

**CENTRALINE NX
C-BUS DRIVER**

User Guide



CENTRALINE NX

C-BUS DRIVER

4.4.xx

USER GUIDE

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SYSTEM REQUIREMENTS

Niagara	Niagara 4.4.xx and higher.
Products and OS Numbers	<p>The C-Bus Driver will be working with CentralLine 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:</p> <p>Product Data http://products.centraline.com/en/</p> <p>Software Release Bulletin https://www.centraline.com/partnerweb/index.php?id=847&route=article%2Findex&directory_id=47&direct_link=1</p> <p>Compatibility Matrix https://clfaq.ge51.honeywell.de/?action=artikel&cat=70&id=1616&artlang=en</p>
Licenses and Point Handling	<p>C-Bus points are included in the Global Point Capacity.</p> <p>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.</p>
Subscriptions and Bus Performance	<p>The bus performance may be reduced to an inadequate level if too many point subscriptions are executed, e.g. when applying large trending scenarios. To increase the bus performance again to an adequate level, increase the baud rate to values of 38400 or higher.</p>

INSTALLATION

	The C-Bus driver will be installed with the NX setup by default.
Procedure	<ol style="list-style-type: none"> 1. Unzip the CentralLine NX software to the desired location on your hard disk. 2. Expand the CentralLine NX installation folder. 3. Double-click the <i>setup.exe</i> file for a Win 32-Bit operation system or the <i>setup_x64.exe</i> file for a Win 64-Bit operating system. RESULT: The CentralLine NX <i>Installation Wizard</i> starts. 4. Click Next > and follow the installation instructions. RESULT: After the installation is finished, the CentralLine NX software has been installed according to your selected settings during the setup. 5. Copy the clCbus.jar file to the C:\CentralLine\CentralLineNX-x.x.xx.xx\modules folder.

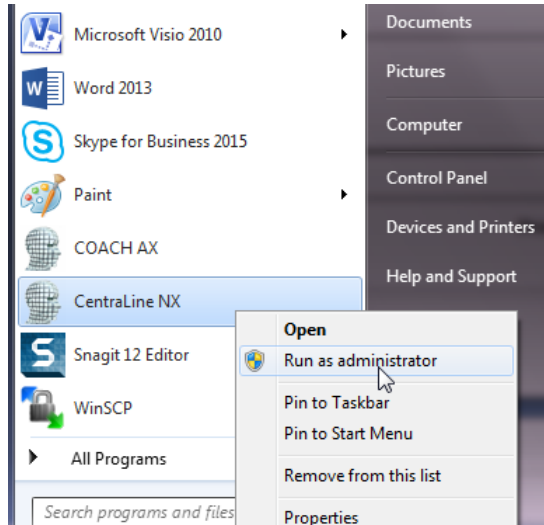
CLIF Configurator Tool Download

For configuration purposes of the CLIF C-Bus (BNA) device, you can download the tool at:

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

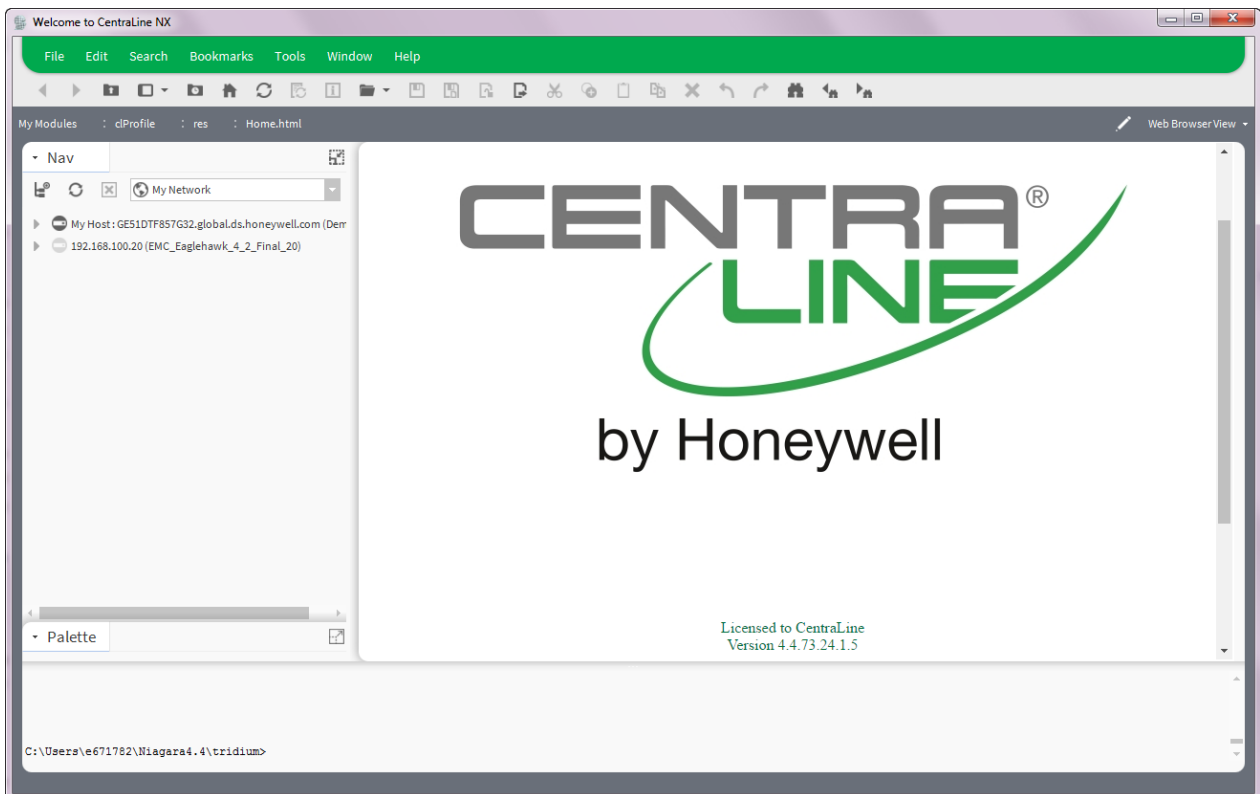
START CENTRALINE NX

- Procedure**
1. In the Windows *Start* menu, right-click on **COACH NX**, and then click **Run as administrator** in the context menu.



2. Click **Yes** in the *User Account Control* dialog box.

RESULT: The CentraLine NX main window displays.



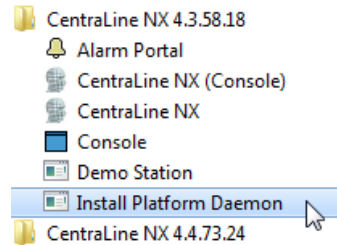
Alternate Usage of Different CentraLine NX Versions on Same PC

If you have different CentraLine NX versions installed on your PC and you want to use them alternately, each time before you start the CentraLine 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.

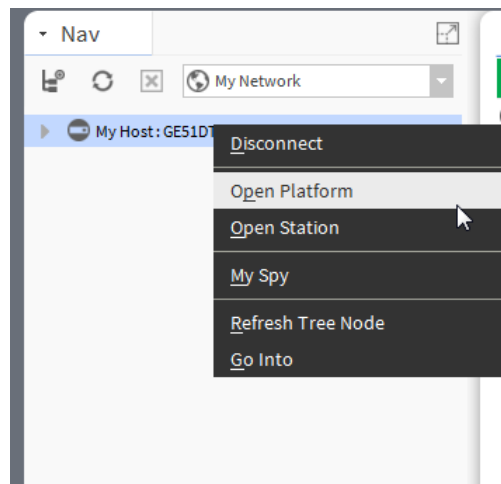
NOTE: For ARENA NX / COACH NX 4.4.xx which will be installed via setup, the dedicated platform daemon is automatically installed and the corresponding services are running, as long as you do not start another ARENA NX / COACH NX version.

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 *CentralLine* COACH NX 4.3.58 program group.

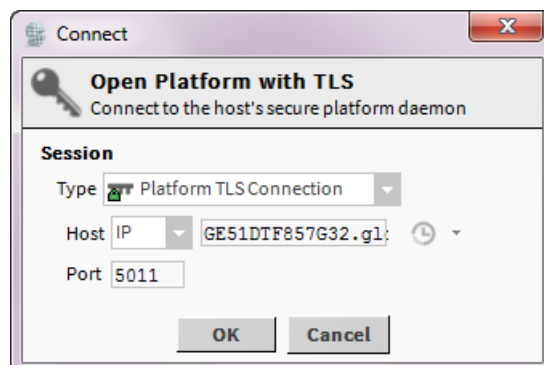


OPEN PLATFORM

- Procedure**
1. In the *Nav* side bar, right-click on **My Host** and then click **Open Platform** in the context menu.

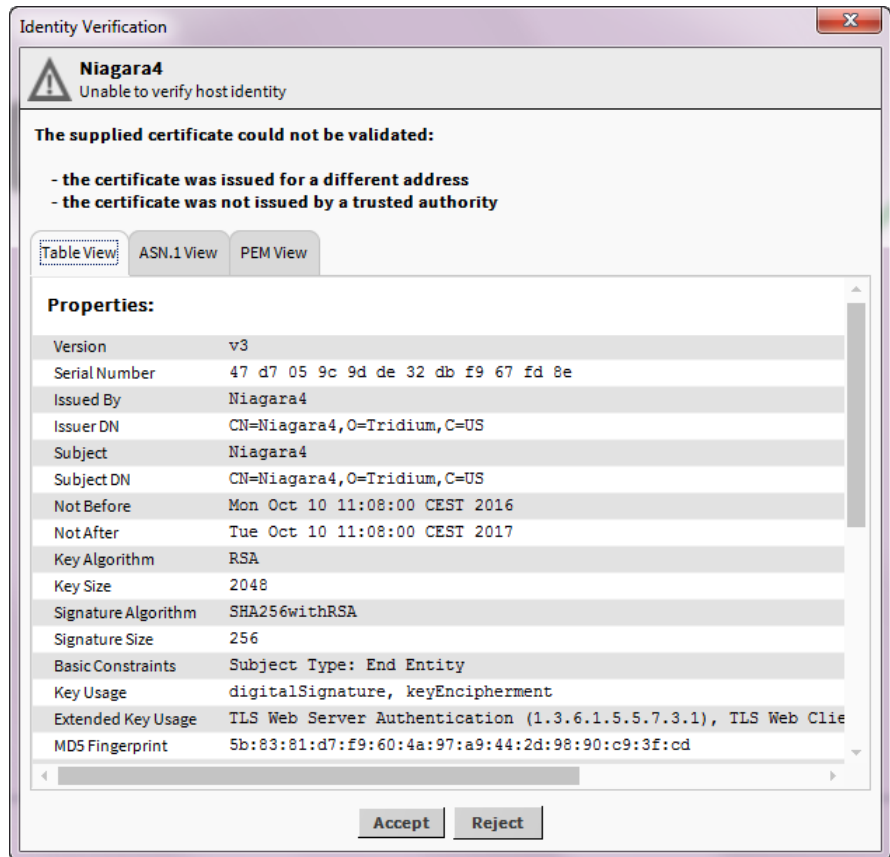


RESULT: The *Connect* dialog box displays.

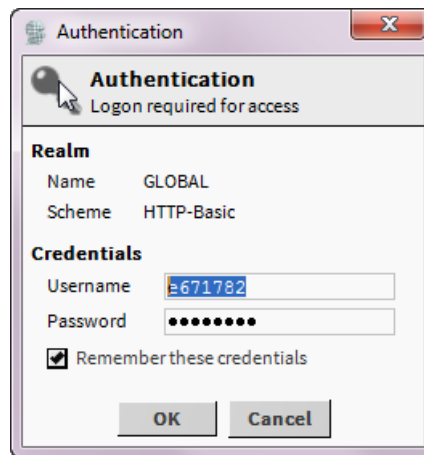


2. In **Type**, select the secure **Platform SSL Connection**, and then click **OK**.

RESULT: If the following message box is displayed, confirm by clicking **Accept**.



RESULT: If the *Authentication* dialog box is displayed.



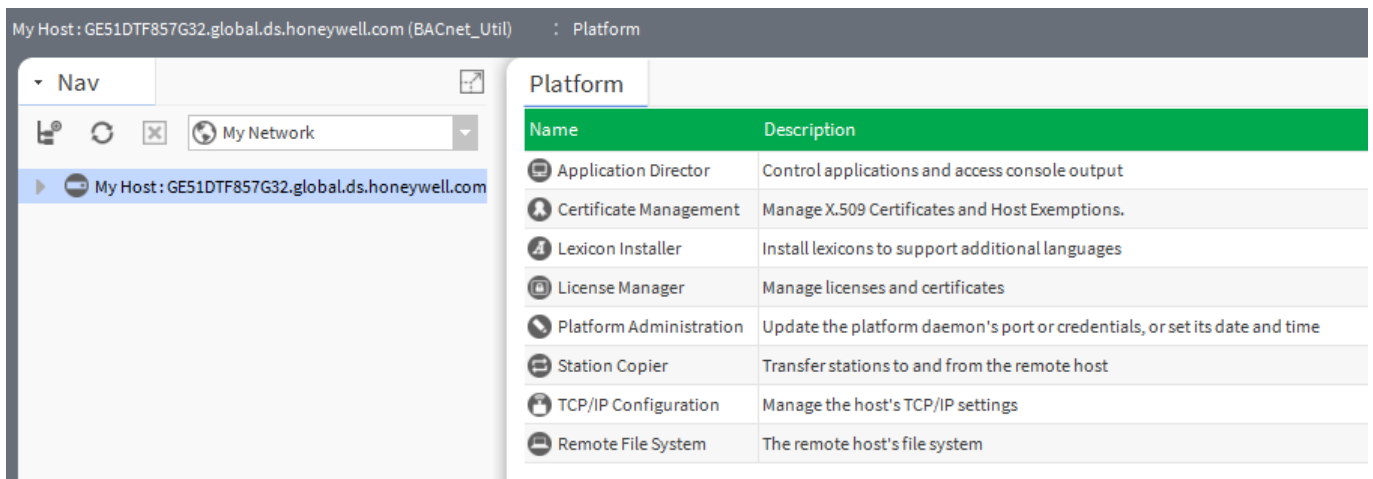
3. In **Username**, enter your Windows account name.
4. In **Password**, enter your Windows account password.

IMPORTANT

To connect successfully, you must have admin rights as Windows user.

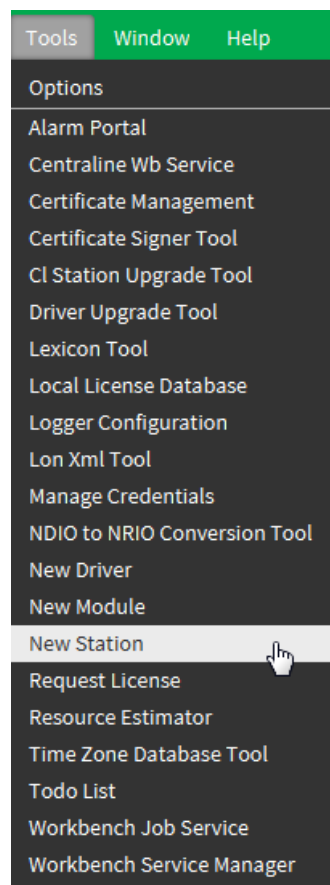
5. Click **OK**.

RESULT: You will be connected to the platform and the utilities of the platform are displayed on the *Platform* pane on the right.



CREATE STATION

- Procedure** 1. From the **Tools** menu, select **New Station**.



RESULT: The *New Station Wizard* displays.

New Station Wizard

Station Name

Station Directory

Station Templates

Name	Vendor	Version	Description
NewControllerStation.ntpl	Tridium	1.0	
NewSupervisorStationLinux.ntpl	Tridium	1.1	
NewSupervisorStationWindows.ntpl	Tridium	1.1	

- In **Station Name**, enter a name.

New Station Wizard

Station Name

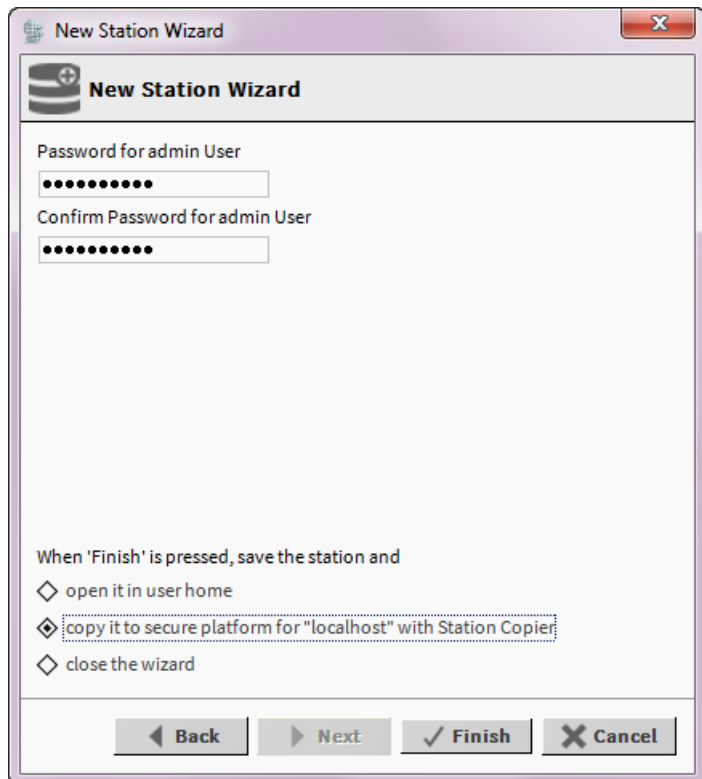
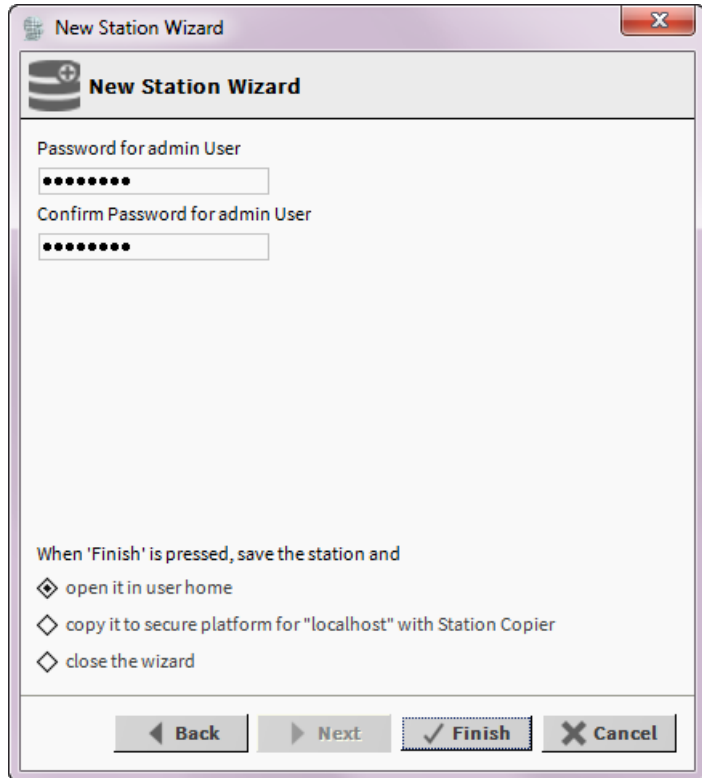
Station Directory

Station Templates

Name	Vendor	Version	Description
NewControllerStation.ntpl	Tridium	1.0	
NewSupervisorStationLinux.ntpl	Tridium	1.1	
NewSupervisorStationWindows.ntpl	Tridium	1.1	

- Click **Next** button.
- In **Password for admin User** and in **Confirm Password for admin User**, enter the administrator password.
- Under **When `Finish` is pressed, save the station and**, check any of the following options:
 - open it in user home
creates the station in the *user home* folder

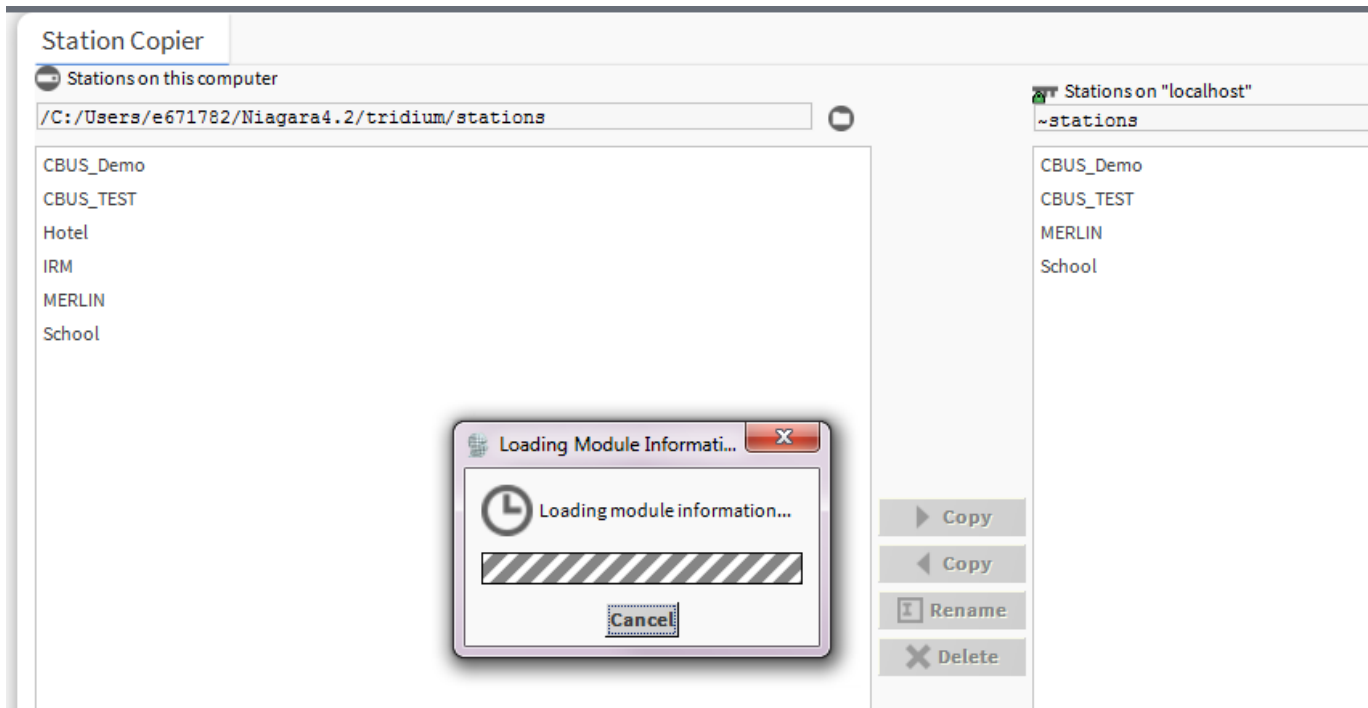
- copy it to secure platform for "localhost" with Station Copier
copies the station using the station copier function to the *localhost* folder (recommended)
- close the wizard
creates the station and closes the station wizard.



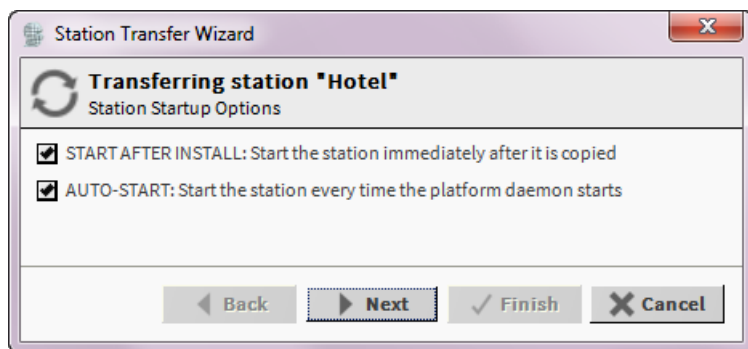
The following screens show the creation of the station by using the recommended option **copy it to secure platform for "localhost" with Station Copier**.

6. Click **Finish** button.

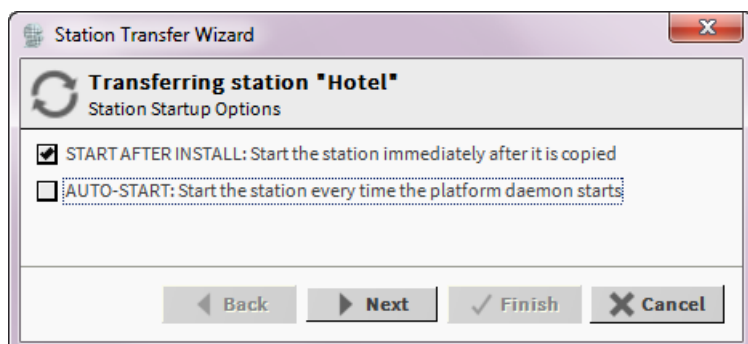
RESULT: The *Loading Module Information* message box displays.

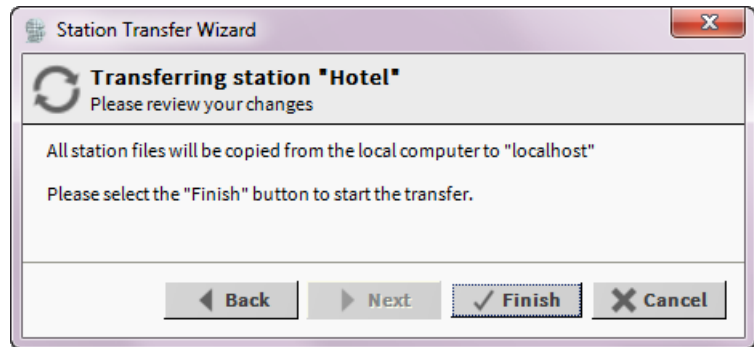


RESULT: Then the *Transferring station ...* dialog box displays.



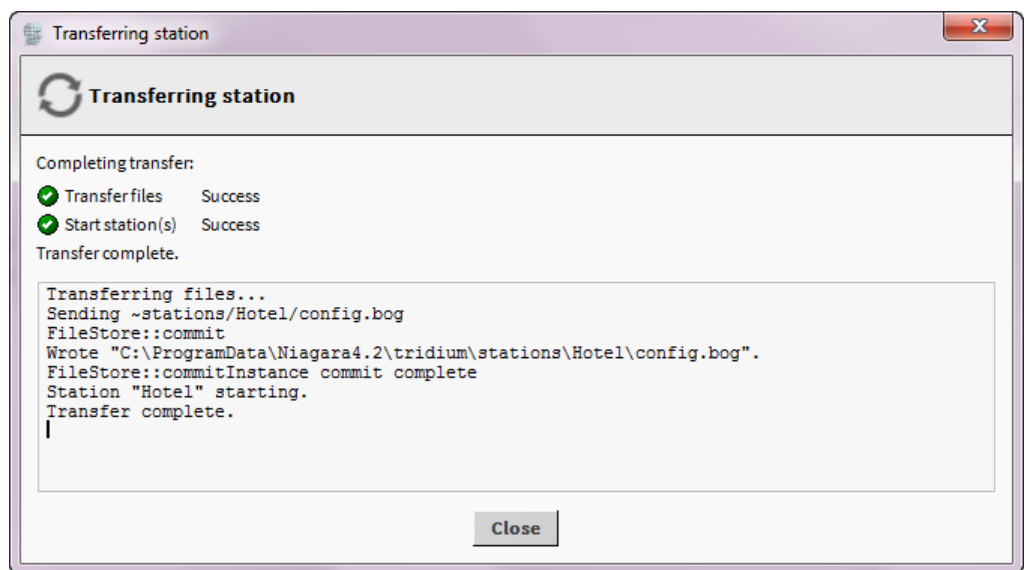
7. Check whether you want to start the station after copy immediately and once, or whether you want to start the station immediately after copy and automatically every time after platform daemon start.





8. Click **Finish** button.

RESULT: In this example, when the station copier function was used, the copy (transfer) process is successfully completed indicated by the corresponding messages.



9. Click **Close** button.

RESULT: The station will be started.

START AND CONNECT TO STATION

Procedure 1. On the *Platform* pane on the right, double-click on the **Application Director** utility.

RESULT: Under *Connected to local host*, all stations are displayed.

Application Director						
Connected to localhost						
Name	Type	Status	Details	Auto-Start	Restart on Failure	
BACnet_Util	station	Idle	fox=n/a,foxs=4911,http=n/a,https=443	false	true	
BACnet_Uilities	station	Idle	fox=n/a,foxs=n/a,http=n/a,https=n/a	false	true	
CBUS_Demo	station	Idle	fox=n/a,foxs=n/a,http=n/a,https=n/a	false	true	

2. In the list, select the station, and then click **Start** button on the right.

CBUS_Demo	station	Idle	fox=n/a,foxs=n/a,http=n/a,https=n/a	false	true
-----------	---------	------	-------------------------------------	-------	------

Auto-Start
 Restart on Failure
Start

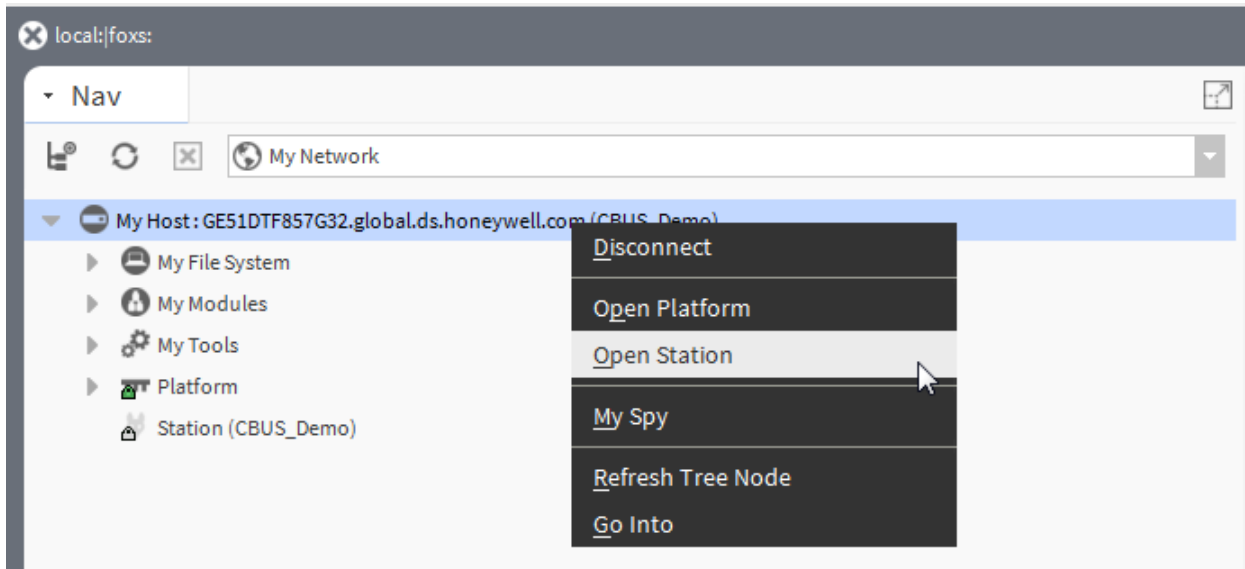
RESULT: The station is started as indicated by the status 'Running' in the **Status** column.

Application Director

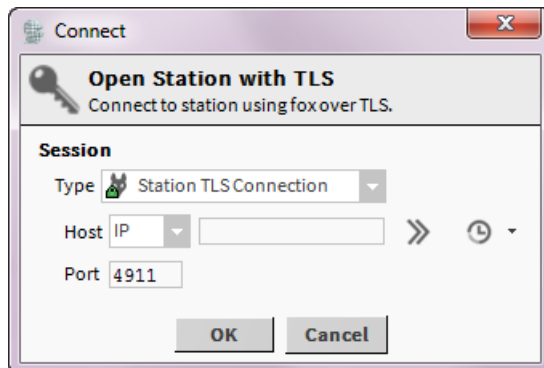
Connected to localhost

Name	Type	Status	Details	Auto-Start	Restart on Failure
BACnet_Util	station	Idle	fox=n/a,foxs=4911,http=n/a,https=443	false	true
BACnet_Utilities	station	Idle	fox=n/a,foxs=n/a,http=n/a,https=n/a	false	true
CBUS_Demo	station	Running	fox=n/a,foxs=4911,http=n/a,https=443	false	true

3. In the Nav side bar, right-click on the *My Host* folder, and then click **Open Station** in the context menu.

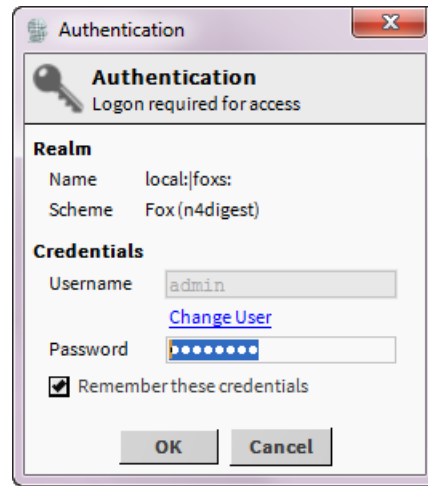


RESULT: The *Connect* dialog box displays.



4. Click **OK**.

RESULT: The *Authentication* dialog box displays.

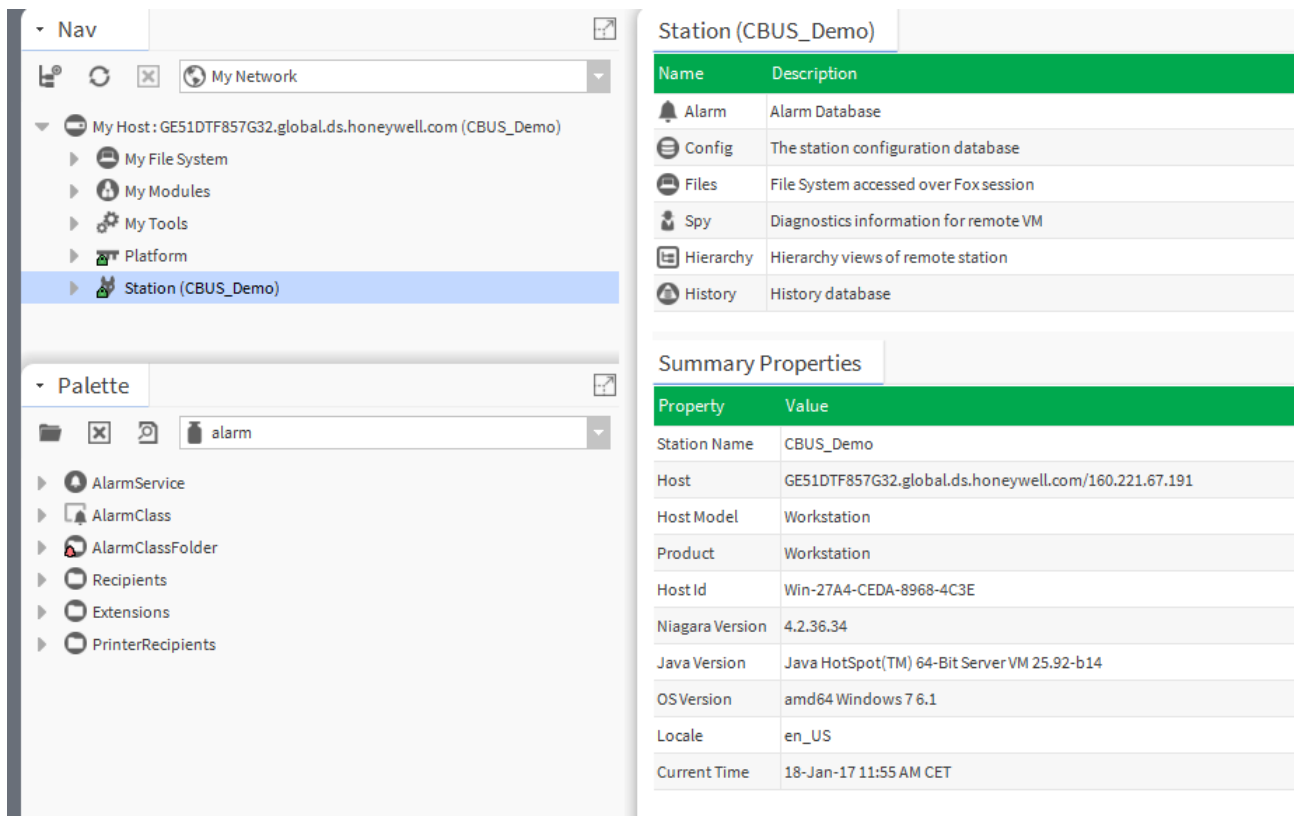


5. If not already done, enter **Username** and **Password** and check **Remember these credentials**.
6. Click **OK**.

RESULT: The station will be opened. On the *Station* pane on the right the components of the station are displayed:

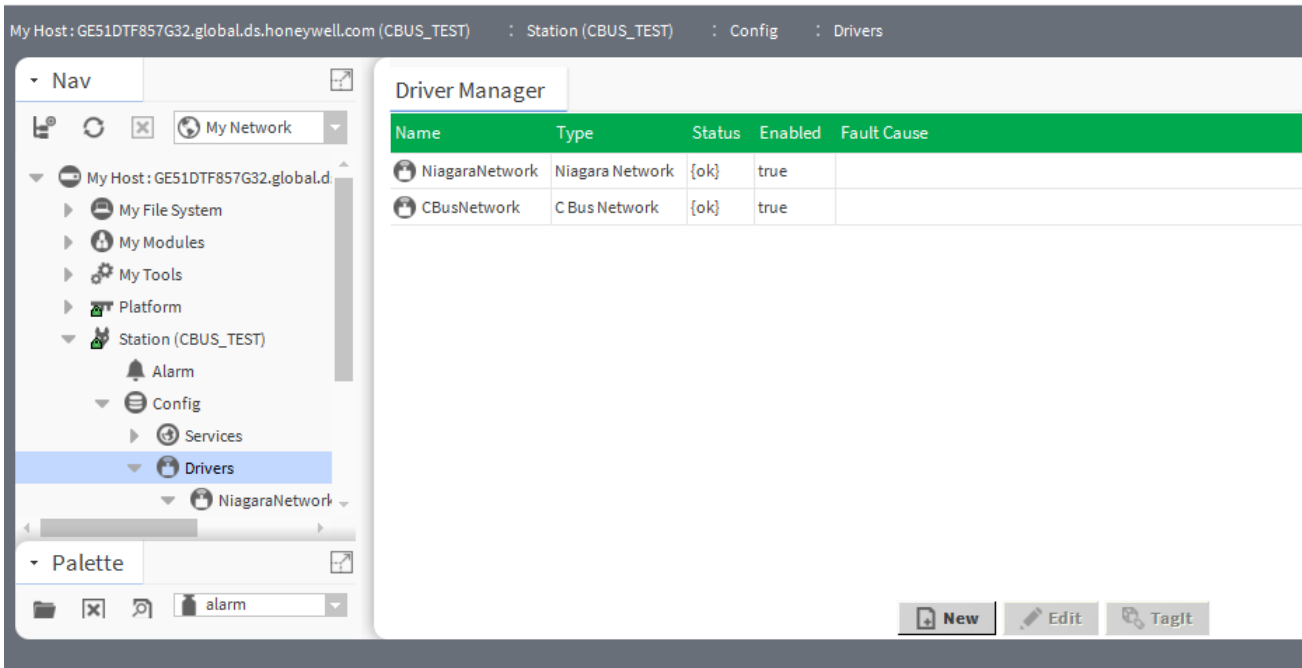
- Alarm
- Config
- Files
- Spy
- Hierarchy
- History

At the bottom, the *Summary* pane displays general properties and its settings (Station Name, Host, etc.) of the station.



