

IBM BUSINESS MONITOR 7.5 – LAB EXERCISE

IBM Business Monitor V7.5 - Clips and Tacks – Business process monitoring lab

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What this exercise is about

The objective of this lab is to show you how to monitor a business process which was developed in WebSphere Business Modeler, implemented in IBM Integration Designer and deployed to IBM Business Process Manager.

This lab will provide solutions that you can import into Modeler and IBM Integration Designer, so then you can concentrate on building the monitor model, deploying it, running tests, and viewing monitored data in the dashboards.

Lab requirements

List of system and software required for the student to complete the lab:

- WebSphere Business Modeler V7.0.0.4.
- IBM Integration Designer V7.5.
- IBM Business Monitor V7.5 – Toolkit Installation on IBM Integration Designer including the Monitor Model editor and Monitor Server.

What you should be able to do

At the end of this lab you should be able to:

- Use Modeler to export the business measures model and process model.
- Use IBM Integration Designer to implement the monitor model, and deploy it to the server.
- Define a business space dashboard to view monitored data.

Introduction

In this lab you will learn how to deploy a monitor model from end to end using WebSphere Business Modeler, IBM Integration Designer, and IBM Business Monitor. This lab will show you the basic procedure for creating and implementing a simple model.

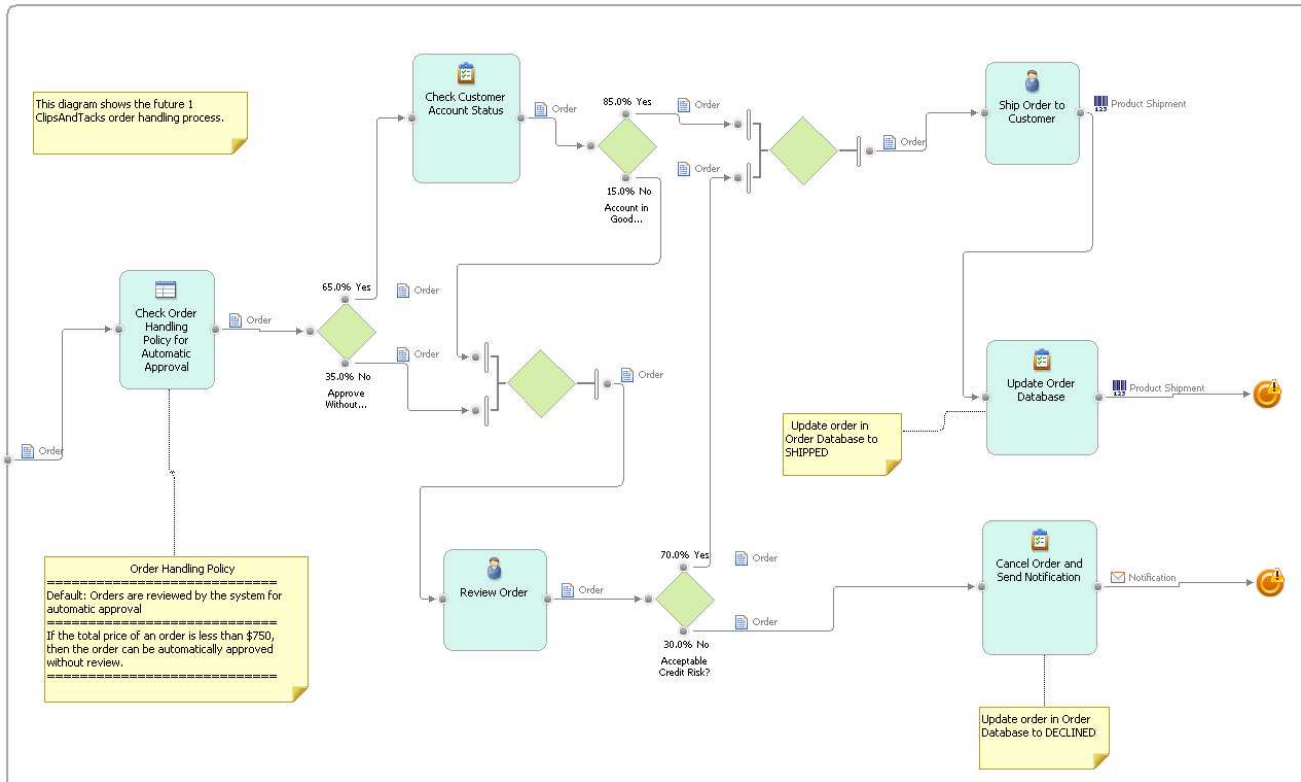
The model used in this lab is the **ClipsAndTacks** model. In this lab you will create monitoring constructs in support of two KPIs:

- Average order fulfillment is three days or less
- Percentage of shipped orders is greater than 90%

You will also create situation events when the average order fulfillment time is greater than three days, and when the percentage of orders shipped is less than 85%.

For dimensional analysis, you will create a Location dimension which allows you to drill down on country and city. You will also add an Order Status metric, which shows orders as 'New', 'Cancelled' or 'Shipped', and you will create a dimension based on order status so that you can drill down on this value. And you will add measures for average order price, sum of order price for all orders, and order count.

Here is a diagram of the ClipsAndTacks process model:



This is the ordering process for the Clips and Tacks company. In this process, orders are received and optionally submitted to a review process. Orders which pass all checks are shipped to the customer. Other orders may be cancelled.

In this lab you will use Modeler and import a process model which was created for you. You will select processing time and decision percentage monitored values in the business measures model in Modeler. Then you will export the process model and monitor model to IBM Integration Designer. You will import a solution file that contains the process implementation. Then you will complete the implementation of the monitor model. You will deploy the monitor model, run process instances, and view results in the business space dashboard. Finally, you will export monitored values back to Modeler.

URL cheat sheet

These URLs might be helpful to you as you exercise this lab. Note that the port numbers in the URL of your installation may be different depending on your configuration.

- Server administrative console

<https://localhost:9043/ibm/console>

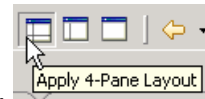
- Business space dashboard

<https://localhost:9443/BusinessSpace>

Part 1: Import the model into Modeler

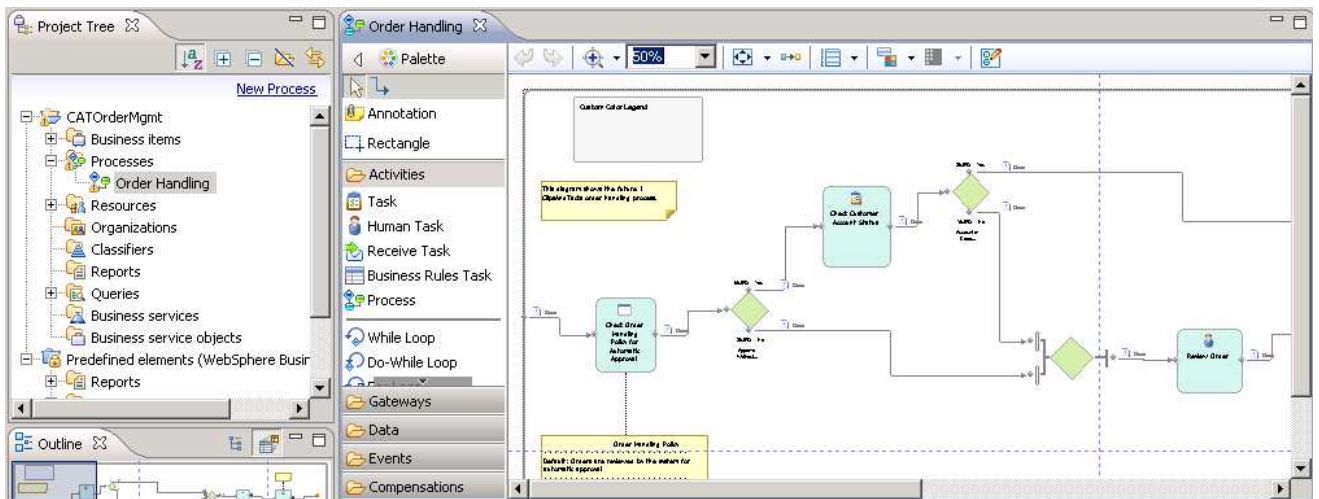
Instead of building the process model from scratch, you will import the model into WebSphere Business Modeler. You will review the process model and the business measures model.

- ___ 1. Start WebSphere Business Modeler and setup the environment.
 - ___ a. Start WebSphere Business Modeler, and when prompted point to a new workspace such as c:\workspaces\clipsmodel
 - ___ b. Close the Getting Started tab.
 - ___ c. Click **Modeling > Mode > WebSphere Process Server**.



- ___ d. Click the icon in the toolbar to apply the four pane layout.
- ___ 2. Import the supplied Modeler project.
 - ___ a. Right click in the Project Tree, and then select **Import...**
 - ___ b. Select **WebSphere Business Modeler project (.mar, .zip)**
 - ___ c. Click **Next**.
 - ___ d. For source directory, **browse** to the folder containing the supplied mar file, for example, c:\Labfiles75\ClipsAndTacksBPEL
 - ___ e. For files, select CATOrderMgmt.mar.
 - ___ f. Click **Finish**.

- ___ 3. Review the process.
 - ___ a. In the Project Tree, navigate to **CATOrderMgmt > Processes > Order Handling**, then double click the process to open the editor. In the editor, you can review the diagram which represents the process model. Notice that there are various tasks, decisions, human tasks, and a business rule.



___ b. For each task in the diagram, click the task, then click the Attributes tab and review the information. For implementation details, click the Technical Attributes View tab. You will see these implementations:

- 1) Check Order Handling Policy for Automatic Approval – rule group. Click the Business Rules tab and you will find that a business rule is used to check the order price and require manual approval if it is greater than or equal to \$750.
- 2) Review Order – human task
- 3) Ship Order to Customer – human task
- 4) Check Customer Account Status – java
- 5) Cancel Order and Send Notification – java
- 6) Update Order Database – java

Part 2: Create the business measures model in Modeler

In this section you will create the business measures model in Modeler. You will select monitored values for decision percentages and processing times. You will also add aggregate measures, dimensions, and KPIs.

If you want to skip this section, a solution has been provided. You can import the supplied Modeler MAR file and then proceed to the next section. Refer to Appendix 1, and then proceed to the next section.

