

Client Connectivity Guide

KEPServerEX[®] and Wonderware[®] with OPC DA Protocol

August, 2017 Ref. 1.004

Table of Contents

1.	Overvi	ew	.1
2.	Installi	ing KEPServerEX	.1
3.	Creatir	ng a Wonderware Application Server Project	2
	3.1	Creating a Galaxy	2
	3.2	Creating System Objects	2
	3.3	Assigning System Objects	3
	3.4	Creating a Device Integration (DI) Object	3
	3.5	Assigning Device Integration Objects to an Engine	4
	3.6	Creating Application Objects	4
	3.7	Assigning Application Objects to an Area	5
4.	Deplo	ying Objects	5
5.	Viewin	g Active Data	6
6.	Checki	ng the Connection to the Server	6

1. Overview

This guide demonstrates how to establish a connection between the KEPServerEX[®] data server and Wonderware[®] System Platform using the OPC DI Object, through OPC DA protocol.

Wonderware System Platform can connect to KEPServerEX using SuiteLink protocol (DDESuiteLink DI Object), OPC DA protocol (OPC DI Object) or OPC UA protocol (activating a Wonderware ArchestrA Service inside the Galaxy). Please refer to the appropriate connectivity guide or documentation for more information on connecting KEPServerEX with the other protocols.

Note: For this tutorial, InTouch version 2014R2SP1 and KEPServerEX version 6.2 are installed locally (on the same PC).

2. Installing KEPServerEX

- 1. Double-click the KEPServerEX icon.
- 2. Select **Run** or **Open** to start the install. If an active content warning is displayed, click "Yes" to continue.
- 3. Select your language
- 4. In the installation welcome screen, click **Next**.
- 5. In End-User License Agreement, click I accept the terms in the License Agreement, then click Next.
- Continue through the installation, and adjust the settings for your environment.
- 7. In the Vertical Suite Selection, choose the vertical, or Typical or Custom options.
- 8. In Select Features, expand the tree to view and select the drivers to install.
- 9. Click Next.
- 10. Click Install to start the installation.



3. Creating a Wonderware Application Server Project

Before creating Device Integration (DI) Objects of interest, the system platform must be configured. This requires creating a Galaxy, WinPlatform, AppEngine, and Area.

A Wonderware System Platform project using OPC DI Object acts as the OPC DA client to KEPServerEX.

- 3.1 Creating a Galaxy
 - 1. Click Start | Programs | Wonderware | ArchestrA IDE.
 - 2. In the Connect to Galaxy window, click New Galaxy...
 - 3. Enter the galaxy name.
 - 4. In Galaxy Type, select "Base_Application_Server.cab" so the new Galaxy has all the System Objects for the next steps.
 - 5. Click **Create**.

	New Galaxy	X
G <u>R</u> node name: <u>G</u> alaxy name:	KEPWW01 KEP_Demo	~
Galaxy <u>t</u> ype:	Base_Application_Server.cab	~
	Create	Cancel

3.2 Creating System Objects

- 1. Once the New Galaxy is created, System Objects must be created. Expand the System folder that appears within the Template Toolbox pane.
- Right-click **\$WinPlatform** and choose New | Instance. The default name is WinPlatform_001.
- Right-click \$AppEngine and choose New | Instance. The default name is AppEnginer_001.
- Right-click **\$Area** and choose **New** | **Instance**. The default name is Area_001.
- Consult Wonderware documentation for more information on the role of each object.



3.3 Assigning System Objects

Users can drag and drop to assign the AppEngine_001 to the WinPlatform_001 object and the Area_001 to the AppEngine_001.

Alternatively, users can:

- Right-click AppEngine_001 and choose Assign To.... Select WinPlatform_001.
- 2. Right-click Area_001 and choose **Assign To...** Select **Engine_001**.

 Image: Second secon

Consult Wonderware documentation for more information on the role of each object.

