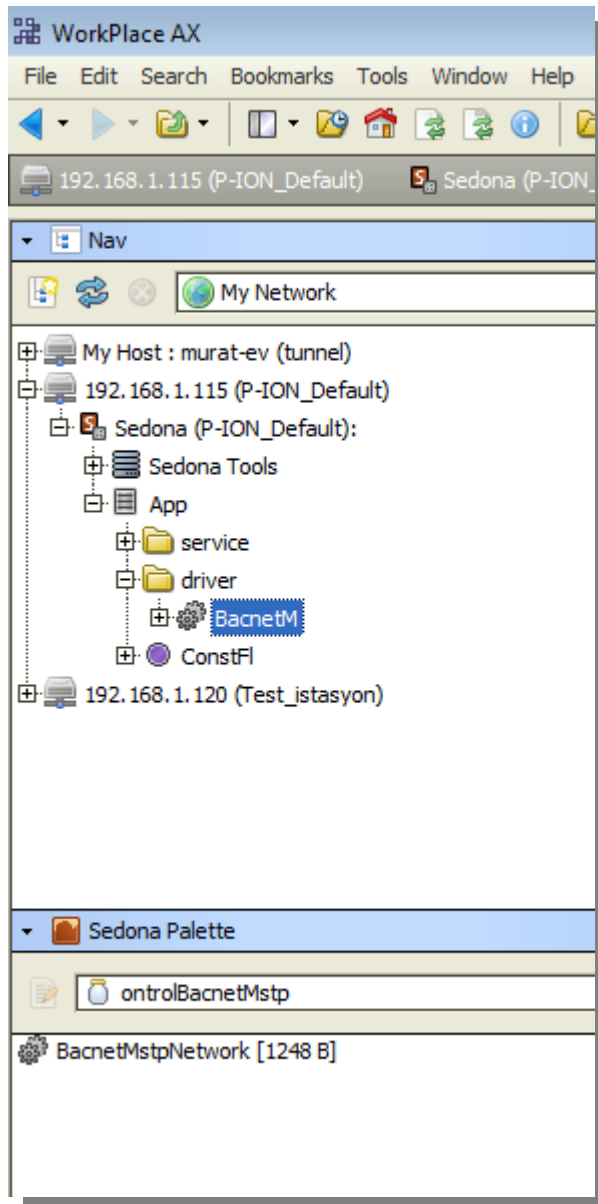


# Using BACnet drivers on Ontrol Sedona products

(Features as of Mar 2015)



## Ontrol Bacnet Drivers for Sedona

- ontrolBacnetIp
- ontrolBacnetMstp

### OntrolBacnet DRIVERS REQUIRE MINIMAL CONFIGURATION

The Ontrol Bacnet palettes have only a single component.

You only need to add a BacnetIpNetwork or BacnetMstpNetwork to your app.

No need to add individual components for each value to be exposed over BACnet

Each and every slot in your app becomes magically available to your BACnet supervisor

## Bacnet Network settings (IP)

**BacnetIpNetwork Properties**

BacnetI (ontrolBacnetIP::BacnetIpNetwork)		
<input type="checkbox"/> Meta	Group [1]	>>
<input type="checkbox"/> Enable	<input checked="" type="radio"/> true	▼
<input type="checkbox"/> Local Device Id	<input type="text" value="111"/>	[0 - 65535]
<input type="checkbox"/> Port	<input type="text" value="47808"/>	[0 - 65535]

**Port**  
Default 0xBAC0

**Local Device ID**  
Bacnet property

## Bacnet Network settings (MSTP)

**Serial Port number**  
Set to:  
1 for P-ION  
1 for R-ION main bus  
2 for R-ION aux. bus

**BacnetMstpNetwork Properties**

preview (ontrolBacnetMstp::BacnetMstpNetwork)

<input type="checkbox"/> Meta	Group [1] >>
<input type="checkbox"/> Enable	<input checked="" type="radio"/> true
<input type="checkbox"/> Local Device Id	111 [0 - 65535]
<input type="checkbox"/> Port Number	0 [0 - 255]
<input type="checkbox"/> Baudrate	38400 [9600 - 38400]
<input type="checkbox"/> Mstp Address	9 [0 - 254]

