

JDBC Adapter: Using WebSphere Business Monitor to monitor a database

Contents

Chapter 1. Introduction	•	·	•	•	•	·	·	•	1
Chapter 2. Overview .									3
Chapter 3. Build it your	se	f							5
Create the DB2 artifacts for the Create a new Mediation mode	e sa ile f	mp or	ole the	JD	DBC	•			5
adapter									6
Add the JDBC adapter									7
Create the mediation flow									8
Generate a monitor model from	m ti	he 1	Мо	nit	orA	٨da	pte	er	
module							•		11
Add trigger and metrics to the	e m	oni	tor	ma	ode	1.			12
Add Dimension									13
Configure the integrated test e	envi	ror	me	ent	ser	vei	:.	•	14

Chapter 4. Deploy the	
Adapter/mediation application to the	
test environment server	17

Add admin user to Monitor Data Security root group
Chapter 5. Deploy the monitor model application to the test environment
server
Chapter 6. Process events to exercise
the model
View the calculated information on a Monitor
dashboard in the test environment
Chapter 7. Download the sample 25
Import the J2EE application solution into WebSphere
Integration Developer

Chapter 1. Introduction

To help you understand how to monitor operations in business applications using WebSphere adapters, this sample provides a monitor model that is generated from a Service Component Architecture (SCA) interface operation and mediation flow, and is then completed in the Monitor development tooling. The sample showcases an SCA entry event with payload coming from a source WebSphere adapter.

Printable version of this tutorial

For this sample, an inbound interface operation and mediation flow for a Java Database Connectivity (JDBC) adapter is created in IBM[®] WebSphere[®] Integration Developer v6.1. A monitor model is generated from this operation and mediation flow. This monitor model is augmented to calculate metrics, and is then deployed.

The module used in this sample is the MonitorAdapter module. All project interchange (PI) files are available in a .zip file called MonitorAdapter.zip. You can import the MonitorAdapter.zip file into WebSphere Integration Developer and review the module, the generated events, and the augmented monitor model. You can then test the monitor model using db2 commands. This sample describes the steps necessary to implement the solution, the PI file is not required unless you want to skip the implementation of the solution (see Appendix A for instructions on how to import the completed solution provided by the PI file).

This sample uses the WebSphere Integration Developer test environment to test the adapter/mediation flow and the monitor model. Both the adapter / mediation application and the monitor model application are deployed to the WebSphere Business Monitor v6.1 Server for WebSphere Enterprise Service Bus test server. The WebSphere Business Monitor test server could also be based on WebSphere Process Server.

You must have the following software to run this sample:

- WebSphere Integration Developer v6.1—the runtime test environment for WebSphere Enterprise Service Bus or WebSphere Process Server must be installed.
- WebSphere Business Monitor v6.1—toolkit installation including the model editing tooling and the Monitor server based on WebSphere Enterprise Service Bus or WebSphere Process Server. This sample assumes the use of a Monitor server on WebSphere Enterprise Service Bus.
- DB2 Enterprise Server Edition—This sample was tested using DB2 Enterprise Server Edition 8.2.6.

This documentation has five sections:

- Introduction—this section.
- Overview—Explains the scenario used in this sample, the Data Model, Human tasks and some installation tips.
- Build It Yourself—Step by step instructions to build the sample from scratch.
- Run the Sample— Run the downloaded artifacts, or the artifacts built in the Build It Yourself section.
- Download the Sample—Explains how to install the downloaded prebuilt solutions for this sample.

Chapter 2. Overview

This sample explains the major steps required to build the MonitorAdapter module, generate the monitor model, augment the monitor model, deploy the monitor model, run test data through the adapter to be consumed by the monitor model, and show monitoring results on a dashboard.

Here is a summary of the scenario used in this sample. When a new customer record is added to a database table, a JDBC adapter becomes aware of it and sends customer information to a mediation flow to process. In the monitor model, you define metrics to be set from the data issued by the JDBC adapter, and key performance indicators (KPIs) to be set using metric data. You then build a monitor dashboard to display the metrics and KPIs calculated by the monitor model processing.

- The MonitorAdapter module has two components: JDBCInboundInterface and MediationFlow. After a customer record is added to the database table, the JDBC inbound interface operation is activated to invoke the mediation flow with the payload.
- Based on the SCA operation and mediation flow, a monitor model is generated. In the Monitor Model Editor, you will add metrics to the generated monitor model to monitor the data from the adapter and mediation flow.
- To see the resulting metrics and KPIs, use the Instances view and the Dimensional view in the dashboard.

In this lab, you will create a J2EE application using WebSphere Integration Developer. In the application, the JDBC adapter acts as an event resource to fetch data from a database and then send that data to the mediation flow which emits CBEs containing the business data from the database.

Then you will create a monitor model and define the metrics.

After that you will deploy the application and monitor model to WebSphere Business Monitor test environment server.

You will then use db2 commands to trigger the monitored application to submit events.

Finally, you will configure dashboards in the WebSphere Integration Developer test environment and view the monitored data in several different views.

Chapter 3. Build it yourself

Build the sample, and then test it.

Prerequisite: Ensure that you have installed all the products listed in the Overview section.

Start building the Adapter sample by creating the DB2 resources, the adapter, and the mediation flow for your sample.

Create the DB2 artifacts for the sample

Before creating the module, you must created the DB2 artifacts for the adapter.

