<u>Tech Note 393</u> Configuring FactorySuite Gateway for Communication Between a DDE Client and an ArchestrA® Data Source

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Introduction

FactorySuite Gateway (FSGateway) is a protocol converter that enables communication between clients and data sources that use different data access protocols. This Tech Note explains the configuration required to enable DDE Client access to an ArchestrA data source.

Although you can use this Tech Note as a reference to configuring communication between any DDE Client and an ArchestrA data source, Microsoft® Excel is used in this example as the DDE Client.

Assumptions

- For this Tech Note, FSGateway, Excel, and the ArchestrA data sources are on the same node.
- IAS contains a UserDefined object named **Counters**. The Counters object contains two UDAs named **CountDown** and **CountUp** with a data type of integer. The Counters object also contains a script that runs every second that increments the CountUp UDA from 0 to 999 and decrements the CountDown UDA from 999 to 0.

IAS object configuration is explained.

• This Technote assumes a thorough knowledge of Industrial Application Server (IAS).

Configuring Industrial Application Server

- 1. Create a new Galaxy.
- 2. Create a new instance of a WinPlatform, AppEngine, Area, and a UserDefined object (named Counters).

Arrange them to resemble Figure 1 (below):



FIGURE 1: PLATFORM/ENGINE/AREA/COUNTERS

3. Open the UserDefined object (Counters) and add two UDAs named CountUp and CountDown with a data type of Integer:

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oject Information Scripts UDAS	Extensions			
	UDA name:	CountDown		
UDAs:				
Name	Data type:	Integer	•	
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	[0		🕘	
	1			
Inherited UDAs:	1.2 ()			
Name	1			
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FIGURE 2: COUNTDOWN, COUNTUP UDAS

4. Add a script to the UserDefined object (Counters) named CountScript.

This script runs every second and increments the CountUp UDA from 0 to 999 and decrements the CountDown UDA from 999 to 0 (Figure 3 below):

iject Informati	on Scrip	ts U	DAs	Exten	isions		
			+	×		Script name: CountScript Configure execution	n ord
Scripts:		2		0.000		Aliases:	P
Name CountScript	St	On	Ex	Of	Sh	Declarations:	P.
councocnpe			~			Scripts: Execution type: Execute	r e
						Basics 4	
	_					Expression: True	
						Trigger type: While True 🔄 🗗 🗌 Runs asynchronously	
						Trigger period: 00:00:01.0000000 🗗 Timeout limit: 0 ms 🗗	
	_					Deadband: 0.0 🗗 🗖 Report alarm on execution error	
			-			T Historize script state	
						Two)
•					17	Me.CountDown = Me.CountDown - 1;	
Innerited scrip	ts: s+	0n	Ex [OF L	ςь [Me.CountDown < 0 then Me.CountDown = 1000;	
						EndIf;	
	-		_	-		Me.CountUp = Me.CountUp + 1; If Me.CountUp > 1000 then	
						Me.CountUp = 0;	
	1 1					Endlf;	
	-						
	-		-	-			

FIGURE 3: COUNTSCRIPT

5. Deploy the Platform, Engine, Area, and Counters objects.

Configure FSGateway

- 1. Open the ArchestrA System Management Console (SMC) and locate "Configuration" under "ArchestrA.FSGateway.1" in the DAServer Manager.
- 2. Right-click Configuration, then select Add Archestra Object.

You can rename the ArchestrA Object at this point. For this example, ArchestrA is the ArchestrA Object name.

3. If ArchestrA has security enabled, enter the credentials used to logon to ArchestrA in the Domain, User Name, and Password fields.

For this example, security is not enabled so we will leave the fields empty.

Note: The **Domain** field should have a valid domain name when ArchestrA security authentication mode is "OS Users" or "OS Groups". The domain field should be left empty when ArchestrA security authentication mode is "Galaxy".

