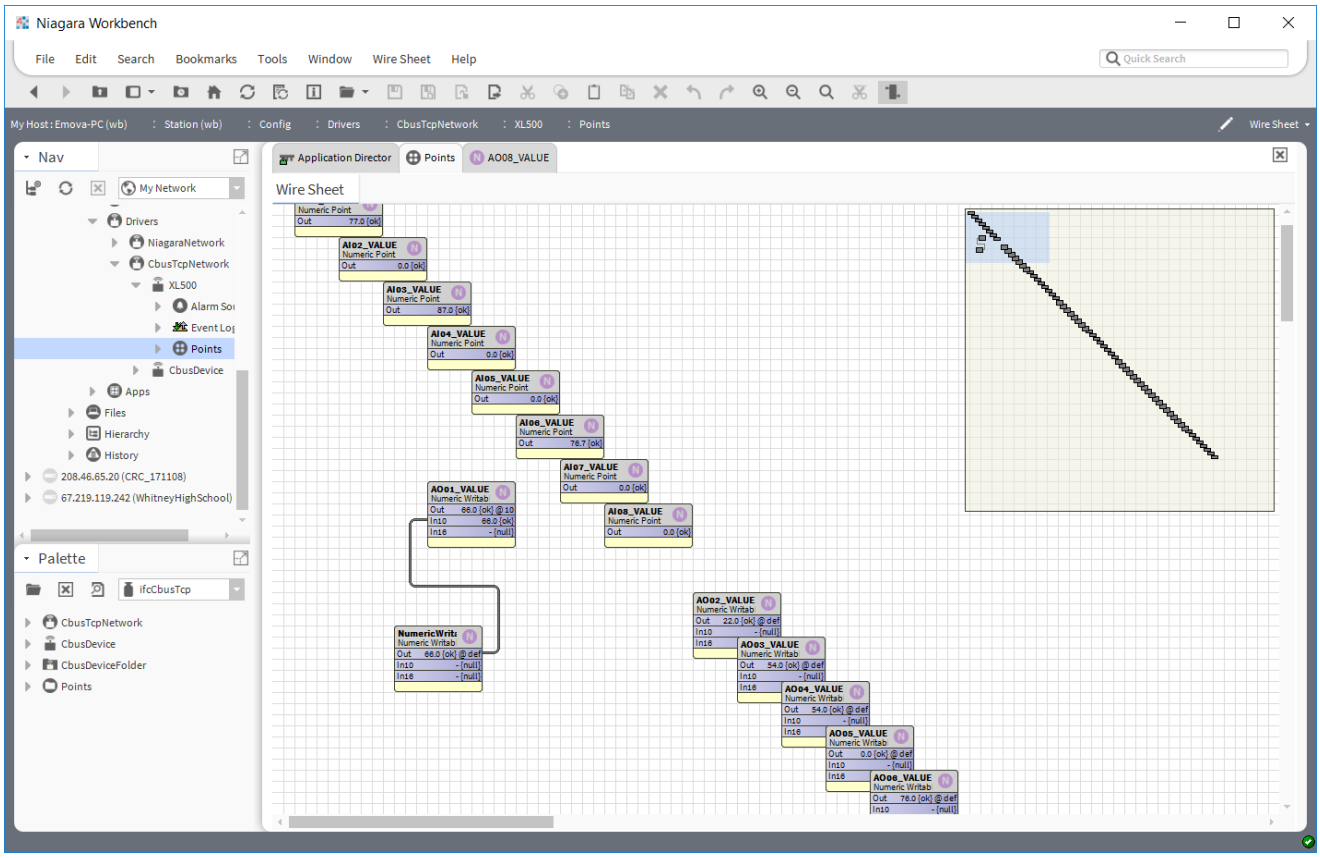


The “New Folder”, “New”, and “Edit” buttons are not unique to the Cbus Device Manager, and are explained in the “AX User’s Guide” in the “Driver Architecture” section. The “Match” button is not used for the Cbus driver.

The “Discover” button implements functionality that is unique and tailored to discovering Cbus devices points. By clicking the “Discover” button, the “learn” mode of the manager is invoked (the panes will be split, and a “discovery” table will be displayed in the top pane) .