Create the DB2 artifacts that you will use for the sample by performing the following steps:

- Open the DB2 Control Center and right click on All Databases and select Create Database → Standard.
- 2. Type ADAPTER for the database name and click Finish.
- 3. Wait for the database to be created the click No.
- Open a DB2 command window and run the following commands: db2 connect to ADAPTER user db2admin using <db2 password>

```
db2 -tvf c:\<path>\MonitorAdapter_db2.sql
```

```
db2 disconnect ADAPTER
```

The MonitorAdapter_db2.sql file contains the following information:

```
CREATE TABLE customer
pkey VARCHAR(10) NOT NULL PRIMARY KEY,
fname VARCHAR(20),
lname
       VARCHAR(20),
ccode VARCHAR(10)
);
CREATE TABLE WBIA_JDBC_EventStore
event_id
              INTEGER NOT NULL GENERATED ALWAYS AS IDENTITY (START WITH 1, INCREMENT
       VARCHAR(200),
xid
               VARCHAR(80) NOT NULL,
object key
              VARCHAR(40) NOT NULL,
object name
object function
                  VARCHAR(40) NOT NULL,
event priority
                    INTEGER NOT NULL,
event time
             TIMESTAMP default CURRENT TIMESTAMP NOT NULL,
event status
                          NOT NULL,
              INTEGER
event comment VARCHAR(100)
);
CREATE TRIGGER event create
```

```
AFTER INSERT ON CUSTOMER REFERENCING NEW AS N
```

FOR EACH ROW MODE DB2SQL INSERT INTO wbia_jdbc_eventstore (object_key, object_name, object_function, event_prior

Create a new Mediation module for the JDBC adapter

To skip the steps for creating this module, you can import the supplied project interchange file (MonitorAdapter.zip) into WebSphere Integration Developer. Refer to Downloading, then go to Test.

- 1. Start WebSphere Integration Developer and change the current perspective to Business Integration.
 - a. Click Window > Open Perspective > Other.
 - b. Select Business Integration (default), and click OK.
- Right-click in the Business Integration view, then click New → Mediation Module.

Business Integration - IBM File Edit Navigate Search Pro	WebSphere Integ Dject Da <u>t</u> a <u>R</u> un	gration Developer 6.1 - C:\doci Window Help	uments\wid6.1\workspace\	WID1127_MonAdapter2
111 × 121 초 22 × 전 + *+ + + + +] 🛛 •] 🗉] 💁 •] 🗊] 🕾 🖋] 🔁 🛛] 🥹	😭 🐯 Business Inte
Business X Physical				- 0
-	New > Open Copy Easte Eelete	Business Monitoring Project Component Test Project From Patterns Library Mediation Module Conduct		
Refe X Outline Visu	Build Path	Project Other	ers 23 Console	☆○ ◇ ▲ 印 [□] E
Select something in the workbenc	Refresh	WebSobere Buciness Monitor Ser	Status	State
	Properties	WebSphere Business Monitor Ser WebSphere ESB Server v6.1 WebSphere Process Server v6.1	Stopped	Republish Republish Republish Republish
O items selected			<u> </u>	•

- 3. Type MonitorAdapter for the name of the new mediation module and select **WebSphere ESB Server 6.1** as the target runtime.
- 4. Click **Finish** to create the new module.

Add the JDBC adapter

Add a JDBC Adapter external service to the mediation module and deploy the mediation module.

1. Right click MonitorAdapter and select New -> External Service.



- 2. Select Adapters and click Next.
- 3. Select IBM WebSphere Adapter for JDBC and click Next.
- 4. Select WebSphere ESB Server v6.1 for the Target runtime and click Next.
- 5. Click Add, locate and select the db2jcc.jar and db2jcc_licence_cu .jar files in the DB2 installation directory and click **Open** to add the JDBC driver jar files and click **Next**.



- 6. Select Inbound and click Next.
- 7. Select **DB2 UDB** → **V8.2** from the database list and type ADAPTER for the database, type the DB2 admin user name and password.
- 8. Click Next, then click Run Query to find the table lists. Select DB2ADMIN → Tables → CUSTOMER and click > to add CUSTOMER to the Selected objects list. Click Next.
- 9. Click Next.
- **10**. In the Service Generation and Deployment Configuration window, enter the following values:
 - a. For J2C Authentication Data Entry, type
 NodeName>/JDBCAdapter/
 inbound, where
 NodeName> is the node name of the WebSphere
 Application Server that will run the MonitorAdapter module. The node
 name for the Monitor Server on WebSphere ESB defaults to
 WBMonSrv_esb_Node.
 - b. Enter the password for the DB2 Admin User name.
 - c. Click **Advanced** and expand **Advanced connection configuration** and type jdbc/DB2XA as the Datasource JNDI name. You will create this datasource later.

🚯 External Service						×
Service Generation and Specify properties for generating	d Deployment (g the service and runn	Configurat ning it on the :	on erver.		6	-
User name: Password:	, db2admin ******				_	-
<< Advanced						
Event polling confi	guration					
Event delivery con Advanced connect	figuration					
Datasource JNDI r Additional JDBC dr	name: 'iver	jdbc/DB2XA				
connection prope [name:value;name SOL query to verif	rties e:value]: v the connection:	I			_	
Query timeout (se	conds):	, 				
Return business o stored procedure	bject even when the result set is empty:	false			•	•
				1 1		_
3		< <u>B</u> ack	<u>N</u> ext >	Einish	Cancel	

11. Click Next and then click Finish.

Create the mediation flow

Now create the mediation flow.

