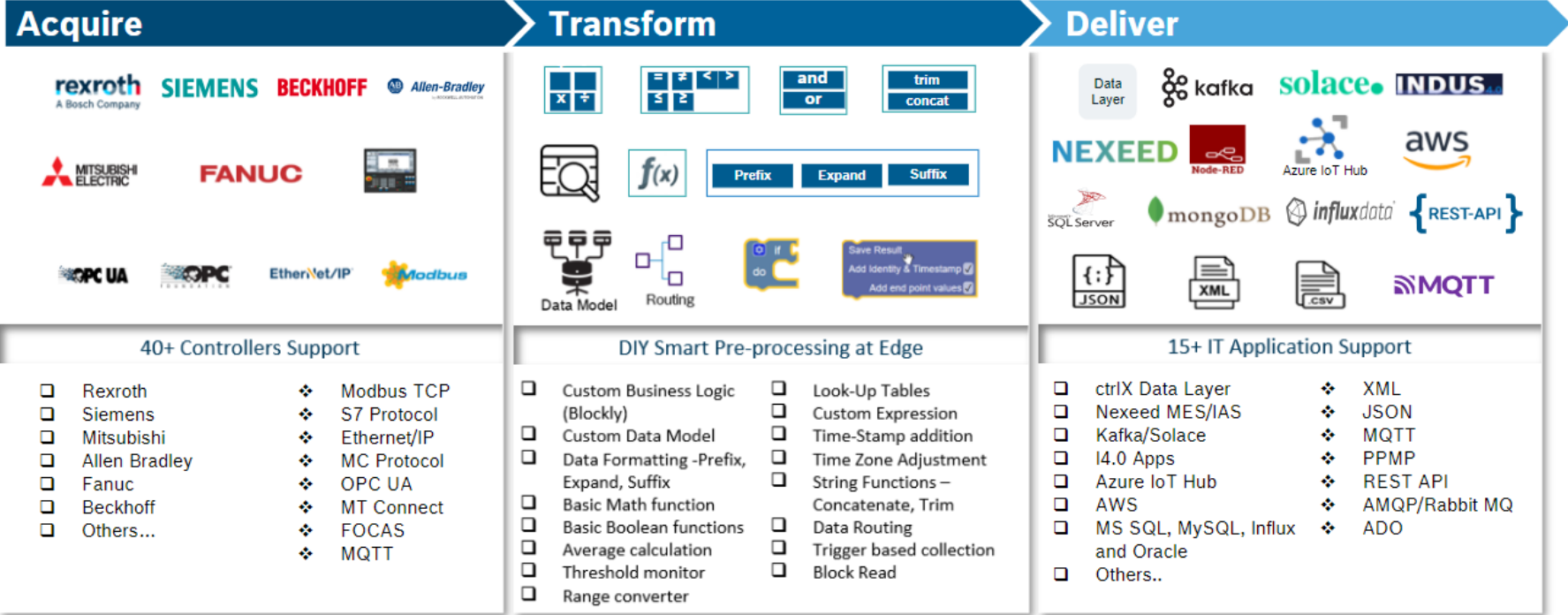




DeviceBridge – write to AB

Adam Humphrey

ctrlX DeviceBridge – write to AB



* Disclaimer: The images/icons used are not the property of BGSW and are taken from respective owner's portal for reference purpose only.

