

Trend IQ3 Emulator for Niagara 4

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INTRODUCTION

The Trend IP emulator driver is designed to provide an easy interface to integrate Tridium devices (JACEs) to a Trend 963. The driver allows a single or multiple emulated IQ3's to be created and expose points to a 963 in an emulated Trend IQ3 format.

The Trend IP emulator works in a Network Stand Alone mode. This means that it must be setup and addressed on a unique and unused LAN address. It will NOT sit on an existing LAN with other IQs. The driver also does not support incoming connections via IC Comms. It is only designed to be integrated directly to a 963 Supervisor.

In terms of functionality the driver provides -

- ▶ Emulated IQ3 Devices on their own unique STANDALONE LAN.
- ▶ Emulated points with support for point types - Sensors / Inputs / Drivers / Knobs / Switches
- ▶ Where a Tridium source point has a history extension a Plot export will be available.
- ▶ Where a Tridium source point has an alarm extension the point will indicate the alarm state (Alarm Bits)
NOTE: The source point will NOT generate a text based alarm string to the 963 in the current release.
- ▶ Export of Tridium Schedules as Trend Time Zone.

DRIVER INSTALLATION

The Trend driver supports Niagara 4.10 and above.

NOTE:

If your installation is running an an older version of software then it must be upgraded to meet the above requirements to run this driver.

Any future updates to the Trend driver will be available for the current release of Niagara and previous release. All other releases will become legacy and unsupported.

AX Installation:

Support for Niagara AX has now ceased. This product becomes fully unsupported in June 2021.

N4 Installation:

To install the driver copy the *tyrrellTrendIpServer-rt.jar* & *tyrrellTrendIpServer-wb.jar* to the following directory -

c:\niagara\niagara 4.x.xx\modules

Once the files have been put into the correct directory close your workbench. and relaunch the workbench.

The driver is now ready to use in a local station or to commission / update a JACE.

To install the driver on a JACE use the software manager on the platform of the target device.

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Niagara 4 Software Signing Certificates:

Niagara 4.9 onwards introduced a new security measure in that Tridium require all 3rd party drivers to be securely signed with a certificate. The Niagara 4.9 (and above) JAR files will also be supplied with a Certificate file (tyrrell-products-self-signed-code-certificate.pem).

The certificate file should be placed in the following directory for ease of installation:
C:\Users\USERNAME\Niagara4.x\vykon\certManagement

The certificate will need to be installed in two (or more) specific places:

- ▶ Workbench Certificate Manager
This is specifically for the workbench that will be used to engineer a project. You will not be able to use the driver without doing this step first.

- ▶ Host Platform Certificate Manager
This would normally be a JACE8000
The host platform won't be able to install the driver unless this step has been completed.

Workbench Certificate Manager

Launch your Niagara 4.x workbench.

Select Tools > Certificate Management.

Select the User Trust Store tab.

Select Import and select the tyrrell-products-self-signed-code-certificate.pem file.

Host Platform Certificate Manager

Connect to the Platform of your target controller.

Open Certificate Management.

Select the User Trust Store tab.

Select Import and select the tyrrell-products-self-signed-code-certificate.pem file.

NOTE: You will need to perform the above step on the Niagara controller BEFORE you will be able to commission or install the tyrrell-TrendIP JAR files onto the device.

LICENSING

The driver has several license options available -

PART CODE	DESCRIPTION
UD02101A	Trend Emulator 100 Point Pack
UD02101B	Trend Emulator 250 Point Pack
UD02101C	Trend Emulator 500 Point Pack
UD02101D	Trend Emulator 1000 Point Pack
UD02101E	Trend Emulator 2000 Point Pack
UD02201CONA	Additional Virtual CNC
UD02201CONB	Additional Virtual IQ (Free)
UD02301A	Tridium Schedule to 1 Trend Time Zone
UD02301B	Tridium Schedule to 2 Trend Time Zone
UD02301C	Tridium Schedule to 5 Trend Time Zone
UD02301D	Tridium Schedule to 10 Trend Time Zone
UD02301E	Tridium Schedule to 25 Trend Time Zone
UD02301F	Tridium Schedule to 50 Trend Time Zone
UD02301G	Tridium Schedule to 100 Trend Time Zone
UD02401A	25 Tridium Histories to Trend Plots
UD02401B	50 Tridium Histories to Trend Plots
UD02401C	100 Tridium Histories to Trend Plots
UD02401D	250 Tridium Histories to Trend Plots