- ___ 1. Select monitored values
 - ___ a. In Modeler, to open the business measures tab, select **Window > Business Measures**
 - ___ b. Click the white background of the process diagram.
 - ___ c. Click the Business Measures tab, then click the Monitored Values tab.
 - ___ d. On this tab is a list of all the elements in the process, including the decisions and tasks. If you select any of these items, then the corresponding business metrics are created automatically in the Business Performance Indicators tab. Select '% Per Branch' for the three decisions. Also select 'Processing Time' for the process and the six tasks.

| Business Performance Indicators | | Monitored Values | | | |
|---|---|--------------------------|--------------------------|--------------------------|-------------------------------------|
| Monitored values | | | | | |
| This section indicates which values you want returned from WebSphere Business Monitor after the process has been monitored. | | | | | |
| Process Element | Processing Time | Processing Cost | Startup Cost | Revenue | % Per Branch |
| <input checked="" type="checkbox"/> Acceptable Credit Risk? | | | | | <input checked="" type="checkbox"/> |
| <input checked="" type="checkbox"/> Account in Good Standing? | | | | | <input checked="" type="checkbox"/> |
| <input checked="" type="checkbox"/> Approve Without Review? | | | | | <input checked="" type="checkbox"/> |
| <input checked="" type="checkbox"/> Cancel Order and Send Notification | <input checked="" type="checkbox"/> Average Can... | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | |
| <input checked="" type="checkbox"/> Check Customer Account Status | <input checked="" type="checkbox"/> Average Che... | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | |
| <input checked="" type="checkbox"/> Check Order Handling Policy for Automatic Approval | <input checked="" type="checkbox"/> Average Che... | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | |
| <input checked="" type="checkbox"/> Order Handling | <input checked="" type="checkbox"/> Average Ord... | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | |
| <input checked="" type="checkbox"/> Review Order | <input checked="" type="checkbox"/> Average Revi... | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | |
| <input checked="" type="checkbox"/> Ship Order to Customer | <input checked="" type="checkbox"/> Average Ship... | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | |
| <input checked="" type="checkbox"/> Update Order Database | <input checked="" type="checkbox"/> Average Upd... | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | |

- ___ e. On the Business Performance Indicators tab, review the metrics that were created based on your monitored values selections.

| Business Performance Indicators | | Monitored Values | |
|---|--------|------------------|---|
| Business measures summary | | | |
| This section provides information about business measures such as metrics and KPIs. | | | |
| Name | Target | Time Period | Description |
| KPIs | | | |
| Instance Metrics | | | |
| Acceptable Credit Risk? Yes Branch | | | This metric measures whether the Yes branch for Acceptable Credit Risk? was taken. |
| Acceptable Credit Risk? No Branch | | | This metric measures whether the No branch for Acceptable Credit Risk? was taken. |
| Account in Good Standing? Yes Branch | | | This metric measures whether the Yes branch for Account in Good Standing? was taken. |
| Account in Good Standing? No Branch | | | This metric measures whether the No branch for Account in Good Standing? was taken. |
| Approve Without Review? Yes Branch | | | This metric measures whether the Yes branch for Approve Without Review? was taken. |
| Approve Without Review? No Branch | | | This metric measures whether the No branch for Approve Without Review? was taken. |
| Cancel Order and Send Notification | | | This metric measures the processing time of Cancel Order and Send Notification. |
| Check Customer Account Status | | | This metric measures the processing time of Check Customer Account Status. |
| Check Order Handling Policy for Automatic Approval | | | This metric measures the processing time of Check Order Handling Policy for Automatic Approval. |
| Order Handling Processing Time | | | This metric measures the processing time of Order Handling. |
| Review Order Processing Time | | | This metric measures the processing time of Review Order. |
| Ship Order to Customer Processing Time | | | This metric measures the processing time of Ship Order to Customer. |
| Update Order Database Processing Time | | | This metric measures the processing time of Update Order Database. |
| Aggregate Metrics | | | |
| Dimensions | | | |
| Average Acceptable Credit Risk? Yes Branch | | | This metric measures the average decision branch percentage for Acceptable Credit Risk? Yes. |
| Average Acceptable Credit Risk? No Branch | | | This metric measures the average decision branch percentage for Acceptable Credit Risk? No. |
| Average Account in Good Standing? Yes Branch | | | This metric measures the average decision branch percentage for Account in Good Standing? Yes. |
| Average Account in Good Standing? No Branch | | | This metric measures the average decision branch percentage for Account in Good Standing? No. |
| Average Approve Without Review? Yes Branch | | | This metric measures the average decision branch percentage for Approve Without Review? Yes. |
| Average Approve Without Review? No Branch | | | This metric measures the average decision branch percentage for Approve Without Review? No. |
| Average Cancel Order and Send Notification | | | This metric measures the average processing time of Cancel Order and Send Notification. |
| Average Check Customer Account Status | | | This metric measures the average processing time of Check Customer Account Status. |
| Average Check Order Handling Policy for Automatic Approval | | | This metric measures the average processing time of Check Order Handling Policy for Automatic Approval. |
| Average Order Handling Processing Time | | | This metric measures the average processing time of Order Handling. |
| Average Review Order Processing Time | | | This metric measures the average processing time of Review Order. |
| Average Ship Order to Customer Processing Time | | | This metric measures the average processing time of Ship Order to Customer. |
| Average Update Order Database Processing Time | | | This metric measures the average processing time of Update Order Database. |
| Unspecified Metrics | | | |

2. Create a dimension for location. Since you want to perform dimensional analysis by country and city, then you need to add the Location dimension. You cannot specify a two level dimension in Modeler, so you will just create a single level here, and then you will complete the implementation in the Monitor toolkit.
 - a. On the Business Performance Indicators tab, double click the first aggregate metric in the list. This opens the Business Measures Details window.
 - b. On the Business Measure Details tab, select the check box to specify the dimensions that will be available.
 - c. Click the Add button, then highlight the default name of the dimension and change it to Location.

Dimensions for Analysis

You can provide an instance metric as the implementation for each dimension. For example, an instance metric that holds the name of a city can be the implementation for the city dimension.

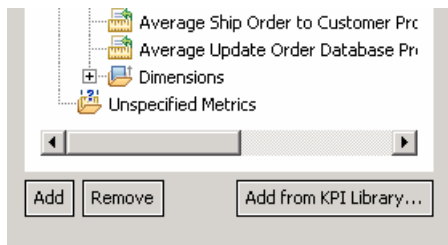
Specify the dimensions that will be available in the dashboards for analysis of this metric

| Dimension | Instance Metric | |
|-----------|-----------------|--|
| Location | | |
| | | |
| | | |

- d. Leave the Business Measures Details window open. You will be adding metrics using this window.

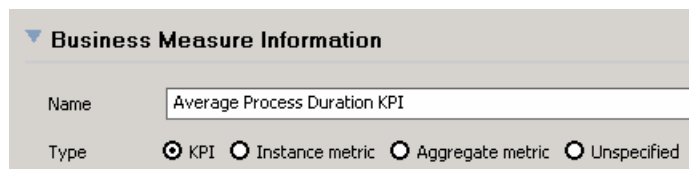
___ 3. Create a KPI for average process duration.

- ___ a. In the Business Measures navigator on the left of the Business Measure Details window, click the Add button.



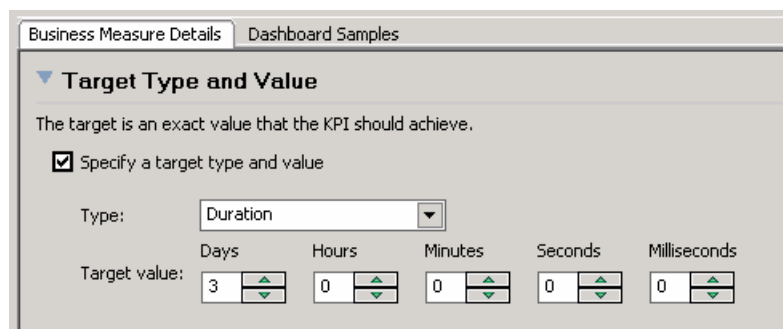
- ___ b. Change the name to **Average Process Duration KPI**

- ___ c. For type, select **KPI**.



- ___ d. On the Business Measure Details tab set the following values: type duration, target 3 days, range Good 1 to 3 days, range Too long 3 to 5 days, time period repeating yearly, specify an alert with default name

- 1) Select the check box to specify a target
- 2) Target type – Duration
- 3) Target value – 3 Days



- 4) Select the check box to specify a range
- 5) Select button for range Actual Value
- 6) Add range 'Good' with start value 1 day and end value < 3 days
- 7) Add range 'Too long' with start value 3 days and end value < 5 days

▼ Ranges

Specify range details:

Ranges can be defined as percentages of the target value or as fixed, actual values.

Percentage of target value (target value = 100%)

Actual value

Specify ranges

A range is a set of values, such as allowable margins or lower and upper limits, against which to track your KPI.

| Range Name | Start Value | End Value |
|------------|------------------|--------------------|
| Good | 1 Day 0 Seconds | < 3 Days 0 Seconds |
| Too long | 3 Days 0 Seconds | < 5 Days 0 Seconds |

Add
Remove

8) Select the check box to specify an alert

9) Add an alert and take the default name 'Average Process Duration KPI Alert'

▼ Alerts

You can specify instructions for notification when specific conditions occur. For example, when this measure exceeds a certain value, send an e-mail.

Specify when to send an alert and the action to take as a result

| Alert Description |
|------------------------------------|
| Average Process Duration KPI Alert |

Add
Remove

10) Select the check box to specify how to calculate the KPI

11) Select the button to based the KPI on a metric and aggregation function

12) Set the instance metric to aggregate to 'Order Handling Processing Time'

13) Set the aggregation function to Average.

▼ KPI Calculation Details

Specify the method used to calculate this KPI. If you choose to calculate the KPI based on an instance metric, you will also be able to specify the time period and data filters for use with the KPI.

Specify how to calculate this KPI

Based on an instance metric and an aggregation function

Instance metric to aggregate: New...

Aggregation function:

Using an expression involving other KPIs

Edit...

14) Select the check box to specify a time period

15) Select button for time period Repeating

16) Set period type to Yearly, and base period on 'Period in progress'

Time Period for Data Collection

Specify a time period over which the business measure will be monitored

Repeating
 Rolling
 Fixed

Period type:
 Last:
 Start date:

Time zone:
 End date:

Base period on:
 Last full period
 Period in progress
 Time zone:

- ___ 4. Create a KPI for percentage of orders shipped.
- ___ a. In the Business Measures navigator on the left of the Business Measure Details window, click the Add button.
- ___ b. Change the name to **Percentage of Orders Shipped KPI**
- ___ c. For type, select **KPI**.
- ___ d. On the Business Measure Details tab set the following values: type number, target 90, range Low 0 to 85, range Good 85 to 90, range Great 90 to 100, specify an alert with default name
- ___ e. You would normally select how to calculate the KPI, but for this KPI you will leave this to the developer to determine
- ___ f. No time period is required.
- ___ 5. Create a measure to track the total order count.
- ___ a. In the Business Measures navigator on the left of the Business Measure Details window, click the Add button.
- ___ b. Change the name to **Order Count**
- ___ c. For type, select **Aggregate metric**.
- ___ d. On the Business Measure Details tab set the following values: function count, instance metric 'Order Handling Processing Time'. Note that you could select any instance metric in the model to count and this aggregation will work fine.
- ___ 6. Create a measure to count shipments.
- ___ a. In the Business Measures navigator on the left of the Business Measure Details window, click the Add button.
- ___ b. Change the name to **Ship Count**
- ___ c. For type, select **Aggregate metric**.
- ___ d. On the Business Measure Details tab set the following values: function average, do not specify an instance metric since you are not sure how to calculate this so just leave it up to the developer.
- ___ 7. Create a measure to count declined orders.

- ___ a. In the Business Measures navigator on the left of the Business Measure Details window, click the Add button.
 - ___ b. Change the name to **Decline Count**
 - ___ c. For type, select **Aggregate metric**.
 - ___ d. On the Business Measure Details tab set the following values: function average, do not specify an instance metric since you are not sure how to calculate this so just leave it up to the developer.
- ___ 8. Create a metric for price so that you can use that metric as a source for aggregations that will average the order prices and total the order prices.
- ___ a. In the Business Measures navigator on the left of the Business Measure Details window, click the Add button.
 - ___ b. Change the name to **Price**
 - ___ c. For type, select **Instance metric**.
 - ___ d. On the Business Measure Details tab set the following values: template 'Business Item Input', process element 'Order Handling', attribute 'Order.TotalPrice(Input)
- ___ 9. Create a measure to sum order price.
- ___ a. In the Business Measures navigator on the left of the Business Measure Details window, click the Add button.
 - ___ b. Change the name to **Sum Order Price**
 - ___ c. For type, select **Aggregate metric**.
 - ___ d. On the Business Measure Details tab set the following values: function sum, instance metric 'Price', take the default dimension 'Location'.
- ___ 10. Create a measure to average order price.
- ___ a. In the Business Measures navigator on the left of the Business Measure Details window, click the Add button.
 - ___ b. Change the name to **Average Order Price**
 - ___ c. For type, select **Aggregate metric**.
 - ___ d. On the Business Measure Details tab set the following values: function average, instance metric 'Price'
- ___ 11. Click OK.
- ___ 12. Press **Ctrl-S** to save your work.

