

Siemens Desigo PX Driver

Installation Manual

OVERVIEW

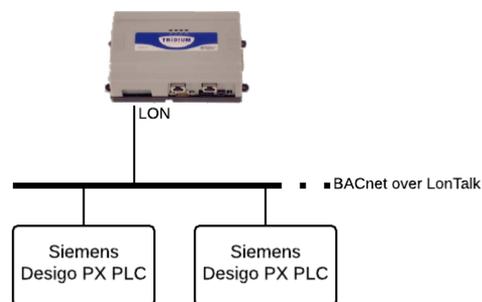
The driver is designed to enable direct communication between Siemens Desigo PX controllers and Tridium Niagara AX & Niagara 4 powered devices. It provides an efficient solution for retrofit of small to medium sized building management systems, facilitates seamless integration of multiple protocols and allows convenient makeover of front-end software.

The driver implements BACnet over LonTalk protocol in Niagara framework. This type of protocol transmits BACnet data over Lon FTT physical medium. BACnet objects contain various self-documenting attributes, which greatly simplifies integration process.

The driver is capable of searching for connected controllers, discovering points, schedules and alarms. Point names, statuses, and physical units are automatically imported into Niagara system. This saves engineering time and reduces potential errors.

Typical Topology

Jace is connected to the Desigo PX network through the LON card.



DRIVER REQUIREMENTS

Niagara Requirements

Tested for Niagara versions: 3.7, 3.8, 4.1

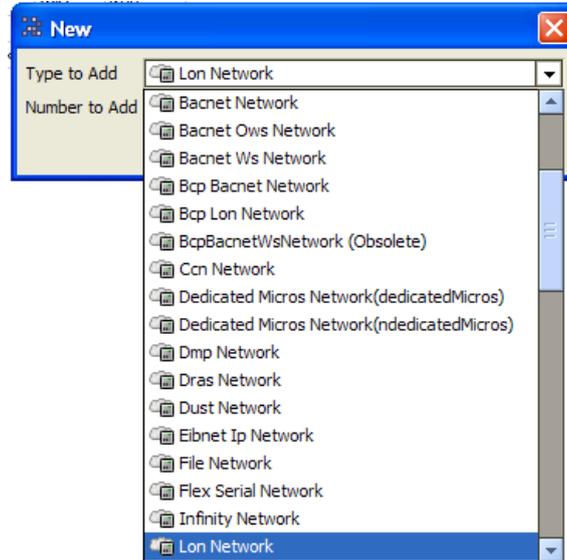
Jace models supported: Jace 2/3/6/8000

Jace communication options: LON

Additional Niagara module dependencies: licensed bacnet and lonworks modules

INSTALLATION

1. Install supplied **desigo.jar** (**desigo-rt.jar** for Niagara 4) module to WorkPlace software and to Jace using **Software Manager**
2. Navigate to **Station > Config > Drivers**
3. Press New and add Lon Networks



