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 though 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

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3. Press New and add Lon Networks



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

🙄 Lon Netmgmt 🛛 Lon Netmg	gmt
🗆 🔘 Domain Id	Length: 1 💌 Id: 49
🗆 🔘 Authenticate	Stalse 💌
Authentication Key	11 11 11 11 11 11 11
E ink Descriptors	Descriptor Table
🔲 🔘 Non Group Timer	4
Channel Priorities	0
🗆 🔘 Debug	🔘 false 🔻
🗆 🔘 Verify Nv Dir	🔘 false 🔻
🔲 🔘 Service Pin Wait	300 s
🔲 🔘 Use Lon Objects	Stalse 💌
🔲 🔘 Always In Zero Length Dom	ain 🔘 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.

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

👻 🔕 Palette			
	🗆 🔘 Fault Cause		
	🗉 🔣 Health	Ok [18-May-15 4:49 AM BST]	
⊕ 🔂 LonTime	🖽 🔔 Alarm Source Info	Alarm Source Info	
🕀 🚮 LonTodEvent	🕀 🎆 Monitor	Ping Monitor	
⊕ 🕼 LonPoint	🗉 💂 Lon Comm Config	Lon Comm Config	
Discontraction Contraction		Lon Poll Service	
BufferParams	🗉 📇 Lon Netmgmt	Lon Netmgmt	
	🗉 🥜 Tuning Policies	Lon Tuning Policy Map	
	🖃 🛄 Local Lon Device	Local Lon Device	
	🗆 🔘 Status	{ok}	
	Enabled	True V	
	Fault Cause		=
	🛨 🔣 Health	Ok [18-May-15 4:49 AM BST]	
	🗄 🔔 Alarm Source Inf	o Alarm Source Info	
	🕑 🕃 Device Data	Device Data	
	🗄 🌑 Points	Lon Point Device Ext	
	🗉 🎣 Message In	Message Tag	
	🗆 🔘 External Config	S false V	
	Self Doc	43.080;Niagara Server Node	
	🗄 🎣 nviRequest	O, rqNul	
	🗈 🎣 nvoStatus	0, false, false,	
	🗄 🔘 BufferParams	Buffer Params	-
		Refresh Save	

6. Set *BufferParams* as shown bellow

BufferParams	Buffer Params
🗌 🔘 App Out Size	Buffer Size 114 🔻
🗌 🔘 App In Size	Buffer Size 114 🔻
🗌 🔘 Net Out Size	Buffer Size 114 💌
🗌 🔘 Net In Size	Buffer Size 114 💌
🗆 🔘 App Out Cnt	Buffer Cnt2 💌
🗆 🔘 App In Cnt	Buffer Cnt3 💌
🗌 🔘 Net Out Cnt	Buffer Cnt1 💌
🗌 🔘 Net In Cnt	Buffer Cnt3 💌
🗌 🔘 Pri App Out Cnt	Buffer Cnt0 💌
🗌 🔘 Pri Net Out Cnt	Buffer Cnt0 💌
🗆 🔘 Original Size	1122
🗆 🔘 Current Size	1026

7. Right click on BufferParams and save setting with a Update Buffers action

 \Box

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	\bigcirc	Self	oc	Actions	53.000;N	⇒	Update Buffers
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+	Ð	nvoS	ahu	s 0	, false, fals	-	lse,
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		O /	<u>89</u>	Find	Buffer Cn	t2	•

Desigo Network

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

Image: Status Enabled Fault Cause Image: Status Image: Status Enabled Fault Cause Image: Status Image: Status Enabled Fault Cause Image: Status Image: Status <td< th=""><th>🝷 🧐 Palette</th><th colspan="10">Driver Manager 44</th></td<>	🝷 🧐 Palette	Driver Manager 44									
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		C DesigoNetwork	Bacnet Network	{ok}	true						
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10. Enter license number in an appropriate field

DesigoNetwork (Bacnet Network)

🗆 🔘 Status	{ok}
🗆 🔘 Enabled	O true ▼
🗌 🔘 Fault Cause	
🕀 🔣 Health	Ok [18-May-15 5:09 AM BST]
🕀 🐥 Alarm Source Info	Alarm Source Info
🕀 🔣 Monitor	Ping Monitor
🖂 🚊 Bacnet Comm	Bacnet Stack
🗆 🔘 Comm Control	Enable <
🕀 🔘 Client	Bacnet Client Layer
🕀 🔘 Server	Bacnet Server Layer
🕀 🔘 Transport	Bacnet Transport Layer
🕀 🔘 Network	Bacnet Network Layer
🛨 🛄 Local Device	Local Bacnet Device [device: 100003]
🕀 🥜 Tuning Policies	Bacnet Tuning Policy Map
🗆 🔘 License	MCwCFHZpuH1Zsb5F2Nh/DwYvU/cSFdy1AhQS0gDr
🗆 🔘 uploadOnStart	🔘 true 🔻
OPTN'AS01	BacnetDevice {OPTN\$27AS01}

