

Course Exercises Guide

Development and Administration of Applications with IBM Business Monitor V8.5.7

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Exercises description

This course includes the following exercises:

- Exercise 1: Exploring IBM Business Monitor
- Exercise 2: Creating a monitor model
- Exercise 3: Selecting events and generating a monitor model
- Exercise 4: Creating triggers in a monitor model
- Exercise 5: Creating metrics in a monitor model
- Exercise 6: Deploying and running the monitor model and the application
- Exercise 7: Building dashboards in IBM Business Monitor
- Exercise 8: Monitoring events from a BPEL process
- Exercise 9: Processing events from IBM Integration Bus
- Exercise 10: Monitoring events from a BPMN process
- Exercise 11: Monitoring events from JMS emitter and REST emitter.

How to follow the exercise instructions

Exercise structure

Each exercise is divided into sections with a series of steps and substeps. The step represents an action to be performed. If required, the substeps provide guidance on completing the action.

Example

Sample steps

- 1. Create a user account named **ADMIN**.
 - a. Right-click **My Computer** and click **Manage** from the menu.
 - b. Expand **Local Users and Groups**.

...continue

In this example, the creation of a user account is the action to be performed. The substeps underneath provide specific guidance on how to create a user account. (In this example, the instructions are for Windows operating system.) Words that are highlighted in bold represent menu items, field names, and other elements.

Each step and substep is preceded by an underscore. You are encouraged to use these markers to track your progress. As you complete a step, place an X or a check mark on the underscore to indicate that it is completed. Tracking your progress in this manner enables you to stay focused in case of interruptions during a lengthy exercise.

User IDs and passwords

Here is a list of user ID and password information for this course.

Entry point	User ID	Password
VMware image	Administrator	passw0rd
Windows 2012 R2	Administrator	passw0rd
Administration console for Monitor Server test environment	admin	web1sphere
Administration console for Process Server test environment	admin	web1sphere
Business Space	admin	web1sphere
Administration console for IBM BPM Server	bpmadmin	web1sphere
Process Designer	bpmadmin	web1sphere

Exercise 1. Exploring IBM Business Monitor

Estimated time

01:30

Overview

In this exercise, you examine the core features of IBM Business Monitor and how they function.

Objectives

After completing this exercise, you should be able to:

- Examine a monitor model in the IBM Business Monitor Toolkit for IBM Integration Designer
- Install a monitor model in IBM Business Monitor
- Generate events
- Create a business space dashboard to view performance-related data

Introduction

The value from business activity monitoring increases as the range of activities and events that can be monitored increases. IBM Business Monitor provides new ways of gaining access to more events and data to make KPIs and personalized dashboards a more comprehensive representation of business performance.

To monitor your operations, IBM Business Monitor:

- Captures business-related data that you request from business applications. The Business Monitor model, which you define and install, references these business data elements.
- Extracts the measurement variables from the data.
- Transforms the variables into metric and KPI values.
- Displays the measurement values on your dashboard.
- Provides business intelligence insight through dimensional analysis and reporting.
- Enables you to define actions to take when specified situations occur.
- Identifies and notifies you of operation failures for inspection and analysis.

Requirements

Completing the exercises for this course requires a lab environment. The environment includes the exercise support files, Internet Explorer, IBM Process Server, and IBM Business Monitor test environments.

Exercise instructions



Important

The exercises in this course use a set of lab files that might include scripts, applications, files, solution files, PI files, and others. The course lab files can be found in the following directory:

C:\labfiles for the Windows platform

/usr/labfiles for the Linux platform

The exercises point you to the lab files when you need them.

Background on the mortgage lending application

This industry-specific Business Monitor model sample for IBM Business Monitor contains a custom mortgage lending model and dashboards for the banking industry. This sample Business Monitor model highlights some of the features and capabilities of IBM Business Monitor. The Business Monitor model and dashboards included in this sample can be extended and customized based on your needs.

The sample model, MortgageLenderBAM, is a banking model that illustrates an aspect of the mortgage lending process. The model shows status of completed loans and loan amounts that are applied for, in addition to other relevant metrics, and key performance indicators (KPIs). The model also includes error situations such as invalid applications that enter the automated loan process, and diagrams to describe the lending process.

The mortgage lending Business Monitor model refers to industry-specific terms and phrases. Becoming familiar with these terms and phrases helps you understand the concepts and tasks that are associated with this Business Monitor model.

Borrower:

An individual who applies for and receives funds in the form of a loan, and is obligated to repay the loan in full under the conditions of the loan.

Creditor:

A creditor is someone to whom you owe money.

Net tangible benefit (NTB):

Although there is no precise standard to determine what constitutes a reasonable net tangible benefit, lending institutions consider that a loan can benefit a borrower by:

- Reducing monthly payments on existing loans or debts
- Providing extra cash for use when the borrower wants
- Paying off other creditors
- Lowering the interest rate on existing loans or debts
- Allowing the borrower to cure defaults on other loans or debts
- Allowing the borrower to purchase real property

72-hour clause:

Wording in a purchase contract when the purchase of a home is contingent on the sale of the current home of the buyer. The seller accepts the offer but reserves the right to accept a better offer if one comes along. If a better offer does come along, the 72-hour clause gives the first buyer three days to commit to the purchase or give up the offer and allow the second buyer to proceed.

Print 72-hour documents:

The process to print documents that support the 72-hour clause. This clause is designed to protect the seller from losing valuable marketing time during the real estate negotiation period. If a buyer has a house on the market, the seller accepts the offer from that buyer, but reserves the right to accept a better offer if one is presented. In that case, the seller gives the first buyer 72 hours to commit to the purchase or allow the second offer to prevail.

Point-of-sale (POS) fees:

The closing costs that are associated with the loan that are estimated when the loan sale takes place. The variance from the actual fees that are calculated during the loan setup process is tracked.

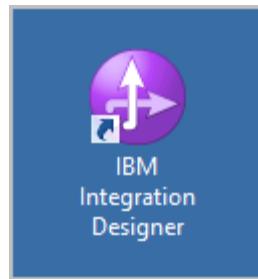
Real property:

Real property includes land and things that are permanently attached to the land, such as trees, buildings, and stationary mobile homes.

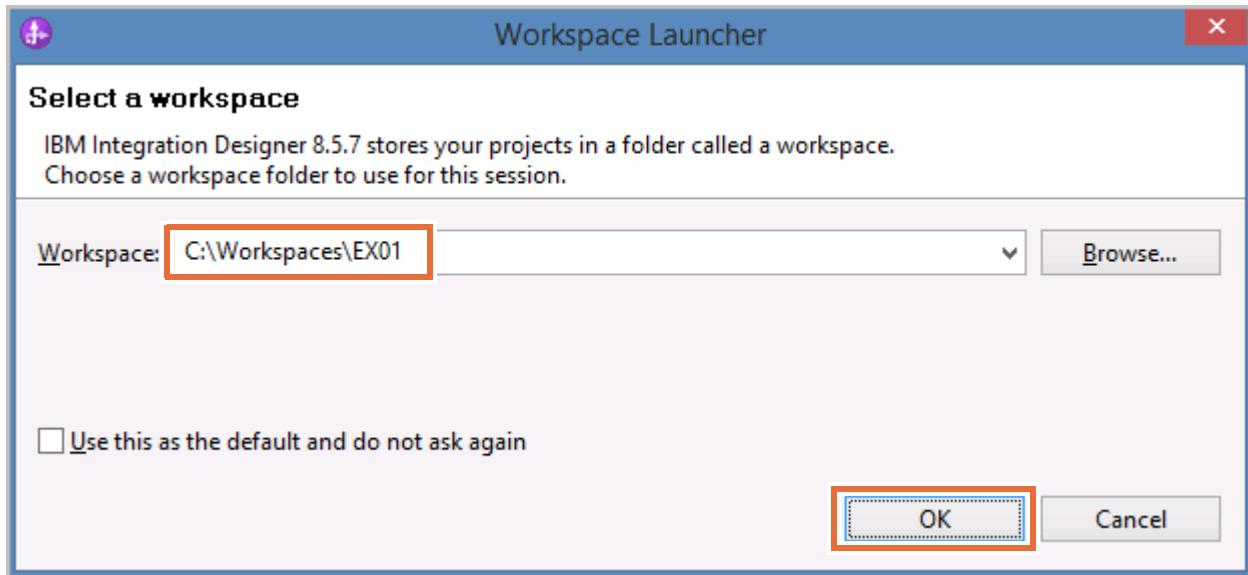
Part 1: Examining the Business Monitor model in the IBM Business Monitor Toolkit

In this portion of the exercise, you start IBM Integration Designer and import a Business Monitor model project into the workspace. An Eclipse workspace is a collection of projects and other resources that you are currently developing in the workspace. A workspace corresponds to a directory in the file system that contains all of the various source files and resources that are used in a project. In addition, your workspace contains any preferences that you set.

- 1. Start IBM Integration Designer and create a workspace.
 - a. On your desktop, double-click the shortcut that is labeled **IBM Integration Designer**.



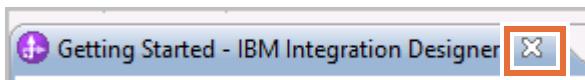
- ___ b. In the **Workspace Launcher** dialog box, change the default **Workspace** location to C:\Workspaces\EX01 and click **OK**. The path does not currently exist, but is created in the file system.



Note

When you create a workspace in a Windows environment, ensure that the file path length does not exceed the Windows limitation of 256 characters. Failure to use short workspace file paths can lead to problems when building, deploying, or deleting your applications.

- ___ c. When the “Getting Started- IBM Integration Designer” page is displayed, close it by clicking the X on the **Getting Started - IBM Integration Designer** tab.

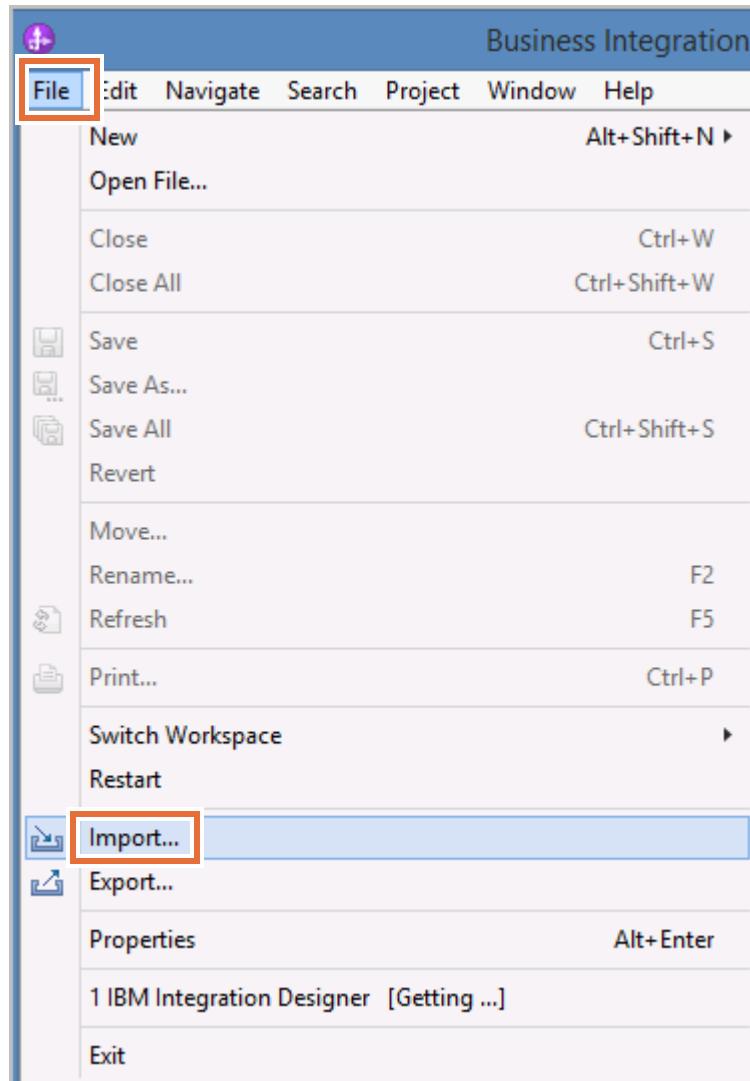


Note

The next time that you open your workspace, the Welcome page is not displayed, but you can open it by clicking **Help > Getting Started > IBM Integration Designer** from the menu bar.

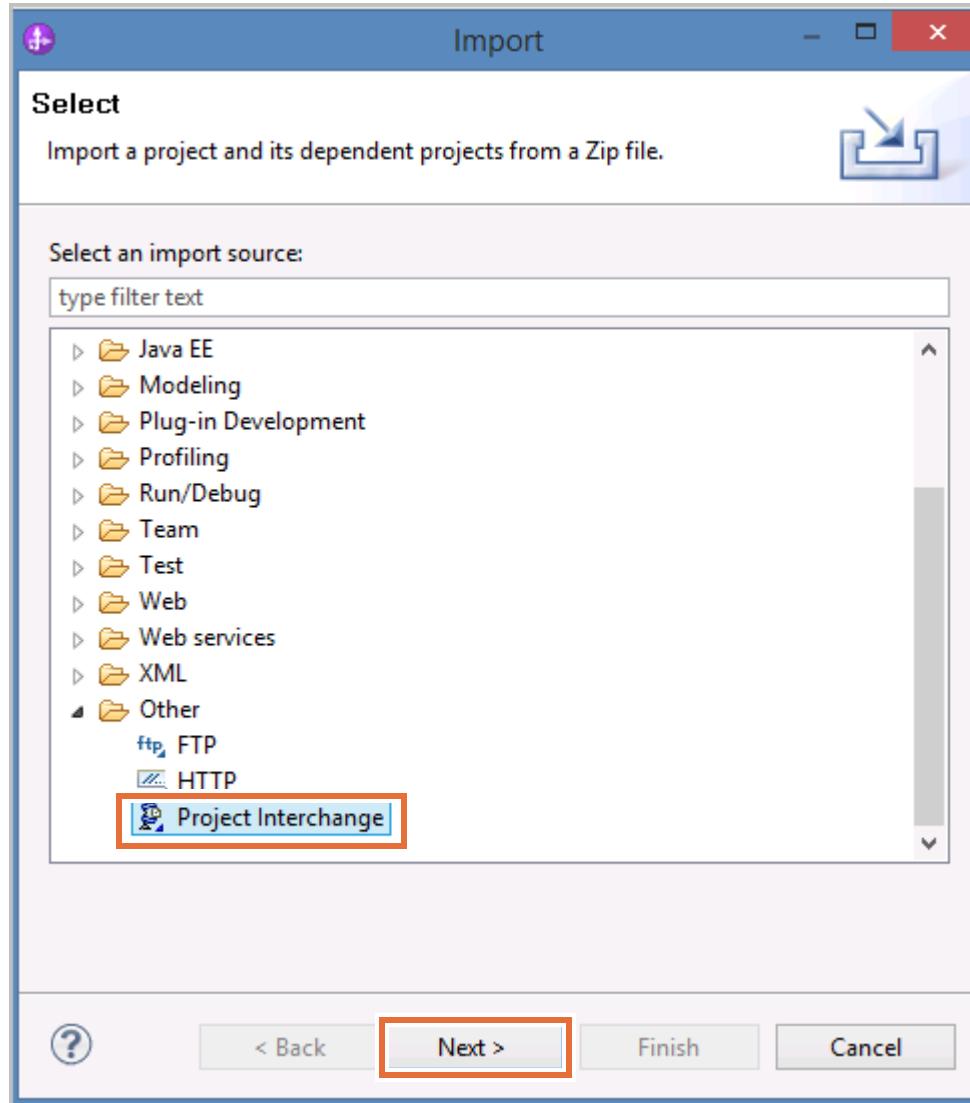
__ 2. Import the mortgage application project into your workspace.

__ a. Click **File > Import** from the menu.

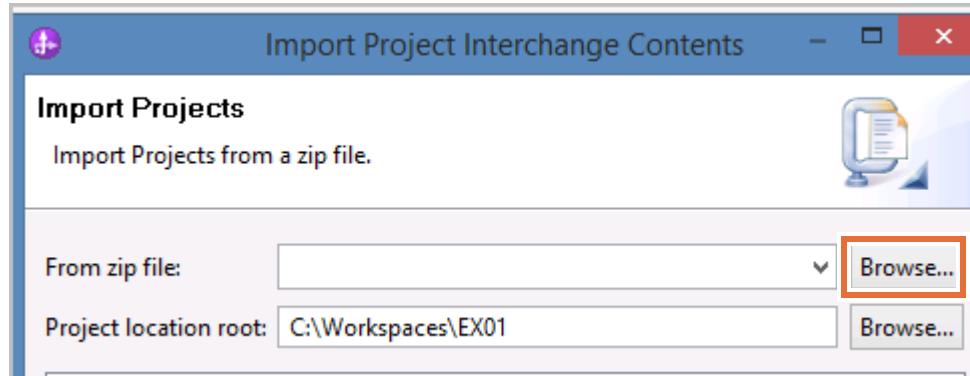


__ b. In the Import window, expand **Other** and then select **Project Interchange**.

__ c. Click **Next**.



__ d. From the right of the **From zip file** field, click **Browse**.

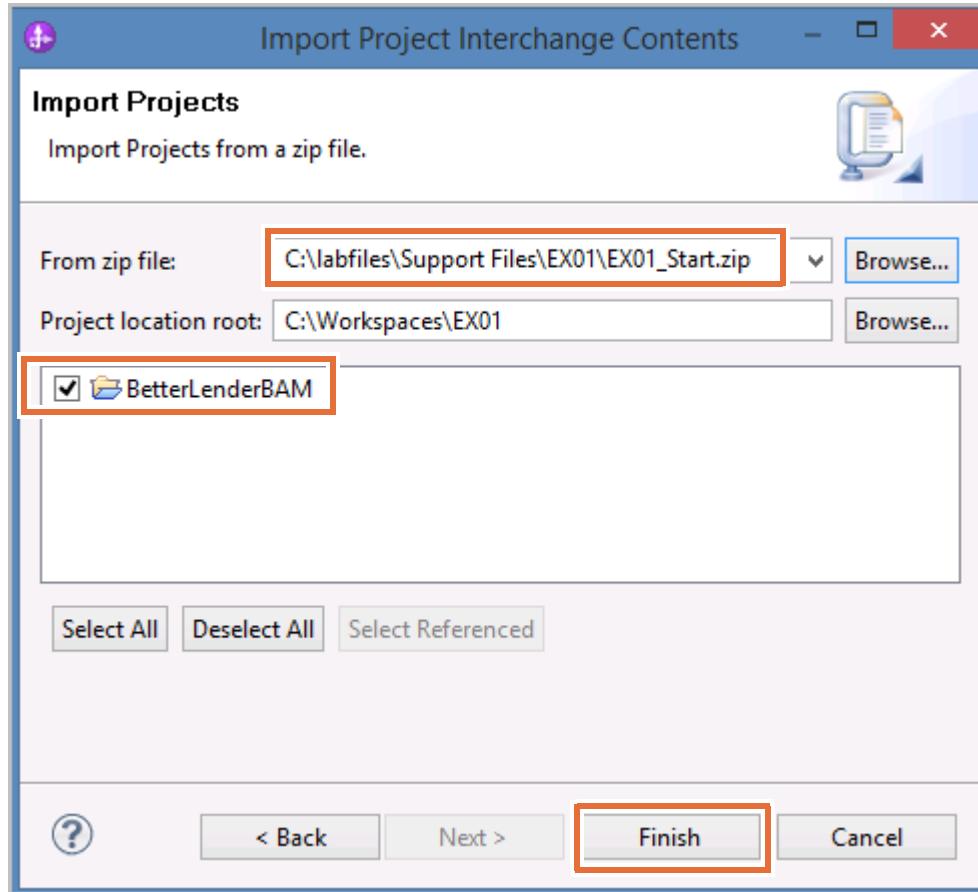


__ e. Go to C:\labfiles\Support_Files\EX01 and select **EX01_Start.zip**.

__ f. Click **Open**.

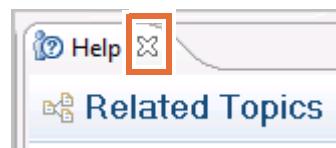
__ g. Select **BetterLenderBAM** (or click **Select All**).

- __ h. Click **Finish**, and wait for the import process to complete and for the workspace to build.

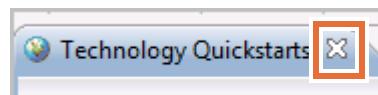


- __ 3. Switch to the **Business Monitoring** perspective.

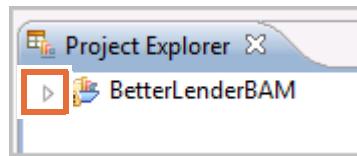
- __ a. From the menu, click **Window > Open Perspective > Business Monitoring**. If indexing help starts (indicated at the lower-right corner), then wait until the indexing is complete at 100%. It can take a few moments.
- __ b. When the Help view is displayed, close the **Help** view by clicking **X** on the tab.



- __ c. When the Technology Quickstarts view is displayed, close the **Technology Quickstarts** view by clicking **X** on the tab.



- ___ d. In the **Project Explorer** view, expand **BetterLenderBAM** by clicking the triangle sign to the left of the project.



Part 2: Exploring the components of a business monitoring project

Monitor model projects are composed of the following elements:

- Event definitions
- Monitor models
- Scalable Vector Graphics (SVG) files

Event definitions

Each inbound and outbound event in the Monitor model refers to a particular event definition that defines its structure. Event definitions can be found in XML Schema Definition (XSD), events that conform to the Common Base Event specification, Web Services Description Language (WSDL) files, or a combination.

IBM Business Monitor can monitor XSD events that use Dynamic Event Framework (DEF) style events and events that conform to the deprecated Common Base Event specification. The XSD type is a generic XML Schema Definition. The XSD type is used with the new Dynamic Event Framework style events, which is discussed later in the course.

XSD events can be made up of fragments of structures that exist for other purposes; for example, business objects for passing data through an application. You can also reference standard XSD event definitions from the XML catalog, which is a storage repository for commonly used schemas and other definitions.

To view event definitions in the mortgage lending application:

- ___ 1. In the **Project Explorer** view, expand **BetterLenderBAM > Event Definitions**, double-click the event definition **mortgageLendingProcessEvent.cbe**, and examine the data that is contained within the event.

Name*	mortgageLendingProcessEventShowcase													
Parent*	event													
<table border="1"> <thead> <tr> <th colspan="2">Property</th> </tr> </thead> <tbody> <tr> <td>Extended Data</td> <td>Type</td> </tr> <tr> <td>loan number</td> <td>string</td> </tr> <tr> <td>loan officer</td> <td>string</td> </tr> <tr> <td>date started</td> <td>dateTime</td> </tr> <tr> <td>date completed</td> <td>dateTime</td> </tr> </tbody> </table>			Property		Extended Data	Type	loan number	string	loan officer	string	date started	dateTime	date completed	dateTime
Property														
Extended Data	Type													
loan number	string													
loan officer	string													
date started	dateTime													
date completed	dateTime													

If time permits, feel free to explore other event definitions (with the file type .cbe) under the **Event Definitions** hierarchy by double-clicking them.

- 2. When you are finished examining the event definitions, close each of the event tabs that were opened. You can also right-click any of the tabs of the open event definitions and click **Close All**.
- 3. Collapse the Event Definitions tree view by clicking the rotating triangle sign to the left of the project.

Monitor models

A Monitor model describes metrics and key performance indicators (KPIs). These metrics are collectively called business measures. The model also describes the dependencies on incoming events, conditions that warrant business actions (business situations), and outbound events that report such conditions and might trigger business actions.

Specifically, the Monitor model describes how to complete these steps:

1. Gather information from events to be stored in a data warehouse for reporting.
2. Group events about the same monitored entity together.
3. Structure this information (for example, to allow dimensional analysis).
4. Combine this information (for example, to identify trends).
5. Visualize this information with Scalable Vector Graphics (SVG) diagrams.
6. Identify business situations in near real-time, and trigger resulting actions by sending out events.

The Monitor model defines these steps in enough detail so that they can be run in a runtime environment for business monitoring (which is called a monitor), such as IBM Business Monitor.

For use in IBM Business Monitor, Monitor models are represented as Extensible Markup Language (XML) documents. The XML specifies how values are extracted from events at run time and collected, combined, and stored for representation on a dashboard. The Monitor model is a top-level container that contains five parts:

- The **monitor details model** defines monitoring contexts, metrics, triggers, and other elements.
- The **KPI model** contains KPI contexts and KPIs with their events and triggers.
- The **dimensional model** contains cubes, dimensions, and measures.
- The **visual model** contains diagrams that are associated with monitoring contexts and KPI contexts for display in the dashboard.
- The **event model** references event definitions for all inbound and outbound events.

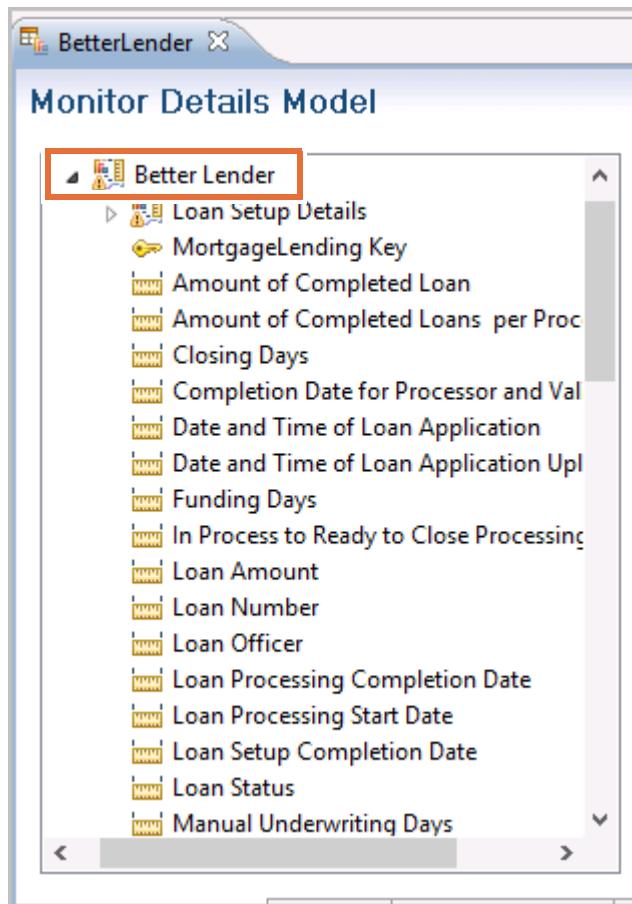
A monitoring context groups all business measures with the same index. Monitoring context is also a container for those business measures that collectively describe the state of the same real-world object; for example, a particular order, ATM, flight, or process execution. A monitoring context instance is created for each instance of the real-world object, and its lifetime usually corresponds to the lifetime of the object that is being monitored.

Using the Monitor model editor, you provide a definition for a monitoring context. You want to observe one such definition for each type of object. For example, you would need different monitoring context definitions for orders, ATMs, flights, or process executions. From the definition,

IBM Business Monitor then creates a monitoring context instance for each instance of the real-world entity (for example, one instance per order, ATM, flight, or process execution).

To examine the Better Lender Monitor model:

- 1. In the **Project Explorer** view, expand **BetterLenderBAM > Monitor Models**, and double-click the Monitor model **BetterLender.mm**. This entry is the Monitor model that was created for this Better Lender application. It describes metrics and key performance indicators. The model opens in the Monitor model editor.
- 2. In the **Monitor Details Model** tab, under the **Better Lender BAM Showcase**, expand **Better Lender**. This entry is the monitoring context that defines all of the data to collect about the entity.



- 3. Click the **Amount of Completed Loan** measure.



Note

Ensure that you click **Amount of Completed Loan** and not the plural **Amount of Completed Loans**.

- 4. In the editor pane to the right, scroll to the **Metric Value Expressions** section and examine the expression that is used to set the value for the metric.

Trigger	Expression
	X+Y =? Shipping_Complete/shippingCompletePart/mor:loanAmount

- 5. If time permits, feel free to examine the properties of other metrics in the model.
— 6. Click the **KPI Model** tab at the bottom of the pane.

- 7. Expand **Better Lender Business Process KPIs**.

___ 8. Click **Month-to-Date Average Amount of Loan Application (in thousands)**.

Two similar entries exist - one ends with “(in thousands)” and one without. Make sure that you click **Month-to-Date Average Amount of Loan Application (in thousands)**.

___ 9. In the editor pane, scroll to the **KPI Definition** section and examine the properties of the KPI.

KPI Definition
Specify how the value of the KPI is set.

KPI Value

Choose how the KPI will get its value:

Base this KPI on a metric and an aggregation function.

Write an expression to calculate this KPI based on existing KPIs

KPI Calculation

For example, you could have a Total Profit KPI that subtracts the Total Cost KPI from the Total Revenue KPI.

Average_Application_Loan_Amount_x0028_x0024_x0029_ div 1000

___ 10. If time permits, examine the other KPIs defined in the model.

___ 11. Click the **Dimensional Model** tab at the bottom of the pane.

___ 12. Click **Better Lender MC Cube**.

- 13. In the editor pane, scroll to the **Measures** section and examine the measures that are defined for the cube. Also, examine the dimensions that are defined in the **Dimensions** section.

The screenshot shows the 'Measures' section with a table:

Measure	Source Metric	Aggregation Function
Total Amount of Applications	Loan Amount	Sum
Total Number of Applications	Loan Number	Count
Maximum Lending Process Step	Total Loan Processing Step	Maximum
Minimum Lending Process Step	Total Loan Processing Step	Minimum
Maximum Application Amount	Loan Amount	Maximum

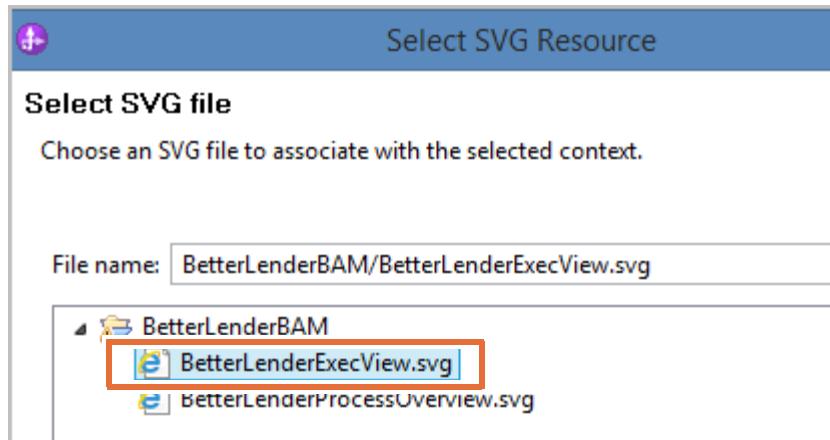
Buttons for 'New...' and 'Remove' are visible on the right.

The 'Dimensions' section below it has a table:

Dimension / Dimension Level	Source Metric
Date Loan Processing Started	
Loan Officer	
Lending Process State	

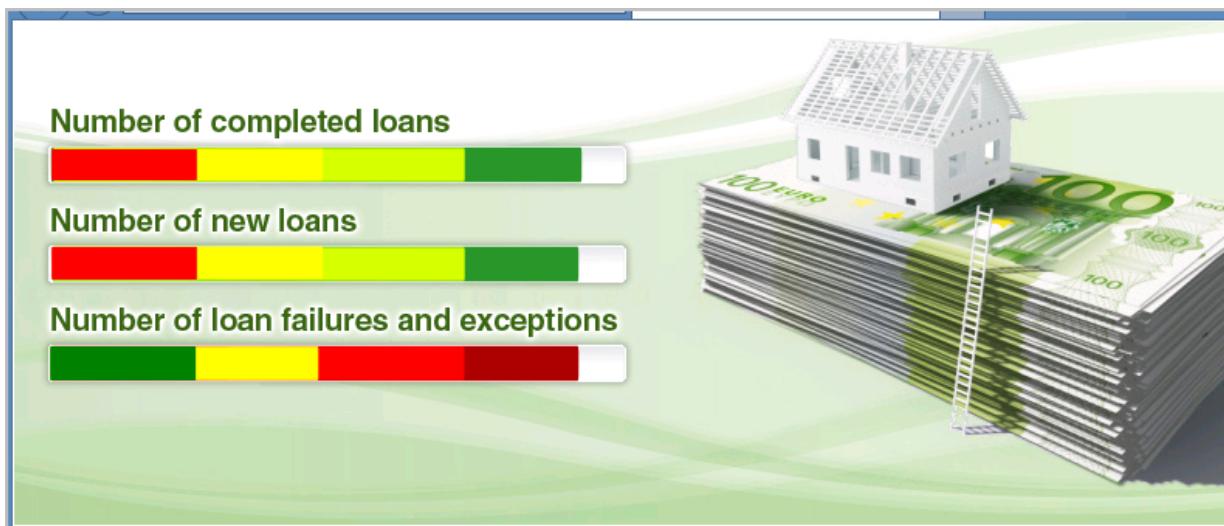
Buttons for 'New Dimension...', 'New Level...', and 'Remove' are visible on the right.

- 14. Click the **Visual Model** tab at the bottom of the pane.
- 15. To the right of the **SVG File** field, click **Browse** and then go to `/BetterLenderBAM/BetterLenderExecView.svg`.



- 16. Click **OK**.
- 17. When prompted to **Create shape sets based on SVG file**, click **Yes**.

- 18. Click **Open in External Browser** to view the SVG diagram in a browser. The diagram loads in an external browser.

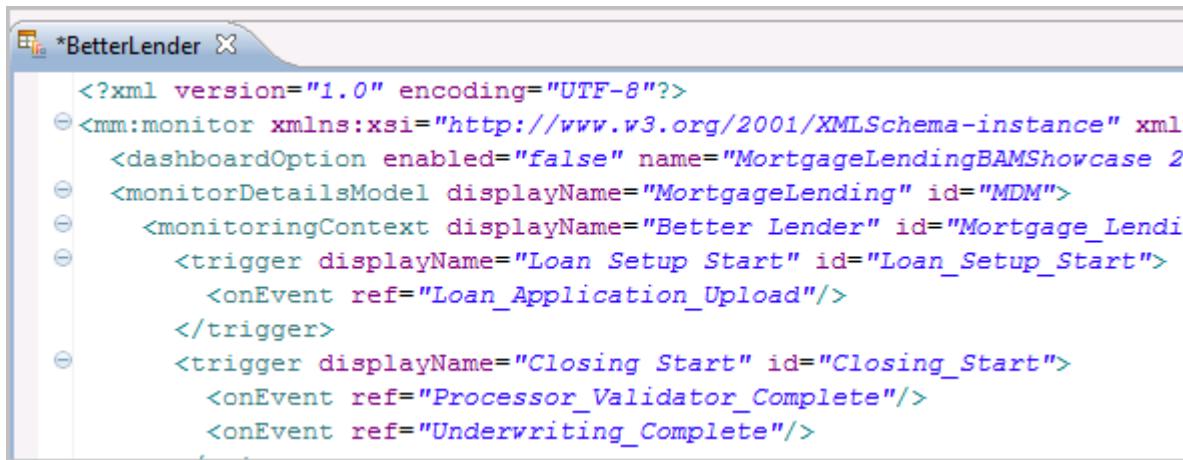


- 19. Close the external browser after examining the SVG diagram.
 — 20. Click the **Event Model** tab at the bottom of the pane, and examine the events that are imported into the Monitor model.

The screenshot shows the 'Event Model' tab in the IBM Business Monitor interface. A list of imported event definitions is displayed in a table. The first ten items in the list are highlighted with a red rectangle.

Import Location or Namespace
▷ /BetterLenderBAM/loanApplicationComplete.cbe
▷ /BetterLenderBAM/automatedLoanSetupComplete.cbe
▷ /BetterLenderBAM/processorValidatorComplete.cbe
▷ /BetterLenderBAM/underwritingComplete.cbe
▷ /BetterLenderBAM/closingComplete.cbe
▷ /BetterLenderBAM/fundingComplete.cbe
▷ /BetterLenderBAM/postClosingComplete.cbe
▷ /BetterLenderBAM/shippingComplete.cbe
▷ /BetterLenderBAM/mortgageLendingProcessCompleteAlert.cbe
▷ /BetterLenderBAM/mortgageLendingProcessEvent.cbe

- ___ 21. Switch to the **BetterLender.mm** tab at the bottom of the pane, and examine the model in XML format.



```

<?xml version="1.0" encoding="UTF-8"?>
<mm:monitor xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance" xmlns:mdm="http://www.ibm.com/xmlns/prod/ibm/bam/monitoring/2.0" xsi:type="monitor">
    <dashboardOption enabled="false" name="MortgageLendingBAMShowcase 2017-01-10 10:00:00.000Z" id="DashboardOption_1"/>
    <monitorDetailsModel displayName="MortgageLending" id="MDM">
        <monitoringContext displayName="Better Lender" id="Mortgage_Lending_Better_Lender">
            <trigger displayName="Loan Setup Start" id="Loan_Setup_Start">
                <onEvent ref="Loan_Application_Upload"/>
            </trigger>
            <trigger displayName="Closing Start" id="Closing_Start">
                <onEvent ref="Processor_Validator_Complete"/>
                <onEvent ref="Underwriting_Complete"/>
            </trigger>
        </monitoringContext>
    </monitorDetailsModel>
</mm:monitor>

```

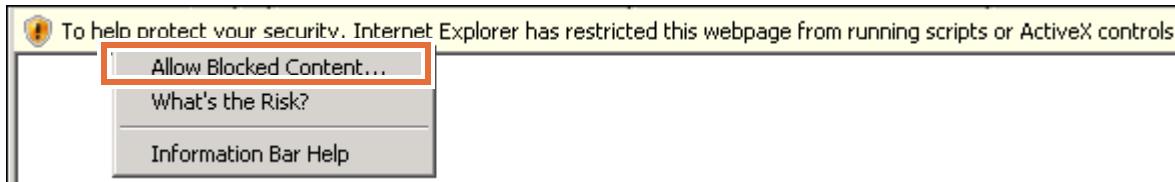
- ___ 22. Close the **Better Lender** tab. If you are prompted to save the changes, click **No**.

Scalable Vector Graphics (SVG) files

You can associate a Scalable Vector Graphics (SVG) diagram with any monitoring context or key performance indicator (KPI) context. You can then annotate these diagrams in the Monitor model editor so that they are dynamically updated at run time on the IBM Business Monitor dashboards. Each diagram is associated with a set of shapes and a set of actions. The actions describe how and when the diagram is modified based on the values of metrics (in a monitoring context) or KPIs (in a KPI context). The actions include color changes and text displays based on the values and hyperlinks from specific areas of the diagram so that users can link to other diagrams.

In the previous section, you examined **BetterLenderExecView.svg** on the Visual Model tab of the Monitor model editor. To view the other SVG files that are associated with the Monitor model project:

- ___ 1. In the **Project Explorer** view, expand **BetterLenderBAM > SVG Files** and double-click **BetterLenderProcessOverview.svg**.
- ___ 2. If the browser displays a message that it restricted the webpage from running scripts, click that message and select **Allow Blocked Content**.



- ___ 3. If a security warning message is displayed, click **Yes** to allow the page to display. The business process diagram is displayed in the editor.
- ___ 4. Examine the business process diagram.
- ___ 5. Close the diagram when you are finished reviewing it by closing the browser. If you are prompted to save any changes, click **No**.

-
6. Close any other open tabs if still open. Do not close IBM Integration Designer.



Note

After creating your Monitor model project in the toolkit, you would normally test the application in IBM Integration Designer and generate an EAR file for deployment to the IBM Business Monitor server. For the purposes of this exercise, you use the EAR file included with the mortgage lending sample application and deploy it to the monitor server.

Part 3: Deploying the Monitor model to the IBM Business Monitor server test environment

Monitor models contain monitoring contexts, which define the set of information to be collected at run time. A monitoring context is created for each real-world object that is monitored. The monitoring context receives the events that report changes in the real-world object, and updates its properties according to information that is extracted from these events. These properties include business measures such as metrics, counters, and stopwatches, which describe the performance aspects of a business that are required for real-time business monitoring.

Events handle all communication into and out of a monitoring context. Monitoring context instances subscribe to events, update their states by using information that is in the events, and emit events to report a business situation. They are created, hosted, and terminated by IBM Business Monitor. For example, IBM Business Monitor might create a monitoring context instance when a Process Started event arrives. It updates the state of the monitoring context instance as Task Completed events arrive, and terminates the monitoring context instance when a Process Ended event arrives. It might also emit a Process Delayed event when the time since Process Started exceeds a certain threshold. For IBM Business Monitor, all of these actions are defined in the Monitor model, which contains monitoring context definitions that define inbound and outbound events, business measures, and triggers for business situations.

IBM Business Monitor works in this way:

1. Load a Monitor model that contains one or more monitoring context definitions.

At start, IBM Business Monitor server loads a Monitor model, which defines its configuration. A Monitor model contains one or more monitoring context definitions.
2. IBM Business Monitor then waits for one of these occurrences:
 - The arrival of an inbound event, at which point it proceeds to step 3
 - A time that is defined as the recurring wait time for a trigger, at which point it proceeds to step 6
3. If an inbound event arrives, deliver it to all affected monitoring context instances (defining new instances as needed). It updates their state (that is, their metrics), processes any triggers, emits outbound events, terminates any monitoring context instances that require termination, and then returns to wait.

When an inbound event arrives, IBM Business Monitor finds all subscriptions for this type of event in all Monitor models that were loaded. Event subscriptions are defined through event types and filter conditions at event entry points (called inbound event definitions) in a

monitoring context definition. Events that have a matching type and satisfy the filter condition are considered for delivery (through this entry point) to the monitoring context instances. The specific instances for event delivery are determined at the next step.

A monitoring context might require termination if the real-world entity that was being monitored no longer exists. For example, if the order that was being monitored was fulfilled, the monitoring context instance that represents that order would also be considered complete and can be terminated.

If the recurring wait time for a trigger arrives, process any triggers and their effects (such as metric updates and outbound events), terminate any monitoring contexts that require termination, and return to wait.

4. Find correlated monitoring context instances.

If an inbound event is of the required event type and passes the filter of an event entry point, its correlation expression is evaluated. The expression is evaluated for each monitoring context instance in each Monitor model that matches the condition in step 3. Step 3 checks all applications, whereas step 4 finds the matching instances within an application. This evaluation can result in zero, one, or several matches. In each case, model-defined settings determine the action. The possibilities include the following actions:

- Deliver to the matching monitoring context instance
- Deliver to any matching monitoring context instance
- Deliver to all matching monitoring context instances
- Create a monitoring context instance
- Treat as an error
- Try again
- Ignore the event

After IBM Business Monitor determines which monitoring context instances receive the event, it delivers the event to each event entry point with a matching correlation predicate and a “deliver event” setting. Events can be delivered to zero or more monitoring context instances.

Steps 5 and 6 occur in each monitoring context instance to which the event was delivered (or in which a trigger occurred).

5. Evaluate expressions.

All expressions that depend on the incoming event are evaluated and update their target metrics. Expressions with input that depends on metrics that were changed are evaluated iteratively to calculate any secondary effects. This behavior is similar to the updating of a spreadsheet, in which an update of one cell can lead to cascading updates of other cells, which are based on spreadsheet formulas. The spreadsheet formulas are the equivalent of these expressions.

6. Process triggers.

Any triggers that were activated because of the incoming event, the metric changes, or the expiration of a time interval, are now checked to see which ones fire. If their conditions evaluate to true, the triggers fire.

Any counters or stopwatches that depend on a trigger are updated. Counters are incremented, decremented, or reset; and stopwatches are stopped, started, or reset. All metrics that depend on an expression that a trigger controls are updated.

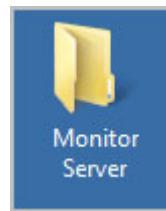
If metrics were updated, new triggers might fire and steps 5 and 6 are repeated until all cascading effects are processed. A Monitor model must not contain any cyclic dependencies, so the cascading effects always end in a finite number of steps.

Any expressions for outbound events that are trigger-controlled are evaluated. The event attribute values are entered, and the events are emitted if their filter conditions evaluate to true.

7. Finally, any monitoring contexts to be terminated as a result of a trigger are marked for termination, and are terminated after all other effects are processed. Terminated monitoring contexts are unable to receive future inbound events. The values of their metrics, counters, and other elements are still available to IBM Business Monitor.

To deploy the mortgage lender Monitor model:

- 1. Start the IBM Business Monitor server instance.
 - a. Locate the folder that is named **Monitor Server** on the desktop.



- b. Double-click the **Monitor Server** folder to open it.
- c. Select the shortcut that is titled: **Start IBM Business Monitor Server**.
- d. Double-click or press Enter to open the shortcut. It takes several minutes for Monitor Server to start. When the server starts, you are prompted to press any key to continue. Press any key to close the command window.

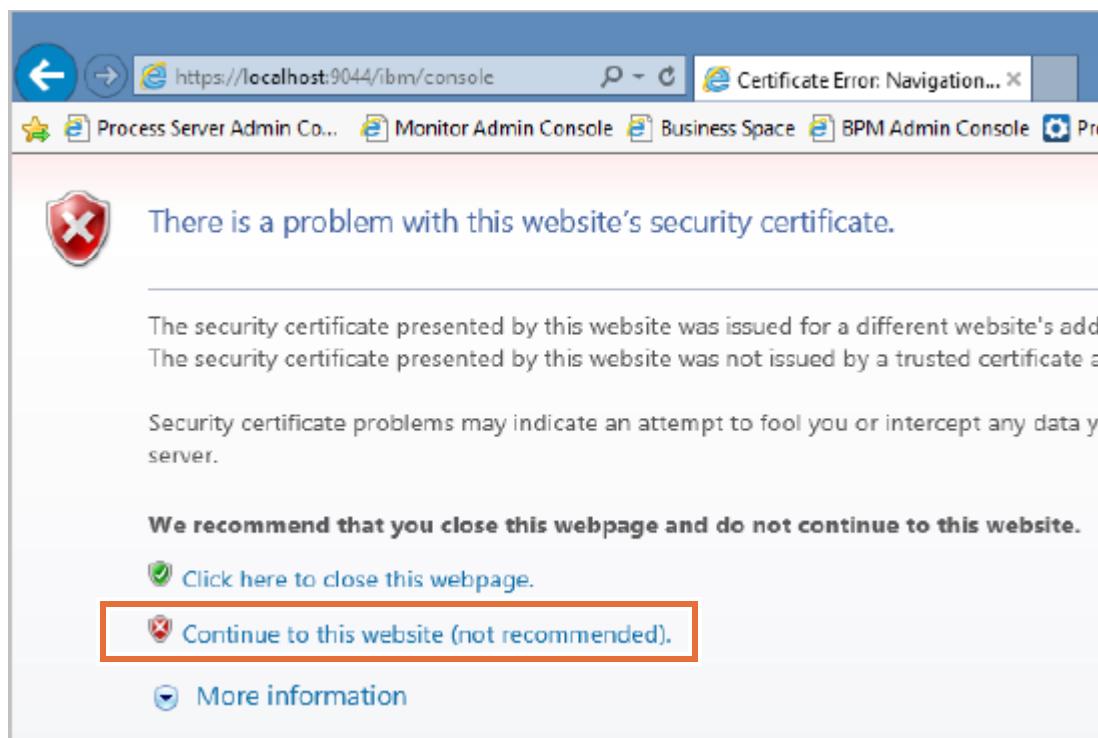
```

CVUPO0001I: Running configuration action detectNewProducts.ant
ADMU0116I: Tool information is being logged in file
  C:\IBM\IID\PS\v8.5\profiles\qmwas\logs\server1\startServer.log
ADMU0128I: Starting tool with the qmwas profile
ADMU3100I: Reading configuration for server: server1
ADMU3200I: Server launched. Waiting for initialization status.
ADMU3000I: Server server1 open for e-business; process id is 2796
Press any key to continue . . .

```

- e. Minimize the Monitor Server folder. You come back to this folder at the end of this exercise to shut down the Monitor Server.
- 2. Start the IBM Business Monitor administrative console.
 - a. Start an instance of Internet Explorer by double-clicking the **Internet Explorer** shortcut on the desktop.

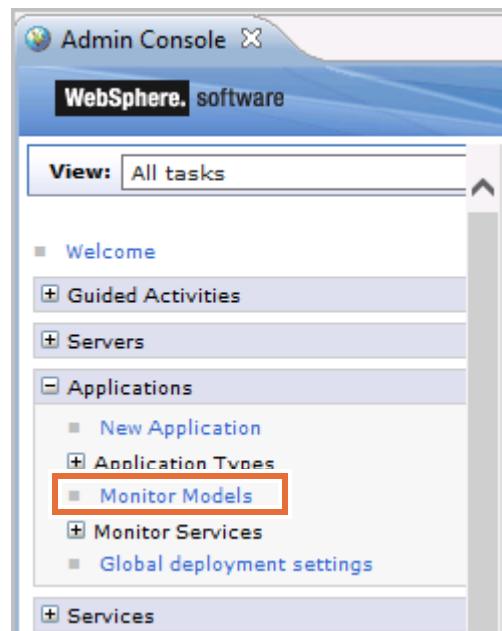
- __ b. When the browser opens, click the **Monitor Admin Console** tab. A shortcut link to the Monitor administrative console is already created for you. Optionally, you can enter <http://localhost:9061/ibm/console> in the URL.
- __ c. This action redirects the browser to the secure console address: <https://localhost:9044/ibm/console>
- __ a. Click **Continue to this website (not recommended)**.



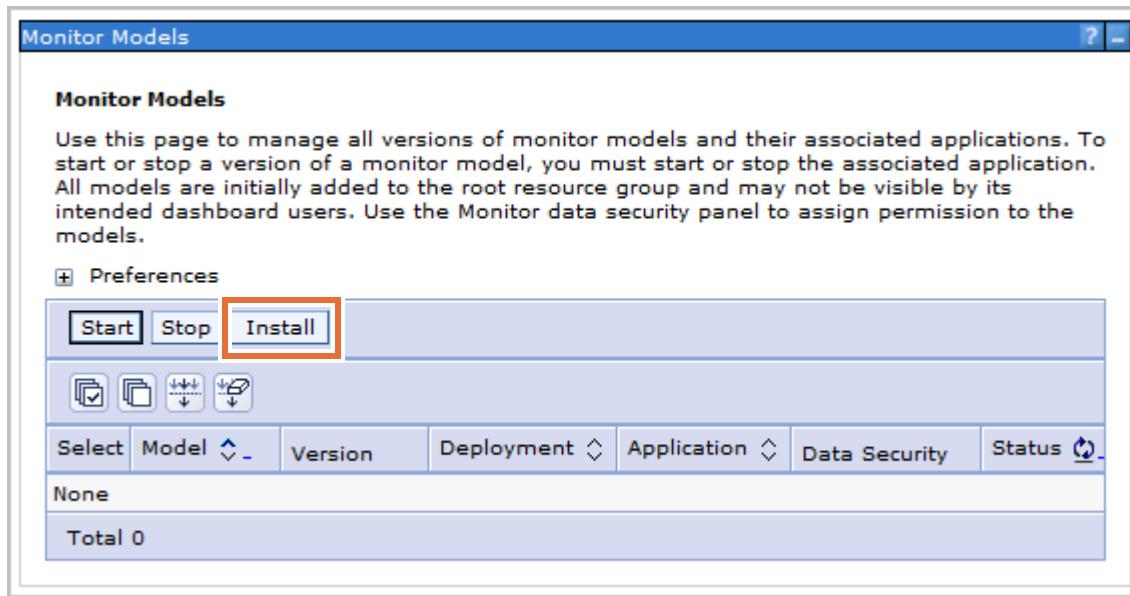
- ___ b. At the Login page, enter admin in the **User ID** field and web1sphere in the **Password** field.



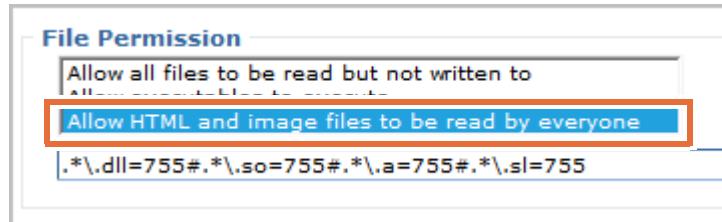
- ___ a. Click **Log in**.
- ___ 3. Deploy the Better Lender Monitor model by using the administrative console.
- ___ a. From the administrative console, select **Applications > Monitor Models**.



- ___ b. A table that shows all currently installed Monitor models is displayed. No models are currently installed. Click **Install**.



- ___ c. In the **Path to the new application** section, to the right of **Local file system**, click **Browse** and go to
C:\IBM\IID\PS\v8.5\installableApps.wbm\showcase\model\
- ___ d. Select **BetterLenderApplication.ear** and then click **Open**.
- ___ e. Click **Next**.
- ___ f. For **How do you want to install the application**, ensure that **Detailed – Show all installation options and parameters** is selected, and click **Next**.
- ___ g. Click **Continue** in the next screen. The installation options window is displayed.
- ___ h. For **Step 1: Select Installation options**, scroll to the **File permissions** section, click **Allow HTML and image files to be read by everyone**, and then click **Next**.



This action populates the permissions field.

- ___ i. Scroll down and click **Step 14: Select event sources**. This step is used to accept default values in Step 2 through Step 13.

- __ j. Make sure **(Deprecated) CEI event source on localhost at qcell-qnode-server1** is selected for the event source because this sample model is a CEI-based event type model. You might have to wait few minutes for all the available event sources to completely load.

Select	Display Name	Version Support Status
<input checked="" type="checkbox"/>	(Deprecated) CEI event source on local host at qcell-qnode-server1	<input checked="" type="checkbox"/> V7.5.0.0+ <input checked="" type="checkbox"/> V7.0.0.0
<input type="checkbox"/>	Dynamic Event Framework event source on localhost	<input checked="" type="checkbox"/> V8.5.5.0+
<input type="checkbox"/>	Dynamic Event Framework event source on local host	<input checked="" type="checkbox"/> V8.5.5.0+

- __ k. Click **Next**.
- __ l. Click **Next** in the “Configure security for the monitor model” screen.
- __ m. For **Step 16: Summary**, review the information. Ignore the warning that no members are assigned and click **Finish**. The server installs the Monitor model, and displays status messages during the installation process.



Note

If you see exceptions in the **Console** view, and the message **The installation of application BetterLenderApplication failed** is displayed in the administrative console, log out of the administrative console. Restart the server, and complete the steps to install the application again.

- __ n. When the installation is complete, the message **Application BetterLenderApplication installed successfully** is shown in the administrative console view. It might be necessary to scroll down to see the message.

ADMA5013I: Application BetterLenderApplication installed successfully.

Application BetterLenderApplication installed successfully.

To start the application, first save changes to the master configuration.

Changes have been made to your local configuration. You can:

- [Save directly to the master configuration.](#)
- [Review changes before saving or discarding.](#)

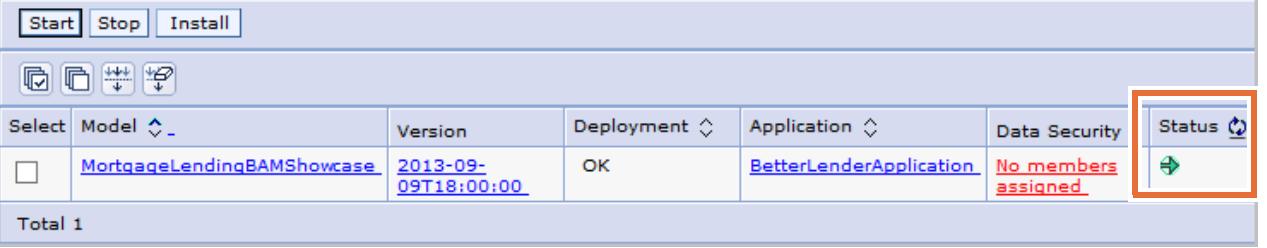
- __ o. Click the **Save** link to save the changes to the master configuration.
- __ p. When you return to the **Monitor Models** pane, the model starts automatically, it takes a few minutes, and you can click the twistie in the Status column to view the server status.

- ___ q. If the model does not start, then, start the model by selecting the check box next to the **MortgageLendingBAMShowcase** model and clicking **Start**.



Start	Stop	Install				
Select	Model	Version	Deployment	Application	Data Security	Status
<input checked="" type="checkbox"/>	MortgageLendingBAMShowcase	2013-09-09T18:00:00	OK	BetterLenderApplication	No members assigned	
Total 1						

- ___ r. After the model is started, the icon in the **Status** column on the right changes from a red X to a green arrow. It can take several minutes for the application to start and refresh the status because it must generate the Cognos data cubes.



Start	Stop	Install				
Select	Model	Version	Deployment	Application	Data Security	Status
<input type="checkbox"/>	MortgageLendingBAMShowcase	2013-09-09T18:00:00	OK	BetterLenderApplication	No members assigned	
Total 1						

Part 4: Enabling data security for the Monitor model

Because security is enabled for the IBM Business Monitor server, the Monitor model must be secured as well. Monitor models can be grouped into resource groups to handle data access permissions. Permissions are then assigned to a resource group. A resource group has exactly one role and consists of a set of users. Four available roles exist, they are:

- Business Manager**
This role provides basic access.
- Personal KPI Administrator**
This role gives users the authority to create nonshared (personal) KPIs. Only the owner and the KPI administrator can view and update the KPIs that are created. Users of this role have read access to all of the metadata that is associated with the model except for KPIs.
- Public KPI Administrator**
This role gives users the authority to create shared (public) or nonshared (personal) KPIs. Other users can use and view shared (public) KPIs. Only the owner or KPI administrator can modify the shared (public) KPIs. Users of this role have read access to all of the metadata that is associated with the model except for KPIs.
- KPI Administrator**
This role gives users all of the authority that is associated with KPI administration. Users of this role can create both shared (public) and nonshared (personal) KPIs. In addition, the KPI administrator can change the ownership of any KPIs. This role can view all KPIs, both shared and nonshared. Users of this role can update non-core properties and have read access to all

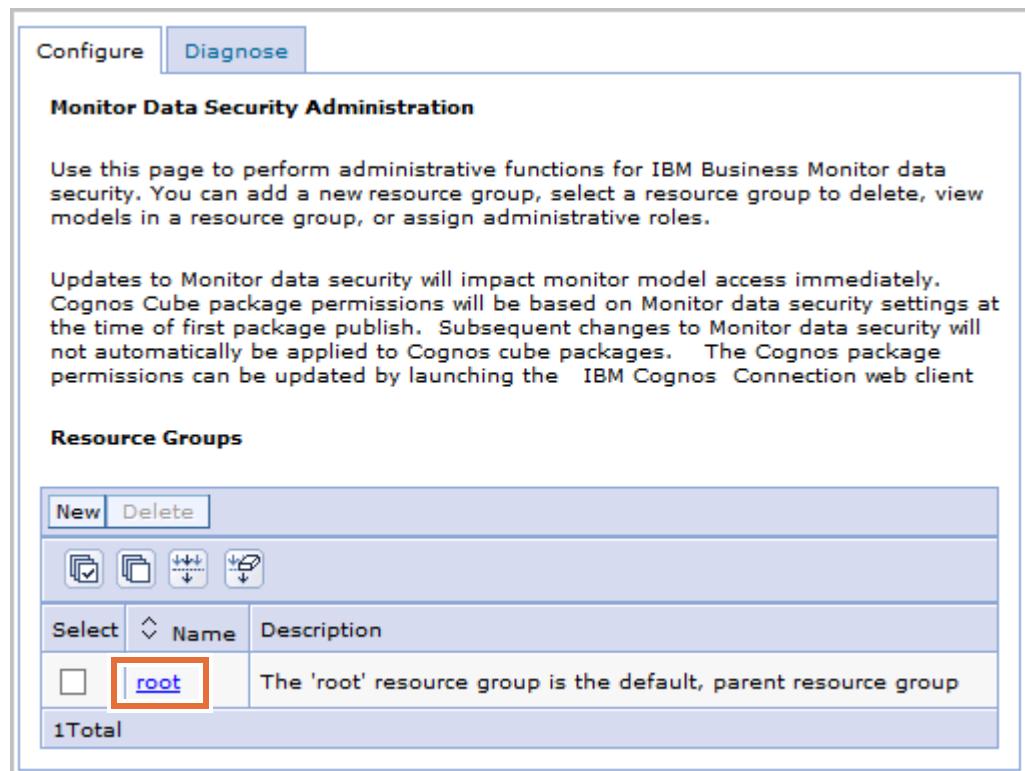
of the metadata that is associated with the model except for KPIs. The root resource group is the default group.

In this part of the exercise, you add the admin user to the Business Manager and KPI Administrator roles for all Monitor models.

- 1. In the IBM Business Monitor administrative console, under the **All tasks** view, expand **Security**, and then click **Monitor Data Security**.



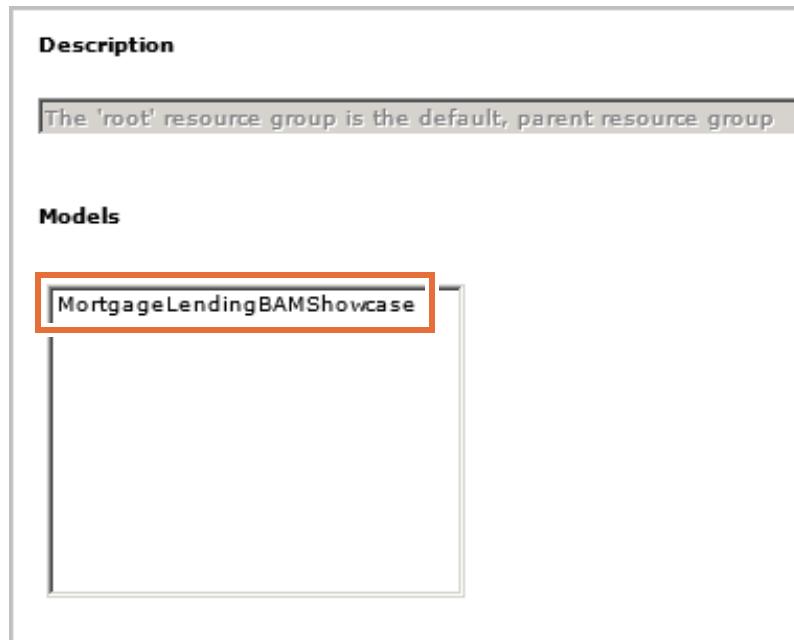
- 2. In the Monitor Data Security Administration window, click **root** in the **Resource Groups** table.



The screenshot shows the 'Monitor Data Security Administration' page. At the top, there are 'Configure' and 'Diagnose' tabs, with 'Diagnose' selected. Below the tabs, a heading reads 'Monitor Data Security Administration'. A note states: 'Use this page to perform administrative functions for IBM Business Monitor data security. You can add a new resource group, select a resource group to delete, view models in a resource group, or assign administrative roles.' Another note below it says: 'Updates to Monitor data security will impact monitor model access immediately. Cognos Cube package permissions will be based on Monitor data security settings at the time of first package publish. Subsequent changes to Monitor data security will not automatically be applied to Cognos cube packages. The Cognos package permissions can be updated by launching the IBM Cognos Connection web client.' The main section is titled 'Resource Groups' and contains a table:

Select	Name	Description
<input type="checkbox"/>	root	The 'root' resource group is the default, parent resource group
1 Total		

- 3. Select **MortgageLendingBAMShowcase** under Models.



The screenshot shows the details for the 'root' resource group. It has two sections: 'Description' and 'Models'. The 'Description' section contains the text: 'The 'root' resource group is the default, parent resource group'. The 'Models' section contains a list of models, with one item highlighted: 'MortgageLendingBAMShowcase'.

- 4. Update the Business Manager role.
- a. Expand the **Business Manager** link.
 - b. Click **edit** under Users.

- ___ c. Click **Search** to search for users that are defined to the Business Manager role. The list of users is displayed in the **Available** list. It might take a minute or so before the list of users is listed. If you still do not see any data listed in the Available list, then click **Search** again.
- ___ d. Click **>>** to move all users that are displayed in the **Available** list to the **Selected** list.



Note

If the value is already in the **Selected** list, then you can skip this step.

- ___ e. Click **OK** below the **Available** list.

The screenshot shows a dialog box titled "Monitor Data Security Administration > root > Select users for Business-Manager role". The "Diagnose" tab is active. In the center, there are two lists: "Available" (containing "<empty>") and "Selected" (containing "uid=admin,o=defaultWIMFileBasedRealm"). Between the lists are four buttons: >, >>, <, and <<. At the bottom are "OK" and "Cancel" buttons. The "OK" button is highlighted with an orange border.

You now complete these steps for the other three roles.

- ___ 5. Update the Personal KPI Administrator role.
 - ___ a. Scroll down and expand the **Personal KPI Administrator** link.
 - ___ b. Click **edit** under Users.
 - ___ c. Click **Search** to search for users that are defined to the Personal KPI Administrator role. The list of users is displayed in the **Available** list.
 - ___ d. Click **>>** to move all users that are displayed in **Available** list to the **Selected** list.



Note

If the value is already in the **Selected** list, then you can skip this step.

- ___ e. Click **OK** below the **Available** list.
- ___ 6. Update the Public KPI Administrator role.

- __ a. Scroll down and expand the **Public KPI Administrator** link.
- __ b. Click **edit** under Users.
- __ c. Click **Search** to search for users that are defined to the Public KPI Administrator role. The list of users is displayed in the **Available** list.
- __ d. Click **>>** to move all users that are displayed in **Available** list to the **Selected** list.



Note

If the value is already in the **Selected** list, then you can skip this step.

- __ e. Click **OK** below the **Available** list.
7. Update the KPI Administrator role.
- __ a. Scroll down and select the **KPI Administrator** link.
 - __ b. Click **Edit** under Users.
 - __ c. Click **Search** to search for users that are defined to the KPI Administrator role. The list of users is displayed in the **Available** list.
 - __ d. Click **>>** to move all users that are displayed in **Available** list to the **Selected** list.



Note

If the value is already in the **Selected** list, then you can skip this step.

- __ e. Click **OK** below the **Available** list.
8. Click **OK** to return to the **Configure** tab.
9. Click **Applications > Monitor Models** again to view the model data security. This time you see that the members are assigned for the model.

Select	Model ▾	Version	Deployment ▾	Application ▾	Data Security	Status
<input type="checkbox"/>	MortgageLendingBAMShowcase	2013-09-09T18:00:00	OK	BetterLenderApplication	Members assigned	

Total 1

Part 5: Generating event data

The mortgage lender, monitor CEI event type based model requires loan information to simulate the real-life lending process. To populate the Monitor model with loan information, you must send events to IBM Business Monitor, which simulates the actual lending process events. You can

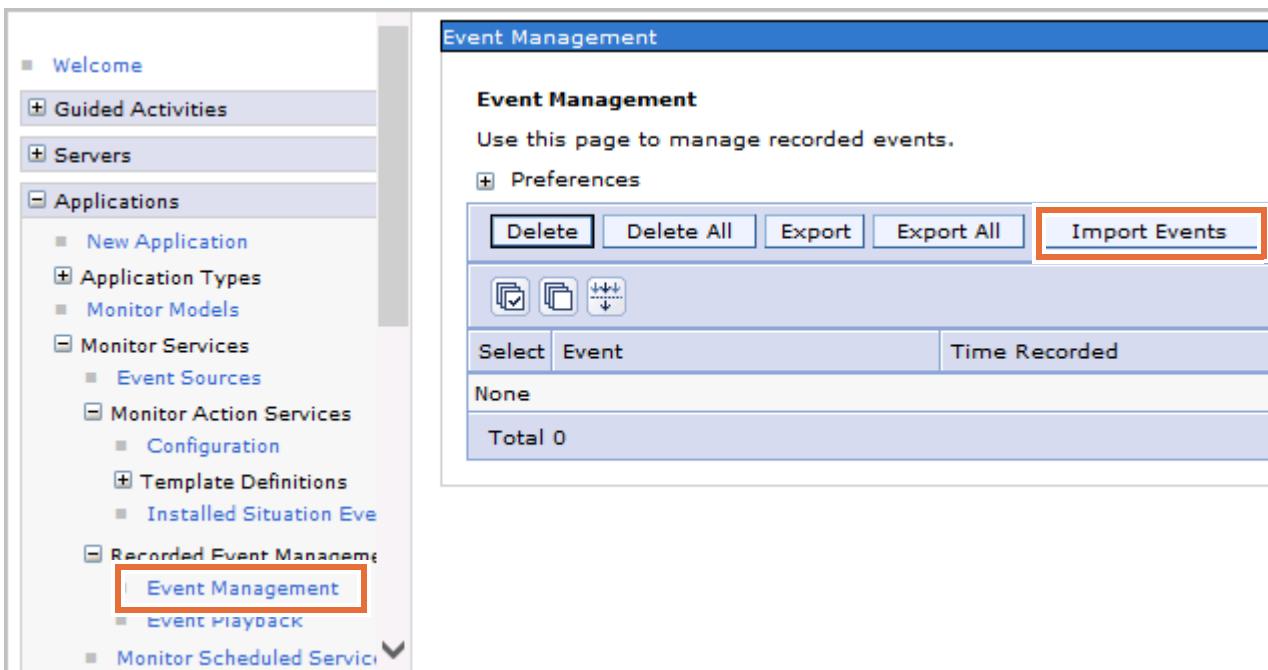
simulate these events by using an event emitter or by using prerecorded events. In this lab exercise, you use prerecorded CEI type events for the sample model.

IBM Business Monitor uses a Monitor model to process and operate on Dynamic Event Framework (DEF) and the deprecated CEI events that can be emitted by older heritage applications. For this scenario that involves monitoring an IBM Process Server application, IT developers use the IBM Business Monitor development toolkit to construct a Monitor model. The Monitor model contains information that defines how to monitor the application.

You can configure your environment to work with the many different types of event emitters that IBM Business Monitor supports. You can use the Java Messaging Service (JMS) event emitter to asynchronously publish events to a predefined JMS queue. The events can be put on the JMS queue even when IBM Business Monitor services are unavailable. This event emitter service makes it easier for other products to integrate with IBM Business Monitor. The REST event emitter is a public API that you use to synchronously publish events for IBM Business Monitor to process. You can also send events from most sources to IBM Business Monitor through web services by using Web Services-Notification.

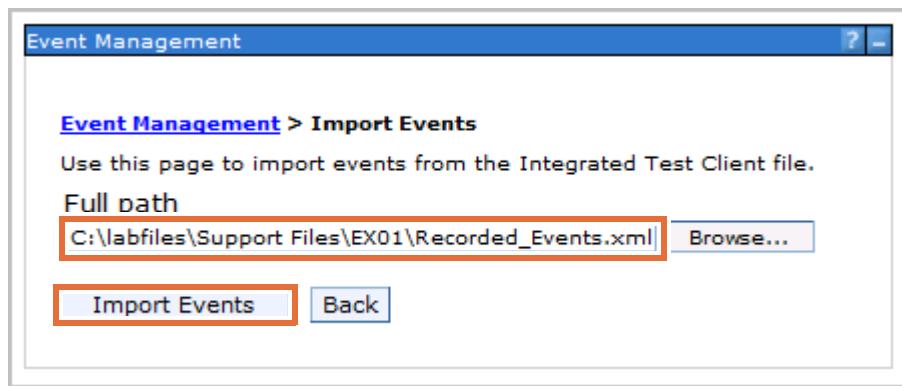
To use the emitter for the mortgage lending application to send events, you start a batch command file that runs a Java EE application. This application generates a set of events to use for testing.

- 1. Go to the Monitor Administration console, select **Applications > Monitor Services > Recorded Event Management > Event Management**, and click **Import Events**.

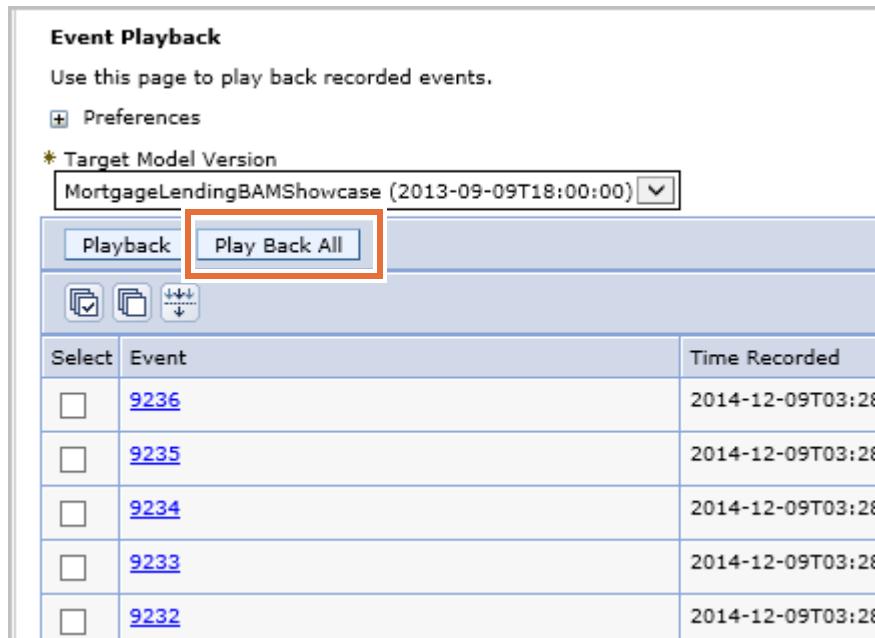


- 2. Click **Browse**, go to C:\labfiles\Support Files\EX01, and double-click **Recorded_Events.xml**.

- 3. Click **Import Events**. A message is displayed that all events are successfully imported with a list of the events that are imported.



- 4. Select **Applications > Monitor Services > Recorded Event Management > Event Playback**.
- 5. Select **MortgageLendingBAMShowcase** model from the **Target Model Version** list.
- 6. Click **Play Back All** to play back the events you imported earlier.



It can take few minutes to generate all of the events. You should see a message that all selected events played back successfully after generating the events. The Events listed might not match the image displayed here.

Part 6: Loading the mortgage lending dashboards

Use the business space dashboard tool to load the mortgage lending dashboards included with the sample. Before using this procedure, the Monitor model must be installed and started on the IBM Business Monitor server. You installed and started the model in previous steps.

Business Space dashboards are a component of IBM Business Monitor running on WebSphere Application Server. A dashboard that displays specific business performance consists of various ways to view your data.

After you create your dashboard, use the utilities to create key performance indicators (KPIs), export values, and subscribe to alerts. Additionally, you can add one of the following items to your dashboard:

- **Alerts:** Displays alerts that notify users of defined situations that occur at run time.
- **Diagrams:** Displays diagrams that are associated with a particular monitoring context or KPI context.
- **Instances:** Displays the available monitoring contexts in either individual instances or user-defined groups of context instances.
- **KPIs:** Displays details of KPIs, such as a KPI value relative to the defined ranges and the target, if applicable, and the status.
- **Report Designer** is a tool for creating simple or detailed reports directly from a Business Space dashboard. Using this widget, you can edit the reports that you created and also edit reports that were created with IBM Cognos Business Intelligence.
- **Report Viewer** is an interface that provides optimal capabilities for viewing reports from Business Space. Using this widget, you can view graphical, multidimensional reports and change the display in various ways, such as choosing a different chart type and drilling on measures to display more data.

To start the dashboard for the mortgage lending application:

-
- 1. Click the **Business Space** tab in Internet Explorer browser session to open business space. It opens the following address: <https://localhost:9444/mum/enabler>
 - 2. This action redirects the browser to the secure console address:
<https://localhost:9444/mum/resources/bootstrap/login.jsp>
-



Important

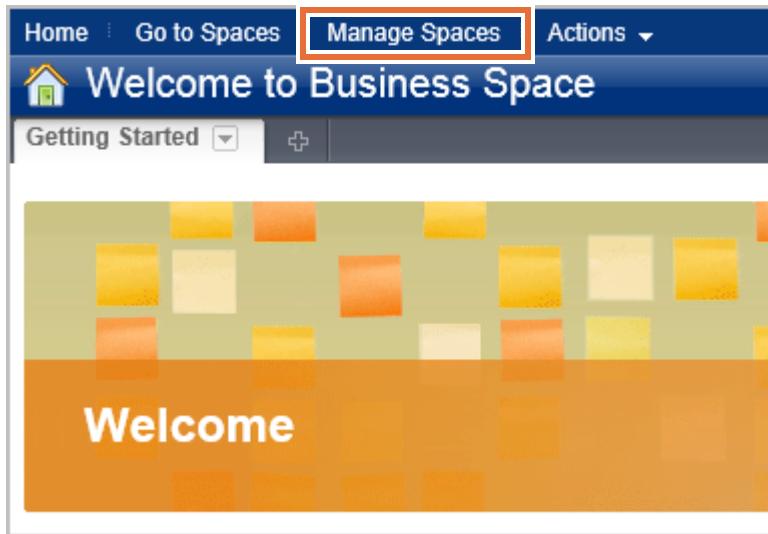
Be sure to use Internet Explorer. Using Firefox might not yield the appropriate results because of missing plug-ins. Also, the URL is case-sensitive. it is best to use the shortcut links in the favorite bar in Internet Explorer.

-
- 3. When you are prompted with a security certificate warning, click **Continue to this website (not recommended)**.
-

- 4. If you are no longer logged in the Administrative Console, then you are prompted to log in. Use `admin` for **User ID** and `web1sphere` for **Password**, and click **Login**. It takes some time for the “Welcome to Business Space” introduction page to be displayed.

The screenshot shows the IBM BPM | Process Portal login interface. At the top left is the IBM logo. To its right is the title "BPM | Process Portal". Below the title is a white rectangular input area. Inside this area, there is a label "User ID" above a text input field containing "admin", which is highlighted with a red border. Below it is a label "Password" above another text input field containing "*****", also highlighted with a red border. To the right of the password field is a small eye icon. At the bottom of the input area is a blue "Login" button.

- 5. Click **Manage Spaces** above the **Welcome to Business Space** label.

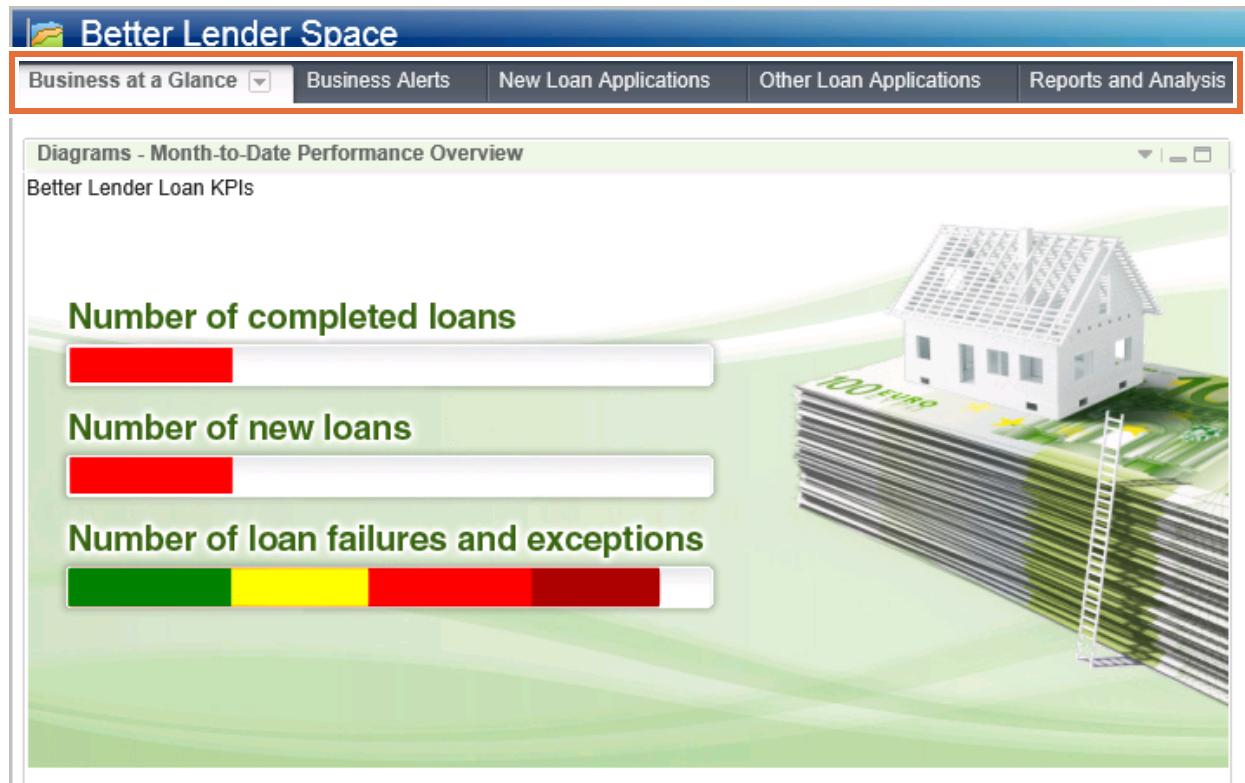


- 6. Import the **Better Lender Space**. This business space was already created for this application and must be imported into your application.
 - a. Click **Import Space**.
 - b. Click **Browse** in the Import Space window, and go to:
`C:\IBM\IID\PS\v8.5\installableApps.wbm\showcase\dashboards\8.5`
- 7. Select **showcase_dashboard.zip**, and then click **Open**.
- 8. Click **OK**. Wait for the business space to be imported into the Business Space manager. This action might take a few moments.

- 9. Click **Better Lender Space**.



- 10. Click and view the **Business at a Glance**, **Business Alerts**, **New Loan Applications**, and **Reports and Analysis** tabs from the list. It can take several minutes for each of these selections to load when you select them.

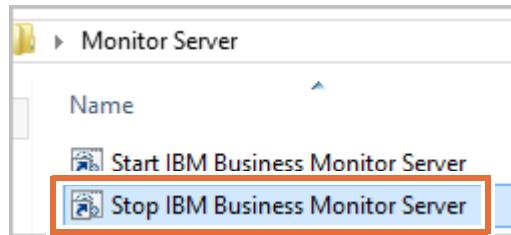


- 11. If time permits, continue to browse and examine the details in the business space dashboard.
 — 12. When you are finished reviewing the business space dashboard, click **Log out** in the upper-right corner.
 — 13. Close the web browser (including any open tabs when prompted).

Part 7: Stopping the Monitor server and Exiting IBM Integration Designer

- 1. You can now shut down IBM Integration Designer.
 — a. Close all open editors (if open) in IBM Integration Designer. If prompted to save, click **No**.
 — b. Click **File > Exit** from the menu to exit from IBM Integration Designer.
 — 2. Stop the IBM Business Monitor server instance.
 — a. Maximize the folder named **Monitor Server** that you earlier minimized.

- __ b. Select the **Stop IBM Business Monitor Server** shortcut.



- __ c. Double-click or press Enter to open the shortcut. It takes several minutes for Monitor Server to stop. When the server stops, you are prompted to press any key to continue. Press any key to close the command window.

```

Stop IBM Business Monitor Server
ADMU0116I: Tool information is being logged in file
C:\IBMMNID\PS\v8.5\profiles\qmwas\logs\server1\stopServer.log
ADMU0128I: Starting tool with the qmwas profile
ADMU3100I: Reading configuration for server: server1
ADMU3201I: Server stop request issued. Waiting for stop status.
ADMU4000I: Server server1 stop completed.

Press any key to continue . . .

```

- __ d. Close the Monitor Server folder.



Note

Some of the subsequent exercises include instructions for starting the server during the exercises, and then for stopping the server at the end of the exercise. Depending on the exercise environment, it can take a significant amount of time. Depending on the performance and resources in your environment, you might want to start IBM Integration Designer and the monitor server at the beginning of each day. Allow them to run throughout the day, and then stop them at the end of each day.

End of exercise

Exercise 2. Creating a monitor model

Estimated time

00:30

Overview

In this exercise, you start creating a monitor model from scratch.

Objectives

After completing this exercise, you should be able to:

- Create a monitor project and a new monitor model
- Start creating an event definition

Introduction

In this exercise, you create a Monitor model from scratch. You create a Monitor model with the event definition of a claims processing. The claims processing application contains business information, such as claims request id, policy type, and policy number.

Requirements

Completing the exercises for this course requires a lab environment. The environment includes the exercise support files, Internet Explorer, IBM Process Server, and IBM Business Monitor test environments.

Exercise instructions

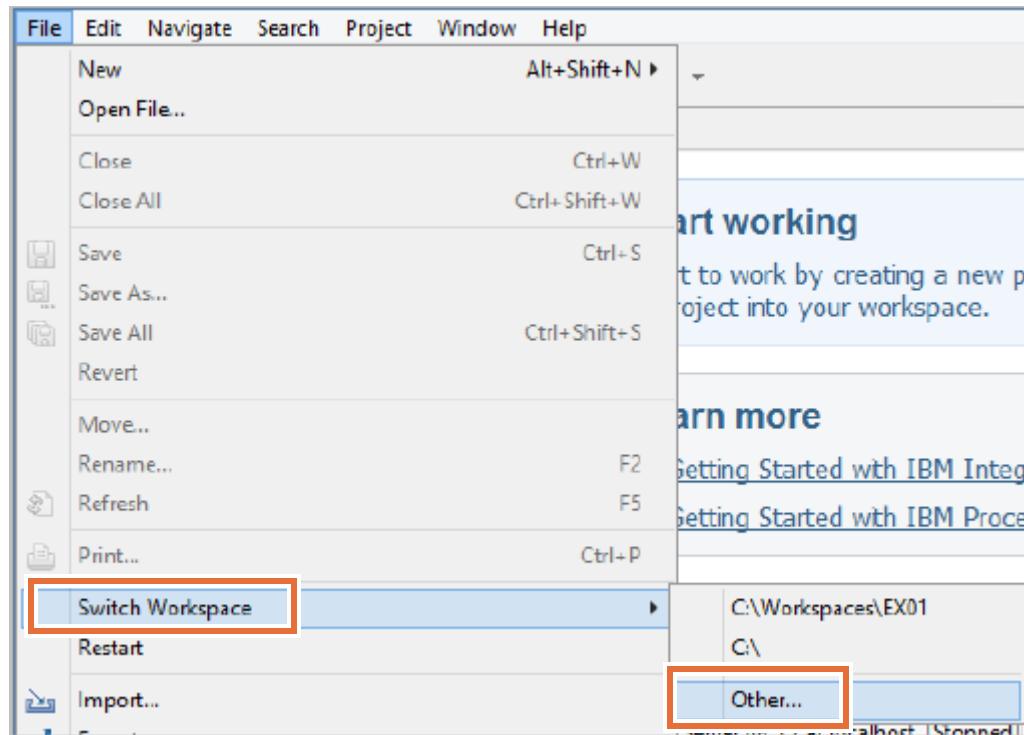
Part 1: Opening the Business Monitoring perspective

- 1. Start IBM Integration Designer.
- a. On your desktop, double-click the shortcut that is labeled **IBM Integration Designer**. This action takes a moment to initialize.
If IBM Integration Designer is already started, then switch to another workspace by clicking **File > Switch Workspace > Other**.
- b. In the Workspace Launcher dialog box, set the **Workspace** location to **C:\Workspaces\EX02** and click **OK**.
- c. When the Welcome page opens, close it by clicking the **X** on the **Getting Started - IBM Integration Designer** tab.

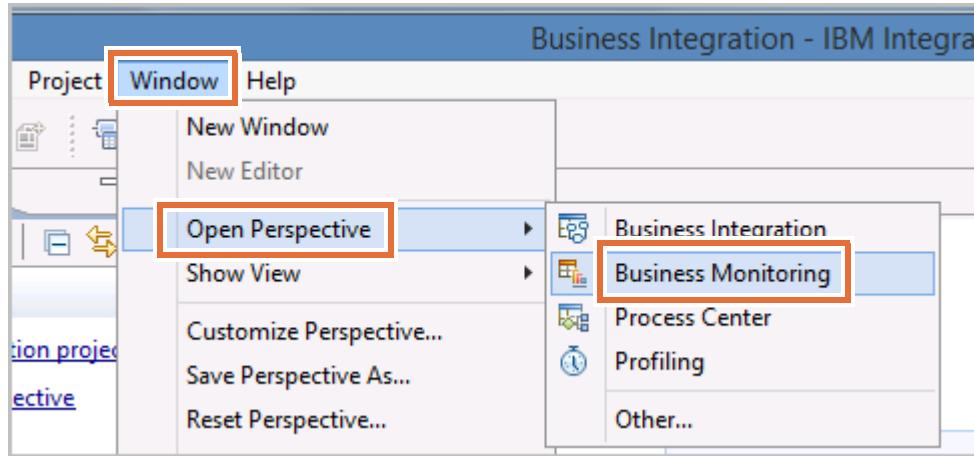


Hint

If Integration Designer is already open, then you can switch workspace by clicking **File > Switch Workspace > Other**. Then, you can enter the new workspace path. Wait few minutes and the new workspace opens.



- __ 2. Switch to the Business Monitoring perspective.
 - __ a. From the menu, click **Window > Open Perspective > Business Monitoring**.

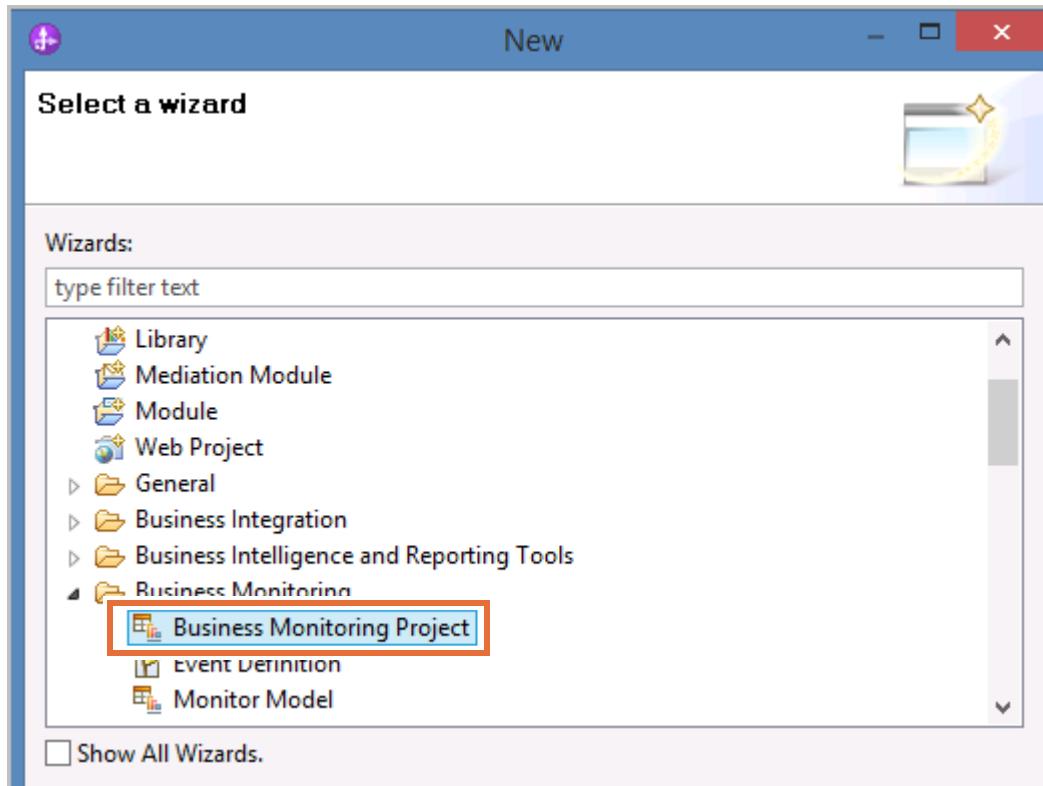


- __ b. Wait for the Business Monitoring perspective to load.
- __ c. Close the **Technology Quickstarts** view.
- __ d. Close the **Help** window on the right side of the toolkit.

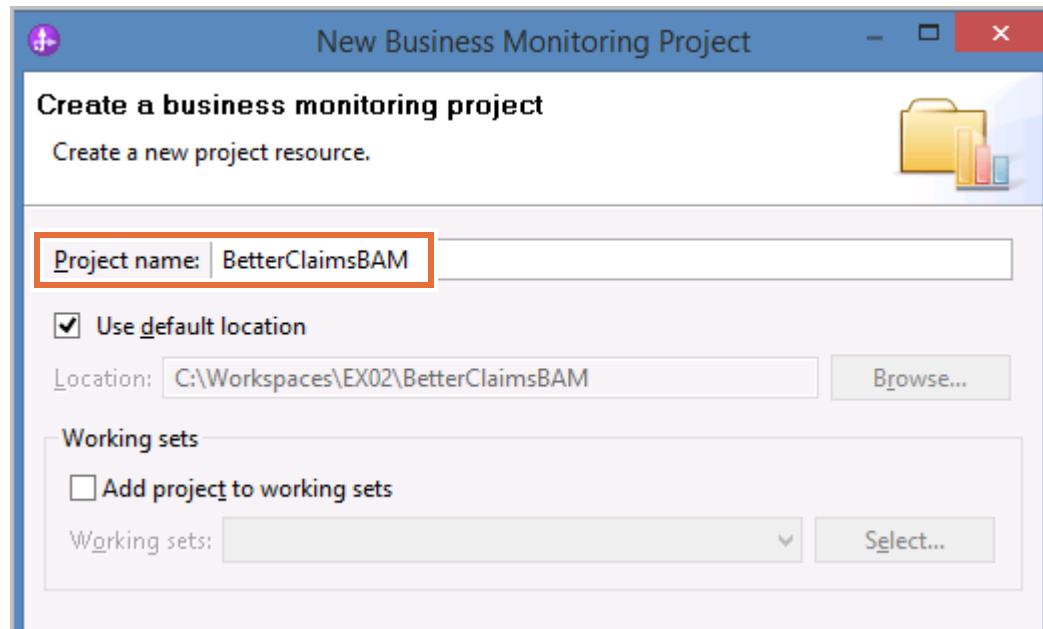
Part 2: Creating a business monitoring project

- __ 1. Create a business monitoring project. This project acts as a container to hold the Monitor model that you construct.
 - __ a. From the menu bar, click **File > New > Other**. The **Select a wizard** dialog box is displayed.

- __ b. Scroll-down and select **Business Monitoring > Business Monitoring Project**.



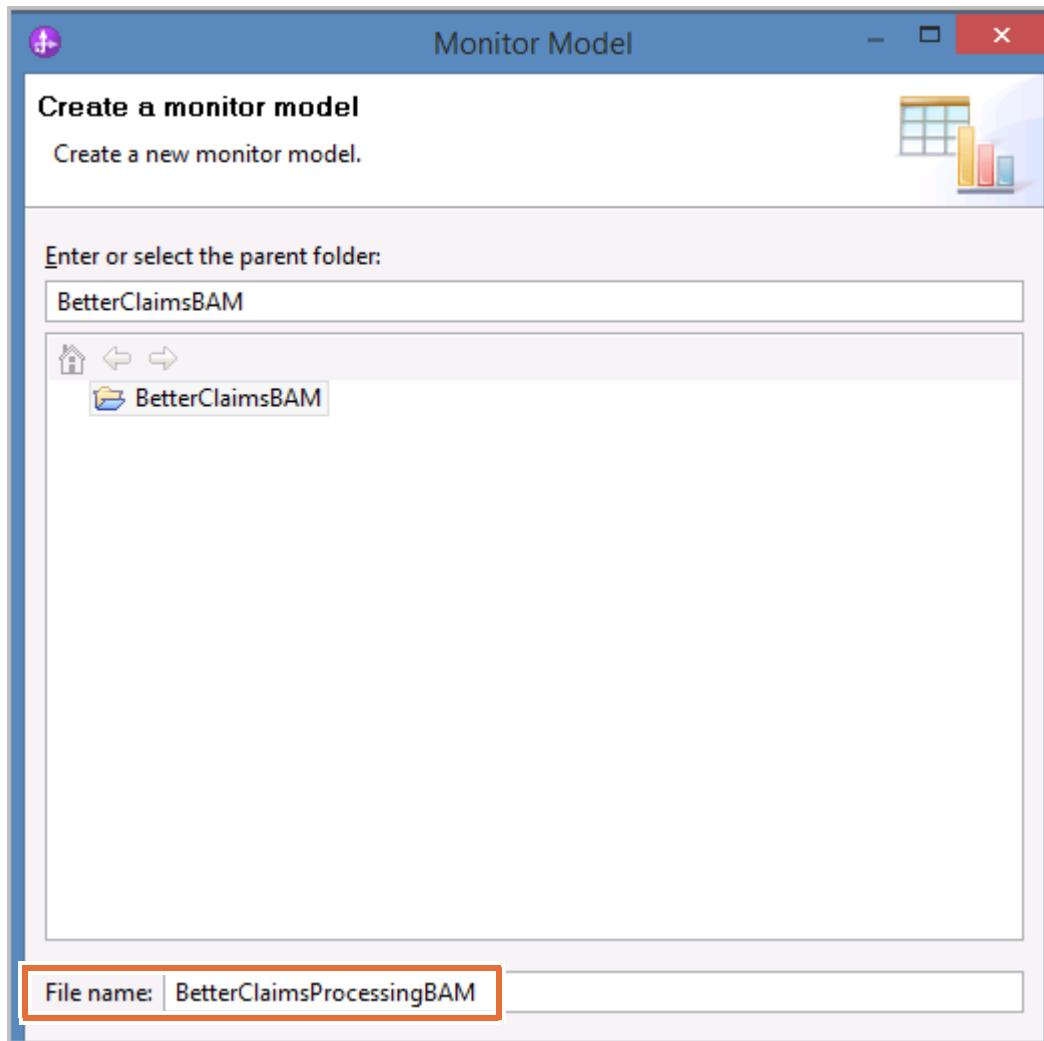
- __ c. Click **Next**.
__ d. For **Project name**, enter: BetterClaimsBAM



- __ e. Click **Finish**. The BetterClaimsBAM business monitoring project is created.
__ f. Close the **Technology Quickstarts** view that is now displayed.

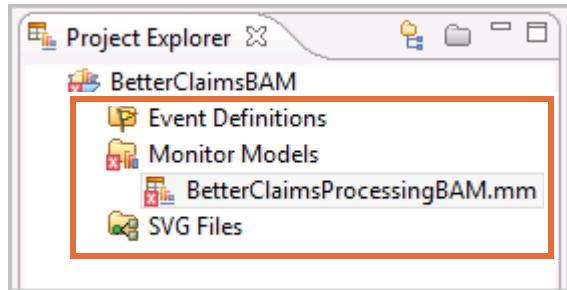
Part 3: Creating a Monitor model

- 1. Create the Monitor model.
 - a. In the **Project Explorer**, right-click **BetterClaimsBAM**, and click **New > Monitor Model**. The **Create a monitor model** dialog box is displayed.
 - b. For **File name**, enter: **BetterClaimsProcessingBAM**



- c. Leave the remaining defaults and click **Finish**. The empty Monitor model is created, and the Monitor model editor opens.

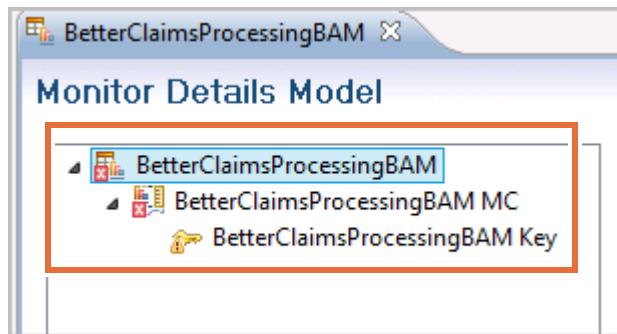
A business monitoring project is created in the Project Explorer view. There are three groups inside the project to contain Event Definitions, Monitor Models, and Scalable Vector Graphics (SVG) files.



Note

You see errors on the Monitor model because the Monitor model is not yet completed.

- d. Close the **Technology Quickstarts** view that is now displayed.
- e. On the right pane, the Monitor model editor is open in the **BetterClaimsProcessingBAM** tab. You can see a Monitor model (**BetterClaimsProcessingBAM**), which contains a monitoring context (**BetterClaimsProcessingBAM MC**) and a key (**BetterClaimsProcessingBAM Key**). You need to expand **BetterClaimsProcessingBAM MC** to see the key.

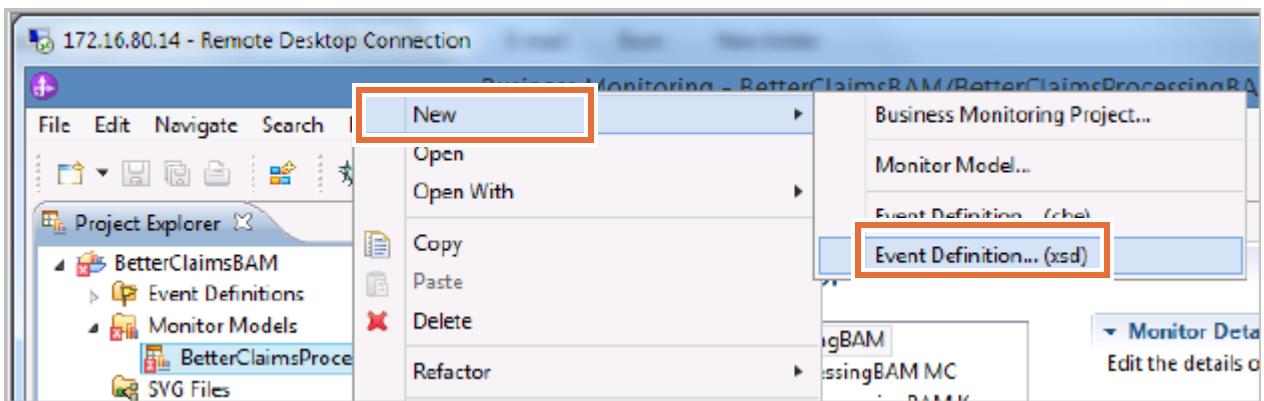


Part 4: Defining event definition

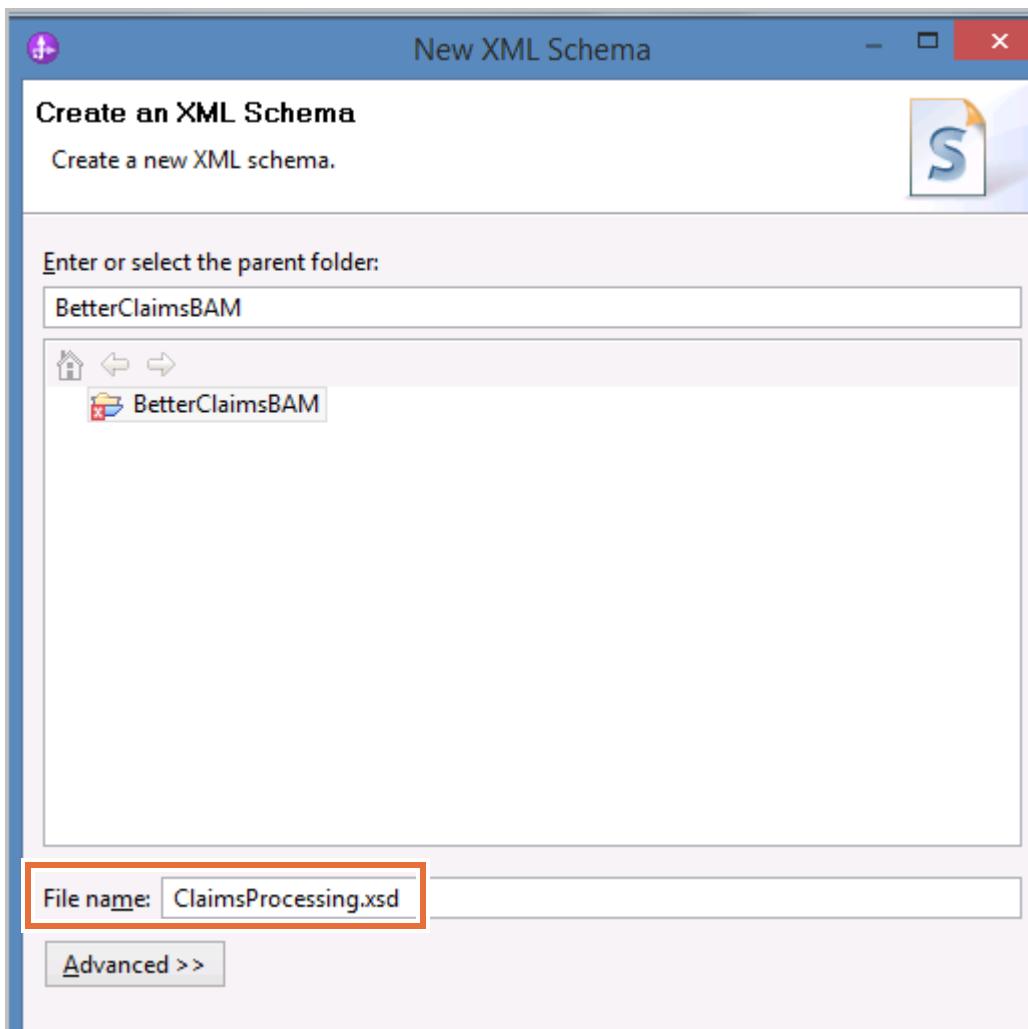
Each inbound and outbound event in the Monitor model refers to a particular event definition that defines its structure. Event definitions can be found in XML Schema Definition (XSD), Common Base Event, or Web Services Description Language (WSDL) files, or a combination. XSD events can be made up of fragments of structures that exist for other purposes, for example, business objects for passing data through an application.

- 1. In the Project Explorer view on the left, expand **BetterClaimsBAM > Monitor Models**.

- 2. To create event definition by using XSD, right-click the monitor model **BetterClaimsProcessingBAM.mm** and click **New > Event Definition (xsd)**.

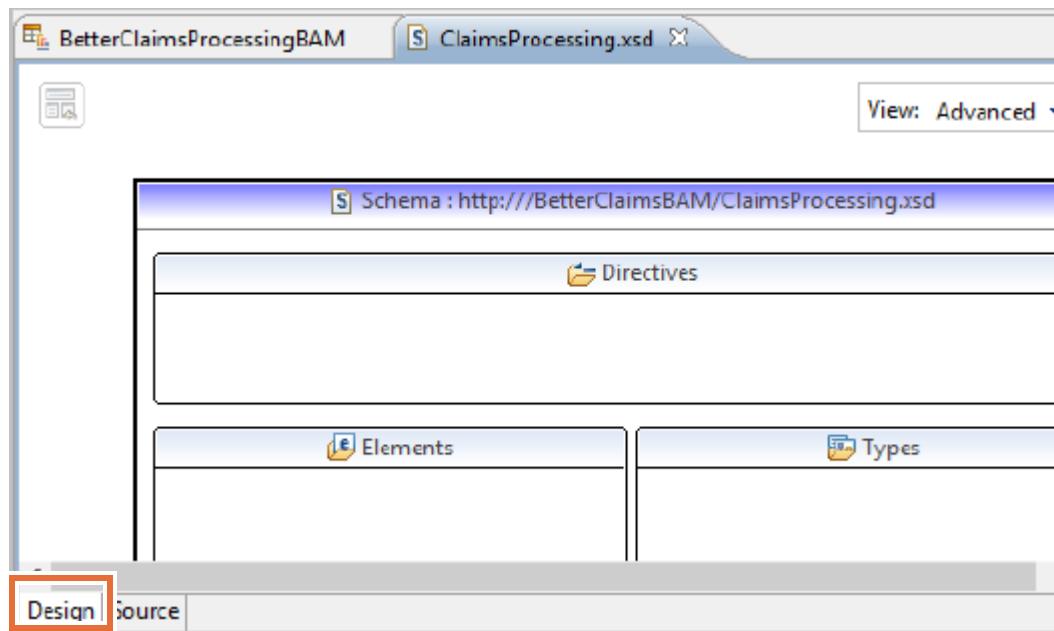


- 3. In the **Create an XML Schema** dialog box, enter **ClaimsProcessing.xsd** as the **File name**.

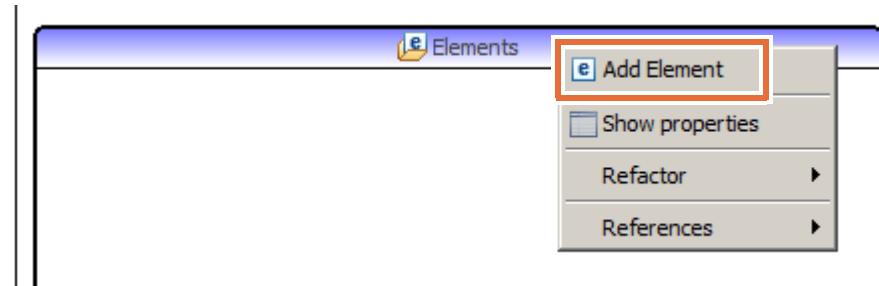


- 4. Click **Finish**.

- 5. The ClaimsProcessing.xsd file editor opens. Make sure that you are in the **Design** tab at the bottom of the editor window.



- 6. To add a new element, right-click Elements, and click **Add Element**.



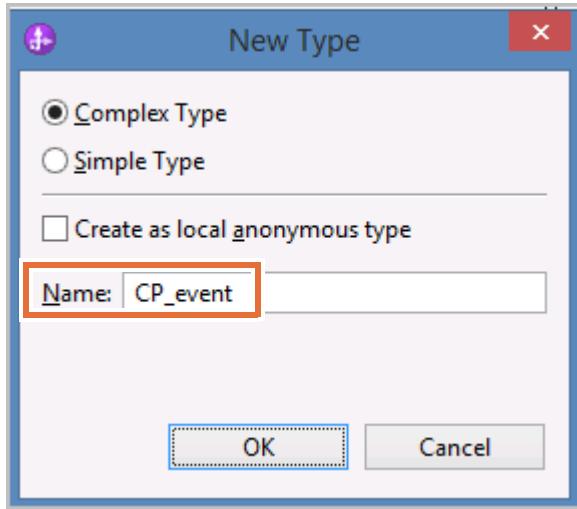
- 7. Change the name from **NewElement** to: **Data** and press Enter.



- 8. Right-click **Data** and click **Set Type > New**.

- 9. Leave the default **Complex Type** selected.

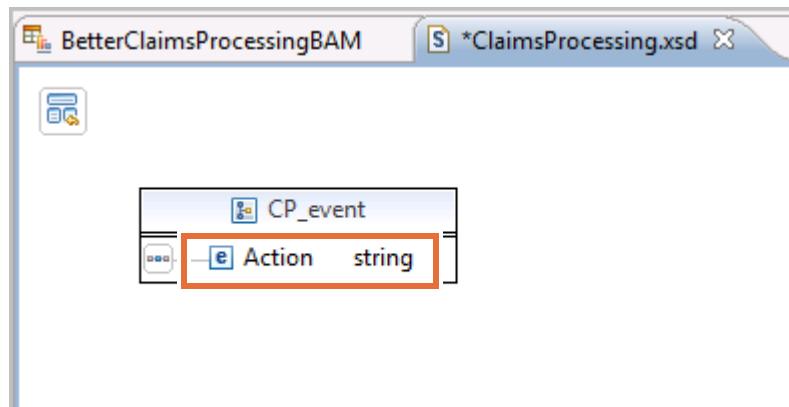
__ 10. Enter CP_event for Name.