SOFTWARE MAINTENANCE

The Trend driver includes a software maintenance feature. Every new purchase of the driver will support the current release of Niagara 4 and the next release of Niagara 4, any subsequent upgrade will require a software maintenance license to be applied.

As an example the current release of Niagara 4 is N4.10, a new driver purchase will cover you for N4.10 and an upgrade to N4.11 (also any previous release of the software - note we only support the current release and previous release with driver updates). Any further upgrades, for example to N4.12 or above, will require a software maintenance to be applied. The software maintenance would then cover you for the now current release and the next release of the software. You can upgrade from any previous release with a single software maintenance purchase.

If you purchased a historic release of the driver then a software maintenance license will be required for any upgrade including and above Niagara 4.9.

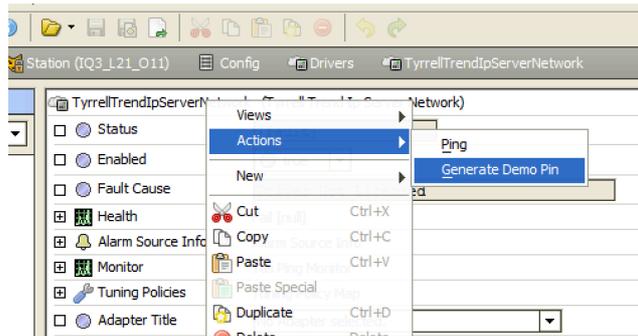
Any questions or queries in relation to this item should be sent to sales@tyrrellproducts.com

DEMO MODE

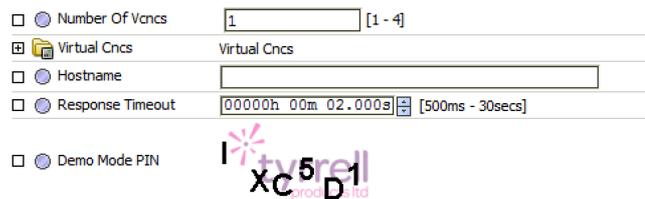
In addition to permanent licenses the driver also supports a two hour demonstration mode.

To activate this mode follow the below steps -

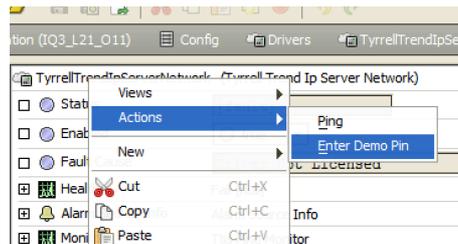
- ▶ Insert a new Tyrrell Trend IP Server network (see the following section)
- ▶ Go into the property sheet of the network
- ▶ Right click on the **Driver > Actions > Generate Demo PIN**



- ▶ An image will appear at the bottom of the property sheet with a demo PIN



- ▶ Right click on the **Driver > Actions > Enter Demo PIN**



- ▶ Enter the PIN exactly as it is shown in the image
- ▶ When entered correctly a pop up box will appear with instructions.
- ▶ Restart the station to complete the activation of the demo mode.
- ▶ After two hours the demo mode will expire, repeat the above steps to re-activate the demo mode.

STARTING THE DRIVER

To start the driver for the first time -

- ▶ Connect to a running station and navigate to **Config > Drivers**
- ▶ Select **New Driver** or **Right Click > New Driver**
- ▶ From the drop down list select **Tyrrell Trend IP Server**
- ▶ You can rename this network to something more appropriate
- ▶ The driver is now ready for configuration

VIRTUAL LAN CONFIGURATION

The driver requires configuration before it can be used, navigate to the **Property Sheet**.

