Tech Note 392 How to Configure FSGateway and RSLinx Data Source

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Introduction

FSGateway can be configured to access data sources using DDE, SuiteLink, and OPC protocols.

This technote explains the step-by-step procedure to configure the FSGateway and the Rockwell Software's RSLinx data source to access data in an Allen-Bradley PLC (a ControlLogix PLC is being used in this example).

Before you continue, make sure you have the following:

- Install and configure RSLinx (OEM version minimum, Professional or higher recommended) so that it communicates with the PLC. RSLinx needs to have at lease one topic defined.
- Check the Readme file for the system requirements and the installation information before installing the FSGateway.
- Install the latest version of the FSGateway. If a previous version was installed, be sure to uninstall it using Control Panel Add/Remove Programs. To check the version number of the server, use Control Panel Add/Remove Programs select Wonderware ABCIP DAServer, then click Support Information.

Assumptions

- FSGateway version 1.0.001 is used in this technote.
- RSLinx Gateway version 2.42.00 (Build 18) is used.
- Both FSGateway and RSLinx are installed on the same computer with Windows®2000 Professional Service Pack 4.
- This technote assumes the user has a basic working knowledge and understanding of Allen-Bradley software/hardware, Microsoft® Operating System, and Wonderware® products. If you have problem configuring the ControlLogix or RSLinx, please contact Allen-Bradley for assistance at www.ab.com
- The configuration of the ControlLogix PLC project is outside the scope of this tech note. However, typical Control Scope tags have been added in the PLC: MyInt, MyFloat, and MyBool. These tags are of types integer, floating point (or real), and Boolean respectively.

Configure RSLinx Data Source

- 1. Launch RSLinx.
- 2. Verify that the communication driver has been added, correctly configured, and is running.

In this example, the Ethernet Device is used to communicate with a ControlLogix (Model 1756-L63) over the Ethernet network.

To configure this, under Communication /Configure Driver, highlight the Ethernet Device driver (named AB_ETH-1) and click Configure.

The PLC in this example has an IP address of **192.168.10.25**. You should see the IP address for the intended PLC in the Station Mapping grid similar to Figure 1 (below):

Station	Host Name	Add <u>N</u> ew
0	10.2.68.118	
1	192.168.10.20	Delete
2	192.168.10.23	
3	192.168.10.22	
4	192.168.10.25	
5	192.168.10.24	
6	192.168.1.59	
7	192.168.10.21	
8		
63	Driver	

FIGURE 1: PLC STATION MAPPING

3. Click ${\bf OK}$ to close the Configure driver dialog box.

The Configure Drivers dialog box should show of the driver is running:

gue Drivers		
vailable Driver Types:	And Mass	<u>C</u> lose
	EDRINGM'''	Help
onfigured Drivers:		
Name and Description	Status	
AB_ETH-1 A-B Ethernet RUNNING	Running	Configure
		Startup.
		<u>Start</u>
		Stop
		<u>D</u> elete

FIGURE 2: RSLINX ETHERNET DEVICE COMMUNICATION DRIVER

4. Verify that RSLinx recognizes the PLC on the Ethernet network by using Communications/RSWho.

Figure 3 (below) indicates that RSLinx can browse the PLC on the Ethernet network:

🗞 RSLinx Gateway - RSWho - 1	<u>_0×</u>
Eile Edit View Communications Station DDE/OPC Security Window Help	
<u>≥ # \$ 0 ® 10 %</u>	
RSWho - 1	<u>_ 🗆 ×</u>
Autobrowse Refresh	
→ Workstation, BRIAN2KSVR3 → Linx Gateways, Ethernet → B. ETH-1, Ethernet → B. ETH-1, Ethernet → 10.2.68.118, 1756-ENBT/A, 1756-ENBT/A → 192.168.10.20, PLC-5/20E, OEMPRESS → 192.168.10.21, PLC-5/80C, UNTITLED → 192.168.10.22, PLC-5/05, SLC505 → 192.168.10.23, 1756-ENBT/A, 1756-ENBT/A → 192.168.10.24, 1756-ENBT/A, 1756-ENBT/A → 192.168.10.25, 1756-ENBT/A, 1756-ENBT/A → 192.168.10.25, 1756-ENBT/A, 1756-ENBT/A	Backplane 1756-A7/A
For Help, press F1	11/09/04 09:36 AM

FIGURE 3: RSWHO FOUND THE PLC

- 5. Select DDE/OPC /Topic Configuration from the main menu .
- 6. High light the topic (Topic CLx5563) for the controller.