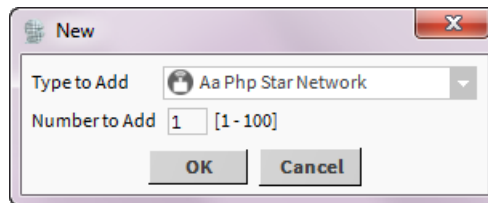
CREATE C-BUS NETWORK

- Procedure** 1. In the *Nav* side bar, expand the Station folder, and then click on **Drivers**.

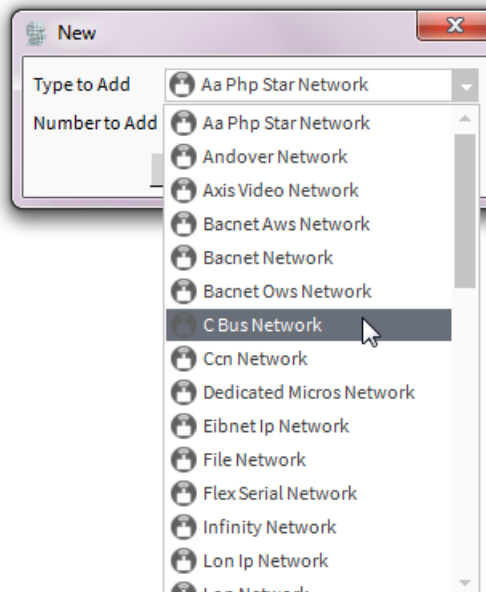


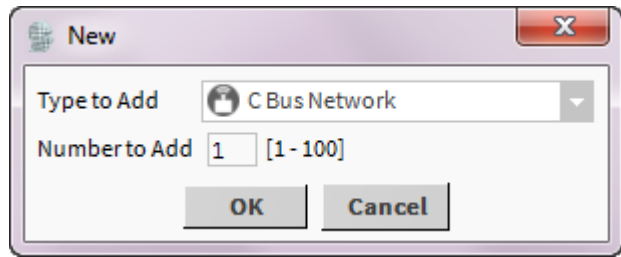
2. On the right pane, click **New**.

RESULT: The *New* dialog box displays.



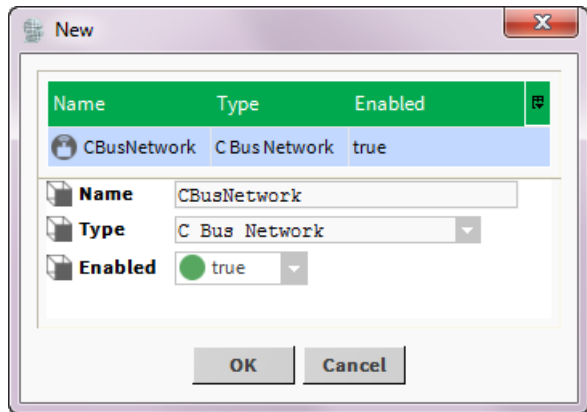
3. In **Type to Add** select C Bus Network.





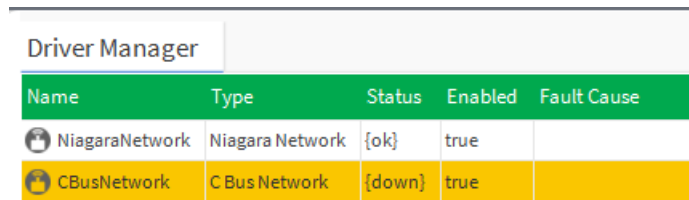
4. Click **OK**.

RESULT: The *New* dialog box is displayed.

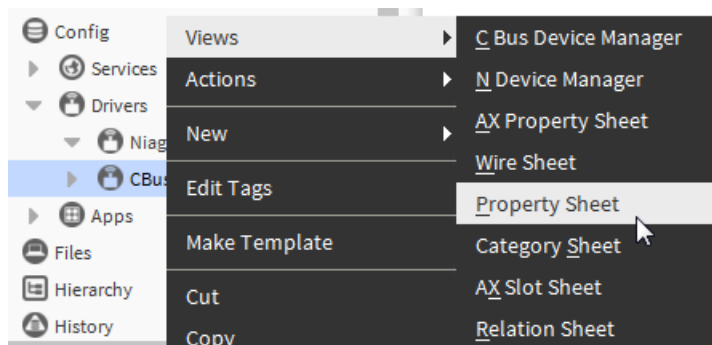


5. Click **OK**.

RESULT: The C-Bus network is created and added to the Driver Manager.

















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











RESULT: The C-Bus network properties are displayed on the right pane.

CBusNetwork

Display Name	Value
 Status	{down}
 Enabled	<input checked="" type="checkbox"/> true
 Fault Cause	
▶  Health	Fail [18-Jan-17 2:15 PM CET] Invalid BNA configuration, unable to proceed!
▶  Alarm Source Info	Alarm Source Info
▶  Monitor	Ping Monitor
▶  Tuning Policies	Tuning Policy Map
▶  Poll Scheduler	N Poll Scheduler
▶  Local TCP/IP Configuration	C Bus Tcp Comm Config
 BNA Name	
▶  BNA IP-Address	:2499
▶  C-Bus Channel 1 Configuration	C Bus Channel Config
▶  C-Bus Channel 2 Configuration	C Bus Channel Config
 Enable Auto Time Synchronization	<input checked="" type="checkbox"/> true

7. Under **BNA IP-Address**, enter the IP address for the CLIF device in the **IP Address** field.

 BNA Name	
▶  BNA IP-Address	192.168.100.10:2499
▼  C-Bus Channel 1 Configuration	C Bus Channel Config
 Enabled	<input checked="" type="checkbox"/> true
 Bna Controller Number	30
 Cbus Baud Rate	9600 ▾
▶  C-Bus Channel 2 Configuration	C Bus Channel Config
 Enable Auto Time Synchronization	<input checked="" type="checkbox"/> true

8. Click **Save** button.

RESULT: The C-Bus network properties are updated. The **Health** and the **Status** fields show 'OK' indicating that the C-Bus network is properly working.

CBusNetwork

Display Name	Value
Status	{ok}
Enabled	<input checked="" type="checkbox"/> true
Fault Cause	
Health	Ok [18-Jan-17 2:46 PM CET]

C-BUS Channel Configuration Settings

By default, only C-Bus Channel 1 is enabled, and C-Bus Channel 2 is disabled. When using a BNA with 2 channels, you must enable C-Bus Channel 2 explicitly. You can enable or disable each of the two C-Bus channels (1 and 2). For each C-Bus Channel, you can change the baud rate. When changing the baud rate, you must manually restart the BNA if the system is running.

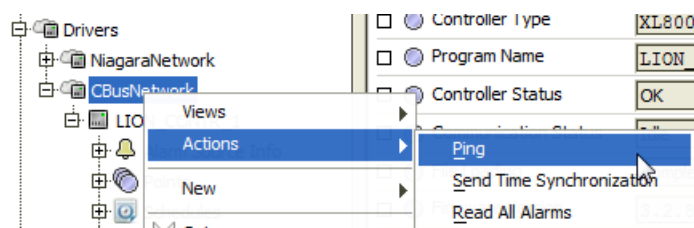
<ul style="list-style-type: none"> <ul style="list-style-type: none"> C-Bus Channel 1 Configuration 	C Bus Channel Config
<ul style="list-style-type: none"> <ul style="list-style-type: none"> <ul style="list-style-type: none"> Enabled 	<input checked="" type="checkbox"/> true
<ul style="list-style-type: none"> <ul style="list-style-type: none"> <ul style="list-style-type: none"> Bna Controller Number 	30
<ul style="list-style-type: none"> <ul style="list-style-type: none"> <ul style="list-style-type: none"> Cbus Baud Rate 	9600
<ul style="list-style-type: none"> <ul style="list-style-type: none"> C-Bus Channel 2 Configuration 	C Bus Channel Config
<ul style="list-style-type: none"> <ul style="list-style-type: none"> <ul style="list-style-type: none"> Enabled 	<input type="checkbox"/> false
<ul style="list-style-type: none"> <ul style="list-style-type: none"> <ul style="list-style-type: none"> Bna Controller Number 	30
<ul style="list-style-type: none"> <ul style="list-style-type: none"> <ul style="list-style-type: none"> Cbus Baud Rate 	9600

Ping C-Bus Network

Purpose To instantly establish communication between C-Bus Network and CentraLine NX.

Procedure

1. In the *Nav tree* on the left, right-click **CBus Network**, then click **Actions**, and then click **Ping** in the context menu.



2. Check if the communication has been established (Health is Ok) on the C-Bus Properties page.

CBusNetwork

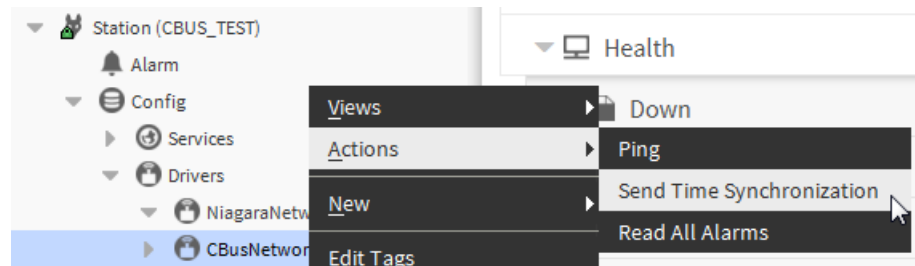
Display Name	Value
Status	{ok}
Enabled	<input checked="" type="checkbox"/> true
Fault Cause	
Health	Ok [18-Jan-17 2:46 PM CET]

Send Time Synchronization

Purpose To synchronize the time among all controllers of the C-Bus network according to the time of the master controller.

By default, an automatic time synchronization is done on daily basis at 4:00 A.M.

Procedure 1. In the *Nav tree* on the left, right-click **CBus Network**, then click **Actions**, and then click **Send Time Synchronization** in the context menu.



Disable Time Synchronization

Purpose To disable time synchronization in case multiple supervisors are working on the C-Bus in parallel.

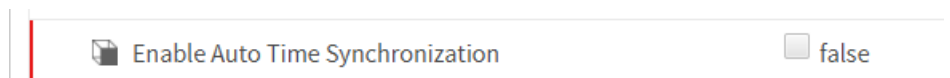
Procedure 1. In the *Nav tree* on the left, right-click **CBus Network**, then click **View**, and then click **Property Sheet** in the context menu.

RESULT: The C-Bus properties are displayed.

CBusNetwork

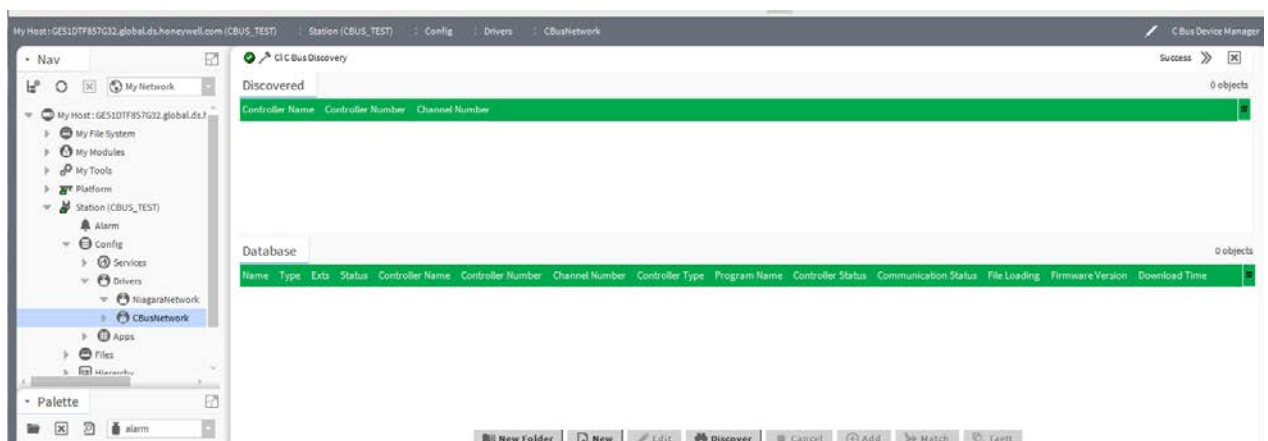
Display Name	Value
Status	{down}
Enabled	<input checked="" type="checkbox"/> true
Fault Cause	
Health	Fail [18-Jan-17 2:15 PM CET] Invalid BNA configuration, unable to proceed!
Alarm Source Info	Alarm Source Info
Monitor	Ping Monitor
Tuning Policies	Tuning Policy Map
Poll Scheduler	N Poll Scheduler
Local TCP/IP Configuration	C Bus Tcp Comm Config
BNA Name	
BNA IP-Address	:2499
C-Bus Channel 1 Configuration	C Bus Channel Config
C-Bus Channel 2 Configuration	C Bus Channel Config
Enable Auto Time Synchronization	<input checked="" type="checkbox"/> true

2. Set the **Enable Auto Time Synchronization** property to 'false'.



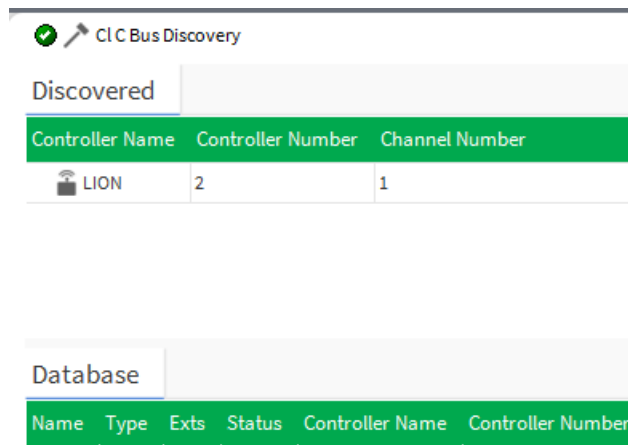
ADD CONTROLLER TO STATION

Procedure 1. In the *Nav* side bar, expand the **Station** folder, and then double-click on **CBusNetwork**.



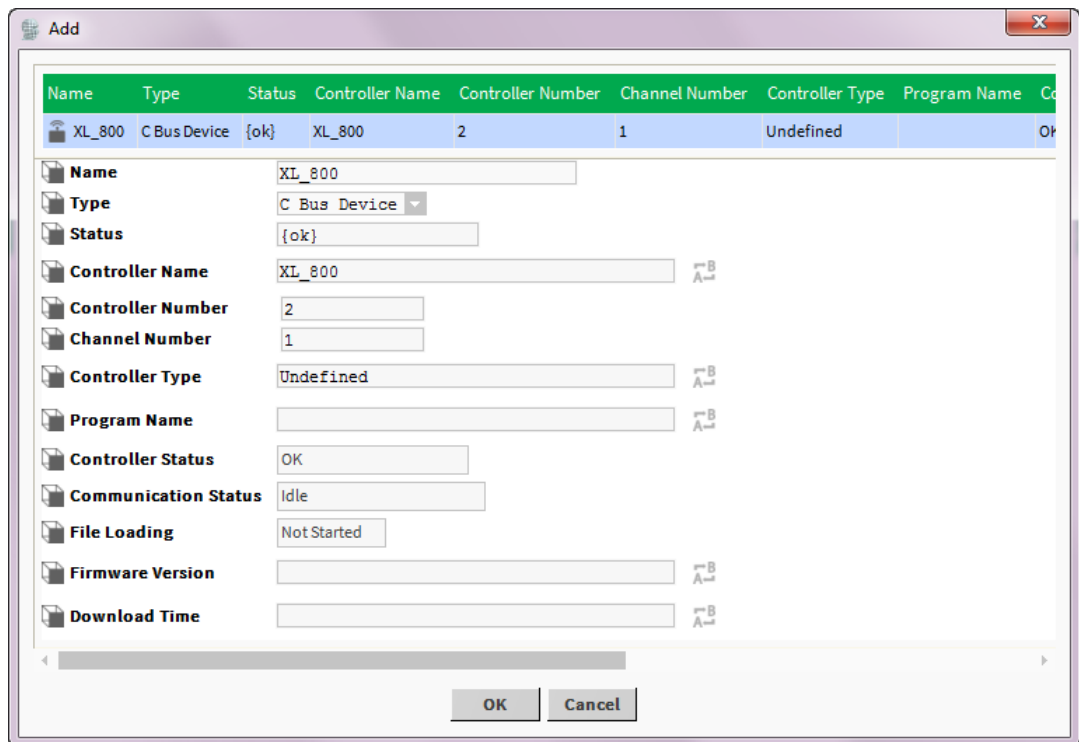
2. On the right *Database* pane, click **Discover**.

RESULT: In the upper *Discovered* area, the found C-Bus controllers are displayed.



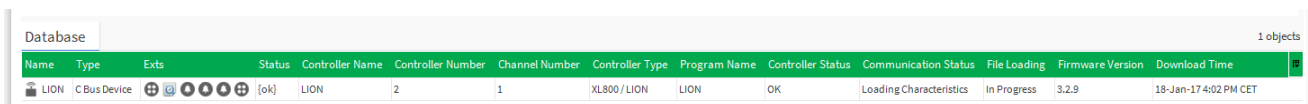
3. Select the controller, and then click **Add** in the buttons bar at the bottom.

RESULT: The *Add* dialog box displays.



4. Click **OK**.

RESULT: The controller is added to the database as indicated in the *Database* area at the bottom.



Software starts the file loading process which loads the following information:

- engineering units
- point descriptors
- IO characteristics
- alarm texts
- schedules
- parameters

The loading progress is indicated in the **File Loading** column.

1 objects				
Controller Status	Communication Status	File Loading		
OK	Loading Digital Eng Units	In Progress	3.2	

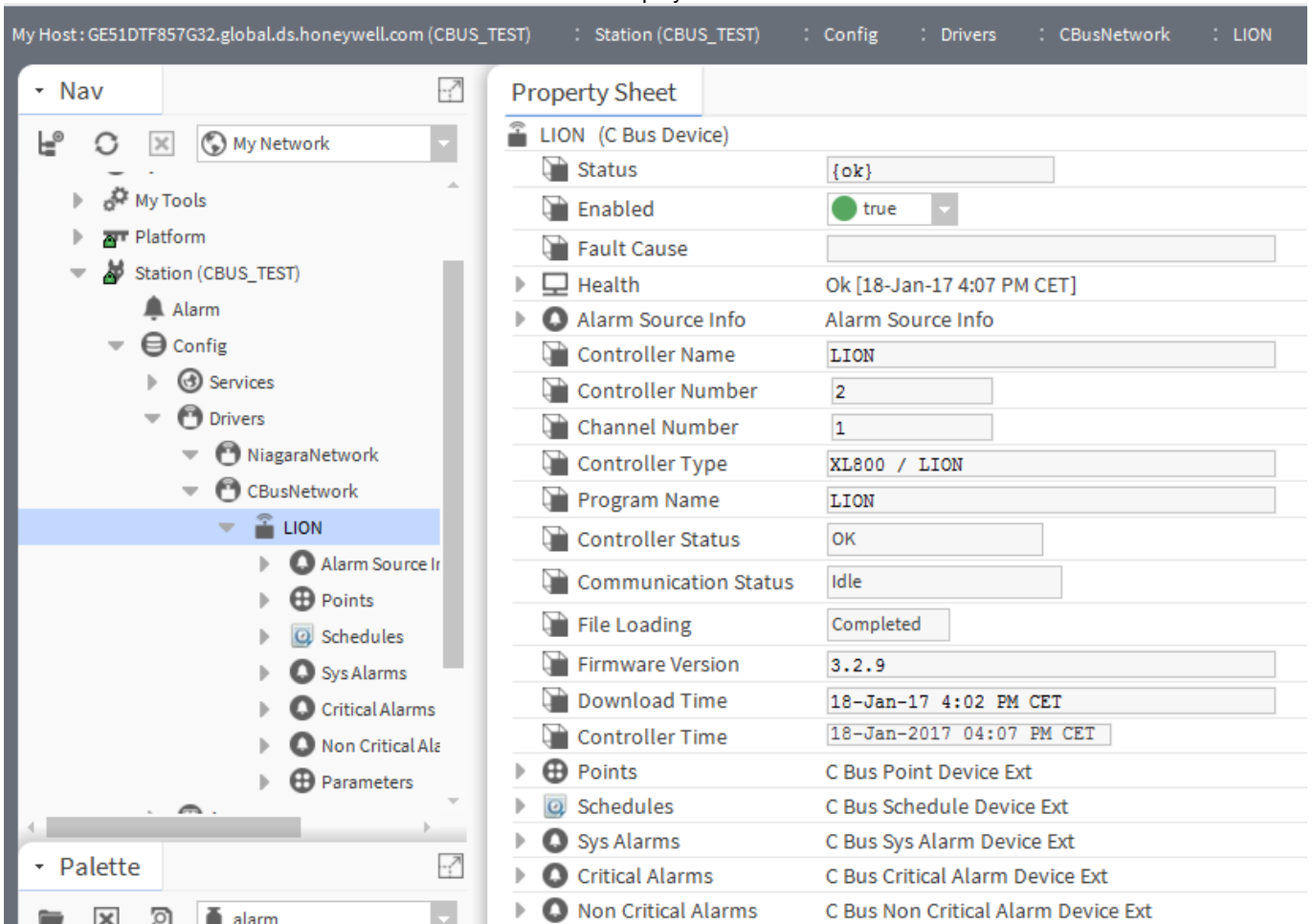
IMPORTANT!

The file loading takes some time. Please do not interrupt the progress by starting other actions until successful file loading is indicated as "Completed" in the **File Loading** column.

Controller Type	Program Name	Controller Status	Communication Status	File Loading	
XL800 / LION	XL_800	OK	Idle	Completed	3.2

RESULT: On the right pane, the device properties are displayed.

In the Nav tree, the controller is added to the station under the C-Bus network. On the right pane, the device properties are displayed.

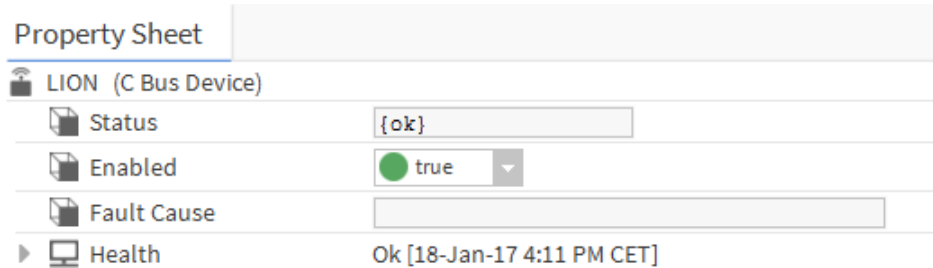


- To add controller objects to the station such as datapoints, schedules etc. you can use the items below the controller icon in the Nav tree (see "Add Controller Objects to the Station" section).

Ping Controller

Purpose To instantly establish communication between Controller and CentralLine NX.

- Procedure**
1. In the *Nav tree* on the left, right-click **Controller**, then click **Actions**, and then click **Ping** in the context menu.

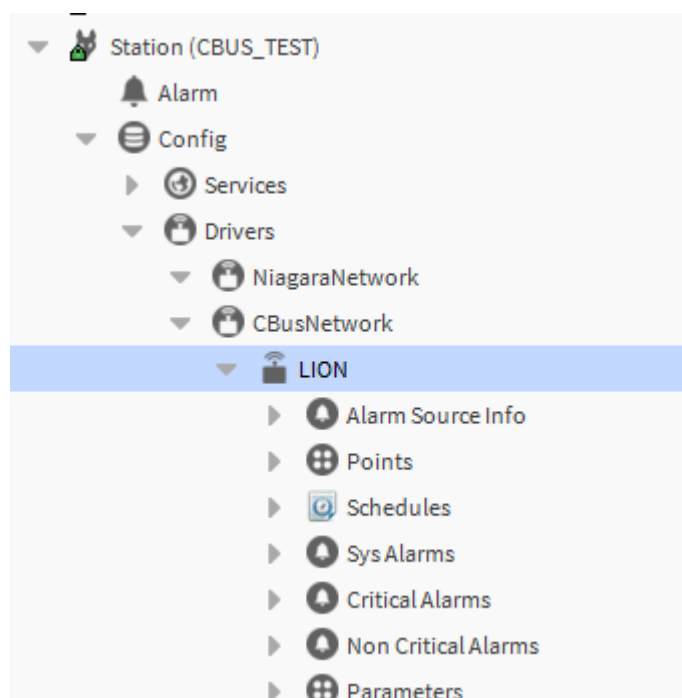


2. Check if the communication has been established indicated by 'Health is Ok' on the controller's properties page.

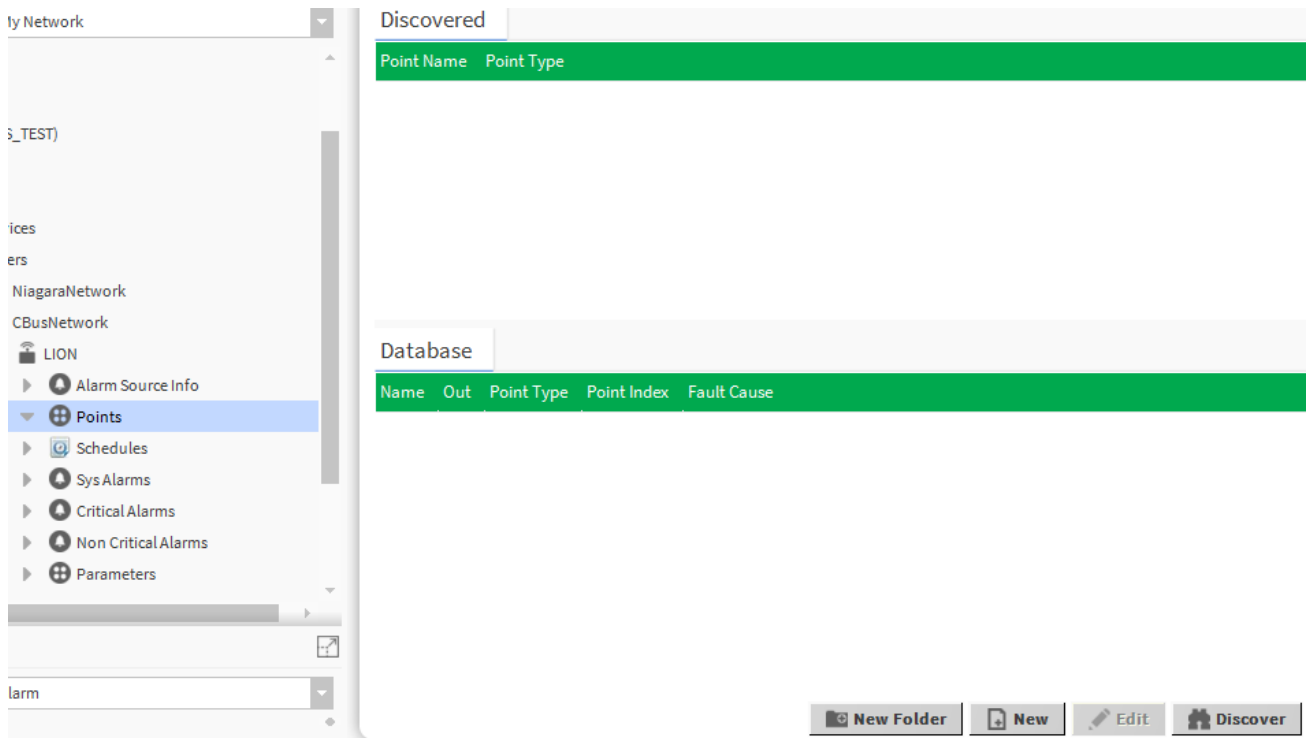
Discover Objects of Controller and Add them to Station

Purpose In the following, the discovery of all objects in the connected controller and, as an example, the addition of datapoints to the station is described. This procedure is done online with the connected controller.

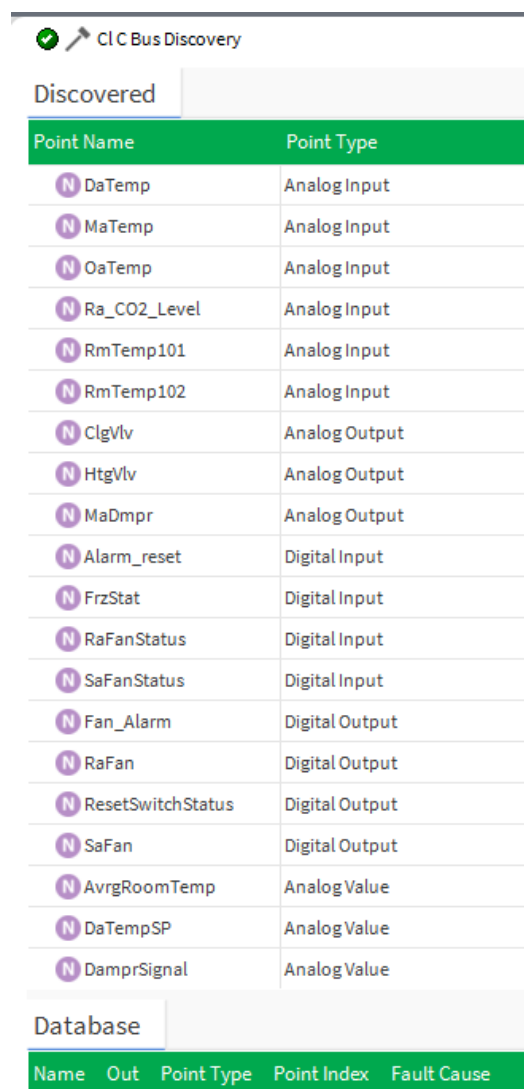
- Procedure**
1. In the *Nav tree* on the left, expand the *Station* folder and navigate to the controller.



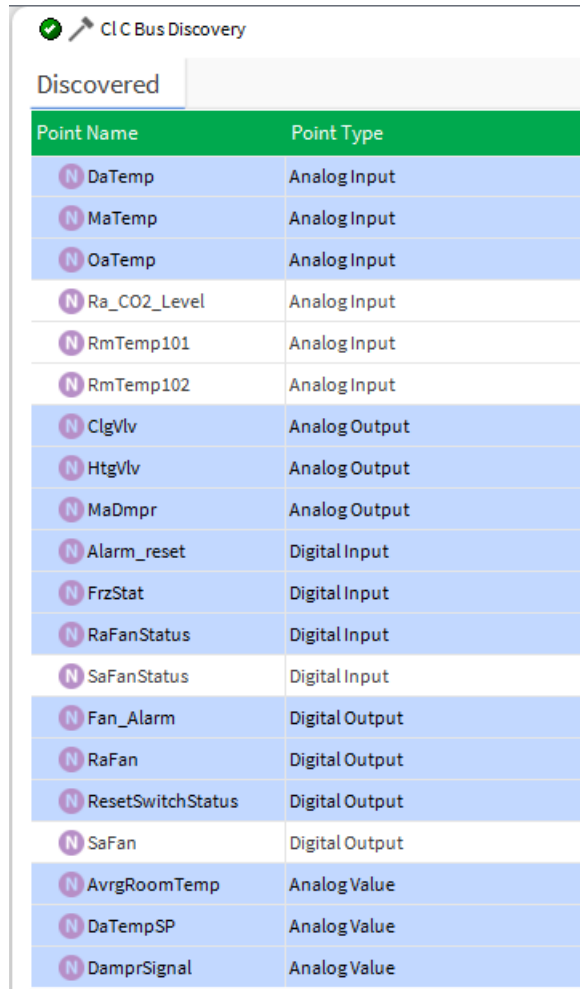
2. Double-click the folder which you want to add objects to, e.g. the **Points** folder if you want to discover and add datapoints, and then click the **Discover** button.



RESULT: All objects, in this case datapoints of the controller will be listed in the upper *Discovered* pane.



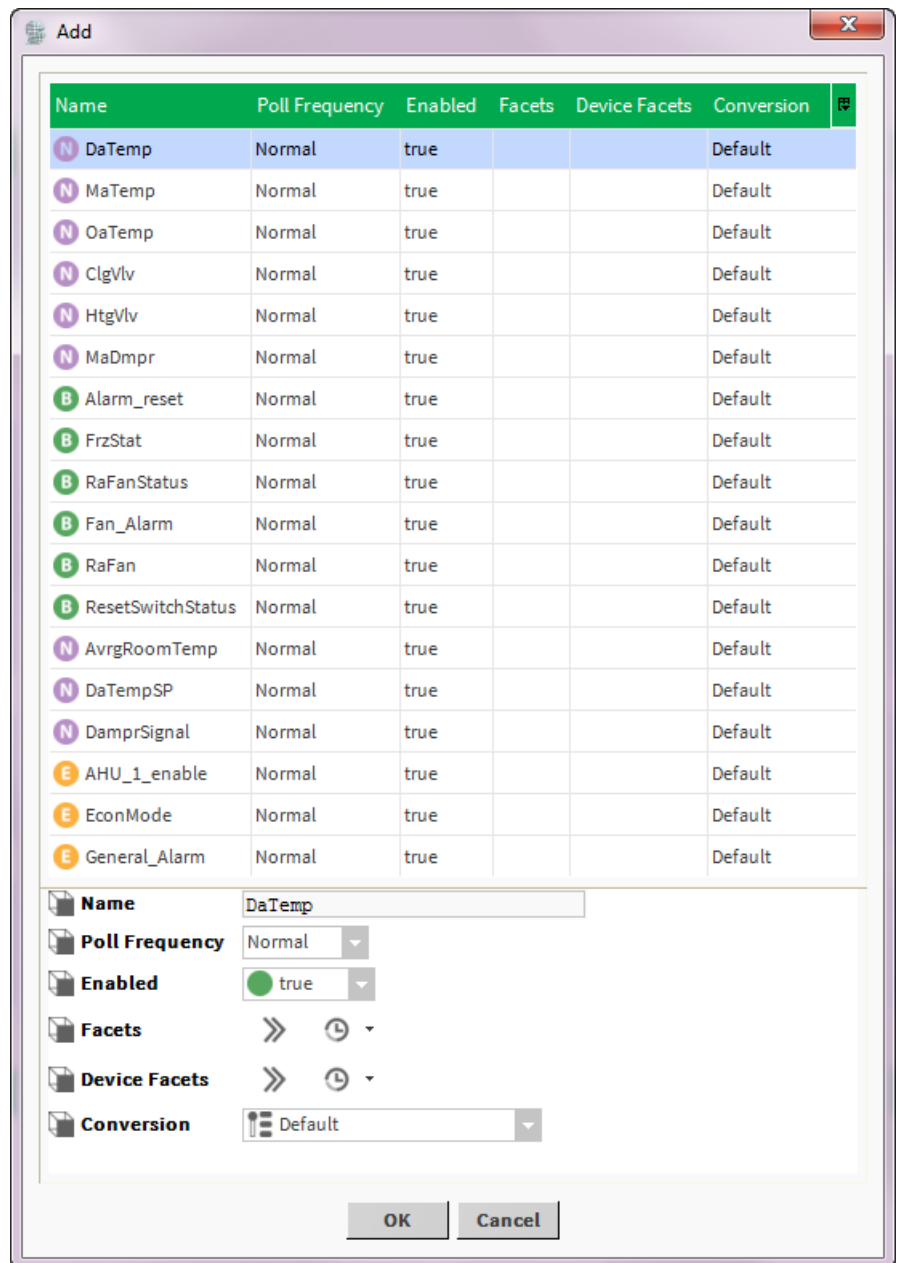
3. Select the datapoints you want to add to the station. Multi-selection using the SHIFT or STRG key is possible.