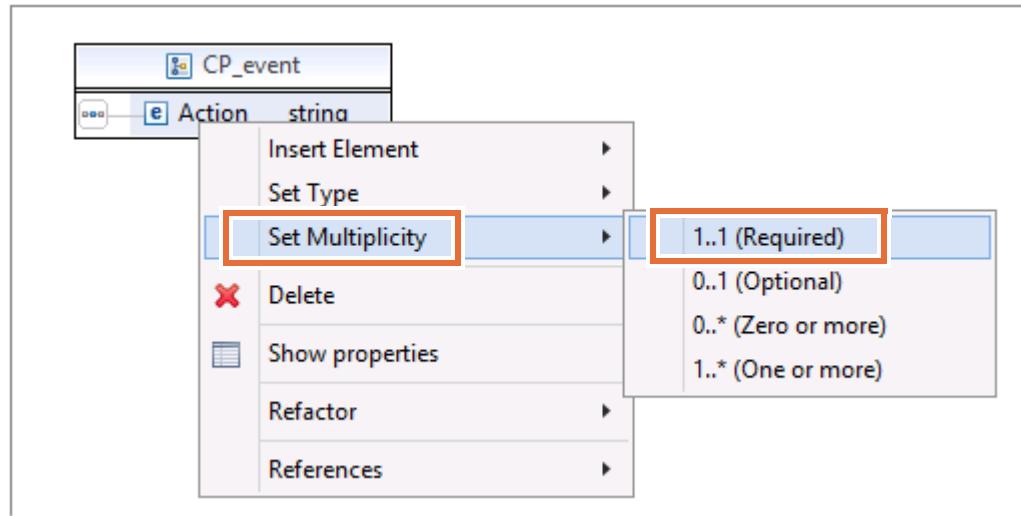
__ 11. Click **OK**.

__ 12. Add Action element to CP_event type.

- __ a. Right-click CP_event under **Types** and click **Add Element**.
- __ b. Change the name from **NewElement** to **Action** and press Enter to set the default type as string.



- __ c. Right-click **Action** and click **Set Multiplicity > 1..1 (Required)**.

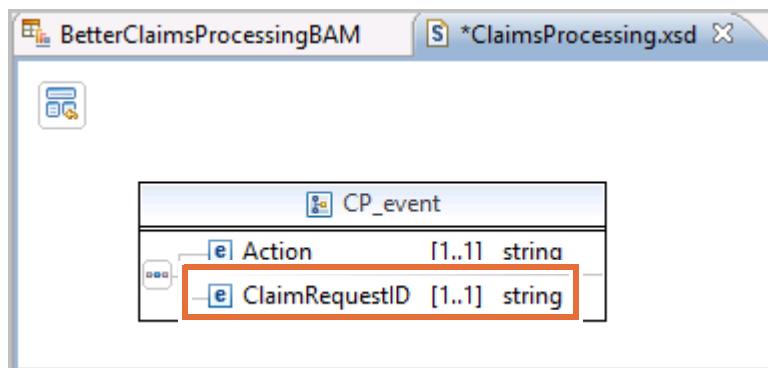


- __ 13. Click the **Save** icon to save your work.



- __ 14. Add `ClaimRequestID` element to `CP_event` type.

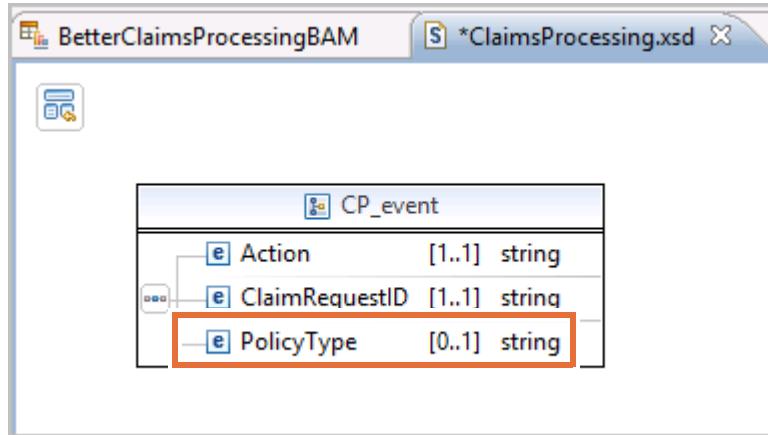
- __ a. Right-click `CP_event`, and click **Add Element**.
- __ b. Change the name from **NewElement** to `ClaimRequestID` and press Enter to set the default type as string.
- __ c. Right-click `ClaimRequestID` and click **Set Multiplicity > 1..1 (Required)**.



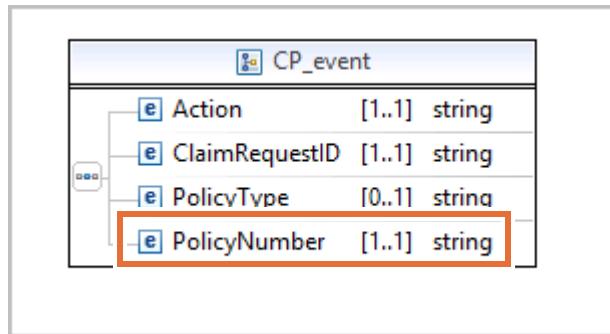
- __ 15. Add `PolicyType` element to `CP_event` type.

- __ a. Right-click `CP_event`, and click **Add Element**.
- __ b. Change the name from **NewElement** to `PolicyType` and press Enter to set the default type as string.

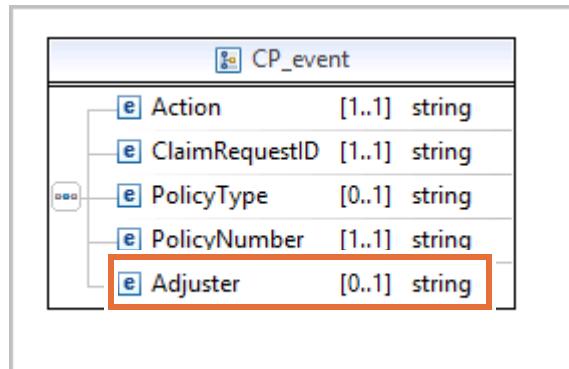
- ___ c. Right-click **PolicyType** and this time click **Set Multiplicity > 0..1 (Optional)**.



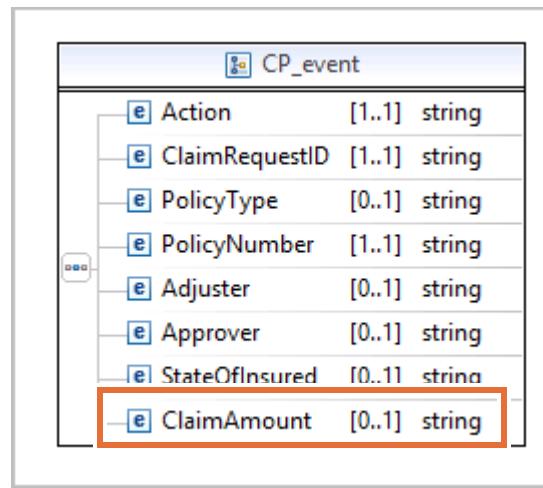
- ___ 16. Add **PolicyNumber** element to **CP_event** type.
- ___ a. Right-click **CP_event**, and click **Add Element**.
 - ___ b. Change the name from **NewElement** to **PolicyNumber** and press Enter to set the default type as string.
 - ___ c. Right-click **PolicyNumber** and select **Set Multiplicity > 1..1 (Required)**



- ___ 17. Add **Adjuster** element to **CP_event** type.
- ___ a. Right-click **CP_event**, and click **Add Element**.
 - ___ b. Change the name from **NewElement** to **Adjuster** and press Enter to set the default type as string.
 - ___ c. Right-click **Adjuster** and click **Set Multiplicity > 0..1 (Optional)**



- ___ 18. Add Approver element to CP_event type.
 - ___ a. Right-click CP_event, and click **Add Element**.
 - ___ b. Change the name from **NewElement** to **Approver** and press Enter to set the default type as string.
 - ___ c. Right-click Approver and click **Set Multiplicity > 0..1 (Optional)**
- ___ 19. Add StateOfInsured element to CP_event type.
 - ___ a. Right-click CP_event and click **Add Element**.
 - ___ b. Change the name from **NewElement** to **StateOfInsured** and press Enter to set the default type as string.
 - ___ c. Right-click StateOfInsured and click **Set Multiplicity > 0..1 (Optional)**
- ___ 20. Add ClaimAmount element to CP_event type.
 - ___ a. Right-click CP_event and click **Add Element**.
 - ___ b. Change the name from **NewElement** to **ClaimAmount** and press Enter to set the default type as string.
 - ___ c. Right-click ClaimAmount and click **Set Multiplicity > 0..1 (Optional)**



- ___ 21. Press Ctrl+S to save.
- ___ 22. You created the XSD. Close the **ClaimsProcessing.xsd** editor.
- ___ 23. In the next exercise, you work in a new workspace. Close IBM Integration Designer by clicking **File > Exit**.

End of exercise

Exercise 3. Generating events in a monitor model

Estimated time

01:00

Overview

In this exercise, you learn how to generate events for IBM Business Monitor model.

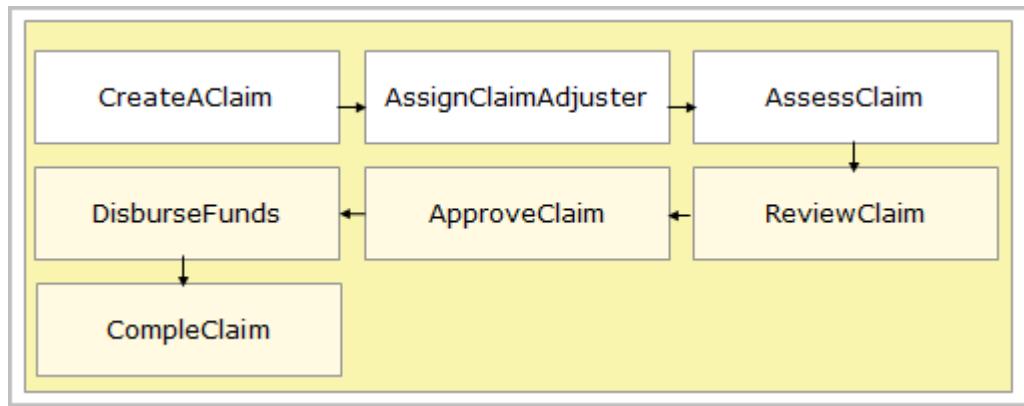
Objectives

After completing this exercise, you should be able to:

- Create several inbound events for the monitor model

Introduction

The case study that is used here is based on a Claims Processing scenario. This scenario implements a fictitious monitor model to support a simple claim processing business flow to provide a good understanding of the steps necessary to implement a monitor model by using IBM Business Monitor. In this exercise and several exercises that follow, you continue building upon this model and then run it. The diagram below shows the process flow that is involved in this particular example model, describing how a claim is processed and the state a particular claim might be in at any time.



The model example in this scenario does not use BPMN or BPEL and is commonly referred to as a BAM model, that uses Business Activity Monitoring. In this type of scenario, there is great freedom to define both the events and the payload that are included in those events. In later exercises, you integrate Business Monitor with BPEL and BPMN.

Requirements

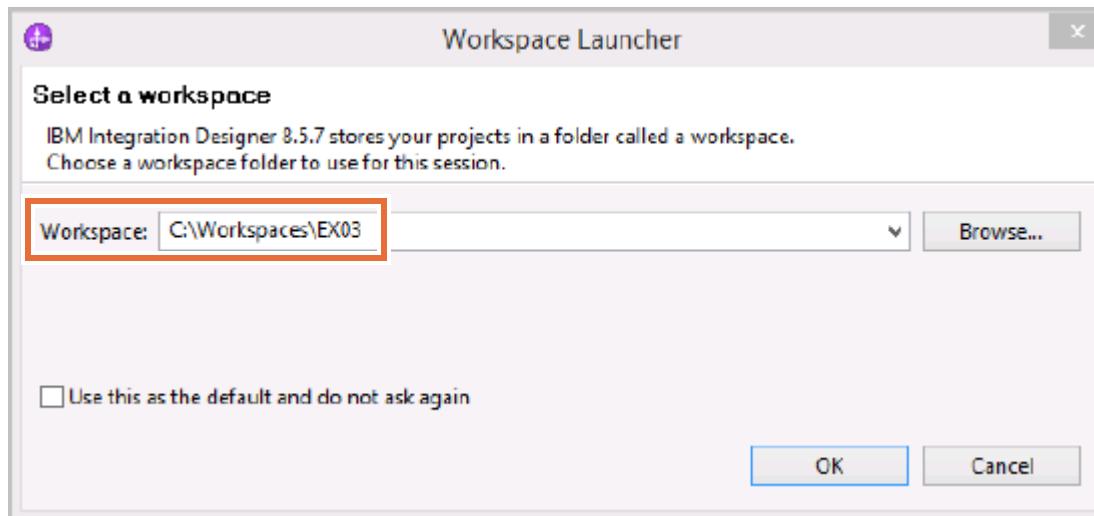
Completing the exercises for this course requires a lab environment. The environment includes the exercise support files, Internet Explorer, IBM Process Server, and IBM Business Monitor test environments.

Exercise instructions

Part 1: Importing the Monitor model

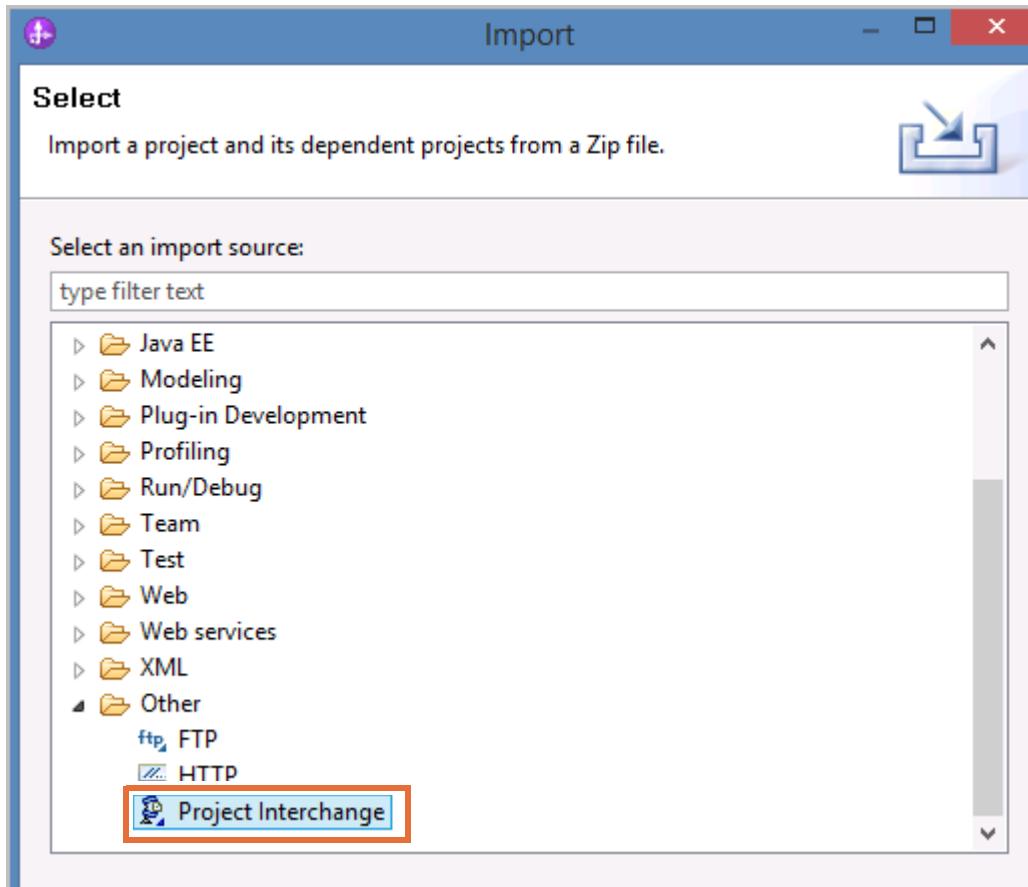
In this portion of the exercise, you start IBM Integration Designer and work with an existing Monitor model project for claims processing.

- ___ 1. Start IBM Integration Designer (You closed it in the previous exercise).
 - ___ a. On your desktop, double-click the shortcut that is labeled **IBM Integration Designer**. This action takes a moment to initialize.
 - ___ b. In the **Workspace Launcher** dialog box, change the **Workspace** location to C:\Workspaces\EX03 and click **OK**.



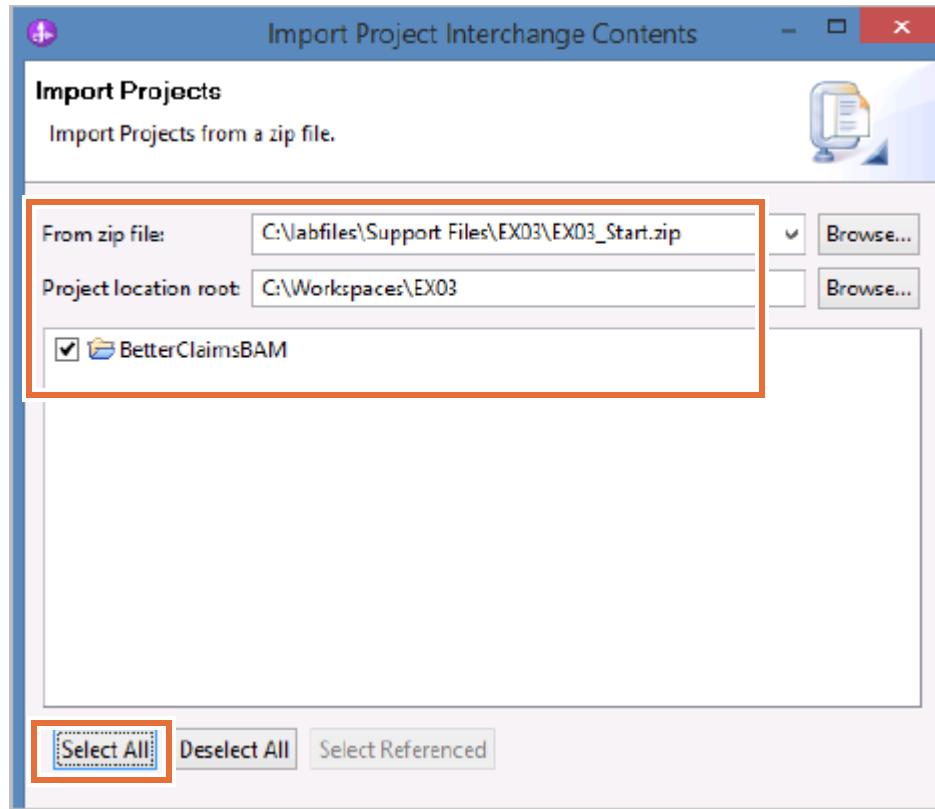
- ___ c. Close the welcome page by clicking the X on the **Getting Started - IBM Integration Designer** tab.
- An empty workspace is created. Next, you import the claims processing monitoring project in this workspace.
- ___ 2. Import the monitor model.
 - ___ a. From the menu bar in the **Business Integration** view, click **File > Import**.

- __ b. In the Import window, expand **Other** and select **Project Interchange**.



- __ c. Click **Next**.
- __ d. In the Import Project Interchange Contents window, click **Browse** to the right of **From zip file**. Go to the following folder:
C:\labfiles\Support Files\EX03
- __ e. Select **EX03_Start.zip**, and click **Open**.

- __ f. Click **Select All** to make sure that the project is selected.



- __ g. Click **Finish** to complete the import.

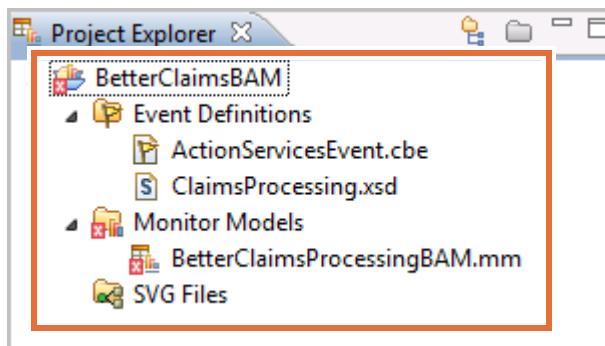
The BetterClaimsBAM project is now imported in IBM Integration Designer. Wait for the workspace to be built. You can view the status at the lower-right side of the business integration view.



The build process is complete when the status reaches 100% and is no longer listed.

- __ 3. Switch to the Business Monitoring perspective.
- __ a. From the menu, click **Window > Open Perspective > Business Monitoring**.
 - __ b. Wait for the Business Monitoring perspective to load.
 - __ c. Close the **Technology Quickstarts** view.
 - __ d. Close **Help** on the right side of the toolkit.

- __ e. In the **Project Explorer** pane on the left, expand **BetterClaimsBAM** and then expand **EventDefinitions** and **Monitor Models**. Note that the error indicators are expected.



- __ 4. Review the artifacts that are available as a starting point.
- __ a. Examining **Event Definitions** shows that there is a **ClaimsProcessing.xsd**. This .xsd file is the single event that is used throughout this scenario. You created it in the previous exercise and now imported it as part of the project file provided.
- __ b. In the **Project Explorer** pane, double-click **ClaimsProcessing.xsd** and in the open editor, click the **Source** tab.

```

<?xml version="1.0" encoding="UTF-8"?><xsd:schema attributeFormDefault="^
targetNamespace="http://BetterClaimsProcessing/ClaimsProcessing.xsd"
xmlns:myclaim="http://BetterClaimsProcessing/ClaimsProcessing.xsd"
xmlns:xsd="http://www.w3.org/2001/XMLSchema">

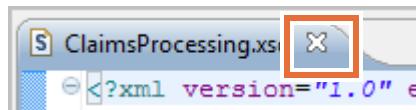
<xsd:element name="Data" type="myclaim:CP_event"></xsd:element>

<xsd:complexType name="CP_event">
  <xsd:sequence>
    <xsd:element name="Action" type="xsd:string" maxOccurs="1" />
    <xsd:element name="ClaimRequestID" type="xsd:string" maxOccurs="1" />
    <xsd:element name="PolicyType" type="xsd:string" maxOccurs="1" />
    <xsd:element name="PolicyNumber" type="xsd:string" maxOccurs="1" />
    <xsd:element name="Adjuster" type="xsd:string" maxOccurs="1" />
    <xsd:element name="Approver" type="xsd:string" maxOccurs="1" />
    <xsd:element name="StateOfInsured" type="xsd:string" maxOccurs="1" />
    <xsd:element name="ClaimAmount" type="xsd:float" maxOccurs="1" />
  </xsd:sequence>
</xsd:complexType>

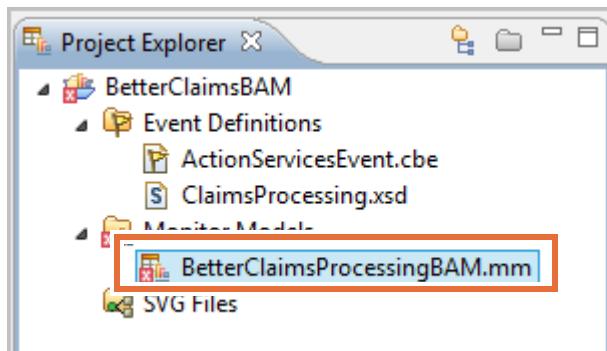
```

- __ c. Examine the details of this xsd. The **ClaimRequestID** attribute provides the unique key to distinguish one claim instance from another. The **Action** attribute is used to convey an action such as create, assign, assess, review, approve, distribute funds, and complete. The other attributes within this simple event definition are payload or information that is of interest for monitoring purposes.

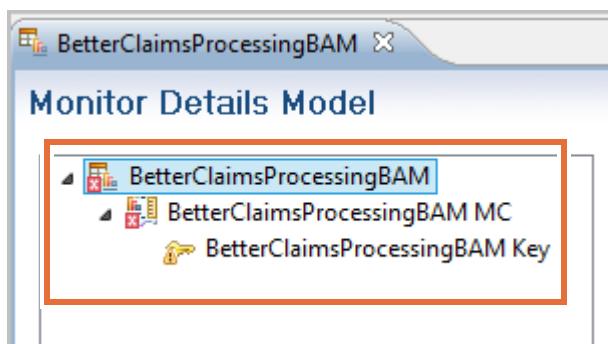
- ___ d. When you are done examining the xsd, close the editor by clicking X in the **ClaimsProcessing.xsd** tab.



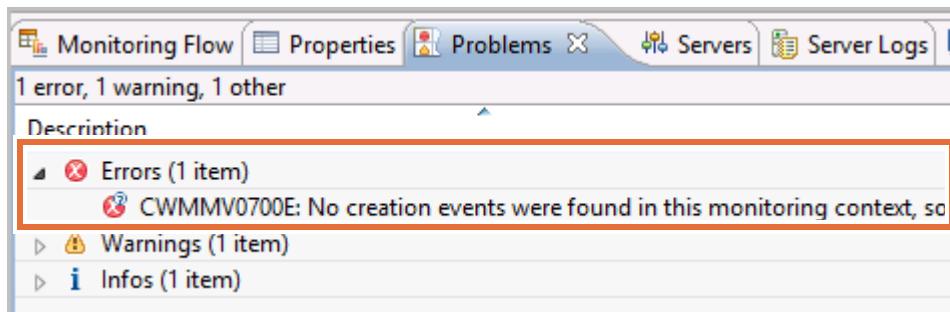
- ___ e. Now examine the monitor model. In the **Project Explorer** pane, double-click **BetterClaimsProcessingBAM.mm** under the **Monitor Models** folder.



- ___ f. In the right window, a skeleton monitor model opens, which is the model that this scenario builds on. The monitor model is named **BetterClaimsProcessingBAM**. It has one monitoring context that is named **BetterClaimsProcessingBAM MC** and a key **(BetterClaimsProcessingBAM Key)**. You need to expand **BetterClaimsProcessingBAM MC** to see the key.



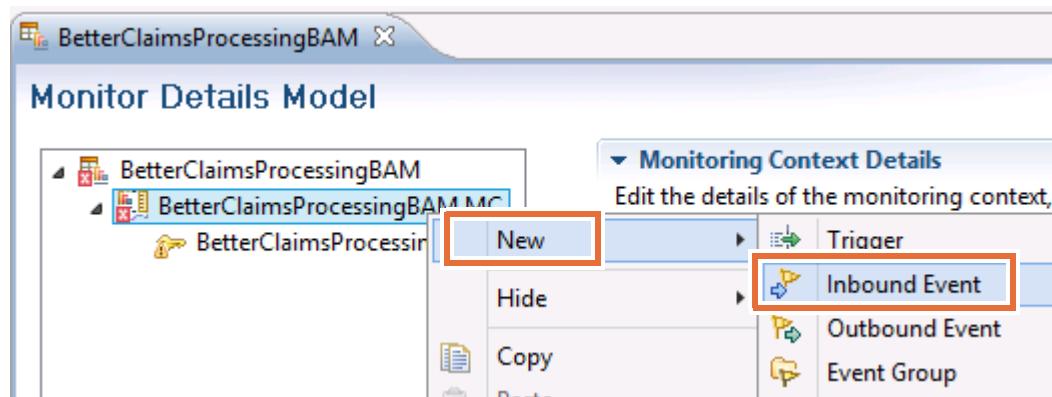
- ___ g. Notice that there is one error by clicking the **Problems** tab at the bottom. Expand **Errors** to view the error detail. The error is: CWMMV0700E: No creation events were found in this monitoring context, so no instances can be created. You resolve this problem later in the exercise.



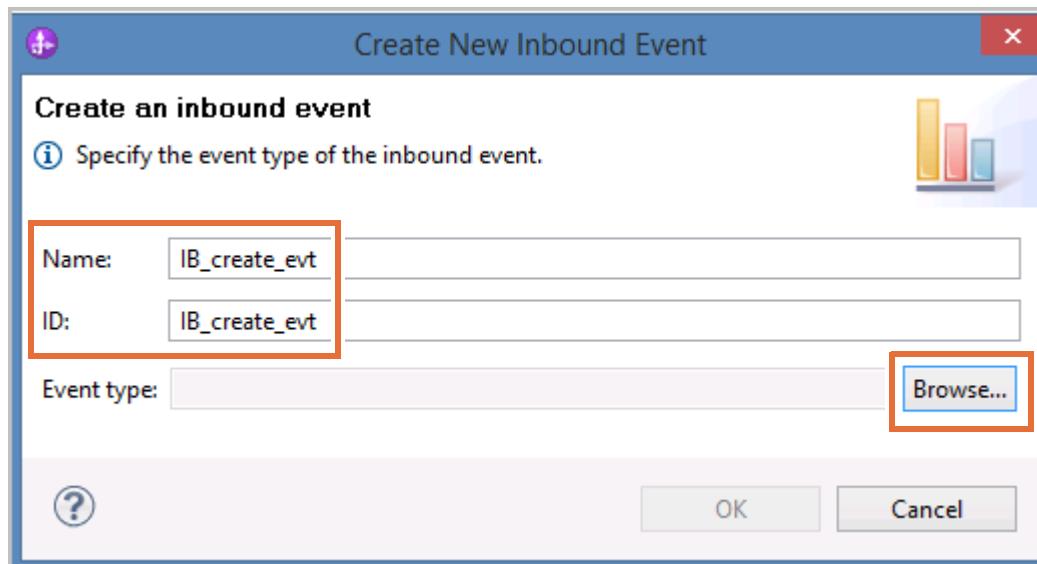
Part 2: Creating inbound events: Instance Creation event

Monitor models are not stand-alone. In this step, you define inbound events to deliver information to the Monitor model. You create an inbound event that is responsible for the creation of the monitoring instances.

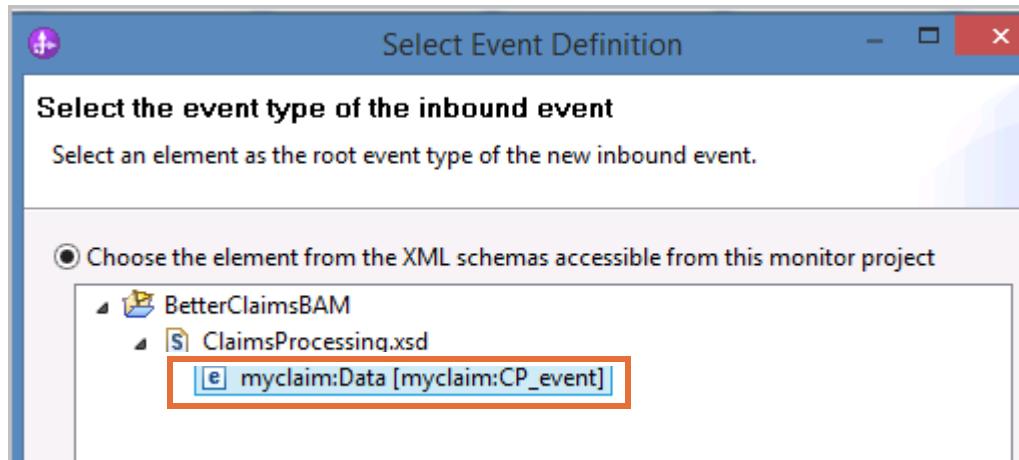
- 1. Create the Instance Creation event: The Instance Creation event in this scenario is what causes a unique instance of a claim request to be created in IBM Business Monitor.
- a. In the Monitor model editor, right-click **BetterClaimsProcessingBAM MC** and click **New > Inbound Event**.



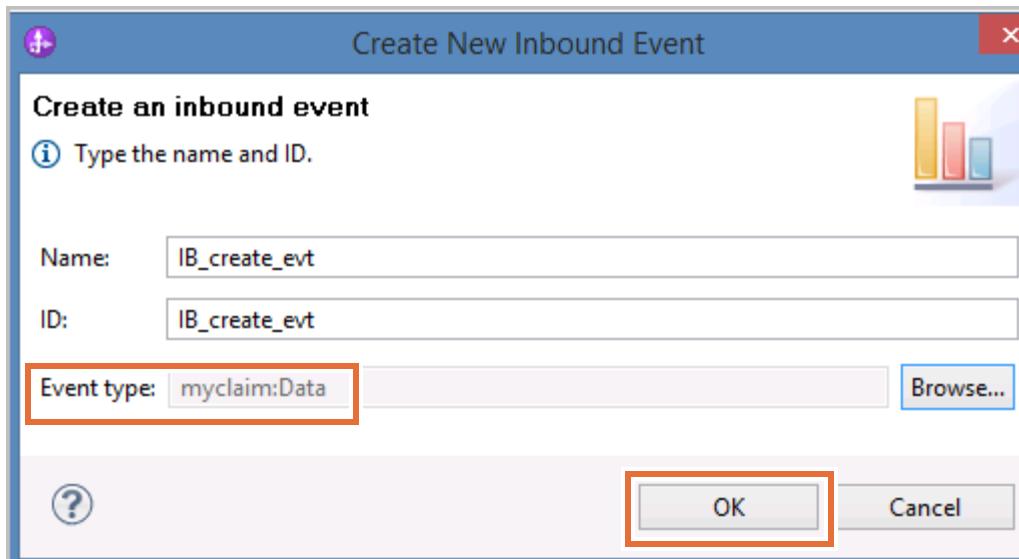
- b. In the Create New Inbound Event window, in the **Name** field enter **IB_create_evt** and click **Browse**.



- c. In the Select Event Definition window, leave **Choose the element from the XML schemas accessible from this monitor project** selected, expand **ClaimsProcessing.xsd**, and then click **myclaim:Data [myclaim:CP_event]**.



- d. Click **Finish**.
- e. In the Create New Inbound Event window, notice that the **Event type** field is set to **myclaim:Data**. Click **OK**.



- 2. Examine and complete the **Event Point Filter** section

- a. Scroll down to the **Event Point Filter** section.

This section provides the window to define the event point filters. The event page shows the **Event Point Filter**, which is generated for you with default values populated. Here is where you would need to specify values to use to identify which events are to emit (publish) and which events to monitor (subscribe). Based on these settings for each DEF style event, the Dynamic Event Framework processes these events as defined

here in **Event Point Filter**. There are seven string attributes with default values that are defined for each of the attributes.

The screenshot shows a configuration interface for an event point filter. At the top, there is a section titled "Event Point Filter" with a descriptive note: "Use generated values if they are present or specify values for the event point events to emit and monitor. To subscribe to all the events for a version of an application name and version and use asterisks (*) in the other five fields." Below this, there are seven input fields, each with a label and a value in parentheses:

- Application name: XML
- Version: XML
- Component type: *
- Component name: XML
- Element type: XML
- Element name: XML
- Nature: XML

You change only three of the event point filter attributes. Why? For a BAM model where the set of events that flow to the model are defined manually, it is advised to keep it simple.



Information

You would not see anything in the **Event Point Filter** section for a deprecated CEI/CBE style event. It would show blanks and the **Event Type Details** section below would have the additional prefix of "cbe" in the type and path statements.

- __ b. The **Application name** field can be set to match the monitor model name. Change the default to be BetterClaimsProcessingBAM.
- __ c. For **Version**, enter v1. As an alternative, the time stamp of this particular monitor model can be used but that can be more error prone due to the possibility of mistyping the value.
- __ d. For **Nature**, enter create. The best advice on how to use this field in a BAM scenario is to make the nature reflect some verb or action. In this exercise, the entire set of inbound events has nature values that represent actions create, assign, assess, review, approve, distribute_funds, and complete.

- __ e. Verify that the values are entered correctly.

Event Point Filter	
Use generated values if they are present or specify values for the event point fields to emit and monitor. To subscribe to all the events for a version of an application, leave the application name and version and use asterisks (*) in the other five fields.	
Application name:	* BetterClaimsProcessingBAM
Version:	* V1
Component type:	* *
Component name:	* XML
Element type:	* XML
Element name:	* XML
Nature:	* create

- __ f. Click the **Save** icon to save your work.
- __ 3. Examine and complete the **Filter Condition** section.
- __ a. Scroll down to the **Filter Condition** section. In this section, you define the filter condition for the Instance Creation event.
 - __ b. Since only one event is defined for this model, the Action field is used to help define the event. In the entry field for the **Filter Condition** enter:
`IB_create_evt/RootData/myclaim:Action eq 'create'`
- The **Filter Condition** attribute has contextual assistance to help build the filter condition. This feature reduces your manual typing and helps ensure the correctness of the filter condition.

the filter condition. Optionally, you can press Ctrl+Space when the cursor is in the Filter Condition entry area to display the contextual assistance.

The screenshot shows the 'Filter Condition' dialog with a red box highlighting the event attributes section. The tree view displays the event structure: BetterClaimsProcessingBAM > BetterClaimsProcessingBAM MC > IB_create_evt > RootData: CP_event > myclaim. Under myclaim, several attributes are listed: Action: string, Adjuster: string, Approver: string, ClaimAmount: float, ClaimRequestID: string, PolicyNumber: string, and PolicyType: string.

- ___ c. Verify that the values are entered correctly.

The screenshot shows the 'Filter Condition' dialog with a red box around the 'IB_create_evt/RootData/myclaim:Action eq 'create'' entry field. This indicates the correlation expression has been defined.

- ___ 4. Examine and complete the **Correlation Expression** section.
 - ___ a. Scroll down to the **Correlation Expression** section. In this section, you define the correlation expression and define the behavior for the monitor model for this Instance Creation event.

The screenshot shows the 'Correlation Expression' dialog with a red box around the 'IB_create_evt/RootData/myclaim:Action eq 'create'' entry field. This indicates the correlation expression has been defined.

- ___ b. As previously described, the key that is used for uniqueness of instances is determined with the **ClaimRequestID** field. For the **Correlation Expression** entry field, enter:
BetterClaimsProcessingBAM_Key eq
IB_create_evt/RootData/myclaim:ClaimRequestID

- __ c. Verify that you entered the information correctly.

Correlation Expression

Define an expression to identify the monitoring context instance or instances that receive the run time. The value in this field can be used to determine the event partition path.

BetterClaimsProcessingBAM_Key eq IB_create_evt/RootData/myclaim:ClaimRequestID

- __ d. Scroll down and in the **If no instances are found** field, select **Create new instance**.

- __ e. Set **If one instance is found** and **If multiple instances are found** to **Treat as error**.

It is a good practice to have one inbound event be responsible for creating a new instance. Do not try to mix the creation event with the other correlation options with the option to create a new instance.

- __ f. Verify that the entries are accurate.

Filter Condition

Define a condition based on the event attributes to identify whether to accept an event of this type.

IB_create_evt/RootData/myclaim>Action eq 'create'

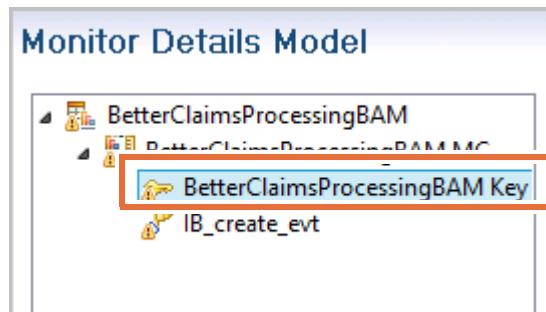
Correlation Expression

Define an expression to identify the monitoring context instance or instances that receive the event at run time. The value in this field can be used to determine the event partition path.

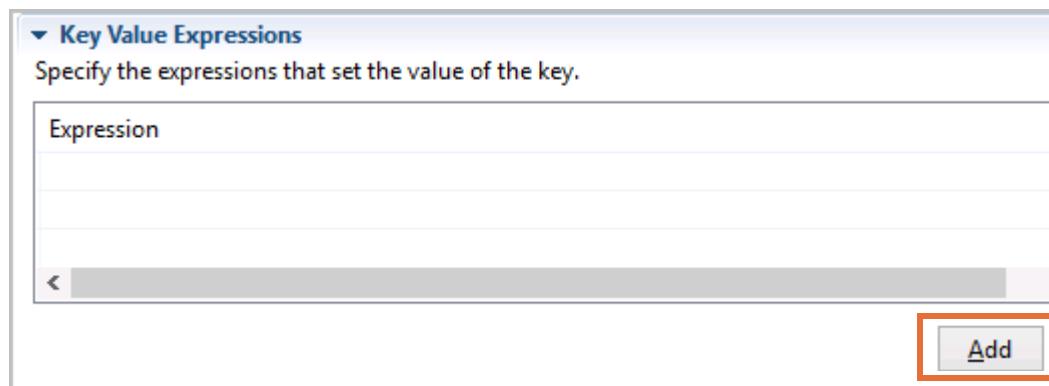
BetterClaimsProcessingBAM_Key eq IB_create_evt/RootData/myclaim:ClaimRequestID

If no instances are found	<input checked="" type="radio"/> Create new instance	
If one instance is found	<input checked="" type="radio"/> Treat as error	
If multiple instances are found	<input checked="" type="radio"/> Treat as error	

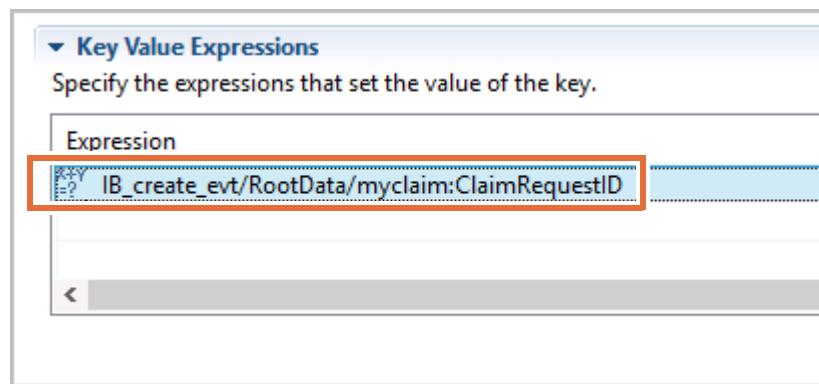
- ___ 5. Examine and complete the **BetterClaimsProcessingBAM** key
 - ___ a. Double-click **BetterClaimsProcessingBAM Key**.



- ___ b. In **Key Value Expressions**, click **Add**.



- ___ c. In the **Expression** field, type
IB_create_evt/RootData/myclaim:ClaimRequestID

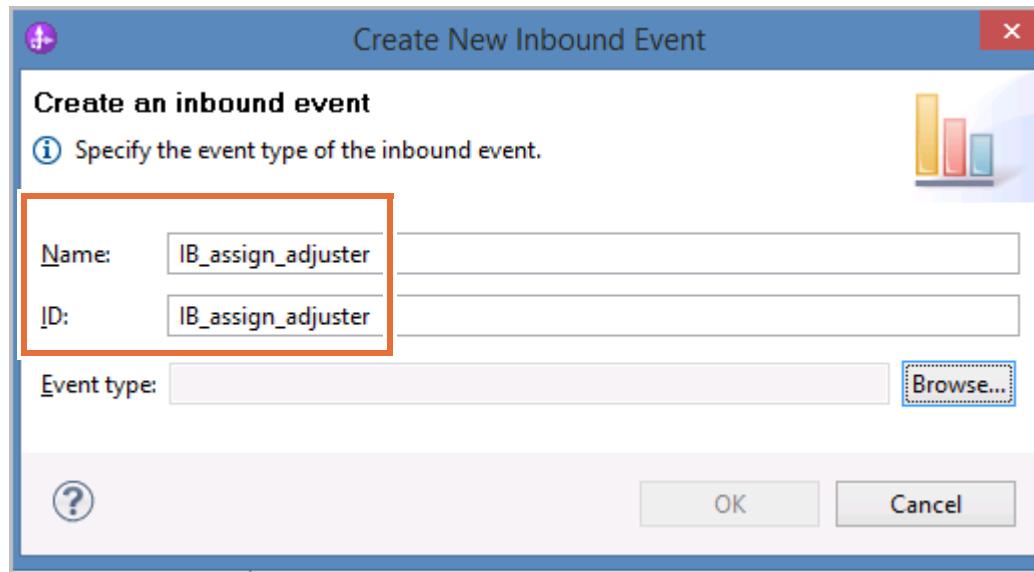


- ___ d. To save the changes to the monitor model, click the **Save** icon or press Ctrl+S. Examine the **Problems** view to confirm that the error is corrected. It is fine to see warnings in the **Problems** view. If you see errors, then go back and check the values that were entered earlier.

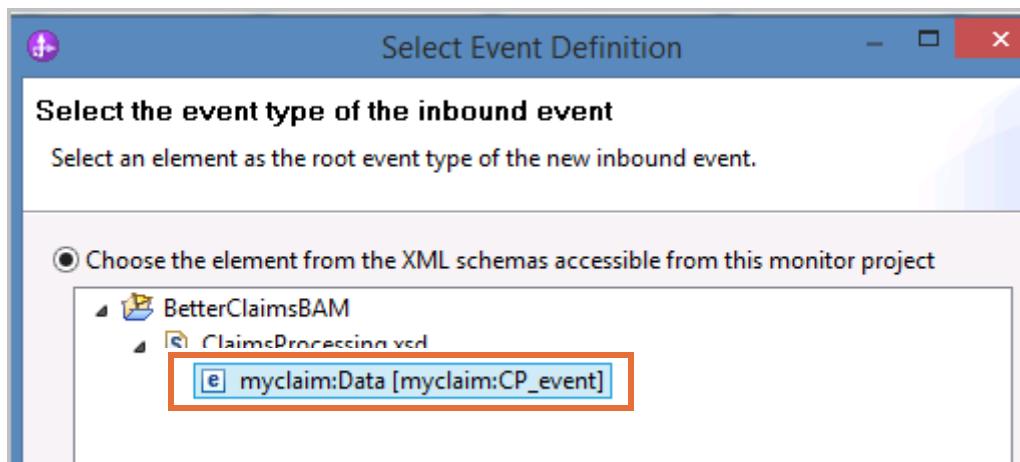
Part 3: Creating inbound events: Assign Adjuster event

- ___ 1. Create the Assign Adjuster event:
 - ___ a. In the Monitor model editor, right-click **BetterClaimsProcessingBAM MC** and click **New > Inbound Event**.

- ___ b. In the Create New Inbound Event window, in the **Name** field enter **IB_assign_adjuster** and click **Browse**.

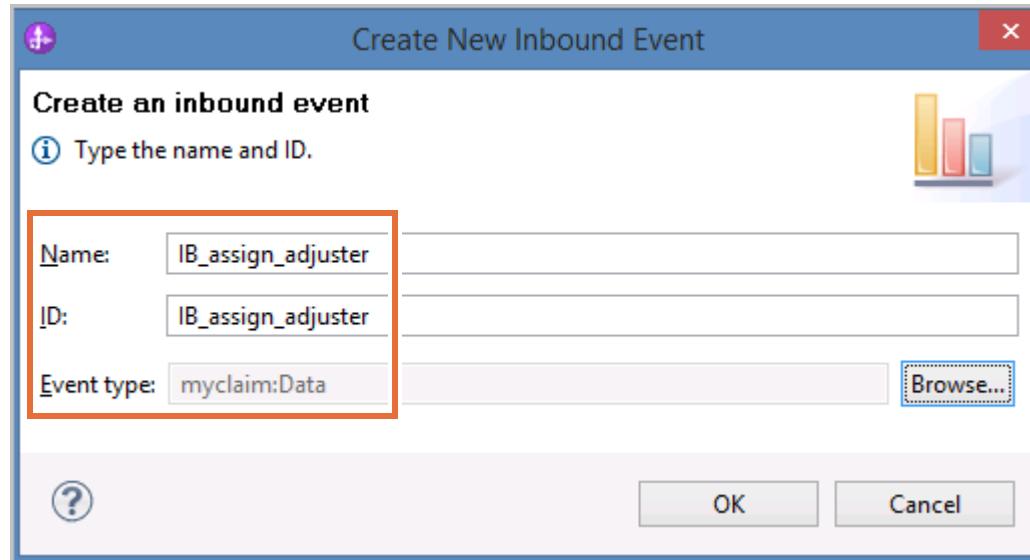


- ___ c. In the Select Event Definition window, leave **Choose the element from the XML schemas accessible from this monitor project** selected, expand **ClaimsProcessing.xsd**, and then click **myclaim:Data [myclaim:CP_event]**.

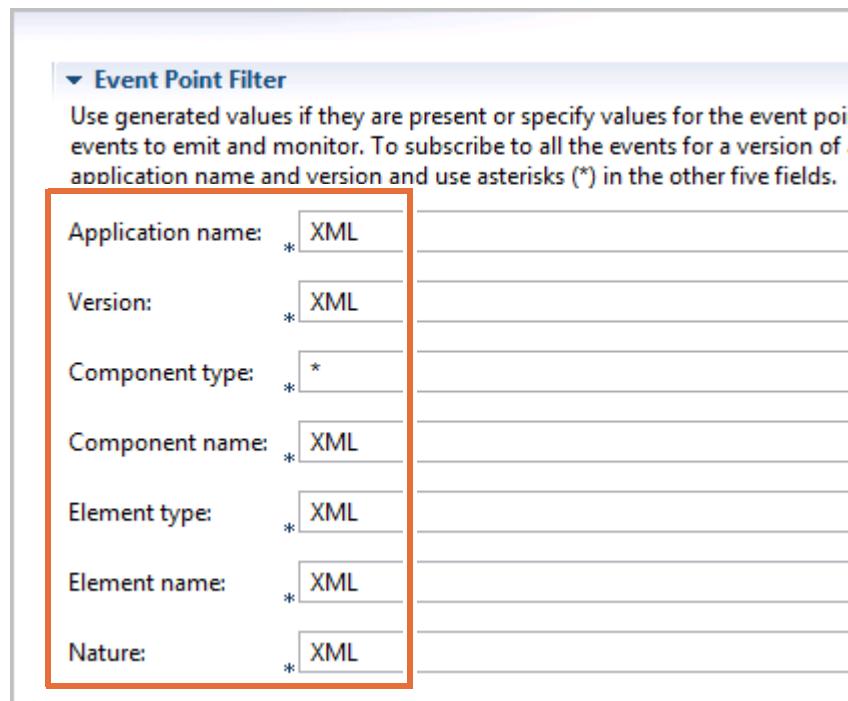


- ___ d. Click **Finish**.

- ___ e. In the **Create New Inbound Event** window, notice that the **Event type** field is set to `myclaim:Data`. Click **OK**.



- ___ 2. Examine and complete the **Event Point Filter** section.
- ___ a. Scroll down to the **Event Point Filter** section.



- ___ b. Set the **Application name** field to `BetterClaimsProcessingBAM`.
- ___ c. For **Version**, enter `v1`.
- ___ d. For **Nature**, enter `assign`.

- __ e. Verify that the values are entered correctly.

Event Point Filter

Use generated values if they are present or specify values for events to emit and monitor. To subscribe to all the events the application name and version and use asterisks (*) in the fields.

Application name:	*	BetterClaimsProcessingBAM
Version:	*	V1
Component type:	*	
Component name:	*	XML
Element type:	*	XML
Element name:	*	XML
Nature:	*	assign

- __ 3. Examine and complete the **Filter Condition** section
- __ a. Scroll down to the **Filter Condition** section. In this section, you define the filter condition for the Assign Adjuster event.
 - __ b. In the entry field for the **Filter Condition** enter:
IB_assign_adjuster/RootData/myclaim>Action eq 'assign'
 - __ c. Verify that the values are entered correctly.

Filter Condition

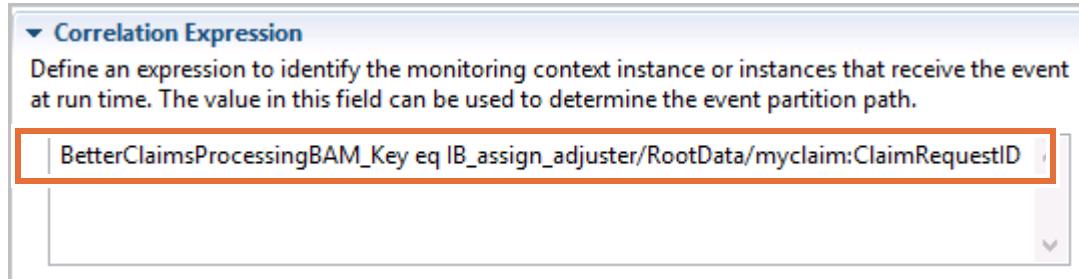
Define a condition based on the event attributes to identify whether to accept an event.

- __ 4. Create the **Correlation Expression** and define the behavior for this model for this event.
- __ a. Scroll down to the **Correlation Expression** section.

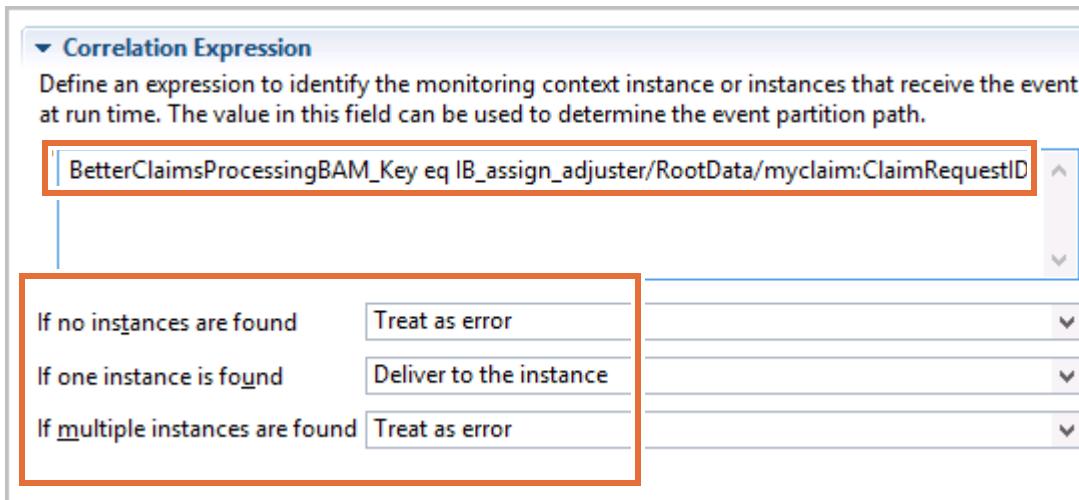
Correlation Expression

Define an expression to identify the monitoring context instance or instances that receive the event at run time. The value in this field can be used to determine the event partition path.

- __ b. For the **Correlation Expression** field, enter: BetterClaimsProcessingBAM_Key eq IB_assign_adjuster/RootData/myclaim:ClaimRequestID
Note that context assistance can be used in the **Correlation Expression** entry field.
- __ c. Verify that you entered the information correctly.



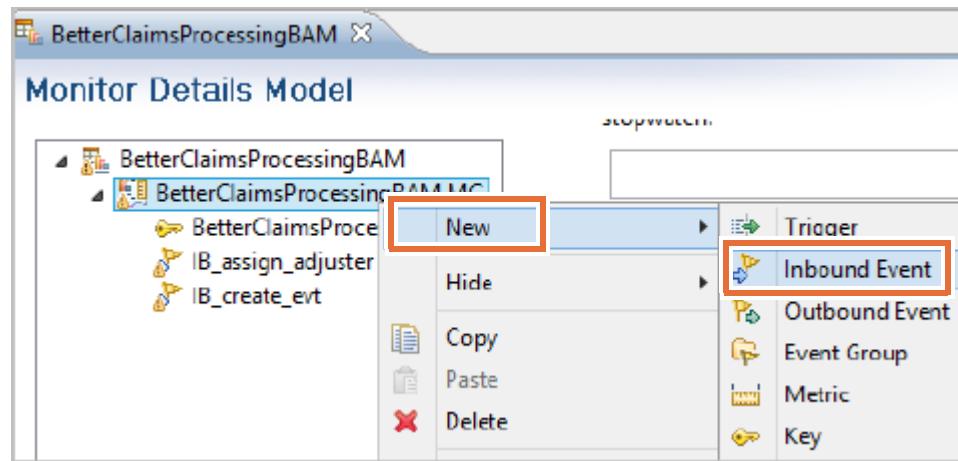
- __ d. In the **If no instances are found** field, select **Treat as error**.
- __ e. In the **If one instance is found** field, select **Deliver to the instance**.
- __ f. In the **If multiple instances are found** field, select **Treat as error**.
- __ g. Verify that the entries are accurate.



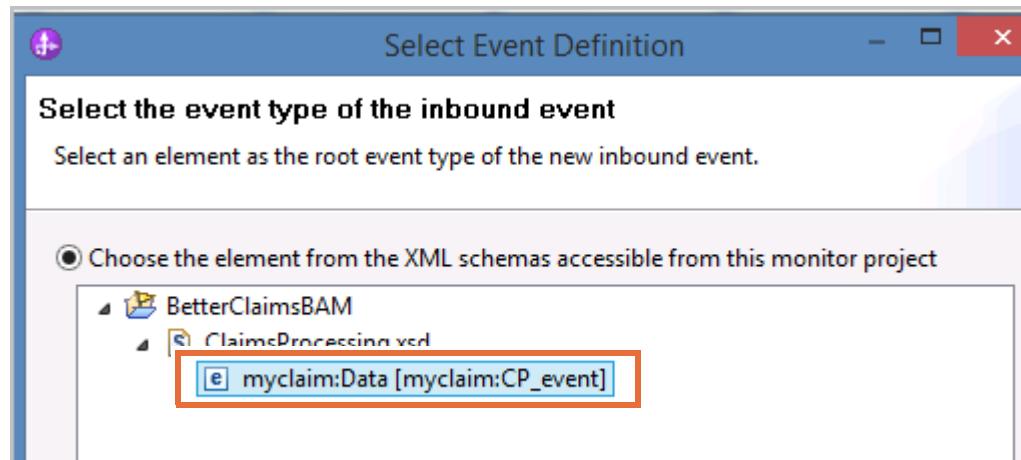
- __ h. To save the changes to the monitor model, click the **Save** icon or press Ctrl+S. Examine the **Problems** view to confirm that there are no errors. If you see errors, then go back and check the values that were entered earlier.

Part 4: Creating inbound events: Assess Claim event

- 1. Create the Assess Claim event:
 - a. In the Monitor model editor, right-click **BetterClaimsProcessingBAM MC** and click **New > Inbound Event**.

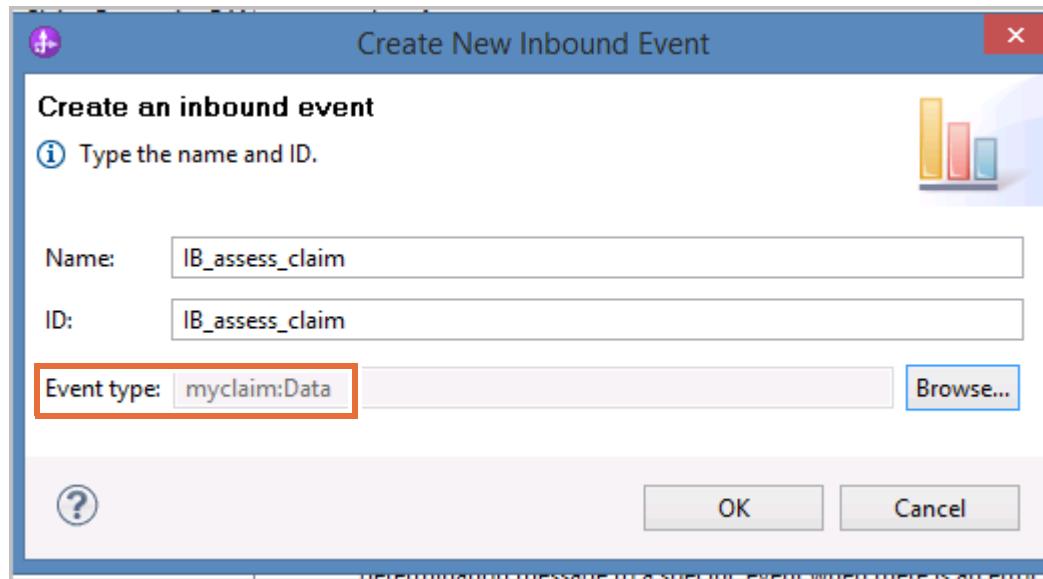


- b. In the Create New Inbound Event window, in the **Name** field enter `IB_assess_claim` and click **Browse**.
- c. In the Select Event Definition window, leave **Choose the element from the XML schemas accessible from this monitor project** selected, expand `ClaimsProcessing.xsd` and then click `myclaim:Data [myclaim:CP_event]`.



- d. Click **Finish**.

- __ e. In the Create New Inbound Event window, notice that the **Event type** field is set to myclaim:Data. Click **OK**.



- __ 2. Examine and complete the **Event Point Filter** section.
- __ a. Scroll down to the **Event Point Filter** section.

▼ Event Point Filter

Use generated values if they are present or specify values for the event point events to emit and monitor. To subscribe to all the events for a version of a application name and version and use asterisks (*) in the other five fields.

Application name:	* XML
Version:	* XML
Component type:	*
Component name:	* XML
Element type:	* XML
Element name:	* XML
Nature:	* XML

- __ b. Set the **Application name** field to BetterClaimsProcessingBAM.
- __ c. For **Version**, enter v1.
- __ d. For **Nature**, enter assess.

- ___ e. Verify that the values are entered correctly.

Event Point Filter

Use generated values if they are present or specify values for the events to emit and monitor. To subscribe to all the events for a version of the application name and version and use asterisks (*) in the other fields.

Application name:	*	BetterClaimsProcessingBAM
Version:	*	V1
Component type:	*	
Component name:	*	XML
Element type:	*	XML
Element name:	*	XML
Nature:	*	assess

- ___ f. Save your work.
- ___ 3. Examine and complete the **Filter Condition** section.
- ___ a. Scroll down to the **Filter Condition** section. In this section, you define the filter condition for the Assess Claim event.
- ___ b. In the entry field for the **Filter Condition** enter:
`IB_assess_claim/RootData/myclaim:Action eq 'assess'`
- ___ c. Verify that the values are entered correctly.

Filter Condition

Define a condition based on the event attributes to identify whether to act on the event.

IB_assess_claim/RootData/myclaim:Action eq 'assess'

- ___ 4. Create the **Correlation Expression** and define the behavior for this model for this event.
- ___ a. Scroll down to the **Correlation Expression** section.
- ___ b. For the **Correlation Expression** field, enter: `BetterClaimsProcessingBAM_Key eq IB_assess_claim/RootData/myclaim:ClaimRequestID`

- ___ c. Verify that you entered the information correctly.

▼ Correlation Expression

Define an expression to identify the monitoring context instance or instances that receive the event at run time. The value in this field can be used to determine the event partition path.

BetterClaimsProcessingBAM_Key eq IB_assess_claim/RootData/myclaim:ClaimRequestID

- ___ d. In the **If no instances are found** field, select **Treat as error**.
- ___ e. In the **If one instance is found** field, select **Deliver to the instance**.
- ___ f. In the **If multiple instances are found** field, select **Treat as error**.
- ___ g. Verify that the entries are accurate.

▼ Correlation Expression

Define an expression to identify the monitoring context instance or instances that receive the event at run time. The value in this field can be used to determine the event partition path.

BetterClaimsProcessingBAM_Key eq IB_assess_claim/RootData/myclaim:ClaimRequestID

If no instances are found

Treat as error

If one instance is found

Deliver to the instance

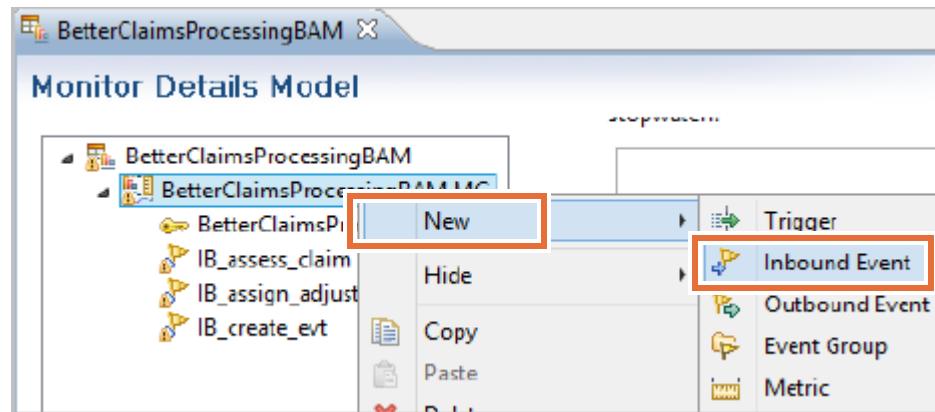
If multiple instances are found

Treat as error

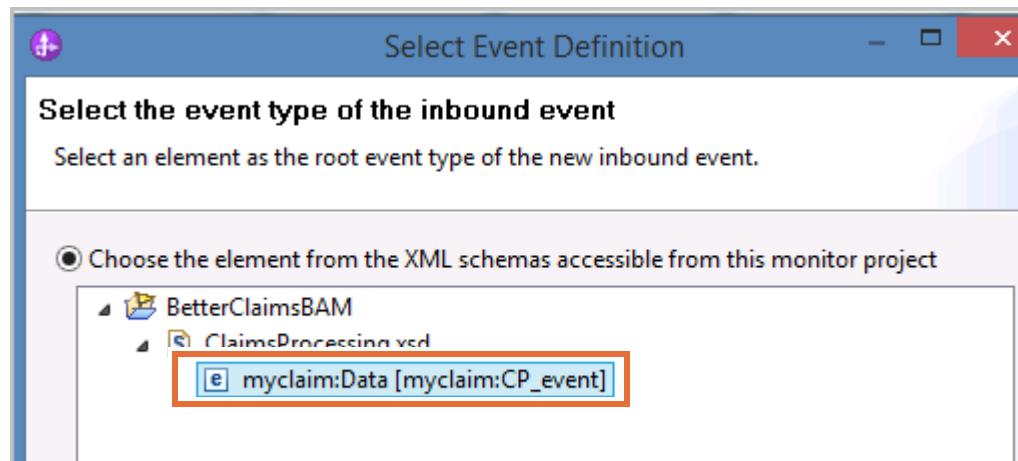
- ___ h. To save the changes to the monitor model, click the **Save** icon or press Ctrl+S. Examine the **Problems** view to confirm that there are no errors. If you see errors, then go back and check the values that were entered earlier.

Part 5: Creating inbound events: Review Claim event

- 1. Create the Review Claim event:
 - a. In the Monitor model editor, right-click **BetterClaimsProcessingBAM MC** and click **New > Inbound Event**.

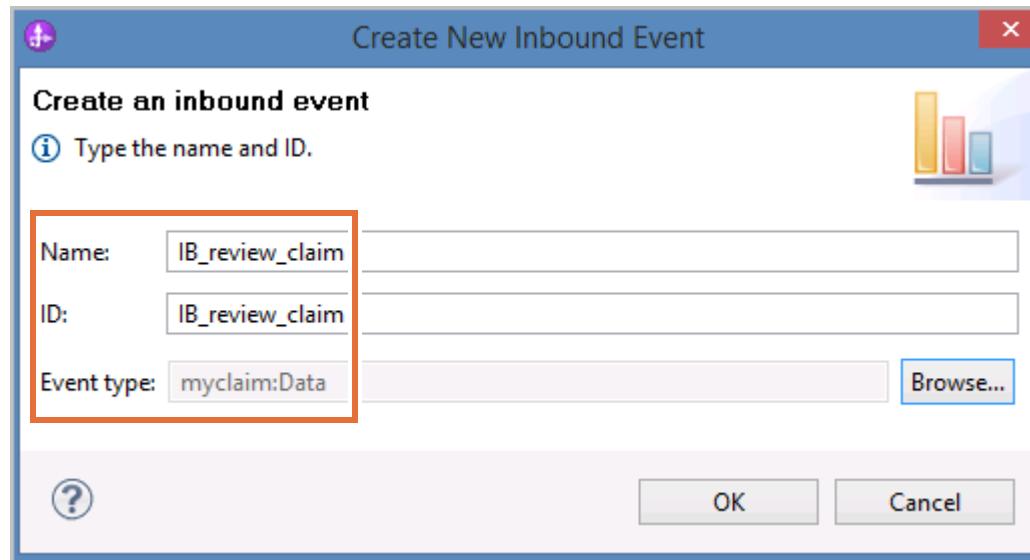


- b. In the Create New Inbound Event window, in the **Name** field enter **IB_review_claim** and click **Browse**.
- c. In the Select Event Definition window, leave **Choose the element from the XML schemas accessible from this monitor project** selected, expand **ClaimsProcessing.xsd** and then click **myclaim:Data [myclaim:CP_event]**.



- d. Click **Finish**.

- ___ e. In the Create New Inbound Event window, notice that the **Event type** field is set to myclaim:Data. Click **OK**.



- ___ 2. Examine and complete the **Event Point Filter** section.
___ a. Scroll down to the **Event Point Filter** section.

The screenshot shows the 'Event Point Filter' configuration dialog. It has a heading 'Event Point Filter' with a dropdown arrow. Below it is a descriptive text: 'Use generated values if they are present or specify values for the event point events to emit and monitor. To subscribe to all the events for a version of a application name and version and use asterisks (*) in the other five fields.' There are seven input fields with asterisk markers (*): 'Application name:' (value 'XML'), 'Version:' (value 'XML'), 'Component type:' (value '*'), 'Component name:' (value 'XML'), 'Element type:' (value 'XML'), 'Element name:' (value 'XML'), and 'Nature:' (value 'XML').

- ___ b. Set the **Application name** field to BetterClaimsProcessingBAM.
___ c. For **Version**, enter v1.
___ d. For **Nature**, enter review.

- __ e. Verify that the values are entered correctly.

Event Point Filter

Use generated values if they are present or specify values for events to emit and monitor. To subscribe to all the events for the application name and version and use asterisks (*) in the component, component name, element type, element name, and nature fields.

Application name:	*	BetterClaimsProcessingBAM
Version:	*	V1
Component type:	*	*
Component name:	*	XML
Element type:	*	XML
Element name:	*	XML
Nature:	*	review

- __ 3. Examine and complete the **Filter Condition** section.
- __ a. Scroll down to the **Filter Condition** section. In this section, you define the filter condition for the Review Claim event.
- __ b. In the entry field for the **Filter Condition** enter:
`IB_review_claim/RootData/myclaim:Action eq 'review'`
- __ c. Verify that the values are entered correctly.

Filter Condition

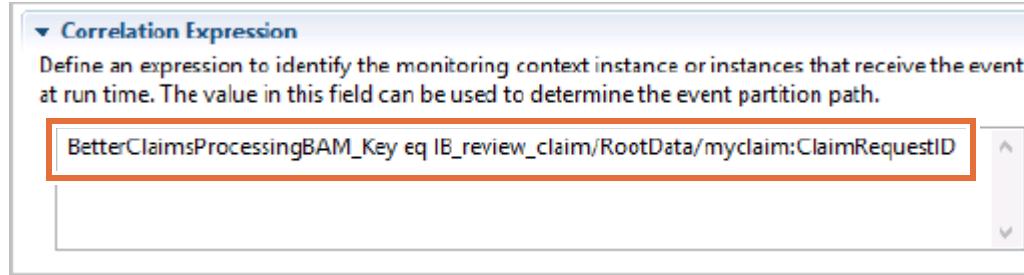
Define a condition based on the event attributes to identify whether to accept the event.

- __ 4. Create the **Correlation Expression** and define the behavior for this model for this event.
- __ a. Scroll down to the **Correlation Expression** section.

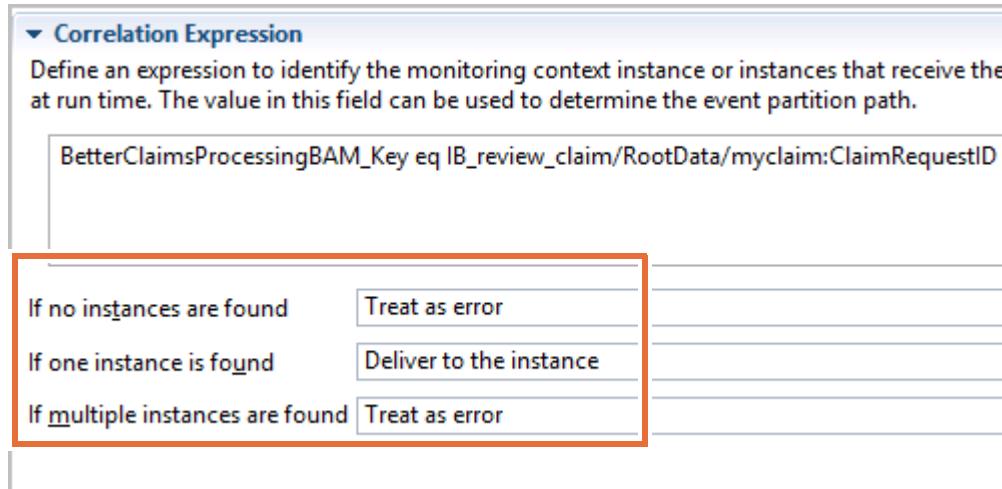
Correlation Expression

Define an expression to identify the monitoring context instance or instances that receive the event. The value in this field can be used to determine the event partition path.

- __ b. For the **Correlation Expression** field, enter: BetterClaimsProcessingBAM_Key eq IB_review_claim/RootData/myclaim:ClaimRequestID
- __ c. Verify that you entered the information correctly.



- __ d. In the **If no instances are found** field, select **Treat as error**.
- __ e. In the **If one instance is found** field, select **Deliver to the instance**.
- __ f. In the **If multiple instances are found** field, select **Treat as error**.
- __ g. Verify that the entries are accurate.

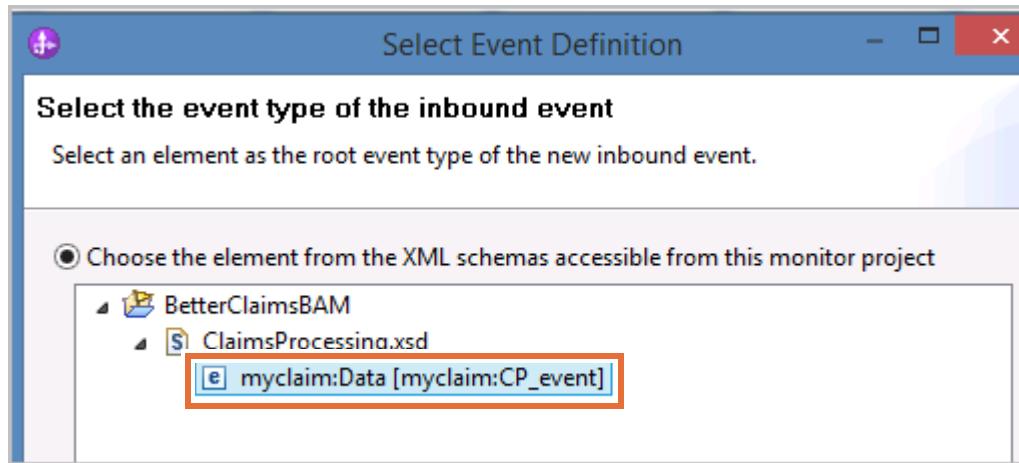


- __ h. To save the changes to the monitor model, click the **Save** icon or press Ctrl+S. Examine the **Problems** view to confirm that there are no errors. If you see errors, then go back and check the values that were entered earlier.

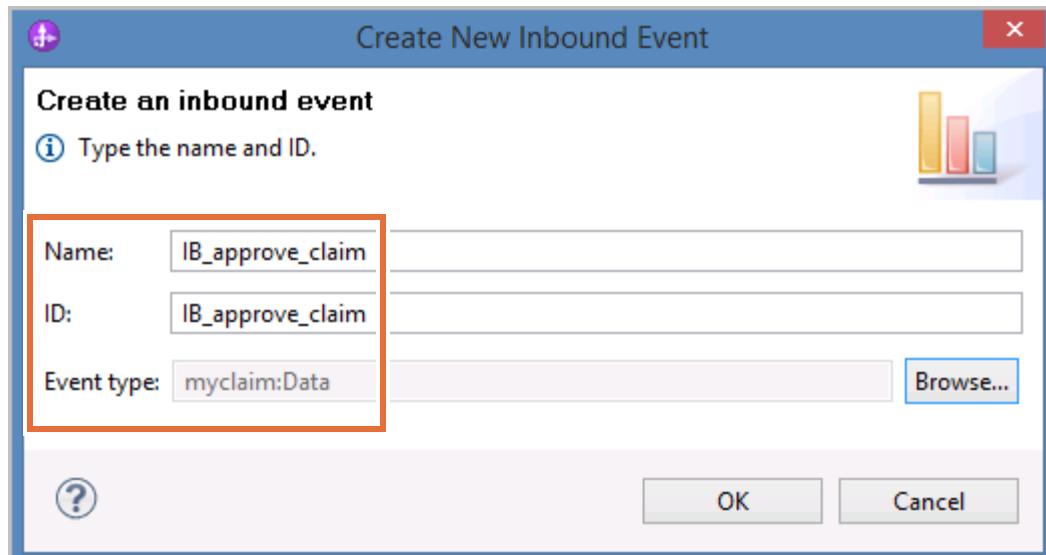
Part 6: Creating inbound events: Approve Claim event

- __ 1. Create the Approve Claim event:
 - __ a. In the Monitor model editor, right-click **BetterClaimsProcessingBAM MC** and click **New > Inbound Event**.
 - __ b. In the Create New Inbound Event window, in the **Name** field enter **IB_approve_claim** and click **Browse**.

- __ c. In the Select Event Definition window, leave **Choose the element from the XML schemas accessible from this monitor project** selected, expand **ClaimsProcessing.xsd**, and then click **myclaim:Data [myclaim:CP_event]**.



- __ d. Click **Finish**.
- __ e. On the **Create New Inbound Event** window, notice that the **Event type** field is set to **myclaim:Data**. Click **OK**.



- __ 2. Examine and complete the **Event Point Filter** section.
- __ a. Scroll down to the **Event Point Filter** section.

▼ Event Point Filter

Use generated values if they are present or specify values for the event point filter events to emit and monitor. To subscribe to all the events for a version of an application name and version and use asterisks (*) in the other five fields.

Application name:	<input type="text" value="XML"/>
Version:	<input type="text" value="XML"/>
Component type:	<input type="text" value="*"/>
Component name:	<input type="text" value="XML"/>
Element type:	<input type="text" value="XML"/>
Element name:	<input type="text" value="XML"/>
Nature:	<input type="text" value="XML"/>

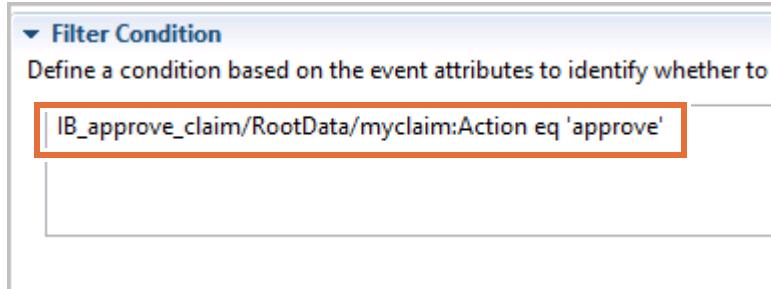
- __ b. Set the **Application name** field to BetterClaimsProcessingBAM.
- __ c. For **Version**, enter v1.
- __ d. For **Nature**, enter approve.
- __ e. Verify that the values are entered correctly.

▼ Event Point Filter

Use generated values if they are present or specify values for the event point filter events to emit and monitor. To subscribe to all the events for a version of an application name and version and use asterisks (*) in the other five fields.

Application name:	<input type="text" value="BetterClaimsProcessingBAM"/>
Version:	<input type="text" value="V1"/>
Component type:	<input type="text" value="*"/>
Component name:	<input type="text" value="XML"/>
Element type:	<input type="text" value="XML"/>
Element name:	<input type="text" value="XML"/>
Nature:	<input type="text" value="approve"/>

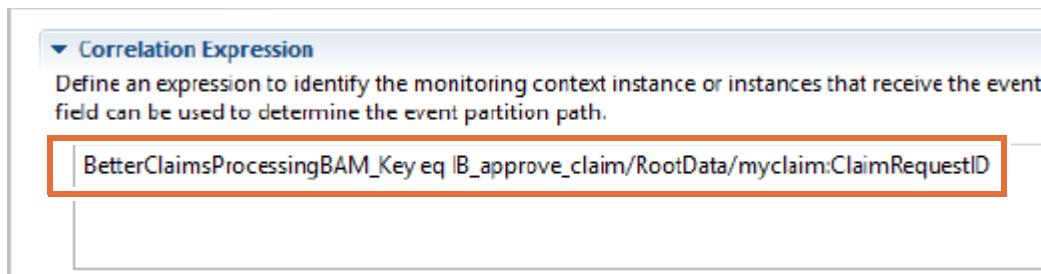
- ___ 3. Examine and complete the **Filter Condition** section.
 - ___ a. Scroll down to the **Filter Condition** section. In this section, you define the filter condition for the Approve Claim event.
 - ___ b. Since only one event is defined for this model, the Action field is used to help define the event. In the entry field for the **Filter Condition** enter:
`IB_approve_claim/RootData/myclaim:Action eq 'approve'`
 - ___ c. Verify that the values are entered correctly.



- ___ 4. Create the **Correlation Expression** and define the behavior for this model for this event.
 - ___ a. Scroll down to the **Correlation Expression** section.



- ___ b. For the **Correlation Expression** field, enter: `BetterClaimsProcessingBAM_Key eq IB_approve_claim/RootData/myclaim:ClaimRequestID`
- ___ c. Verify that you entered the information correctly.



- ___ d. In the **If no instances are found** field, select **Treat as error**.
- ___ e. In the **If one instance is found** field, select **Deliver to the instance**.
- ___ f. In the **If multiple instances are found** field, select **Treat as error**.

- __ g. Verify that the entries are accurate.

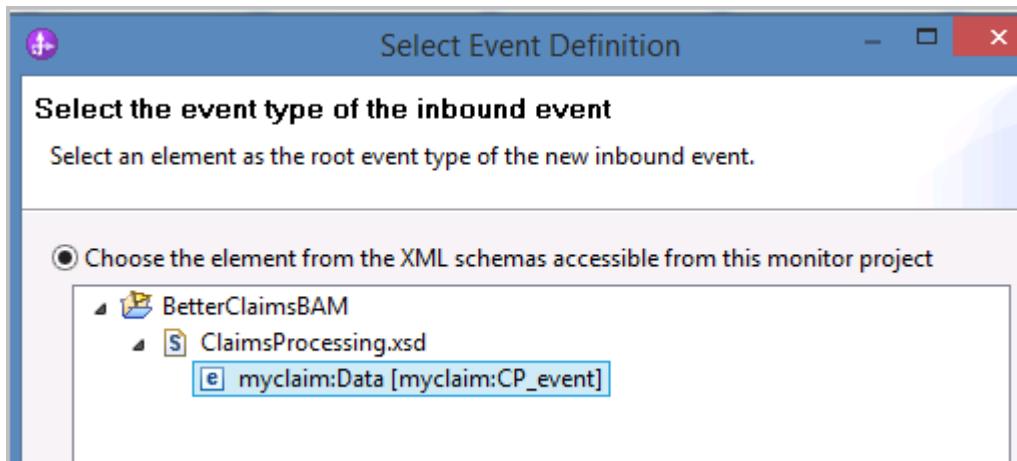
If no instances are found	Treat as error
If one instance is found	Deliver to the instance
If multiple instances are found	Treat as error

- __ h. To save the changes to the monitor model, click the **Save** icon or press Ctrl+S. Examine the **Problems** view to confirm that there are no errors. If you see errors, then go back and check the values that were entered earlier.

Part 7: Creating inbound events: Disburse Funds event

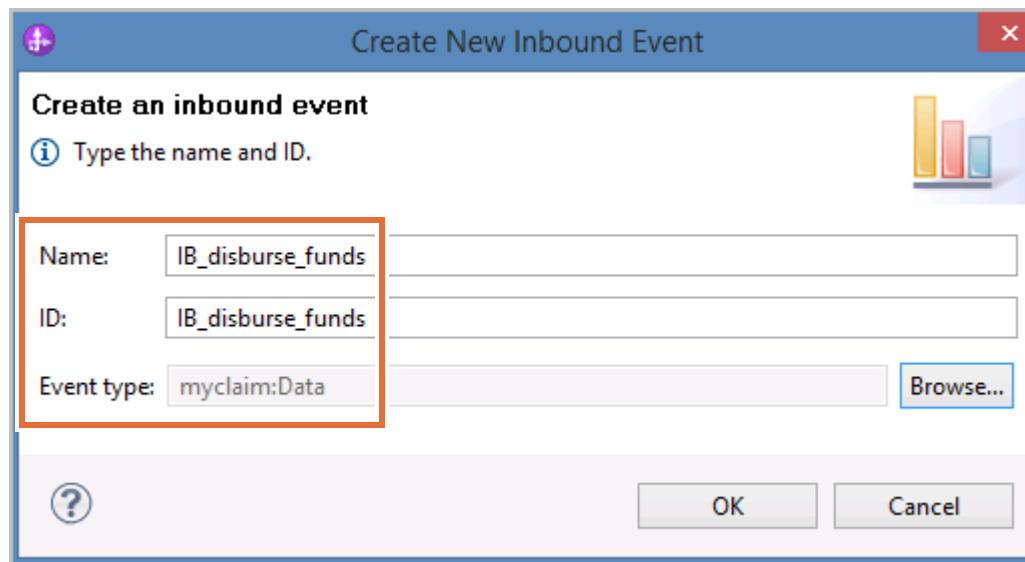
- __ 1. Create the Disburse Funds event:

- __ a. In the Monitor model editor, right-click **BetterClaimsProcessingBAM MC** and click **New > Inbound Event**.
- __ b. In the Create New Inbound Event window, in the **Name** field enter **IB_disburse_funds** and click **Browse**.
- __ c. In the Select Event Definition window, leave **Choose the element from the XML schemas accessible from this monitor project** selected, expand **ClaimsProcessing.xsd**, and then click **myclaim:Data [myclaim:CP_event]**.



- __ d. Click **Finish**.

- ___ e. On the **Create New Inbound Event** window, notice that the **Event type** field is set to myclaim:Data. Click **OK**.



- ___ 2. Examine and complete the **Event Point Filter** section.
___ a. Scroll down to the **Event Point Filter** section.

The screenshot shows the 'Event Point Filter' configuration dialog box. It starts with a note: 'Use generated values if they are present or specify values for the event point events to emit and monitor. To subscribe to all the events for a version of a application name and version and use asterisks (*) in the other five fields.' Below this, there are seven input fields, each with an asterisk (*) indicating it is required:

- Application name: * XML
- Version: * XML
- Component type: * *
- Component name: * XML
- Element type: * XML
- Element name: * XML
- Nature: * XML

- ___ b. Set the **Application name** field to BetterClaimsProcessingBAM.
___ c. For **Version**, enter v1.
___ d. For **Nature**, enter disburse.

- __ e. Verify that the values are entered correctly.

Event Point Filter

Use generated values if they are present or specify values for the event point fields to emit and monitor. To subscribe to all the events for a version of an application, enter the application name and version and use asterisks (*) in the other five fields.

Application name:	*	BetterClaimsProcessingBAM
Version:	*	V1
Component type:	*	
Component name:	*	XML
Element type:	*	XML
Element name:	*	XML
Nature:	*	disburse

- __ 3. Examine and complete the **Filter Condition** section.

- __ a. Scroll down to the **Filter Condition** section. In this section, you define the filter condition for the Disburse Funds event.
- __ b. Since only one event is defined for this model, the Action field is used to help define the event. In the entry field for the **Filter Condition** enter:
`IB_disburse_funds/RootData/myclaim:Action eq 'disburse'`
- __ c. Verify that the values are entered correctly.

Filter Condition

Define a condition based on the event attributes to identify whether to accept.

IB_disburse_funds/RootData/myclaim:Action eq 'disburse'

- ___ 4. Create the **Correlation Expression** and define the behavior for this model for this event.
- ___ a. Scroll down to the **Correlation Expression** section.

▼ Correlation Expression

Define an expression to identify the monitoring context instance or instances that receive the event at run time. The value in this field can be used to determine the event partition path.

- ___ b. For the **Correlation Expression** field, enter: BetterClaimsProcessingBAM_Key eq IB_disburse_funds/RootData/myclaim:ClaimRequestID
- ___ c. Verify that you entered the information correctly.

▼ Correlation Expression

Define an expression to identify the monitoring context instance or instances that receive the event at run time. The value in this field can be used to determine the event partition path.

BetterClaimsProcessingBAM_Key eq IB_disburse_funds/RootData/myclaim:ClaimRequestID

- ___ d. In the **If no instances are found** field, select **Treat as error**.
- ___ e. In the **If one instance is found** field, select **Deliver to the instance**.
- ___ f. In the **If multiple instances are found** field, select **Treat as error**.
- ___ g. Verify that the entries are accurate.

▼ Correlation Expression

Define an expression to identify the monitoring context instance or instances that receive the event at run time. The value in this field can be used to determine the event partition path.

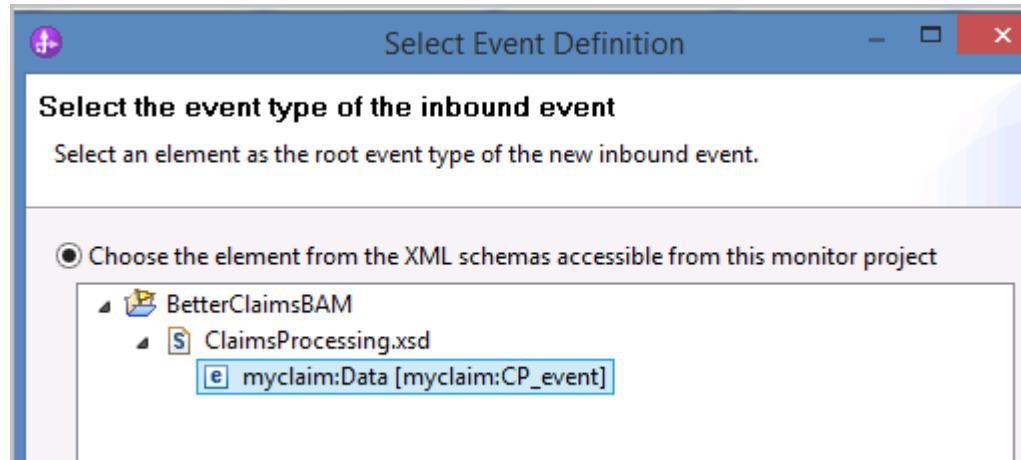
BetterClaimsProcessingBAM_Key eq IB_disburse_funds/RootData/myclaim:ClaimRequestID

If no instances are found	Treat as error
If one instance is found	Deliver to the instance
If multiple instances are found	Treat as error

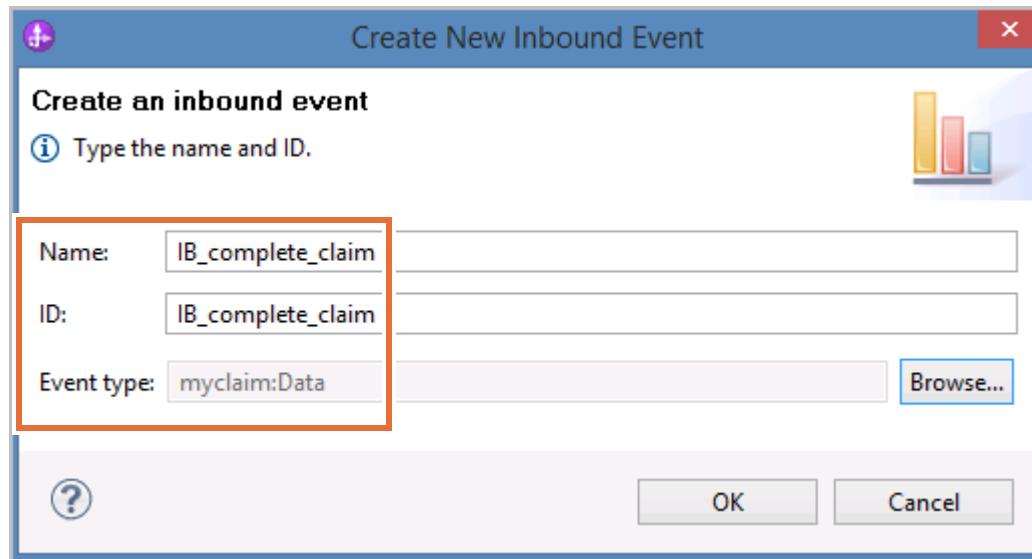
- ___ h. To save the changes to the monitor model, click the **Save** icon or press Ctrl+S. Examine the **Problems** view to confirm that there are no errors. If you see errors, then go back and check the values that were entered earlier.

Part 8: Creating inbound events: Complete Claim event

- 1. Create the Complete Claim event:
 - a. In the Monitor model editor, right-click **BetterClaimsProcessingBAM MC** and click **New > Inbound Event**.
 - b. In the Create New Inbound Event window, in the **Name** field enter `IB_complete_claim` and click **Browse**.
 - c. In the Select Event Definition window, leave **Choose the element from the XML schemas accessible from this monitor project** selected, expand **ClaimsProcessing.xsd**, and then click **myclaim:Data [myclaim:CP_event]**.



- d. Click **Finish**.
- e. In the Create New Inbound Event window, notice that the **Event type** field is set to `myclaim:Data`. Click **OK**.



- __ 2. Examine and complete the **Event Point Filter** section.
- __ a. Scroll down to the **Event Point Filter** section.

▼ Event Point Filter

Use generated values if they are present or specify values for the event point filter events to emit and monitor. To subscribe to all the events for a version of an application name and version and use asterisks (*) in the other five fields.

Application name:	<input type="text" value="XML"/>
Version:	<input type="text" value="XML"/>
Component type:	<input type="text" value="*"/>
Component name:	<input type="text" value="XML"/>
Element type:	<input type="text" value="XML"/>
Element name:	<input type="text" value="XML"/>
Nature:	<input type="text" value="XML"/>

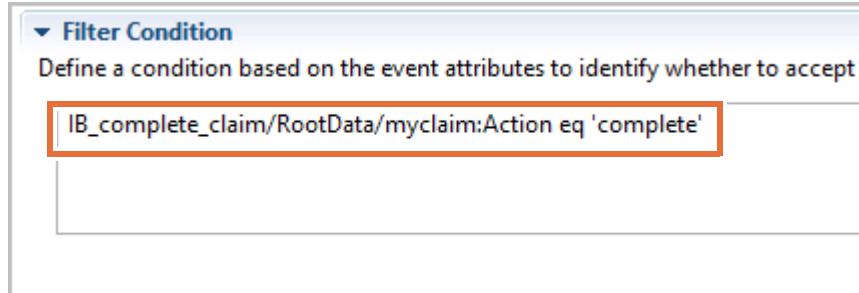
- __ b. Set the **Application name** field to BetterClaimsProcessingBAM.
- __ c. For **Version**, enter V1.
- __ d. For **Nature**, enter complete.
- __ e. Verify that the values are entered correctly.

▼ Event Point Filter

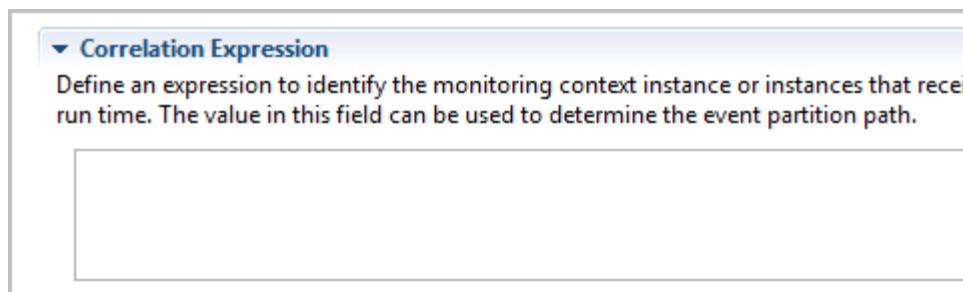
Use generated values if they are present or specify values for the event point filter events to emit and monitor. To subscribe to all the events for a version of an application name and version and use asterisks (*) in the other five fields.

Application name:	<input type="text" value="BetterClaimsProcessingBAM"/>
Version:	<input type="text" value="V1"/>
Component type:	<input type="text" value="*"/>
Component name:	<input type="text" value="XML"/>
Element type:	<input type="text" value="XML"/>
Element name:	<input type="text" value="XML"/>
Nature:	<input type="text" value="complete"/>

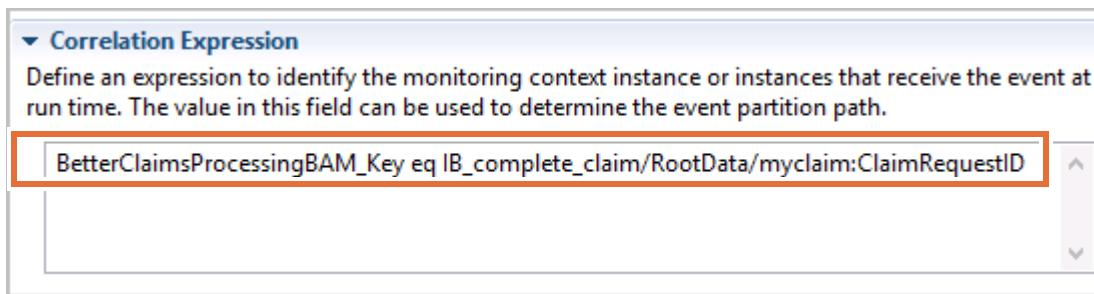
- ___ 3. Examine and complete the **Filter Condition** section.
 - ___ a. Scroll down to the **Filter Condition** section. In this section, you define the filter condition for the Complete Claim event.
 - ___ b. Since only one event is defined for this model, the Action field is used to help define the event. In the entry field for the **Filter Condition** enter:
`IB_complete_claim/RootData/myclaim:Action eq 'complete'`
 - ___ c. Verify that the values are entered correctly.



- ___ 4. Create the **Correlation Expression** and define the behavior for this model for this event.
 - ___ a. Scroll down to the **Correlation Expression** section.



- ___ b. For the **Correlation Expression** field, enter: `BetterClaimsProcessingBAM_Key eq IB_complete_claim/RootData/myclaim:ClaimRequestID`
- ___ c. Verify that you entered the information correctly.



- ___ d. In the **If no instances are found** field, select **Treat as error**.
- ___ e. In the **If one instance is found** field, select **Deliver to the instance**.
- ___ f. In the **If multiple instances are found** field, select **Treat as error**.

- __ g. Verify that the entries are accurate.

The screenshot shows the 'Correlation Expression' configuration dialog. At the top, there is a note: 'Define an expression to identify the monitoring context instance or instances that receive the event at run time. The value in this field can be used to determine the event partition path.' Below this is a text input field containing the expression: 'BetterClaimsProcessingBAM_Key eq IB_complete_claim/RootData/myclaim:ClaimRequestID'. Below the input field is a table with three rows, each with a condition and a corresponding action. The first two rows are highlighted with a red border:

If no instances are found	Treat as error
If one instance is found	Deliver to the instance
If multiple instances are found	Treat as error

- __ h. To save the changes to the monitor model, click the **Save** icon or press Ctrl+S. Examine the **Problems** view to confirm that there are no errors. If you see errors, then go back and check the values that were entered earlier.
- __ i. Verify that all the inbound events created are listed in the editor below the **BetterClaimsProcessingBAM MC** context.

The screenshot shows the 'Monitor Details Model' editor for the 'BetterClaimsProcessingBAM' context. On the left, there is a tree view showing the structure of the monitor. A red box highlights the 'Inbound Events' section under the 'BetterClaimsProcessingBAM MC' context. The listed events are:

- BetterClaimsProcessingBAM Key
- IB_approve_claim
- IB_assess_claim
- IB_assign_adjuster
- IB_complete_claim
- IB_create_evt
- IB_disburse_funds
- IB_review_claim

- __ j. Click **File > Exit** on the menu bar to exit IBM Integration Designer.

End of exercise

Exercise 4. Creating triggers in a monitor model

Estimated time

00:45

Overview

In this exercise, you augment the existing monitor model by adding triggers to increase the flexibility of the model.

Objectives

After completing this exercise, you should be able to:

- Define triggers in the monitor details model

Introduction

In the previous exercise, you created several inbound events for the Monitor model. Now that all the necessary inbound events are created, you can define triggers that are used to tie together the inbound events.

Requirements

Completing the exercises for this course requires a lab environment. The environment includes the exercise support files, Internet Explorer, IBM Process Server, and IBM Business Monitor test environments.

Exercise instructions

This exercise is a continuation of the previous exercise. Because the exercise scenario was described in the previous exercise, no further information is provided here. Refer to the previous exercise for description of the scenario that is used for the exercise.

In this exercise, you start by defining the triggers that are associated with the events that Claims Processing application wants to monitor.

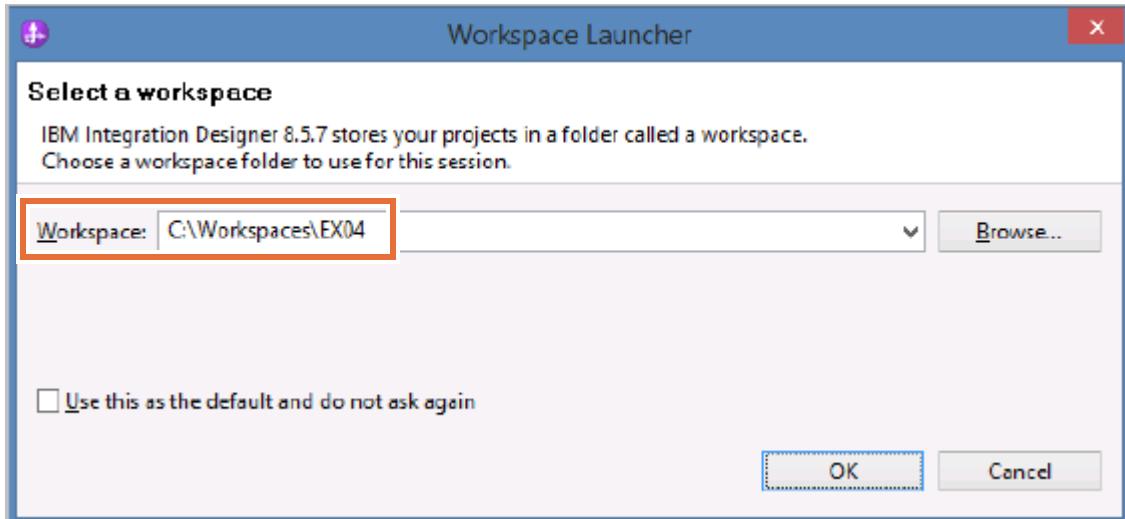
Building the Monitor model: Defining triggers

For the calculation of KPIs, several triggers must be created based on the generated events. Triggers are used as sources to assign value to the measures you create later. First, the trigger captures the receipt of an event, and then the action that the trigger performs is used to update a metric. The triggers represent an abstraction of events in the process. They have names that are related to the discrete actions for measurement, that come from one or more events in a process. Triggers represent the second set of building blocks after events in the definition of a Monitor model.

Part 1: Importing the Monitor model

In this portion of the exercise, you start IBM Integration Designer and work with an existing Monitor model project for claims processing.

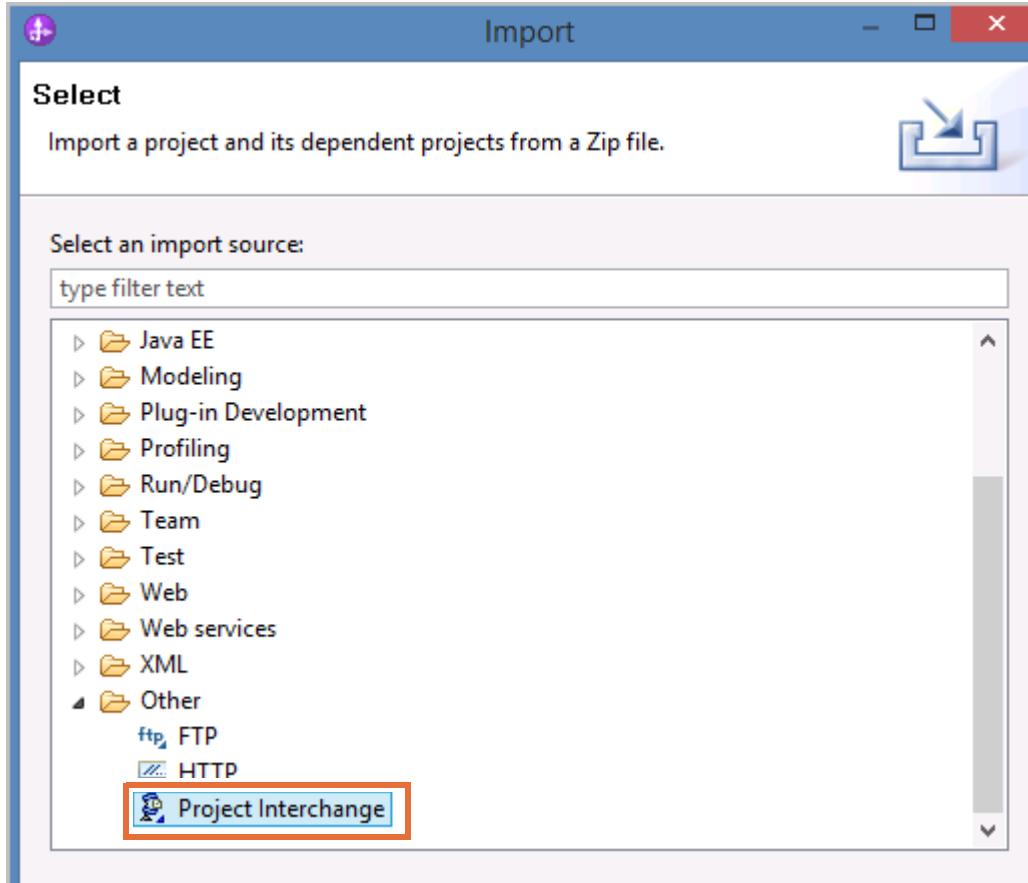
- ___ 1. Start IBM Integration Designer (if not already started).
 - ___ a. On your desktop, double-click the shortcut that is labeled **IBM Integration Designer**. This action takes a moment to initialize.
 - ___ b. In the **Workspace Launcher** dialog box, change the **Workspace** location to C:\Workspaces\EX04 and click **OK**.



- ___ 2. Close the welcome page by clicking the **X** on the **Getting Started - IBM Integration Designer** tab.

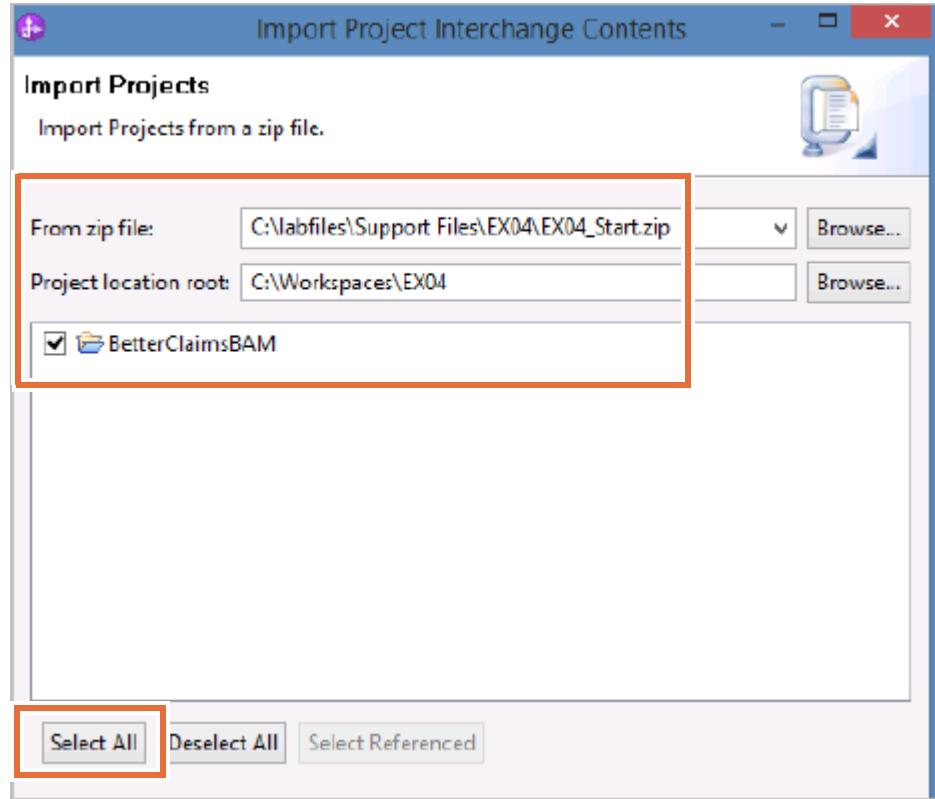
An empty workspace is created. Next, you import the claims processing monitoring project in this workspace.

- 3. Import the monitor model.
 - a. From the menu bar in the **Business Integration** view, click **File > Import**.
 - b. In the Import window, expand **Other** and select **Project Interchange**.
 - c. Click **Next**.



- d. In the Import Project Interchange Contents window, click **Browse** to the right of **From zip file**. Go to the following folder:
`C:\labfiles\Support Files\EX04`
- e. Select **EX04_Start.zip**, and click **Open**.

- ___ f. Click **Select All** to make sure that the project is selected.



- ___ g. Click **Finish** to complete the import.

The BetterClaimsBAM project is now imported in IBM Integration Designer. Wait for the workspace to be built. You can view the status at the lower-right side of the business integration view. The build process is complete when the status reaches 100% and is no longer listed.

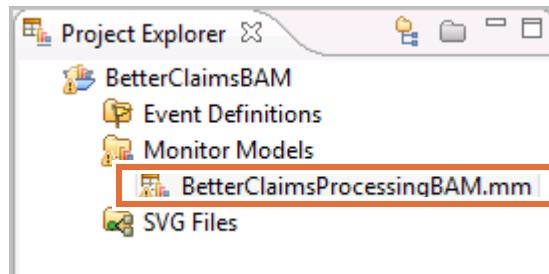
- ___ 4. Switch to the Business Monitoring perspective.
 - ___ a. From the menu, click **Window > Open Perspective > Business Monitoring**.
 - ___ b. Wait for the Business Monitoring perspective to load.
 - ___ c. Close the **Technology Quickstarts** view.
 - ___ d. Close the **Help** window on the right side of the toolkit.

Part 2: Building the Monitor model: Defining triggers

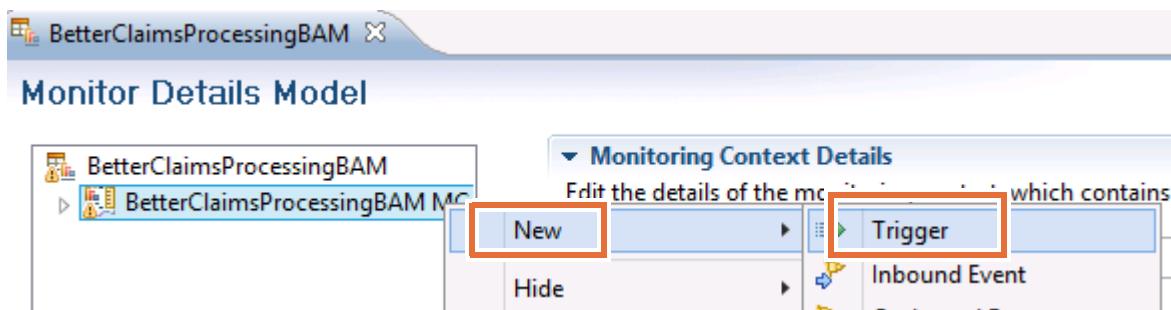
- ___ 1. Create the **Trigger_create_claim** trigger.