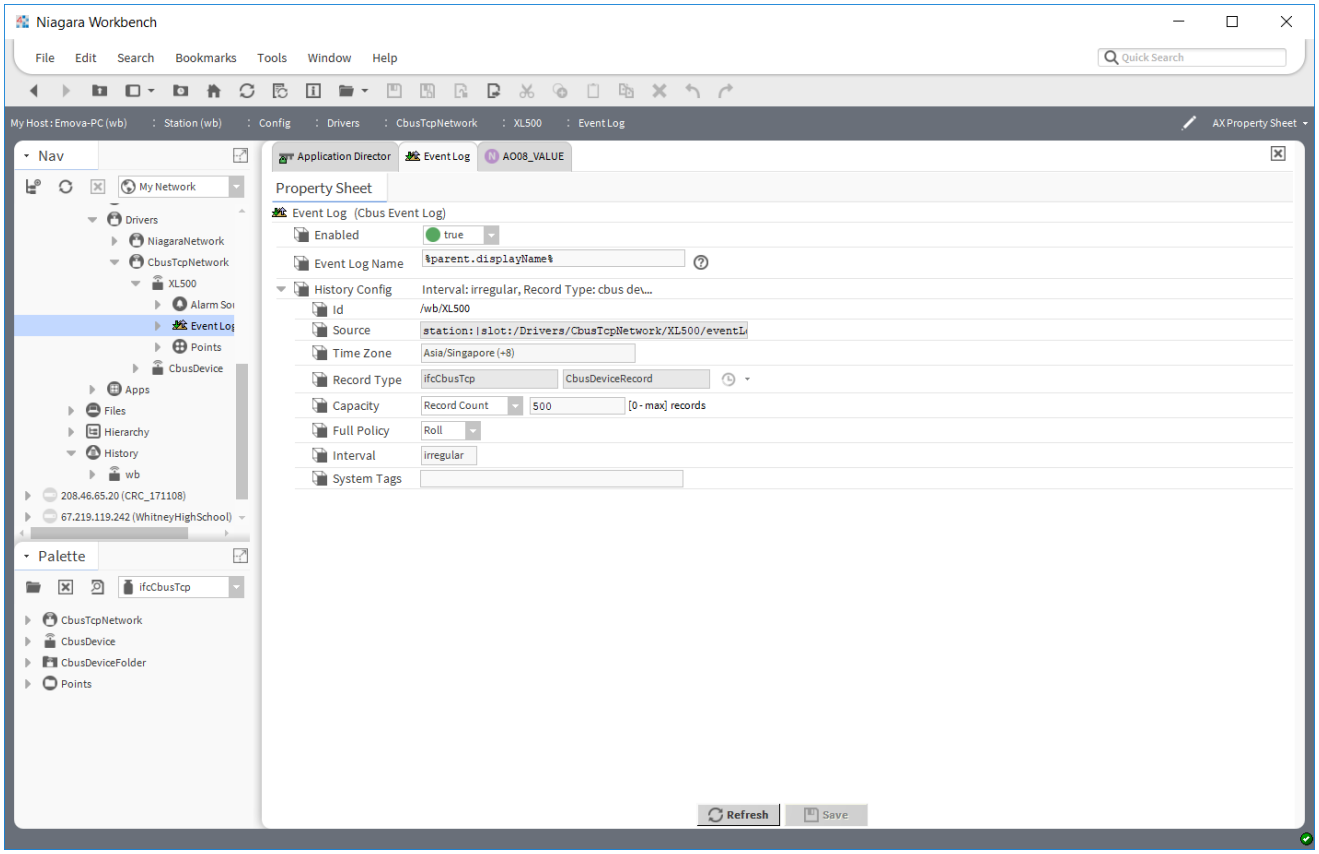


Single or multiple points can be added as control points with CbusProxyExt extensions by selecting the discovered row(s) in the top pane, and clicking add. Doing so will cause the “Add” dialog box to appear: Once the point(s) are satisfactorily edited, click “OK” to create the proxy points corresponding to the point property.

