CENTRALINE NX PANELBUS DRIVER

User Guide

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CENTRALINE NX PANELBUS DRIVER 4.4.xx

USER GUIDE

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SYSTEM REQUIREMENTS

Niagara

Niagara 4.4.xx and higher.

Products and OS Numbers

The C-Bus Driver will be working with CentraLine Products only.
For detailed information on the applicable controllers and BNA (CLIF) versions including their OS Numbers and licenses, please download the corresponding, product data, software release bulletin and/or the compatibility matrix at:

Product Data
http://products.centraline.com/en/

Software Release Bulletin
https://www.centraline.com/partnerweb/index.php?id=847&route=article%2Findex&directory_id=47&direct_link=1

Compatibility Matrix
https://clfaq.ge51.honeywell.de/?action=artikel&cat=70&id=1616&artlang=en

Licenses and Point Handling

When having a license allowing only a limited number of points and you are deleting points, the free number points are not available instantly. To make the free number of points available again, please restart the station.

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INSTALLATION

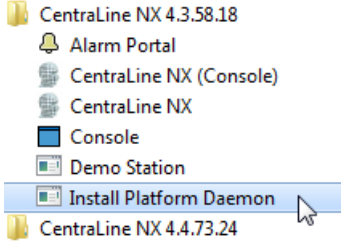
The Panelbus driver will be installed with the NX setup by default.

Alternate Usage of Different ARENA NX / COACH NX Versions on Same PC

If you have different ARENA NX / COACH NX versions installed on your PC and you want to use them alternately, each time before you start the ARENA NX / COACH NX software, you must install its dedicated platform daemon.
This is necessary in order to make sure that all necessary services are properly running when using the software.

NOTE: For ARENA NX / COACH NX 4.4.xx which will be installed via setup, the dedicated platform daemon is automatically installed and the corresponding services are running, as long as you do not start another ARENA NX / COACH NX version.

Example: You worked with ARENA NX / COACH NX 4.4.76 and you want to use the previous COACH NX 4.3.58 version. Prior to software start, click the **Install Platform Daemon** entry in the *CentraLine COACH NX* 4.3.58 program group.



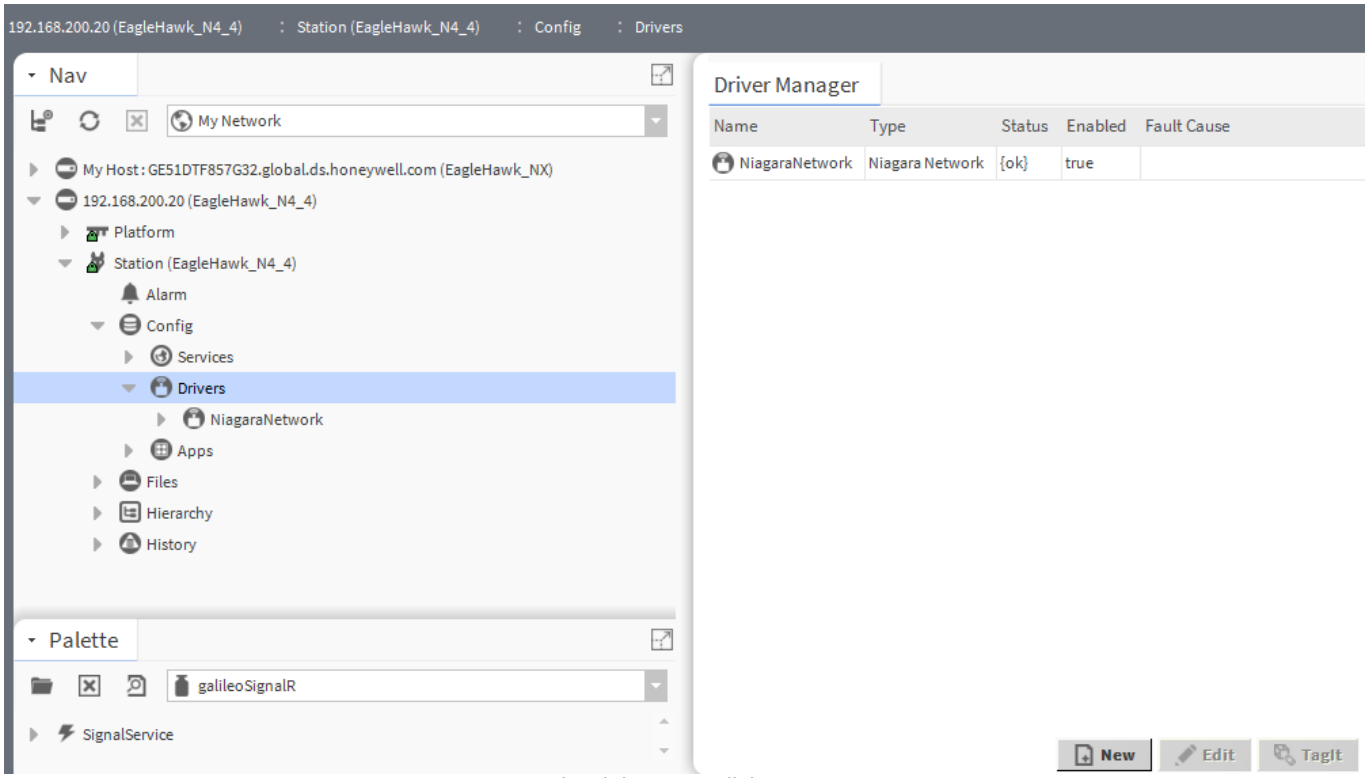
CREATE PANELBUS NETWORK

The following procedure describes the Panelbus network startup on a commissioned EAGLEHAWK controller. The Panelbus can also be configured in offline mode but in this case, the Panelbus network will stay in ´fault` state. As a result, no Panelbus modules can be discovered and only the EAGLEHAWK controller communicates with the Panelbus modules.

It's recommended to create a new station using COACH NX in offline mode. The Panelbus network should then be added to the ´offline` station which is running on the PC.
Then the station should be copied to the EAGLEHAWK controller using the Commissioning Wizard. When following this procedure the necessary Panelbus files are copied automatically to the EAGLEHAWK controller.

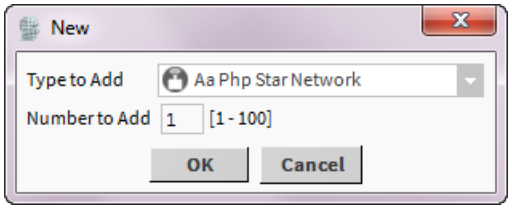
Procedure

1. In the *Nav* tree, expand the Station folder, and then click on **Drivers**.

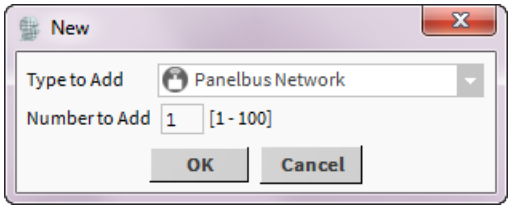


2. On the right pane, click **New**.

   RESULT: The *New* dialog box displays.

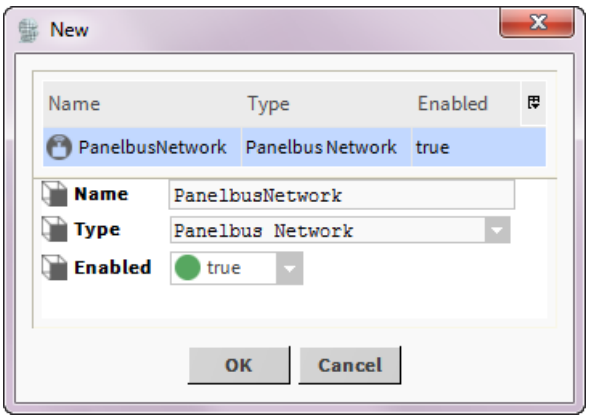


3. In **Type to Add**, select ´Panelbus Network`.



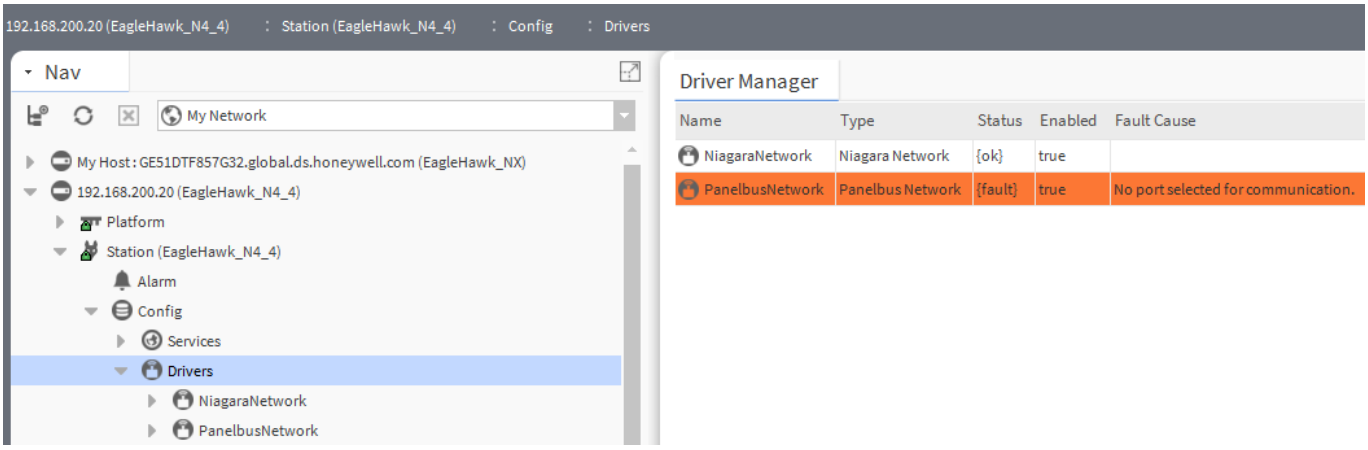
4. Click **OK**.

RESULT: The *New* dialog box is displayed.

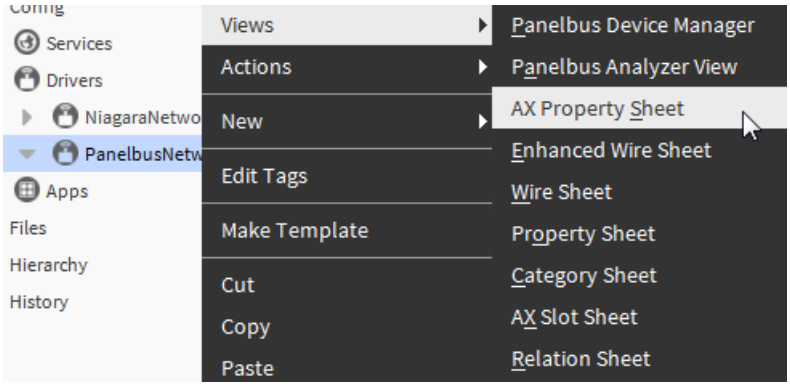


5. In Name, change the name of the network if desired, and then click **OK**.

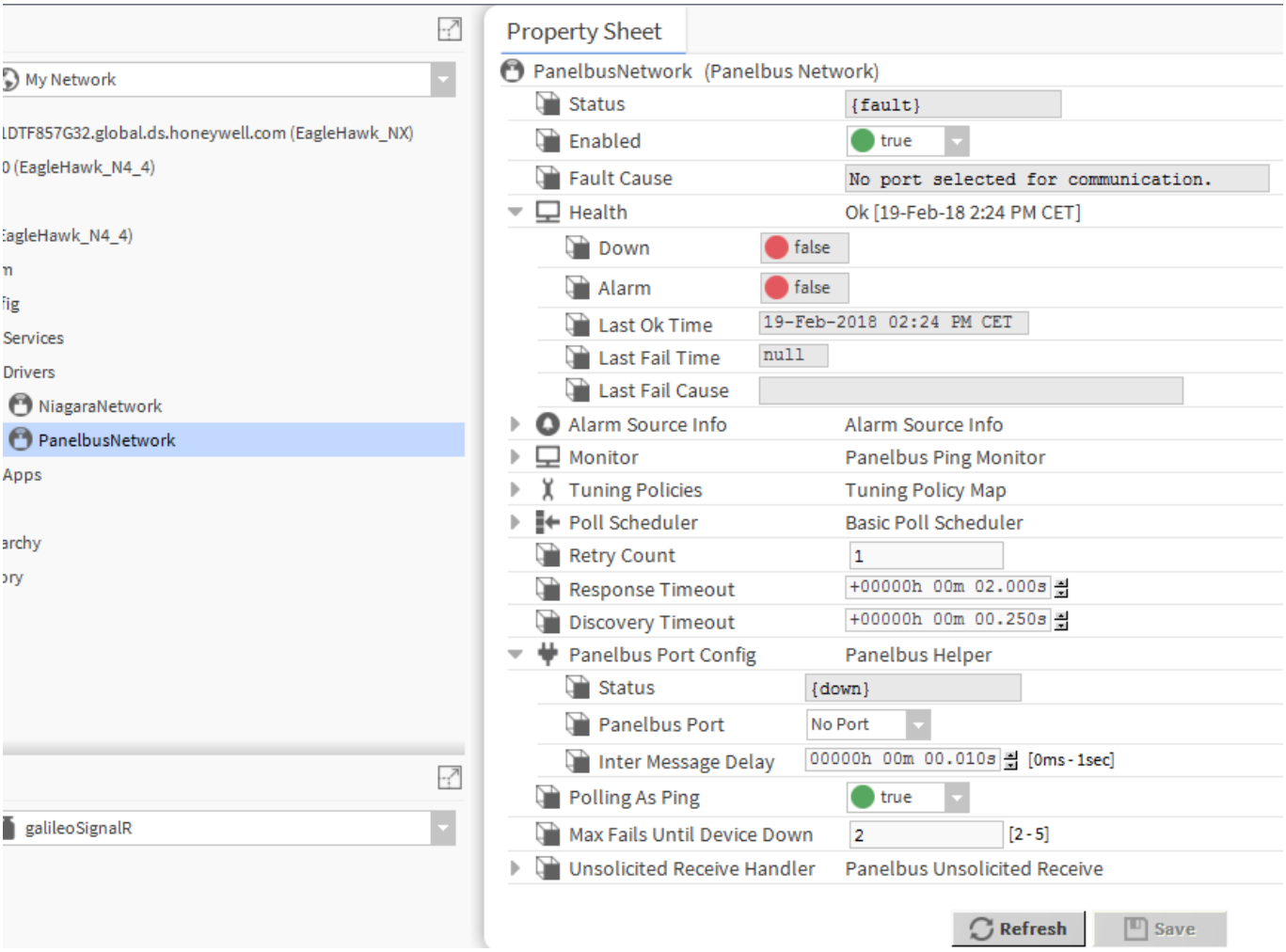
RESULT: The Panelbus network is created and added to the Driver Manager.



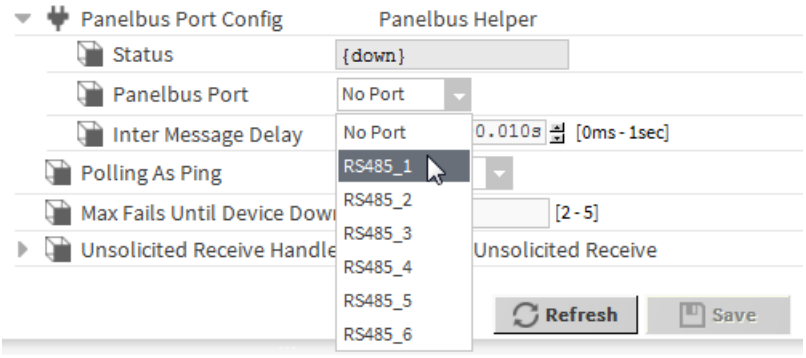
6. Display the property sheet for the Panelbus network by right-clicking **Panelbus Network** in the *Nav* tree, selecting **Views**, and then selecting **Property Sheet** in the context menu.



RESULT: The Panelbus network properties are displayed on the right pane.