1. The Assembly Diagram editor is open. There are two elements: JDBCInboundInterface, which was created when you added the adapter, and MonitorAdapter, which was created when the module was initially created.

🚯 Business Integration - MonitorAdapte	r - Assembly Diagram -	IBM WebSphere Integration Developer (6.1 - C:\documents\wid6
<u>File Edit N</u> avigate Se <u>a</u> rch <u>P</u> roject Da <u>t</u> a	<u>R</u> un <u>W</u> indow <u>H</u> elp		
] 📬 📲 👛] 🛃 🔹] 😭]	🌯 •] 🕘] 🖓 🔗] 🗟 •] 🥹	🔛 🐯 Business Inte
] 웹 포 웹 포 약 수 포 하 포] 💝 🦄			
🕼 Business 🕅 Physical 🖓 🗖	📲 *MonitorAdapter - Ass	embly Diagram 🗙	- 8
2 ⊕ ⊖ 3 ⊡ \$ ▼	Palette Palette	(1) There is a new element that	t has been added to your module. 🛛
E B CWYBC_JDBC	Eavorites		
		DBCInboundInterface	
	Mediation Flow		
🗄 💆 Mediation Logic	🛃 Java		
Data Types			
A Mapping	Lexport		MonitorAdapter
	References		
	Co. O. Albanard Advantages		
	Build Activities Properties	Problems 🖧 Servers 🛛 Console	<u> </u>
	Server	Status	State
MonitorAdapte	WebSphere Busin	ess Monitor Ser 👝 Stopped	Synchronized
	WebSphere Busin	ess Monitor Ser 💼 Stopped	Republich
	WebSphere Proce	iss Server v6.1 🖶 Stopped	Republish
	•		
		l.	

- 2. Right-click **MonitorAdapter** and select **Rename**. Type MediationFlow and press Enter.
- **3**. In the diagram, link **JDBCInboundInterface** to **MediationFlow** using the Wire tool. In response to the prompt, click **OK**.
- 4. Change back to the Selection tool on the Palette and then right-click **MediationFlow** and select **Regenerate Implementation**.



5. Click **OK** at the prompt.

- 6. In the Mediation Flow Editor window, click **createDb2adminCustomerBG** and you see a source operation for createDb2adminCustomerBG.
- 7. In the flow, right-click and select $Add \rightarrow Stop$.
- 8. Connect the out terminal of **createDb2adminCustomerBG** to the input terminal of **Stop1**.

le <u>E</u> dit <u>N</u> avigate C C · C C 성 · 제 · · · · ·	search Project Data Run Window Help @ ▼ ☆ @ @ ↓ 0 @ ∧ □ ▼ → ▼ ◇ ☆ ☆ ☆ □	
Admin Console	🕄 MonitorAdapter - Assembly Diagram 🤷 *Mediation Flow Editor: Me	adiationFlow 🗙 🖓 🖻 🗗
Operation conn Select a source ope JDBCInbound createDb2adm updateDb2adm	ections 🔊 🗊 🦧 ≍ (ation, connect it to one or more target operations, and define the mediation fl Interface nCustomerBG inCustomerBG	ow.
adeleteDb2adm	nCustomerBG	
Parette Parette	rreateDb2adminC	 Mediation Flow References Correlation Co Cont specified> Transient Con Shared Context Shared Context
Doquetu errete		

- 9. Save the Mediation and then click MonitorAdapter:Assembly Diagram.
- 10. Click MediationFlow and in the Properties tab select Details. Go toInterfaces
 → JDBCInboundInterface → createDb2adminCustomerBG and click the Event Monitor tab. Select All for Monitor and select Full for Event Content.

👍 Business Integi	ation - MonitorAdapter - Assembly Diagram	- IBM WebSphere Integration Developer 6.1	- C:\documents\wid6
<u>Eile Edit N</u> avigate	Se <u>a</u> rch <u>P</u> roject Da <u>t</u> a <u>R</u> un <u>W</u> indow <u>H</u> elp		
📬 🕈 🔛 👛	🛃 • 🖆	💁 + 🗊 🖉 🛷 🔂 + 🎱 👘	📑 🐯 Business Inte
[ha + 전 + *=	(
Build Activities	Properties × Problems Servers		~ - ₽)
Description	🔁 Component: MediationFlow (M	lediation Flow)	
Details	🕞 🔞 Interfaces	Details Qualifiers Event Monitor	
Implementation	DBCInboundInterface	General Global Event Settings	
	deleteDb2adminCustomerBG	Destination: CEI	
	References	Monitor	Event Conten
		O None	
			Full
		O Selected	
		Entry	Full
		Exit	Full
		E Failure	Full
			-
			<u> </u>
] 🗗 🕈		1	

- 11. Click the **Global Event Setting** tab. The default event format is WebSphere Business Monitor 6.1 format.
- 12. Save the assembly diagram.

Generate a monitor model from the MonitorAdapter module

You will use the WebSphere Business Monitor tooling in WebSphere Integration Developer to generate a starter monitor model from the MonitorAdapter module and then you will use the Monitor Model Editor in WebSphere Integration Developer to enhance the monitor model.