This trigger is run whenever a new claim is created and its corresponding event is received.

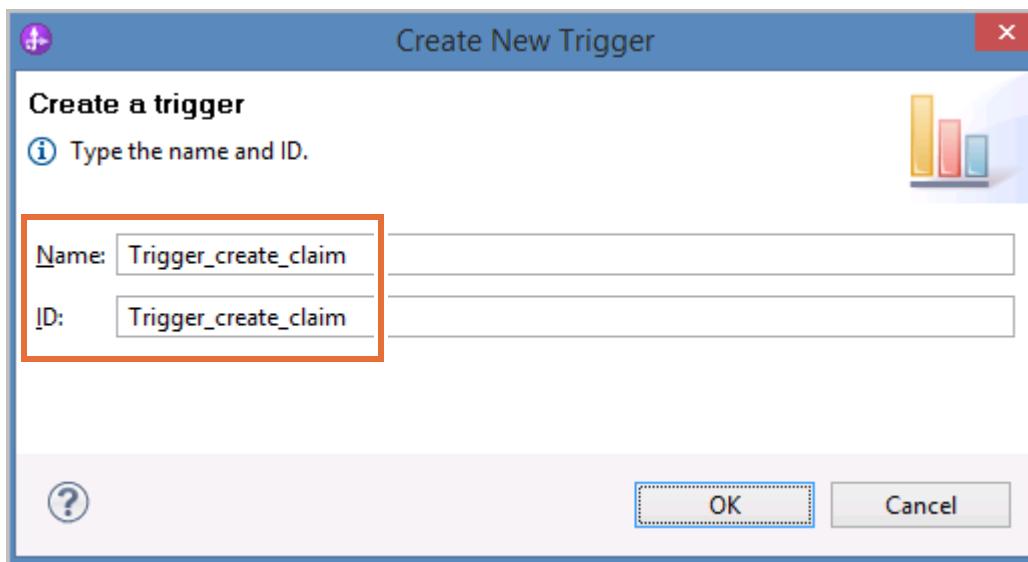
- __ a. In the **Project Explorer** view, expand **BetterClaimsBAM > Monitor Models** and double-click **BetterClaimsProcessingBAM.mm**.



- __ b. In the **Monitor Details Model** tab for **BetterClaimsProcessingBAM.mm**, right-click **BetterClaimsProcessingBAM MC**, and click **New > Trigger** from the menu.

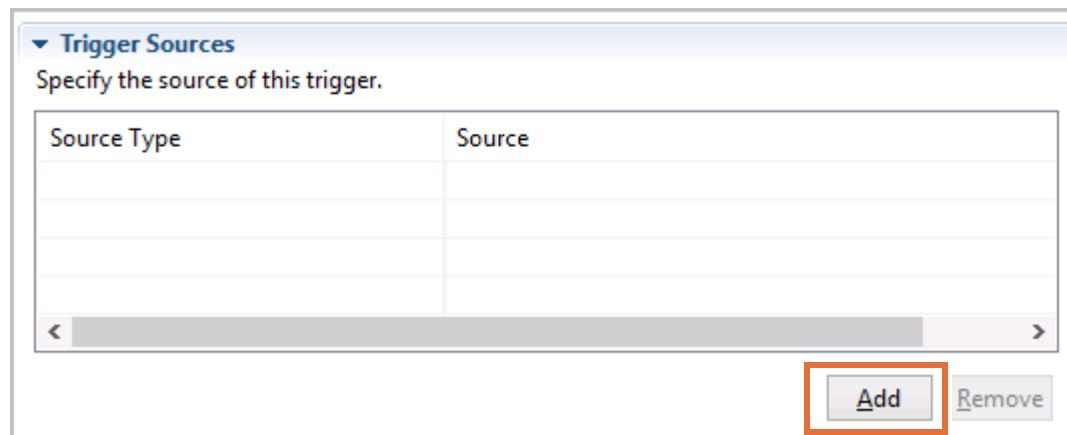


- __ c. In the Create New Trigger window, enter **Trigger_create_claim** for **Name**. The **ID** is generated automatically.



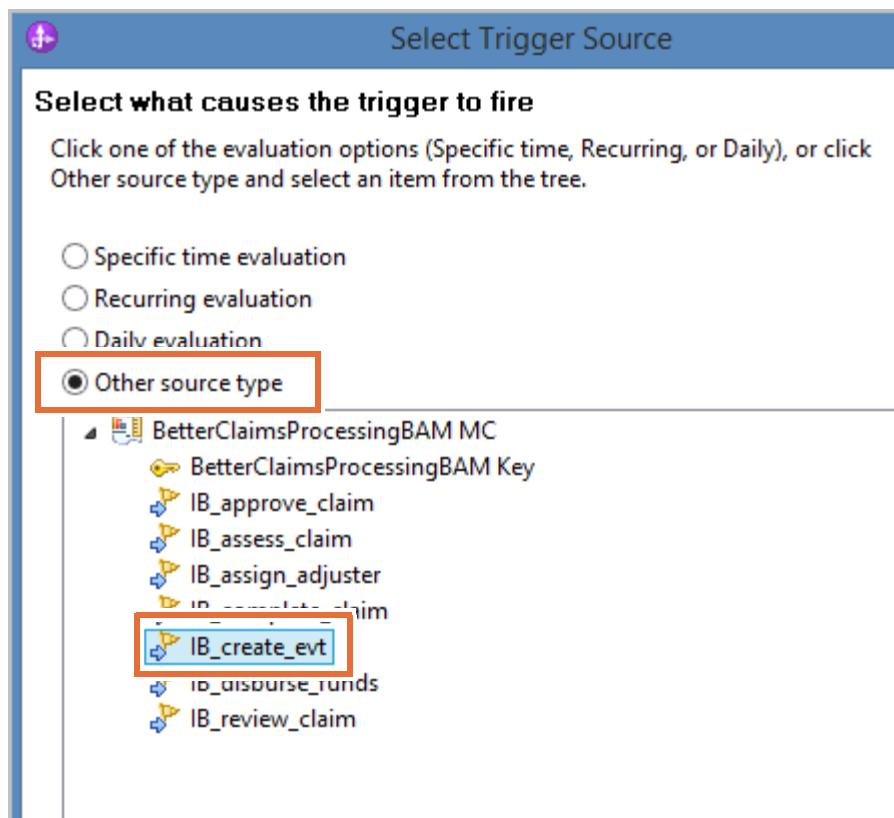
- __ d. Click **OK**.

- ___ e. In the **Trigger Sources** section of the **Monitor Details Model** tab, click **Add**. It might be necessary to scroll down.



The Select Trigger Source window is displayed.

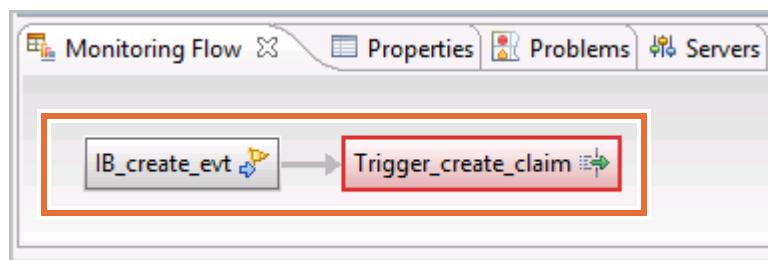
- ___ f. In the Select Trigger Source window, select the **Other source type** option.
 ___ g. Select **BetterClaimsProcessingBAM MC > IB_create_evt** then, click **OK**.



- __ h. The trigger source is now listed in the **Trigger Sources** section.

Source Type	Source
Event	IB_create_evt

- __ i. Observe that the monitoring flow diagram is updated in the **Monitoring Flow** tab in the lower part of the workbench.



- __ j. Scroll down to the **Trigger Condition** section.

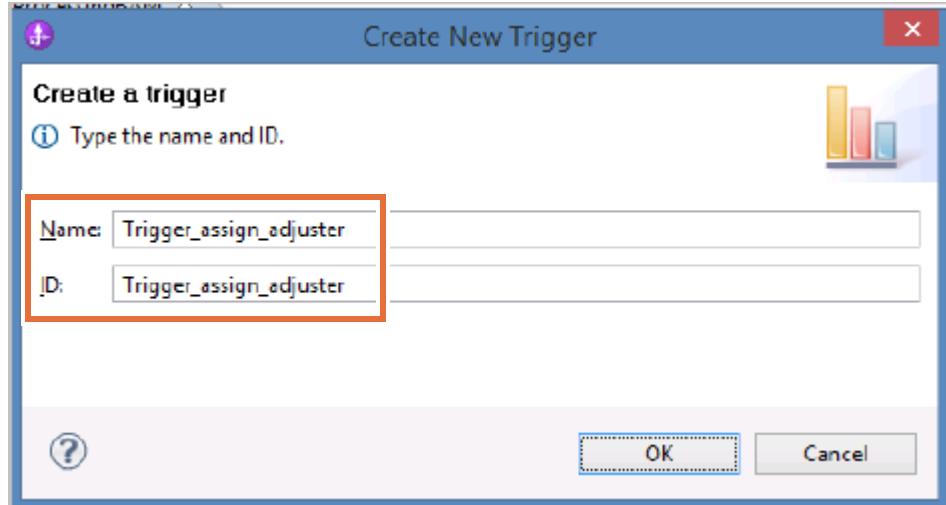
- __ k. For **Trigger Condition**, enter:

`IB_create_evt/RootData/myclaim:Action eq 'create'`

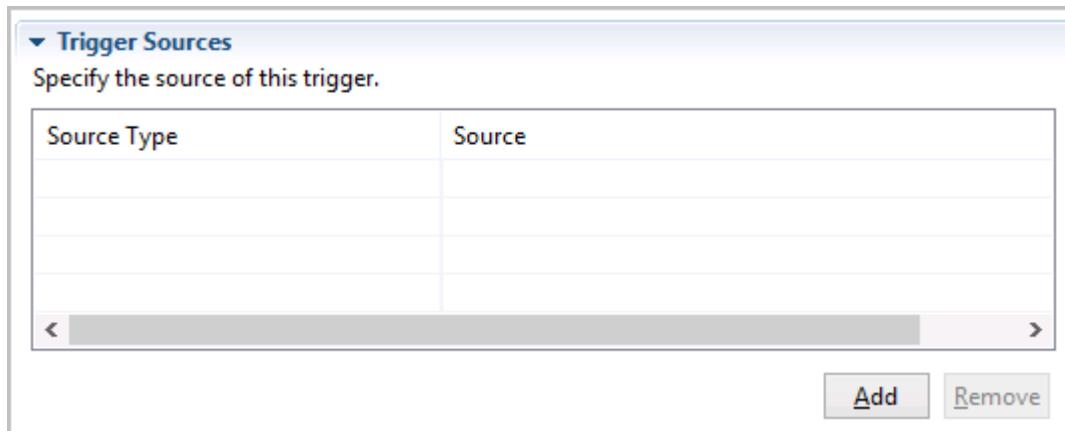
- __ l. Press **Ctrl+S** to save the workspace.
__ 2. Create the **Trigger_assign_adjuster** trigger.

This trigger is run whenever a claim adjustment occurs and its corresponding event is received.

- ___ a. In the **Monitor Details Model** tab for **BetterClaimsProcessingBAM.mm**, right-click **BetterClaimsProcessingBAM MC**, and click **New > Trigger** from the menu.
- ___ b. In the Create New Trigger window, enter **Trigger_assign_adjuster** for the **Name**. The **ID** is generated automatically.



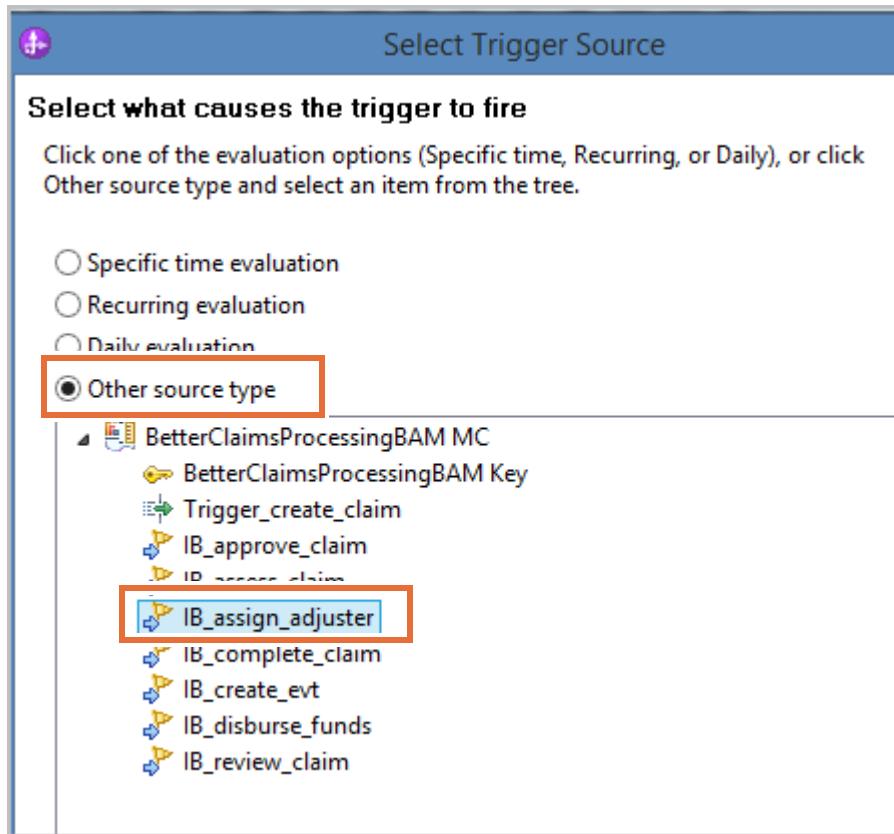
- ___ c. Click **OK**.
- ___ d. In the **Trigger Sources** section of the **Monitor Details Model** tab, click **Add**. It might be necessary to scroll down.



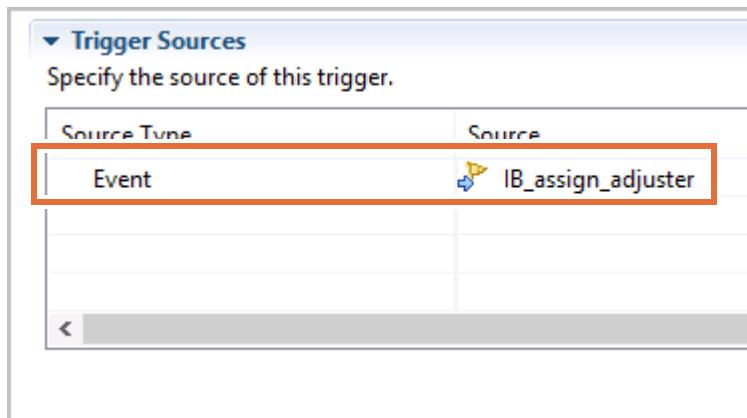
The Select Trigger Source window is displayed.

- ___ e. In the Select Trigger Source window, select the **Other source type** option.

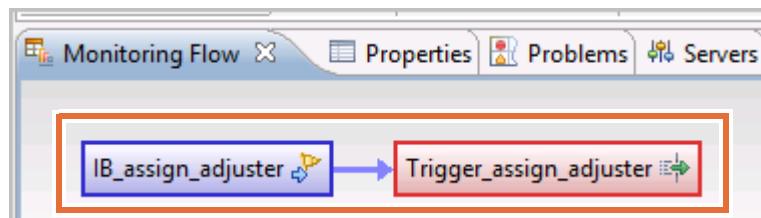
- __ f. Select **BetterClaimsProcessingBAM MC > IB_assign_adjuster**, then, click **OK**.



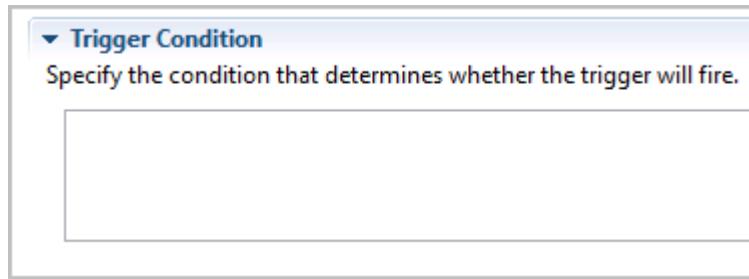
- __ g. The trigger source is now listed in the **Trigger Sources** section.



- __ h. Observe that the monitoring flow diagram is updated in the Monitoring Flow tab in the lower part of the workbench.

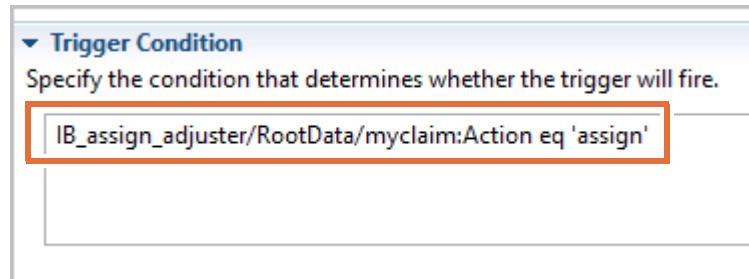


- __ i. Scroll down to the **Trigger Condition** section.



- __ j. For **Trigger Condition**, enter:

```
IB_assign_adjuster/RootData/myclaim:Action eq 'assign'
```

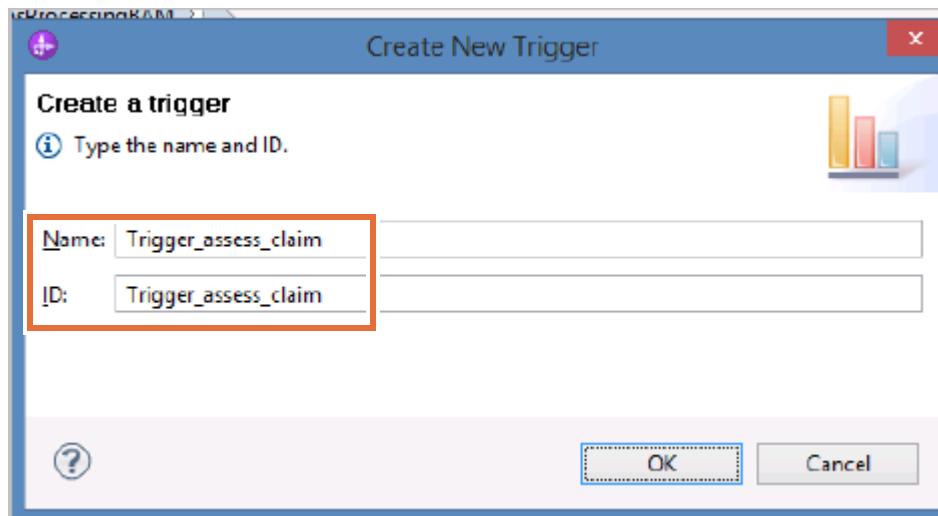


- __ k. Press Ctrl+S to save the workspace.

3. Create the **Trigger_assess_claim** trigger.

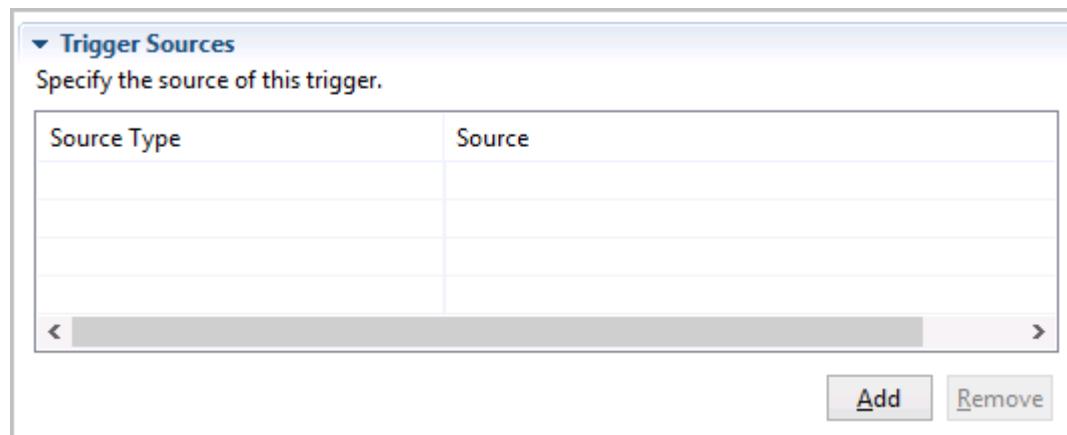
This trigger is run whenever a claim assessment occurs and its corresponding event is received.

- __ a. In the **Monitor Details Model** tab for **BetterClaimsProcessingBAM.mm**, right-click **BetterClaimsProcessingBAM MC** and click **New > Trigger** from the menu.
- __ b. In the Create New Trigger window, enter **Trigger_assess_claim** for the **Name**. The **ID** is generated automatically.

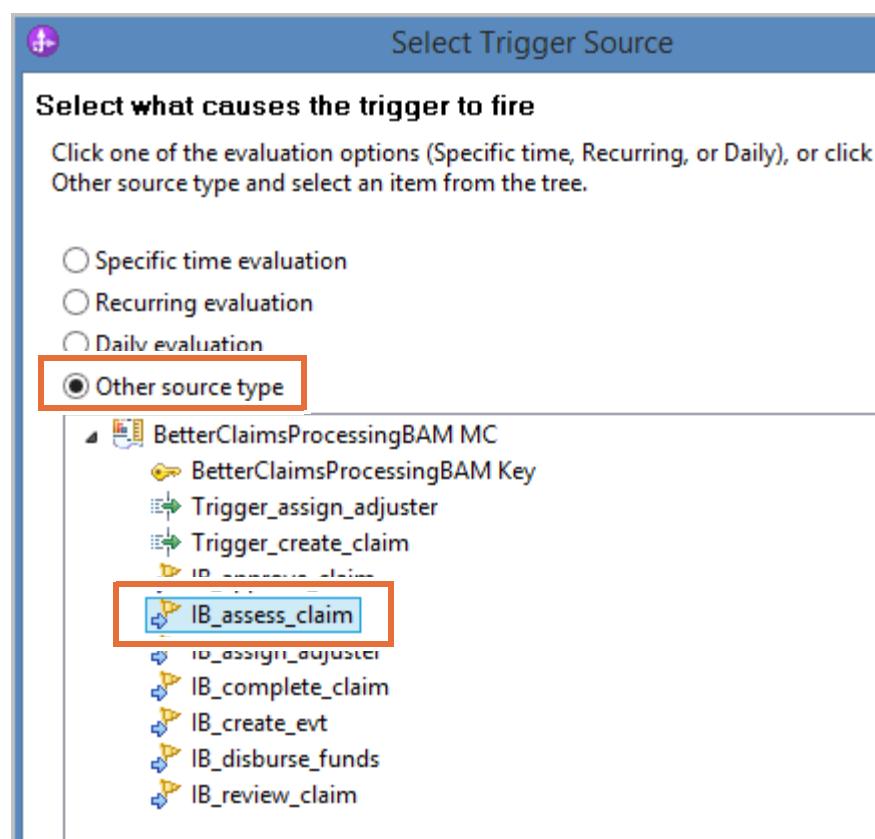


- __ c. Click **OK**.

- ___ d. In the **Trigger Sources** section of the **Monitor Details Model** tab, click **Add**. It might be necessary to scroll down.



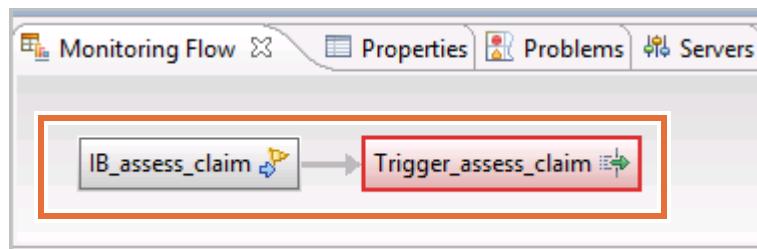
- The Select Trigger Source window is displayed.
- ___ e. In the Select Trigger Source window, select the **Other source type** option.
 ___ f. Select **BetterClaimsProcessingBAM MC > IB_assess_claim**; then, click **OK**.



- __ g. The trigger source is now listed in the **Trigger Sources** section.

Source Type	Source
Event	IB_assess_claim

- __ h. Observe that the monitoring flow diagram is updated in the Monitoring Flow tab in the lower part of the workbench.



- __ i. Scroll down to the **Trigger Condition** section.

Trigger Condition
Specify the condition that determines whether the trigger will fire.

```
IB_assess_claim/RootData/myclaim>Action eq 'assess'
```

- __ j. For **Trigger Condition**, enter:

IB_assess_claim/RootData/myclaim>Action eq 'assess'

Trigger Condition
Specify the condition that determines whether the trigger will fire.

```
IB_assess_claim/RootData/myclaim>Action eq 'assess'
```

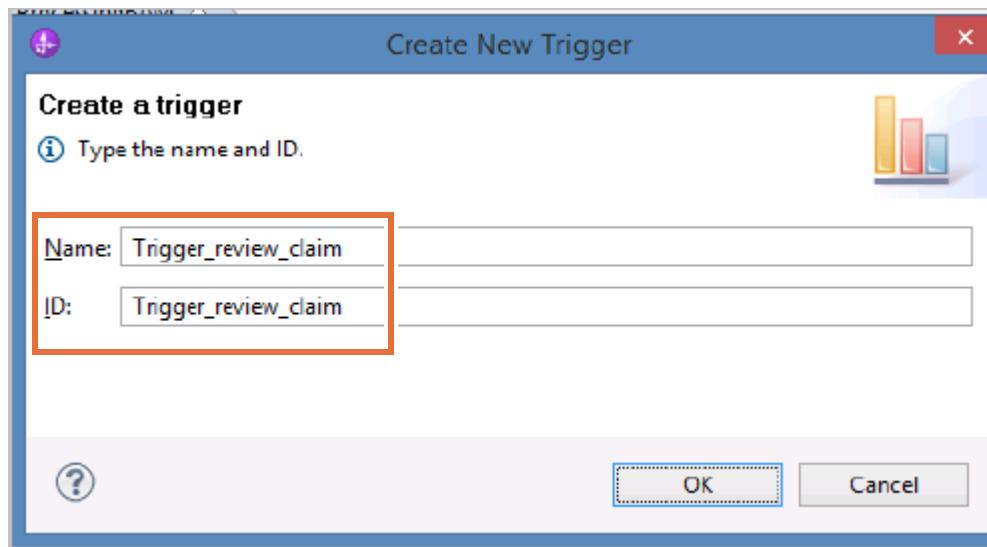
- __ k. Press Ctrl+S to save the workspace.

4. Create the **Trigger_review_claim** trigger.

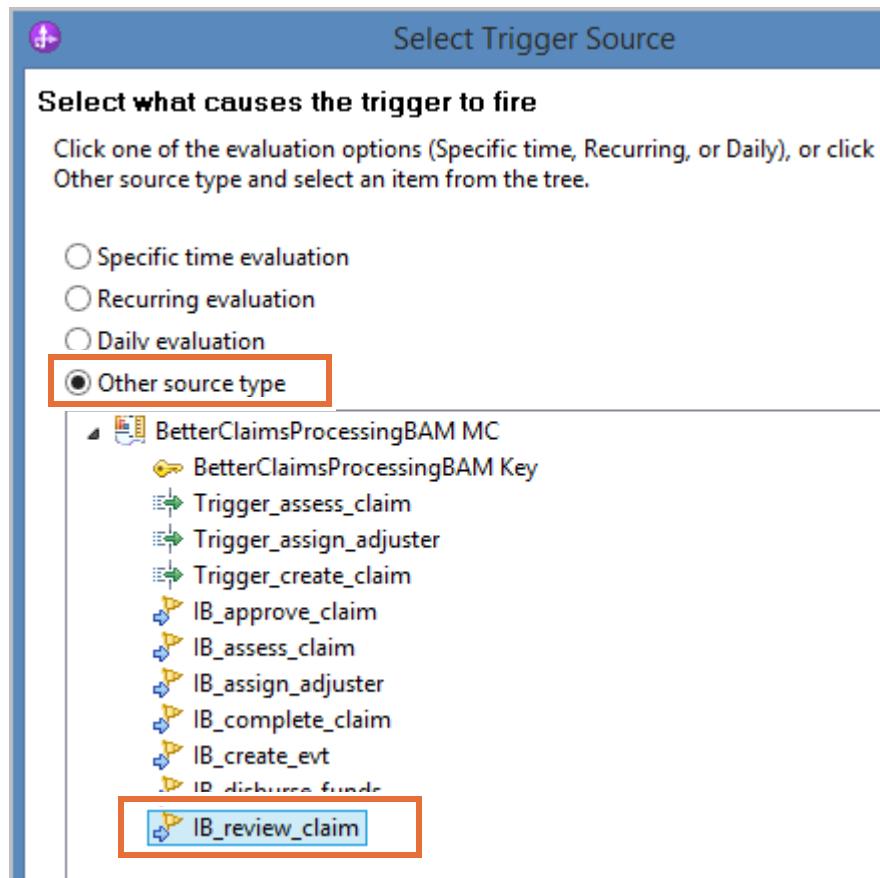
This trigger is run whenever a claim review occurs and its corresponding event is received.

- __ a. In the **Monitor Details Model** tab for **BetterClaimsProcessingBAM.mm**, right-click **BetterClaimsProcessingBAM MC** and click **New > Trigger** from the menu.

- ___ b. In the Create New Trigger window, enter `Trigger_review_claim` for the **Name**. The **ID** is generated automatically.



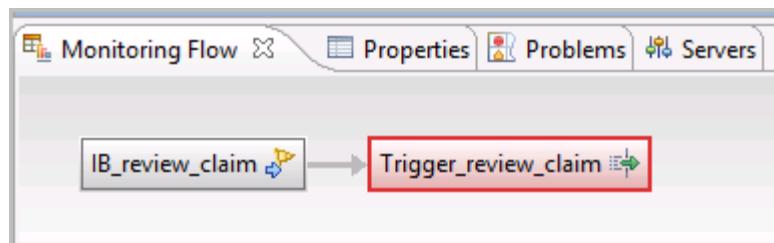
- ___ c. Click **OK**.
- ___ d. In the **Trigger Sources** section of the **Monitor Details Model** tab, click **Add**. It might be necessary to scroll down. The Select Trigger Source window is displayed.
- ___ e. In the Select Trigger Source window, select the **Other source type** option.
- ___ f. Select **BetterClaimsProcessingBAM MC > IB_review_claim**; then, click **OK**.



- __ g. The trigger source is now listed in the **Trigger Sources** section.

Source Type	Source
Event	IB_review_claim

- __ h. Observe that the monitoring flow diagram is updated in the **Monitoring Flow** tab in the lower part of the workbench.



- __ i. Scroll down to the **Trigger Condition** section.

- __ j. For **Trigger Condition**, enter:

```
IB_review_claim/RootData/myclaim:Action eq 'review'
```

Trigger Condition
Specify the condition that determines whether the trigger will fire.

```
IB_review_claim/RootData/myclaim:Action eq 'review'
```

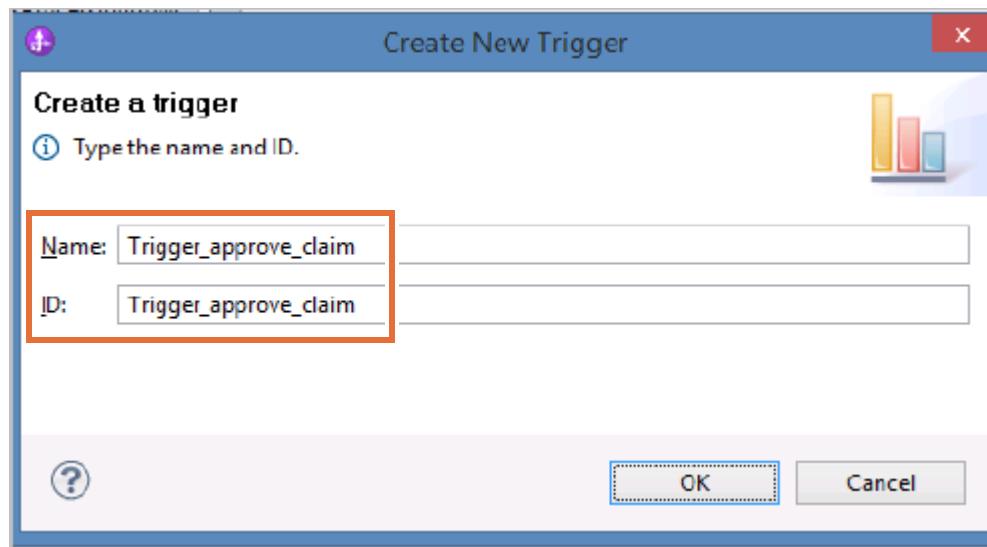
- __ k. Press Ctrl+S to save the workspace.

5. Create the **Trigger_approve_claim** trigger.

This trigger is run whenever a claim approval occurs and its corresponding event is received.

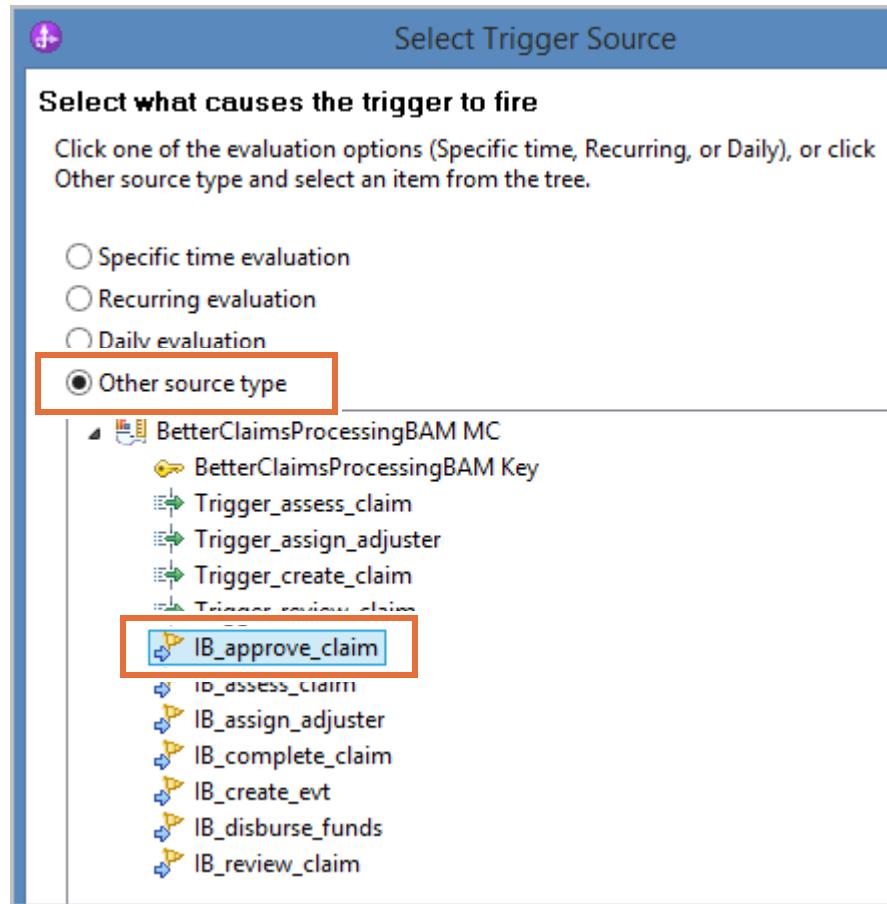
- __ a. In the **Monitor Details Model** tab for **BetterClaimsProcessingBAM.mm**, right-click **BetterClaimsProcessingBAM MC** and click **New > Trigger** from the menu.

- ___ b. In the Create New Trigger window, enter `Trigger_approve_claim` for the **Name**. The **ID** is generated automatically.



- ___ c. Click **OK**.
- ___ d. In the **Trigger Sources** section of the **Monitor Details Model** tab, click **Add**. It might be necessary to scroll down. The Select Trigger Source window is displayed.
- ___ e. In the Select Trigger Source window, select the **Other source type** option.

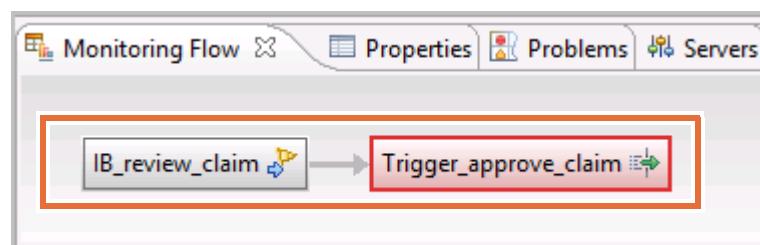
- __ f. Select **BetterClaimsProcessingBAM MC > IB_approve_claim**; then, click **OK**.



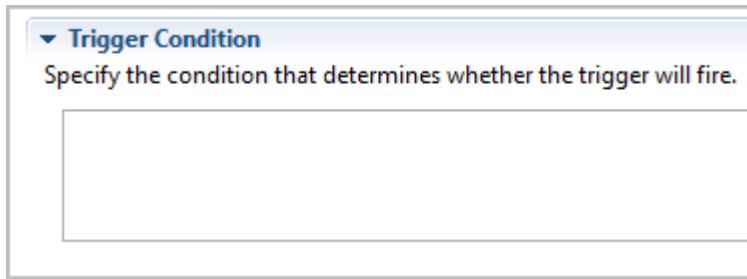
- __ g. The trigger source is now listed in the **Trigger Sources** section.

Specify the source of this trigger.	
Source Type	Source
Event	IB_approve_claim
<	

- __ h. Observe that the monitoring flow diagram is updated in the **Monitoring Flow** tab in the lower part of the workbench.

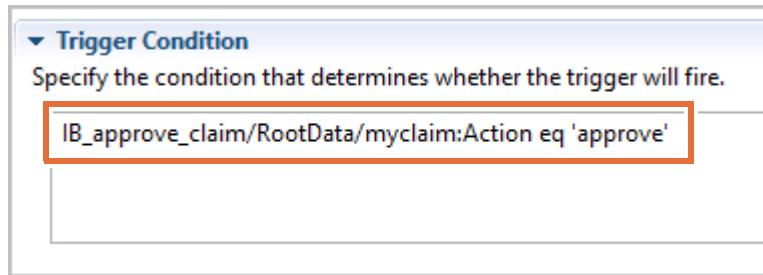


- __ i. Scroll down to the **Trigger Condition** section.



- __ j. For **Trigger Condition**, enter:

`IB_approve_claim/RootData/myclaim:Action eq 'approve'`

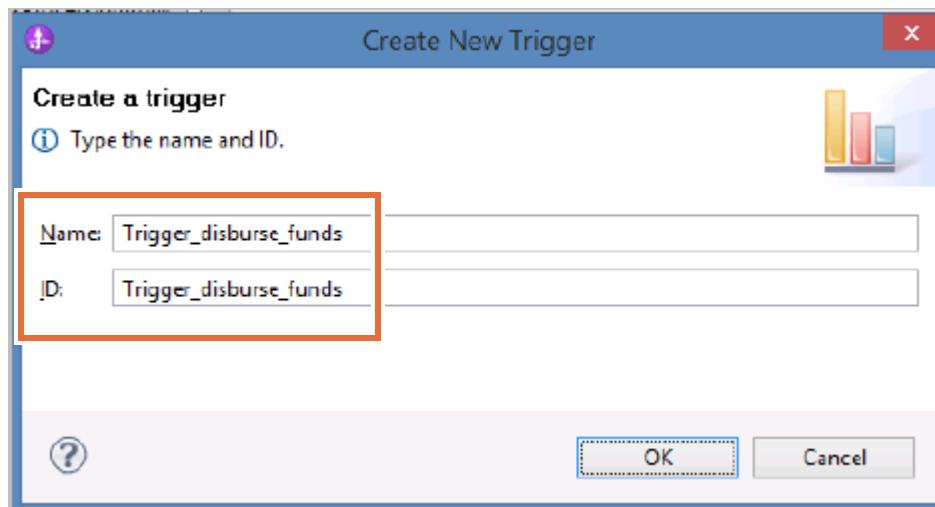


- __ k. Press Ctrl+S to save the workspace.

__ 6. Create the **Trigger_disburse_funds** trigger.

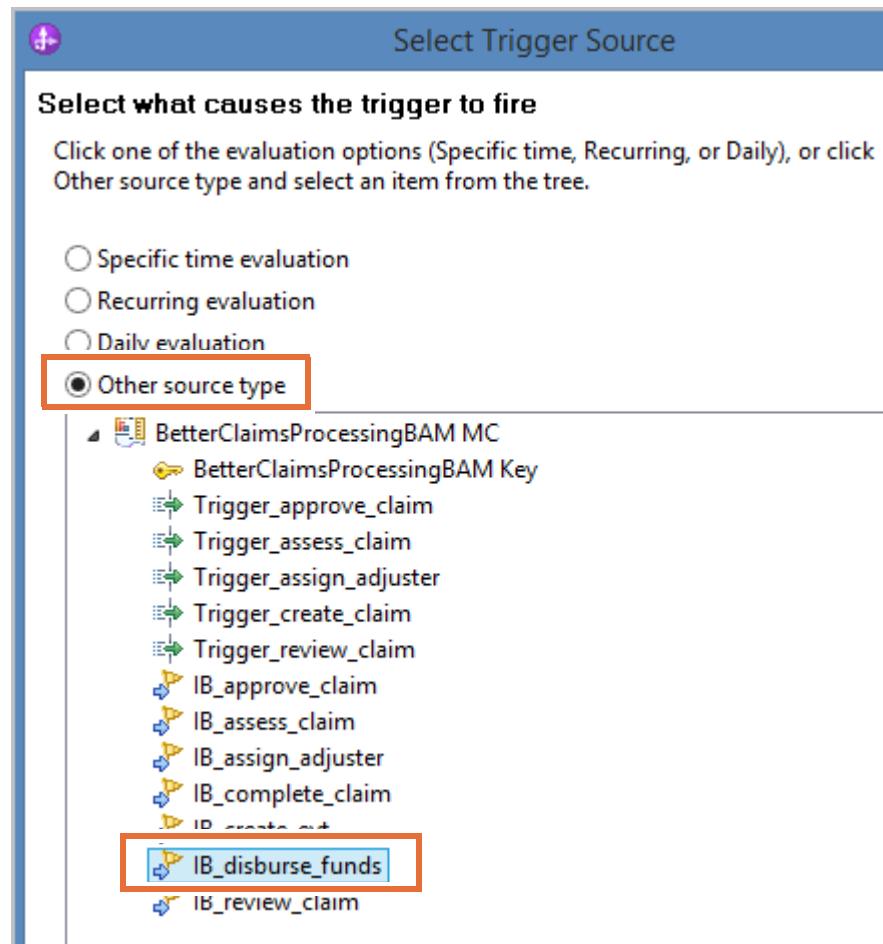
This trigger is run whenever a claim disbursement occurs and its corresponding event is received.

- __ a. In the **Monitor Details Model** tab for **BetterClaimsProcessingBAM.mm**, right-click **BetterClaimsProcessingBAM MC** and click **New > Trigger** from the menu.
- __ b. In the Create New Trigger window, enter **Trigger_disburse_funds** as the **Name**. The **ID** is generated automatically.



- __ c. Click **OK**.
- __ d. In the **Trigger Sources** section of the **Monitor Details Model** tab, click **Add**. It might be necessary to scroll down. The Select Trigger Source window is displayed.

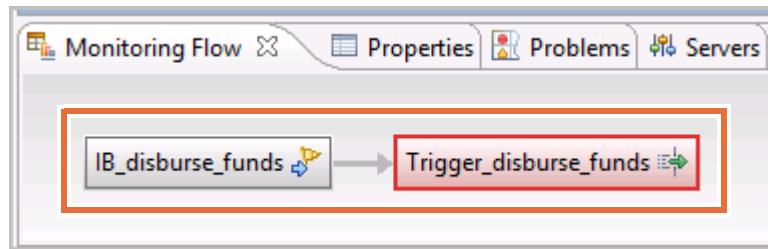
- __ e. In the Select Trigger Source window, select the **Other source type** option.
- __ f. Select **BetterClaimsProcessingBAM MC > IB_disburse_funds**; then, click **OK**.



- __ g. The trigger source is now listed in the **Trigger Sources** section.

Specify the source of this trigger.	
Source Type	Source
Event	IB_disburse_funds
<	

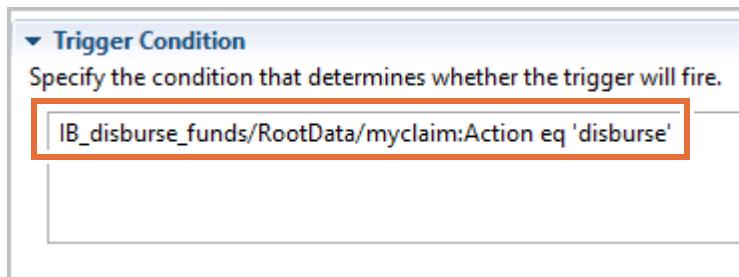
- __ h. Observe that the monitoring flow diagram is updated in the **Monitoring Flow** tab in the lower part of the workbench.



- __ i. Scroll down to the **Trigger Condition** section.

- __ j. For **Trigger Condition**, enter:

```
IB_disburse_funds/RootData/myclaim>Action eq 'disburse'
```

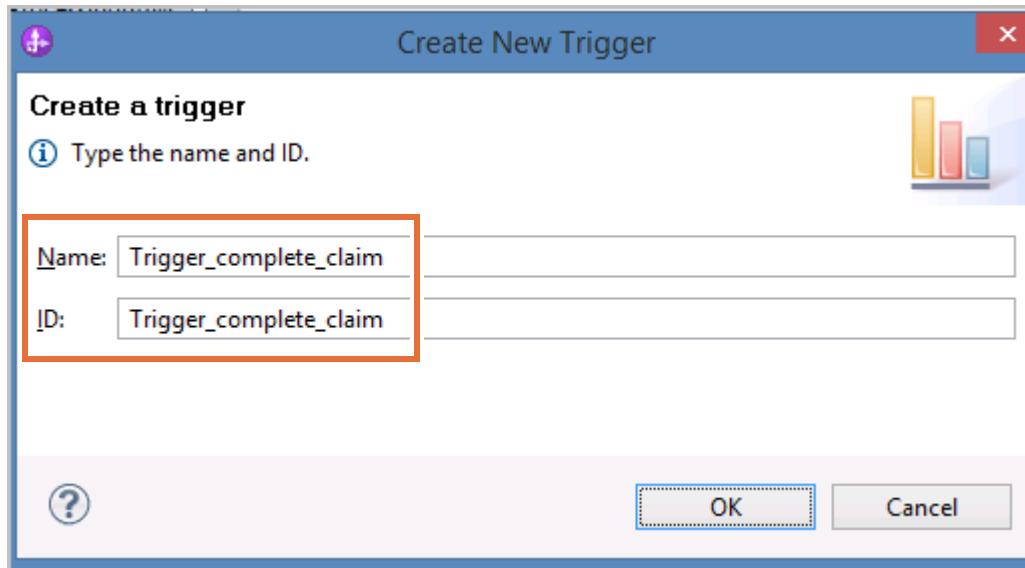


- __ k. Press Ctrl+S to save the workspace

7. Create the **Trigger_complete_claim** trigger.

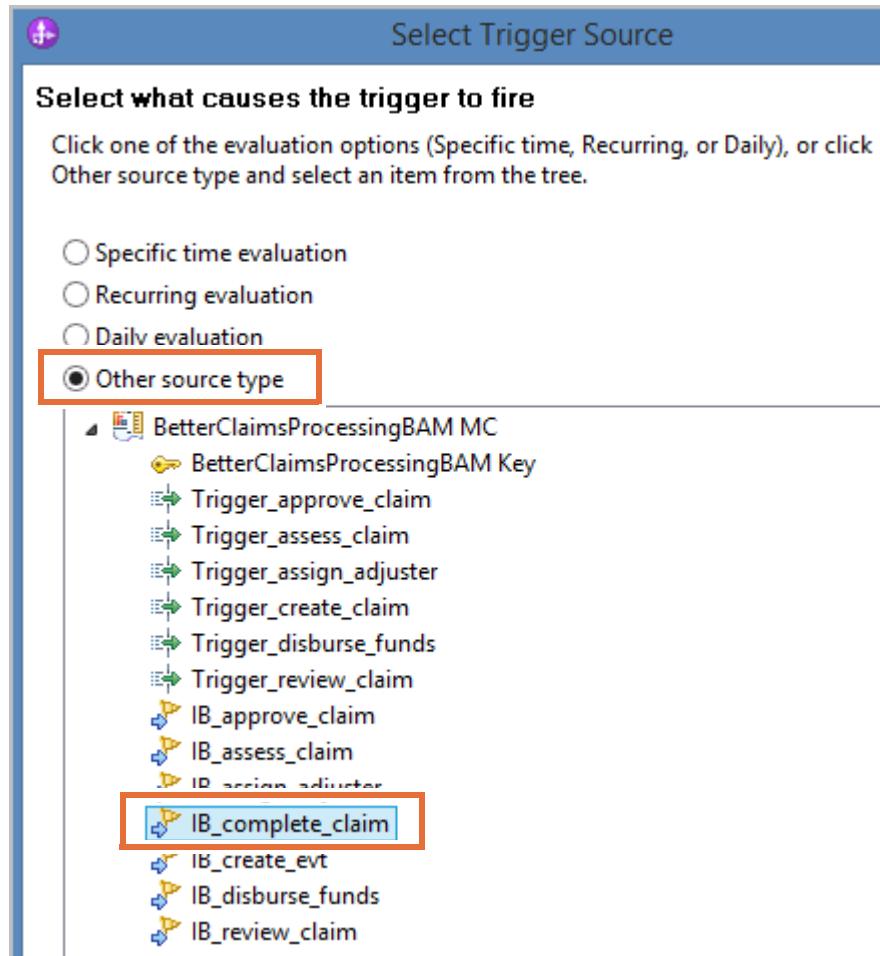
This trigger is run whenever a claim is completed and its corresponding event is received.

- __ a. In the **Monitor Details Model** tab for **BetterClaimsProcessingBAM.mm**, right-click **BetterClaimsProcessingBAM MC** and click **New > Trigger** from the menu.
- __ b. In the Create New Trigger window, enter **Trigger_complete_claim** as the **Name**. The **ID** is generated automatically.



- __ c. Click **OK**.

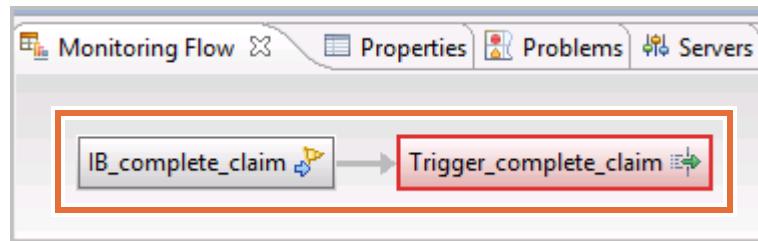
- __ d. In the **Trigger Sources** section of the **Monitor Details Model** tab, click **Add**. It might be necessary to scroll down. The Select Trigger Source window is displayed.
- __ e. In the Select Trigger Source window, select the **Other source type** option.
- __ f. Select **BetterClaimsProcessingBAM MC > IB_complete_claim**; then, click **OK**.



- __ g. The trigger source is now listed in the **Trigger Sources** section.

Trigger Sources	
Specify the source of this trigger.	
Source Type	Source
Event	IB_complete_claim

- __ h. Observe that the monitoring flow diagram is updated in the Monitoring Flow tab in the lower part of the workbench.



- __ i. Scroll down to the **Trigger Condition** section.

Trigger Condition
Specify the condition that determines whether the trigger will fire.

- __ j. For **Trigger Condition**, enter:

`IB_complete_claim/RootData/myclaim:Action eq 'complete'`

Trigger Condition
Specify the condition that determines whether the trigger will fire.

IB_complete_claim/RootData/myclaim:Action eq 'complete'

- __ k. Scroll up to the **Trigger Details** section for the **Trigger_complete_claim** trigger and select **Terminate monitoring context**.

Trigger Details
Edit the details of the trigger, which detects an occurrence and initiates an action in response.

ID: Trigger_complete_claim

Name: Trigger_complete_claim

Description:

Trigger is repeatable

Terminate monitoring context

- __ l. Press Ctrl+S to save the workspace build to complete.
- __ m. Click **File > Exit** from the menu bar to exit IBM Integration Designer.

End of exercise

Exercise 5. Creating metrics in a monitor model

Estimated time

01:00

Overview

In this exercise, you create metrics for your monitor model.

Objectives

After completing this exercise, you should be able to:

- Create several metrics for the monitor model
- Create a counter for the monitor model

Introduction

You continue working with the Monitor model you worked with in the previous exercise. You complete the model and export it from IBM Integration Designer.

Requirements

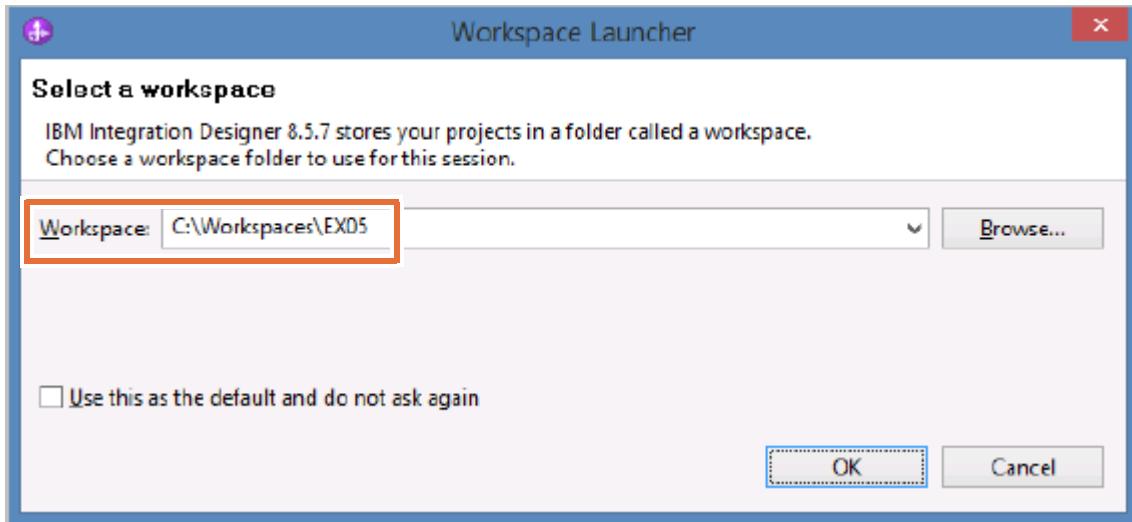
Completing the exercises for this course requires a lab environment. The environment includes the exercise support files, Internet Explorer, IBM Process Server, and IBM Business Monitor test environments.

Exercise instructions

Part 1: Importing the Monitor model

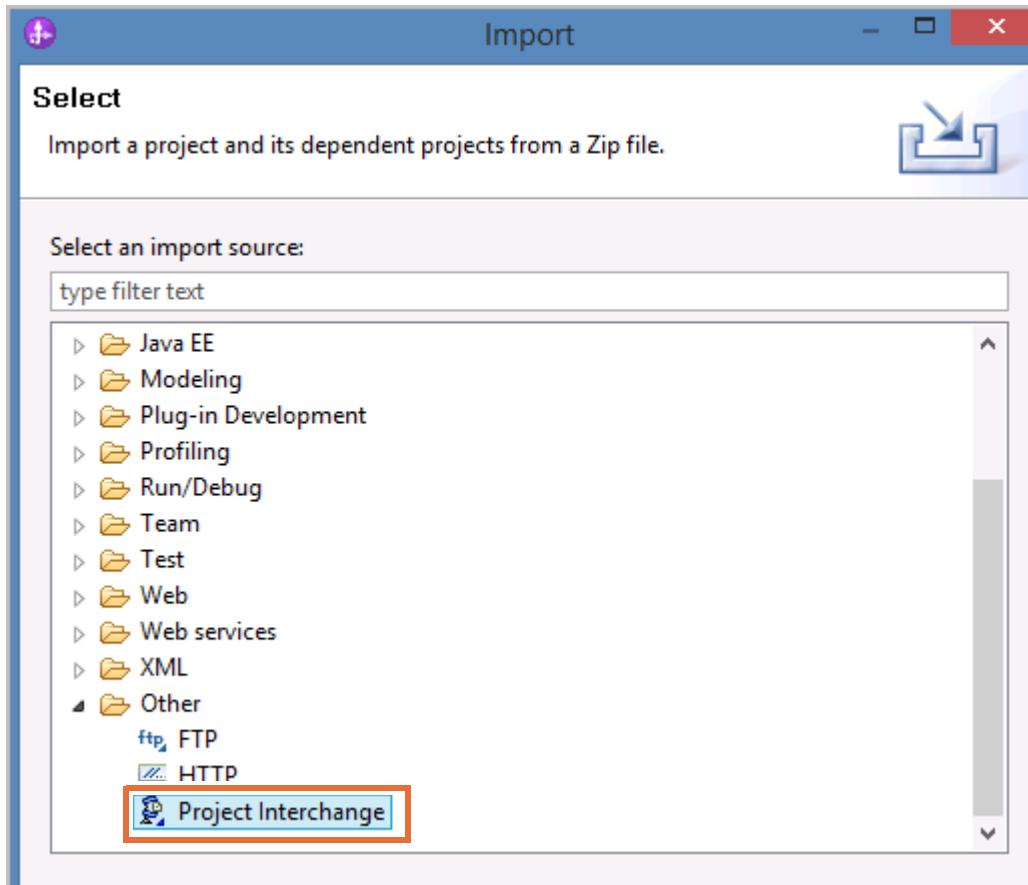
In this portion of the exercise, you start IBM Integration Designer and build on the existing Monitor model project for claims processing that you worked with in previous exercises.

- 1. Start IBM Integration Designer (if not already started).
 - a. On your desktop, double-click the shortcut that is labeled **IBM Integration Designer**. This action takes a moment to initialize.
 - b. In the **Workspace Launcher** dialog box, change the **Workspace** location to C:\Workspaces\EX05 and click **OK**.



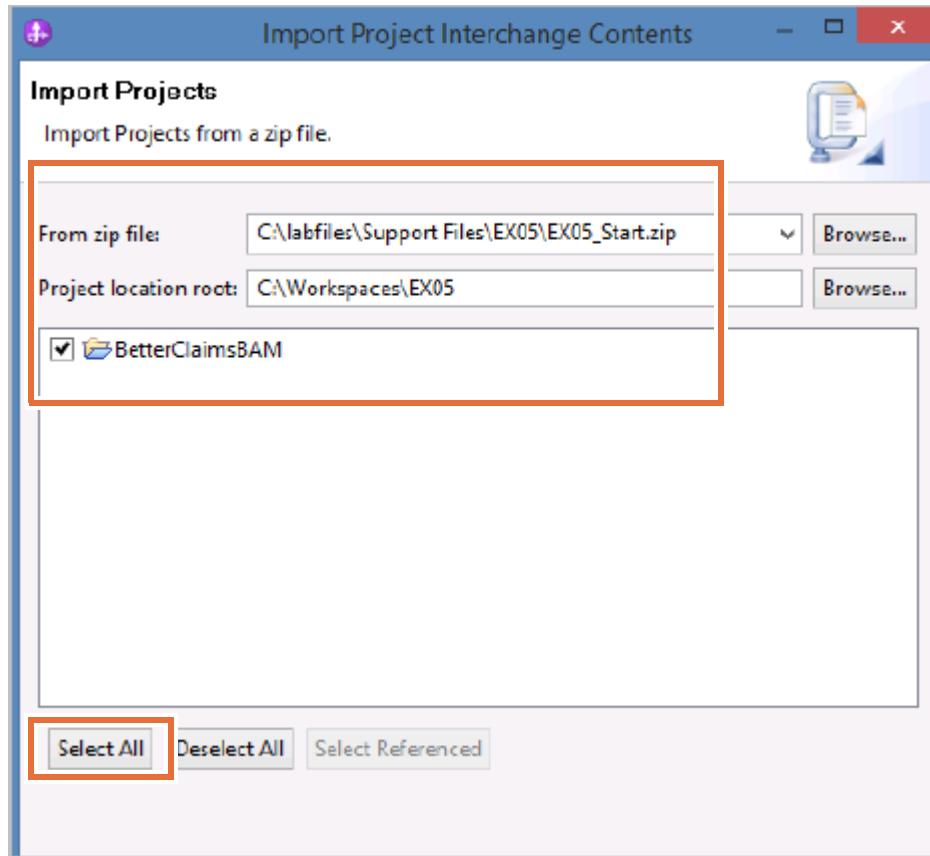
- 2. Close the welcome page by clicking **X** on the **Getting Started - IBM Integration Designer** tab.
- An empty workspace is created. Next, you import the claims processing monitoring project in this workspace.
- 3. Import the monitor model.
 - a. From the menu bar in the **Business Integration** view, click **File > Import**.

- __ b. In the Import window, expand **Other** and select **Project Interchange**.



- __ c. Click **Next**.
- __ d. In the Import Project Interchange Contents window, click **Browse** to the right of **From zip file**. Go to the following folder:
C:\labfiles\Support Files\EX05
- __ e. Select **EX05_Start.zip**, and click **Open**.

- __ f. Click **Select All** to make sure that the project is selected.

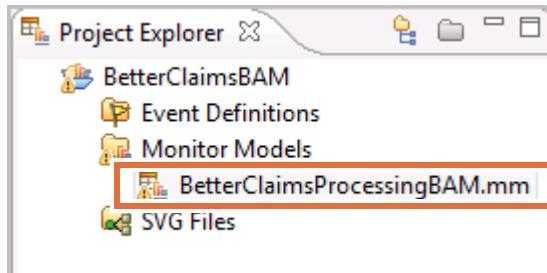


- __ g. Click **Finish** to complete the import.
__ h. The BetterClaimsBAM project is now imported in IBM Integration Designer.
__ 4. Switch to the Business Monitoring perspective.
__ a. From the menu, click **Window > Open Perspective > Business Monitoring**.
__ b. Wait for the Business Monitoring perspective to load.
__ c. Close the **Technology Quickstarts** view.
__ d. Close **Help** from the right side of the toolkit.

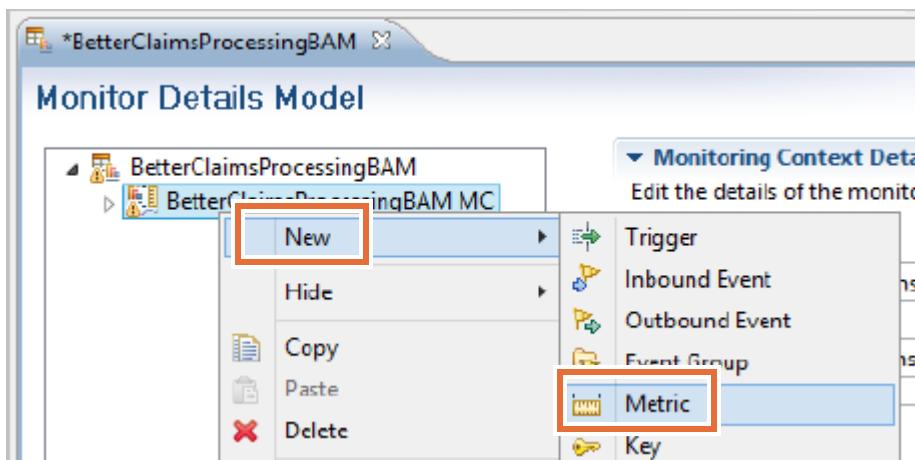
Part 2: Building the Monitor model: Defining metrics

You create several metrics in the section. The metrics are based on data that is obtained from the triggers that you created earlier.

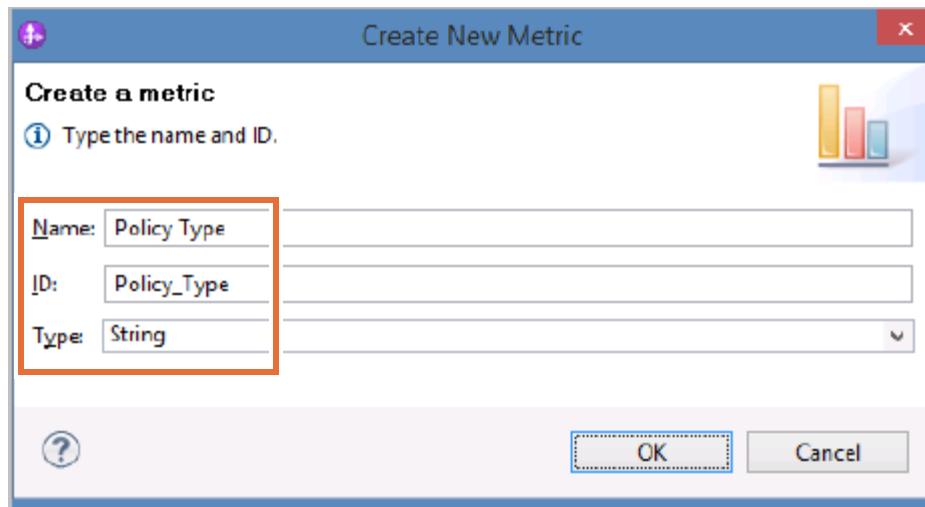
- 1. Create the **Policy Type** metric.
- a. Expand **BetterClaimsBAM > Monitor Models** and double-click **BetterClaimsProcessingBAM.mm**.



- a. In the **Monitor Details Model** tab for **BetterClaimsProcessingBAM.mm**, right-click **BetterClaimsProcessingBAM MC** and click **New > Metric** from the menu.



- b. In the Create New Metric window, enter **Policy Type** for **Name**. Verify that **Type** is set to **String**.



___ c. Click **OK**.

___ d. In the **Metric Value Expressions** of the **Policy Type** metric, click **Add**.

Metric Value Expressions

Specify the expressions that set the value of the metric. If a trigger is specified, the expression is evaluated when the trigger fires.

Trigger	Expression

Add

___ e. Select the first row under the **Trigger** column, and click the button that is displayed in that column.

Metric Value Expressions

Specify the expressions that set the value of the metric. If a trigger is specified,

Trigger	Expression
	...

___ f. In the “Select a Trigger” window that is displayed, select the **Trigger type** option.

___ g. Select **Trigger_create_claim** and then click **OK**.

Select a Trigger

Select what causes the expression to be evaluated

Select a trigger from the tree, or click New to create a new one.

No trigger

Trigger type

- BetterClaimsProcessingBAM MC
 - Trigger_approve_claim
 - Trigger_assess_claim
 - Trigger_assign_adjuster
 - Trigger_change_status
 - Trigger_create_claim
 - Trigger_disburse_funds
 - Trigger_review_claim

If you did not create the triggers in advance, you can do so when you create the metrics by clicking **New** in the “Select a Trigger” window. Because you already created the necessary triggers in previous exercise, you are selecting them in this step.

- h. Select the first row under the **Expression** column and click the button that is displayed in that column.



- i. In the expression window that is displayed, enter `IB_create_evt/RootData/myclaim:PolicyType` and click **OK**. The expression is added to the table.

Trigger	Expression
Trigger_create_claim	=? IB_create_evt/RootData/myclaim:PolicyType



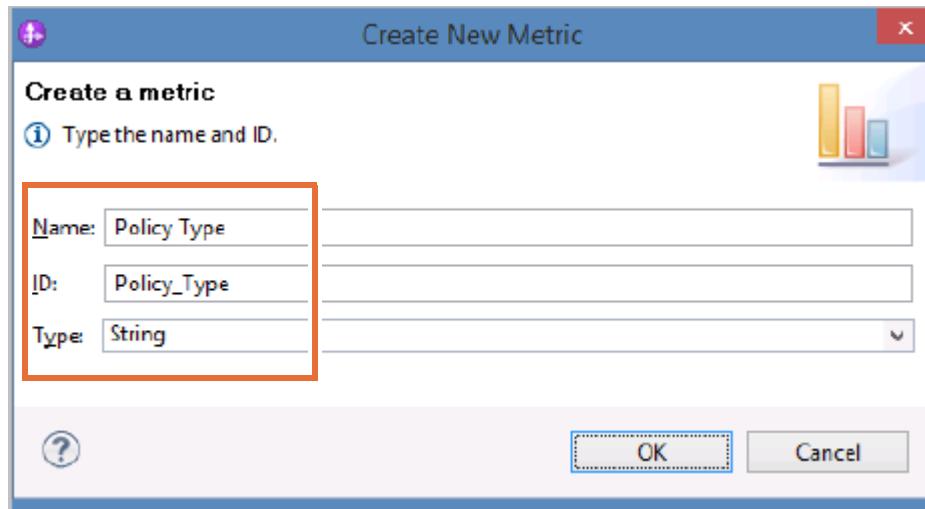
Note

When entering expressions, you can either type the expression directly as shown, or use the content assist feature in IBM Integration Designer. Content assist helps you construct valid XPath expressions that are based on the context. To use content assist at any point while entering an XPath expression, press **Ctrl+Space**. Content assist displays a menu of the available XPath content, operators, and functions that you can select.

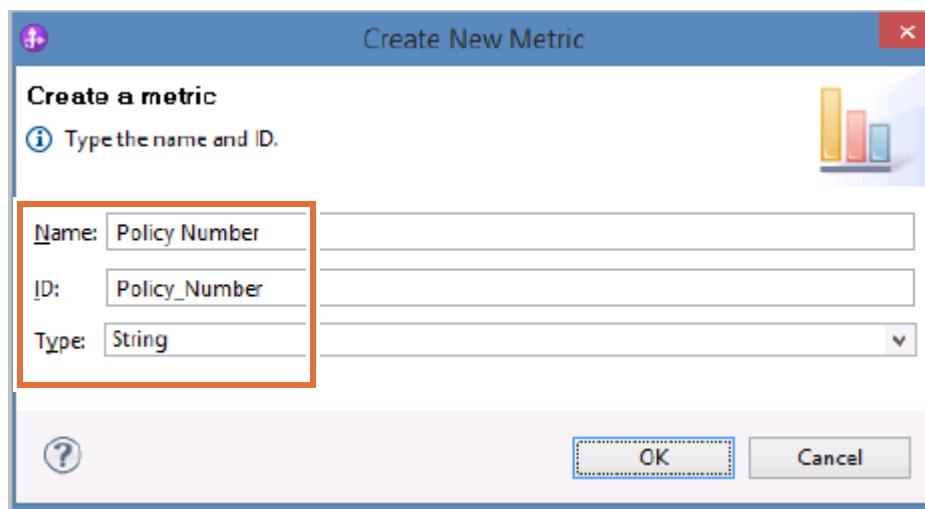
- j. Press **Ctrl+S** to save the workspace.

— 2. Create the **Policy Number** metric.

- a. In the **Monitor Details Model** tab for **BetterClaimsProcessingBAM.mm**, right-click **BetterClaimsProcessingBAM MC** and click **New > Metric** from the menu.



- b. In the Create New Metric window, enter **Policy Number** for **Name**. Verify that **Type** is set to **String**.



- c. Click **OK**.

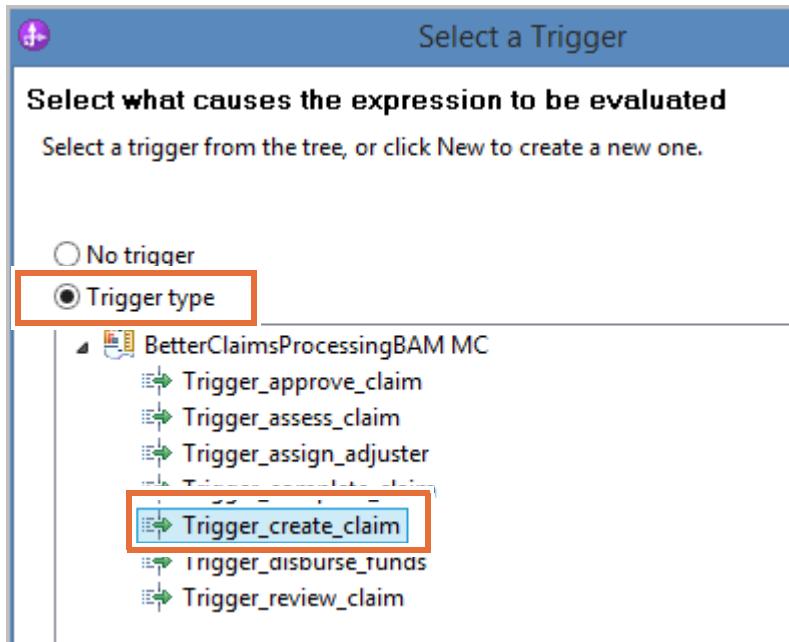
- d. In the **Metric Value Expressions** of the **Policy Number** metric, click **Add**.

Metric Value Expressions	
Specify the expressions that set the value of the metric. If a trigger is specified, the expression is evaluated when the trigger fires.	
Trigger	Expression
Add	

- __ e. Select the first row under the **Trigger** column, and click the button that is displayed in that column.

Metric Value Expressions	
Specify the expressions that set the value of the metric. If a trigger is specified,	
Trigger	Expression
	? << No expression specified >>

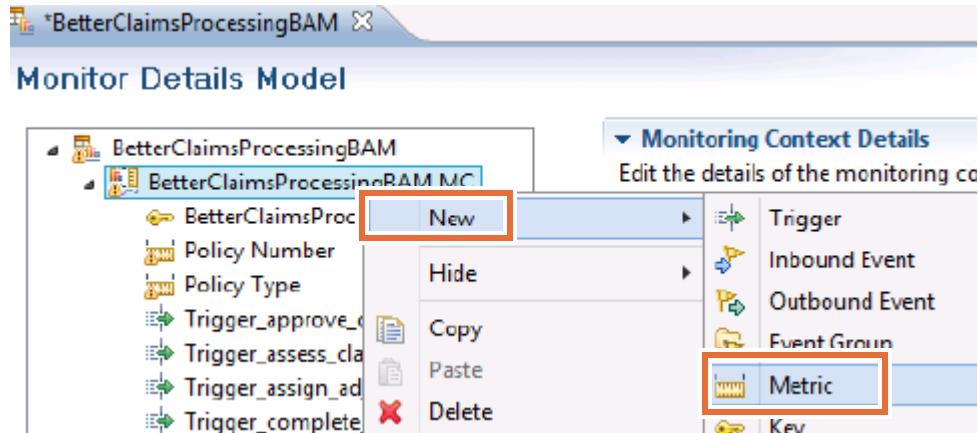
- __ f. In the “Select a Trigger” window that is displayed, select the **Trigger type** option.
 __ g. Select **Trigger_create_claim** and then click **OK**.



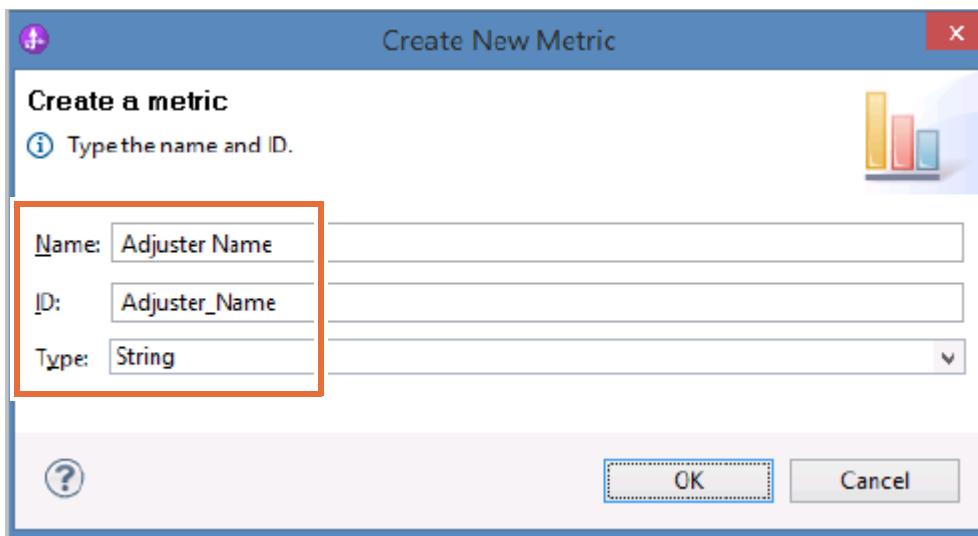
- __ h. Select the first row under the **Expression** column and click the button that is displayed in that column. The expression window is displayed.
 __ i. Enter `IB_create_evt/RootData/myclaim:PolicyNumber` and click **OK**. The expression is added to the table.

Metric Value Expressions	
Specify the expressions that set the value of the metric. If a trigger is specified, the expression	
Trigger	Expression
Trigger_create_claim	? =? IB_create_evt/RootData/myclaim:PolicyNumber

- ___ j. Press Ctrl+S to save the workspace.
- ___ 3. Create the **Adjuster Name** metric.
 - ___ a. In the **Monitor Details Model** tab for **BetterClaimsProcessingBAM.mm**, right-click **BetterClaimsProcessingBAM MC** and click **New > Metric** from the menu.



- ___ b. In the Create New Metric window, enter **Adjuster Name** as the **Name**. Verify that the **Type** is set to **String**.



- ___ c. Click **OK**.

- __ d. In the **Metric Value Expressions** of the **Adjuster Name** metric, click **Add**.

Trigger	Expression
	No expression specified

Add

- __ e. Select the first row under the **Trigger** column, and click the button that is displayed in that column.

Trigger	Expression
...	No expression specified

- __ f. In the “Select a Trigger” window that is displayed, select the **Trigger type** option.
 __ g. Select **Trigger_assign_adjuster** and then click **OK**.

Select a Trigger

Select what causes the expression to be evaluated
Select a trigger from the tree, or click New to create a new one.

No trigger

Trigger type

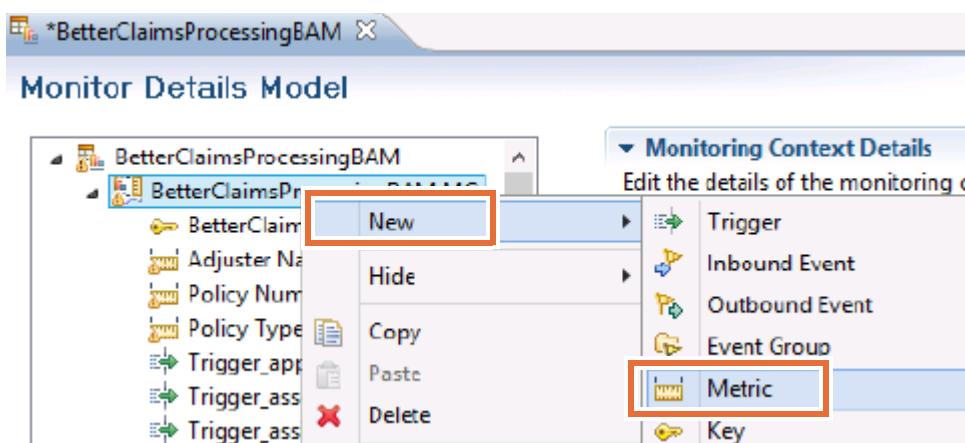
- ▶ BetterClaimsProcessingBAM MC
 - ▶ Trigger_approve_claim
 - ▶ Trigger_assign_adjuster
 - ▶ Trigger_complete_claim
 - ▶ Trigger_create_claim
 - ▶ Trigger_disburse_funds
 - ▶ Trigger_review_claim

- __ h. Select the first row under the **Expression** column and click the button that is displayed in that column. The expression window is displayed.

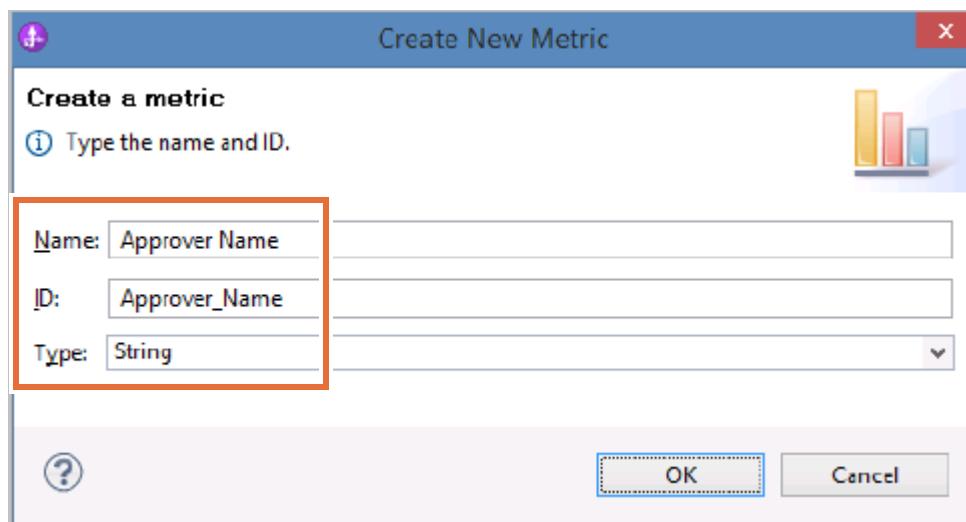
- __ i. Enter `IB_assign_adjuster/RootData/myclaim:Adjuster` and click **OK**. The expression is added to the table.

Trigger	Expression
<code>Trigger_assign_adjuster</code>	<code>IB_assign_adjuster/RootData/myclaim:Adjuster</code>

- __ j. Press **Ctrl+S** to save the workspace.
4. Create the **Approver Name** metric.
- __ a. In the **Monitor Details Model** tab for **BetterClaimsProcessingBAM.mm**, right-click **BetterClaimsProcessingBAM MC** and click **New > Metric** from the menu.



- __ b. In the **Create New Metric** window, enter **Approver Name** as the **Name**. Verify that the **Type** is set to **String**.



- ___ c. Click **OK**.
- ___ d. In the **Metric Value Expressions** of the **Approver Name** metric, click **Add**.

Metric Value Expressions

Specify the expressions that set the value of the metric. If a trigger is specified, the expression is evaluated when the trigger fires.

Trigger	Expression

Add

- ___ e. Select the first row under the **Trigger** column, and click the button that is displayed in that column.

Metric Value Expressions

Specify the expressions that set the value of the metric. If a trigger is specified,

Trigger	Expression
	<< No expression specified >>

- ___ f. In the “Select a Trigger” window that is displayed, select the **Trigger type** option.
- ___ g. Select **Trigger_approve_claim** and then click **OK**.

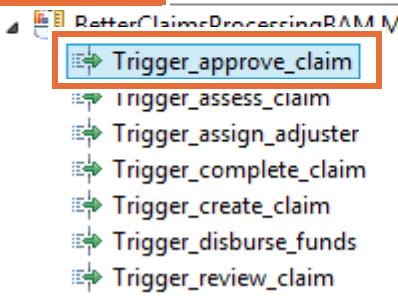
Select a Trigger

Select what causes the expression to be evaluated

Select a trigger from the tree, or click New to create a new one.

No trigger

Trigger type



- Trigger_approve_claim
- Trigger_assess_claim
- Trigger_assign_adjuster
- Trigger_complete_claim
- Trigger_create_claim
- Trigger_disburse_funds
- Trigger_review_claim

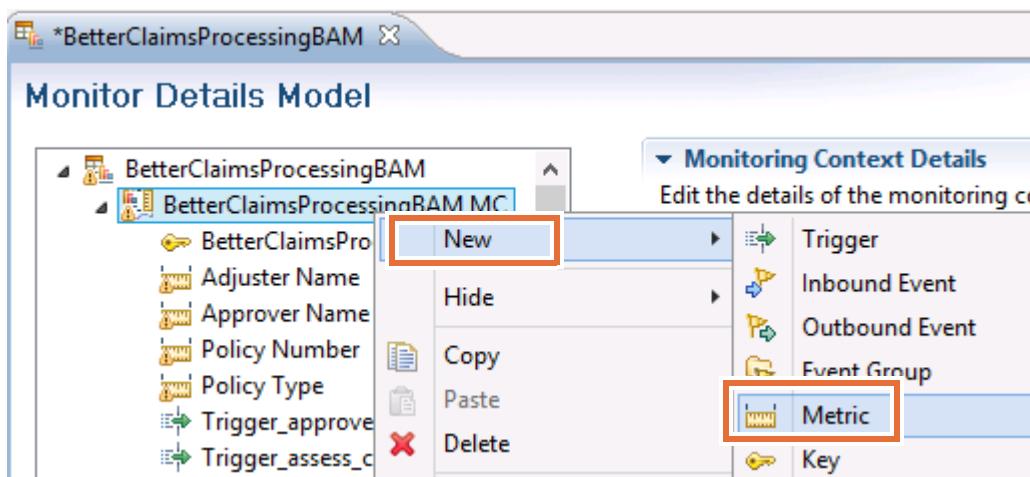
- __ h. Select the first row under the **Expression** column and click the button that is displayed in that column. The expression window is displayed.
- __ i. Enter `IB_approve_claim/RootData/myclaim:Approver` and click **OK**. The expression is added to the table.

Metric Value Expressions

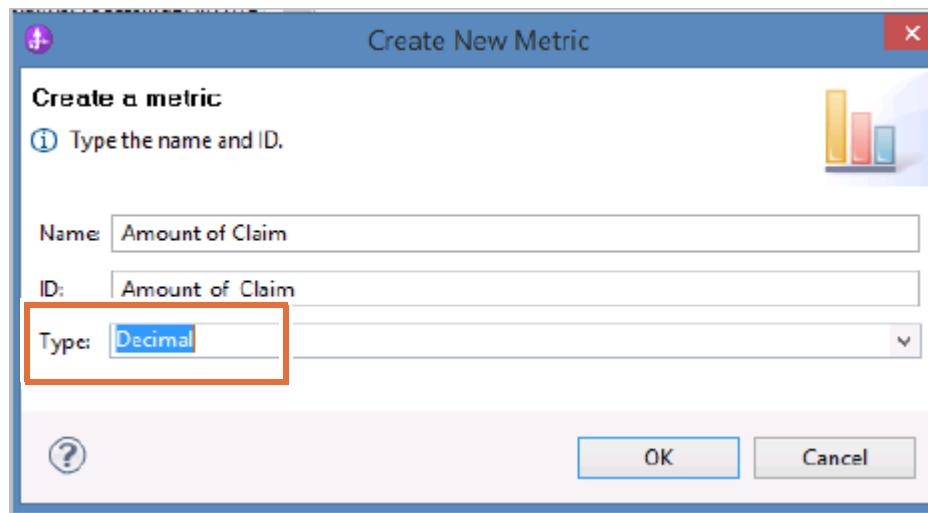
Specify the expressions that set the value of the metric. If a trigger is specified, the expression

Trigger	Expression
Trigger_approve_claim	<code>IB_approve_claim/RootData/myclaim:Approver</code>

- __ j. Press **Ctrl+S** to save the workspace.
- __ 5. Create the **Amount of Claim** metric.
- __ a. In the **Monitor Details Model** tab for **BetterClaimsProcessingBAM.mm**, right-click **BetterClaimsProcessingBAM MC** and click **New > Metric** from the menu.



- ___ b. In the Create New Metric window, enter **Amount of Claim** as the **Name**. Change the **Type** to **Decimal**.



- ___ c. Click **OK**.
- ___ d. In the **Metric Value Expressions** of the **Amount of Claim** metric, click **Add**.

The screenshot shows the 'Metric Value Expressions' section. It has a table with two columns: 'Trigger' and 'Expression'. There are three empty rows in the table. At the bottom right of the section is a button labeled 'Add' with a red box around it.

Trigger	Expression

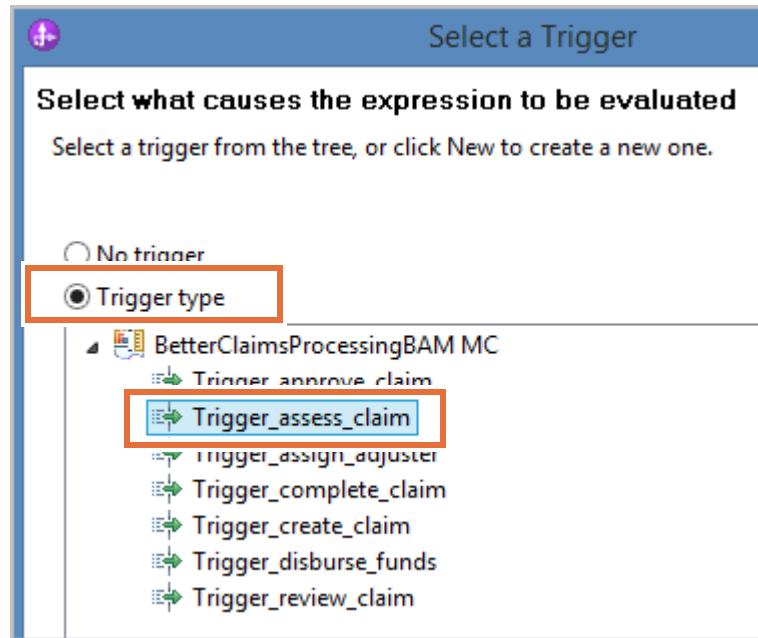
- ___ e. Select the first row under the **Trigger** column, and click the button that is displayed in that column.

The screenshot shows the 'Metric Value Expressions' section with a selected row. The 'Trigger' column contains a green checkmark icon, and the 'Expression' column contains a blue ellipsis button ('...') with a red box around it.

Trigger	Expression
✓	...

- ___ f. In the "Select a Trigger" window that is displayed, select the **Trigger type** option.

- __ g. Select **Trigger_assess_claim** and then click **OK**.



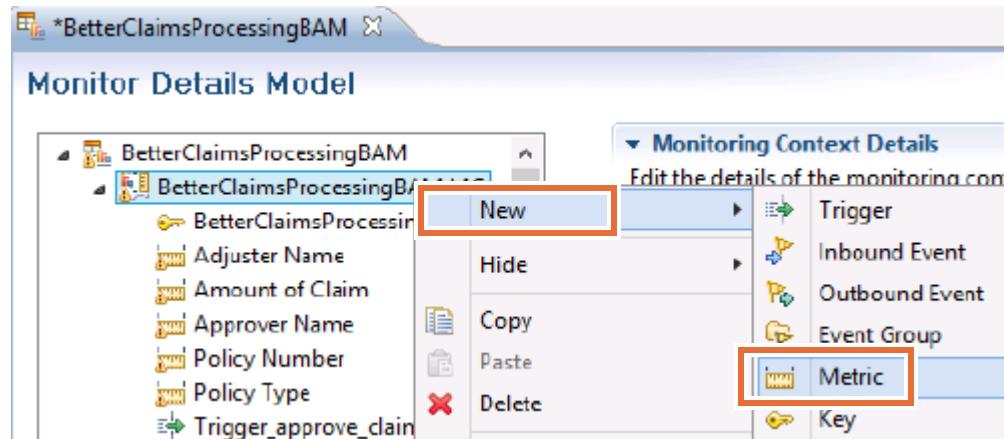
- __ h. Select the first row under the **Expression** column and click the button that is displayed in that column. The expression window is displayed.
- __ i. Enter `IB_assess_claim/RootData/myclaim:ClaimAmount` and click **OK**. The expression is added to the table.

Metric Value Expressions	
Specify the expressions that set the value of the metric. If a trigger is specified, the expression	
Trigger	Expression
<code>Trigger_assess_claim</code>	<code>IB_assess_claim/RootData/myclaim:ClaimAmount</code>

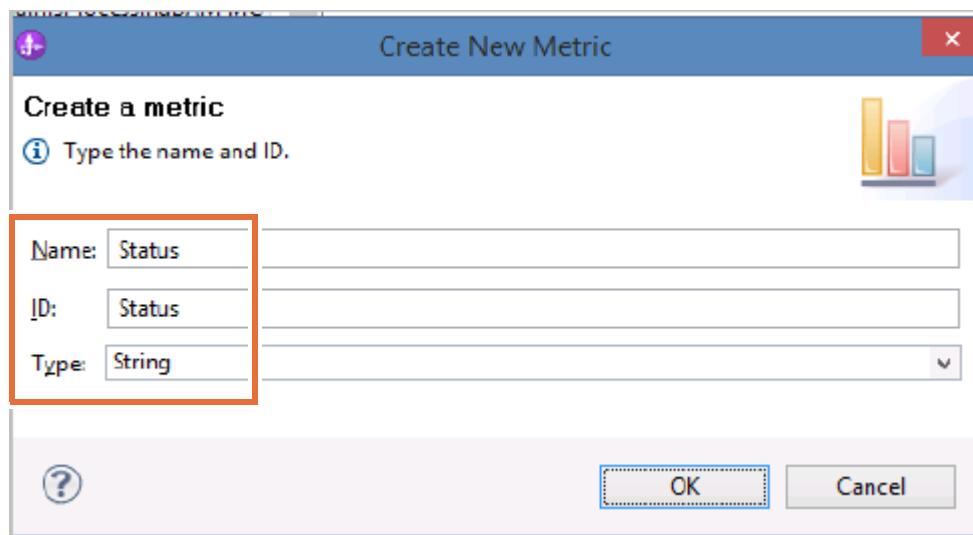
- __ j. Press **Ctrl+S** to save the workspace.

— 6. Create the **Status** metric.

- a. In the **Monitor Details Model** tab for **BetterClaimsProcessingBAM.mm**, right-click **BetterClaimsProcessingBAM MC** and click **New > Metric** from the menu.

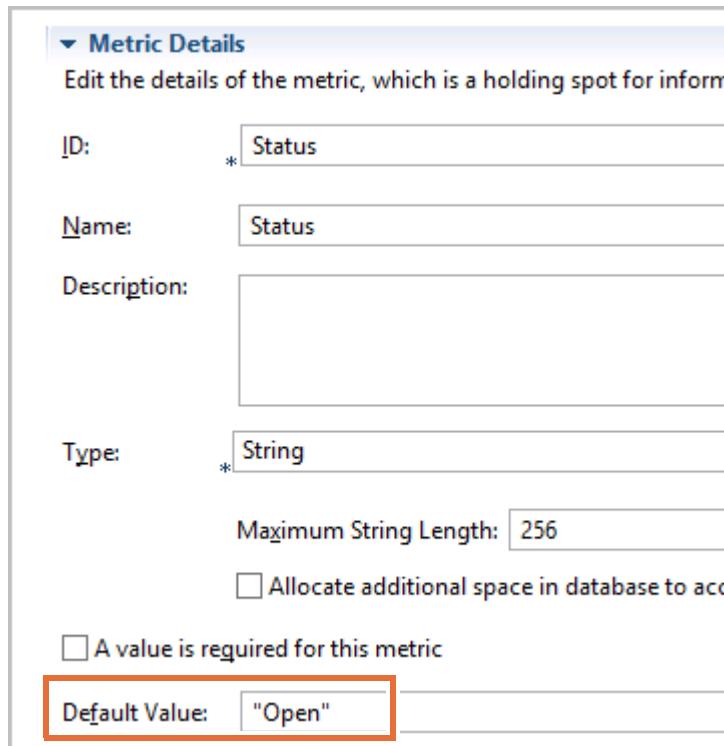


- b. In the **Create New Metric** window, enter **Status** as the **Name**. Verify that the **Type** is set to **String**.



- c. Click **OK**.

- ___ d. In the **Metric Details** section, enter "Open" as the **Default Value**. The string must be enclosed in quotations.



Metric Details
Edit the details of the metric, which is a holding spot for information about the metric.

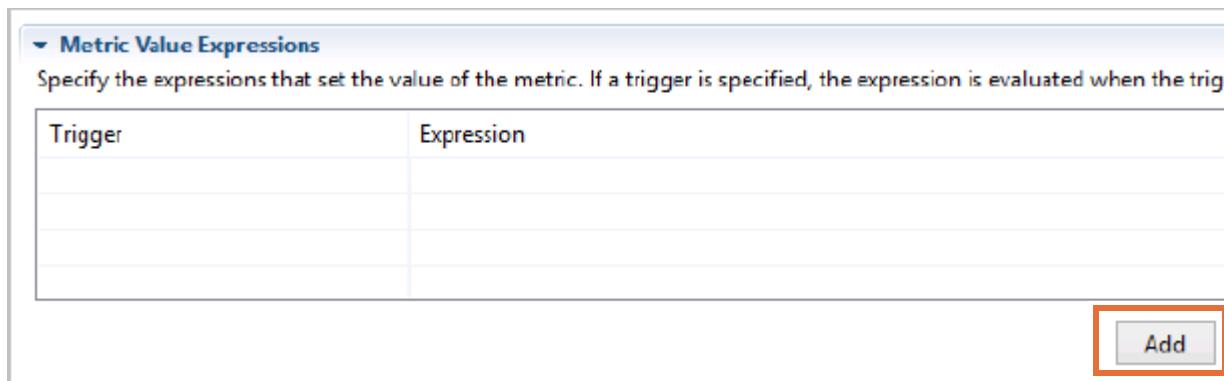
ID:	*	Status
Name:	Status	
Description:		
Type:	*	String
Maximum String Length: 256		
<input type="checkbox"/> Allocate additional space in database to account for longer values		
<input type="checkbox"/> A value is required for this metric		
Default Value:	"Open"	



CAUTION

Do not copy and paste text that has apostrophes or quotations around them into the Monitor editor. The quotations are often interpreted differently and incorrectly during the paste. It is better to type in the text that requires quotations.

- ___ e. In the **Metric Value Expressions** of the **Status** metric, click **Add**.

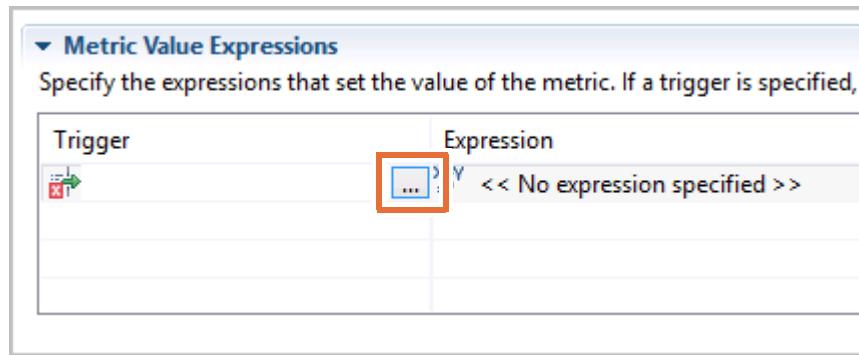


Metric Value Expressions
Specify the expressions that set the value of the metric. If a trigger is specified, the expression is evaluated when the trigger fires.

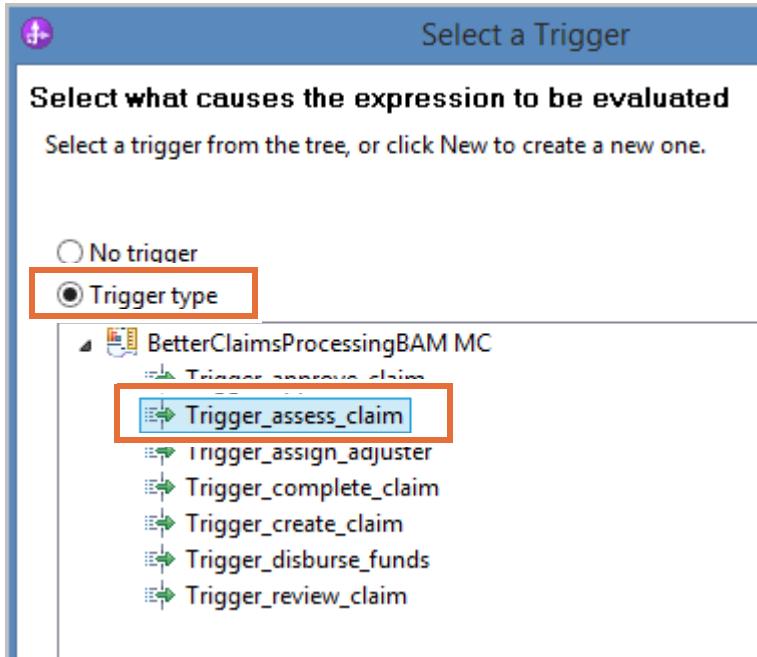
Trigger	Expression

Add

- ___ f. Select the first row under the **Trigger** column, and click the button that is displayed in that column.



- ___ g. In the “Select a Trigger” window that is displayed, select the **Trigger type** option.
 ___ h. Select **Trigger_assess_claim** and then click **OK**.



- ___ i. Select the first row under the **Expression** column and click the button that is displayed in that column. The expression window is displayed.

- __ j. Enter "Processing" and click **OK**. The expression is added to the table. Do not copy and paste "Processing" into the expression field. Instead, type the text with the quotations to make sure that the text is accurate with no errors.

Trigger	Expression
Trigger_assess_claim	=? "Processing"

- __ k. To add another **Metric Value Expressions** for the **Status** metric, click **Add** again.
 __ l. Select the first row under the **Trigger** column, and click the button that is displayed in that column.
 __ m. In the "Select a Trigger" window that is displayed, select the **Trigger type** option.
 __ n. Select **Trigger_assign_adjuster** and then click **OK**.

Select a Trigger

Select what causes the expression to be evaluated
Select a trigger from the tree, or click New to create a new one.

No trigger
 Trigger type

BetterClaimsProcessingBAM MC

- Trigger_approve_claim
- Trigger_assign_adjuster**
- Trigger_complete_claim
- Trigger_create_claim
- Trigger_disburse_funds
- Trigger_review_claim

- __ o. Select the first row under the **Expression** column and click the button that is displayed in that column. The expression window is displayed.

- ___ p. Enter "Adjuster Assigned" and click **OK**. The expression is added to the table.

Metric Value Expressions	
Specify the expressions that set the value of the metric. If a trigger is	
Trigger	Expression
Trigger assess claim	X+Y =? "Processing"
Trigger_assign_adjuster	X+Y =? "Adjuster Assigned"

- ___ q. To add another **Metric Value Expressions** for the **Status** metric, click **Add** again.
- ___ r. Select the first row under the **Trigger** column, and click the button that is displayed in that column.
- ___ s. In the "Select a Trigger" window that is displayed, select the **Trigger type** option.
- ___ t. Select **Trigger_review_claim** and then click **OK**.
- ___ u. Select the first row under the **Expression** column and click the button that is displayed in that column. The expression window is displayed.
- ___ v. Enter "Reviewing" and click **OK**. The expression is added to the table.

Metric Value Expressions	
Specify the expressions that set the value of the metric. If a trigger is	
Trigger	Expression
Trigger_assess_claim	X+Y =? "Processing"
Trigger_assign_adjuster	X+Y =? "Adjuster Assigned"
Trigger_review_claim	X+Y =? "Reviewing"

- ___ w. To add another **Metric Value Expressions** for the **Status** metric, click **Add** again.
- ___ x. Select the first row under the **Trigger** column, and click the button that is displayed in that column. Since you already added few expressions, you might have to scroll down to view the newly added row.
- ___ y. In the "Select a Trigger" window that is displayed, select the **Trigger type** option.
- ___ z. Select **Trigger_approve_claim** and then click **OK**.
- ___ aa. Select the first row under the **Expression** column and click the button that is displayed in that column. The expression window is displayed.

- __ ab. Enter "Approved" and click **OK**. The expression is added to the table. You might have to scroll through the table to view all the expressions.

Metric Value Expressions	
Specify the expressions that set the value of the metric. If a trigger	
Trigger	Expression
Trigger_assess_claim	X+Y =? "Processing"
Trigger_assign_adjuster	X+Y =? "Adjuster Assigned"
Trigger_review_claim	X+Y =? "Reviewing"
Trigger_approve_claim	X+Y =? "Approved"

- __ ac. To add another **Metric Value Expressions** for the **Status** metric, click **Add** again.
- __ ad. Select the first row under the **Trigger** column, and click the button that is displayed in that column.
- __ ae. In the "Select a Trigger" window that is displayed, select the **Trigger type** option.
- __ af. Select **Trigger_disburse_funds** and then click **OK**.
- __ ag. Select the first row under the **Expression** column and click the button that is displayed in that column. The expression window is displayed.
- __ ah. Enter "Funding" and click **OK**. The expression is added to the table. Scroll through the table to view the expressions.

Metric Value Expressions	
Specify the expressions that set the value of the metric. If a trigger	
Trigger	Expression
Trigger_assign_adjuster	X+Y =? "Adjuster Assigned"
Trigger_review_claim	X+Y =? "Reviewing"
Trigger_approve_claim	X+Y =? "Approved"
Trigger_disburse_funds	X+Y =? "Funding"

- __ ai. To add another **Metric Value Expressions** for the **Status** metric, click **Add** again.
- __ aj. Select the first row under the **Trigger** column, and click the button that is displayed in that column.
- __ ak. In the "Select a Trigger" window that is displayed, select the **Trigger type** option.
- __ al. Select **Trigger_complete_claim** and then click **OK**.
- __ am. Select the first row under the **Expression** column and click the button that is displayed in that column. The expression window is displayed.

- __ an. Enter "Completed" and click **OK**. The expression is added to the table. Scroll through the table to view and confirm that you created six expressions.

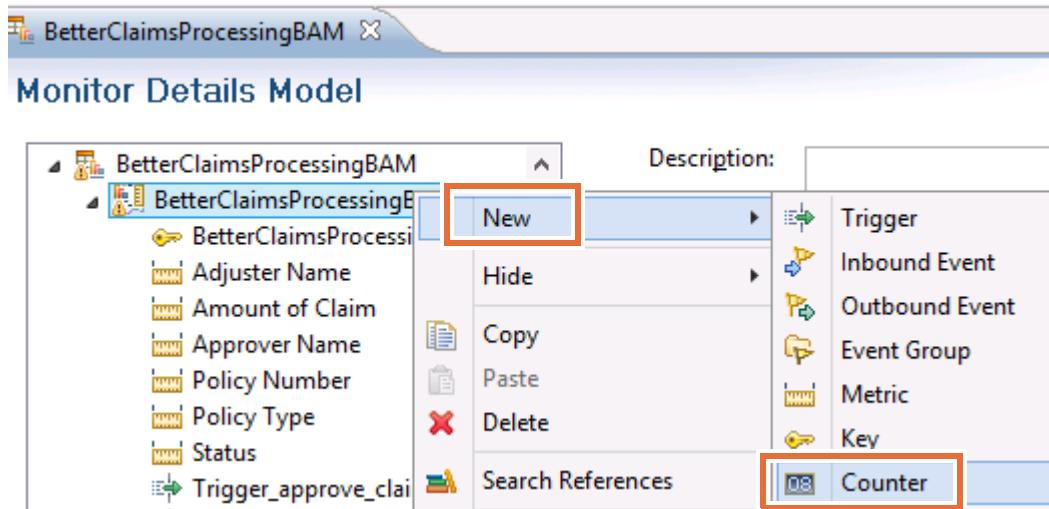
Metric Value Expressions	
Specify the expressions that set the value of the metric. If no expression is specified, the metric value is set to zero.	
Trigger	Expression
Trigger_review_claim	X+Y =? "Reviewing"
Trigger_approve_claim	X+Y =? "Approved"
Trigger_disburse_funds	X+Y =? "Funding"
Trigger_complete_claim	X+Y =? "Completed"

- __ ao. Press **Ctrl+S** to save the workspace. Make sure that there are no errors in the **Problems** view. Warnings are OK.

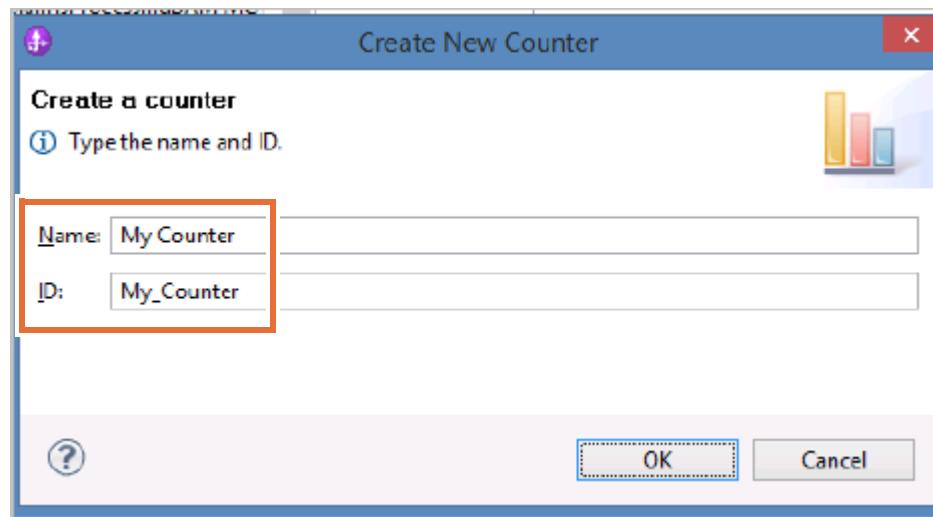
Part 3: Building the Monitor model: Defining a counter

Now you create a counter which is a type of metric. Counters track the number of occurrences of some situation or event. Counters can be incremented, decremented, or set to zero by triggers or by the arrival of inbound events.

- __ 1. Create the **My Counter** counter.
- __ a. In the **Monitor Details Model** tab for **BetterClaimsProcessingBAM.mm**, right-click **BetterClaimsProcessingBAM MC** and click **New > Counter** from the menu.



- ___ b. In the Create New Counter window, leave the default Name as My Counter and click OK.



- ___ c. Press Ctrl+S to save the workspace.
___ d. Wait for the workspace build to complete.
___ 2. Click **File > Exit** from the menu bar to exit IBM Integration Designer.

End of exercise

Exercise 6. Deploying and running the monitor model

Estimated time

01:00

Overview

In this exercise, you deploy and run the monitor model to analyze performance data.

Objectives

After completing this exercise, you should be able to:

- Complete the monitor model and generate the enterprise application
- Deploy the monitor to an IBM Business Monitor test environment

Introduction

In this exercise, you complete and export the Monitor model. You deploy the Monitor model to the IBM Business Monitor server test environment. You do not generate or process any events with the monitor server. You do those tasks in the next exercise.

Requirements

Completing the exercises for this course requires a lab environment. The environment includes the exercise support files, Internet Explorer, IBM Process Server, and IBM Business Monitor test environments.