**Local Device ID**  
Bacnet property

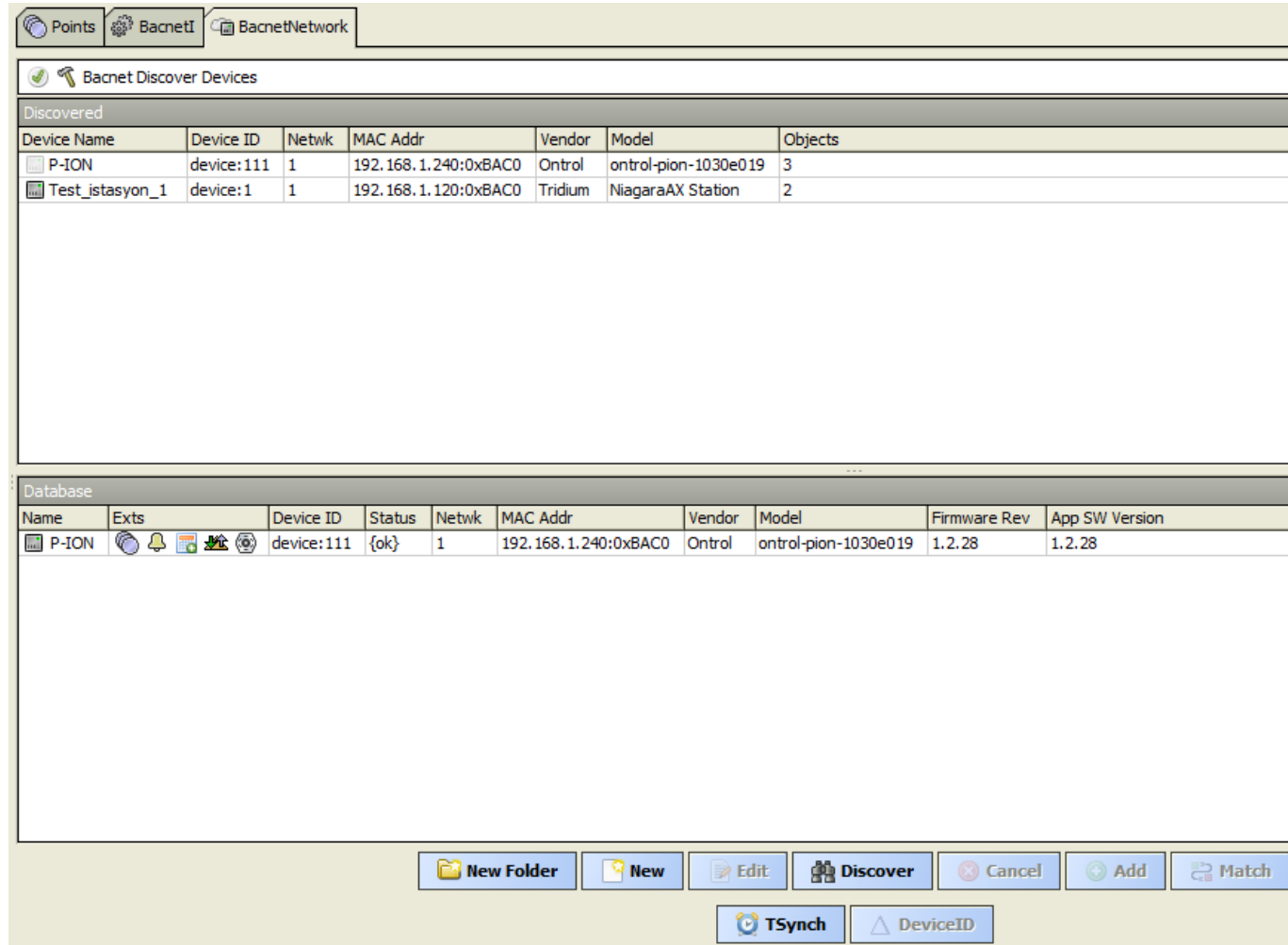
**Baud Rate**

**MSTP Address**  
address on RS485 bus

## Device Discovery (IP only)

If using Bacnet IP, your supervisor will be able to discover the Ontrol Sedona device.