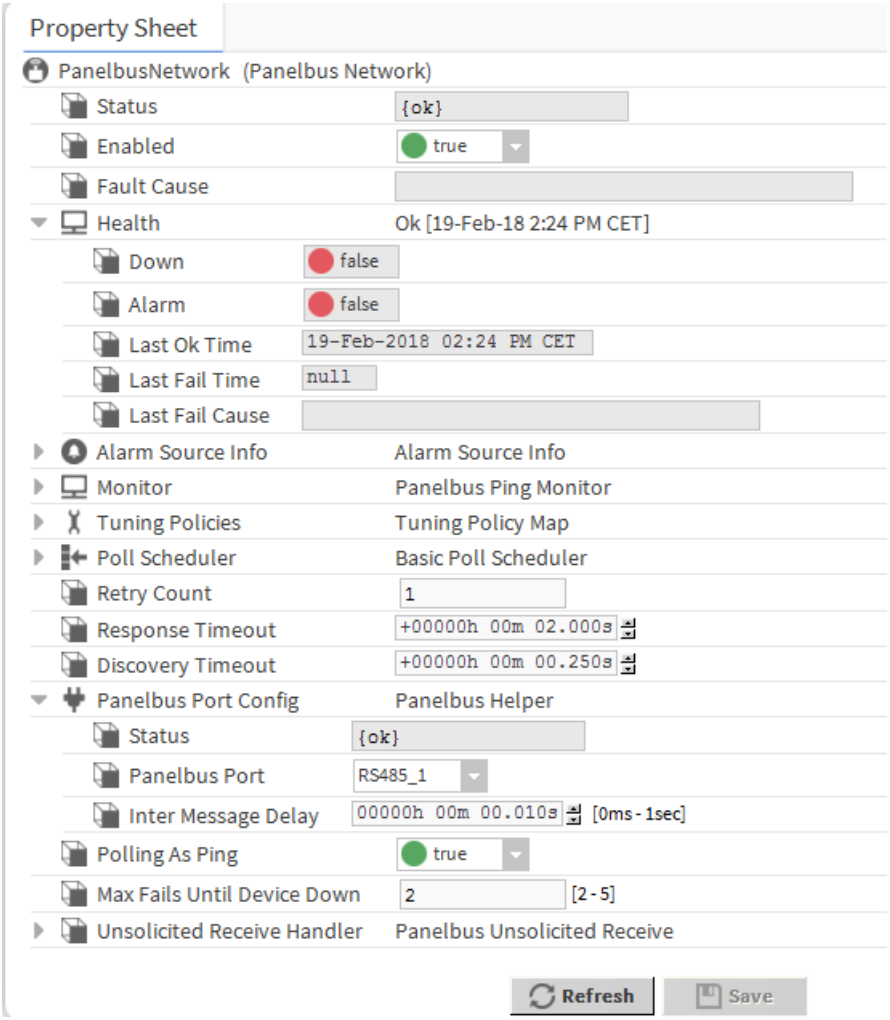
7. Under **Panelbus Port Config**, select the port (RS485_1 or RS485_2) from the **Panelbus Port** drop-down listbox.



NOTE: This handling is different to all other RS485-based drivers within COACH NX. In this case, the Panelbus Ports match the labeling on the EAGLEHAWK.

8. Click **Save** button.

RESULT: The Panelbus network properties are updated. The **Status** fields show ´ok` indicating that the network is properly working.

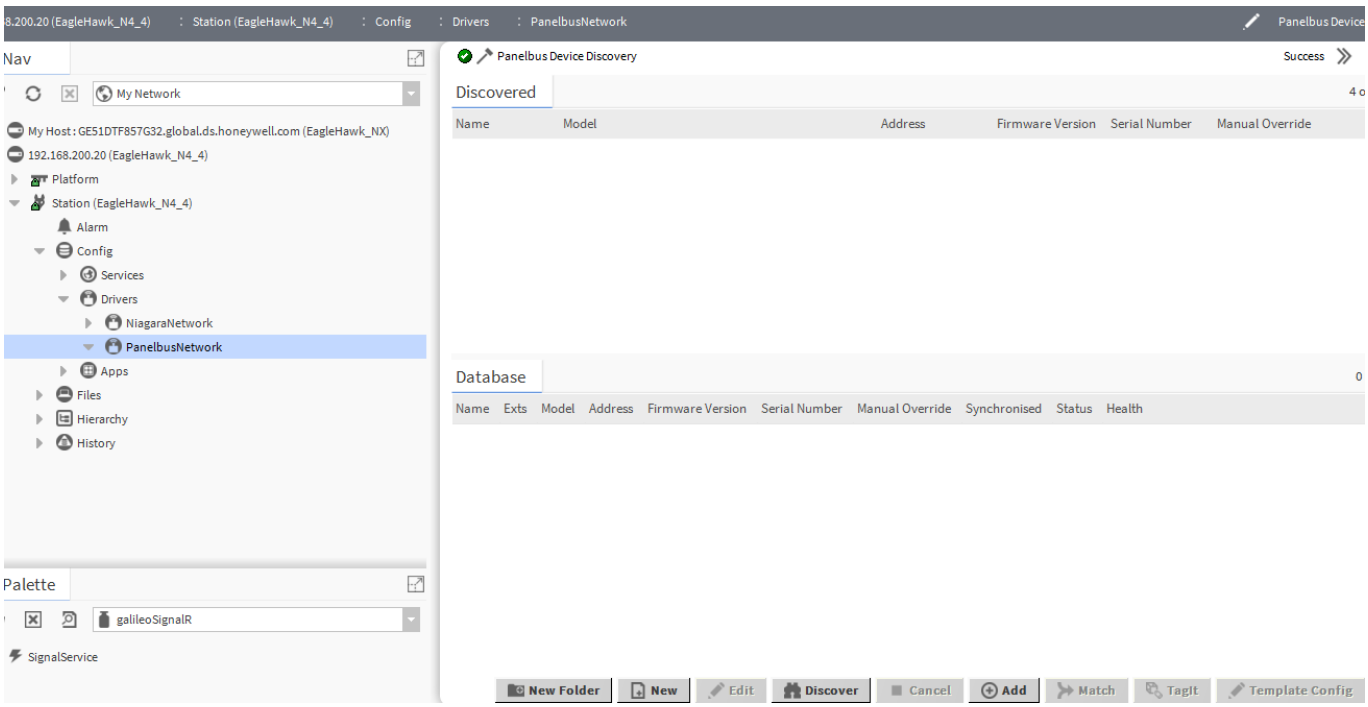


DISCOVER PANELBUS MODULES AND ADD THEM TO STATION

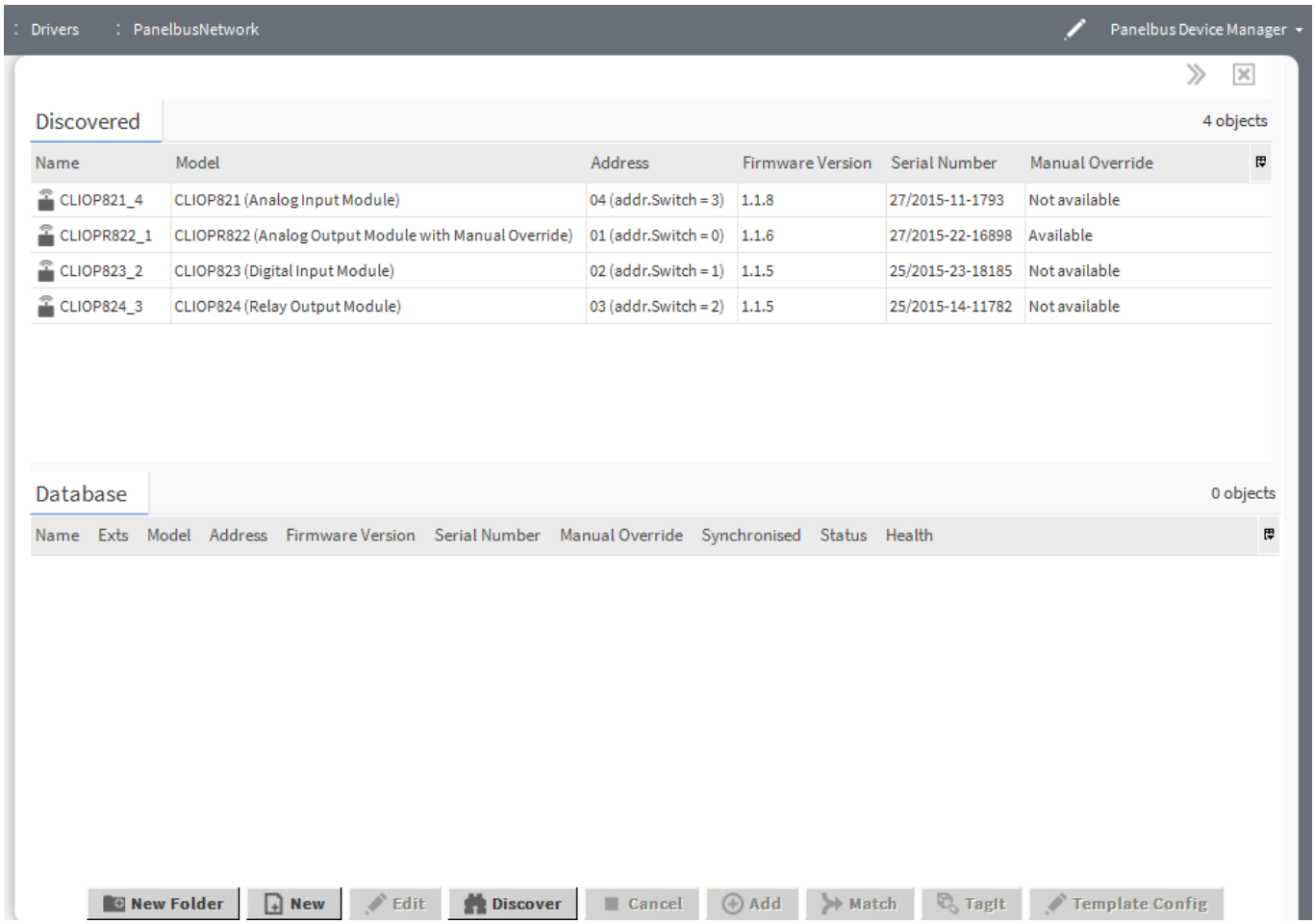
Purpose To discover the panelbus modules that resides on the panelbus network.

Procedure

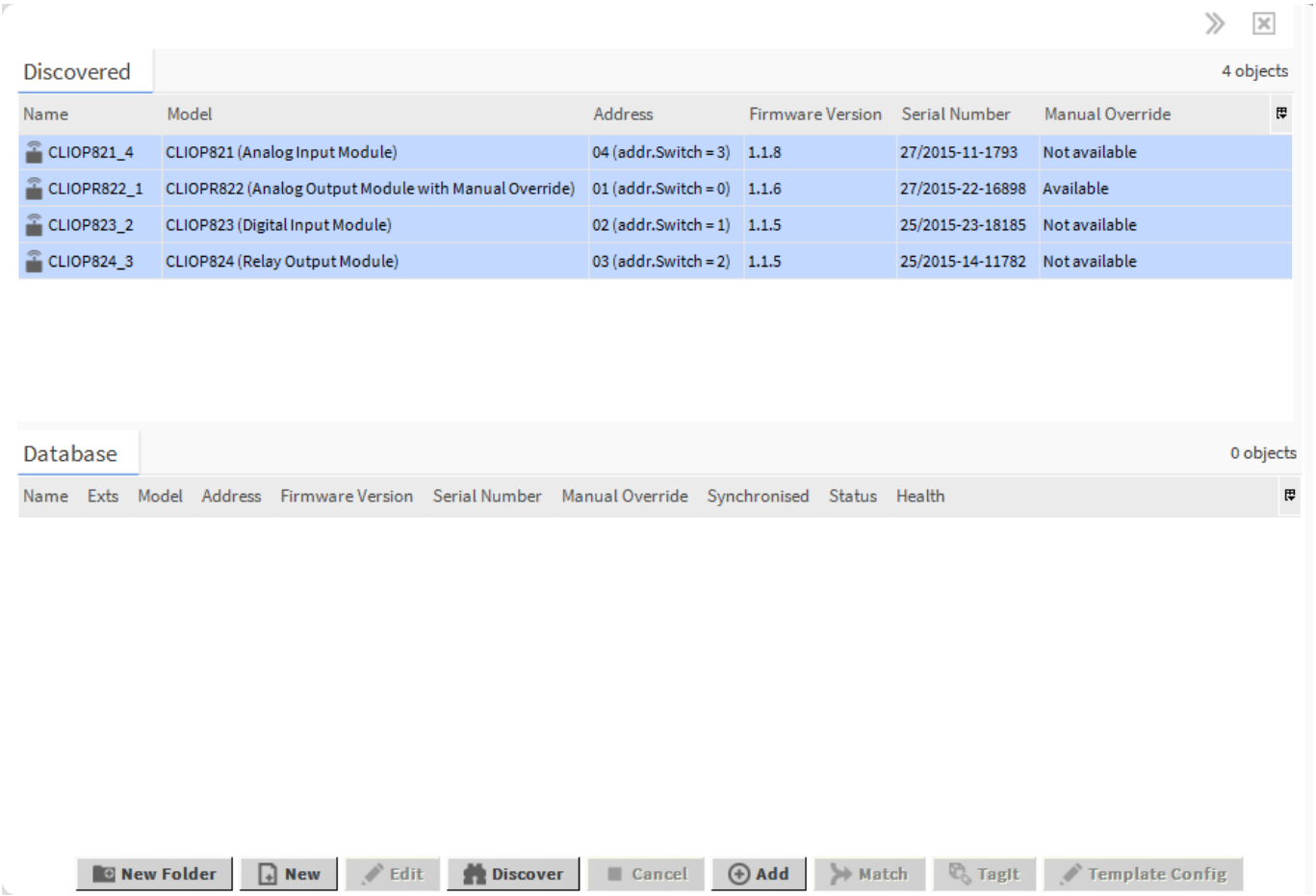
1. In the *Nav t*ree on the left, expand the *Station* and *Drivers* folders.



2. Double-click **PanelbusNetwork**, and then click the **Discover** button on the right.



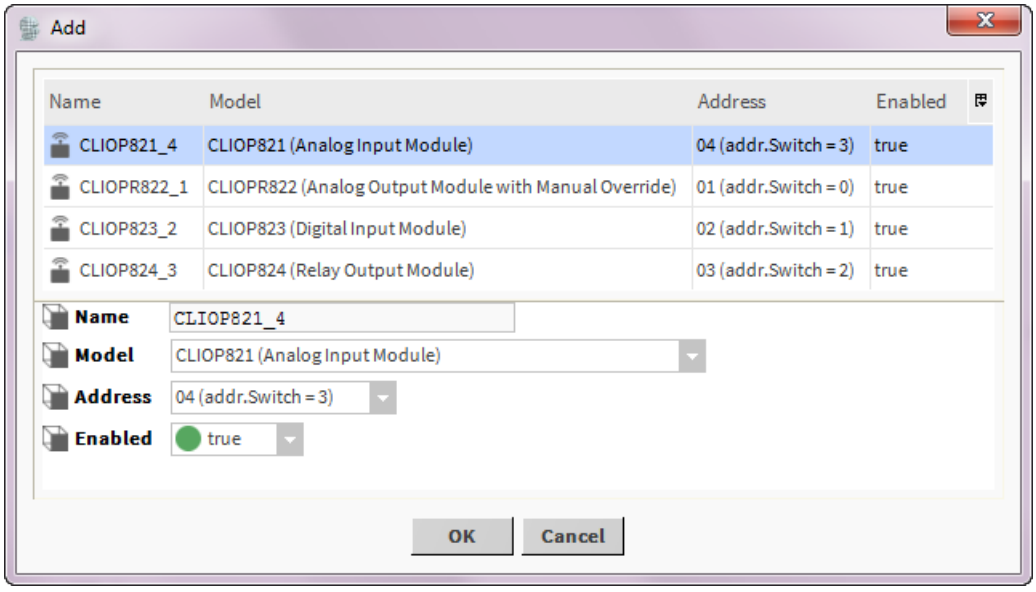
RESULT: All available panelbus modules will be listed in the upper *Discovered* pane.