11. Restart the station

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

🖃 🛄 Local Device	Local Bacnet Device [device:2]
🗆 🔘 Status	{ok}
🔲 🔘 Fault Cause	
🗆 🔘 Object Id	device 🔻 2

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

Ξ	() D	esigoPort	NetworkPort: id=2 net=2 enabled max=2147483(
		🔵 Network Number	2
	Ð (🔵 Link	Desigo Link
		🔵 Status	{0k}
		Fault Cause	
	⊞ ₿	 Poll Service 	BacnetMultiPoll
		Max Devices	max
		Enabled	🔘 true
		🔵 Port Id	2
		🔵 Port Info	Desigo
		Port Info	Desigo

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

Ξ	0	Net	twork	-	Bacnet Netv	vork L	ayer						
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		\bigcirc	Routing	<u>Ene</u>	Actions			Enal	ole				
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			Por	I	Rename	2	Ctrl+R						
			O Por		Set Display N	ame							

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

💰 🔏 Bacnet 🛙	Discover Devices								Success	»	\otimes
Discovered										1 ob	jects
Device Name	Device ID	Netwk	MAC Addr	Vendor			Model	Objects			₽
OPTN'AS01	device:2098177	2	0101	Siemens	Building 1	Technologies	PX COMPACT, PXC36	173			
Database										1 obj	jects
Name	Exts	Devi	ce ID	Status	Netwk	MAC Addr	Vendor	I	Model		Ę₽
OPTN'AS01	🌘 🕰 🐻 🆓	devid	e:2098177	{ok}	2	0101	Siemens Building Techno	ologies	PX COMPA	CT, P	XC36
4		[]	[1
New Folder New Edit Match Image: Concel Add Match Image: Concel Add Match											

 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.

💰 🔏 Bacnet Discover Points								Success »	C	3
Discovered								173 o	bjec	ts
Object Name		Object ID		Proper	ty ID	Index	Value			₽.
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🕀 🔘 B1'1Ahu'TFr		analogInput:	2	presen	ntValue		0.00			
🕀 🔘 B1'1Ahu'1TSup		analogInput:	3	presen	ntValue		0.00			
B1'2HwGrp'1Blr'4LTHWFlw		analogInput:	4	presen	ntValue		0.00			
B1'2HwGrp'3CT1'TLTHWRt	n	analogInput:	5	presen	tValue		0.00			
B1'2HwGrp'3CT1'TSpce		analogInput:	6	presen	itValue		0.00			
		analogInput:	7	presen	itValue		0.00			
B1'1Ahu'AHUEnaOP		analogOutpu	t:1	presen	itValue		10.00			-
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Database				_				19 d	bier	te
Name	Out		Object ID	P	Property ID	Index	Read	Write		H
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B1'1Ahu'TFr	0.0 °C {ok}		analogInput:	2 P	resent Value	e -1	Polled	readonly		
B1'1Ahu'1TSup	0.0 °C {ok}		analogInput:	3 P	resent Value	2 -1	Polled	readonly	_	
B1'2HwGrp'1Blr'4LTHWFlw	0.0 °C {ok}		analogInput:4		resent Value	e -1	Polled	readonly	_	Ξ
B1'2HwGrp'3CT1'TLTHWRtn	0.0 °C {ok}		analogInput:	5 Present Valu		e -1	Polled	readonly	_	_
B1'2HwGrp'3CT1'TSpce	0.0 °C {ok}		analogInput:	6 Present Valu		e -1	Polled	readonly		
B1'2HwGrp'2HWS'1THws	0.0 °C {ok}		analogInput:	7 P	resent Value	e -1	Polled	readonly	_	
B1'1Ahu'AHUEnaOP	0.0 % {disabled,	stale} @ def	analogOutpu	t:1 P	resent Value	e -1	unsubscribed	Writable		
B1'1Ahu'VlvHtr	0.0 % {disabled,	stale} @ def	analogOutpu	t:2 P	resent Value	e -1	unsubscribed	Writable		
B1'1Ahu'VlvPreHtr	0.0 % {disabled,	stale} @ def	analogOutpu	t:3 P	resent Value	e -1	unsubscribed	Writable		
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📔 New Folder	New	Designment of the second secon	🏥 Discove	er 🗌	🛞 Cance	1	Add	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.