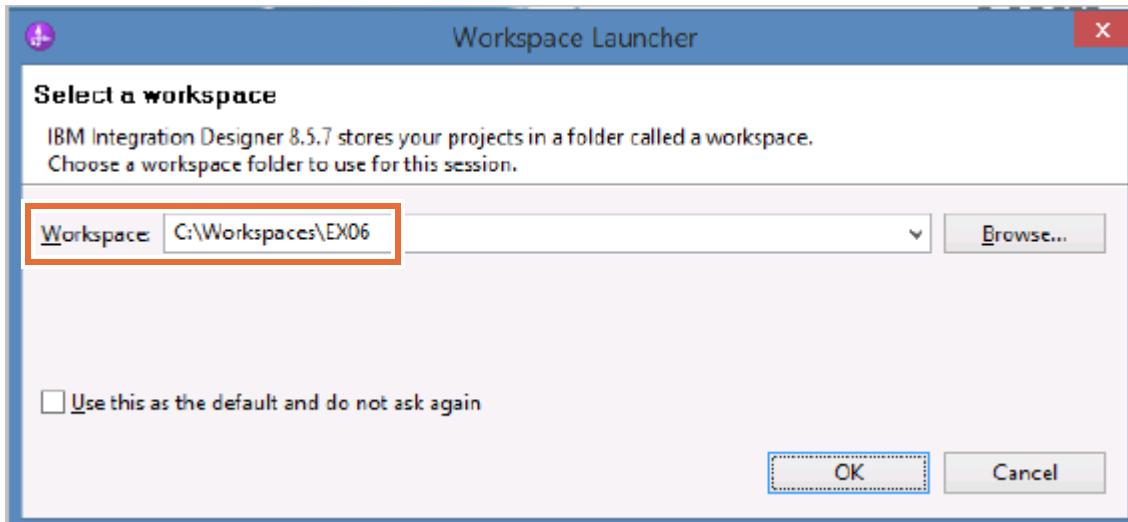
You must successfully deploy the MortgageLendingBAMShowcase model before you start this exercise. You deployed this model in exercise 1. The monitor model data security is also configured in that exercise. Without the model security, the model deployment in this exercise does not complete and you cannot view dashboard data.

Exercise instructions

Part 1: Importing the Monitor model

In this portion of the exercise, you start IBM Integration Designer and work with an existing Monitor model project for claims processing from previous exercises.

- 1. Start IBM Integration Designer if not already started.
- a. On your desktop, double-click the shortcut that is labeled **IBM Integration Designer**. This action takes a moment to initialize.
- b. In the **Workspace Launcher** dialog box, change the **Workspace** location to C:\Workspaces\EX06 and click **OK**.

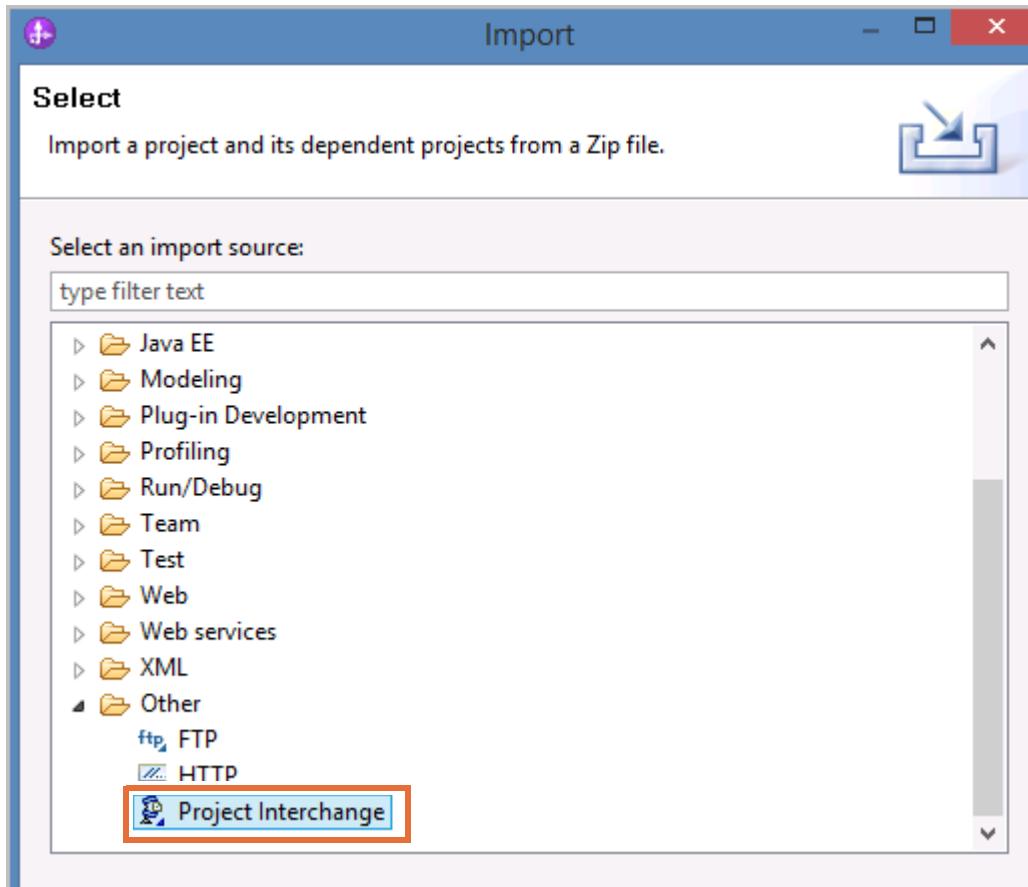


- 2. Close the welcome page by clicking the **X** on the **Getting Started - IBM Integration Designer** tab.

An empty workspace is created. Next, you import the claims processing monitoring project in this workspace.

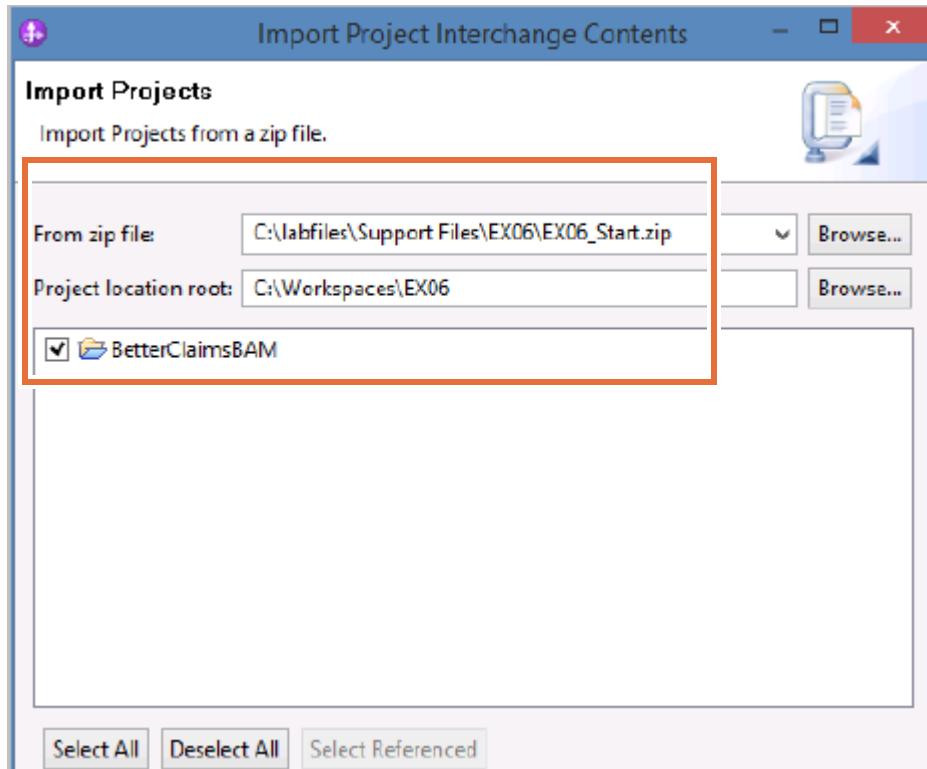
- 3. Import the monitor model.
 - a. From the menu bar in the **Business Integration** view, click **File > Import**.

- __ b. In the Import window, expand **Other** and select **Project Interchange**.



- __ c. Click **Next**.
- __ d. In the Import Project Interchange Contents window, click **Browse** to the right of **From zip file**. Go to the following folder:
C:\labfiles\Support Files\EX06
- __ e. Select **EX06_Start.zip**, and click **Open**.

- ___ f. Click **Select All** to make sure that the project is selected.



- ___ g. Click **Finish** to complete the import.

The BetterClaimsBAM project is now imported in the IBM Integration Designer.

- ___ 4. Switch to the Business Monitoring perspective.
- ___ a. From the menu, click **Window > Open Perspective > Business Monitoring**.
 - ___ b. Wait for the Business Monitoring perspective to load.
 - ___ c. Close the **Technology Quickstarts** view.
 - ___ d. Close the **Help** window on the right side of the toolkit.

Part 2: Generating outbound events

Two classic cases for outbound events are commonly used: An outbound event can be sent to the same monitor model, or an outbound event can be sent to another monitor model that consumes the outbound event.

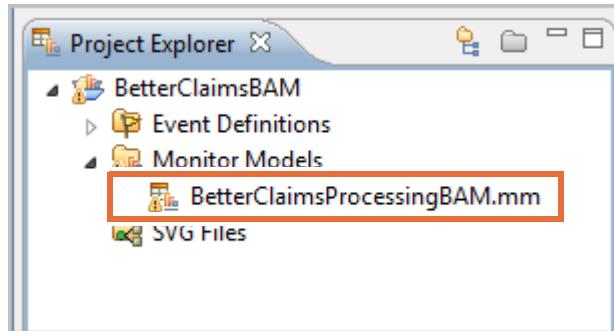
In the first case, an outbound event is generated that is fed back into the same monitor model. There are numerous reasons why this approach is useful. In this scenario, when it is detected that the status of the insurance claim is in funding state, an outbound event is generated and sent to the same model. The action to be taken when this event arrives is to increment the **My Counter** value by one. This scenario shows how to generate outbound events from a monitor model and consume them in the same monitor model.

One note about sending outbound events to another monitor model: The event part keys are automatically generated when the outbound event is created. In the monitor model consuming this event, it is necessary to create an inbound event that has a matching event point filter. Why is this

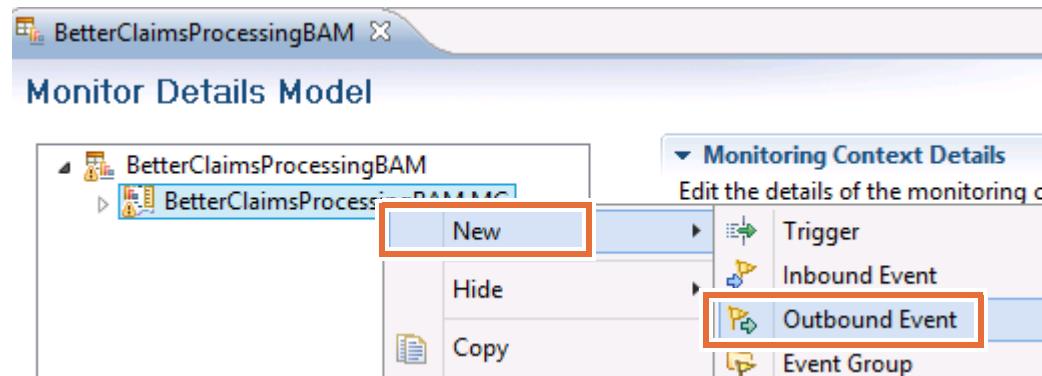
important? The information that is contained in the event point key helps identify where the event came from.

— 1. Create the OB_Funding outbound event:

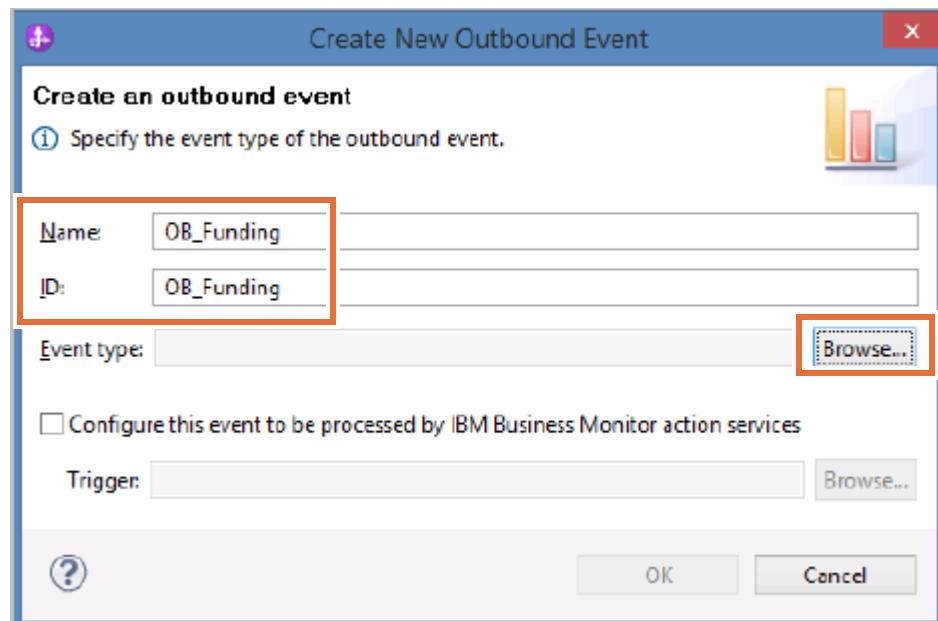
— a. In the Business Monitoring perspective in the left pane, expand **BetterClaimsBAM > Monitor Models** and double-click **BetterClaimsProcessingBAM.mm**.



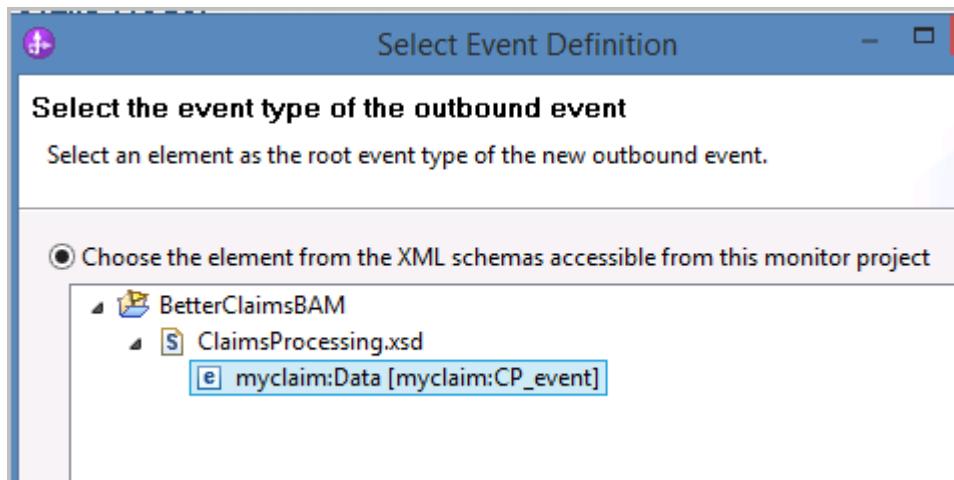
— b. In the Monitor model editor, right-click **BetterClaimsProcessingBAM MC** and click **New > Outbound Event**.



- c. In the Create New Outbound Event window, in the **Name** field enter OB_Funding and at the right of **Event type**, click **Browse**.

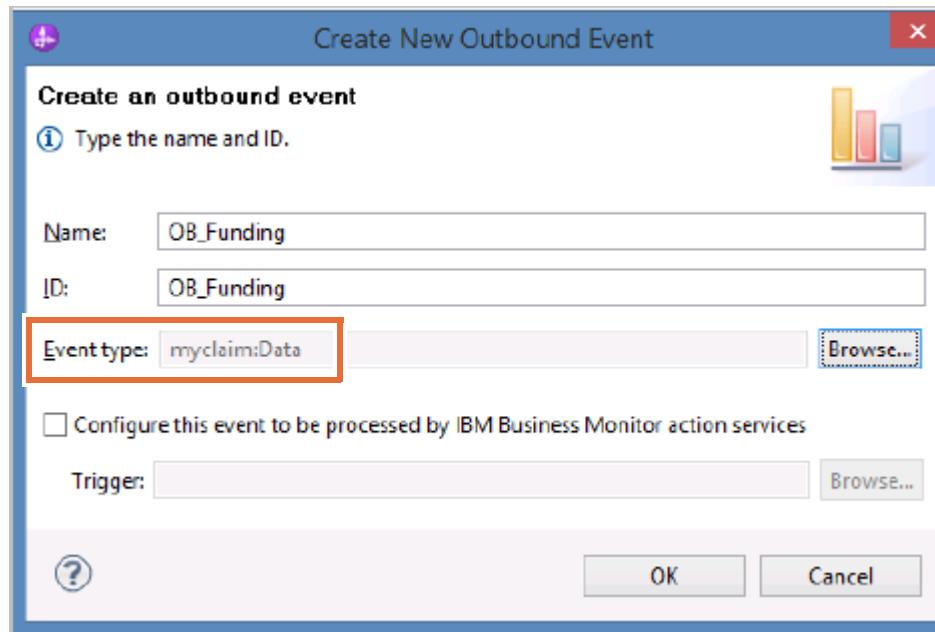


- d. In the Select Event Definition window, leave **Choose the element from the XML schemas accessible from this monitor project** selected, expand **ClaimsProcessing.xsd**, and then click **myclaim:Data [myclaim:CP_event]**.



- e. Click **Finish**.

- ___ f. In the Create New Outbound Event window, notice that the **Event type** field is set to myclaim:Data. Click **OK**.



- ___ g. Verify that the **Event Point Key** is completed with data.

Event Point Key	
The event key values that can be used to subscribe to this outbound event from a monitoring context.	
Application name:	BetterClaimsProcessingBAM
Version:	20141202101003
Component type:	BusinessMonitorContext
Component name:	BetterClaimsProcessingBAM_MC
Element type:	OutboundEventId
Element name:	OB_Funding
Nature:	MonitorOutboundEvent

- __ h. Scroll down to the **Outbound Event Content** section.

Outbound Event Content

Specify the triggers that cause the event to be sent. Use the Expression column to define the conditions under which the event is sent.

Name	Type	Expression

- __ i. Click **Add** and select **Trigger_disburse_funds**.

Select Trigger

Select the trigger for sending the event

Select an existing trigger from the tree, or click New to create a new trigger.

- ▶ BetterClaimsProcessingBAM MC
 - ▶ Trigger_approve_claim
 - ▶ Trigger_assess_claim
 - ▶ Trigger_assign_adjuster
 - ▶ Trigger_complete_claim
 - ▶ Trigger_disburse_funds
 - ▶ Trigger_review_claim

- __ j. Click **OK**.

- __ k. Expand **RootData**. Optionally, you can double-click the **Expression** field next to **myClaim:CP_event** to view the expanded rows.

Name	Type	Expression
Trigger_disburse_funds		
RootData		myClaim:CP_event

- __ l. For the **Action** field, enter "hitme" in the **Expression** column.

**Reminder**

If you are copying and pasting text to enter in the Monitor model editor, do not copy and paste any text with quotation marks. Quotation marks are often misinterpreted when pasted and can lead to errors. For any text that includes quotation marks, it is better to type the text and quotations into the editor.

- ___ m. Set **ClaimRequestID** to the instance key metric for this monitor model by entering `BetterClaimsProcessingBAM_Key` in the **Expression** field.
- ___ n. Verify that the **Outbound Event Content** section looks similar to the following figure:

▼ Outbound Event Content

Specify the triggers that cause the event to be sent. Use the Expression column to specify the value for the event is sent.

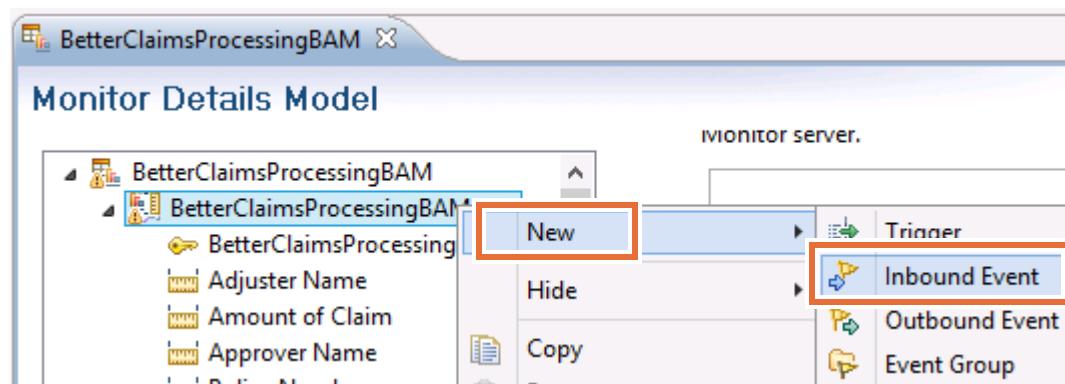
Name	Type	Expression
Trigger_disburse_funds		
RootData	myclaim:CP_event	
Action	xs:string	=? "hitme"
ClaimRequestID	xs:string	=? BetterClaimsProcessingBAM_Key
PolicyType	xs:string	=?
PolicyNumber	xs:string	=?
Adjuster	xs:string	=?
Approver	xs:string	=?
StateOfInsured	xs:string	=?
ClaimAmount	xs:float	=?

- ___ o. Save your changes. Make sure that no errors exist in the **Problems** view.

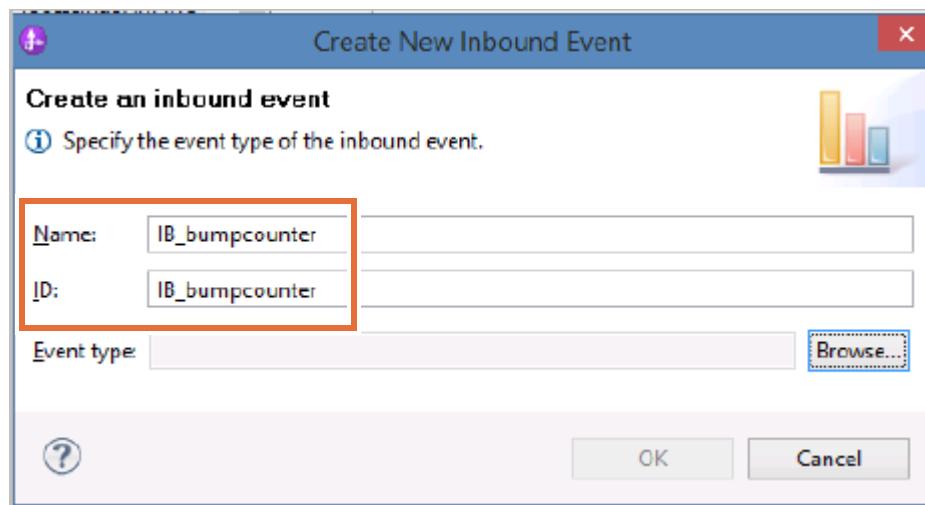
Part 3: Creating the inbound event and the trigger for the outbound event

As described earlier, the just-created outbound event is sent to and consumed by this same monitor model. This design means that an inbound event must also be created that can use the event point filter that was automatically created in the outbound event.

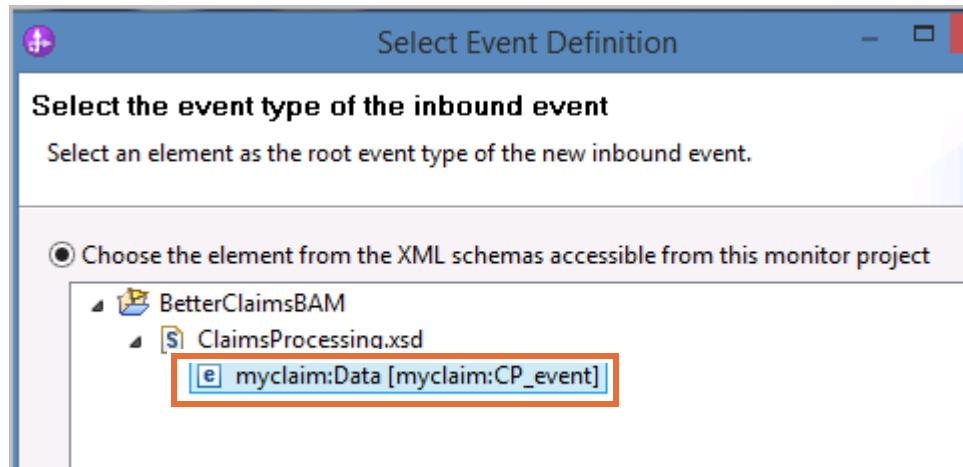
- 1. Create the `IB_bumpcounter` inbound event:
 - a. In the Monitor model editor, right-click **BetterClaimsProcessingBAM MC** and click **New > Inbound Event**.



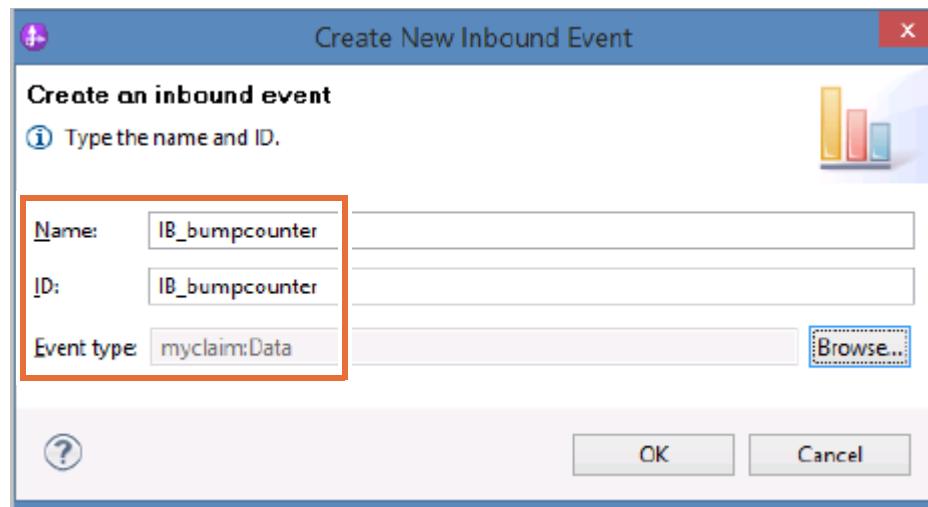
- b. In the Create New Inbound Event window, in the **Name** field enter `IB_bumpcounter` and click **Browse**.



- c. In the Select Event Definition window, leave **Choose the element from the XML schemas accessible from this monitor project** selected, expand **ClaimsProcessing.xsd**, and then click **myclaim:Data [myclaim:CP_event]**.



- d. Click **Finish**.
- e. In the Create New Inbound Event window, notice that the **Event type** field is set to **myclaim:Data**. Click **OK**.



- __ 2. Examine and complete the **Event Point Filter** section
 - __ a. Scroll down to the **Event Point Filter** section.

The screenshot shows a configuration panel titled "Event Point Filter". A descriptive note below the title states: "Use generated values if they are present or specify values for the event point events to emit and monitor. To subscribe to all the events for a version of an application name and version and use asterisks (*) in the other five fields." Below this, there are seven input fields, each with a required asterisk (*) and the value "XML":

Field	Value
Application name:	XML
Version:	XML
Component type:	*
Component name:	XML
Element type:	XML
Element name:	XML
Nature:	XML

- __ b. Set the **Application name**, field to BetterClaimsProcessingBAM.
- __ c. For **Version**, enter 20141202101003.
- __ d. For **Component type**, enter BusinessMonitorContext.
- __ e. For **Component name**, enter BetterClaimsProcessingBAM_MC.
- __ f. For **Element type**, enter OutboundEventId.
- __ g. For **Element name**, enter OB_Funding.
- __ h. For **Nature**, enter MonitorOutboundEvent.

- __ i. Verify that the values are entered correctly.

Event Point Filter

Use generated values if they are present or specify values for the event subscribe to all the events for a version of an application, provide the a five fields.

Application name:	*	BetterClaimsProcessingBAM
Version:	*	20141202101003
Component type:	*	BusinessMonitorContext
Component name:	*	BetterClaimsProcessingBAM_MC
Element type:	*	OutboundEventId
Element name:	*	OB_Funding
Nature:	*	MonitorOutboundEvent

- __ 3. Examine and complete the **Filter Condition** section
- __ a. Scroll down to the **Filter Condition** section. In this section, you define the filter condition for the inbound event.
- __ b. In the entry field for **Filter Condition** enter:
`IB_bumpcounter/RootData/myclaim:Action eq 'hitme'`
- __ c. Verify that the values are entered correctly.

Filter Condition

Define a condition based on the event attributes to identify whether to accept an event of this type.

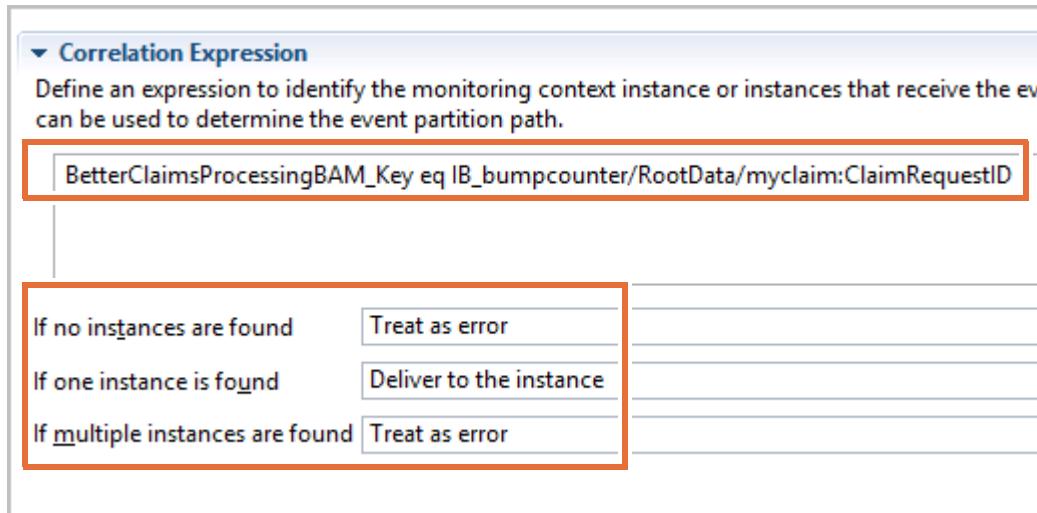
`IB_bumpcounter/RootData/myclaim:Action eq 'hitme'`

- __ 4. Create the **Correlation Expression** and define the behavior for this model for this inbound event.
- __ a. Scroll down to the **Correlation Expression** section.

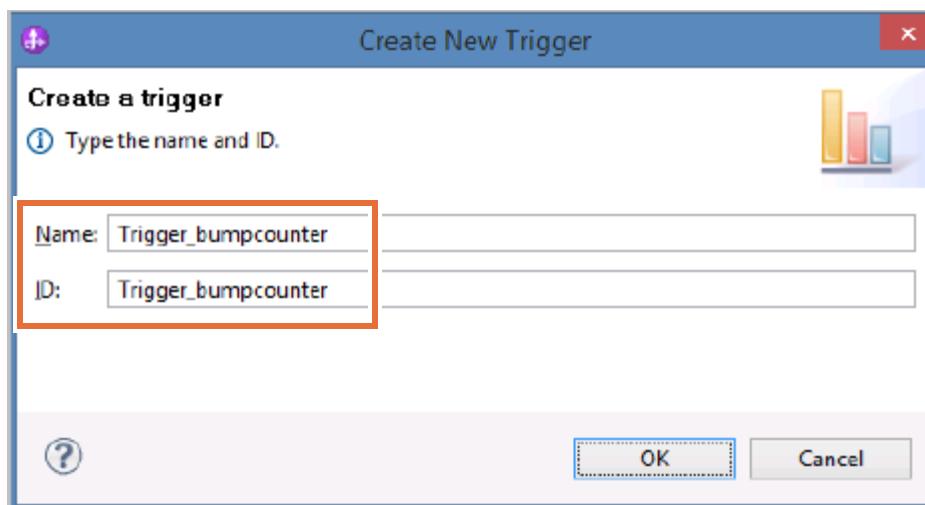
Correlation Expression

Define an expression to identify the monitoring context instance or instances that receive run time. The value in this field can be used to determine the event partition path.

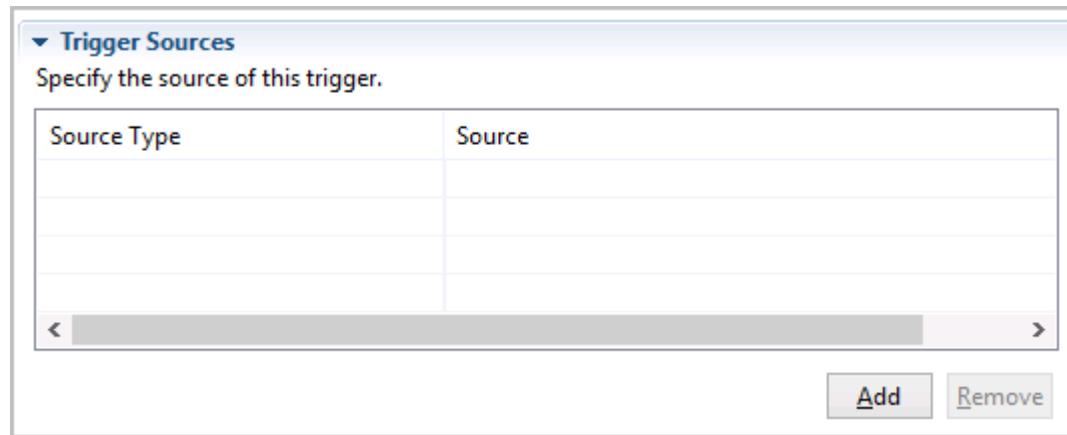
- __ b. For the **Correlation Expression** field, enter: BetterClaimsProcessingBAM_Key eq IB_bumpcounter/RootData/myclaim:ClaimRequestID
- __ c. Verify that you entered the information correctly.
- __ d. In the **If no instances are found** field, select **Treat as error**.
- __ e. In the **If one instance is found** field, select **Deliver to the instance**
- __ f. In the **If multiple instances are found** field, select **Treat as error**.
- __ g. Verify that the entries are accurate.



- __ h. To save the changes to the monitor model, click the **Save** icon or press Ctrl+S. Examine the **Problems** view to confirm that there are no errors. If you see errors, then go back and check the values that were entered earlier.
5. Create the **Trigger_bumpcounter** trigger.
 - a. In the **Monitor Details Model** tab for **BetterClaimsProcessingBAM.mm**, right-click **BetterClaimsProcessingBAM MC** and click **New > Trigger** from the menu.
 - b. In the Create New Trigger window, enter **Trigger_bumpcounter** for **Name**. The **ID** is generated automatically.

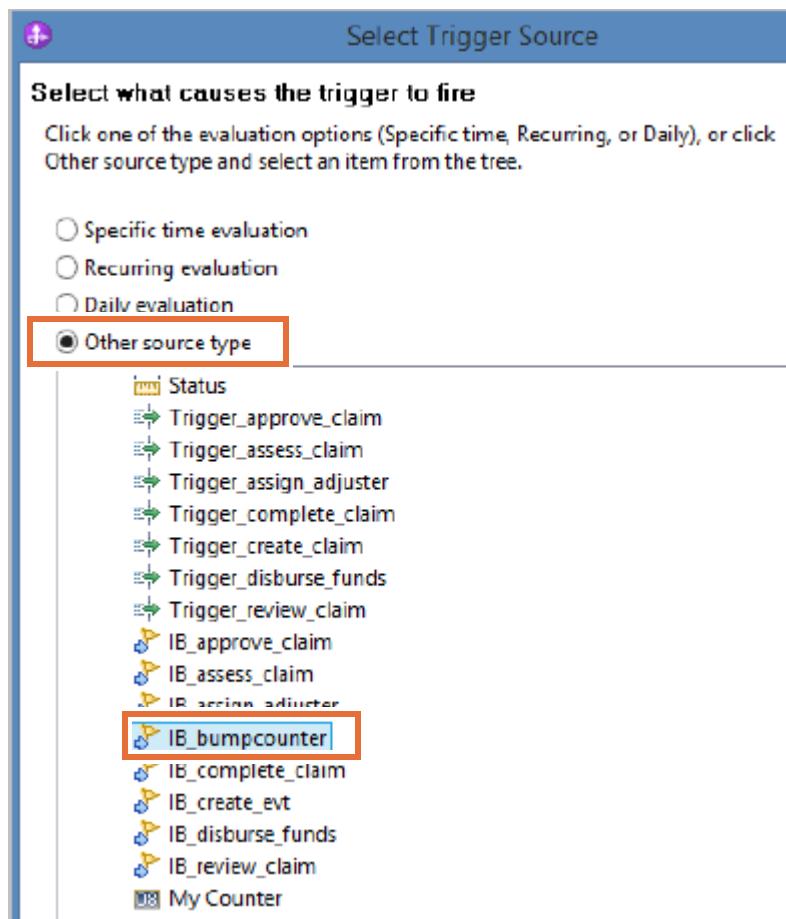


- ___ c. Click **OK**.
- ___ d. In the **Trigger Sources** section of the **Monitor Details Model** tab, click **Add**. It might be necessary to scroll down.



The Select Trigger Source window is displayed.

- ___ e. In the Select Trigger Source window, select the **Other source type** option.
- ___ f. Select **BetterClaimsProcessingBAM MC > IB_bumpcounter**; then, click **OK**.



- __ g. The trigger source is now listed in the **Trigger Sources** section.

The screenshot shows a table titled "Trigger Sources" with the instruction "Specify the source of this trigger." The table has two columns: "Source Type" and "Source". There is one row where "Source Type" is "Event" and "Source" is "IB_bumpcounter". The "Source" column contains an icon of a yellow bell.

Source Type	Source
Event	IB_bumpcounter

- __ h. Scroll down to the **Trigger Condition** section.

The screenshot shows a section titled "Trigger Condition" with the instruction "Specify the condition that determines whether the trigger will fire." Below the title is a large empty rectangular input field.

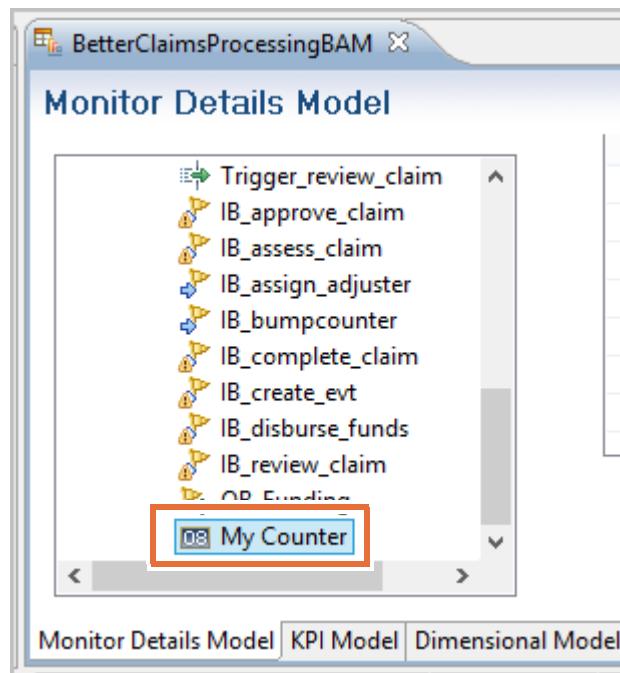
- __ i. For **Trigger Condition**, enter:

IB_bumpcounter/RootData/myclaim:Action eq 'hitme'

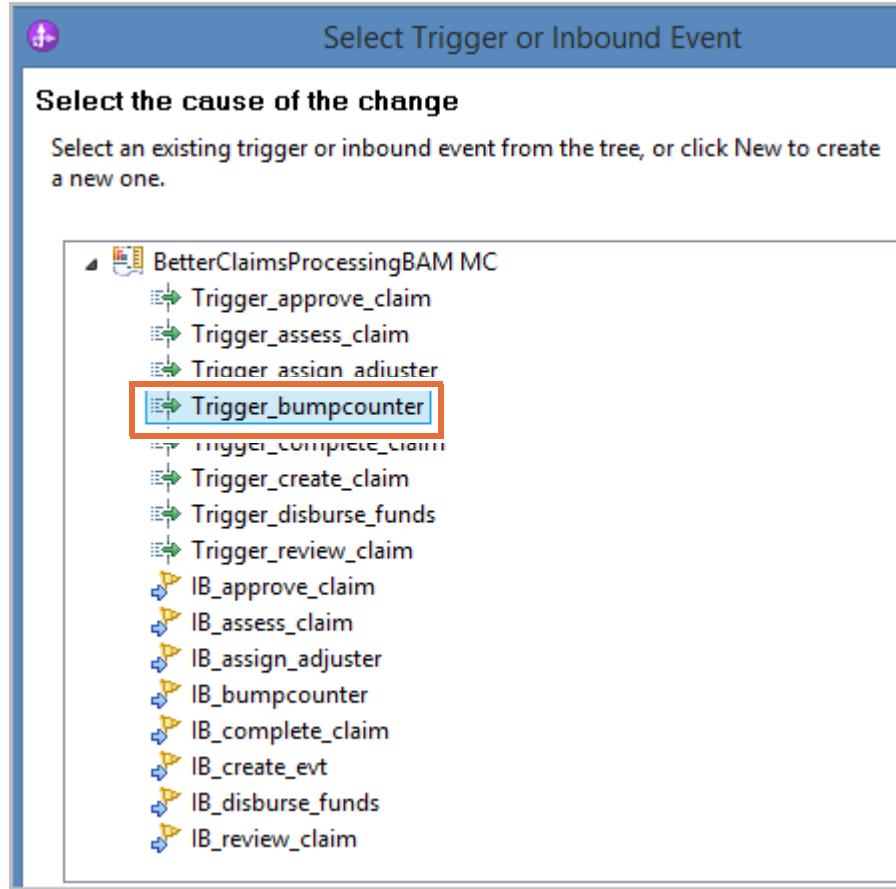
The screenshot shows the "Trigger Condition" section again. The input field now contains the text "IB_bumpcounter/RootData/myclaim:Action eq 'hitme'" which is highlighted with a red rectangle.

- __ j. Press Ctrl+S to save the workspace.

- 6. Set the **My Counter** counter to increment by one when the trigger fires.
- a. In the **Monitor Details Model** tab, from **BetterClaimsProcessingBAM.mm > BetterClaimsProcessingBAM MC**, click the **My Counter** metric.



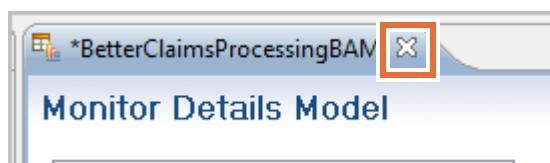
- ___ b. In the **Counter Controls** section, click **Add** and select the **Trigger_bumpcounter** trigger.



- ___ c. Click **OK**.
- ___ d. Verify that the **Resulting Action** is set to **Add One**.

Counter Controls	
Specify what causes the counter to change and what action is taken.	
Trigger / Inbound Event	Resulting Action
Trigger_bumpcounter	Add One

- ___ e. Press **Ctrl+S** to save your work and then close the open editor by clicking **X** in the **BetterClaimProcessingBAM** tab.

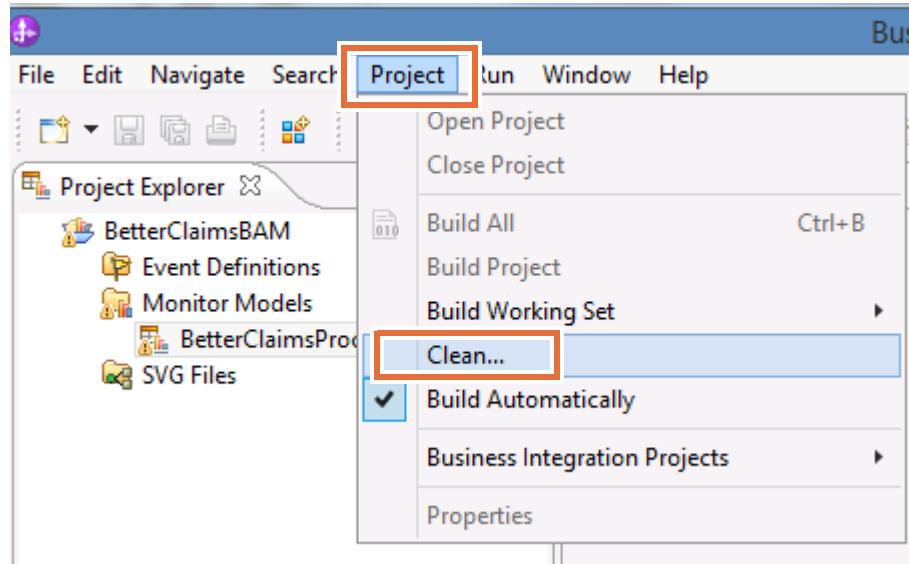


- ___ f. Verify that there no errors are displayed in the **Problems** view. If you see errors, then make sure that data was entered correctly in the previous steps. Warnings are OK.

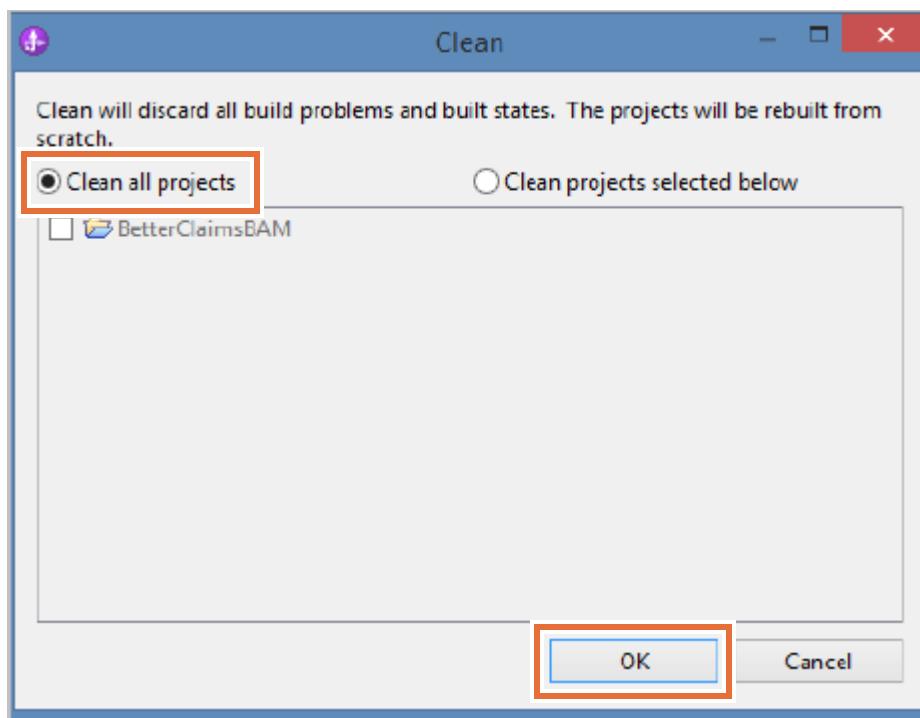
Part 4: Building the Monitor model: Exporting the EAR file

A Monitor model becomes a Java EE application that you run in an application server. You generate a Java Enterprise Edition application and export it as an EAR file. You then import the EAR file on the target application server.

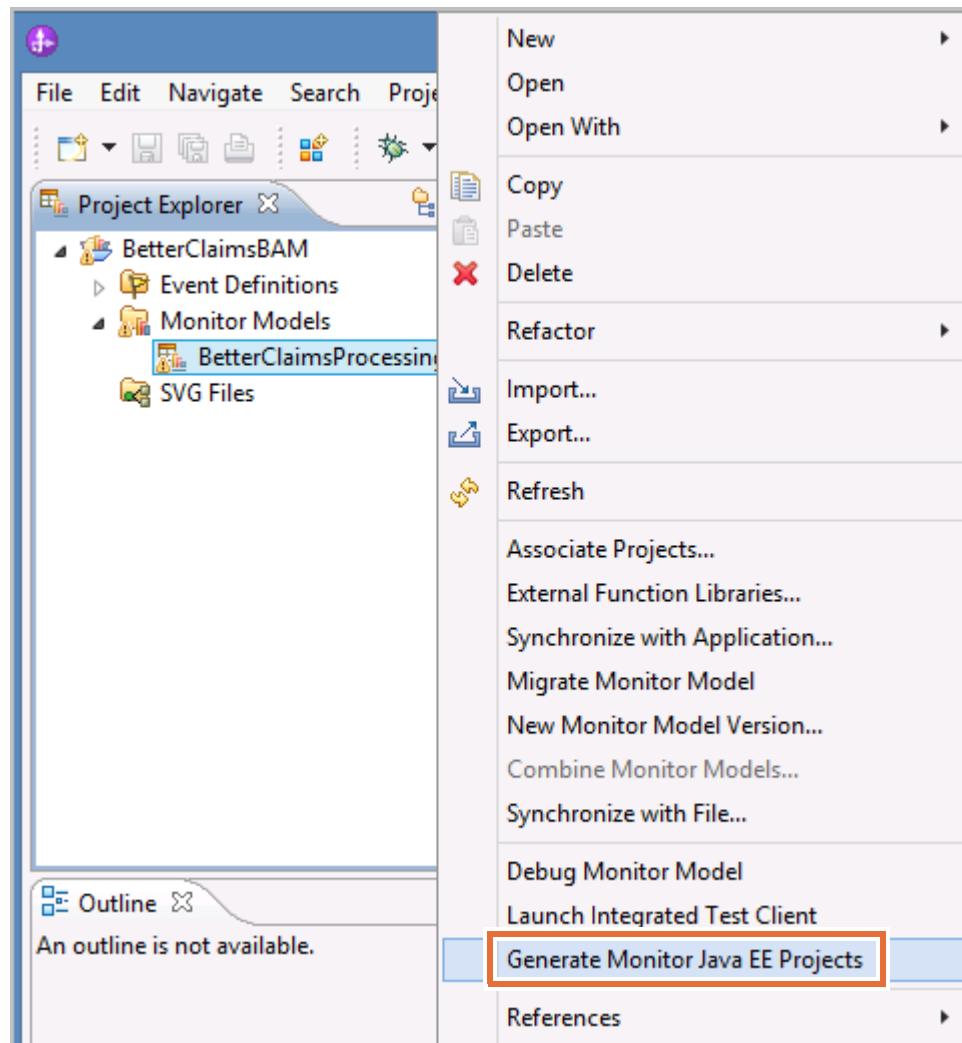
- ___ 1. Clean the projects in the workspace.
 ___ a. From the menu bar, click **Project > Clean**.



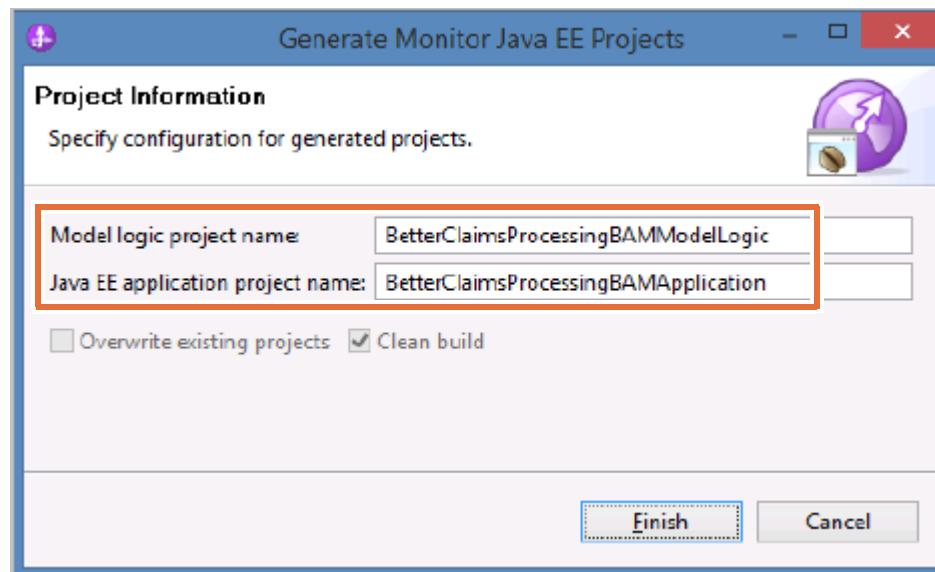
- ___ b. Ensure that **Clean all projects** is selected; then, click **OK**.



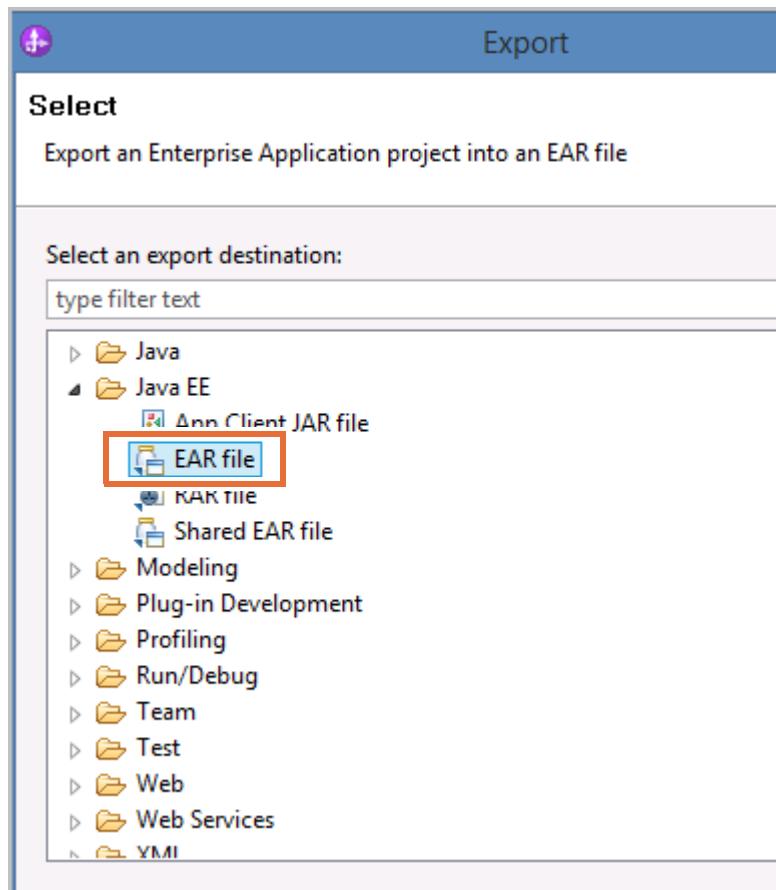
- ___ c. When the operation is complete, the progress bar in the lower-right corner disappears. No errors should exist in the Problems view. A number of warnings are listed and that is OK.
- ___ 2. Export the Monitor model.
 - ___ a. In the **Project Explorer** view, under **BetterClaimsBAM > Monitor Models**, right-click **BetterClaimsProcessingBAM.mm** and click **Generate Monitor Java EE Projects**.



- __ b. Accept the default values in the Generate Monitor Java EE Projects window and click **Finish**.

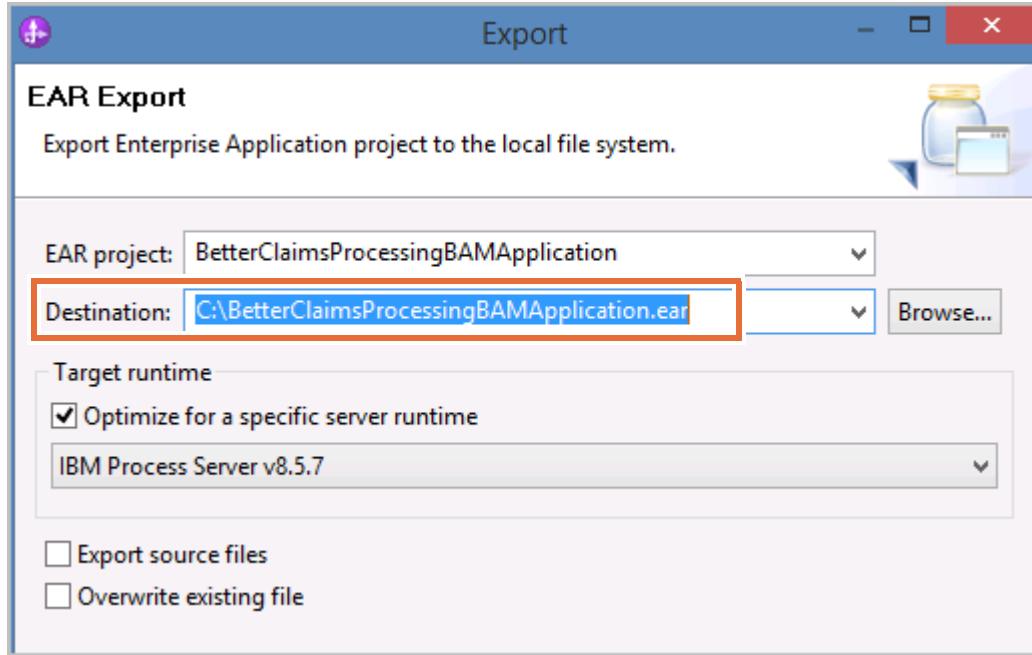


- __ c. Wait for the generate process to complete.
- __ d. From the menu, click **File > Export** and then in the Export window, go to **Java EE > EAR file**.



- __ e. Click **Next**.

- ___ f. Leave the **EAR project** set to default value of BetterClaimsProcessingBAMApplication.
- ___ g. For Destination, enter C:\BetterClaimsProcessingBAMApplication.ear



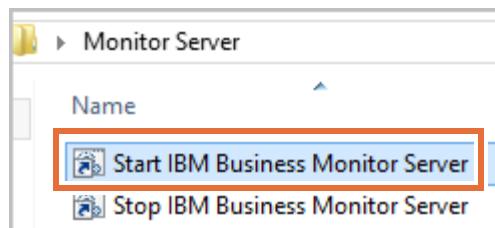
- ___ h. Click **Finish** to export the EAR file.
- ___ i. Open Windows Explorer and verify that the newly created EAR file is created under C:. Close Windows Explorer after the verification.
- ___ j. Minimize all the open windows.

Part 5: Deploying the Monitor model

- ___ 1. Start the IBM Business Monitor server instance.
 - ___ a. Locate the folder named **Monitor Server** on the desktop.



- ___ b. Double-click the **Monitor Server** folder to open it.
- ___ c. Select the shortcut titled: **Start IBM Business Monitor Server**.



- ___ d. Double-click or press Enter to open the shortcut. It takes several minutes for Monitor Server to start. When the server starts, you are prompted to press any key to continue. Press any key to close the command window.

```

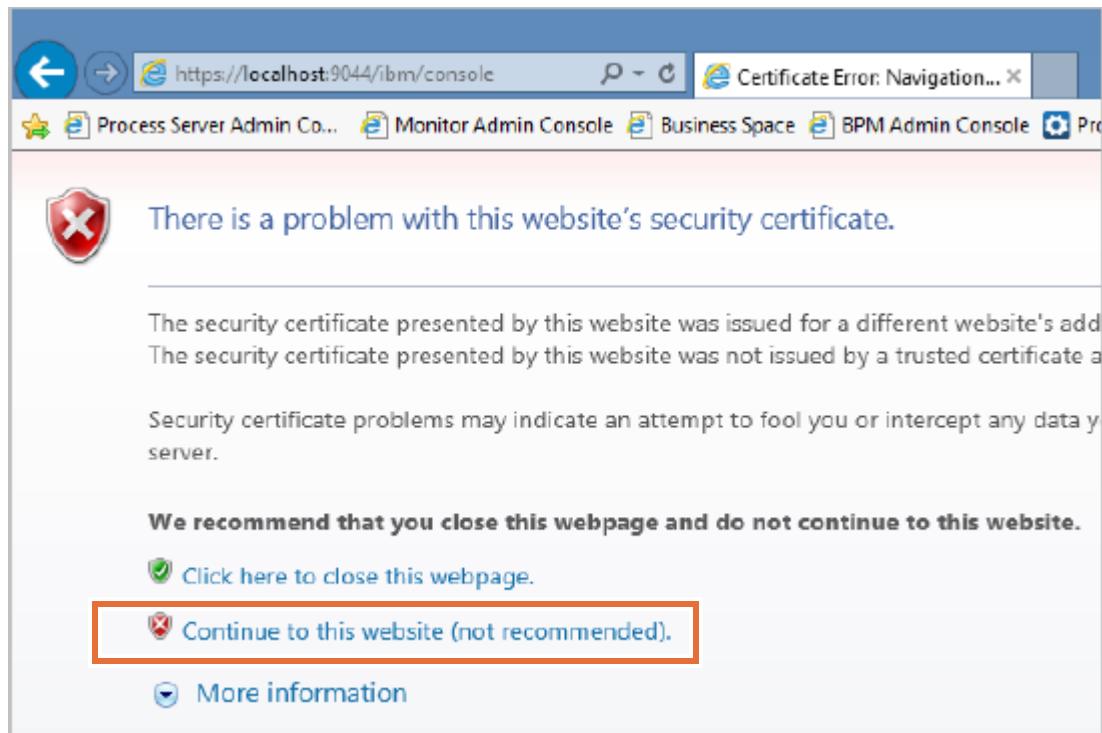
Start IBM Business Monitor Server
CWUPO0001I: Running configuration action detectNewProducts.ant
ADMU0116I: Tool information is being logged in file
C:\IBM\IID\PS\v8.5\profiles\qmwas\logs\server1\startServer.log
ADMU0128I: Starting tool with the qmwas profile
ADMU3100I: Reading configuration for server: server1
ADMU3200I: Server launched. Waiting for initialization status.
ADMU3000I: Server server1 open for e-business; process id is 2796
Press any key to continue . . .

```

- ___ e. Minimize the Monitor Server folder.
- ___ 2. Start the IBM Business Monitor administrative console.
- ___ a. Start an instance of Internet Explorer by double-clicking the **Internet Explorer** shortcut on the desktop.
- ___ b. When the browser opens, click the **Monitor Admin Console** tab. A shortcut link to the Monitor administrative console is already created for you.



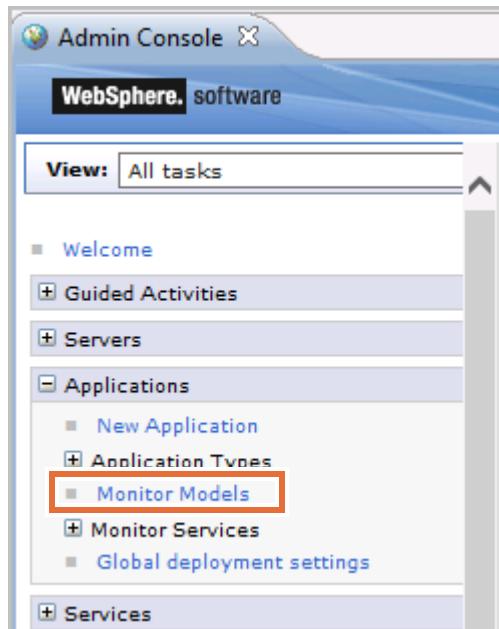
- ___ c. This action redirects the browser to the secure console address:
<https://localhost:9044/ibm/console>.
- ___ a. Click **Continue to this website (not recommended)**.



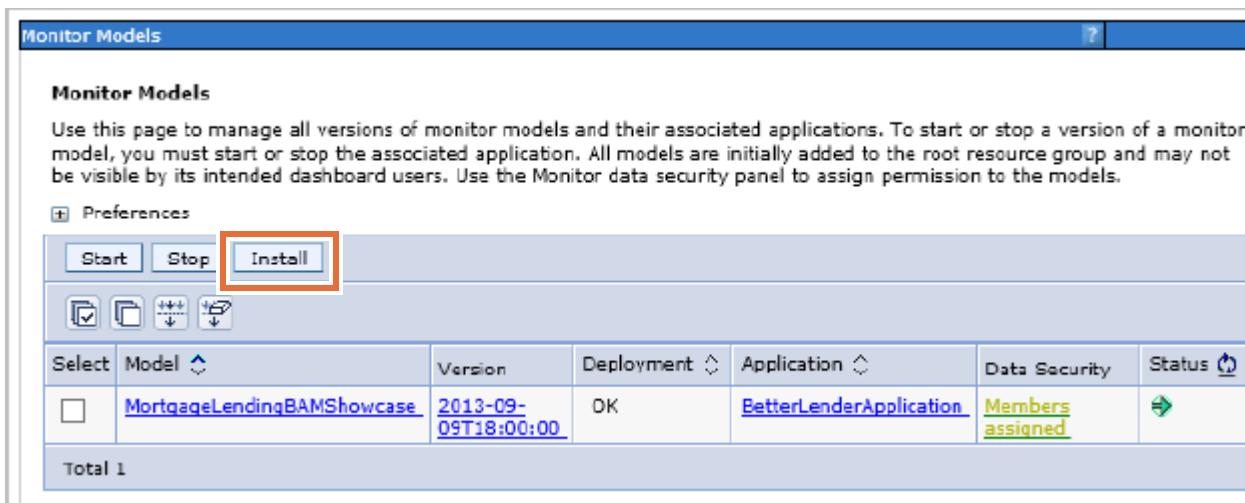
- ___ b. At the Login page, enter admin in the **User ID** field and web1sphere in the **Password** field.



- ___ a. Click **Log in**.
- ___ 3. Deploy the Claims Processing Monitor model by using the administrative console.
- ___ a. From the administrative console, select **Applications > Monitor Models**.



- ___ b. A table that shows all currently installed Monitor models is displayed. If you completed Exercise 1, then you see one model installed. Click **Install** to install a new model.



The screenshot shows the 'Monitor Models' page with the following details:

- Header:** Monitor Models
- Description:** Use this page to manage all versions of monitor models and their associated applications. To start or stop a version of a monitor model, you must start or stop the associated application. All models are initially added to the root resource group and may not be visible by its intended dashboard users. Use the Monitor data security panel to assign permission to the models.
- Buttons:** Preferences, Start, Stop, Install (highlighted with a red box).
- Icons:** Filter, Sort, Refresh, Help.
- Table Headers:** Select, Model, Version, Deployment, Application, Data Security, Status.
- Table Data:**

Select	Model	Version	Deployment	Application	Data Security	Status
<input type="checkbox"/>	MortgageLendingBAMShowcase	2013-09-09T18:00:00	OK	BetterLenderApplication	Members assigned	
- Total:** 1



Attention

Make sure that Members assigned is listed under the **Data Security** column. It was configured in Exercise 1

- ___ c. In the **Path to the new application** section, to the right of **Local file system**, click **Browse** and go to C:\ and select BetterClaimsProcessingBAMApplication.ear and then click **Open**.
- ___ d. Click **Next**.
- ___ e. You can use the Fast Path deployment option because the event source for your model is the server where your model is deployed. For **How do you want to install the application**, ensure that **Fast Path– Prompt only when additional information is required** is selected, and click **Next**.
- ___ f. Accept the defaults and keep clicking **Next** until you get the option to click **Finish**. Click **Finish**. The installation options window is displayed.

- ___ g. When the installation is complete, the message Application BetterClaimsProcessingBAMApplication installed successfully is shown in the administrative console view. It might be necessary to scroll down to see the message.

The screenshot shows a list of deployment messages:

- ADMA5005I: The application BetterClaimsProcessingBAMApplication is configured in the WebSphere Application Server repository.
- ADMA5005I: The application BetterClaimsProcessingBAMApplication is configured in the WebSphere Application Server repository.
- ADMA5113I: Activation plan created successfully.
- ADMA5011I: The cleanup of the temp directory for application BetterClaimsProcessingBAMApplication is complete.
- ADMA5013I: Application BetterClaimsProcessingBAMApplication installed successfully.

A blue bar at the bottom highlights the message: "Application BetterClaimsProcessingBAMApplication installed successfully."

To start the application, first save changes to the master configuration.

Changes have been made to your local configuration. You can:

- Save directly to the master configuration.
- Review changes before saving or discarding.

- ___ h. Click the **Save** link to save the changes to the master configuration.
- ___ i. When you return to the **Monitor Models** page, the model starts automatically, it takes a few minutes, and you can click the refresh icon next to the **Status** column.
- ___ j. If the model does not start, then, start the model by selecting the check box next to the **BetterClaimsProcessingBAMApplication** model and clicking **Start**. It can take several minutes for the application to start because it must generate the Cognos data cubes.
- ___ k. After the model is started, the icon in the **Status** column on the right changes from a red X to a green arrow. It can take several minutes for the application to start because it must generate the Cognos data cubes.

Monitor Models						
Use this page to manage all versions of monitor models and their associated applications. To start or stop a version of a monitor model, you must start or stop the associated application. All models are initially added to the root resource group and may not be visible by its intended dashboard users. Use the Monitor data security panel to assign permission to the models.						
<input type="radio"/> Preferences Start Stop Install						
Select	Model	Version	Deployment	Application	Data Security	Status
<input type="checkbox"/>	BetterClaimsProcessingBAM	2014-12-02T10:10:03	OK	BetterClaimsProcessingBAMApplication	Members assigned	
<input type="checkbox"/>	MortgageLendingBAMShowcase	2013-05-09T16:00:00	OK	BetterLenderApplication	Members assigned	

Total 2

- ___ 4. Log out of the administrative console.
- ___ 5. Close the administrative console by clicking X on the **Admin console** tab. Optionally, you can leave the browser tab open if you are planning to work on the next exercise now.

- 6. You do not need to shut the Monitor Server since you work with it in the next exercise. If you notice slow performance in your environment, then you can shut the server by double-clicking the **Stop IBM Business Monitor Server** under the **Monitor Server** folder on the desktop. You can then restart it in the next exercise.
- 7. Click **File > Exit** from the menu to exit from IBM Integration Designer. You do not use IBM Integration Designer in the exercise right after this one.

End of exercise

Exercise 7. Building dashboards in IBM Business Monitor

Estimated time

01:30

Overview

In this exercise, you build a business space dashboard and view instances that are created by DEF events consumed by the monitor model.

Objectives

After completing this exercise, you should be able to:

- Generate and send events to monitor model
- Start the IBM Business Monitor dashboard
- Create an instance widget

Introduction

Business space dashboards are a component of IBM Business Monitor running on WebSphere Application Server. Dashboards are implemented as web pages. A dashboard displays specific business performance information, and provides you with various ways to view your data.

Requirements

Completing the exercises for this course requires a lab environment. The environment includes the exercise support files, Internet Explorer, IBM Process Server, and IBM Business Monitor test environments.

You must successfully complete exercise 6 before you start this exercise.

Exercise instructions

After you create the dashboard, you use the utilities to create key performance indicators (KPIs) to export values, and to subscribe to alerts. Additionally, you can add one of the following widgets to your dashboard:

- **Alerts:** Display alerts that notify users of defined situations that occur at run time
- **Diagrams:** Display diagrams that are associated with a particular monitoring context or KPI context
- **Instances:** Display the available monitoring contexts in either individual instances or user-defined groups of context instances
- **KPIs:** Display details of KPIs, such as a KPI value relative to the defined ranges and the target, if applicable, and the status

Optionally, you can install and configure IBM Cognos Business Intelligence with IBM Business Monitor so that users can add the following items on their dashboards:

- **Report Designer** is a tool for creating simple or detailed reports directly from a Business Space dashboard. With this widget, you can edit the reports that you created and also edit reports that were created with IBM Cognos Business Intelligence.
- **Report Viewer** is an interface that provides optimal report viewing capabilities from Business Space. With this widget, you can view graphical, multidimensional reports and change the display in various ways, such as selecting a different chart type and drilling on measures to reveal more data.

In this exercise, you only create the instance widget. In the exercise that follows this one, you create several other widgets.

Part 1: Starting the server

-
- ___ 1. Start the IBM Business Monitor server instance.



Note

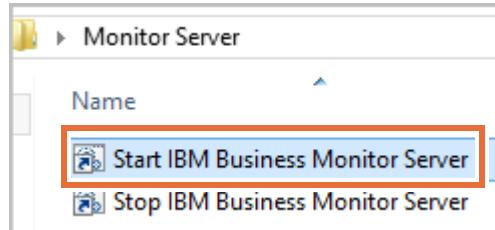
If the Monitor server is still running from the previous exercise, then skip to step 2.

-
- ___ a. Locate the folder that is named **Monitor Server** on the desktop.

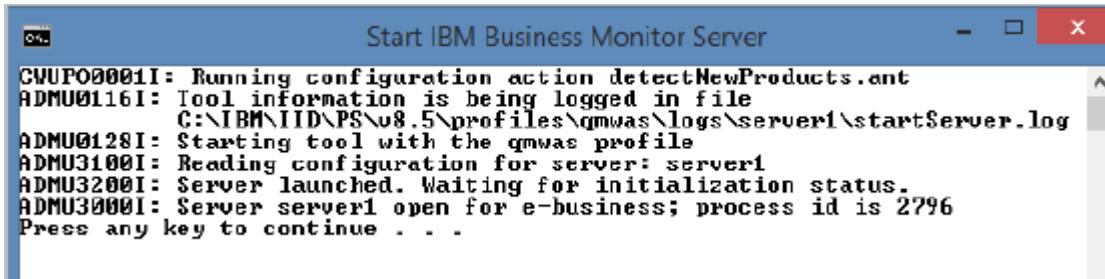


- ___ b. Double-click the **Monitor Server** folder to open it.

- ___ c. Select the shortcut that is titled: **Start IBM Business Monitor Server**.



- ___ d. Double-click or press Enter to open the shortcut. It takes several minutes for Monitor Server to start. When the server starts, you are prompted to press any key to continue. Press any key to close the command window.



- ___ e. Minimize the Monitor Server folder. You come back to this folder at the end of this exercise to shut down the Monitor Server.
2. Start the IBM Business Monitor administrative console.
- ___ a. Start an instance of Internet Explorer by double-clicking the **Internet Explorer** shortcut on the desktop. (If the browser is still open from the previous exercise then skip this step.)
- ___ b. When the browser opens, click the **Monitor Admin Console** tab. A shortcut link to the Monitor administrative console is already created for you.
- ___ a. Click **Continue to this website (not recommended)**.
- ___ b. At the Login page, enter admin in the **User ID** field and web1sphere in the **Password** field.
- ___ a. Click **Log in**.

Part 2: Sending events to the Monitor Model

In this section of the exercise, you send events to the monitor model that you deployed in the previous exercise. IBM Business Monitor can play back events to a monitor model. If you did the first exercise in this course then you imported events by using the Monitor Console. Those events were specific to that exercise and model. You do not use those events for the Claims Processing model and need to import new events.

1. Verify whether Playback events exist in the Recorded Event Management system.
- ___ a. In the Monitor Administration console, select **Applications > Monitor Services > Recorded Event Management > Event Management**.

- ___ b. Verify whether events are listed. If you completed Exercise 1, then you imported several events. You do not need those events as you import new ones for this exercise. Before you continue, you need to delete the events that are listed. The event numbers might not match the ones you have.

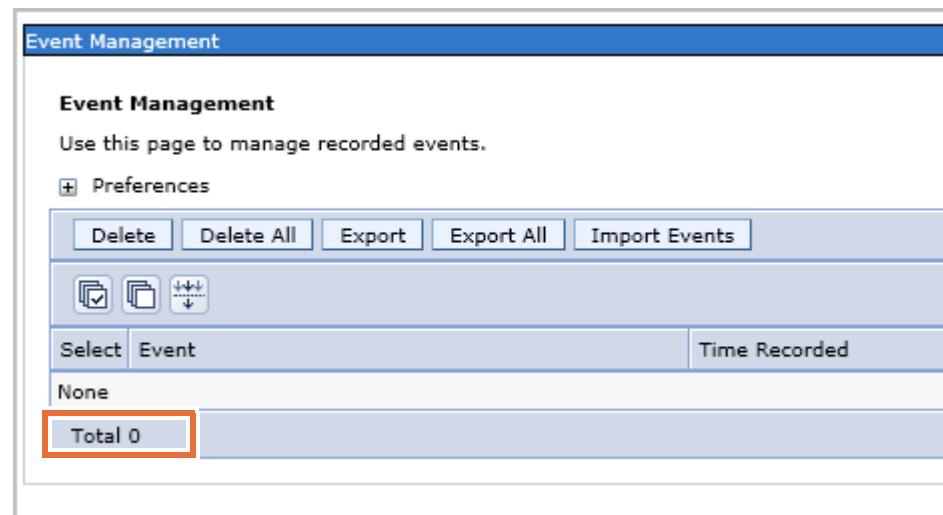
The screenshot shows the Admin Console interface for WebSphere software. The left sidebar navigation includes 'Welcome', 'Guided Activities', 'Servers', 'Applications' (selected), 'Monitor Services', 'Services', and 'Resources'. Under 'Applications', 'Recorded Event Management' is expanded, showing 'Event Management', 'Event Playback', 'Monitor Scheduled Services', and 'Global deployment settings'. The main content area is titled 'Event Management' with the sub-instruction 'Use this page to manage recorded events.' Below are buttons for 'Delete', 'Delete All', 'Export', 'Export All', and 'Import Events'. A table lists recorded events with columns for 'Select', 'Event' (links to 19442, 19441, 19431, 19427, 19428), and 'Time Recorded' (e.g., 2018-01-24T03:04:02.872+00:00).

Select	Event	Time Recorded
<input type="checkbox"/>	19442	2018-01-24T03:04:02.872+00:00
<input type="checkbox"/>	19441	2018-01-24T03:04:02.794+00:00
<input type="checkbox"/>	19431	2017-09-10T22:22:00.113+00:00
<input type="checkbox"/>	19427	2017-09-10T22:22:00.098+00:00
<input type="checkbox"/>	19428	2017-09-

- ___ c. Click Delete All to delete all events.

This screenshot shows the same 'Event Management' page as above, but the 'Delete All' button is highlighted with a red box. The rest of the interface and data table remain the same.

- __ d. When you get a message that all events are deleted, verify that no events are listed. The total events must be zero.



- __ e. Now you import the DEF events that are needed for this exercise. In the Monitor Administration console, select **Applications > Monitor Services > Recorded Event Management > Event Management** and click **Import Events**.

The screenshot displays the 'Monitor Administration' interface. On the left, a navigation tree includes 'Welcome', 'Guided Activities', 'Servers', 'Applications' (with 'New Application', 'Application Types', 'Monitor Models'), 'Monitor Services' (with 'Event Sources', 'Monitor Action Services' (Configuration, Template Definitions, Installed Situation Eve), and 'Recorded Event Management' (Event Management, Event Playback)), and 'Monitor Scheduled Services'. The 'Event Management' link under 'Recorded Event Management' is highlighted with a red box. The main panel shows the 'Event Management' page with the same layout as the previous screenshot, but the 'Import Events' button is highlighted with a red border.

- __ f. Click **Browse** and double-click **Recorded_Events.xml** after browsing to the C:\labfiles\Support Files\EX07 directory.

- ___ g. Click **Import Events**. A message is displayed that all events are successfully imported with a list of the events that are imported.
- ___ a. Select **Applications > Monitor Services > Recorded Event Management > Event Management**. and make sure that several events are listed.

Event Management

Use this page to manage recorded events.

Preferences

Event Management

Select	Event	Time Recorded
<input type="checkbox"/>	19442	2018-01-24T03:04:02.872+00:00
<input type="checkbox"/>	19441	2018-01-24T03:04:02.794+00:00
<input type="checkbox"/>	19431	2017-09-10T22:22:00.113+00:00
<input type="checkbox"/>	19427	2017-09-10T22:22:00.098+00:00
<input type="checkbox"/>	19428	2017-09-

- ___ 2. Play back the imported events.
 - ___ a. Select **Applications > Monitor Services > Recorded Event Management > Event Playback**.
 - ___ b. Select the **BetterClaimsProcessingBAM** model from the **Target Model Version** list.

- __ c. Click **Play Back All** to play back the events.

The screenshot shows the 'Event Playback' interface. At the top, there's a message: 'Use this page to play back recorded events.' Below it is a 'Target Model Version' dropdown set to 'BetterClaimsProcessingBAM (2014-12-02T10:10:03)'. A red box highlights the 'Play Back All' button in the toolbar. The main area is a table with columns 'Select', 'Event', and 'Time Recorded'. It lists three events: 19413, 19412, and 19411, each with a checkbox in the 'Select' column.

Select	Event	Time Recorded
<input type="checkbox"/>	19413	2015-02-17T02:19:30.226+00:00
<input type="checkbox"/>	19412	2015-02-17T02:19:18.449+00:00
<input type="checkbox"/>	19411	2015-02-17T02:19:17.374+00:00

- __ d. It can take few minutes to generate all of the events. You should see a message that all selected events played back successfully after generating the events.

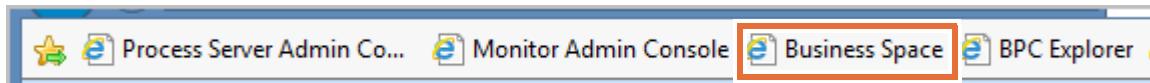
The screenshot shows the 'Event Playback' interface again. The 'Messages' box contains a green message: 'CWMRS0004I:All selected events played back successfully! Number of played back events=50.' A red box highlights this message. The rest of the interface is identical to the previous screenshot, showing the 'Event Playback' title, toolbar, target model version, and event table.

- __ e. Click **Logout** to log out of the administrative console.

Part 3: Starting the Business Space

To start the dashboard for the mortgage lending application:

- 1. Click the **Business Space** tab in Internet Explorer browser session to open business space.
It opens the following address: <https://localhost:9444/mum/enabler>

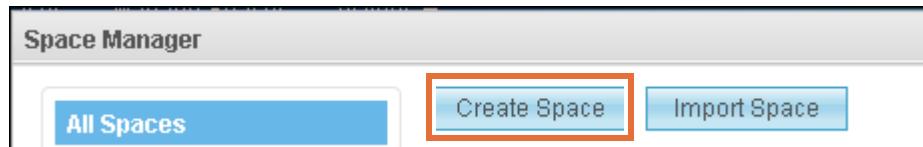


- 2. When you are prompted with a security certificate warning, click **Continue to this website (not recommended)**.
- 3. Since you are already logged in the administrative console tab, you are not prompted to log in. Otherwise, use **admin** for **User ID** and **websphere** for **Password**, and click **Login**. The Business Space opens with the last used space, which is the Better Lender space from Exercise 1.
- 4. Click **Manage Spaces** above the **Better Lender Space** label.



The Space Manager page is displayed.

- 5. Click **Create Space**.



- 6. Enter **ClaimsProcessingBusinessSpace** as the **Space name**. Select the **Create a blank space** option.

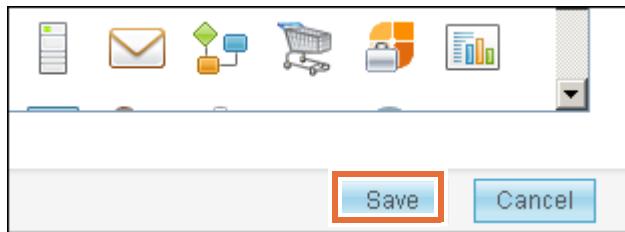
Create Space

* Space name:

Space description:

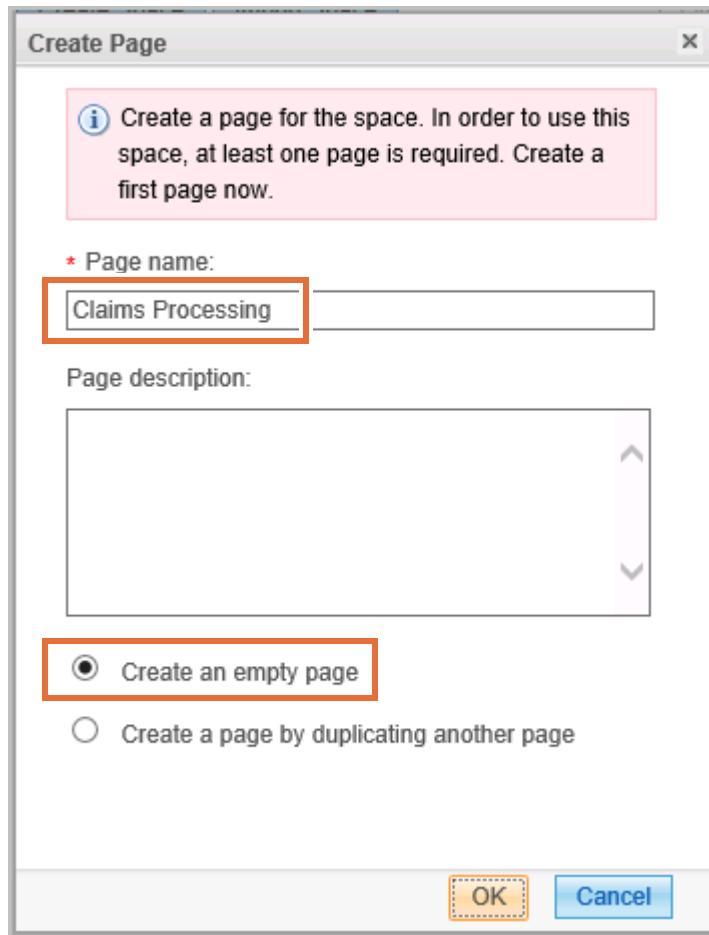
Create a blank space

- 7. Click **Save** in the lower-right corner.



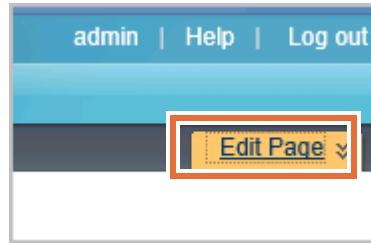
The ClaimsProcessingBusinessSpace is added to the list of business spaces.

- 8. In the Create Page window, enter **Claims Processing** as the **Page name**.
— 9. Select **Create an empty page**.



- 10. Click **OK**.
— 11. Click **ClaimsProcessingBusinessSpace** in the Space Manager window.

- 12. Click **Edit Page** in the upper-right corner of the page.

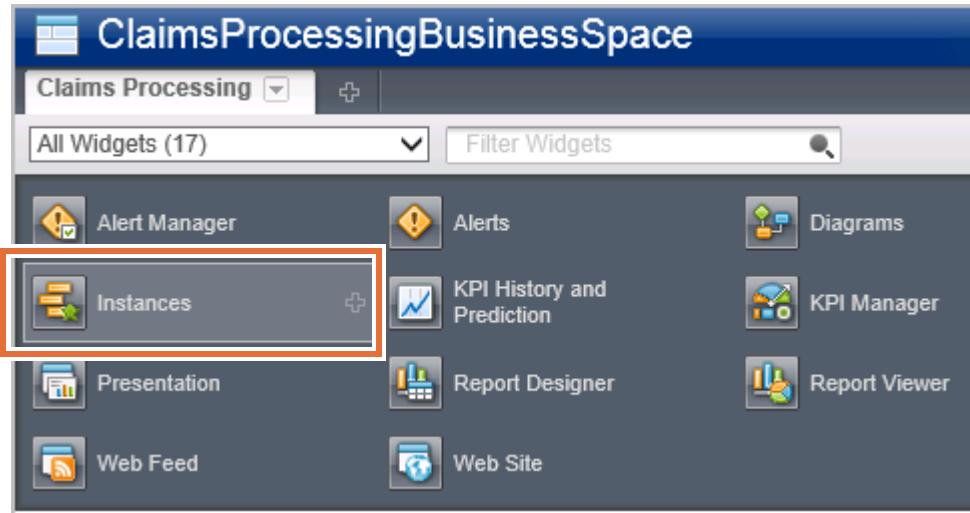


The widgets page is displayed. From here, you can select the widgets that you want to display on the dashboard.

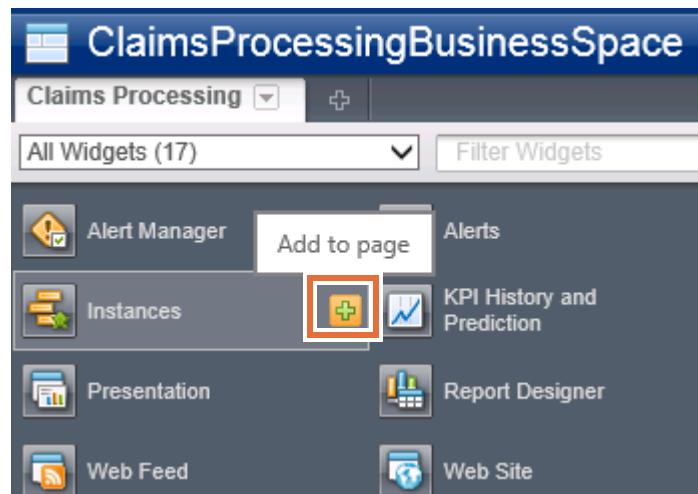
Part 4: Creating an Instances widget

In this section, you create an instance widget and view the instances that are created based on the events that you imported earlier. You create additional widgets in new spaces in the coming exercises when monitoring events from BPMN and BPEL processes.

- 1. On the widgets page, click **Instances**. The layout of the widgets might not match the screen capture.



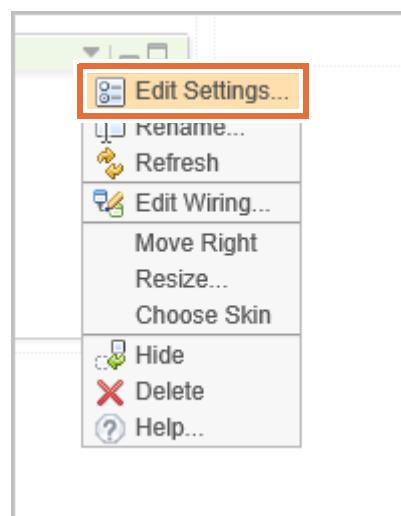
- 2. Click the plus sign (+) to the right of the **Instances** widget to add an Instances widget to the empty page.



- 3. In the upper-right corner of the newly added **Instances** widget, click the down arrow to open the options menu.



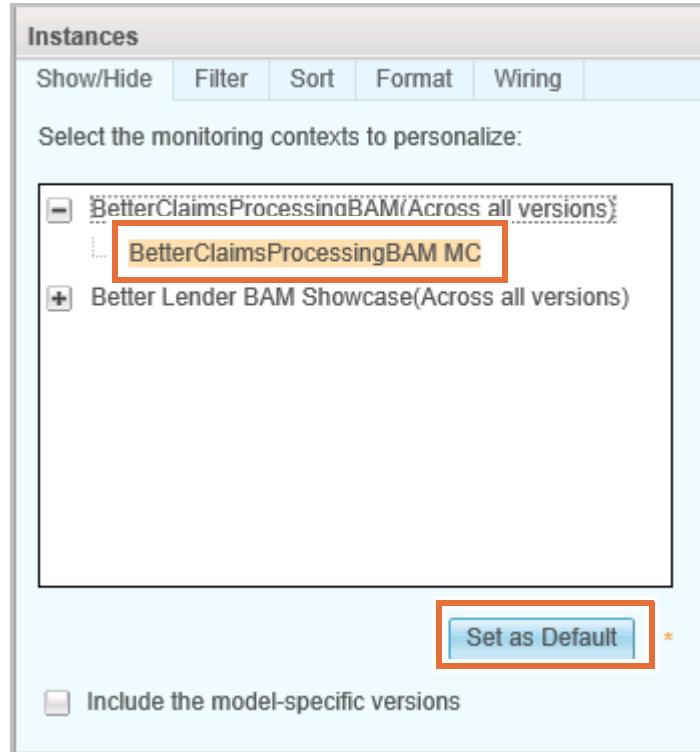
- 4. Click **Edit Settings**.



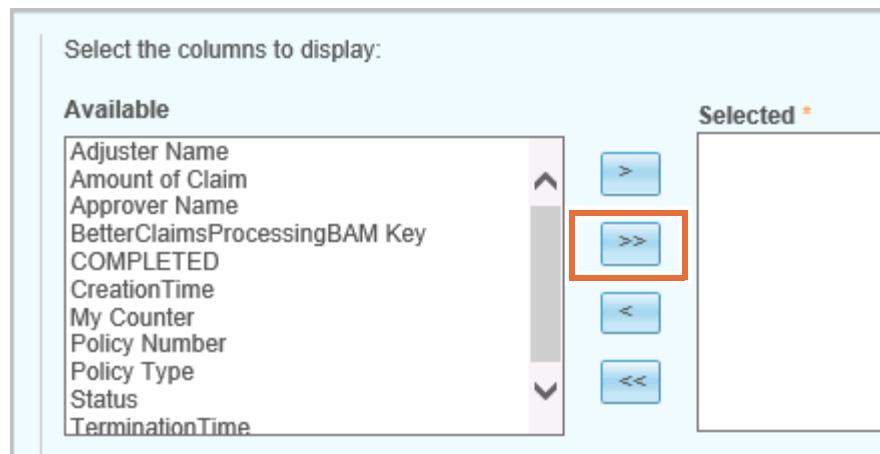
The Instances window opens.

- 5. In the **Select the monitoring contexts to personalize** pane, expand **BetterClaimsProcessingBAM(Across all versions)**.

- 6. Click **BetterClaimsProcessingBAM MC**, and then click **Set as Default**.



- 7. In the “Select the columns to display” pane, click **>>** to move all columns from the **Available** list to the **Selected** list.

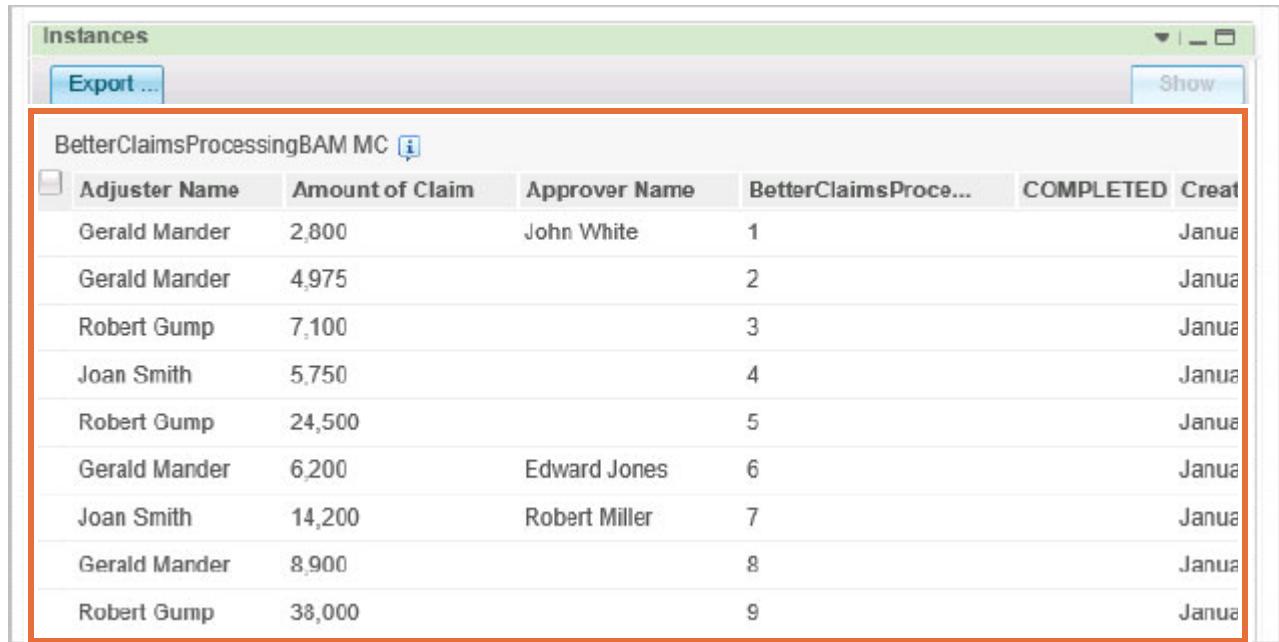


- 8. Click **Apply** (at the bottom of the window) to save the changes.



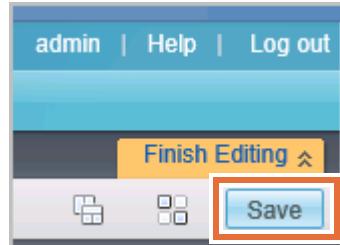
- 9. Click **OK** (at the bottom of the window) to save the changes and return to the instances widget.

- 10. The instance widget displays a list of monitoring context instances for the events that the recorded events emitted. The number and content of the instances that are displayed might be different from the ones that are listed in the screen capture of the widget in the exercise.



Adjuster Name	Amount of Claim	Approver Name	BetterClaimsProce...	COMPLETED	Create Date
Gerald Mander	2,800	John White	1		Janua
Gerald Mander	4,975		2		Janua
Robert Gump	7,100		3		Janua
Joan Smith	5,750		4		Janua
Robert Gump	24,500		5		Janua
Gerald Mander	6,200	Edward Jones	6		Janua
Joan Smith	14,200	Robert Miller	7		Janua
Gerald Mander	8,900		8		Janua
Robert Gump	38,000		9		Janua

- 11. Click **Save** at the upper right to save the page.



- 12. Click **Finish Editing**.
 — 13. Click **Logout** to log out of the Business Space.
 — 14. Close the Internet Explorer session that contains the Business Space.
 — 15. Optionally, shut the Monitor Server.

End of exercise

Exercise 8. Monitoring events from a BPEL process

Estimated time

02:30

Overview

In this exercise, you monitor events from BPEL process using IBM Business Monitor.

Objectives

After completing this exercise, you should be able to:

- Complete a model and then generate events from a BPEL process for monitoring
- Create process instances by using the Business Process Choreographer (BPC) Explorer to generate monitored events
- Create an alert template
- Create situation events and bind them to action services
- Start the IBM Business Monitor dashboard and create several widgets

Introduction

In this exercise, the case study that is used as the scenario is based on a fictional company, ClipsAndTacks Office Supplies Ltd. (abbreviated as ClipsAndTacks from now on). It faces many internal and external challenges. Some of those challenges are business-related and some are systems-related. There is a need for measuring its business performance and monitoring its business processes.

A BPEL process and a partial monitor model are already created for you. In this exercise, you define additional elements to complete the model, deploy the monitor model, manage action services and event emissions, and build dashboards in IBM Business Monitor.

Requirements

Completing the exercises for this course requires a lab environment. The environment includes the exercise support files, Internet Explorer, IBM Process Server, and IBM Business Monitor test environments.

Exercise instructions

Background of ClipsAndTacks business process

ClipsAndTacks is a medium-sized office supply company operating in eastern Canada and the northeastern United States. The company grew slowly and achieved a significant customer base through its excellent customer service practices and reputation for quality products.

In recent times, competitive pressures demanded changes in the traditional business approach that ClipsAndTacks uses. Examples of the changes are easy to see. They recently changed from handling orders strictly by phone to handling orders from the web. Various departments used business process management (IBM BPM) tools to automate business processes. A recent acquisition created another division in the company. As a result of these and other changes, the business is not as easily understood or manageable as it was at one time.

Management is feeling the pressure. At one time, they were in charge of a self-contained business, which they built slowly and controlled directly. Now management must manage a business that is growing and changing rapidly. They adopted business process modeling and management in several areas to help keep those processes under control and to allow rapid response to changing needs. At the same time, many processes are controlled manually. In either case, meaningful visibility into the day-to-day operations is needed.

ClipsAndTacks management is seeking a way to deal rationally with the changing business as a whole.

Business challenges

ClipsAndTacks is a successful business. The company is both growing and adapting in a competitive marketplace. At the same time, as the business expands, management is faced with the challenge of understanding its business performance and processes in a timely fashion.

Traditional reporting at the end of the month does not allow for the rapid response that is needed in today's marketplace.

ClipsAndTacks management needs a way of monitoring its business performance in near real time. Management believes in the idea of business activity monitoring (BAM), measuring and controlling the business through a dashboard concept. They worked with consultants to choose IBM Business Monitor as their enterprise BAM solution. Now, they must make the concept a reality.

While the goal is to have a way of understanding and controlling the business as a whole, it takes time and effort to:

- Identify appropriate key performance indicators (KPI)
- Identify from where the appropriate data can be drawn
- Establish meaningful dashboards for varying layers of management
- Looking at the business, the following starting points were identified for business activity monitoring.

Order handling process

Within ClipsAndTacks, there is a new managed process for order handling. This process was created in response to customer feedback and implemented in the original company (preacquisition) by using IBM Process Server. The process starts with the submission of an order through a web interface. The steps are managed through to shipping by automating a business model and drawing on various technology services, such as a business rules engine and human task management.

Order handling process details

ClipsAndTacks implemented an order submission process that allows it to compete with office supply companies in its target market. In response to a common complaint in customer surveys, the new process eliminates the need for contact between customers and customer service representatives when an order is placed. Customers are now able to browse the ClipsAndTacks product catalog online or in a printed copy, and use a web application to enter their own order information. Customers who have a customer number are able to enter it, prompt the web application to retrieve their information, and prefill the web form with their address and preferred shipping information. The new web application, including the product catalog and order form, is available 24 hours a day, 7 days a week.

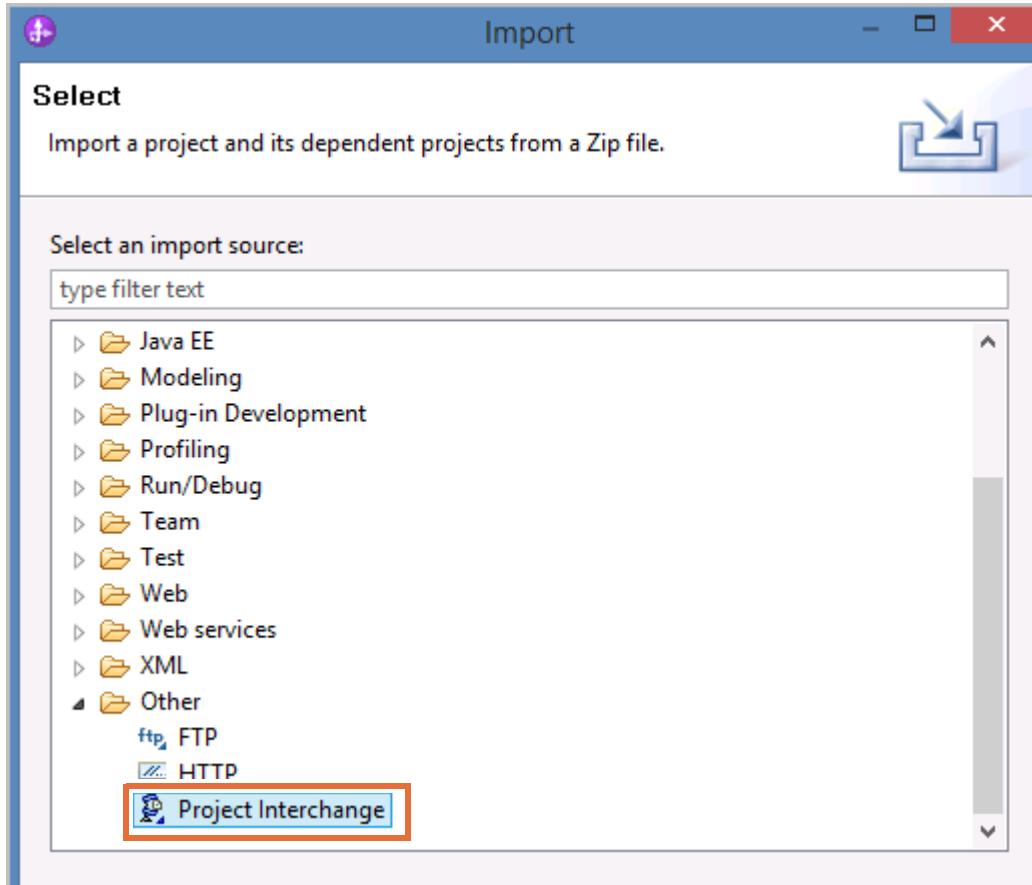
Because of the recent acquisition, ClipsAndTacks has two divisions that deal with orders, but they use different BPM engines. For both, the process is the same in terms of steps and integration touch points. When the customer submits the order, a business rules engine is checked to ensure appropriate action on the order. Orders of gold customers are reviewed if the total price is higher than \$1750. Silver customer orders are reviewed if the total price is higher than \$1250. All other customer orders must be reviewed if the total price exceeds \$750. If the account is in good standing, the order is sent for shipping. If the account is not in good standing, it is sent to an order manager for review. Based on the review, the order manager decides whether to send the order for fulfillment or to cancel the order and notify the customer.

Part 1: Importing the Monitor model

In this portion of the exercise, you start IBM Integration Designer and build on the existing Monitor model project for ClipsAndTacks.

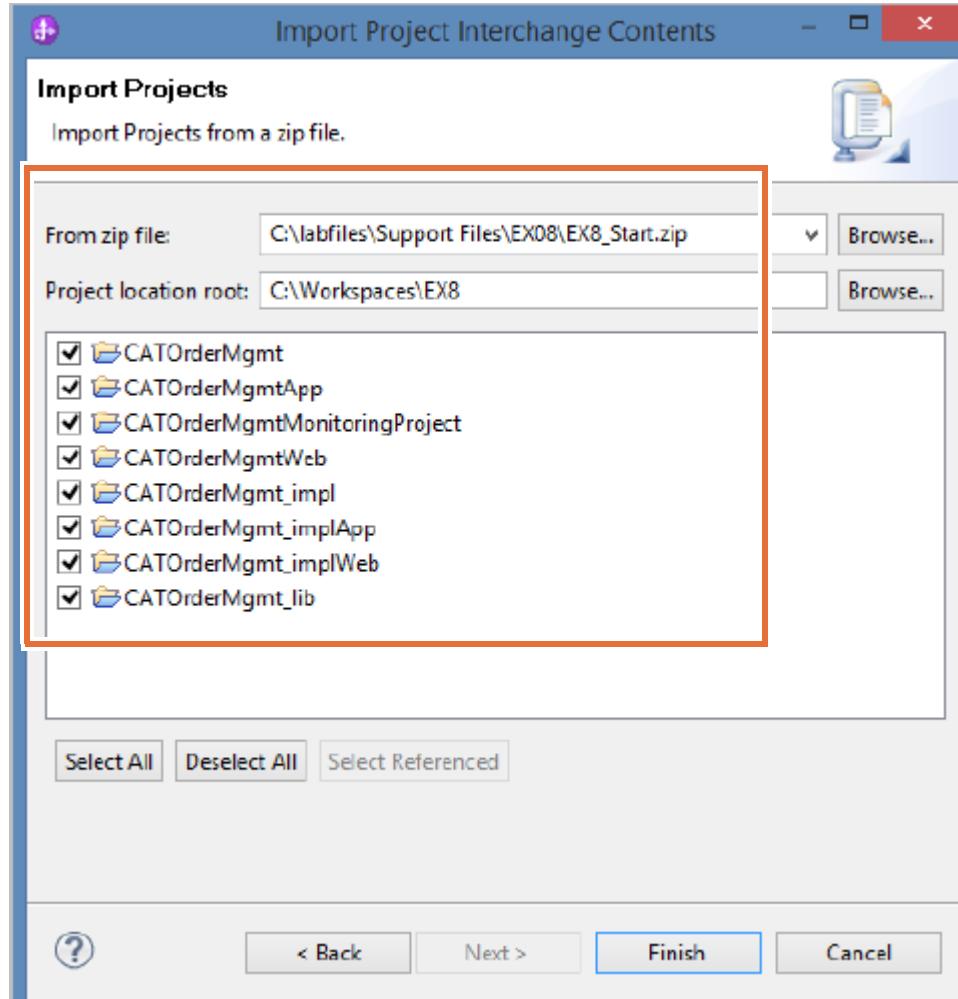
- ___ 1. Start IBM Integration Designer.
 - ___ a. On your desktop, double-click the shortcut that is labeled **IBM Integration Designer**. This action takes a moment to initialize.
 - ___ b. In the **Workspace Launcher** dialog box, change the **Workspace** location to C:\Workspaces\EX8 and click **OK**.
 - ___ 2. Close the welcome page by clicking the **X** on the **Getting Started - IBM Integration Designer** tab.
- An empty workspace is created. Next, you import the ClipsAndTacks monitoring project in this workspace.
- ___ 3. Import the monitor model.
 - ___ a. From the menu bar in the **Business Integration** view, click **File > Import**.

- ___ b. In the Import window, expand **Other** and select **Project Interchange**.



- ___ c. Click **Next**.
- ___ d. In the Import Project Interchange Contents window, click **Browse** to the right of **From zip file**. Go to the following folder:
C:\labfiles\Support Files\EX08
- ___ e. Select **EX8_Start.zip**, and click **Open**.

- __ f. Click **Select All** to make sure that the project is selected.



- __ g. Click **Finish** to complete the import.
 __ h. The ClipsAndTacks project is now imported in IBM Integration Designer. It takes few minutes for the workspace to build.

Part 2: Reviewing the BPEL process to be monitored

Events must be emitted when a process is started to instantiate a monitoring context. The monitoring context instance is ended when the process is finished. It uses the capability of the Monitor model editor running in IBM Integration Designer for generating event definitions for a BPEL process.

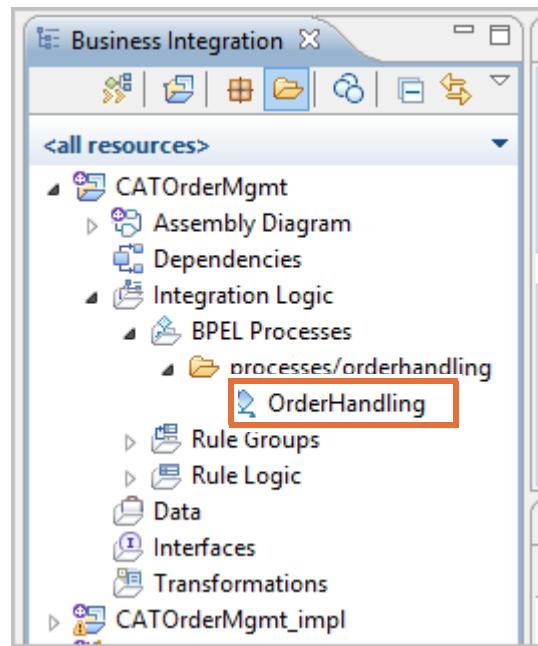
- __ 1. In the **Business Integration** view, expand **CATOrderMgmt > Integration Logic > BPEL Processes > processes/orderhandling**.