3. Select the panelbus modules you want to add to the station. Multi-selection using the SHIFT of STRG key is possible.

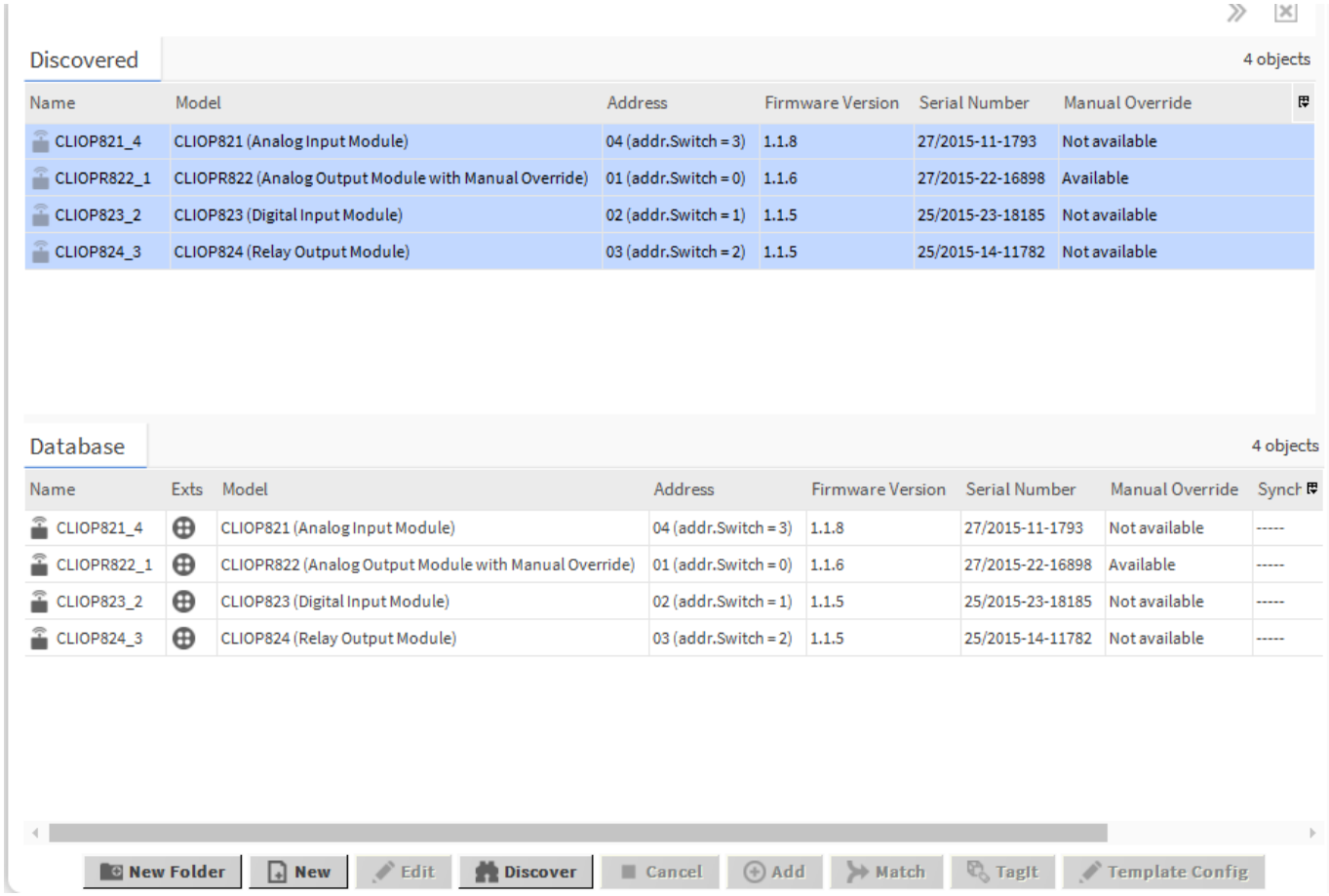
4. Click **Add** button on the bottom of the pane.

   RESULT: The *Add* dialog box displays listing the selected panelbus modules. Do not modify any settings of the modules, these will be reset based on a pre-defined mechanism while adding to the database.



5. Click **OK**.

   RESULT: The selected panelbus modules are added to the station. They are displayed twice, in the lower *Database* pane and in the *Drivers* Folder in the *Nav* tree.



View / Modify Panelbus Module Properties

The properties of the panelbus modules vary dependent on the module type. The following module types are available in ARENA NX / COACH NX:

- CLIOP821_1
- CLIOP822_2
- CLIOP823_4
- CLIOP824_3
- CLIOP825_4
- CLIOP830/31_4

For detailed descriptions of the module properties, please refer to the panelbus modules product data, form no. EN0B0701-GE51.

View/Modify Module Properties

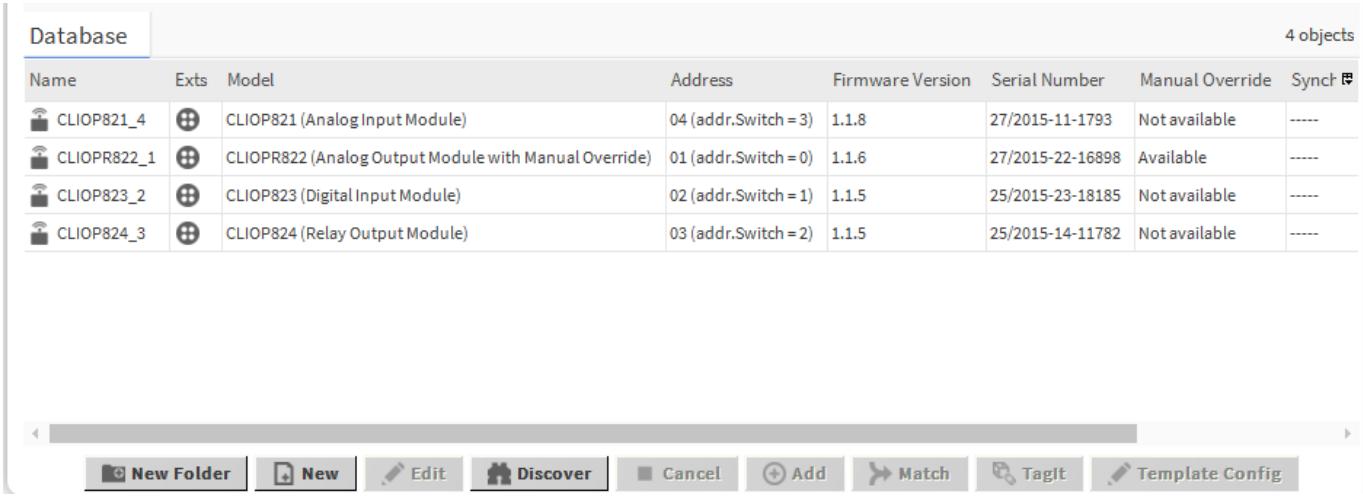
The following procedure gives a short and general introduction on how to view and modify the properties of a module. The following properties can be edited:

- Name
- Technical address
- Status

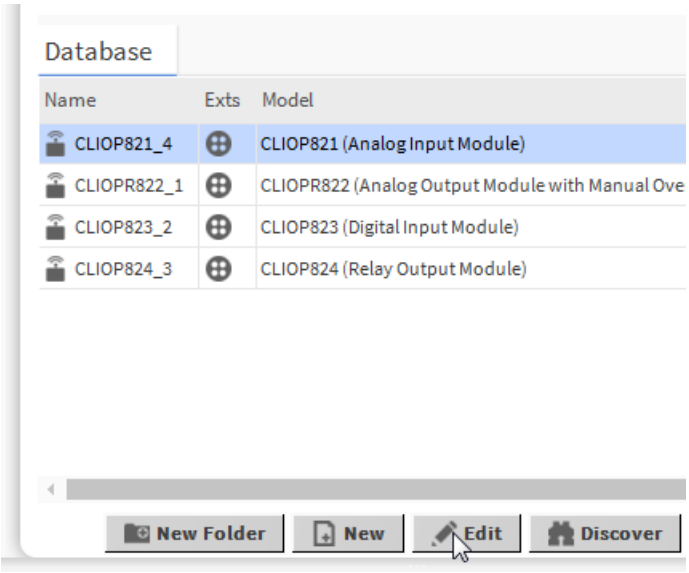
Procedure

1. To view/edit the properties, double-click the *PanelbusNetwork* folder of the *Nav* tree.

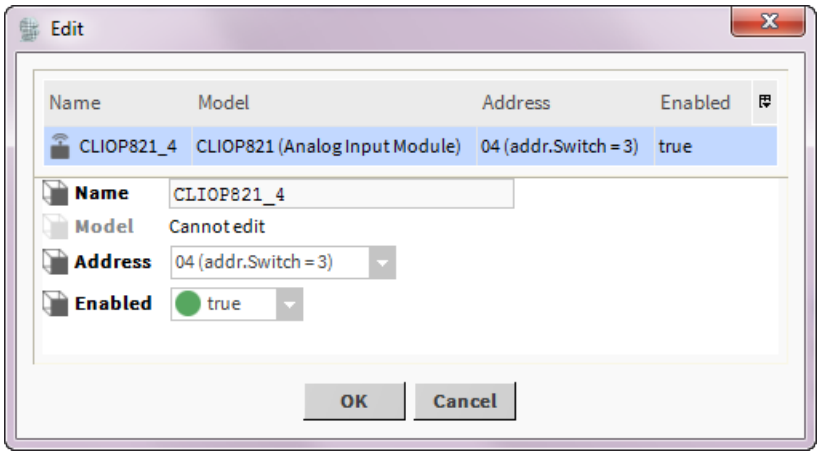
   RESULT: On the right pane, the panelbus modules are displayed.



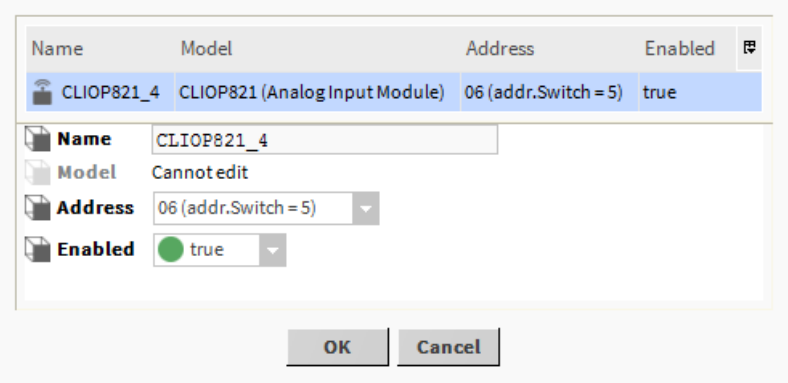
2. Select the module you want to change, and then click the **Edit** button on the bottom.



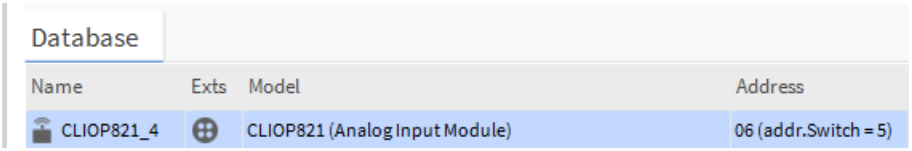
RESULT: The *Edit* dialog box is displayed.



3. Change the properties (Name, Address, and Enabled) as desired.



4. Click **OK**.

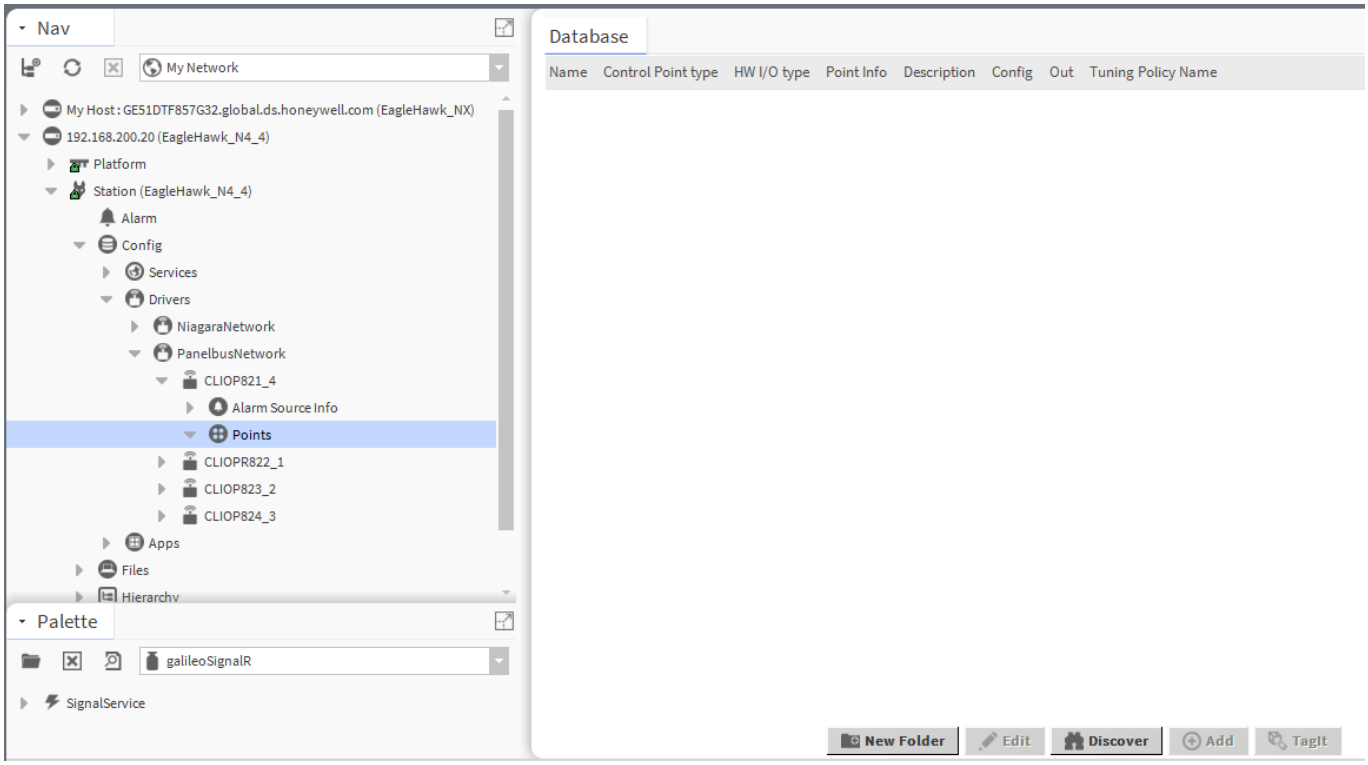


VIEW / MODIFY POINT PROPERTIES OF MODULE

Purpose To discover points and modify point properties.

