

N2 Driver User Guide

N2 Driver User Guide

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Installation

Install `ibmsN2.jar` on the computer where Niagara AX Workbench will run. To install, place a copy of the file in the modules directory of your Niagara AX installation. This is typically `C:\Niagara\Niagara-3.n.nnn\modules`.

Install `ibmsN2` module on the target station. Using a Niagara AX workbench where the module has already been installed, connect to the stations platform service. Go to the software manager and install `ibmsN2`.

Apart from installing the `3.n.nnn` version of the Niagara distribution files in the JACE, make sure to install the ***ibmsN2*** module too (if not already present, or upgrade if an older revision). For more details, see “About the Commissioning Wizard” in the JACE Niagara AX Install and Startup Guide.

Following this, the station is now ready for N2 software integration, as described in the rest of this document.

Requirements

- Niagara AX workbench 3.6.xx or higher.

1. Serial communication RS485 Port. (Required “serial” feature in the license).

- Niagara AX platform JACE support:

1. JACE 2xx.
2. JACE 4xx.
3. JACE 5xx.
4. JACE 6xx.
5. JACE 7xx.

- Maximum N2 Network support:-

Theoretical there is no limitation on maximum N2 Network in the single Niagara AX station, the limitation is always base on the JACE resource count, and system must have at least reserve for 30% CPU usage to perform the multiple process.

- N2 Devices support:

1. VMA 1400 Series
2. VMA 1410
3. VMA 1420
4. DX9100
5. XT9100
6. VAV
7. AHU
8. VND
9. TEC
10. UNT
11. TC9100
12. FX N2 Open

- VAV-111-1 (Revision not available).

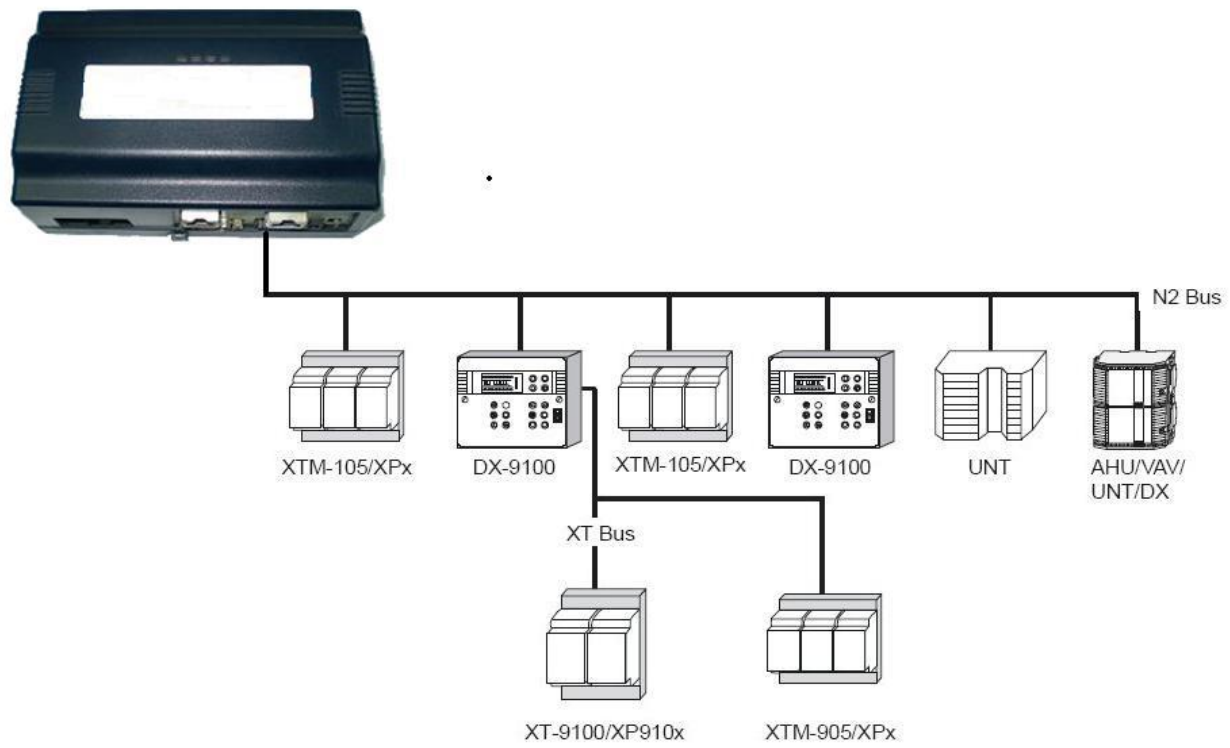
- Device and point discovered.
- Point discovers option: only physical point and for discover by using controller DDL file support physical point includes point parameter also the description of point.