If using BacnetMstp, Ontrol Sedona devices will not be discoverable. You need to add them manually, using the configured deviceId and MstpAddress.



The screenshot shows the 'BacnetDiscoverDevices' window with the following data:

Device Name	Device ID	Netwk	MAC Addr	Vendor	Model	Objects
P-ION	device:111	1	192.168.1.240:0xBAC0	Ontrol	ontrol-pion-1030e019	3
Test_istasyon_1	device:1	1	192.168.1.120:0xBAC0	Tridium	NiagaraAX Station	2

Name	Exts	Device ID	Status	Netwk	MAC Addr	Vendor	Model	Firmware Rev	App SW Version
P-ION		device:111	{ok}	1	192.168.1.240:0xBAC0	Ontrol	ontrol-pion-1030e019	1.2.28	1.2.28

Buttons at the bottom: New Folder, New, Edit, Discover, Cancel, Add, Match, TSync, DeviceID.

# Point Discovery

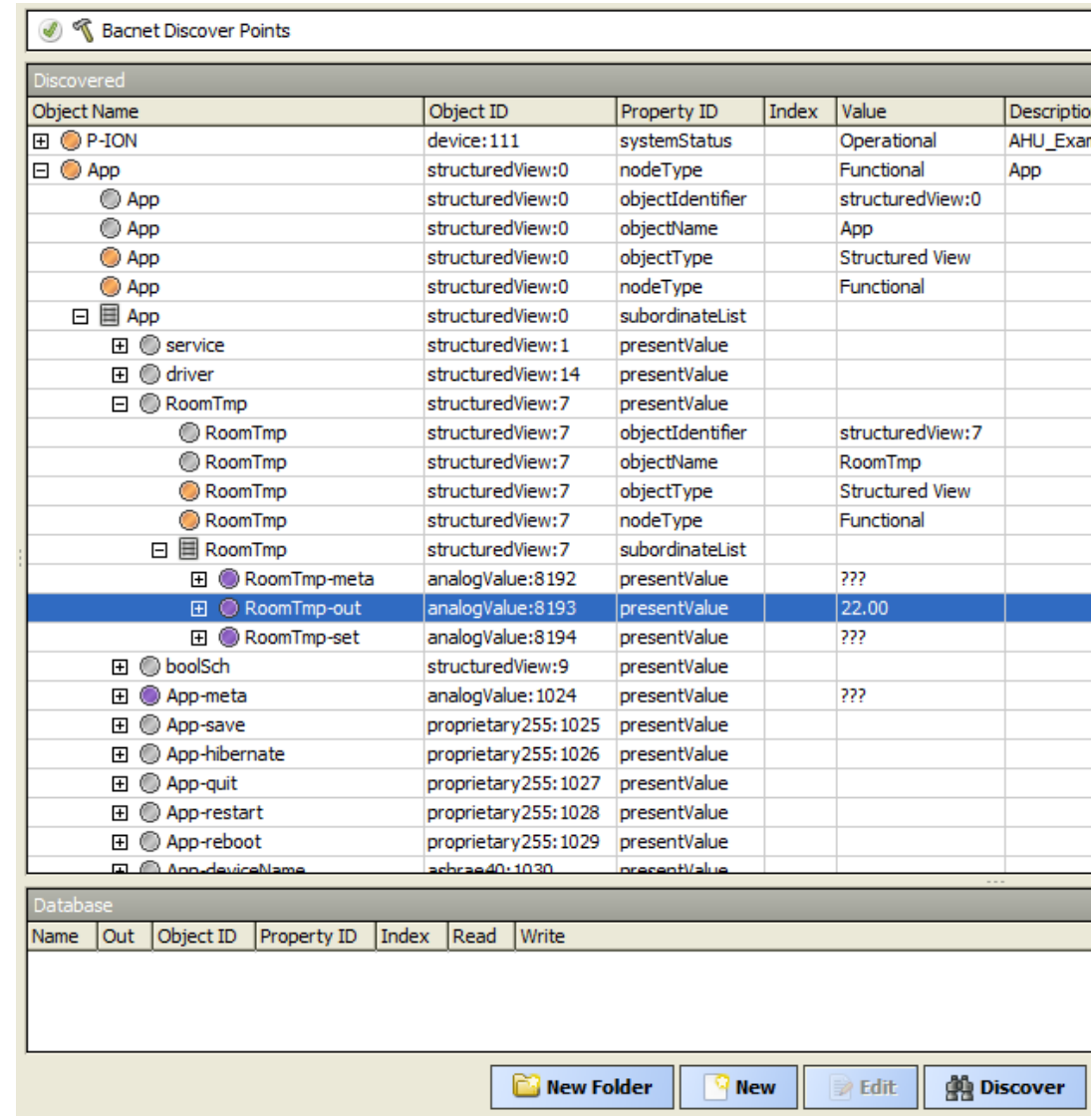
All components/slots in your Sedona app are exposed as individual BACnet objects:

- Components are exposed as BACnet **StructuredView** objects.
- Slots are exposed as BACnet **AnalogValue** or **BinaryValue** objects.

In Niagara<sup>AX</sup> Point Manager View, You can navigate to any slot by expanding StructuredView objects (components), and their subordinateList properties.

ontroBacnetUtil module must be installed for Niagara<sup>AX</sup> to recognize StructuredView objects.

If this works for you, no need to read further. The rest of this document explains adding points manually.



Object Name	Object ID	Property ID	Index	Value	Description
P-ION	device:111	systemStatus		Operational	AHU_Exar
App	structuredView:0	nodeType		Functional	App
App	structuredView:0	objectIdentifier		structuredView:0	
App	structuredView:0	objectName		App	
App	structuredView:0	objectType		Structured View	
App	structuredView:0	nodeType		Functional	
App	structuredView:0	subordinateList			
service	structuredView:1	presentValue			
driver	structuredView:14	presentValue			
RoomTmp	structuredView:7	presentValue			
RoomTmp	structuredView:7	objectIdentifier		structuredView:7	
RoomTmp	structuredView:7	objectName		RoomTmp	
RoomTmp	structuredView:7	objectType		Structured View	
RoomTmp	structuredView:7	nodeType		Functional	
RoomTmp	structuredView:7	subordinateList			
RoomTmp-meta	analogValue:8192	presentValue		???	
RoomTmp-out	analogValue:8193	presentValue		22.00	
RoomTmp-set	analogValue:8194	presentValue		???	
boolSch	structuredView:9	presentValue			
App-meta	analogValue:1024	presentValue		???	
App-save	proprietary255:1025	presentValue			
App-hibernate	proprietary255:1026	presentValue			
App-quit	proprietary255:1027	presentValue			
App-restart	proprietary255:1028	presentValue			
App-reboot	proprietary255:1029	presentValue			
App-deviceName	address40:1030	presentValue			

Database						
Name	Out	Object ID	Property ID	Index	Read	Write



## Adding points manually

If, for any reason, your BACnet supervisor is unable to parse from StructuredView objects, you still have the option to add points manually.

### Sedona slots modeled as BACnet objects

All components/slots in your Sedona app are exposed as individual BACnet objects.

### Sedona component slots exposed as BACnet objects

ObjectType	=	AnalogValue / BinaryValue
ObjectInstance	=	1024 x (componentId + 1) + slotId
propertyId	=	“Present Value”
propertyArrayIndex	=	None or -1

Using this modeling scheme, BACnet master devices can read from and write to any Sedona slot.