The driver must be configured with a unique LAN and Outstation address(s). The driver LAN & Outstation address must **NOT** be added to any existing LAN's. The emulator must be configured as Stand Alone.

If you are unsure of the sites current configuration please use Trend IP Tool to review the sites current configuration of LAN's & Outstations.

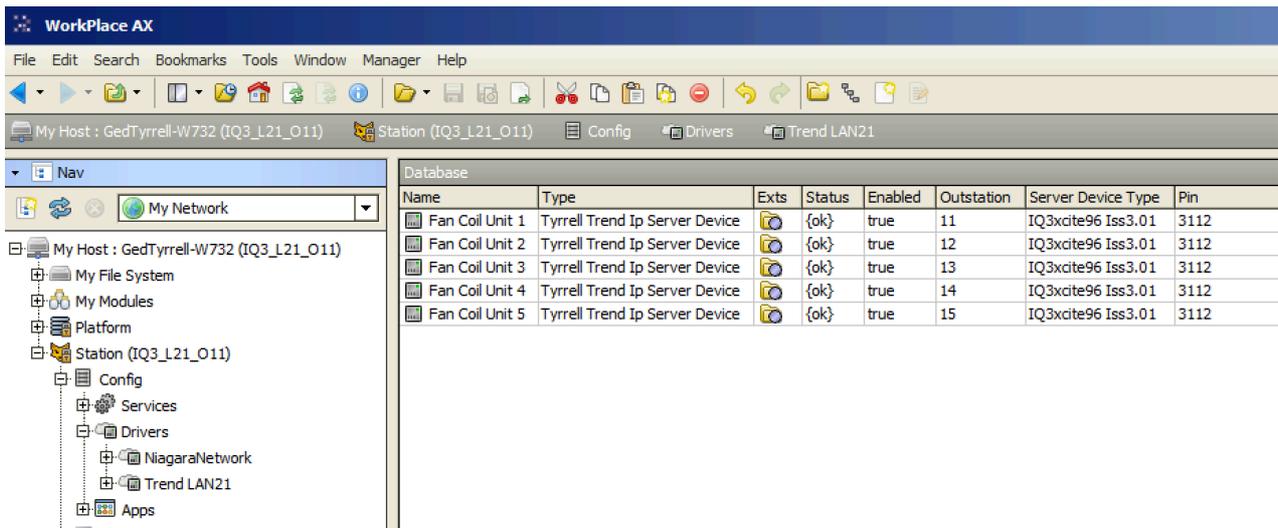
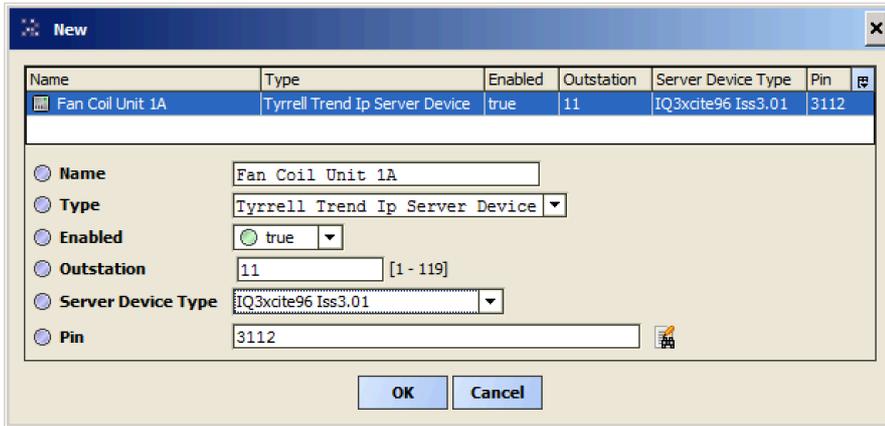
The screenshot shows the configuration window for 'Trend LAN21 (Tyrrell Trend Ip Server Network)'. The window contains various settings for the network adapter and virtual CNCs. Annotations on the right side of the image point to specific fields:

- Adapter Title:** Intel(R) PRO/1000 MT Network Connection (Annotation: < select the network adaptor to use)
- System Config Group:** 57612 (Annotation: < select the LAN number to use)
- Lan Number:** 21 (Annotation: < select the LAN number to use)
- Outstation:** 126 (Annotation: < select the LAN number to use)
- Number Of Vcncs:** 1 (Annotation: < select the number of VCNC's to use)
- virtualCnc Outstation:** 101 (Annotation: < select the VCNC port address)
- virtualCnc Cnc Port:** 10101 (Annotation: < select the VCNC port address)

VIRTUAL IQ CREATION

Once the drive is configured go into the **Device Manager** view of the driver.

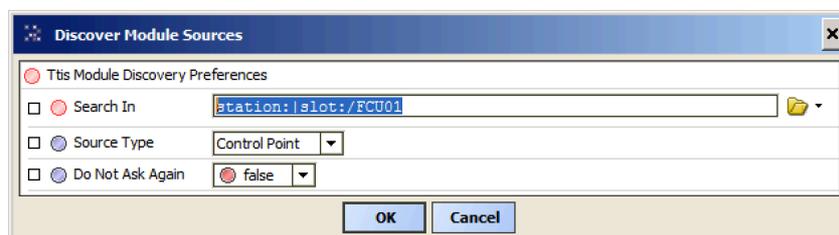
Within this view a single or multiple Virtual IQ's can be created with their associated address.



Once an Outstation has been created the points from any driver or folder in the system can be exported as Trend points.

EXPORTING POINTS

Navigate into the Virtual IQ's **Point Export** folder and select the **Discover** option.

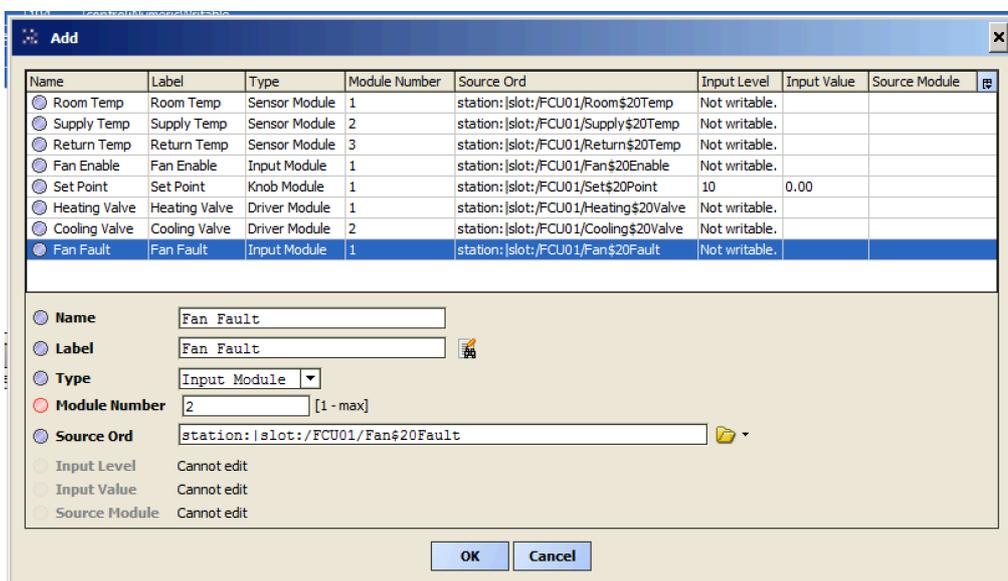


A discovery window will appear allowing you to choose a station space to search in. The filter allows Points / Schedules / Histories to be selected.