Point Name	Point Type
N DaTemp	Analog Input
N MaTemp	Analog Input
N OaTemp	Analog Input
N Ra_CO2_Level	Analog Input
N RmTemp101	Analog Input
N RmTemp102	Analog Input
N ClgVlv	Analog Output
N HtgVlv	Analog Output
N MaDmpr	Analog Output
N Alarm_reset	Digital Input
N FrzStat	Digital Input
N RaFanStatus	Digital Input
N SaFanStatus	Digital Input
N Fan_Alarm	Digital Output
N RaFan	Digital Output
N ResetSwitchStatus	Digital Output
N SaFan	Digital Output
N AvrgRoomTemp	Analog Value
N DaTempSP	Analog Value
N DampSignal	Analog Value

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

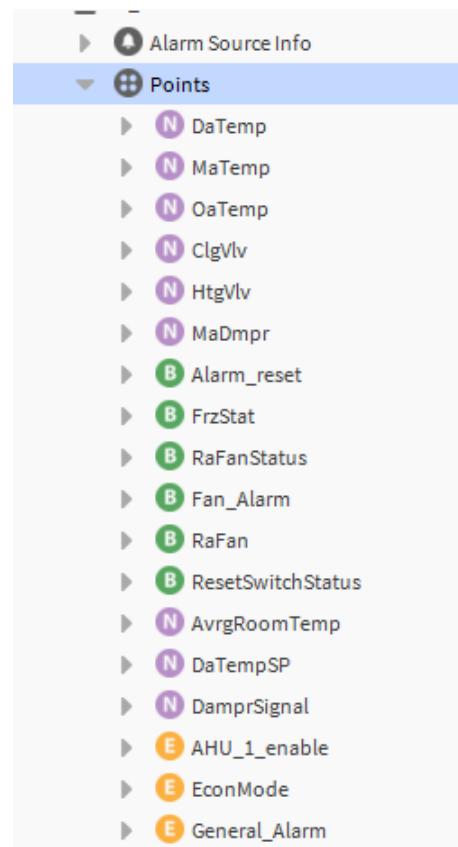
RESULT: The *Add* dialog box displays.



- Click **OK**. Do not modify any settings of the datapoints, these will be reset based on a pre-defined mechanism while adding to the database.

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

Name	Out	Point Type	Point Index	Fault Cause
DaTemp	0.00 [stale] @ def	Analog Input	0	
MaTemp	0.00 [stale] @ def	Analog Input	1	
OaTemp	0.00 [stale] @ def	Analog Input	2	
ClgVlv	0.00 [stale] @ def	Analog Output	0	
HtgVlv	0.00 [stale] @ def	Analog Output	1	
MaDmpr	0.00 [stale] @ def	Analog Output	2	
Alarm_reset	false [stale] @ def	Digital Input	0	
FrzStat	false [stale] @ def	Digital Input	1	
RaFanStatus	false [stale] @ def	Digital Input	2	
Fan_Alarm	false [stale] @ def	Digital Output	0	
RaFan	false [stale] @ def	Digital Output	1	
ResetSwitchStatus	false [stale] @ def	Digital Output	2	
AvrgRoomTemp	0.00 [stale] @ def	Analog Value	0	
DaTempSP	0.00 [stale] @ def	Analog Value	1	
DamprSignal	0.00 [stale] @ def	Analog Value	2	
AHU_1_enable	0 [stale] @ def	Digital Value	0	
EconMode	0 [stale] @ def	Digital Value	3	
General_Alarm	0 [stale] @ def	Digital Value	4	



6. It is recommended to create a structure for arrangement of the different datapoint types by clicking the **New Folder** button.
7. After you are finished with the creation of the structure, move the datapoints to the corresponding folders.

VIEW / MODIFY DATAPPOINT PROPERTIES

The properties of a datapoint vary dependent on the datapoint type. The following datapoint types are available in CentralLine NX:

- AI (analog input)
- AO (analog output)
- PA (pseudo analog)
- DI (binary input)
- DO (binary output)
- PD (pseudo digital)
- TOT (totalizer)
- GA (global analog)
- GD (global digital)

For detailed descriptions of the properties of a particular datapoint, please refer to the "C-Bus Datapoint Properties Descriptions" section.

Locations of Value Modifications

Datapoint properties can be modified on three different locations:

- in Niagara
- in the controller (B-Port)
- at the module ("present" value only)

NOTE: In the following, the user-applicable steps in Niagara for modifying any datapoint property (e.g. alarm delay) and in particular the present value is described (see View/Modify Datapoint Properties section).

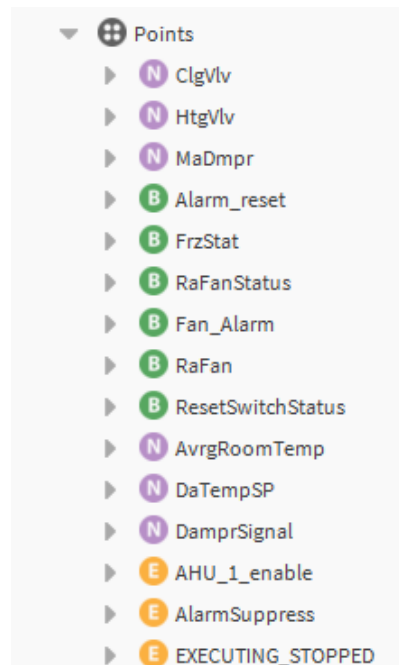
In addition, the responsive behavior (results) in Niagara when changing the "present" value in the controller or at the module is described (see "Present" Value Modification Model section).

View/Modify Datapoint Properties

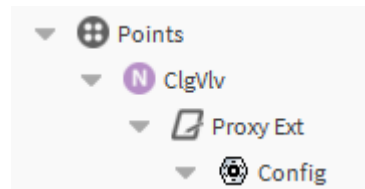
The following procedure gives a short and general overview on how to view and modify the properties of a datapoint.

Procedure

1. To view/edit the properties of a datapoint, open the *Points* folder in the *Nav* tree.



2. Open the datapoint, and then open the **Proxy Ext** folder.



3. Double-click on the **Config** icon.

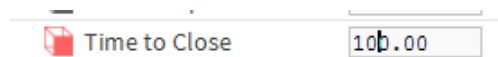
RESULT: On the right pane, the properties of the datapoint are displayed.

Property Sheet

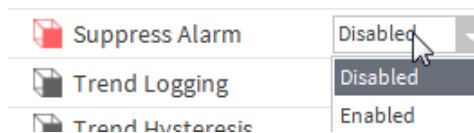
Config (C Bus Point Config)

Operating Mode	Auto
Technical Address	2/1/1
Point Subtype	Continuous
Descriptor	[7] Cooling Valve
Unit	54 Pct [0]
Characteristic	[10] Reverse Out 0-100%
Time to Open	120.00
Time to Close	120.00
Suppress Alarm	Enabled
Trend Logging	Disabled
Trend Hysteresis	1.00
Trend Cycle Counter	0
Override Status Flag	Automatic
No Response Flag	Online
SafetyPosition	0%

4. To change a datapoint property, enter the new value in the field. The field indicator is highlighted in red.



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



5. To save the changed datapoint property, click the **Save** button at the bottom. This writes the value to the controller.

"Present" Value Modification Model

When the present value of a datapoint is modified, the manual actions done by the user and the automatic actions performed by the software are based on certain mechanisms that involve the following datapoint properties:

- Status
- Read Value
- Write Value
- Out
- Priority arrays In1 .. In16

- Operating Mode

The present value can be modified on three different locations:

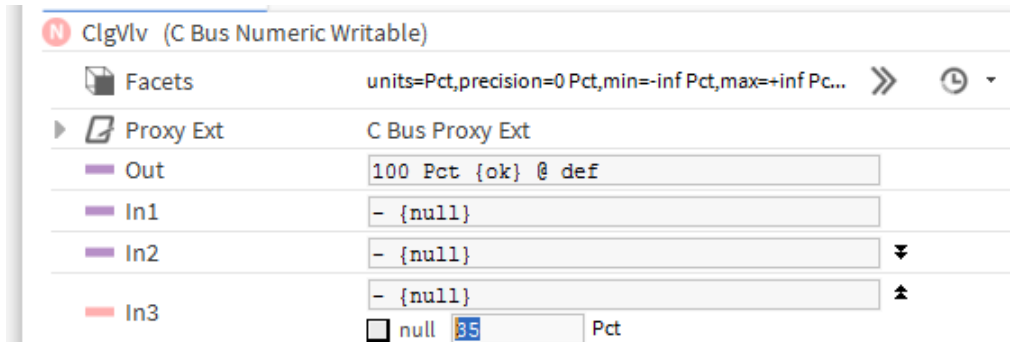
- in Niagara
- in the controller (B-Port)
- on the panel / Lon module

Modification of present value in Niagara

In Niagara you can change the present value in one of the following ways:

A) Priority array usage:

- Choose a priority within the range of In1 .. In7.
- Uncheck null if this is checked by default, and then enter the value



c. Click **Save** button.

RESULT: The value is written to the controller as shown in the **Write Value** field. When the controller has read the value it is shown in the **Read Value** field.

The point is set from Auto to Manual operating mode and the **Operating Mode** field shows 'Manual'. In the **Status** field, the status 'overridden' is displayed.

The **Out** field shows the current value.

NOTE: Priorities In1 .. In8 must be NULL if the point should be in Auto operating mode. Priorities 9 .. 16 are always written to Auto operating mode. A value entered there is taken, e.g. if no control strategy is available.

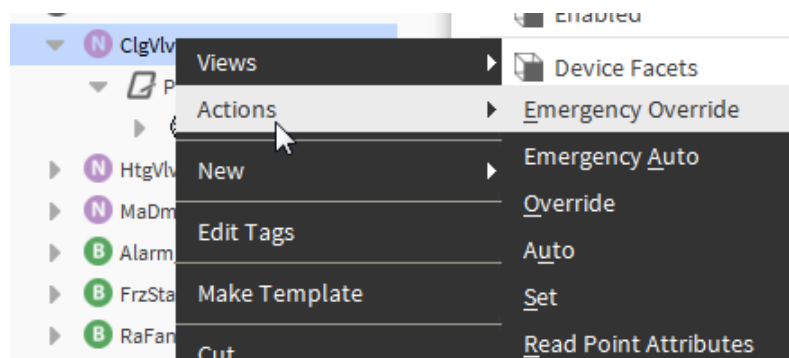
Property Sheet

Proxy Ext (C Bus Proxy Ext)

Status	{overridden}
Fault Cause	
Enabled	<input checked="" type="checkbox"/> true
Device Facets	>> ⌚
Conversion	Default
Tuning Policy Name	Default Policy
Read Value	35.00 {overridden}
Write Value	35.00 {ok} @ 3
Poll Frequency	Normal
Point Name	ClgVlv
Point Type	AnalogOutput
Point Index	0
Config	C Bus Point Config
Operating Mode	Manual
Technical Address	2/1/1
Point Subtype	Continuous
Descriptor	[7] Cooling Valve
Unit	54 Pct [0]
Characteristic	[10] Reverse Out 0-100%
Time to Open	120.00
Time to Close	120.00
Suppress Alarm	Enabled
Trend Logging	Disabled
Trend Hysteresis	1.00
Trend Cycle Counter	0
Override Status Flag	Automatic

B) **Actions** context menu usage:

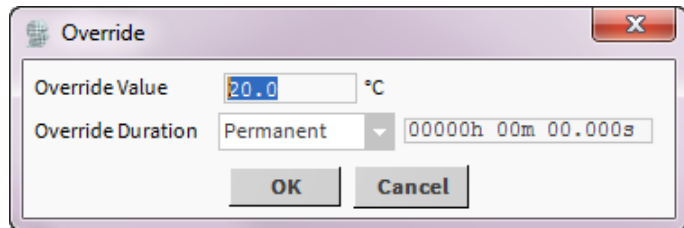
The **Actions** context menu provides the following commands:



- **Emergency Override**
Overwrites the present value with the highest priority (In1) and sets the point into manual operating mode
- **Emergency Auto**
Sets the point from emergency auto into Automatic operating mode

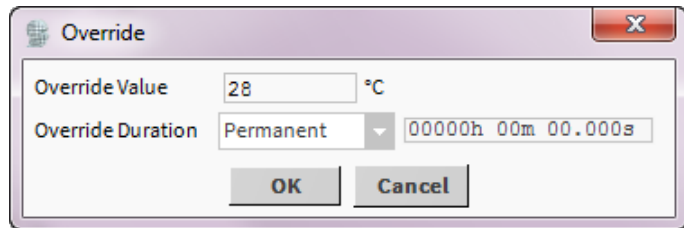
- **Override**
Overwrites the present value with the priority In8 and sets the point into manual operating mode
- **Auto**
Sets the point from Override into Automatic operating mode
- **Set**
Sets the fallback value
- **Read Point Attributes**
Reads all point attributes instantly from the controller

a. Right-click the datapoint, click **Actions**, and then, e.g. click **Override** in the context menu.



b. In the **Override** menu, enter the value.

c. From the **Override Duration** drop-down listbox, select the duration.



d. Click **OK** button.

RESULT: The value is written to the controller. The Auto action uses the **In8** priority level and the entered value is displayed there.

The same process steps are executed and the same fields are used for display as described in method A (Priority array usage) described above.

NOTE: If any of the In1 .. In7 priority levels are used, then the Override action using priority level In8 has no effect due its lower priority.

Property Sheet

N DaTempSP (C Bus Numeric Writable)

Facets units=°C,precision=1 °C,min=-inf °C,max=+inf °C

Proxy Ext C Bus Proxy Ext

Status	{overridden}
Fault Cause	
Enabled	<input checked="" type="checkbox"/> true
Device Facets	>> ⌚
Conversion	Default
Tuning Policy Name	Default Policy
Read Value	28.00 {overridden}
Write Value	28.00 {overridden} @ 8
Poll Frequency	Normal
Point Name	DaTempSP
Point Type	AnalogValue
Point Index	1

Config C Bus Point Config

Out	28.0 °C {overridden} @ 8
In1	- {null}
In2	- {null} ⌵
In3	- {null} ⌵
In4	- {null} ⌵
In5	- {null} ⌵
In6	- {null} ⌵
In7	- {null} ⌵
In8	28.0 °C {ok}
In9	- {null} ⌵
In10	- {null} ⌵
In11	- {null} ⌵
In12	- {null} ⌵
In13	- {null} ⌵
In14	- {null} ⌵
In15	- {null} ⌵
In16	- {null} ⌵
Fallback	- {null} ⌵
Override Expiration	null

Modification of present value in controller (B-port) - Results in Niagara

In the controller, the present value is changed in any one of the following cases:

- a. The controller is in Auto operating mode and the present value is updated by the control strategy or the time program.

RESULT: In Niagara, the **Out** field shows the current value. No changes in the priority array.

- b. The controller is in Auto operating mode and you set the controller into Manual operating mode by overwriting the present value.

RESULT: In Niagara, the value is shown in the **In8** priority level. If a value is set in any of the 1 .. In7 priority levels, then the manual value in the controller will be overwritten instantly with the corresponding value.

- c. The controller is in Manual operating mode and you set the controller into Auto operating mode.

RESULT: In Niagara, the **In8** priority level is set to NULL. If a value is set in any of the 1 .. In7 priority levels, then the manual value in the controller will be overwritten instantly with the corresponding value.

Modification of present value by manual override switch on panel/Lon module – Results in Niagara

When operating the manual override switch on a panel or Lon module, the modified present value is shown in priority level **In1**. The **Override Status Flag** field shows 'Online'.

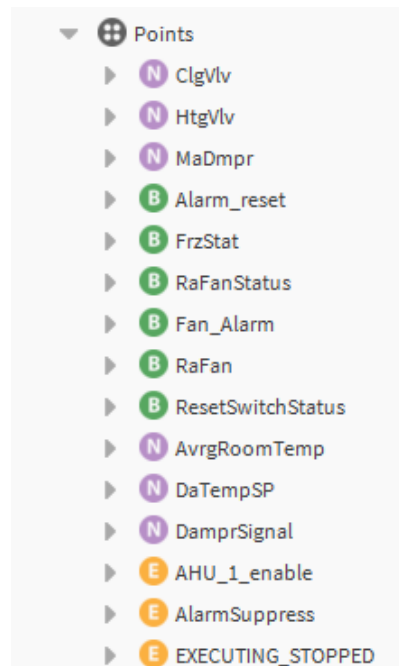
NOTE: The action 'Emergency Override' will have no effect as long as the manual override switch is active.

Procedures

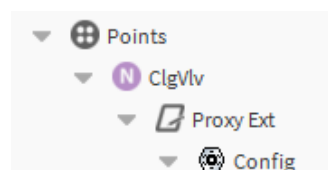
Modify Datapoint Properties (Any)

The following procedure gives a short and general overview on how to view and modify the property of a datapoint.

- Procedure**
1. Open the *Points* folder in the *Nav* tree.



2. Open the datapoint, and then open the **Proxy Ext** folder.



3. Double-click on the **Config** icon.

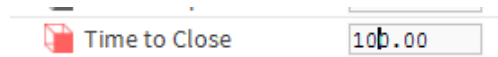
RESULT: On the right pane, the properties of the datapoint are displayed.

Property Sheet

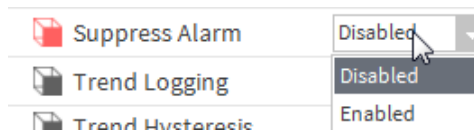
Config (C Bus Point Config)

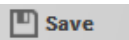
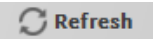
Operating Mode	Auto
Technical Address	2/1/1
Point Subtype	Continuous
Descriptor	[7] Cooling Valve
Unit	54 Pct [0]
Characteristic	[10] Reverse Out 0-100%
Time to Open	120.00
Time to Close	120.00
Suppress Alarm	Enabled
Trend Logging	Disabled
Trend Hysteresis	1.00
Trend Cycle Counter	0
Override Status Flag	Automatic
No Response Flag	Online
SafetyPosition	0%

- To change a datapoint property, enter the new value in the field. The field indicator is highlighted in red.



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



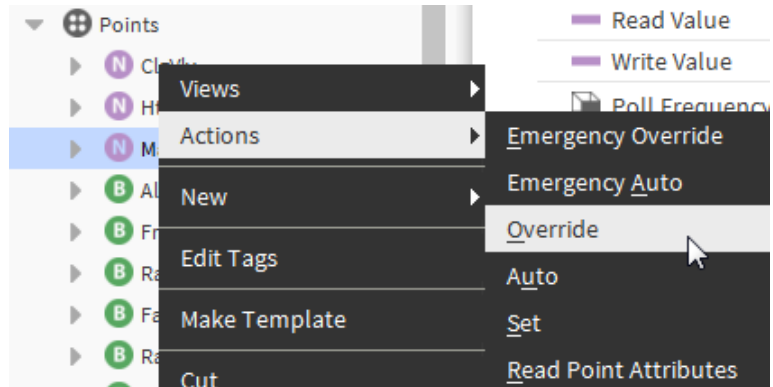
- To save the changed datapoint property, click the **Save** button  at the bottom. This writes the value to the controller.
- To upload the current properties values from the controller, click the **Refresh** button  at the bottom. This overwrites **all** values in Niagara if these values are different to the values in the controller.

Setting Datapoint into Manual Mode (Manual Override)

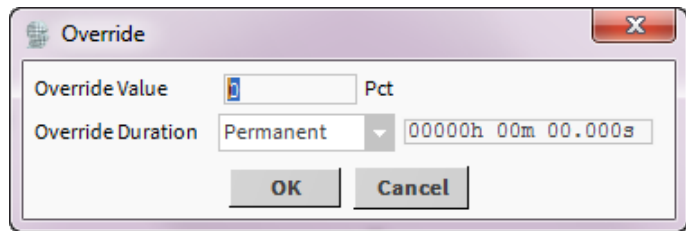
Purpose Sets the datapoint into Manual operating mode and overwrites the present value with a defined value entered manually. This command is executed on priority level In8.

- Procedure**
- In the *Nav tree* on the left, expand the *Station* folder and browse to the Points folder.

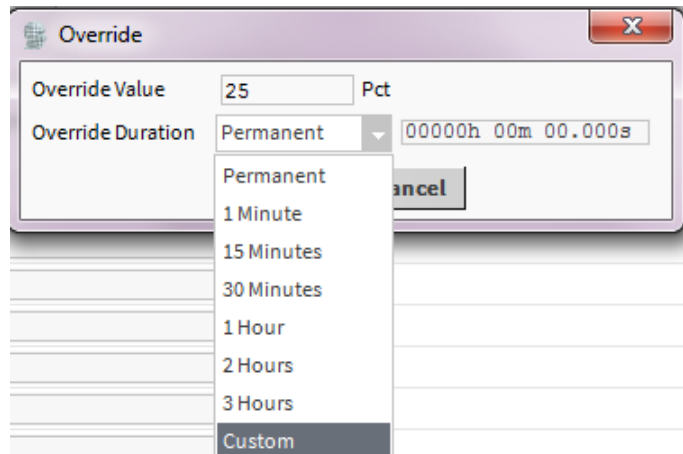
- Right-click the datapoint, click **Actions** and then click **Override** in the context menu.



RESULT: The *Override* dialog box displays.



- In the **Override Value** field, enter the value.



- From the **Override Duration** drop-down listbox, select the duration.
- Click the **OK** button.

RESULT: On the Properties tab, the manual value change is indicated as follows:
 The value is executed in the **In8** field, written in the **Write Value** field and read in the **Read Value** field. In the **Status** field, the status 'overridden' is displayed. The **Out** field shows the manual value as the current value. The **Operating Mode** field shows the mode 'Manual'.

Property Sheet

N MaDmpr (C Bus Numeric Writable)

Facets units=Pct,precision=0 Pct,min=-inf Pct,max=+inf Pc... >> ⌚ ▾

▾ **Proxy Ext** C Bus Proxy Ext

Status {overridden}

Fault Cause

Enabled true ▾

Device Facets >> ⌚ ▾

Conversion Default ▾

Tuning Policy Name Default Policy ▾

Read Value 25.00 {overridden}

Write Value 25.00 {overridden} @ 8

Poll Frequency Normal ▾

Point Name MaDmpr

Point Type Analog Output

Point Index 2

▾ **Config** C Bus Point Config

Operating Mode Manual

Technical Address 2/1/3

Point Subtype Continuous

Descriptor [9] Mix Air Dampr

Unit 54 Pct [0]

Characteristic [254] LINEAR GRAPH

Time to Open 120.00

Time to Close 120.00

Suppress Alarm Enabled ▾

Trend Logging Disabled ▾

Trend Hysteresis 1.00

Trend Cycle Counter 0

Override Status Flag Automatic

No Response Flag Online

SafetyPosition 0%

Out 25 Pct {overridden} @ 8

In1 - {null}

In2 - {null} ▾

In3 - {null} ▾

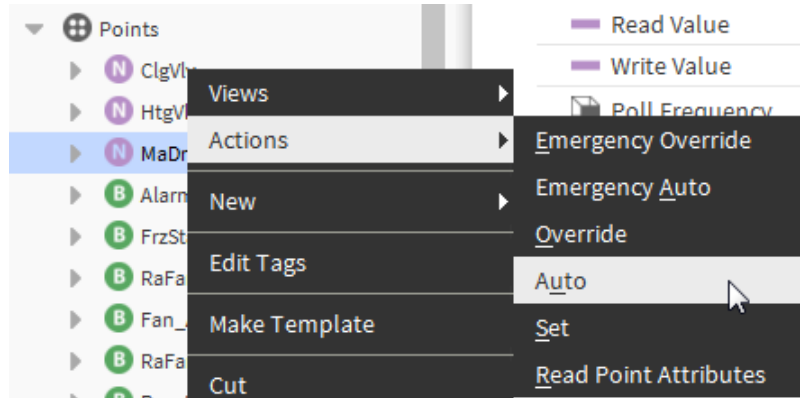
In4 - {null} ▾

In5 - {null} ▾

In6 - {null} ▾

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 *Nav tree* on the left, expand the *Station* folder and browse to the *Points* folder.
 2. Right-click the datapoint, click **Actions** and then click **Auto** in the context menu.



RESULT: On the Properties tab, the manual value change is indicated as follows:

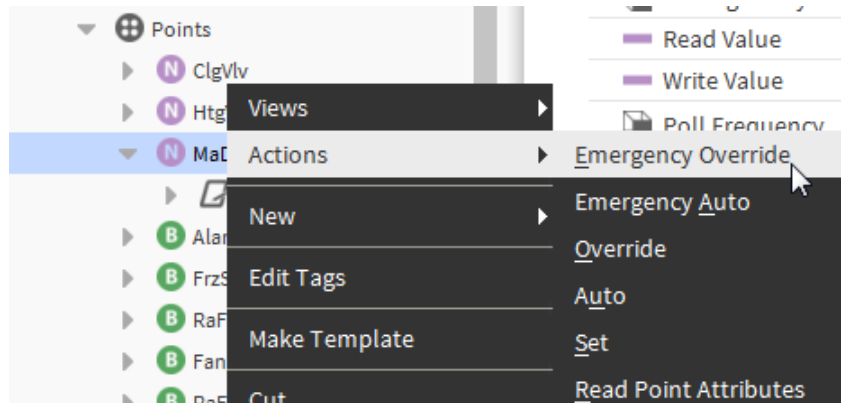
The **In8** field is emptied. The **Write Value** field and the **Read Value** field is reset. In the **Status** field, the status 'Ok' is displayed. The **Operating Mode** field shows the mode 'Auto'.

Property Sheet	
N MaDmpr (C Bus Numeric Writable)	
Facets	units=Pct,precision=0 Pct,min=-inf Pct,max=+inf Pc... >>
Proxy Ext	C Bus Proxy Ext
Status	{ok}
Fault Cause	
Enabled	<input checked="" type="checkbox"/> true
Device Facets	>> ⌚
Conversion	Default
Tuning Policy Name	Default Policy
Read Value	0.00 {ok}
Write Value	- {null} @ def
Poll Frequency	Normal
Point Name	MaDmpr
Point Type	Analog Output
Point Index	2
Config	C Bus Point Config
Operating Mode	Auto
Technical Address	2/1/3
Point Subtype	Continuous
Descriptor	[9] Mix Air Dampr
Unit	54 Pct [0]
Characteristic	[254] LINEAR GRAPH
Time to Open	120.00
Time to Close	120.00
Suppress Alarm	Enabled
Trend Logging	Disabled
Trend Hysteresis	1.00
Trend Cycle Counter	0
Override Status Flag	Automatic
No Response Flag	Online
SafetyPosition	0%
Out	0 Pct {ok} @ def
In1	- {null}
In2	- {null} ▼
In3	- {null} ▼
In4	- {null} ▼
In5	- {null} ▼
In6	- {null} ▼

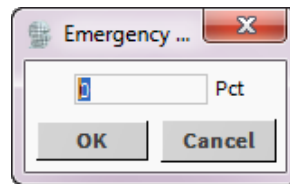
Setting Datapoint into Manual Mode with highest Priority (Emergency Override)

Purpose Sets the datapoint into manual operating mode and overwrites the present value with a defined value entered manually. This command is executed on priority level In1.

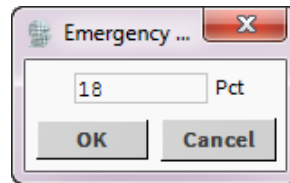
- Procedure**
1. In the *Nav tree* on the left, expand the *Station* folder and browse to the *Points* folder.
 2. Right-click the datapoint, click **Actions** and then click **Emergency Override** in the context menu.



RESULT: The *Emergency* dialog box displays.



3. Enter the value.



4. Click the **OK** button.

RESULT: On the *Properties* tab, the manual value change is indicated as follows:

The value is executed in the **In1** field, written in the **Write Value** field and read in the **Read Value** field. In the **Status** field, the status 'overridden' is displayed. The **Out** field shows the manual value as the current value. The **Operating Mode** field shows the mode 'Manual'.

Property Sheet

N MaDmpr (C Bus Numeric Writable)

Facets units=Pct,precision=0 Pct,min=-inf Pct,max=+inf Pc... >> ⌚

Proxy Ext C Bus Proxy Ext

Status {overridden}

Fault Cause

Enabled true

Device Facets >> ⌚

Conversion Default

Tuning Policy Name Default Policy

Read Value 18.00 {overridden}

Write Value 18.00 {overridden} @ 1

Poll Frequency Normal

Point Name MaDmpr

Point Type Analog Output

Point Index 2

Config C Bus Point Config

Operating Mode Manual

Technical Address 2/1/3

Point Subtype Continuous

Descriptor [9] Mix Air Dampr

Unit 54 Pct [0]

Characteristic [254] LINEAR GRAPH

Time to Open 120.00

Time to Close 120.00

Suppress Alarm Enabled

Trend Logging Disabled

Trend Hysteresis 1.00

Trend Cycle Counter 0

Override Status Flag Automatic

No Response Flag Online

SafetyPosition 0%

Out 18 Pct {overridden} @ 1

In1 18 Pct {ok}

In2 - {null} ⌵

In3 - {null} ⌵

In4 - {null} ⌵

In5 - {null} ⌵

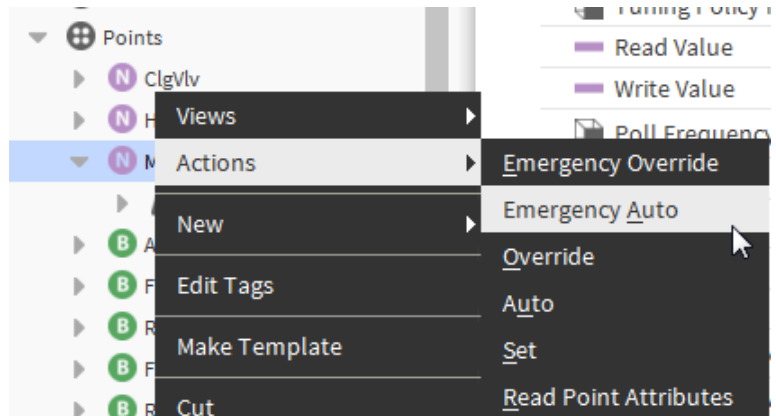
In6 - {null} ⌵

Setting Datapoint from Emergency Override into Emergency Auto Mode

Purpose Sets a datapoint that is in emergency override mode into Automatic mode.

Procedure

1. In the *Nav tree* on the left, expand the *Station* folder and browse to the *Points* folder.
2. Right-click the datapoint, click **Actions** and then click **Emergency Auto** in the context menu.



RESULT: On the Properties tab, the manual value change is indicated as follows:

The **In1** field is emptied. The **Write Value** field and the **Read Value** field is reset. In the **Status** field, the status 'Ok' is displayed. The **Operating Mode** field shows the mode 'Auto'.

Property Sheet

N MaDmpr (C Bus Numeric Writable)

Facets units=Pct,precision=0 Pct,min=-inf Pct,max=+inf Pc... >> ⌚ ▾

Proxy Ext C Bus Proxy Ext

Status {ok}

Fault Cause

Enabled true ▾

Device Facets >> ⌚ ▾

Conversion ▾

Tuning Policy Name Default Policy ▾

Read Value 0.00 {ok}

Write Value - {null} @ def

Poll Frequency Normal ▾

Point Name MaDmpr

Point Type Analog Output

Point Index 2

Config C Bus Point Config

Operating Mode Auto

Technical Address 2/1/3

Point Subtype Continuous

Descriptor [9] Mix Air Dampr

Unit 54 Pct [0]

Characteristic [254] LINEAR GRAPH

Time to Open 120.00

Time to Close 120.00

Suppress Alarm Enabled ▾

Trend Logging Disabled ▾

Trend Hysteresis 1.00

Trend Cycle Counter 0

Override Status Flag Automatic

No Response Flag Online

SafetyPosition 0%

Out 0 Pct {ok} @ def

In1 - {null}

In2 - {null} ▾

In3 - {null} ▾

In4 - {null} ▾

In5 - {null} ▾

In6 - {null} ▾

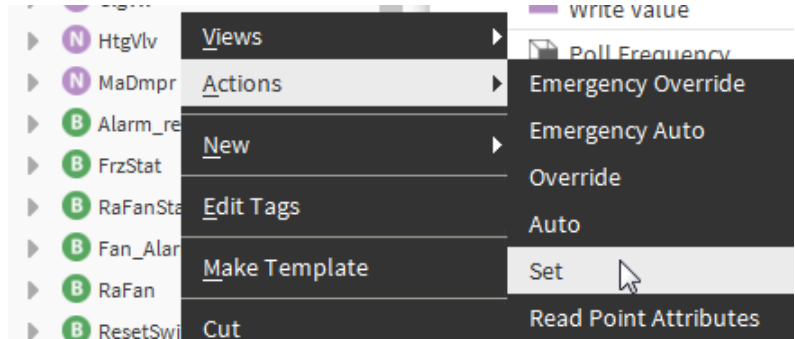
Set Datapoint Value

Purpose Sets the fallback value of the datapoint. The fallback value of a datapoint defines the value that will be written to the present value if the priority array is empty which

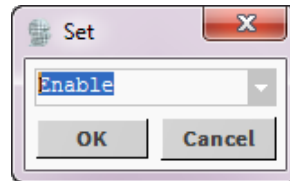
means that no other value is present in the priority list In1 .. In 16. The relinquish default value allows starting up a control system with a defined status/value.

Procedure

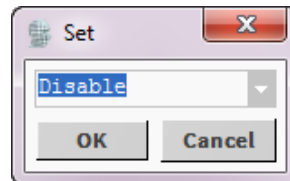
1. In the *Nav tree* on the left, expand the *Station* folder and browse to the *Points* folder.
2. Right-click the datapoint, click **Actions** and then click **Set** in the context menu.



RESULT: The Set dialog box displays.



3. Enter the fallback value.



4. Click OK.

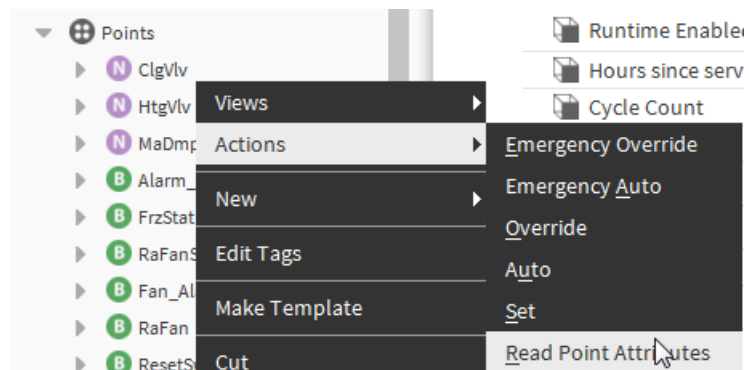
RESULT: The **Fallback** field and the **Out** field are updated with the defined value.

Out	Disable {ok} @ def	
In1	- {null}	
In2	- {null}	▼
In3	- {null}	▼
In4	- {null}	▼
In5	- {null}	▼
In6	- {null}	▼
In7	- {null}	▼
In8	- {null}	
In9	- {null}	▼
In10	- {null}	▼
In11	- {null}	▼
In12	- {null}	▼
In13	- {null}	▼
In14	- {null}	▼
In15	- {null}	▼
In16	- {null}	▼
Fallback	Disable {ok}	▼

Read Datapoint Attributes

Purpose Reads all point attributes instantly from the controller without waiting for subscribe process updates.

- Procedure**
1. In the *Nav tree* on the left, expand the *Station* folder and browse to the *Points* folder.
 2. Right-click the datapoint, click **Actions** and then click **Read Point Attributes** in the context menu.



RESULT: All datapoint properties are updated.

Application Change and Point Handling

If a changed application is downloaded from CARE into the controller, changes result in the following:

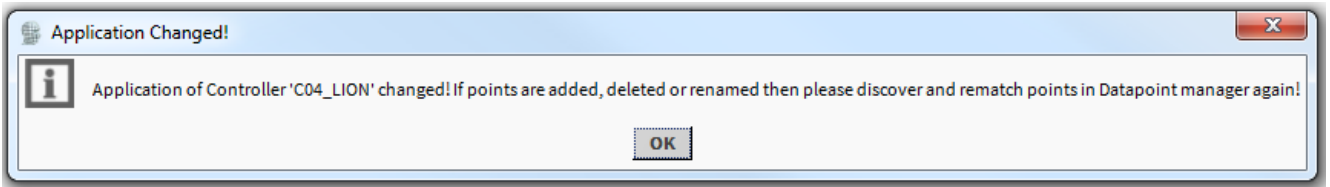
- The alarm message 'New Application loaded' appears in the Open Alarm Source view.
- If only texts are modified, nothing must be done.
- If datapoints are added, deleted or renamed, you must discover the points again for the controller.

- Modified points will be marked as 'Fault' in the database and must be matched again after their discovery.