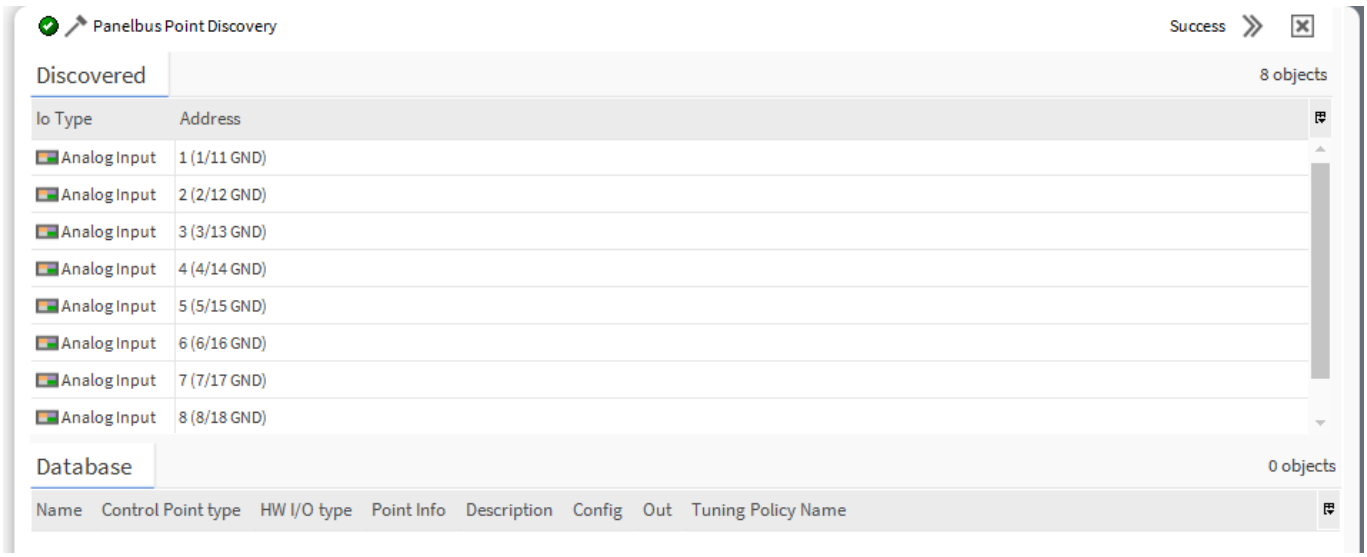
Procedure

1. In the *Nav t*ree on the left, expand the *PanelbusNetwork* folder.

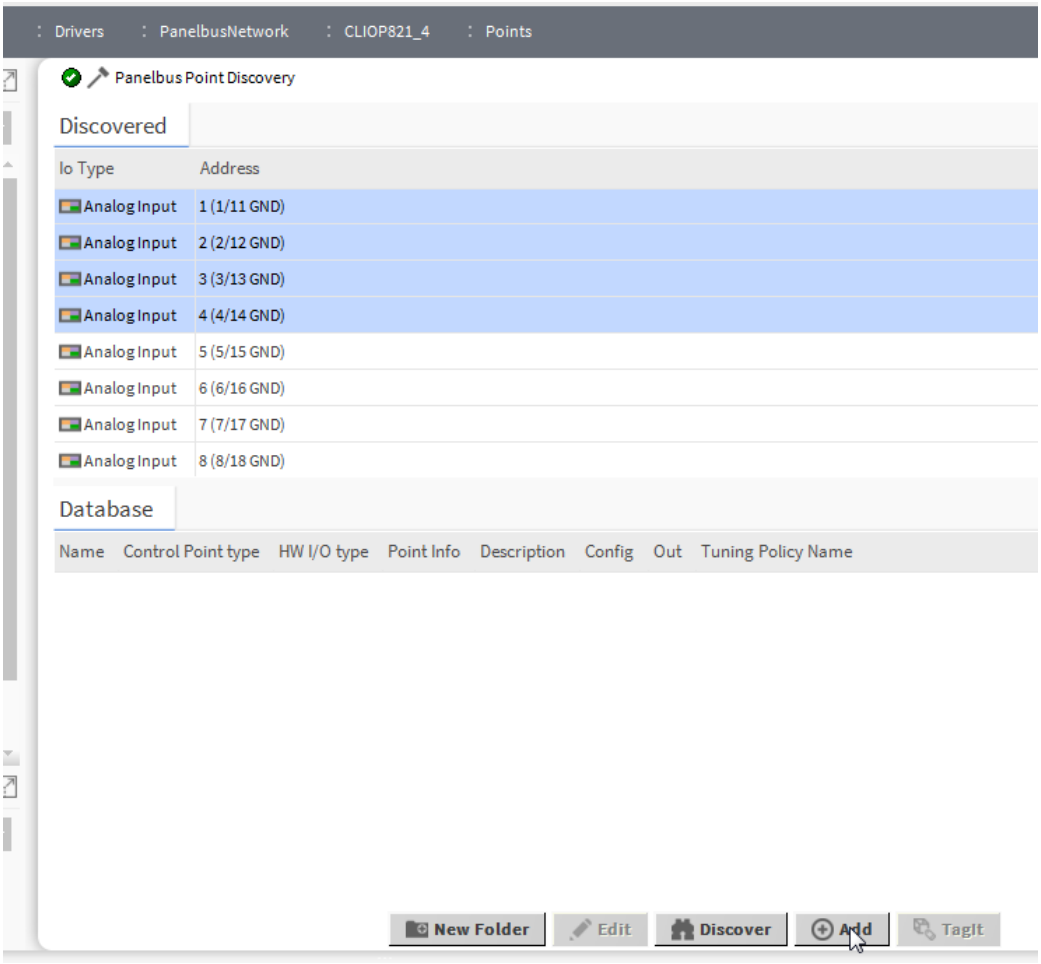


2. Double-click the *Points* folder, and then click the **Discover** button.

   RESULT: All points will be listed in the upper *Discovered* pane.

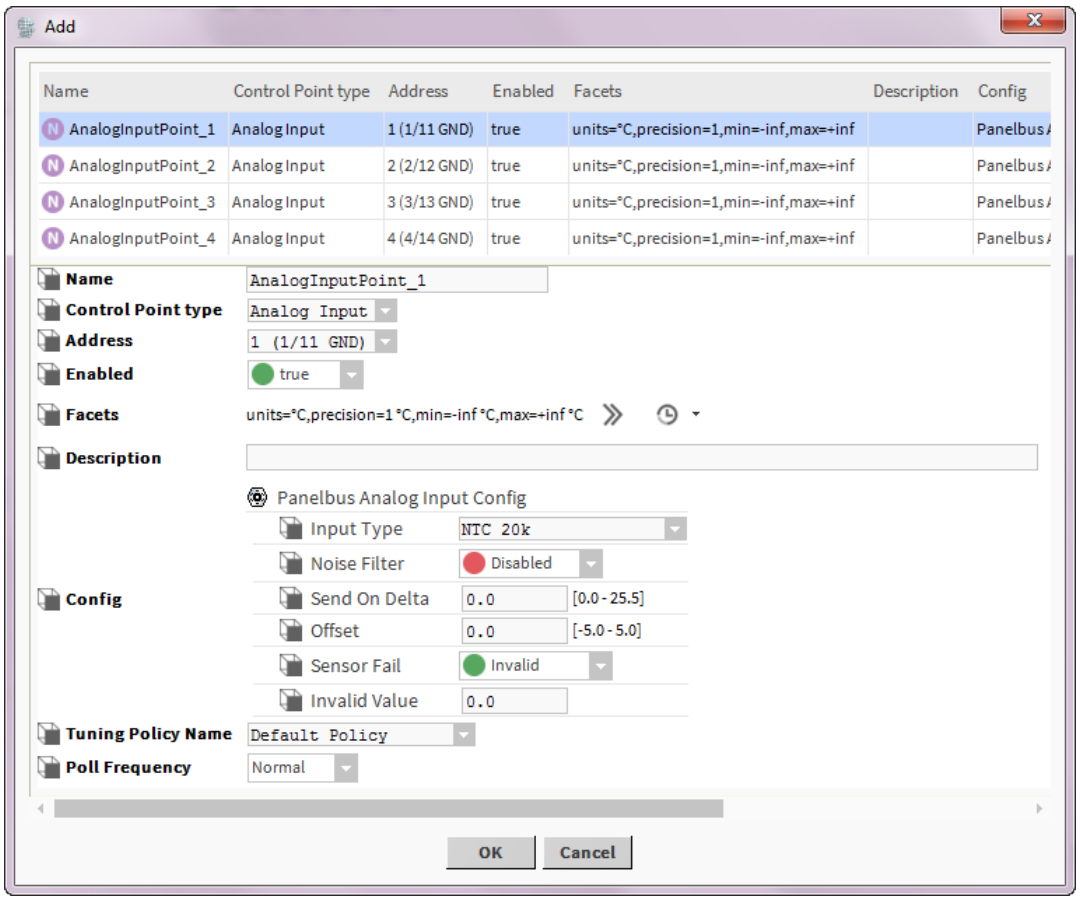


3. Select the points you want to add to the station. Multi-selection using the SHIFT and STRG keys is possible.



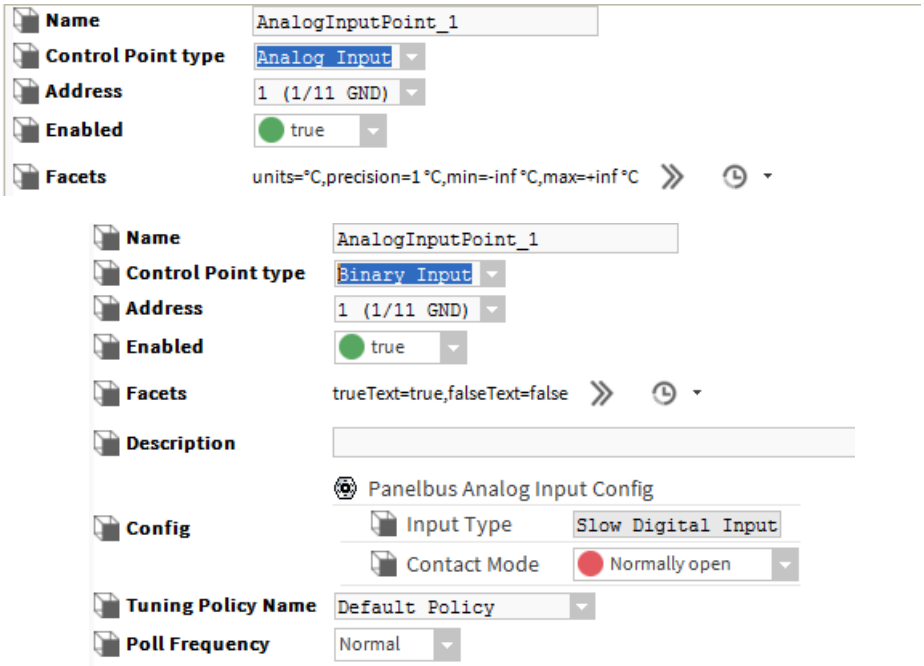
4. Click **Add** button on the bottom of the pane.

   RESULT: The *Add* dialog box displays.



5. In this dialog, you can modify point properties before adding the points to the database. You can apply these changes to one or multiple points. White colored fields are enabled and can be modified. Beige colored fields are display only.

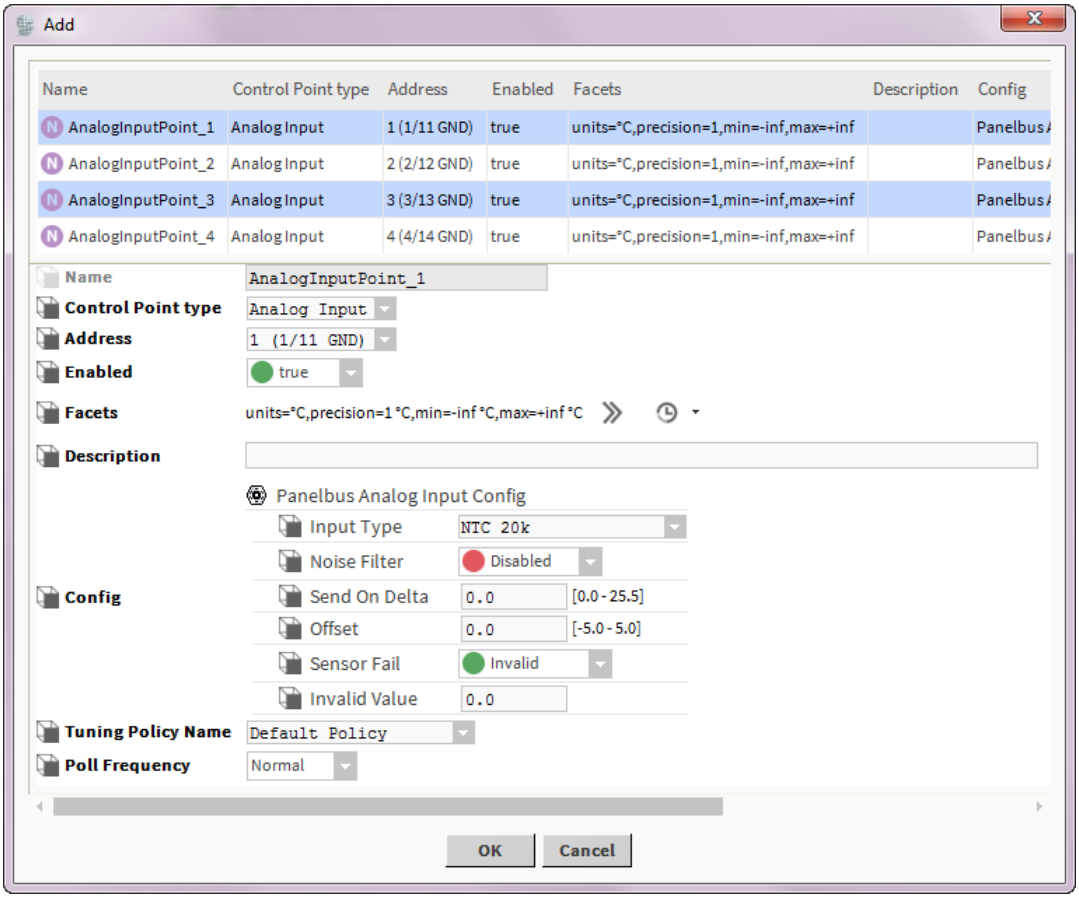
   NOTE: When changing the **Control Point Type** property of the point, its corresponding **Config** settings displayed below are updated accordingly. The control point type property cannot be reverted after the point has been added to database.



   All other properties can be changed after the addition using the Edit function (see the following steps)

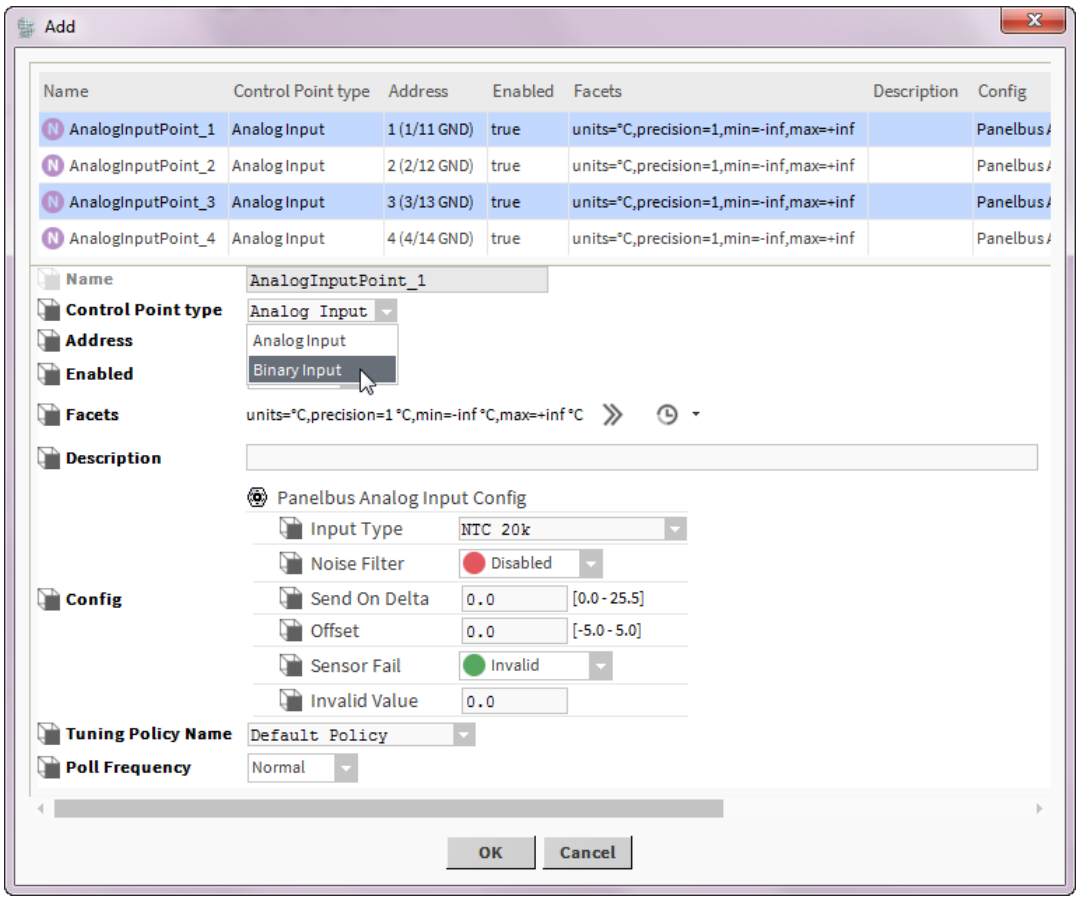
NOTE: Regarding the license feature, only points added to the Database are counted. When the point limit of the license is exceeded, a point will go offline (fault state) and be marked in orange.