- AS-UNT 111-1 (Revision F).

- Device discovered.

- Point required to create manually for discover by using controller DDL file support physical point include point parameter also the description of point.
- VND
 - Device discovered.
 - Point required to create manually for discover by using controller DDL file support physical point include point parameter also the description of point.
- AS-MIG-201-0 (Revision X) Integrator 4073 v6.00
 - Device discovered.
 - Point required to create manually for discover by using controller DDL file support physical point include point parameter also the description of point.
- DX-9100 (Revision not available)
 - Device and point discovered.
 - Point discovers option: only physical point and for discover by using controller DDL file support physical point includes point parameter also the description of point.
- Untested Device
 - DC9100
 - DR9100
 - DO9100
 - XTM-105

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Quick Start

This section provides a collection of procedures to use the Niagara AX N2 drivers to build networks of devices with proxy points and other components. Like other Niagara AX drivers, you can do most configurations from special “manager” views and property sheets using Workbench.

- For any of the N2 networks:
 - [“Configure the N2 network”](#)
 - [“Add N2 devices”](#)
 - [“Create N2 proxy points”](#)

Configure N2 Network

To add and configure a N2 network, perform the following main tasks:

- Add the N2 network, as needed:
 - [Add a N2Network](#)

Add a N2Network

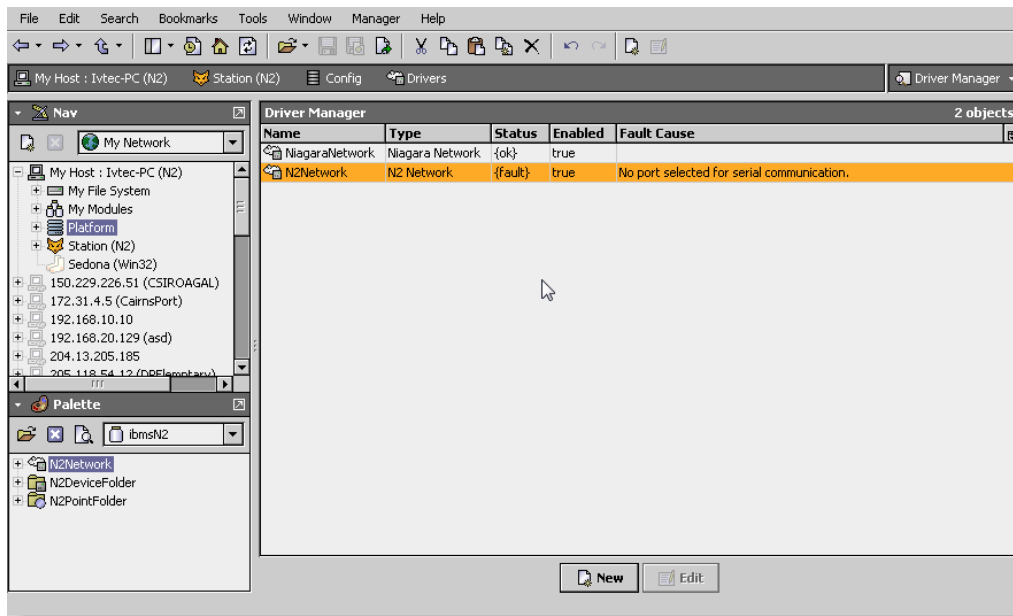
To add a N2Network in the station

Use the following procedure to add a N2Network component under the station's Drivers container.