- Right-click MonitorAdapter and select Monitor Tools → Generate Monitor Model.
- 2. Click New project.
- 3. For the name of the new business monitoring project, type MonitorAdapterBM. Click Finish.
- 4. For the name of the monitor model name, type MonitorAdapterMM. Click Next.
- 5. Select JDBCInboundInterface.createDb2adminCustomerBG and click Emitted Events.
- 6. Click Select All and then click Next. Click Next again.
- 7. Click Expand All to see the elements of the Monitor model. Click Finish.

Generate Monitor Model		×
Preview the monitor model This preview shows the monitor model that will be generated. You can go back and make changed	ges, or click Finish to generate the monitor model.	
MonitorAdapterMM MonitorAdapterModule WBISESSION_ID JOBCInboundInterface.createDb2adminCustomerBG JOBCInboundInterface.createDb2adminCustomerBGENTRY JDBCInboundInterface.createDb2adminCustomerBGEXIT JDBCInboundInterface.createDb2adminCustomerBGFAILURE		
Expand All Collapse All		
0	<back mext=""> Einish</back>	Cancel

- 8. Click Yes to go to the Business Monitoring perspective.
- 9. For this sample, click **No** for the getting started information.

Add trigger and metrics to the monitor model

Add a trigger and metrics to the model so that it can be tested later.

1. Right-click **MonitorAdapterModule** and select **New** → **Trigger**.

	1011	·] @] XI.	· · · · · · · · · ·	Han 144 I	ess Inte
Project 🛛 🦳 🗖	🐴 MonitorAdapterMM 👂	3			-
	Monitor Details	s Model			
MonitorAdapter MonitorAdapter	🖂 🖳 MonitorAdapte	rMM	 Monitoring Contex Edit the details of the n 	xt Details nonitoring context, which contains	the information fo
🗄 🗘 Event Definitions		New		Trigger	
Honitor Models	⊞ 🖓 JDBCJ	Synchronize wi Update from A	th Application pplication - MonitorAdapter	P Inbound Event Outbound Event Event Group	
		Filter		deric Metric	
		Copy		🧽 Кеу	
		Paste		013 Counter	
		💥 Delete		(1) Stopwatch	
		🛋 Search referen	ces	Monitoring Context	
		Expand-all		t	vitor alamant
	<u>+</u>			- een application element and mon	itor element.
	Monitor Details Model	Undo:		Nodel MonitorAdapterMM.mm	
		Revert			-
	- Monicoring riow 23	The York			
		Save			
	There is no informat	ion to display for th	nis element.		

- 2. For Name, type JDBCInbound Entry Trigger and then click OK.
- On the right panel, click Add. Select JDBCInboundInterface.createDb2adminCustomerBGEntry and then click OK.
- 4. Add the FName metric using the following steps:
 - a. Right-click MonitorAdapterModule and select New-> > Metric.
 - b. For the Name, type FName Metric. Click OK.
 - c. On the right panel, click Add under Metric Value Expressions.
 - d. Click in the space under Trigger. Click ... and select **JDBCInbound Entry Trigger**. Then click **OK**.
 - Click in the space under Expression and press Ctrl+Spacebar to use the content assist function. Go to MonitorAdapterMMMonitorAdapterModuleJDBCInboundInterface.createDb2adminCustor Db2adminCustomer:Db2adminCustomer.
 - f. Double click **fname**. The FName Metric is finished and will be assigned the fname from the service data object received from the adapter.
- 5. Add the LName Metric with JDBCInbound Entry Trigger and expression using the same process.JDBCInboundInterface.createDb2adminCustomerBGENTRY.createDb2AdminCustomerInput:D
- Add CCode Metric with JDBCInbound Entry Trigger and expression JDBCInboundInterface.createDb2adminCustomerBGENTRY.createDb2AdminCustomerInput:Db2Admin Select A value is required for this metric and type 'notspecified' for the Default Value.
- 7. Add Is Gold Customer Metric. Set the type to Boolean with the trigger JDBCInbound Entry Trigger and the following expression:

```
if (JDBCInboundInterface.createDb2adminCustomerBGENTRY/
createDb2adminCustomerBGInput/Db2adminCustomer eq 'Gold')thentrue()else
false()
```

8. Save the monitor model.

Add Dimension

Add a dimension to the monitor model.

1. Switch to the Dimensional panel by clicking **Dimensional Model** in the bottom of MonitorAdapterMM view.

🚯 Business Monitoring - Mon	itorAdapterMM - IBM WebSphere	e Integration Develo	oper 6.1 - C:\documents\wid6.1\works	pace\WID 📕 🗗 🗙
<u>File Edit Navigate Search E</u>	Project Data <u>R</u> un <u>W</u> indow <u>H</u> elp			
] 🔁 • 🔛 🖾] 🎱] 🔗] 🔁 •] 🕘] 💁 •] 🗃]	친 - 친 - 🏷 -	⇔••• ∕ 🖺 🖬	Business Inte
Project 🛛 🗖 🗖	(Reference) MonitorAdapter - Assembly Diagra	am 🧖 *MonitorA	dapterMM 🗙	- 0
	Dimensional Model			
🗄 🤔 MonitorAdapter	MonitorAdapterMM	💌 Monitor Detai	ls	<u>*</u>
🗄 🎒 MonitorAdapterBM	MonitorAdapterModule Cut	Edit the details of t	he model. The timestamp is required to identi	fy the version of the
Event Derinitions		ID:	* MonitorAdapterMM	
SVG Files		Name:	MonitorAdapterMM	
		Description:		
		Time Stamp (UTC):	* 2007-11-28T13:39:14Z	
		 User-Defined 	XPath Functions	
		Shecify and accion	a profix to the user-defined function libraries	that are available fr
<u>•</u>	Monitor Details Model KPI Model Din	nensional Model Visual	Model Event Model MonitorAdapterMM.mm	
	Monitoring Flow 83 Propertie	s Problems Servers	S Console	- 0
No information is available.	There is no information to displa	y for this element.		
			J	