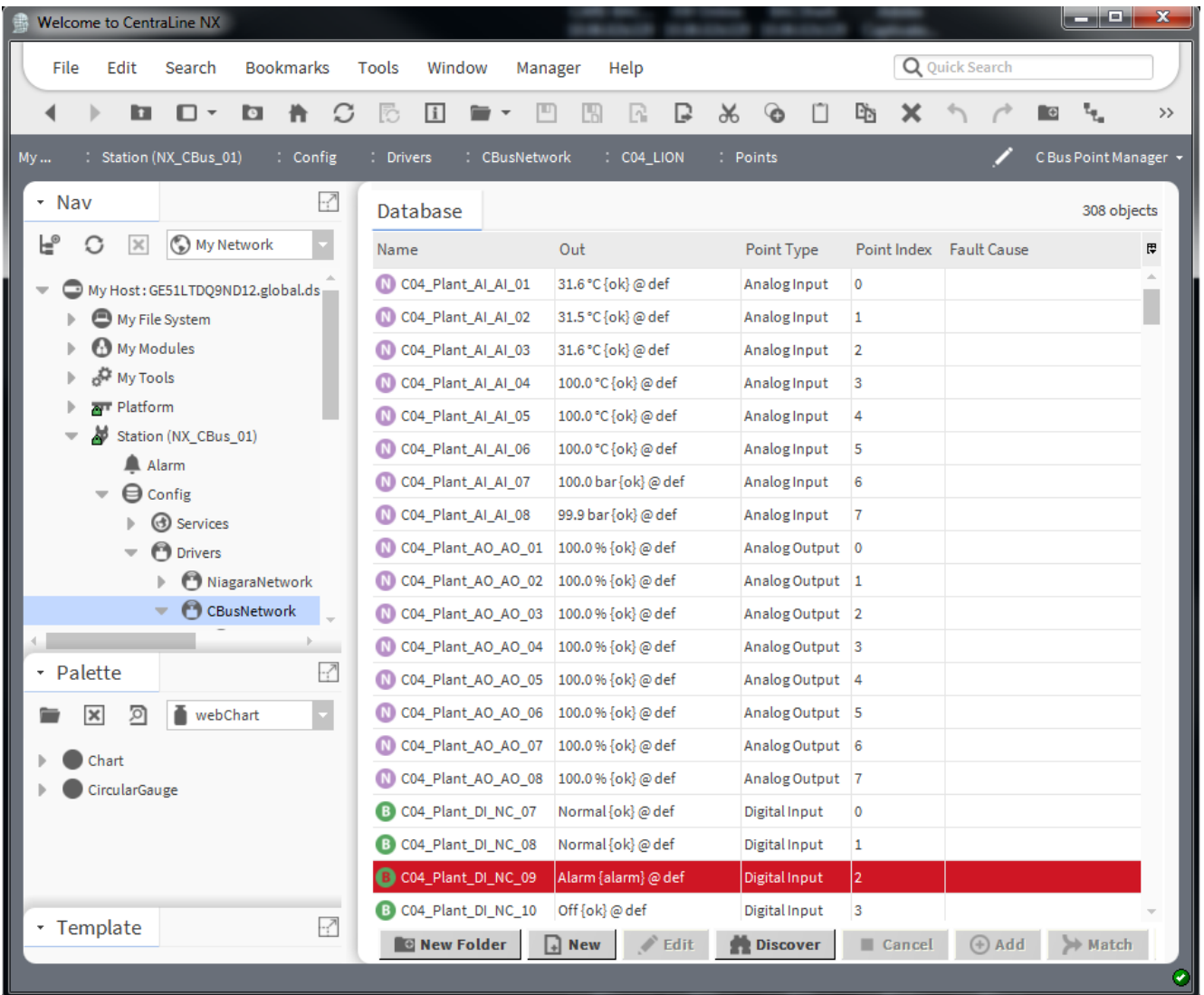
NOTE: It is not allowed and not supported having duplicate points in the database since this will result to a malfunction of the original points.

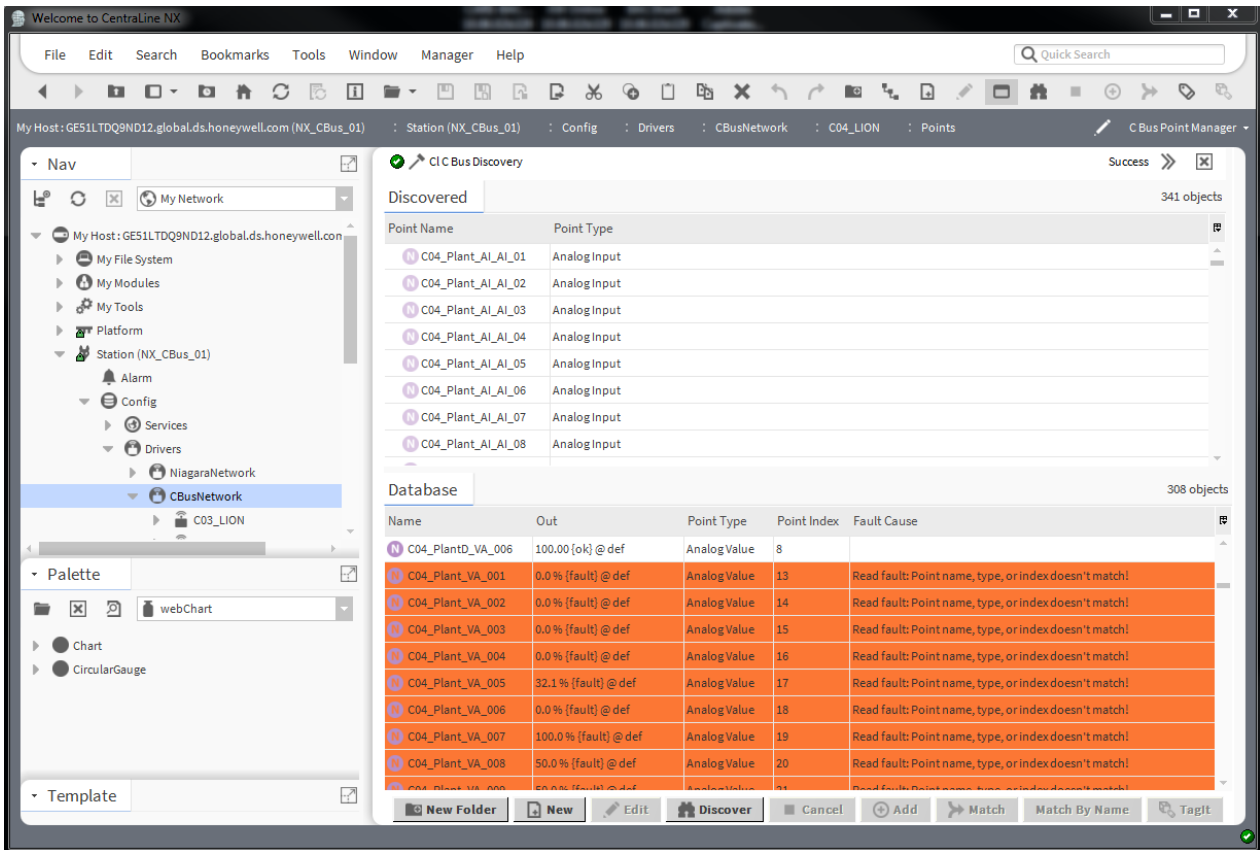
Match Point Indexes after Application Download

In case an application was downloaded into a XL5000 controller, the point indexes may change due to points added, deleted or renamed.

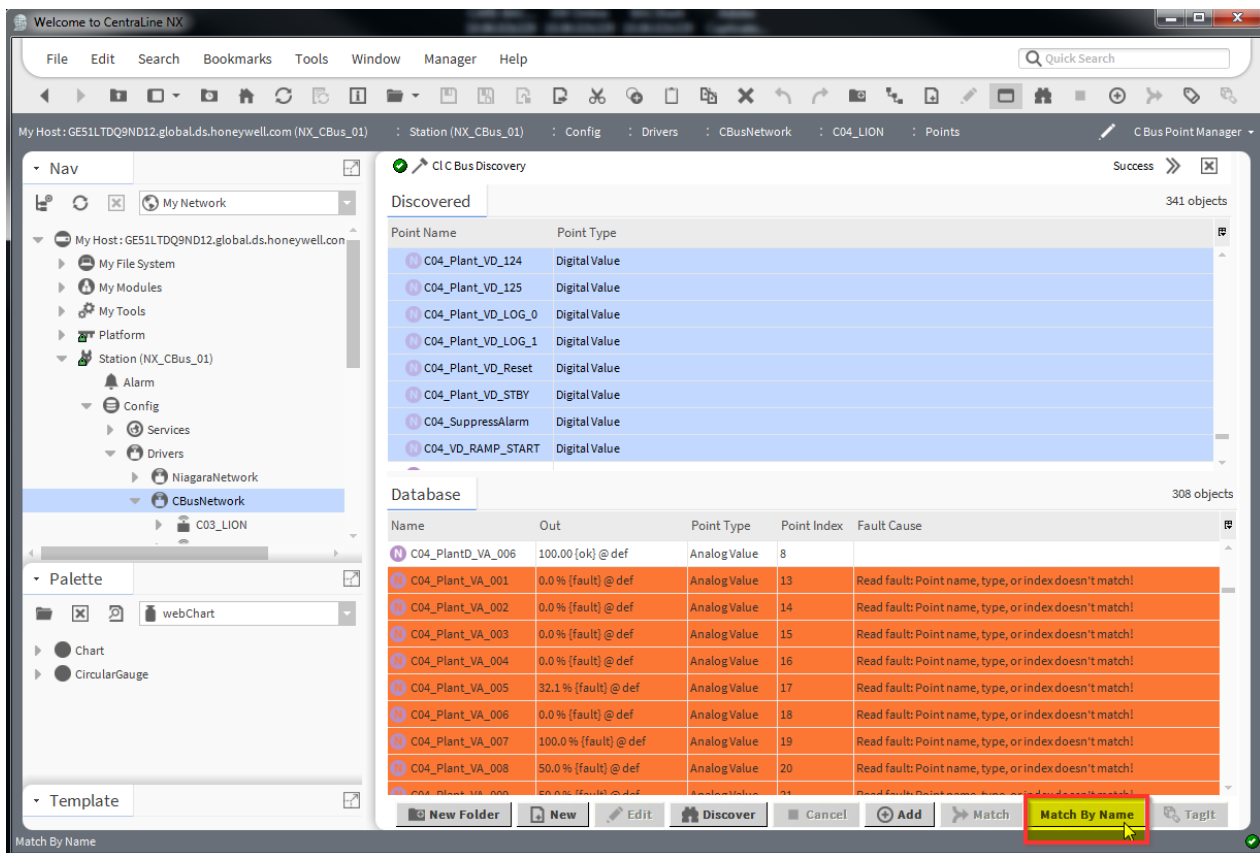


Procedure 1. Discover the points to get an updated status.





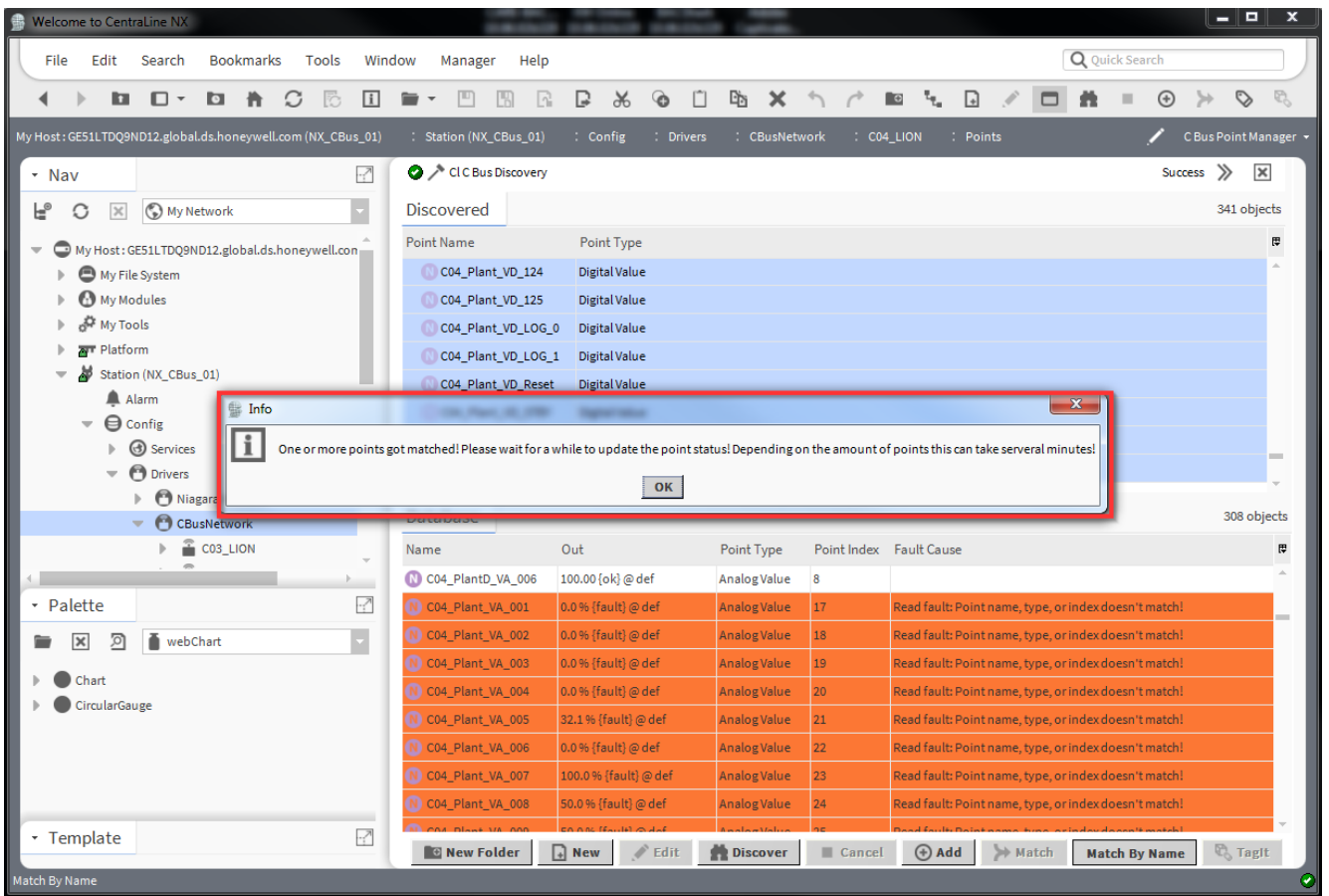
2. To update all the points in one shot, select all the datapoints in the *Discovered* pane and then press the **Match By Name** button.



RESULT: The points will be matched.

NOTE: After matching the points, it could take some time until the status is updated since to the subscription mechanism is executed in the

background. Please wait until the fault cause is updated and the color has changed. You will get no further notification about the update except the color change.



C-BUS DATAPPOINT PROPERTIES DESCRIPTIONS

Analog Input Point

N DaTemp (C Bus Numeric Writable)

<Datapoint Name> (C-Bus Numeric Writable) (maximum of 18 alphanumeric characters) assigned to a point for operator use in locating and commanding the point. Examples: Rmtempf1 and FlotempG/fl. The technical address and the descriptor further define the point. This name must be unique within a controller. User Addresses must include one non-digit character and cannot include Tabs, double quotes, ?, *, or space characters. All other ASCII characters are allowable (A-Z, 0-9, +, -, _, etc). For example, 12A is a valid user address, but 12 is not.

Facets	units=°C,precision=1°C,min=-inf°C,max=+inf°C	>> ⌚
▼ Proxy Ext	C Bus Proxy Ext	
Status	<input style="width: 100%;" type="text" value="{fault}"/>	
Fault Cause	<input style="width: 100%;" type="text" value="Read fault: Hardware IO missing!"/>	
Enabled	<input checked="" type="checkbox"/> true	
Device Facets	>> ⌚	
Conversion	Default	
Tuning Policy Name	Default Policy	
Read Value	<input style="width: 100%;" type="text" value="0.00 {ok}"/>	
Write Value	<input style="width: 100%;" type="text" value="- {null} @ def"/>	
Poll Frequency	Normal	
Point Name	<input style="width: 100%;" type="text" value="DaTemp"/>	
Point Type	Analog Input	
Point Index	<input style="width: 100%;" type="text" value="0"/>	

Facets Engineering units and state texts definition

Proxy Ext The Proxy Extensions area shows standard Niagara functions. Only a few of them are used by C-Bus points and they are described in the following. For all unused Niagara properties, please refer to the detailed Niagara BACnet documentation.

Read Value
(read only) Last value read from the device, expressed in device facets.

Write Value
(read only) Applies if writable point only. Last value written, using device facets.

Config	C Bus Point Config
Operating Mode	Auto
Technical Address	2/4/1
Point Subtype	Slow AI
Descriptor	[1] Discharge Air Temp
Last change	1/19/17 2:39 PM
High Alarm Limit	33.00
High Warning Limit	31.00
Low Warning Limit	25.00
Low Alarm Limit	23.00
Unit	3 °C [1]
Characteristic	[255] NTC
Sensor Offset	0.00
Alarm Status	Normal
Suppress Alarm	Enabled
Alarm Text	[5] call HW@0703163701
Alarm Severity	Noncritical
Alarm Delay	10
Alarm Hysteresis	3.00
Trend Logging	Disabled
Trend Hysteresis	1.00
Trend Cycle Counter	0
No Response Flag	Not Online

Config	Shows the CARE C-Bus datapoint properties
Operating Mode	Status of point: Auto or Manual
Technical Address	Internal six-digit number that defines and locates a point in the system. The technical address is composed of three pairs representing controller number (0-30), module number (1-16), and terminal number (1-12). Example: 010310 meaning Controller 1, Module 3, terminal 10. Operators use the User Address to refer to points.
Descriptor	Supplemental point information (maximum of 32 characters). Each Excel Controller has a unique set of descriptors (64 for Ver. 1.2 Controllers; 255 for Ver 1.3 and greater Controllers) that can be assigned to its user addresses to further describe them. Example: user address "Rmtempf1" can have a descriptor of "Heating circuit, West wing" to help define its location.
Last Change	Last change of datapoint properties
High Alarm Limit High Warning Limit Low Warning Limit Low Alarm Limit	High (mNX) and low (min) limits for point value. Limit values must be between the limits for the associated Characteristics. Limit values must also maintain the following relationship: High Alarm ≥ High Warning > Low Warning ≥ Low Alarm If you change the Characteristics assignment, the High limits default to the maximum characteristic value (if

larger than the new mNX) and the Low limits default to the minimum characteristic value (if smaller than the new min). The limits change only if they are outside the range of the new characteristic.

- Unit Engineering units with ID, unit, and format.
- Characteristic Input and output characteristics of the associated sensor.
- Sensor Offset Sensor offset value. It can be set to 0.

IMPORTANT
When controller OS 2.06.00 – 2.06.04 has been chosen, note the following restrictions and malfunctions:

Smart I/O modules
The sensor offset value entered here, is not processed by the Smart I/O module. To assure proper working, enter the sensor offset in the network tree for the UCPT.

- Alarm Status Alarm statuses can be normal or alarm
- Suppress Alarm Whether or not software should suppress alarm messages for changes in Fixed Mode and exceeding the alarm and warning limits.
- Alarm Text Alarm text that displays on point alarm.
- Alarm Severity Alarm type: critical or non-critical
- Alarm Delay How long (0 through 3600 seconds) an alarm condition must exist before software generates an alarm.
- Alarm Hysteresis Available for controller OS Ver. greater than 1.5. This value is the amount that an analog point must change before software reports an alarm or return-to-normal. Value range is 0 or x to y where x is determined by the engineering unit decimal position and y is determined by the difference of the high warning limit - low warning.

Engineering Unit Decimal Position	Min. Value (x)
0	1.0
1	0.1
2	.01
3	.001

Diff: = high warning limit - low warning.

For example, if the analog point has the following values:

engineering unit = Degrees with one decimal point
 high alarm limit = 85.0
 high warning limit = 82.0
 low warning limit = 68.0
 low alarm limit = 65.0

Diff = 82.0 - 68.0 = 14.0

Therefore, the valid range is .01 to 14.
 Default varies between 1 and 5 depending on schematic element. If the value is zero, fixed hysteresis applies.

- Trend Logging Indicates if trend logging in the controller is Enabled or Disabled.
- Trend Hysteresis Available for controller OS Ver. greater than 1.5. The value that the point must change (negative or positive) before software writes it to the trend buffer. Valid range is 0 or x to 100,000,000 (selected by entering 99999999).

The value of x is determined by the engineering unit of the point as follows:

Engineering Unit Decimal Position	Min. Value (x)
0	1.0
1	0.1
2	.01
3	.001

If the value is 0, the trend behaves as in OS Ver. lower than 1.5 and is as follows:

If value is greater than 20, the change must be at least 1 percent. If the value is less than 20, the change must be at least .2 units

Default is 0 for points that are not part of an element. To lessen or turn off the transmission of trend data, assign a high number to this value or assign a value to the Trend Cycle field. The Trend Cycle value takes precedence over the Trend Hysteresis value. Software sends trend data based on either hysteresis value or time, not both.

Trend Cycle Counter

Available for controller OS greater than Ver. 2.03. This value is similar to the Trend Hysteresis value, but is based on time. The range is 0 to 65535 minutes. A value of 0 disables time-based trending. Any value greater than 0 enables time-based trending. Time-based trending takes precedence over Trend Hysteresis value. Software sends trend data based on either hysteresis value or time, not both.

No Response Flag

Shows whether the I/O module, the point is assigned to, communicates with the controller or not:
communication is established = online
communication is interrupted = not online

Out	0.0 °C {fault} @ def	
In1	- {null}	
In2	- {null}	▼
In3	- {null}	▼
In4	- {null}	▼
In5	- {null}	▼
In6	- {null}	▼
In7	- {null}	▼
In8	- {null}	
In9	- {null}	▼
In10	- {null}	▼
In11	- {null}	▼
In12	- {null}	▼
In13	- {null}	▼
In14	- {null}	▼
In15	- {null}	▼
In16	- {null}	▼
Fallback	- {null}	▼
Override Expiration	null	

Out

Current value of the point

In1 ... In16	In1 .. In8 allow overriding the value manually. In1 shows the value if the point's value is overridden via manual override switch on a module or emergency override.
Fallback	(not applicable)
Override Expiration	When the override action is automatically set to "auto" upon expiration of the override period.

Analog Output Point

N ClgVlv (C Bus Numeric Writable)

Datapoint Name

(C-Bus Numeric Writable)
 (maximum of 18 alphanumeric characters) assigned to a point for operator use in locating and commanding the point. Examples: Rmtempf1 and FlotempG/fl. The technical address and the descriptor further define the point. This name must be unique within a controller. User Addresses must include one non-digit character and cannot include Tabs, double quotes, ?, *, or space characters. All other ASCII characters are allowable (A-Z, 0-9, +, -, _, etc.). For example, 12A is a valid user address, but 12 is not.

Facets units=Pct,precision=0 Pct,min=-inf Pct,max=+inf Pc... >> ⌚

Proxy Ext C Bus Proxy Ext

Status	{overridden}
Fault Cause	
Enabled	<input checked="" type="checkbox"/> true
Device Facets	>> ⌚
Conversion	Default
Tuning Policy Name	Default Policy
Read Value	35.00 {overridden}
Write Value	35.00 {overridden} @ 8
Poll Frequency	Normal
Point Name	ClgVlv
Point Type	Analog Output
Point Index	0

Facets

Engineering units and state texts definition

Proxy Ext

The Proxy Extensions area shows standard Niagara functions. Only a few of them are used by C-Bus points and they are described in the following. For all unused Niagara properties, please refer to the detailed Niagara BACnet documentation.

Read Value

(read only) Last value read from the device, expressed in device facets.

Write Value

(read only) Applies if writable point only. Last value written, using device facets.

Config	C Bus Point Config
Operating Mode	Manual
Technical Address	2/1/1
Point Subtype	Continuous
Descriptor	[7] Cooling Valve
Unit	54 Pct [0]
Characteristic	[10] Reverse Out 0-100%
Time to Open	120.00
Time to Close	120.00
Suppress Alarm	Enabled
Trend Logging	Disabled
Trend Hysteresis	1.00
Trend Cycle Counter	0
Override Status Flag	Automatic
No Response Flag	Online
SafetyPosition	0%

Config	Shows the CARE C-Bus datapoint properties
Operating Mode	Status of point: Auto or Manual
Technical Address	Internal six-digit number that defines and locates a point in the system. The technical address is composed of three pairs representing controller number (0-30), module number (1-16), and terminal number (1-12). Example: 010310 meaning Controller 1, Module 3, terminal 10. Operators use the User Address to refer to points.
Descriptor	Supplemental point information (maximum of 32 characters). Each Excel Controller has a unique set of descriptors (64 for Ver. 1.2 Controllers; 255 for Ver 1.3 and greater Controllers) that can be assigned to its user addresses to further describe them. Example: user address "Rmtemp11" can have a descriptor of "Heating circuit, West wing" to help define its location.
Unit	Engineering units with ID, unit, and format.
Characteristic	Input and output characteristics of the associated sensor.
Time to Open	Time (integer, 0 through 999 seconds) required for the actuator of a three-position output to motor from the closed to the open state.
Time to Close	Time (integer, 0 through 999 seconds) required for the actuator of a three-position output to motor from the open to the closed state.
Suppress Alarm	Whether or not software should suppress alarm messages for changes in Fixed Mode and exceeding the alarm and warning limits.
Trend Logging	Indicates if trend logging in the controller is Enabled or Disabled.
Trend Hysteresis	Available for controller OS Ver. greater than 1.5. The value that the point must change (negative or positive) before software writes it to the trend buffer. Valid range is 0 or x to 100,000,000 (selected by entering 99999999).

The value of x is determined by the engineering unit of the point as follows:

Engineering Unit Decimal Position	Min. Value (x)
0	1.0
1	0.1
2	.01
3	.001

If the value is 0, the trend behaves as in OS Ver. lower than 1.5 and is as follows:

If value is greater than 20, the change must be at least 1 percent. If the value is less than 20, the change must be at least .2 units

Default is 0 for points that are not part of an element. To lessen or turn off the transmission of trend data, assign a high number to this value or assign a value to the Trend Cycle field. The Trend Cycle value takes precedence over the Trend Hysteresis value. Software sends trend data based on either hysteresis value or time, not both.

Trend Cycle Counter Available for controller OS greater than Ver. 2.03. This value is similar to the Trend Hysteresis value, but is based on time. The range is 0 to 65535 minutes. A value of 0 disables time-based trending. Any value greater than 0 enables time-based trending. Time-based trending takes precedence over Trend Hysteresis value. Software sends trend data based on either hysteresis value or time, not both.

Override Status Flag Indicates if there is an override by an operated manual switch located on the module (Auto / Manual Override)

No Response Flag Shows whether the I/O module, the point is assigned to, communicates with the controller or not:
communication is established = online
communication is interrupted = not online

Safety Position The safety position is the position the device is commanded to if the controller does not deliver a value (no response). It can be selected under:

- 5 %
- 50 %
- 100 %
- Last valid Position

The safety position is affected by the characteristic used for the controller modules. For particular characteristics there is no linear correlation between percentage value and voltage output:

DP Type	Listbox number	Characteristic	Safety position (%)	
			0	50 100
			in DP values	in Volts
AO	1..10	User defined		0 5 10
AO	9	0-100%=2-10V	-25 37.5 100	0 5 10
AO	10	100-0%=2-10V	125 62.5 0	0 5 10
AO	12	LINEAR GRAPH	0 50 100	0 5 10

DP Type	Listbox number	Characteristic	Safety position (%)	
			0 50 100	0 5 10
AO	24	0-10V=0-100%	0 50 100	0 5 10
AO	25	2-10V=0-100%	0 50 100	2 6 10
DO	--	DO on AO	OFF / ON	0 10
MOT	12	LINEAR GRAPH	0 50 100	0 5 10

NOTE: The user-defined characteristics 1 through 10 can be changed; in this context, characteristics 3, 4, 5, 6, 9, 10 are pre-defined by CARE (default characteristics) and characteristics 1 and 2 are not pre-defined. The default characteristics 3 through 6 are pressure input characteristics which should not be used for an analog output.

In general, for the user-defined characteristics 1 through 10, the safety positions 0%, 50%, 100% do always mean 0V, 5V, 10V; in this context the datapoint values for characteristics 9 and 10 are deviant.

Out	35 Pct {overridden} @ 8
In1	- {null}
In2	- {null} ▼
In3	- {null} ▼
In4	- {null} ▼
In5	- {null} ▼
In6	- {null} ▼
In7	- {null} ▼
In8	35 Pct {ok}
In9	- {null} ▼
In10	- {null} ▼
In11	- {null} ▼
In12	- {null} ▼
In13	- {null} ▼
In14	- {null} ▼
In15	- {null} ▼
In16	- {null} ▼
Fallback	- {null} ▼
Override Expiration	null

- Out Current value of the point
- In1 ... In16 In1 .. In8 allow overriding the value manually. In1 shows the value if the point's value is overridden via manual override switch on a module or emergency override.
- Fallback (not applicable)
- Override Expiration When the override action is automatically set to "auto" upon expiration of the override period.

Digital Input Point

B RaFanStatus (C Bus Boolean Writable)

Datapoint Name (C-Bus Numeric Writable (maximum of 18 alphanumeric characters) assigned to a point for operator use in locating and commanding the point. Examples: Rmtempf1 and FlotempG/fl. The technical address and the descriptor further define the point. This name must be unique within a controller User addresses must include one non-digit character and cannot include Tabs, double quotes, ?, *, or space characters. All other ASCII characters are allowable (A-Z, 0-9, +, -, _, etc.). For example, 12A is a valid user address, but 12 is not.

Proxy Ext	C Bus Proxy Ext
Status	{ok}
Fault Cause	
Enabled	<input checked="" type="checkbox"/> true
Device Facets	>> ⌚
Conversion	Default
Tuning Policy Name	Default Policy
Read Value	false {ok}
Write Value	- {null} @ def
Poll Frequency	Normal
Point Name	RaFanStatus
Point Type	Digital Input
Point Index	2

Facets Engineering units and state texts definition

Proxy Ext The Proxy Extensions area shows standard Niagara functions. Only a few of them are used by C-Bus points and they are described in the following. For all unused Niagara properties, please refer to the detailed Niagara BACnet documentation.

Read Value
(read only) Last value read from the device, expressed in device facets.

Write Value
(read only) Applies if writable point only. Last value written, using device facets.

Config Shows the CARE C-Bus datapoint properties

Config	C Bus Point Config
Operating Mode	Auto
Technical Address	2/2/3
Point Subtype	254
Descriptor	[11] Return Air Fan Status
Last change	1/19/17 2:47 PM
Unit	13- On / Off
Runtime Counter	0
Service Interval	0
Runtime Enabled	Disabled
Hours since serviced	0
Cycle Count	0
Active State	1
Alarm Status	Normal
Suppress Alarm	Enabled
Alarm Text	[3] Fan Alarm
Alarm Severity	Noncritical
Change of State Alarm	Disabled
Alarm Delay	10
Trend Logging	Disabled
No Response Flag	Online
Contact type	Normally Open
LED Mode	Alarm

- Operating Mode Status of point: Auto or Manual
- Technical Address Internal six-digit number that defines and locates a point in the system. The technical address is composed of three pairs representing controller number (0-30), module number (1-16), and terminal number (1-12). Example: 010310 meaning Controller 1, Module 3, terminal 10. Operators use the User Address to refer to points.
- Descriptor Supplemental point information (maximum of 32 characters). Each Excel Controller has a unique set of descriptors (64 for Ver. 1.2 Controllers; 255 for Ver 1.3 and greater Controllers) that can be assigned to its user addresses to further describe them. Example: user address "Rmtempf11" can have a descriptor of "Heating circuit, West wing" to help define its location.
- Last Change Date of last change of point value
- Unit Engineering units with ID, unit, and format.
- Runtime Counter Number of hours the runtime counter has counted
- Service Interval Number of log hours after which software generates a maintenance alarm. Enter zero for no alarm message. Runtime Enabled must be enabled (Yes). Note that runtime accumulates only if the point is in the active state.
- Runtime Enabled Whether or not to maintain a count of hours run (resolution one hour).

Hours since serviced Number of hours since the last service

Cycle Count Value of a counter that represents the number of times a point is commanded to active state.

Active State State that determines which point state (Logic 0 or 1) is the active (“normal”) state. The other state is the passive (“alarm”) state.

The following table shows the relationship between active and passive states and statuses as well as between N.O. and N.C.

Hardware Condition	Logical State		Active State Value	
	DI (NC)	DI (NO)	0	1
No voltage at screw terminal. See Note 1.	1	0	Active Text, normal	Passive Text, alarm
Voltage at screw terminal. See Note 2.	0	1	Passive Text, alarm	Active Text, normal

NOTES:

1. On an Excel 500 or 100, this is an open contact. On an Excel 80, this is a closed contact.

2. On an Excel 500 or 100, this is a closed contact. On an Excel 80, this is an open contact.

The active state flag affects the alarm state and engineering units that display for digital inputs. The point type (NO/NC) affects the logical operation of the point.

Note that software monitors point state only if the Alarm Point field is checked.

Active State only applies to controller OS Ver. lower than 2.04

Alarm Status Alarm statuses can be normal or alarm

Suppress Alarm Whether or not software should suppress alarm messages for changes in Fixed Mode and exceeding the alarm and warning limits.

Alarm Text Alarm text that displays on point alarm.

Alarm Severity Alarm type: critical or non-critical

Change of State Alarm Whether or not software should monitor point changes from active to passive.

Alarm Delay How long (0 through 3600 seconds) an alarm condition must exist before software generates an alarm.

Trend Logging Indicates if trend logging in the controller is Enabled or Disabled.





















No Response Flag Shows whether the I/O module, the point is assigned to, communicates with the controller or not: communication is established = online communication is interrupted = not online

Contact type Contact type can be Normally open or Normally closed

LED Mode Shows whether the alarm LED is used in status mode or alarm mode with the following indication:

Status
 Yellow = ON, No color = OFF

Alarm
 Red = Alarm, Green = No alarm

 Out	<input type="text" value="Alarm {ok} @ def"/>
 In1	<input type="text" value="- {null}"/>
 In2	<input type="text" value="- {null}"/> ▼
 In3	<input type="text" value="- {null}"/> ▼
 In4	<input type="text" value="- {null}"/> ▼
 In5	<input type="text" value="- {null}"/> ▼
 In6	<input type="text" value="- {null}"/>
 In7	<input type="text" value="- {null}"/> ▼
 In8	<input type="text" value="- {null}"/>
 In9	<input type="text" value="- {null}"/> ▼
 In10	<input type="text" value="- {null}"/> ▼
 In11	<input type="text" value="- {null}"/> ▼
 In12	<input type="text" value="- {null}"/> ▼
 In13	<input type="text" value="- {null}"/> ▼
 In14	<input type="text" value="- {null}"/> ▼
 In15	<input type="text" value="- {null}"/> ▼
 In16	<input type="text" value="- {null}"/> ▼
 Fallback	<input type="text" value="- {null}"/> ▼
 Override Expiration	<input type="text" value="null"/>
 Min Active Time	<input type="text" value="+00000h 00m 00s"/> ⚙
 Min Inactive Time	<input type="text" value="+00000h 00m 00s"/> ⚙
 Set Min Inactive Time On Start	<input checked="" type="radio" value="false"/> false ▼

Out	Current value of the point
In1 ... In16	In1 .. In8 allow overriding the value manually. In1 shows the value if the point's value is overridden via manual override switch on a module or emergency override.
Fallback	(not applicable)
Override Expiration	When the override action is automatically set to "auto" upon expiration of the override period.
Min Active Time Min Inactive Time	

Each BooleanWritable point has built-in timers to specify minimum on and/or minimum off times. The respective point properties are "Min Active Time" and "Min Inactive Time." The usage is optional, and both properties work independently. The typical usage is to prevent short-cycling of equipment controlled by the point.

Default property times for a BooleanWritable are all zeros ("00000h 00m 00s") which effectively disables a timer. In either property, you can specify any value needed using of a mix of hours (h), minutes (m), and seconds (s) to enable that timer. A minimum timer is triggered by a state change transition to active or inactive. This results in the new state value being stored in the point's priority array (at priority level 6) for the duration of that timer. While a minimum timer is

in effect, only input changes at a higher priority (5 or above) or an emergency action can affect the Out value.

For example, a BooleanWritable point controls a fan, with related properties set as follows:

Min Active Time: 00000h 01m 30s

Specifies that once started, the fan must run at least 90 seconds.

Min Inactive Time: 00000h 03m 5s

Specifies that once stopped, the fan must remain stopped at 3 minutes, 5 seconds.

Starting with the fan stopped at schedule level (priority 16), if a user gives it a manual override on (priority level 8), the fan will run for 90 seconds at priority level 6 (a higher level). After this period, the fan continues running at the override 8 level for the duration of the override.

During the initial 90 seconds, a different override action (off or auto) will be ineffective--as the higher priority level 6 remains in control. See Priority level conventions.

Once stopped, the point's minimum off time will keep the fan off at priority level 6 for the specified duration (in this example, 3 minutes and 5 seconds). During this period, only an emergency command or input change at In2--In5 can effect further change.

Set Min Inactive Time on Start

Defines if the "Min Inactive Time" takes place first in case of device or station start.