Note: One or more N2Network are supported in single Niagara Ax station.

To add a N2Network in the station:

- Double-click the station's **Drivers** container, to bring up the **Driver Manager**.
- Click the **New** button to bring up the New network dialog. For more details, see [“Driver Manager New and Edit”](#) in the *Drivers Guide*.
- Select “N2 Network,” number to add: 1 (or more, if multiple) and click **OK**. This brings up a dialog to name the network(s).
- Click **OK** to add the N2Network (s) to the station. You should have a N2Network named “N2Network” (or whatever you named it), under your Drivers folder, initially showing a status of “{fault}” and enabled as “true.”



After you [configure the serial port parameters and transmission mode](#), status should change to “{ok}”.

Configure the serial port parameters and transmission mode

In the N2Network property sheet for each network, you must set the serial port configuration to match the serial communications parameters used by other N2 devices on the network.

To set the serial port parameters

To set the serial port parameters for a N2Network:

- Right-click the N2Network and select **Views > Property Sheet**.

The **Property Sheet** appears.

- Scroll down and expand the **Serial Port Config** slot.

Set the properties for the JACE serial port used, where defaults are:

- Port Name: none — Enter the JACE port being used, like COM2 or COM3.
- Baud Rate: Baud9600 — Or choose different from selection list.
- Data Bits: Data Bits8 — Or choose different from selection list.
- Stop Bits: Stop Bit1 — Or choose different from selection list.
- Parity: none — Or choose different from selection list.
- Flow Control Mode: none — Or choose different using checkbox.

Note : *You must determine the setup of the N2 network to correctly set the baud rate, data bits, stop bits, parity, and flow control settings.*

- Click the **Save** button.

Add a N2 Devices

After adding a N2 network, you can use the network's default "device manager" view to add the appropriate N2 devices.

Note: *You need the address information for each N2device you are adding, as well as for later procedures to add proxy points under devices.*

To add a N2 device in the network

Use the following procedure to add the correct type of N2 device in the network. To add a N2 device:

- In the Nav tree or in the Driver Manager view, double-click the client network, to bring up the device manager (N2 Device Manager). All of these device manager views operate in a similar fashion.

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

- Click the **New** button to bring up the **New** device dialog.
- Select for number to add: 1 (or more, if multiple) and click **OK**.
This brings up a dialog to name the device(s), enter N2 device address.
 - Any *N2Device* needs the unique address in use.
- Click **OK** to add the N2 device(s) to the network.
You should see the device(s) listed in the N2 Device Manager view, showing a status of “{ok}” and enabled as “true.”

If a device shows “down” check the configuration of the network and/or N2 device addresses. You can simply double-click a device in the device manager to review settings in an **Edit** dialog, identical to the **New** dialog when you added it.

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

Create N2 Proxy Point


As with device objects in other drivers, each N2 device has a **Points** extension that serves as the container for proxy points. The default view for any Points extension is the Point Manager (and in this case, the “**N2 Point Manager**”). You use it to add N2 proxy points under any N2 device.

Note: *Unlike the point managers in many other drivers, the **N2 Point Manager** does offer a “Learn mode” with a **Discover** button and pane. Otherwise you can simply use the **New** button to create proxy points, referring to the vendor’s documentation for the addresses of data items in each N2 device.*

To add N2 proxy points

Once a N2 device is added, you can add proxy points to read and write data. If programming online (and the device shows a status of “{ok}”), you can get statuses and values back immediately, to help determine if point configuration is correct. Use the following procedure:

To create N2 proxy points in a device:

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

This brings up the **N2 Point Manager**.