6. Select the points in the table of which settings you want to change.



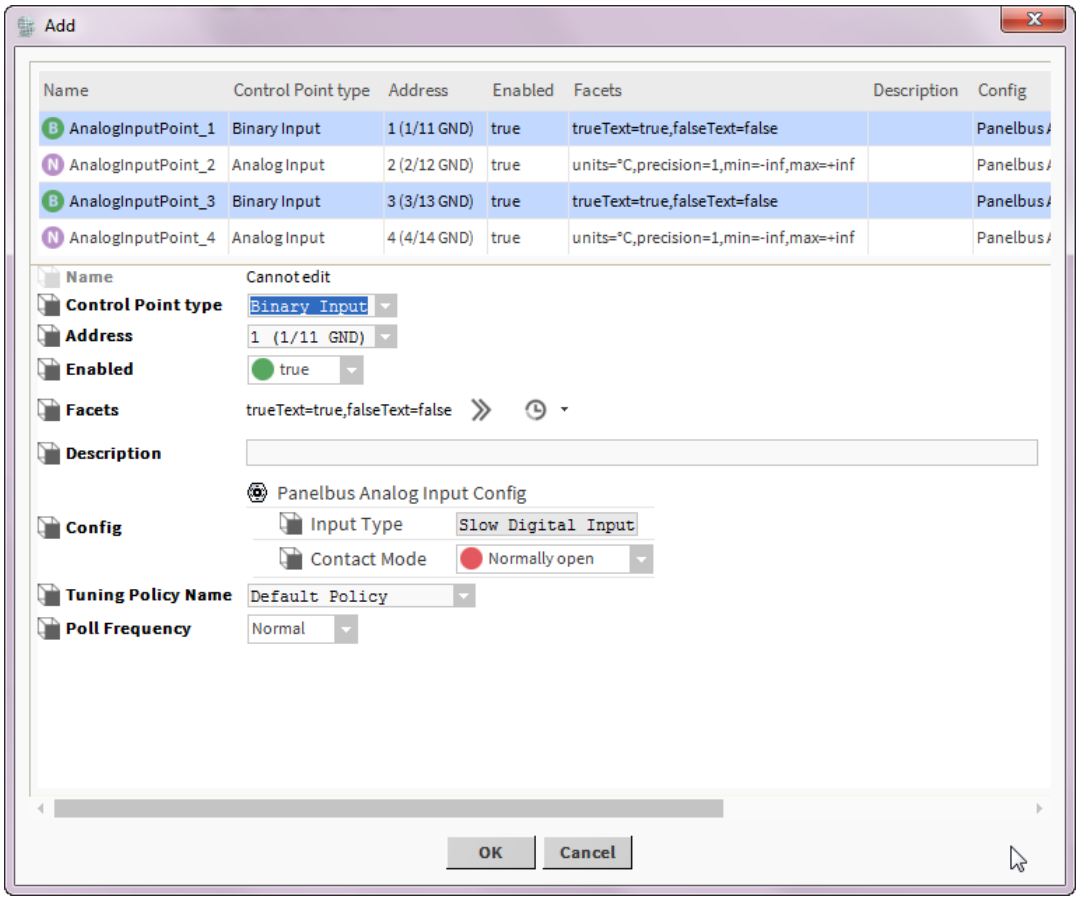
7. In **Control Point Type**, select the control point type.

RESULT: According to their control point type, the datapoints are indicated by different colors in the table (e.g. green for digital control point type, violet for analog control point type).



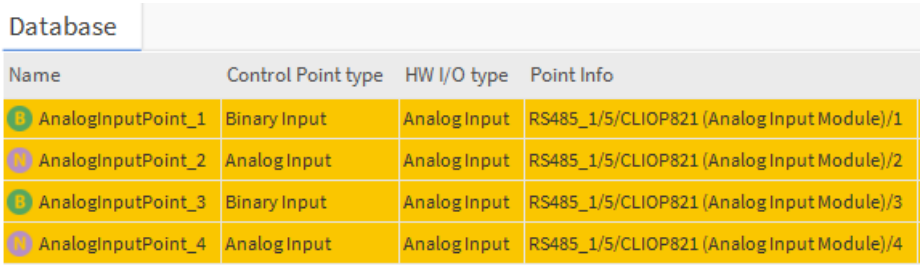
8. Click **OK**.

RESULT: The selected datapoints are added to the station.

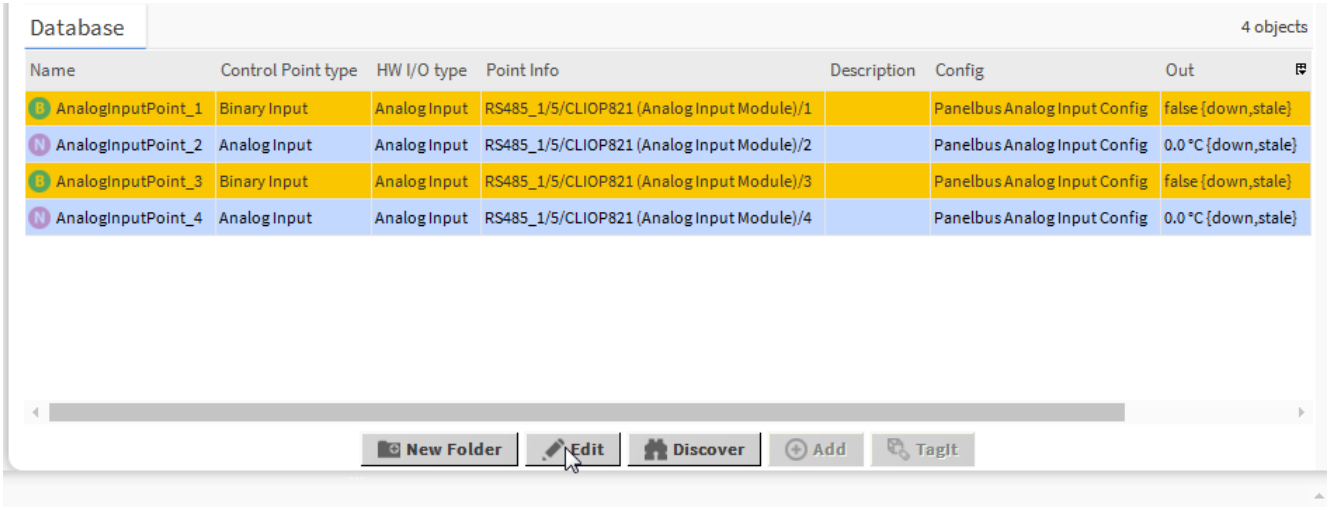


9. To modify point properties, select the datapoint(s) in the *Database* pane. Multi-selection using the SHIFT and STRG keys is possible.

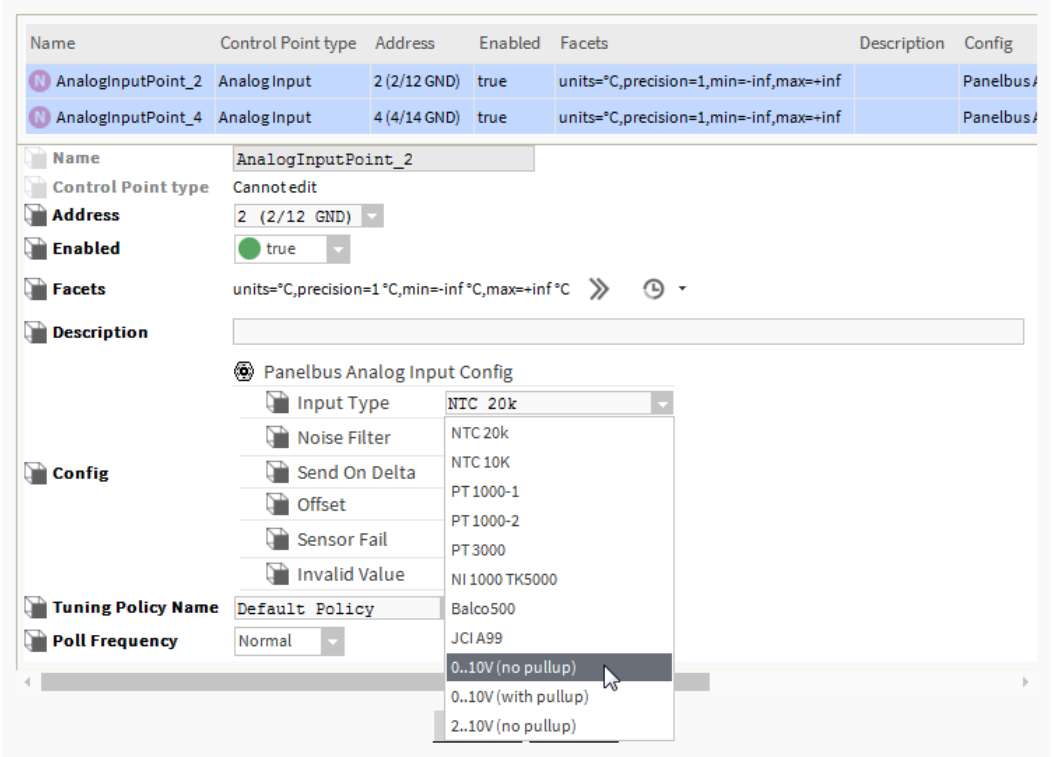
10. Click the **Edit** button.



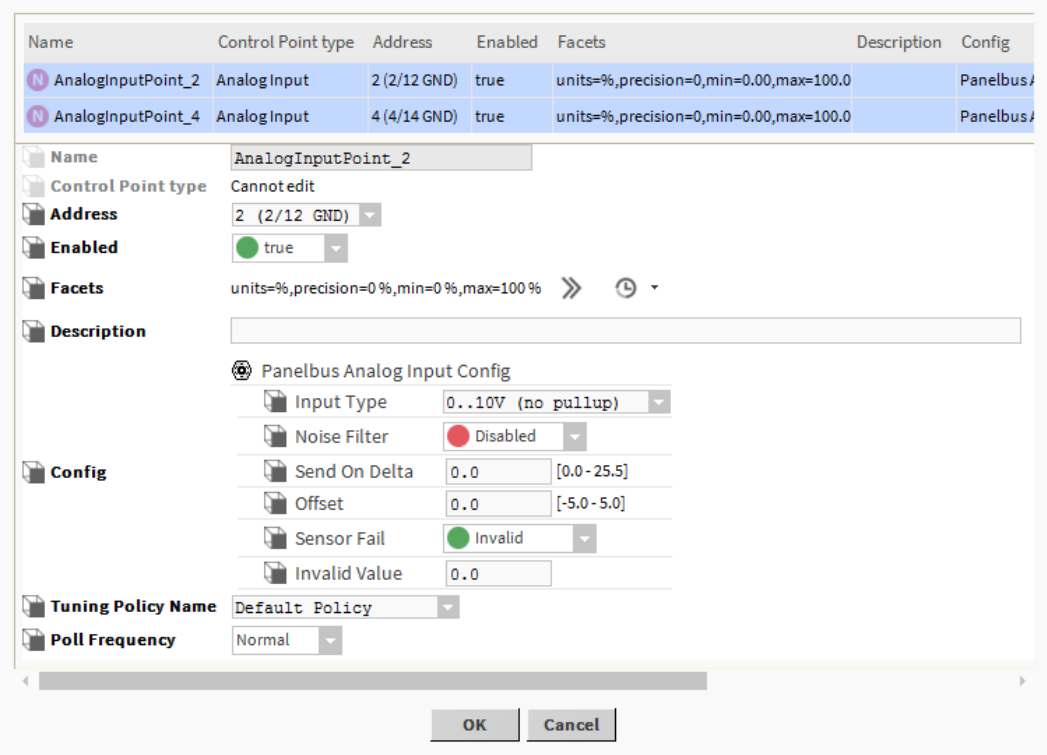
RESULT: The *Edit* dialog box displays.



11. To change a datapoint property, enter the new value in the field.



or, select an option from the drop-down listbox. The field indicator is highlighted in red.



12. To save the settings, click **OK**.

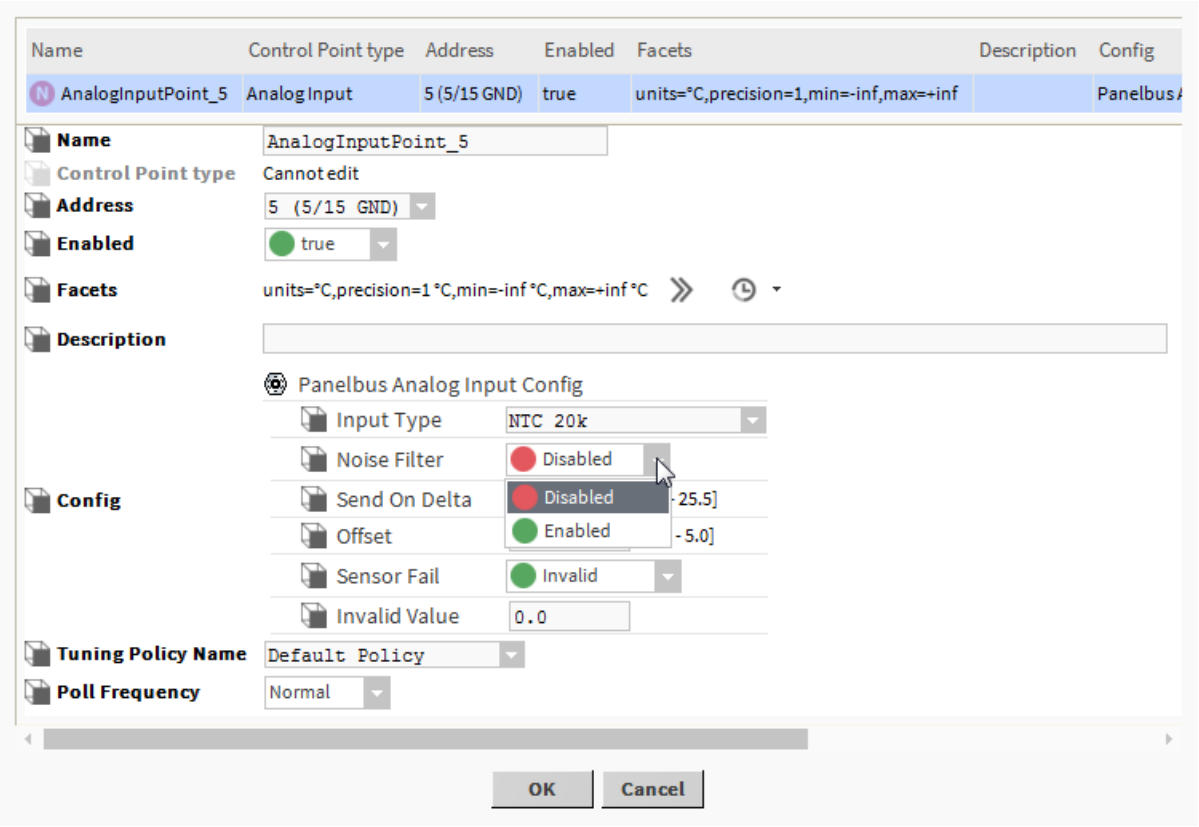
For detailed descriptions of the properties, please refer to the panelbus modules product data, form no. EN0B0701-GE51.

AI and AO Point Configuration Parameter Descriptions

In the following, important individual configuration parameters of AI and AO points are described.