4. Change Lon Network Domain Id to "49" in *Lon Netmgmt* component as shown bellow

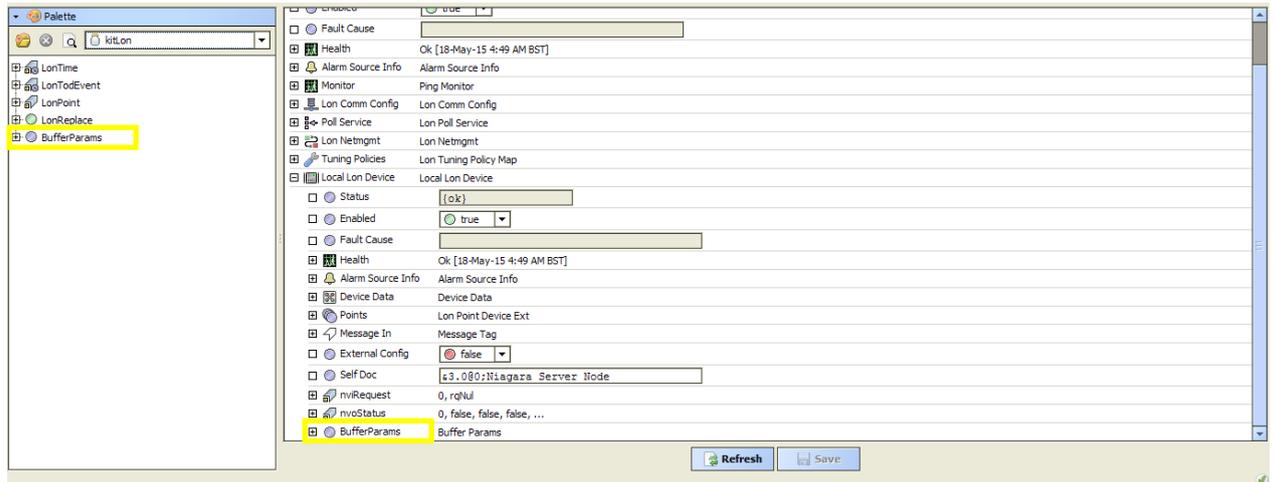
Lon Netmgmt	
<input type="checkbox"/> Domain Id	Length: 1 Id: 49
<input type="checkbox"/> Authenticate	false
<input type="checkbox"/> Authentication Key	FF FF FF FF FF FF
<input checked="" type="checkbox"/> Link Descriptors	Descriptor Table
<input type="checkbox"/> Non Group Timer	4
<input type="checkbox"/> Channel Priorities	0
<input type="checkbox"/> Debug	false
<input type="checkbox"/> Verify Nv Dir	false
<input type="checkbox"/> Service Pin Wait	300 s
<input type="checkbox"/> Use Lon Objects	false
<input type="checkbox"/> Always In Zero Length Domain	false

LON Card buffers

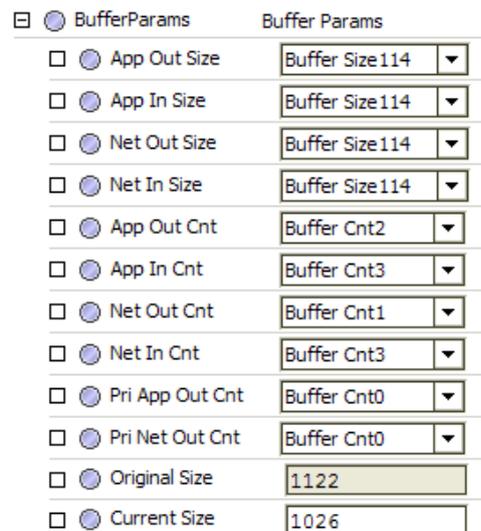
LON card for Jace 2/3/6 units have limited buffer memory and it is necessary to rearrange network buffers in them as described below.

Jace 8000 LON card utilizes newer Neuron chip, thus these steps are not required and should be skipped.

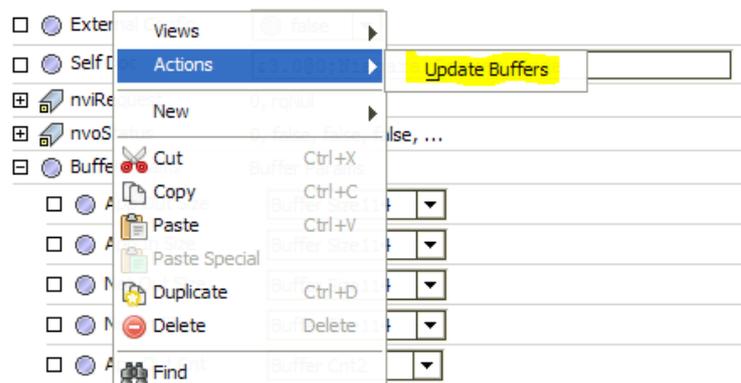
- Open *kitLon* palette. Drag'n`drop *BufferParams* component under the *Local Lon Device* component



