

Trend IQ2/IQ3 Driver for Niagara AX/N4

User Guide

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1 Introduction

The Trend¹ IQ2 and IQ3 systems includes a wide range of programmable controllers for HVAC control and building automation. The controllers communicate with a proprietary protocol called Trend IQ Network using Ethernet (IQ3 series) or Trend current loop (IQ2 series).

Niagara Trend IQ2/IQ3 driver is designed to enable communication between Trend IQ2/IQ3 controllers and Tridium Niagara AX powered devices. It provides an efficient solution for retrofit of building management systems, facilitates seamless integration of multiple protocols and allows convenient makeover of front-end software.

A single Niagara powered device with IQ2/IQ3 driver could serve as an integration platform for various Sauter controllers: IQ3xcide, IQ3xact, IQ2xx, EINC, XTEND as well as 3rd party systems like Modbus, KNX, M-Bus, SNMP.

2 Requirements

- Niagara AX 3.7² or later powered device such as Jace 2 / 3 / 6 / 8000 Supervisor or their OEM versions
- Communication options
 - IQ3 Network: Ethernet
 - IQ2 Network: Ethernet via EINC or XTEND
- Trend driver license

3 Network

In order to start communication between Jace and Trend devices, make sure Jace is connected to the same network as IQ3 or IQ2 device and everything is powered.

1. Install **trend.jar** and all dependent modules via Software Manager
2. Start the station and add new **Trend Network**
3. In network **Properties** enter the license number and restart the station

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²If support for older Niagara versions is required, please contact the vendor

TrendNetwork (Trend Network)	
Status	{ok}
Enabled	<input checked="" type="radio"/> true
Fault Cause	
Health	Ok [21-Feb-17 10:24 AM GMT]
Alarm Source Info	Alarm Source Info
Monitor	Ping Monitor
Tuning Policies	Tuning Policy Map
Poll Scheduler	N Poll Scheduler
Tcp Config	Trend Tcp Comm Config
Trend Driver Properties	Trend Driver Properties
License	MCwCFcPi80Vqk6NJEzdhF3dwjPyMhEUdAhR6w6CX

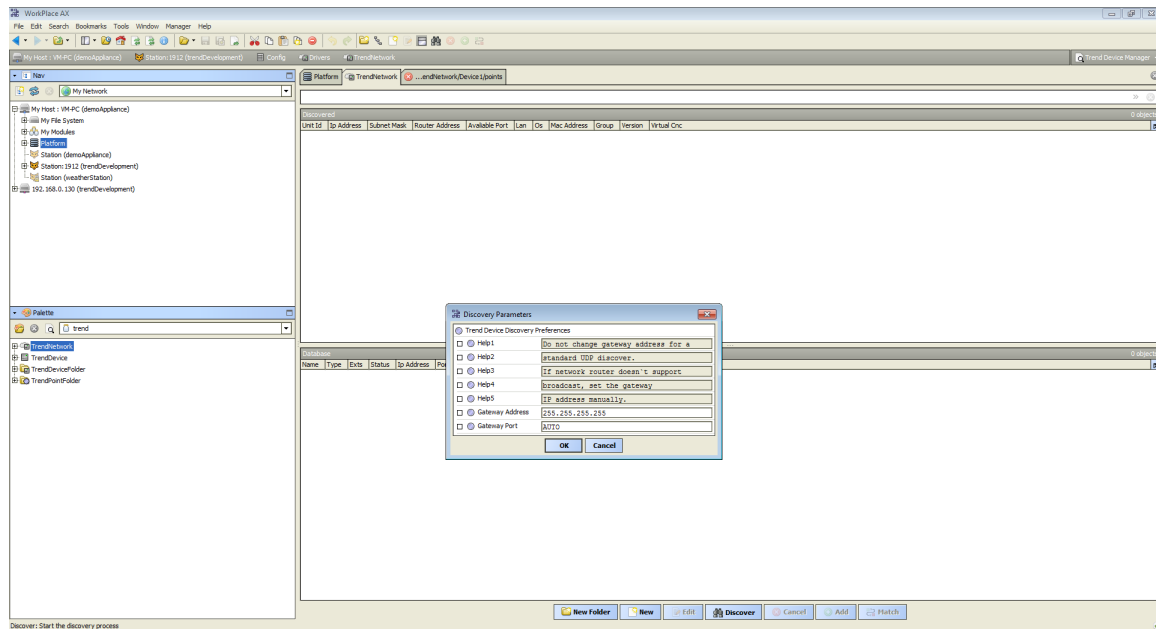
Optional driver properties are located under **Trend Driver Properties** section:

- Read Alarm Status – Niagara will read the Trend system alarm status and will change the status of Niagara point accordingly.
- Read Disabled Status – Niagara will read the Trend system enabled / disabled status and will change the status of Niagara point accordingly.
- Read Override Status – Niagara will read the Trend system override status and will change the status of Niagara point accordingly.
- Ping Fail Count – amount of times device ping have to fail before the driver will change the Niagara status from normal to fault.
- Clean Up Interval – driver will try to do a clean up and outgoing message group optimization every X amount of transactions.
- Max Outstanding Transactions – amount of messages can be sent simultaneously.
- Response Time Out Ms – time out in miliseconds between the message request was sent and the last message fragment recieved.
- Fragmentable Message Time Out Ms – time out in miliseconds between the fragmentable messages.

Trend Driver Properties Trend Driver Properties	
Read Alarm Status	<input checked="" type="radio"/> true
Read Disabled Status	<input checked="" type="radio"/> true
Read Override Status	<input checked="" type="radio"/> true
Ping Fail Count	2
Clean Up Interval	6
Max Outstanding Transactions	32
Response Time Out Ms	20000
Fragmentable Message Time Out Ms	10000

4 Devices

Open the **Device Manager** and press **Discover** button.

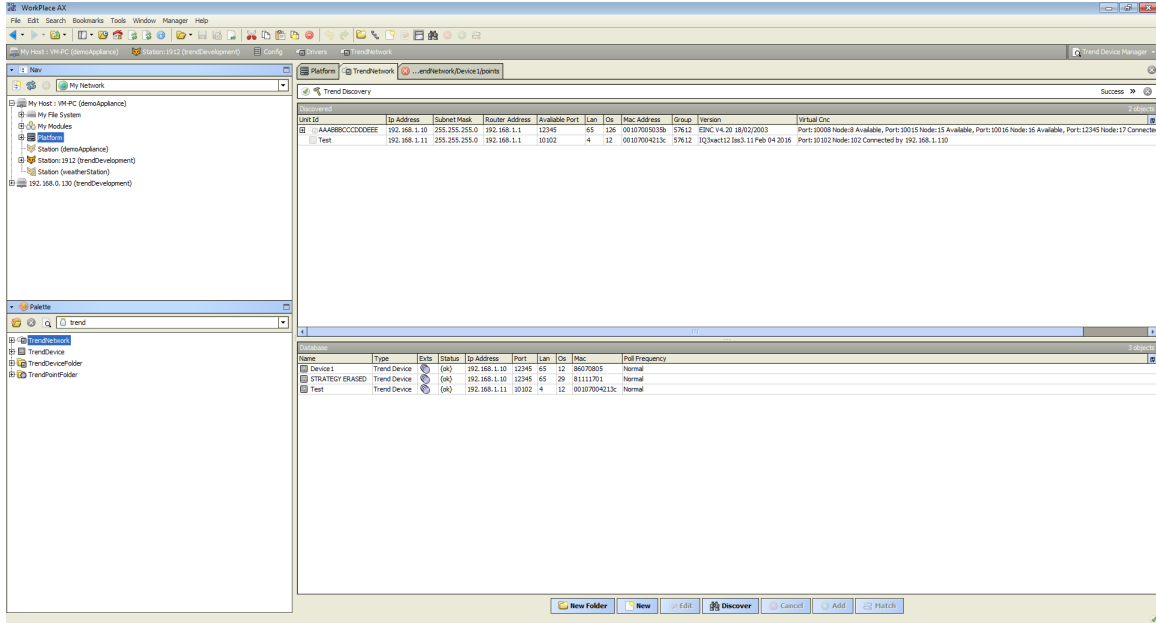


The devices will be discovered via UDP protocol. If the Jace is connected to the Trend system directly there is no need to change any discovery properties.

If there is a router between the Jace and Trend system in most cases router will not support broadcast messages. It will be necessary to set the discovery device IP address and port. Port forwarding in the router have to be configured.

Press **OK** button.