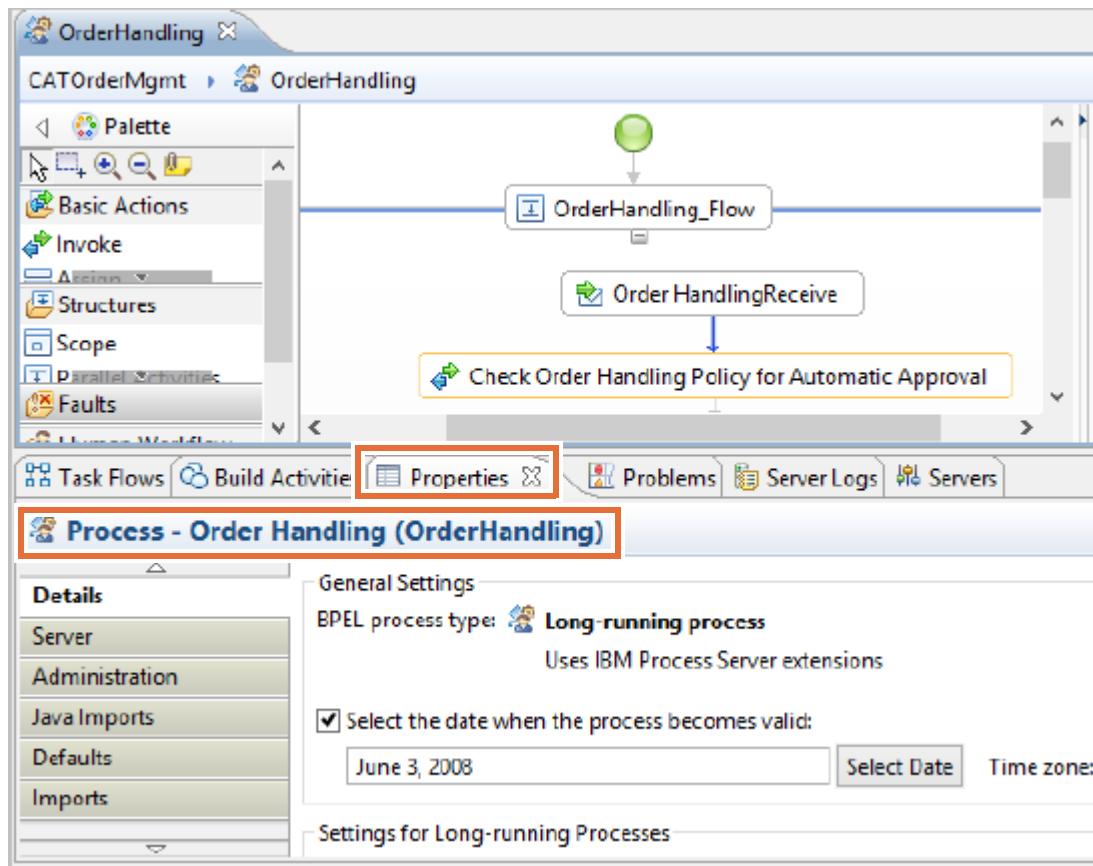
Note

If you do not see this hierarchy, the workspace is still building. Wait until the hierarchy is constructed before proceeding.

2. Double-click **OrderHandling** to open the process in the BPEL editor.



- 3. Click the **Properties** tab at the bottom of the BPEL editor, and examine the tabs for the process. Look at the **Details** tab, and notice that this process is a long running process that it has a valid process date which BPEL processes have as a property. This process might be important when monitoring BPEL processes. If the integration developer changes this date after a monitor model is generated, you might not receive events because the original model was based on a previous date. Leave this date as is for this exercise. If you do not see the information, make sure to click somewhere on the process at the top in the BPEL editor.



You can click in the BPEL process at the different BPEL constructs and then see their properties. You are monitoring this BPEL process at different points and generating the monitor model from these BPEL constructs later.

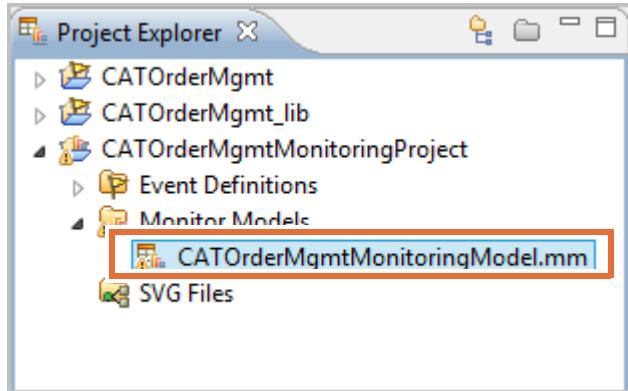
- 4. When you are done examining the BPEL process, close the **OrderHandling** BPEL editor tab.

Part 3: Building the Monitor model: Defining KPIs

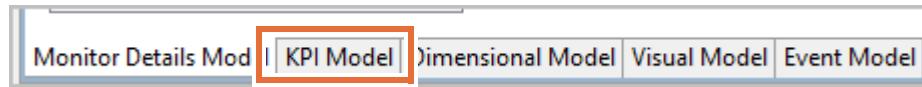
You create a key process indicator (KPI) in this section. Before you create KPIs, you must create a KPI context for them. The KPIs are aggregate measures that are displayed to users on dashboards.

- 1. Switch to the Business Monitoring perspective.
 - a. From the menu, click **Window > Open Perspective > Business Monitoring**.
 - b. Wait for the Business Monitoring perspective to load.
 - c. Close the **Technology Quickstarts** view.

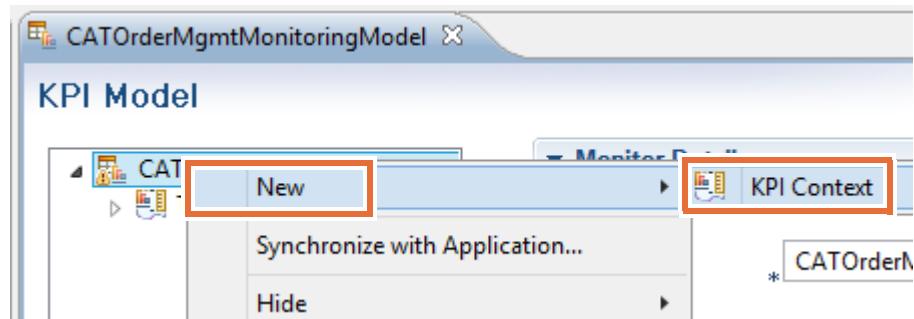
- ___ d. Close **Help** on the right side of the toolkit.
- ___ 2. Create a KPI context.
 - ___ a. In the Project Explorer, expand **CATOrderMgmtMonitoringProject > Monitor Models** and double-click **CATOrderMgmtMonitoringModel.mm**.



- ___ b. Click the **KPI Model** tab for the **CATOrderMgmtMonitoringModel**.

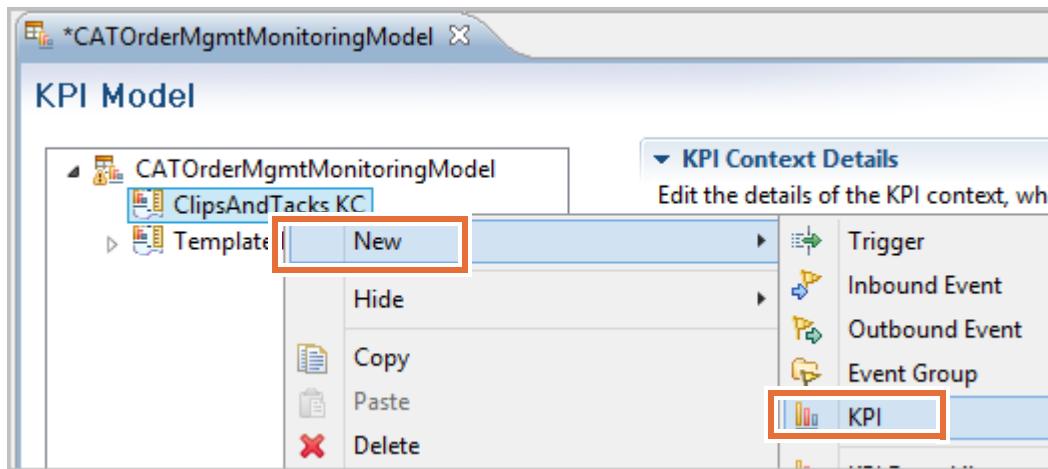


- ___ c. In the **KPI model** tab, right-click **CATOrderMgmtMonitoringModel** and click **New > KPI Context**.



- ___ d. In the Create New KPI Context window, enter `ClipsAndTacks KC` for **Name**, and click **OK**.
- ___ e. Press **Ctrl+S** to save the workspace.

- 3. Create the **Average Order Fulfillment** KPI. The Average Order Fulfillment KPI is based on the average aggregation of the metric Order Fulfillment Duration that is defined within the monitor model.
- a. On the **KPI model** tab for the **CATOrderMgmtMonitoringModel**, right-click **ClipsAndTacks KC** and click **New > KPI**.



- b. In the Create New KPI window, enter **Average Order Fulfillment** as the **Name**.
- c. Click **OK**.
- d. In the **KPI Details** section, select **Duration** from the **Type** list.

KPI Details	
Edit the details of the KPI, which is a performance measurement used to measure the success of a process.	
ID:	<input type="text" value="Average_Order_Fulfillment"/>
Name:	<input type="text" value="Average Order Fulfillment"/>
Description:	<input type="text"/>
Type:	<input type="text" value="Duration"/>

- e. Scroll down a little and in the **KPI Target and Ranges** section, click **Details** next to the **Target** field.

- __ f. In the Target Details window, select a **Value** of 3 minutes and click **OK**.

The screenshot shows the 'Target Details' window with the following fields:

- Name: Target
- ID: Target
- Description: (empty)
- Value:
 - Days: 0
 - Hours: 0
 - Minutes: 3 (highlighted with a red box)
 - Seconds: 0
 - Milliseconds: 0

- __ g. Verify that **Ranges** is set to Actual value.

The screenshot shows the 'KPI Target and Ranges' section with the following settings:

- Target: 3 Minutes
- Ranges: Actual value (highlighted with a red box)

- __ h. In the **KPI Target and Ranges** section, click **Add**.

- __ i. In the Add Range window, enter Day 1-2 for **Name** and click **OK**. A row is added to the **Ranges** table.

The screenshot shows the 'KPI Target and Ranges' section with the following settings:

- Target: 3 Minutes
- Ranges: Actual value

The 'Ranges' table contains one row:

Range Name	Start Value	End Value
Day 1-2	0 Milliseconds	< 0 Milliseconds

The 'Day 1-2' entry in the Range Name column is highlighted with a red box.

- ___ j. Select the first row under the **End value** column and click the button that is displayed in that row.

Range Name	Start Value	End Value	Color
Day 1-2	0 Milliseconds	0 Milliseconds	

- ___ k. In the Specify End Value window, select a **Value** of 2 minutes and click **OK**.
- ___ l. In the **KPI Target and Ranges** section, click **Add** again.
- ___ m. In the Add Range window, enter Day 3 for **Name** and click **OK**. A second row is added to the **Ranges** table.
- ___ n. Select the second row under the **End value** column and click the button that is displayed in that row.

The **Start Value** is automatically defined based on the **End Value** in the previous row. If the rows are not added by using these steps, then the **Start Value** must be manually entered for each row after the first.

- ___ o. In the Specify End Value window, select a **Value** of 3 minutes and click **OK**.
- ___ p. In the **KPI Target and Ranges** section, click **Add** again.
- ___ q. In the Add Range window, enter Day 4-5 for **Name** and click **OK**. Another row is added to the **Ranges** table.
- ___ r. Select the third row under the **End value** column and click the button that is displayed in that row.
- ___ s. In the Specify End Value window, select a **Value** of 10 minutes and click **OK**. The **Ranges** table now contains three populated rows.

Range Name	Start Value	End Value	Color
Day 1-2	0 Milliseconds	< 2 Minutes	
Day 3	2 Minutes	< 3 Minutes	
Day 4-5	3 Minutes	< 10 Minutes	

- ___ t. In the **KPI Value** section, select **Base this KPI on a metric and an aggregation function**.

KPI Value

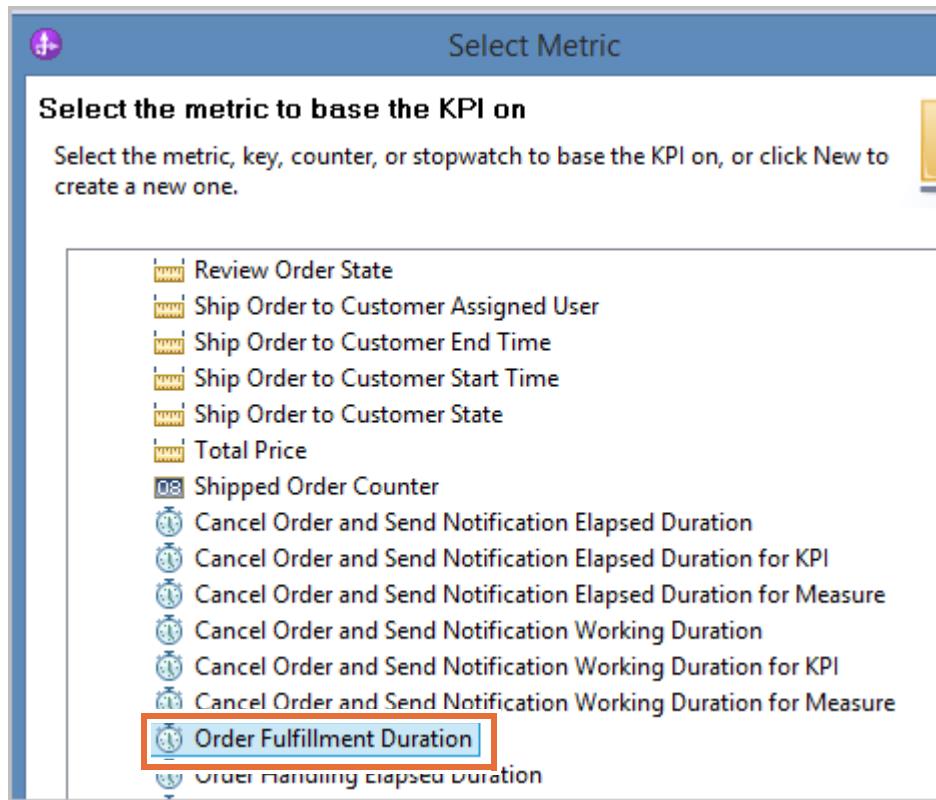
Choose how the KPI will get its value:

Base this KPI on a metric and an aggregation function.

Write an expression to calculate this KPI based on existing KPIs

- ___ u. In the **KPI Details** section, click **Browse** to the right of **Monitoring context**.
- ___ v. Select **CATOrderMgmtMonitoringModel > Order Handling** and click **OK**.
- ___ w. In the **KPI Details** section, click **Browse** to the right of **Metric**.

- ___ x. Expand **Order Handling**, select the **Order Fulfillment Duration** stopwatch metric, and then click **OK**. You might have to scroll down to find the metric.

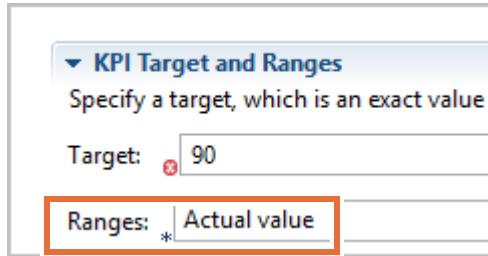


- ___ y. Verify that **Aggregation function** is set to **Average**.

KPI Details	
Monitoring context:	* Order Handling
Metric:	* Order Fulfillment Duration
Aggregation function:	Average

- ___ z. Press Ctrl+S to save the workspace, and wait for the workspace build to complete.
- ___ 4. Create the **Percentage of Shipped Orders** KPI. The Percentage of Shipped Orders KPI is based on the Order Shipped metric that is defined in the model.
- ___ a. On the **KPI model** tab for the **CATOrderMgmtMonitoringModel**, right-click **ClipsAndTacks KC** and click **New > KPI**.
- ___ b. In the Create New KPI window, enter **Percentage of Shipped Orders** for **Name**.
- ___ c. Click **OK**.
- ___ d. In the **KPI Details** section, leave the default **Decimal** in the **Type** list, if it is not already set.
- ___ e. In the **KPI Target and Ranges** section, to the right of the **Target** field, click **Details**.
- ___ f. In the Target Details window, enter **90** for **Value** and click **Finish**.

- ___ g. Verify that **Ranges** is set to: Actual value

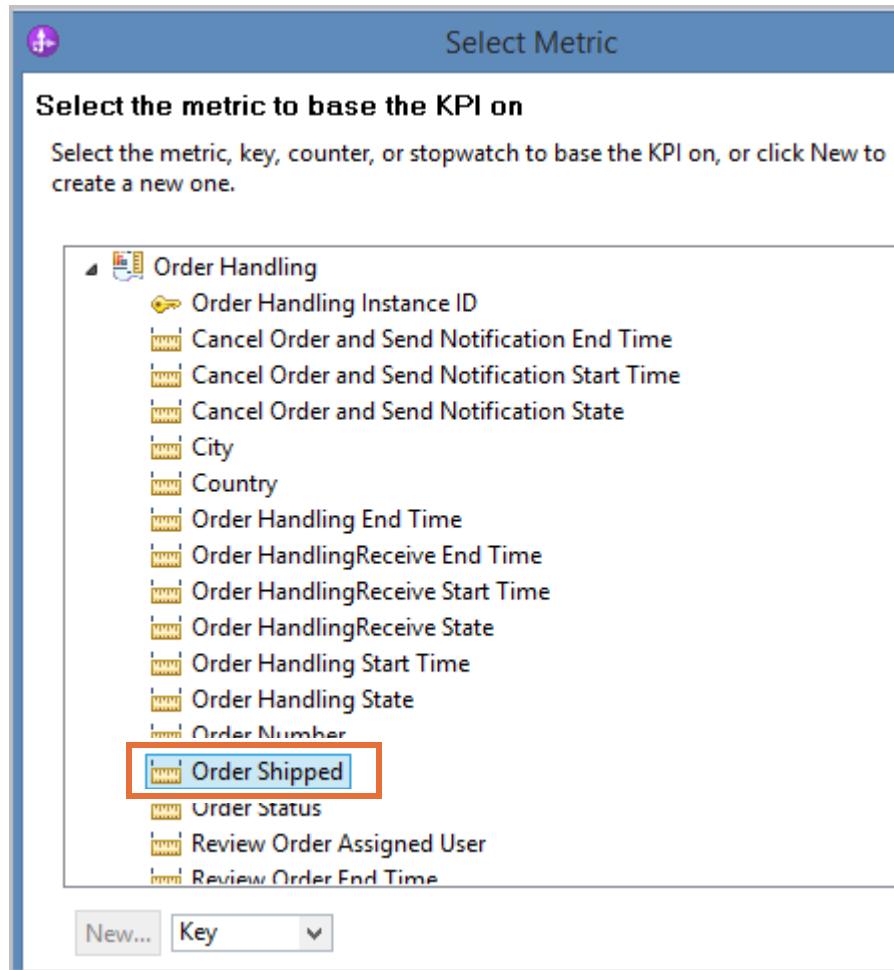


- ___ h. In the **KPI Target and Ranges** section, click **Add**.
- ___ i. In the Add Range window, enter Low Range for **Name** and click **OK**.
- ___ j. Select the first row under the **End value** column and click the button that is displayed in that row.
- ___ k. In the Specify End Value window, enter 90 for **Value** and click **OK**.
- ___ l. In the **KPI Target and Ranges** section, click **Add** again.
- ___ m. In the Add Range window, enter High Range for **Name** and click **OK**.
- ___ n. Select the second row under the **End value** column and click the button that is displayed in that row.
- ___ o. In the Specify End Value window, select 100 for **Value** and click **OK**.

KPI Target and Ranges		
Specify a target, which is an exact value for the KPI to achieve, or ranges against which to measure the KPI.		
Target:	90	
Ranges:	*	Actual value
Range Name	Start Value	End Value
Low Range	0	< 90
High Range	90	< 100

- ___ p. In the **KPI value** section, select **Base this KPI on a metric and an aggregation function**.
- ___ q. In the **KPI Details** section, click **Browse** to the right of **Monitoring Context**.
- ___ r. Select **CATOrderMgmtMonitoringModel > Order Handling**, and click **OK**.
- ___ s. In the **KPI Details** section, click **Browse** to the right of **Metric**.

- __ t. Select Order Handling > Order Shipped, and click OK.



- __ u. Verify that **Aggregation function** is set to **Average**.

KPI Value	
Choose how the KPI will get its value:	
<input checked="" type="radio"/> Base this KPI on a metric and an aggregation function. <input type="radio"/> Write an expression to calculate this KPI based on existing KPIs	
KPI Details	
Monitoring context:	* Order Handling
Metric:	* Order Shipped
Aggregation function:	* Average
Use values from:	<input checked="" type="radio"/> All model versions <input type="radio"/> Only this version of the model

- __ v. Press Ctrl+S to save the workspace.
 __ w. Wait for the workspace build to complete.

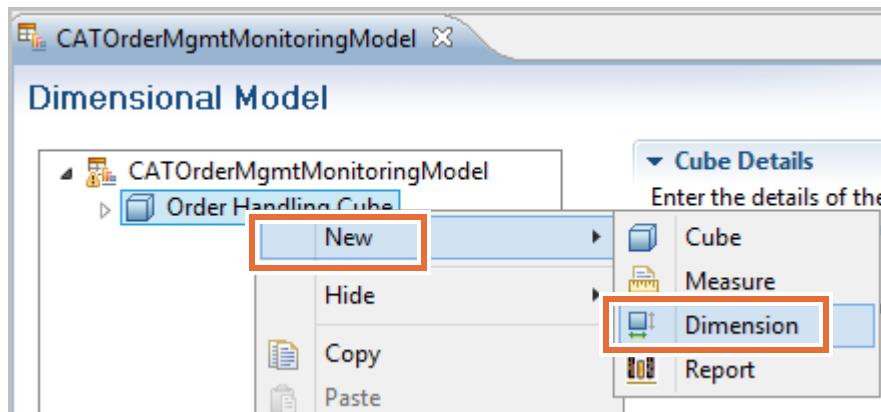
Part 4: Building the Monitor model: Defining dimensions

The Dimensional Model is supported only with the IBM Cognos Business Intelligence service. You create a dimensional model to define the measure **Number of Shipped Orders** with a dimension **Location**. This high-level measure can be used to display reports or graphs on a dashboard.

- 1. Create the **Location** dimension.
 - a. Click the **Dimensional Model** tab for the **CATOrderMgmtMonitoringModel**.

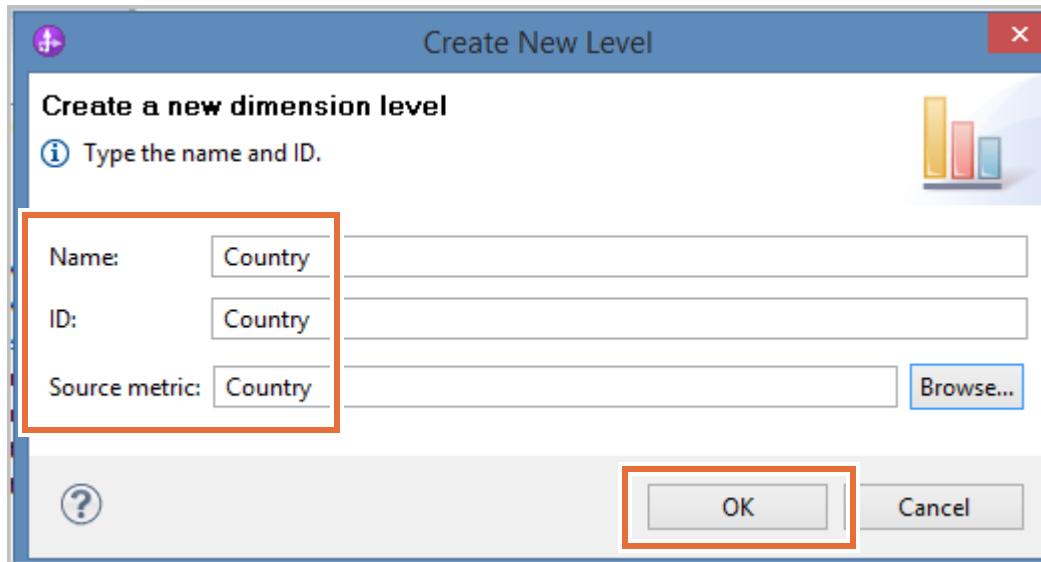


- b. On the **Dimensional Model** tab, right-click **Order Handling Cube** and click **New > Dimension**.

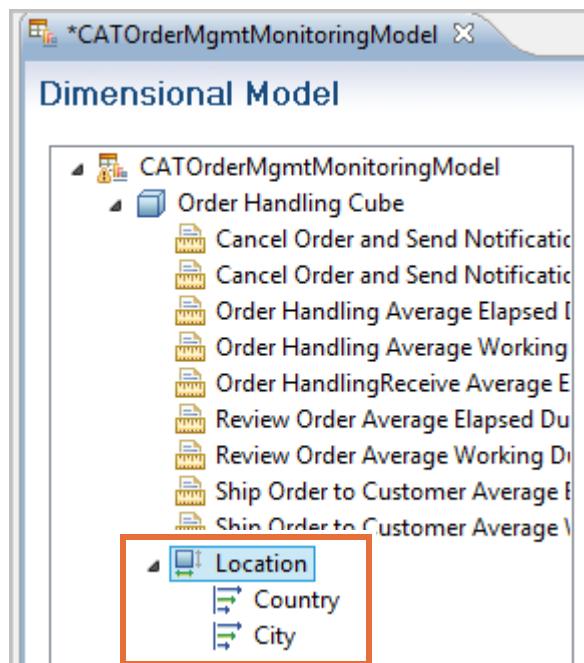


- c. In the Create New Dimension window, enter **Location** for **Name** and click **OK**.
- d. Under **CATOrderMgmtMonitoringModel > Order Handling Cube**, right-click **Location** and click **New > Dimension Level**.
- e. In the Create New Level window, enter **Country** for **Name**.
- f. Click **Browse** to the right of **Source metric**.
- g. Select **Order Handling > Country** and click **OK**.

__ h. Click **OK**.

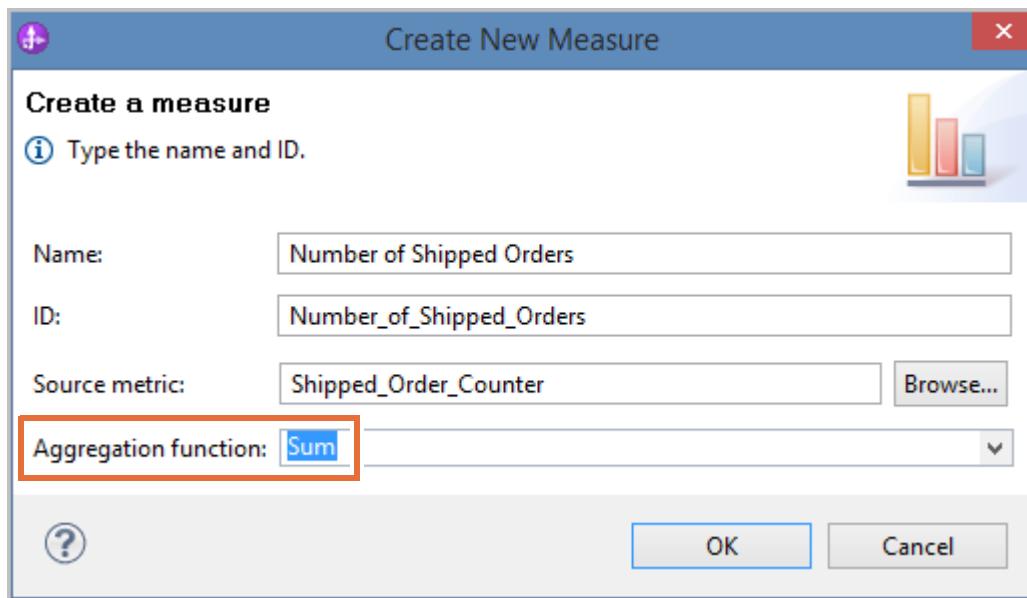


- __ i. Right-click **Location** again and click **New > Dimension Level**.
- __ j. In the Create New Level window, enter **City** as the **Name**.
- __ k. Click **Browse** to the right of **Source metric**.
- __ l. Select **Order Handling > City** and click **OK**.
- __ m. Click **OK**.
- __ n. Press **Ctrl+S** to save the workspace.



- __ o. Wait for the workspace build to complete.

- __ 2. Create a measure for shipped orders.
 - __ a. On the **Dimensional Model** tab, right-click **Order Handling Cube** and click **New > Measure**.
 - __ b. In the Create New Measure window, enter **Number of Shipped Orders** for **Name**.
 - __ c. Click **Browse** to the right of **Source metric**.
 - __ d. Select **Order Handling > Shipped Order Counter**. It might be necessary to scroll down to view this counter.
 - __ e. Click **OK**.
 - __ f. Select **Sum** for the **Aggregation function** and click **OK**.

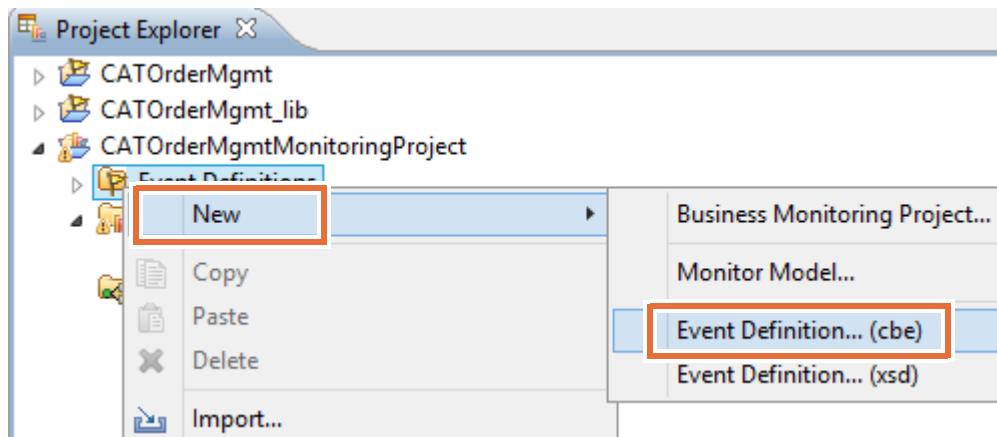


- __ g. Press Ctrl+S to save the workspace.
- __ h. Wait for the workspace build to complete.

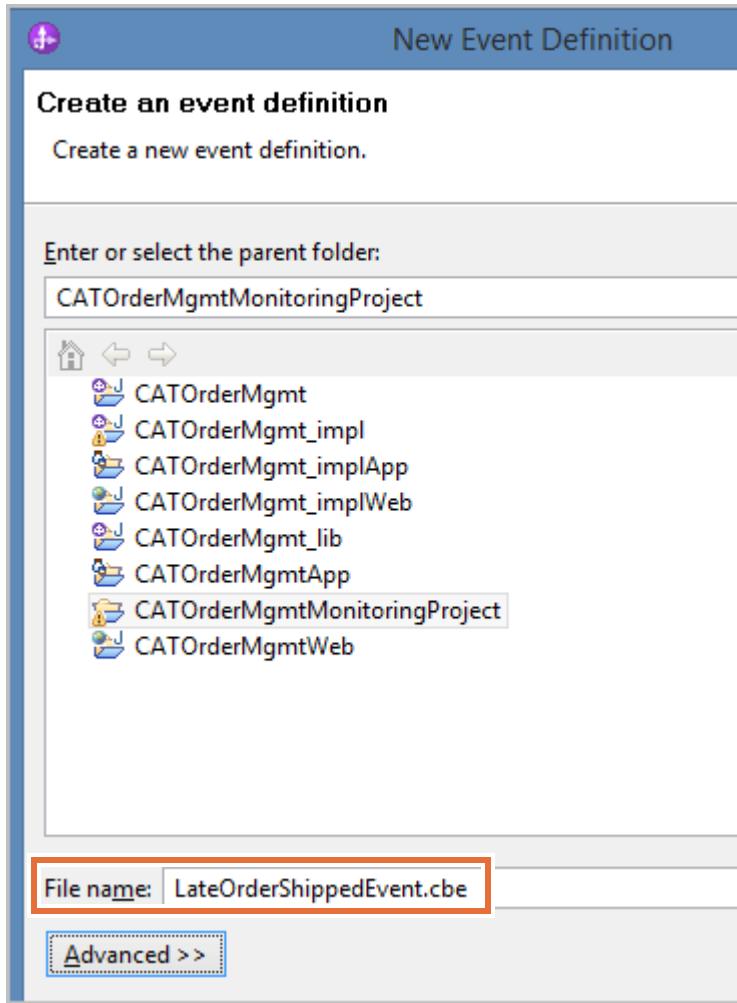
Part 5: Building the Monitor model: Defining alerts

For an alert, you must define an outbound event. You first define the **ActionServicesEvent** event; then, associate it with an **Outbound Event**. It is the only action that you must take when configuring the Monitor model; the alert is defined by using the dashboard utilities later.

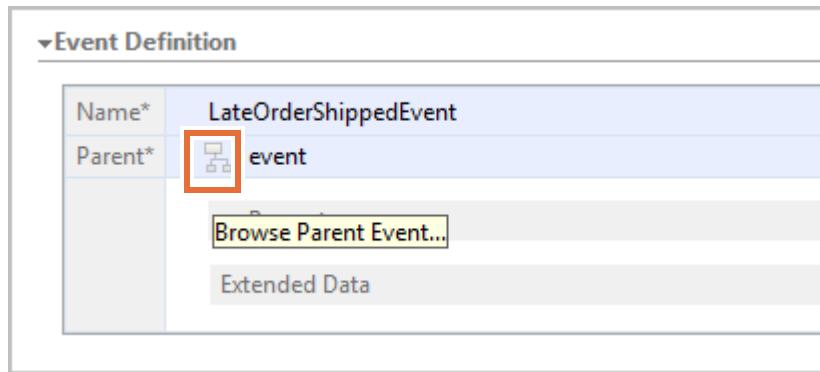
- 1. Create the **Late Order Shipped** event.
 - a. In the **Project Explorer** view, under **CATOrderMgmtMonitoringProject**, right-click **Event Definitions** and click **New > Event Definition...(cbe)**.



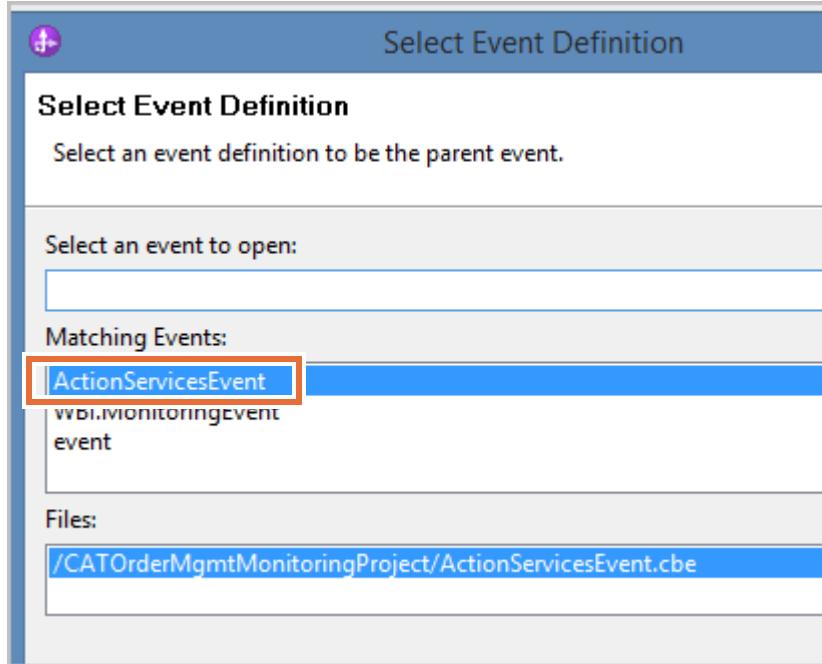
- ___ b. In the New Event Definition window, leave **CATOrderMgmtMonitoringProject** as the **parent folder** and enter **LateOrderShippedEvent.cbe** for **File name**.



- ___ c. Click **Finish**.
 ___ d. On the **LateOrderShippedEvent** tab, double-click the **Browse Parent Event** hierarchy icon to the right of **Parent**. This action defines the parent event.



- __ e. In the Select Event Definition window, double-click **ActionServicesEvent**.



- __ f. In the **Event Definition** section, click the **Add Extended Data** icon (the first icon to the right of the **Extended Data** field) to add a row to the **Extended Data** table.

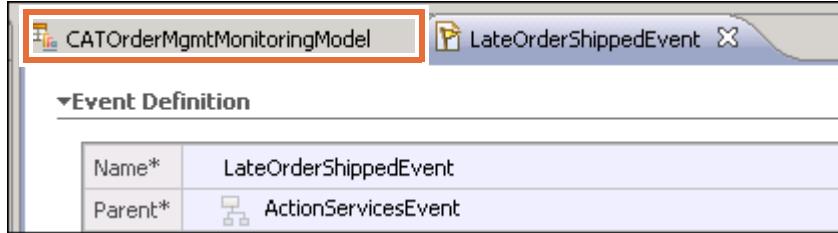
Event Definition							
Name*	LateOrderShippedEvent						
Parent*	ActionServicesEvent						
	<table border="1"> <tr> <td>Property</td> <td>Type</td> <td></td> </tr> <tr> <td>Extended Data</td> <td></td> <td></td> </tr> </table>	Property	Type		Extended Data		
Property	Type						
Extended Data							
	Add Extended Data						

- __ g. In the new row, type over **data1** with **OrderProcessingTime** and select **string** to replace **noValue** for **Type**.
- __ h. Click the **Add Extended Data** icon again to add another row to the **Extended Data** table.

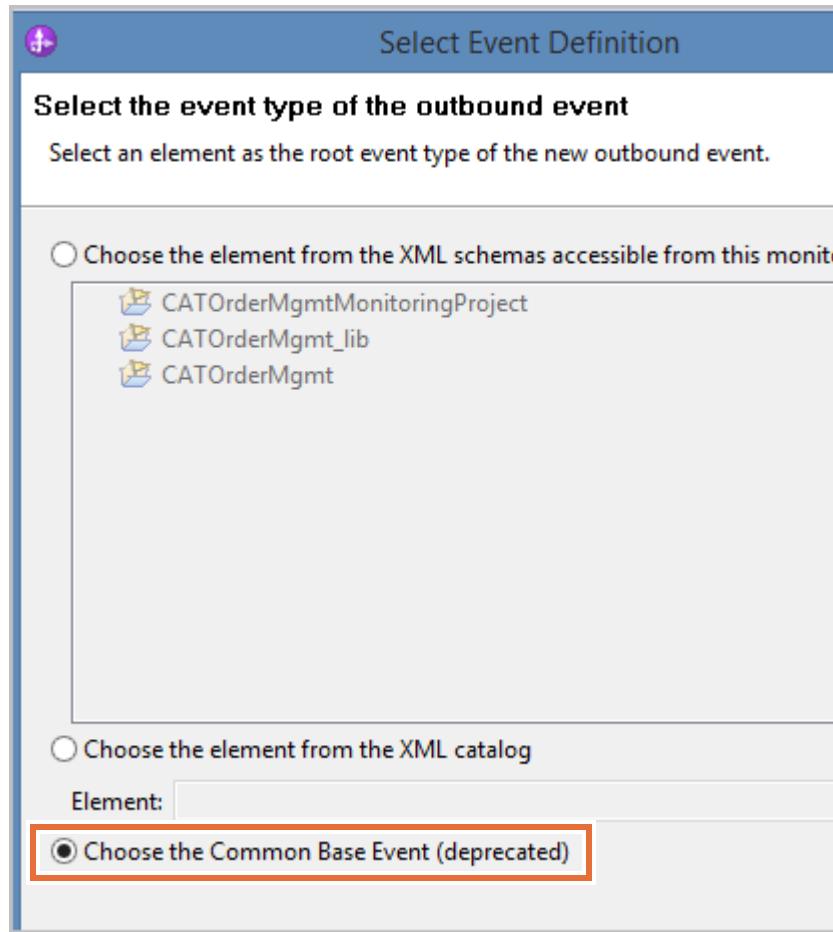
- ___ i. In the new row, type over **data1** with **OrderNumber** and select **string** to replace **noValue** for **Type**.

▼Event Definition

Name*	LateOrderShippedEvent	
Parent*	ActionServicesEvent	
Property		
Extended Data		Type
OrderProcessingTime		string
OrderNumberdata1		string

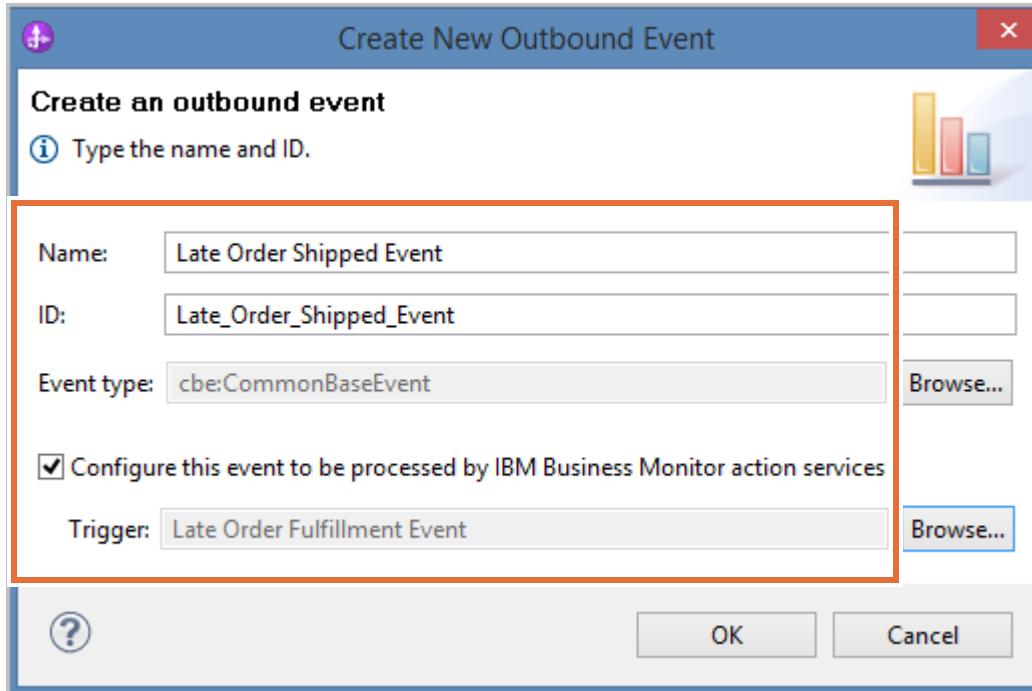
- ___ j. Press Ctrl+S to save the workspace.
- ___ k. Wait for the workspace build to complete.
- ___ 2. Create an Outbound Event.
- ___ a. Switch to the **CATOrderMgmtMonitoringModel** tab.
- 
- ___ b. Click the **Monitor Details Model** tab.
- 
- ___ c. Right-click **Order Handling** and click **New > Outbound Event**.
- ___ d. In the Create New Outbound Event window, enter **Late Order Shipped Event** for **Name**.
- ___ e. Click **Browse** to define an event type. The “Select the event type of the outbound event” page is displayed.

- __ f. Select the **Choose the Common Base Event (deprecated)** and click **Next**.

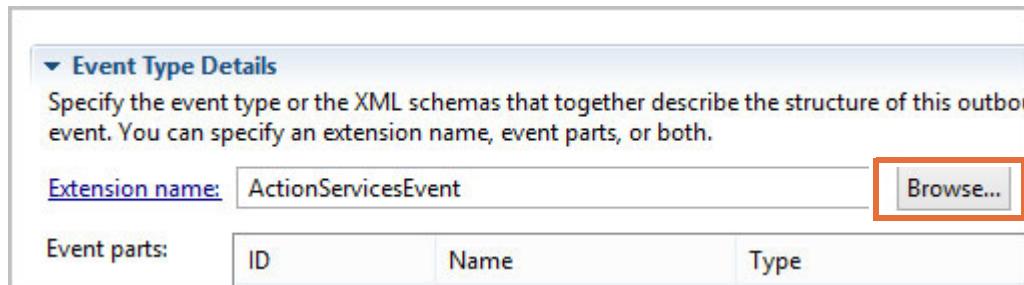


- __ g. On the “Confirm or type prefix” page, click **Finish**.
__ h. Select the **Configure this event to be processed by IBM Business Monitor action services** check box.
__ i. Click **Browse** to the right of **Trigger**.
__ j. Select **Order Handling > Late Order Fulfillment Event** and click **OK**.

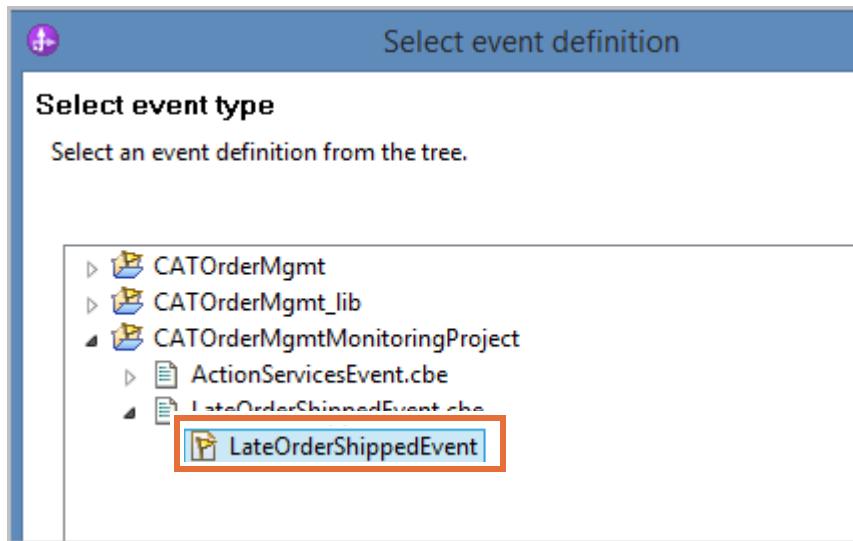
- __ k. Click **OK**. The new outbound event is created.



- __ l. In the **Event Type Details** section of the **Late Order Shipped Event**, click **Browse** to the right of **Extension name**.



- __ m. Select **CATOrderMgmtMonitoringProject > LateOrderShippedEvent.cbe > LateOrderShippedEvent**.



- __ n. Click **OK**.
- __ o. In the **Outbound Event Content** section, expand **Late Order Fulfillment Event > Extended Data**.
- __ p. In the **OrderProcessingTime** row of the table, enter `xs:string(Order_Fulfillment_Duration)` in the **Expression** column.
- __ q. In the **OrderNumber** row of the table, enter `xs:string(Order_Number)` in the **Expression** column.
- __ r. In the **BusinessSituationName** row of the table, replace the value in the **Expression** column with 'Order handling duration is too long'. The apostrophes must be included.

Outbound Event Content

Specify the triggers that cause the event to be sent. Use the Expression column to specify the value for each event attribute when the event is sent.

Name	Type	Expression
Late Order Fulfillment Event		
Property Data		
Extended Data		
OrderProcessingTime	string	<code>xs:string(Order_Fulfillment_Duration)</code>
OrderNumber	string	<code>xs:string(Order_Number)</code>
BusinessSituationName	string	<code>'Order handling duration is too long'</code>

**Important**

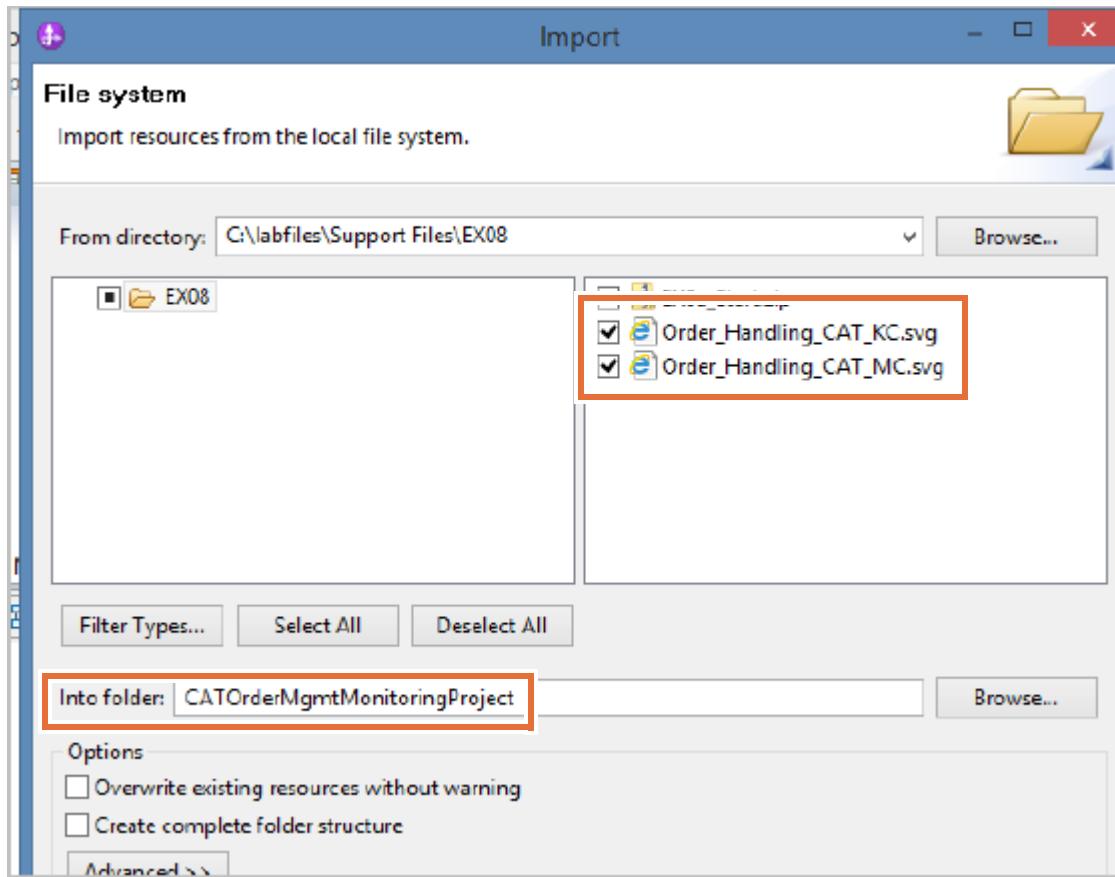
The name of the Situation Event that you create here *must* be entered exactly as 'Order handling duration is too long'. It matches the situation event name that you create in a later step, and is needed for alert notification. There should be no errors.

- ___ s. Press Ctrl+S to save the workspace.
- ___ t. Wait for the workspace build to complete.

Part 6: Building the Monitor model: Defining a visual model

- ___ 1. Import two SVG diagrams.
 - ___ a. Click **Window > Open Perspective > Other**, click **Business Integration (default)**, and click **OK** to switch to the Business Integration view.
 - ___ b. From the menu bar, click **File > Import**.
 - ___ c. In the Import window, expand **General** and select **File System**.
 - ___ d. Click **Next**.
 - ___ e. Click **Browse** to the right of **From directory**.
 - ___ f. Go to **C:\labfile\Support Files\EX08** and click **OK**.
 - ___ g. Select both the **Order_Handling_CAT_KC.svg** and **Order_Handling_CAT_MC.svg** files.

- h. Ensure that **Into folder** is set to **CATOrderMgmtMonitoringProject**. Click **Browse** opposite to **Into Folder** to select the project if the field is empty.

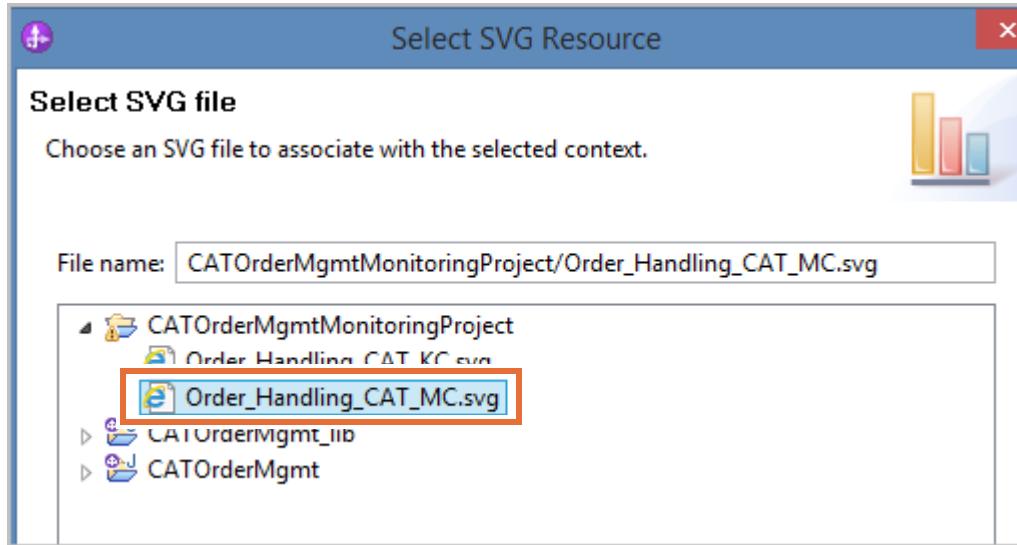


- i. Click **Finish**.
- 2. Create a visual model.
- a. Switch to the **Business Monitoring** perspective.
- b. In the **CATOrderMgmtMonitoringModel** editor, click the **Visual Model** tab at the bottom of the pane.



- c. To the right of **SVG File**, click **Browse**.

- __ d. Go to **CATOrderMgmtMonitoringProject > Order_Handling_CAT_MC.svg**.



- __ e. Click **OK**.

- __ f. When prompted to **Create shape sets based on SVG file**, click **Yes**.

Based on the metric **Order Status**, you want the color of the task **Ship Order to Customer** in the diagram to be set to green when the order is shipped. If the order is canceled, you want the color of the task to be set to red.

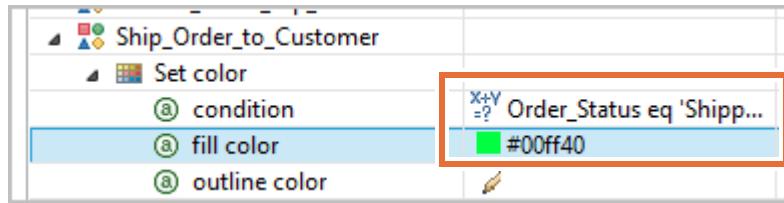
- __ g. In the **Add and Edit Shape Set Actions** table, under **Shape Set / Action** column, right-click **Ship_Order_to_Customer** (you must scroll down to this shape set).
 __ h. Click **Add Action > Set Color** from the menu.

Add and Edit Shape Set Actions	
Specify how the SVG elements represented by the shape sets change the results.	
Shape Set / Action	Action Attribute Value
Merge_bottom_label	
Merge_top_label	
Review_Order	
Review_Order_bottom_label	
Review_Order_top_label	
Ship_Order_to_C	
Ship_Order_to_C	Add Action ▶ Set Color
Ship_Order_to_Customer_top_label	Aa Set Text

The **Set Color** action is added to the table.

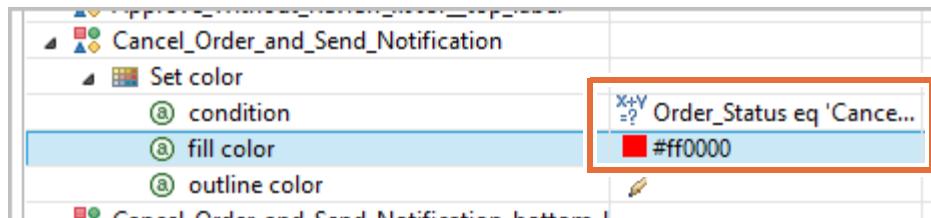
- __ i. Click the **Action Attribute Value** column, to the right of **condition**. Click the expression editor button when it is displayed, and then enter the following text in the Expression Window:
 Order_Status eq 'Shipped'
 __ j. Click **OK**.

- ___ k. Click the **Action Attribute Value** column, to the right of **fill color**. Click the color editor button when it is displayed, and then select one of the **green** colors. The hexadecimal representation for the green color that you selected is displayed in the **Action Attribute Value** column.
- ___ l. Click **OK**.



Depending on the shade of green that you selected, the hexadecimal color value can be different from the value that is shown.

- ___ m. In the **Add and Edit Shape Set Actions** table, under the **Shape Set / Action** column, right-click **Cancel_Order_and_Send_Notification**. Scroll up to find it.
- ___ n. Click **Add Action > Set Color** from the menu. The **Set Color** action is added to the table.
- ___ o. Click the **Action Attribute Value** column, to the right of **condition**. Click the expression editor button when it is displayed, and then enter `Order_Status eq 'Canceled'` in the Expression Window.
- ___ p. Click **OK**.
- ___ q. Click the **Action Attribute Value** column, to the right of **fill color**. Click the color editor button when it is displayed, and then select one of the **red** colors. The hexadecimal representation for the red color that you selected is displayed in the **Action Attribute Value** column.
- ___ r. Click **OK**.



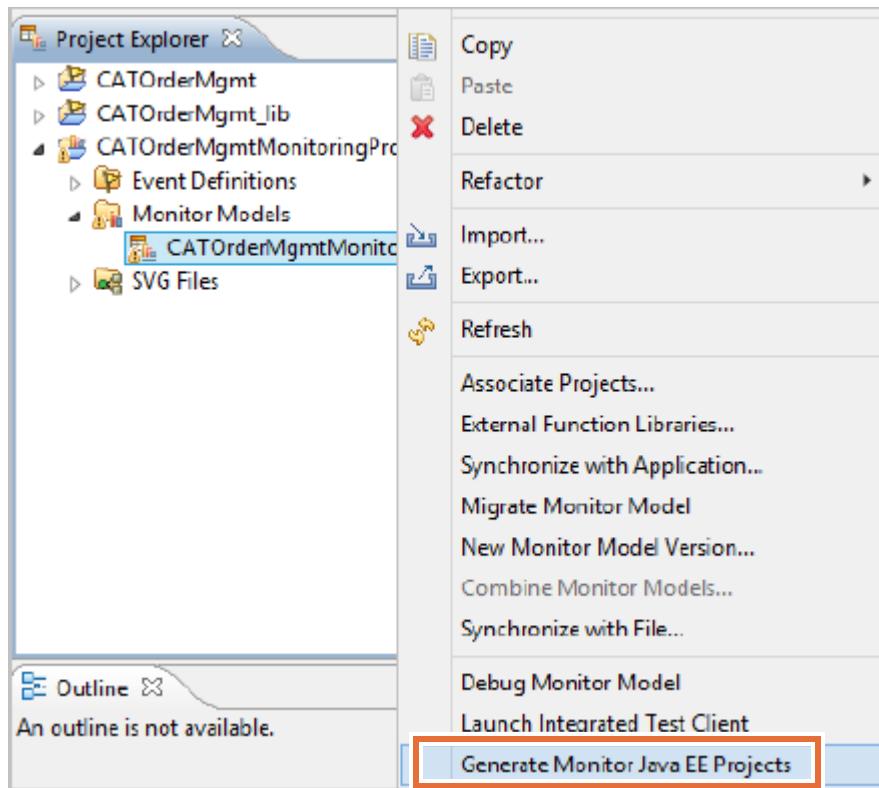
Depending on the shade of red that you selected, the hexadecimal color value might be different from the value that is shown here.

- ___ s. Press **Ctrl+S** to save the workspace.
- ___ t. Wait for the workspace build to complete.
- ___ u. Close the **LateOrderShippedEvent** tab.
- ___ v. Close the **CATOrderMgmtMonitoringModel** tab.

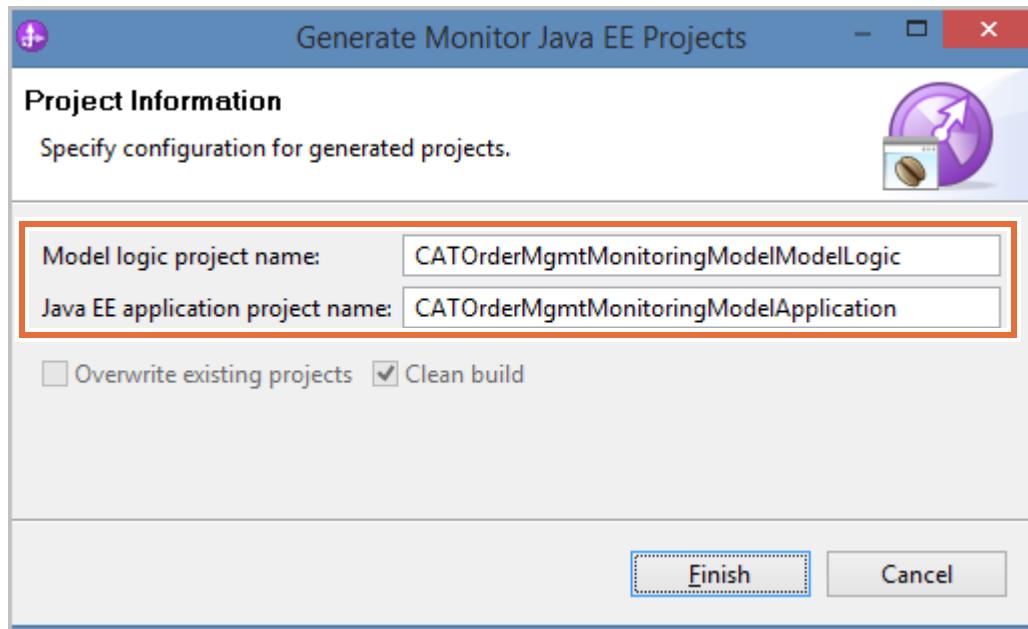
Part 7: Building the Monitor model: Exporting the EAR file

A Monitor model becomes a Java EE application that you run in an application server. You generate a Java Enterprise Edition application and export it as an EAR file. You then import the EAR file on the target application server.

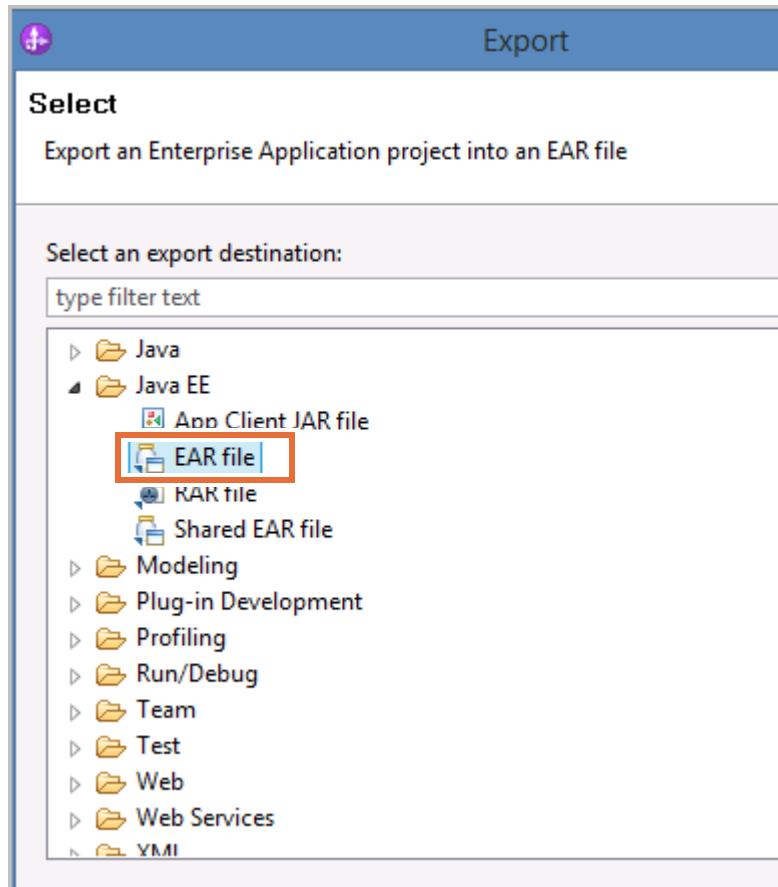
- 1. Clean the projects in the workspace.
 - a. From the menu bar, click **Project > Clean**.
 - b. Ensure that **Clean all projects** is selected; then, click **OK**.
 - c. When the operation is complete, the progress bar in the lower right corner disappears. There are no errors in the Problems view. There are a number of warnings and that is OK.
- 2. Generate the projects and export the EAR files.
 - a. In the **Project Explorer** view, under **CATOrderMgmtMonitoringProject > Monitor Models**, right-click **CATOrderMgmtMonitoringModel.mm** and click **Generate Monitor Java EE Projects**.



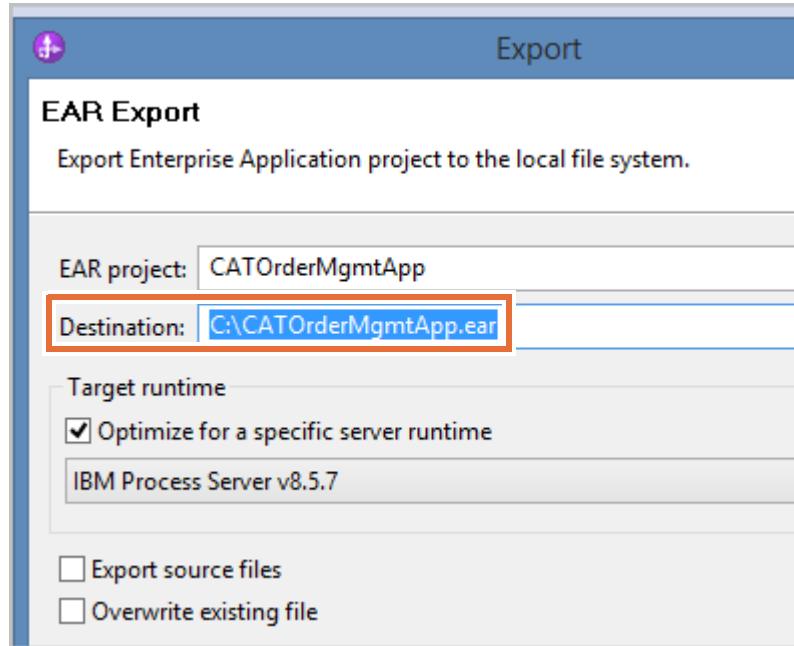
- __ b. Accept the default values in the Generate Monitor Java EE Projects window and click **Finish**.



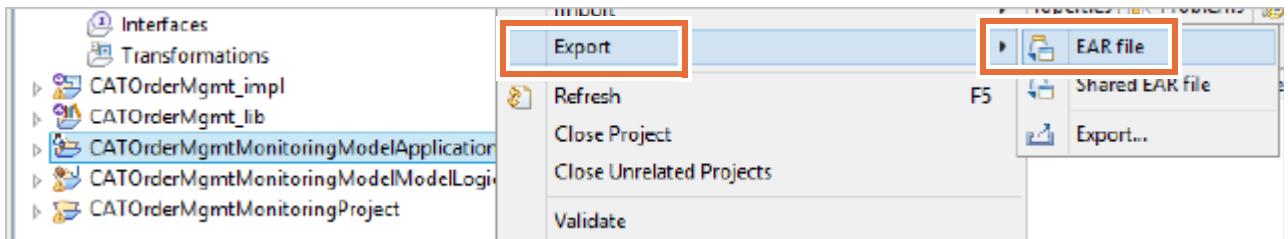
- __ c. Wait for the generate process to complete.
- __ d. From the menu, select **File > Export** and then in the Export window, go to **Java EE > EAR file**.



- __ e. Click **Next**.
- __ f. Leave the **EAR project** set to default value of **CATOrderMgmtApp**.
- __ g. For Destination, enter **C:\CATOrderMgmtApp.ear**

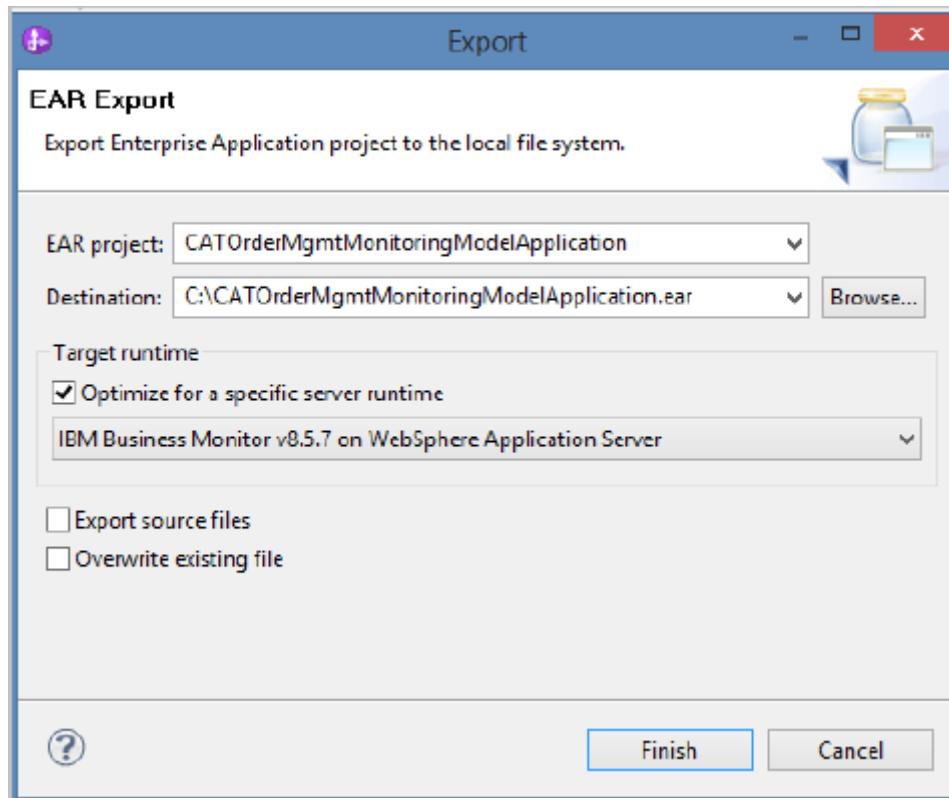


- __ h. Click **Finish** to export the EAR file.
- __ i. Open Windows Explorer and verify that the newly created EAR file is created under C:. Close Windows Explorer after the verification.
- __ j. From the menu bar, click **Window > Open Perspective > Other**; then, select **Business Integration (default)** from the Open Perspective window and click **OK** to switch to the Business Integration perspective.
- __ k. In the **Business Integration** view, right-click **CATOrderMgmtMonitoringModelApplication** and click **Export > EAR File**.



- __ l. In the **Destination** field, enter **C:\CATOrderMgmtMonitoringModelApplication.ear**

- m. In the **Target runtime** section, make sure **IBM Business Monitor v8.5.7 on WebSphere Application Server** is selected as the target server run time.



- n. Click **Finish** to export the EAR file.

Part 8: Starting the Monitor Server and Process Server

In the previous section, you created and exported the Monitor model for the ClipsAndTacks application. You also exported the business application that contains the business process. In this section, you deploy the Monitor model to the IBM Business Monitor server test environment. You also deploy the business module to the Process Server.

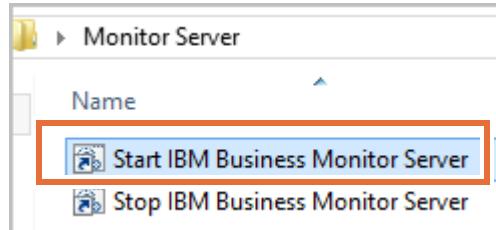
After the Monitor model is deployed to the server test environment, it then runs and processes events that the monitored business process emits in IBM Process Server.

- 1. Start the IBM Business Monitor server instance. If the Monitor server is still running from the previous exercise then skip to step 2 to start the Integration Designer test process server.
 - a. Locate the folder that is named **Monitor Server** on the desktop.

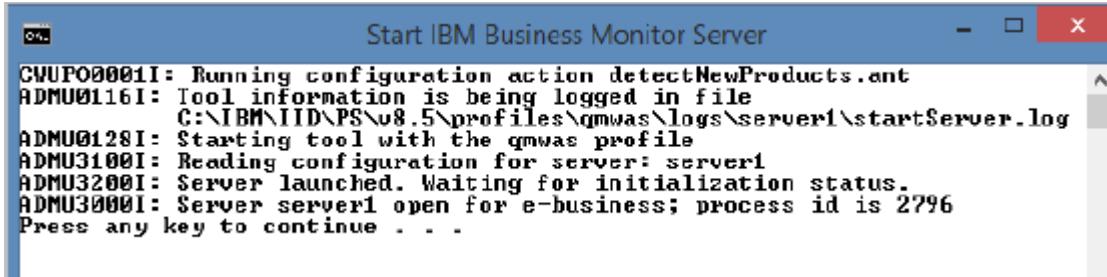


- b. Double-click the **Monitor Server** folder to open it.

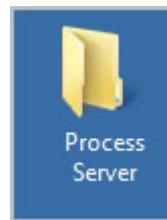
- ___ c. Select the shortcut that is titled: **Start IBM Business Monitor Server**.



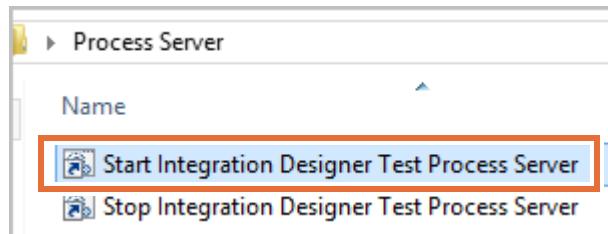
- ___ d. Double-click or press Enter to open the shortcut. It takes several minutes for Monitor Server to start. When the server starts, you are prompted to press any key to continue. Press any key to close the command window.



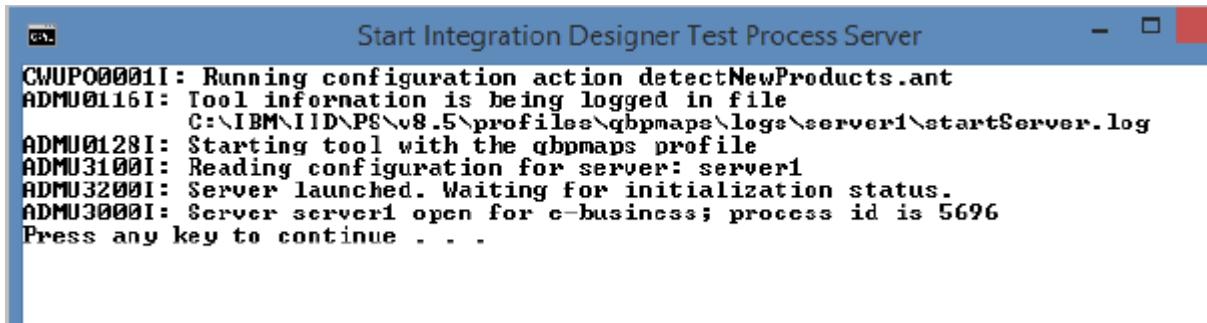
- ___ e. Minimize the Monitor Server folder. You come back to this folder at the end of this exercise to shut down the Monitor Server.
- ___ 2. Start the Integration Designer Test Process Server.
- ___ a. Locate the folder that is named **Process Server** on the desktop.



- ___ b. Double-click the **Process Server** folder to open it.
- ___ c. Select the shortcut that is titled: **Start Integration Designer Test Process Server**.



- ___ d. Double-click or press Enter to open the shortcut. It takes several minutes for Process Server to start. When the server starts, you are prompted to press any key to continue. Press any key to close the command window.



```

CWUPO0001I: Running configuration action detectNewProducts.ant
ADMU0116I: Tool information is being logged in file
C:\IBM\IID\PS\v8.5\profiles\qbpmaps\logs\server1\startServer.log
ADMU0128I: Starting tool with the qbpmaps profile
ADMU3100I: Reading configuration for server: server1
ADMU3200I: Server launched. Waiting for initialization status.
ADMU3000I: Server server1 open for e-business; process id is 5696
Press any key to continue . . .

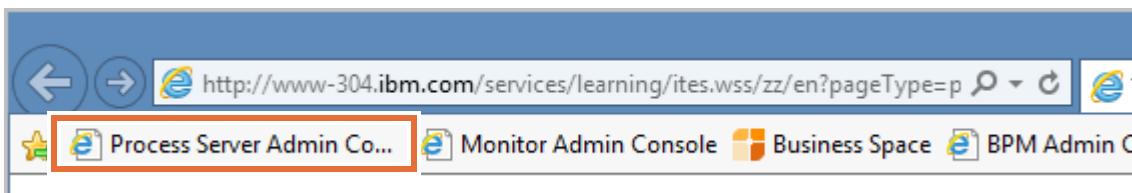
```

- ___ e. Minimize both the Process Server folder. You come back to this folder at the end of this exercise.

Part 9: Deploying the Monitor model and business process application

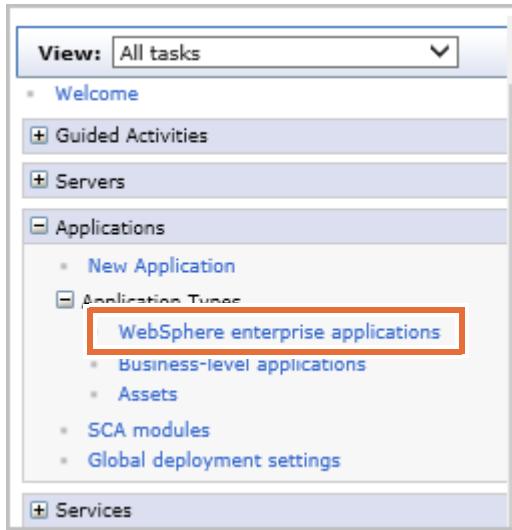
In this portion of the exercise, you deploy the EAR files. After the Monitor model is deployed to the server test environment, it then runs and processes events that the monitored business process emits in IBM Process Server.

- ___ 1. Start the Process Server administrative console.
 - ___ a. Start an instance of Internet Explorer by double-clicking the **Internet Explorer** shortcut on the desktop. (If the browser is still open from the previous exercise then skip this step)
 - ___ b. When the browser opens, click the **Process Server Admin Console** tab. A shortcut link to the Monitor Administrative console is already created for you. The link opens the following page: <https://localhost:9043/ibm/console/logon.jsp>

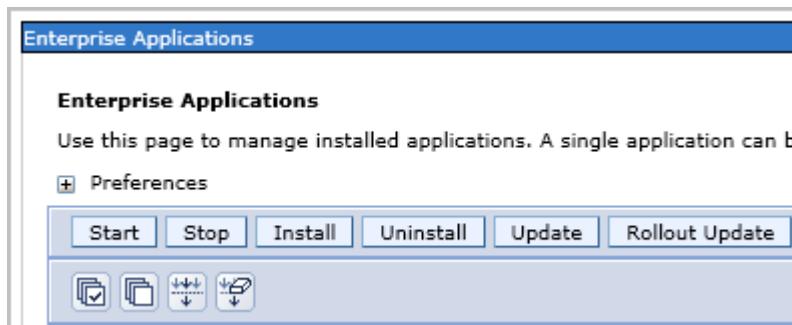


- ___ a. Click **Continue to this website (not recommended)**.
- ___ b. At the Login page, enter admin in the **User ID** field and web1sphere in the **Password** field.
- ___ c. Click **Log in**.

- __ 2. Deploy CATOrderMgmtApp to the Process Server by using the administrative console.
- __ a. From the administrative console, select **Applications > Application Types > WebSphere enterprise applications**.

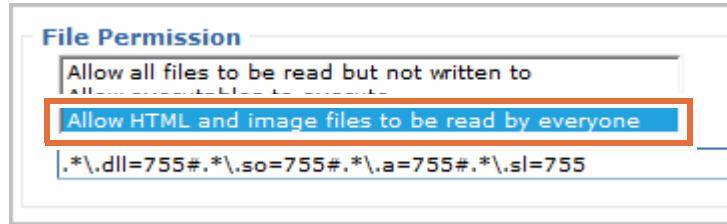


- __ b. A table that shows all currently installed enterprise applications is displayed. Click **Install**.



- __ c. In the **Path to the new application** section, to the right of **Local file system**, click **Browse** and go to `C:\` drive. This is where you exported the `CATOrderMgmtAPP.ear` file.
- __ d. Select `CATOrderMgmtApp.ear` and then click **Open**.
- __ e. Click **Next**.
- __ f. For **How do you want to install the application**, ensure that **Detailed – Show all installation options and parameters** is selected, and click **Next**.

- __ g. The installation options window is displayed. For **Step 1: Select Installation options**, scroll to the **File permissions** section, click **Allow HTML and image files to be read by everyone**, and then click **Next**.



This action populates the permissions field.

- __ h. Scroll down and click **Step 10: Summary**, review the information and click **Finish**. The server installs the application, and displays status messages during the installation process.



Note

If you see exceptions in the **Console** view, and the message `The installation of application CATOrderMgmtApp failed` is displayed in the administrative console, log out of the administrative console. Restart the server, and complete the steps to install the application again.

- __ i. When the installation is complete, the message `Application CATOrderMgmtApp installed successfully` is shown in the administrative console view. It might be necessary to scroll down to see the message.

`Application CATOrderMgmtApp installed successfully.`

To start the application, first save changes to the master configuration.

Changes have been made to your local configuration. You can:

- [Save directly to the master configuration.](#)
- [Review changes before saving or discarding.](#)

- __ j. Click the **Save** link to save the changes to the master configuration.
- __ k. When you return to the **Enterprise Applications** pane, the application starts automatically. It takes a few minutes, and you can click the twistie in the **Status** column to view the server status.

- I. If the application does not start, then, start it by selecting the check box next to the **CATOrderMgtApp** model and clicking **Start**.

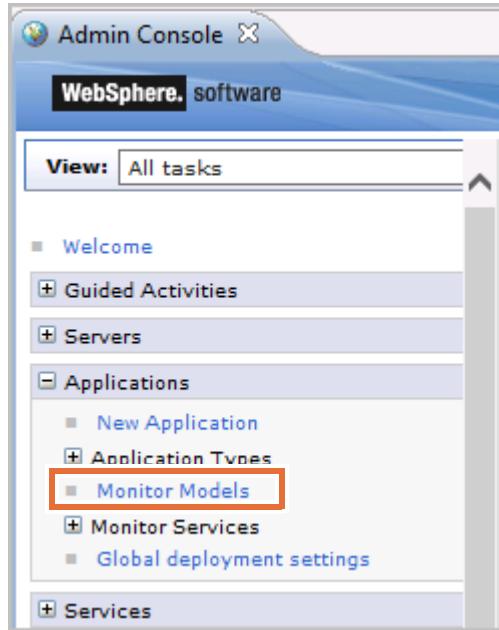
You can administer the following resources:		
	Name	Application Status
<input type="checkbox"/>	AppScheduler	
<input type="checkbox"/>	BPCExplorer_Node1_server1	
<input type="checkbox"/>	BPEContainer_Node1_server1	
<input type="checkbox"/>	BPMAuthorizationWidgets_Node1_server1	
<input type="checkbox"/>	BSpaceEAR_Node1_server1	
<input type="checkbox"/>	BSpaceForms_Node1_server1	
<input type="checkbox"/>	BSpaceHelp_Node1_server1	
<input type="checkbox"/>	Business.Rules.Manager_Node1_server1	
<input type="checkbox"/>	BusinessRules_Node1_server1	
<input checked="" type="checkbox"/>	CATOrderMgmtApp	
<input type="checkbox"/>	DefaultApplication	

- m. After the model is started, the icon in the **Status** column on the right changes from a red X to a green arrow.

<input type="checkbox"/>	BusinessRules_Node1_server1	
<input type="checkbox"/>	CATOrderMgmtApp	
<input type="checkbox"/>	DefaultApplication	
<input type="checkbox"/>	HTM_PredefinedTaskMsg_V8000_Node1_server1	

- 3. Deploy the **CATOrderMgmtMonitoringModelApplication** monitor model to the Monitor server by using the administrative console.
- a. In the open browser, click the **Monitor Admin Console** tab to switch to the Monitor Administrative console.
- b. If prompted, click **Continue to this website (not recommended)**.
- c. If prompted, enter **admin** in the **User ID** field and **web1sphere** in the **Password** field and click **Log in**.

- __ d. From the administrative console, select **Applications > Monitor Models**.

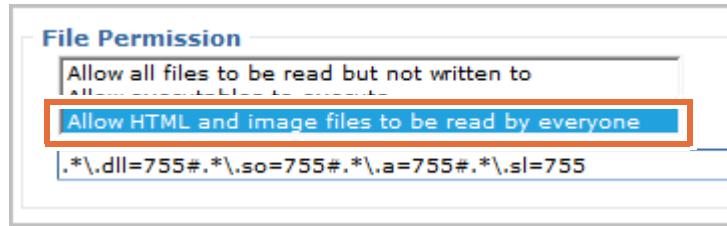


- __ e. A table that shows all currently installed Monitor models is displayed. If you completed the previous exercises, you see monitor models that are installed. Click **Install**.

Monitor Models						
Use this page to manage all versions of monitor models and their associated applications. To start or stop a version of a monitor model, you must start or stop the associated application. All models are initially added to the root resource group and may not be visible by its intended dashboard users. Use the Monitor data security panel to assign permission to the models.						
<input type="button" value="Start"/> <input type="button" value="Stop"/> <input type="button" value="Install"/>						
<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>						
Select	Model	Version	Deployment	Application	Data Security	Stat
<input type="checkbox"/>	BetterClaimsProcessingBAM	2014-12-02T10:10:03	OK	BetterClaimsProcessingBAMApplication	Members assigned	
<input type="checkbox"/>	MortgageLendingBAMShowcase	2013-09-09T18:00:00	OK	BetterLenderApplication	Members assigned	
Total 2						

- __ f. In the **Path to the new application** section, to the right of **Local file system**, click **Browse** and go to `C:\` drive. This is where you exported the `CATOrderMgmtMonitoringModelApplication.ear` file.
- __ g. Select `CATOrderMgmtMonitoringModelApplication.ear` and then click **Open**.
- __ h. Click **Next**.
- __ i. For **How do you want to install the application**, ensure that **Detailed – Show all installation options and parameters** is selected, and click **Next**.
- __ j. Click **Continue** in the next screen. The installation options window is displayed.

- __ k. For **Step 1: Select Installation options**, scroll to the **File permissions** section, click **Allow HTML and image files to be read by everyone**, and then click **Next**.



This action populates the permissions field.

- __ l. Click **Step 14:Select event sources**.
- __ m. In the Event sources page, make sure that **Dynamic Event Framework event source on localhost** is selected under Select column. There are two DEF event sources. One is the default for Monitor Server which is already selected. The other is for the Process Server that you select now.

Event Sources			
Select	Display Name	Version Support	Status
<input type="checkbox"/>	(Deprecated) CEI event source on local host at qcell-qnode-server1	<input checked="" type="checkbox"/> V7.5.0.0+ <input checked="" type="checkbox"/> V7.0.0.0	
<input checked="" type="checkbox"/>	Dynamic Event Framework event source on localhost	<input checked="" type="checkbox"/> V8.5.5.0+	
<input checked="" type="checkbox"/>	Dynamic Event Framework event source on local host	<input checked="" type="checkbox"/> V8.5.5.0+	



Important

There are two DEF event sources. One is the default for Monitor Server. The other is for the Process Server. Make sure to select both or else you do not get correct behavior in the business space later in this exercise.

-
- __ n. Click **Next**.
- __ o. Scroll down and click **Step 16: Summary**, review the information. Click **Finish**. The server installs the Monitor model, and displays status messages during the installation process.
-



Note

If you see exceptions in the **Console** view, and the message `The installation of application CATOrderMgmtMonitoringModelApplication failed` is displayed in the administrative console, log out of the administrative console. Restart the server, and complete the steps to install the application again.

- ___ p. When the installation is complete, the message Application CATOrderMgmtMonitoringModelApplication installed successfully is shown in the administrative console view. It might be necessary to scroll down to see the message.

The screenshot shows a success message: "Application CATOrderMgmtMonitoringModelApplication installed successfully." Below it, instructions say: "To start the application, first save changes to the master configuration." It also says: "Changes have been made to your local configuration. You can:" followed by two options: "Save directly to the master configuration." and "Review changes before saving or discarding."

- ___ q. Click the **Save** link to save the changes to the master configuration.
- ___ r. When you return to the **Monitor Models** pane, the model starts automatically, it takes a few minutes, and you can click the twistie in the Status column to view the server status.
- ___ s. After the model is started, the icon in the **Status** column on the right changes from a red X to a green arrow. It can take several minutes for the application to start because it must generate the Cognos data cubes.

Model	Version	Deployment	Application	Data Security	Status
BetterClaimsProcessingBAM	2014-12-02T10:10:03	OK	BetterClaimsProcessingBAMApplication	Members assigned	
CATOrderMgmtMonitoringModel	2015-01-20T11:36:54	OK	CATOrderMgmtMonitoringModelApplication	Members assigned	
MortgageLendingBAMShowcase	2013-09-09T18:00:00	OK	BetterLenderApplication	Members assigned	

Part 10: Reviewing the deployed monitor modules

Now you review the various components that were deployed by using the administrative console.

- 1. Review the monitor model in Monitor administrative console.
 - a. In the **Model** column, click **CATOrderMgmtMonitoringModel**. The properties of the model are displayed. Only one version of the model currently exists. It is possible to have multiple versions of a Monitor model. From here, you can do a number of administrative tasks on the model, including modifying how it is configured.

The screenshot shows a web-based administrative interface for managing monitor models. At the top left, there is a 'General' tab. Below it, the 'General Properties' section contains the following fields:

- Model:** CATOrderMgmtMonitoringModel
- Number of versions:** 1
- Resource group:** root

To the right of these fields is a 'Model Properties' sidebar with three options:

- Manage Scheduled Services
- Change resource group
- Purge model

At the bottom left of the main content area is a 'Back' button.

- b. Click **Back**.

- c. The **Application** column displays the application that is associated with the Monitor model. In this case, you see the **CATOrderMgmtMonitoringModelApplication** displayed. Click **CATOrderMgmtMonitoringModelApplication**. The properties of the application are displayed.

Monitor Models > CATOrderMgmtMonitoringModelApplication

Use this page to configure an enterprise application. Click the links to access pages for further configuring of the application or its modules.

Configuration

General Properties

- Name: CATOrderMgmtMonitoringModelApplication
- Application reference validation: Issue warnings

Detail Properties

- Target specific application status
- Startup behavior
- Application binaries
- Class loading and update detection
- Request dispatcher properties
- Custom properties
- View Deployment Descriptor
- Last participant support extension

Modules

- Manage Modules
- Metadata for modules
- Display module build IDs

Enterprise Java Bean Properties

- Default messaging provider references
- Application profiles
- EJB JNDI names

Client Module Properties

- Client module deployment mode

Database Profiles

- SQL profiles and pureQuery bind files

You can do a number of administrative tasks on the application to alter its properties or how it is run in the runtime server environment. Click any of these links if you want to explore, but do *not* change any values.

- d. To return to the previous page, click the **Monitor Models** link at the top of the page.

Monitor Models

Monitor Models > CATOrderMgmtMonitoringModelApplication

Use this page to configure an enterprise application. Click the links to access pages for further configuring of the application or its modules.

- e. Under the **Version** column for **CATOrderMgmtMonitoringModel**, click the date time stamp that is listed to view the model version details.

Select	Model ▲	Version	Deployment ▲
<input type="checkbox"/>	BetterClaimsProcessingBAM	2014-12-02T10:10:03	OK
<input type="checkbox"/>	CATOrderMgmtMonitoringModel	2015-01-20T11:56:54	OK
<input type="checkbox"/>	MortgageLendingBAMShowcase	2013-09-09T18:00:00	OK
Total 3			

- f. Confirm that the **Event consumption mode** is CreateNewInstances and **Active MC instances** is 0. It is important that the event consumption mode is not inactive.

General Properties

Model
CATOrderMgmtMonitoringModel

Version
2015-01-20T11:56:54

Application
CATOrderMgmtMonitoringModelApplication

Event consumption mode
CreateNewInstances

Active MC instances
0

Deployment

- Dashboards enabled
- Schema created
- Cognos cubes created (optional)

Version Properties

- [Manage schema](#)
- [Manage Cognos cubes](#)
- [Change event sources](#)
- [Change event consumption mode](#)
- [Change runtime configuration](#)
- [View model](#)
- [Purge model version](#)

Manage Monitor Data

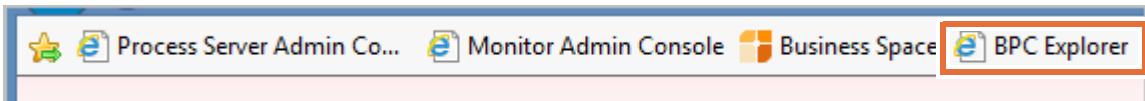
- [Export instance data](#)
- [Import instance data](#)
- [Purge and archive instance data](#)

- g. Leave the browser open.

Part 11: Creating process instances with the IBM Process Server Business Process Choreographer Explorer

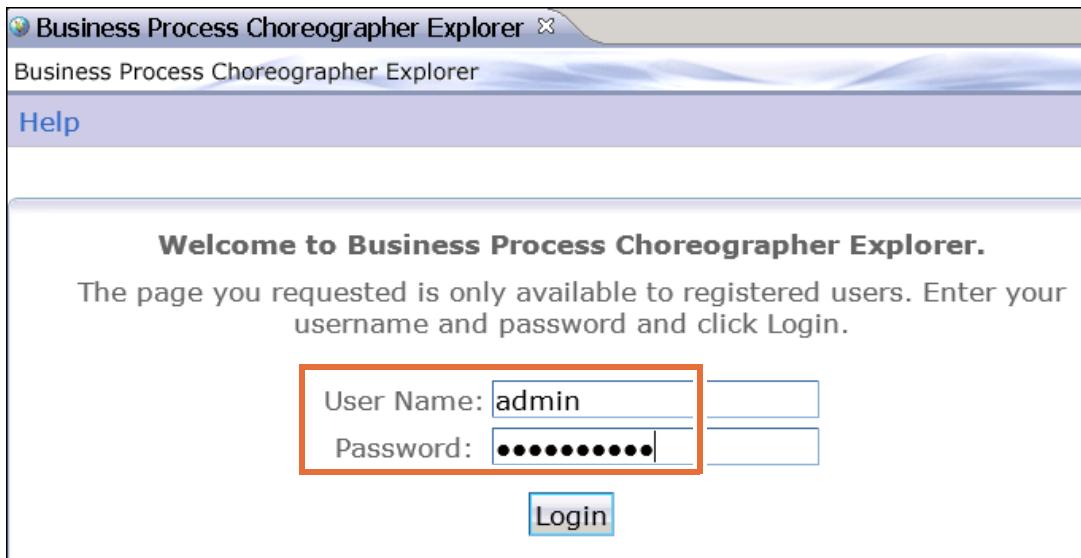
The BPC Explorer is a web-based user interface that is used for managing and viewing business process instances. In this section, you create process instances that result in events that are sent from the IBM Process Server to IBM Business Monitor. BPC Explorer was installed as a web application as part of the configuration of the IBM Process Server installation on this image.

- 1. Start the Business Process Choreographer Explorer.
- a. In Internet Explorer, click the shortcut link **BPC Explorer** to open the link:
<https://localhost:9443/bpc>



- b. Click **Continue to this website (not recommended)**.

- ___ c. If the session is timed out, then log in to the BPC Explorer. Enter `admin` for **User Name**, and `web1sphere` for **Password**; then, click **Login**.



Note

Because you enter a substantial amount of data in this exercise, you might want to maximize the Business Process Choreographer Explorer window to reduce the amount of scrolling you must do.

- ___ 2. Start the process instance.
- ___ a. In the **Process Templates** section on the left, select **Process Templates > All Versions**.



- ___ b. Click **Order Handling** under **Process Template Name**.

The process template details are displayed.

- ___ c. Click **Start Instance**.

Process Template

Use this page to view information about a process template. [i](#)

Start Instance Instances Versions View Structure

Process Template Description

Process Template Name	OrderHandling
Description	
Documentation	Order Handling

The Process Input Message window is displayed.

- ___ 3. Enter test values for the first test:

- ___ a. Enter **Test1** as the **Process Name**.

Process Input Message

Use this page to provide the input that is needed to start an instance of a process. [i](#)

Submit

Process Template Name Order Handling
Process Description
▶ Process Documentation

Operation InputCriterion

Process Name	Test1
Process Input Message	Form View
Input	Customer
	CustomerNumber

- ___ b. Enter **11** as the **CustomerNumber**.
 ___ c. Enter **AA** as the **CompanyName**.
 ___ d. Enter **A** as the **ContactFirstName**.
 ___ e. Enter **A** as the **ContactLastName**.
 ___ f. Enter **StreetA** as the **StreetAddress**.
 ___ g. Enter **CityA** as the **City**.
 ___ h. Enter **CountryA** as the **Country**.
 ___ i. Enter **11111** as the **PostalCode**.
 ___ j. Enter **A@A.com** as the **email**.

- ___ k. Leave **Rating** as 0.
 - ___ l. Enter 1000 as **AvailableCredit**.
 - ___ m. Enter 800 as the **TotalPrice**
 - ___ n. Use default values for all other fields.
- ___ 4. Click **Submit** (you must scroll up). It takes a few seconds for the data to be submitted. Wait for the submission to take place; do *not* click **Submit** more than once. The “All Versions of Templates” window is redisplayed.
- ___ 5. Start the second process instance.
- ___ a. Click **Order Handling** under **Process Template Name** again.

All Versions Of Templates

Use this page to view all versions of all process templates.

Instances	View Structure	Refresh
⋮⋮⋮ Process Template Name ⋮⋮⋮ Valid From ⋮⋮⋮		
<input type="checkbox"/> Order Handling	6/3/2008 12:39:57 PM PDT	
Items found: 1 Items selected: 0		

- ___ b. Click **Start Instance**.
- ___ 6. Enter the following values for the second test:
- ___ a. Enter Test2 as the **Process Name**.
 - ___ b. Enter 22 as the **CustomerNumber**.
 - ___ c. Enter BB as the **CompanyName**.
 - ___ d. Enter B as the **ContactFirstName**.
 - ___ e. Enter B as the **ContactLastName**.
 - ___ f. Enter StreetB as the **StreetAddress**.
 - ___ g. Enter CityB as the **City**.
 - ___ h. Enter CountryB as the **Country**.
 - ___ i. Enter 22222 as the **PostalCode**.
 - ___ j. Enter B@B.com as the **email**.
 - ___ k. Leave **Rating** as 0.
 - ___ l. Enter 1000 as **AvailableCredit**.
 - ___ m. Enter 1400 as the **TotalPrice**.
 - ___ n. Enter APPROVED as the **OrderStatus**.

- ___ o. Use default values for all other fields.

TotalPrice	1400
OrderNumber	0
OrderStatus	APPROVED
ProcessingPreference	automaticApproval

- ___ 7. Click **Submit**. Wait for the submission to take place. The “All Versions of Templates” window is redisplayed.
- ___ 8. Start the third process instance.
 - ___ a. Click **Order Handling** under **Process Template Name**.
 - ___ b. Click **Start Instance**.
- ___ 9. Enter the following values for the third test:
 - ___ a. Enter **Test3** as the **Process Name**.
 - ___ b. Enter **33** as the **CustomerNumber**.
 - ___ c. Enter **cc** as the **CompanyName**.
 - ___ d. Enter **c** as the **ContactFirstName**.
 - ___ e. Enter **c** as the **ContactLastName**.
 - ___ f. Enter **StreetC** as the **StreetAddress**.
 - ___ g. Enter **CityC** as the **City**.
 - ___ h. Enter **CountryC** as the **Country**.
 - ___ i. Enter **33333** as the **PostalCode**.
 - ___ j. Enter **c@c.com** as the **email**.
 - ___ k. Leave **Rating** as 0.
 - ___ l. Enter **1000** as **AvailableCredit**.
 - ___ m. Enter **1400** as the **TotalPrice**.
 - ___ n. Enter **DECLINED** as the **OrderStatus**.
- ___ 10. Click **Submit**. Wait for the submission to take place. The “All Versions of Templates” window is redisplayed.
- ___ 11. Start the fourth process instance.
 - ___ a. Click **Order Handling** under **Process Template Name**.
 - ___ b. Click **Start Instance**.
- ___ 12. Enter the following values for the fourth test:
 - ___ a. Enter **Test4** as the **Process Name**.
 - ___ b. Enter **44** as the **CustomerNumber**.

- c. Enter DD as the **CompanyName**.
 - d. Enter D as the **ContactFirstName**.
 - e. Enter D as the **ContactLastName**.
 - f. Enter StreetD as the **StreetAddress**.
 - g. Enter CityD as the **City**.
 - h. Enter CountryD as the **Country**.
 - i. Enter 44444 as the **PostalCode**.
 - j. Enter D@D.com as the **email**.
 - k. Leave **Rating** as 0.
 - l. Enter 1000 as **AvailableCredit**.
 - m. Enter 2000 as the **TotalPrice**.
13. Click **Submit**. Wait for the submission to take place. The “All Versions of Templates” window is redisplayed.
14. Start the fifth process instance.
- a. Click **Order Handling** under **Process Template Name**.
 - b. Click **Start Instance**.
15. Enter the following values for the fifth test:
- a. Enter Test5 as the **Process Name**.
 - b. Enter 55 as the **CustomerNumber**.
 - c. Enter EE as the **CompanyName**.
 - d. Enter E as the **ContactFirstName**.
 - e. Enter E as the **ContactLastName**.
 - f. Enter StreetE as the **StreetAddress**.
 - g. Enter CityE as the **City**.
 - h. Enter CountryE as the **Country**.
 - i. Enter 55555 as the **PostalCode**.
 - j. Enter E@E.com as the **email**.
 - k. Leave **Rating** as 0.
 - l. Enter 200 as **AvailableCredit**.
 - m. Enter 800 as the **TotalPrice**.
 - n. Enter DECLINED as the **OrderStatus**.
16. Click **Submit**. Wait for the submission to take place. The “All Versions of Templates” window is redisplayed.

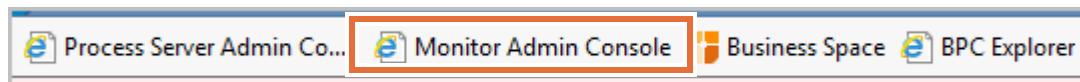
You now have five process instances that started, each with different test values. The monitor server processes those instances and generated events.

- ___ 17. Leave the browser open.

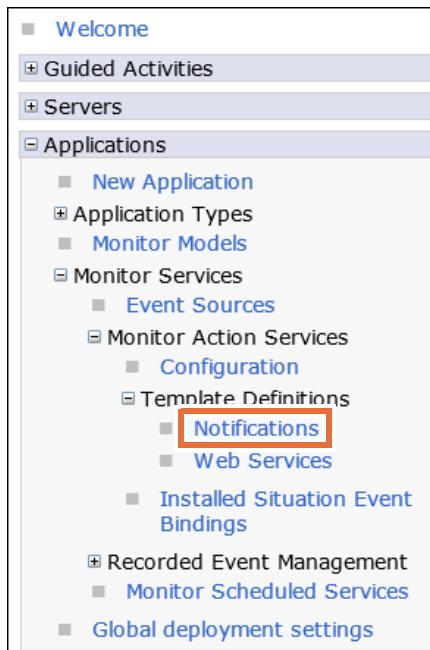
Part 12: Creating the Late Order Shipped Alert template

Monitor action services are used to notify the appropriate audience about events that occur in a model. These notifications can take the form of a dashboard alert, an email, a call to a cell phone, or a call to a pager. A systems administrator creates an action template, which defines the delivery type, subject, and body of the notification, and defines which users receive alert notifications. The cell phone and pager types are email delivery types that the cell phone or pager provider processes and sends to the cell phone or pager device. In this part, you create an alert to be sent to the *admin* user if an order handling process takes longer than three days.

- ___ 1. Switch to the **Monitor Admin Console** tab.

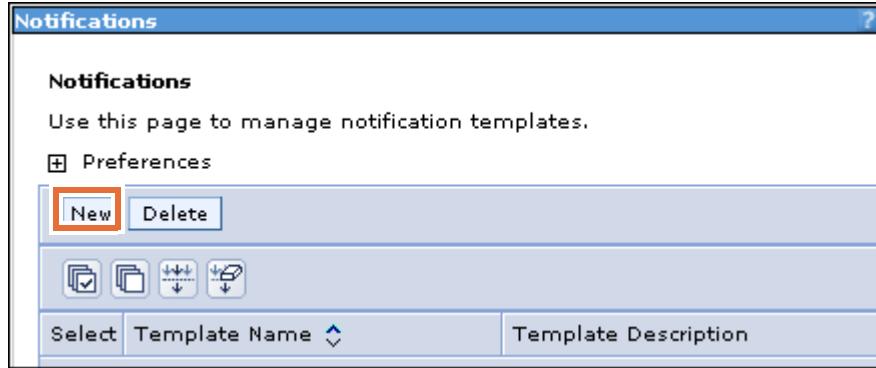


- ___ 2. Log in if needed with the user `admin` and password `web1sphere`.
- ___ 3. In the **Task View**, expand **Applications > Monitor Services > Monitor Action Services > Template Definitions**.
- ___ 4. Click **Notifications**.



The Notifications page is displayed and the existing template definitions are shown.

- ___ 5. Click **New** to create a notification template.



- ___ 6. Enter the following values in the notification template.

- ___ a. Enter LateOrderShipmentAlert as the **Template name**.
- ___ b. Enter Late order shipment as the **Description**.
- ___ c. In the **Default action service type**, select **Dashboard Alert**.
- ___ d. In the 'To' query type section, select **User id**.

The screenshot shows the 'Notification Template Configuration' dialog. It has a header 'Notification Template Configuration' and a section 'General Properties' with a 'Template name' field containing 'LateOrderShipmentAlert'. Below it is a 'Description' field with the value 'Late order shipment'. Under 'Default action service type', the radio button 'Dashboard Alert' is selected. In the 'To' query type section, the radio button 'User id' is selected. Other options in this section include 'Federated repositories query', 'LDAP query', and 'Email address'.

- ___ e. Enter admin in the **To** field. It is the user ID that receives the notification alert.
- ___ f. Enter Late order shipment as the **Subject**.

- g. For the **Body** of the notification, enter the following text:

Processing time of the order with order number %OrderNumber% is taking too long: %OrderProcessingTime% minutes.

- h. Click **OK**. The template is saved.

To
admin

Query base

Owner
admin

Priority
3

Subject
Late order shipment

Body

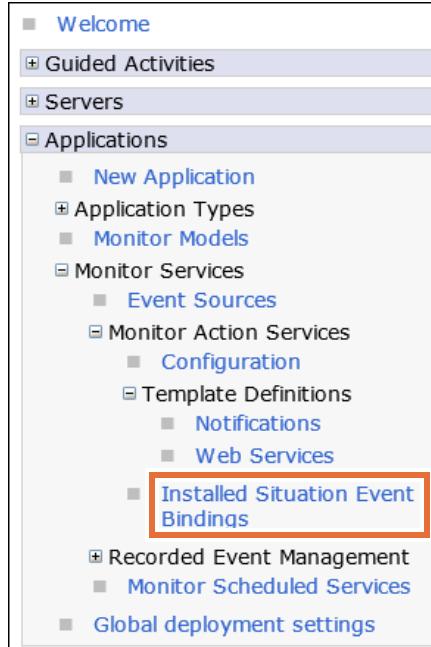
Processing time of the order with order number %OrderNumber% is taking too long: %OrderProcessingTime% minutes.

Apply OK Reset Cancel

After creating the alert action template, you bind the situation event to the action service by associating the alert action template with a situation event. The monitor action services receive situation events, parse the received events, and select an appropriate action by looking up the action in the action catalog, where information about bindings is stored. Finally, the monitor action services run the selected action.

- 7. In the administration console **Task View**, expand **Applications > Monitor Services > Monitor Action Services**, if it is not already expanded.

— 8. Click **Installed Situation Event Bindings**.



The Installed Situations Event Bindings page is displayed.

— 9. Click **New** to create an event binding.

The screenshot shows the 'Installed Situation Event Bindings' page. The title bar says 'Installed Situation Event Bindings'. Below it is a section titled 'Installed Situation Event Bindings' with the sub-instruction 'Use this page to manage situation event bindings.' There is a 'Preferences' button. At the top right are 'New' and 'Delete' buttons, with 'New' highlighted by a red box. Below these are four small icons. At the bottom are three input fields: 'Select' (with a checkmark icon), 'Situation Event Name' (with a dropdown arrow icon), and 'Situation Event Description'.

- 10. Configure the event binding properties.
 - a. In the **General Properties** section, enter Order handling duration is too long as the **Situation event name**, and then click **Apply**.

The screenshot shows the 'Installed Situation Event Bindings' dialog box. At the top, it says 'Installed Situation Event Bindings > New Situation Event Binding'. Below that, a message says 'Use this page to bind one or more templates and their respective action services event.' A section titled 'New Situation Event Binding' contains a 'General Properties' table. The first row has a required field 'Situation event name' with the value 'Order handling duration is to' highlighted by a red box. The second row is for 'Description' with a large text area. At the bottom are four buttons: 'Apply' (highlighted with a red box), 'OK', 'Reset', and 'Cancel'.

Important

The name of the Situation Event that you create here must be entered **exactly** as shown here:
Order handling duration is too long

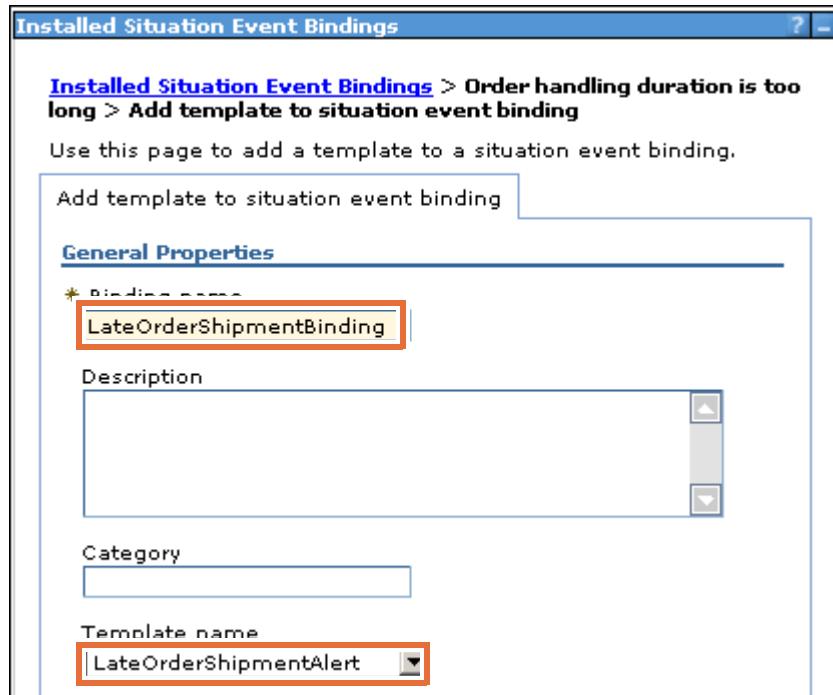
This entry matches with the BusinessSituationName attribute of the outbound event **LateOrderShippedEvent**, which you created earlier.

- b. In the **Preferences** section, click **Add** to add a template.

The screenshot shows the 'Preferences' dialog box. It has a header with a plus sign and the word 'Preferences'. Below is a toolbar with 'Add' (highlighted with a red box) and 'Remove' buttons, and icons for search, filter, and refresh. At the bottom are four dropdown menus: 'Select', 'Binding Name', 'Category Name', 'Template Name', and 'Action Service Type'.

- c. Enter **LateOrderShipmentBinding** as the **Binding name**.

- __ d. Select **LateOrderShipmentAlert** as the template name.



- __ e. Click **OK**.

You successfully added a template to the situation event binding.

Part 13: Starting the Business Space

- __ 1. In the browser, click the **Business Space** tab to open <https://localhost:9444/mum/enabler> and work with business space. You might need to click **Continue to this website (not recommended)**.
- __ 2. If prompted to log in, enter `admin` for the **User ID** and `web1sphere` for **Password**, and then click **Login**.