- Set *BufferParams* as shown bellow

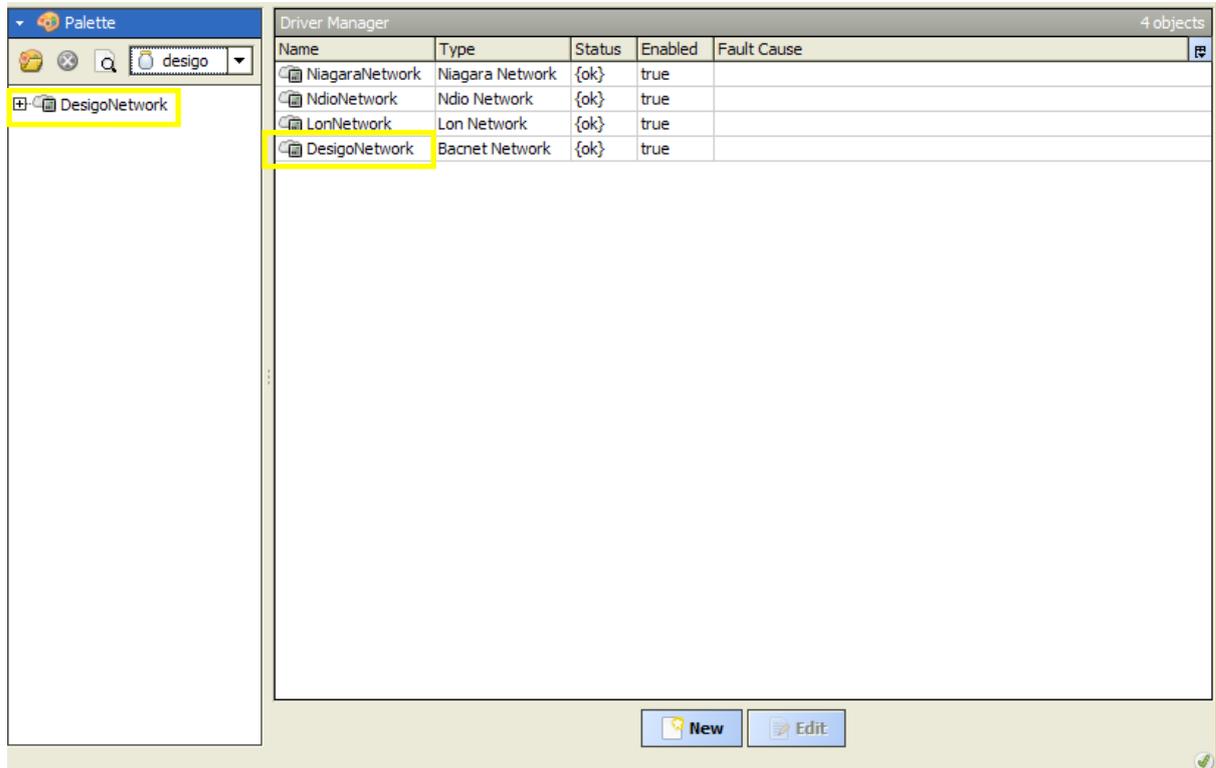


- Right click on *BufferParams* and save setting with a *Update Buffers* action



Desigo Network

8. Navigate back to **Station > Config > Drivers**
9. Open *desigo* palette. Drag'n`drop *DesigoNetwork* component under *Drivers*



10. Enter license number in an appropriate field

DesigoNetwork (Bacnet Network)