Digital Output Point

B RaFan (C Bus Boolean Writable)

Datapoint Name

(C-Bus Numeric Writable (maximum of 18 alphanumeric characters) assigned to a point for operator use in locating and commanding the point. Examples: Rmtempfl1 and FlotempG/fl. The technical address and the descriptor further define the point. This name must be unique within a controller. User addresses must include one non-digit character and cannot include Tabs, double quotes, ?, *, or space characters. All other ASCII characters are allowable (A-Z, 0-9, +, -, _, etc.). For example, 12A is a valid user address, but 12 is not.

Proxy Ext	C Bus Proxy Ext
Status	{ok}
Fault Cause	
Enabled	<input checked="" type="checkbox"/> true
Device Facets	>> ⌚
Conversion	Default
Tuning Policy Name	Default Policy
Read Value	false {ok}
Write Value	- {null} @ def
Poll Frequency	Normal
Point Name	RaFan
Point Type	Digital Output
Point Index	1

Facets



















Engineering units and state texts definition.

Proxy Ext

The Proxy Extensions area shows standard Niagara functions. Only a few of them are used by C-Bus points and they are described in the following. For all unused Niagara properties, please refer to the detailed Niagara BACnet documentation.

Read Value
(read only) Last value read from the device, expressed in device facets.

Write Value
(read only) Applies if writable point only. Last value written, using device facets.

▼  Config	C Bus Point Config
 Operating Mode	Auto
 Technical Address	2/3/2
 Descriptor	[13] Return Air Fan
 Last change	1/19/17 2:50 PM
 Unit	13- On / Off
 Runtime Counter	0
 Service Interval	0
 Runtime Enabled	Disabled
 Hours since serviced	0
 Cycle Count	0
 Suppress Alarm	Enabled
 Active State	1
 Alarm Severity	Noncritical
 Override Status Flag	Automatic
 No Response Flag	Online
 Contact type	Normally Open
 SafetyPosition	0%

Config	Shows the CARE C-Bus datapoint properties
Operating Mode	Status of point: Auto or Manual
Technical Address	Internal six-digit number that defines and locates a point in the system. The technical address is composed of three pairs representing controller number (0-30), module number (1-16), and terminal number (1-12). Example: 010310 meaning Controller 1, Module 3, terminal 10. Operators use the User Address to refer to points.
Descriptor	Supplemental point information (maximum of 32 characters). Each Excel Controller has a unique set of descriptors (64 for Ver. 1.2 Controllers; 255 for Ver 1.3 and greater Controllers) that can be assigned to its user addresses to further describe them. Example: user address "Rmtempf11" can have a descriptor of "Heating circuit, West wing" to help define its location.
Last Change	Date of last change of point value
Unit	Engineering units with ID, unit, and format.
Runtime Counter	Number of hours the runtime counter has counted
Service Interval	Number of log hours after which software generates a maintenance alarm. Enter zero for no alarm message. Runtime Enabled must be enabled (Yes). Note that runtime accumulates only if the point is in the active state.
Runtime Enabled	Whether or not to maintain a count of hours run (resolution one hour). Available only for non-pulsed DOs. This item does not display for pulse-type points.
Hours since serviced	Number of hours since the last service
Cycle Count	Value of a counter that represents the number of times a point is commanded to active state.

Suppress Alarm Whether or not software should suppress alarm messages for changes in Fixed Mode and exceeding the alarm and warning limits.

Active State State that determines which point state (Logic 0 or 1) is the active (“normal”) state. The other state is the passive (“alarm”) state.

The following table shows the relationship between active and passive states and statuses, as well as between energized and deenergized.

Hardware Condition	Active State Value	
	0	1
Deenergized	Active Text, Logic 1	Passive Text, Logic 0
Energized	Passive Text, Logic 0	Active Text, Logic 1

The active state flag affects the logical operation and engineering units of digital outputs. The point type (NO/NC) only affects the terminal assignment during you attach the plant.

Active State only applies to controller OS Ver. lower than 2.04.

Alarm Severity Alarm type: critical or non-critical

Override Status Flag Indicates if there is an override by an operated manual switch located on the module (Auto / Manual Override)

No Response Flag Shows whether the I/O module, the point is assigned to, communicates with the controller or not:
communication is established = online
communication is interrupted = not online

Contact type Contact type can be Normally open or Normally closed

Safety Position The safety position is the position the device is commanded to if the controller does not deliver a value (no response). It can be selected under:

- OFF (logical)
- ON (logical)
device is commanded to the selected logical state
- Last valid Position
device is commanded to the last valid position

Out	Alarm {ok} @ def
In1	- {null}
In2	- {null} ▾
In3	- {null} ▾
In4	- {null} ▾
In5	- {null} ▾
In6	- {null}
In7	- {null} ▾
In8	- {null}
In9	- {null} ▾
In10	- {null} ▾
In11	- {null} ▾
In12	- {null} ▾
In13	- {null} ▾
In14	- {null} ▾
In15	- {null} ▾
In16	- {null} ▾
Fallback	- {null} ▾
Override Expiration	null
Min Active Time	+00000h 00m 00s
Min Inactive Time	+00000h 00m 00s
Set Min Inactive Time On Start	<input checked="" type="radio"/> false ▾

Out	Current value of the point
In1 ... In16	In1 .. In8 allow overriding the value manually. In1 shows the value if the point's value is overridden via manual override switch on a module or emergency override.
Fallback	(not applicable)
Override Expiration	When the override action is automatically set to "auto" upon expiration of the override period.
Min Active Time Min Inactive Time	

Each BooleanWritable point has built-in timers to specify minimum on and/or minimum off times. The respective point properties are "Min Active Time" and "Min Inactive Time." The usage is optional, and both properties work independently. The typical usage is to prevent short-cycling of equipment controlled by the point.

Default property times for a BooleanWritable are all zeros ("00000h 00m 00s") which effectively disables a timer. In either property, you can specify any value needed using a mix of hours (h), minutes (m), and seconds (s) to enable that timer.

A minimum timer is triggered by a state change transition to active or inactive. This results in the new state value being stored in the point's priority array (at priority level 6) for the duration of that timer. While a minimum timer is in effect, only input changes at a higher priority (5 or above) or an emergency action can affect the Out value.

For example, a BooleanWritable point controls a fan, with related properties set as follows:

Min Active Time: 00000h 01m 30s

Specifies that once started, the fan must run at least 90 seconds.

Min Inactive Time: 00000h 03m 5s

Specifies that once stopped, the fan must remain stopped at 3 minutes, 5 seconds.

Starting with the fan stopped at schedule level (priority 16), if a user gives it a manual override on (priority level 8), the fan will run for 90 seconds at priority level 6 (a higher level). After this period, the fan continues running at the override 8 level for the duration of the override.

During the initial 90 seconds, a different override action (off or auto) will be ineffective--as the higher priority level 6 remains in control. See Priority level conventions.

Once stopped, the point's minimum off time will keep the fan off at priority level 6 for the specified duration (in this example, 3 minutes and 5 seconds). During this period, only an emergency command or input change at In2--In5 can effect further change.

Set Min Inactive Time
on Start















Defines if the "Min Inactive Time" takes place first in case of device or station start.

Analog Value Point

N AvgRoomTemp (C Bus Numeric Writable)

Datapoint Name

(C-Bus Numeric Writable) (maximum of 18 alphanumeric characters) assigned to a point for operator use in locating use in locating and commanding the point. Examples: Rmtempf1 and FlotempG/fl. The technical address and the descriptor further define the point. This name must be unique within a controller. User addresses must include one non-digit character and cannot include Tabs, double quotes, ?, *, or space characters. All other ASCII characters are allowable (A-Z, 0-9, +, -, _, etc.). For example, 12A is a valid user address, but 12 is not.

 Facets	units=°C,precision=1°C,min=-inf°C,max=+inf°C >> ⌚
 Proxy Ext	C Bus Proxy Ext
 Status	{down}
 Fault Cause	
 Enabled	<input checked="" type="checkbox"/> true
 Device Facets	>> ⌚
 Conversion	Default
 Tuning Policy Name	Default Policy
 Read Value	0.00 {ok}
 Write Value	- {null} @ def
 Poll Frequency	Normal
 Point Name	AvgRoomTemp
 Point Type	AnalogValue
 Point Index	0

Facets

Engineering units and state texts definition

Proxy Ext

The Proxy Extensions area shows standard Niagara functions. Only a few of them are used by C-Bus points and they are described in the following. For all unused Niagara properties, please refer to the detailed Niagara BACnet documentation.

Read Value

(read only) Last value read from the device, expressed in device facets.

Write Value

(read only) Applies if writable point only. Last value written, using device facets.

Config	C Bus Point Config
Operating Mode	Auto
Technical Address	2/1/1
Descriptor	[15] Average Room Temp 1st floor
Last change	1/19/17 2:54 PM
High Alarm Limit	99999.00
High Warning Limit	99999.00
Low Warning Limit	-50.00
Low Alarm Limit	-50.00
Unit	3 °C [1]
Alarm Status	Normal
Suppress Alarm	Enabled
Alarm Text	[1] Temp out of range
Alarm Severity	Noncritical
Alarm Hysteresis	0.00
Trend Logging	Disabled
Trend Hysteresis	0.00
Trend Cycle Counter	0
No Response Flag	Online

Config	Shows the CARE C-Bus datapoint properties
Operating Mode	Status of point: Auto or Manual
Technical Address	Internal six-digit number that defines and locates a point in the system. The technical address is composed of three pairs representing controller number (0-30), module number (1-16), and terminal number (1-12). Example: 010310 meaning Controller 1, Module 3, terminal 10. Operators use the User Address to refer to points.
Descriptor	Supplemental point information (maximum of 32 characters). Each Excel Controller has a unique set of descriptors (64 for Ver. 1.2 Controllers; 255 for Ver 1.3 and greater Controllers) that can be assigned to its user addresses to further describe them. Example: user address "Rmtempf1" can have a descriptor of "Heating circuit, West wing" to help define its location.
Last Change	Last change of datapoint properties
High Alarm Limit High Warning Limit Low Warning Limit Low Alarm Limit	High (mNX) and low (min) limits for point value. Limit values must be between the limits for the associated Characteristics. Limit values must also maintain the following relationship: High Alarm ≥ High Warning > Low Warning ≥ Low Alarm If you change the Characteristics assignment, the High limits default to the maximum characteristic value (if larger than the new mNX) and the Low limits default to the minimum characteristic value (if smaller than the new min). The limits change only if they are outside the range of the new characteristic.

Unit	Engineering units with ID, unit, and format.
Alarm Status	Alarm statuses can be normal or alarm
Suppress Alarm	Whether or not software should suppress alarm messages for changes in Fixed Mode and exceeding the alarm and warning limits.
Alarm Text	Alarm text that displays on point alarm.
Alarm Severity	Alarm type: critical or non-critical
Alarm Delay	How long (0 through 3600 seconds) an alarm condition must exist before software generates an alarm.
Alarm Hysteresis	Available for controller OS Ver. greater than 1.5. This value is the amount that an analog point must change before software reports an alarm or return-to-normal. Value range is 0 or x to y where x is determined by the engineering unit decimal position and y is determined by the difference of the high warning limit - low warning.

Engineering Unit	
Decimal Position	Min. Value (x)
0	1.0
1	0.1
2	.01
3	.001

Diff: = high warning limit - low warning.

For example, if the analog point has the following values:

engineering unit = Degrees with one decimal point
 high alarm limit = 85.0
 high warning limit = 82.0
 low warning limit = 68.0
 low alarm limit = 65.0

Diff = 82.0 - 68.0 = 14.0

Therefore, the valid range is .01 to 14.

Default varies between 1 and 5 depending on schematic element. If the value is zero, fixed hysteresis applies. Indicates if trend logging in the controller is Enabled or Disabled.

Trend Logging	Indicates if trend logging in the controller is Enabled or Disabled.
Trend Hysteresis	Available for controller OS Ver. greater than 1.5. The value that the point must change (negative or positive) before software writes it to the trend buffer. Valid range is 0 or x to 100,000,000 (selected by entering 99999999). The value of x is determined by the engineering unit of the point as follows:

Engineering Unit	
Decimal Position	Min. Value (x)
0	1.0
1	0.1
2	.01
3	.001

If the value is 0, the trend behaves as in OS Ver. lower than 1.5 and is as follows:

If value is greater than 20, the change must be at least 1 percent. If the value is less than 20, the change must be at least .2 units

Default is 0 for points that are not part of an element. To lessen or turn off the transmission of trend data, assign a high number to this value or assign a value to the Trend

Cycle field. The Trend Cycle value takes precedence over the Trend Hysteresis value. Software sends trend data based on either hysteresis value or time, not both.

- Trend Cycle Counter** Available for controller OS greater than Ver. 2.03. This value is similar to the Trend Hysteresis value, but is based on time. The range is 0 to 65535 minutes. A value of 0 disables time-based trending. Any value greater than 0 enables time-based trending. Time-based trending takes precedence over Trend Hysteresis value. Software sends trend data based on either hysteresis value or time, not both.
- No Response Flag** Shows whether the I/O module, the point is assigned to, communicates with the controller or not:
communication is established = online
communication is interrupted = not online

Out	0.0 °C {down} @ def
In1	- {null}
In2	- {null} ↓
In3	- {null} ↓
In4	- {null} ↓
In5	- {null} ↓
In6	- {null} ↓
In7	- {null} ↓
In8	- {null}
In9	- {null} ↓
In10	- {null} ↓
In11	- {null} ↓
In12	- {null} ↓
In13	- {null} ↓
In14	- {null} ↓
In15	- {null} ↓
In16	- {null} ↓
Fallback	- {null} ↓
Override Expiration	null

- Out** Current value of the point
- In1 ... In16** In1 .. In8 allow overriding the value manually. In1 shows the value if the point's value is overridden via manual override switch on a module or emergency override.
- Fallback** (not applicable)
- Override Expiration** When the override action is automatically set to "auto" upon expiration of the override period.

Digital Value Point

E EconMode (C Bus Enum Writable)

Datapoint Name (C-Bus Numeric Writable)
 (maximum of 18 alphanumeric characters) assigned to a point for operator use in locating and commanding the point. Examples: Rmtempf1 and FlotempG/fl. The technical address and the descriptor further define the point. This name must be unique within a controller. User addresses must include one non-digit character and cannot include Tabs, double quotes, ?, *, or space characters. All other ASCII characters are allowable (A-Z, 0-9, +, -, _, etc.). For example, 12A is a valid user address, but 12 is not.

Facets	range={Winter=0,Summer=1} >> ⌚
▼ Proxy Ext	C Bus Proxy Ext
Status	{down}
Fault Cause	
Enabled	<input checked="" type="checkbox"/> true
Device Facets	>> ⌚
Conversion	Default
Tuning Policy Name	Default Policy
Read Value	0 {ok}
Write Value	- {null} @ def
Poll Frequency	Normal
Point Name	EconMode
Point Type	Digital Value
Point Index	3

Facets Engineering units and state texts definition

Proxy Ext The Proxy Extensions area shows standard Niagara functions. Only a few of them are used by C-Bus points and they are described in the following. For all unused Niagara properties, please refer to the detailed Niagara BACnet documentation.

Read Value
 (read only) Last value read from the device, expressed in device facets.

Write Value
 (read only) Applies if writable point only. Last value written, using device facets.

Config	C Bus Point Config
Operating Mode	Auto
Technical Address	
Point Subtype	2 State
Descriptor	[0]
Last change	
Highest Point Value	0
Unit	22- Summer / Winter
Runtime Counter	0.00
Service Interval	0
Runtime Enabled	Disabled
Hours since serviced	0.00
Cycle Count	0.00
Active State	0
Alarm Status	Normal
Suppress Alarm	Disabled
Alarm Text	[0]
Alarm Severity	Noncritical
Change of State Alarm	Disabled
Trend Logging	Disabled
No Response Flag	Online

Config	Shows the CARE C-Bus datapoint properties
Operating Mode	Status of point: Auto or Manual
Technical Address	Internal six-digit number that defines and locates a point in the system. The technical address is composed of three pairs representing controller number (0-30), module number (1-16), and terminal number (1-12). Example: 010310 meaning Controller 1, Module 3, terminal 10. Operators use the User Address to refer to points.
Descriptor	Supplemental point information (maximum of 32 characters). Each Excel Controller has a unique set of descriptors (64 for Ver. 1.2 Controllers; 255 for Ver 1.3 and greater Controllers) that can be assigned to its user addresses to further describe them. Example: user address "Rmtempf1" can have a descriptor of "Heating circuit, West wing" to help define its location.
Last Change	Date of last change of point value
Highest Point Value	Displays the highest state number used.
Unit	Engineering units with ID, unit, and format.
Runtime Counter	Number of hours the runtime counter has counted
Service Interval	Number of log hours after which software generates a maintenance alarm. Enter zero for no alarm message. Runtime Enabled must be enabled (Yes). Note that runtime accumulates only if the point is in the active state.

Runtime Enabled	Whether or not to maintain a count of hours run (resolution one hour).
Hours since serviced	Number of hours since the last service
Cycle Count	Value of a counter that represents the number of times a point is commanded to active state.
Active State	State that determines which point state (Logic 0 or 1) is the active (“normal”) state. The other state is the passive (“alarm”) state.

The following table shows the relationship between active and passive states and statuses as well as between N.O. and N.C.

Logical State	Active State Value	
	0	1
0	Active Text, normal	Passive Text, alarm
1	Passive Text, alarm	Active Text, normal

NOTES:

1. On an Excel 500 or 100, this is an open contact. On an Excel 80, this is a closed contact.
2. On an Excel 500 or 100, this is a closed contact. On an Excel 80, this is an open contact.

The active state flag affects the alarm state and engineering units that display for digital inputs. The point type (NO/NC) affects the logical operation of the point.

Note that software monitors point state only if the Alarm Point field is checked.

Active State only applies to controller OS Ver. lower than 2.04

Alarm Status	Alarm statuses can be normal or alarm
Suppress Alarm	Whether or not software should suppress alarm messages for changes in Fixed Mode and exceeding the alarm and warning limits.
Alarm Text	Alarm text that displays on point alarm.
Alarm Severity	Alarm type: critical or non-critical
Change of State Alarm	Whether or not software should monitor point changes from active to passive.
Trend Logging	Indicates if trend logging in the controller is Enabled or Disabled.
No Response Flag	Shows whether the I/O module, the point is assigned to, communicates with the controller or not: communication is established = online communication is interrupted = not online

Out	Winter {down} @ def
In1	- {null}
In2	- {null} ⌵
In3	- {null} ⌵
In4	- {null} ⌵
In5	- {null} ⌵
In6	- {null} ⌵
In7	- {null} ⌵
In8	- {null}
In9	- {null} ⌵
In10	- {null} ⌵
In11	- {null} ⌵
In12	- {null} ⌵
In13	- {null} ⌵
In14	- {null} ⌵
In15	- {null} ⌵
In16	- {null} ⌵
Fallback	- {null} ⌵
Override Expiration	null

Out	Current value of the point
In1 ... In16	In1 .. In8 allow overriding the value manually. In1 shows the value if the point's value is overridden via manual override switch on a module or emergency override.
Fallback	(not applicable)
Override Expiration	When the override action is automatically set to "auto" upon expiration of the override period.

Global Points

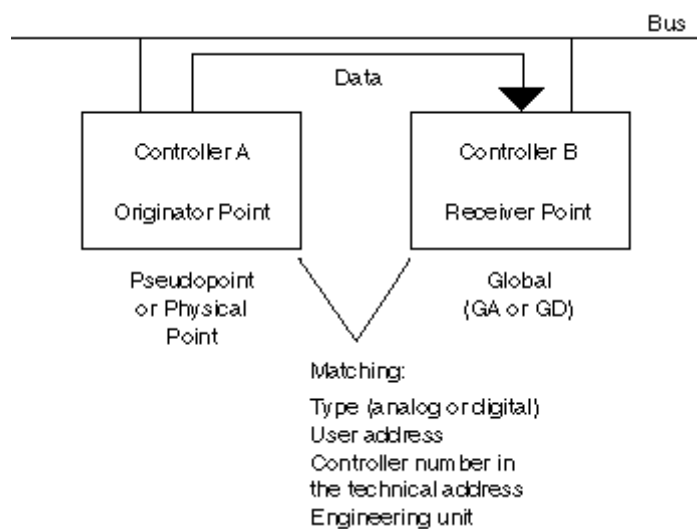
Purpose Display and/or modify the attributes for the selected global analog point.

Definition *Global points* are a type of pseudopoint that can be either an input or output. The purpose of global points is to share point information across controllers on a bus.

Global inputs *receive* information from a point in another controller. Use a global input when one controller has a point that should be global to many other controllers.

Global outputs *send* information to other points in other controllers. Use a global output when one controller has a point that is global to only one point in another controller. You can also use global outputs for some control icons that only connect to outputs and the output must be global. Global outputs can only be associated with pseudopoints or output points (not input points).

Global Inputs Each global input is associated with a pseudopoint or physical point (“originator” point) somewhere on the bus and has the same user address, controller number in the technical address, engineering unit, and type (analog or digital) as the point. The originator point cannot be a global point.



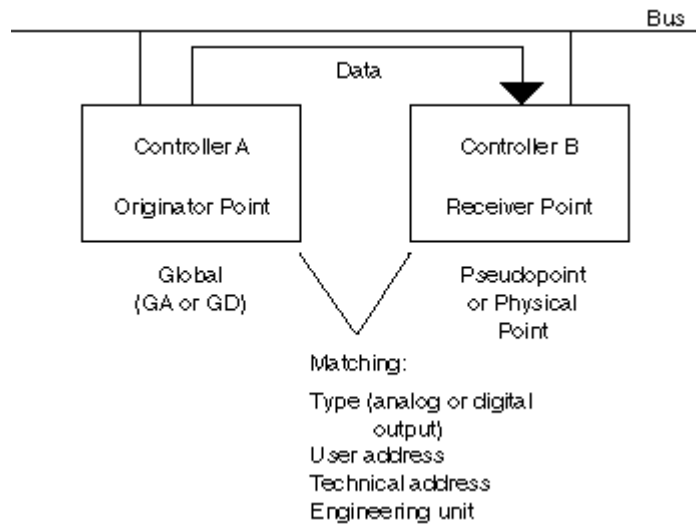
Global Input Point Operation

The system updates global inputs every 2 minutes. It also updates global analog inputs when the originator point changes significantly. If point value is greater than 20, the change must be at least 1 percent. If point value is less than or equal to 20, the change must be at least .2 units. For example:

Point Value	Change
100	1
200	2
50	.5
10	.2
5	.2

For global digital points, a change of state triggers an update.

Global Outputs Each global output is associated with a pseudopoint or physical point (“receiver” point) somewhere on the bus and has the same user address, technical address, engineering unit, and type (analog or digital output) as the point.



Global Output Point Operation


The system updates the receiver points when the global analog outputs change significantly. If global value is greater than 20, the change must be at least 1 percent. If global value is less than or equal to 20, the change must be at least .2 units. For example:

Global Value	Change
100	1
200	2
50	.5
10	.2
5	.2
























For global digital points, a change of state triggers an update.

There is no automatic 2-minute refresh for global output points.

Global Analog Point

 GA (C Bus Numeric Writable)

Datapoint Name (C-Bus Numeric Writable)
 (maximum of 18 alphanumeric characters) assigned to a point for operator use in locating and commanding the point. Examples: Rmtempf1 and FlotempG/fl. The technical address and the descriptor further define the point. This name must be unique within a controller. User addresses must include one non-digit character and cannot include Tabs, double quotes, ?, *, or space characters. All other ASCII characters are allowable (A-Z, 0-9, +, -, _, etc.). For example, 12A is a valid user address, but 12 is not.

 Facets	 
 Proxy Ext	C Bus Proxy Ext
 Status	<input data-bbox="970 712 1230 748" type="text" value="{down}"/>
 Fault Cause	<input data-bbox="970 757 1485 792" type="text"/>
 Enabled	<input checked="" data-bbox="970 801 1007 837" type="checkbox"/> true 
 Device Facets	 
 Conversion	 Default 
 Tuning Policy Name	Default Policy 
 Read Value	<input data-bbox="970 990 1485 1025" type="text" value="0.00 {ok}"/>
 Write Value	<input data-bbox="970 1034 1485 1070" type="text" value="- {null} @ def"/>
 Poll Frequency	Normal 
 Point Name	<input data-bbox="970 1124 1485 1160" type="text" value="GA"/>
 Point Type	Analog Remote
 Point Index	<input data-bbox="970 1214 1158 1249" type="text" value="0"/>

Facets Engineering units and state texts definition

Proxy Ext The Proxy Extensions area shows standard Niagara functions. Only a few of them are used by C-Bus points and they are described in the following. For all unused Niagara properties, please refer to the detailed Niagara BACnet documentation.

Read Value
 (read only) Last value read from the device, expressed in device facets.

Write Value
 (read only) Applies if writable point only. Last value written, using device facets.

Config	C Bus Point Config
Operating Mode	Auto
Technical Address	
Point Subtype	Input
Descriptor	[0]
Unit	1 [0]
Trend Hysteresis	0.00
Trend Cycle Counter	0
No Response Flag	Online
Broadcast Hysteresis	0.00

Config	Shows the CARE C-Bus datapoint properties															
Operating Mode	Status of point: Auto or Manual															
Technical Address	Internal six-digit number that defines and locates a point in the system. The technical address is composed of three pairs representing controller number (0-30), module number (1-16), and terminal number (1-12). Example: 010310 meaning Controller 1, Module 3, terminal 10. Operators use the User Address to refer to points.															
Descriptor	Supplemental point information (maximum of 32 characters). Each Excel Controller has a unique set of descriptors (64 for Ver. 1.2 Controllers; 255 for Ver 1.3 and greater Controllers) that can be assigned to its user addresses to further describe them. Example: user address "Rmtempfl1" can have a descriptor of "Heating circuit, West wing" to help define its location.															
Unit	Engineering units with ID, unit, and format.															
Trend Hysteresis	Available for controller OS Ver. greater than 1.5. The value that the point must change (negative or positive) before software writes it to the trend buffer. Valid range is 0 or x to 100,000,000 where x is determined by the engineering unit of the point as follows: <table border="1" data-bbox="842 1406 1276 1579"> <thead> <tr> <th>Engineering Unit</th> <th>Decimal Position</th> <th>Min. Value (x)</th> </tr> </thead> <tbody> <tr> <td></td> <td>0</td> <td>1.0</td> </tr> <tr> <td></td> <td>1</td> <td>0.1</td> </tr> <tr> <td></td> <td>2</td> <td>.01</td> </tr> <tr> <td></td> <td>3</td> <td>.001</td> </tr> </tbody> </table> <p>If the value is 0, the trend behaves as in OS Ver. lower than 1.5 and is as follows: If value is greater than 20, the change must be at least 1 percent. If the value is less than 20, the change must be at least .2 units. Default is 0. To lessen or turn off the transmission of trend data, assign a high number to this value or assign a value to the Trend Cycle Minutes field. The Trend Cycle Minutes value takes precedence over the Trend Hysteresis value. Software sends trend data based on either hysteresis value or time, not both.</p>	Engineering Unit	Decimal Position	Min. Value (x)		0	1.0		1	0.1		2	.01		3	.001
Engineering Unit	Decimal Position	Min. Value (x)														
	0	1.0														
	1	0.1														
	2	.01														
	3	.001														
Trend Cycle Counter	Available for controller OS greater than Ver. 2.03. This value is similar to the Trend Hysteresis value, but is based on time. The range is 0 to 65535 minutes.															

A value of 0 disables time-based trending. Any value greater than 0 enables time-based trending. Time-based trending takes precedence over Trend Hysteresis value. Software sends trend data based on either hysteresis value or time, not both.

- No Response Flag** Shows whether the I/O module, the point is assigned to, communicates with the controller or not: communication is established = online communication is interrupted = not online
- Broadcast Hysteresis** Available for controller OS Ver. 1.5. This value is that amount that a point must change before software broadcasts it to other controllers. Value range is 0 or x to 100,000,000 where x is determined by engineering unit decimal position as follows.

Engineering Unit Decimal Position	Min. Value (x)
0	1.0
1	0.1
2	.01
3	.001

If the value is 0, software constantly broadcasts to the controllers. Default is 0. If several global points are assigned to the same physical point, the lowest global point broadcast hysteresis from the assigned global point is used. This value can also be accessed by the RIA and WIA control icons.

To lessen or turn off the frequency of broadcasts, assign a high number to this value.

Out	0.00 {down} @ def	
In1	- {null}	
In2	- {null}	▼
In3	- {null}	▼
In4	- {null}	▼
In5	- {null}	▼
In6	- {null}	▼
In7	- {null}	▼
In8	- {null}	
In9	- {null}	▼
In10	- {null}	▼
In11	- {null}	▼
In12	- {null}	▼
In13	- {null}	▼
In14	- {null}	▼
In15	- {null}	▼
In16	- {null}	▼
Fallback	- {null}	▼
 Override Expiration	null	

- Out** Current value of the point
- In1 ... In16** In1 .. In8 allow overriding the value manually. In1 shows the value if the point's value is overridden via manual override switch on a module or emergency override.

Fallback	(not applicable)
Override Expiration	When the override action is automatically set to "auto" upon expiration of the override period.

Global Digital Point

E GD (C Bus Enum Writable)

Datapoint Name (C-Bus Numeric Writable) (maximum of 18 alphanumeric characters) assigned to a point for operator use in locating and commanding the point. Examples: Rmtempf1 and FlotempG/fl. The technical address and the descriptor further define the point. This name must be unique within a controller. User addresses must include one non-digit character and cannot include Tabs, double quotes, ?, *, or space characters. All other ASCII characters are allowable (A-Z, 0-9, +, -, _, etc.). For example, 12A is a valid user address, but 12 is not.

Facets	range={Alarm=0,Normal=1} >> ⌚
▼ Proxy Ext	C Bus Proxy Ext
Status	<input style="width: 100%;" type="text" value="{down}"/>
Fault Cause	<input style="width: 100%;" type="text"/>
Enabled	<input checked="" type="checkbox"/> true
Device Facets	>> ⌚
Conversion	<input style="width: 100%;" type="text" value="Default"/>
Tuning Policy Name	<input style="width: 100%;" type="text" value="Default Policy"/>
Read Value	<input style="width: 100%;" type="text" value="0 {ok}"/>
Write Value	<input style="width: 100%;" type="text" value="- {null} @ def"/>
Poll Frequency	<input style="width: 100%;" type="text" value="Normal"/>
Point Name	<input style="width: 100%;" type="text" value="GD"/>
Point Type	<input style="width: 100%;" type="text" value="Digital Remote"/>
Point Index	<input style="width: 100%;" type="text" value="0"/>

Facets Engineering units and state texts definition

Proxy Ext The Proxy Extensions area shows standard Niagara functions. Only a few of them are used by C-Bus points and they are described in the following. For all unused Niagara properties, please refer to the detailed Niagara BACnet documentation.

Read Value
(read only) Last value read from the device, expressed in device facets.

Write Value
(read only) Applies if writable point only. Last value written, using device facets.

▼ Config C Bus Point Config

Operating Mode

Technical Address

Point Subtype

Descriptor

Highest Point Value

Unit

Active State

No Response Flag

- Config** Shows the CARE C-Bus datapoint properties
- Operating Mode** Status of point: Auto or Manual
- Technical Address** Internal six-digit number that defines and locates a point in the system. The technical address is composed of three pairs representing controller number (0-30), module number (1-16), and terminal number (1-12). Example: 010310 meaning Controller 1, Module 3, terminal 10. Operators use the User Address to refer to points.
- Descriptor** Supplemental point information (maximum of 32 characters). Each Excel Controller has a unique set of descriptors (64 for Ver. 1.2 Controllers; 255 for Ver 1.3 and greater Controllers) that can be assigned to its user addresses to further describe them. Example: user address "Rmtempf11" can have a descriptor of "Heating circuit, West wing" to help define its location.
- Highest Point Value**
- Unit** Engineering units with ID, unit, and format.
- Active State** State that determines which point state (Logic 0 or 1) is the active ("normal") state. The other state is the passive ("alarm") state.
- The following table shows the relationship between active and passive states and statuses, as well as between energized and deenergized.
- | Hardware Condition | Active State Value | |
|--------------------|-----------------------|-----------------------|
| | 0 | 1 |
| Deenergized | Active Text, Logic 1 | Passive Text, Logic 0 |
| Energized | Passive Text, Logic 0 | Active Text, Logic 1 |
- The active state flag affects the logical operation and engineering units of digital outputs. The point type (NO/NC) only affects the terminal assignment during you attach the plant.
- Active State only applies to controller OS Ver. lower than 2.04.
- No Response Flag** Shows whether the I/O module, the point is assigned to, communicates with the controller or not:
 communication is established = online
 communication is interrupted = not online

Out	Alarm {down} @ def
In1	- {null}
In2	- {null} ▼
In3	- {null} ▼
In4	- {null} ▼
In5	- {null} ▼
In6	- {null} ▼
In7	- {null} ▼
In8	- {null}
In9	- {null} ▼
In10	- {null} ▼
In11	- {null} ▼
In12	- {null} ▼
In13	- {null} ▼
In14	- {null} ▼
In15	- {null} ▼
In16	- {null} ▼
Fallback	- {null} ▼
Override Expiration	null

- Out Current value of the point
- In1 ... In16 In1 .. In8 allow overriding the value manually. In1 shows the value if the point's value is overridden via manual override switch on a module or emergency override.
- Fallback (not applicable)
- Override Expiration When the override action is automatically set to "auto" upon expiration of the override period.

Totalizer Point

TOT (C Bus Numeric Writable)

Datapoint Name

(C-Bus Numeric Writable)
 (maximum of 18 alphanumeric characters) assigned to a point for operator use in locating and commanding the point. Examples: Rmtempfl1 and FlotempG/fl. The technical address and the descriptor further define the point. This name must be unique within a controller. User addresses must include one non-digit character and cannot include Tabs, double quotes, ?, *, or space characters. All other ASCII characters are allowable (A-Z, 0-9, +, -, _, etc.). For example, 12A is a valid user address, but 12 is not.

Facets	units=Cnt,precision=0 Cnt,min=-inf Cnt,max=+inf Cn... >> ⌚
▼ Proxy Ext	C Bus Proxy Ext
Status	{down}
Fault Cause	
Enabled	<input checked="" type="checkbox"/> true
Device Facets	>> ⌚
Conversion	Default
Tuning Policy Name	Default Policy
Read Value	0.00 {ok}
Write Value	- {null} @ def
Poll Frequency	Normal
Point Name	TOT
Point Type	CounterInput
Point Index	0

Facets

Engineering units and state texts definition

Proxy Ext

The Proxy Extensions area shows standard Niagara functions. Only a few of them are used by C-Bus points and they are described in the following. For all unused Niagara properties, please refer to the detailed Niagara BACnet documentation.

Read Value

(read only) Last value read from the device, expressed in device facets.

Write Value

(read only) Applies if writable point only. Last value written, using device facets.

Config	C Bus Point Config
Operating Mode	Auto
Technical Address	
Descriptor	[0]
Unit	34 Cnt [0]
Delta Counter Values	0.00
Interval Counter	0.00
Scaling Factor	0.00
Suppress Alarm	Disabled
Alarm Severity	Noncritical
Trend Logging	Disabled
No Response Flag	Online

Config	Shows the CARE C-Bus datapoint properties
Operating Mode	Status of point: Auto or Manual
Technical Address	Internal six-digit number that defines and locates a point in the system. The technical address is composed of three pairs representing controller number (0-30), module number (1-16), and terminal number (1-12). Example: 010310 meaning Controller 1, Module 3, terminal 10. Operators use the User Address to refer to points.
Descriptor	Supplemental point information (maximum of 32 characters). Each Excel Controller has a unique set of descriptors (64 for Ver. 1.2 Controllers; 255 for Ver 1.3 and greater Controllers) that can be assigned to its user addresses to further describe them. Example: user address "Rmtempfl1" can have a descriptor of "Heating circuit, West wing" to help define its location.
Unit	Engineering units with ID, unit, and format.
Delta Counter Values	When the counter values are expired, e.g. every 1000 operating hours, a service alarm is generated.
Interval Counter	Number of transitions for software to count (0.0 through 99,999,999.9) before generating an alarm.
Scaling Factor	Amount of measured unit per incoming transition (0 through 9,999,999).
Suppress Alarm	Whether or not software should suppress alarm messages for changes in Fixed Mode and exceeding the alarm and warning limits.
Alarm Severity	Alarm type: critical or non-critical
Trend Logging	Indicates if trend logging in the controller is Enabled or Disabled.
No Response Flag	Shows whether the I/O module, the point is assigned to, communicates with the controller or not: communication is established = online communication is interrupted = not online

Out	0 Cnt {down} @ def
In1	- {null}
In2	- {null} ▼
In3	- {null} ▼
In4	- {null} ▼
In5	- {null} ▼
In6	- {null} ▼
In7	- {null} ▼
In8	- {null}
In9	- {null} ▼
In10	- {null} ▼
In11	- {null} ▼
In12	- {null} ▼
In13	- {null} ▼
In14	- {null} ▼
In15	- {null} ▼
In16	- {null} ▼
Fallback	- {null} ▼
Override Expiration	null

- Out Current value of the point
- In1 ... In16 In1 .. In8 allow overriding the value manually. In1 shows the value if the point's value is overridden via manual override switch on a module or emergency override.
- Fallback (not applicable)
- Override Expiration When the override action is automatically set to "auto" upon expiration of the override period.