- (Optional) Click the **New Folder** button to create a new points folder to help organize points, and give it a short name, such as “TempNo1”, or whatever name works for your application. You can repeat this to make multiple points folders, or simply skip this step to make all proxy points in the root of **Points**. Note that all points’ folders have their own **N2 Point Manager** view, just like **Points**. If making points folders, double-click one to move to its location (and see the point manager).
- At the location needed (**Points** root, or a points folder), click the **New** button. The **New** points dialog appears, in which you select a point “Point Type,” “Number to Add,” and “Point Address.

For more details, see [“About N2 proxy points”](#)

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

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

- If a point shows a “{fault}” status, check its ProxyExt “Fault Cause” property value, which typically includes a N2 “exception code” string, such as “Read fault: illegal data address”. In such a case, re-check the address in the point against the documented address for the data item.
- Continue to add proxy points as needed under the **Points** extension of each N2 device. As needed, double-click one or more existing points for the **Edit** dialog, similar to the **New** dialog used to create the points. This is commonly done for re-editing items like data addresses, names, or facets.

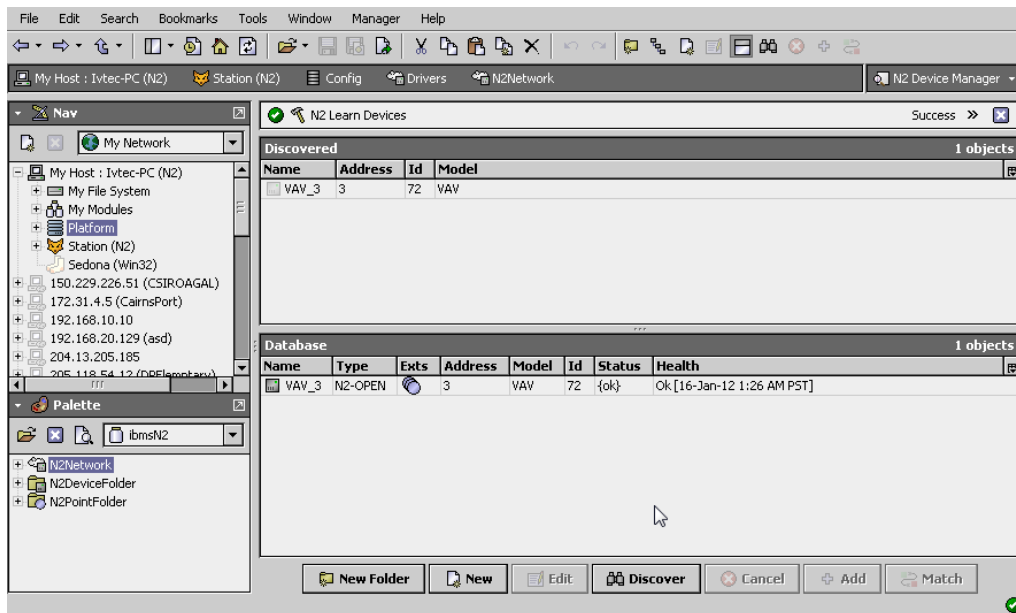
N2 View

- [N2 Device Manager](#)
- [N2 Point Manager](#)

N2 Device Manager

The N2 Device Manager is the default view when you double-click on a N2 Network in the Nav tree. This manager view provides a quick and easy way to display.