## Adding a point in Niagara<sup>AX</sup> BACnet driver

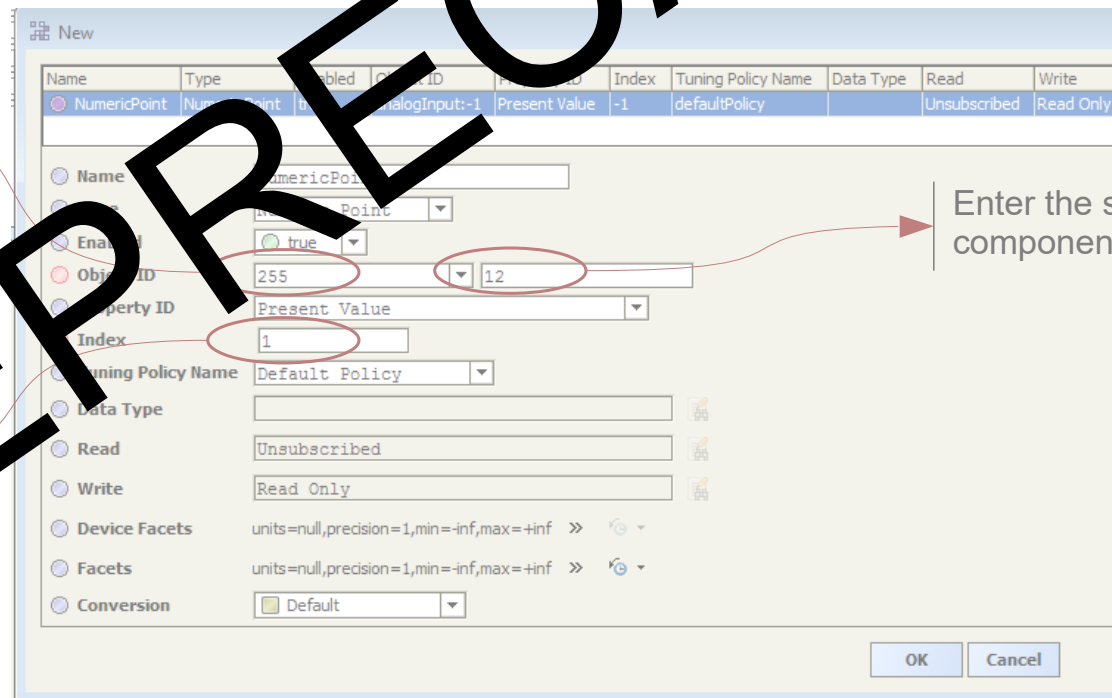
Points need to be added manually as the Niagara<sup>AX</sup> BACnet driver doesn't handle discovery of proprietary objects very gracefully.

Simply click NEW button in the BacnetPoint Manager view.

Always type 255 as objectType instead of choosing from the pull-down box

Enter the sedona slot number in the propertyArrayIndex field

Enter the sedona componentId



Name	Type	Enabled	Object ID	Property ID	Index	Tuning Policy Name	Data Type	Read	Write
NumericPoint	NumericPoint	True	255	Present Value	1	defaultPolicy		Unsubscribed	Read Only