- Right click MonitorAdapterModelCube in the Dimensions panel. Select New
 -> Dimension and type CCode Dimension as the name. Click OK.
- 3. Right click **CCode Dimension**, select **New** → **Dimension Level**, type CCode Dimension Level and select **CCode Metric** as the metric
- 4. Click OK.
- 5. Right click **MonitorAdapterModule Cube**, select **New** → **Measure**and type FName Count Measure for the Name. Select Fname Metric as the Source Metric
- 6. Click OK.
- 7. Press **Ctrl+S** to save the monitor model.
- 8. Right-click **MonitorAdapterMM.mm** on the Project Explorer. Select **Generate Monitor J2EE projects**.
- 9. Click OK and then Finish.
- **10.** Go to the Business Integration view, you can see that several projects have been generated.

	acion Developer on - c. (documents	s (wide, L (workspace (wid) 120)	/_MonAdapter
<u> Edit N</u> avigate Se <u>a</u> rch <u>P</u> roject Da <u>t</u> a <u>R</u> un <u>V</u>	<u>V</u> indow <u>H</u> elp		
111 · □ ▲ 近 · □ · ☆ ↓ ↓ · · · ·] 🖾 •] 🗉] 💁 •] 🗊] 🖉	8 🖋] 🔂 •] 🧕 🏑	📑 🖳 Business Moni
Business Integr X Physical Resour	▽		- 8
CWYBC_DBC MonitorAdapter/MMApplication MonitorAdapter/MMModelLogic MonitorAdapter/MMModerator			
References 🕄 Outline Visual Snippets 🧮	Build Activities Properties 3	Problems Servers	
References 🔀 Outline Visual Snippets 🖛	Build Activities Properties 23	Problems Servers	
🖻 References 🕄 Outline Visual Snippets 😑 [Build Activities Properties 3	Problems Servers Value	
References Outline Visual Snippets	Build Activities Properties 83 Property Info derived	Problems Servers Value	
References Outline Visual Snippets	Build Activities Properties 3	Problems Servers Value false true	H P C
References 23 Outline Visual Snippets 2 6	Build Activities Properties 3	Problems Servers Value false true 12/11/07 3:05 PM	E P C
References Outline Visual Snippets	Build Activities Properties Property Info derived editable last modified linked	Problems Servers Value false true 12/11/07 3:05 PM false	E ≱ ∝ ⊽ □
References Outline Visual Snippets	Build Activities Properties S Property Info derived editable last modified linked location	Problems Servers Value false true 12/11/07 3:05 PM false C:\documents\wid6.1	Workspace/WID1207_MonAda
References Outline Visual Snippets		Problems Servers Value false true 12/11/07 3:05 PM false C:\documents\wid6.1 MonitorAdapterBM	₩orkspace\WID1207_MonAda
References & Outline Visual Snippets	Build Activities Properties 23 Property Info derived editable last modified linked location name path	Problems Servers Value false true 12/11/07 3:05 PM false C:\documents\wid6.1 MonitorAdapterBM /MonitorAdapterBM	₩orkspace\WID1207_MonAda
References & Outline Visual Snippets C	Build Activities Properties 3	Problems Servers Value false true 12/11/07 3:05 PM false C:\documents\wid6.1 MonitorAdapterBM /MonitorAdapterBM	₩orkspace\WID1207_MonAda

Configure the integrated test environment server

In this section you will configure the test environment server on which you will test the adapter/mediation flow and the monitor model.

- 1. In the Servers view, right-click WebSphere Business Monitor Server v6.1 for WebSphere ESB server and select Start.
- 2. Right-click on the started **WebSphere Monitor Server for WebSphere ESB** and select **Run administrative console**.
- 3. Type in the user ID admin and password admin, and click Log In.
- 4. Create a J2C Authentication Alias.
 - a. In the left hand window, expand **Security** and click **Secure administration**, application infrastructure. Expand Java Authentication and Authorization Service in the right window.
 - b. Click J2C authentication data.
 - c. Click New. Type DB2 for Alias and your DB2 userid and password.
 - d. Click OK.
 - e. Click Save to save the changes directly to the master configuration.
- 5. Repeat steps 4a through 4e for J2C authentication alias JDBCAdapter/inbound. Scroll down to verify the new entries you added.
- 6. Create a JDBC Provider for DB2.
 - a. Expand Resources on the left hand window.
 - b. Expand JDBC. Click JDBC Providers.
 - c. Set the scope to Node=WBMonSrv_esb_Node.
 - d. Click New. For Database type, select DB2, for Provider type select, DB2 Universal JDBC Driver Provider, and for Implementation type, select XA data source.
 - e. Click Next. Type the directory location for the indicated jar files.