3.4 Creating a Device Integration (DI) Object

- 1. Expand the Device Integration folder in the Template Toolbox pane.
- 2. Right-click **\$OPCClient** and choose **New | Instance**.

• Note: Default names of DI objects are used in this tutorial.

- The OPCClient DI object, OPCClient_001, appears in the Deployment view. Double-click OPCClient_001 object under Unassigned Host to access the object properties.
- 4. On the General tab, click the Browse (...) button next to the Server node field to locate the domain and available computer nodes.
 - Note: In Server Node field, users can write the name or IP address of the computer running KEPServerEX. In this tutorial, KEPServerEX is running in the local machine, so this field can be left blank
- 5. Click the drop-down arrow in the Server name field to view a list of OPC DA Servers installed in the specified node. Select Kepware.KEPServerEX.V6.

DPCClient 001 *										
General	Scan Group	Block Read	Block Write	Attributes	Scripts	Graphics	Object Information]		
Server Server name:	node:		rare.KEPSer	verEX.V6 🗸		סי סי				

- **Note:** If OPC DA Server is not in the drop down list, there may be DCOM issues. Please contact Kepware's Technical Support for assistance.
- 6. Access the Scan Group tab to create a new Scan Group. Click **Add** (+). Enter the following parameters:
 - ScanGroup: Group1
 - Update Interval: 500 (poll rate in milliseconds)
 - ScanMode: Active
 - **Note:** Users may add tag items to the attributes of a DI Object.

- 7. Double-click Group1 to add Associated attributes.
- 8. In the Available Scan Groups grid table, click Add (+).
- 9. Click Browse (...) to locate and select the OPC Server.
- 10. Once the item(s) are selected and appear in the basket, click **Add** (+).

wailable scan groups:		⊆ <u>+</u> □
ScanGroup	Update Interval	Scan Mode
Group1	500	Active
ssociated attributes for Group1:		a III II (+) [
ssociated attributes for Group1:	Item Refe	an 📓 📕 🕂 z
ssociated attributes for Group1: Attribute Channel1.Device1.Tag1	Item Refe Chanel1	erence .Device1.Tag1
ssociated attributes for Group1: Attribute Channel1.Device1.Tag1 Channel1.Device1.Tag2	Item Refe Channel Channel	erence .Device1.Tag1 .Device1.Tag2

11. Click **Save** (\blacksquare) to save and close the DI object.

- 3.5 Assigning Device Integration Objects to an Engine
 - 1. In the Deployment View, right-click OPCClient_001 located on Unassigned Host.
 - 2. Click **Assign To...** then choose **AppEngine_001**.
 - 3. Click **OK** to close.



3.6 Creating Application Objects

It is necessary to create an application object so that its properties can be bound to attributes in the DI Object.

Follow these steps to create Application Objects:

- From the Template Toolbox, open the Application folder and right-click the \$AnalogDevice base template. Select New | Instance.
- Once the new instance is created ("AnalogDevice_001"), double-click to open it.



3. Access the I/O tab and click the Browse (...) button next to the PV input source field. Select OPCClient_001 attributes.



4. Select Group1.Channel1.Device1.Tag1 and click OK.

B.	Galaxy Browse	r - KEP_Dem	10	X
🗄 🐮 🏷 👯 namespa 🛛 KEP_Dem	io 🗸 🎸 rille	Default	✓ I	
E Instances	OPCClient_001			_
Tagname 🔺	Attribute 🔺	Data type	Category	Security
AnalogDevice_001	Group1.Channel1.Device1.Tag1	NoData	SystemInternal_Browsable	Configure
AppEngine_001 Å Area_001	Group1.Channel1.Device1.Tag2	NoData	SystemInternal_Browsable	Configure
OPCClient_001				
K WinPlatform_001				
	Show all attributes		Property:	<none> V</none>
			ОК	Cancel
5 Objects	2 Attributes		OPCClient_001.Group1.	Channel1.Device1.Tag1

5. Now the PV attribute in AnalogDevice_001 is bound to "Channel1_Device1.Area1_Tag1".



3.7 Assigning Application Objects to an Area

To deploy any Application Object instance, it must first be assigned to an existing Area. Follow these steps:

- 1. In the Deployment view, right-click **AnalogDevice_001** under Unassigned Host.
- 2. Select Assign To... then select Area_001.