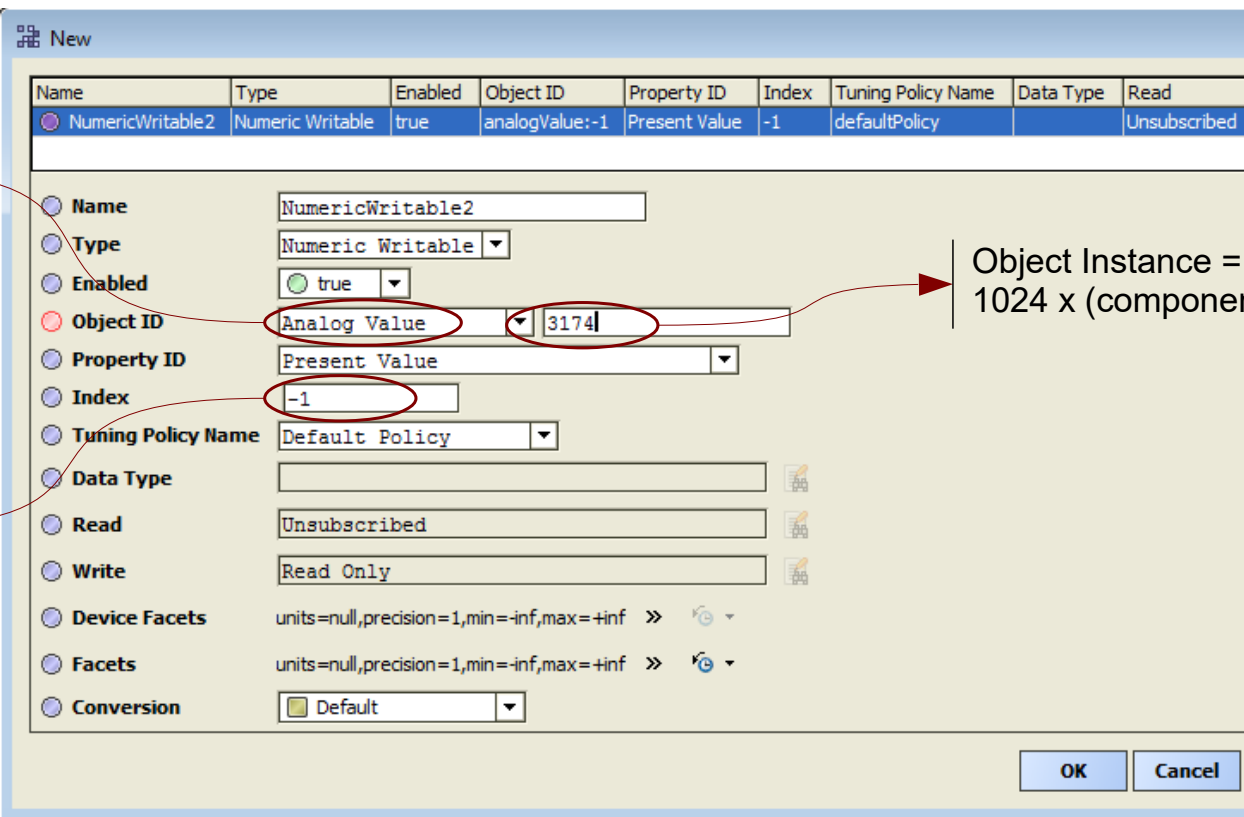
**DEPRECATED**



## Adding a point manually in Niagara<sup>AX</sup> BACnet driver

It is typically much easier to use point discovery (ontrolBacnetUtil module must be installed). However, points can be added manually if necessary.

Simply click NEW button in the BacnetPoint Manager view.