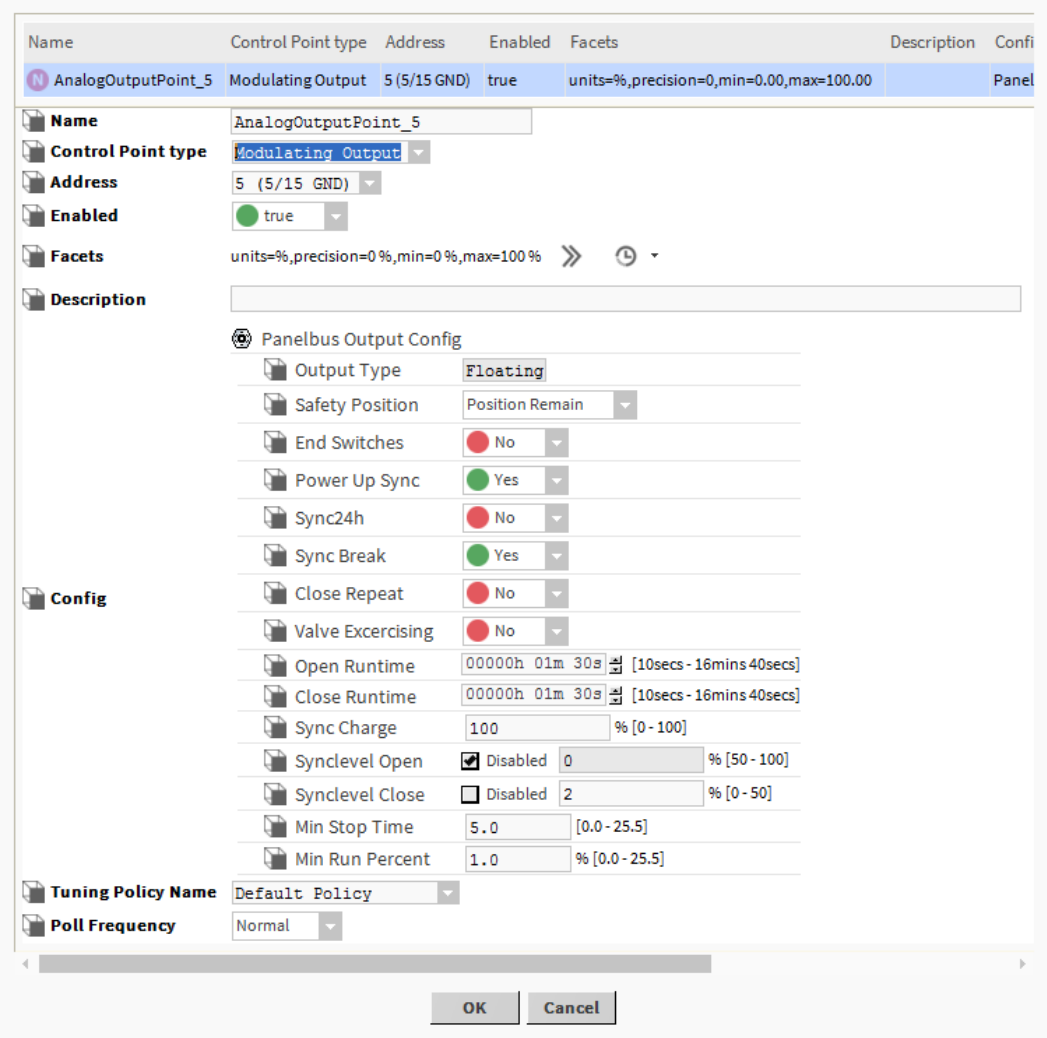
AI Point Configuration Parameters

Individual configuration parameters of the AI point are as follows:



Noise Filter — If enabled, the analog input is less noisy, that means, the LSB bit toggling of the AD-converter is suppressed.
Disadvantage: slowly changing values are reported with a delay of a few seconds. However, significant value changes are reported immediately. The noise filter is recommended for temperature sensors and must not be used for pressure control.

AO Floating Point Configuration Parameters — Individual configuration parameters of the AO floating point are as follows:



End Switches	Should only be set to “yes” if the controlled motor has end switches (and will stop at the end positions). The open or close relays will not be switched off at the end positions.
Power Up Sync	If set to “yes”, the motor is synchronized after power-up towards close position (0%).
Sync 24h	If set to “yes”, the motor is synchronized every 24h. Time is counted from startup.
Sync Break	If set to “yes”, a synclevel synchronization is broken off in case the setpoint returns to a value higher than Synclevel Close or lower than Synclevel Open. If set to “no”, the synchronization is completed first before the new setpoint is considered.
Close Repeat	If set to “yes” and the setpoint is 0% (which means close), then the motor will run again after a while for a short time. This is used to compensate a sagging rubber seal.
Valve Exercising	If set to “yes”, the motor is moved once a week to approx. 50% and back to Close position. This is useful if a valve is not used during whole summer period.
Sync Charge	A percentage level related to the Open/Close runtime which takes place at a synchronization. If e.g. the Close runtime is 100 sec and the Synch Charge is 50%, then the motor will run additional 50 sec after reaching the closed position.
Synclevel Open	If not disabled, the motor will synchronized towards Open position in case the setpoint is >= the Synclevel Open. After synchronization, the motor remains at 100%.
Synclevel Close	If not disabled, the motor will synchronized towards Close position in case the setpoint is <= the Synclevel Close. After synchronization, the motor remains at 0%.
Min Stop Time	If the motor runs towards open or close position and a new setpoint forces a change of the running direction, then the motor will first stop for the Min Stop Time before moving in the opposite direction.

Min Run Time — If the setpoint changes only small amounts, then the motor will at least run with the Min Run Time, even setpoint will be overrun by this.

Further Procedures

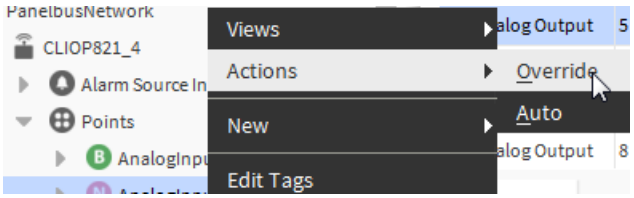
Setting Datapoint into Manual Mode (Manual Override)

Purpose Sets the datapoint into Manual operating mode and overwrites the present value with a defined value entered manually.

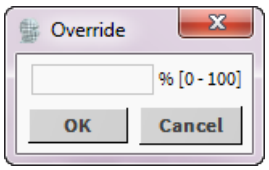
This function is specific for Panelbus input points. Niagara input points cannot be overridden. This feature allows, for example, overriding an input point in case of sensor failure. The function does not write to any priority array.

Procedure

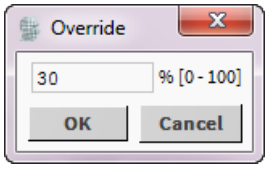
1. In the *Database* pane, right-click the datapoint, click **Actions** and then click **Override** in the context menu.



RESULT: The *Override* dialog box displays.

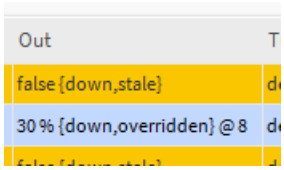


2. Enter the value.



3. Click **OK**.

RESULT: On the *Database* pane, the changed value is updated in the **Out** column:

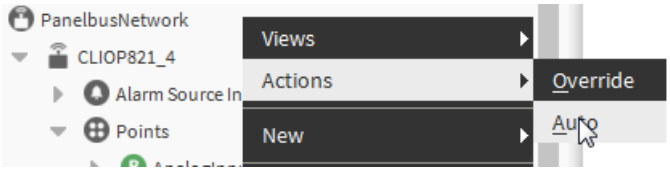


Setting Datapoint from Override Mode into Auto Mode

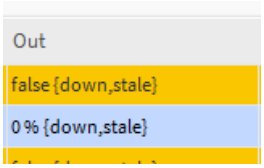
Purpose Sets a datapoint that is in override (manual) mode into Automatic mode.

Procedure

1. In the *Database* pane, right-click the datapoint, click **Actions** and then click **Auto** in the context menu.



RESULT: On the *Database* pane, the changed value is updated in the **Out** column:



CONFIGURATION AND USE OF ENHANCED DATAPOINT CREATION MODULE

The following sections describe the configuration and use of the enhanced data point creation module. It can be used in offline and online mode.

It is recommended to do the engineering using COACH in offline mode. This means that the station is running on the PC.

Then in online mode, the station should be copied to the EAGLEHAWK controller using the Commissioning Wizard. When following this procedure, the necessary files are copied automatically to the EAGLEHAWK controller

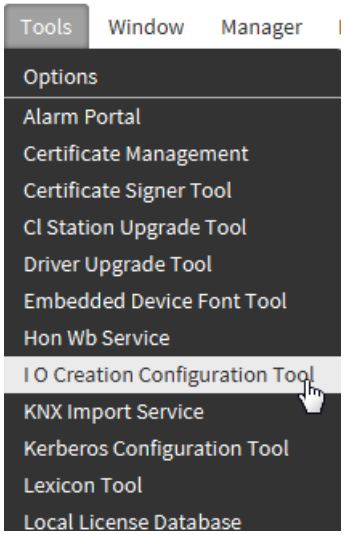
The enhanced data point creation module provides the following functions:

- I/O creation configuration
- Datapoint creation via context menu in the *Nav* tree
- Datapoint creation via Drag&Drop of datapoints from palette or *Nav* tree
- Copy Datapoints

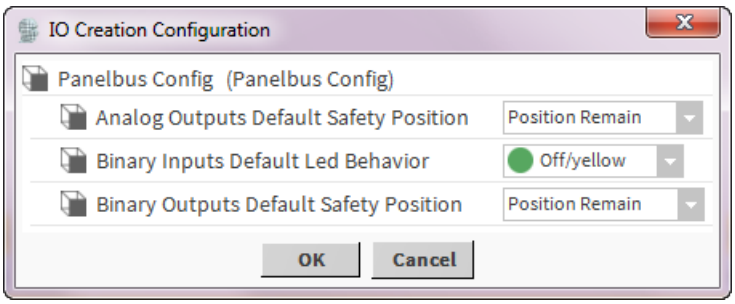
I/O Creation Configuration

Procedure

1. In the menu, click *Tools* and then click *I/O Creation Configuration Tool*.



RESULT: The *I/O Creation Configuration* dialog box displays.



2. Specify the default settings for analog outputs and binary inputs and outputs by selecting desired options from the drop-down lists, and then click **OK**.

Create Datapoint via Context Menu

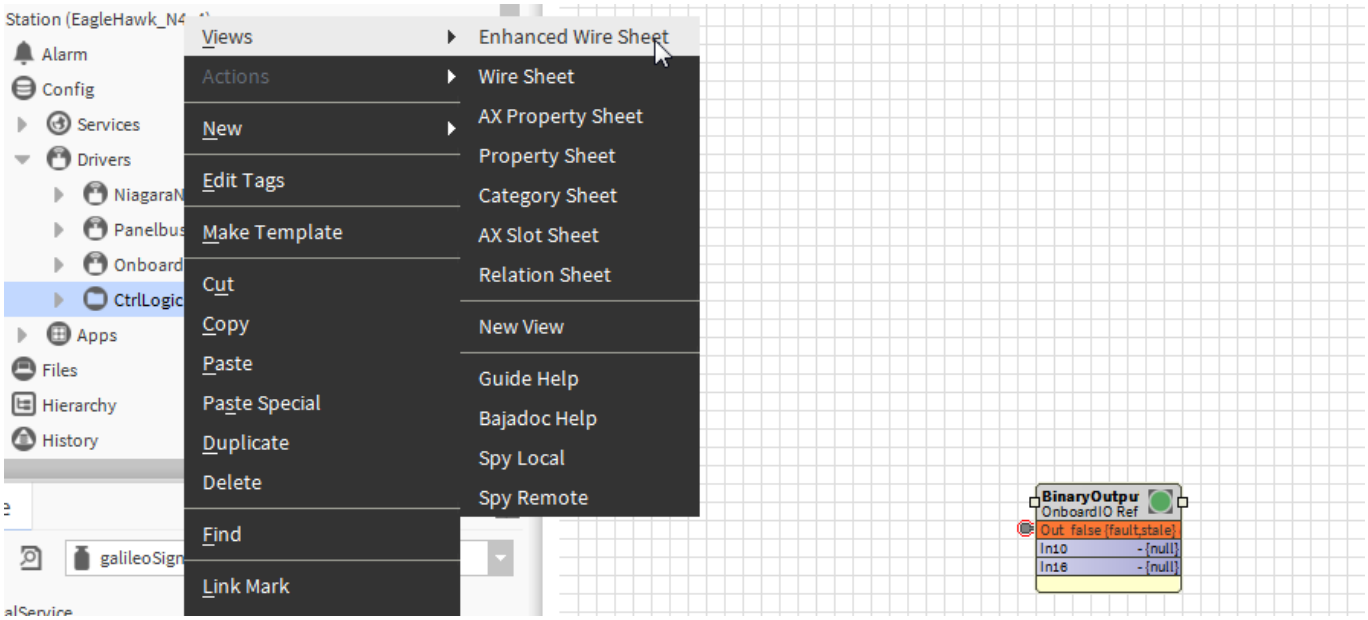
Datapoints can be created in:

- individual folders
- the points folder
- points objects

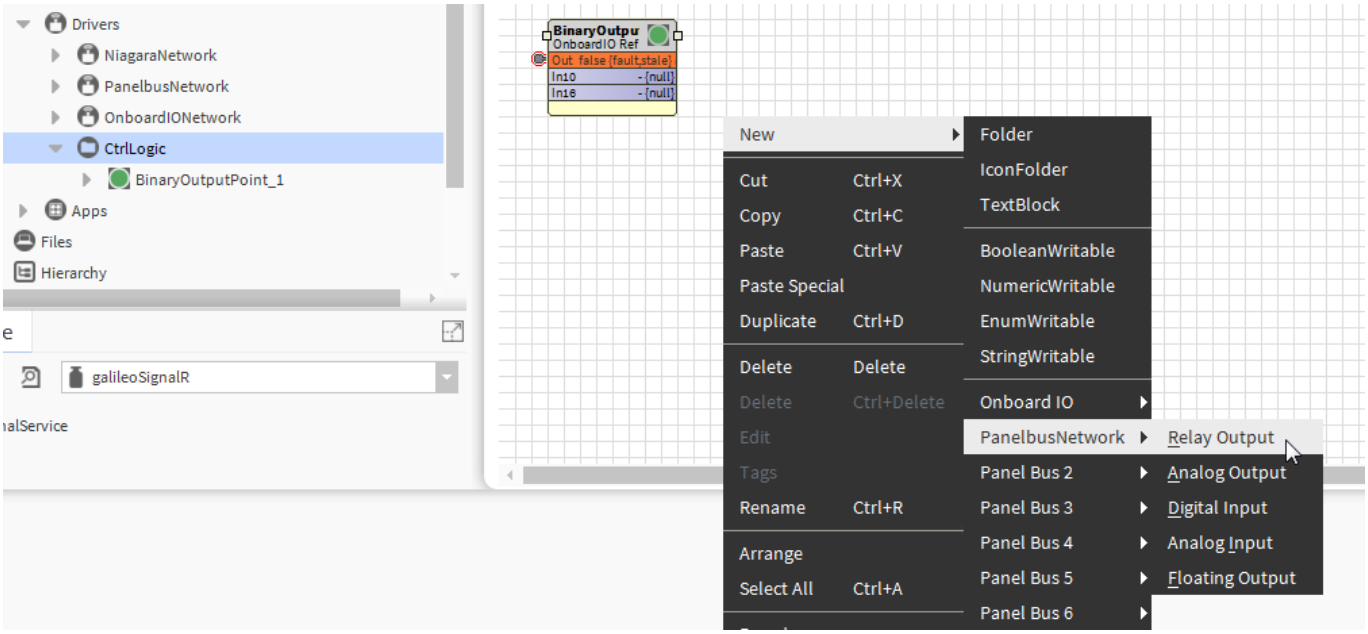
Procedure

1. Create an individual folder, e.g. for your control logic.
2. Right-click on the individual folder, e.g. **CtrlLogic**, and then click in the **Views** menu.

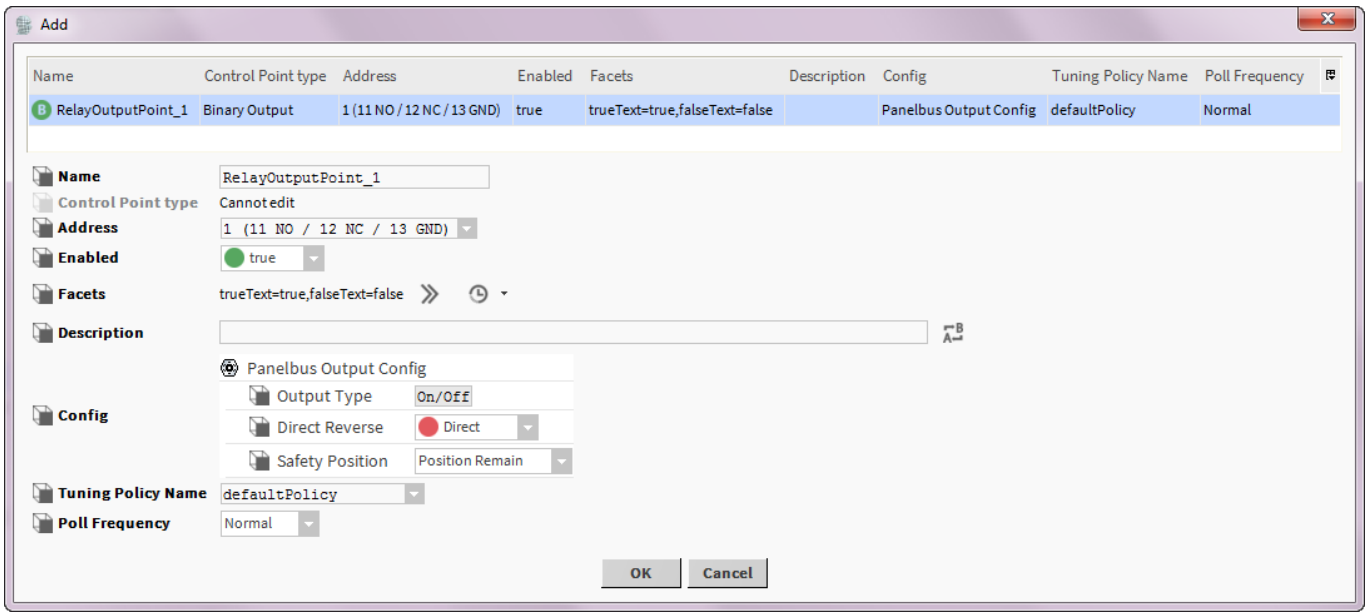
   Or, click on the points folder or points object.