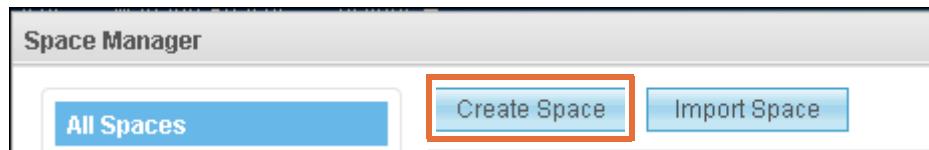
After several moments, Business Space opens.



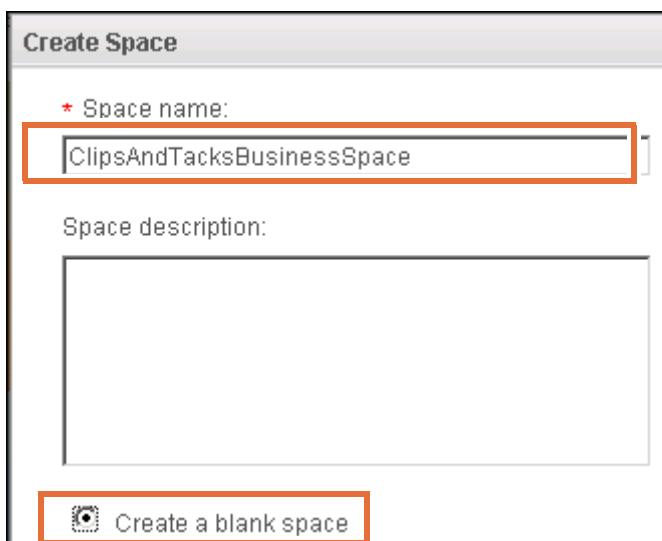
Note

While doing this exercise, in a period of inactivity, a **Connect to localhost** dialog box might be displayed. If it does, enter `admin` for **User name** and `web1sphere` for **Password**, and then click **OK**.

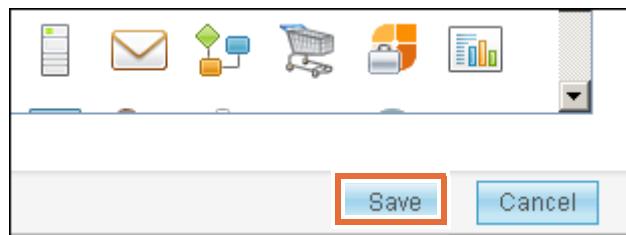
- __ 3. In the taskbar, click **Manage Spaces**. The Space Manager page is displayed.
- __ 4. Click **Create Space**.



- 5. Enter `ClipsAndTacksBusinessSpace` as the **Space name**. Select the **Create a blank space** option.



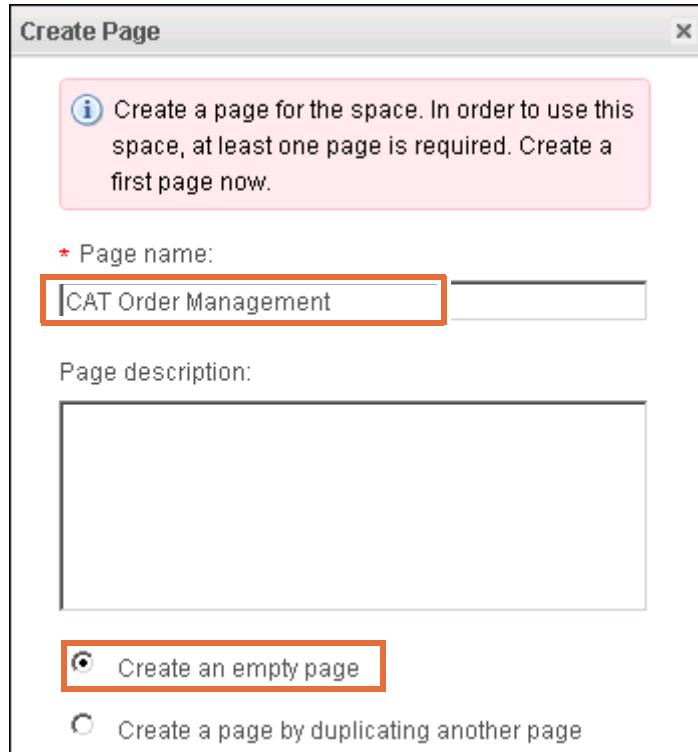
- 6. Click **Save** in the lower-right corner.



The `ClipsAndTacksBusinessSpace` is added to the list of business spaces.

- 7. In the Create Page window, enter `CAT Order Management` as the **Page name**.

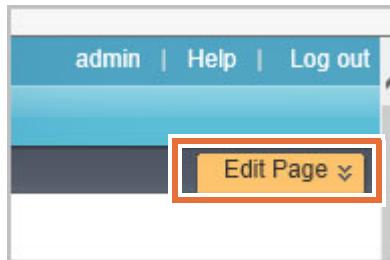
- __ 8. Select **Create an empty page**.



- __ 9. Click **OK**.

The Clips And Tacks Business Space is created.

- __ 10. Click **ClipsAndTacksBusinessSpace** in the Space Manager window.
__ 11. Click **Edit Page** in the upper-right corner of the page.



The widgets page is displayed. From here, you can select the widgets that you want to display on the dashboard.

Part 14: Creating an Instances widget

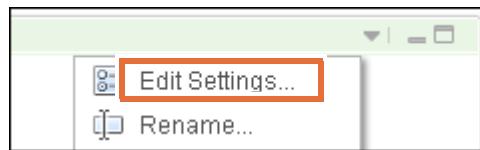
- __ 1. Under CAT Order Management, select **Business Monitoring (6)** from the list.
- __ 2. On the widgets page, click **Instances**. The layout of the widgets might not match the screen capture.
- __ 3. Click the plus sign (+) to the right of the **Instances** widget to add an Instances widget to the empty page.

Use this procedure to add all of the remaining widgets in this exercise.

- 4. In the upper-right corner of the newly added **Instances** widget, click the down arrow to open the options menu.

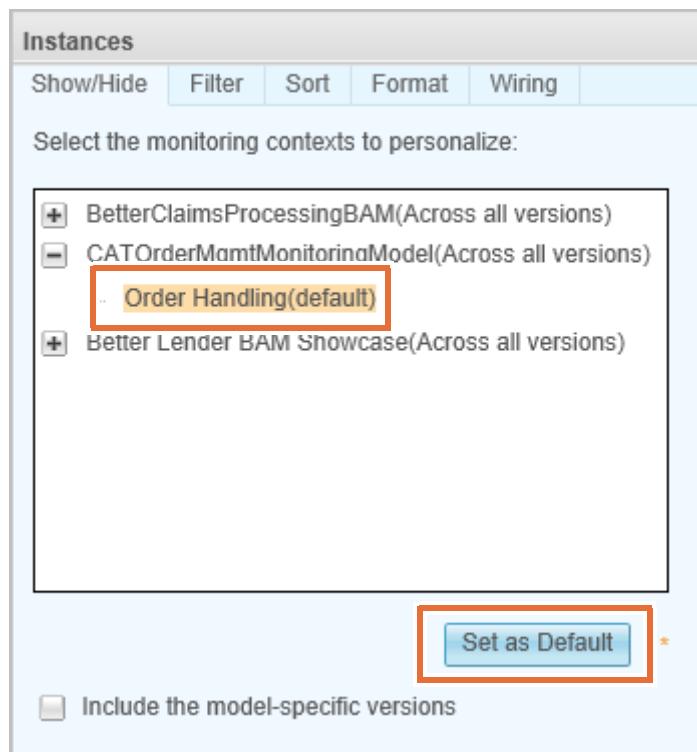


- 5. Click **Edit Settings**.

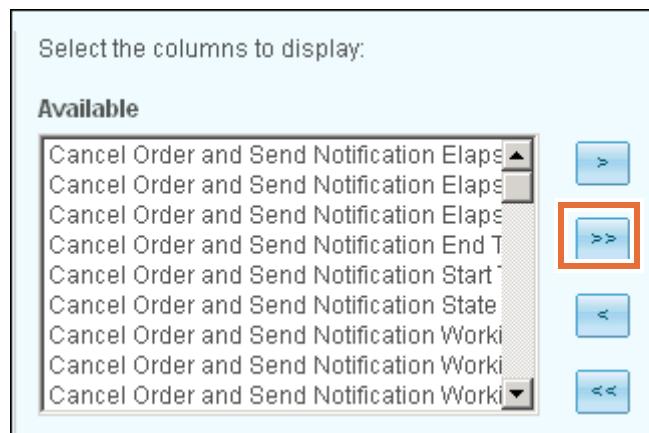


The Instances window opens.

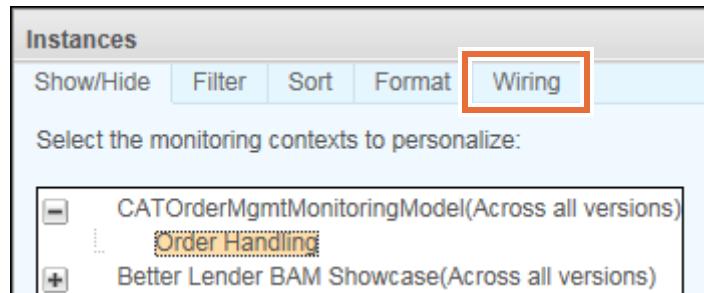
- 6. In the **Select the monitoring contexts to personalize** pane, expand **CATOrderMgmtMonitoringModel(Across all versions)**.
— 7. Click **Order Handling**, and then click **Set as Default**.



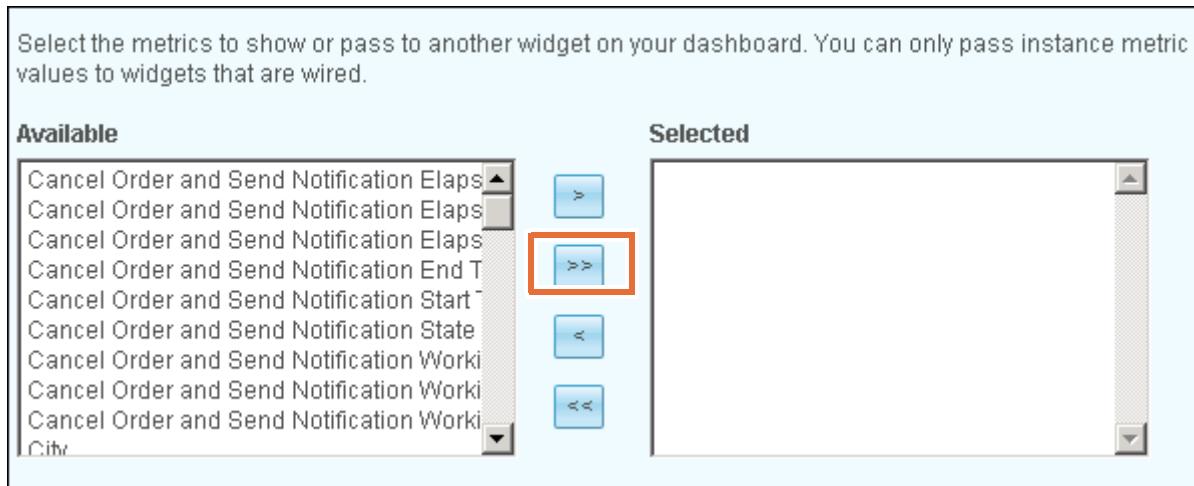
- 8. In the “Select the columns to display” pane, click >> to move all columns from the **Available** list to the **Selected** list.



- 9. Click the **Wiring** tab.



- 10. Click >> to move all columns from the **Available** list to the **Selected** list.



- 11. Click **Apply** (at the bottom of the window) to save the changes.



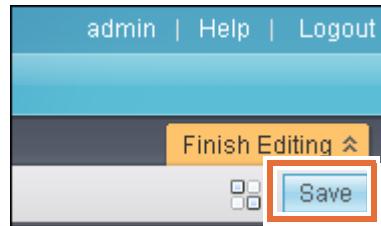
- 12. Click **OK** (at the bottom of the window) to save the changes and return to the instances widget.

The instance widget displays a list of monitoring context instances for the events that the test processes created in the earlier exercise emitted. The number and content of the instances that

are displayed might be different from the ones that are listed in the screen capture of the widget in the exercise. You need to scroll to the right to see the column **City**.

	Id ...	City	COMPLETED	Country	CreationTime	Order Fulfillme
	CityA	★		CountryA	January 24, 2015 12:29:... ...	7 h, 33 m, 30.29 s
	CityB	★		CountryB	January 24, 2015 7:44:... ...	17 m, 10.156 s
	CityC			CountryC	January 24, 2015 7:49:... ...	1 d, 17 h, 2 m, 3.156 s
	CityD	★		CountryD	January 24, 2015 7:51:... ...	6 m, 54.547 s
	CityE			CountryE	January 24, 2015 7:54:... ...	1 d, 16 h, 57 m, 3.156 s

- ___ 13. Click **Save** at the upper right to save the page.



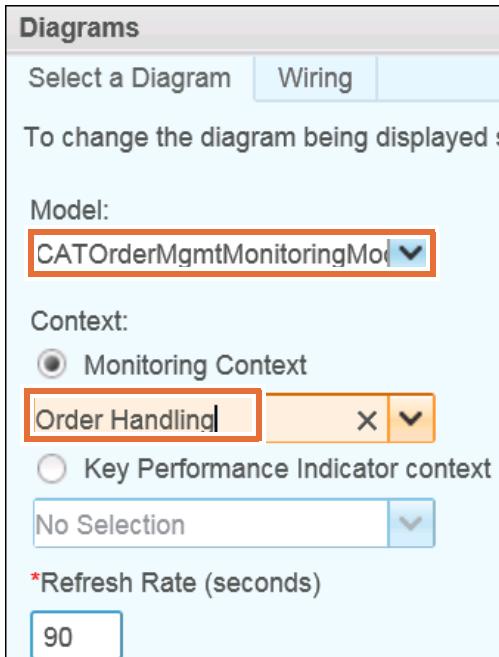
Part 15: Creating a Diagrams widget for monitoring context

- ___ 1. Click the plus sign (+) to the right of the **Diagrams** widget to add a Diagrams widget to the page.

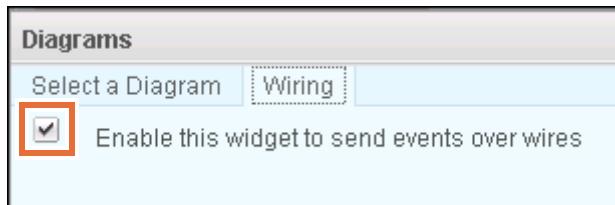


- ___ 2. In the upper-right corner of the newly added **Diagram** widget, click the down arrow link to open the options menu.
- ___ 3. Click **Edit Settings**. The Diagrams window opens.
- ___ 4. On the **Select a Diagram** tab, select **CATOrderMgmtMonitoringModel (Version YYYY-MM-DD hh:mm:ss)** from the **Model** menu.

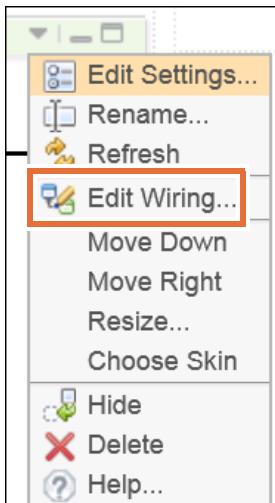
— 5. Select Order Handling from the Monitoring Context.



— 6. Click the **Wiring** tab and make sure that the **Enable this widget to send events over wires** check box is selected.

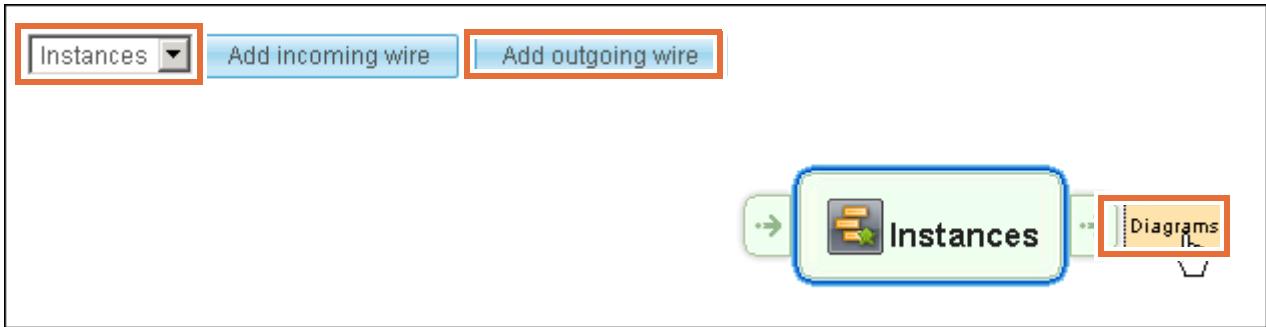


- 7. Click **OK** (at the bottom of the window) to save the changes and return to the diagram widget.
 — 8. In the upper-right corner of the Diagram widget, click the down arrow link to open the options menu and click **Edit Wiring**.

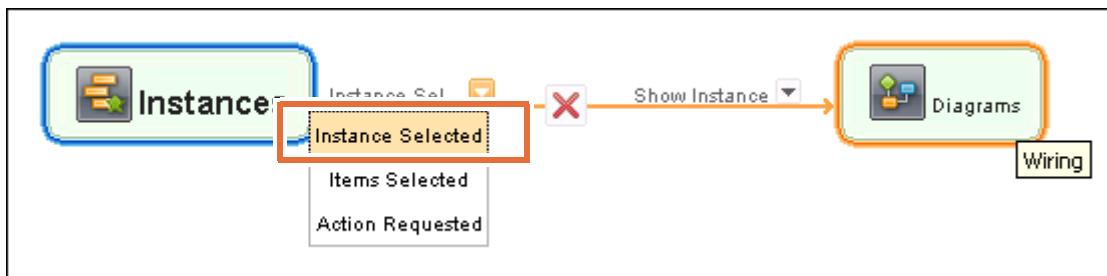


The Wiring window opens.

- ___ 9. Select **Instances** from the list.
- ___ 10. Click **Add outgoing wire**.
- ___ 11. Double-click the **Diagrams** box.

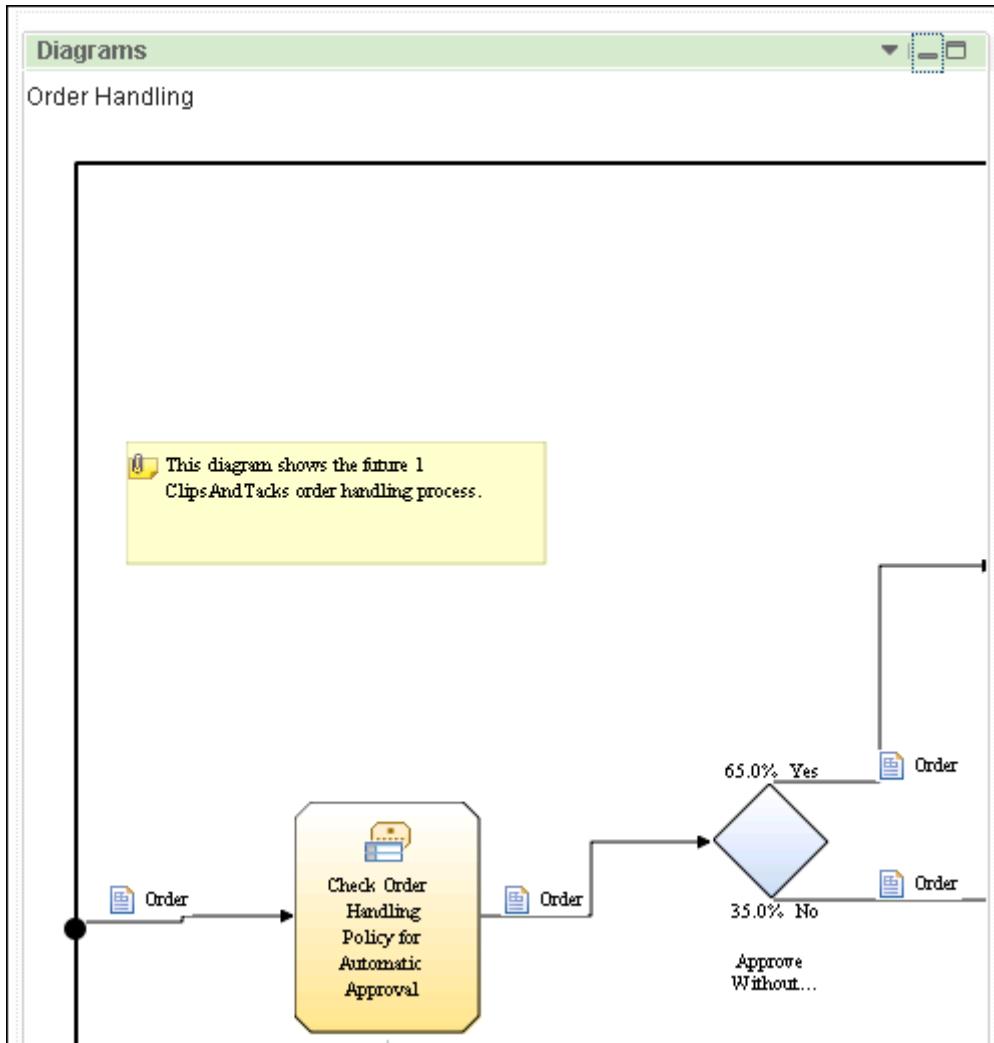


- ___ 12. A connection is created between the Instances and the Diagrams.
- ___ 13. Verify that **Instance Selected** is selected on the connection.



- ___ 14. Scroll down to click **OK**.

The SVG diagram is displayed in the widget.



- ___ 15. Click **Save** in the upper right to save the page.

Part 16: Creating a Report Designer widget

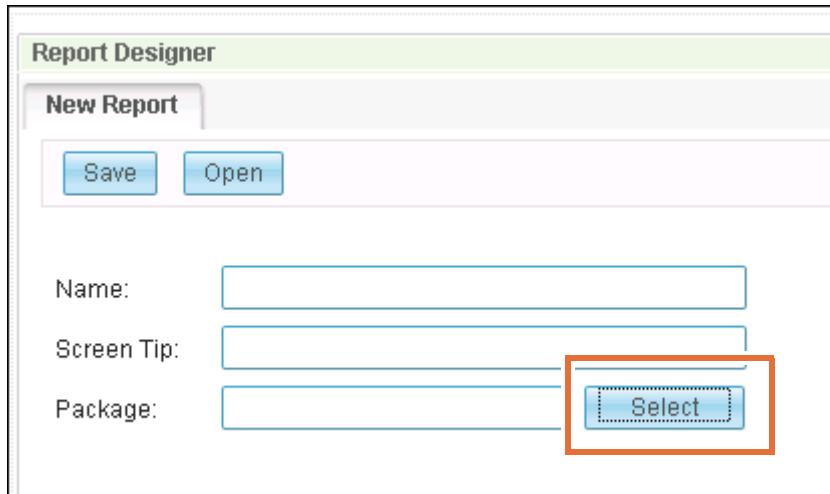
This section describes how to add a Report Designer widget to the dashboard.

- ___ 1. Click **Create a page** icon or the plus sign (+) next to the CAT Order Management page.



- ___ 2. Enter **Report and Analysis** for the page name.
- ___ 3. Click **OK**.
- ___ 4. Click **Edit Page** to edit the current page.
- ___ 5. Select **Business Monitoring Tools (3)** from the list.
- ___ 6. Add a **Report Designer** widget to the page.

- __ 7. In the **Report Designer** widget, under the **New Report** tab, click **Select** to the right of **Package**.



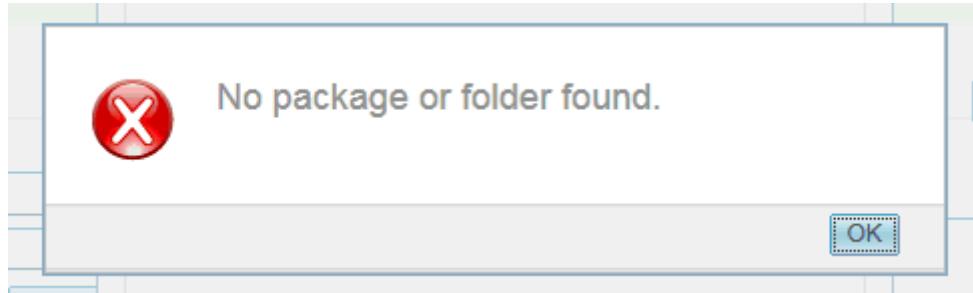
- __ 8. In the Select Package window, click **CATOrderMgmtMonitoringModel (YYYY-MM-DD hh:mm:ss)**.

- __ 9. Click **Order Handling**.



Note

If you have a problem with loading the packages, or there is no package or folder to be found, restart the monitor server and wait for a few minutes for the packages to load.



- __ 10. Click **OK**. Increase the size of the widget to get a full view.

- __ 11. Enter **CAT_Report** as **Name**.

Name: Select

Screen Tip:

Package: Select

CATOrderMgmtMonitoringModel (2011-06-08 18:04:51) > Order Handling

- 12. In the **Select the data that you want to include the report** section, select **Location** and **Measures**.

Select the data you want to include in the report:	
<input type="checkbox"/> Dimensions	<input checked="" type="checkbox"/> Measures
CreationTime	<input checked="" type="checkbox"/> InstancesCount
TerminationTime	<input checked="" type="checkbox"/> Order HandlingReceive Average Elapsed Duration
<input checked="" type="checkbox"/> Location	<input checked="" type="checkbox"/> Ship Order to Customer Average Elapsed Duration
	<input checked="" type="checkbox"/> Ship Order to Customer Average Working Duration
	<input checked="" type="checkbox"/> Review Order Average Elapsed Duration

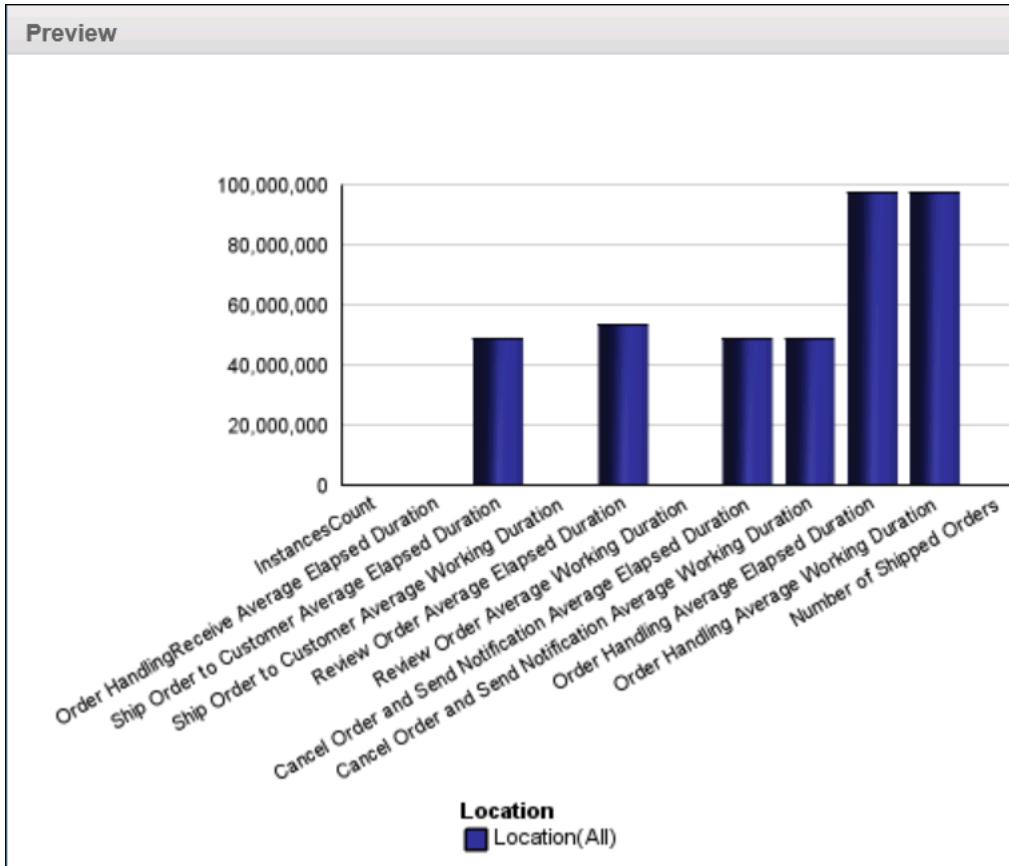
- 13. Click **Save** under the **New Report** tab.
 — 14. Click **OK** when the report is saved successfully.
 — 15. Click **Preview** to preview the reports. The **Preview** button is on the upper right. You must maximize the widget to see the Preview button.



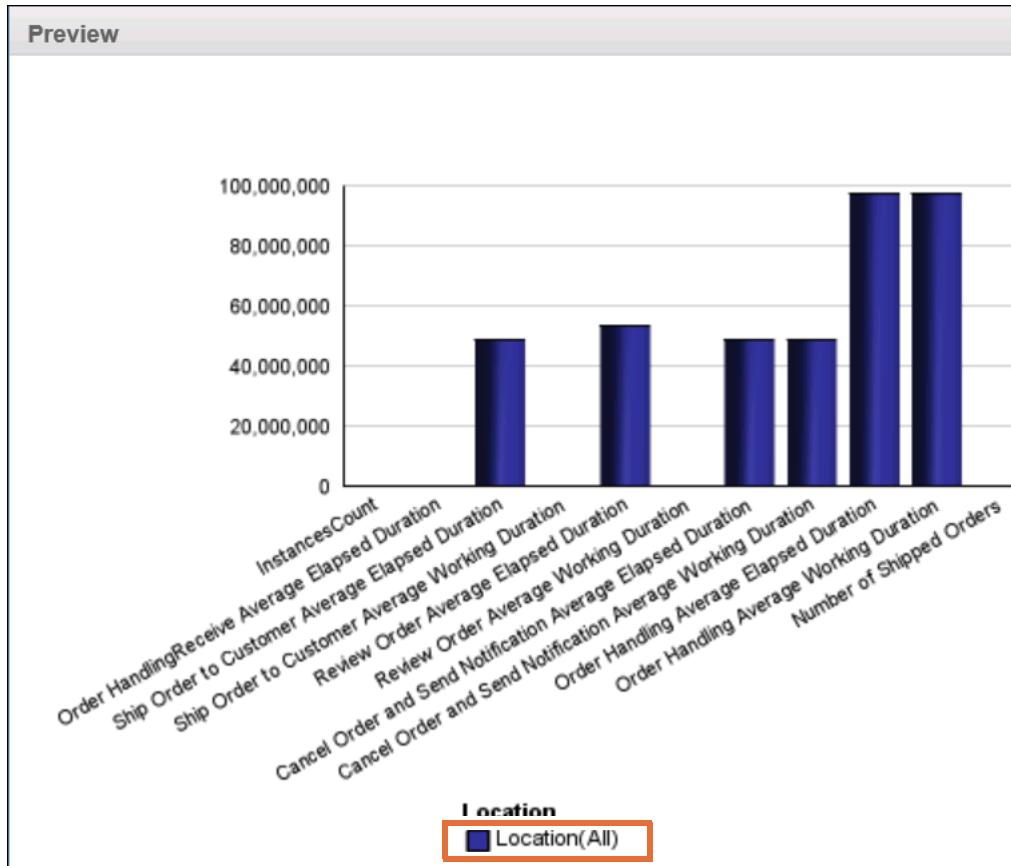
Note

The diagrams in the screen captures in the lab exercise might look different from the way your own screen looks, depending on the differences in the number of instances and sampling of data.

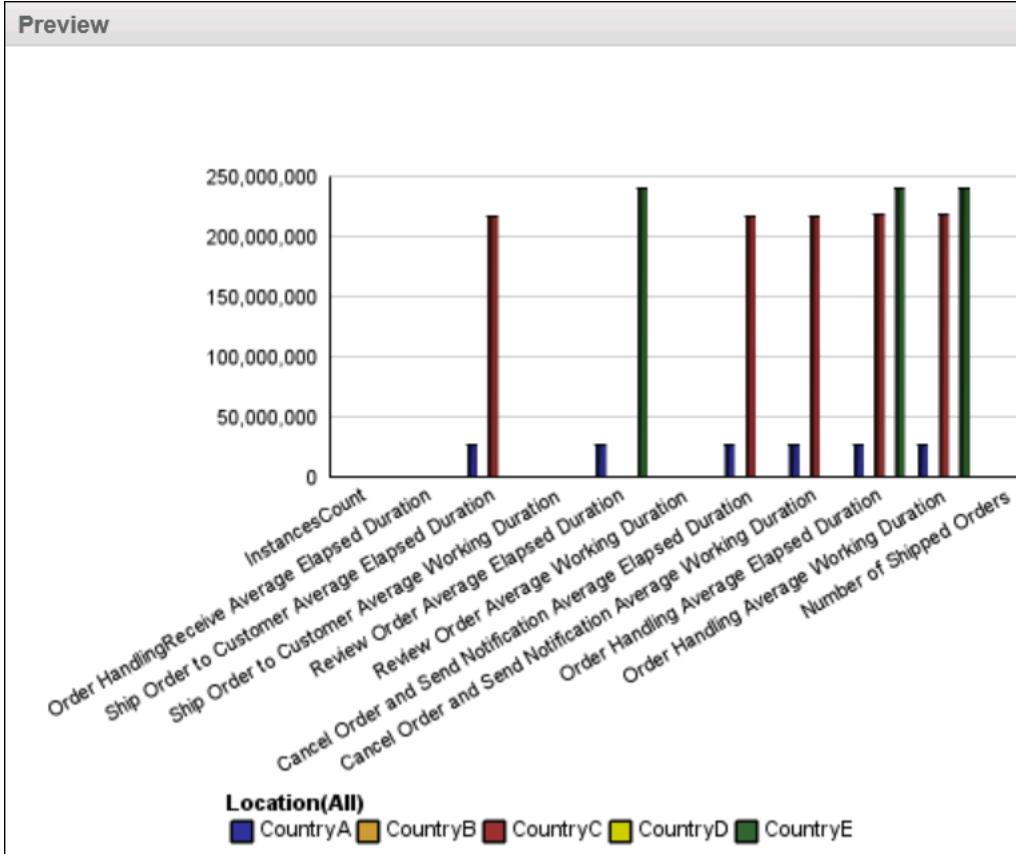
It takes a few moments to load the preview reports.



16. In the Preview window, double-click **Location (All)** to drill down to next dimension level.

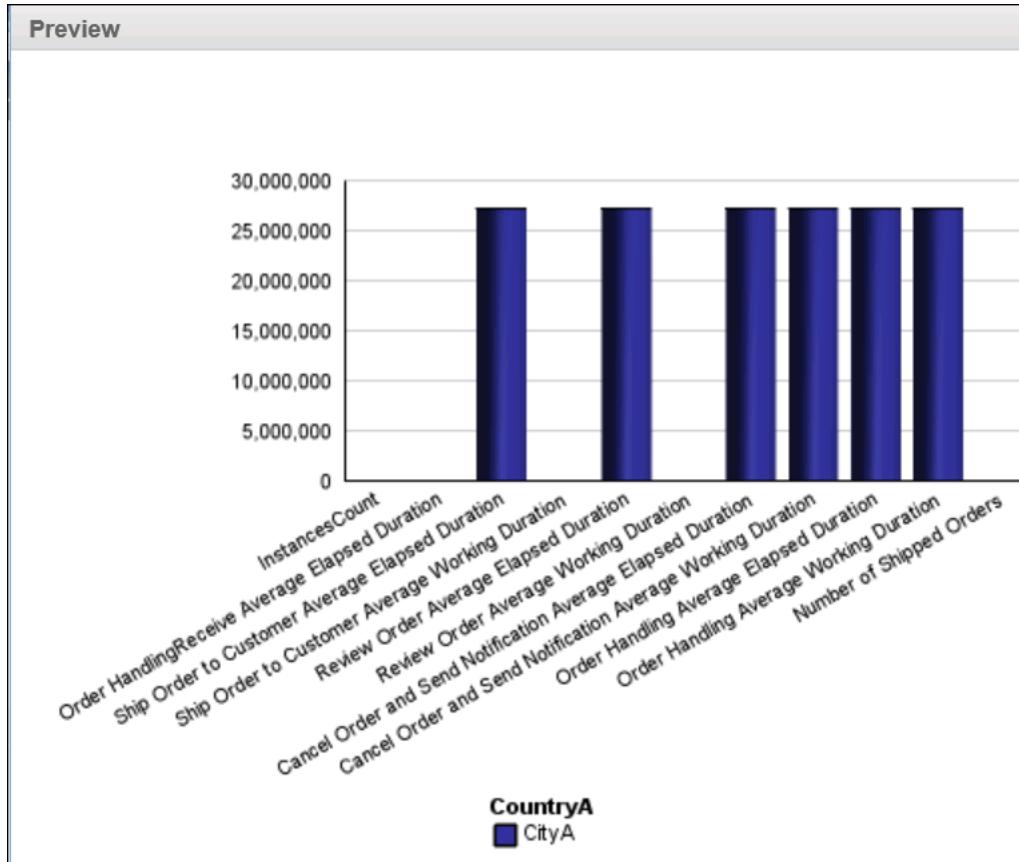


The next level, Country, is displayed. It takes few minutes to process the data.



17. In the Preview window, double-click **CountryA** to drill down to the next dimension level.

The next level, CityA, is displayed.



- 18. Click **Close** to close the Preview window when finished. Optionally, you can click **X** at the upper corner of the widget to close it.
- 19. Click **Save** in the upper-right corner to save the page.

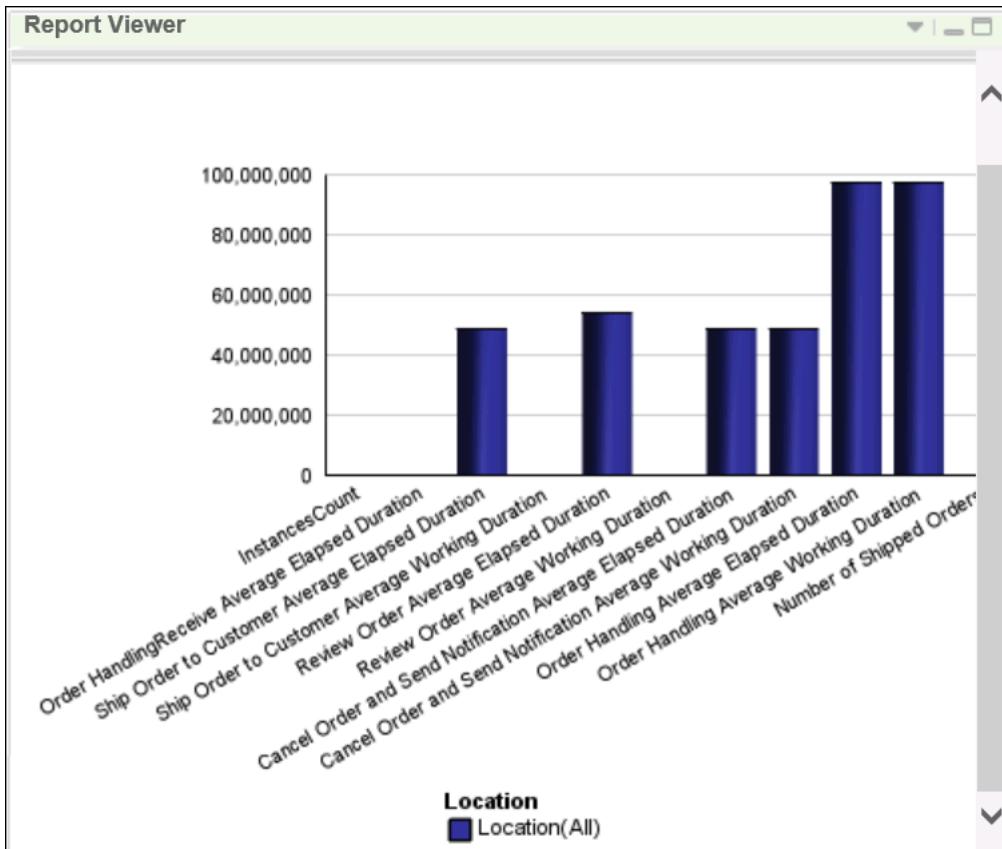
Part 17: Creating a Report Viewer widget

In this section, you create a Report Viewer widget on the dashboard.

- 1. Select **Business Monitoring (6)** from the list.
- 2. Add **Report Viewer** widget to the page.
- 3. In the **Report Viewer** widget, click the down arrow icon at the upper right of the widget. Click **Edit Settings** to begin configuring the report viewer widget.
- 4. In the Report Viewer window, click **Select** to specify which report you want to open.
- 5. In the Select Report window, click **Public Folders** under **All Folders**.
Do not click “+”, if you did then click **Cancel** and go to step 4.
- 6. Click **CATOrderMgmtMonitoringModel (YYYY-MM-DD hh:mm:ss)**.
Do not click “+”, if you did then click **Cancel** and go to step 4.
- 7. Select **CAT_Report**.
- 8. Click **OK** to close the Select Report window.

- ___ 9. Click **OK** to return to the page.

The Report Viewer is updated with the report specified.



- ___ 10. Click **Save** in the upper-right corner to save the page.

Part 18: Creating an Alerts widget

This section describes the creation of an Alerts widget that displays alerts for the logged in user.

- ___ 1. Click **Create a page** icon or the plus sign (+) next to the “Report and Analysis” page.
- ___ 2. Enter **Alerts** for the page name.
- ___ 3. Click **OK**.
- ___ 4. Click **Edit Page** to edit the current page.
- ___ 5. Select **Business Monitoring (6)** from the list.

- 6. Add an **Alerts** widget to the page.

Alerts					
Subject	Priority	Model	Status	Date and Time	
• Late order shipment	3	CATOrderMgmtMonitoringModel	Available	January 27, 2015 2:56:48 PM	
• Late order shipment	3	CATOrderMgmtMonitoringModel	Available	January 27, 2015 1:55:48 PM	
• Late order shipment	3	CATOrderMgmtMonitoringModel	Available	January 27, 2015 12:55:48 PM	

Alerts that were created in this exercise are populated in the Alerts widget.

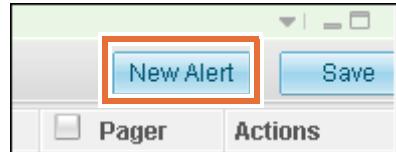
If you do not see alerts that are displayed in the Alerts widget, click the down arrow icon at the upper right of the widget window. Click **Edit Settings** to begin configuring the **Alerts** widget.

- 7. Click **Save** to save the page.

Part 19: Creating an Alert with the Alert Manager widget

Using the Alert Manager dashboard widget, you can subscribe or unsubscribe to predefined alert notifications and have the notification sent to your dashboard, email inbox, pager, or cell phone. You can also create alerts to which other users can subscribe by using the Alert Manager. Earlier in this exercise, you viewed the alerts that were created during model development. In this step, you create an alert dynamically with the business space dashboard.

1. Select **Business Monitoring Tools (3)** from the list.
2. Add an **Alert Manager** widget on the page. The existing alerts are displayed.
3. Click **New Alert** at the upper right of the **Alert Manager** widget. This action opens a new window. It might be necessary to maximize the Alerts widget to view this part of the window.



- 4. Enter `MyNewAlert` as the **Alert Name**.

- 5. Select **CATOrderMgmtMonitoringModel (YYYY-MM-DD hh:mm:ss)** as the **Model** from the list.

The screenshot shows the 'Alert' configuration interface. It has tabs for 'Conditions', 'Alert Content', and 'Notification'. The 'Alert name' is 'MyNewAlert'. The 'Model' dropdown is set to 'CATOrderMgmtMonitoringModel 2015-01-20 11:56:54'. The 'Owner' is 'admin'. The 'Model' field is highlighted with a red box.

- 6. Click **Add** to add condition for the alert.

The screenshot shows a modal dialog titled 'Add Condition'. It has a table with columns 'Condition' and 'Value'. A blue 'Add' button is located at the top right of the dialog area. The 'Condition' column header is highlighted with a red box.

- 7. Click the **Click to choose KPI** link. A list of available KPIs is displayed.

The screenshot shows the 'Conditions' configuration page. It says 'Notify when all of the following conditions apply'. There is a table with columns 'KPI Name', 'Prediction Model', 'Condition', and 'Value'. The 'KPI Name' column contains a link 'Click to choose KPI' which is highlighted with a red box.

- 8. Select **Order Handling Average Elapsed Duration** from the list.

The screenshot shows the 'Conditions' configuration page again. The 'KPI Name' dropdown is open, showing a list of options. The option 'Order Handling Average Elapsed Duration' is highlighted with a red box and has a small magnifying glass icon next to it, indicating it is selected or being viewed.

- 9. Click the **Click to choose condition** link.

Conditions

Notify when all of the following conditions apply

KPI Name	Prediction Model	Condition
OrderHandling Average Elapsed D...	None (Use actual data)	Click to choose condition

- 10. Select **Above** from the **Condition** list.

Conditions

Notify when all of the following conditions apply

KPI Name	Prediction Model	Condition
Order Handling Average Elapsed...	None (Use actual data)	Above <input type="button" value="▼"/> Click to choose condition <input style="background-color: #ffcc00; color: black; border: 1px solid black; padding: 2px 10px; margin-right: 10px;" type="button" value="Above"/> n <input type="button" value="▼"/> Below <input type="button" value="▼"/>

- 11. Click the **Click to choose value** link.

Add

Value

Click to choose value

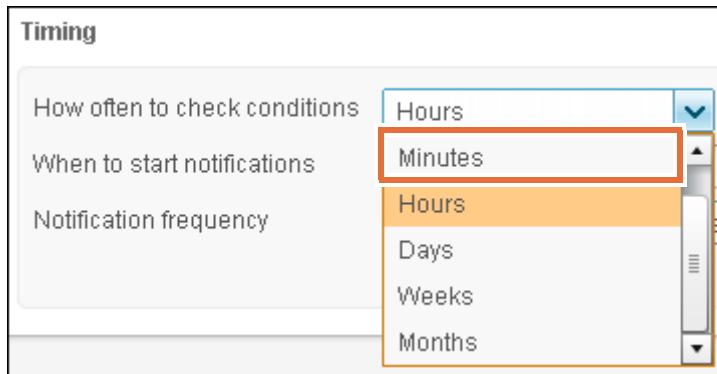
- 12. Select **1 minute** as the **value**, and then click **OK**.

Day	Hour	Minute	Second
0 <input type="button" value="▲"/> <input type="button" value="▼"/>	0 <input type="button" value="▲"/> <input type="button" value="▼"/>	1 <input type="button" value="▲"/> <input type="button" value="▼"/> OK	0 <input type="button" value="▲"/> <input type="button" value="▼"/>

Negative value

OK **Cancel**

- 13. Under the **Timing** section, change the value of **How often to check conditions** from **Hours** to **Minutes**.



- 14. Click the **Alert Content** and **Notification** tabs. View the default values, but do not change them.

Alert		
Conditions	Alert Content	Notification
<input checked="" type="radio"/> Generated content	<input type="radio"/> Define your own content	
Priority (Enter a number from 0 to 99)	3	
Subject	MyNewAlert	
Body	%/Order_Handling_Average_Elapsed_Duration/name% Above 0 d 0 h 1 m 0 s	

- 15. Scroll to the bottom of the pane and click **OK**.
 — 16. When a message is displayed that the alert was created successfully, click **OK**.
 — 17. Click **Save** in the upper-right corner to save the page.
 — 18. If a message is displayed that the changes to the alerting subscriptions were created successfully, click **OK**.

- 19. Scroll down to the **Alerts** widget that you created earlier in this exercise. The newly created alert is displayed in the alert list in the **Alert Manager** widget.

Alert Manager				
Alerts to Display All alerts				
Alert Name	Description	Owner	Dashboard Alert	
MyNewAlert		admin	<input checked="" type="checkbox"/>	
LateOrderShipmentBinding		admin	<input checked="" type="checkbox"/>	

If it is not displayed, then it might be necessary to refresh the alerts view by clicking the down arrow icon at the upper right of the Alerts window. Click **Edit Settings > Refresh**.

Alerts					
Actions		Details		Last Update	
		Subject	Priority	Model	Status
	• MyNewAlert		3	CATOrderMgmtMonitoringModel	Available

- 20. Click **Save** at the upper right to save the page.

Part 20: Creating a KPI widget

The KPI widget of the dashboard enables a graphical representation of available KPIs.

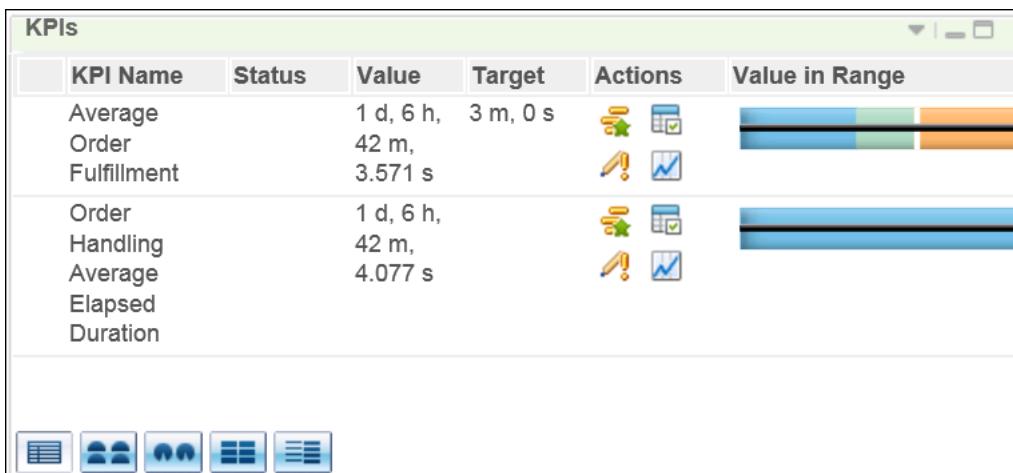
- 1. Click the **Create a page** icon or the plus sign (+) next to the Alerts page.
- 2. Enter **KPIs** for the page name.
- 3. Click **OK**.
- 4. Click **Edit Page** to edit the current page.
- 5. Select **Business Monitoring (6)** from the list.
- 6. Add the **KPIs** widget to the page.
- 7. In the **KPIs** widget, click the down arrow icon at the upper right of the widget window. Click **Edit Settings** to begin configuring the **KPI** widget.
- 8. Verify that **Latest version** is selected.

- 9. Expand **CATOrderMgmtMonitoringModel (YYYY-MM-DD hh:mm:ss)** and select **Average Order Fulfillment** and **Order Handling Average Elapsed Duration**.

The screenshot shows the 'KPIs' configuration interface. At the top, there are tabs for 'KPIs', 'Layout', and 'Wiring'. Below the tabs, it says 'Select the models for which you want to retrieve the KPIs:' with radio buttons for 'Latest version' (selected) and 'All versions'. A tree view shows a model named 'CATOrderMgmtMonitoringModel 2015-01-20 11:56:54' expanded. Under this model, two KPIs are selected and highlighted with red boxes: 'Average Order Fulfillment' and 'Order Handling Average Elapsed Duration'. Other options like 'Cancel Order and Send Notification Average Elapsed Duration' and 'Cancel Order and Send Notification Average Working Duration' are also listed.

- 10. Click **OK**. If a security warning is displayed, click **Yes**.

The KPIs are displayed.



- 11. Click **Save** in the upper-right corner to save the page.
 — 12. Click **Finish Editing**.
 — 13. Click **Log out** to logout of the Business Space and close the browser.
 — 14. Close IBM Integration Designer, if still open.
 — 15. Shut Process Server as you do not use it in later exercises. Optionally, shut the Monitor server.

End of exercise

Exercise 9. Monitoring events from IBM Integration Bus

Estimated time

00:30

Overview

In this exercise, you implement a model that is exported from IBM Integration Bus to process events in IBM Business Monitor.

Objectives

After completing this exercise, you should be able to:

- Explore a sample monitor model that is exported from IBM Integration Bus message flow
- Test the monitor model in the Monitor test environment

Introduction

IBM Integration Bus is a high-performance advanced enterprise service bus (ESB) and interconnectivity solution. It provides application integration with intelligent routing, prebuilt mediation components, and message transformation capabilities regardless of the computing environment, network, or device. It handles messages in any format with both point-to-point and publish/subscribe topologies.

IBM Integration Bus processes messages by using message flows. A message flow is a sequence of processing steps that run in the IBM Integration Bus when an input message is received. A message flow is made up of message flow nodes, each of which represents a set of actions that define a processing step. Message flow nodes can transform, enrich, and route messages through various execution paths. Message flows can be configured to be transactional or multi-threaded.

As a message flow instance runs, it can generate business events just as any other business application. The events can be used to monitor and analyze aspects of the message flow, such as performance. They can be used for auditing activities within the message flow, such as message logging or creating an audit trail.

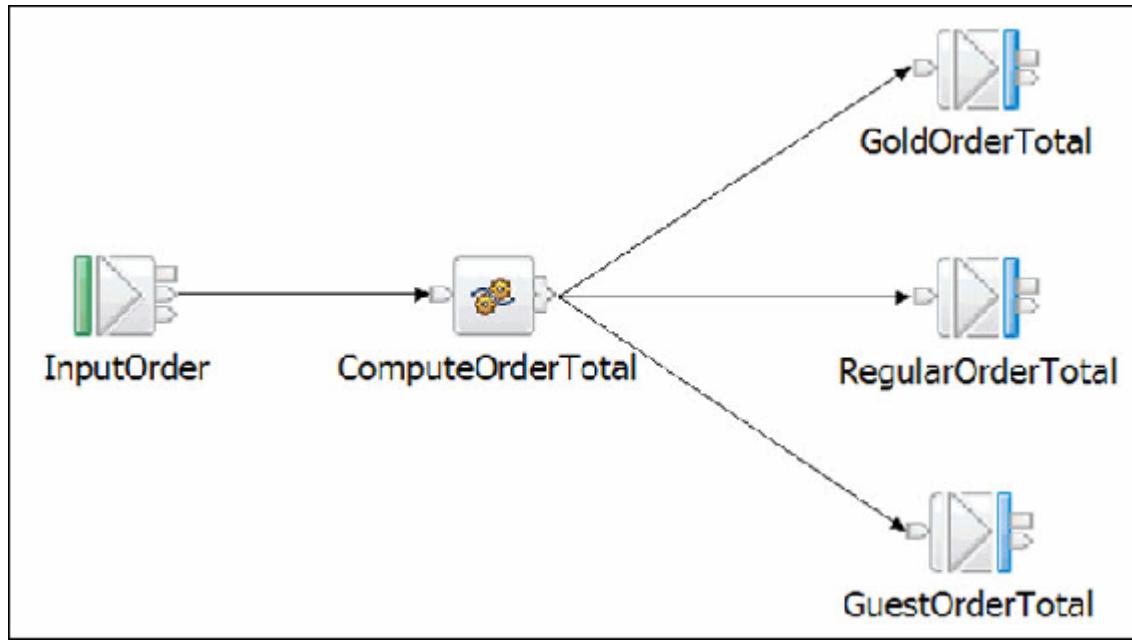
In this exercise, you import an IBM Business Monitor model that was generated from the IBM Integration Bus toolkit. After reviewing the contents of the model, noting the components that are specific to IBM Integration Bus, you send test events to the model.

Requirements

Completing the exercises for this course requires a lab environment. The environment includes the exercise support files, IBM Process Server, and IBM Business Monitor test environments.

Exercise instructions

In this exercise, you use a Monitor model that was exported from an IBM Integration Bus message flow. The parts of the message flow that are associated with the model are shown here.



In this scenario, purchase order transactions for regular customers and “gold” customers are being monitored. There is a third type of customer, “guest” customers, for which no monitoring data is collected. (The event filter emits an event only if the Purchase Order Customer Type field is not equal to “guest”.)

The intent is to capture metrics for the transaction times, the number of failed transactions, and the purchase price by customer type. A total of five events are emitted from the message flow:

- **InputOrder.TransactionStart:**
This event is emitted at the start of the transaction.
- **InputOrder.TransactionEnd:**
This event is emitted at the end of the transaction.
- **InputOrder.TransactionRollback:**
This event is emitted if a rollback of the transaction occurs.
- **GoldOrderTotal.Terminal.In:**
This event is emitted when a message flows to the In terminal of the **GoldOrderTotal** message flow node.
- **RegularOrderTotal.Terminal.In:**
This event is emitted when a message flows to the In terminal of the **RegularOrderTotal** message flow node.

The events that are generated follow the event that is defined as type **GoldOrderTotal.InTerminal**. The emitted events carry three attributes from the message flow payload:

- Purchase order ID:
\$Root/XMLNSC/PO:purchaseOrderPriced/PO:purchaseOrderID
- Customer type:
\$Root/XMLNSC/PO:purchaseOrderPriced/PO:customerType
- Total price of the purchase order:
\$Root/XMLNSC/PO:purchaseOrderPriced/PO:priceSummary

The event definitions are shown here in the IBM Integration Bus event definitions.

Event Name
Provide the name by which events emitted from this source are to be known. Specify either a literal name, or the location of a character field in the message tree or elsewhere in the message assembly.

Literal

Data location

Event Filter
Provide an expression to control whether the event is emitted. The expression must evaluate to true or false, and can reference fields in the message tree or elsewhere in the message assembly. If you do not specify a value, the value true() is used.

Event Payload
Most events need to contain data taken from fields in the message tree or from elsewhere in the message assembly. Data taken from simple fields or complex fields appears in the event in XML character format. An event can also contain bitstream data, which appears in the event as hexadecimal bytes.

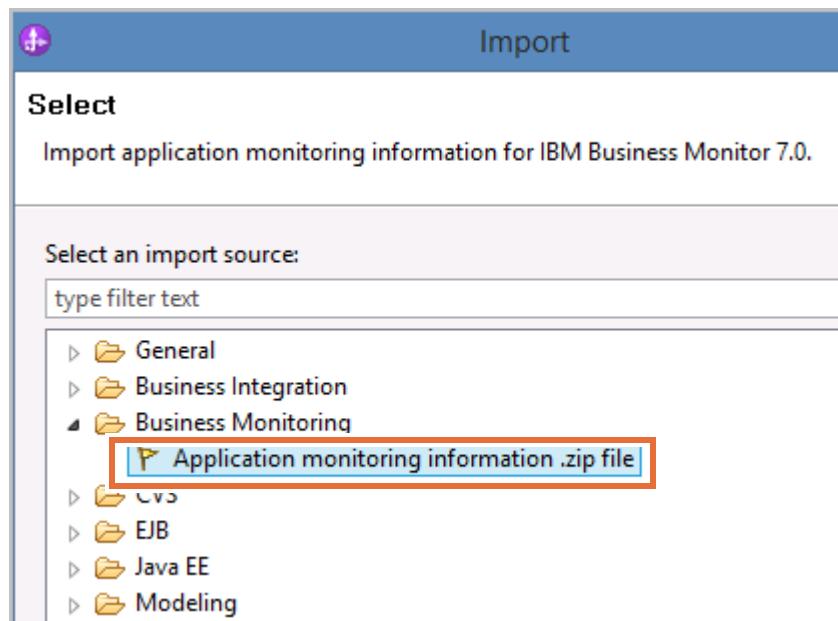
Data location	Add...
\$Root/XMLNSC/PO:purchaseOrderPriced/PO:purchaseOrderID \$Root/XMLNSC/PO:purchaseOrderPriced/PO:customerType \$Root/XMLNSC/PO:purchaseOrderPriced/PO:priceSummary	Edit... Delete

Part 1: Importing the Monitor model

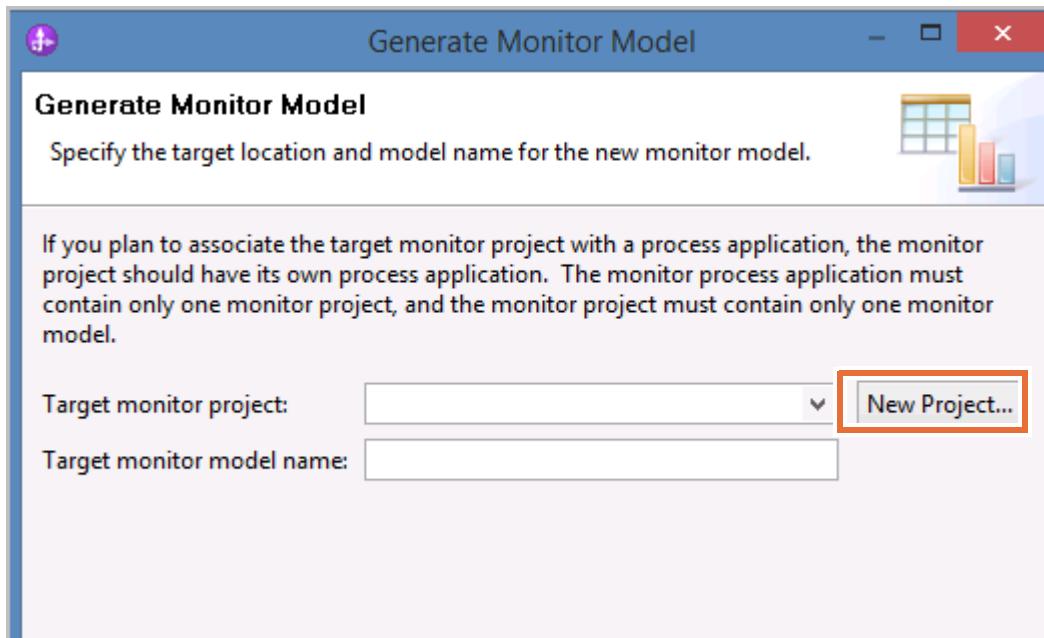
In this portion of the exercise, you start IBM Integration Designer and import the monitor model.

- 1. Start IBM Integration Designer.
 - a. On your desktop, double-click the shortcut that is labeled **IBM Integration Designer**.
 - b. In the **Workspace Launcher** dialog box, change the **Workspace** location to C:\Workspaces\EX09 and click **OK**. An empty workspace is created.
 - c. Close the **Getting Started** tab.
- 2. Import the Monitor model that is exported from IBM Integration Bus into your workspace.
 - a. Click **File > Import** from the menu bar.

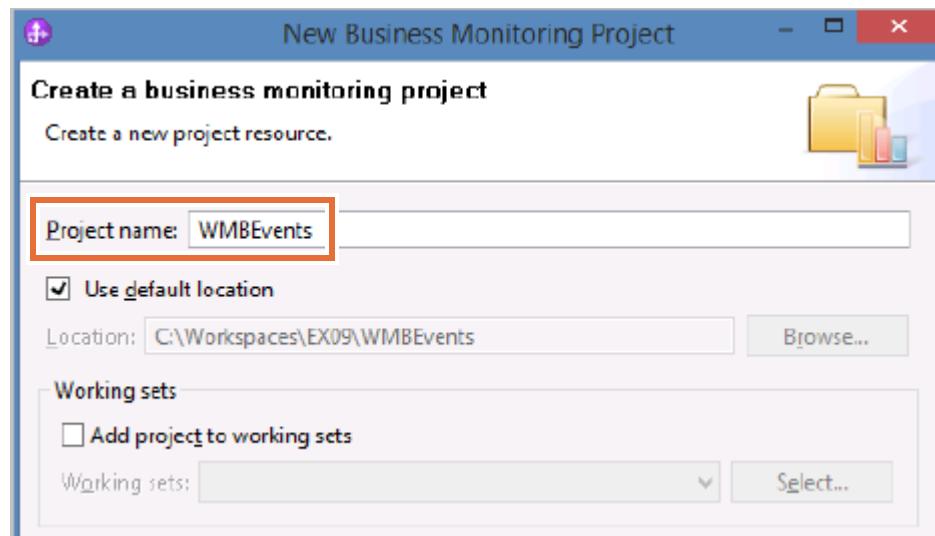
- ___ b. In the Import window, expand **Business Monitoring**, and then click **Application monitoring information .zip file**.



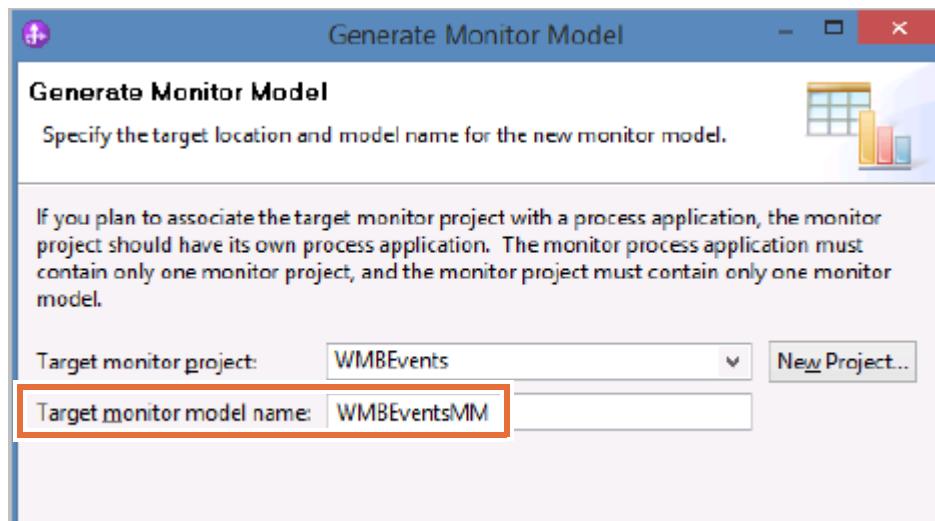
- ___ c. Click **Next**.
 ___ d. To the right of **From .zip file**, click **Browse**.
 ___ e. Change the directory to `C:\labfiles\Support Files\EX09` and select **EX09_Start.zip**.
 ___ f. Click **Save**.
 ___ g. Click **Next**. The Generate Monitor Model window is displayed.
 ___ h. To the right of **Target monitor project**, click **New Project**.



- __ i. Enter **WMBEvents** for the **Project Name**, and verify that **Use default location** is selected.

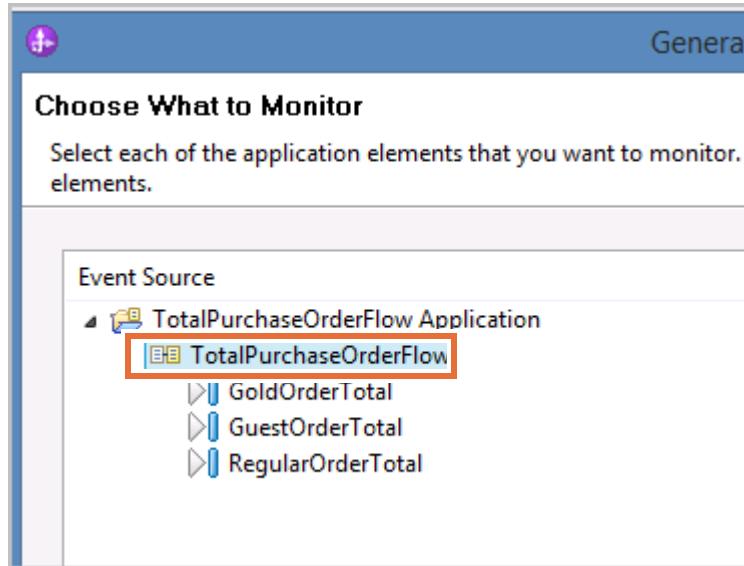


- __ j. Click **Finish**. The project is created, and the Generate Monitor Model window is displayed again.
__ k. Enter **WMBEventsMM** for the **Target Monitor model name**.

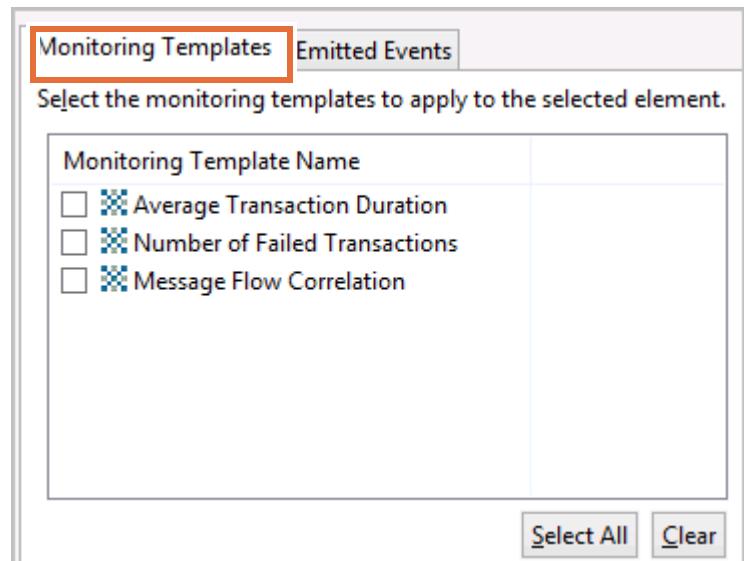


- __ l. Click **Next**. The “Choose What to Monitor” page is displayed.

- __ m. In the **Event Source** area, click **TotalPurchaseOrderFlow**.

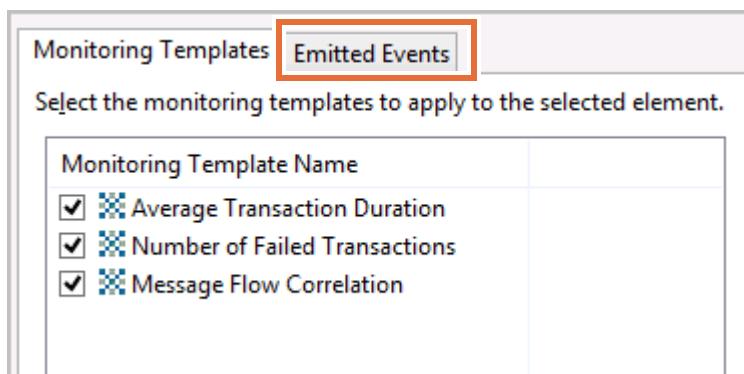


- __ n. Click the **Monitoring Templates** tab.

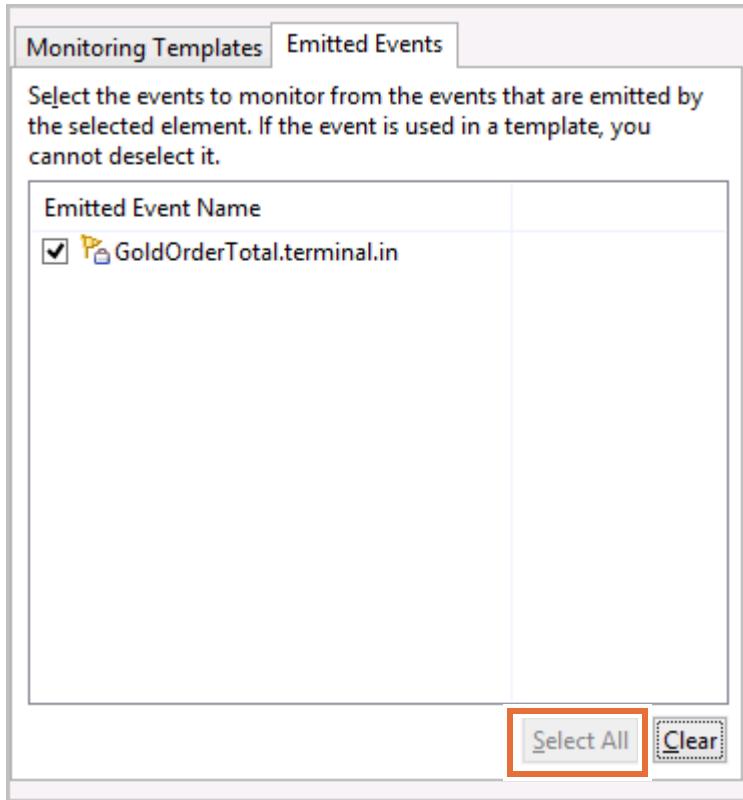


- __ o. Click **Select All**.

- __ p. Click the **Emitted Events** tab to view the selected entries.



- ___ q. In the **Event Source** area on the left, under **TotalPurchaseOrderFlow**, click the event **GoldOrderTotal**.
- ___ r. Switch to the **Emitted Events** tab, and click **Select All**.



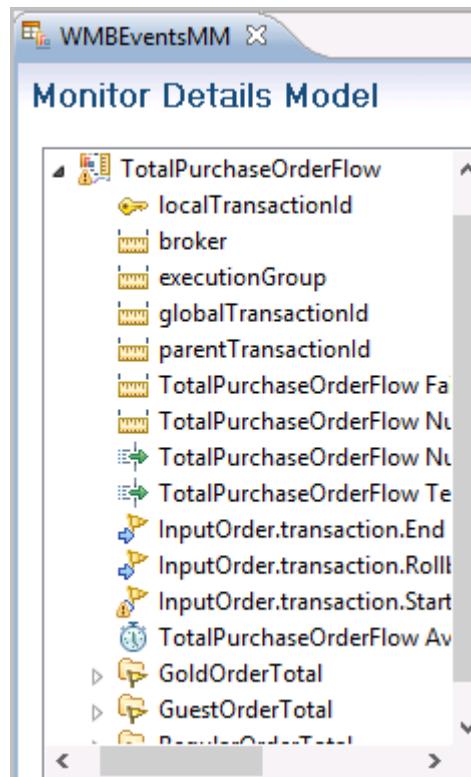
The Emitted Event Name value corresponds to the event emitted within a message flow node in the IBM Integration Bus application. In this example, **GoldOrderTotal.terminal.in** corresponds to the event that is emitted when a message is processed through the *in* terminal of the message flow node that is named **GoldOrderTotal**.

- ___ s. In the **Event Source** area, click event **GuestOrderTotal**, switch to the **Emitted Events** tab, and click **Select All**.
- ___ t. In the **Event Source** area, click event **RegularOrderTotal**, switch to the **Emitted Events** tab, and click **Select All**.
- ___ u. Click **Next**. The “Choose How to Monitor” page is displayed.

- v. Verify that the **Implementation** column is set to **Event group** for the event sources **GoldOrderTotal**, **GuestOrderTotal**, and **RegularOrderTotal**.

Choose How to Monitor	
without consulting the help.	
Event Source	Implementation
▲ TotalPurchaseOrderFlow Application	--
▲ TotalPurchaseOrderFlow	Monitoring context
▲ GoldOrderTotal	Event group
▲ GuestOrderTotal	Event group
▲ RegularOrderTotal	Event group

- w. Click **Finish**. Wait for the import process to complete and for the workspace to build.
- x. When you are prompted to switch to the **Business Monitoring** perspective, click **Yes**.
- y. Close the **Technology Quickstarts** view by clicking the **X** on that tab.
- z. Close the **Help** view by clicking the **X** on that tab.
3. Review the imported Monitor model.
- a. In the Monitor model editor (the **WMBEventsMM** tab), expand **WMBEventsMM > TotalPurchaseOrderFlow**.
- b. Review the various metrics, triggers, and stopwatches in the monitoring context that is associated with the **TotalPurchaseOrderFlow** message flow.



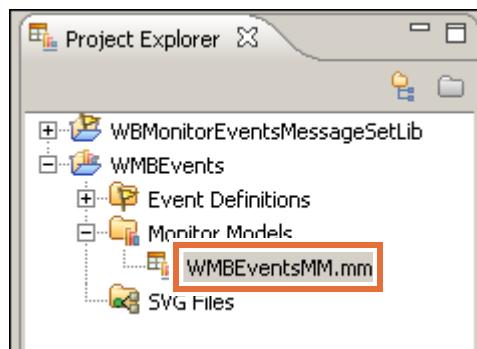
These elements are associated with the IBM Integration Bus environment, specific to the message flow, specifically:

- **Metrics:** The model contains metrics for the IBM Integration Bus name, execution group, global and parent transaction IDs, and others. It helps you to identify where a specific event was generated. These event points are defined in the message flow by using the IBM Integration Bus toolkit.
- **Events:** There are three events defined that correspond to the start, end, and rollback of the InputOrder transaction.
- **Triggers:** Two triggers, related to the events, also are present in the model.
- **Stopwatch:** The stopwatch is controlled from the start and stop of the transaction that is associated with the message flow.

Part 2: Sending test events with the Integrated Test Client

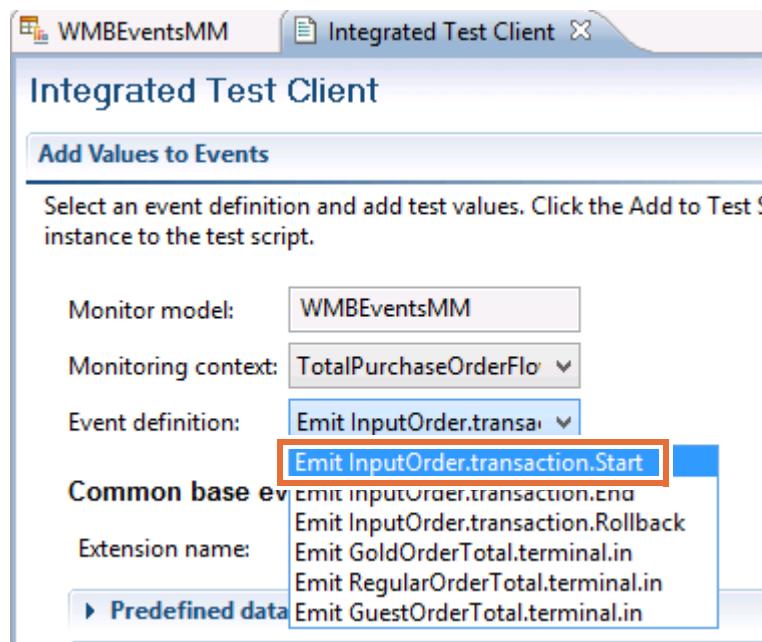
In this part of the exercise, you use the Integrated Test Client to send simulated events to the Monitor model. You can test the model without using an application. In this case, you can test the model even if IBM Integration Bus is not installed.

- 1. In the **Project Explorer** view, expand **WMBEvents > Monitor models**.



- 2. Right-click **WMBEventsMM.mm** and click **Launch Integrated Test Client**. The Integrated Test Client window opens.

- 3. In the **Add Values to Events** section, make sure **Emit InputOrder.transaction.Start** is selected for the **Event Definition**.



- 4. Under the **Event Details** section, add the event values. Supply values for each of the data fields in the **Value** column. Use the appropriate data type as specified in the **Type** column.



Note

The order in which the fields displayed in the event part details section is not fixed. Each time the model is generated, the fields can be displayed in a different order. Your fields might not be shown in the same order that is listed here, but all of the fields are present.

- a. Leave **wmb:eventData/@wmb:eventSourceAddress** blank.
- b. For **wmb:eventData/wmb:eventCorrelation/@wmb:globalTransactionId**, enter: Tran1
- c. For **wmb:eventData/wmb:eventCorrelation/@wmb:localTransactionId**, enter: Tran1
- d. For **wmb:eventData/wmb:eventCorrelation/@wmb:parentTransactionId**, enter: Tran1
- e. For **wmb:eventData/wmb:eventSequence/@wmb:counter**, enter: 1
This field is an integer-typed field.
- f. The **wmb:eventData/wmb:eventSequence/@wmb:creationTime** field is a date-time field. To properly format it, click the **Value** column, and then click the ellipsis at the right side of the data entry field. A date-time assist window is displayed. The current date and time are selected by default. Click **OK**.
- g. For **wmb:messageFlowData/wmb:broker/@wmb:name**, enter: Broker1

- __ h. For **wmb:messageFlowData/wmb:executionGroup/@wmb:name**, enter: EG1
- __ i. For **wmb:messageFlowData/wmb:messageFlow/@wmb:name**, enter: Flow1
- __ j. The resulting values are displayed as shown here (although not necessarily in this order):

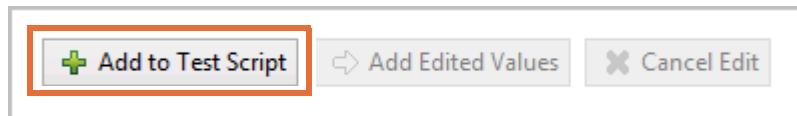
Event details

▼ Event part details

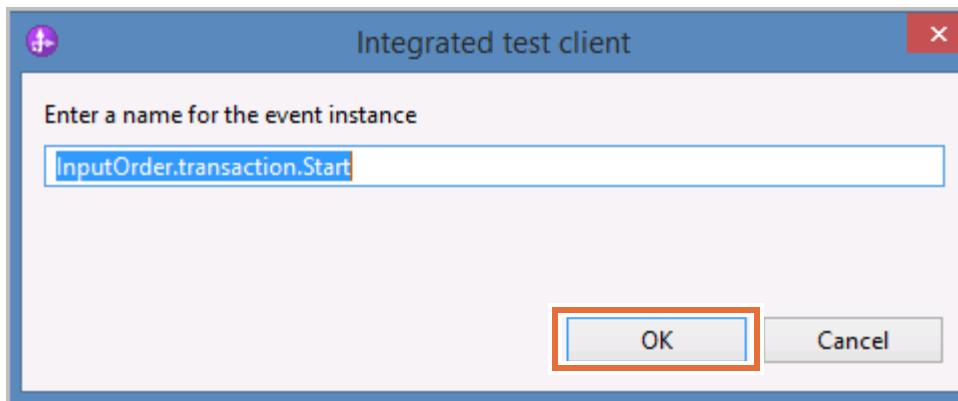
Name	ID	Type	Path
EventPointDa...	EventPointD...	{http://www.ibm....}	cbe:CommonBaseE...

Item	Type	Value
wmb:eventData/@wmb:eventSourceAddress	string	
wmb:eventData/wmb:eventCorrelation/@wmb:globalTransactionId	string	Tran1
wmb:eventData/wmb:eventCorrelation/@wmb:localTransactionId	string	Tran1
wmb:eventData/wmb:eventCorrelation/@wmb:parentTransactionId	string	Tran1

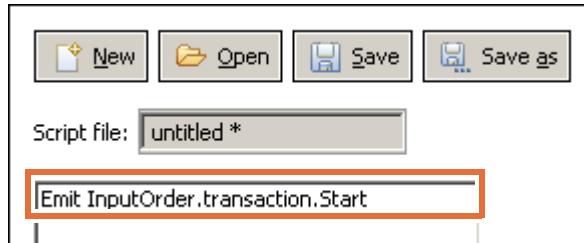
- __ k. Click **Add to Test Script**.



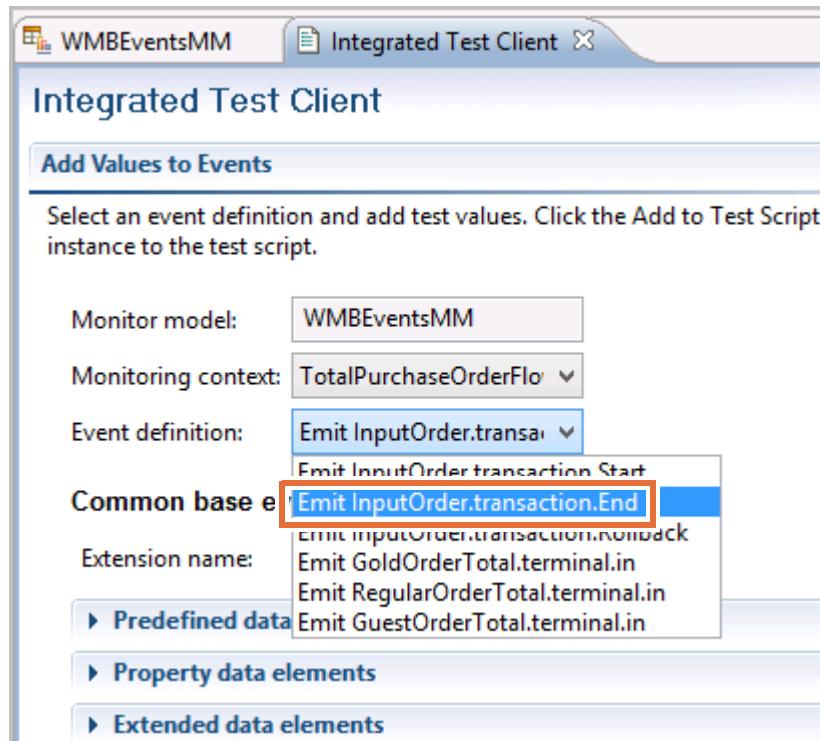
- __ l. When prompted for the name of the event instance, click **OK** to accept the default.



- ___ m. Verify that the event is added to the test script.

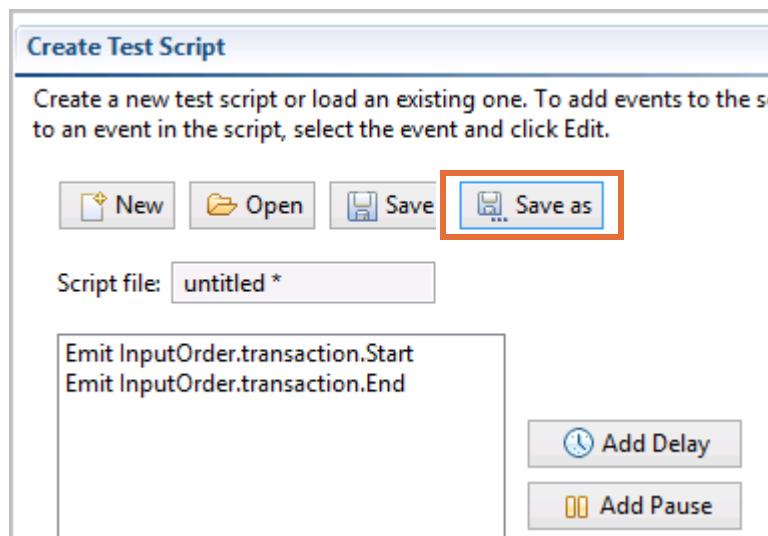


- ___ 5. Add a second event. In the **Add Values to Events** section, select **Emit InputOrder.transaction.End** for the **Event Definition**.



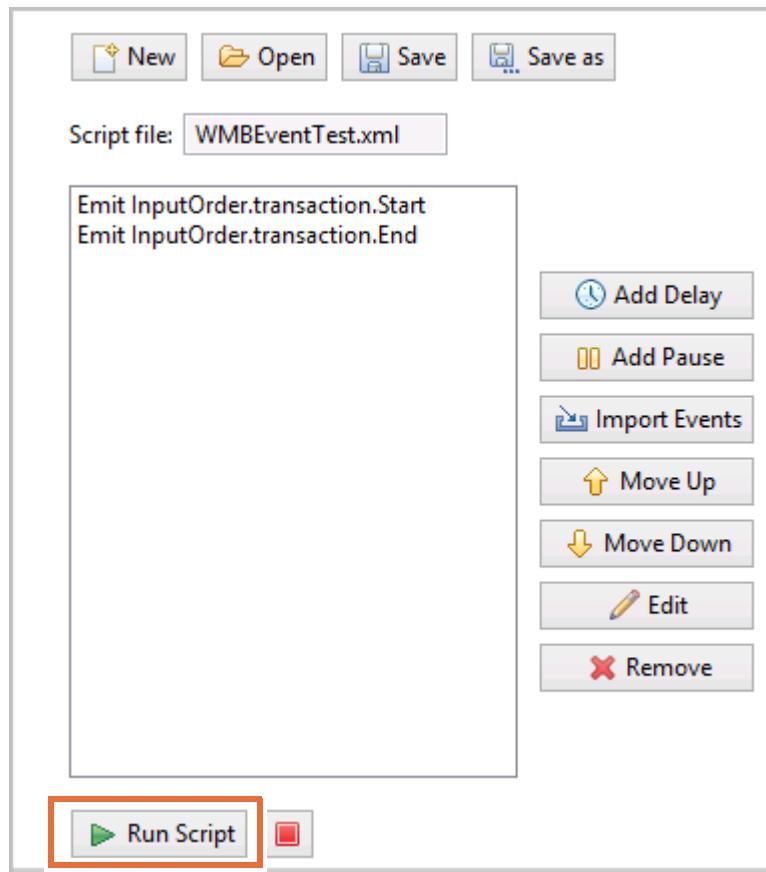
- ___ 6. Add the event values.
- ___ a. Use the same values that you used when you created the **InputOrder.transaction.Start** event definition, in step 4.
 - ___ b. Click **Add to Test Script**.
 - ___ c. When prompted for the name of the event instance, click **OK** to accept the default. There are now two events in the script.

- ___ 7. Save the test script.
 - ___ a. Under **Create Test Script**, click **Save as**.



- ___ b. Change directory to C:\labfiles\Support Files\EX09 for **Save in**.
- ___ c. Enter WMBEventTest for **File name**, and then click **Save**.

- 8. Click **Run Script** to run the test script.

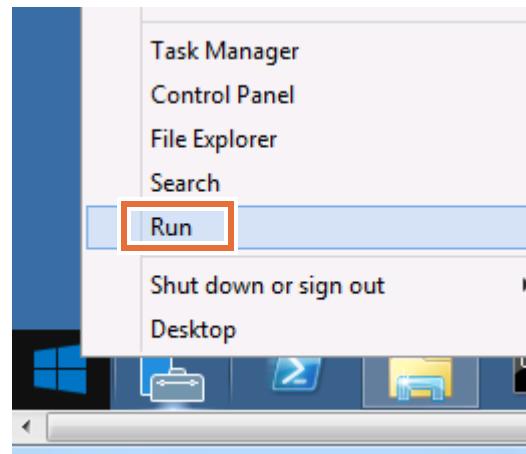


The **Console** log opens and displays the status of the script execution.

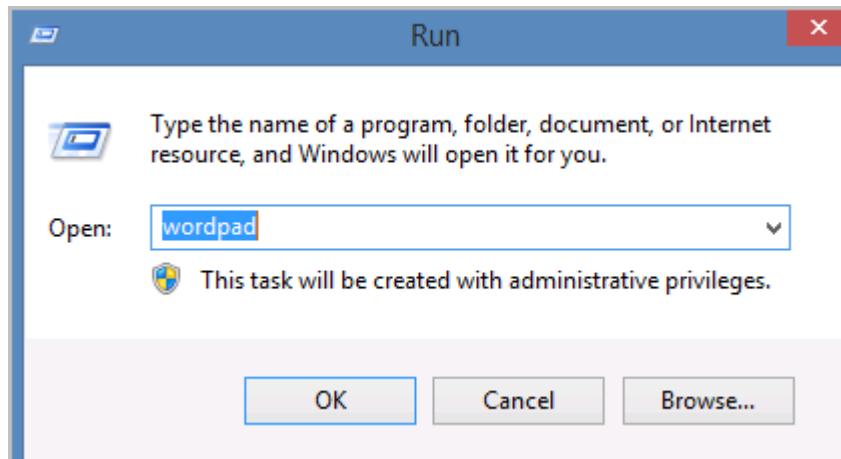
```
[ Location of the log file: C:\Users\ADMINI~1\AppData\Local\Temp\2\ITCEmitter.log ]
Info: Emitting event [InputOrder.transaction.Start]
Info: Emitting event [InputOrder.transaction.End]
```

- 9. A log file was generated, as indicated by the **Location of the log file** message. Review the log file.
- a. Open a Windows Explorer session and change directory to the log location listed in the console (This location listed is different in your environment):
C:\Users\Administrator\AppData\Local\Temp\2
 - b. Right-click `ITCEmitter.log` and open with Notepad. You cannot open the file with WordPad because the emitter maintains a lock on the file.
 - c. Press **Ctrl+A** and then **Ctrl+C** to select and copy all of the text in the file.

- __ d. Right-click the Windows icon at the lower left of the desktop and click **Run**.



- __ e. In the **Run** window, enter wordpad for the **Open** field and click **OK**.



- __ f. When wordpad opens, press Ctrl+V in the WordPad document to copy the contents of the ITCEmitter log file. It makes the text more easily readable.

- ___ g. Review the log messages; note the event emissions and event responses.

```
2018-01-24 19:43:03 com.ibm.wbimonitor.ute.itc.LoggerUtility console
INFO Emitting event [InputOrder.transaction.Start]
2018-01-24 19:43:03 com.ibm.wbimonitor.ute.itc.emitter.EventEmitter emit
INFO ITC Sending event.
2018-01-24 19:43:08 com.ibm.wbimonitor.ute.itc.emitter.EventEmitter emitCeiEvent
INFO Returned message from Event Emitter: {"Event IDs":{"Event
IDs": ["CE127EDC9AD9D28F66A1E80168B3BAA3E0"]}, "Request
ContentType": "text\\xml", "Event Emission": "WBM.CEI"}
2018-01-24 19:43:08 com.ibm.wbimonitor.ute.itc.LoggerUtility console
INFO Emitting event [InputOrder.transaction.End]
2018-01-24 19:43:08 com.ibm.wbimonitor.ute.itc.emitter.EventEmitter emit
INFO ITC Sending event.
2018-01-24 19:43:08 com.ibm.wbimonitor.ute.itc.emitter.EventEmitter emitCeiEvent
INFO Returned message from Event Emitter: {"Event IDs":{"Event
IDs": ["CE127EDC9AD9D28F66A1E80168B6588040"]}, "Request
ContentType": "text\\xml", "Event Emission": "WBM.CEI"}
```

- ___ h. Close the WordPad document without saving the file.
___ i. Close the Notepad session without saving the file.
___ 10. Click **File > Exit** from the menu bar to exit IBM Integration Designer.

End of exercise

Exercise 10. Monitoring events from a BPMN process

Estimated time

02:00

Overview

In this exercise, you monitor events from a BPMN process using IBM Business Monitor.

Objectives

After completing this exercise, you should be able to:

- Import a process in IBM Process Designer
- Enable tracking in a process
- Generate monitor model for a BPMN process application
- Deploy the monitor model
- Run process instances in Process Portal
- View the data in Business Space

Introduction

IBM Business Monitor is highly complementary to IBM BPM, providing the basis for end-to-end visibility across both BPMN and BPEL processes running exclusively within IBM BPM, and those extended processes that span beyond the boundary of the BPM system. In an earlier exercise you learned how Monitor can capture events from a BPEL process. In this exercise, you learn to integrate Monitor with a BPMN process running in Process Designer.

Monitor models can be automatically generated for your BPMN process applications from IBM Process Designer. A process application can have one generated monitor model, which tracks all process instances for which monitoring was enabled.

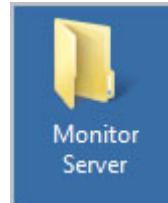
Requirements

Completing the exercises for this course requires a lab environment. The environment includes the exercise support files, Internet Explorer, IBM Business Process Manager Advanced - Process Center, and IBM Business Monitor test environments.

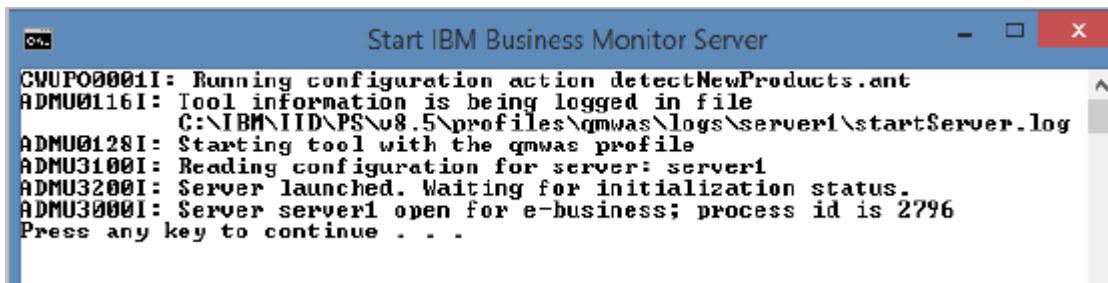
Exercise instructions

Part 1: Starting the environment

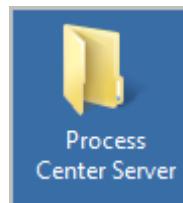
- ___ 1. Start the IBM Business Monitor server instance, if it is not running. Otherwise, go to step 2.
- ___ a. Locate the folder that is named **Monitor Server** on the desktop.



- ___ b. Double-click the **Monitor Server** folder to open it.
- ___ c. Select the shortcut that is titled: **Start IBM Business Monitor Server**.
- ___ d. Double-click or press Enter to open the shortcut. It takes several minutes for Monitor Server to start. When the server starts, you are prompted to press any key to continue. Press any key to close the command window.

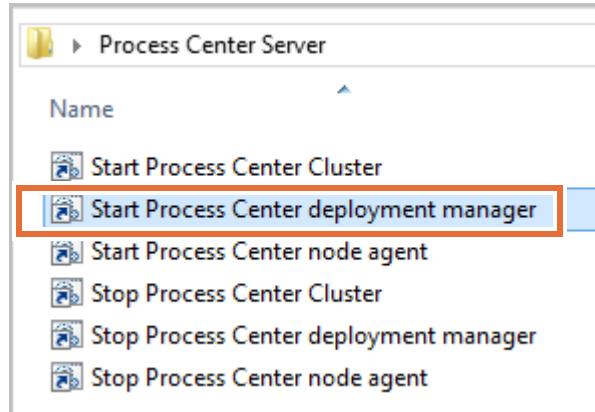


- ___ e. Minimize the Monitor Server folder. You come back to this folder at the end of this exercise to shut down the Monitor Server.
- ___ 2. Start the Process Center deployment manager.
- ___ a. On your Windows desktop, select the shortcut that is titled: **Process Center Server**.

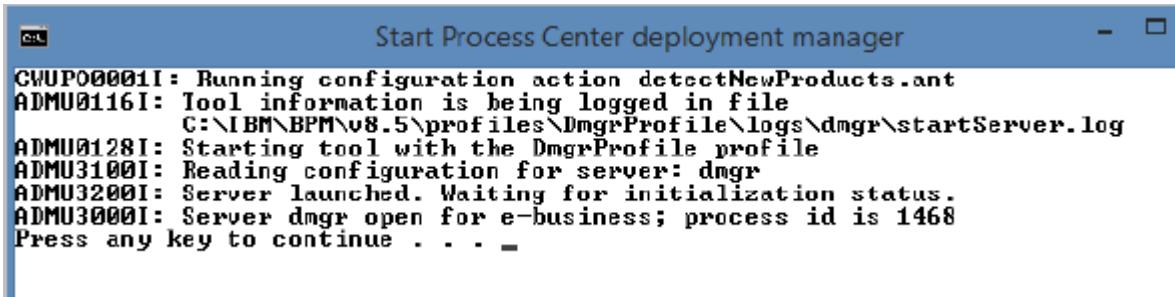


- ___ b. Double-click the **Process Center Server** folder to open it.

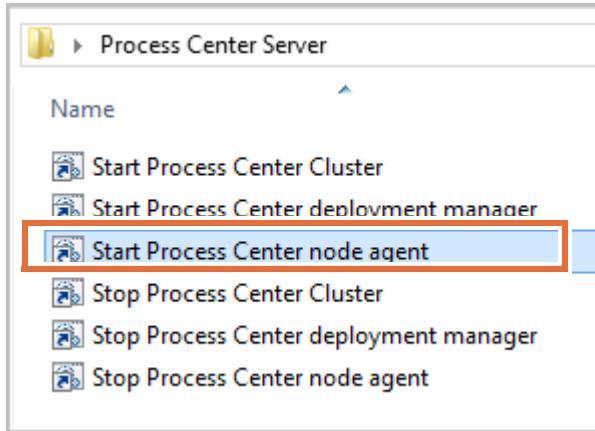
- __ c. Select the shortcut that is titled: **Start Process Center deployment manager**.



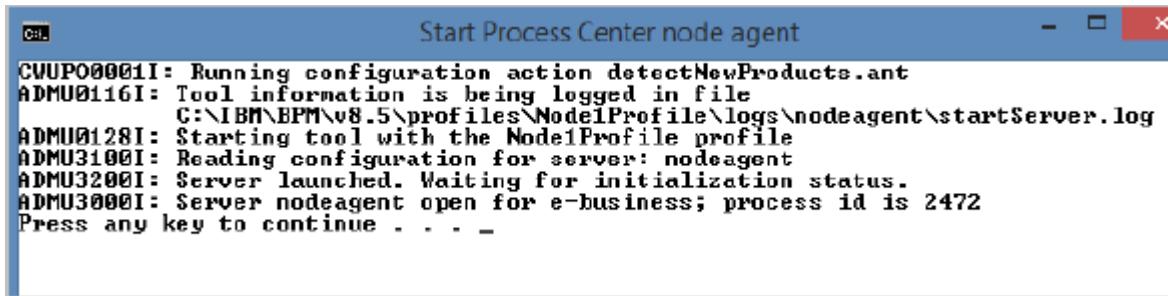
- __ d. Double-click or press Enter to open the shortcut. It takes several minutes for deployment manager to start. When the deployment manager starts, you are prompted to press any key to continue. Press any key to close the command window.



- __ 3. Start the Process Center node agent.
- __ a. Go back to the open **Process Center Server** folder and this time select the shortcut that is titled: **Start Process Center node agent**.



- ___ b. Double-click or press Enter to open the shortcut. It takes several minutes for node agent to start. When the node agent starts, you are prompted to press any key to continue. Press any key to close the command window.

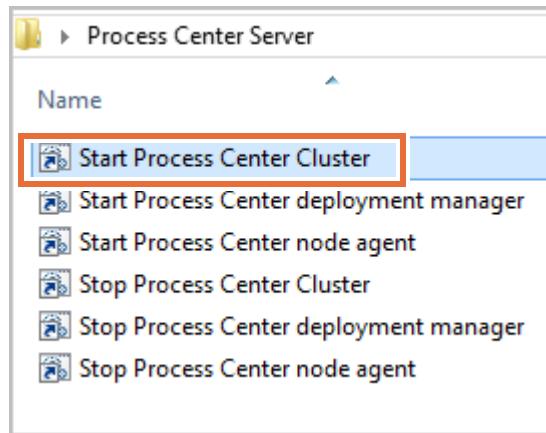


```

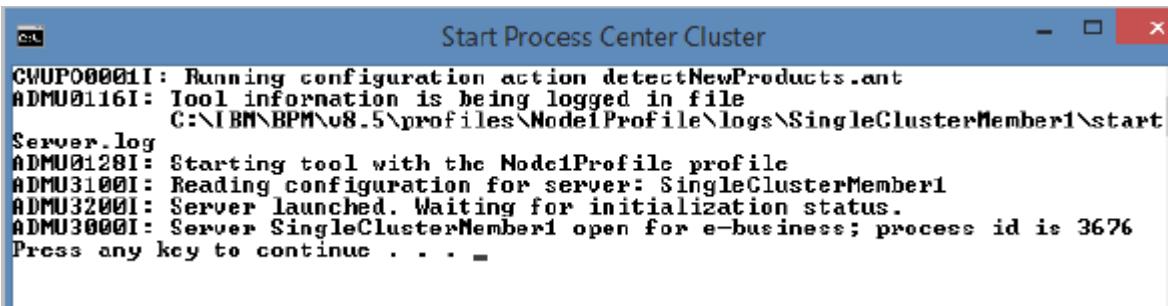
Start Process Center node agent
CUUPO0001I: Running configuration action detectNewProducts.ant
ADMU0116I: Tool information is being logged in file
C:\IBM\BPM\v8.5\profiles\Node1Profile\logs\nodeagent\startServer.log
ADMU0128I: Starting tool with the Node1Profile profile
ADMU3100I: Reading configuration for server: nodeagent
ADMU3200I: Server launched. Waiting for initialization status.
ADMU3000I: Server nodeagent open for e-business; process id is 2472
Press any key to continue . . .

```

- ___ 4. Start the Process Center Cluster. It is important to follow the right order in starting and stopping the servers as listed in the following steps:
 - ___ a. Go back to the open **Process Center Server** folder and this time select the shortcut that is titled: **Start Process Center Cluster**.



- ___ b. Double-click or press Enter to open the shortcut. It takes several minutes (longer than the deployment manager and node agent processes) for the cluster to start. When the cluster starts, you are prompted to press any key to continue. Press any key to close the command window.



```

Start Process Center Cluster
CWUPO0001I: Running configuration action detectNewProducts.ant
ADMU0116I: Tool information is being logged in file
C:\IBM\BPM\v8.5\profiles\Node1Profile\logs\SingleClusterMember1\startServer.log
ADMU0128I: Starting tool with the Node1Profile profile
ADMU3100I: Reading configuration for server: SingleClusterMember1
ADMU3200I: Server launched. Waiting for initialization status.
ADMU3000I: Server SingleClusterMember1 open for e-business; process id is 3676
Press any key to continue . . .

```

- ___ c. Minimize the Process Center Server folder. You come back to this folder later.

Part 2: Configuring Cross-Cell between BPM Server and Monitor Server

- 1. Start the IBM Business Monitor administrative console.
 - a. Start an instance of Internet Explorer by double-clicking the Internet Explorer shortcut on the desktop.
 - b. When the browser opens, click the **Monitor Admin Console** tab.
- c. Click **Continue to this website (not recommended)**.
- d. At the Login page, enter **admin** in the **User ID** field and **web1sphere** in the **Password** field.
- a. Click **Log in**.
- 2. Import the Process Server root SSL certificate into Monitor Server.
 - b. In the Business Monitor administrative console, select **Security > SSL certificate and key management > Key stores and certificates > NodeDefaultTrustStore > Signer certificates**.
 - c. Note that there are two aliases that are listed. The **processserveralias** and the **root** alias. The **processserveralias** is the one used for SSL communication between the test process server in Integration Designer and the Monitor server.

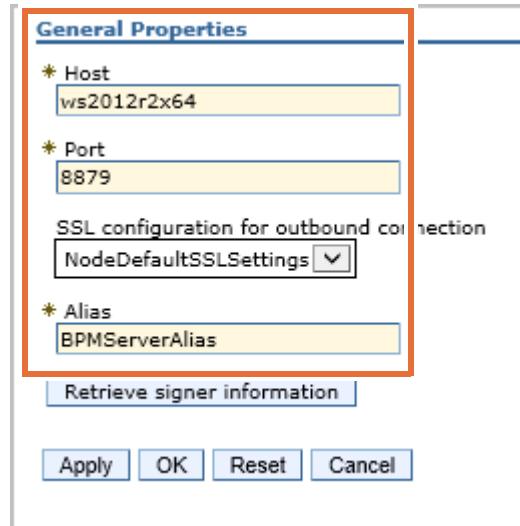
Select	Alias	Issued to	Fingerprint (SHA Digest)	Expiration
<input type="checkbox"/>	processserveralias	DN=ws2012r2x64, CN=Root Certificate, OU=PSCell1, OU=Node1, O=IBM, C=US	56:04:BD:36:84:AC:DD:DD:83:84:E5:21:8E:02:0D:48:A5:F3:99:81	Valid from Jan 8, 2018 to Jan 4, 2033.
<input type="checkbox"/>	root	DN=ws2012r2x64, CN=Root Certificate, OU=qcell, OU=qnode, O=IBM, C=US	80:57:D1:E0:C6:94:27:7C:0C:7C:41:39:9B:EE:DF:A2:3D:36:9C:A4	Valid from Jan 8, 2018 to Jan 4, 2033.

Total 2

- d. Click **Retrieve from port**.

__ e. Enter the following information in the **General Properties** section:

- o **Host:** ws2012r2x64
- o **Port:** 8879
- o **Alias:** BPMServerAlias



The soap port for the BPM deployment manager is 8879.

__ f. Click **Retrieve signer information**.

__ g. Click **OK**.

* Host
ws2012r2x64

* Port
8879

SSL configuration for outbound connection
NodeDefaultSSLSettings

* Alias
BPMServerAlias

Retrieved signer information

Serial number
3680558402813

Issued to
CN=ws2012r2x64, OU=Root Certificate, OU=PCell1, OU=Dmgr, O=IBM, C=US

Issued by
CN=ws2012r2x64, OU=Root Certificate, OU=PCell1, OU=Dmgr, O=IBM, C=US

Fingerprint (SHA digest)
C0:92:1E:BA:07:DA:F0:1E:F8:4D:B0:3F:60:8A:65:E9

Validity period
Jan 23, 2033

Apply **OK** Reset Cancel

__ h. Click **Save** to save it to the master configuration.

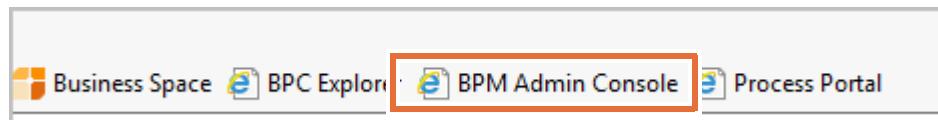
__ i. Verify that the newly created certificate is listed.

<input type="checkbox"/>	bpmserveralias	CN=ws2012r2x64, OU=Root Certificate, OU=PCell1, OU=Dmgr, O=IBM, C=US	C0:92:1E:BA:07:DA:F0:1E:F8:4D:B0:3F:60:8A:65:E9
<input type="checkbox"/>	processserveralias	CN=ws2012r2x64, OU=Root Certificate, OU=PSCell1, O=IBM, C=US	56:04:BD:36:84:AC:DD:1E:48:80:00:00:00:00:00:00

Next, you use a similar procedure to import a certificate from Monitor Server in the BPM Server administrative console.

— 3. Start the IBM BPM administrative console.

— a. Click the **BPM Admin Console** shortcut in the **Favorites** bar.



— b. Click **Continue to this website (not recommended)**.

— c. At the Login page, enter `bpmadmin` in the **User ID** field and `web1sphere` in the **Password** field.

— d. Click **Log in**.

— e. Import the Monitor Server root SSL certificate into BPM Server.

— f. In the administrative console of BPM Server, select **Security > SSL certificate and key management > Key stores and certificates > CellDefaultTrustStore > Signer certificates**.

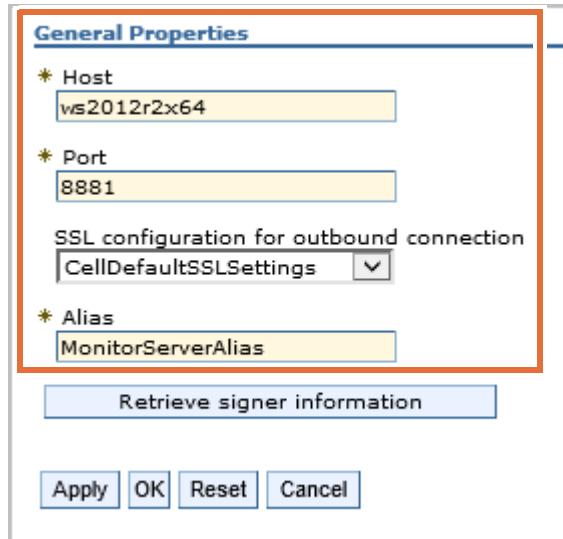
— g. Make sure that you are in the **CellDefaultTrustStore** and not in **NodeDefaultTrustStore**. There is only root certificate listed.

Select	Alias	Issued to	Fingerprint (SHA Digest)	Expires
<input type="checkbox"/>	root	CN=ws2012r2x64... OU=Root Certificate, OU=PCCell1, OU=Dmgr, O=IBM, C=US	C0:92:1E:BA:07:DA:F0:1E:F8:4D:B0:3F:60:8A:65:E9:16:E8:8D:B0...	Valid Jan 2033 to Jan 2033

— h. Click **Retrieve from port**.