The respective PLC processor should also be highlighted on the right pane as shown in Figure 4 (below):

DDE/OPC Topic Configuration		? ×
Project: Default Iopic List: CLx5563_1 Logix5563_3 PFIZER PLC580C QACLx5563 SLC505	Data Source Data Collection Advanced Communication Autobrowse Refresh Statistics Refresh	
<u>N</u> ew <u>C</u> lone	Delete Apply Done Help	

FIGURE 4: RSLINX DDE/OPC TOPIC CONFIGURATION

7. Click **Done** to close the Topic Configuration window.

Configure FSGateway

See figure 5 (below):

- 1. Select Start/Programs/Wonderware/System Management Console to launch the System Management Console (SMC).
- 2. From the System Management Console, navigate in the DAServer Manager to the FSGateway hierarchy (expand DAServer Manager/Default Group/ Local/ArchestrA.FSGateway.1).

ree	Component	Version	Build Date	
ArchestrA System Management Console (BRIAN2KSVR3)	FSGateway	0149.0127.0000.0000	July 8, 2004	
🖳 Platform Manager	FSGateway [Shell]	0689.0039.0000.0002	May 6, 2004	
Log Viewer	🔠 Original DAS Toolkit	0689.0000.0017.0000	June 22, 2004	
DAServer Manager	M DASEngine	0689.0337.0017.0006	June 22, 2004	
🔁 🔄 Default Group	PlugInOPC	0689.0156.0017.0004	June 22, 2004	
🚊 🛄 Local	PlugInDDESL	0689.0156.0017.0004	June 22, 2004	
Galaxy Database Manager				

-
- $\label{eq:constraint} \textbf{3.} \quad \text{Expand the } \textbf{ArchestrA.FSGateway.1 icon}.$
- 4. Click on Configuration object. The Global Parameters dialog box will appear on the right pane of the window.

See Figure 6 (below):

ØSMC - [ArchestrA System Management Console (BRIAN Action View (中 → 主 雨 常	2K5¥R3)\DAServer Manager\Default Grou	up\Local\ArchestrA.FSGati	eway.1\Configuration]	
Tree	🕎 Node Type: \$R00T\$ De	elimiter:		- A 🖪
ArchestrA System Management Console (BRIAN2KSVR3) Bell Form Manager Log Viewer DAServer Manager	Global Parameters			-
E-B Local	Device Group Update Interval (msec):	1000	Enable/Disable	
	Slow Poll Interval (msec):	10000	🥅 Case Sensitive	
ArchestrA.DASABDHPIUS.1 ArchestrA.DASABCIP.2 ArchestrA.DASMBTCP.1	Transaction to Subscription Ratio:	2	🗖 Device Group Cache	
terreigi Franing 	Transaction Message Timeout (msec):	60000	C Simulation Mode	
	Server Protocol Timer (msec):	50	🔽 System Items	
	Diagnostic Backlog Size:	20	Unique Device Groups	
	Poke Mode:	Optimization Mode 💌		
	<u></u>		1	<u>, </u>
9 ji				

FIGURE 6: FSGATEWAY GLOBAL PARAMETERS

Note If the system has more than 5,000 items on advise, it is recommended that the Transaction Message Timeout should be set to 120 seconds.

5. Right click the Configuration object and select Add OPC Object.

A new default New_OPC_000 object is added to the hierarchy tree.

- 6. Right click New_OPC_000 and select Rename to change it to a meaningful name such as RSLinxOPC.
- 7. Accept the default Server Node name of **localhost** (On the **OPC Parameters** window **RSLinxOPC Parameters** area , which indicates that RSLinx is running on the same computer with FSGateway.

Note: If RSLinx and FSGateway are on different computers, RSLinx Gateway version is required for remote connection.

If RSLinx and FSGateway are on different computers, the server node name should be the name of the computer running RSLinx.