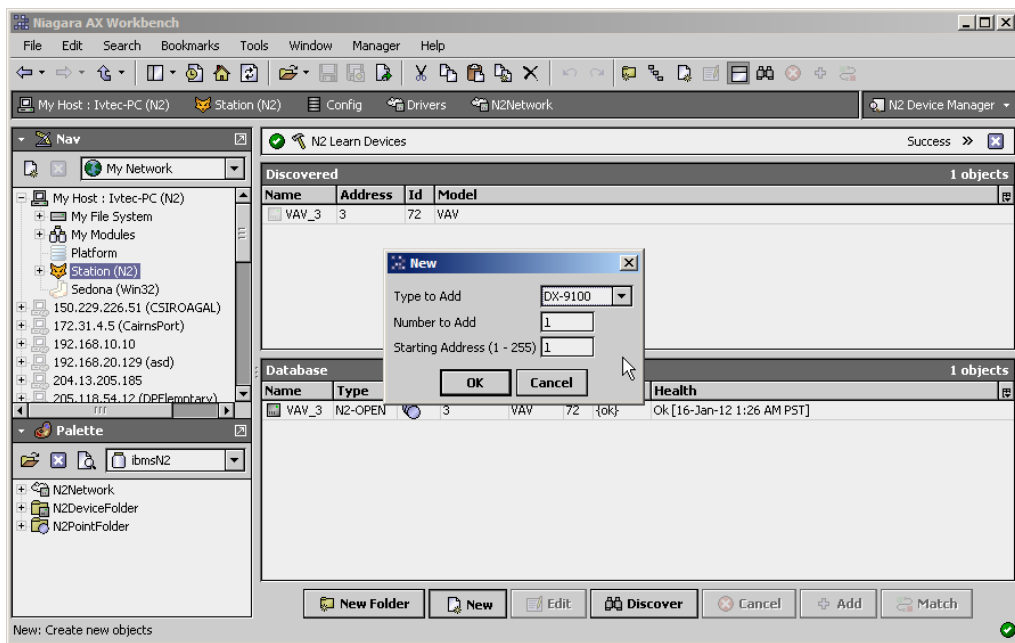
The N2 Device Manager is the default view for any N2 Network container. The N2 Device Manager is a table-based view, where each row represents a unique device. When building a network in the station, you use this view to create, edit, and delete device-level components. Below is an example N2 Device Manager view.



The view above shows a typical N2 Device Manager view.

The “New Folder”, “New”, and “Edit” buttons are not unique to the N2 Device Manager, and are explained in the “Niagara AX User’s Guide” in the “Driver Architecture” section. The “Match” button is not used for the N2 driver.