4. Save the configuration by clicking on the Disk (Save) icon in the upper right corner of the Editor pane:

Avebashed Student Management Canada //	🔃 Node Type: Arch	estrA Delimiter: .	- (8)
 Platform Manager Platform Manager Log Viewer DAServer Manager Default Group Local ArchestrA.FSGateway.1 Configuration ArchestrA Gateway Galaxy Database Manager 	ArchestrA Parameters Devic Device Group Name: Reconnect Attempts: Reconnect Period: Write Credentials Read Only Domain: User Name: Password:	ce Items	Save

FIGURE 4: SAVE THE OBJECT CONFIGURATION

5. Right-click the ArchestrA object and select Add ArchestrAGroup Object.

You can rename the ArchestrAGroup object at this point. For this example, FSCounters is the ArchestrAGroup object name.

6. Enter the name of the UserDefined object in the ArchestrA Item ID Prefix field followed by a period (Counters.).

This will allow us to enter just the UDA name in out DDE Client although this technote will also advise the complete item name in one of the examples.

- 7. Take note of the **Device Group Name** value (**ArchestrA_FSCounters**). This name will be referenced later when making a DDE connection.
- 8. Save the configuration by clicking on the Disk (Save) icon in the upper right corner.

Tree Node Type: ArchestrAGroup Delimiter: ArchestrA System Management Console (Image: ArchestrAGroup Delimiter: Image: Platform Manager Image: ArchestrAGroup Delimiter: Image: Dog Viewer Image: ArchestrAGroup Delimiter: Image: Dog Viewer Image: Device Items Image: Device Items Image: Default Group Image: Device Group Name: Image: ArchestrA_FSCounters	SMC - [ArchestrA System Management Action Yiew ↓ ← ↓ ← ↓ ↓ <	it Console (GARYATEST3)\DAServer Manager\Default Group\Local\Archest 😰]	rA.FSGateway.1\ 💶 🗅
ArchestrA.FSGateway.1 Configuration ArchestrA Southers Galaxy Database Manager ArchestrA Southers Galaxy Database Manager	Tree ArchestrA System Management Console ((Platform Manager DAServer Manager Default Group Configuration Configuration Configuration Gateway Gateway Galaxy Database Manager	Node Type: ArchestrAGroup Delimiter: FSCounters Parameters Device Items Device Group Name: ArchestrA_FSCounters ArchestrA Item ID Prefix: Counters. Image: Read Only Read Only	

FIGURE 5: SAVE DEVICE GROUP CONFIGURATION

9. Right-click ArchestrA.FSGateway.1 and select Activate Server.

FactorySuite Gateway configuration is now complete.

Test the DDE Connection to the ArchestrA Data Source

- 1. Launch Microsoft Excel.
- 2. Enter =FSGateway|ArchestrA_FSCounters!'CountUp' in cell A1.
- 3. Enter = FSGateway|ArchestrA_FSCounters!'CountDown' in cell A2.
- 4. You should now see counter values in both cell fields.

Note: Because we are advising items in the Archestra_FSCounters device group and we entered an ArchestrA Item ID Prefix that points to the Counters object in IAS, we are limited to only items in the Counters object.



FIGURE 6: COUNTER VALUES IN EXCEL

We can also obtain data by making a DDE connection directly to the FactorySuite Gateway ArchestrA object.

5. Enter =FSGateway|ArchestrA!'Counters.CountUp' in cell A2 and enter =FSGateway|ArchestrA!'Counters.CountDown' in cell A3.

This type of connection will not limit you to the Counters object. For example, you could also advise other attributes such as average CPU load, Scheduler Average Idle Time, and Area Host Name:

	1icrosoft Excel - Book1			
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1	Attribute	Excel Formula	Value	
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3	Counters.CountDown	=FSGateway ArchestrA!Counters.CountDown	4578	
4	Platform.CPULoadAvg	=FSGateway ArchestrA!Platform.CPULoadAvg	16.10284	
5	Engine.Scheduler.TimeldleAvg	=FSGateway ArchestrAlEngine.Scheduler.TimeldleAvg	979.6834	
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10				•
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Rea	dy			1

FIGURE 7: ADVISE OTHER ATTRIBUTES

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