8. Click on the browse button to browse the OPC server, then select the RSLinx OPC Server.

SMC - [ArchestrA System Management Console (BRIAN) Action ¥ew ↓ ← ↓ ★ ↓ ↓ ↓ ↓ ↓ ↓ ↓ ↓ ↓ ↓ ↓ ↓ ↓ ↓ ↓ ↓ ↓ <	2K5VR3)\DAServer Manager\Default Group\Local\ArchestrA.FSG	ateway.1\Configuration\R5 🗖 🗖 🗙
Tree ArchestrA System Management Console (BRIAN2KSVR3) Platform Manager Delaut Group Cool C	Node Type: OPC Delimiter: RSLinxOPC Parameters	

FIGURE 7: SELECTING THE RSLINX OPC SERVER

💋 SMC - [ArchestrA System Management Console (BRIAN2K5)	5VR3)\DAServer Manager\Default Group\Local\ArchestrA.FSGateway.1\Con	figuration\RS 💶 🗖 🗙
] <u>A</u> ction View] ← → 🔁 🔃 🗙 😫]		
Tree ArchestrA System Management Console (BRIAN2KSVR3) Platform Manager DAServer Manager Default Group Configuration ArchestrA.DASABTCP.1 ArchestrA.DASABDHPlus.1 ArchestrA.DASABDHPlus.1 ArchestrA.DASABDHPlus.1 ArchestrA.DASABDHPlus.1 ArchestrA.DASABDHPlus.1 ArchestrA.DASABCHP.2 ArchestrA.DASABCTP.2 Configuration Configu	Node Type: OPC Delimiter: . RSLinxOPC Parameters	

FIGURE 8: OPC OBJECT PARAMETERS

9. Right-click RSIinxOPC to add a new OPC group object New_OPC_Group_000.

After every change, if you haven't saved the configuration, you will be prompted to save it.

10. Click **Yes** to save the changes:



FIGURE 9: SAVE PROMPT

11. Rename the default New_OPC_Group_000 to a meaningful name such as CLX5563 (Figure 10 below):

ArchestrA System Management Console (BRIAN2KSVR3) Platform Manager Log Viewer Default Group Device Group Name: Device Group Name as Access Path Read Only Browse OPC Items	Action ¥iew ↓ ← → ▲ ★ ★ ↓ Tree ★ ★ ↓	Node Turnet OPCCourses Dellimiters	way.1 \Configuration \R5 <u>) =) ×</u>
Billing Galaxy Database manager	ArchestrA System Management Console (BRIAN2KSVR3) Platform Manager Default Group Configuration RSLinxOPC RSLinxOPC ArchestrA.DASABDHPlus.1 ArchestrA.DASABDHPlus.1 ArchestrA.DASABDHPLs.1 ArchestrA.DASABDIPC.1 ArchestrA.DASABDIPC.1 Galaxy Database Manager	Node Type: OPCGroup Definiter: . CLX5563 Parameters Device Items Device Group Name: RSLinxOPC_CLX5563 Update Rate: IOOO OPC Item ID Prefix: I I Use Group Name as Access Path Read Only Browse OPC Items	

FIGURE 10: OPC GROUP PARAMETERS

12. Click the Browse OPC I tems button .

The OPC Item Browser appears.

13. Select and expand the topic (CLX5563) defined in RSLinx as shown in the above step:



FIGURE 11: OPC ITEM BROWSER - SELECT THE OPC GROUP (RSLINX TOPIC)

14. Expand the **Online** folder and select items in the PLC.

Since the PLC tags MyBool, MyFloat, and MyInt are defined as arrays of 10 elements each, we will add only the first element for each tag.



FIGURE 12: ADD PLC TAGS

- 15. Click **OK** to return to the OPC Group Parameters tab field as shown in Figure 10 above.
- 16. Select the **Device I tem** tab to display all the items we just added:

SMC - [ArchestrA System Management Console (BRIAN2KS Action Yiew Action Yiew	VR3)\DAServer Manager\Default Gro	up\Local\ArchestrA.FSGateway.1\Conf	iguration\RS 💶 💌
Tree ArchestrA System Management Console (BRIAN2KSVR3) Platform Manager Log Viewer Do Server Manager	Node Type: OPCGroup CLX5563 Parameters Device Items	Delimiter: .	<u> </u>
Producer Indiagen Default Group Local ArchestrA.DASABTCP.1 ArchestrA.DASABTCP.1 ArchestrA.DASABTCP.1 RSLinxOPC Configuration ArchestrA.DASABDHPlus.1 ArchestrA.DASABDHPlus.1 ArchestrA.DASABDHPlus.1 ArchestrA.DASABCIP.2 ArchestrA.DASABCIP.2 ArchestrA.DASABCIP.1 Training Galaxy Database Manager	Name [CLx5563]MyBoo[[0] [CLx5563]MyFloat[0] [CLx5563]MyInt[0]	Item Reference [[Lx5563]MyBoal[0] [[Lx5563]MyFloat[0] [[Lx5563]MyInt[0]	

FIGURE 13: DEVICE ITEMS

The Device Items table includes two columns: Name and Item Reference. This is where aliases are assigned for each item reference.