Select AnalogValue or BinaryValue

Object Instance =  $1024 \times (\text{componentId} + 1) + \text{slotId}$

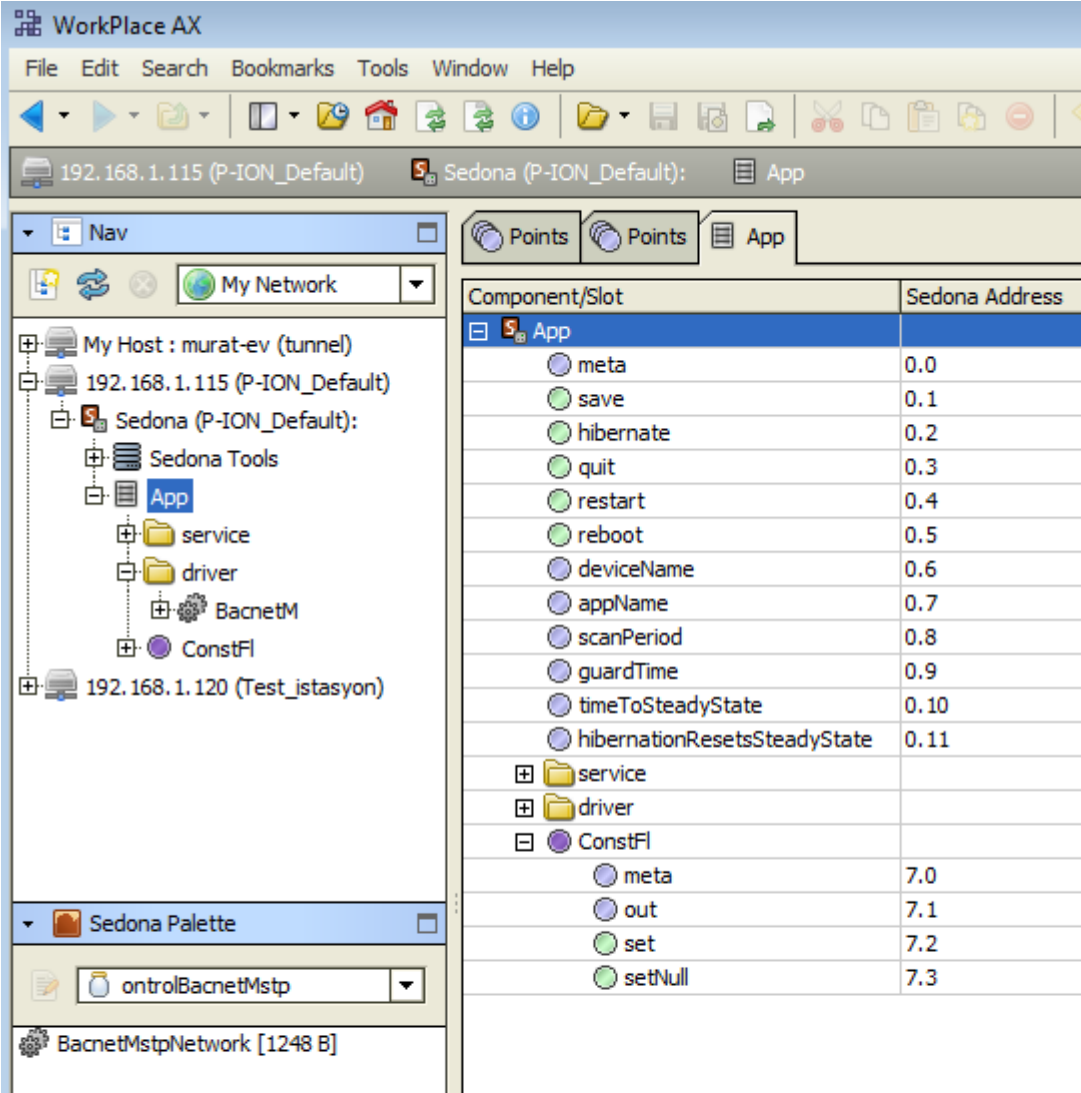
Leave as -1

Name	Type	Enabled	Object ID	Property ID	Index	Tuning Policy Name	Data Type	Read
NumericWritable2	Numeric Writable	true	analogValue:-1	Present Value	-1	defaultPolicy		Unsubscribed

## Where do I find the sedona component ID & slot numbers in my app? (the easy way)

If you have the `ontrolSedonaUtil` module, simply double-click on the App header and navigate to any component/slot in your app.

Read the `componentId` and `slotId` in the right column.



The screenshot shows the Workplace AX interface. The left pane displays a tree view of the network configuration. The right pane shows a table of component/slot IDs and their corresponding Sedona addresses.

Component/Slot	Sedona Address
App	
meta	0.0
save	0.1
hibernate	0.2
quit	0.3
restart	0.4
reboot	0.5
deviceName	0.6
appName	0.7
scanPeriod	0.8
guardTime	0.9
timeToSteadyState	0.10
hibernationResetsSteadyState	0.11
service	
driver	
ConstFl	
meta	7.0
out	7.1
set	7.2
setNull	7.3

## Where do I find the sedona component ID & slot numbers in my app? (the native AX method)

### Determining ComponentId

Open the propertySheet view  
for the parent of the component.  
Read componentId in the appropriate line

**Property Sheet of parent**

Meta	Group [1]	
+	forOx	control::F2I [forOx:32]
+	fanUpDn	ontrolTrigger::TrigNumericUpDown [fanUpDn:33]
+	isAuto	control::Cmpr [isAuto:34]
+	Const4	control::ConstFloat [Const4:36]
+	fanSpd	control::ASW [fanSpd:37]
+	FanSpdR	ontrolControl::RegFloat [FanSpdR:45]
+	FanCmd	control::Mulz [FanCmd:52]
+	Const33	control::ConstFloat [Const33:65]

### Determining SlotId

Open the slotSheet view for the component.  
Count down from the top, starting at zero.