Pseudo Totalizer Point

N PTOT (C Bus Numeric Writable)

Datapoint Name (C-Bus Numeric Writable)
 (maximum of 18 alphanumeric characters) assigned to a point for operator use in locating and commanding the point. Examples: Rmtempf1 and FlotempG/fl. The technical address and the descriptor further define the point. This name must be unique within a controller. User addresses must include one non-digit character and cannot include Tabs, double quotes, ?, *, or space characters. All other ASCII characters are allowable (A-Z, 0-9, +, -, _, etc.). For example, 12A is a valid user address, but 12 is not.

	Facets	
	Proxy Ext	C Bus Proxy Ext
	Status	{down}
	Fault Cause	
	Enabled	<input checked="" type="checkbox"/> true
	Device Facets	
	Conversion	Default
	Tuning Policy Name	Default Policy
	Read Value	0.00 {ok}
	Write Value	- {null} @ def
	Poll Frequency	Normal
	Point Name	PTOT
	Point Type	CounterValue
	Point Index	0

Facets Engineering units and state texts definition

Proxy Ext The Proxy Extensions area shows standard Niagara functions. Only a few of them are used by C-Bus points and they are described in the following. For all unused Niagara properties, please refer to the detailed Niagara BACnet documentation.

Read Value
 (read only) Last value read from the device, expressed in device facets.

Write Value
 (read only) Applies if writable point only. Last value written, using device facets.

Config	C Bus Point Config
Operating Mode	Auto
Technical Address	
Descriptor	[0]
Unit	1 [0]
Delta Counter Values	0.00
Interval Counter	0.00
Scaling Factor	0.00
Suppress Alarm	Disabled
Alarm Severity	Noncritical
Trend Logging	Disabled
No Response Flag	Online

Config	Shows the CARE C-Bus datapoint properties
Operating Mode	Status of point: Auto or Manual
Technical Address	Internal six-digit number that defines and locates a point in the system. The technical address is composed of three pairs representing controller number (0-30), module number (1-16), and terminal number (1-12). Example: 010310 meaning Controller 1, Module 3, terminal 10. Operators use the User Address to refer to points.
Descriptor	Supplemental point information (maximum of 32 characters). Each Excel Controller has a unique set of descriptors (64 for Ver. 1.2 Controllers; 255 for Ver 1.3 and greater Controllers) that can be assigned to its user addresses to further describe them. Example: user address "Rmtempf11" can have a descriptor of "Heating circuit, West wing" to help define its location.
Last Change	Date of last change of point value
Unit	Engineering units with ID, unit, and format.
Delta Counter Values	When the counter values are expired, e.g. every 1000 operating hours, a service alarm is generated.
Interval Counter	Number of transitions for software to count (0.0 through 99,999,999.9) before generating an alarm.
Scaling Factor	Amount of measured unit per incoming transition (0 through 9,999,999).
Suppress Alarm	Whether or not software should suppress alarm messages for changes in Fixed Mode and exceeding the alarm and warning limits
Alarm Severity	Alarm type: critical or non-critical
Trend Logging	Indicates if trend logging in the controller is Enabled or Disabled.

No Response Flag

Shows whether the I/O module, the point is assigned to, communicates with the controller or not:
 communication is established = online
 communication is interrupted = not online

Out	0.00 {down} @ def	
In1	- {null}	
In2	- {null}	⌵
In3	- {null}	⌵
In4	- {null}	⌵
In5	- {null}	⌵
In6	- {null}	⌵
In7	- {null}	⌵
In8	- {null}	
In9	- {null}	⌵
In10	- {null}	⌵
In11	- {null}	⌵
In12	- {null}	⌵
In13	- {null}	⌵
In14	- {null}	⌵
In15	- {null}	⌵
In16	- {null}	⌵
Fallback	- {null}	⌵
Override Expiration	null	

Out

Current value of the point

In1 ... In16

In1 .. In8 allow overriding the value manually. In1 shows the value if the point's value is overridden via manual override switch on a module or emergency override.


Fallback

(not applicable)















Override Expiration

When the override action is automatically set to "auto" upon expiration of the override period.

Flex Points

 Flex_Multistage (C Bus Enum Writable)

Datapoint Name (C-Bus Numeric Writable)
 (Maximum of 18 alphanumeric characters) assigned to a point for operator use in locating and commanding the point. Examples: Rmtempfl1 and FlotempG/fl. The technical address and the descriptor further define the point. This name must be unique within a controller. User addresses must include one non-digit character and cannot include Tabs, double quotes, ?, *, or space characters. All other ASCII characters are allowable (A-Z, 0-9, +, -, _, etc.). For example, 12A is a valid user address, but 12 is not.

 Facets	range=[Off=0,On=1] >> ⌚
▼  Proxy Ext	C Bus Proxy Ext
 Status	{down}
 Fault Cause	
 Enabled	<input checked="" type="checkbox"/> true
 Device Facets	>> ⌚
 Conversion	Default
 Tuning Policy Name	Default Policy
 Read Value	0 {ok}
 Write Value	- {null} @ def
 Poll Frequency	Normal
 Point Name	Flex_Multistage
 Point Type	Flexible Point
 Point Index	1

Facets Engineering units and state texts definition

Proxy Ext The Proxy Extensions area shows standard Niagara functions. Only a few of them are used by C-Bus points and they are described in the following. For all unused Niagara properties, please refer to the detailed Niagara BACnet documentation.

Read Value
 (read only) Last value read from the device, expressed in device facets.

Write Value
 (read only) Applies if writable point only. Last value written, using device facets.

Facets Engineering units and state texts definition

Proxy Ext The Proxy Extensions area shows standard Niagara functions. Only a few of them are used by C-Bus points and they are described in the following. For all unused Niagara properties, please refer to the detailed Niagara BACnet documentation.

Read Value
 (read only) Last value read from the device, expressed in device facets.

Write Value
(read only) Applies if writable point only. Last value written, using device facets.

Config	C Bus Point Config
Cycle Count	0.00
Technical Address	
No Response Flag	Not Online
Runtime Counter	0.00
Operating Mode	Auto
Service Interval	0
Suppress Alarm	Disabled
Hours since serviced	0.00
Alarm Status	Normal
Descriptor	[0]
Unit	13- On / Off
Alarm Severity	Noncritical

Config	Shows the CARE C-Bus datapoint properties
Cycle Count	Value of a counter that represents the number of times a point is commanded to active state. This attribute is read-only.
Technical Address	Internal six-digit number that defines and locates a point in the system. The technical address is composed of three pairs representing controller number (0-30), module number (1-16), and terminal number (1-12). Example: 010310 meaning Controller 1, Module 3, terminal 10. Operators use the User Address to refer to points.
No Response Flag	Shows whether the I/O module, the point is assigned to, communicates with the controller or not: communication is established = online communication is interrupted = not online
Runtime Counter	Counts the runtime hours
Operating Mode	Status of point: Auto or Manual
Service Interval	Presets the number of hours that the runtime counter uses.
Suppress Alarm	Whether or not software should suppress alarm messages for changes in Fixed Mode and exceeding the alarm and warning limits.
Hours since serviced	Shows the runtime hours since the last service
Alarm Status	Whether the point alarm condition is critical or not. Critical alarms display on the central PC when they occur. Noncritical alarms do not display; software only writes them to the alarm printer and alarm history file. Click to change from critical to non-critical and vice versa.
Descriptor	Supplemental point information (maximum of 32 characters). Each Excel Controller has a unique set of descriptors (64 for Ver. 1.2 Controllers; 255 for Ver 1.3 and greater Controllers) that can be assigned to its user

addresses to further describe them. Example: user address "Rmtempfl1" can have a descriptor of "Heating circuit, West wing" to help define its location.

Unit Engineering units with ID, unit, and format.

Alarm Severity Alarm type: critical or non-critical

Out	Off {down} @ def
In1	- {null}
In2	- {null} ▼
In3	- {null} ▼
In4	- {null} ▼
In5	- {null} ▼
In6	- {null} ▼
In7	- {null} ▼
In8	- {null}
In9	- {null} ▼
In10	- {null} ▼
In11	- {null} ▼
In12	- {null} ▼
In13	- {null} ▼
In14	- {null} ▼
In15	- {null} ▼
In16	- {null} ▼
Fallback	- {null} ▼
Override Expiration	null

Out Current value of the point

In1 ... In16 In1 .. In8 allow overriding the value manually. In1 shows the value if the point's value is overridden via manual override switch on a module or emergency override.

Fallback (not applicable)

Override Expiration When the override action is automatically set to "auto" upon expiration of the override period.

Analog and Digital Flag Points

Analog and digital flags cannot and have not to be edited, except by entering a comment.

PARAMETERS

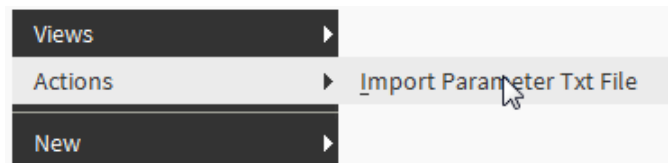
Upload Parameters and Add Them to Database

Purpose To upload parameters from the controller and monitor particular parameters by changing them and writing them back into the controller.

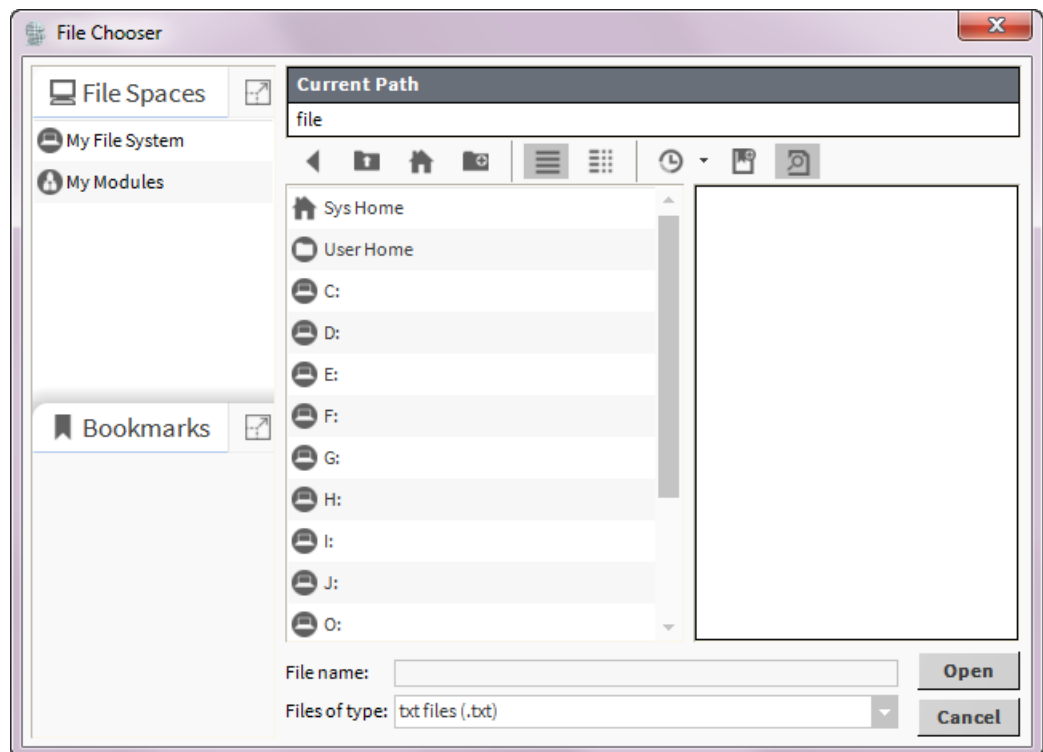
IMPORTANT!

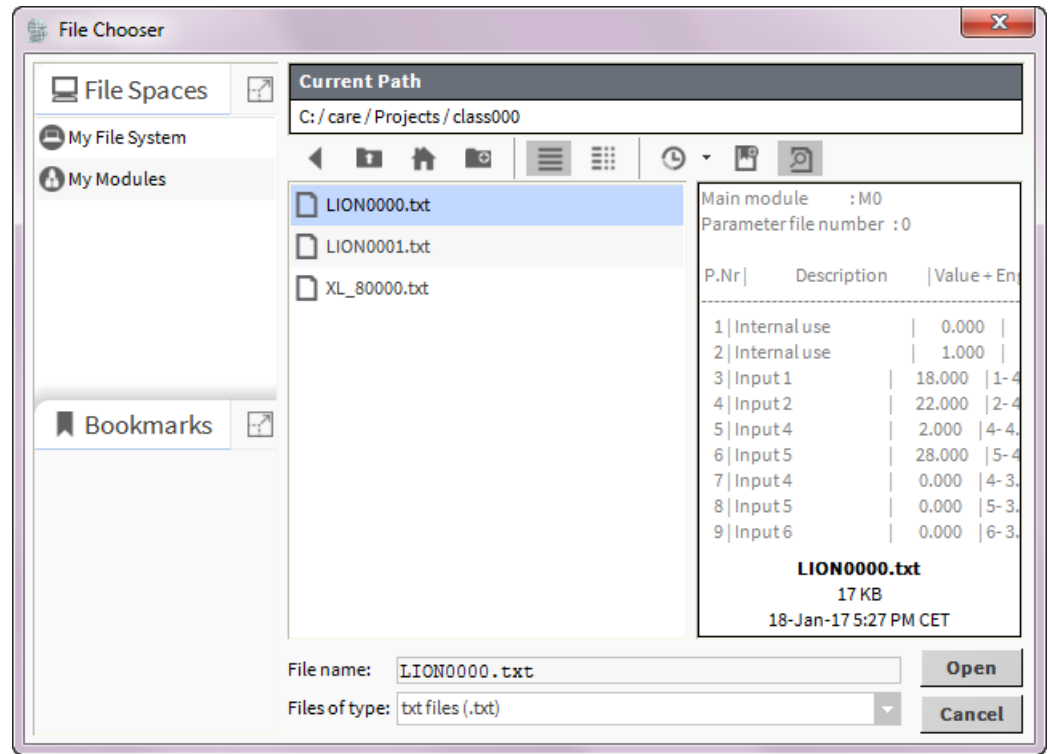
It is strongly recommended to import the parameter text file from CARE prior to the upload of parameters from the controller. If the parameter text file is not available prior to the discovery, the parameter descriptions are missing.

- Procedure**
1. In the *Nav tree* on the left, expand the *Station* folder and browse to the controller.
 2. In the controller, right-click the *Parameters* folder, click **Actions**, and then click **Import Parameter Txt File** in the context menu.



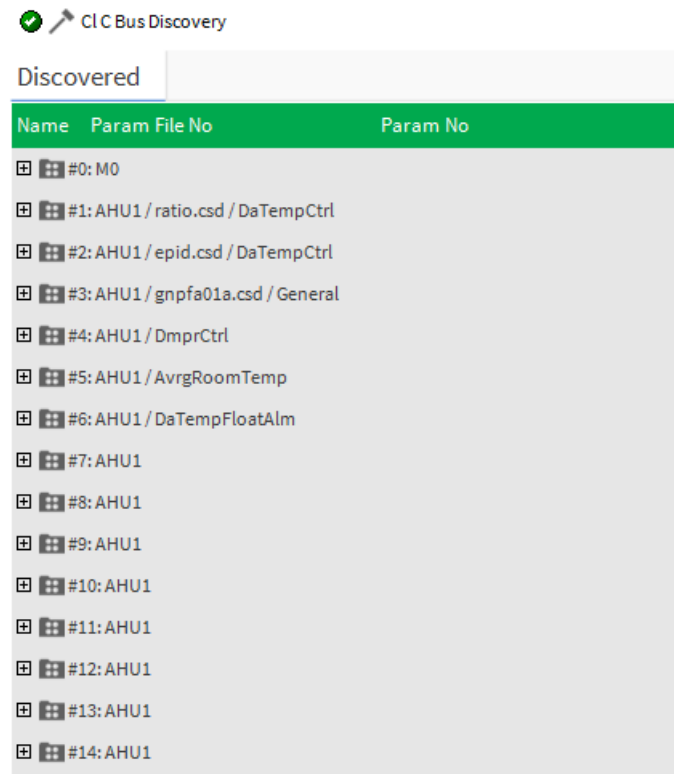
3. In the *File Chooser* dialog box, navigate to the folder where the parameter txt file is located.





4. Select the file, and then click **Open** button.
5. On the right *Database* pane, click **Discover**.

RESULT: In the upper *Discovered* area, the parameter text files are displayed.



6. Select parameter text file(s) for adding them to the database. Multi-selection using the SHIFT or STRG key is possible.

CLC Bus Discovery

Discovered

Name	Param File No	Param No
#5: AHU1 / AvrgRoomTemp		
#5.1: Internal use	5	1
#5.2: Internal use	5	2
#5.3: Mathematic expression	5	3
#5.4: Mathematic expression	5	4

7. Or, select particular parameters of a text file for adding them to the database. Multi-selection using the SHIFT or STRG key is possible.

Discovered

Name	Param File No	Param No
#5: AHU1 / AvrgRoomTemp		
#5.1: Internal use	5	1
#5.2: Internal use	5	2
#5.3: Mathematic expression	5	3
#5.4: Mathematic expression	5	4
#6: AHU1 / DaTempFloatAlm		
#7: AHU1		
#8: AHU1		
#9: AHU1		
#10: AHU1		
#11: AHU1		
#12: AHU1		
#13: AHU1		
#14: AHU1		
#15: AHU1		

Database

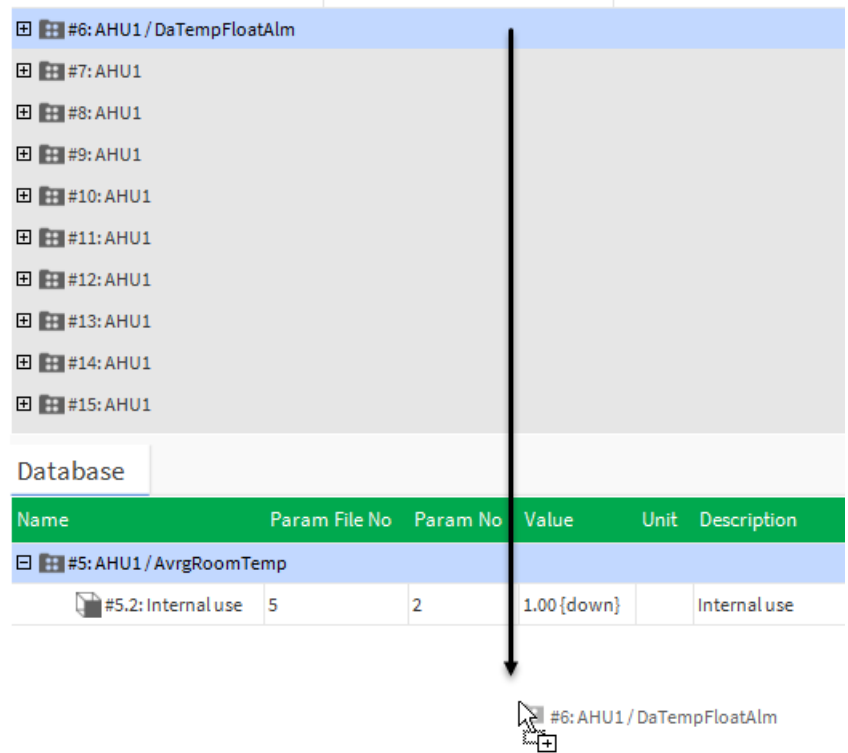
Name	Param File No	Param No	Value	Unit	Description
#5: AHU1 / AvrgRoomTemp					
#5.2: Internal use	5	2	1.00 {down}		Internal use

8. Drag&drop the file/parameter to the *Database* area or click **Add** button at the bottom of the pane.

NOTE: It is also possible to add the parameter files to the database without the prior import of the parameter text file.

Database

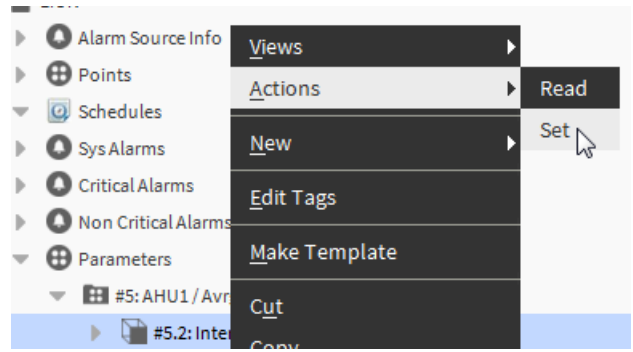
Name	Param File No	Param No	Value	Unit	Description
#5: AHU1 / AvrgRoomTemp					
#5.2: Internal use	5	2	1.00 {down}		Internal use



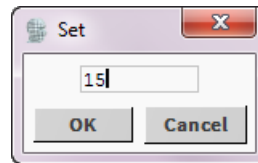
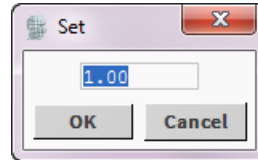
Name	Param File No	Param No	Value	Unit	Description
#5: AHU1 / AvgRoomTemp					
#6: AHU1 / DaTempFloatAlm					
#6.1: Internal use	6	1	0.00 {down}		Internal use
#6.2: Internal use	6	2	1.00 {down}		Internal use
#6.3: Input 1	6	3	1.00 {down}		Input 1
#6.4: Input 2	6	4	1.00 {down}		Input 2
#6.5: Input 3	6	5	0.00 {down}		Input 3
#6.6: Input 1	6	6	3.00 {down}		Input 1
#6.7: Input 1	6	7	5.00 {down}		Input 1
#6.8: Input 1	6	8	1.00 {down}		Input 1
#6.9: Input 2	6	9	1.00 {down}		Input 2
#6.10: Input 3	6	10	0.00 {down}		Input 3
#6.11: Input 2	6	11	3.00 {down}		Input 2
#6.12: Input 2	6	12	5.00 {down}		Input 2

Change Parameter Value

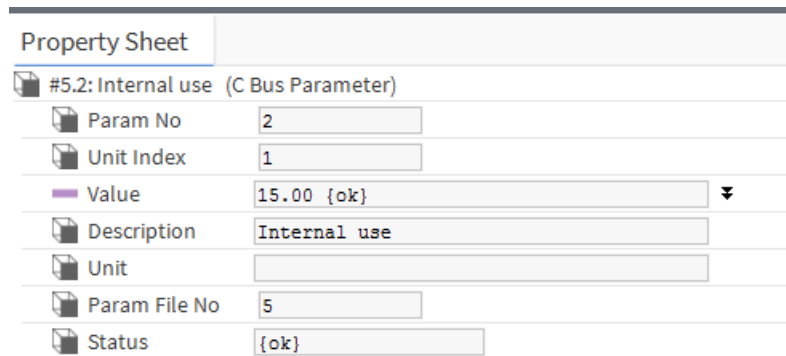
- Purpose** To change a value of a parameter and write it to the controller.
- Procedure**
1. In the *Nav tree* on the left, expand the *Station* folder and browse to the controller.
 2. In the controller, expand the *Parameters* folder.
 3. Right-click the parameter, then click **Actions**, and then click **Set** in the context menu.



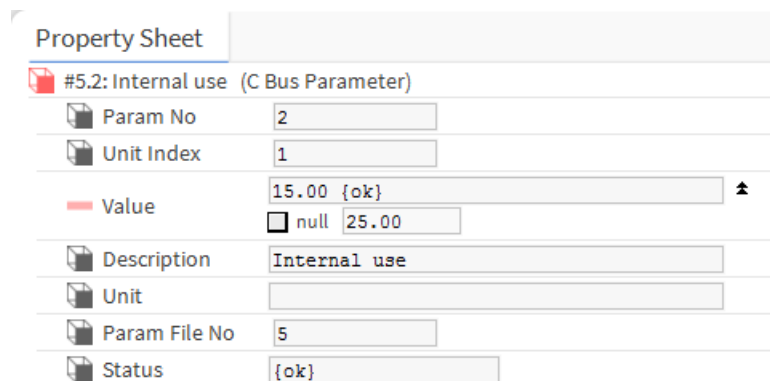
4. In the Set dialog box, enter the value, and then click **OK** button.

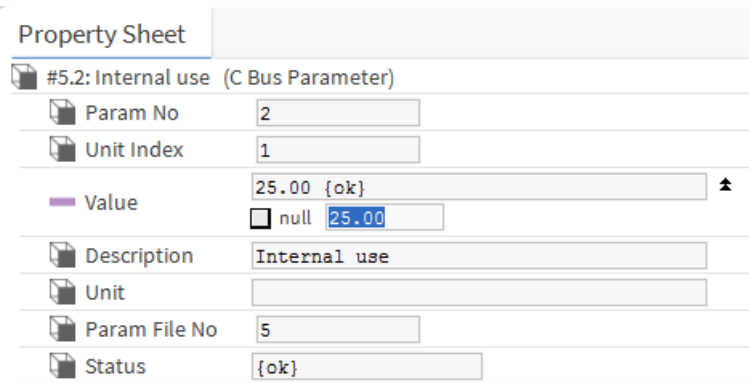


5. To view the current parameter value, double-click the parameter in the *Parameters* folder. The value can be monitored in the **Value** field on the right pane displayed.



6. You can also change the value on this pane by clicking the double arrow right to the value field and entering the value in the field displayed. Write the value to the controller by clicking the **Save** button at the bottom.



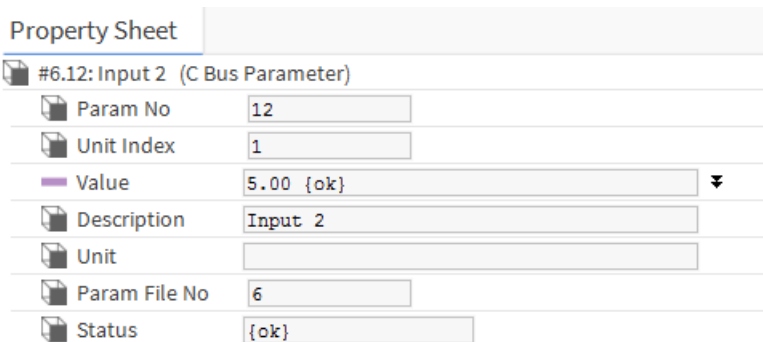


Read Parameter Value

- Purpose** To read the current parameter value from the controller.
- Procedure**
1. In the *Nav tree* on the left, expand the *Station* folder and browse to the controller.
 2. In the controller, expand the *Parameters* folder.
 3. To view the current parameter value, double-click the parameter in the *Parameters* folder. The value can be monitored in the **Value** field on the right pane displayed.
 4. Right-click the parameter in the *Parameters* folder, then click **Actions**, and then click **Read** in the context menu.



5. The current value is displayed in the **Value** field on the right pane.



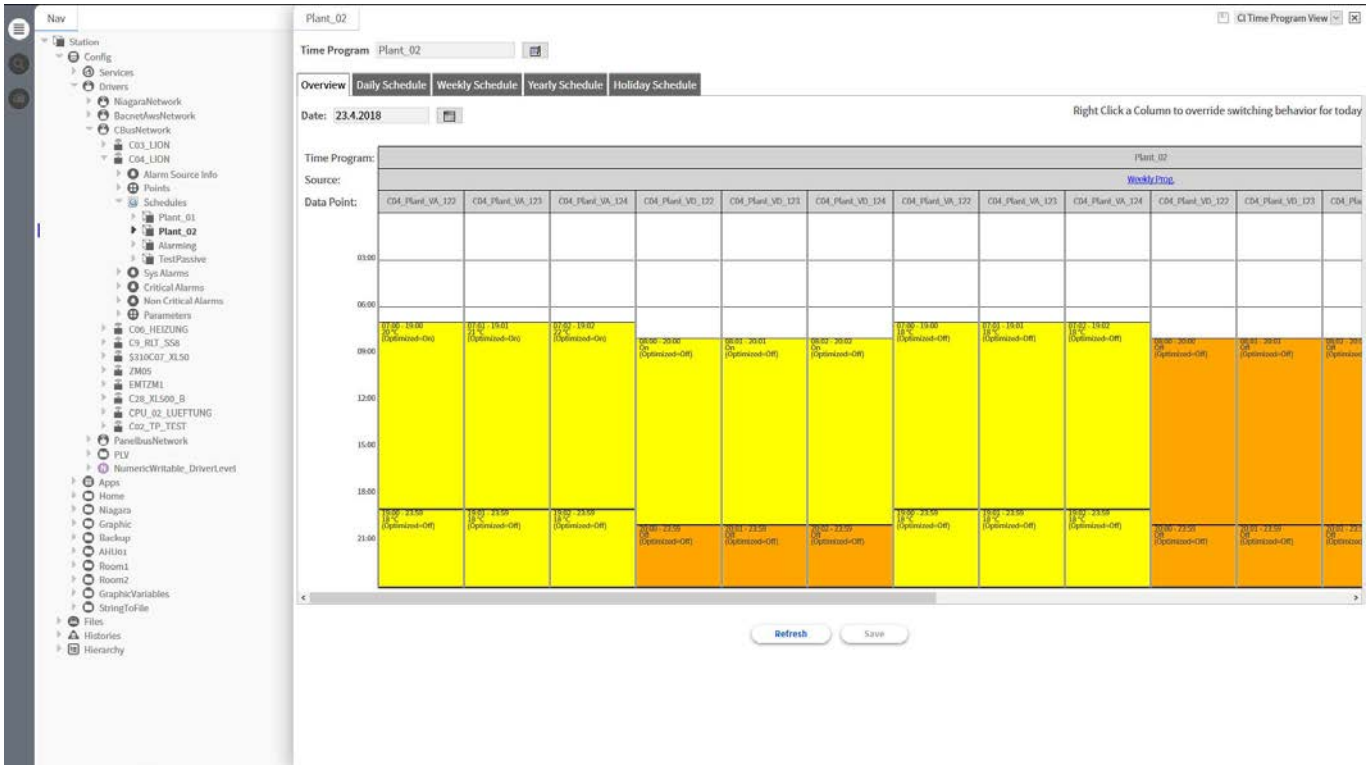
SCHEDULES

Purpose In the following, the viewing and editing of schedules are described.

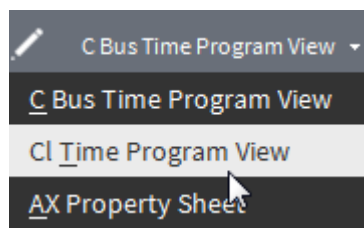
There is no special import or export schedule procedure necessary. The refresh button of the schedule does force a read from controller and the save action does force a write to the controller. Last update wins.

Niagara HTML5 Scheduler

Niagara 4.4 supports HTML5 for its scheduler. Hence, no more JAVA plug-ins or updates to browsers are necessary in order to view C-bus schedules via the Centraline supervisor.



In the workbench, the schedules can be viewed in HTML5 format by selecting the **CI Time Program View** in the **Views** drop-down menu and **Views** context menu respectively.



Introduction

General

Each time program includes:

- Daily schedules
- Weekly schedule
- Yearly schedule (optional)
- Holiday schedule (optional)

Each time program can be individually changed by:

- creating daily schedules with individual switch points

- assigning daily schedules to particular weekdays in the weekly schedule
- customizing yearly schedule by defining individual periods with special daily schedules
- overriding default schedules on holidays with individual holiday schedule

IMPORTANT

Settings and changes made in daily schedules, weekly schedule and yearly schedule do only apply to the allocated time program, not any other time program(s).

View Time Program(s) – Description of Schedules Work Environment

Procedure

1. In the *Nav tree* on the left, expand the *Station* folder and browse to the controller.
2. In the controller, double-click the *Schedules* folder.

RESULT: On the right "Schedules" pane, the time programs of the current date are displayed.

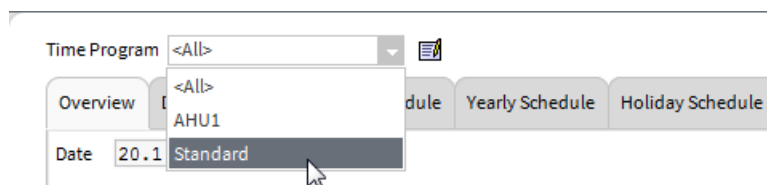
The screenshot shows the software interface. On the left is a navigation tree with 'Schedules' selected. On the right is the 'Time Program' overview for the date 20.1.2017. The table below represents the data shown in the 'Overview' tab.

Time Program:	Standard			
Source:	Weekly Prog.			
Data Point:	EconMode	RaFan	SaFan	AvgRoomTemp
3:00			00:00-07:00 On (Optimized=Off)	
6:00	05:00-07:00 Winter (Optimized=On)	06:00-20:00 On (Optimized=Off)	07:00-19:00 Off (Optimized=Off)	06:00-09:00 16.0 °C (Optimized=On)
9:00	07:00-23:59 Summer (Optimized=On)			09:00-20:00 23.0 °C (Optimized=On)
12:00				
15:00				
18:00			19:00-23:59 On (Optimized=Off)	
21:00		20:00-23:59 Off (Optimized=Off)		20:00-23:59 19.0 °C (Optimized=On)

Description of Schedules Work Environment


In this section, the "Schedules" pane (as shown in the previous figure), is described.

At the top, you select the schedule to be displayed from the **Time Program** drop-down listbox.




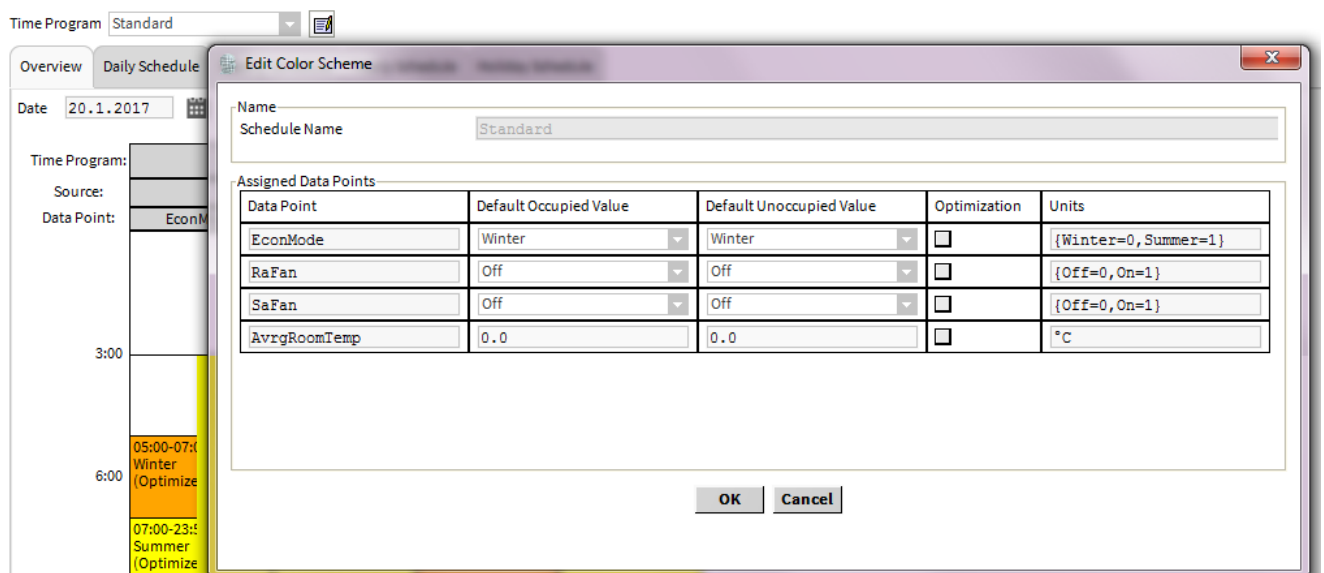
If <All> is selected, all schedules are displayed in multiple columns on the *Overview* tab, except those schedules which have no datapoints assigned.

NOTE: You can edit only one schedule at the same time. Hence, If <All> is selected, the *Daily Schedule*, *Weekly Schedule*, *Yearly Schedule* and *Holiday Schedule* tabs are disabled and no schedule can be edited.

By clicking the calendar icon  right to the **Date** field, you can select the date for which you want to display the schedules. The date will be selected in the *Overview* pop-up window.