- f. Click Next.
- g. Click Finish.
- h. Click Save to save the changes directly to the master configuration.
- 7. Create a data source for the provider just created.
 - a. Click the DB2 Universal JDB Driver Provider (XA).



- b. Click **Data sources**.
- c. Click New.

- d. Type jdbc/DB2XA for JNDI name. This matches the JNDI name you used when configuring the JDBC adapter. Select **WBMonSrv_esb_Node/DB2** as the authentication alias and then click **Next**.
- e. Type ADAPTER for Database name and localhost for Server name.
- f. Click Next and then click Finish.
- g. Click Save to save the changes directly to the master configuration.
- 8. Select the box under **Select** and click **Test connection**. Ensure that the test connection is successful.

3•□≜ •3•*\$> \$> +		⊡ •] ≘] Q •] 🗾	1 68	🛷] 🔂 •] 🥥	E Busin	Business Moni ess Inte
Admin Console							-
tegrated Solutions Console w	elcome admin			Help	Logout		IB)
View: All tasks	JDBC provide	ers					Close page
Welcome	JDBC provide	ens					
E Guided Activities		E Mass	3085				
F Servers		Пт	be test connecti	00.004	vration for data source I	DB2 Universal	IDBC Driver XA
		Data	Source on serve	er serv	er1 at node WBMonSrv	esb Node wa	s successful.
Applications		2400			21.51.55.000.000.0000.000.0 .		
8 Applications 3 Resources	1DPC prov	ident > DP3	Universit 10.8	Detail	- Duridou (VA) > Dut		
Applications Resources © Schedulers ■ Object pool managers ① JMS ■ WebSphere Business Integr 〕 JDBC	JDBC prov Use this p data sourd this task i about the H Prefere	viders > DB2 page to edit t ce object sup in a <u>quided a</u> topic. ences	<mark>: Universal JDB(</mark> the settings of a plies your appli activity. A guided	C Drive i data cation d activi	<u>r Provider (XA)</u> > Data source that is associate with connections for acc ty provides a list of tasl	a sources ad with your se cessing the da k steps and m	lected JDBC pr tabase. Learn iore general in
Applications Resources Schedulers Schedulers JMS WebSphere Business Integr DDBC JDBC JDBC JDBC JDBC	JDBC prov Use this p data source this task i about the Prefere New C	viders > DB2 vage to edit t ce object sup in a <u>quided a</u> topic. ences Delete	t Universal JDB(the settings of a pplies your appli citivity. A guided Test connection	C Drive I data cation I activi	r Provider (XA) > Data source that is associate with connections for acc ty provides a list of task manage state	a sources ad with your se cessing the da k steps and m	lected JDBC pr tabase. Learn iore general in
 Applications Resources Schedulers Object pool managers JMS WebSphere Business Integr JDBC JDBC DB4 sources (WebSpher Server V4) 	JDBC prov Use this p data sourt this task i about the Prefere New C	viders > DB2 wage to edit t ce object supject topic. ences Delete	t Universal JDB(the settings of a plies your appli divity. A guided Test connection	C Drive I data cation I activi	r Provider (XA) > Data source that is associate with connections for acc with connections for acc with connections for acc source that is a set to be Manage state	a sources ed with your se cessing the da k steps and m	llected JDBC pr tabase. Learn tore general in
Applications Resources ■ Schedulers ■ Object pool managers ■ JMS ■ WebSphere Business Integr ■ JDBC ■ JDBC Providers ■ Data sources ■ Data sources (WebSpher Server V4) ■ Business Integration Data	JDBC prov Use this p data sourt this task i about the Prefere New C Select Na	viders > DB2 vage to edit to co object sup in a <u>quided s</u> topic. ences Delete	2 Universal JDB(the settings of a plies your appli ctivity. A guidec Test connection JNDI name ()	C Drive	r Provider (XA) > Data source that is associate with connections for acc with connections for acc with connections for acc to a social associate Manage state	a sources ad with your se cessing the da k steps and m Provider ۞	lected JDBC pr tabase. Learn ore general in Description <
 Applications Resources Schedulers Object pool managers DjMS WebSphere Business Integr DjBC JDBC Providers Data sources Data sources (WebSpher Server V4) Business Integration Date Resource Adapters Asynchronous beans Cache instances Mail 	JDBC prov Use this p data sourt this task i about the Prefere New Select Na Select Na Da	viders > DB2 age to edit (ce object sup topic. ences Delete Delete Constant Constan	Universal JDB(the settings of a pplies your appli ctivity. A guided Test connection JNDI name jdbc/DB2XA	Scope	r Provider (XA) > Data source that is associate with connections for acc ty provides a list of task Manage state Manage state ≥ ≎ =WBMonSrv_esb_Node	a sources ad with your se cessing the da k steps and m Provider DB2 Universal JDBC Driver Provider (XA)	lected JDBC pr tabase. Learn ore general inf Description (DB2 Univers Driver Datasource

9. Restart the **WebSphere Business Monitor Server v6.1 on WebSphere ESB** server.

Chapter 4. Deploy the Adapter/mediation application to the test environment server



1. Right-click on the **Monitor server on WebSphere ESB** and select **Add and Remove Projects**.

- 2. Select **MonitorAdapterApplication** and click **Add** to add the application to Configured projects.
- **3**. Click **Finish**. The project is deployed to the server and started. Ensure there are no error messages in the console.
- 4. To verify that the mediation module and adapter application works correctly, open a DB2 command window and run the following commands: db2 connect to ADAPTER user db2admin using <db2admin password>

db2 insert into customer values ('1', 'Yi', 'Che', 'Regular')

Note: If you see general errors in the console, try removing the MonitorAdapterApp project from the server, then do **Project** → **Clean** → **Clean** all **projects**, then add the project to the server and retry. If you see UNAUTHENTICATED errors in the console. Follow the steps in "Add admin user to Monitor Data Security root group" on page 18 and the retry to clean the projects.