3. Right-click in the *Enhanced Wire Sheet* view, then click the network driver (Onboard I/O, Panel Bus 1, or Panel Bus 2), and then click the datapoint type (Binary output, Analog output, Binary Input, or Universal Input for Onboard I/O driver, or Relay output, Digital Input, Analog Input or Floating Output for Panel bus driver).



RESULT: The *Add* dialog box of the Panelbus or Onboard I/O driver displays.



4. If desired, modify the point properties before the point will be created, and then click **OK**.

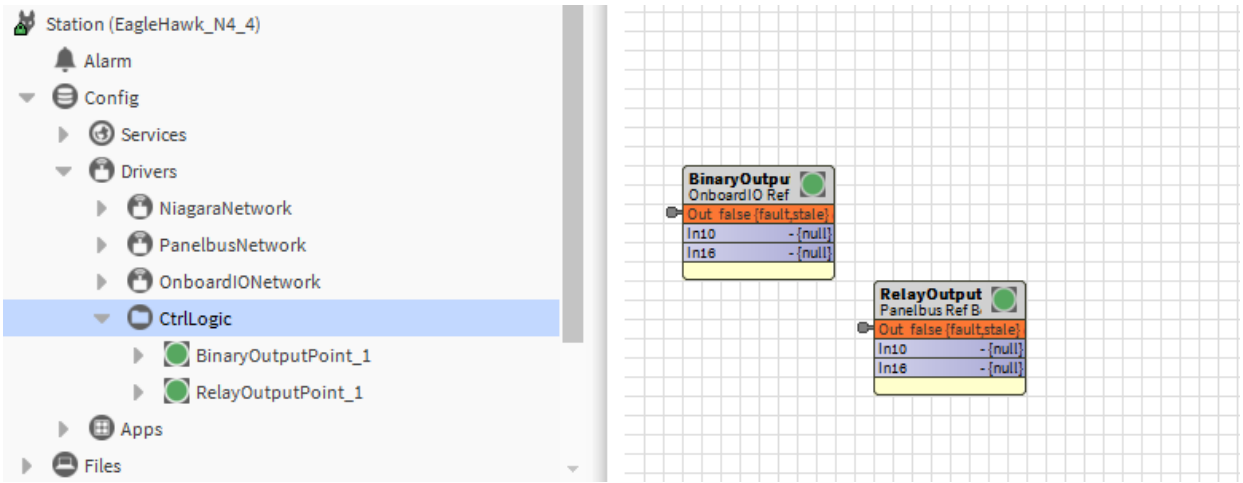
   RESULT: By default, the created datapoint will be assigned to the next bus specific device (Onboard I /O or Panel bus) with a free suitable terminal according to the datapoint type. If there is no appropriate device available, a new device will be created.

   NOTE: If the datapoint to be created should be explicitly assigned to a CLIO 830/831 mixed I/O module, this module must be drag&dropped from the palette to the network in the *Nav* tree.

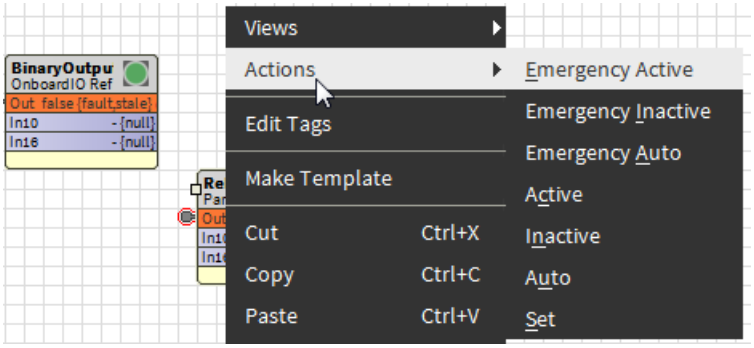
   If in the *Nav* tree, a points folder or a points object was selected, the created datapoint is called a native datapoint.

   If in the *Nav* tree, an object is selected other than a points folder or a points object, in addition to the creation of the native datapoint, a reference datapoint will be created. A reference datapoint is indicated by ´Ref` in the point icon.

The figure below shows two reference datapoints, one is linked to a binary output datapoint on an OnboardIO device, the other is linked to a relay output datapoint on a Panel Bus device.

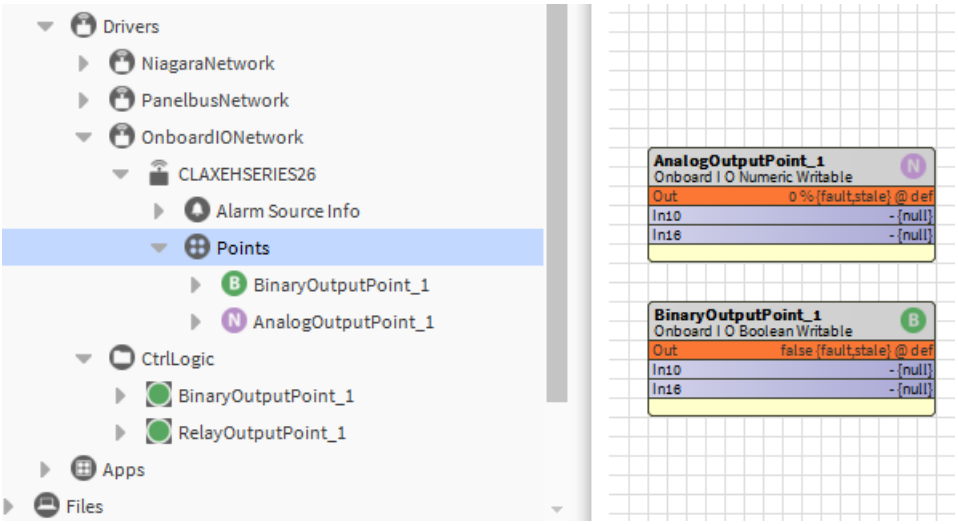


As native datapoints, reference datapoints provide the same actions via right-clickable context menu.



Reference datapoints and native datapoints can be deleted. When deleting a reference point on the enhance wire sheet, you will be asked if you want to delete the native point too.

The below figure shows datapoints created when the *Points* object was selected. In this case, no reference datapoints (as shown in the figure above) have been created.



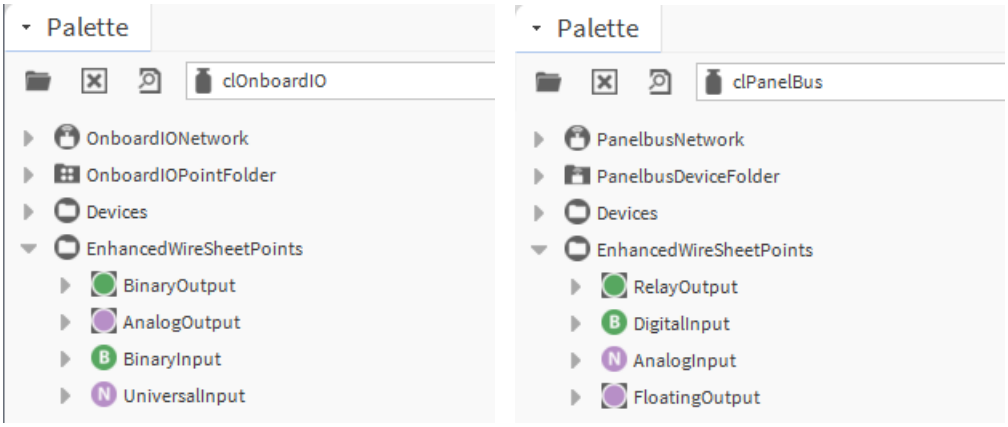
NOTE: Creating datapoints directly in controller will take much longer than creating datapoints in a station running on a PC. Best practice is to do the datapoint engineering offline (running the station on a PC) before copying station to the controller.

Drag&Drop Datapoint from Palette or Nav Tree

Datapoints can be created in:

- individual folders
- the points folder
- points objects

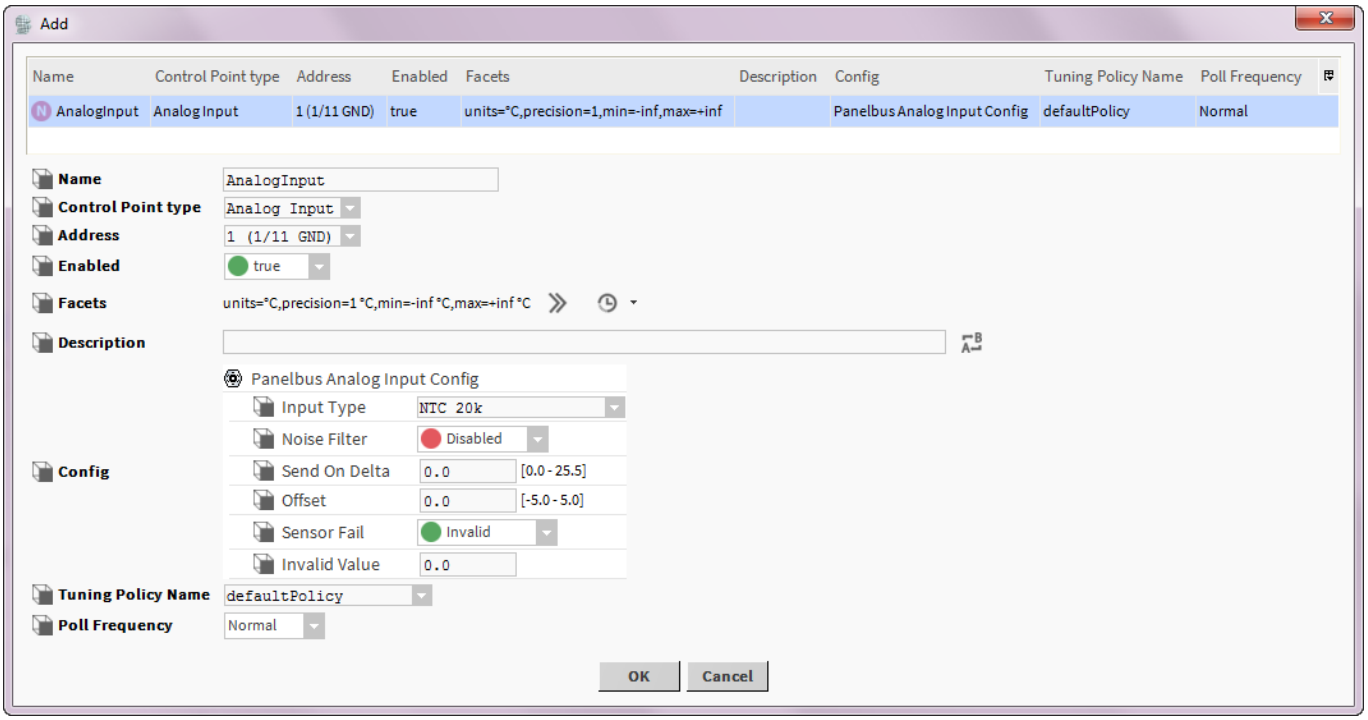
On the palettes of each supported driver, you will find the *EnhancedWireSheetPoints* folder including the datapoint types.



Procedure

1. Drag&Drop the desired point type onto the *Enhanced Wire Shee*t.

RESULT: The *Add* dialog box of the Onboard I/O or Panelbus Driver displays.

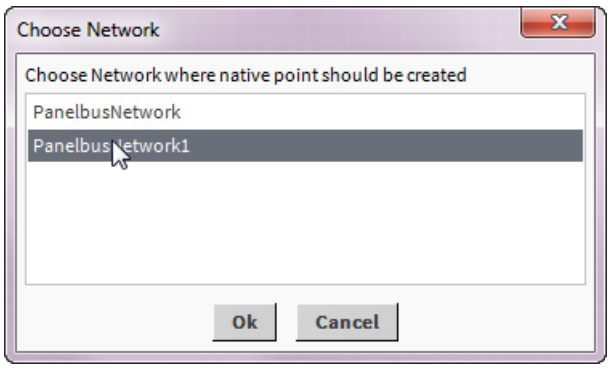


2. If desired, modify the datapoint properties before the datapoint will be created, and then click **OK**.

RESULT: By default, the created datapoint will be assigned to the next bus specific device (Onboard I /O or Panel bus) with a free suitable terminal according to the datapoint type. If there is no appropriate device available, a new device will be created.

NOTE: If the datapoint to be created should be explicitly assigned to a CLIO 830/831 mixed I/O module, this module must be drag&dropped from the palette to the network in the *Nav* tree.

For a Panelbus datapoint, the panel bus network can be selected if two Panelbus networks exist.



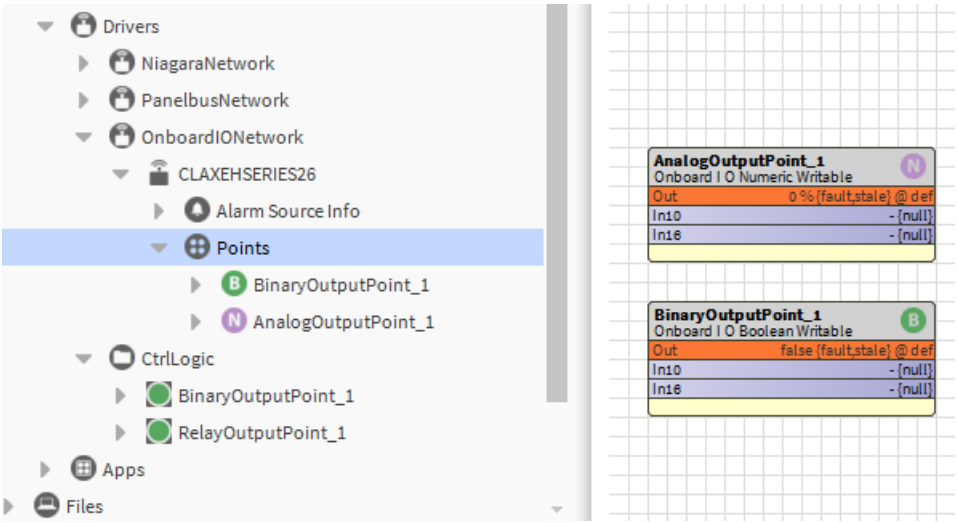
3. If desired, modify the datapoint properties before the datapoint will be created, and then click **OK**.

The figure below shows two reference datapoints, one is linked to a binary output datapoint on an OnboardIO device, the other is linked to a relay output datapoint on a Panel Bus device.

As native datapoints, reference datapoints provide the same actions via right-clickable context menu.

Reference datapoints and native datapoints can be deleted. When deleting a reference point on the enhance wire sheet, you will be asked if you want to delete the native point too.

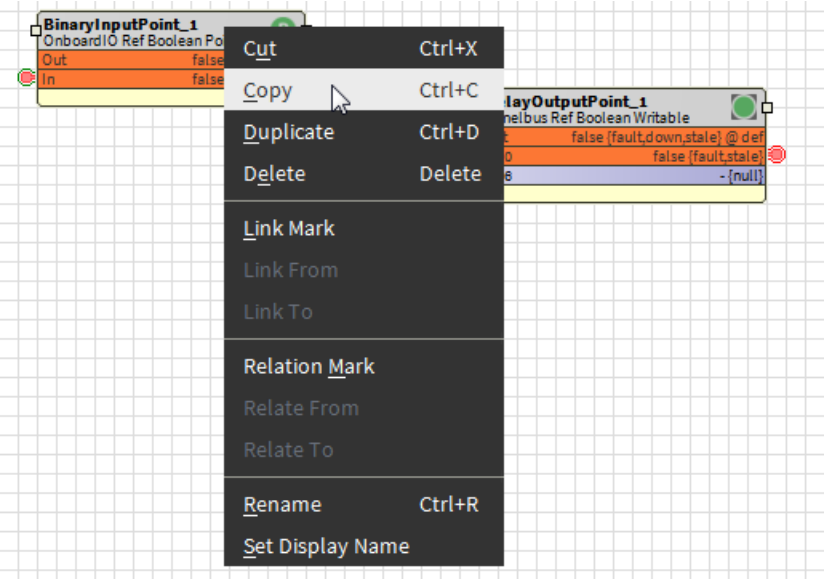
The below figure shows datapoints created when the *Points* object was selected. In this case, no reference datapoints have been created.