	Name	Type	Facets
0	meta	sys::int	[config]
1	out	sys::float	[readonly]
2	in1	sys::float	[]
3	in2	sys::float	[]

**Slot Sheet of component**

### BACnet Protocol Implementation Conformance Statement

Date: November 15, 2014

Vendor Name: Ontrol

Product Name: BACnet driver for Ontrol IP capable Sedona devices

Product Model Number: ontrolBacnet kit, compatible with PION & RION series controllers

Application Software Version: 1.1

Firmware Revision: 1.2.28

BACnet Protocol Revision: 1.40

**Product Description:**

This driver will run on any Ontrol IP based Sedona Framework device including the P-ION plant controller and the R-ION series room controllers.

**BACnet Standardized Device Profile (Annex L):**

- BACnet Operator Workstation (B-OWS)
- BACnet Advanced Operator Workstation (B-AWS)
- BACnet Operator Display (B-OD)
- BACnet Building Controller (B-BC)
- BACnet Advanced Application Controller (B-AAC)
- BACnet Application Specific Controller (B-ASC)
- BACnet Smart Sensor (B-SS)
- BACnet Smart Actuator (B-SA)

**List all BACnet Interoperability Building Blocks Supported (Annex K):**

Supported BIBBs	BIBB Name
DS-RP-B	Data Sharing – ReadProperty – B
DS-WP-B	Data Sharing – WriteProperty – B
DM-DDB-B	Device Management – Dynamic Device Binding - B

**Segmentation Capability:**

- Able to transmit segmented messages Window Size \_\_\_\_\_
- Able to receive segmented messages Window Size \_\_\_\_\_

**Standard Object Types Supported:**

No dynamically creatable or deletable types

Object Type	Optional Properties	Writable Properties	Notes
Device	Description	-	
Analog Value	Description	PresentValue	
Binary Value	Description	PresentValue	
Proprietary Type 255 (models any sedona component)	Description Present Value	Present Value	<u>Modeling for sedona slot values</u> ObjectType = Proprietary 255 ObjectInstance = sedonaCompId PropertyId = PresentValue PropertyArrayIndex = slotId

**Data Link Layer Options:**

- BACnet IP, (Annex J)
- BACnet IP, (Annex J), Foreign Device
- ISO 8802-3, Ethernet (Clause 7)
- ATA 878.1, 2.5 Mb. ARCNET (Clause 8)
- ATA 878.1, EIA-485 ARCNET (Clause 8), baud rate(s) \_\_\_\_\_
- MS/TP master (Clause 9), baud rate(s): \_\_\_\_\_
- MS/TP slave (Clause 9), baud rate(s): 9600 - 19200 - 38400
- Point-To-Point, EIA 232 (Clause 10), baud rate(s): \_\_\_\_\_
- Point-To-Point, modem, (Clause 10), baud rate(s): \_\_\_\_\_
- LonTalk, (Clause 11), medium: \_\_\_\_\_
- BACnet/ZigBee (ANNEX O)
- Other: \_\_\_\_\_

**Device Address Binding:**

Is static device binding supported? (This is currently necessary for two-way communication with MS/TP slaves and certain other devices.)  Yes  No

**Networking Options:**

- Router, Clause 6 - List all routing configurations, e.g., ARCNET-Ethernet, Ethernet-MS/TP, etc.
- Annex H. BACnet Tunneling Router over IP
- BACnet/IP Broadcast Management Device (BBMD)
  - Does the BBMD support registrations by Foreign Devices?  Yes  No
  - Does the BBMD support network address translation?  Yes  No

**Network Security Options:**

- Non-secure Device - is capable of operating without BACnet Network Security
- Secure Device - is capable of using BACnet Network Security (NS-SD BIBB)
  - Multiple Application-Specific Keys:
  - Supports encryption (NS-ED BIBB)
  - Key Server (NS-KS BIBB)

**Character Sets Supported:**

Indicating support for multiple character sets does not imply that they can all be supported simultaneously.

- ISO 10646 (UTF-8)
- IBM™/Microsoft™ DBCS
- ISO 8859-1
- ISO 10646 (UCS-2)
- ISO 10646 (UCS-4)
- JIS X 0208