__ i. Enter the following information in the **General Properties** section

- o **Host:** ws2012r2x64
- o **Port:** 8881
- o **Alias:** MonitorServerAlias



This SOAP port for the Monitor server is 8881.

- __ j. Click **Retrieve signer information**.
- __ k. Click **OK**.
- __ l. Click **Save** to save it to the master configuration.
- __ m. Verify that the newly created certificate is listed.

Select	Alias	Issued to	Fingerprint (SHA Digest)
<i>You can administer the following resources:</i>			
<input type="checkbox"/>	monitorserveralias	CN=ws2012r2x64, OU=Root Certificate, OU=qcell, OU=qnode, O=IBM, C=US	80:57:D1:E0:C6:94:27:7C:0
<input type="checkbox"/>	root	CN=ws2012r2x64, OU=Root Certificate, OU=PCCell1, OU=Dmgr, O=IBM, C=US	C0:92:1E:BA:07:DA:F0:1E:F8
Total 2			

Keep the BPM Server administrative console open as you come back and work on it later.

- __ 4. Configure the remote data source for the Monitor database on Process Server.
 - __ a. Open a command prompt and change the directory to the Deployment Manager's profile bin directory by entering the following command and pressing Enter:

```
cd \IBM\BPM\v8.5\profiles\dmgrProfile\bin
```

- ___ b. Enter the following command and press the Enter key to open the wsadmin command prompt.

```
wsadmin.bat -conntype SOAP -lang jython -user bpmadmin -password web1sphere
```

```
Administrator: Command Prompt - wsadmin.bat -conntype SOAP ...
Microsoft Windows [Version 6.3.9600]
(c) 2013 Microsoft Corporation. All rights reserved.

C:\Users\Administrator>cd \IBM\BPM\v8.5\profiles\dmgrProfile\bin
C:\IBM\BPM\v8.5\profiles\dmgrProfile\bin>wsadmin.bat -conntype SOAP -lang jython
-user bpmadmin -password web1sphere
WASX7209I: Connected to process "dmgr" on node Dmgr using SOAP connector; The type of process is: DeploymentManager
WASX7031I: For help, enter: "print Help.helpQ"
wsadmin>
```

- ___ c. Enter the following command to configure the remote data source that is pointing to the monitor database (QMONITOR) and press the Enter key:

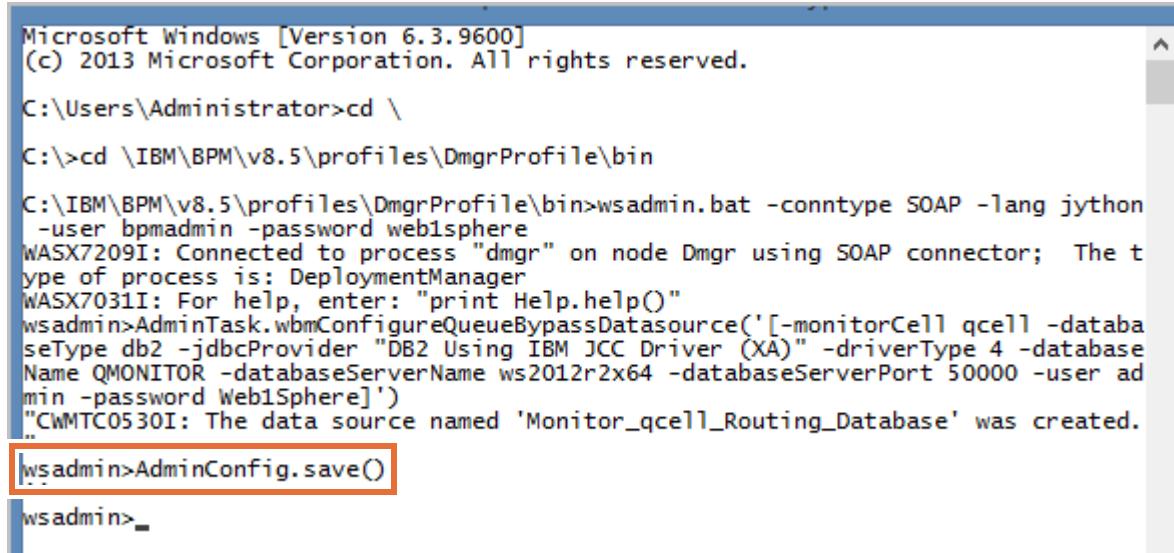
```
AdminTask.wbmConfigureQueueBypassDatasource('[-monitorCell qcell
-databaseType db2 -jdbcProvider "DB2 Using IBM JCC Driver (XA)"
-driverType 4 -databaseName QMONITOR -databaseServerName
ws2012r2x64 -databaseServerPort 50000 -user admin -password
Web1Sphere]')
```

```
Administrator: Command Prompt - wsadmin.bat -conntype SOAP ...
Microsoft Windows [Version 6.3.9600]
(c) 2013 Microsoft Corporation. All rights reserved.

C:\Users\Administrator>cd \
C:\>cd \IBM\BPM\v8.5\profiles\dmgrProfile\bin
C:\IBM\BPM\v8.5\profiles\dmgrProfile\bin>wsadmin.bat -conntype SOAP -lang jython
-user bpmadmin -password web1sphere
WASX7209I: Connected to process "dmgr" on node Dmgr using SOAP connector; The type of process is: DeploymentManager
wsadmin>AdminTask.wbmConfigureQueueBypassDatasource('[-monitorCell qcell -databaseType db2 -jdbcProvider "DB2 Using IBM JCC Driver (XA)" -driverType 4 -databaseName QMONITOR -databaseServerName ws2012r2x64 -databaseServerPort 50000 -user admin -password Web1Sphere]')
CwMTC0530I: The data source named 'Monitor_qcell_Routing_Database' was created.
"
```

- ___ d. Enter the following command to save the configuration to the repository and press Enter.

```
AdminConfig.save()
```



```
Microsoft Windows [Version 6.3.9600]
(c) 2013 Microsoft Corporation. All rights reserved.

C:\Users\Administrator>cd \
C:\>cd \IBM\BPM\v8.5\profiles\dmgrProfile\bin
C:\IBM\BPM\v8.5\profiles\dmgrProfile\bin>wsadmin.bat -conntype SOAP -lang jython
-user bpmadmin -password web1sphere
WASX7209I: Connected to process "dmgr" on node dmgr using SOAP connector; The type of process is: DeploymentManager
WASX7031I: For help, enter: "print Help.help()"
wsadmin>AdminTask.wbmConfigureQueueBypassDatasource('[-monitorCell qcell -databaseType db2 -jdbcProvider "DB2 Using IBM JCC Driver (XA)" -driverType 4 -databaseName QMONITOR -databaseServerName ws2012r2x64 -databaseServerPort 50000 -user admin -password Web1Sphere]')
"QWMT0530I: The data source named 'Monitor_qcell_Routing_Database' was created.

wsadmin>AdminConfig.save()

wsadmin>_
```

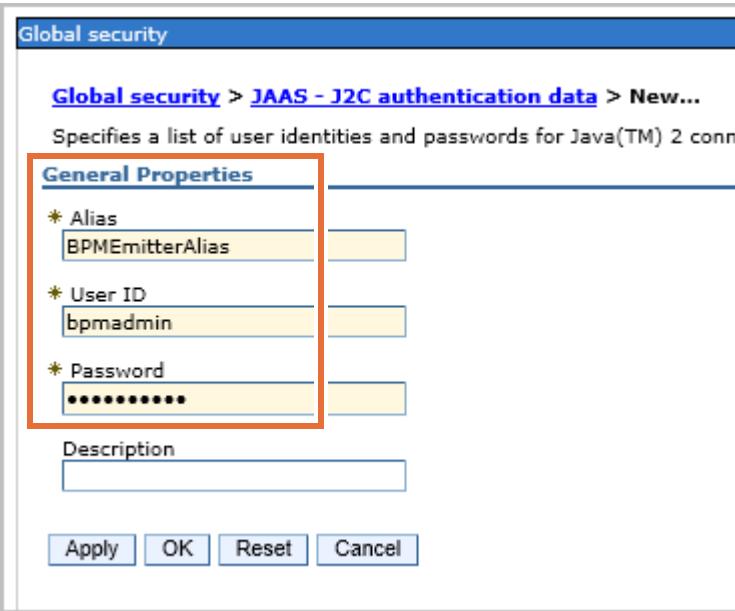
- ___ e. Type `exit` and press the Enter key to exit the `wsadmin` command prompt. Leave the command window open as you come back to it again.
- ___ f. In the BPM Server administrative console (log in again, if needed, by using `bpmadmin` and `web1sphere`), select **Resources > JDBC > Data sources** to verify the newly created data source.
- ___ g. Verify that a new data source (**Monitor_qcell_Routing_Database**) is created.

			Driver (JAR)	Source
<input type="checkbox"/>	Monitor_qcell_Routing_Database	dbc/wbm/qcell/MonitorDatabase	Cell=PCCall1	DB2 Using IBM JCC Driver (XA) Data source for Monitor routing database

- ___ h. Click **Logout** to log out of the BPM Server administrative console.
5. Stop the Process Center environment. It is important to follow the right order in starting and stopping the servers as listed in the following steps:
- Go back to the **Process Center Server** folder that you minimized earlier.
 - Select the shortcut that is titled: **Stop Process Center Cluster**.
 - Double-click or press Enter to open the shortcut. It takes several minutes for the cluster to stop. When the cluster stops, you are prompted to press any key to continue. Press any key to close the command window.
 - Select the shortcut that is titled: **Stop Process Center node agent**.
 - Double-click or press Enter to open the shortcut. It takes several minutes for node agent to stop. When the node agent stops, you are prompted to press any key to continue. Press any key to close the command window.
 - Select the shortcut that is titled: **Stop Process Center deployment manager**.

- ___ g. Double-click or press Enter to open the shortcut. It takes several minutes for deployment manager to stop. When the deployment manager stops, you are prompted to press any key to continue. Press any key to close the command window
- ___ 6. Start the Process Center environment.
 - ___ a. Go back to the **Process Center Server** folder.
 - ___ b. Select the shortcut that is titled: **Start Process Center deployment manager**.
 - ___ c. Double-click or press Enter to open the shortcut. It takes several minutes for deployment manager to start. When the deployment manager starts, you are prompted to press any key to continue. Press any key to close the command window.
 - ___ d. Select the shortcut that is titled: **Start Process Center node agent**.
 - ___ e. Double-click or press Enter to open the shortcut. It takes several minutes for node agent to start. When the node agent starts, you are prompted to press any key to continue. Press any key to close the command window.
 - ___ f. Select the shortcut that is titled: **Start Process Center Cluster**.
 - ___ g. Double-click or press Enter to open the shortcut. It takes several minutes for the cluster to start. When the cluster starts, you are prompted to press any key to continue. Press any key to close the command window.
- ___ 7. Create an authentication alias for the Business Monitor server to connect to the remote event source server.
 - ___ a. In the Business Monitor administrative console (log in again using `admin` and `web1sphere`), select **Security > Global security > Java Authentication and Authorization Service > J2C authentication data**.
 - ___ b. Click **New** to create an alias.
 - ___ c. Enter the name for the **Alias** as: `BPMEmitterAlias`
 - ___ d. Enter `bpmadmin` in the **User ID** field and `web1sphere` in the **Password** field, which are the primary administrative user and password for the IBM BPM Server (remote event source server).

__ e. Click **OK**.



__ f. Click **Save** to save the configuration to the repository.

__ 8. On the Business Monitor server, register the remote event source.

__ a. Open the command prompt and change directory to Business Monitor server profile's bin directory.

```
cd \IBM\IID\PS\v8.5\profiles\qmwas\bin
```

__ b. Open a wsadmin command prompt by entering the following command:

```
wsadmin.bat -conntype SOAP -lang jython -user admin -password
web1sphere
```

__ c. Register the remote event source by using the `wbmRegisterRemoteEventSources` wsadmin command, which specifies BPM Server's host name, soap port, and authentication alias as follows:

```
AdminTask.wbmRegisterRemoteEventSources('[-hostName ws2012r2x64
-port 8879 -connectionAuthAlias BPMEmitterAlias]')
```

```
C:\>cd \IBM\IID\PS\v8.5\profiles\qmwas\bin
C:\IBM\IID\PS\v8.5\profiles\qmwas\bin>wsadmin.bat -conntype SOAP -lang jython -user admin -password web1sphere
WASX7209I: Connected to process "server1" on node qnode using SOAP connector; The type of process is: UnManagedProcess
WASX72021I: For help enter: "print Help help()"

wsadmin>AdminTask.wbmRegisterRemoteEventSources('[-hostName ws2012r2x64 -port 8879 -connectionAuthAlias BPMEmitterAlias]')
'CwMTC0600I: The following event sources were successfully registered from the remote cell at ws2012r2x64:8879 : [Dynamic Event Framework event source on ws2012r2x64]'

wsadmin>
```

- ___ d. In the Monitor administrative console, select **Applications > Monitor Services > Event Sources**.
- ___ e. On the Event Sources panel, verify that there is an entry for the BPM Server that you created. If there is a green check mark for that server, it means that the server is running. There are four event sources listed. One event source is for deprecated CEI that you used in an earlier exercise. The other three are all DEF event sources. If any of those has a red icon with status not available, it indicates that the server is not running. If the test process server is stopped, that is indicated by the red icon in the status column.

Select	Display Name	Event Recording	Version Support Status
<input type="checkbox"/>	(Deprecated) CEI event source on local host at qcell-gnode-server1	Enabled	V7.5.0.0+ V7.0.0.0
<input type="checkbox"/>	Dynamic Event Framework event source on localhost	Status not available	V8.5.5.0+
<input type="checkbox"/>	Dynamic Event Framework event source on local host	Enabled	V8.5.5.0+
<input type="checkbox"/>	Dynamic Event Framework event source on ws2012r2x64	Disabled	V8.5.5.0+

- ___ f. Click the newly created event source for IBM BPM server: **Dynamic Event Framework event source on ws2012r2x64** (The last one on the list).

- __ g. The newly created event source definition for IBM BPM server is listed.

Event Sources

Event Sources > Edit event source

Use this page to view connection information for the event source and edit its properties.

Edit event source

General Properties

Source ID: DEF-PCCell1

*** Display name:** Dynamic Event Framework event source on ws2012r2x64

Event Recording

Enable event recording

Produce all events

Connection Information

Host name: ws2012r2x64

SOAP port: 8879

Authentication alias: BPMEmitterAlias

Save **Cancel** **Test event source connection**

- __ h. Select the **Enable event recording** and **Produce all events** check boxes and click **Save**.

General Properties

Source ID: DEF-PCCell1

*** Display name:** Dynamic Event Framework event source on ws2012r2x64

Event Recording

Enable event recording

Produce all events

Connection Information

Host name: ws2012r2x64

SOAP port: 8879

Authentication alias: BPMEmitterAlias

- ___ i. After a few minutes, you receive a message that the event source is updated.

The screenshot shows a 'Messages' log window with three entries:

- CWMAX4037I: Event recording has been enabled for event source "Dynamic Event Framework event source on ws2012r2x64".
- CWMAX4039I: Production of all events is enabled for "Dynamic Event Framework event source on ws2012r2x64".
- CWMTC0604I: The Dynamic Event Framework event source named 'Dynamic Event Framework event source on ws2012r2x64' was updated.

- ___ j. Click **Dynamic Event Framework event source on ws2012r2x64** one more time.
 ___ k. On the “Edit event source” page, click **Test event source connection**.

Edit event source

General Properties

Source ID: DEF-PCCell1
*** Display name:** Dynamic Event Framework event source on ws2012r2x64

Event Recording

Enable event recording
 Produce all events

Connection Information

Host name: ws2012r2x64
SOAP port: 8879
Authentication alias: BPMEmitterAlias

Save **Cancel** **Test event source connection**

- ___ l. Verify that a confirmation is received that the validation is successful.

Event Sources

Messages

Connection validation completed successfully.

- ___ 9. The cross-cell configuration is now complete.

**Note**

A reference to Configuring IBM Business Monitor to receive events from IBM Business Process Manager V8.5.57 can be found at the following link:

https://www.ibm.com/support/knowledgecenter/SS7NQD_8.5.7/com.ibm.wbpm.mon.imuc.doc/inst/cfg_def_xcell.html

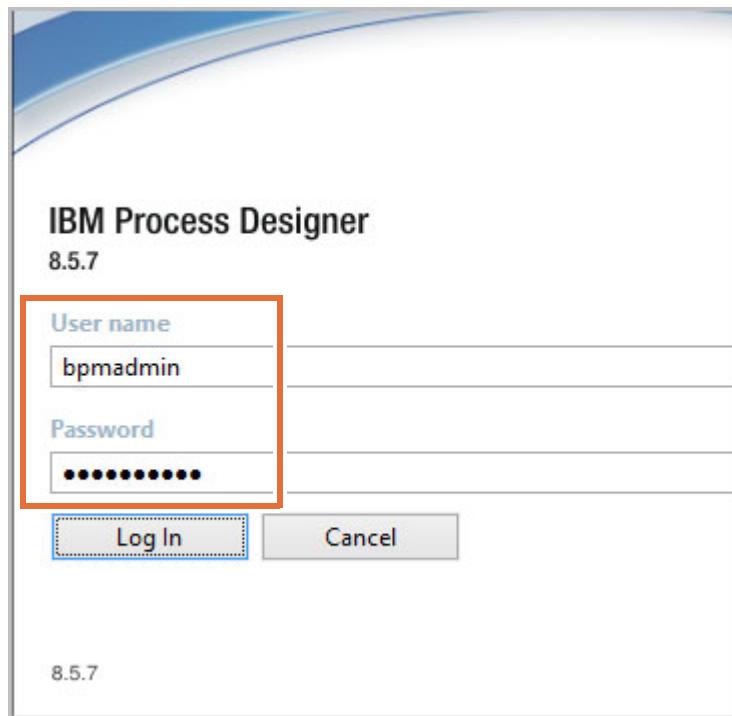
Part 3: Importing a BPMN process in IBM Process Designer

You can import a ready-made process or you can use a process that you have worked on previously. The instructions here focus on importing a ready-made process but apply to any business process.

- ___ 1. Start IBM Process Designer.
- ___ a. Start IBM Process Designer by double-clicking the **IBM Process Designer** icon on the desktop.

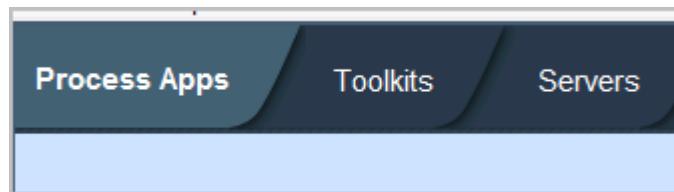


- ___ b. Enter `bpmadmin` in the **User name** field and `web1sphere` in the **Password** field, and click **Log In**.

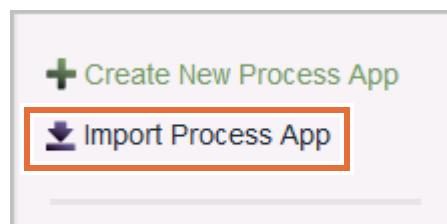


- ___ c. When the Security Alert screen is displayed, click **Yes** each time.

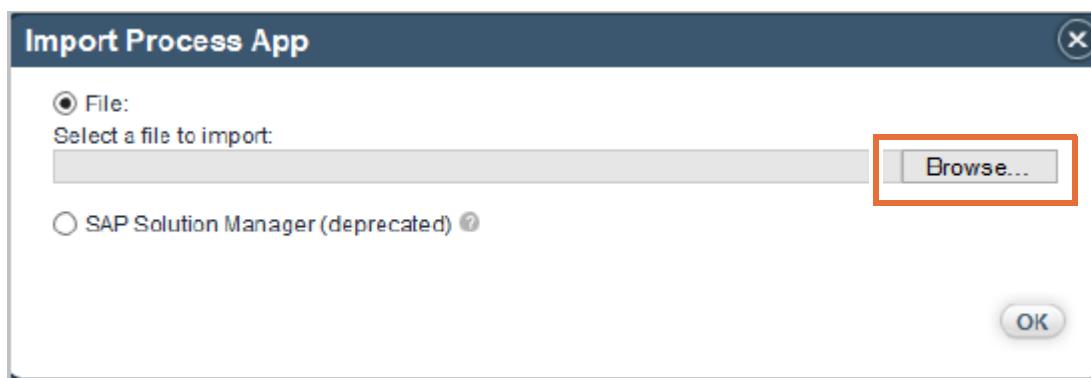
- ___ d. Close the **Getting Started with IBM Process Center 8.5.7.201612** display by clicking the **X** icon on the upper-left corner.
- ___ 2. Import the process.
 - ___ a. Click the **Process Apps** tab in the upper-left corner of the window.



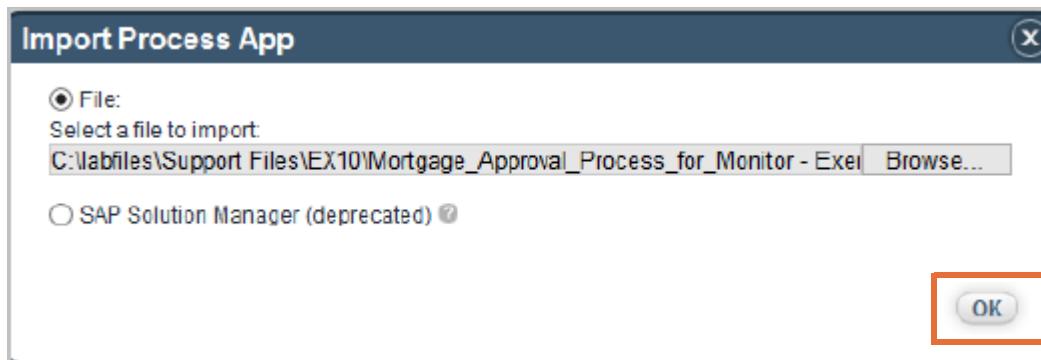
- ___ b. Click **Import Process App** on the right.



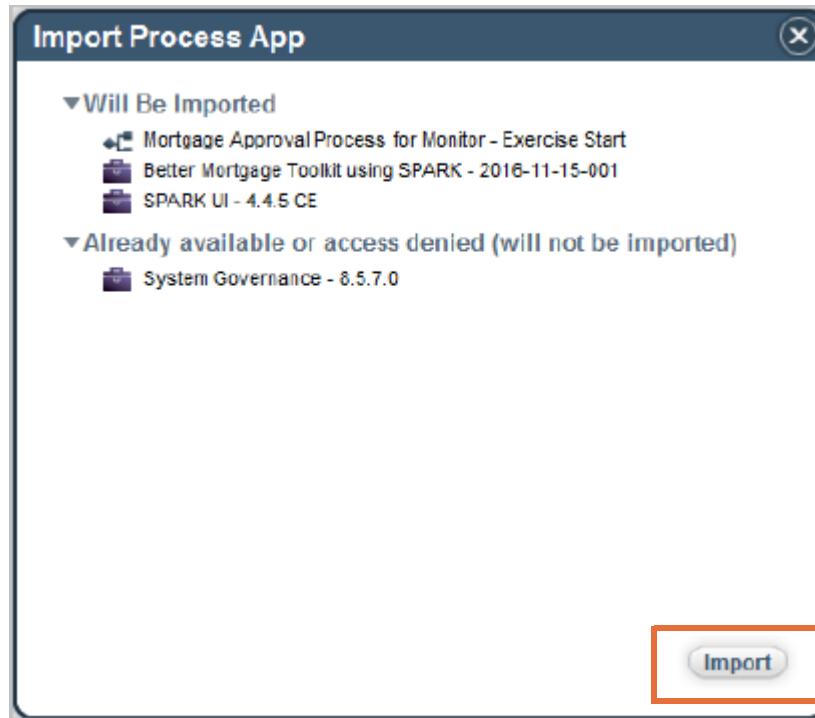
- ___ c. In the Import Process App window, click **Browse**.



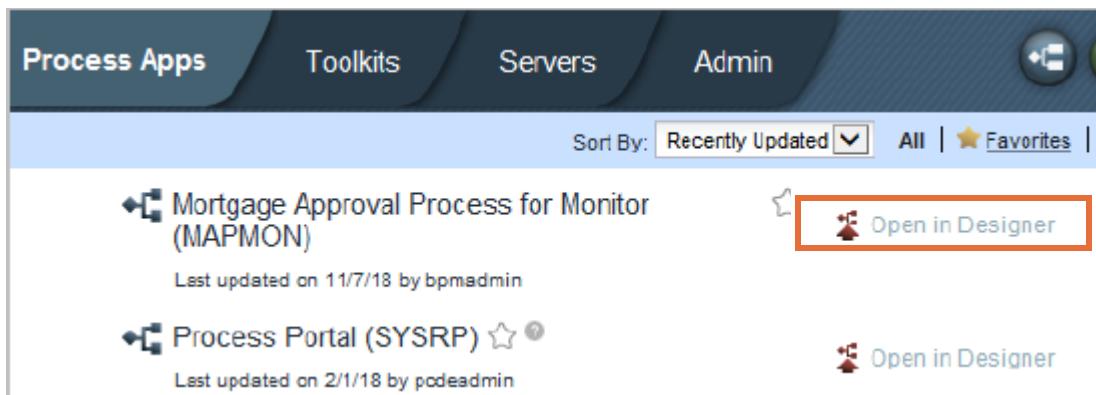
- ___ d. Browse to C:\labfiles\Support Files\EX10 and select **Mortgage_Approval_Process_for_Monitor-Exercise_Start.twx**.
- ___ e. Click **Open**.
- ___ f. In the Import Process App window, click **OK** to import the application.



- __ g. In the Import Process App, click Import.



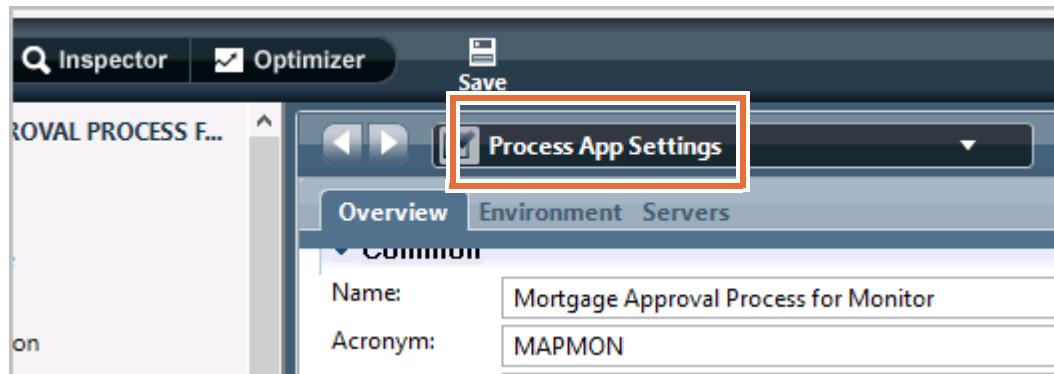
- __ h. When the import is complete, you see the newly imported application that is listed on the **Process Apps** tab.
 __ i. Next to Mortgage Approval Process for Monitor, click **Open in Designer**.



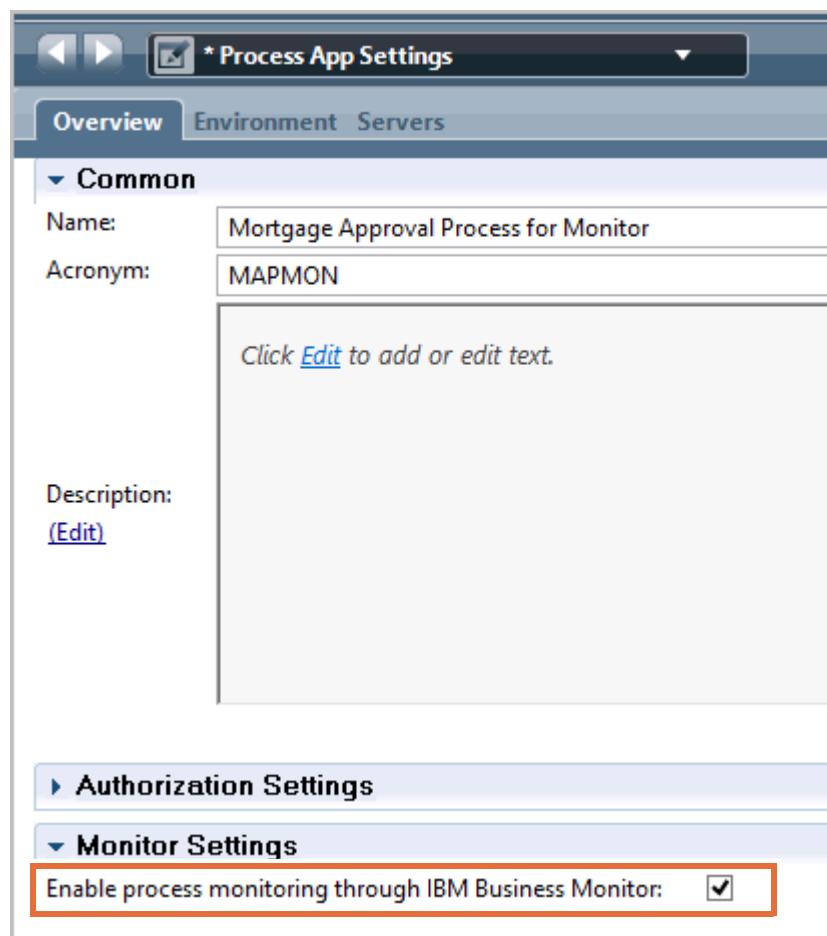
Part 4: Enabling tracking

Your environment is configured to send events from IBM Business Process Manager to Monitor. You can enable tracking for processes and process variables.

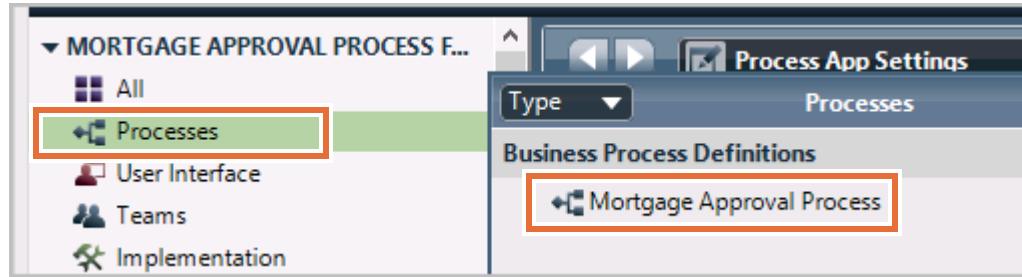
- 1. Enabling tracking for processes and variables generates metrics and KPIs.
- a. Make sure that **Process App Settings** is the current listed view.



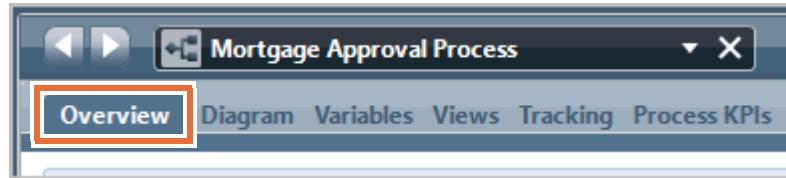
- b. In **Process App Settings**, expand **Monitor Settings** and select **Enable process monitoring through IBM Business Monitor**. Save your work.



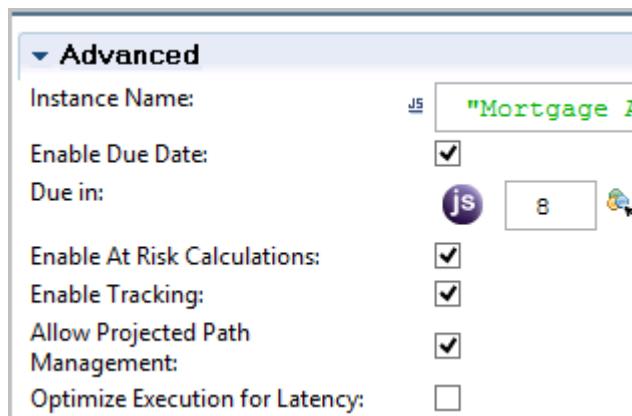
- __ c. Click **Processes** and then double-click **Mortgage Approval Process** to open it.



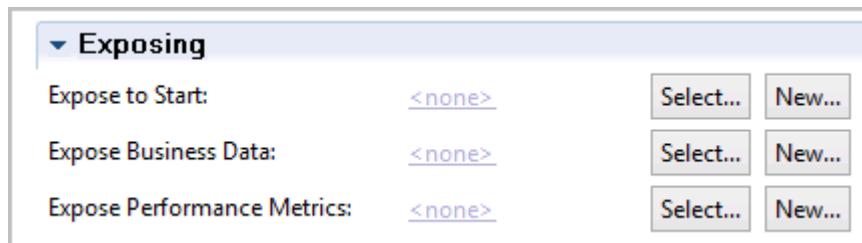
- __ d. Click the **Overview** tab.



- __ e. To send data to the Process Data Warehouse, you must expose the data. This allows data to be seen in the Process Portal in the **My Team** and **Process Performance Dashboards**, which you view later. On the **Overview** tab under **Advanced** to the right, verify that **Enable Tracking** is already selected. This enables tracking of this process.

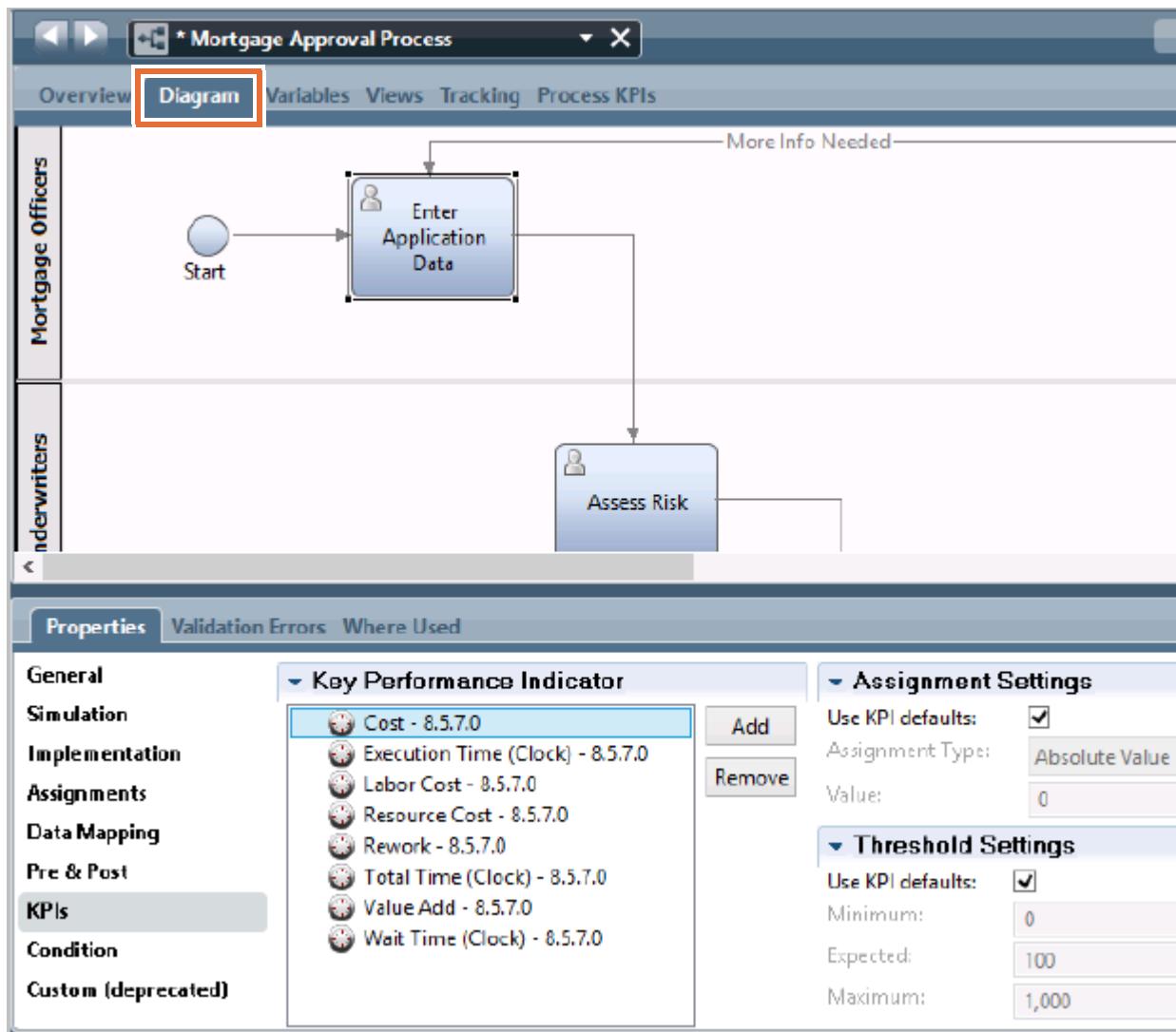


- __ f. Scroll down in the **Overview** tab, and locate the **Exposing** section. Expand it, if not already expanded.



- __ g. For **Expose to start**, click **Select** and then select the Mortgage Officers team.
 __ h. For both **Expose business data** and **Expose Performance Metrics**, also select the Mortgage Officers team.
 __ i. Save your work.

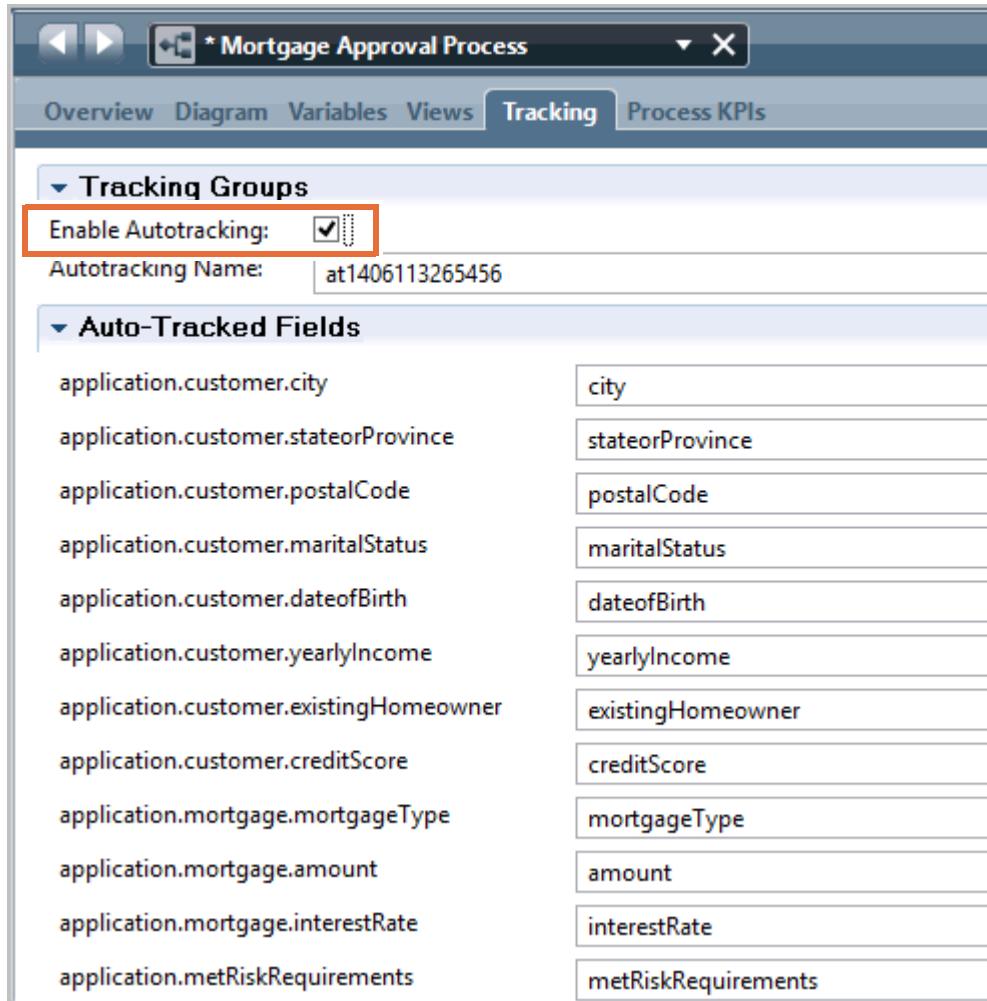
- __ j. Click the **Diagram** tab and browse through the tasks in the process to see the default KPIs and ranges that are set for the activities in the **KPIs** section under **Properties**.



- __ 2. Examine the tracking of the variables. These steps were already done for you. In this step, you view and confirm the values.
- Click the **Variables** tab in the process editor.
 - Expand **Variables > Local > Private > application > mortgage**.

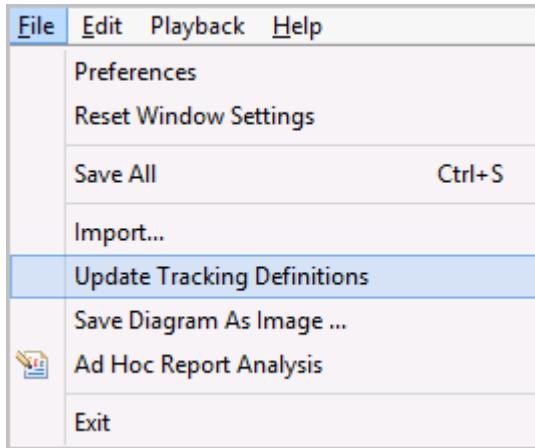
- c. For each data element that is to be monitored, note the **Track this Field** check box. There are several elements that are being tracked. Note that when a field is tracked, you see [Tracked] added next to the name.

- ___ 3. Enable **Autotracking** for the process.
- ___ a. For Monitor to completely track a process and its variables, **Autotracking** must be enabled. By default, it is not enabled. Click the **Tracking** tab and enable **Autotracking** by making sure the **Enable Autotracking** check box is selected (or enabled).

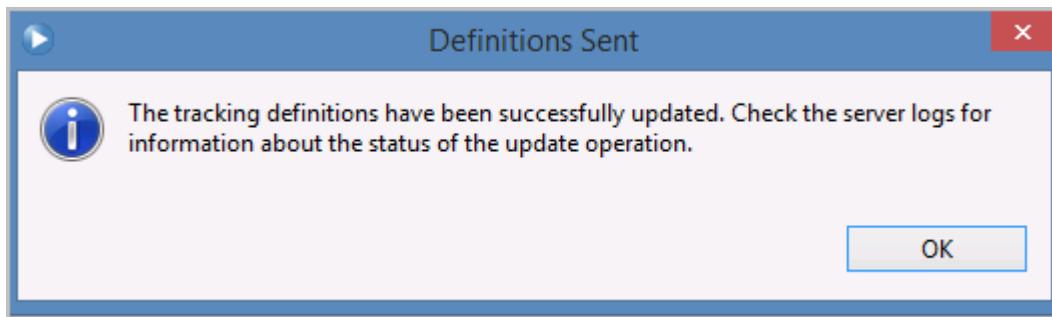


- ___ b. Press Ctrl+S to save your changes.

- 4. Update Performance Data Warehouse. You update Performance Data Warehouse to receive the data that is flagged for monitoring within IBM Business Process Manager.
 - a. From the **File** menu, select **Update Tracking Definitions**. The process runs for a little while and prepare the Process Data Warehouse to accept data from this process.



- b. Click **OK** when you see the **Definitions Sent** dialog box.

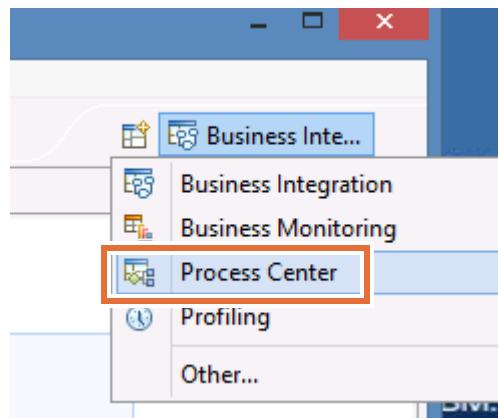


Part 5: Generating an IBM Business Monitor model

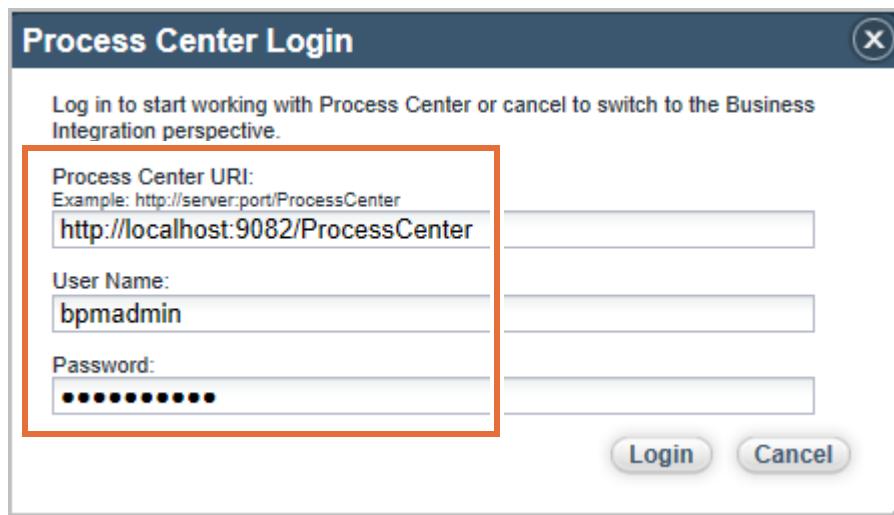
In this section, you open the project in Integration Designer and generate a monitor model based on the process that you just imported and enabled. Remember that this is completely separate from IBM Business Process Manager's Performance Data Warehouse (PDW). PDW monitors what is going on in IBM Business Process Manager, but IBM Business Monitor not only can monitor what is going on in IBM Business Process Manager but virtually any other system.

- 1. Start IBM Integration Designer.
 - a. On your desktop, double-click the shortcut that is labeled **IBM Integration Designer**. This action takes a moment to initialize.
 - b. In the **Workspace Launcher** dialog box, change the **Workspace** location to **C:\Workspaces\EX10** and click **OK**.
 - c. Close the welcome page by clicking the **X** on the **Getting Started - IBM Integration Designer** tab.

- 2. In the upper-right corner of the designer, click the **Open Perspective** icon and select **Process Center**.

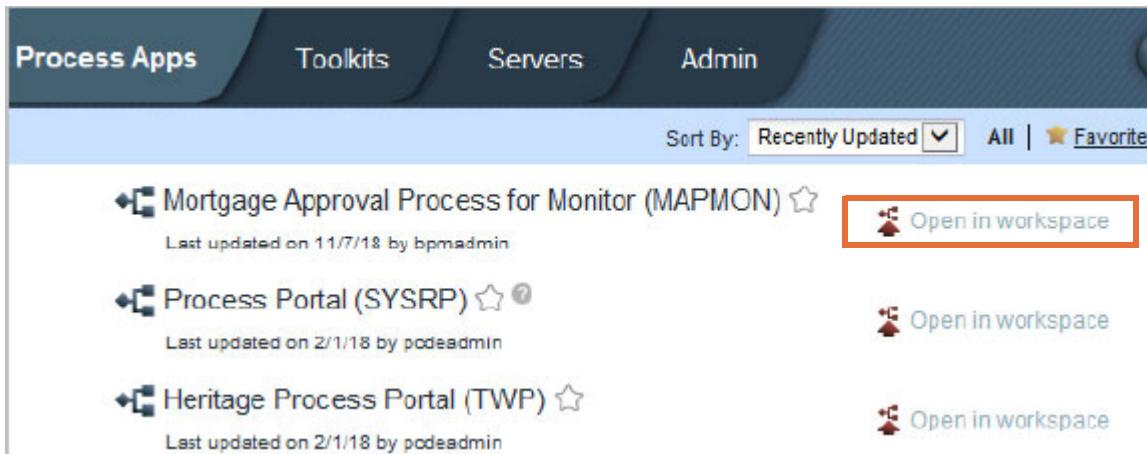


- a. In the Process Center login window, for the **Process Center URL** field, enter `http://localhost:9082/ProcessCenter`
- b. For **User Name**, enter `bpmadmin`
- c. For **Password**, enter `web1sphere`
- d. Click **Login**.

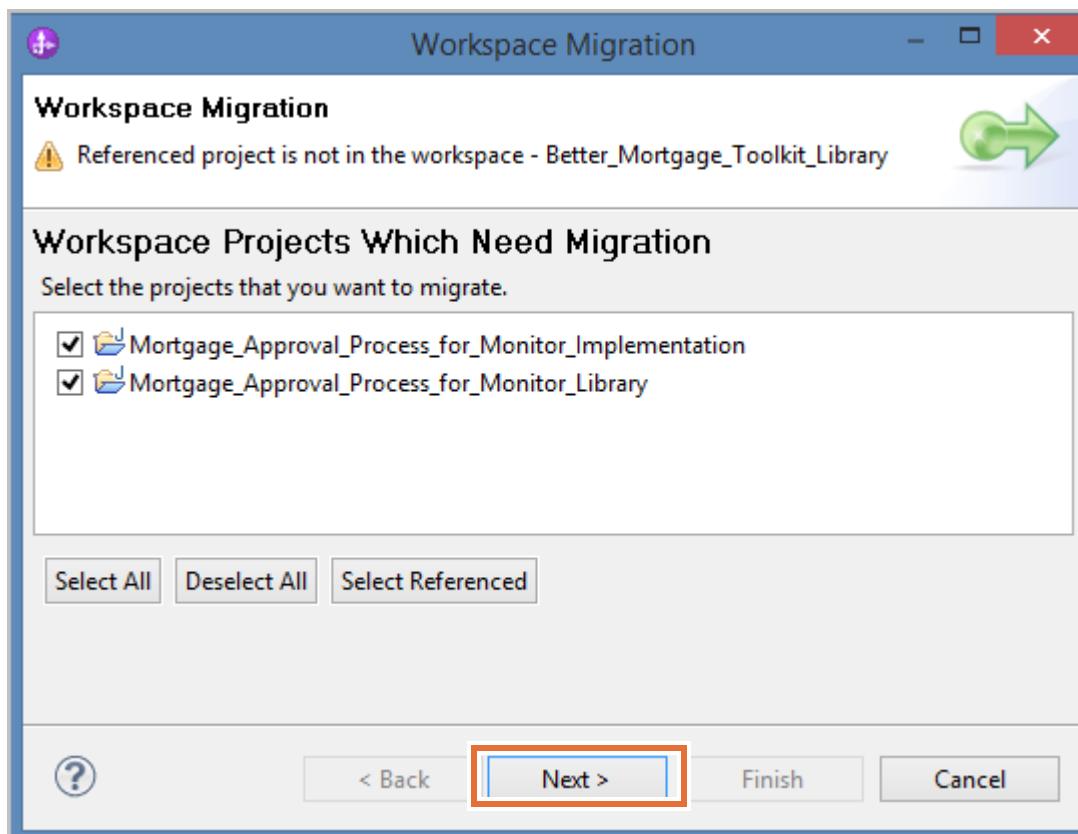


- e. Click **Cancel** each time a Secure Storage window is displayed.
- f. Click **Yes** each time a **Security Alert** window is displayed.
- g. Click **OK**, when the **Secure Storage Warning** window is displayed.
- h. Close **Getting Started with IBM Process Center 8.5.7.201612**, when displayed. You might have to maximize the window to view the **X** icon in the upper-right corner. Click **X** to close that window.

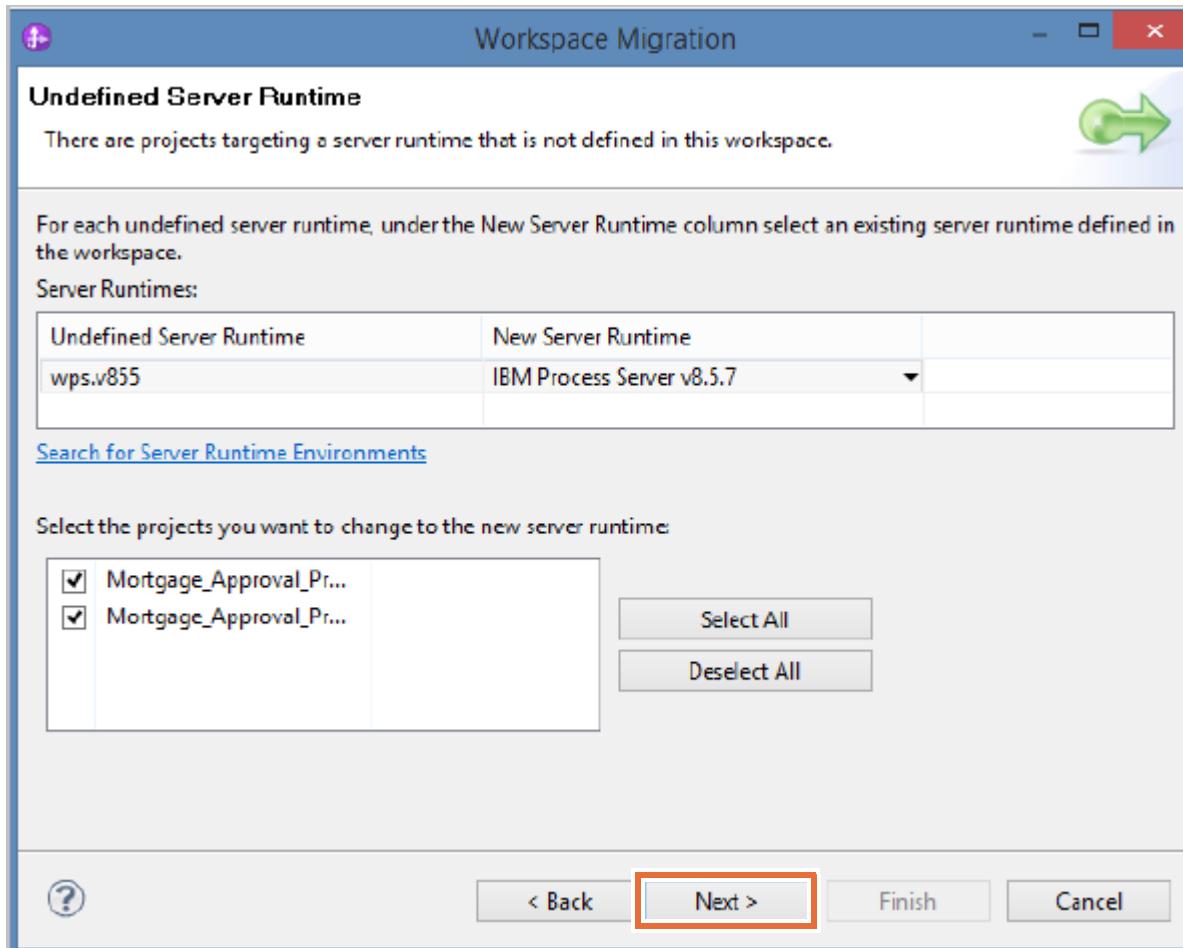
- 3. Work with the process in workspace within Integration Designer.
- a. Process Center opens with the process you imported earlier. Next to the **Mortgage Approval Process for Monitor (MAPMON)**, click **Open in workspace**.



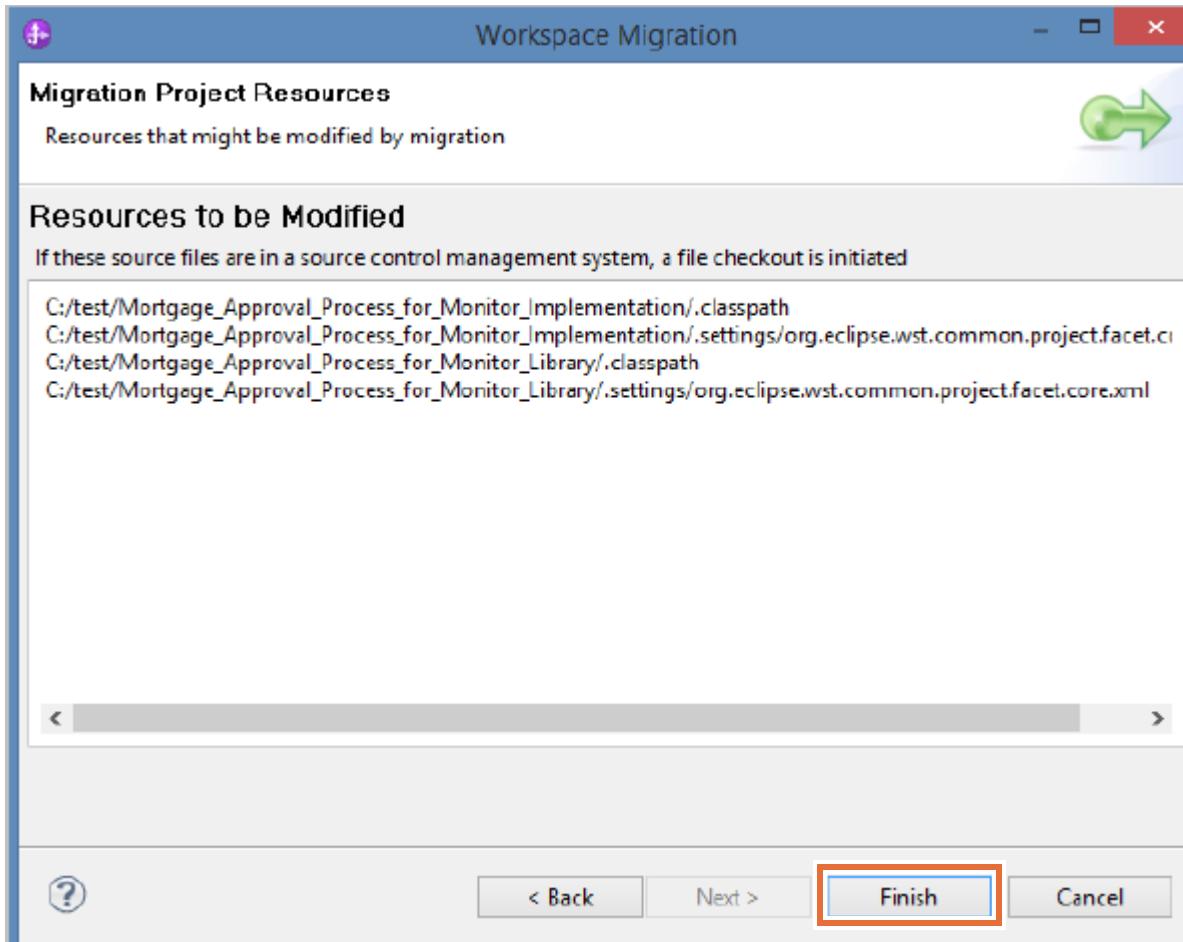
- b. When the Workspace Migration wizard appears, leave the default selected and click **Next**.



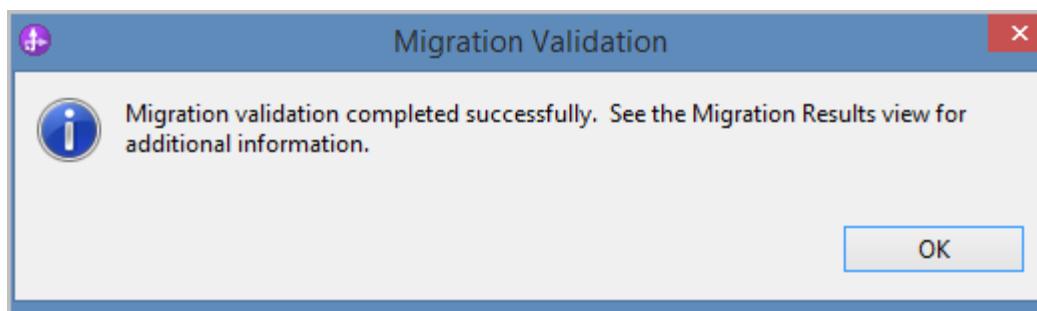
- __ c. Leave the default server for **New Server Runtime** selected and click **Next**



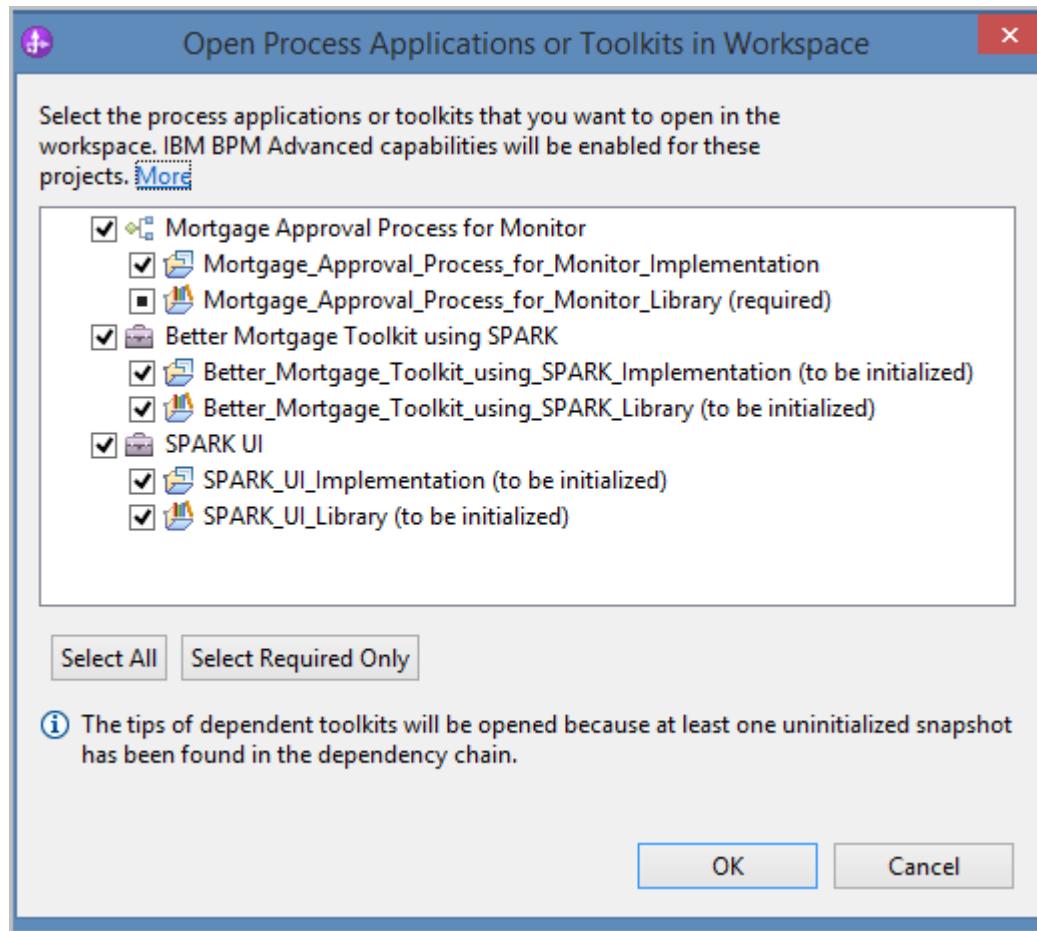
- __ d. Click **Finish** to complete the migration.



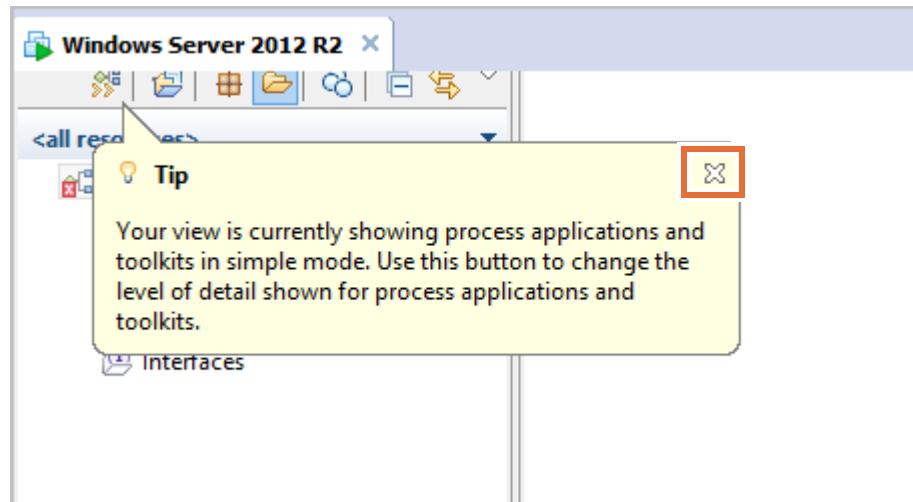
- __ e. Click **OK** when the Migration Validation window is displayed confirming that the migration validation completed successfully.



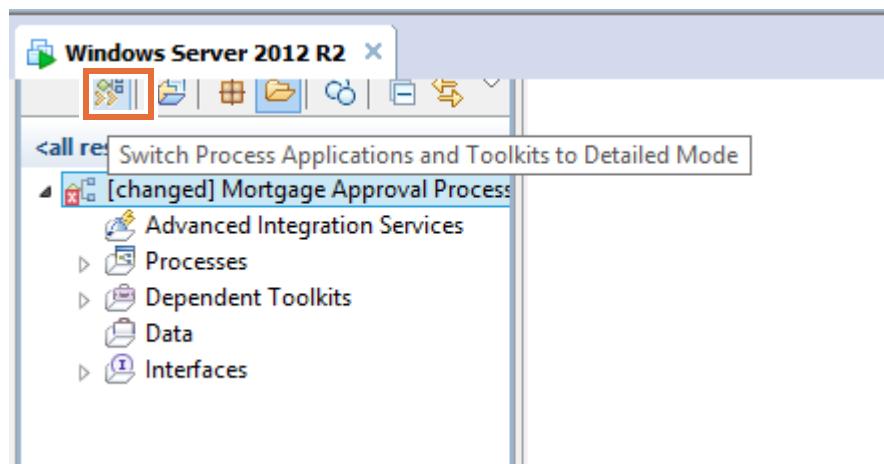
- f. If a window is displayed asking what applications or toolkits you want to open, then leave the defaults selected click **OK**. Otherwise, go to the next step.



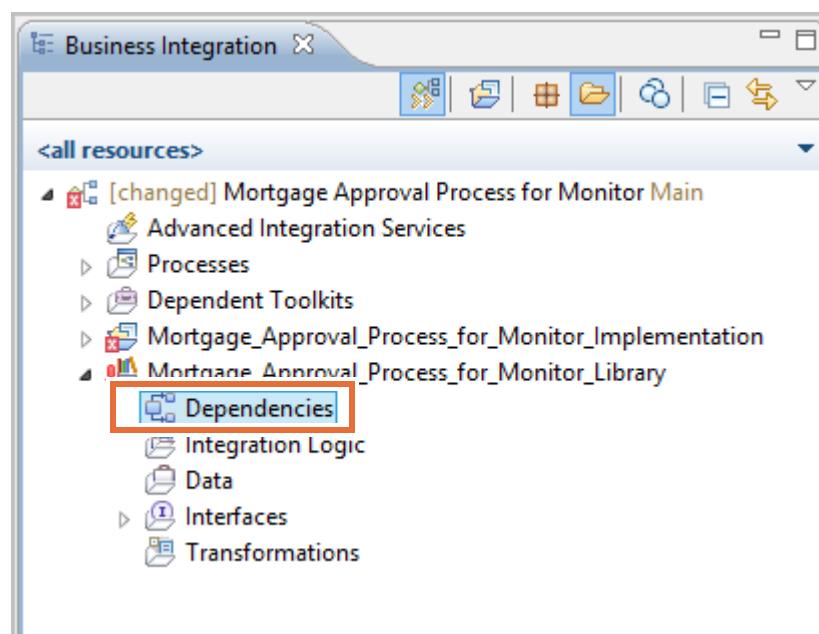
- g. Close the Tip window by clicking **X**.



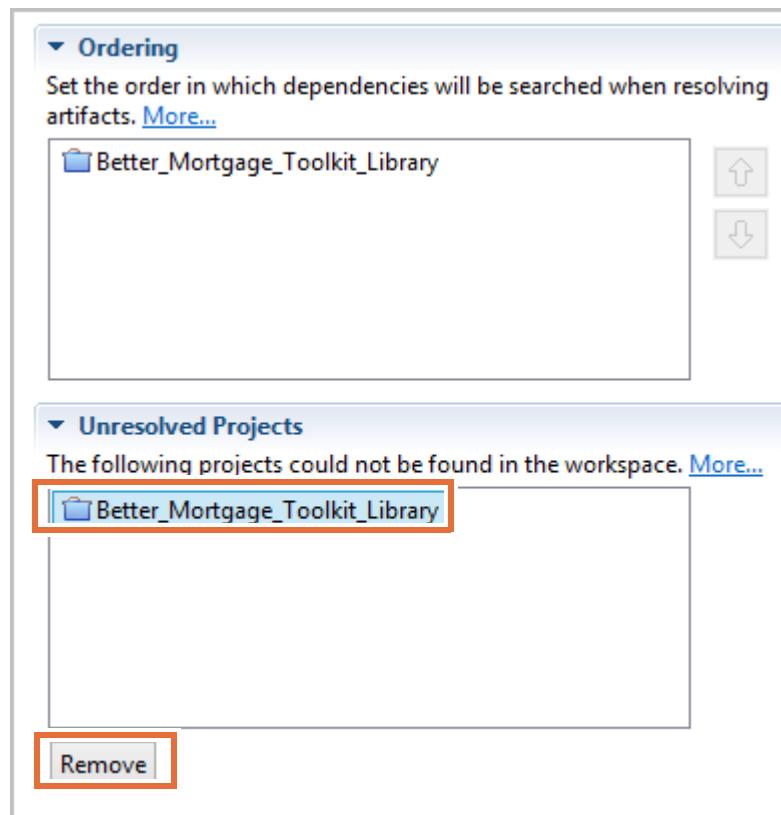
- 4. Remove the library dependency from workspace.
- a. Click the icon to **Switch Process Applications and Toolkits to Detailed Mode**.



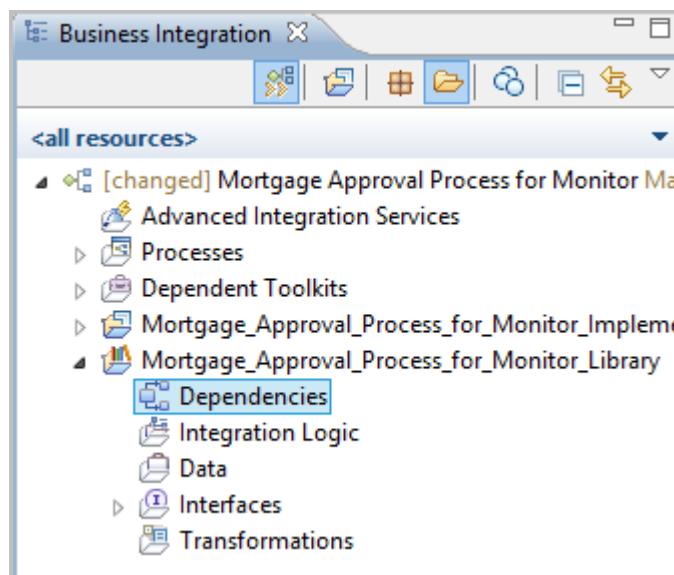
- b. Note the red error icons in the project. This is due to the library that is not available.
- c. Expand **Mortgage_Approval_Process_for_Monitor_Library** and then double-click **Dependencies**.



- __ d. In the Dependencies editor that opens to the right, select **Better_Mortgage_Toolkit_Library** under **Unresolved Projects**, and click **Remove**.



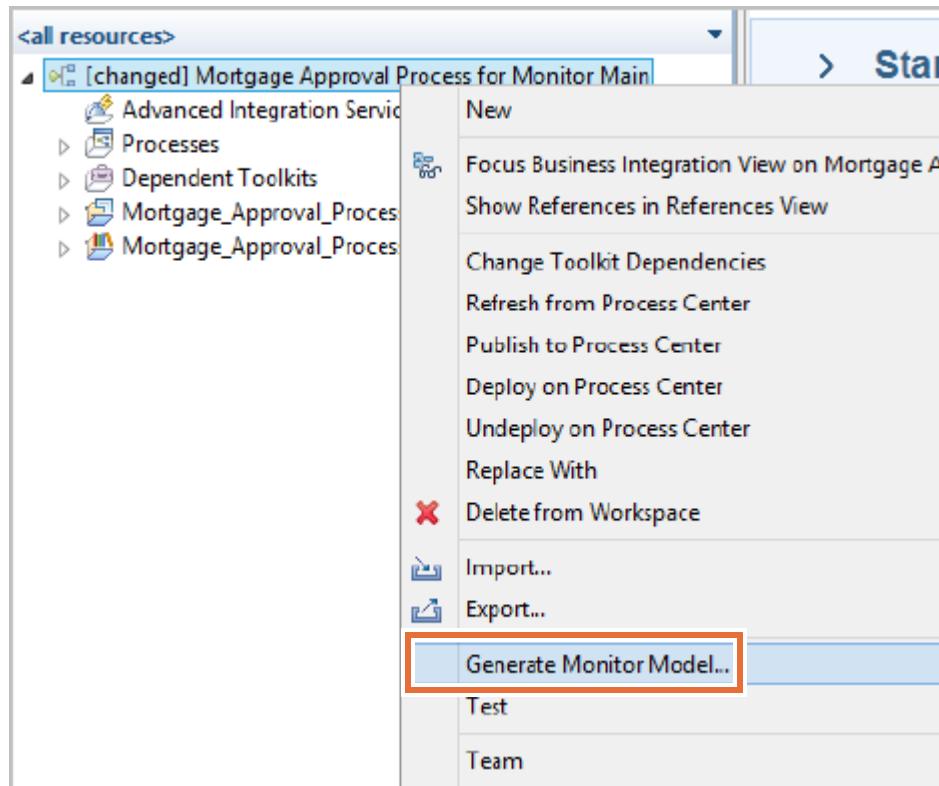
- __ e. Save your work and close the **Dependencies** editor.
 __ f. Verify that there are no more errors in the project. This is confirmed when there are no more red error indicators as seen earlier.



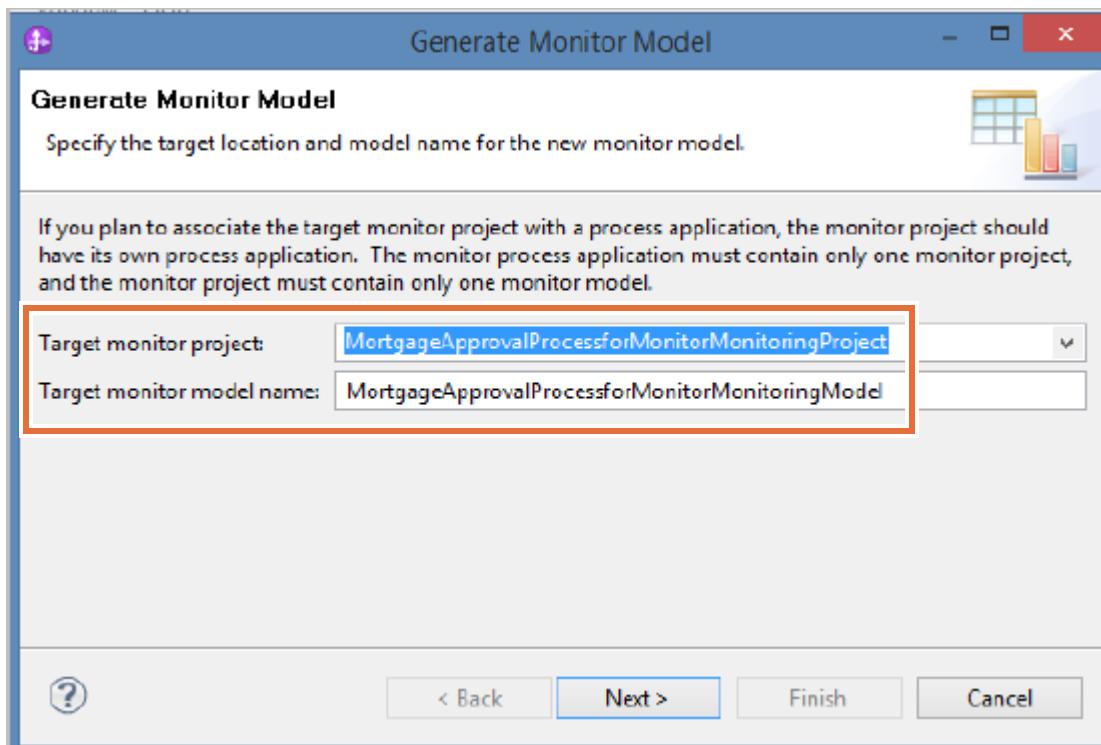
Part 6: Building the Monitor model: Exporting the EAR file

A Monitor model becomes a Java EE application that you run in an application server. You generate a Java Enterprise Edition application and export it as an EAR file. You then import the EAR file on the target application server.

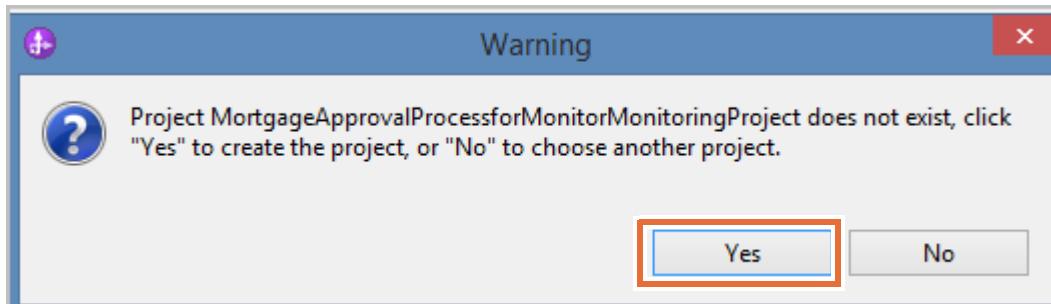
- 1. Generate the Monitor model.
- a. To generate a monitor model, right-click the **(changed) Mortgage Approval Process for Monitor Main** project and click **Generate Monitor Model**.



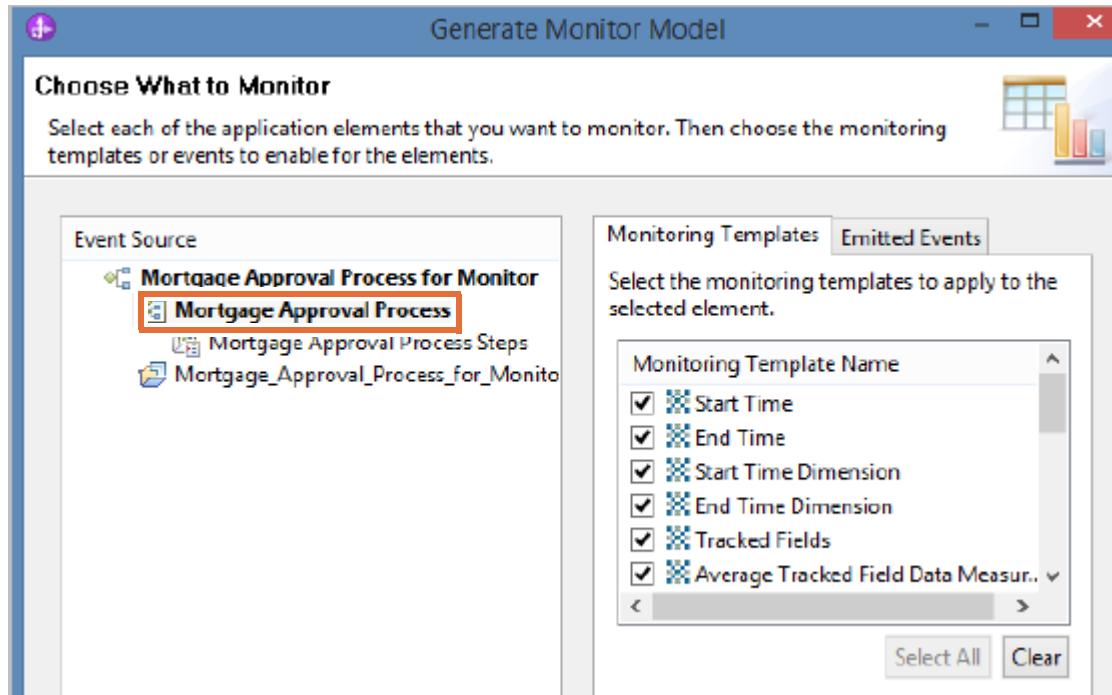
- __ b. In the Generate Monitor Model window, leave the default project names selected, and click **Next**.



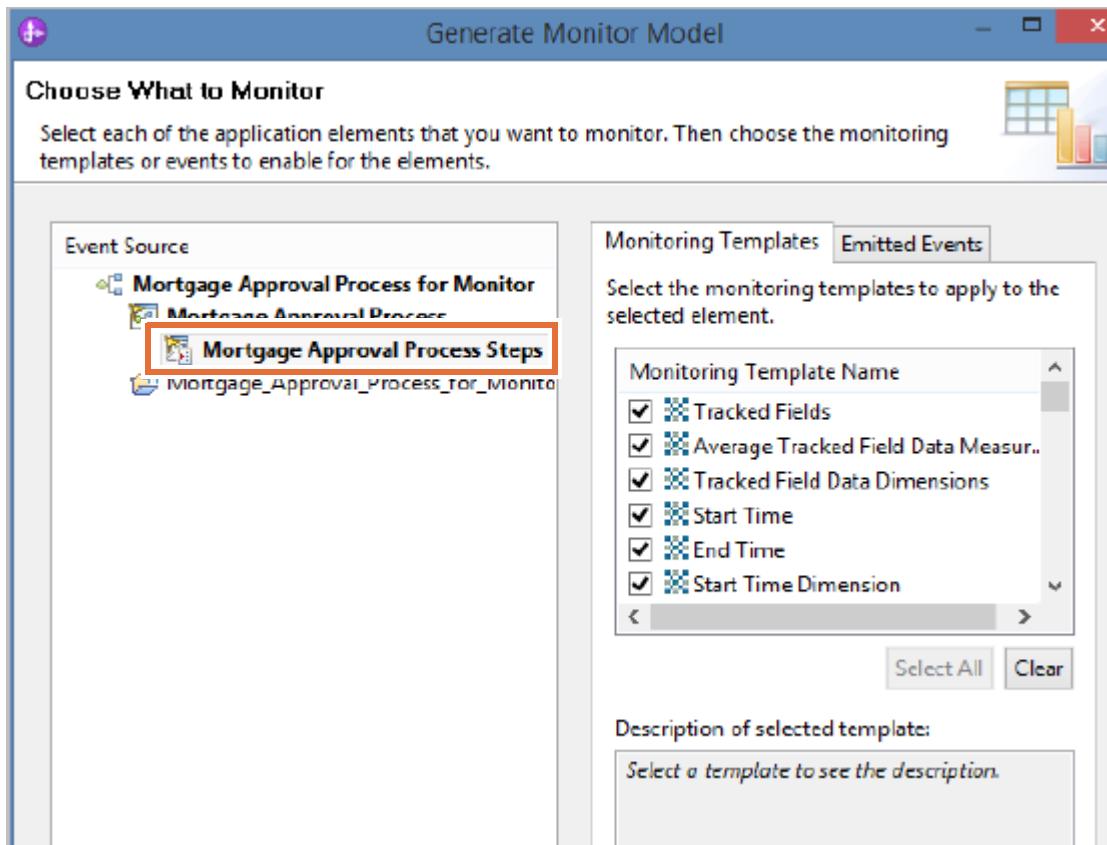
- __ c. When the Warning is displayed, click **Yes** to create the Monitoring project.



- d. On the “Choose What to Monitor” page, you select what to monitor in the process and steps within the process. Click **Mortgage Approval Process** and then click **Select All** to select all of the templates. The templates are preconfigured metrics and key performance indicators (KPIs) that are most commonly used by customers. You can add your own custom metrics and KPIs later. These templates accelerate the model creation process.

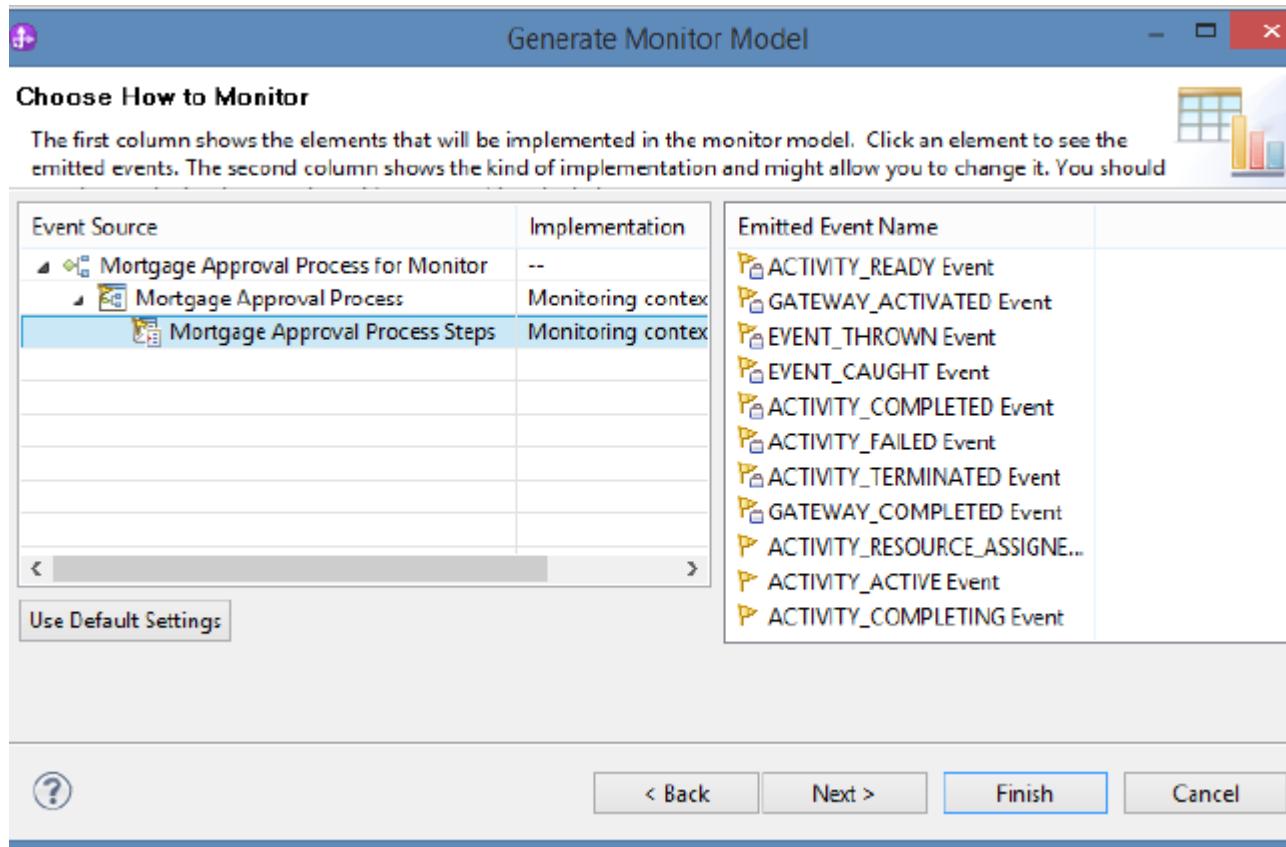


- __ e. Select **Mortgage Approval Process Steps** and click **Select All**.

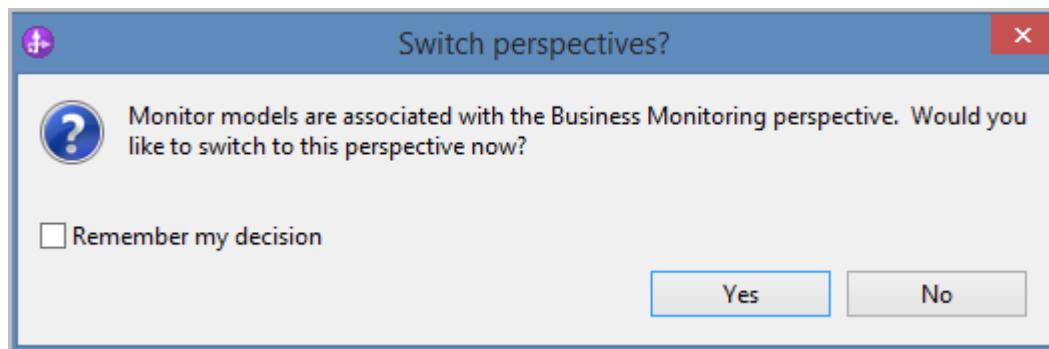


- __ f. Click **Next**.

- __ g. The dialog box shows you how the monitor model is constructed and the events, which flow from the process into Monitor. You can explore this dialog box and when you're done. Click **Finish**.

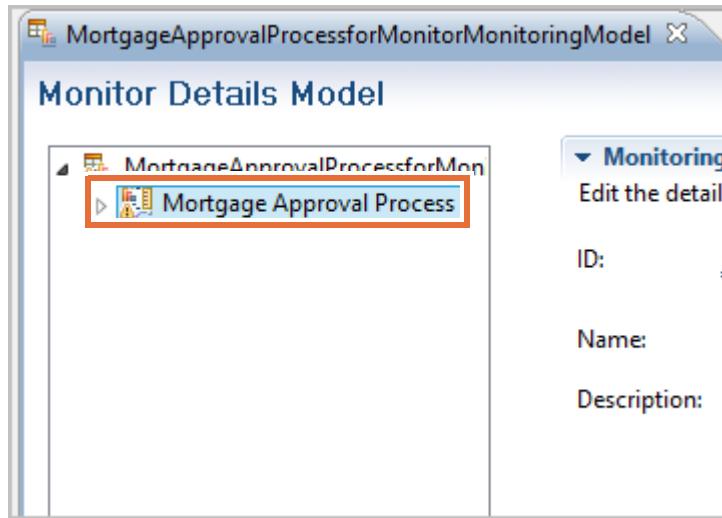


- __ h. When prompted to switch to the Business Monitoring perspective, click **Yes** to switch.

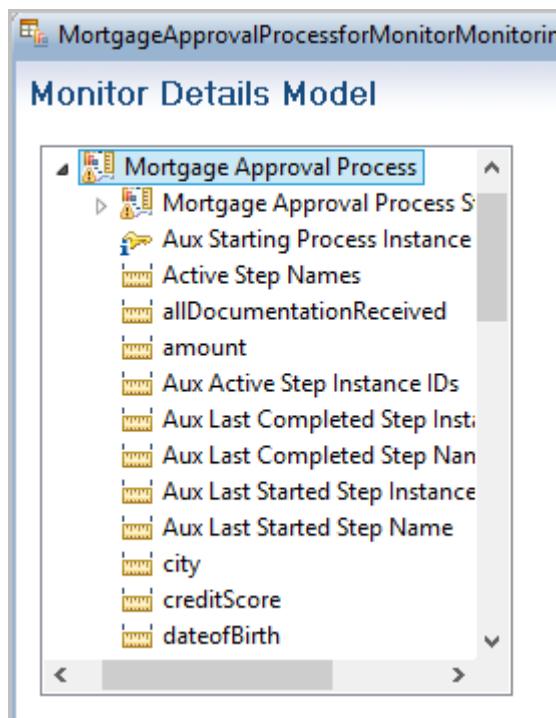


- __ 2. Export the Monitor model.
__ a. Close the **Technology Quickstarts** and the **Help** editors by clicking the X icons.

- ___ b. In the **Monitor Details Model** section, expand **Mortgage Approval Process**.

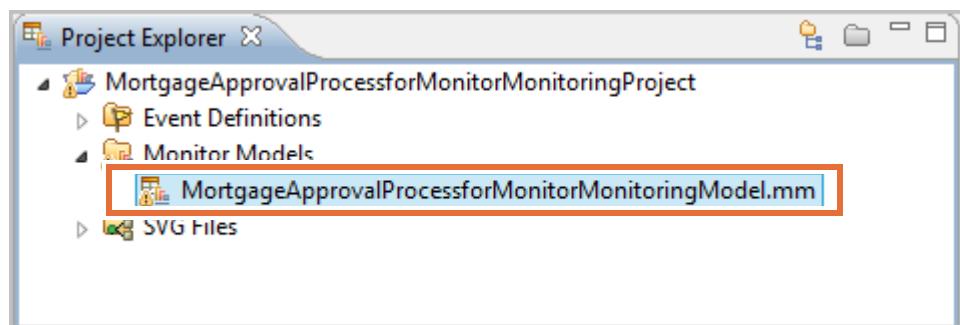


- ___ c. You can explore the metrics that are generated as there are quite a lot of them. Note the metrics that are generated for capture business process variable data were enabled earlier.

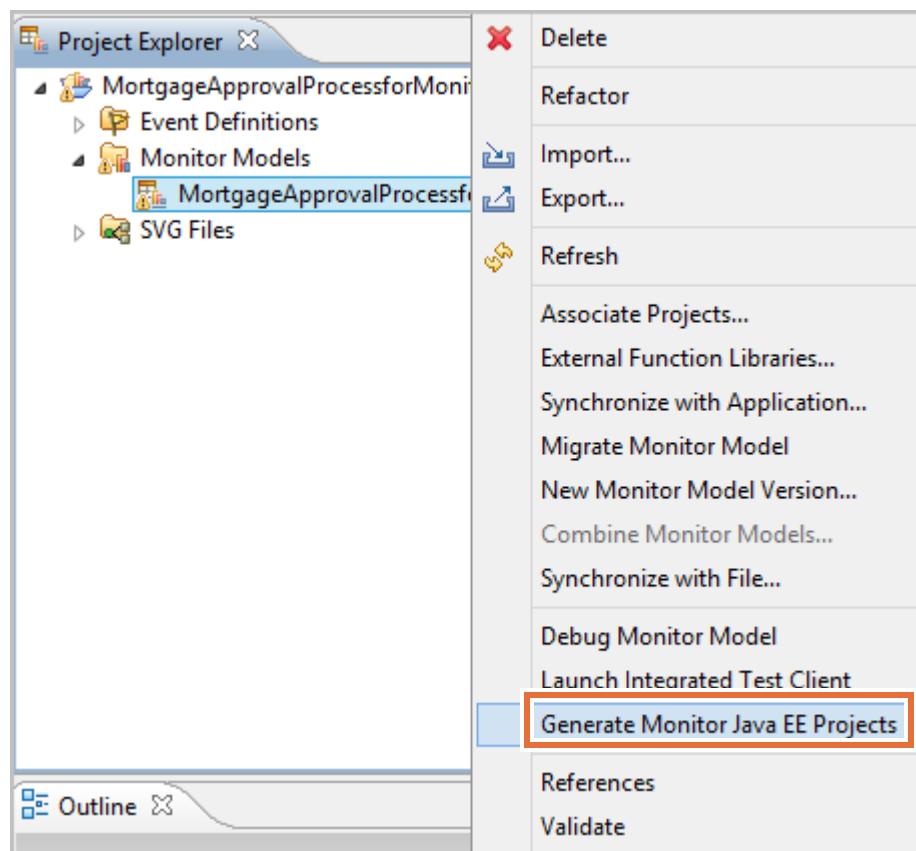


- ___ d. You can explore other parts of the monitor model by clicking through the tabs - KPI Model, Dimensional Model, Visual Model, and other tabs. Creating more metrics, KPIs, Dimensions, and other tabs are beyond the scope of this exercise.

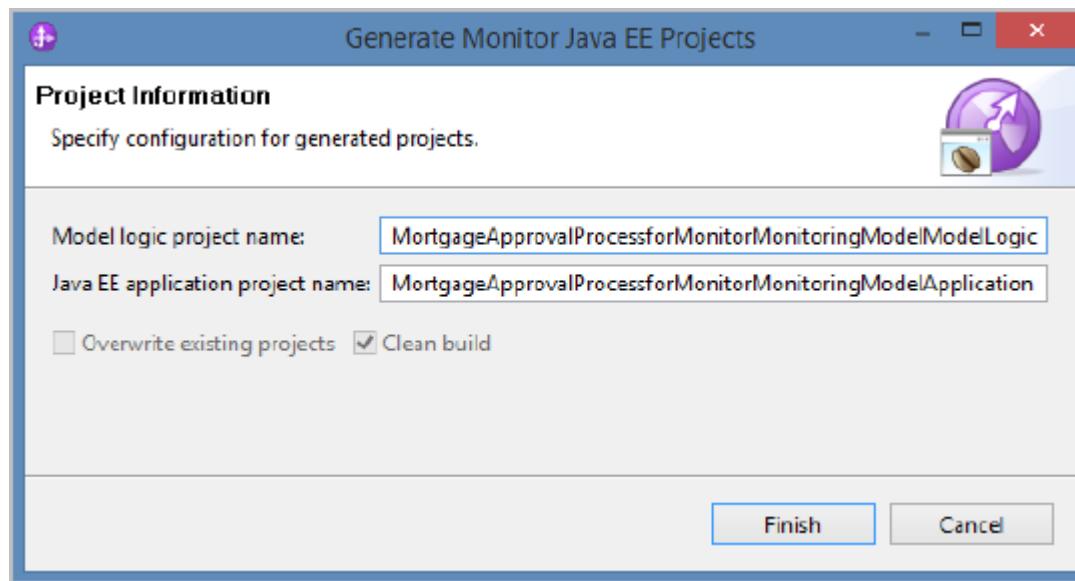
- __ e. In the **Project Explorer** view (if not already expanded), expand **Monitor Models** and select **MortgageApprovalProcessforMonitorMonitoringModel.mm**.



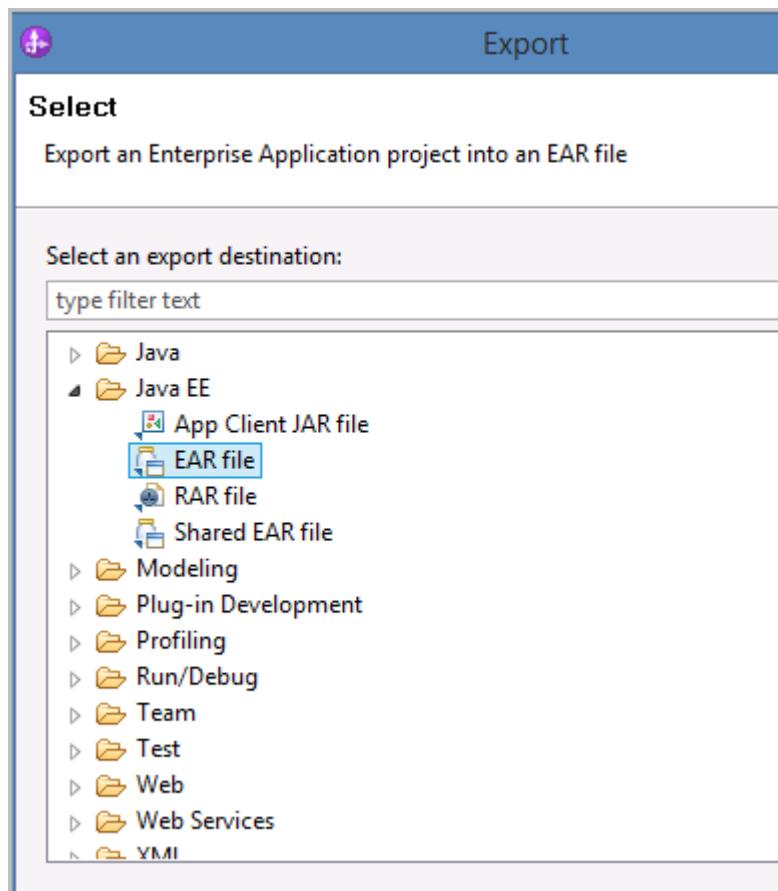
- __ f. Right-click **MortgageApprovalProcessforMonitorMonitoringModel.mm** and click **Generate Monitor Java EE Projects**.



- __ g. Accept the default values in the Generate Monitor Java EE Projects window and click **Finish**.

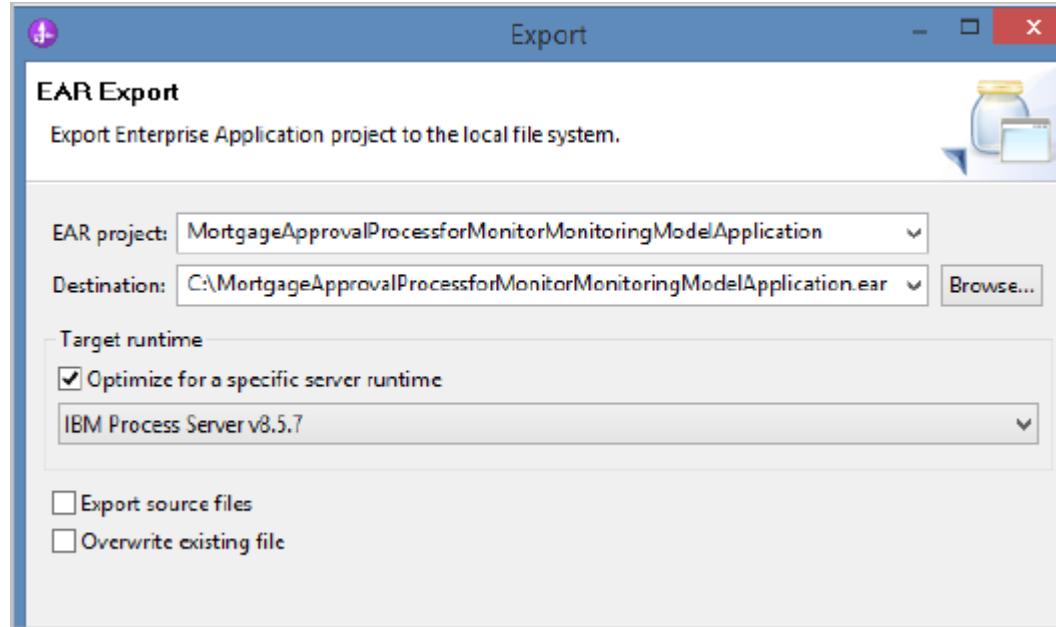


- __ h. Wait for the generate process to complete.
- __ i. From the menu, select **File > Export** and then in the Export window, go to **Java EE > EAR file**.



- __ j. Click **Next**.

- ___ k. Leave the **EAR project** set to default value of `MortgageApprovalProcessforMonitorMonitoringModelApplication`.
- ___ l. For **Destination**, click **Browse** and go to `C:\` and accept the default ear file that gets populated in the **File name** field. Click **Save**.
- ___ m. When you return to the Export window, click **Finish** to export the EAR file.



Part 7: Deploying the Monitor model

- ___ 1. Start Internet Explorer and click the **Monitor Admin Console** tab.
- ___ a. Log in to the administrative console. Use `admin` for **User ID** and `web1sphere` for **Password**; then, click **Log in**.

- __ 2. Deploy the Monitor model by using the administrative console.
- __ a. From the administrative console, select **Applications > Monitor Models**.



- __ b. A table that shows all currently installed Monitor models is displayed. Click **Install**.
- __ c. In the **Path to the new application** section, to the right of **Local file system**, click **Browse**, go to **C:**, select the **MortgageApprovalProcessforMonitorMonitoringModelApplication.ear** file that you saved earlier, and then click **Open**.
- __ d. Click **Next**.

The screenshot shows the 'Preparing for the application installation' dialog box. The title bar says 'Preparing for the application installation'. The main area says 'Specify the EAR, WAR, JAR, or SAR module to upload and install.' Below it is a section titled 'Path to the new application' with two options:

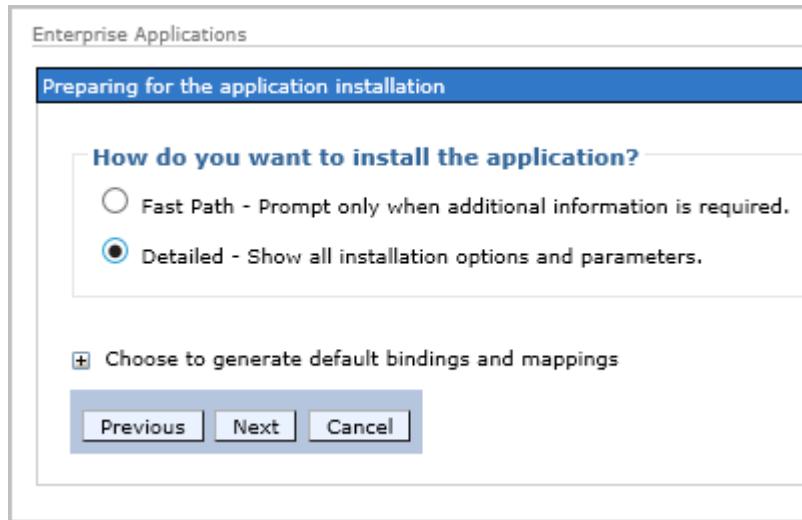
- Local file system

Full path:
- Remote file system

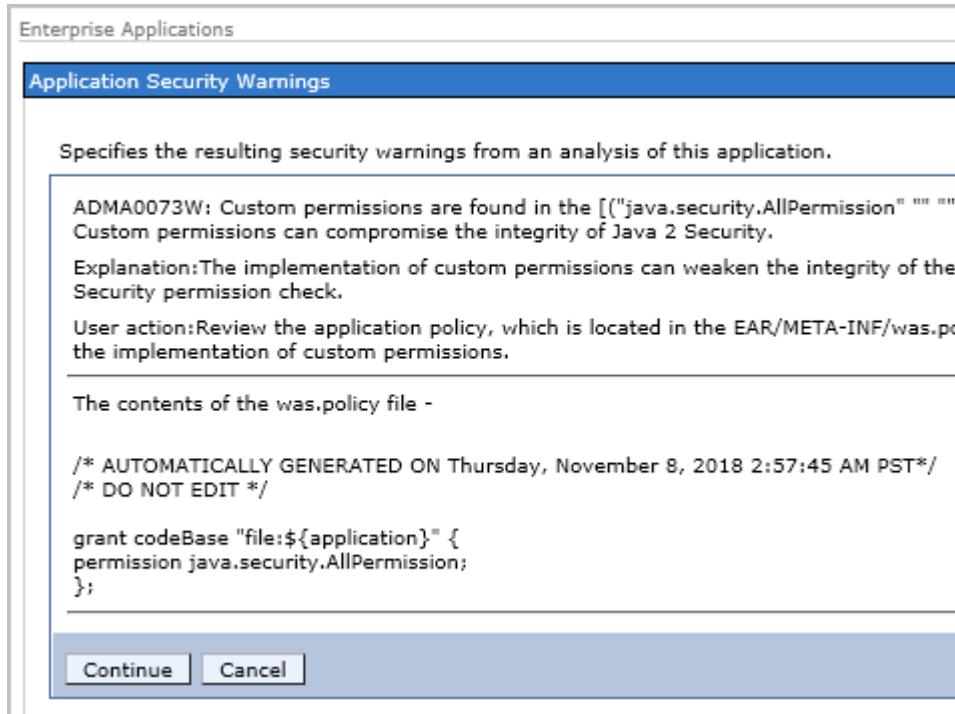
Full path:

At the bottom are 'Next' and 'Cancel' buttons.

- ___ e. You use the Detailed deployment option because you need to assign the newly created event source for your model in the server. For **How do you want to install the application**, ensure that **Detailed– Show all installation options and parameters** is selected, and click **Next**.

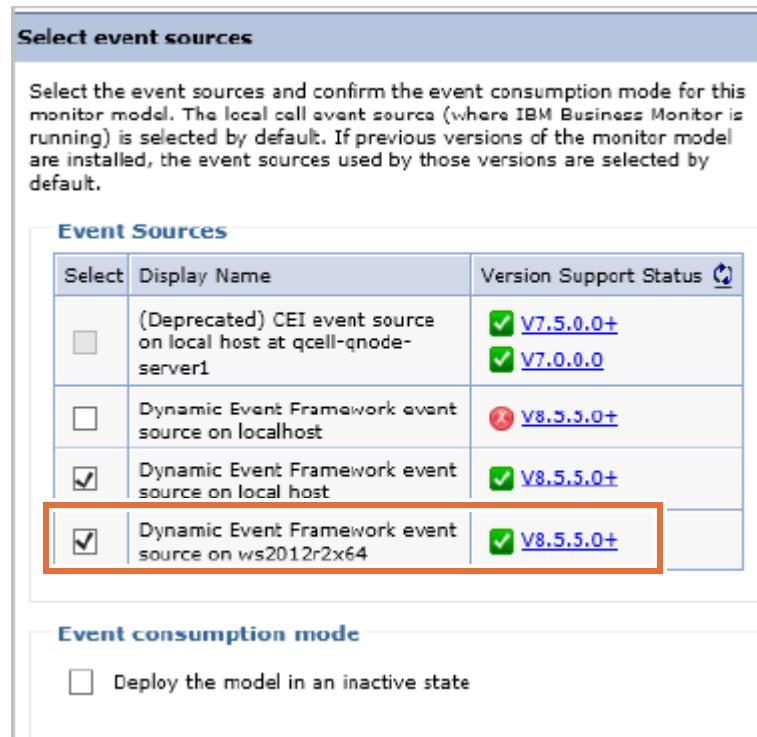


- ___ f. In the Application Security Warnings window, click **Continue**.

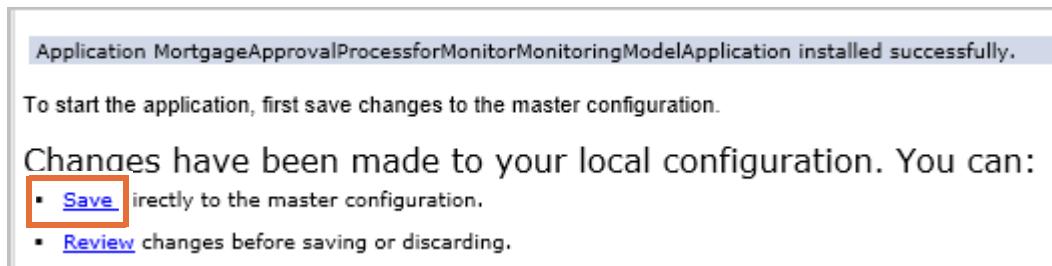


- ___ g. Click **Step 14 Select event sources**.

- __ h. Select the **Dynamic Event Framework event source on ws2012r2x64** check box and click **Next** to add this event source.



- __ i. Click **Next** and wait until the page gets to the next page.
 __ j. Click **Next** one more time and then click **Finish**. The installation options window is displayed.
 __ k. When the installation is complete, the message `Application MortgageApprovalProcessforMonitorMonitoringModel installed successfully` is shown in the administrative console view. It might be necessary to scroll down to see the message.



- __ l. Click the **Save** link to save the changes to the master configuration.
 __ m. When you return to the **Monitor Models** page, the model starts automatically, it takes a few minutes, and you can click the refresh icon next to the Status column.
 __ n. If the model does not start, then, start the model by selecting the check box next to the **MortgageApprovalProcessforMonitorMonitoringModel** model and clicking **Start**. It can take several minutes for the application to start because it must generate the Cognos data cubes.

- o. After the model is started, the icon in the **Status** column on the right changes from a red X to a green arrow. It can take several minutes for the application to start because it must generate the Cognos data cubes.