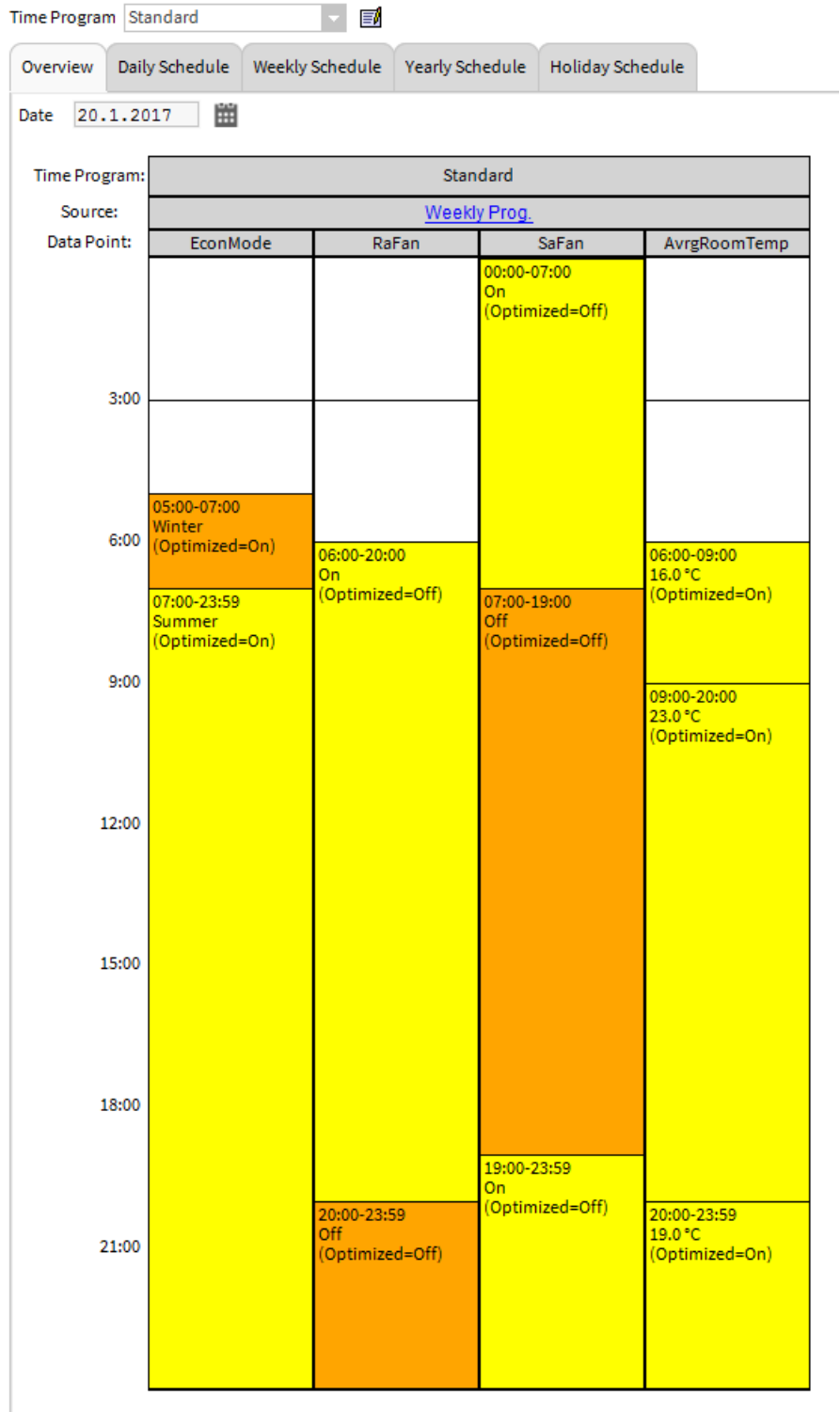


By clicking the edit icon  right to the **Time Program** drop-down listbox, you can define default settings for datapoints in the Edit Color Scheme dialog box.



After the time program selection in the **Time Program** drop-down listbox, the schedules are displayed on the following tabs.

- Overview
- Daily Schedule
- Weekly Schedule
- Yearly Schedule
- Holiday Schedule



The Overview tab gives an overview about the switch points of the selected time program. The Daily Schedule, Weekly Schedule, Yearly Schedule, and Holiday Schedule tabs are available for editing, adding, copying and deleting switch points of the selected time program.

NOTE: On the Overview tab, you cannot edit switch points.

Time Program: Standard				
Source: Weekly Prog.				
Data Point:				
	EconMode	RaFan	SaFan	AvrgRoomTemp

The **Time Program** row shows the name of the selected time program.

The **Source** row shows the time program source as a link. The source can be any of the following:

- weekly program
- yearly program
- holiday program

Clicking the source link switches to the detailed view (tab) of the source time program.

The **Datapoint** row shows the datapoint names.

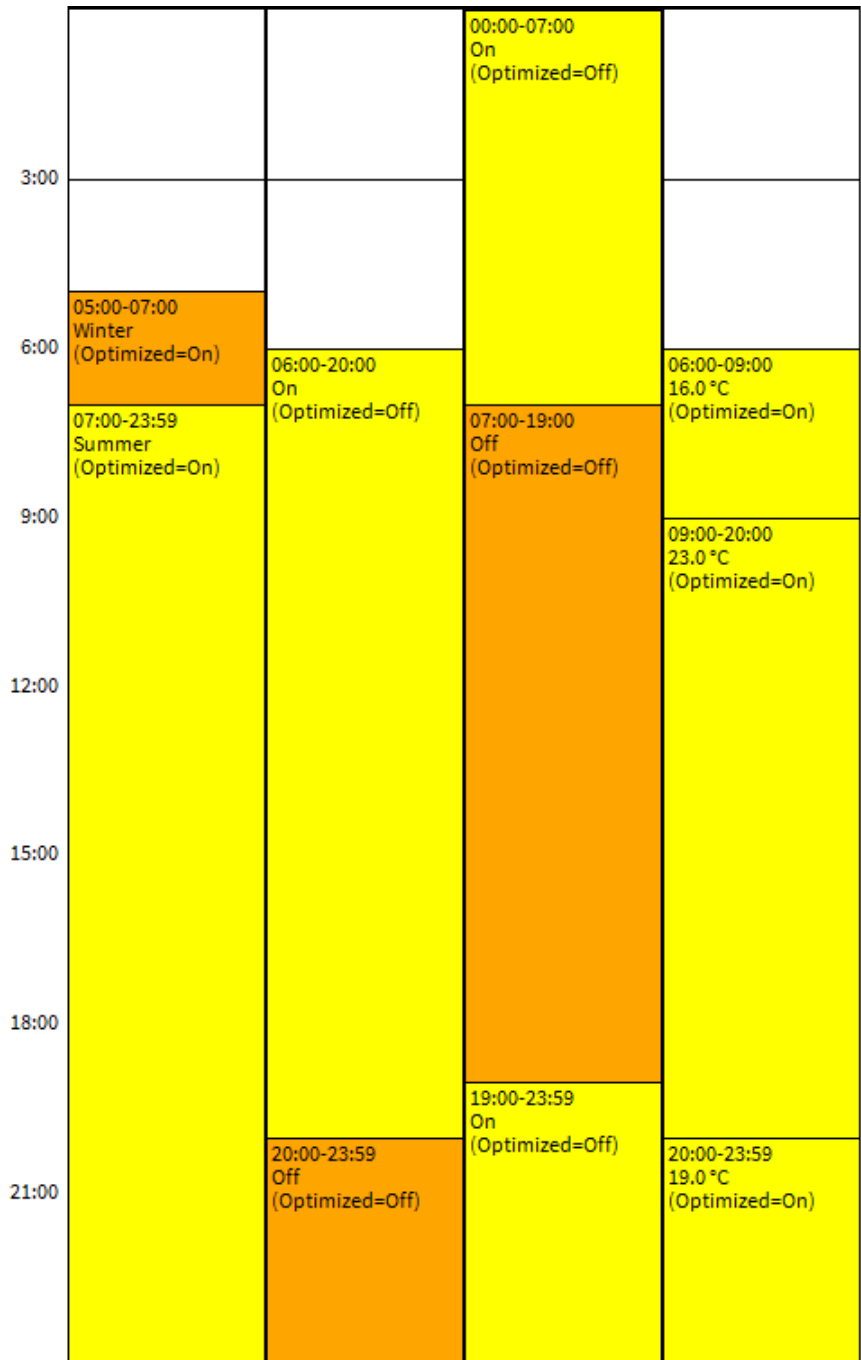
Switch Points Display

On the *Overview* tab, the switch points are displayed graphically in a 24-hour time line in the range of midnight through 11:59 P.M., each with the following properties:

- Start / end time
- Value
- Optimization status (On, Off)

The switch point status is indicated in color as follows:

- yellow = switch point value <> unoccupied value or occupied value
- orange = switch point value > occupied value
- blue = switch point value < unoccupied value
- red = today override
- red line = time between 2 switch points < 30 min

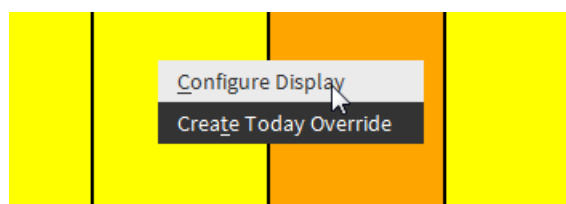


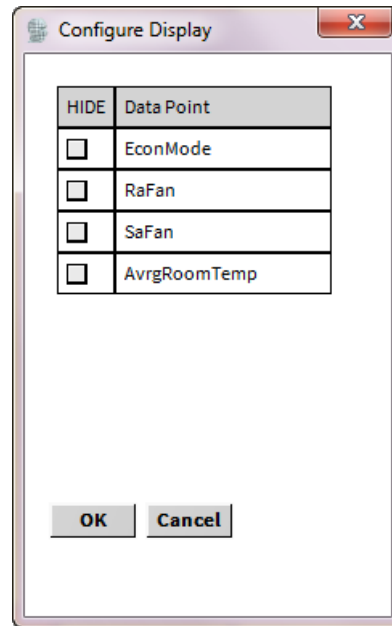
To scroll through the time scale, use the mouse wheel or the right-handed scrollbar.

Configure Display

On the daily and weekly schedule tabs, you can configure the display by displaying or hiding desired datapoints as follows:

1. Right-click anywhere inside the scrollable schedule table.
2. Click **Configure Display**.
The *Configure Display* dialog box displays.





3. Set display options by checking/unchecking the **Hide** check boxes
4. Click **OK** to save settings.

Schedules Procedures

Schedules can be edited or deleted. New schedules can be created. After schedules have been customized according to your requirements, they can be saved in the controller. Schedules can also be uploaded by Refresh.

To edit switch points in any of the relevant schedules (daily schedules, weekly schedule, and yearly schedule), click the corresponding tab and perform desired actions as described in the subsequent sections.

To create/edit daily schedules, please refer to the “Daily Schedule” section.

To create/edit weekly schedule, please refer to the “Weekly Schedule” section.

To create/edit yearly schedule, please refer to the “Yearly Schedule” section.

To create/edit holiday schedule, please refer to the “Holiday Schedule” section.

Upload Schedules

Procedure

1. In the *Nav tree* on the left, expand the *Station* folder and browse to the controller.
2. In the controller, double-click the *Schedules* folder.

RESULT: On the right "Schedules" pane, the time programs of the current date are displayed.

The screenshot shows the 'Time Program' configuration window. The 'Time Program' is set to 'Standard' and the source is 'Weekly Prog.'. The date is 20.1.2017. The grid below shows the following data points:


Data Point	EconMode	RaFan	SaFan	AvgRoomTemp
00:00-07:00			On (Optimized=Off)	
05:00-07:00	Winter (Optimized=On)			
06:00-09:00		On (Optimized=Off)		16.0 °C (Optimized=On)
07:00-23:59	Summer (Optimized=On)		Off (Optimized=Off)	
09:00-20:00				23.0 °C (Optimized=On)
19:00-23:59			On (Optimized=Off)	
20:00-23:59		Off (Optimized=Off)		19.0 °C (Optimized=On)

Download Schedules

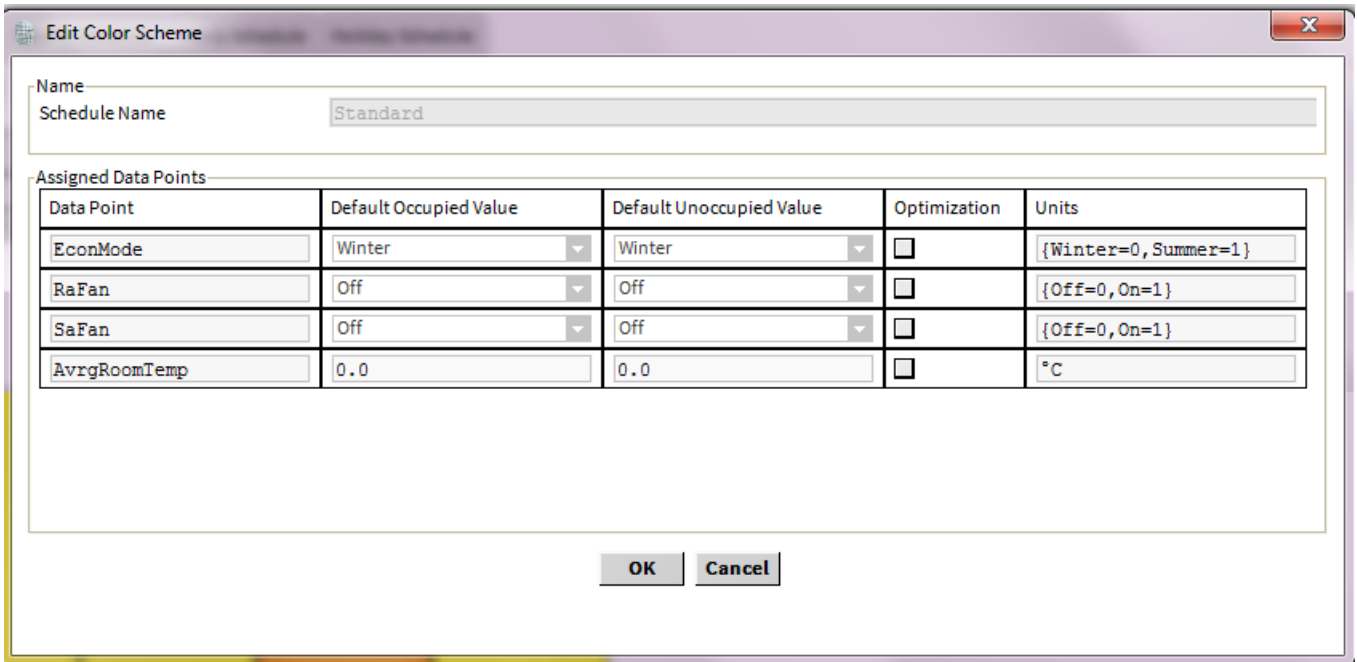
- Procedure**
1. On the right "Schedules" pane (see "Upload Schedules" section), click the **Refresh** button at the bottom.

Edit Color Scheme

- Purpose**
- This function allows defining default values for
- occupied and unoccupied states
 - optimization property

- Procedure**
1. On the "Schedules" pane, click the edit icon  right to the **Time Program** drop-down listbox.

The *Edit Color Scheme* dialog displays.



In the **Schedule Name** field, the selected schedule is displayed. Under Assigned Data Points, all assigned datapoints are displayed with the following properties:

Data Point

Displays the name of the data point

Default Occupied Value

Select/enter the value for the occupied state of the data point

Default Unoccupied Value

Select/enter the value for the unoccupied state of the data point

Optimization

Check/uncheck optimization of the datapoint

Units

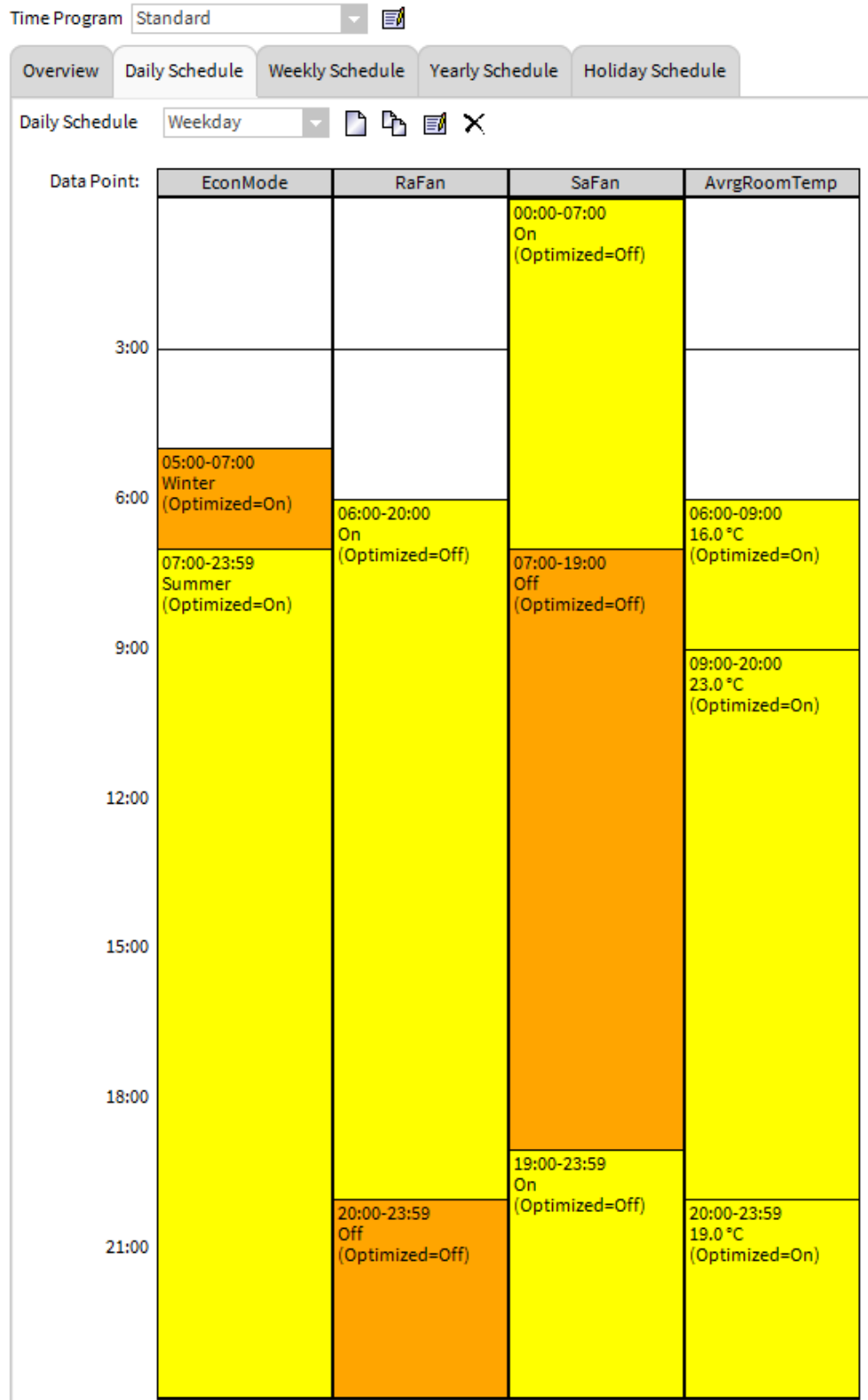
Displays the engineering unit of the datapoint

2. After finishing the settings, close the dialog by clicking the OK button.

Daily Schedule

The switch points are displayed in the switch point table in a 24-hour time line in the range of midnight through 11:59 P.M, each with the following properties:

- Start time / end time
- Value for analog points or status for digital points
- Optimization status (On, Off)



The switch point status is indicated in color as follows:

- yellow = switch point value <> unoccupied value or occupied value
- orange = switch point value > occupied value
- blue = switch point value < unoccupied value
- red = today override
- red line = time between 2 switch points < 15 min

Start and end times can be changed graphically or via dialog-based editing. Values and optimization settings can only be changed via dialog-based editing. For detailed

information on the editing modes, please refer to the “Edit/Update Switch point” section.

To scroll through the time scale, use the mouse wheel or the right-handed scrollbar.

Right to the **Daily Schedule** drop-down listbox, the following functions are available via mouse-click on the corresponding button:



Creates a new daily schedule



Copies switch points between daily schedules



Opens a daily schedule for editing



Deletes a daily schedule

IMPORTANT

Settings and changes made in daily schedules, weekly schedule, yearly schedule, and holiday schedule do only apply to the allocated time program, not any other time program(s).

For daily schedules you can do the following:

- Edit daily schedule
- Create new daily schedule
- Delete daily schedule
- Edit (update) switch points
- Copy switch points from / to other daily schedule

For detailed information on all applicable daily schedules procedures, please refer to the subsequent sections.


Edit Daily Schedule

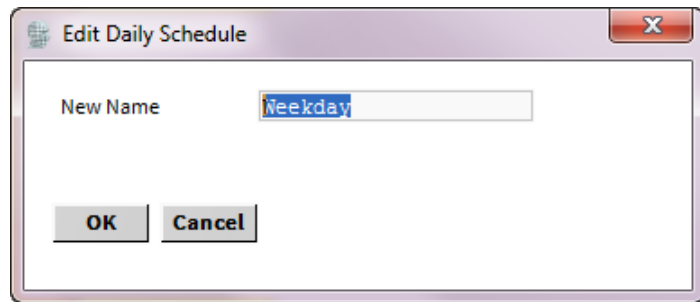
Purpose This function allows changing the name of the daily schedule.

- Procedure**
1. In **Time Program**, select the time program.
 2. In **Date**, select the date.
 3. On the "Schedules" pane, click the *Daily Schedule* tab.

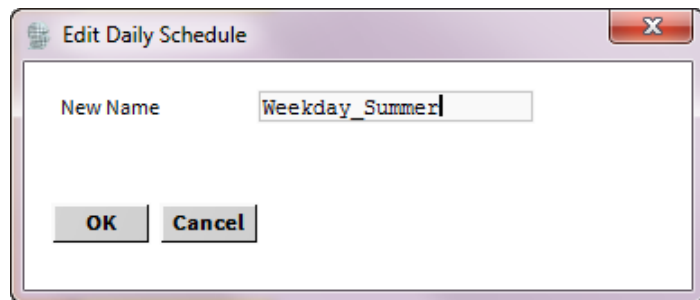
Datapoint:	RaFan	Htg/vlv	AvrgRoomTemp	SaFan
3:00				
6:00	05:00-22:00 On (Optimized=On)	05:00-08:00 30.0 Pct (Optimized=On)	06:00-09:00 16.0 °C (Optimized=On)	

4. In **Daily Schedule**, select the daily schedule you want to edit.

5. Click **Edit daily schedule** icon . The *Edit Daily Schedule* dialog box displays.




6. In **New Name**, change the name for the daily schedule.

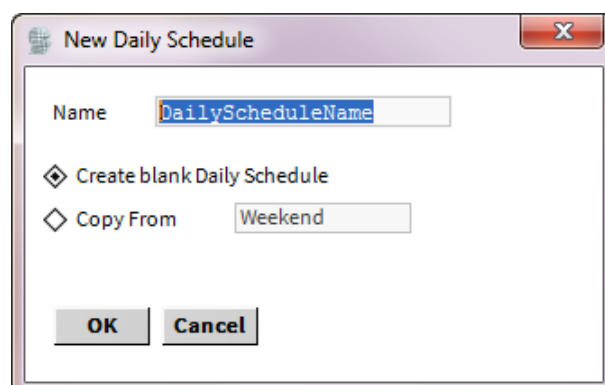


7. Click **OK**. The daily schedule's name is updated.
8. Save settings by clicking the **Save** button at the bottom

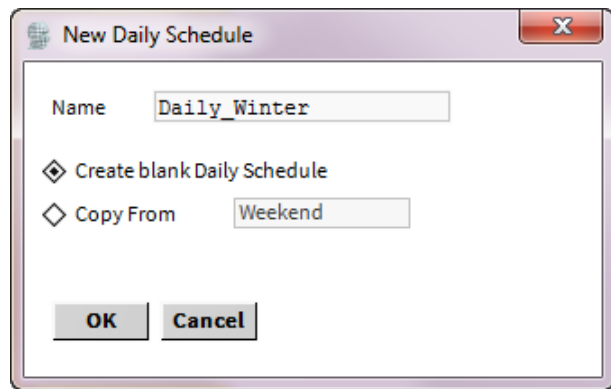
Create New Daily Schedule

Purpose This function allows creating a new daily schedule with or without switch points.

- Procedure**
1. In **Time Program**, select the time program.
 2. In **Date**, select the date.
 3. On the "Schedules" pane, click the *Daily Schedule* tab.
 4. Click **New daily schedule** icon . The *New Daily Schedule* dialog box displays




5. In **Name**, change the default name according to your needs.



NOTE: The max. length of the name is 18 characters. No special characters are allowed.

6. Select **Create Blank Daily Schedule** if you want the new daily schedule not to include any switch points initially.
7. Or, select **Copy From**, and then select an existing daily schedule if you want the new daily schedule to include the switch points from the existing daily schedule.
8. Click **OK**.

Delete Daily Schedule

- Purpose** This function allows deleting a daily schedule from the time program.
- Procedure**
1. In **Time Program**, select the time program.
 2. In **Date**, select the date.
 3. On the "Schedules" pane, click the *Daily Schedule* tab.
 4. In **Daily Schedule**, select the daily schedule you want to delete.
 5. Click **Delete daily schedule** icon . The daily schedule is deleted.
 6. Save settings by clicking the **Save** button at the bottom

Edit / Update Switch Point

- Purpose** This function allows editing a switch point's
- value
 - optimization status
 - start and end times
- Value** Values can be digital states (two or multiple), e.g. ON, OFF, AUTO or analog values e.g. temperature = 23 °C.
- Optimization** The optimization function causes optimization of a switching point. It has two states, ON (checked) and OFF (unchecked). The optimization compensates the time an environment needs to reach a wanted condition (temperature, humidity, etc.) by bringing forward the switching point of the corresponding device.

NOTE: The optimization has only an effect if the user address of the device is suitable for optimization.

Example:

If the optimization is ON, a heating plant is switched on early in order to have your home at the required setpoint level by a particular time.

programmed switching point: 6:00 to 20 °C
 real switching point: 4:52 to heating ON.

The difference between the programmed and real switching point is the estimated time a room needs to warm up under the current conditions.

The switch point start and end time can be changed via dialog or graphically.

Start time / End time

Start and end times define the time range the switch point value is valid. If the start time of one switch point overlaps with the end time of another preceding switch point, the preceding point's end time is adapted accordingly. If the end time of one switch point overlaps with the start time of another succeeding switch point, the succeeding point's start time is adapted accordingly. If no end time is set for a switch point when creating it, the end time is set to succeeding point's start time. If the end time of an existing switch point is disabled belatedly when updating it, all succeeding points will be deleted and the updated switch point's end time is extended to 24:00.

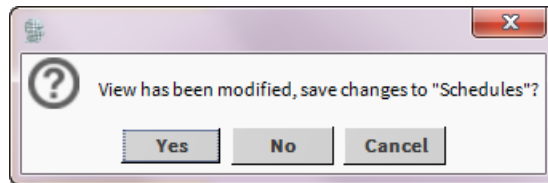
Consistency Check

If two switch points that directly follow each other have the same value and optimization settings, they will be combined to one switch point where the start time will be set to the start time of the first switch point and the end time will be set to the end time of the second switch point.

If gaps remain between two switch points, then the previous switch point will be extended to the switch point that follows. This correction will be done prior to the download of the time program.

Save Time Program Changes

When leaving the time program function NX prompts you for saving/discarding the changes you have done during the session.



You can edit a switch point in two ways, either in a dialog via dialog-oriented editing or graphically via graphic-oriented editing. The two methods are described in the following.

2 Switch Point Editing Methods

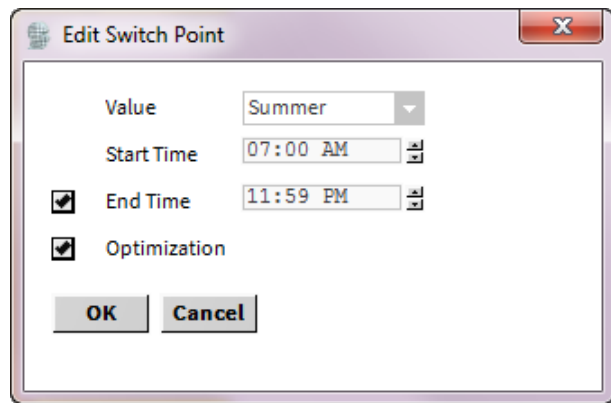
Dialog-oriented switch point editing

This function allows the full change of all switch point settings as mentioned above, that is, value (unoccupied, occupied states), start and end times, and optimization.

Procedure

1. In **Time Program**, select the time program.
2. In **Date**, select the date.
3. On the *"Schedules"* pane, click the *Daily Schedule* tab.
4. In **Daily Schedule**, select the daily schedule.
5. In the switch points table, double-click the switch point you want to edit.

The *Edit Switch Point* dialog box displays.



6. Do the following:

- a. For analog points, enter the value in the unit displayed.
- b. For digital points, select the state text.
- c. In **Start Time**, enter the start time for the switch point .
- d. In **End Time**, enter the end time for the switch point.

NOTE: When checking the **End Time** check box (default setting), the end time of the switch point will be set to the end time defined here. When unchecking the **End Time** check box, the end time will be automatically set to the start time of the succeeding switch point.

- e. Check/uncheck **Optimization** if you want to enable/disable optimization.
- f. Click **OK** button.

7. Save settings by clicking the **Save** button at the bottom

Graphic-oriented switch point editing

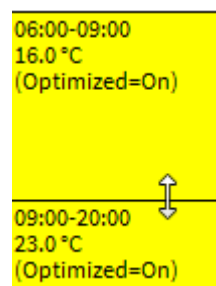
This function allows the quick graphic change of start and end times of switch points. Value and optimization settings cannot be changed graphically (please use the Dialog-oriented switch point editing in this case).

To graphically change start or end time separately, do the following:

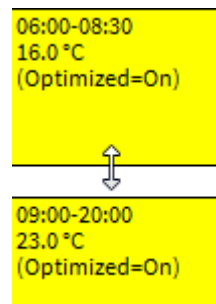
Example 1: Change of end time to earlier time than start time of succeeding point.

Procedure

- 1. Hover over the border representing the start or end time, you want to move. The cursor toggles to a two-arrow shape.

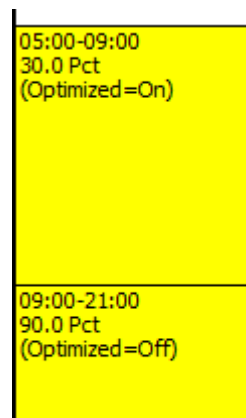


- 2. Click, and move the border to an earlier time, e.g. 8:30, and release the mouse button. The start time and end time of the succeeding point remains. Hence, a gap is created between the two switching points.



3. Save settings by clicking the **Save** button at the bottom

Example 2: Change of end time to later time than start time of succeeding point.



Procedure

1. Click, and move the border to a later time, e.g. 9:00, and release the mouse button. The start time of the directly succeeding point is adjusted accordingly and changed to the same end time of the currently selected point, that is, to 9:00. The end time of the succeeding point remains unchanged at 21:00.

NOTES: When moving the end time of the selected point to a later time than the end time of the succeeding point, the succeeding point will be deleted.

Moving the start time of a point follows the same rules and adapts the end time of a preceding point in the same way.

If a preceding or succeeding point does not directly follow the changed point (gaps), start or end time of those points are not adapted.

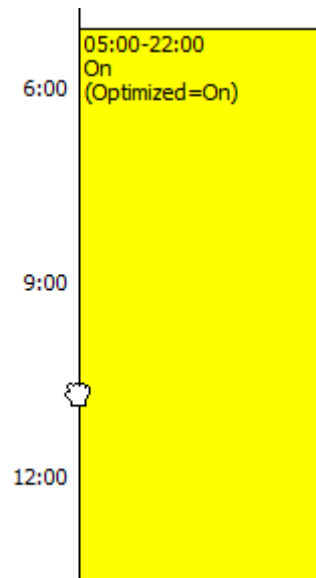
2. Save settings by clicking the **Save** button at the bottom

Example 3: Change of start time and end time simultaneously.

Procedure

To graphically change start **and** end time simultaneously do the following:

1. Click on the left bold border or anywhere inside the switch point. The cursor toggles to hand-shape.



2. With mouse button pressed, move the complete switch point to the desired time-scale position, and then release the mouse button. This function changes both start and end time to new values.

NOTE: For the simultaneous change of start and end time, the adaption of start and end time of succeeding or preceding points follow the same rules as for changing the start or end time separately as described in the preceding section.

3. Save settings by clicking the button at the bottom

Create New Switch Point

Purpose This function allows creating a new switch point.

NOTES: A new switch point can only be created on free space (rows) in the table. That is, to insert a new switch point between other switch points, you must firstly delete the existing switch point at the desired position (see "Delete Switch point" section).

Or, you must change the start and/or end times of the surrounding switch points to create free space.


After you created free space, apply the following procedure.

- Procedure**
1. In **Time Program**, select the time program.
 2. In **Date**, select the date.
 3. On the "*Schedules*" pane, click the *Daily Schedule* tab.
 4. In **Daily Schedule**, select the daily schedule.
 5. In the switch points table, click on the empty row where you want to create the switch point.
The *Edit Switch Point* dialog box displays.
 6. Define the values as described in the "Edit / Update Switch point" section.
 7. Save settings by clicking the button at the bottom

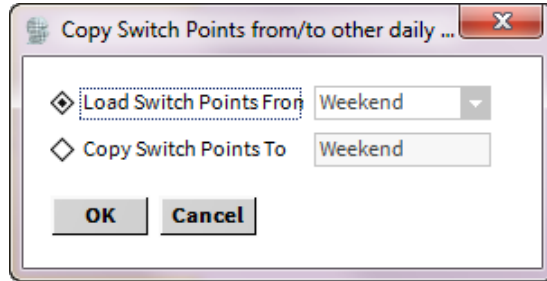
Copy Switch Points From / To Other Daily Schedule


Purpose This function allows copying switch points between daily schedules.

- Procedure**
1. In **Time Program**, select the time program.

2. In **Date**, select the date.
3. On the "Schedules" pane, click the *Daily Schedule* tab.
4. In **Daily Schedule**, select the daily schedule.
5. Click the **Copy switch points from / to other daily schedule** icon .

The *Copy Switch Points from/to other daily...* dialog box displays.

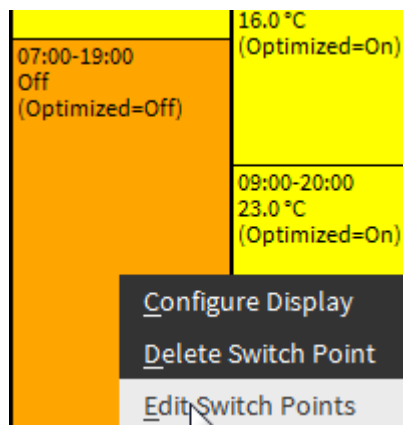


6. Do one of the following:
 - a. To copy switch points from another daily schedule to the selected daily schedule, select **Load Switchpoints From**, and then select the source schedule from which you want to copy the switch points from the drop-down listbox.
 - b. To copy switch points from the selected daily schedule to another daily schedule, select **Copy Switch Points To** and then select the target schedule to which you want to copy the current switch points.
7. Click **OK**.
8. Save settings by clicking the  button at the bottom

Edit Switch Points

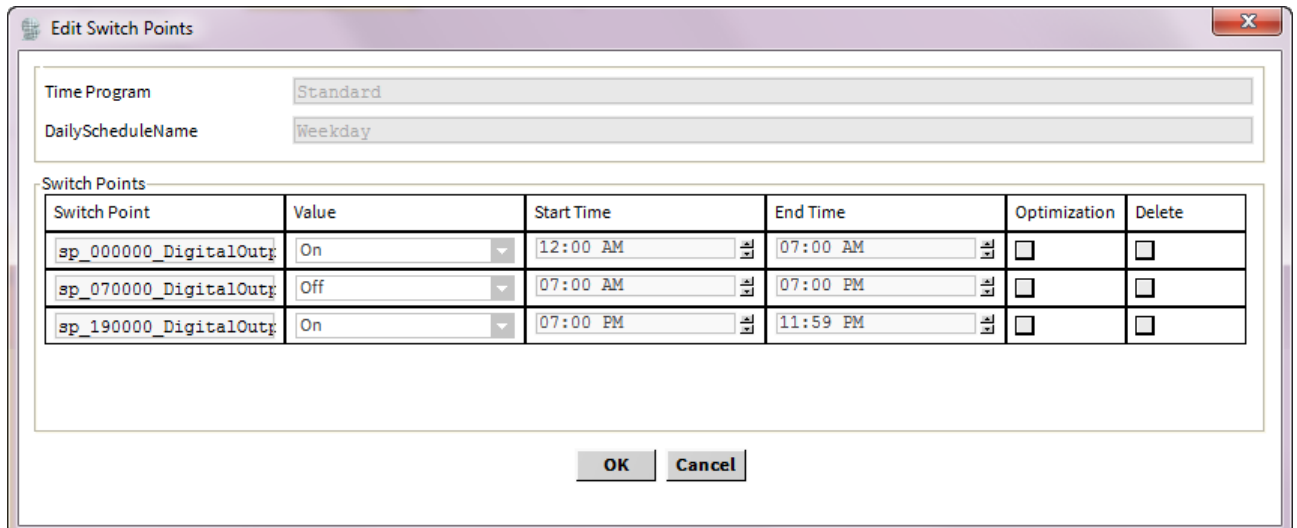
Purpose This function allows editing the switch points of a daily schedule for a datapoint.

- Procedure**
1. In **Time Program**, select the time program.
 2. In **Date**, select the date.
 3. On the "Schedules" pane, click the *Daily Schedule* tab.
 4. In **Daily Schedule**, select the daily schedule you want to edit.
 5. Right-click in the datapoint column, and then click **Edit Switch Points**.



The *Edit Switch Points* dialog box displays. On the upper area, the time program name and the daily schedule name are shown. In the table below all switch points of the selected data point are shown. You can change the following properties:

- Value
- Start Time
- End Time
- Optimization



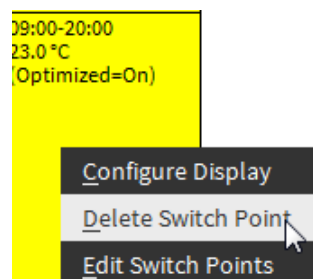
You can also delete switch points by checking the points in the **Delete** column.