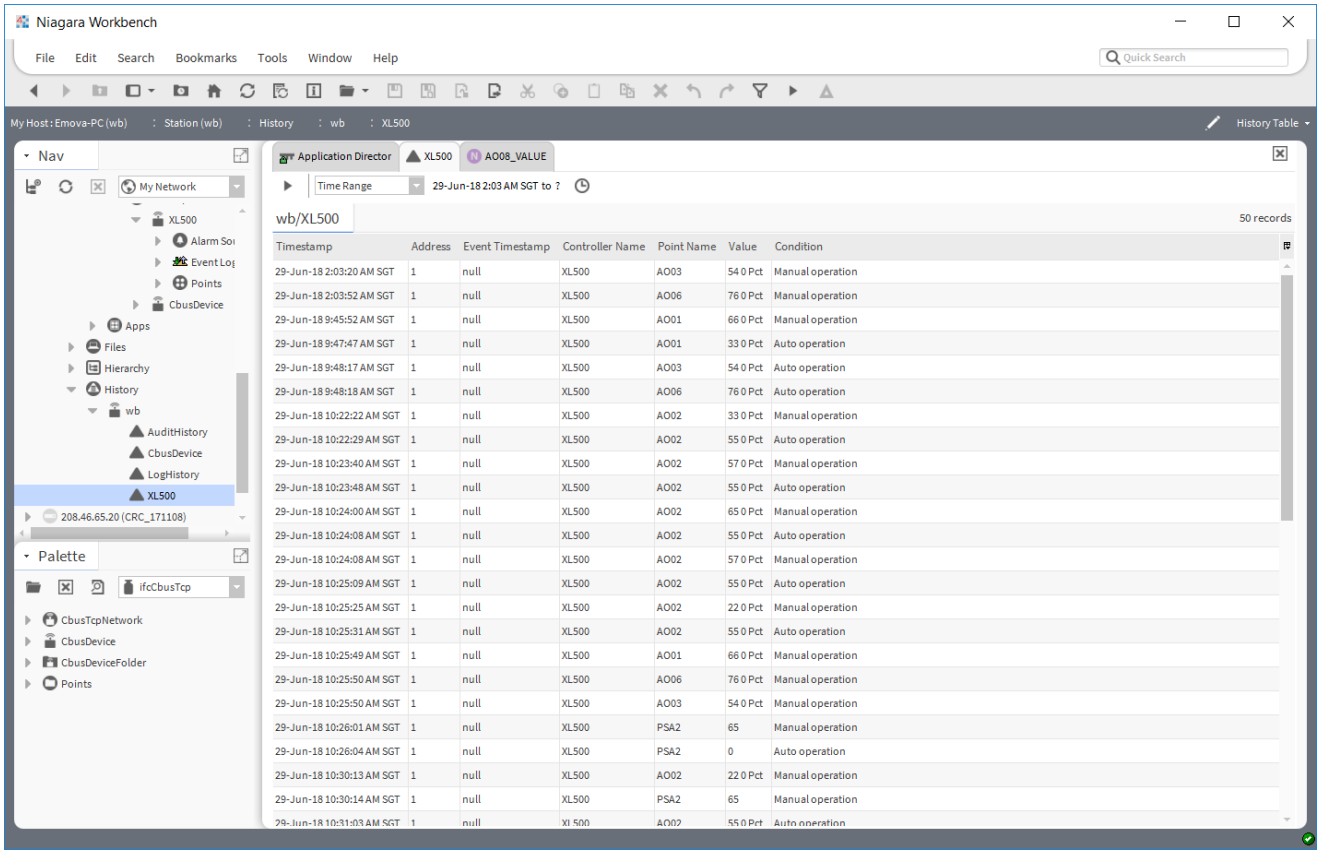

Niagara Workbench
File Edit Search Bookmarks Tools Window Wire Sheet Help
Quick Search
My Host : Emova-PC (wb) : Station (wb) : Config : Drivers : CbusTcpNetwork : XL500 : Points
Wire Sheet
Nav
My Network
Drivers
NiagaraNetwork
CbusTcpNetwork
XL500
Alarm So
Event Lo
Points
CbusDevice
Apps
Files
Hierarchy
History
208.46.65.20 (CRC_171108)
67.219.119.242 (WhitneyHighSchool)
Palette
ifcCbusTcp
CbusTcpNetwork
CbusDevice
CbusDeviceFolder
Points
Application Director
Points
AO08_VALUE
Wire Sheet
AI02_VALUE
AI05_VALUE
AI04_VALUE
AI05_VALUE
AI06_VALUE
AI07_VALUE
AI08_VALUE
AO01_VALUE
AO02_VALUE
AO03_VALUE
AO04_VALUE
AO05_VALUE
AO06_VALUE

Cbus Event Logs

Any Cbus event log such a point override, high/low alarms from the device wills log to the event log history, The event log can be define from the specified Cbus Device property.