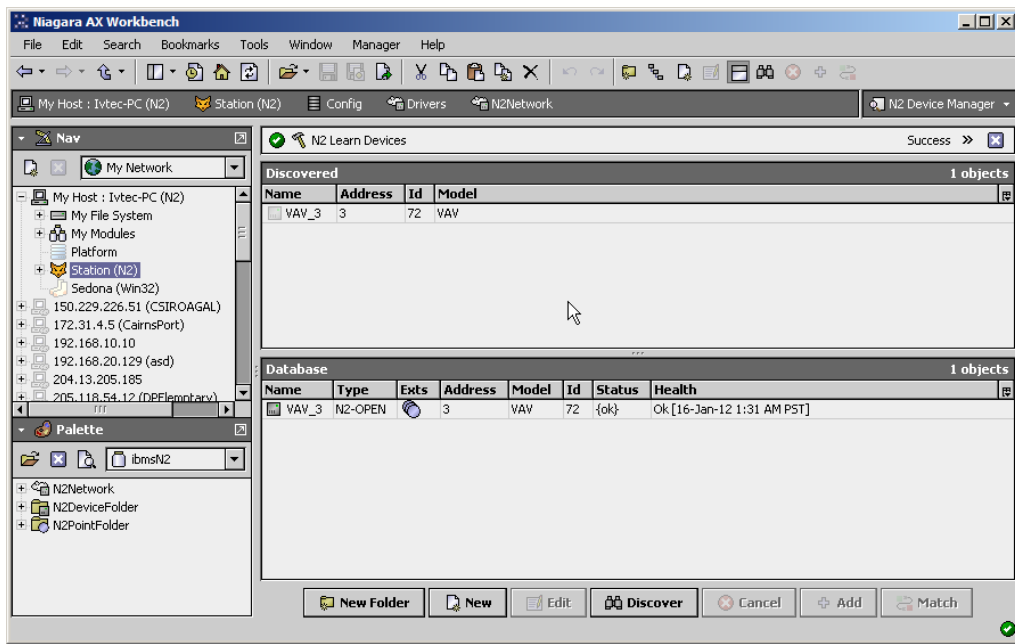
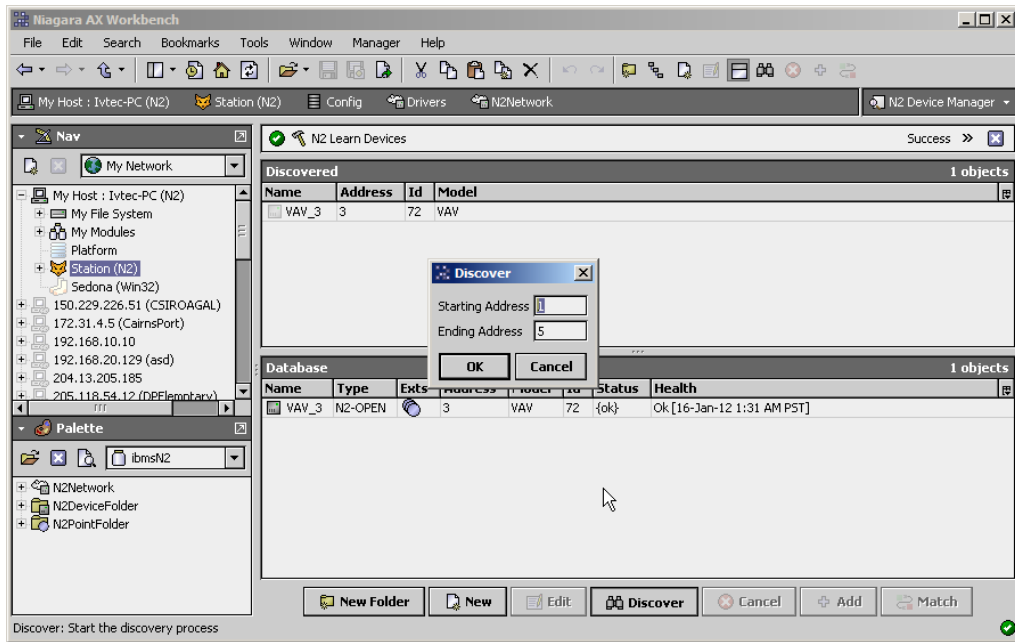
You can now add the devices to the station database by clicking the “Add” button. This will pop up the “Add” dialog box:



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

The “Discover” button implements functionality that is unique and tailored to discovering N2 devices. By clicking the “Discover” button, the “learn” mode of the manager is invoked (the panes will be split, and a “discovery” table will be displayed in the top pane) .

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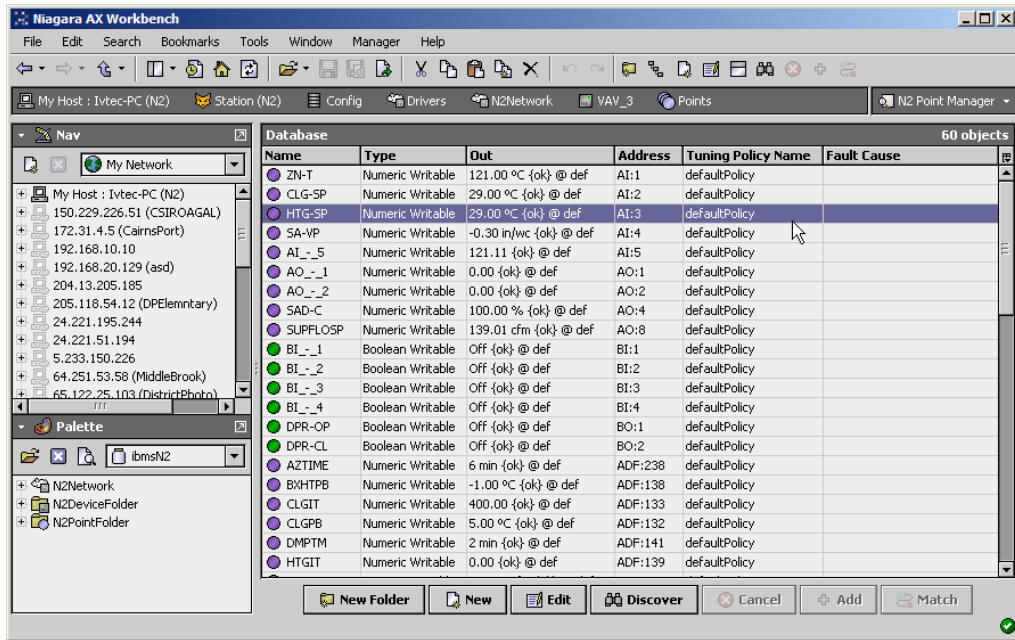
Single or multiple N2 devices can be added as device by selecting the discovered row(s) in the top pane, and clicking add. Doing so will cause the “Add” dialog box to appear:
Once the device(s) are satisfactorily edited, click “OK” to create the device corresponding to the device property.