Slot Path	Handle	Source Type
/FCU01/Room\$20Temp	18c	control:NumericWritable
/FCU01/Supply\$20Temp	18e	control:NumericWritable
/FCU01/Return\$20Temp	190	control:NumericWritable
/FCU01/Fan\$20Enable	192	control:BooleanWritable
/FCU01/Set\$20Point	194	control:NumericWritable
/FCU01/Heating\$20Valve	196	control:NumericWritable
/FCU01/Cooling\$20Valve	198	control:NumericWritable
/FCU01/Fan\$20Fault	19a	control:BooleanWritable

Name	Source Name	Label	Type	Module Number	Source Value	Status	Input Level	Input Value	Source Module
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The discovered points will appear in the top window. The required points can then be selected and added to the Virtual IQ database.



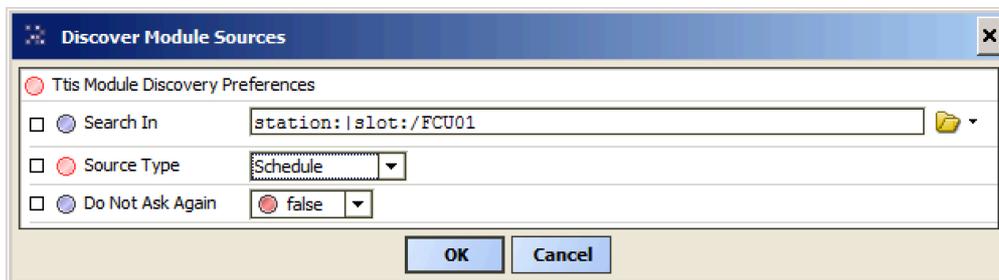
The popup window allows the points to be configured as Sensors / Inputs / Drivers / Knobs / Switches.

The point label can also be adjusted if the source point name is not suitable.

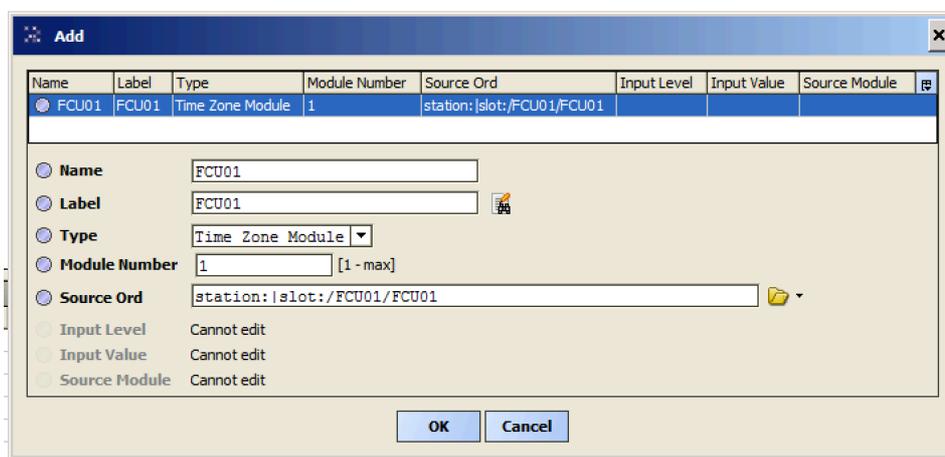
When a Knob is selected the initial value can also be set (note the default will be 0). A Knob will link to the In10 slot of the target point.

EXPORTING SCHEDULES

The discovery of schedules is the same process as the discovery of points.



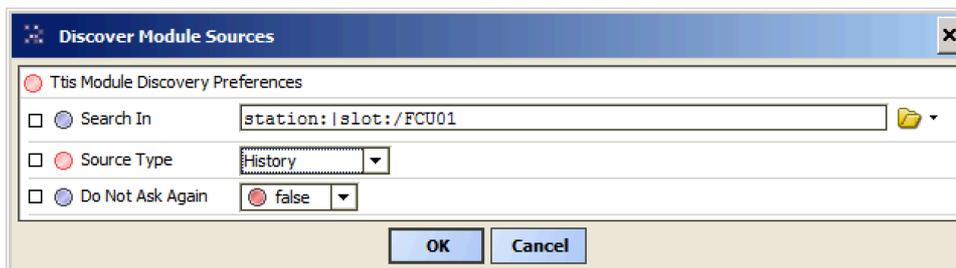
The discovered Schedules will appear and can then be added the the Virtual IQ database.