Part 3: Export to IBM Integration Designer

In this section you will export the business process and the business measures model to IBM Integration Designer.

- ___ 1. Export to IBM Integration Designer.
 - ___ a. Right click in the Project Tree on CATOrderMgmt, then select **Export** then on the next panel select **WebSphere Integration Developer**.
 - ___ b. Click **Next**.
 - ___ c. Browse to a target directory. Select 'Export entire project and related projects'.
 - ___ d. Click **Next**.

WebSphere Business Modeler Export

WebSphere Integration Developer export details

Specify export details, then click Finish to export. Use the recommended export option for interoperability between WebSphere Business Modeler and WebSphere Integration Developer.

Select the export option

This option creates three related projects. It separates the business logic from the implementation details. Choose this option for best interoperability when you are working iteratively between WebSphere Business Modeler and WebSphere Integration Developer.

Export using the standard project interchange format for other environments

Project Interchange Name

Append timestamp to project interchange name

Create default forms for processes and human tasks

Create mediation flows for tasks and services

Enable generated BPEL for process versioning

This option is supported only when exporting to WebSphere Integration Developer V7.0.0.2 or later and WebSphere Process Server V7.0.0.2 or later.
[More...](#)

Target Project Names

| Modeler Project Name | Business Logic Module Name | Implementation Module Name | Library Name |
|----------------------|----------------------------|----------------------------|------------------|
| CATOrderMgmt | CATOrderMgmt | CATOrderMgmt_impl | CATOrderMgmt_lib |
| | | | |

- ___ e. Take the defaults on this panel including the recommended export option.
- ___ f. Click **Next**.
- ___ g. On the next panel select 'Export business measures as a monitor model or models'. Also select 'Export to a single monitor model...'

Export business measures as a monitor model or models

- Export to a single monitor model, which combines the business measures with the events from WebSphere Integration Developer
- Export to two monitor models, one containing the business measures and the other containing the events from WebSphere Integration Developer

Export Options

Export using the standard project interchange format for other environments

Project Interchange Name

CATOrderMgmt_Monitor

Append timestamp to project interchange name

Target Project Names

| Modeler Project Name | Monitor Project Names |
|----------------------|-----------------------|
| CATOrderMgmt | CATOrderMgmt_Monitor |

___ h. Click **Finish**.

___ 2. This creates two project interchange files at the specified target location.

___ a. Process file - CATOrderMgmt_<timestamp>.zip

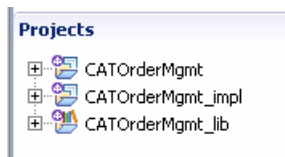
___ b. Business measures file – CATOrderMgmt_Monitor_<timestamp>.zip

___ 3. Close WebSphere Business Modeler.

Part 4: Import the process into IBM Integration Designer and implement the activities

In this section you will import the process from Modeler into IBM Integration Designer. Normally, then you would implement the various activities in the process, but to save some time you will import a solution which already has the implementation for the activities. Using the best practice approach, Modeler has automatically created three separate projects, one for the process (CATOrderMgmt), one for the implementation (CATOrderMgmt_impl) and one for a library of common elements (CATOrderMgmt_lib).

- ___ 1. Start IBM Integration Designer and setup the environment.
 - ___ a. Start IBM Integration Designer, and when prompted point to a new workspace such as c:\workspaces\clipsbpm
 - ___ b. Close the Welcome tab.
 - ___ c. By default, you are in the Business Integration perspective.
- ___ 2. Import the process.
 - ___ a. In the Business Integration view, right click then select **Import...**
 - ___ b. Navigate to **Other > Project Interchange** then click **Next**.
 - ___ c. For the .zip file, browse to the process output file from Modeler, for example, 'CATOrderMgmt_2008-06-15T10.12.26.zip'. Note that the timestamp in your file name will be different.
 - ___ d. You should see three projects listed, so click **Select All**.
 - ___ e. Click **Finish**.
 - ___ f. A migration panel is shown, click **Next**. Click **Next**. Click **Next**. Click **Finish**.
 - ___ g. You should see a message indicating that the migration was successful. Click **OK**.
 - ___ h. You should see three projects listed in the Business Integration view, one for the process (CATOrderMgmt), one for the implementation (CATOrderMgmt_impl) and one for a library of common elements (CATOrderMgmt_lib):



- ___ 3. At this point, you could add the implementations for the human tasks, business rule, and Java code. However, to save some time, you will import the solution which has already been updated with the implementations.
 - ___ a. In the Business Integration view, right click then select **Import...**
 - ___ b. Navigate to **Other > Project Interchange** then click **Next**.
 - ___ c. For the .zip file, browse to the supplied file, for example,

c:\Labfiles75\ClipsAndTacksBPEL\CATOrderMgmt_ProcessSolution_PI.zip

___ d. Select all projects.

___ e. Click **Finish**. Click **OK** to confirm overwrite.

___ f. If you see errors in the problems view, then try to clean the workspace by selecting Project > Clean ... > select 'Clean all projects' , then click OK.

___ g. If you want to review the implementation, in the Business Integration view, navigate to **CATOrderMgmt_impl > Integration Logic**. You will find three Java implementations.

1) CheckCustomerAccountStatusImpl – Java is used to calculate the credit amount for the customer. When you run an instance of the business process, you will enter the old credit rating and old credit amount. This routine calculates a new credit rating which is a random number between 500 and 800. It calculates a new credit amount which is based on an adjustment to the old credit amount, using this formula: $\text{newAvailCredit} = \text{oldAvailCredit} + ((\text{newRating} - \text{oldRating}) * 0.1)$.

2) The other two Java implementations just print messages to the log.

___ h. If you want to review the BPEL process, in the Business Integration view, navigate to **CATOrderMgmt > Integration Logic > Processes > processes\orderhandling**, then double click **OrderHandling** to open the BPEL editor. This is a summary of the flow:

1) Check Order Handling Policy for Automatic Approval. Implemented as a business rule. If $\text{Order.totalPrice} < 750$, go to Check Customer Account Status, else go to Review Order

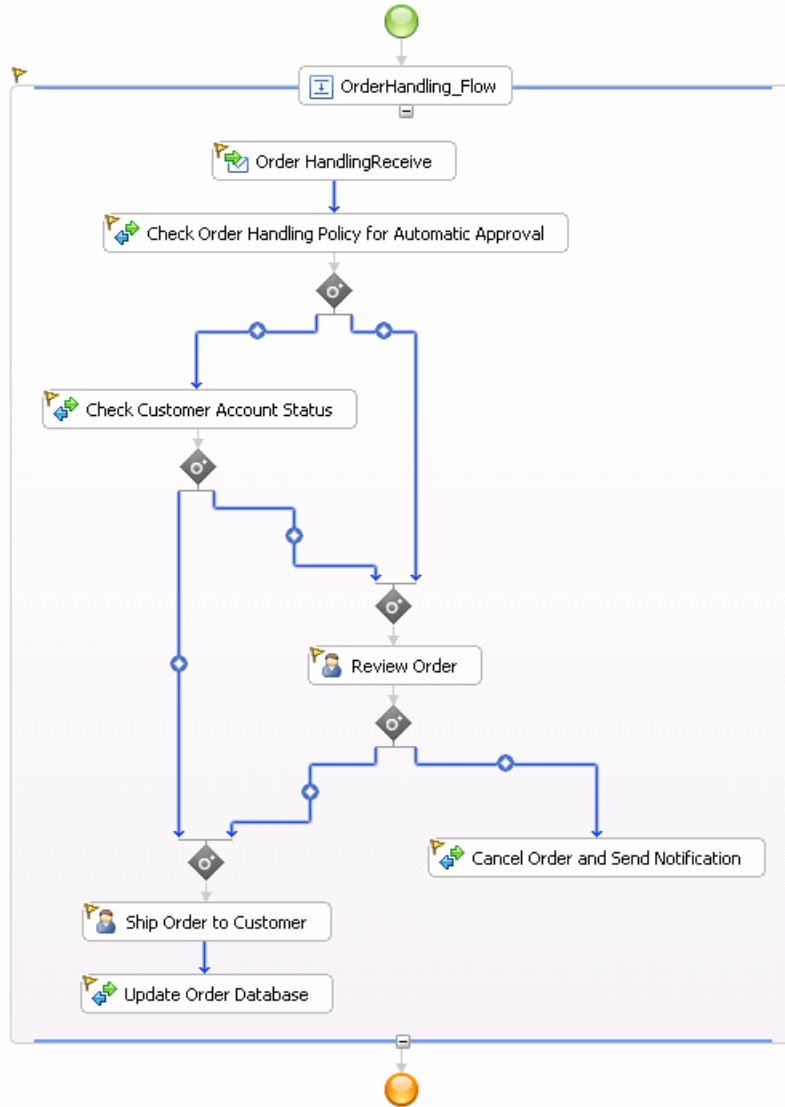
2) Check Customer Account Status. Implemented as Java to calculate a new credit amount. If $\text{Order.totalPrice} > \text{new credit amount}$, go to Review Order else go to Ship Order to Customer.

3) Review Order. Implemented as a human task. If $\text{ReviewOrder.OrderStatus}$ is APPROVED then go to Ship Order to Customer else if $\text{ReviewOrder.OrderStatus}$ is DECLINED go to Cancel Order and Send Notification.

4) Ship Order to Customer. Implemented as a human task. Goes to Update Order Database.

5) Cancel Order and Send Notification. Implemented as Java to print messages to the log. This is the end of the flow.

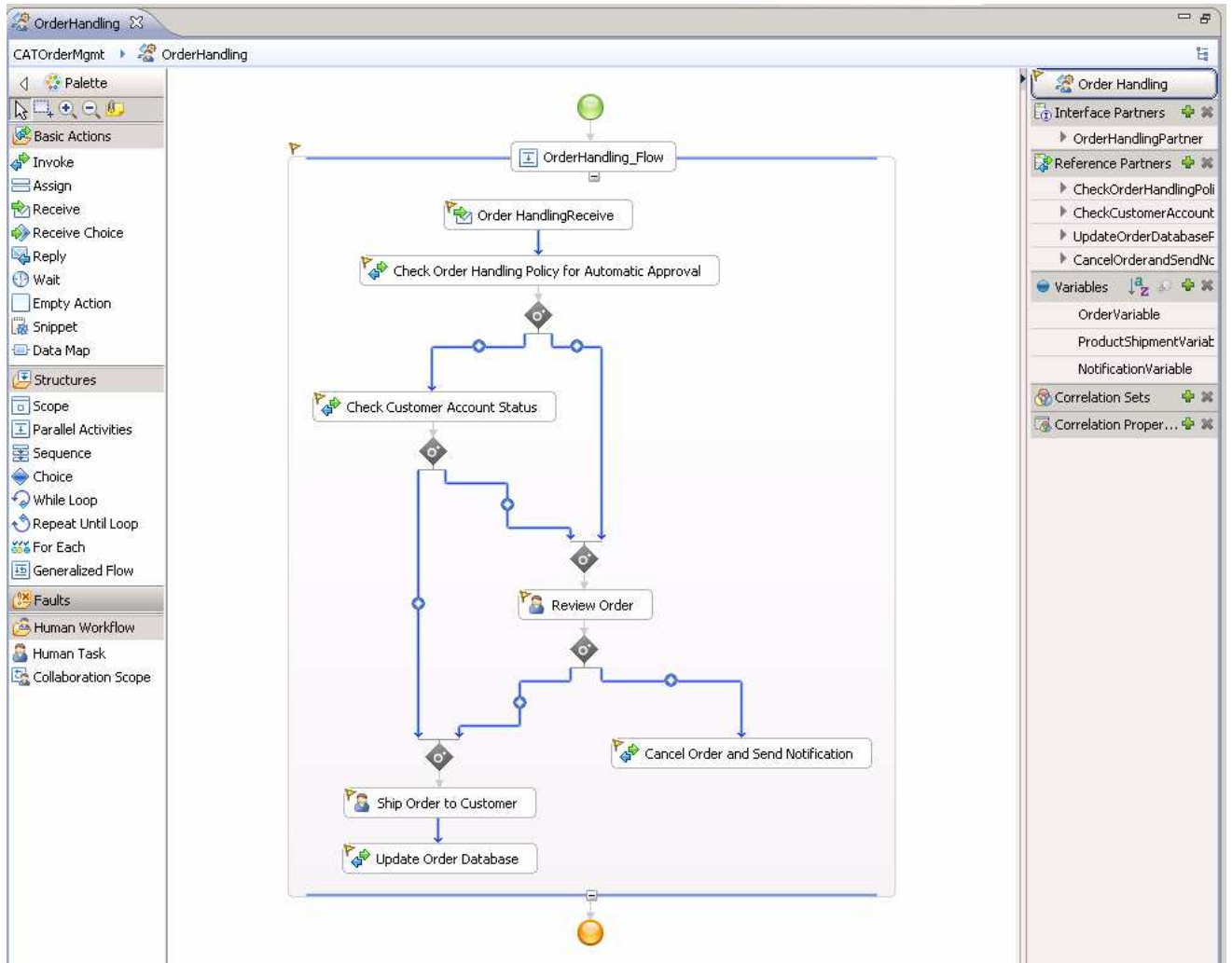
6) Update Order Database. Implemented as Java to print messages to the log. This is the end of the flow.



