

SMA Driver Guide

This documents usage of the SMA driver on the Niagara AX and Niagara 4 platforms.

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QUICK START

- Install the driver module in Workbench. Restart Workbench and then install the module on your station.
- Open the kodarosma palette and paste a SmaAscentNetwork object under the Drivers node in your station.
 - Set the number of threads in the thread pool to at least one more than the number of serial and IP connections you will have.
 - Configure the license object and reboot. This could be the very last think you do – it is safe to build an unlicensed database.
- Double-click the SmaAscentNetwork to enter the network manager view and press the new button to add serial and IP connections. The connection objects can also be copy-and-pasted from the palette.
- When a connection is established, the driver will auto discover all inverters on the field bus.
- Double-click the points property of each inverter to enter the point manager view. Press the discover button to find points on the inverter.

COMPATIBILITY

Niagara AX/Niagara 4

This software will function on all Niagara AX 3.n.nnn platforms and has been updated to function on N4 as well.

SMA

This software integrates SMA field bus networks that utilize the Sunny Net telegram. If the SMA Net is specified, this driver is incompatible.

Multiple Master Nodes

The SMA protocol allows for multiple master nodes on a network but this driver cannot support these configurations. Due to the timing limitations of Niagara AX/N4 and Java, this driver cannot resolve conflicts.

PHYSICAL CONNECTION

The driver communicates with the RS-485 communications terminal on an SMA inverter.

MODULE INSTALLATION

1. Install kodarosma.jar on the computer where Niagara AX/N4 Workbench will run. To install the jar, place a copy of the file in the modules directory of your Niagara AX/N4 installation. This is typically C:\Niagara\Niagara-3.n.nnn\modules.
2. Install the csi3sma module on the target station. Using a Niagara AX/N4 Workbench where the module has already been installed, connect to the station's Platform. Go to the Software Manager and install csi3sma.

LICENSING

Every serial or IP connection must be licensed. Unlicensed connections will operate in demo mode for 2 hours. After demo mode expires, the station must be restarted to reestablish a connection, but it is otherwise safe to build a database.

Licensing is managed on an object in your database. The licensing object is located on the property sheet of the SmaAscendNetwork. It has the following properties:

- Connections – the number of serial or IP connections.
- Product code – text automatically generated by the driver that is needed to generate a license key.
- License key – where the key to validate the license must be entered.

Determine the number of connections needed. It is safe to build an unlicensed database so that you may determine your requirements through actual use. Enter the number of connections in the appropriate property of the license object.

Copy the value of the “Product Code” property that is automatically generated after entering the number of connections. You can highlight the value and copy it by pressing CTRL-C. Send the product code to your Kodaro representative. They will respond with a text string for you to enter in the “License Key” property.

You must restart the station after changing the “License Key.”

The exact text and case of the product code and license key are critical. Do not send screen shots. Highlight the text, copy it using CTRL-C and paste into an email.

NETWORK INSTALLATION

Using the SMA palette in workbench, copy and paste the SmaAscendNetwork under the Drivers node in the station database (/config/drivers).

ADDING CONNECTIONS

Double-click the SmaAscendNetwork to enter the network manager view. Press the new button at the bottom of the view and select which type of connection you would like to install. Communications settings can be configured in the next window that appears.

ADDING INVERTERS

Inverters are automatically discovered when the connection attaches to the fieldbus.

COMPONENT REFERENCE

SmaAscendNetwork

There can be only one SmaAscendNetwork in your station and it must be located under the standard “Drivers” node (/config/drivers). It has no physical correspondence with the underlying system.

The following properties are unique or have special importance:

- **Thread pool** – this controls the number of threads used to execute all actions of all objects in the network. There should be one thread per connected device and at least one additional thread for other tasks.
- **License** – discussed on pg. 3 of this document.

SmaDeviceFolder

This is for organizing connection objects.

SmaIPConnection

This represents a device that the driver communicates via a serial connection tunneled over IP.

- The following properties are unique or have special importance:
 - Timeout** – how long the device pauses at any given time and after which the driver gives up waiting for a response.
- **IP Host** – IP address or host name.
- **IP Port** – IP port number.
- **Devices** – See SmaSubnetDeviceExt.

SmaSerialConnection

This represents a device that the driver communicates via a serial connection tunneled over IP.

The following properties are unique or have special importance:

- **Timeout** – how long the device pauses at any given time and after which the driver gives up waiting for a response.
- **Serial Config** – The default settings other than the port name do not need to be changed (1200,8,1,N).
- **Devices** – See SmaSubnetDeviceExt.

SmaInverter

This device object represents an inverter. It is auto discovered by the driver.

The following properties are unique or have special importance:

- **Serial Number** – SMA serial number
- **Device Type** – Device description
- **Net Addr** – SMA network address
- **Points** – Click this object to discover and work with points on the inverter
- **Alarm Enabled** – Disabled by default. This is linkable, so you can link a weather provider to only enable alarming when the sun is up (it's the sun down property, you'll need to negate it).
- **Alarm Inhibit** – If alarm enable is true, how long to go without a ping before going into alarm. This is reset every time the alarm enable property changes.

SmaProxyExt

This is a point extension in the Niagara architecture. Points with this extension represent points on the remote device.

The following properties are unique or have special importance:

- **Index** – SMA identifier
- **Channel Type** – 1=analog, 2=digital, 4=counter, 8=status
- **Data Type** – SMA data type
- **Gain** – SMA conversion
- **Offset** – SMA conversion

DRIVER HISTORY

October 16, 2017: Module version 1.0.1

- Logging changes for N4.3 security model
- Network Permissions additions for N4.3 security model

November 15, 2016: Module version 1.0

- First N4 Release

April 26, 2011: Module version 3.5.34

- If stale time is set, point will now go stale. Helpful for when driver powers down.
- Ability to alarm devices.

March 19, 2010: Module version 3.5.11

- Changed the license file name from .license to .csi3.

March 3, 2009: Module version 3.3.27

- First release