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A 2 Device license is required:

Licenses

Licenses Sources

19 items

Product ↑	Quantity	App	Description	Source	Expires (UTC)
✔ Bosch - DeviceBridge License - 200 Tags - 2 Devices	1	DeviceBridge	2 Device with maximum 200 tags	Device	Unlimited

As well as an app that can create tags in the data layer:


✔ ctrlX CORE - Key Value Database (KVD) License	1	Key Value Database (KVD)	Unlock the KVD functionality	Device	Unlimited
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Or:



✔ ctrlX CORE License - Bosch Rexroth - PLC Basic	1	PLC	IEC 61131 PLC runtime with support for single core, single task	Device	Unlimited
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Create Devices using the ctrlX Data Layer and the appropriate Logix Driver (details can be found in the Device Bridge documentation):

Device 

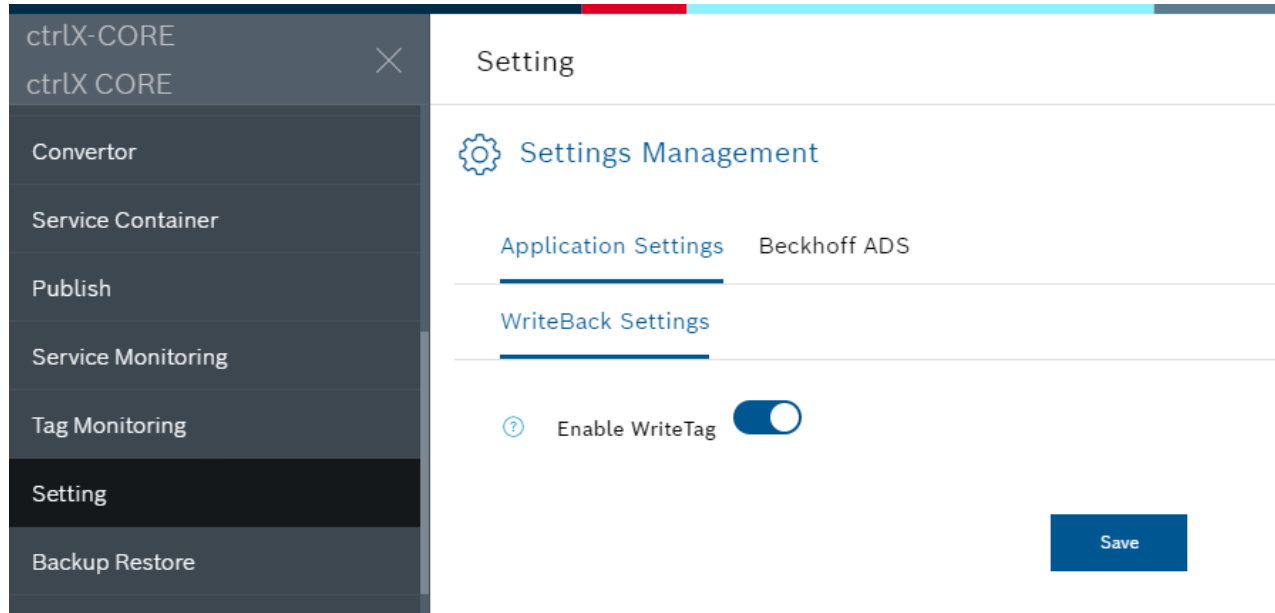
 Device Management - DeviceBridge    

<input type="checkbox"/>		Device Name	Driver	Summary	
<input type="checkbox"/>		DataLayer_Device	ctrlX Data Layer	N.A	⋮
<input type="checkbox"/>		Device1	CompactLogix PLC	192.168.1.21,1,0	⋮

*Write to Micrologix not yet supported as of Version 3.2.9

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Go to the Settings tab and Enable Write Tag:



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Create DeviceBridge (DB) tags from the Data Layer tags:

The screenshot shows the ctrlX DeviceBridge interface. On the left is a navigation sidebar with the following items: Home, DeviceBridge (expanded), Home, Device (selected), Collector, Connector, Exchange Server, Data Model, Routing, Convertor, and Service Container. The main area displays the 'Tag List of DataLayer_Device' with a table of tags. The table has columns for Name and Summary. Below the table, there is a 'Items per page' dropdown set to 10 and a pagination indicator showing '1 - 5 of 5'.