It is important that there are no problems with the monitor model data security and the admin user is assigned to it. If you already completed Exercise 1, then the monitor model data security is already configured. You can check this if under the Data Security column for this model, it says. If it says **No Members Assigned** in red color then data security must be configured before you continue or else you do not see correct data in business space.

Application	Data Security	Status
MortgageApprovalProcessforMonitorMonitoringModelApplication	No members assigned	

- p. For the Mortgage Approval model, click the **Version** column to examine it. Note that the version number is different than the one in your environment and does not match with the following image:

Monitor Models				
Use this page to manage all versions of monitor models and their associated applications. To : All models are initially added to the root resource group and may not be visible by its intende				
<input type="checkbox"/> Preferences <input type="button" value="Start"/> <input type="button" value="Stop"/> <input type="button" value="Install"/>				
Select	Model	Deployment		
<input type="checkbox"/>	MortgageApprovalProcessforMonitorMonitoringMode	<table border="1"> <tr> <th>Version</th> </tr> <tr> <td>2018-11-07T23:33:57</td> </tr> </table>	Version	2018-11-07T23:33:57
Version				
2018-11-07T23:33:57				
Total 1				
<input type="button" value="OK"/>				

- ___ q. Under **General Properties**, verify that the **Event consumption mode** is set to **CreateNewInstances** and **Active MC instances** is 0.

General Properties

Model: MortgageApprovalProcessforMonitorMonitoringModel

Version: 2018-11-07T23:33:57

Application: MortgageApprovalProcessforMonitorMonitoringModelApplication

Event consumption mode: CreateNewInstances

Active MC instances: 0

Deployment

- Dashboards enabled
- Schema created
- Cognos cubes created (optional)

- ___ r. Under Version Properties, click **Change event sources**.

Version Properties

- [Manage schema](#)
- [Manage Cognos cubes](#)
- [**Change event sources**](#)
- [Change event consumption mode](#)
- [Change runtime configuration](#)
- [View model](#)
- [Purge model version](#)

Manage Monitor Data

- [Export instance data](#)

- s. Verify that **Dynamic Event Framework event source** on ws2012r2x64 is listed and its status is listed with a green check mark. Do not make any changes.

Select	Display Name	Version Support Status
<input type="checkbox"/>	Dynamic Event Framework event source on local host	<input checked="" type="checkbox"/> V8.5.5.0+
<input checked="" type="checkbox"/>	Dynamic Event Framework event source on ws2012r2x64	<input checked="" type="checkbox"/> V8.5.5.0+

- t. Click **Back**.
— u. Log out of the administrative console.

Part 8: Creating the dashboard

In this section, you examine the ready-to-use business monitoring capabilities that are included in the IBM Business Process Manager product itself. These capabilities are enabled by a component called the Performance Data Warehouse, which collects information as processes are run within IBM Business Process Manager. This section briefly goes through the Process Performance dashboard before going to the Monitor dashboard.

- 1. Open Process Portal in Internet Explorer.
 - a. Open Internet Explorer and click the **Process Portal** tab.
 - b. If prompted, click **Continue to this website (not recommended)**.
 - c. If prompted, enter in bpmadmin in the **Username** field and web1sphere in the **Password** field and click **Continue**.

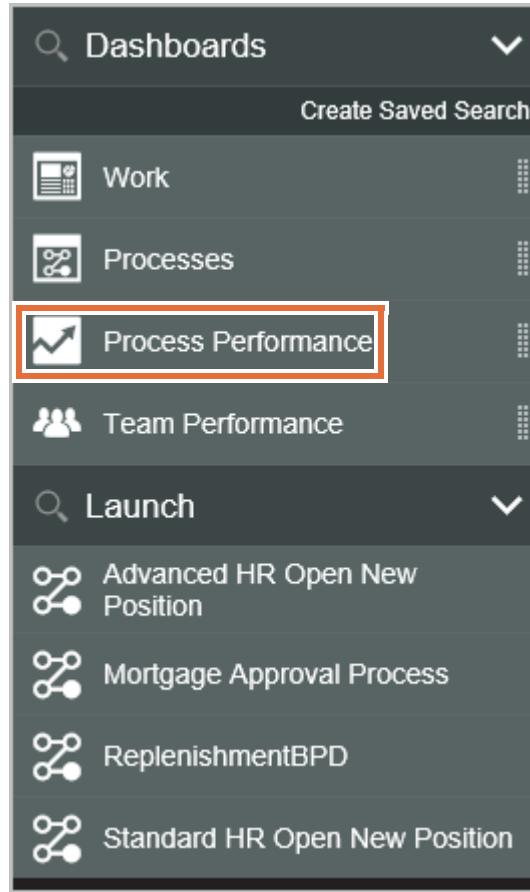
- ___ d. The Process Portal dashboard page opens. You start a few processes and then view information in the Business Space dashboards. In the center of the page is the **Work** area. On the left side pane, the Launch is expanded by default to list the available processes.

The screenshot shows the Process Portal dashboard. At the top left is the user profile of 'bpadmin' with options to 'Edit Profile' or 'Log Out'. To the right is a search bar with placeholder text 'Enter search text...'. Below the search bar is a section titled 'Work' with three dots. The main content area is currently empty. On the left, there is a sidebar with several sections:

- Dashboards**: Includes 'Create Saved Search'.
- Work**
- Processes**
- Process Performance**
- Team Performance**
- Launch**: This section is expanded and contains the following items:
 - Advanced HR Open New Position
 - Mortgage Approval Process
 - ReplenishmentBPD
 - Standard HR Open New Position

- ___ e. Click **Mortgage Approval Process** to start it. You can click it multiple times to start multiple processes. You should start at least two processes.
- ___ f. For each process started, you see a pop-up window that indicates work has started and the **Step: Enter Application Data** task is in the work queue. You see several of these if you launched multiple processes. Complete at least one of the processes by clicking and stepping through each of the process tasks and complete all the values of **Enter Application Data**. Enter some sample data while going through one of the processes.

- __ g. Click the **Process Performance** dashboard to view process metrics.

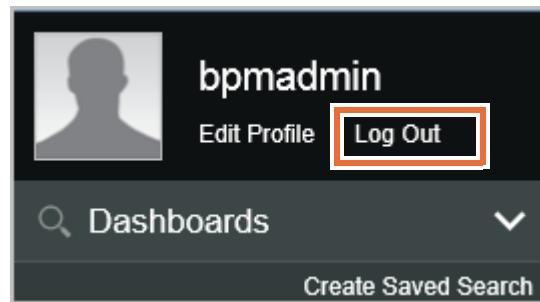


- __ h. You see several processes in the dashboard, which is OK because the user has privileges to view data about other processes. Find **Mortgage Approval Process** and click it to view metrics regarding this process.



- __ i. You see an overview of the Mortgage Approval Process. You see how many are On Track, At Risk, or Overdue (though you'll probably only see On Track because you just started them). You also see the Average Instance Duration, which in this case is the measurement of the process you completed earlier. If you did not complete the process, you see zero for the average instance duration.

- __ j. Feel free to browse and explore the other areas of the process portal. When done, log out of the process portal by clicking **Log Out**.



- __ 2. View the Business Space Monitor dashboard
- __ a. Click the **Business Space** shortcut tab in Internet Explorer.
 - __ b. If prompted, click **Continue to this website (not recommended)**.
 - __ c. Log in using `admin` for **User ID** and `web1sphere` for **Password**; then, click **Login**.

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- __ d. Click **Go to Spaces**. In the Go to Spaces window, click the Mortgage Approval business space listed.

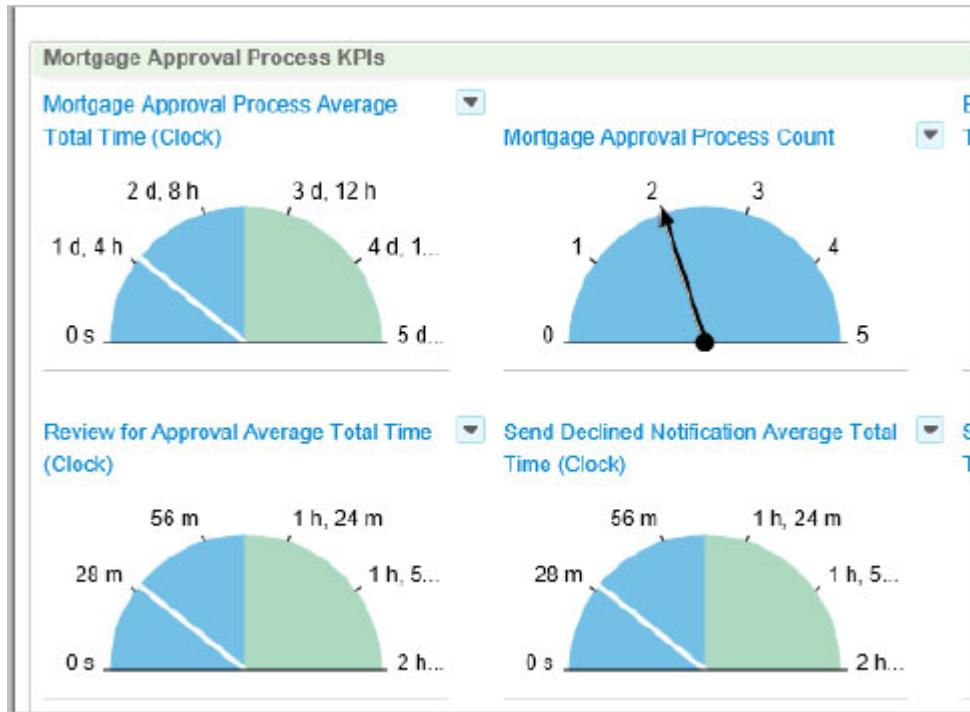
	MortgageApprovalProcessforMonitorMonitoringModel 20180303...	Actions
...	Owned by admin	
	MortgageApprovalProcessforMonitorMonitoringModel	

- ___ e. Now that you are in the space, you see the Mortgage Approval Process Instances page. Spaces are a collection of pages. What you are viewing is information about individual process instances, which vary according to how many instances you started and how much, if any, information you entered as you ran the processes. Note the information being captured includes the variables that were enabled for tracking. If the data does not appear, then go back and make sure that the previous steps in this exercise were done correctly and nothing was missed, specially adding admin to all four Monitor Data Security Roles.

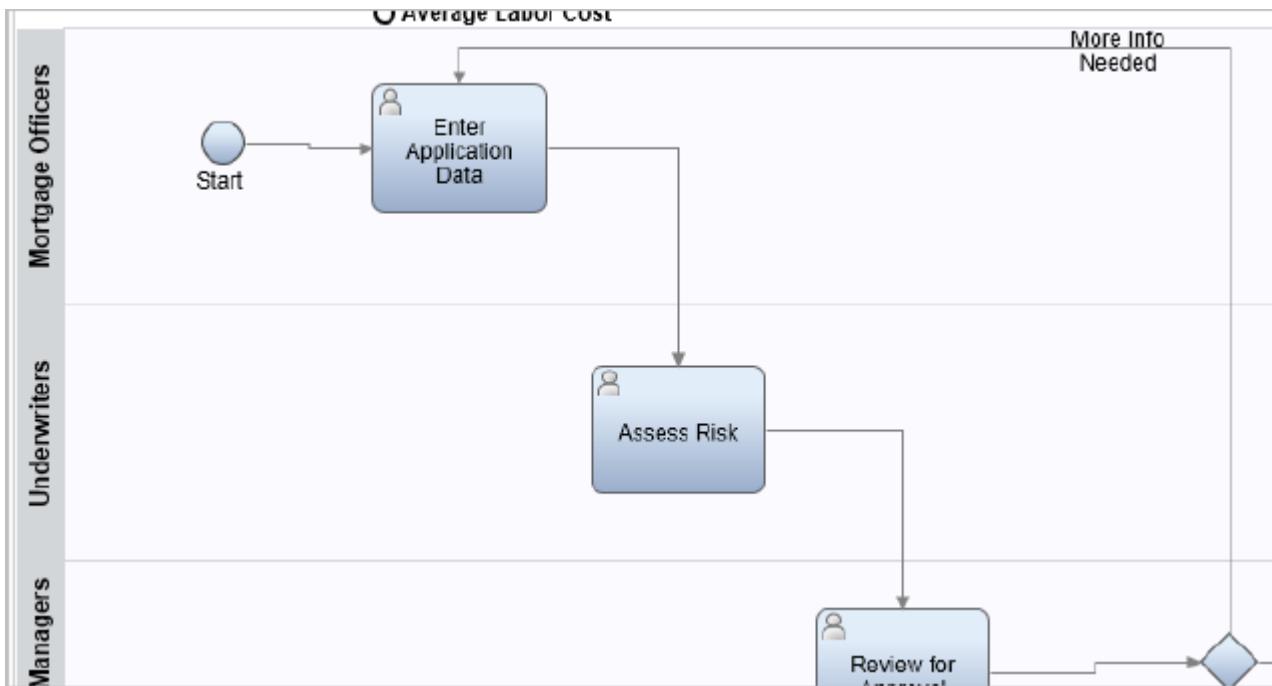
Mortgage Approval Process Instances	Mortgage Approval Process Reports	Mortgage Appro
Mortgage Approval Process Instances		
Export ...		
Mortgage Approval Process ?		
<input type="checkbox"/> Aux Starting Proces...	Mortgage Approval ...	Start Time
405655e3-9e6a-4844-a... ...	405655e3-9e6a-4844-a... ...	March 3, 2018 5:03:50 PM
405655e3-9e6a-4844-a... ...	405655e3-9e6a-4844-a... ...	March 3, 2018 5:04:01 PM

- ___ f. Click the **Mortgage Approval Process** page. Here you see all of the key performance indicators (KPIs) that are generated in regard to the process. Mostly, these KPIs calculate average task and process time.
- ___ g. Click **Mortgage Approval Process Diagrams**. Here you see a diagram of the process with associated task Key Performance Indicators above each task. It should default to Average Total Time. Select others and see what happens.

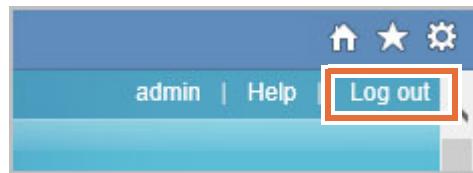
- h. Click the Mortgage Approval Process Reports page. Here you can view the automatically generated Cognos-based reports. You can also create your own report. This page shows the ability to create visualizations of report data collected using the new Cognos RAVE (Rapidly Adaptive Visualization Engine) capabilities. What you see initially when you go to this page is a report on the status of the processes you started earlier. That is, how many are running and how many are completed.



- i. Click **Mortgage Approval Process Diagrams** page to view the process diagram.



- ___ j. Continue to explore the remaining pages in this space. When done log out of the space by clicking **Log out** at the upper-right corner of the page.



- ___ 3. Close the Internet Explorer session that contains the Business Space.
- ___ 4. Close Integration Designer. Click **File > Exit** from the menu to exit from IBM Integration Designer.
- ___ 5. Stop the Process Center servers by stopping the cluster, node agent, and then the deployment manager in this order just as you stopped it earlier in this exercise. You do not use Process Center in the last and final exercise, which is the next one.

End of exercise

Exercise 11. Monitoring events from JMS emitter and REST emitter

Estimated time

01:30

Overview

In this exercise, you configure two emitters: a JMS emitter and a REST emitter to emit events to IBM Business Monitor.

Objectives

After completing this exercise, you should be able to:

- Create JMS resources in IBM Business Monitor
- Create queue manager and queue in WebSphere MQ
- Emit events from WebSphere MQ that are consumed by IBM Business Monitor
- Use SOAPUI to send REST events that are consumed by IBM Business Monitor

Introduction

This exercise is divided into two sections. In the first section, you configure IBM Business Monitor to listen for events arriving at a predefined queues. The queues are defined locally within a queue manager running on the BAM server. In the second section, you pass events to IBM Business Monitor via REST-based Event Emitters.

Requirements

Completing the exercises for this course requires a lab environment. The environment includes the exercise support files, Internet Explorer, IBM Process Server, and IBM Business Monitor test environments.

Exercise instructions

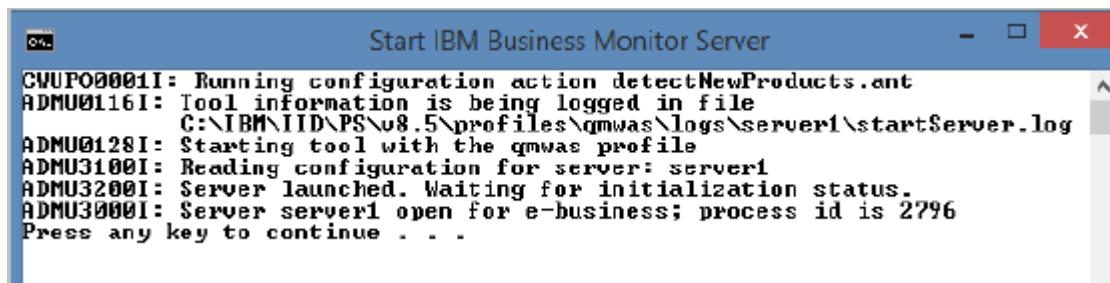
Section 1. Monitoring events from JMS emitter

Part 1: Starting the environment

- 1. Start the IBM Business Monitor server instance, if it is not running. Otherwise, go to step 2.
- a. Locate the **Monitor Server** folder on the desktop.

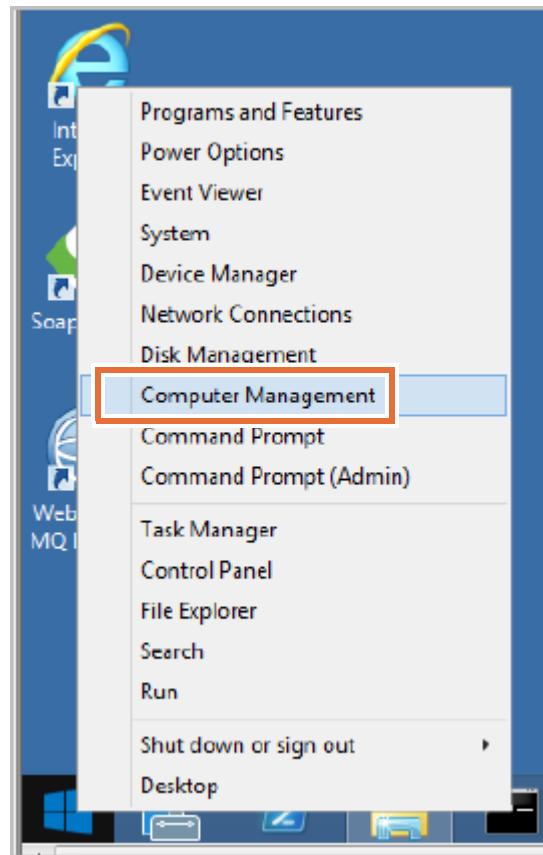


- b. Double-click the **Monitor Server** folder to open it.
- c. Select the shortcut titled: **Start IBM Business Monitor Server**.
- d. Double-click or press Enter to open the shortcut. It takes several minutes for Monitor Server to start. When the server starts, you are prompted to press any key to continue. Press any key to close the command window.

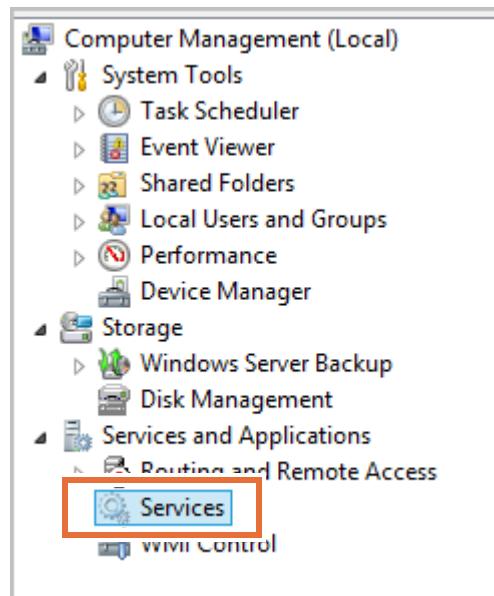


- e. Minimize the Monitor Server folder. You come back to this folder at the end of this exercise to shut down the Monitor Server.
- 2. Stop the Process Center server environment and the Integration Designer test Process Server (If running). These servers were already stopped in previous exercises and are not required for this exercise. Having these servers stopped frees up system resources and improve performance in your environment. The only additional server (or service) needed is the WebSphere MQ service that is already running in your environment.

- ___ 3. Verify WebSphere MQ service is running.
 - ___ a. On the desktop, right-click the Windows icon in the taskbar and click **Computer Management**.

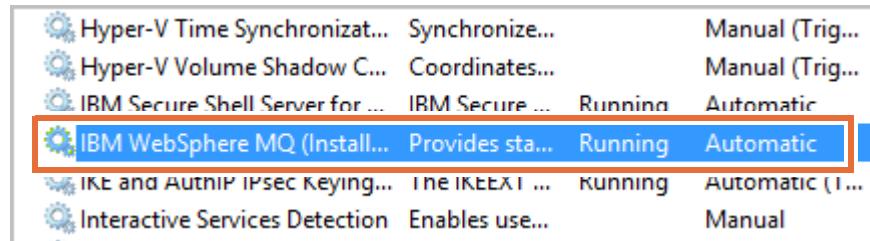


- ___ b. Expand **Services and Applications**, and click **Services**.



- ___ c. In the Services window, scroll down until you find **IBM WebSphere MQ (Installation1)**.

- ___ d. Verify that the MQ service is running.

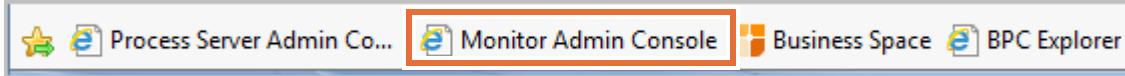


Hyper-V Time Synchronizat...	Synchronize...	Manual (Trig...
Hyper-V Volume Shadow C...	Coordinates...	Manual (Trig...
IRM Secure Shell Server for ...	IRM Secure ...	Running Automatic
IBM WebSphere MQ (Install...	Provides sta...	Running Automatic
IKE and AuthIP IPsec Keying...	The IKEEXT ...	Running Automatic (I...
Interactive Services Detection	Enables use...	Manual

- ___ e. If MQ service is not running, then start it. It is important that MQ service is running before you continue to the next step. To start a service that is not running, right-click the service and click **Start**.
- ___ f. Close the **Computer Management** window.
- ___ g. At this time, you have two only two servers running, the MQ server and the Monitor server that you just started in the previous step.

Part 2: Examining the WebSphere MQ libraries path added to Monitor Server

1. Start the IBM Business Monitor administrative console.
- a. Start an instance of Internet Explorer by double-clicking the **Internet Explorer** shortcut on the desktop.
- b. When the browser opens, click the **Monitor Admin Console** tab.

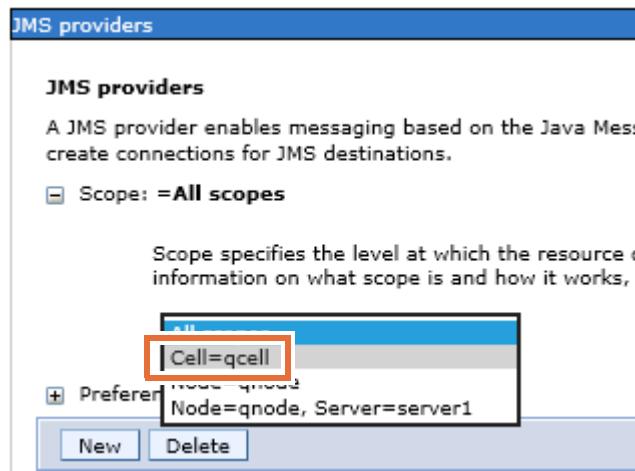


- c. Click **Continue to this website (not recommended)**.
- d. At the Login page, enter admin in the **User ID** field and web1sphere in the **Password** field.
- e. Click **Log in**.

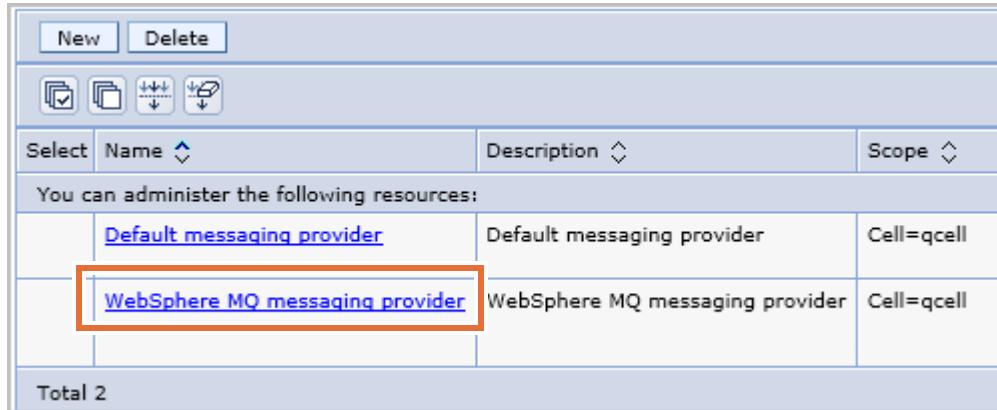
- 2. Confirm that the MQ libraries are available to the Monitor Server. The MQ libraries were already added to the Monitor Server for this exercise. After adding the libraries, the Monitor server needs to be restarted twice. However, since the libraries were already made available in this environment and the servers already restarted, in this step you only verify the path and the availability and you do not need to restart Monitor server.
- a. In the Business Monitor administrative console, select **Resources > JMS > JMS providers**.



- b. Make sure that the scope is **Cell=qcell**. If it is **All scopes**, then change the Scope from **All scopes** to **Cell=qcell**.

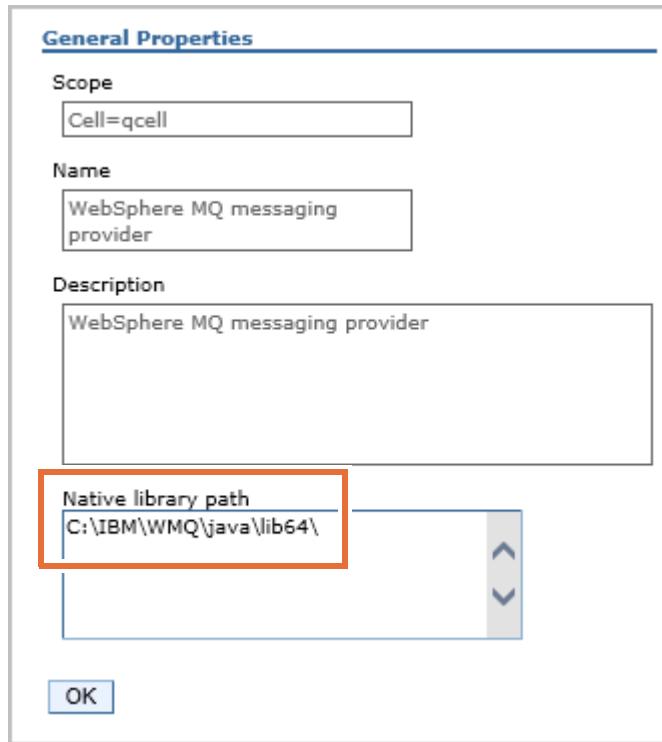


- ___ c. Click **WebSphere MQ messaging provider**.



	Name	Description	Scope
You can administer the following resources:			
	Default messaging provider	Default messaging provider	Cell=qcell
	WebSphere MQ messaging provider	WebSphere MQ messaging provider	Cell=qcell
Total 2			

- ___ d. In the **General Properties** section, go to **Native library path** and view the current path. It is `C:\IBM\WMQ\java\lib64\` which is the path to the current MQ library and was already added to this environment.



General Properties

Scope
Cell=qcell

Name
WebSphere MQ messaging provider

Description
WebSphere MQ messaging provider

Native library path
C:\IBM\WMQ\java\lib64\

OK

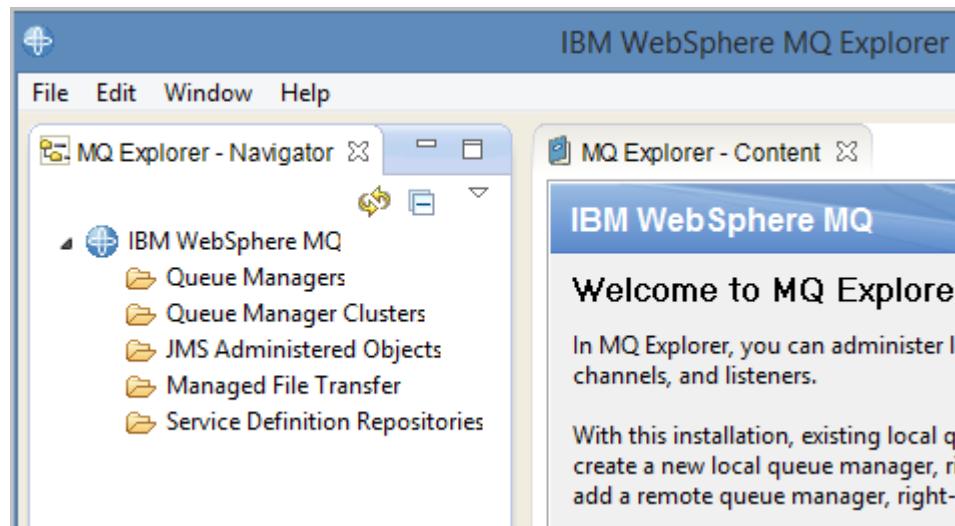
- ___ e. Do not make any changes. Log out of the Monitor administrative console. You come back to it later.

Part 3: Configuring WebSphere MQ

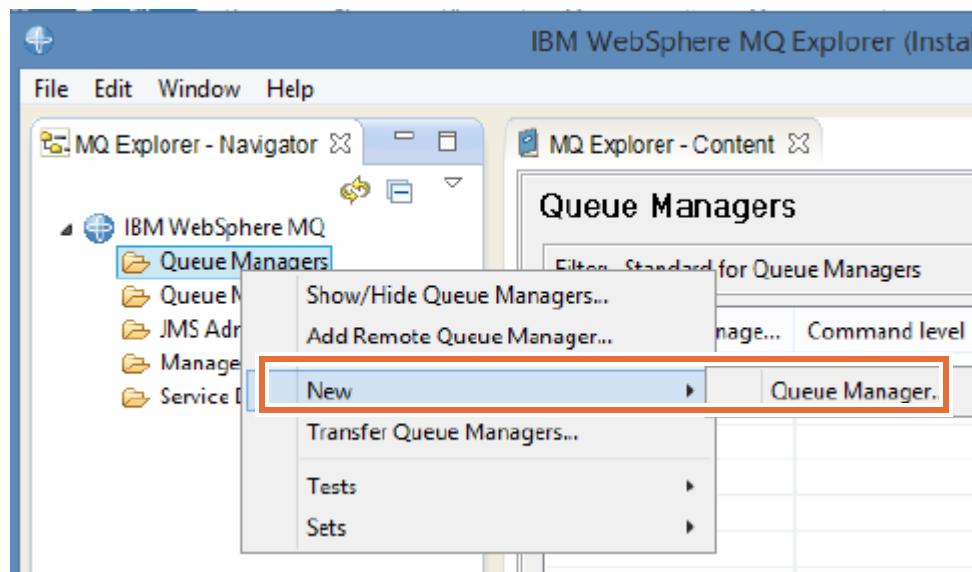
- 1. Start WebSphere MQ Explorer.
- a. On the desktop, double-click the **WebSphere MQ Explorer** shortcut.



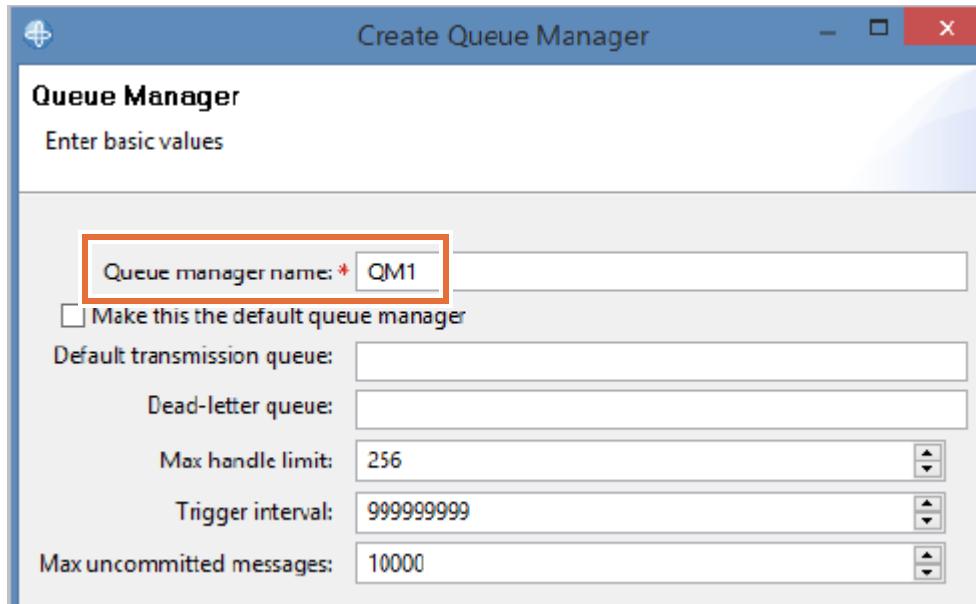
- b. WebSphere MQ Explorer is now started and ready for configuration.



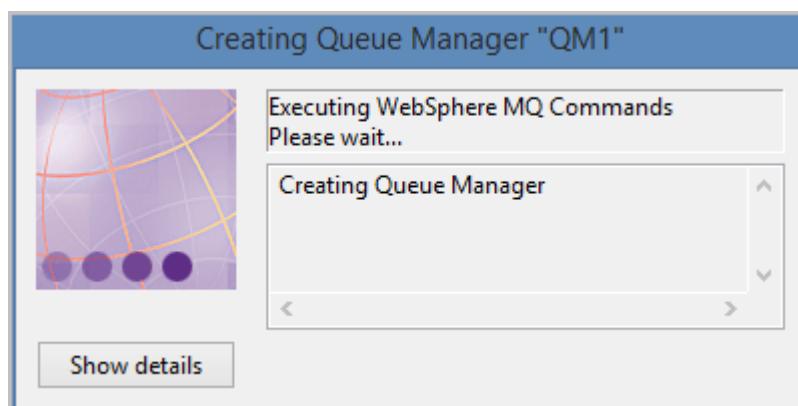
- 2. Create a queue manager and a local queue. This queue is where applications put their event XML. In this exercise, you manually place the XML event on this queue to send to Monitor.
- a. Right-click **Queue Managers** and click **New > Queue Manager**.



- __ b. Enter QM1 for **Queue manager name** and click **Finish**.



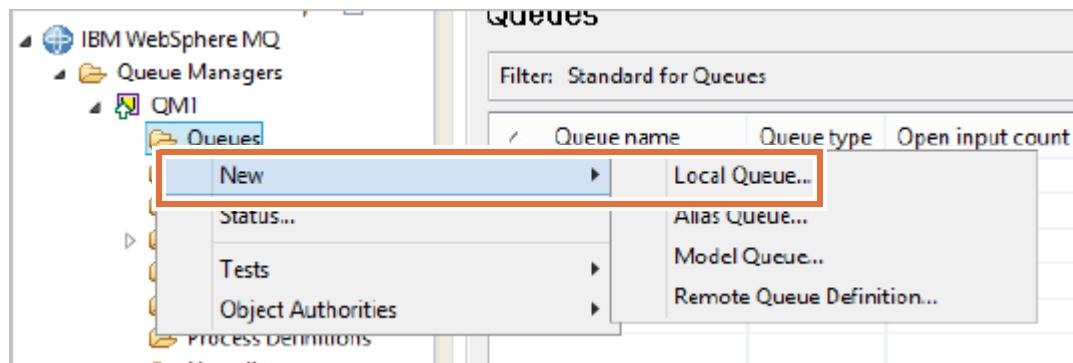
- __ c. The Creating Queue Manager "QM1" window opens and closes when the queue is created.



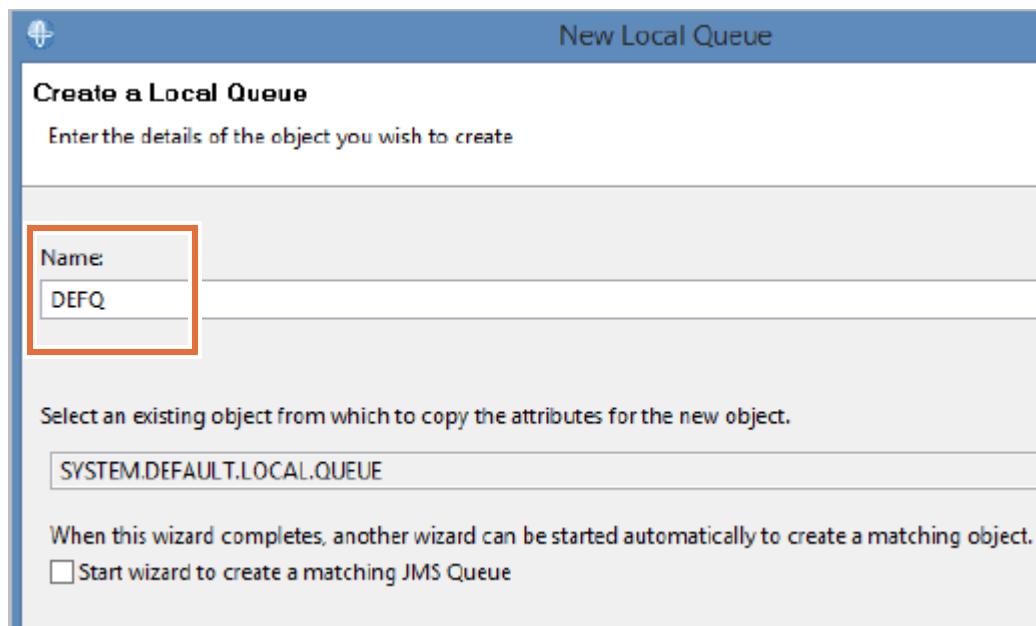
- __ d. Verify that the queue manager QM1 is listed and running.

Queue manager name	Command level	Version	Queue manager status	Queue
QM1	800	08000005	Running	

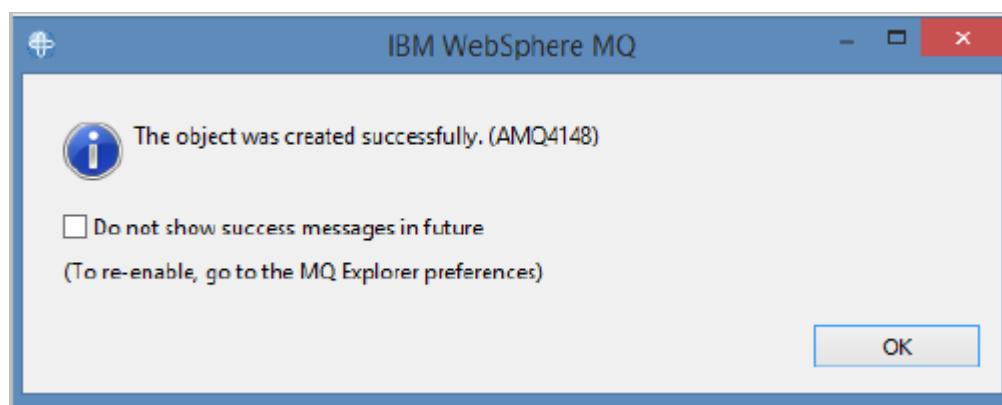
- __ e. Expand **QM1**, and right-click **Queues**; then, click **New > Local Queue**.



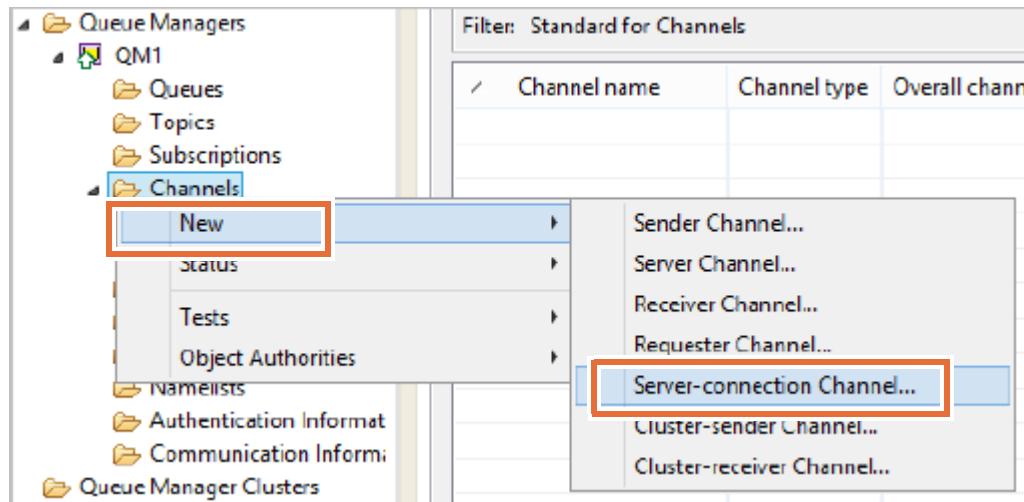
- __ f. Enter **DEFQ** for the **Name** and click **Finish**.



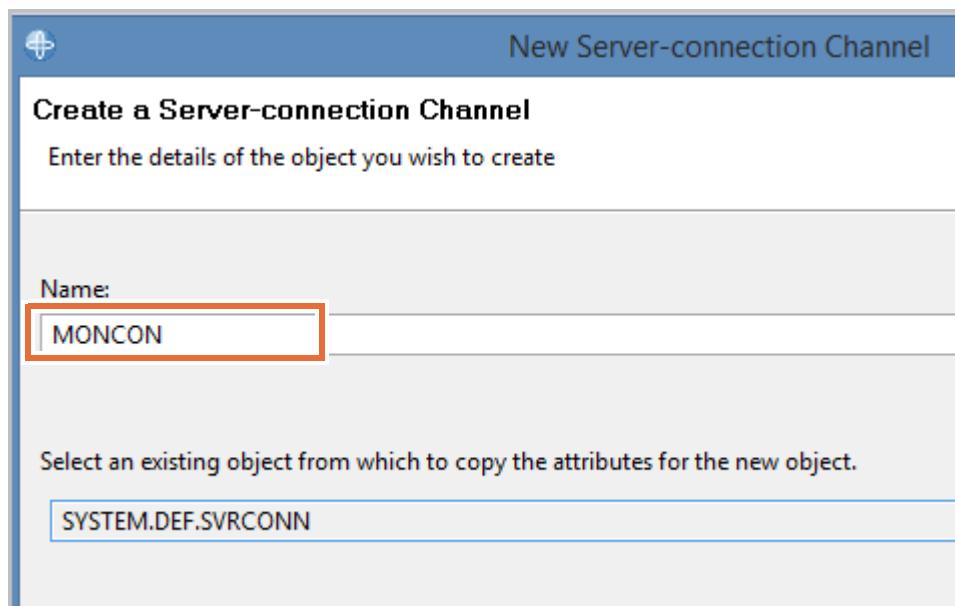
- __ g. Click **OK** when the message is displayed that the queue is created successfully.



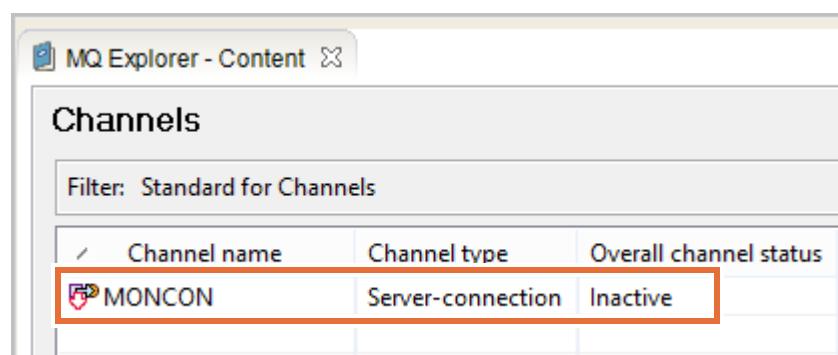
- 3. Create the server connection channel.
- a. Under QM1, right-click **Channels** and click **New> Server-connection Channel**.



- b. Enter MONCON for the channel name and click **Finish**.



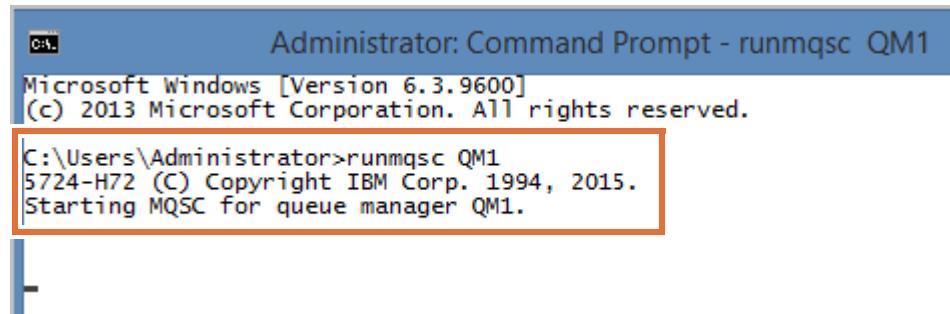
- c. Click **OK** when the confirmation window is displayed.
- d. The newly created channel is listed.



- 4. Disable channel authentication records and allow Monitor server to read queues without authentication. In this part, you use the `runmqsc` command to issue MQSC commands to the QM1 queue manager.

- a. Open a command prompt and issue the `runmqsc` command by entering the following command and pressing Enter:

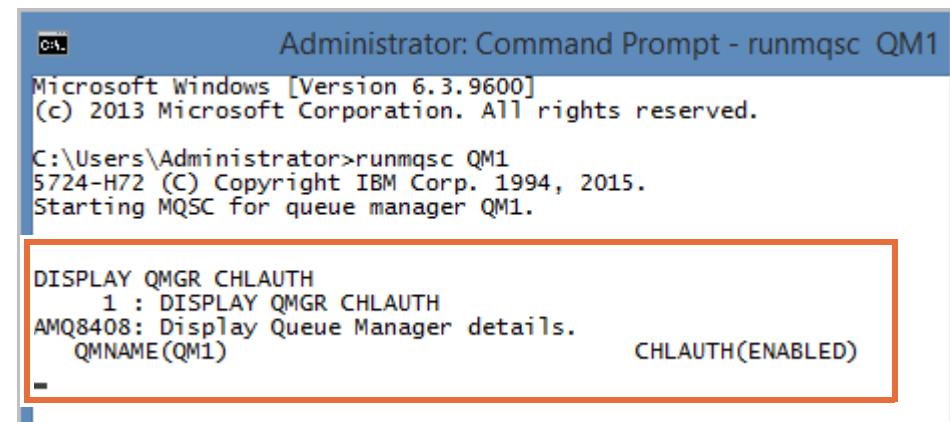
```
runmqsc QM1
```



Administrator: Command Prompt - runmqsc QM1
Microsoft Windows [Version 6.3.9600]
(c) 2013 Microsoft Corporation. All rights reserved.
C:\Users\Administrator>runmqsc QM1
5724-H72 (C) Copyright IBM Corp. 1994, 2015.
Starting MQSC for queue manager QM1.

- b. Enter the following command and press Enter to display channel records authentication:

```
DISPLAY QMGR CHLAUTH
```

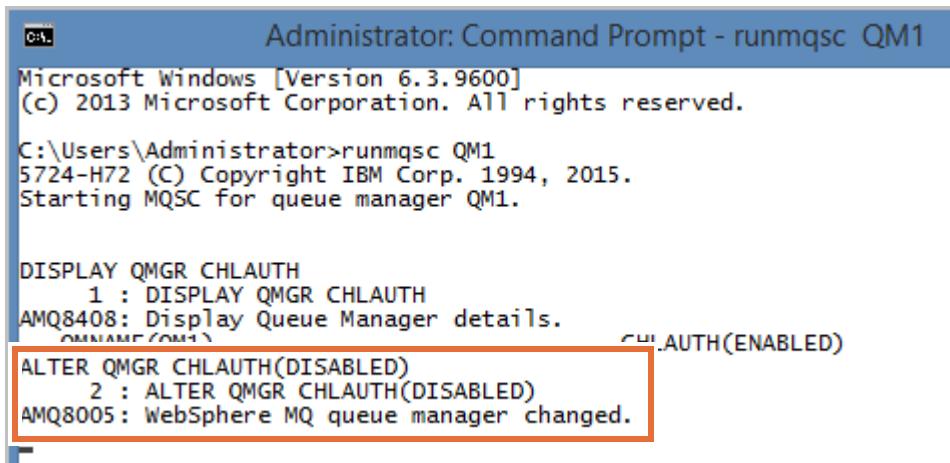


Administrator: Command Prompt - runmqsc QM1
Microsoft Windows [Version 6.3.9600]
(c) 2013 Microsoft Corporation. All rights reserved.
C:\Users\Administrator>runmqsc QM1
5724-H72 (C) Copyright IBM Corp. 1994, 2015.
Starting MQSC for queue manager QM1.

DISPLAY QMGR CHLAUTH
1 : DISPLAY QMGR CHLAUTH
AMQ8408: Display Queue Manager details.
QMNAME(QM1) CHLAUTH(ENABLED)

- c. Enter the following command and press Enter to disable channel records authentication:

```
ALTER QMGR CHLAUTH(DISABLED)
```



Administrator: Command Prompt - runmqsc QM1
Microsoft Windows [Version 6.3.9600]
(c) 2013 Microsoft Corporation. All rights reserved.
C:\Users\Administrator>runmqsc QM1
5724-H72 (C) Copyright IBM Corp. 1994, 2015.
Starting MQSC for queue manager QM1.

DISPLAY QMGR CHLAUTH
1 : DISPLAY QMGR CHLAUTH
AMQ8408: Display Queue Manager details.
QMNAME(QM1) CHLAUTH(ENABLED)

ALTER QMGR CHLAUTH(DISABLED)
2 : ALTER QMGR CHLAUTH(DISABLED)
AMQ8005: WebSphere MQ queue manager changed.

- __ d. Enter the following command and press Enter to allow the Monitor server to connect without authentication:

```
ALTER AUTHINFO(SYSTEM.DEFAULT.AUTHINFO.IDPWOS) AUTHTYPE(IDPWOS)
CHCKCLNT(OPTIONAL) CHCKLOCL(NONE)
```

```
Administrator: Command Prompt - runmqsc QM1
Microsoft Windows [Version 6.3.9600]
(c) 2013 Microsoft Corporation. All rights reserved.

C:\Users\Administrator>runmqsc QM1
5724-H72 (C) Copyright IBM Corp. 1994, 2015.
Starting MQSC for queue manager QM1.

DISPLAY QMGR CHLAUTH
 1 : DISPLAY QMGR CHLAUTH
AMQ8408: Display Queue Manager details.
  QMNAME(QM1)                               CHLAUTH(ENABLED)
ALTER QMGR CHLAUTH(DISABLED)
 2 : ALTER QMGR CHLAUTH(DISABLED)

ALTER AUTHINFO(SYSTEM.DEFAULT.AUTHINFO.IDPWOS) AUTHTYPE(IDPWOS) CHCKCLNT(OPTIONAL)
 3 : ALTER AUTHINFO(SYSTEM.DEFAULT.AUTHINFO.IDPWOS) AUTHTYPE(IDPWOS) CHCKCLNT(OPTIONAL) CHCKLOCL(NONE)
AMQ8567: WebSphere MQ authentication information changed.
```

- __ e. Enter the following command and press Enter.

```
REFRESH SECURITY TYPE(CONNAUTH)
```

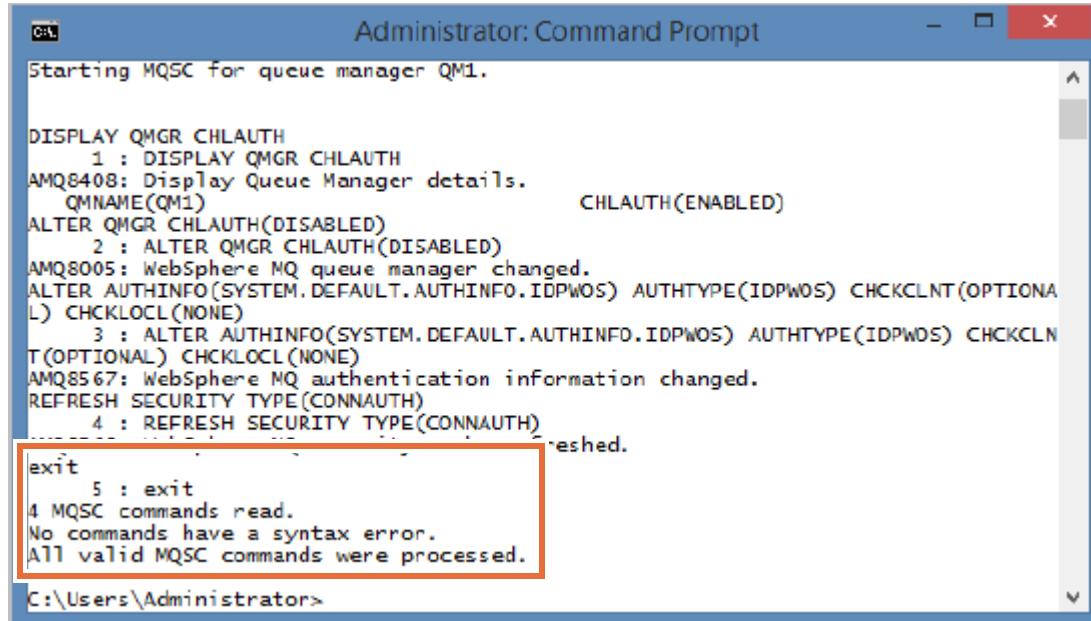
```
Administrator: Command Prompt - runmqsc QM1
Microsoft Windows [Version 6.3.9600]
(c) 2013 Microsoft Corporation. All rights reserved.

C:\Users\Administrator>runmqsc QM1
5724-H72 (C) Copyright IBM Corp. 1994, 2015.
Starting MQSC for queue manager QM1.

DISPLAY QMGR CHLAUTH
 1 : DISPLAY QMGR CHLAUTH
AMQ8408: Display Queue Manager details.
  QMNAME(QM1)                               CHLAUTH(DISABLED)
ALTER QMGR CHLAUTH(DISABLED)
 2 : ALTER QMGR CHLAUTH(DISABLED)
AMQ8005: WebSphere MQ queue manager changed.
ALTER AUTHINFO(SYSTEM.DEFAULT.AUTHINFO.IDPWOS) AUTHTYPE(IDPWOS) CHCKCLNT(OPTIONAL)
 3 : ALTER AUTHINFO(SYSTEM.DEFAULT.AUTHINFO.IDPWOS) AUTHTYPE(IDPWOS) CHCKCLNT(OPTIONAL) CHCKLOCL(NONE)
AMQ8567: WebSphere MQ authentication information changed.

REFRESH SECURITY TYPE(CONNAUTH)
 4 : REFRESH SECURITY TYPE(CONNAUTH)
AMQ8560: WebSphere MQ security cache refreshed.
```

- ___ f. Make sure that there are no errors. Enter `exit` to exit the MQSC command.



```

Administrator: Command Prompt
Starting MQSC for queue manager QM1.

DISPLAY QMGR CHLAUTH
  1 : DISPLAY QMGR CHLAUTH
AMQ8408: Display Queue Manager details.
  QMNAME(QM1)                      CHLAUTH(ENABLED)
ALTER QMGR CHLAUTH(DISABLED)
  2 : ALTER QMGR CHLAUTH(DISABLED)
AMQ8005: WebSphere MQ queue manager changed.
ALTER AUTHINFO(SYSTEM.DEFAULT.AUTHINFO.IDPWOS) AUTHTYPE(IDPWOS) CHCKCLNT(OPTIONAL)
  3 : ALTER AUTHINFO(SYSTEM.DEFAULT.AUTHINFO.IDPWOS) AUTHTYPE(IDPWOS) CHCKCLNT(OPTIONAL)
AMQ8567: WebSphere MQ authentication information changed.
REFRESH SECURITY TYPE(CONNAUTH)
  4 : REFRESH SECURITY TYPE(CONNAUTH)

exit
  5 : exit
4 MQSC commands read.
No commands have a syntax error.
All valid MQSC commands were processed.

C:\Users\Administrator>

```

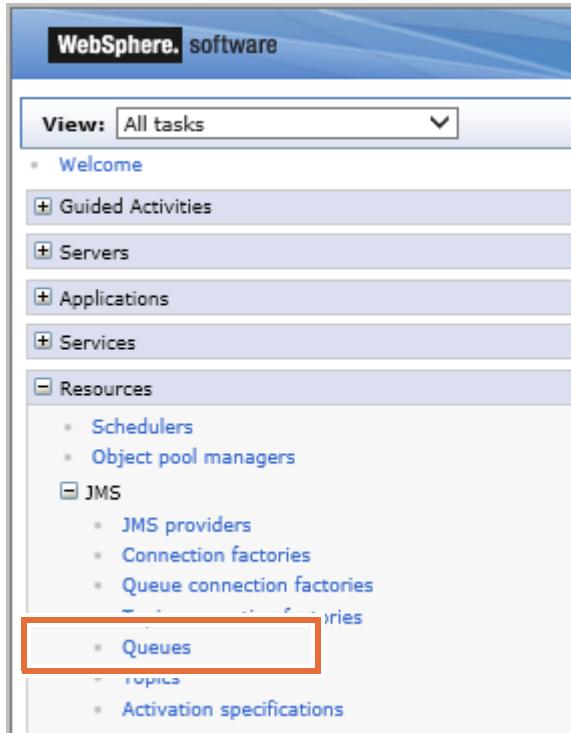
- ___ g. Enter `exit` one more time to close the command prompt window.

- ___ h. Minimize the MQ Explorer window as you come back to it later.

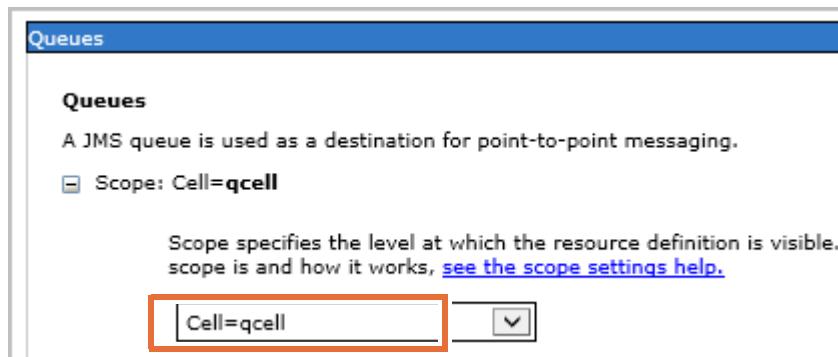
Part 4: Creating JMS resources in Monitor server

- ___ 1. Create a JMS queue by using the WebSphere MQ messaging provider.
 - ___ a. Go back to the Monitor administrative console and log back in using `admin` and `web1sphere`.

- __ b. In the administrative console, select **Resources > JMS > Queues**.

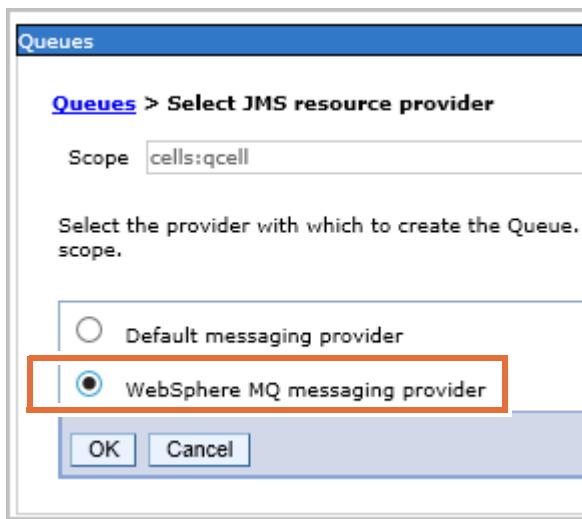


- __ c. Change the **Scope** to Cell=qcell.



- __ d. Click **New**.

- __ e. Select **WebSphere MQ messaging provider** as the JMS resource provider and click **OK**.



- __ f. Enter the following configuration information in the General Properties section:

Name: DEFDirectQueue

JNDI name: jms/DEFDirectQueue

Queue name: DEFQ

Queue manager: QM1

__ g. Click **Apply**.

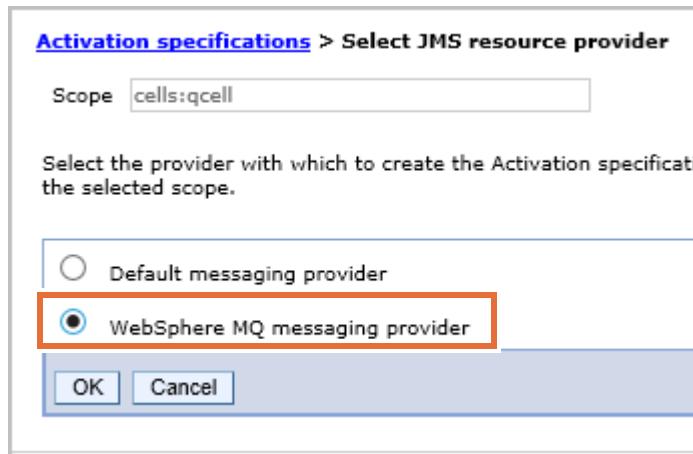
The screenshot shows the 'General Properties' dialog box for a queue configuration. The 'Administration' section includes fields for 'Scope' (Cell=qcell) and 'Provider' (WebSphere MQ messaging provider). The 'Name' field is set to 'DEFDirectQueue' and the 'JNDI name' field is set to 'jms/DEFDirectQueue'. The 'WebSphere MQ Queue' section includes fields for 'Queue name' (DEFQ) and 'Queue manager or Queue sharing group name' (QM1). Both the 'Name/JNDI' and 'WebSphere MQ Queue' sections are highlighted with red boxes. At the bottom, there are four buttons: 'Apply', 'OK', 'Reset', and 'Cancel'.

__ h. Click **Save** to save the changes to the master configuration.

- __ 2. Create a JMS activation specification by using the WebSphere MQ messaging provider.
- __ a. In the Monitor administrative console, select **Resources > JMS > Activation specifications**.



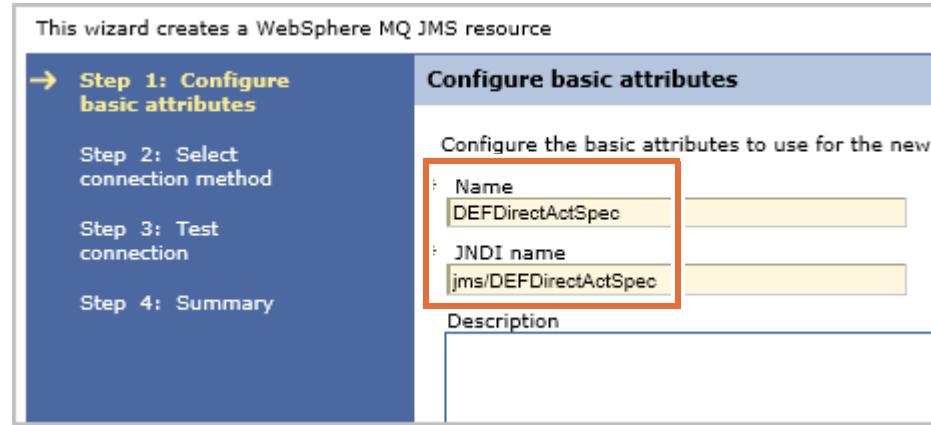
- __ b. Change the **Scope** to `cells:qcell` and click **New**.
- __ c. Select **WebSphere MQ messaging provider** as the JMS resource provider, and then click **OK**.



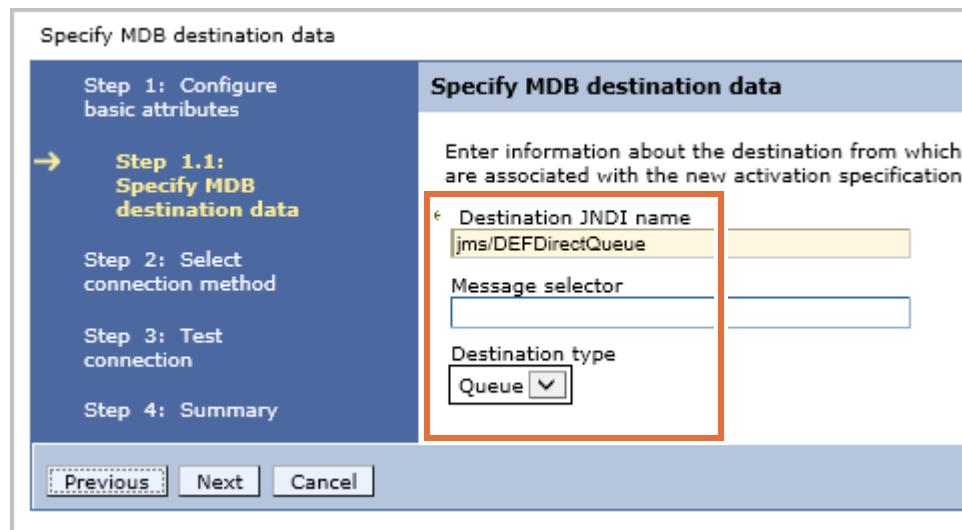
- __ d. Enter the following configuration information in the Step1: Configure basic attributes section:

Name: DEFDDirectActSpec

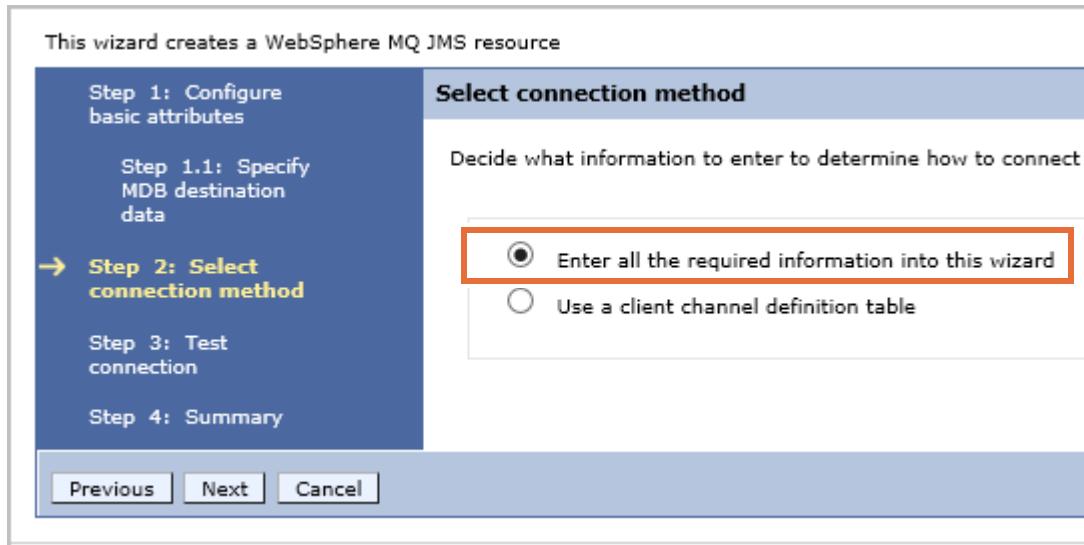
JNDI name: jms/DEFDirectActSpec



- __ e. Click **Next**.
- __ f. Enter the following configuration information in the **Step1.1: Specify MDB destination data** section:
Destination JNDI name: jms/DEFDirectQueue
- __ g. Leave the destination type to Queue and click **Next**.

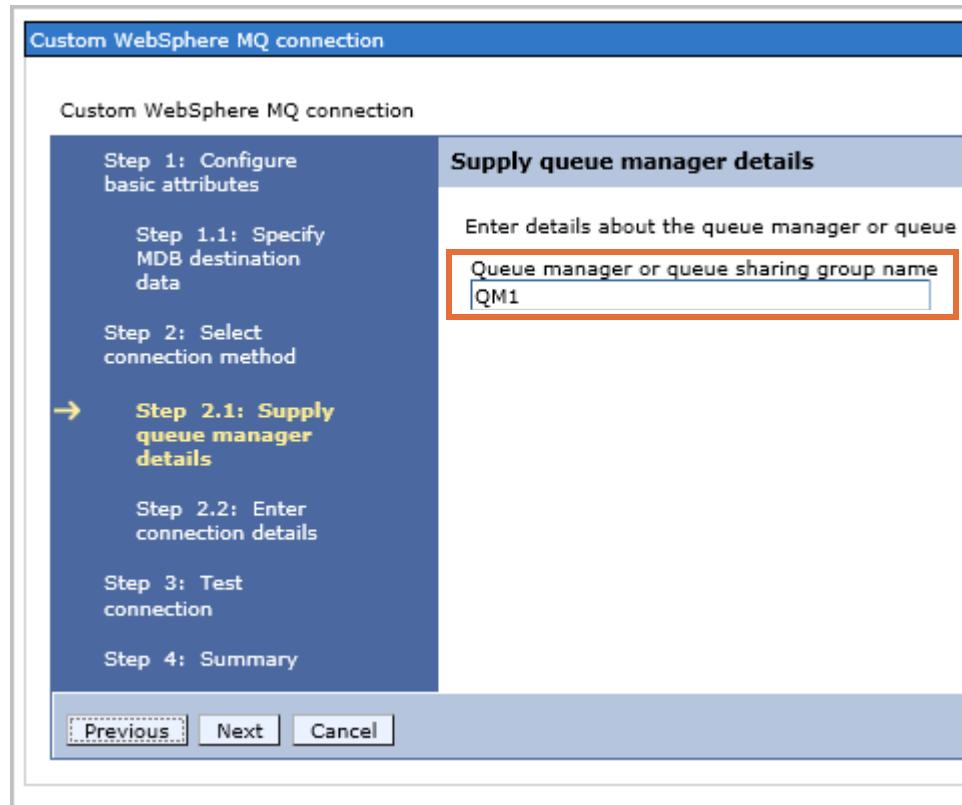


- __ h. In **Step 2: Select connection method**, leave the default and click **Next**.



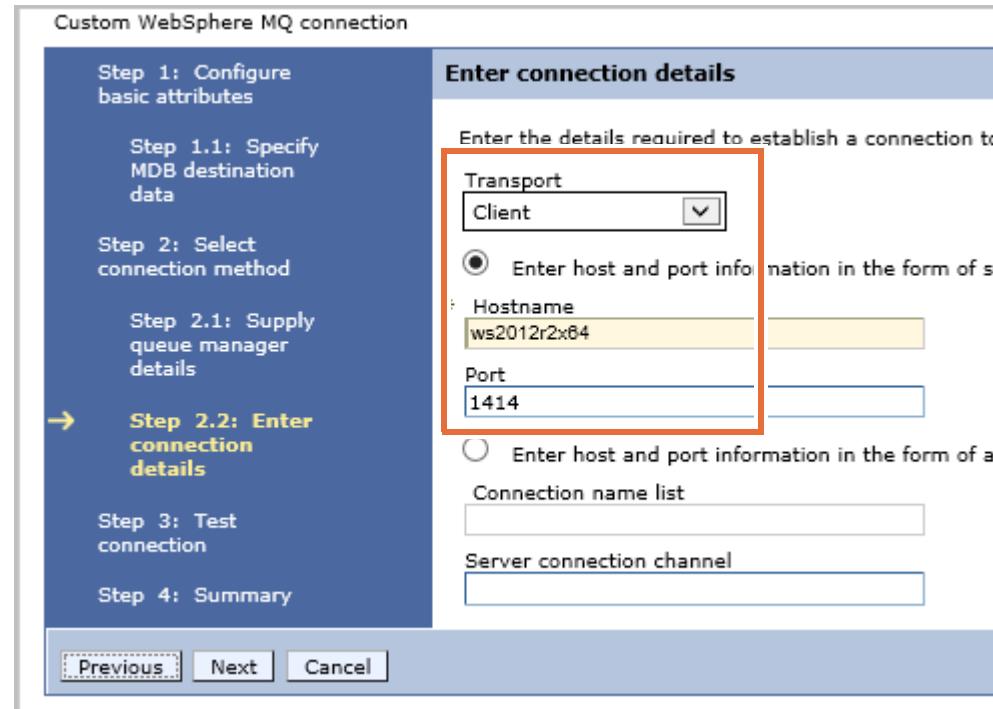
- __ i. Enter the following configuration information in the **Step 2.1: Supply queue manager details** section:

Queue manager or Queue sharing group name: QM1



- __ j. Click **Next**.

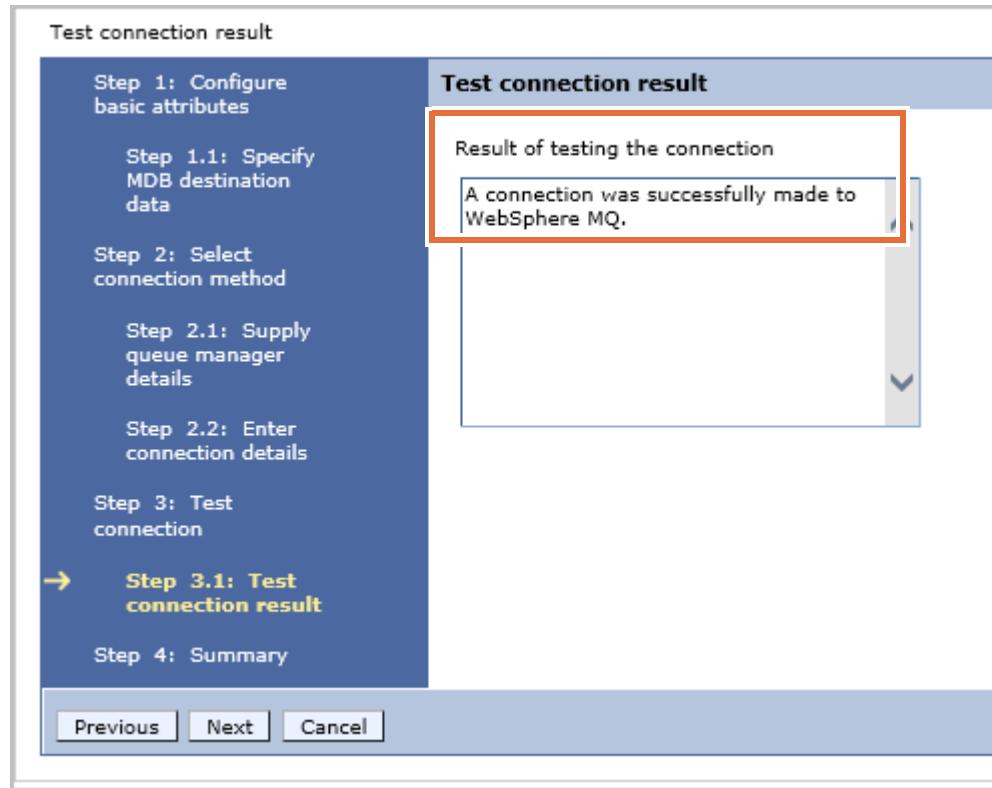
- __ k. Enter the following configuration information in the **Step 2.2: Enter connection details** section:

Transport: Client**Hostname:** ws2012r2x64**Port:** 1414

- I. Click **Next** and then click **Test Connection**.



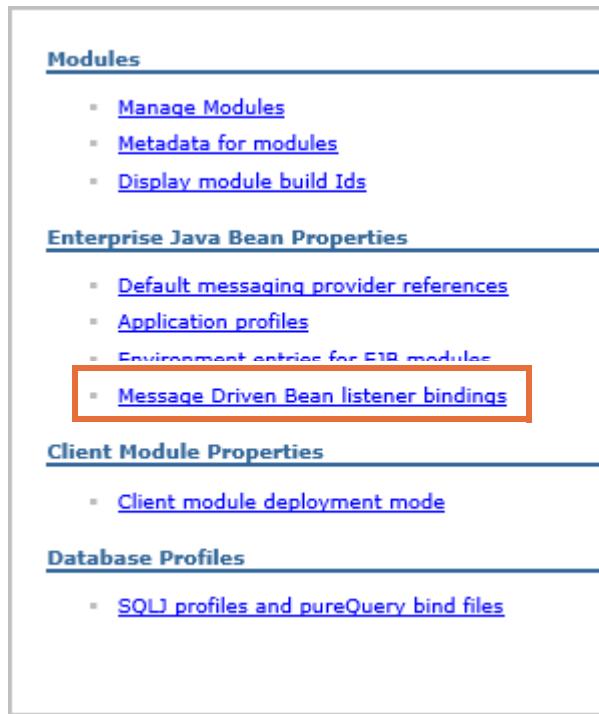
- __ m. The result of this test must be successful. Make sure it displays the successful result.



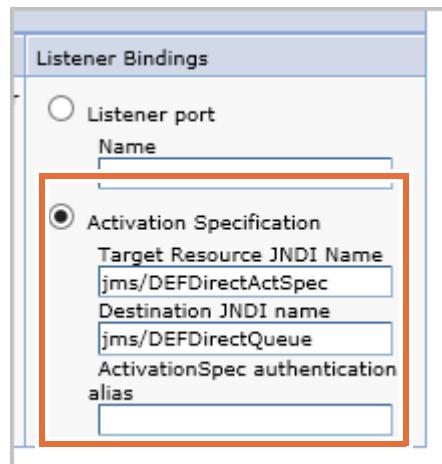
- __ n. Click **Next** and then **Finish**.
- __ o. Click **Save** to save the changes to the master configuration.
- __ 3. Update the resources of the IBM_WBM_XML_EMITTER SERVICE application to use the JMS activation specification that you created.
- __ a. In the administrative console, select **Applications > Application Types > WebSphere enterprise applications** and click **IBM_WBM_XML_EMITTER_SERVICE**.

<input type="checkbox"/>	IBMUTC	
<input type="checkbox"/>	IBM BPM Emitter Service	
<input type="checkbox"/>	IBM WBM ActionServices	
<input type="checkbox"/>	IBM WBM Data Services	
<input type="checkbox"/>	IBM WBM DBG Services	
<input type="checkbox"/>	IBM WBM Emitter Services	
<input type="checkbox"/>	IBM WBM IVM	
<input type="checkbox"/>	IBM WBM Mobile Dashboard	
<input type="checkbox"/>	IBM WBM XML Emitter Service	
<input type="checkbox"/>	MortgageApprovalProcessforMonitorMonitoringModelApplication	

- __ b. On the Configuration tab, under **Enterprise JavaBeans Properties**, click **Message Driven Bean listener bindings**.

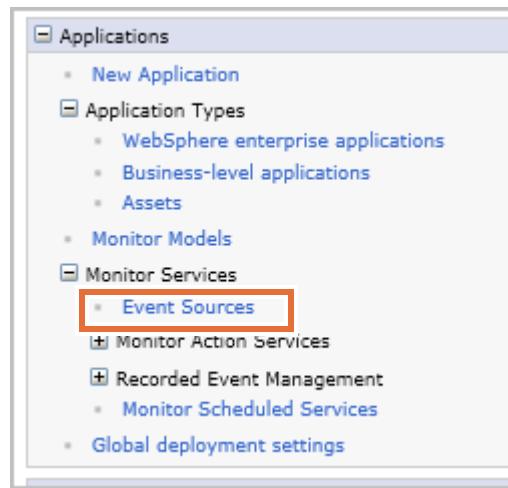


- __ c. In the **Listener Bindings** column, select **Activation Specification**
- __ d. Delete the existing value in the **Target Resource JNDI name** field and replace it with: jms/DEFDDirectActSpec
- __ e. Delete the existing value in the **Destination JNDI name** field and replace it with: jms/DEFDDirectQueue
- __ f. Delete the existing value of MonitorBusAuth in the **alias** field to make it empty.



- __ g. Click **OK**.
- __ h. Click **Save** to save the changes to the master configuration.

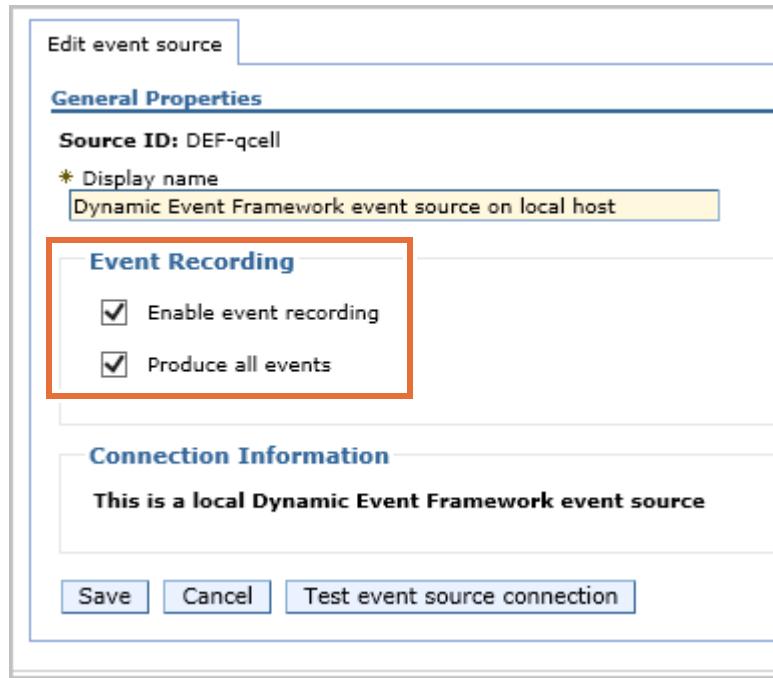
- 4. Enable the default DEF event source to produce events.
- a. Go to **Applications > Monitor Services** and click **Event Sources**.



- b. Click **Dynamic Event Framework event source on local host**. There are two listed. One is the event source that you configured for the test process server in an earlier exercise. Since you shut the process server, the Event Recording of that one is not available. You click the one that is enabled and has a green check mark with V8.5.5.0+ under the Status column.
- c. Verify that for **Connection Information** it displays **This is a local Dynamic Event Framework event source**. This confirms that is the default local DEF event source.

The screenshot shows the 'Edit event source' dialog. The 'General Properties' tab is selected. The 'Source ID' is 'DEF-qcell'. The 'Display name' is 'Dynamic Event Framework event source on local host'. In the 'Event Recording' section, 'Enable event recording' is checked and 'Produce all events' is unchecked. The 'Connection Information' section contains the text 'This is a local Dynamic Event Framework event source'. At the bottom are 'Save', 'Cancel', and 'Test event source connection' buttons.

- ___ d. Select the **Produce all events** check box and click **Save**.

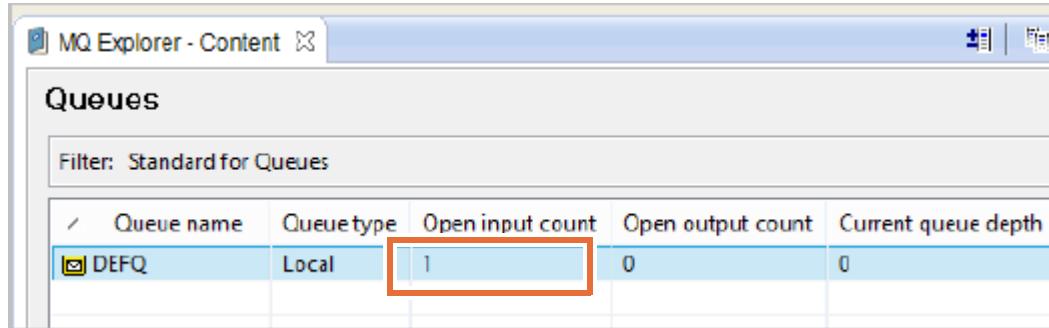


- ___ e. Log out of the Monitor administrative console.
- 5. Before running the test, you need to restart the Monitor server. For this test to be successful, it is important to restart the Monitor server for the JMS configuration changes to take effect.
- ___ a. Go back to the **Monitor Server** folder that you minimized earlier.
 - ___ b. Select the shortcut titled: **Stop IBM Business Monitor Server**.
 - ___ a. Double-click or press Enter to open the shortcut. It takes several minutes for Monitor Server to start. When the server starts, you are prompted to press any key to continue. Press any key to close the command window.
 - ___ a. Now go back to the **Monitor Server** folder one more time to start the server.
 - ___ b. Double-click the **Monitor Server** folder to open it, if it is not open.
 - ___ c. Select the shortcut titled: **Start IBM Business Monitor Server**.
 - ___ d. Double-click or press Enter to open the shortcut. It takes several minutes for Monitor Server to start. When the server starts, you are prompted to press any key to continue. Press any key to close the command window.

Part 5: Restarting the environment

- ___ a. Go back to WebSphere MQ Explorer.
- ___ b. Expand **QM1** and click **Queues**.

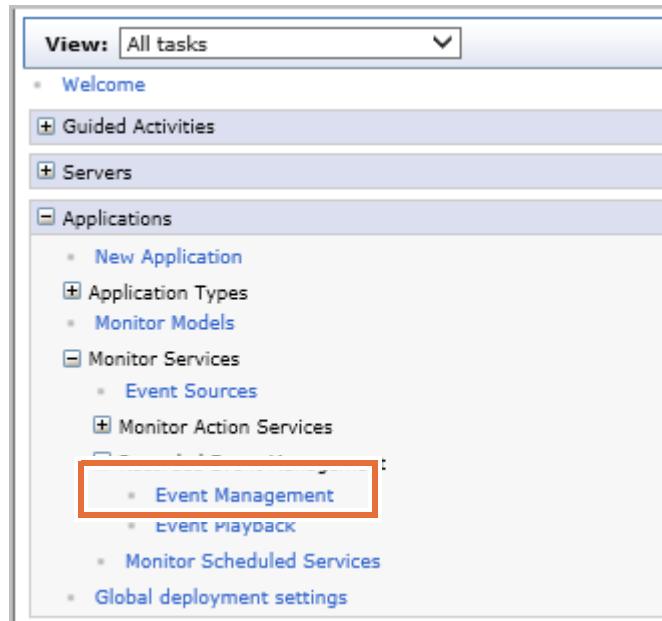
- ___ c. The DEFQ queue is listed in the Queues table on the right. Verify that Open Input count is 1. You are now ready for the test. If you do not see the value of 1 in the Open Input count, then go back and restart the Monitor server and the queue manager. Do not proceed to the test until you see a value of 1.



Queue name	Queue type	Open input count	Open output count	Current queue depth
DEFQ	Local	1	0	0

Part 6: Testing the JMS emitter

- ___ 1. Before you emit new events, it is a good idea to clean any recorded events in Monitor administrative console.
 - ___ a. Go to Monitor administrative console that you minimized earlier and log back in.
 - ___ b. Go to **Applications > Monitor Services > Recorded Event Management** and click **Event Management**.

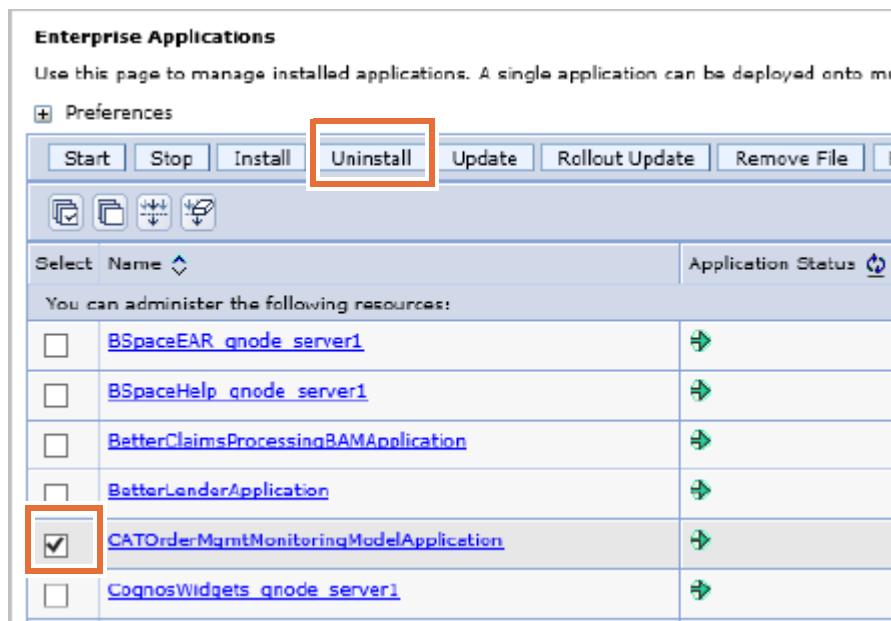


- ___ c. You see several events listed. Recall, that in an earlier exercise you created alerts and if the model is still deployed then you continue to see new recurring events. You can either go back and refer to that exercise and uninstall that model or leave it installed while you can identify the new events that you emit soon from JMS. While it is OK to leave these events here, it makes it difficult to differentiate with the new JMS event that you emit in this exercise. You can optionally, uninstall the monitor model that is responsible for those alerts.
- ___ d. To uninstall the model, go to **Applications > Monitor models**.

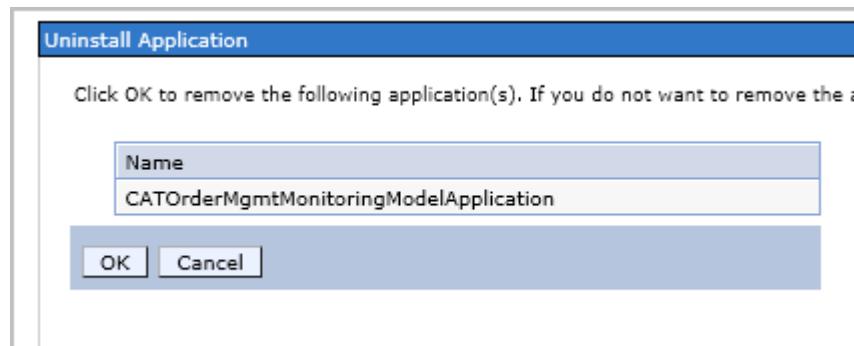
- __ e. If you see the `CATOrderMgmtMonitoringModelApplication` model, then you need to uninstall the application.

<input type="checkbox"/>	BetterClaimsProcessingBAM	<u>2014-12-02T10:10:03</u>	OK	BetterClaimsProcessingBAMApplication
<input type="checkbox"/>	CATOrderMgmtMonitoringModel	<u>2015-01-20T11:54:54</u>	OK	CATOrderMgmtMonitoringModelApplication
<input type="checkbox"/>	MortgageLendingBAMShowcase	<u>2013-09-09T18:00:00</u>	OK	BetterLenderApplication

- __ f. To uninstall the application, go to **Applications > Application Types** and click **WebSphere enterprise applications**.
- __ g. Locate the `CATOrderMgmtMonitoringModelApplication` application. Select the check box next to it and click **Uninstall**.

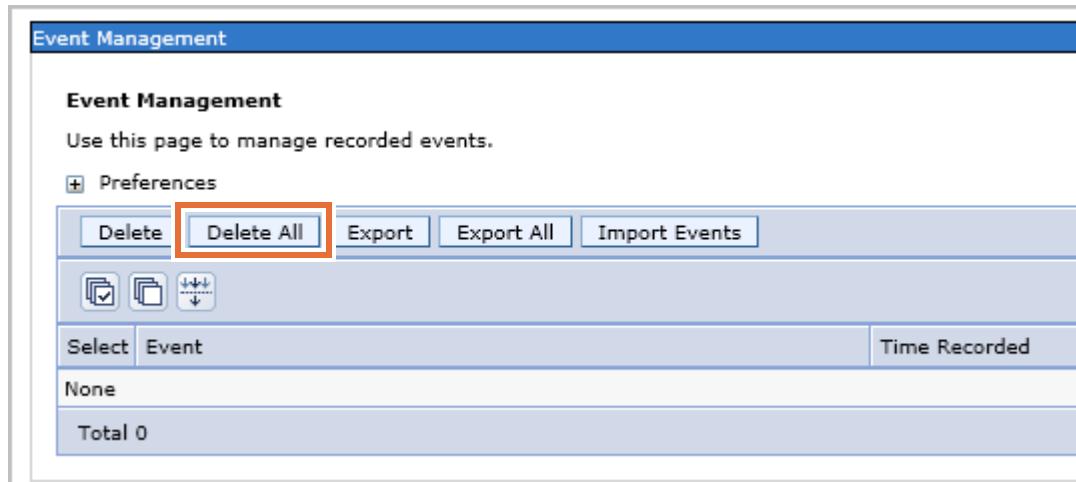


- __ h. In the Uninstall Application window, click **OK**.



- __ i. Click **Save** when the installation is complete.
- __ j. Go back to **Applications > Monitor Services > Recorded Event Management** and click **Event Management**.

- ___ k. Click **Delete All** to delete all events.

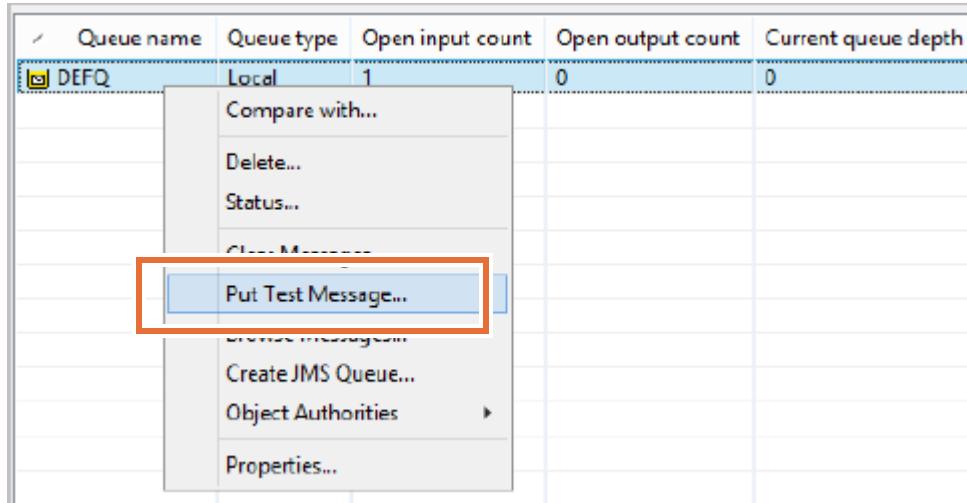


- ___ l. Wait couple of minutes and click **Event Management** one more time. Make sure that there are no events.
- ___ 2. Verify events in WebSphere MQ Explorer.
- ___ a. Go back to WebSphere MQ Explorer that you minimized earlier.
 - ___ b. Expand **QM1** and click **Queues** to view the DEFQ on the right.
 - ___ c. Verify that the value in the Open input count column is not zero. A value greater than zero indicates that the connection with Monitor has been established. If you see a zero value listed here, then the JMS test will not be successful. If needed, restart the Monitor server again and check the configuration done earlier in this exercise.

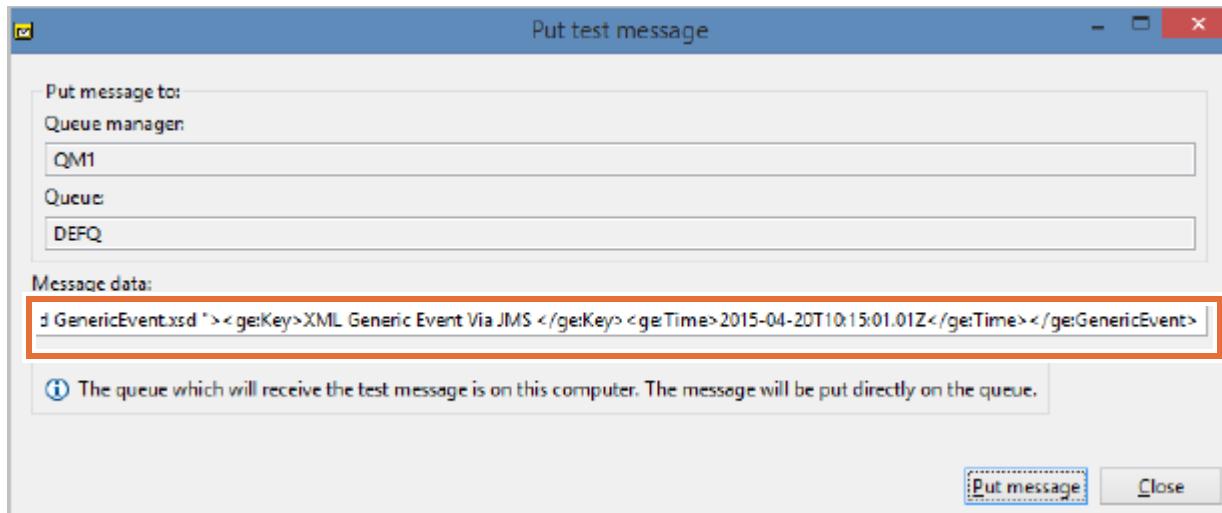
The screenshot shows the 'MQ Explorer - Content' window. It has a toolbar at the top and a main area titled 'Queues'. A filter bar says 'Filter: Standard for Queues'. Below is a table with the following data:

Queue name	Queue type	Open input count	Open output count	Current queue depth
DEFQ	Local	1	0	0

- ___ d. Right-click the **DEFQ** row and click **Put Test Message**.



- ___ e. In Windows Explorer, go to `C:\labfiles\Support Files\EX11` and open `JMS-message.txt` using notepad.
 ___ f. When the text file opens in notepad, select **Edit > Select All** to select the entire text and then select **Edit > Copy**. Do not change the xml formatting of the text as it can alter the test.
 ___ g. Paste the text into the **Message data** field of the “Put test message” window.



- ___ h. Click **Put message** and then close the “Put test message” window.

- __ i. Wait few seconds and click **Close**. Note that the input value has incremented from 1 to 2.

Queues					
Filter: Standard for Queues					
Queue name	Queue type	Open input count	Open output count	Current queue depth	
DEFQ	Local	2	0	0	

- __ j. If you do not see the Open input count incremented, then you need to try the test again. If you see a value of 1 or greater than 1 in the Current queue depth, then that is an indication that the test failed. When the put message is run, the message is placed on the DEFQ queue. The message is quickly written to the Monitor server queue and the event processed. if the event is not processed by Monitor then it stays in MQ, in which case the Current queue depth increases, and the test fails. If that occurs, then you might want to restart QM1 and Monitor server and check your configuration.
- __ k. Go back to the Monitor administrative console, click **Event Management**.
- __ l. A new event is listed. The event number is different than the one in your environment. If you had older events listed there, then there might be more than one event listed.

Event Management		
Use this page to manage recorded events.		
<input checked="" type="checkbox"/> Preferences <input type="button" value="Delete"/> <input type="button" value="Delete All"/> <input type="button" value="Export"/> <input type="button" value="Export All"/> <input type="button" value="Import Events"/>		
Select	Event	Time Recorded
<input type="checkbox"/>	21879	2018-02-21T19:18:10.948+
Total 1		

- __ m. Click the newly recorded event to view its details. Make sure to click the right event.

The screenshot shows a web-based application titled "Event Management". At the top, there is a breadcrumb navigation: "Event Management > View Event XML". Below the breadcrumb, a message says "Use this page to view the event XML data.". There are two buttons: "Expand All" and "Collapse All". A single event entry is displayed in a box with a red border. The event details are: "XML Generic Event Via JMS 2015-04-20T10:15:01.01Z". At the bottom of the page, there is a "Back" link.

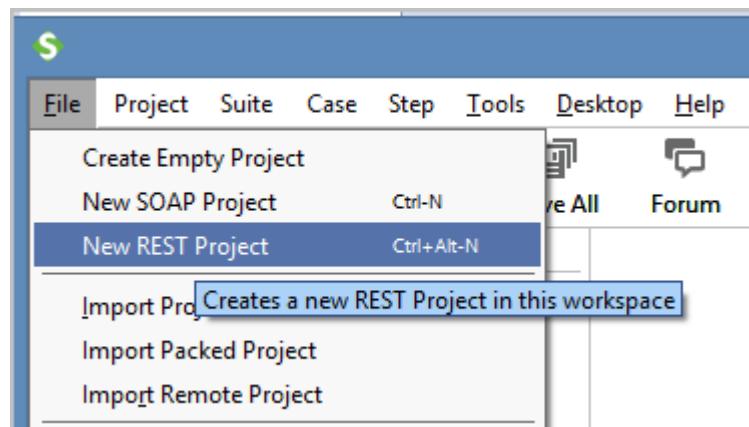
- __ n. This concludes a successful JMS emitter integration with Monitor. If time permits, feel free to run few more JMS tests.

Section 2. Running a REST emitter

- 1. Configure SOAPUI for posting events.
 - a. Double-click the **SOAPUI 5.4.0** shortcut on the desktop.



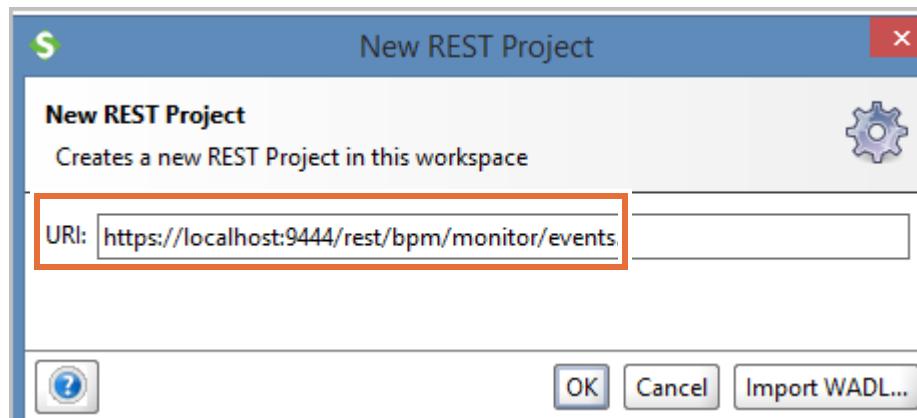
- b. Click **File > New REST Project**.



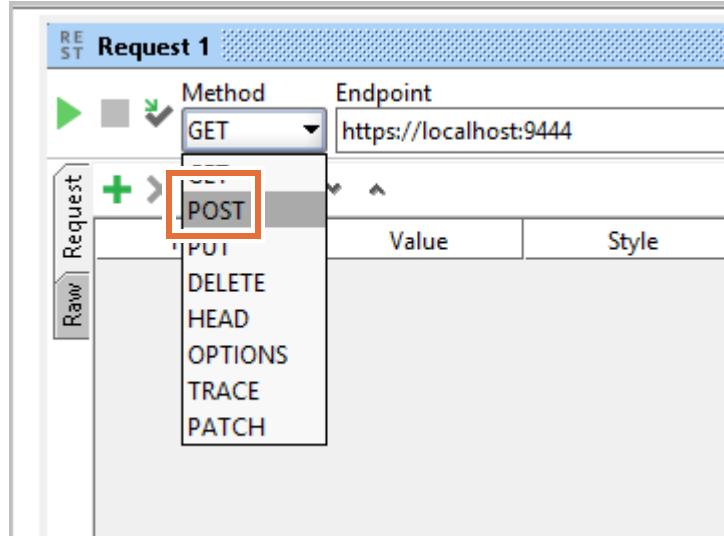
- c. For DEF events created for IBM Business Monitor monitoring models, the REST event emitter sends the events exactly as they are received to the monitor model application. Unless the context root of the REST event emitter is changed during installation, the default address of the REST event emitter is <https://localhost:9443/rest/bpm/monitor/events>. However, for your environment, the port number is 9444.

In the New REST Project window, in the **URI** field, enter:

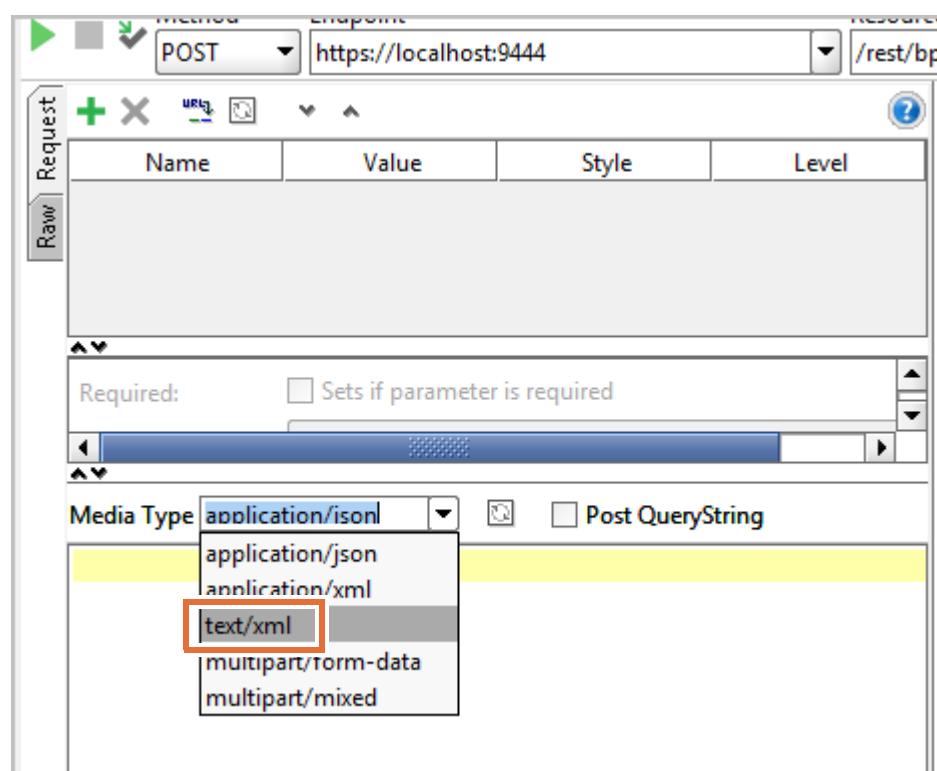
`https://localhost:9444/rest/bpm/monitor/events`



- __ d. Click **OK**.
- __ e. In the panel on the right, change the GET request to a **POST** from the list.



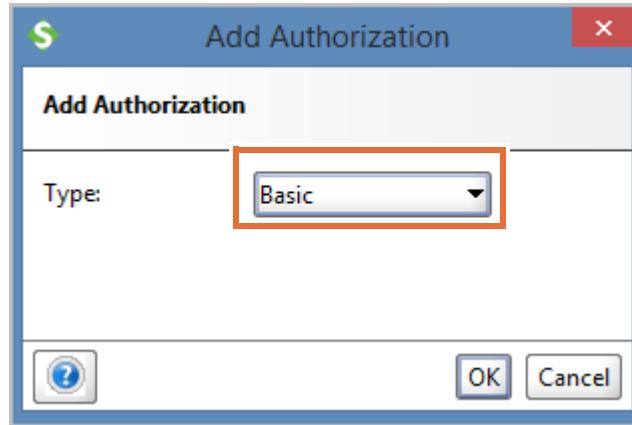
- __ f. Change the **Media Type** to **text/xml**.



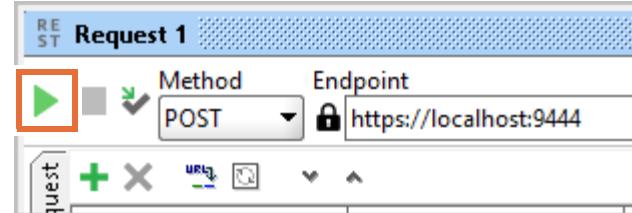
- __ g. Stretch the right window little wider so you can view the **Auth** link below. You might have to adjust the window until you see it.

- __ h. Click **Auth**.
__ i. Click **Add New Authorization** in the list.

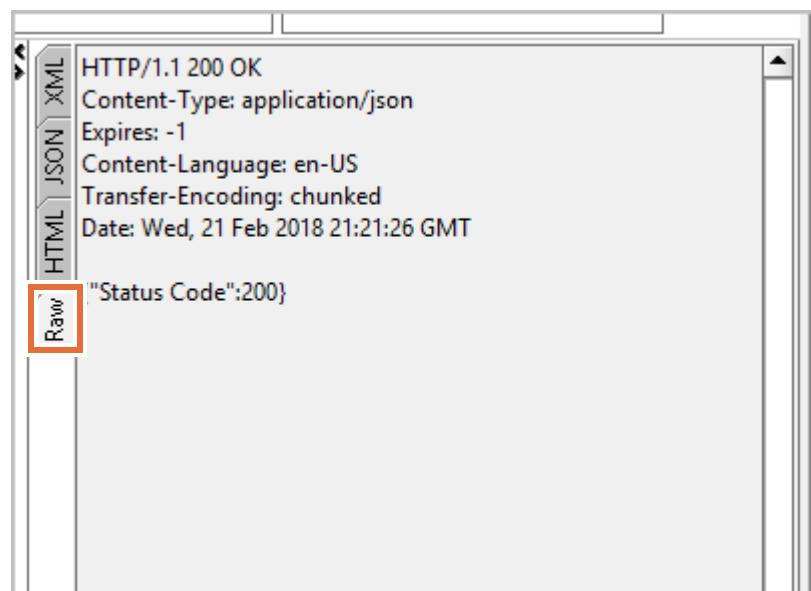
- __ j. Select **Basic** and click **OK**.



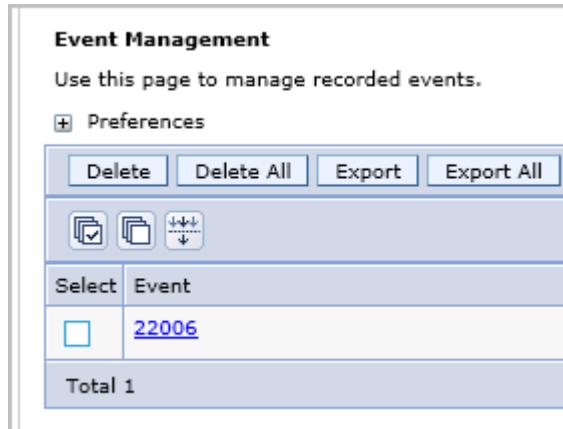
- __ k. Enter **admin** in the **Username** field and **web1sphere** in the **Password** field.
- __ l. In Windows Explorer, go to **C:\labfiles\Support Files\EX11** and open **REST-DEFmessage.txt** using notepad.
- __ m. When the text file opens in notepad, select **Edit > Select All** to select the entire text and then select **Edit > Copy**. Do not change the xml formatting of the text as it can alter the test.
- __ n. Paste the text into the **Media** field below Media Type.
- __ o. Click the **Submit** icon (the green arrow icon) to submit the request to Monitor.



- __ p. The status code received in the right window is 200 OK which means the post to Monitor is a success. You need to click the **RAW** tab from the right to view the status code.



- ___ q. Switch to Monitor administrative console and confirm a new event is received from REST emitter.



- ___ r. Click the event link.
___ s. The message confirms the event is REST post sent by the SOAPUI and processed by Monitor as DEF event.
___ t. If you have time, free to test the REST post for CEI event. The default URL to use for CEI is <https://localhost:9443/rest/bpm/events>. However, remember to change the port to 9444 in this environment.
___ u. This completes the REST emitter test.

End of exercise



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