Part 5: Verify that the BPEL process emits monitor events

When you export the process from Modeler, the events that are required for monitoring are already selected to be emitted. Monitor will need events for the process and the invoke activities in the process. Modeler decisions become links in BPEL, so Monitor also needs events for the flow element in BPEL.

- ____ 1. In the Business Integration view, navigate to **CATOrderMgmt > Integration Logic > Processes > processes\orderhandling**, then double click **OrderHandling** to open the BPEL editor.
- ____ 2. Click the white background of the process. Make sure that you click outside of the flow element which is the large rectangle that contains the receive, reply and invoke elements . Then click the **Properties** tab, then click the **Event Monitor** tab. Note that all process events are selected.
- ____ 3. Click inside the flow element **OrderHandling_Flow**, and note on the Event Monitor tab that all the events are selected.
- ____ 4. Select each invoke in the BPEL diagram and note on the Event Monitor tab that all the events are selected.
- ____ 5. Here is a screen capture that shows the small yellow flags that indicate that the events are selected for the components. There are flags on the receive activity and each of the six invoke activities. The flag in the upper left in the diagram represents the flow. The flag in the upper right menu item 'Order Handling' represents the process. So there are nine flags in total.

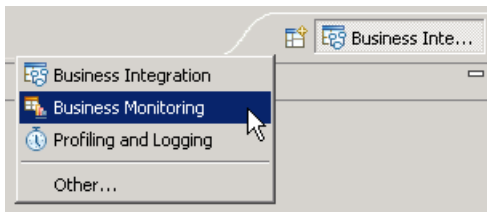


Part 6: Import the business measures into IBM Integration Designer and implement the monitor model

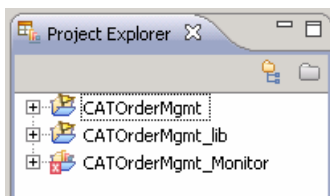
In this section you will import the business measures from Modeler into IBM Integration Designer. This section shows you how to complete the implementation of the monitor model.

If you want to skip this section, a solution has been provided. You can import the supplied project interchange file and then proceed to the next section. Refer to Appendix 2, and then proceed to the next section.

- ___ 1. Switch to the Business Monitoring Perspective
 - ___ a. In the upper right corner, click the perspective icon and select Business Monitoring.



- ___ 2. Import the business measures from Modeler.
 - ___ a. In the Project Explorer view, right click then select **Import...**
 - ___ b. Navigate to **Other > Project Interchange** then click **Next**.
 - ___ c. For the .zip file, browse to the business measures output file from Modeler, for example, 'CATOrderMgmt_Monitor_2008-06-15T10.12.26.zip'. Note that the timestamp in your file name will be different.
 - ___ d. You should see one project listed, so select it.
 - ___ e. Click **Finish**.
 - ___ f. You should see the new project CATOrderMgmt_Monitor listed in the Business Integration view. Note that it has a red 'x' marker because there are errors due to missing elements in the monitor model.



- ___ 3. Open the **Order Handling Monitor** monitor model.
 - ___ a. In the Project Explorer navigate to CATOrderMgmt_Monitor > Monitor Models and double click 'Order Handling_Mon.mm'
- ___ 4. Review the monitor model. In the Monitor Details Model tab, you see there is a monitoring context for the process and one monitoring context for each activity in the process. On the inbound events for the process and activities, the correlation information is already setup. There are also termination triggers setup for you. And notice the metrics and stopwatches that are in the model for calculation

of the processing times and decision percentages. On the KPI Model tab, you see the two KPI's along with triggers for alerts. One of the KPI's needs implementation details so it has a red marker. In the dimensional model tab, you see the measures in the Order Handling Cube. Several dimensions have red markers because they need implementation details. On the Visual Model tab, you see there are two SVG diagrams installed, one for the process and one for the KPI context (Order Handling and Order Handling KC). On the Event Model tab, expand the listing for /CATOrderMgmt_lib/businessitems/businessitems.xsd, and you will see the business item schema definitions which are located in the process library CATOrderMgmt_lib.

- ___ 5. Click the **KPI Model** tab.
- ___ 6. In the KPI model, update **Average Process Duration KPI Trigger 1**. This trigger is used to fire the situation event when the process duration is too long.

___ a. For Trigger condition, enter this expression:

Average_Process_Duration_KPI ge dayTimeDuration('P3DT1H')

▼ Trigger Condition

Specify the condition that determines whether the trigger will fire.

Average_Process_Duration_KPI ge dayTimeDuration('P3DT1H')

- ___ 7. In the KPI model, update **Percentage of Orders Shipped KPI Trigger 1**. This trigger is used to fire the situation event when the percentage of shipped orders is too small.

___ a. In the trigger source table, click **Add**

___ b. Select **Recurring wait time**, then click **OK**. This will default to 1 minute.

___ c. For Trigger condition, enter this expression:

Percentage_of_Orders_Shipped_KPI < 85

▼ Trigger Condition

Specify the condition that determines whether the trigger will fire.

Percentage_of_Orders_Shipped_KPI < 85

- ___ 8. Press **Ctrl-S** to save your work.

- ___ 9. In the KPI model, update the KPI **Percentage of Orders Shipped KPI**. In order to calculate the percentage of orders shipped you will create a KPI for the number of shipped orders, and you will create another KPI for the total number of orders, then you can determine the percentage by dividing the shipped orders by the total orders.

___ a. In the details model, create a new trigger **Shipped Order Trigger**

1) Right click in the **Monitor Details Model** navigator on the Order Handling monitoring context, and select **New > Trigger**

2) Enter name: Shipped Order Trigger, click OK

- 3) In trigger sources, click Add, then select Other source type, navigate to Order Handling > Ship Order to Customer > Ship Order to CustomerEXIT, click OK

| ▼ Trigger Sources | |
|-------------------------------------|----------------------------|
| Specify the source of this trigger. | |
| Source Type | Source |
| Event | Ship Order to CustomerEXIT |

___ b. In the details model, create a new trigger **Cancelled Order Trigger**

- 1) Right click in the **Monitor Details Model** navigator on the Order Handling monitoring context, and select **New > Trigger**
- 2) Enter name: Cancelled Order Trigger, click OK
- 3) In trigger sources, click Add, then select Other source type, navigate to Order Handling > Cancel Order and Send Notification > Cancel Order and Send NotificationEXIT, click OK

| ▼ Trigger Sources | |
|-------------------------------------|--|
| Specify the source of this trigger. | |
| Source Type | Source |
| Event | Cancel Order and Send NotificationEXIT |

___ c. In the details model, create a new metric **Order Status**

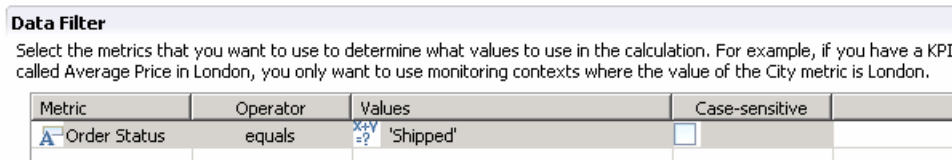
- 1) Right click in the **Monitor Details Model** navigator on the Order Handling monitoring context, and select **New > Metric**
- 2) Enter name: Order Status, enter type: String, click OK
- 3) Select 'A value is required for this metric', since a dimension will use this metric and that requires a value for dimensional analysis.
- 4) For Default value, enter 'New' with the quotation marks.
- 5) In Metric value expressions, click Add. In the trigger cell, enter trigger type Cancelled Order Trigger. In the expression cell, enter 'Cancelled' with the quotation marks.
- 6) In Metric value expressions, click Add. In the trigger cell, enter trigger type Shipped Order Trigger. In the expression cell, enter 'Shipped' with the quotation marks.

| ▼ Metric Value Expressions | |
|--|-------------|
| Specify the expressions that set the value of the metric. trigger fires. | |
| Trigger | Expression |
| Cancelled Order Trigger | 'Cancelled' |
| Shipped Order Trigger | 'Shipped' |

___ d. In the KPI model, create a new KPI **Shipped Orders**. You will use the key metric to count all incoming instances, then filter it by the order status so you only count shipped orders. You will also filter it by the process state, so only completed process instances are counted.

- 1) In the KPI model navigator, right click Order Handling KC and select New > KPI.
- 2) Enter name Shipped Orders, click OK.

- 3) Set the type to decimal.
- 4) Select 'Keep track of historical values for this KPI'
- 5) For KPI value, select 'Base this KPI on a metric and an aggregation function'
- 6) For monitoring context, browse to Order Handling
- 7) For metric, browse to Order Handling Instance ID.
- 8) For aggregation function, select Count
- 9) For data filter, click Add, then browse to Order Handling > Order Status, then click OK. In the values cell, enter 'Shipped' with the quotation marks.