	Name	Summary	
<input type="checkbox"/>	bWriteAB1	plc/app/Application/sym/PLC_PRG/bABWrite1	⋮
<input type="checkbox"/>	bWrite_AB2	plc/app/Application/sym/PLC_PRG/bABWrite2	⋮
<input type="checkbox"/>	bKVD_Tag	samples/kvd/variables/mybool	⋮
<input type="checkbox"/>	iKVD_tag	samples/kvd/variables/variable	⋮
<input type="checkbox"/>	fKVD_Tag	samples/kvd/variables/myfloat	⋮

Items per page: 10

1 - 5 of 5

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Create DeviceBridge (DB) tags from the Rockwell networked tags:

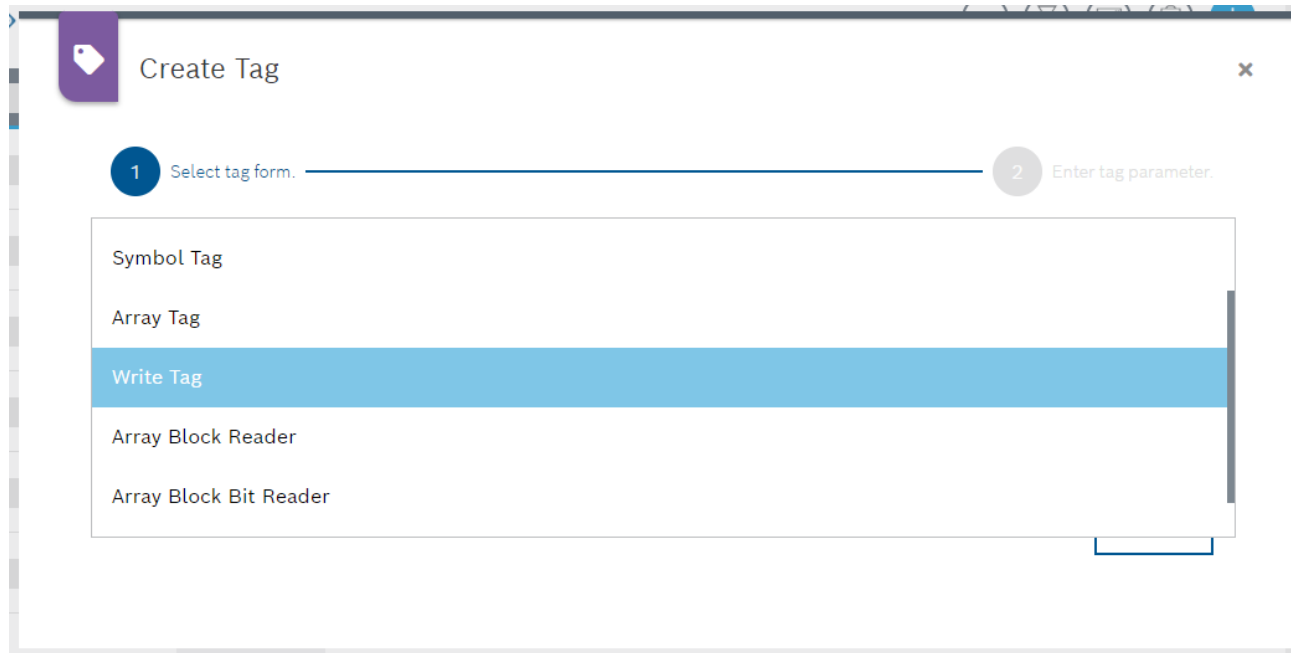
The screenshot shows the ctrlX DeviceBridge web interface. On the left is a dark sidebar with navigation options: Home, DeviceBridge, Home, Device, Collector, Connector, Exchange Server, Data Model, Routing, Convertor, Service Container, and Publish. The main area is titled 'Device > Tag' and displays 'Tag List of Device1'. It contains a table with columns for Name and Summary. The table lists six tags: bReset_OK_PLC (Reset_OK), bWTest_PLC (Test), bW_Reset_PLC (Reset), bTimer1_DN_PLC (Timer1.DN), iWAB_Data (Data), and fWAB_Real (Real). At the bottom, there is a pagination control showing 'Items per page: 10' and '1 - 6 of 6'.