N2 Point Manager

The N2 Point Manager is the default view when you double-click on a “points” folder (a N2PointDeviceExt type folder) under a N2Device in the Nav tree. This manager view provides a quick and easy way to display and learn N2 points in a N2 device.

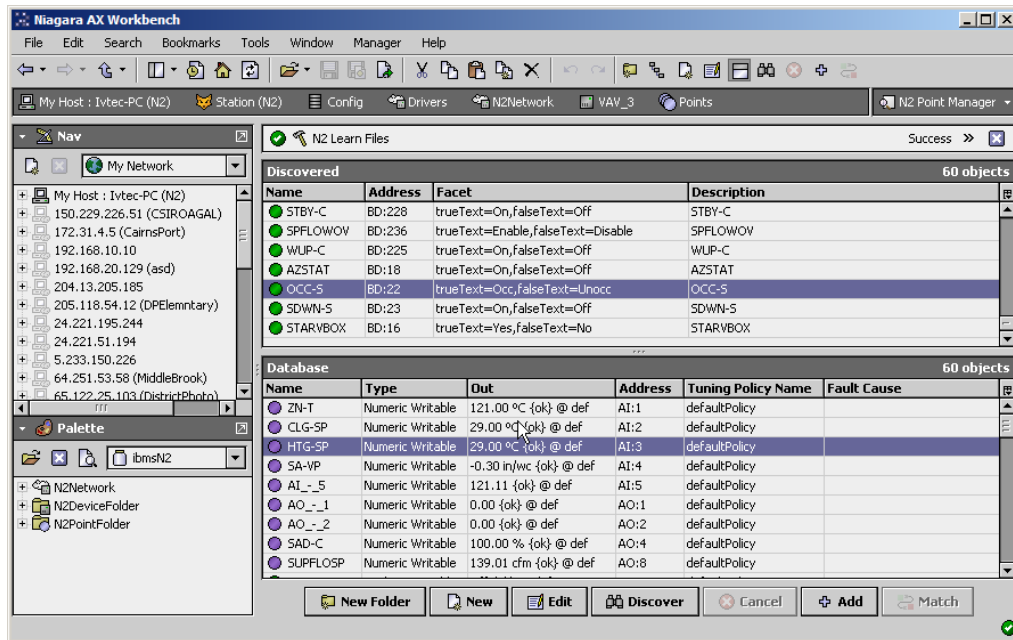
The N2 Point Manager is the default view for any N2PointDeviceExt container. The N2 Point Manager is a table-based view, where each row represents a unique N2 point address within a device.

Below is an example N2 Point Manager view.