SMC - [ArchestrA System Management Console (BRIAN2KS¥] Action View ← → € 🖬 🗙 🕄	'R3)\DAServer Manager\Default Gr	oup\Local\ArchestrA.FSGateway.1\Confi	iguration\RS 💶 🗖 🗙
Tree ArchestrA System Management Console (BRIAN2KSVR3) Platform Manager Log Viewer	Node Type: OPCGroup	Delimiter: ,	P
DDServer manager Default Group Configuration RSLinxOPC Configuration RSLinxOPC Configuration RestrA.DASABDEPlus.1 ArchestrA.DASABDEPlus.1 ArchestrA.DASABDEPlus.1 ArchestrA.DASABDEP.2 ArchestrA.DASABDEP.1 Galaxy Database Manager	Name MyBool 0 MyFloat 0 MyInt_0	Item Reference [CLx5563]MyBool[0] [CLx5563]MyFloat[0] [CLx5563]MyInt[0]	

FIGURE 14: DEVICE ITEM ALIASES

The FSGateway is now ready for use. In order to use it, you must activate it.

17. Right-click ArchestrA.FSGateway.1 and click on Activate Server on the shortcut menu.

		Investor	[matter at
Iree		Version	Build Date
💋 ArchestrA System Management Console (BRIAN2KSVR3)	FSGateway	0150.0128.0000.0000	July 16, 2004
🗄 🖳 Platform Manager	FSGateway [Shell]	0689.0039.0000.0002	May 6, 2004
🗄 🖳 Log Viewer	Original DAS Toolkit	0689.0000.0017.0000	June 22, 2004
🖻 🛃 DAServer Manager	DASEngine	0689.0337.0021.0010	August 30, 2004
😑 🔄 Default Group	PlugInOPC	0689.0156.0021.0004	August 30, 2004
🖻 🖳 Local	PlugInDDESL	0689.0156.0021.0004	August 30, 2004
⊕-1 Configuration ⊕-1 Diagnostics ⊕-2 Diagnostics ⊕-3 ArchestrA.DASABOHPlus.1 ⊕-4 ArchestrA.DASABOHPLus.1 ⊕-5 ArchestrA.DASABCIP.2 ⊕-5 ArchestrA.DASABCIP.2 ⊕-5 ArchestrA.DASMBTCP.1 ⊕-5 Training ⊕-5 Galaxy Database Manager			

FIGURE 15: ACTIVATE THE FSGATEWAY

Test Communications

You can now test the connections to the PLC. We will use the WWClient utility for the test (click here to download).

To launch the WWClient:

- 1. Click **Start/Run** from the Windows taskbar.
- 2. Enter WWClient to launch the Wonderware WWClient program.
- 3. Select Connections/Create from the main menu bar.

The Create Connection dialog box appears.

4. Enter appropriate information as shown in the following figure:

Node:	localhost	<u> </u>
Application:	FSGateway	<u> </u>
Торіс:	RSLinx0PC_CLX5563	•
Connection T	ype E © IOT © IO	T · Thread

FIGURE 16: WWCLIENT - CREATE CONNECTION DIALOG BOX

- 5. Select Item on the main menu.
- 6. Enter a known good PLC tag in the Item entry box, and click AdviseEX.

In this example, alias items MyBool_0, MyFloat_0, and MyInt_0 are entered:



FIGURE 17: ADVISING TAGS

The following figure (Figure 18 below) shows an example of WWClient successfully advising items MyBool_0, MyFloat_0, and MyInt_0:

₩Wonderware Client								- O ×
<u>File</u>	<u>5</u> cript	\underline{C} onnections	Item	Help				_ 8 ×
IOT \ MyBo MyFlc MyInt	Nocal ⁺ ool_0 oat_0 t_0	nost\FSG atewa	ayIRSLii	nxOPC_CLX5563 0x00bb5 1 1.2300000190734863 123	430 7 16:32.39.0795 16:31.59.0702 16:33.12.0873	11/09/2004 11/09/2004 11/09/2004	0x00c0 0x00c0 0x00c0	

FIGURE 18: SUCCESSFUL ADVISE

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