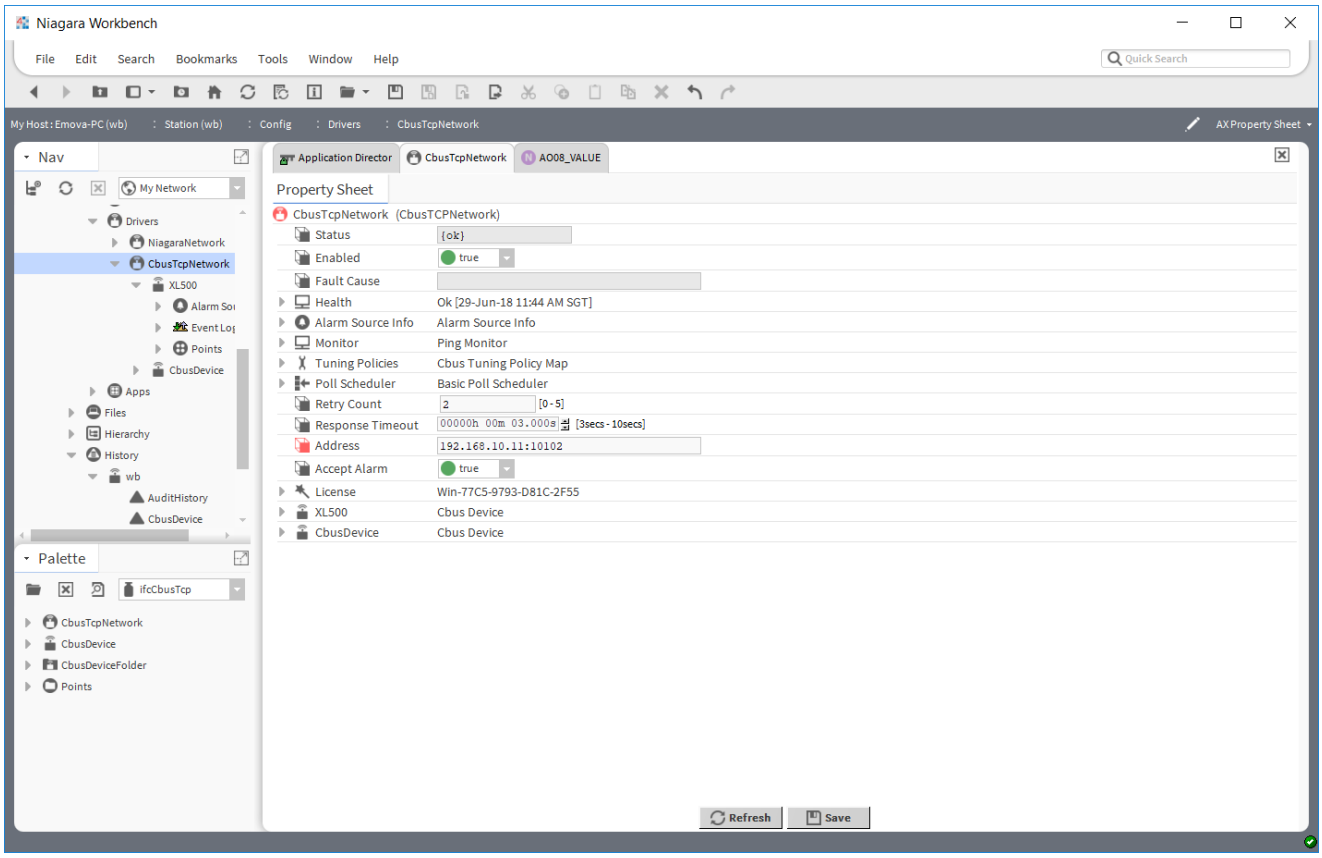
The Cbus event log can be view from the AX Alarm Console Recipient.