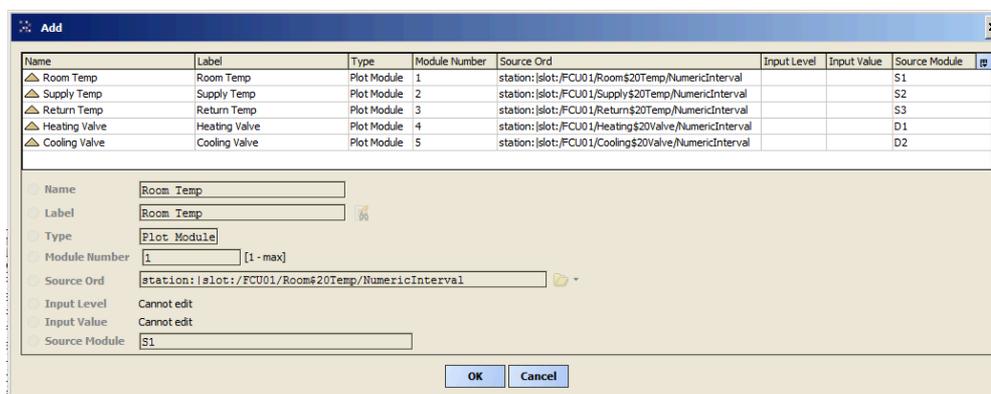
NOTE: Exporting Schedules is an additional license feature to a standard point pack.

EXPORTING HISTORIES

The discovery of Histories is the same process as the discovery of points.



The discovered Histories will appear and can then be added the the Virtual IQ database.



The name & the Label of the Plots can be adjusted. The history automatically links to the exported Trend Point reference.

NOTE: Exporting Histories is an additional license feature to a standard point pack.

CONFIGURING THE TREND 963

The configuration of the Tridium is now complete and the exported Points / Schedules / Histories can be discovered into the 963 Supervisor.

Login to the 963 at a high enough user level to configure new LAN / Devices.

Navigate to Devices View

Right click in the Navigator panel

Add new site

Name Site, Set Connection type to IP Connection

Enter IP address, vCNC Port, Permanent connection.

963 will then connect to the driver and discover all configured virtual devices
TyrrellTrendIpServerNetwork will then be added to the remote site list.

Navigate the Site Tree down to the newly added Virtual Devices

Right click on a device, Collect Labels, From All Module Types

All discovered modules will now be shown in the right hand pane

Knobs and Switches can be adjusted by right clicking the module and then Adjust Point.

The screenshot shows the 'Device Viewer' application window. The 'Navigator' panel on the left displays a tree structure under 'Local Site' containing 'Tyrrell Trend Emulator Driver' and '(5) TyrrellTrendIpServerNetwork'. The latter contains five 'Virtual Device' entries (1-5) and a '963 (108) 963 v3.73' entry. Below the tree is a menu with options: Schematics, Devices (highlighted), Alarms, Config, Users, Web Browser, Diary, and Scheduler. The main window area shows a toolbar with icons for Inputs, Adjustments, Drivers, and Plots. Below the toolbar is a table of discovered modules:

Label	Value	Units	Error Description	Alarm Code	Item	LAN	OS	Connection	Pin Level
Driver	21.00				D1	5	11	IP 192.168...	0
Input	On				I1	5	11	IP 192.168...	0
Knob	0.00				K1	5	11	IP 192.168...	0
Sensor	21.00				S1	5	11	IP 192.168...	0
Switch	Off				W1	5	11	IP 192.168...	0

The status bar at the bottom indicates 'System Administrator', 'Zoom: 100%', '963 v3.73 [RI-S][SERVER]', and the date '21 February 2018 11:17:27 (Left=20)'.

REVISION HISTORY

REVISION	DESCRIPTION
1.0	Release Candidate
1.1	Introduction Added General Update
1.2	Supported functionality description expanded
1.3	Niagara 4.10 release