4. Deploying Objects

- In the Deployment View, right-click WinPlatform_001 and choose Deploy....
- 2. In the Deploy window, verify **Cascade Deploy** is enabled.
- 3. Click **OK**.



5. Viewing Active Data

To view live data after the WinPlatform_001 is deployed, follow these steps:

- 1. Right-click the application object **AnalogDevice_001** and select **View in Object Viewer** to see the active data values.
- 2. To get live values, either drag and drop "PV" attribute to the Watch List, or right-click an Attribute Name and select **Add to Watch**. Both actions trigger the active values to display.

Ø			Ob	ject V	iewer					_		x
Eile Edit View Options Help												
\$ 6 M S B	e Reference:	AnalogDe	vice_001	.PV.value			Go					
B- # KEP_Demo	Attribute Na	ame		Value	•	Timestamp	Quality	Status	Securit	Categ	^	
B WinPlatform_001[KEPWW01]		PV.Input.Dat	taType		MxFloat			C0:Good	Ok	ReadO	Write	7
🖨 🖶 AppEngine_001		PV.Input.Inp	utSource		OPCClient		C0:Good	0:Good Ok Co	Config	ig Write		
🖨 🖇 Area_001 [Area_001]		AnalogType			Analog		C0:Good Ok	ReadO	Write			
AnalogDevice_001 [AnalogDevice]	:e_001]	PV			341.0		7/7/2017 5:38:59.458 PM	C0:Good	Ok	Operate	Write	
OPCClient_001 [OPCClient_001]		PV.EngUnits						C0:Good	Ok	Config	Write	=
		PVAuto			146.0		7/7/2017 5:37:21.381 PM	C0:Good	Ok	ReadO	Calcu	
		DV Override <	Enabled	Ш	falca			C0:Good	OF	Config	Write >	Ť
AttributeReference Value	Timestan	ιp	Qu	uality	Status							_
AnalogDevice_001.PV 706.0	7 5:42:02.608 PM C0:Good Ok											
Watch List 1	₩ ◀ ▶ ▶ Watch List 1											_
Ready				FILE	: User: Def	aultl	Jser			Mode: U	ser	- //.

6. Checking the Connection to the Server

To confirm the Wonderware Galaxy is connecting to the server, check the server Connection Status Bar (which should also display an active client and items) and the Event Log pane for any error messages.

ex	KEPSe	KEPServerEX 6 Configuration [Connected to Runtime]					
<u>F</u> ile <u>E</u> dit <u>V</u> iew <u>T</u> ools <u>R</u>	untime <u>H</u> elp	") 👗 🗈 🛍 🗙 🔛					
🖃 👼 Project	Tag N	ame 🛆 Address	Data Type	Scan Rate	Scaling	Description	
回 (副 Connectivity	🐼 Tag	1 R0001	Word	100	None	Ramping Rea	
⊕	va Tag ples nples	2 K0001	Word	100	None	Constant Rea	
Date 🗸 Time	Source	Event				/	
(1) 7/7/2017 1:33:12 PM	KEPServerE	erE Runtime service started.					Ξ
(i) 7/7/2017 1:33:12 PM	KEPServerE	verE Starting Simulator device driver.			_		
(i) 7/7/2017 1·33·12 PM	Simulator	r Simulator Device Driver 'V6 2 429 0'					\sim
Ready				Default U	ser Clients: 1	Active tags: 1 of 1	

For more information or for technical support, refer to the Support section of <u>www.kepware.com</u>.