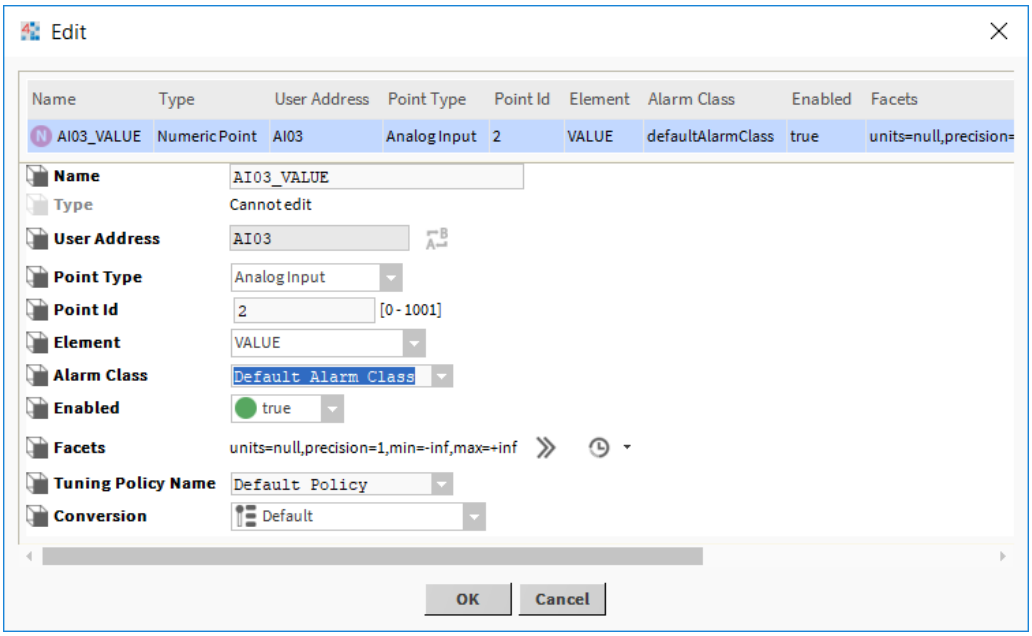
Cbus Alarms

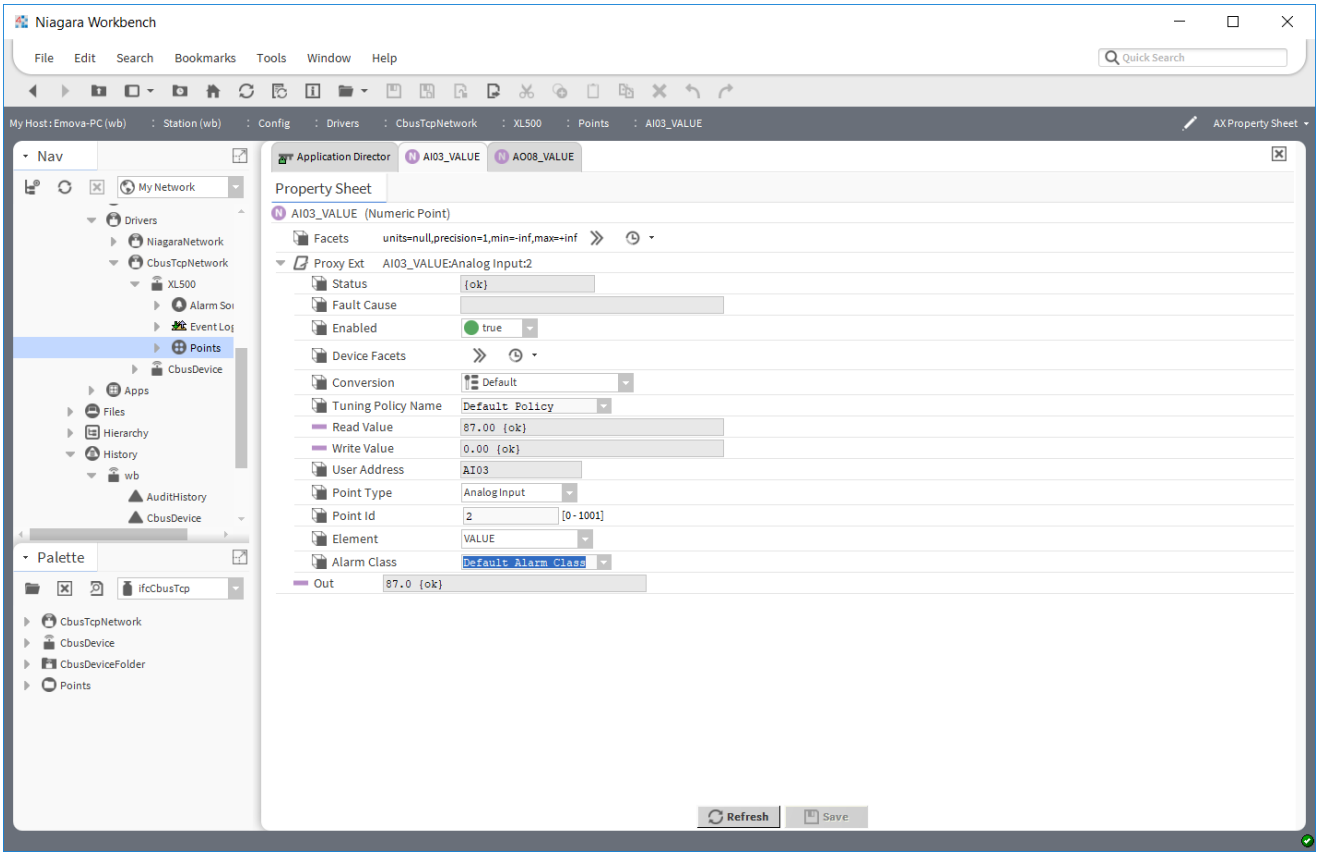
Any Cbus alarm such a point override, high/low alarms from the device wills route to the alarm console, the alarm can be define from the specified Cbus TCP Network property and at the individual Cbus proxy extension point.