Copy Datapoints

The Enhanced Wire Sheet provides all the features of the standard Wire Sheet as well.
E.g. you can copy native datapoints and reference datapoints by using Copy and Paste/Paste Special. Using Paste Special it is possible to create multiple copies. When copying a reference datapoint, the linked native datapoint will be copied too.

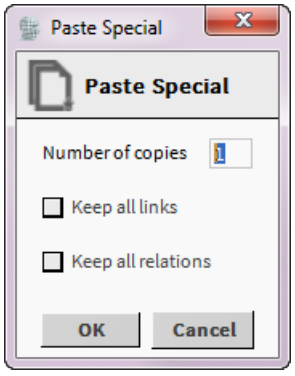
1. In the Enhanced Wire Sheet, select the datapoints you want to copy.



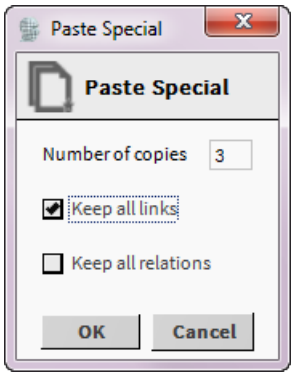
2. Right-click in the Enhanced Wire Sheet, and then select **Copy** in the context menu.

3. Right-click in the Enhanced Wire Sheet, and then select **Paste Special** in the context menu.

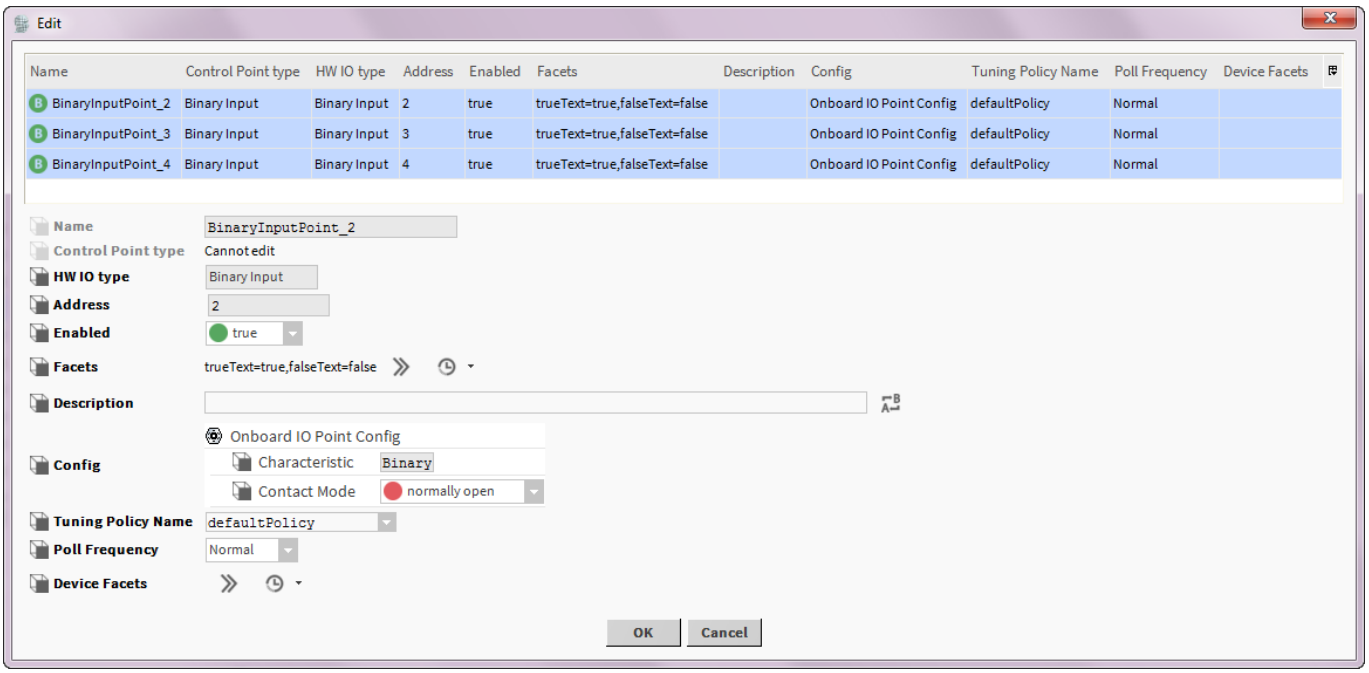
   RESULT: The *Paste Special* dialog box displays.



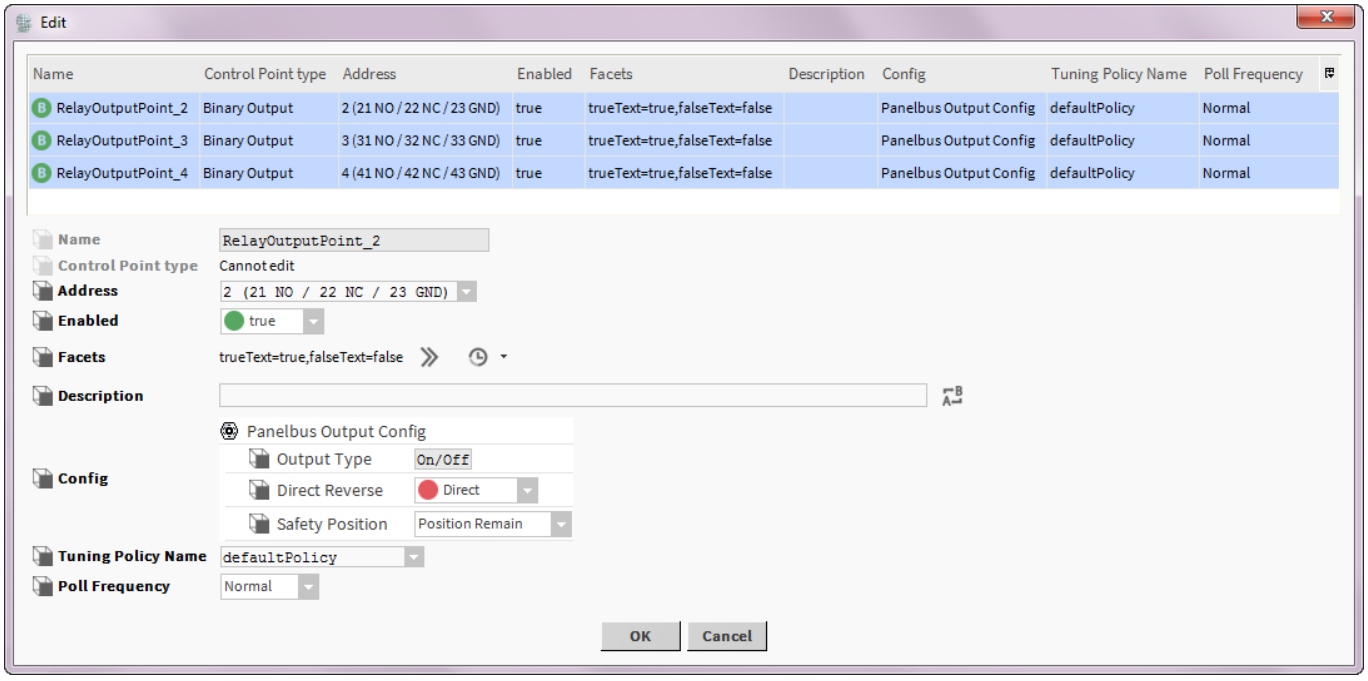
4. In the *Paste Special* dialog box, enter the number of copies. Check if the links and/or relations should be kept. Uncheck these options if they should not be kept. Then click **OK**.



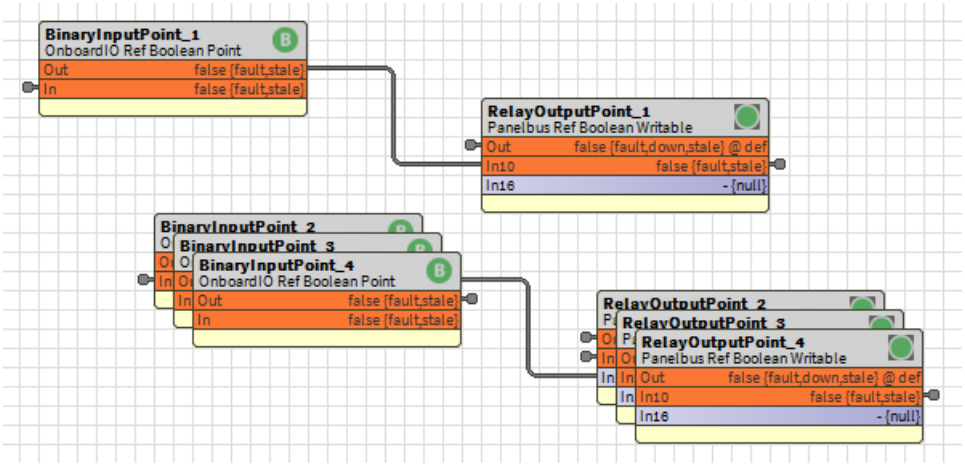
   RESULT: The *Edit* dialog box displays.



5. Modify the datapoint properties if desired, and then click **OK**.

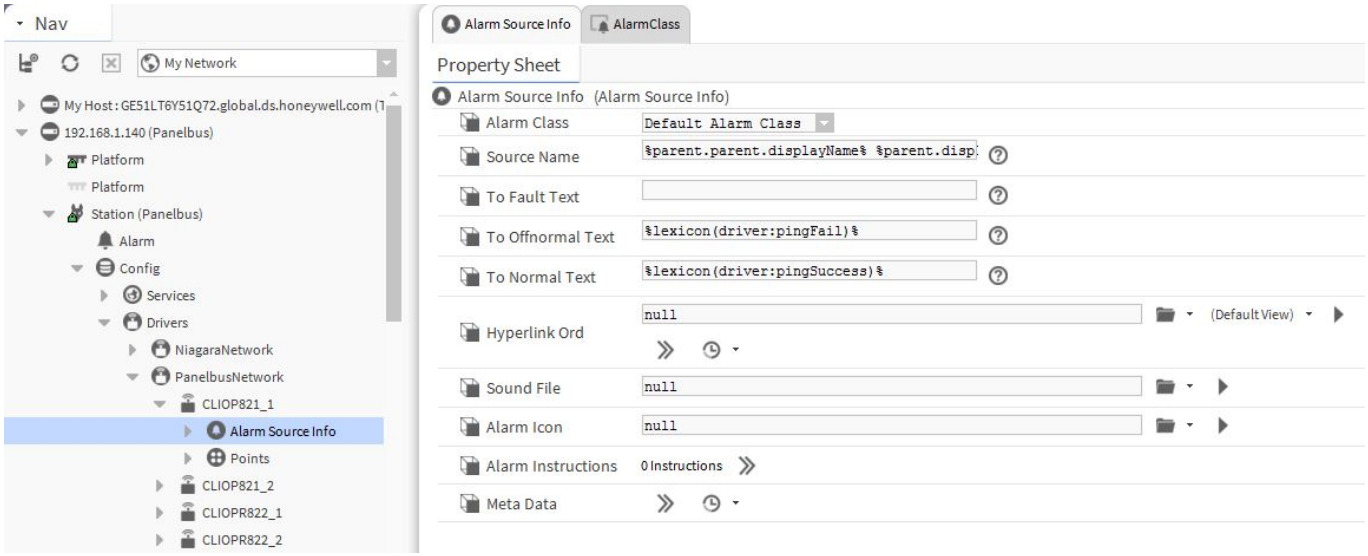


RESULT: The selected datapoints will be copied.


BinaryInputPoint_1
OnboardIO Ref Boolean Point
Out false {fault,stale}
In false {fault,stale}
RelayOutputPoint_1
Panelbus Ref Boolean Writable
Out false {fault,down,stale} @ def
In10 false {fault,stale}
In16 - {null}
BinaryInputPoint_2
BinaryInputPoint_3
BinaryInputPoint_4
OnboardIO Ref Boolean Point
Out false {fault,stale}
In false {fault,stale}
RelayOutputPoint_2
RelayOutputPoint_3
RelayOutputPoint_4
Panelbus Ref Boolean Writable
Out false {fault,down,stale} @ def
In10 false {fault,stale}
In16 - {null}

ALARM HANDLING

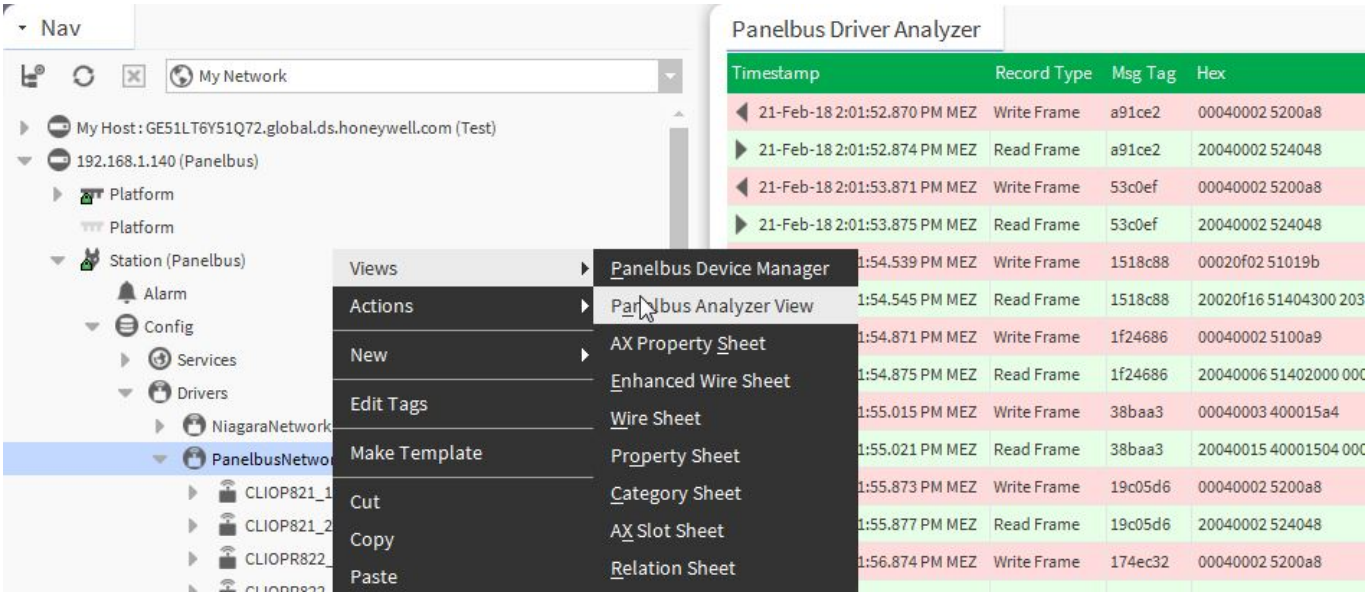
The EAGLEHAWK Panel Bus Driver features alarm handling. Specifically, the Panel Bus Driver will automatically issue a sensor alarm when the sensor value passes certain predefined limit values (which depend upon the configuration of the given input). In the case of an input configured as an NTC sensor, for example, the Panel Bus Driver will automatically issue a sensor alarm if the sensor value drops below -50 °C or rises above +150 °C. On the other hand, the sensor value displayed in the datapoint depends upon the configuration of the parameter "Communication failure," and will be either "Last Valid Value" or "Safety Value." Such alarms belong to the Default Alarm Class, and indicate that a short circuit has taken place or that a sensor is broken.



If you require off-normal alarms, you must define standard alarm extensions to the given datapoint.

PANELBUS ANALYZER VIEW

The EAGLEHAWK Panelbus Driver features a Panelbus Analyzer. Using the Panelbus Analyzer, you can observe exactly when specific datapoint telegrams are written or read.



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