- 5. Right-click the WebSphere Business Monitor Server v6.1 on WebSphere ESB server and select Common Base Event Browser.
- 6. From the left menu of the Common Base Event browser, click **All Events**. The list should include the events related to the record that you just inserted.

3 • 명 ▲ 1 • 전 • ←	, , , , , , , , , , , , , , , , , , ,	End End
Common Base Ev	ent Browser 🗙	•
WebSphere.	software Common Base Event Browser	
Ser Lyenis		USET ID. duitini
Event Views	👾 🧐 🖉 🖻 🗃 💣 🔤 Select Action	Go
<u>User Data</u>	Select ^ Creation Time ^ Name ^ Priority	Severity A Server
Events	2007-12-12T16:55:31.312Z WBLSCA.MethodInvocation.ENTRY	10 WBMonSrv_es
Server Events	C 2007-12-12T16:55:32.812Z WBLSCA.MethodInvocation.EXIT	10 WBMonSrv_e
lumber of	Page 2 of 2 Go Total: 12 Filtered	t: 12 Displayed: 2 Selé ▶
vents. 12	contextDataElement /WBIEventVersion / contextValue 6.1	
	contextDataElement / WBISESSION_ID / contextValue 9.37.220.225; MonitorAdapter;; create	eDb2adminCustomerBG;119747853
	contextDataElement / ECSCurrentID / contextValue 9.37.220.225;MonitorAdapter;null;;ci	reateDb2adminCustomerBG;119747
	contextDataElement / ECSParentID / contextValue 9.37.220.225;MonitorAdapter;;create	eDb2adminCustomerBG;119747853
	reporterComponentid	
	sourcecomponential) component VVPS#Platform 5.1 (ND 5.1.0.13 cm 3	0745.06] (WBI 6.1.0.0 00748.03] (W
	sourceComponential / sourceCom	epspriere/scul/o.o.o.jweulation in low
	sourceComponentid / instanceId WBMonSry esb CellWBMonSry esb	sb Node\server1

Add admin user to Monitor Data Security root group

If you receive UNAUTHENTICATED errors in the console when you have selected the Clean All Projects option, you must add the admin user to the Monitor Data Security root group.

- Right-click on the Monitor server on WebSphere ESB and select Run administrative console. Type in your user ID and password and then click Log in.
- 2. Expand Security and select Monitor Data Security.

Admin Console × Integrated Solutions Console Welcome admin Views All tasks Welcome Guided Activities Servers Applications Resources Security Securi	dministration
New: All tasks Welcome Monitor Data Security Welcome Monitor Data Security Guided Activities Monitor Data Security B Servers Use this page to p security. You can a or view models in infrastructure B Business Integration Security Resource Groups SSL certificate and key management Welcome	Image:
Views: All tasks Monitor Data Security Welcome Monitor Data Security Guided Activities Monitor Data Security Besources Use this page to p security. You can a row works in or view models in or view models in or view models in finfastructure Business Integration Security Resource Groups SSL certificate and key management Well Compared to the security	dministration -
Welcome Guided Activities Guided Activities Guided Activities Monitor Data Security Applications Resources Security Security Secure administration, applications, and infrastructure SSL certificate and key management	dministration ity Administration inform administrative functions for Business Monitor data Id a new resource group, select a resource group to delete, resource group.
Guided Activities Servers Applications Resources Security Business Integration Security Secure administration, applications, and Infrastructure SSL certificate and key management	ity Administration iform administrative functions for Business Monitor data Id a new resource group, select a resource group to delete, resource group.
Servers Monitor Data Security Applications Resources Security Security Security Secure administration, applications, and infrastructure SSL certificate and key management	ity Administration iform administrative functions for Business Monitor data dd a new resource group, select a resource group to delete, resource group.
H Applications Use this page to p security. You can a or view models in a or view models in a or view models. Security Resource Groups B Business Integration Security Resource Groups Security Security B Security Resource Groups Security New Delete SSL certificate and key management Image of the security of the security	oform administrative functions for Business Monitor data dd a nev resource group, select a resource group to delete, resource group.
Resources Security Security Business Integration Security Secure administration, applications, and Infrastructure SSL certificate and key management SSL certificate and key management	ld a new resource group, select a resource group to delete, resource group.
Security Business Integration Security Secure administration, applications, and infrastructure SSL certificate and key management	
Business Integration Security Secure administration, applications, and infrastructure SSL certificate and key management	
Secure administration, applications, and infrastructure SSL certificate and key management	
SSL certificate and key management	
Bus Security	
Monitor Data Security Select Name	
Environment	
Integration Applications	
System administration	
🗄 Users and Groups	
Honitoring and Tuning	

- 3. Click **Root** and then click **Users**.
- 4. Click **OK** and then click **OK** again.
- 5. Right-click on the **Monitor server on WebSphere ESB** and select **Restart** → **Start**.