By enabling the Cbus alarm at the Cbus TCP Network “Accept Alarm” property system will receive the alarm and route automatically to the standard alarm console.



The alarm point can define at the Cbus Proxy Extension, simply select the “Alarm Class” property and select from the existing alarm class list and the alarm will automatically route to the selected alarm class.


Edit
Name
Type
User Address
Point Type
Point Id
Element
Alarm Class
Enabled
Facets
AI03_VALUE
Numeric Point
AI03
Analog Input
2
VALUE
defaultAlarmClass
true
units=null,precision=
Name
AI03_VALUE
Type
Cannot edit
User Address
AI03
Point Type
Analog Input
Point Id
2
[0 - 1001]
Element
VALUE
Alarm Class
Default Alarm Class
Enabled
true
Facets
units=null,precision=1,min=-inf,max=+inf
Tuning Policy Name
Default Policy
Conversion
Default
OK
Cancel


Niagara Workbench
File
Edit
Search
Bookmarks
Tools
Window
Help
Quick Search
My Host : Emova-PC (wb)
Station (wb)
Config
Drivers
CbusTcpNetwork
XL500
Points
AI03_VALUE
AX Property Sheet
Nav
My Network
Drivers
NiagaraNetwork
CbusTcpNetwork
XL500
Alarm So
Event Lo
Points
CbusDevice
Apps
Files
Hierarchy
History
wb
AuditHistory
CbusDevice
Palette
ifcCbusTcp
CbusTcpNetwork
CbusDevice
CbusDeviceFolder
Points
Application Director
AI03_VALUE
AO08_VALUE
Property Sheet
AI03_VALUE (Numeric Point)
Facets
units=null,precision=1,min=-inf,max=+inf
Proxy Ext
AI03_VALUE:Analog Input:2
Status
{ok}
Fault Cause
Enabled
true
Device Facets
Conversion
Default
Tuning Policy Name
Default Policy
Read Value
87.00 {ok}
Write Value
0.00 {ok}
User Address
AI03
Point Type
Analog Input
Point Id
2
[0 - 1001]
Element
VALUE
Alarm Class
Default Alarm Class
Out
87.0 {ok}
Refresh
Save

Cbus Proxy Ext Special Consideration

Whenever a Cbus proxy Ext is added or configured to have an point property value and the base Type is Writable Point as shown below, there is additional special behavior need to take note:

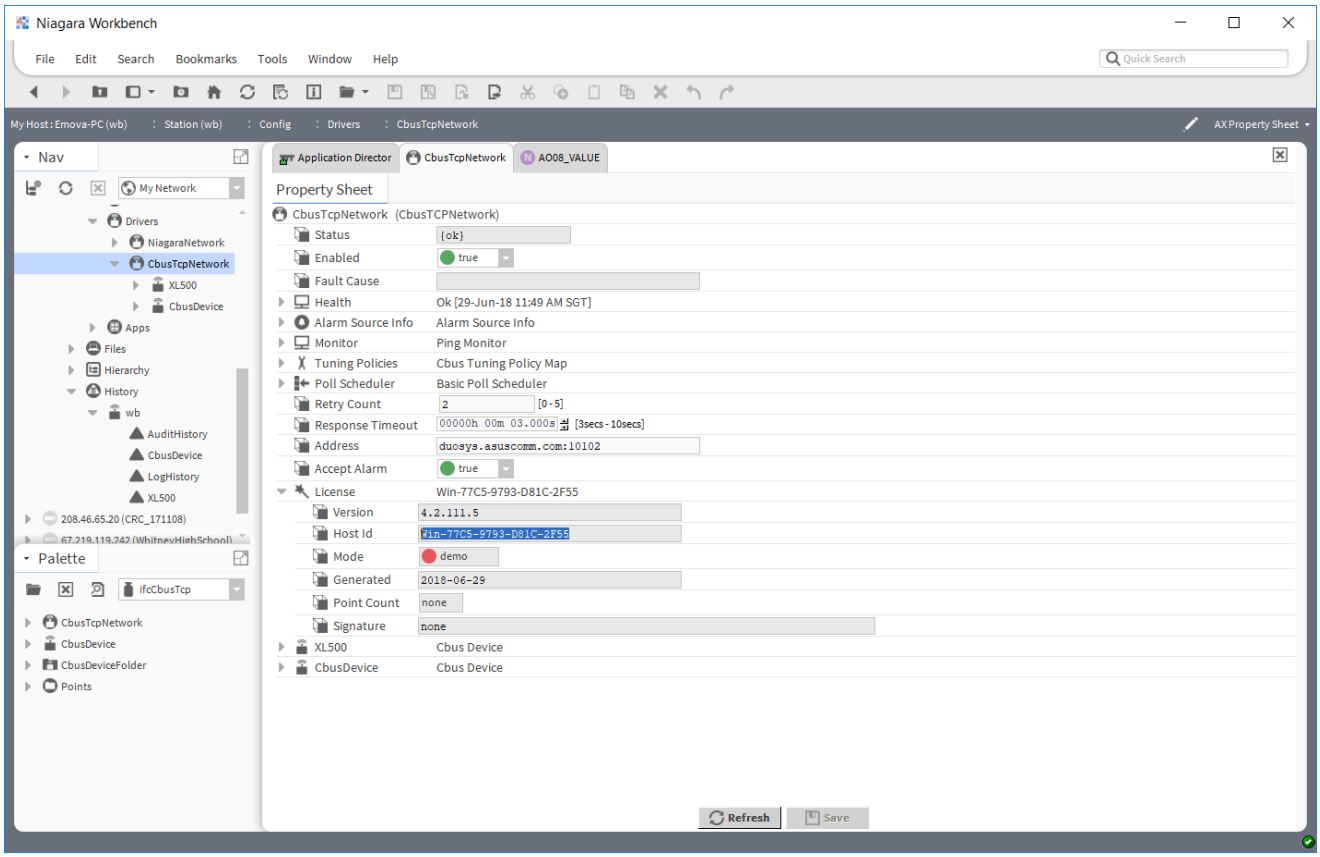
Some of the command point required to use override(priority 1-10) to change the value, as when the “set” action is execute the output will not change unless user use override(priority 1-10) to change the value.