___ e. In the KPI model, create a new KPI **Total Orders**. You will use the key metric to count all incoming instances.

- 1) In the KPI model navigator, right click Order Handling KC and select New > KPI.
- 2) Enter name Total Orders, click OK.
- 3) Set the type to decimal.
- 4) Select 'Keep track of historical values for this KPI'
- 5) For KPI value, select 'Base this KPI on a metric and an aggregation function'
- 6) For monitoring context, browse to Order Handling
- 7) For metric, browse to Order Handling Instance ID.
- 8) For aggregation function, select Count

___ f. Finalize the KPI, **Percentage of Orders Shipped KPI**

- 1) In the KPI model navigator, select the KPI Percentage of Orders Shipped KPI
- 2) For KPI Value, select 'Write an expression to calculate this KPI based on existing KPIs'
- 3) For KPI Calculation, enter:

(Shipped_Orders div Total_Orders) * 100

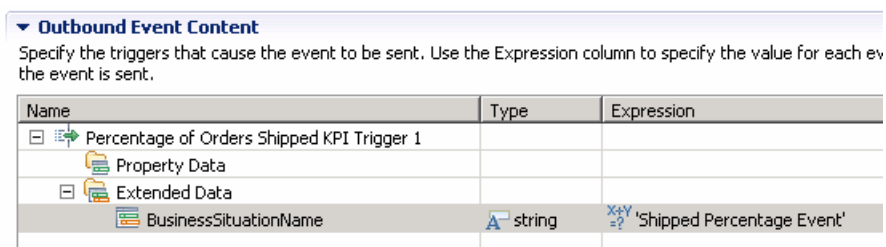
KPI Calculation

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

(Shipped_Orders div Total_Orders) * 100


___ 10. Press **Ctrl-S** to save your work.

- ___ 11. Create the shipped percentage situation event which will use the built-in ActionServicesEvent definition. This event contains a field called BusinessSituationName which is a required field for the outbound situation event. Then you will define an outbound event which is fired by the trigger. In this outbound event, you will provide a value for the field BusinessSituationName which will be used later when configuring action manager in the server administrative console.
- ___ a. Click the KPI Model tab
 - ___ b. Right click in the navigator on Order Handling KC, select New > Outbound Event
 - ___ c. For name, enter Shipped Percentage Event
 - ___ d. Select the check box for 'Configure this event to generate an alert in the dashboards'
 - ___ e. For trigger, browse to Order Handling KC > Percentage of Orders Shipped KPI Trigger 1
 - ___ f. Click OK
 - ___ g. Notice that the extension name defaults to the ActionServicesEvent.
 - ___ h. In the Outbound Event Content, navigate to Percentage of Orders Shipped KPI Trigger 1 > Extended Data > BusinessSituationName, and notice that the expression is already set.



| Name | Type | Expression |
|--|--------|-------------------------------|
| Percentage of Orders Shipped KPI Trigger 1 | | |
| Property Data | | |
| Extended Data | | |
| BusinessSituationName | string | =? 'Shipped Percentage Event' |

- ___ 12. Press **Ctrl-S** to save your work.
- ___ 13. Create the order processing time situation event. You will create an event definition containing a field called BusinessSituationName which is a required field for the outbound situation event. You will also create a field to store the average processing time to display in the alert. Then you will define an outbound event which is fired by the trigger. In this outbound event, you will provide a value for the field BusinessSituationName which will be used later when configuring action manager in the server administrative console, and you will supply the data source for the average processing time in the event.
- ___ a. Create an event definition for average order processing time.
 - 1) In Project Explorer, right click CATOrderMgmt_Monitor and select **New > Event Definition...(cbe)**
 - 2) For file name, enter LateAverageOrderShippedEvent.cbe
 - 3) Click Finish
 - 4) The Event Definition Editor for LateAverageOrderShippedEvent opens.
 - 5) Double click the hierarchical icon next to the label **Parent**.
 - 6) On the **Select Event Definition** Dialog double click **event**.
 - 7) **Event** is now shown as the parent of **LateAverageOrderShippedEvent**

- 8) On the event definition, click the icon for Add Extended Data . This adds a row to the Extended Data table.
- 9) For the new data element, change the Extended Data name from 'data1' to 'BusinessSituationName' by clicking on data1 and typing the new name.
- 10) For the new element, change the type to string. Do this by clicking on 'noValue' and then you are given a drop down box.
- 11) On the event definition, click the icon for Add Extended Data. This adds a second row to the Extended Data table.
- 12) For the second data element, change the Extended Data name to AverageOrderProcessingTime
- 13) For the second element, change the type to string.
- 14) Press **Ctrl-S** to save your work.

__ b. Create the outbound event **Order Fulfillment Event**

- 1) Click the KPI Model tab
- 2) Right click in the navigator on Order Handling KC, select New > Outbound Event
- 3) For name, enter Order Fulfillment Event
- 4) Select the check box for 'Configure this event to generate an alert in the dashboards'
- 5) For trigger, browse to Order Handling KC > Average Process Duration KPI Trigger 1
- 6) Click OK
- 7) In Event Type Details, for extension name, browse to CATOrderMgmt_Monitor > LateAverageOrderShippedEvent.cbe > LateAverageOrderShippedEvent, then click OK.
- 8) In the Outbound Event Content, navigate to Average Process Duration KPI Trigger 1 > Extended Data > BusinessSituationName, and notice that the expression is already set. For AverageOrderProcessingTime, set the expression to

`xs:string(Average_Process_Duration_KPI div xs:dayTimeDuration('P1D'))`

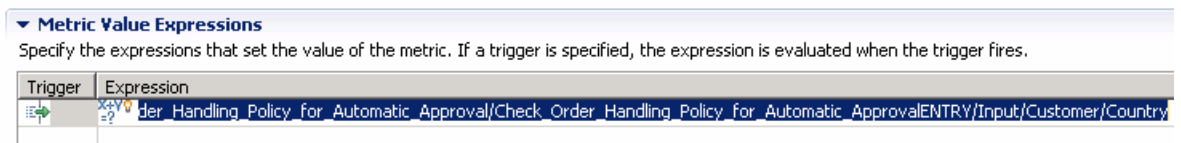
This will display the average process duration in day units.

| ▼ 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 |
| [-] Average Process Duration KPI Trigger 1 | | |
| [-] Property Data | | |
| [-] Extended Data | | |
| [-] BusinessSituationName | A string | <code>xs:string('Order Fulfillment Event')</code> |
| [-] AverageOrderProcessingTime | A string | <code>xs:string(Average_Process_Duration_KPI div xs:dayTimeDuration('P1D'))</code> |

- ___ 14. Press **Ctrl-S** to save your work.
- ___ 15. Click the **Dimensional Model** tab.

- ___ 16. In the navigator, locate Order Handling > Order Handling Cube. All of the dimensional work will be performed in this cube.
- ___ 17. **Delete Decline Count, Order Count, and Ship Count.** You can get this information using the built-in function Instances Count in the Dimensional view of the dashboard, and then creating a dimension on order status which is a metric which identifies new orders, shipped orders and cancelled orders.
- ___ 18. **Create dimension Order Status.** This will be useful for drilling down in the Dimensional view of the dashboard to aggregate instances by their order status.
 - ___ a. Right click in the Dimensional Model navigator on Order Handling Cube, then select New > Dimension.
 - ___ b. Name it Order Status and click OK.
 - ___ c. Right click Order Status in the navigator, then select New > Dimension Level
 - ___ d. Name it Order Status, then click Browse next to Source Metric, and navigate to Order Handling > Order Status, then click OK.
 - ___ e. Click OK.
- ___ 19. You want a multi-level dimension called Location which will allow you to drill down on country and then city within country. To enable Location, you need to create metrics for country and city, then you can complete the Location dimension to reference the metrics.
 - ___ a. In the monitor details model, **create metric Country**
 - 1) Right click in the **Monitor Details Model** navigator on Order Handling, and select **New > Metric**
 - 2) Enter name: Country, enter type: String, click OK
 - 3) Select 'A value is required for this metric', since a dimension will use this metric and that requires a value for dimensional analysis.
 - 4) For default value, enter an empty string (two single quotation marks)
 - 5) In Metric Value Expressions, click Add. In the expression cell, use content assist to navigate to the event 'Check Order Handling Policy for Automatic Approval ENTRY' and select Country in the Input data in the Customer record.

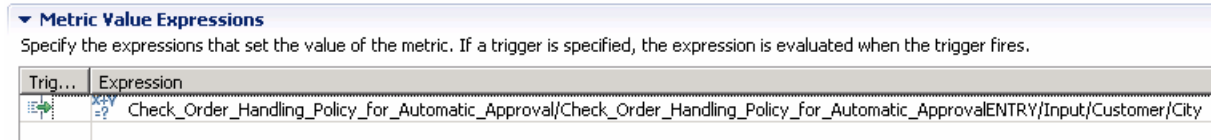
Check_Order_Handling_Policy_for_Automatic_Approval/Check_Order_Handling_Policy_for_Automatic_ApprovalENTRY/Input/Customer/Country



- ___ b. In the monitor details model, **create metric City**
 - 1) Right click in the **Monitor Details Model** navigator on Order Handling, and select **New > Metric**
 - 2) Enter name: City, enter type: String, click OK

- 3) Select 'A value is required for this metric', since a dimension will use this metric and that requires a value for dimensional analysis.
- 4) For default value, enter an empty string (two single quotation marks)
- 5) In Metric Value Expressions, click Add. In the expression cell, use content assist to navigate to the event 'Check Order Handling Policy for Automatic Approval ENTRY' and select City in the Input data in the Customer record.

Check_Order_Handling_Policy_for_Automatic_Approval/Check_Order_Handling_Policy_for_Automatic_ApprovalENTRY/Input/Customer/City



___ c. In the Dimensional model, update the **Location** dimension using the two metrics.

- 1) In the Dimensional Model, navigate to the Order Handling Cube > Location. Notice that there is a dimension level called Location underneath the dimension Location.
- 2) Right click the dimension level underneath the Location dimension and select delete. This will delete the dimension level, but the dimension will remain.
- 3) Right click dimension Location, then select New > Dimension Level
- 4) Name it Country, then click Browse next to Source Metric, and navigate to Order Handling > Country, then click OK.
- 5) Click OK.
- 6) Right click Location in the Dimensional Model navigator, then select New > Dimension Level
- 7) Name it City, then click Browse next to Source Metric, and navigate to Order Handling > City, then click OK.
- 8) Click OK.
- 9) In the navigator you should see Location listed with two sub-levels as follows:

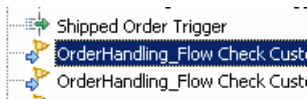


- ___ 20. Press **Ctrl-S** to save your work.
- ___ 21. Select Project > Clean..., then select 'Clean all projects', then click OK.
- ___ 22. Check for any errors in the Problems view. You should resolve any errors before continuing. Warnings and informational messages may be present but these will not be a problem.

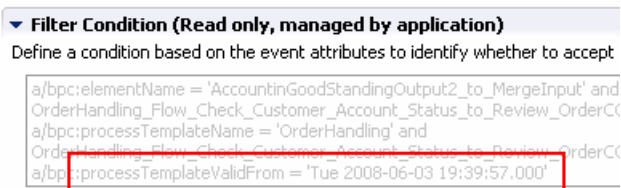
Part 7: Generate and publish the model to the server

In this section you will use IBM Integration Designer to publish the monitor model to the monitor server.

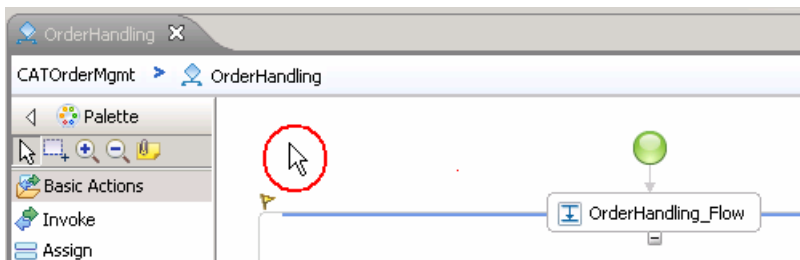
1. You should first verify that the 'valid from date' in the process matches the monitor model. This can be a problem if you imported the process solution but did not import the monitor solution. But it is a good practice to verify the 'valid from date' in any case.
 - a. In Project Explorer, expand **CATOrderMgmt_Monitor > Monitor models > Order Handling_Mon.mm** and open it by double clicking on it.
 - b. In the monitor details model, navigate to **Order Handling > Order Handling**, then scroll to find the first inbound event that is in the list. Then click it to select it.