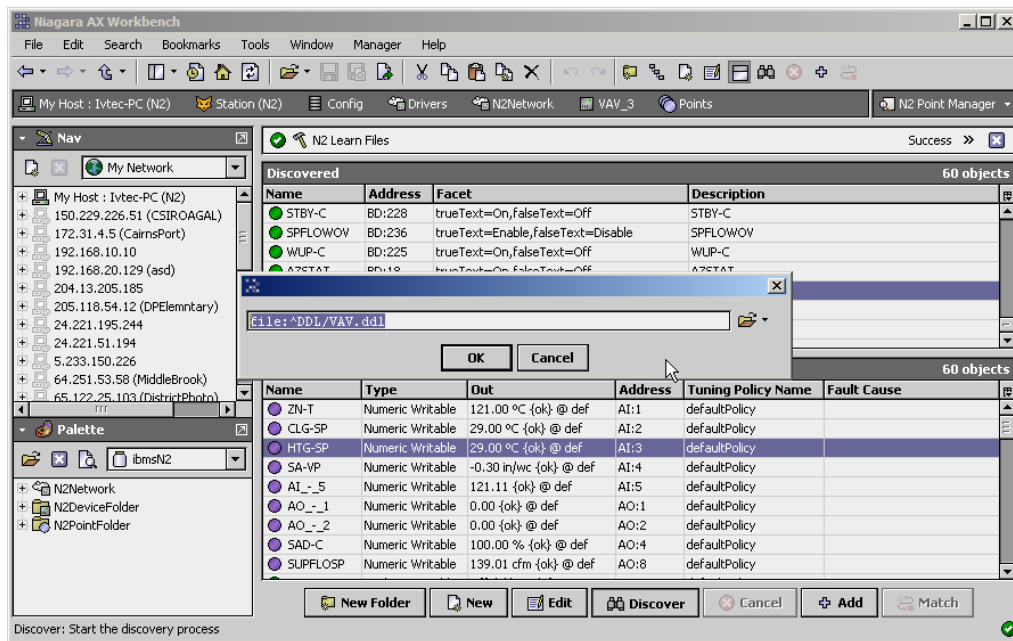


The “New Folder”, “New”, and “Edit” buttons are not unique to the N2 Device Manager, and are explained in the “Niagara AX User’s Guide” in the “Driver Architecture” section. The “Match” button is not used for the N2 driver.

The “Discover” button implements functionality that is unique and tailored to discovering N2 devices points. By clicking the “Discover” button, the “learn” mode of the manager is invoked (the panes will be split, and a “discovery” table will be displayed in the top pane) .



Single or multiple points can be added as control points with N2ProxyExt extensions by selecting the discovered row(s) in the top pane, and clicking add. Doing so will cause the “Add” dialog box to appear: Once the point(s) are satisfactorily edited, click “OK” to create the proxy points corresponding to the point property.



Click the discover button and select from the dialog to read from the *.DMO, *.DDL' file. Most of the DX9100 series will only support the DMO file.

If selected from the “Read from *.DMO, *.DDL file” and your are running in the JACE level make sure the *.DMO or *.DDL file has been transfer to the station file before it can be use.

Click button “OK” the dialog to select file will appear. Select from “File Ord Chooser” and finally press button “OK” to complete the process.

Note : There was 2 type of *.DMO and *.DDL file on this N2 integration. One(1) is for the NC controller and another one for the DDC controller such a VAV, VND and etc. The type of the *.DMO and *.DDL file only can be use is for the DDC controller type, this file normally generate by the N2 tools such a HVAC Pro or GX9100 commissioning tools.

Licensing

N2 driver License is running independently from the Tridium license, it has no restriction to run to any of the existing license vendor.

The ibmsN2 license provide 2 hour demo license without the unlock code. After the demo license expired the ibmsN2 Driver communication will stop automatically and will show fatal fault at the N2 Network level. "ibmsN2 license expired". To extend the demo period user required to restart the station or reboot the JACE.

To request the license please submit the JACE/Web Supervisor host ID, to unlock the driver simply go to the license property at the word "License" click at the right mouse button, action and invoke command "License Update", the dialog "License Update" will appear. Place the unlock code at the "Unlock Code" property. Please take note the license only provide by authorize vendor. If the unlock code is successful enter the property "Mode" will automatically change to "registered" and user is required to reboot the JACE to applied the change.