6. Edit the desired properties.
7. Click **OK**.

Delete Switch Point

Purpose This function allows deleting a switch point.

- Procedure**
1. In **Time Program**, select the time program.
 2. In **Date**, select the date.
 3. On the "Schedules" pane, click the *Daily Schedule* tab.
 4. In **Daily Schedule**, select the daily schedule.
 5. In the switch points table, right-click the switch point, you want to delete.



6. In the context menu, click **Delete**. The switch point is deleted. Preceding and succeeding switch points remain as is and keep their end and start times.
7. Save settings by clicking the **Save** button at the bottom

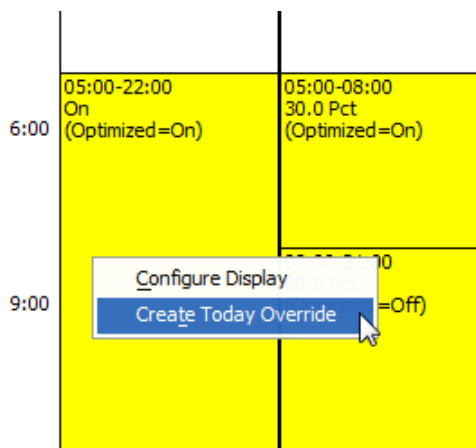
Create Today Override

Purpose To override a daily program with a defined value for a particular time range.

Procedure 1. Select the *Overview* tab.

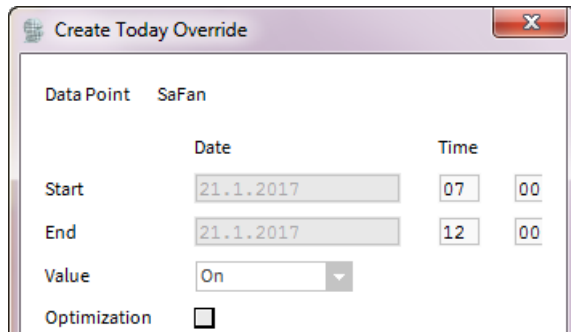
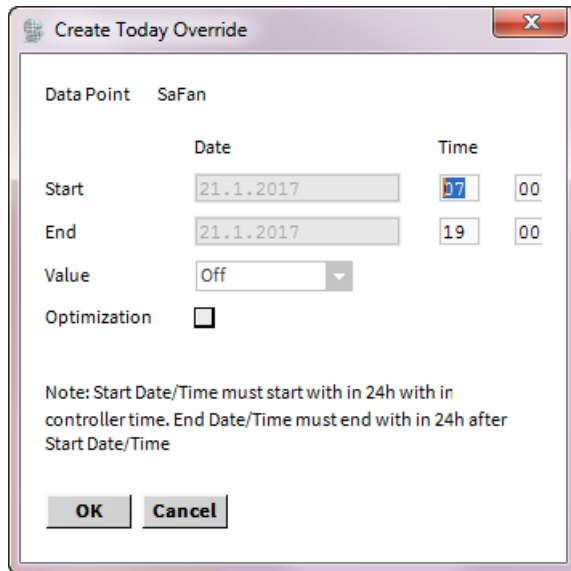
Overview Daily Schedule Weekly Schedule Yearly Schedule Holiday Schedule				
Date: 10.6.2015				
Time Program: Floor A				
Source: Weekly Prog.				
Data Point: RaFan HtgVlv AvgRoomTemp SaFan				
3:00				
6:00	05:00-22:00 On (Optimized=On)	05:00-08:00 30.0 Pct (Optimized=On)	06:00-09:00 16.0 °C (Optimized=On)	
9:00		08:00-21:00 90.0 Pct (Optimized=Off)	09:00-21:00 21.0 °C (Optimized=Off)	
12:00				11:00-23:00 On (Optimized=Off)
15:00				

2. Right-click the daily program of the datapoint, and then click **Create Today Override** in the context menu.

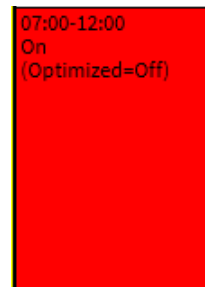


3. In the *Create Today Override* dialog box, change any of the following settings:

- Value
- Time
- Optimization



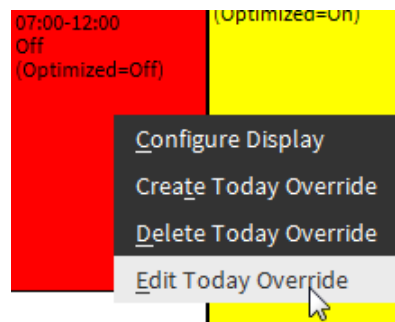
4. Save settings by clicking the **OK** button.
The override period is indicated in red in the datapoint column.



NOTE: If the Start time is defined in the past, the override will get active on the next day.

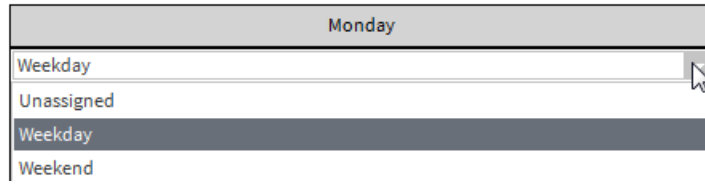
Edit Today Override

The today override can be edited. To do so, right-click on the red marked override period and then click **Edit Today Override** in the context menu. Edit the properties *Edit Today Override* dialog box as described in step 3.

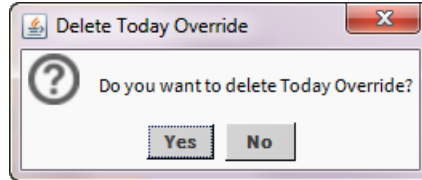


Delete Today Override

The today override can be deleted. To do so, right-click on the red marked override period and then click **Delete Today Override** in the context menu.



Click **Yes** in the *Delete Today Override* dialog box.



The today override is deleted and the daily program is reverted to its original state.

Weekly Schedule

IMPORTANT

Settings and changes made in daily schedules, weekly schedule, yearly schedule, and holiday schedule do only apply to the allocated time program, not any other time program(s).

When selecting the *Weekly schedule* tab, the whole week is shown in table format. Each weekday’s settings can be edited by assigning the daily program to the weekday and setting the switch points per day. Switch points can be edited in the same way as in the daily schedule (see “Edit/Update Switch point” section).

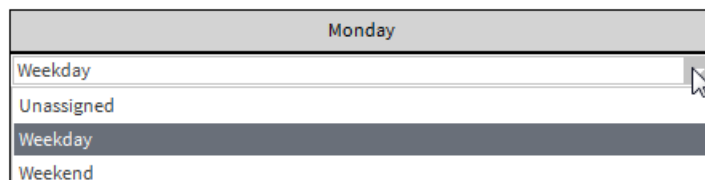
Modify Weekly Schedule

Procedure This function allows setting/changing the daily schedule assignment of particular week days and editing of the switch points of the daily schedules.

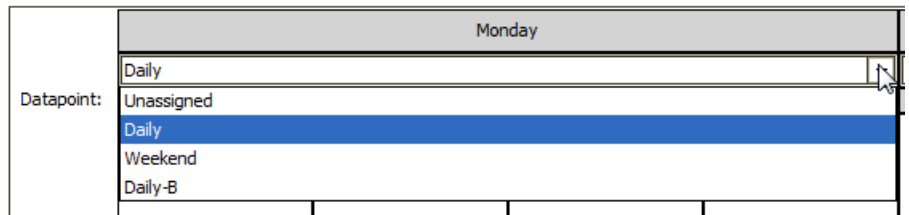
IMPORTANT

Changes on the Weekly Schedule applies only to the weekly schedule of the selected time program.

- Procedure**
1. In **Time Program**, select the time program.
 2. In **Date**, select the date.
 3. On the "*Schedules*" pane, click the *Weekly Schedule* tab. The whole week is shown in table format.



4. To assign a daily schedule to a weekday, select the daily schedule at the top below the weekday name.



The switch points of the selected daily schedule are displayed in the column.

To edit switch points, please refer to the “Edit/Update Switch point” and “Delete Switch point” sections.

NOTE: Editing a daily schedule in the weekly schedule will change all days using the same daily schedule correspondingly.

5. Save settings by clicking the **Save** button at the bottom

Yearly Schedule

IMPORTANT

Settings and changes made in daily schedules, weekly schedule, yearly schedule, and holiday schedule do only apply to the allocated time program, not any other time program(s).

Daily schedules are assigned to each day of the week in the weekly schedule. The weekly schedule is automatically repeated every week and creates the normal yearly schedule.

The yearly schedule can be changed for a specific period by assigning different daily schedules to particular weekdays of the desired period.

Time Program

Overview **Daily Schedule** Weekly Schedule Yearly Schedule **Holiday Schedule**

Start Date Week Range

Week Day	Date	Assigned Schedule	Source	Details
Friday	20.1.2017	Weekday	Weekly Schedule	
Saturday	21.1.2017	Weekend	Weekly Schedule	
Sunday	22.1.2017	Weekend	Weekly Schedule	
Monday	23.1.2017	Weekday	Weekly Schedule	
Tuesday	24.1.2017	Weekday	Weekly Schedule	
Wednesday	25.1.2017	Weekday	Weekly Schedule	
Thursday	26.1.2017	Weekday	Weekly Schedule	

When selecting the *Yearly Schedule* tab, the yearly program settings are displayed for a defined week range. The weekdays show their assigned daily schedules and their source. Source shows the schedules where the assigned daily schedule is originally created, that is, either the weekly schedule or when assigning another daily schedule to a weekday here, the yearly schedule (override).

Modify Yearly Schedule

- Purpose** This function allows setting up the schedule for specific days (period) of the year.
- Procedure**
1. In **Time Program**, select the time program.
 2. In **Date**, select the date.


3. On the "Schedules" pane, click the *Yearly Schedule* tab.
The yearly schedule is displayed.

4. Define the time range to be displayed as follows:


a. In **Start Date**, click the calendar icon and select the date in the pop-up window.

b. In **Week Range**, select the number of weeks.

The week range is displayed below. The weekdays show their assigned daily schedules and their source. Source shows the schedules where the assigned daily schedule is originally created, that is, either the weekly schedule or when assigning another daily schedule to a weekday here (override), the yearly schedule.

Time Program 

Overview **Daily Schedule** Weekly Schedule Yearly Schedule

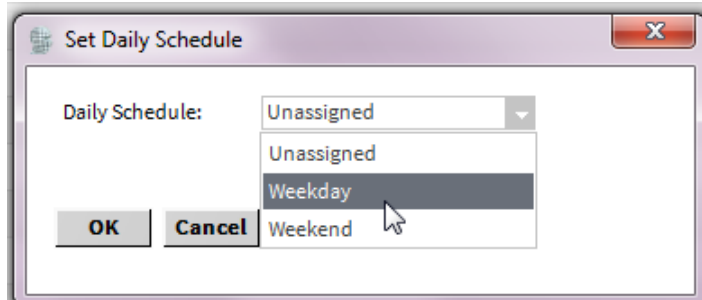
Start Date  Week Range

Week Day	Date	Assigned Schedule	Source
Friday	20.1.2017	Weekday	Weekly Schedule
Saturday	21.1.2017	Weekend	Weekly Schedule
Sunday	22.1.2017	Weekend	Weekly Schedule
Monday	23.1.2017	Weekday	Weekly Schedule
Tuesday	24.1.2017	Weekday	Weekly Schedule
Wednesday	25.1.2017	Weekday	Weekly Schedule
Thursday	26.1.2017	Weekday	Weekly Schedule
Friday	27.1.2017	Weekday	Weekly Schedule
Saturday	28.1.2017	Weekend	Weekly Schedule
Sunday	29.1.2017	Weekend	Weekly Schedule
Monday	30.1.2017	Weekday	Weekly Schedule
Tuesday	31.1.2017	Weekday	Weekly Schedule
Wednesday	1.2.2017	Weekday	Weekly Schedule
Thursday	2.2.2017	Weekday	Weekly Schedule
Friday	3.2.2017	Weekday	Weekly Schedule
Saturday	4.2.2017	Weekend	Weekly Schedule
Sunday	5.2.2017	Weekend	Weekly Schedule
Monday	6.2.2017	Weekday	Weekly Schedule
Tuesday	7.2.2017	Weekday	Weekly Schedule
Wednesday	8.2.2017	Weekday	Weekly Schedule
Thursday	9.2.2017	Weekday	Weekly Schedule
Friday	10.2.2017	Weekday	Weekly Schedule

5. To assign another daily schedule to a weekday, right-click on the weekday, and then click **Assign Daily Schedule**.

Week Day	Date	Assigned Schedule	Source	Det
Friday	20.1.2017	Weekday	Weekly Schedule	
Saturday	21.1.2017	Weekend	Weekly Schedule	
Sunday	22.1.2017	Weekend	Weekly Schedule	

- In the *Set Daily Schedule* dialog box, select the daily schedule. Multi-selection by pressing the STRG or SHIFT key simultaneously is possible.



- Click **OK** button.

The assigned daily schedule is shown in the *Assigned Schedule* column. In the *Source* column, the overriding daily schedule is indicated by the entry 'Yearly Schedule'.

Week Day	Date	Assigned Schedule	Source	Details
Friday	20.1.2017	Weekday	Weekly Schedule	
Saturday	21.1.2017	Weekday	Yearly Schedule	
Sunday	22.1.2017	Weekend	Weekly Schedule	

- Save settings by clicking the **Save** button at the bottom

To reverse an assignment to the default setting, right-click on the week day(s). Click **Assign Daily Schedule**, then select 'Unassigned' in the *Set Daily Schedule* dialog box, and then click **OK** button.

The original daily program is re-assigned as indicated in the *Assigned Schedule* and *Source* columns. .

Holiday Schedule

The holiday schedule is a customized calendar containing the popular bank holidays. By default, each holiday has the daily schedule of the weekly schedule assigned. You can change the default assignment by assigning another daily schedule in the holiday schedule. This will override the default assignment. The changes can be viewed in the yearly schedule.

IMPORTANT

Settings and changes made in daily schedules, weekly schedule, yearly schedule, and holiday schedule do only apply to the allocated time program, not any other time program(s).

Modify Holiday Schedule

- Purpose** This function allows setting up the schedule for holidays.
- Procedure**
- In **Time Program**, select the time program.
 - In **Date**, select the date.

- On the "Schedules" pane, click the *Holiday Schedule* tab. The yearly schedule is displayed.
- To display and apply the holiday schedule, check **Enable Holiday Schedule** if not already done.

Time Program: Floor A

Overview **DailySchedule** WeeklySchedule YearlySchedule HolidaySchedule

Enable Holiday Schedule

Holiday	Daily Program Override	Date
New Years Day	Unassigned	1.1.2016
Epiphany	Unassigned	6.1.2016
Moday Before Lent	Unassigned	8.2.2016
Shrove Tuesday	Unassigned	9.2.2016
Ash Wednesday	Unassigned	10.2.2016
Good Friday	Unassigned	25.3.2016
Easter Sunday	Unassigned	27.3.2016
Easter Monday	Unassigned	28.3.2016
May Day	Unassigned	1.5.2016
Ascension Day	Unassigned	5.5.2016
Whit Sunday	Unassigned	24.5.2015
Whit Monday	Unassigned	25.5.2015
Corpus Christi	Unassigned	4.6.2015
Deutsche Einheit	Unassigned	3.10.2015
Assumption Day	Unassigned	15.8.2015
Reformation Day	Unassigned	31.10.2015
All Saints Day	Unassigned	1.11.2015
Day Of Prayer	Unassigned	18.11.2015
First Sunday Advent	Daily	29.11.2015
Second Sunday Advent	Daily	6.12.2015
Third Sunday Advent	Daily	13.12.2015
Fourth Sunday Advent	Daily	20.12.2015
Christmas Eve	Weekend	24.12.2015
Christmas Day	Weekend	25.12.2015
Boxing Day	Unassigned	26.12.2015

- In the **Daily Override** column of the desired holiday, select the daily program which should override the default assignment of the weekly program, indicated as 'Unassigned'.

Deutsche Einheit	Unassigned	3.10.2017
Assumption Day	Unassigned	15.8.2017
Reformation Day	Weekday	31.10.2017
All Saints Day	Weekend	1.11.2017

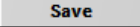
The selected daily schedule is displayed in the row here and can also be viewed in the yearly schedule.

Week Day	Date	Assigned Schedule	Source	Details
Sunday	1.10.2017	Weekend	Weekly Schedule	
Monday	2.10.2017	Weekday	Weekly Schedule	
Tuesday	3.10.2017	Weekend	Holiday Schedule	Deutsche Einheit

- Save settings by clicking the **Save** button at the bottom.

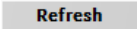
Download Time Program

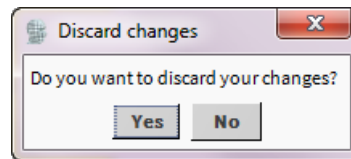
Purpose This function downloads (writes) the time programs into the controller.

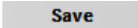
Procedure 1. To download the time programs into the controller, click the  button at the bottom.

Upload Time Program

Purpose If changes of time programs in the controller have occurred, or if any local modifications have been discarded, this function reloads (reads) the current time programs from the controller. Upload is also possible by double-clicking the *Schedules* folder in the Nav tree.

Procedure 1. To upload the time programs into the controller, click the  button at the bottom. If you changed the time program, the *Discard changes* dialog box displays.



2. Click **Yes** to discard the changes or click **No** to keep the changes.  button at the bottom. The time program is updated.

ALARMS

C-Bus alarms can be categorized as follows:

- **system alarms**
Operating errors that occur in a control unit or during communication with other Excel controllers are recognized and displayed. These alarm signals can relate, for example, to a defective module, the need to change the buffer battery (data protection), or the presence of one digital output module too many (maximum 10). These alarm signal texts are preprogrammed. They are always critical alarms
- **critical alarms**
have priority over non-critical alarms, that is, critical alarms are given priority on the bus when several alarms are in the alarm queue
- **non-critical Alarms**

The following events all generate alarm messages:

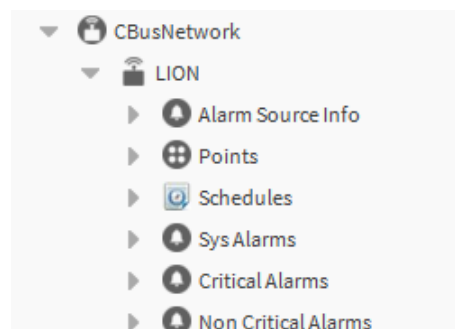
- Exceeding limit values
- Overdue maintenance work
- Totalizer readings
- Digital datapoint changes of state

attribute	always critical	optional critical or non-critical
Operating Mode	X	
Min. Limit		X
MNX. Limit		X
Maintenance Alarm		X
Interval Counter		X
Alarm Status		X

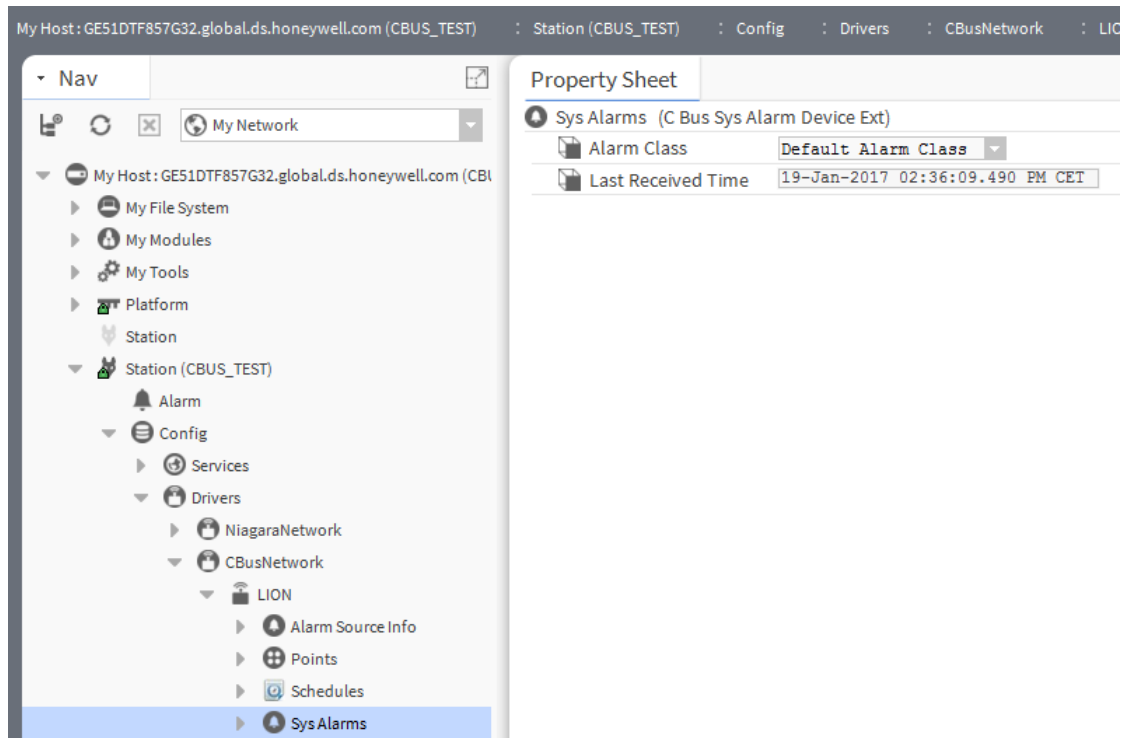
Changing over the attribute "Operating Mode" always results in a critical alarm, but the attribute "Alarm Type" offers a choice for the alarm attributes "Min. Limit", "MNX. Limit", "Maintenance Alarm", "Totalizer", and "Alarm Status" whether an alarm is classified as critical or non-critical. Distinguishing between critical and non-critical alarms is significant for the subsequent reporting of the alarms. When the type of alarm for a datapoint has been decided, e.g. "critical" alarm type, it refers to all alarm attributes for this datapoint.

In the *Nav* tree of the controller, the source of the alarms can be accessed in the following folders:

- Sys Alarms
- Critical Alarms
- Non Critical Alarms

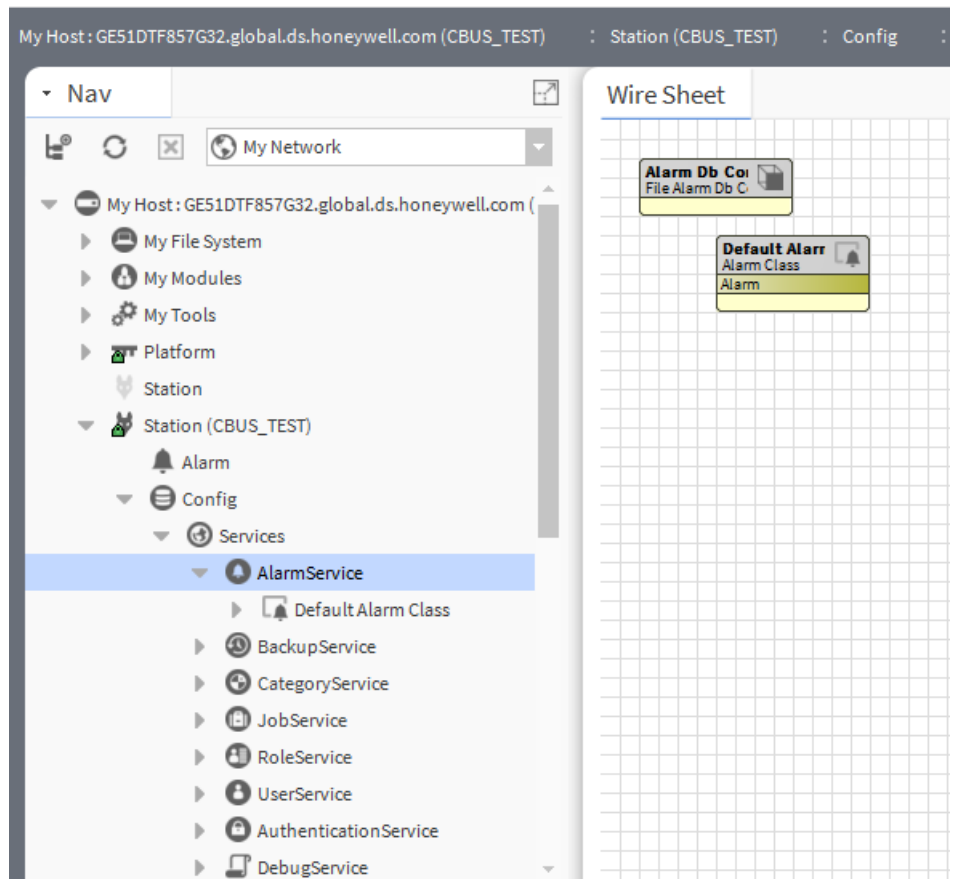


By double-clicking on the corresponding folder, you can view the properties of the alarm category on the right pane.



By double-clicking the AlarmService folder you can view the wire sheet. Here you can create the corresponding alarm classes. This allows alarm segregation.

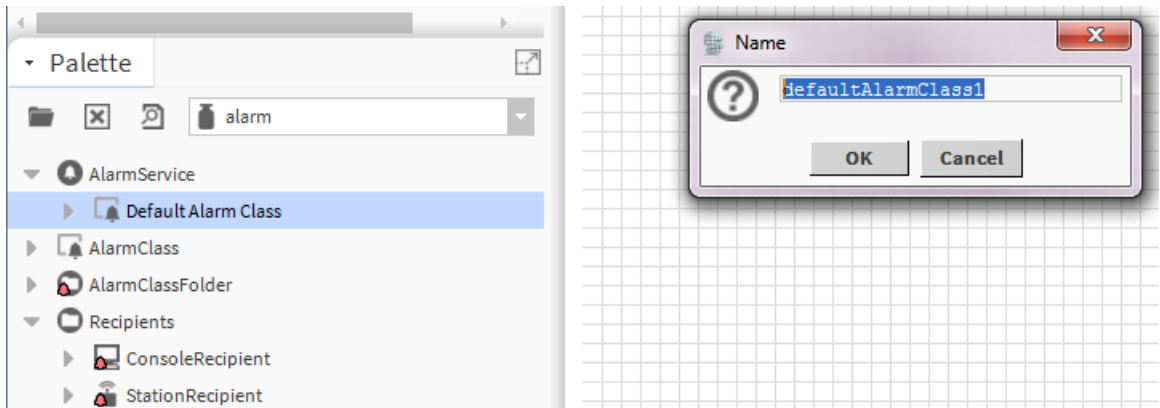
Alarm classes and console recipients can be found in the palette **Alarm**.



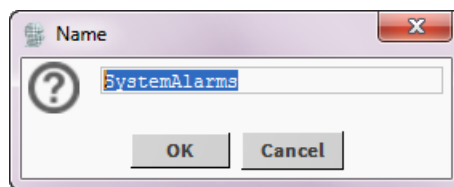
You can assign these alarm classes to the existing CL BACnet console recipient or you can create a new console recipient for the C-Bus. In the following figures the assignment steps of the alarm classes to the C-Bus console recipient is shown.

NOTE: You can create multiple console recipients (one for each alarm category such as system alarms)

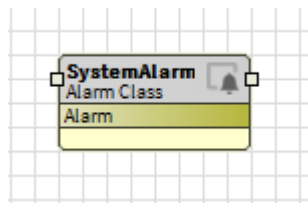
- Procedure**
1. In the **Alarm** palette, open the **AlarmService** folder, and then drag&drop the Default Alarm Class onto the wiresheet.



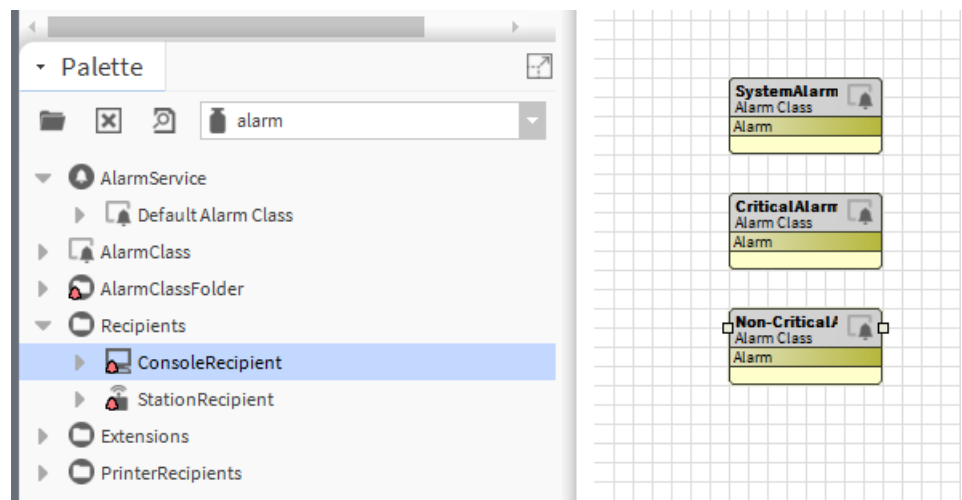
2. In the *Name* dialog box, enter the alarm class name, e.g. system alarms, and then click **OK**.



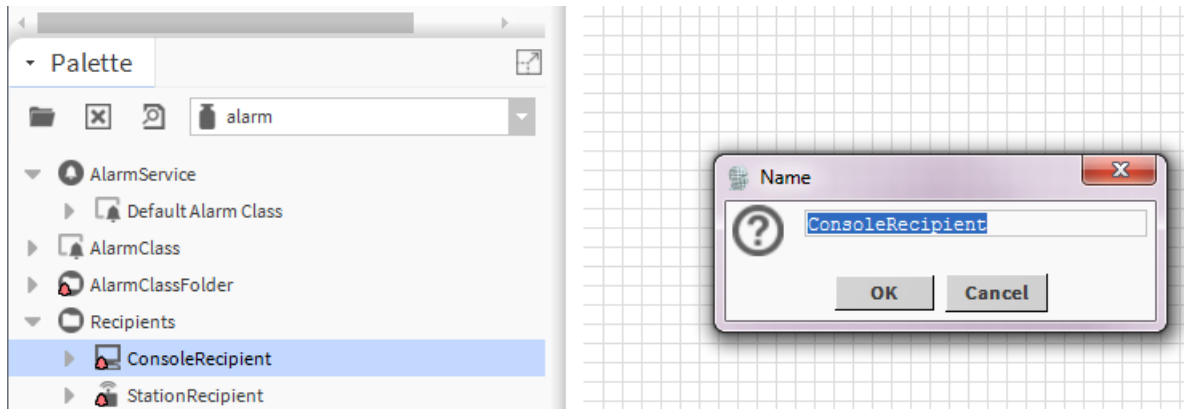
The alarm class is added to wiresheet.



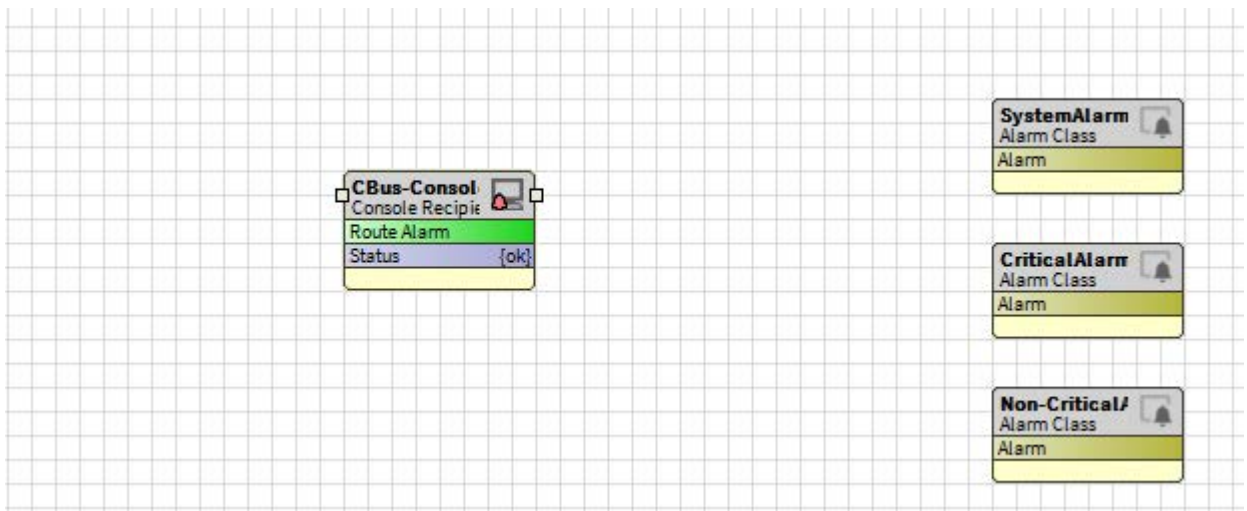
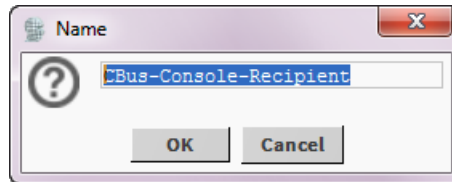
3. Create alarm classes for 'critical alarms' and 'non-critical alarms' in the same way.



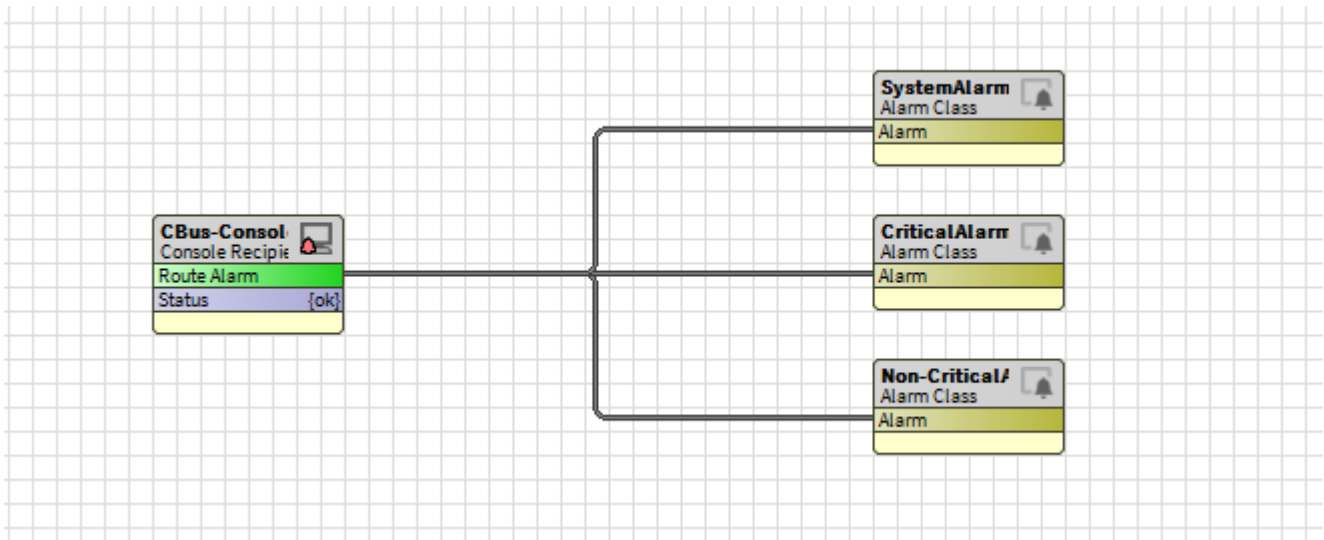
- In the **Alarm** palette, open the **Recipients** folder, and then drag&drop the console recipient onto the wiresheet.



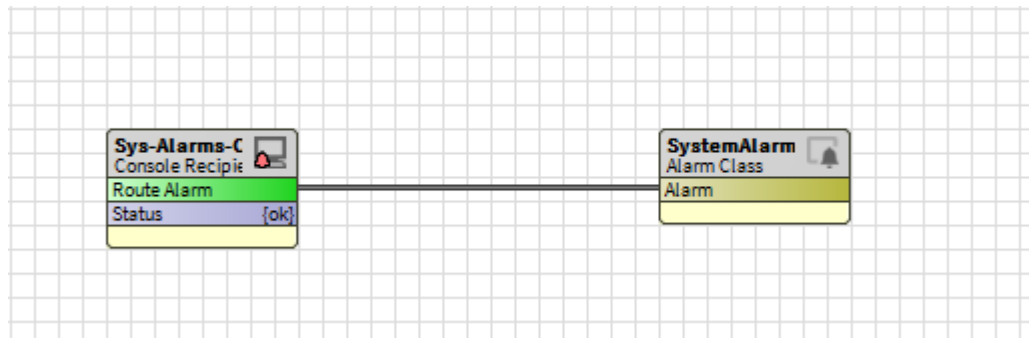
- In the *Name* dialog box, enter a name for the C-Bus alarm recipient, and then click **OK**.



- Connect the alarm classes to the console recipient.



7. If desired, create a console recipient for each alarm class and connect them to each other.



“HOW TO” INSTRUCTIONS

For the C-Bus driver, the following additional features are available

- Emergency Actions Always Hidden
- C-Bus Point Updater Tool

The corresponding detailed information is included in “How to” Instructions which can be downloaded from the Centraline FAQ database at:

<https://clfaq.ge51.honeywell.de/>

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