	Name	Summary
	bReset_OK_PLC	Reset_OK
	bWTest_PLC	Test
	bW_Reset_PLC	Reset
	bTimer1_DN_PLC	Timer1.DN
	iWAB_Data	Data
	fWAB_Real	Real

*See next page

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Select Write Tag for any tags to be written to the AB Controller:



Once write tag is selected, browse for the appropriate controller tag.

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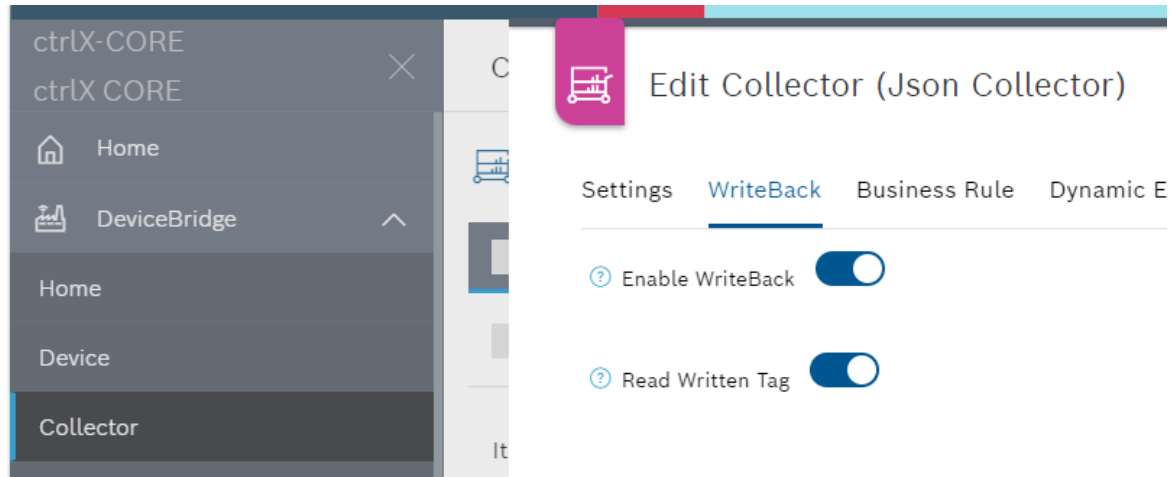
Create a Json Collector:

The screenshot displays the ctrlX DeviceBridge web interface. On the left is a navigation sidebar with the following menu items: Home, DeviceBridge, Home, Device, Collector (highlighted), Connector, Exchange Server, Data Model, Routing, Convertor, and Service Container. The main content area is titled 'Edit Collector (Json Collector)' and features four tabs: Settings (selected), WriteBack, Business Rule, and Dynamic End Point. The 'Settings' tab contains the following configuration fields:

- Name *: Collector1
- Description: Collector Description
- Collection interval in milliseconds *: 1000
- TimeStamp Format *: UTCWithZeroOffset (dropdown menu)
- Note: (empty text area)
- RemoveEmptyValuesFromResult: (toggle switch, currently off)

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Enable WriteBack and/or Read Written Tag if appropriate:



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Migrate tags if possible or create Dynamic End Points for tags to be used:

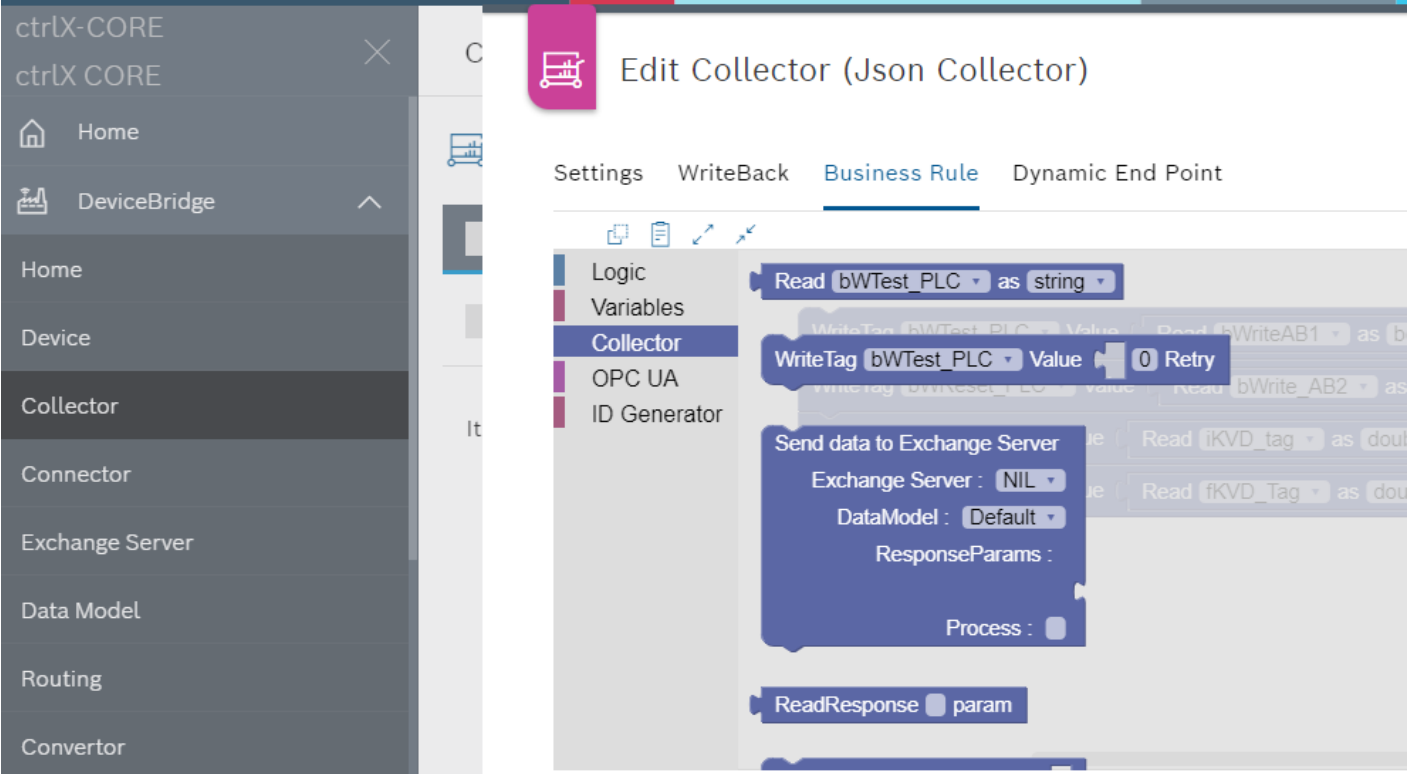
The screenshot shows the 'Edit Collector (Json Collector)' window in the ctrlX DeviceBridge software. The left sidebar contains a navigation menu with the following items: Home, Device, Collector (highlighted), Connector, Exchange Server, Data Model, Routing, Convertor, Service Container, Publish, and Service Monitoring. The main window has four tabs: Settings, WriteBack, Business Rule, and Dynamic End Point (selected). Under the 'Dynamic End Point' tab, there is a 'Select all' button and a list of six tags. Each tag has a selection checkbox, a name, a device path, a purple icon, and two toggle switches for 'IsTrigger'.