<input type="checkbox"/> Status	{ok}
<input type="checkbox"/> Enabled	<input checked="" type="radio"/> true
<input type="checkbox"/> Fault Cause	
<input checked="" type="checkbox"/> Health	Ok [18-May-15 5:09 AM BST]
<input checked="" type="checkbox"/> Alarm Source Info	Alarm Source Info
<input checked="" type="checkbox"/> Monitor	Ping Monitor
<input checked="" type="checkbox"/> Bacnet Comm	Bacnet Stack
<input type="checkbox"/> Comm Control	Enable
<input checked="" type="checkbox"/> Client	Bacnet Client Layer
<input checked="" type="checkbox"/> Server	Bacnet Server Layer
<input checked="" type="checkbox"/> Transport	Bacnet Transport Layer
<input checked="" type="checkbox"/> Network	Bacnet Network Layer
<input checked="" type="checkbox"/> Local Device	Local Bacnet Device [device:100003]
<input checked="" type="checkbox"/> Tuning Policies	Bacnet Tuning Policy Map
<input type="checkbox"/> License	MCwCFHZpuH1Zsb5F2Nh/DwYvU/cSFdy1AhQS0gDr
<input type="checkbox"/> uploadOnStart	<input checked="" type="radio"/> true
<input checked="" type="checkbox"/> OPTN'AS01	BacnetDevice {OPTN\$27AS01}

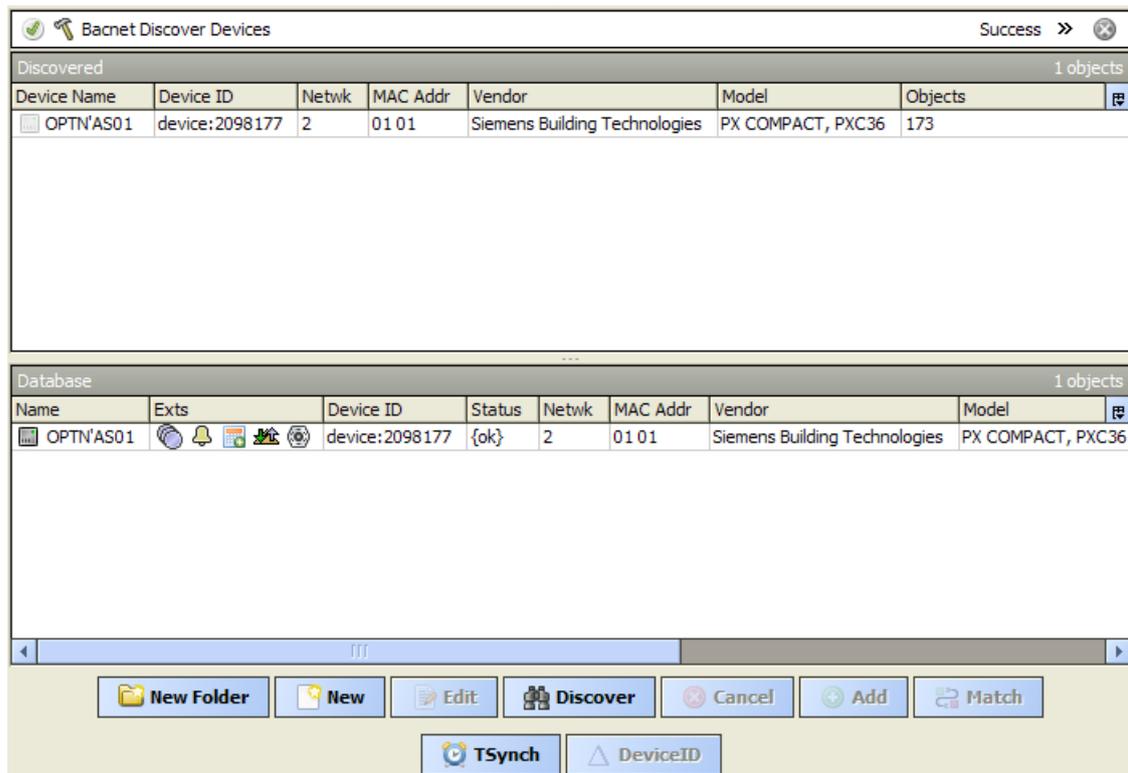
11. Restart the station

12. Navigate to **DesigoNetwork -> Local Device**. Set Object Id address to preferred value.

13. Navigate to **DesigoNetwork -> Bacnet Comm -> Network -> DesigoPort**. Set Network Number. Save the changes.

14. Right click on *DesigoPort* and do *Enable* action to enable port

15. In order to discover network devices go to the **DesignoNetwork Device Manager** and press **Discover** button. If the communication is valid you should see the device list available.