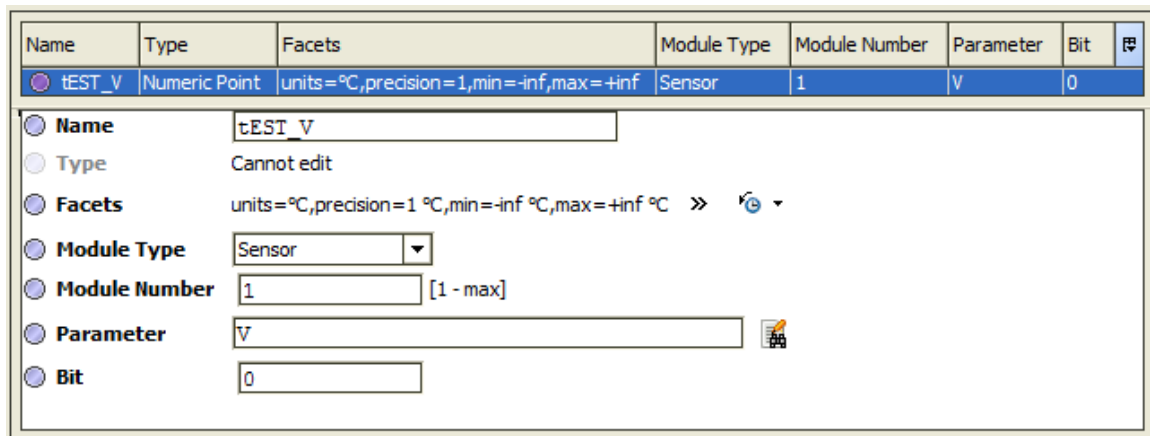
Niagara will find all connected devices and will display their models and Trend system properties. Please note that IQ3 devices will be shown as separate devices while IQ2 devices will be shown under the discovered gateway network. In order to see them press + button. Press **Add** button to add them to Niagara station.



5 Points

Every Trend point extension contain properties:

- Module Type – type will match Trend system standard module types
- Module Number – Trend system module number
- Parameter – Module parameter
- Bit – The property is relevant only for Binary values. The property allows to read a single bit value.



6 Point Discovery

Open device **Trend Point Manager** and press **Discover** button.

Trend Point Discovery Preferences

- Mode: **ModuleAndParameters**
- Discover Digital Input: **true**
- Discover Driver: **true**
- Discover Function: **true**
- Discover Knob: **true**
- Discover Logic: **true**
- Discover Loop: **true**
- Discover Sensor: **true**
- Discover Switches: **true**

- Mode – there are two discovery modes. **ModulesAndParameters** will discover the module value and the other parameters (e.g. labels, alarm states, disabled states, etc.). But it will take longer time for the discover process to finish. **Modules** will discover just module value.
- Individual module discovers – by default all the modules are discovered. They could be disabled to speed up the discovery process.

Press **OK** button.

Niagara will find all available points, their types, units and attributes. Text labels will be available if programmers have included them into the program.

Label	Module Type	Module Number	Parameter	Value	Units	Description
[-] Fan Speed 1	Sensor	1	V	0.3 °C (ok)	DegC	The process value of this module
[-] Fan Speed 1	Sensor	1	~	false (ok)		Disable Module
[-] Fan Speed 1	Sensor	1	I	0.00 (ok)		In Alarm
[-] Fan Speed 1	Sensor	1	I	1.00 (ok)		Type of sensor 0=Analogue input 1=Internal analogue 2=Digital input 3=Internal digital
[-] Fan Speed 1	Sensor	1	%	DegC (ok)		The engineering units for the process value of this sensor
[-] Fan Speed 1	Sensor	1	^	false (ok)		Override Output
[-] Fan Speed 1	Sensor	1	v	1.00 (ok)		Override Value
[-] Fan Speed 1	Sensor	1	H	200.00 (ok)		High Alarm Limit
[-] Fan Speed 1	Sensor	1	L	1.00 (ok)		Low Alarm Limit
[-] Fan Speed 1	Sensor	1	S	0.30 (ok)		Source(nv)
[-] Fan Speed 1	Sensor	1	\$	Fan Speed 1 (ok)		The label of a module used for identification
[+] Sensor 1	Sensor	2	V	1.0 °C (ok)	DegC	The process value of this module
[-] Sensor 1	Sensor	2	~	false (overridden)		Disable Module
[-] Sensor 1	Sensor	2	I	0.00 (overridden)		In Alarm
[-] Sensor 1	Sensor	2	I	0.00 (overridden)		Type of sensor 0=Analogue input 1=Internal analogue 2=Digital input 3=Internal digital
[-] Sensor 1	Sensor	2	%	DegC (overridden)		The engineering units for the process value of this sensor
[-] Sensor 1	Sensor	2	^	true (overridden)		Override Output
[-] Sensor 1	Sensor	2	v	1.00 (overridden)		Override Value
[-] Sensor 1	Sensor	2	H	2000.00 (overridden)		High Alarm Limit
[-] Sensor 1	Sensor	2	L	0.00 (overridden)		Low Alarm Limit
[-] Sensor 1	Sensor	2	S	0.00 (overridden)		Source(nv)

Add found points to Niagara station to start reading them. Note that all points are added as read-only by default. Change point types to writable before adding them to station if required.

If discovered point has dimension field, it will be automatically translated into Niagara units and assigned to the point.