Tag Name	Device Path	IsTrigger 1	IsTrigger 2
bReset_OK_PLC *	Device1.bReset_OK_PLC	<input type="checkbox"/>	<input type="checkbox"/>
bWTest_PLC *	Device1.bWTest_PLC	<input type="checkbox"/>	<input type="checkbox"/>
bWReset_PLC *	Device1.bW_Reset_PLC	<input type="checkbox"/>	<input type="checkbox"/>
bTimer1_DN_PLC *	Device1.bTimer1_DN_PLC	<input type="checkbox"/>	<input type="checkbox"/>
bWriteAB1 *	DataLayer_Device.bWriteAB1	<input type="checkbox"/>	<input type="checkbox"/>
bWrite_AB2 *	DataLayer_Device.bWrite_AB2	<input type="checkbox"/>	<input type="checkbox"/>

At the bottom right of the window, there is an 'EXPERT' toggle switch (checked), and three buttons: 'Migrate tags', 'Cancel', and 'Save'.

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Once you have Dynamic End points use Blockly to write to the AB tags:



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Use WriteTag for the AB tags to be written and use a tag from the DataLayer in the Read function to copy the DataLayer value to the AB tag:

The screenshot displays the ctrlX DeviceBridge interface. On the left is a navigation menu with the following items: ctrX-CORE, ctrX CORE, Home, DeviceBridge, Home, Device, Collector, Connector, and Exchange Server. The main window is titled "Edit Collector (Json Collector)" and has tabs for Settings, WriteBack, Business Rule (which is selected), and Dynamic End Point. A dropdown menu is open over the Business Rule tab, listing Logic, Variables, Collector, OPC UA, and ID Generator. The Business Rule configuration area contains four "WriteTag" blocks, each with a "Value" field containing a "Read" function:

- WriteTag `bWTest_PLC` Value: Read `bWriteAB1` as `bool` 0 Retry
- WriteTag `bWReset_PLC` Value: Read `bWrite_AB2` as `bool` 0 Retry
- WriteTag `iWAB_Data` Value: Read `iKVD_tag` as `double` 0 Retry
- WriteTag `fWAB_Real` Value: Read `fKVD_Tag` as `double` 0 Retry

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Create a Connector:

The screenshot displays the 'Connector Management - DeviceBridge' interface. On the left, a navigation sidebar is visible with the following items: Home, DeviceBridge (with an upward arrow), Home, Device, Collector, and Connector (highlighted in blue). The main content area shows a table with the following data:

	Connector Name	Type
	DL_Connector1	ctrlX Data Layer Connector

Below the table, there is a pagination control showing 'Items per page: 10' with a dropdown arrow, and a page indicator '1 -'.

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Create a simple Json Data Model:

The screenshot shows the 'Data Modeling' interface. On the left is a navigation menu with options: Collector, Connector, Exchange Server, Data Model (highlighted), and Routing. The main area is titled 'Data Modeling' and contains a table with the following data:

Model Name	Description	Content Type
Json_Data Model1	DataModel_Json	Json

Below the table, there is a control for 'Items per page' set to 10. An 'Edit Data Model' dialog box is open, showing the following fields:

- Name *: Json_Data Model1
- Description *: DataModel_Json
- Data model type *: Simple
- Data Model Text *: Json

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Create a route:

Exchange Server

Data Model

Routing

Convertor

Service Container

Route Management

Route Name	Description
AB_Routing1	AB_Routing

Items per page: 10

Edit Route

Name *
AB_Routing1

Description *
AB_Routing

Collector

Collector Name
Collector1

Connector

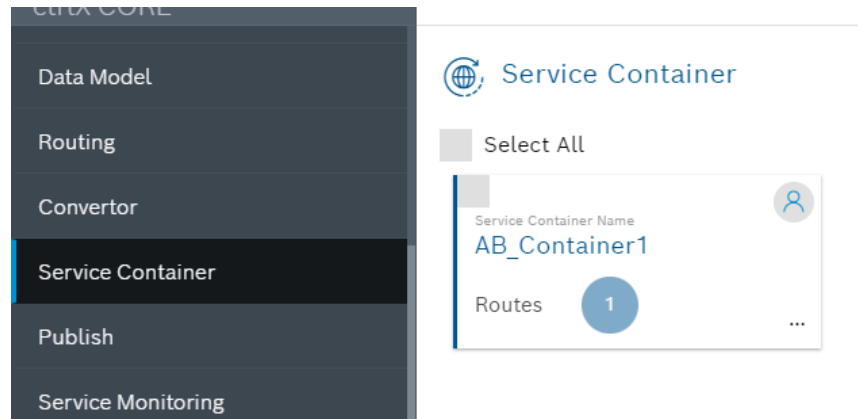
Connector
DL_Connector1

Data Model
Json_Data Model1

Reset Save

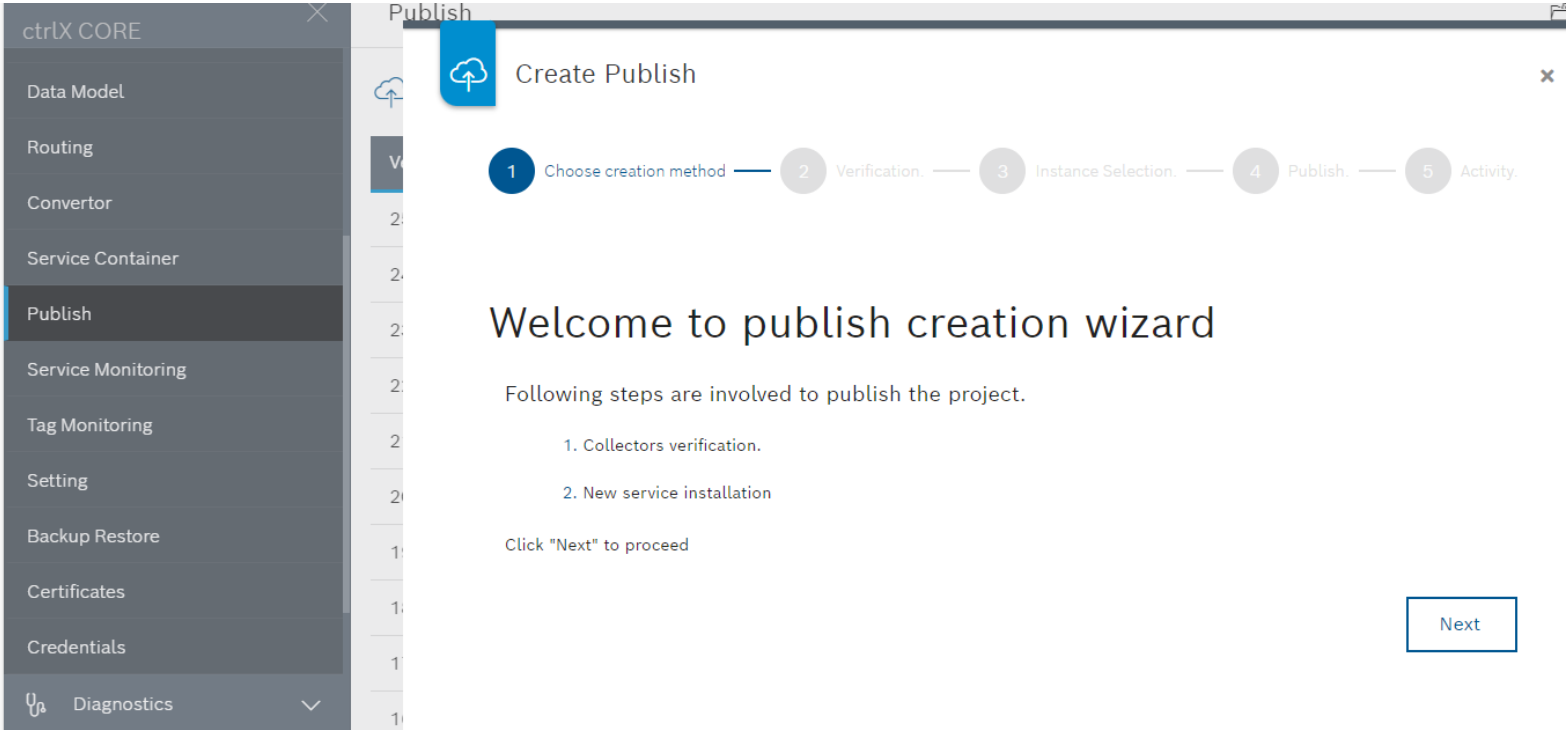
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Create a Service Container by dragging your route into a container:



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Publish DeviceBridge project Service Container:



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Publish DeviceBridge project Service Container:

The screenshot displays the ctrlX DeviceBridge interface. At the top, a progress bar shows five steps: 'Choose creation method' (done), 'Verification.' (done), 'Instance Selection.' (done), 'Publish.' (done), and '5 Activity.' (active). Below the progress bar, a terminal window shows the following log output:

```
Service Container > Installing all service containers
• Deployment Group > Deploying : AB_Container1
• Deployment > Installing '1' services
• AB_Container1 > Installing group : 'AB_Container1'
• AB_Container1 > is already installed.
• AB_Container1 > Uninstalling service
• AB_Container1 > Previous instance uninstalled
• AB_Container1 > Installing service
• AB_Container1 > Service installed
• AB_Container1 > Starting Service
• AB_Container1 > Service started.
• Deployment > Completed
```

Published Successfully

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Monitor Tags to make sure things are talking:

The screenshot shows the 'Service Monitoring' window in the ctrlX CORE application. The left sidebar contains a menu with options: Data Model, Routing, Convertor, Service Container, Publish, Service Monitoring (highlighted), Tag Monitoring, Setting, Backup Restore, Certificates, and Credentials. The main area displays 'Service Monitoring - AB_Routing1 (AB_Container1)' with tabs for Tag Monitoring, Messages, Result, and Details. A table lists the following data:

Status	Name	Value	Tag Name	Input	Time(ms)
OK	bWTest_PLC	false	Device1.b...		1.9352
OK	bWReset_P...	false	Device1.bW...		0.6474
OK	bTimer1_D...	false	Device1.bTi...		0.6649
OK	bWriteAB1	false	DataLayer_...		2.804
OK	bWrite_AB2	false	DataLayer_...		2.0851
OK	bKVD_Tag	true	DataLayer_...		2.3174
OK	iWAB_Data	-556	Device1.iW...		2.1662
OK	fWAB_Real	55.63	Device1.fW...		1.7026
OK	iKVD_tag	-556	DataLayer_...		2.412
OK	fKVD_Tag	55.63	DataLayer_...		1.7026

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Check Devices to make sure things work as expected:

The screenshot displays the ctrlX CORE software interface. On the left, a sidebar lists various components: ctrIX-CORE, Exchange Server, Data Model, Routing, Convertor, Service Container, Publish, and Service Monitoring. The main window is titled 'Service Monitoring - AB_Routing1' and shows a 'Tag Monitoring' table with the following data:

Status	Name	Value
OK	bWTest_PLC	true
OK	bWReset_P...	false
OK	bTimer1_D...	false
OK	bWriteAB1	true

Below the table, a 'MainProgram - MainRoutine' window shows a ladder logic diagram. A 'Test' coil is connected to a 'Timer1.DN' timer. The 'Test' coil is circled in red. The 'Value' column in the table above is also circled in red.

At the bottom, the 'Symbol Configuration' window shows a table of variables:

Expression	Type	Value	Prepared value
bABWrite1	BOOL	TRUE	
bABWrite2	BOOL	FALSE	