16. Add the devices by drag`n`drop or by pressing **Add** button. Select **DesigoDevice** (not **BacnetDevice**) type for added devices.

Note: due to a bug in Niagara framework, it could fail to properly discover points in Desigo controllers using **ReadPropertyMultiple** service. The property **ReadPropertyMultiple** under **DesigoDevice** is set to **false** by default to circumvent this bug. After points are discovered and added to database, this property should be set to **true** to increase communication efficiency.

17. In order to do device point discovery navigate to device **Point Manager**.

18. To do a point discovery press **Discover** button.

The screenshot shows the 'Bacnet Discover Points' window with a 'Success' status. It contains two main tables: 'Discovered' and 'Database'.

Discovered Table (173 objects):

Object Name	Object ID	Property ID	Index	Value
B1'1Ahu'OAT	analogInput:1	presentValue		0.00
B1'1Ahu'TFr	analogInput:2	presentValue		0.00
B1'1Ahu'1TSup	analogInput:3	presentValue		0.00
B1'2HwGrp'1Blr'4LTHWFlw	analogInput:4	presentValue		0.00
B1'2HwGrp'3CT1'TLTHWRtn	analogInput:5	presentValue		0.00
B1'2HwGrp'3CT1'TSpce	analogInput:6	presentValue		0.00
B1'2HwGrp'2HWS'1THws	analogInput:7	presentValue		0.00
B1'1Ahu'AHUEnaOP	analogOutput:1	presentValue		10.00

Database Table (19 objects):

Name	Out	Object ID	Property ID	Index	Read	Write
B1'1Ahu'OAT	0.0 °C {ok}	analogInput:1	Present Value	-1	Polled	readonly
B1'1Ahu'TFr	0.0 °C {ok}	analogInput:2	Present Value	-1	Polled	readonly
B1'1Ahu'1TSup	0.0 °C {ok}	analogInput:3	Present Value	-1	Polled	readonly
B1'2HwGrp'1Blr'4LTHWFlw	0.0 °C {ok}	analogInput:4	Present Value	-1	Polled	readonly
B1'2HwGrp'3CT1'TLTHWRtn	0.0 °C {ok}	analogInput:5	Present Value	-1	Polled	readonly
B1'2HwGrp'3CT1'TSpce	0.0 °C {ok}	analogInput:6	Present Value	-1	Polled	readonly
B1'2HwGrp'2HWS'1THws	0.0 °C {ok}	analogInput:7	Present Value	-1	Polled	readonly
B1'1Ahu'AHUEnaOP	0.0 % {disabled,stale} @ def	analogOutput:1	Present Value	-1	unsubscribed	Writable
B1'1Ahu'VlvHtr	0.0 % {disabled,stale} @ def	analogOutput:2	Present Value	-1	unsubscribed	Writable
B1'1Ahu'VlvPreHtr	0.0 % {disabled,stale} @ def	analogOutput:3	Present Value	-1	unsubscribed	Writable
B1'2HwGrp'2HWS'EnableOP	0.0 % {disabled,stale} @ def	analogOutput:4	Present Value	-1	unsubscribed	Writable

At the bottom of the window, there is a toolbar with buttons: New Folder, New, Edit, Discover, Cancel, Add, and Match.

19. Add the points by drag'n`drop or by pressing **Add** button.

20. Writable output points are disabled by default to avoid accidental rewrite – enable them.