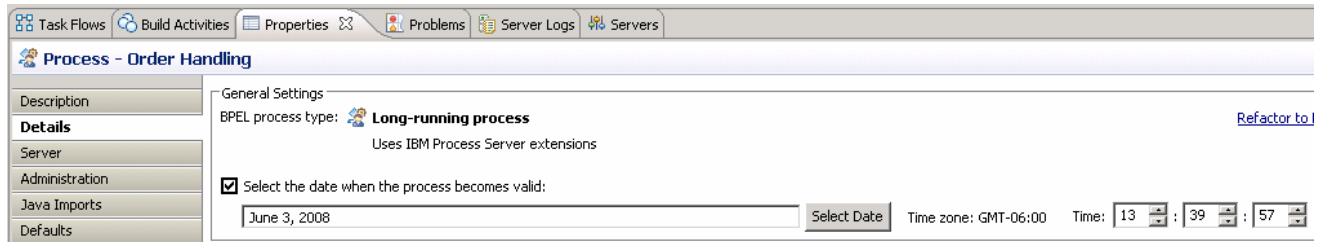
- c. In the details page, check the filter condition and look for 'processTemplateValidFrom' and note the exact date and time that is listed.



- d. Switch to the Business Integration perspective.
 - e. In the Business Integration view, navigate to **CATOrderMgmt > Integration Logic > Processes > processes\orderhandling**, then double click **OrderHandling** to open the BPEL editor.
 - f. Click the white background canvas outside of the box that surrounds the flow.



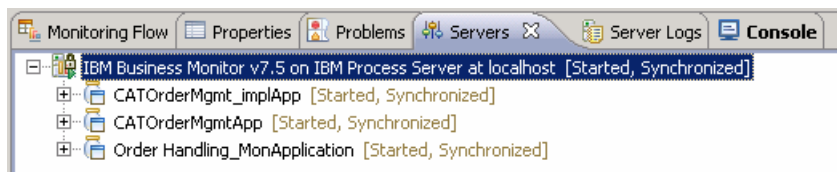
- g. Click **Properties > Details**, then verify that the date and time listed is the same as the processTemplateValidFrom date and time in the monitor model. Note that the process valid from time is adjusted by the time zone offset, so compare them after adjusting for the time zone. In this example, the monitor model shows GMT time 19:39:57, but the process shows 13:39:57 because it is GMT minus 6 hours, so these times match after accounting for the time zone adjustment.



___ h. If the date or time is different on the process, then update it to match the one in the monitor model.

___ i. Press **Ctrl-S** to save your work.

- ___ 2. Open the Business Monitoring perspective.
- ___ 3. In Project Explorer, expand **CATOrderMgmt_Monitor > Monitor models > Order Handling_Mon.mm**. Right click and then select **Generate Monitor JEE Projects** from the pop-up menu
- ___ 4. Select **Finish**.
- ___ 5. A progress dialog shows the status of the operation and it closes when the operation is complete. Check for errors in the Problems view. There may be warnings, but there should not be any errors. If you see errors, then try to perform a clean to see if the errors can be removed: Project > Clean... > select 'Clean all projects', then click OK.
- ___ 6. Click the Servers tab, and make sure that your server is started. If not then right click and select the **Start** option to start the server. This may take a few minutes to complete.
- ___ 7. Right click in the servers view, then select **Add and Remove Projects....**
- ___ 8. Click to move **CATOrderMgmt_implApp, CATOrderMgmtApp and Order Handling_MonApplication**, from the list of available projects to the list of configured projects.
- ___ 9. Click **Finish**.
- ___ 10. A progress message is displayed in the lower right corner of the window.
- ___ 11. When the publishing is complete, the applications should show started in the Servers view:



- ___ 12. If you are using the integrated server within IBM Integration Designer, then you do not need to setup Monitor data security, since the administrative user is automatically authorized to all models. If you are using a different server, then you should open the administrative console, navigate to **Security > Monitor Data Security**, then add the model, role and user information to a resource group.

Part 8: Configure action manager for business situation events

This section shows you how to configure action manager to create alerts based on business situation events defined in the monitor model. The alerts will be visible in the Alert view on your dashboard.

You do not need an LDAP server to test the situation events. When you configure the notification template, you can specify a dashboard login rather than a user registry.

In this section, you will use the administrative console to configure the alerts. However, you could also create business user alerts using the Alert Manager widget in the dashboard. In a production environment, an end user could use the alert manager widget to manage the business user alerts; however, an IT administrator would manage the modeled alerts in the administrative console.

- ___ 1. Start the administrative console.
 - ___ a. In the Servers view, right click the Monitor server and select Run administrative console.
 - ___ b. Enter 'admin' without the quotation marks for both user ID and password.
- ___ 2. Verify the federated repository service provider URL.
 - ___ a. In the administrative console, navigate to Applications > Monitor Services > Monitor Action Services > Configuration > Federated Repositories.
 - ___ b. In the Service provider URL field, type the URL of the federated repositories server that is used to connect to the user registry. For a stand-alone server, this value might be `localhost:2809`. For a network deployment environment, this field must be set to the deployment manager host name plus the deployment manager BOOTSTRAP_ADDRESS port (separated by a colon). To determine the bootstrap port, in the WebSphere Application Server administrative console, click Servers > Server Types > WebSphere application servers > server1. Under Communications, click Ports.
 - ___ a. To save the settings you entered, click Apply or OK.
 - ___ b. To make these changes effective, stop and restart the IBM Business Monitor server.
- ___ 3. Add a template for shipped percentage alerts.
 - ___ a. In the administrative console, navigate to **Applications > Monitor Services > Monitor Action Services > Template Definitions > Notifications**.
 - ___ b. Click **New**.
 - ___ c. Enter **AlertShip** as Template name and a description.
 - ___ d. Select **Dashboard Alert**.
 - ___ e. Select **User id**.
 - ___ f. For the **To** field, enter **admin**. This user ID is the one that will receive the alert, so you must log into the dashboard with this user ID.
 - ___ g. Enter a subject, such as 'Percentage of shipped orders'
 - ___ h. Enter the body, such as 'Percentage of shipped orders is less than 85.'
 - ___ i. Click **OK**.

- ___ 4. Add a template for order processing time alerts.
 - ___ a. In the administrative console, navigate to **Applications > Monitor Services > Monitor Action Services > Template Definitions > Notifications.**
 - ___ b. Click **New.**
 - ___ c. Enter **AlertTime** as Template name and a description.
 - ___ d. Select **Dashboard Alert.**
 - ___ e. Select **User id.**
 - ___ f. For the **To** field, enter **admin.** This user ID is the one that will receive the alert, so you must log into the dashboard with this user ID.
 - ___ g. Enter a subject, such as 'Order processing time'.
 - ___ h. Enter the body, and you can optionally enter a substitution variable as shown below. For the actual alert that is sent, the average order processing time from the event payload will be substituted for %AverageOrderProcessingTime% in the body. For example:

The average order processing time is %AverageOrderProcessingTime% days.
 - ___ i. Click **OK.**

- ___ 5. Add the binding from the situation event to the action type for shipped percentage.
 - ___ a. In the administrative console, navigate to **Applications > Monitor Services > Monitor Action Services > Installed Situation Event Bindings.**
 - ___ b. Click **New.**
 - ___ c. Enter the situation event name that you defined in the model. In this lab, you created a business situation name as follows:

Shipped Percentage Event

- ___ d. This must match exactly the value in the BusinessSituationName field in the outbound event. You may want to copy/paste from the model, but do not copy the quotation marks. Here is a screen capture from the model showing the Shipped Percentage Event attributes:

▼ Outbound Event Content
Specify the triggers that cause the event to be sent. Use the Expression column to specify the value for each event the event is sent.

| Name | Type | Expression |
|--|--------|----------------------------|
| Percentage of Orders Shipped KPI Trigger 1 | | |
| Property Data | | |
| Extended Data | | |
| BusinessSituationName | string | 'Shipped Percentage Event' |

- ___ e. Enter a description, then click **Apply.**

New Situation Event Binding

General Properties

* Situation event name
Shipped Percentage Event

Description
Shipped percentage

Apply OK Reset Cancel

- ___ f. Click **Add**.
- ___ g. Enter a binding name such as AlertShip, then select the template **AlertShip**.
- ___ h. Click **OK**.
- ___ i. Notice that you now have one action defined for this situation event. If you had other action templates defined then you could add more actions to this event. So then you could send a notification for this situation to multiple destinations including email, alerts, and web services.

New Situation Event Binding

General Properties

* Situation event name
Shipped Percentage Event

Description
Shipped percentage

Apply OK Reset Cancel

Preferences

Add Remove

| Select | Binding Name | Category Name | Template Name | Action Service Type |
|--------------------------|--------------|---------------|---------------|---------------------|
| <input type="checkbox"/> | AlertShip | | AlertShip | AlertHandler |
| Total 1 | | | | |

- ___ j. Click **OK**.
- ___ 6. Add the binding from the situation event to the action type for order processing time.
 - ___ a. In the administrativeconsole, navigate to **Applications > Monitor Services > Monitor Action Services > Installed Situation Event Bindings**.
 - ___ b. Click **New**.

___ c. Enter the situation event name that you defined in the model. In this lab, you created a business situation name as follows:

Order Fulfillment Event

___ d. . This must match exactly the value in the BusinessSituationName field in the outbound event. You may want to copy/paste from the model, but do not copy the quotation marks. Here is a screen capture from the model showing the Order Fulfillment Event attributes:

▼ 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 |
|---|------|------------|
| <ul style="list-style-type: none"> Average Process Duration KPI Trigger 1 <ul style="list-style-type: none"> Property Data Extended Data <ul style="list-style-type: none"> BusinessSituationName string 'Order Fulfillment Event' AverageOrderProcessingTime string xs:string(Average_Process_Duration_KPI div xs:dayTimeDuration('P1D')) | | |

___ e. Enter a description, then click **Apply**.

___ f. Click **Add**.

___ g. Enter a binding name, then select the template **AlertTime**, then click **OK**.

New Situation Event Binding

General Properties

* Situation event name
Order Fulfillment Event

Description
Order fulfillment

Apply OK Reset Cancel

⊕ Preferences

Add Remove

| Select | Binding Name | Category Name | Template Name | Action Service Type |
|--------------------------|--------------|---------------|---------------|---------------------|
| <input type="checkbox"/> | AlertTime | | AlertTime | AlertHandler |
| Total 1 | | | | |






___ h. Click **OK**.

___ 7. In the administrative console, navigate to **Applications > Monitor Services > Monitor Action Services > Installed Situation Event Bindings**. You should see the two bindings that you created.

Installed Situation Event Bindings

Use this page to manage situation event bindings.

☒ Preferences

| | | | |
|---|--|---|--|
| New | | Delete | |
|  | |  | |
|  | |  | |
| Select | Situation Event Name  | Situation Event Description | |
| You can administer the following resources: | | | |
| <input type="checkbox"/> | Fee Compliance Alert | | |
| <input type="checkbox"/> | Invalid Loan Application | | |
| <input type="checkbox"/> | NTB Failure | | |
| <input type="checkbox"/> | Print 72 hours exceeded | | |
| <input type="checkbox"/> | Shipped Percentage Event | Shipped percentage | |
| <input type="checkbox"/> | Order Fulfillment Event | Order fulfillment | |
| Total 6 | | | |

Part 9: Run events to exercise the model

In this section you will use the business process choreographer explorer to run process instances.

There are five different paths to take through the model. For each path, here are sample data elements that will invoke the listed path:

- a. Approve without review, account in good standing, ship
 - i. Start instance: rating – 800, available credit – 800, total price – 20
 - ii. Ship task: no required elements
- b. Approve without review, account not in good standing, approve the order, ship
 - i. Start instance: rating – 800, available credit – 100, total price – 200
 - ii. Review task: order status – APPROVED
 - iii. Ship task: no required elements
- c. Approve without review, account not in good standing, decline the order
 - i. Start instance: rating – 800, available credit – 100, total price – 200
 - ii. Review task: order status – DECLINED
- d. Do not approve without review, approve the order, ship
 - i. Start instance: rating – 10, available credit – 10, total price – 900
 - ii. Review task: order status – APPROVED
 - iii. Ship task: no required elements
- e. Do not approve without review, decline the order
 - i. Start instance: rating – 10, available credit – 10, total price – 900
 - ii. Review task: order status – DECLINED

In order to see an alert in the alerts view of the dashboard, you will need the number of shipped orders to be less than 85 percent of the total number of orders. An easy way to achieve this is to process one DECLINED order, then before you add any other process instances, go to the dashboard section of this document and create a dashboard to view the alerts.