Chapter 5. Deploy the monitor model application to the test environment server

- 1. Right-click on the **Monitor server on WebSphere ESB** and select **Add and Remove Projects**.
- 2. Select **MonitorAdapterMMApp** and click **Add** to add the application to Configured projects.

🚯 Add and Remove Projects			×
Add and Remove Projects Modify the projects that are configur	ed on the server		
Move projects to the right to configu	re them on the server		
<u>A</u> vailable projects:		Configured projects:	
🗉 🛅 MonitorAdapterMMApplica		🖭 🛅 MonitorAdap	terApp
	A <u>d</u> d >		
	< <u>R</u> emove		
	<< Remove All		
		1	
(?)	< Back Next >	Einish	Cancel

3. Click **Finish**. The project is deployed to the server and started. Ensure you see no error messages in the console.

Chapter 6. Process events to exercise the model

After deploying the monitor model, you can run some events to verify that the monitor model works correctly.

 Open a DB2 command window. Then run the following commands: db2 connect to ADAPTER user db2admin using <db2admin password>

db2 insert into customer values ('3', 'Michael', 'Davis', 'Regular')
db2 insert into customer values ('4', 'Paul', 'Smith', 'Silver')
db2 insert into customer values ('5', 'Joe', 'Williams', 'Gold')
db2 insert into customer values ('6', 'Daniel', 'Johnson', 'Regular')
db2 insert into customer values ('7', 'Tim', 'Ross', 'Gold')
db2 disconnect ADAPTER

2. Wait briefly so that the monitor model can process the generated events.

View the calculated information on a Monitor dashboard in the test environment

- 1. Right click on the **Monitor Server on WebSphere ESB** and select **WebSphere Business Monitor dashboard**.
- 2. Type admin for the user ID and admin for the password and click Login.
- 3. Click Dashboards and click New.
- 4. Type MonitorAdapter for the name and then click OK.
- 5. Add and configure and Instance items.
 - a. Drag the 2nd palette icon (Instances) to Add to Dashboard.
 - b. Click **Personalize** and move some available items to the **Selected** window and then click **OK**.
- 6. Add and configure Dimensions item.
 - a. Drag the 6th palette icon (Dimensions) to Add to Dashboard.
 - b. Click Personalize.
 - c. In Available dimensions, select **Measures** and move it to **Column** dimensions.
 - d. In Available dimensions, select **CCode Dimension** and move it to **Row** dimensions.
 - e. Confirm that the window looks like the following example.

Business Integration - WebSphere Business M e Edit Navigate Search Project Data Run M	onitor Dashboard - IBM WebSphere Integration Developer 6.1 - <u>W</u> indow <u>H</u> elp	C:\documents\wi 📕 🗗
≝ • E ≜ 2 • 7 • ← ← ← + → +] 🖬 •] @] Q •] 🖉] 🥴 🔗] 🔂 •] 🎱	Business Inte
🖇 WebSphere Business Monitor Dashboard 🗙		.
WebSphere Business Monitor		IBM
Welcome admin	Layout assistance 📶 🛛 Dashboard Layout	Help Logout
Getting Started Dashboards Ut	ilities	
Manage MonitorAdapter ×		
Dimensions		Palette
*Monitoring Model:	*Monitoring context:	
MonitorAdapterMM (All Versions)	MonitorAdapterModule	
Available dimensions	Row dimensions	8
CreationTime TerminationTime	CCode Dimension	
\rightarrow	Measures	
T* Done		

- f. Click OK.
- 7. Double click All CCode Dimension.

Chapter 7. Download the sample

Completed samples are available so that you can start at any stage of this tutorial. This section shows you how to import the solutions. After you import the model, you can proceed to the relevant section in the Build It Yourself section to continue development.

You can download the following files.

- MonitorAdapter_db2.sql
- JDBCAdapter_PI.zip

Use the following section to import the model using WebSphere[®] Integration Developer.

Import the J2EE application solution into WebSphere Integration Developer

A solution has been provided so that you do not have to build the J2EE application from scratch. This section shows you how to import the application into WebSphere Integration Developer and generate J2EE projects for deployment.

- 1. Start WebSphere Integration Developer and set up the environment.
 - a. Start WebSphere Integration Developer V 6.1, and when prompted, point to a new workspace, such as C:\workspaces\MonitorAdapter.
 - b. Close the Welcome tab.
- 2. Select File > Import, then select Other > Project Interchange and click Next.
- **3.** Click **Browse**. Locate and select the project interchange file named MonitorAdapter.zip.
- 4. Click Select All and then click Finish. Wait for the projects to be built.

		-
mport Projects Import Projects from a	zip file.	ļ
From zip file: Project location root:	C:\dev\MonitorAdapter.zip C:\Documents\wid6.1\workspace\WID61gm_MonAdapt	Browse
CWYBC_JDBC	C ter	
🗹 🗁 Monitor Adapi	terBM	
I		
Select All Deselect	t All Select Referenced	
Select All Deselect	t All Select Referenced	

- In the Business Monitoring perspective, right-click the MonitorAdapterMM.mm and select Monitor Tools → Generate Monitor J2EE Projects.
- 6. Click Finish.