Chapter 5

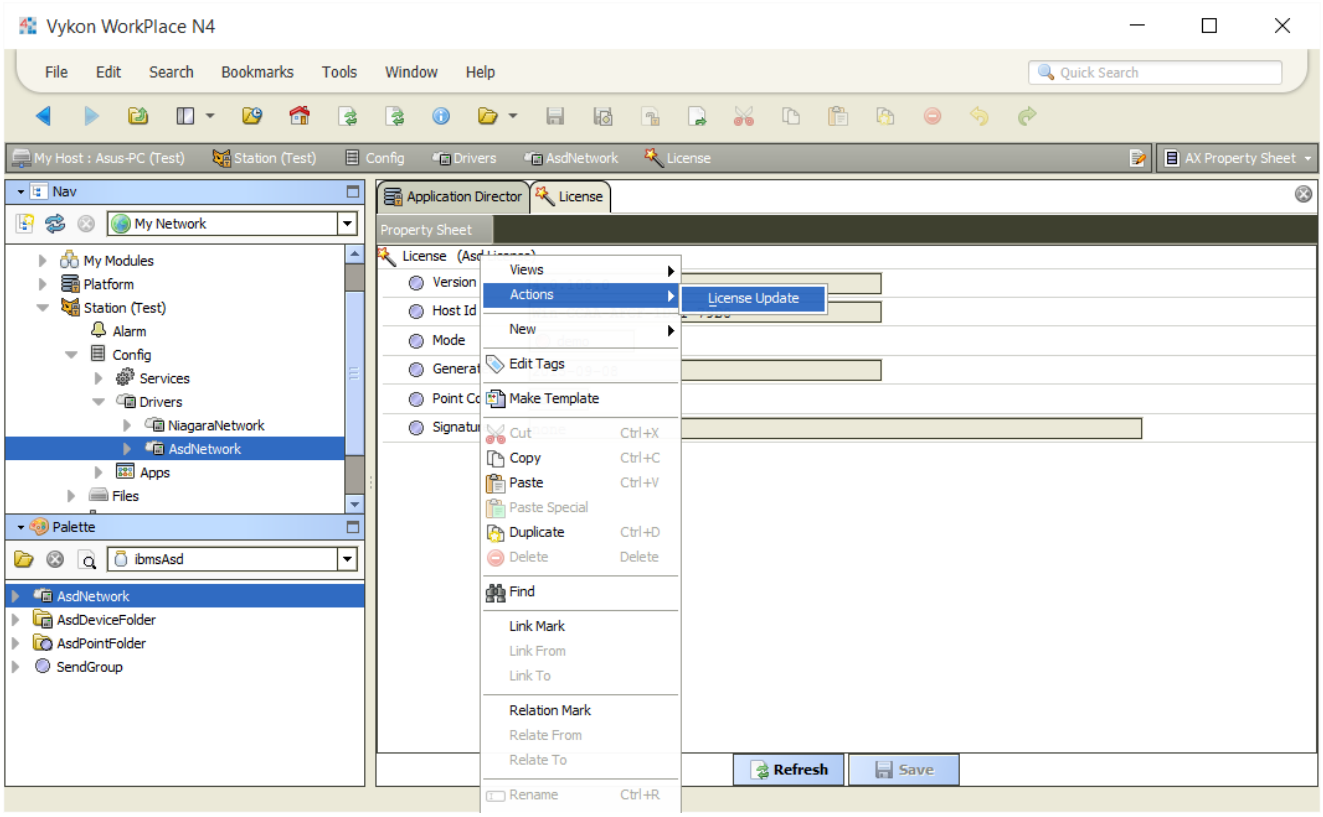
Licensing

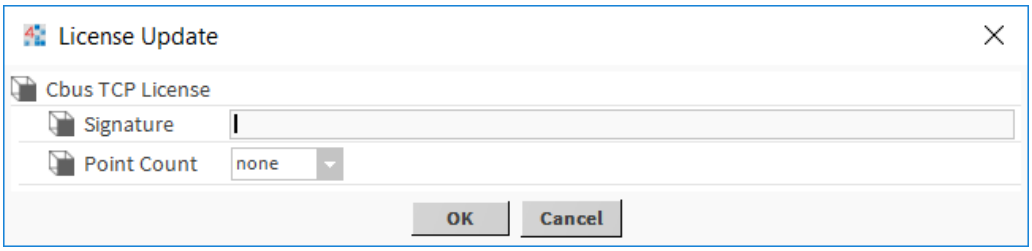
Cbus driver License is running independently from the Tridium license, it has no restriction to run to any of the existing license vendor.

The Cbus license provide 2 hour demo license without the unlock code. After the demo license expired the Cbus Driver communication will stop automatically and will show fatal fault at the Cbus TCP Network level. “ifcCbusTcp license expired”. To extend the demo period user required to restart the station.



To request the license submit the JACE/Web Supervisor host ID, to unlock the driver simply go to the license property action and invoke command “License Update”, the dialog “License Update” will appear. Place the signature code at the “Signature” property. Please take note the license only provide by authorize vendor. If the signature code is successful enter the property “Mode” will automatically change to “registered” and user is required to restart the station to take effected.





end