In the procedure below, you will use the Process Choreographer Explorer to start instances of the business process. If you start an instance of a business process, you may see an error similar to: “The business category ‘Process’ does not exist”. This could happen because you have business categories enabled on the server but you do not have the ‘Process’ category defined. To fix the problem you have two options:

- a. In the administrative console, select Servers > Server Types > WebSphere application servers > server1. Under Business Integration > Human Task Manager. Under Additional Properties > Custom properties. Change the value of ‘BusinessCategoryEnabled’ to false, restart the server.
- b. In the administrative console, select Servers > Server Types > WebSphere application servers > server1. Under Business Integration > Business Space Configuration > REST service endpoint registration. For types ‘Process services’ and ‘Task services’ select ‘Business Process Choreographer REST services’. Click OK. A server restart is not required. In Business Space, create a space using template ‘Configure Work Baskets and Business Categories’. Open the space, select the ‘Business Categories’ tab, then use the category widgets to create a business category with identifier ‘Process’.

- ____ 1. In the Servers view, right click server **IBM Business Monitor Server v7.5 > Launch > BPEL Process Choreographer Explorer**
- ____ 2. Click Process Templates > Currently Valid

Views **Reports** **Currently Valid Process Templates**

Use this page to view process templates on which you can work. ⓘ

[Start Instance](#) [Instances](#) [View Structure](#) [Refresh](#)

| Process Template Name | Valid From | Long Running | State | Description |
|---|-------------------------|--------------|---------|-------------|
| <input type="checkbox"/> Order Handling | 6/3/2008 3:39:57 PM EDT | yes | Started | |

Items found: 1 Items selected: 0 << Page 1 of 1 >> Items per page: 20

3. Select Order Handling, then click Start Instance
4. In the following data entry page, enter a unique value for the process name, then enter values for the fields in the various business objects listed. You can use just one line item for OrderItems, The values for Rating, AvailableCredit, and TotalPrice determine which paths the process will take. See the introduction to this section for more information.

Process Input Message

Use this page to provide the input that is needed to start an instance of a business process. ⓘ

[Submit](#)

Process Template Name Order Handling
 Process Description
 ▶ Process Documentation

Operation InputCriterion

Process Name

Process Input Message

Form View

| Input | Customer | CustomerNumber | <input type="text" value="111"/> | | | | | | | | | | |
|---------------------------------|------------------------------------|---|--|-------------|---------------|--|---------------------------------|---------------------------------|------------------------------------|---------------------|--|--|--|
| | | CompanyName | <input type="text" value="Company 1"/> | | | | | | | | | | |
| | | ContactFirstName | <input type="text" value="Bob"/> | | | | | | | | | | |
| | | ContactLastName | <input type="text" value="Smith"/> | | | | | | | | | | |
| | | StreetAddress | <input type="text" value="111 Way"/> | | | | | | | | | | |
| | | City | <input type="text" value="Cary"/> | | | | | | | | | | |
| | | Country | <input type="text" value="US"/> | | | | | | | | | | |
| | | PostalCode | <input type="text" value="27882"/> | | | | | | | | | | |
| | | Email | <input type="text" value="abc@aaa.com"/> | | | | | | | | | | |
| | | Rating | <input type="text" value="10"/> | | | | | | | | | | |
| | AvailableCredit | <input type="text" value="10.0"/> | | | | | | | | | | | |
| | OrderItems | <table border="1"> <thead> <tr> <th>ProductName</th> <th>ProductNumber</th> <th></th> </tr> </thead> <tbody> <tr> <td><input type="text" value="P1"/></td> <td><input type="text" value="PN"/></td> <td><input type="text" value="800.0"/></td> </tr> <tr> <td colspan="3">Add</td> </tr> </tbody> </table> | | ProductName | ProductNumber | | <input type="text" value="P1"/> | <input type="text" value="PN"/> | <input type="text" value="800.0"/> | Add | | | |
| | | ProductName | ProductNumber | | | | | | | | | | |
| <input type="text" value="P1"/> | <input type="text" value="PN"/> | <input type="text" value="800.0"/> | | | | | | | | | | | |
| Add | | | | | | | | | | | | | |
| TotalPrice | <input type="text" value="800.0"/> | | | | | | | | | | | | |

5. Click the Submit button.

- 6. Select Task Instances > My To-do's. Here you will find either the Review Order task or the Ship Order to Customer task, depending on the values that you entered when you started the process instance.

My To-dos

Use this page to work on tasks that are assigned to you. [i](#)

Work on Release Transfer Start Change Business Category Refresh

| Priority | Task Name | State | Kind | Owner | Originator | Escalated | Suspended | Active |
|----------|--------------|-------|------------|-------|------------|-----------|-----------|--------|
| 5 | Review Order | Ready | To-do Task | admin | | no | no | 12/9, |

Items found: 1 Items selected: 0

 << Page 1 of 1 >> Items per page: 20

- 7. To complete a task, select the check-box for it, then click 'Work on'. You will be given a page to enter values for the task. You should enter the values in the section for the task output message.
 - a. For the ship task, you can just press the Complete button, since the data elements are not required values for this process.
 - b. For the review task, you should enter 'APPROVED' or 'DECLINED' (without the quotation marks) into the OrderStatus field. The other fields are optional for this process, so you can choose to not enter them to save time. Then press the Complete button.
 - c. This screen capture shows the review task and the string 'APPROVED' (without the quotation marks) has been entered in the OrderStatus field.

Task

Output

Message

Form View

| Output | Customer | CustomerNumber | <input type="text" value="0"/> | | | | | | | | | | | |
|----------------------|----------------------|--|-----------------------------------|--------------------------------|-------|-------------|----------|----------------------|----------------------|-----|----------------------|--------------------------------|------------------------------------|--|
| | | CompanyName | <input type="text"/> | | | | | | | | | | | |
| | | ContactFirstName | <input type="text"/> | | | | | | | | | | | |
| | | ContactLastName | <input type="text"/> | | | | | | | | | | | |
| | | StreetAddress | <input type="text"/> | | | | | | | | | | | |
| | | City | <input type="text"/> | | | | | | | | | | | |
| | | Country | <input type="text"/> | | | | | | | | | | | |
| | | PostalCode | <input type="text"/> | | | | | | | | | | | |
| | | Email | <input type="text"/> | | | | | | | | | | | |
| | | Rating | <input type="text" value="0"/> | | | | | | | | | | | |
| | | AvailableCredit | <input type="text" value="0.0"/> | | | | | | | | | | | |
| | OrderItems | <table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th style="width: 30%;">ProductName</th> <th style="width: 15%;">ProductNumber</th> <th style="width: 15%;">Price</th> <th style="width: 30%;">Description</th> <th style="width: 10%;">Quantity</th> </tr> </thead> <tbody> <tr> <td><input type="text"/></td> <td><input type="text"/></td> <td>0.0</td> <td><input type="text"/></td> <td><input type="text" value="0"/></td> </tr> </tbody> </table> | ProductName | ProductNumber | Price | Description | Quantity | <input type="text"/> | <input type="text"/> | 0.0 | <input type="text"/> | <input type="text" value="0"/> | <input type="button" value="Add"/> | |
| ProductName | ProductNumber | Price | Description | Quantity | | | | | | | | | | |
| <input type="text"/> | <input type="text"/> | 0.0 | <input type="text"/> | <input type="text" value="0"/> | | | | | | | | | | |
| | TotalPrice | <input type="text" value="0.0"/> | | | | | | | | | | | | |
| | OrderNumber | <input type="text" value="0"/> | | | | | | | | | | | | |
| | OrderStatus | <input type="text" value="APPROVED"/> | | | | | | | | | | | | |
| | ProcessingPreference | automaticApproval | <input type="text" value="true"/> | | | | | | | | | | | |

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IBM Business Monitor 7.5 – Lab exercise

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ClipsAndTacks

Part 10: Create a dashboard in business space

In this section you will configure a dashboard in business space.

___ 1. Create the dashboard.

- ___ a. The default browser is 'Internal Web Browser', but you should not use this one since some standard functions are not provided that you may need. Select Window > Preferences > General > Web browser > select 'Use external Web browser'. Select an external browser. Click OK.
- ___ b. In IBM Integration Designer, in the servers view, right click and select **Launch > Business Space**
- ___ c. When prompted, enter the user ID and password. You must log in with 'admin' so that you can view the alerts which were setup in action manager to be sent to this particular user ID.
- ___ d. Click in the Actions menu to create a new space



___ e. Enter a name such as Dashboard, and select the Business Monitoring template.

Create Space

* Space name:

Space description:

Create a blank space

Create a new space using a template

Duplicate an existing space

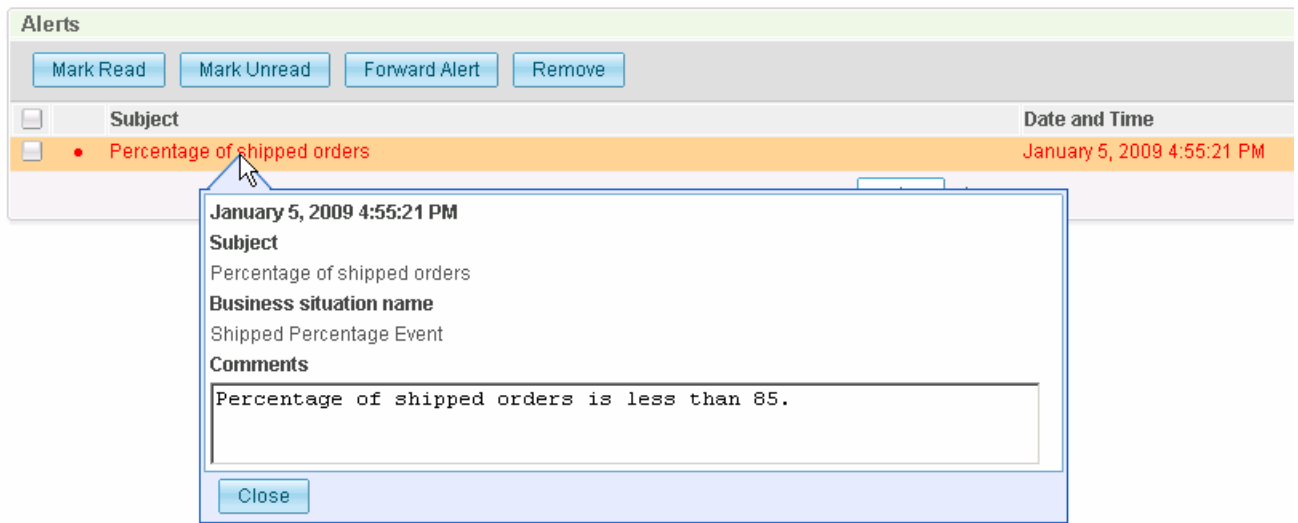
___ f. Click Save.



___ g. On the new space, click the Operational tab.

___ 2. Use the Alerts widget to view the alerts. There are two alerts defined in the model, one for shipped percentage and one for order processing time. The latter is based on a processing time greater than 3 days, so it will be difficult to test here, unless you use the KPI Manager widget to reduce the target. The former can be tested easily by ensuring that the number of shipped orders is less than 85 percent of the number of total orders.

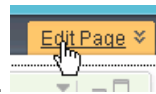
___ a. You can click an alert in the list, then you will see a pop-up showing the details of the alert.



___ b. On the widget menu you can select 'Send Widget...' to send a screen capture of the alerts as an attachment to a human task.

___ 3. Use the Instances widget to view the monitored instances.

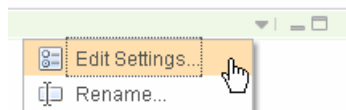
___ a. Click the 'Edit Page' link to enter edit mode.



___ b. To configure the Instances widget, hover the mouse over the right corner of the widget



and then click the down arrow. Select 'Edit Settings...'



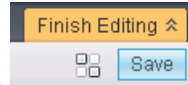
___ c. Click the **Show/Hide** tab, and select monitoring context 'Order Handling'.



Click button >> to move all the fields to the Selected box. Also, click button 'Set as default' which will make this the default monitoring context to display.

___ d. Then click **OK**. You should see a list of monitoring context instances for the events that you just processed.

| City | COMPLETED | Country | CreationTime | Order Handling Insta... | Ord |
|---------|-----------|---------|---------------------------|---------------------------|------|
| Raleigh | ★ | US | July 26, 2011 10:43:49 AM | _PI:90030131.6754b36a.... | 57.6 |
| Cary | ★ | US | July 26, 2011 10:42:35 AM | _PI:90030131.67539315.... | 1 m |



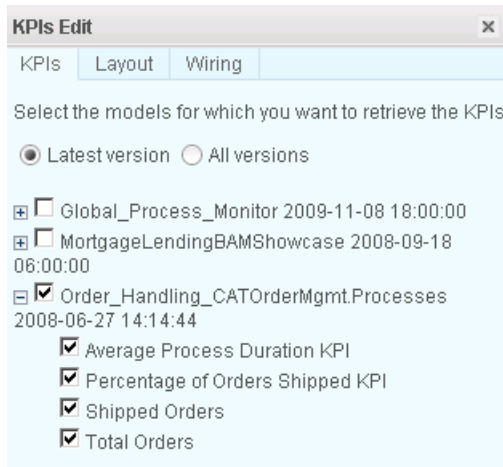
___ e. Click 'Finish Editing' to save your changes.

___ 4. Use the KPIs widget to show key performance indicators.













___ a. Click **KPIs** tab in the business space.

___ b. To configure the KPIs widget, hover the mouse over the right corner of the widget and then click the down arrow. Select 'Edit Settings...'.

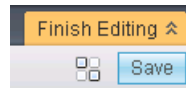
___ c. On the tab 'KPIs', select the KPIs to display for the Order Handling model.



___ d. Click **OK**.

| KPI Name | Status | Value | Target | Actions | Value in Range |
|----------------------------------|--------|---------------|--------------------|---|--|
| Average Process Duration KPI | | 3 m, 10.101 s | 3 d, 0 h, 0 m, 0 s |   |  |
| Percentage of Orders Shipped KPI | | 75 | 90 |   |  |
| Shipped Orders | | 3 | |   |  |
| Total Orders | | 4 | |   |  |

- ___ e. In the lower left corner, you can select different display formats for the KPI.
- ___ f. The Status column displays icons which represent the value of the KPI relative to the target and ranges. Initially this is blank, but you can use the KPI Manager widget to configure them.



- ___ g. Click 'Finish Editing' to save your changes.
- ___ h. On the widget menu you can select 'Send Widget...' to send a screen capture of the KPIs as an attachment to a human task.

- ___ 5. Export values to Modeler. Note that you must have some completed monitoring context instances for this, so make sure that you have started and completed some process instances before exporting the values.
 - ___ a. Click **Export Values** tab in the business space.
 - ___ b. Select the Order Handling model.
 - ___ c. Click Preview Data to see the data that will be exported.

Export Values

Select a model:
 Order Handling 2008-06-27 14:14:44

Specify where the data should be exported from:
 All versions of the selected model
 Only the selected model

Time range (filters the data to export by the time range you specify):
 None
 Specify the time range

[Preview Data](#)

| InstancesCount | | |
|----------------|--|---|
| | BLM-6647c2d7b35fab7b5f82e2272db98ea0/BLM-55a4c4885d32263ce0d06f03afe744d/outputSetProbability | 4 |
| | BLM-6647c2d7b35fab7b5f82e2272db98ea0/BLM-54728a2d595bfedf83848abb493d09ab/outputSetProbability | 1 |
| | BLM-6647c2d7b35fab7b5f82e2272db98ea0/BLM-dc9b47ad3008591e9e72ba66f3dd3fac/outputSetProbability | 0 |
| | BLM-6647c2d7b35fab7b5f82e2272db98ea0/BLM-02ecfdaf53e85a645863978f2c0e329b/outputSetProbability | 0 |
| | BLM-6647c2d7b35fab7b5f82e2272db98ea0/BLM-e3daf6c08b4973bb43cb3208c4777852/outputSetProbability | 0 |

[Export](#)

- ___ d. Click **Export**.
- ___ e. The XML is displayed in a browser window, click File > Save page as... or Save as..., then select your destination folder and click Save. The file is stored by default as exportvalues.xml.
- ___ f. Open **WebSphere Business Modeler**, and point to the workspace containing your model.
- ___ g. In the project tree, navigate to **CATOrderMgmt > Processes > Order Handling**, and select it
- ___ h. Right click Order Handling, then select **Import...**
- ___ i. Select **WebSphere Business Monitor results (.xml)**, then click **Next**.
- ___ j. **Browse** to the folder containing the exportvalues.xml file.
- ___ k. Select **exportvalues.xml**, then click **Next**.
- ___ l. Click 'Display Possible Updates' to see the update summary.

WebSphere Business Modeler Import

Monitoring results import

Select the processes for which to import the values from WebSphere Business Monitor.

Processes with returned results

- CATOrderMgmt
 - Processes
 - Order Handling

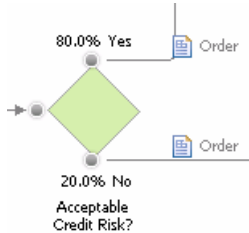
Display Possible Updates:

Entries in result file that can be updated

| Process | # elements to be updated | # total elements | % to be updated |
|----------------|--------------------------|------------------|-----------------|
| Order Handling | 13 | 13 | 100 |

___ m. Click **Finish**.

___ n. Double click the process in the project tree to open the process diagram. Browse the process diagram to see the updated values for the six decision percentages.



___ o. To check the updated process duration time, click the background of the diagram, click the Properties tab, click the More tab, select the check box for Duration, click Apply.

Properties | Errors (Filter matched 6 of 6 items) | Technical Attributes | Business Measures

Order Handling

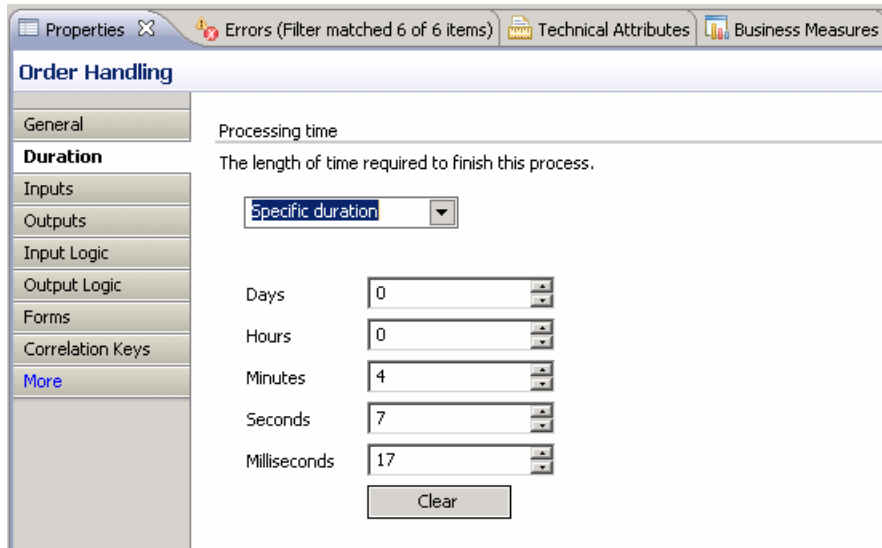
Select the element attributes that you want to display.

Attributes

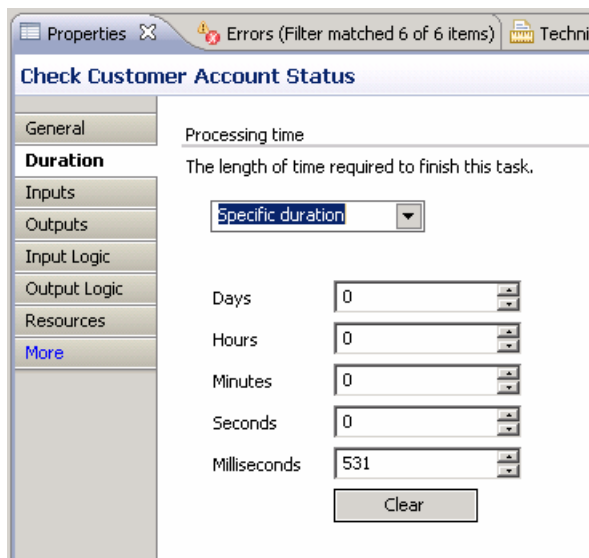
- General
- Duration
- Inputs
- Outputs
- Input Logic
- Output Logic
- Organizations
- Classifiers
- Forms
- Correlation Keys

Buttons: Restore Defaults, Select All, Clear All

___ p. Select the Duration tab and note the new processing time.



___ q. To check the updated task duration times, click one of the tasks in the diagram, click the Attributes tab, then click the Duration tab.



What you did in this exercise

In the lab, you imported the model into WebSphere Business Modeler and reviewed the process model. You created the business measures model.

You exported the process model and business measures model to IBM Integration Designer, and imported the implemented process solution.

You completed the implementation of the monitor model.

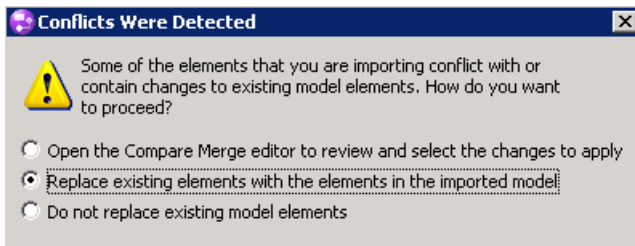
You deployed the process and the monitor model, and ran process instances.

Finally, you created a dashboard in business space and exported monitored values back to Modeler.

Appendix 1 – Import the solution into Modeler

A solution has been provided so that you do not have to build the business measures model from scratch. This section shows you how to import the MAR project into WebSphere Business Modeler. After importing the project then you can review the business measures model and then proceed to the section to export the projects to IBM Integration Designer.

- ___ 1. Import the supplied Modeler project.
 - ___ a. In Modeler, right click in the Project Tree, then select **Import...**
 - ___ b. Select **WebSphere Business Modeler project (.mar, .zip)**
 - ___ c. Click **Next**.
 - ___ d. For source directory, **browse** to the folder containing the supplied mar file, for example, c:\Labfiles75\ClipsAndTacksBPEL
 - ___ e. For files, select CATOrderMgmt_Solution.mar.
 - ___ f. Click **Finish**.
 - ___ g. If you have the original project previously loaded, then you need to select the option to replace elements



- ___ 2. To open the business measures tab, select **Window > Business Measures**
- ___ 3. Open the Order Handling process, click the process diagram background, then select the Business Measures tab. On this tab you can review the business measures that have been previously created.
- ___ 4. Now you can proceed to the section to export the projects from Modeler to IBM Integration Designer.

Appendix 2 – Import the solution into the monitor model editor

A solution has been provided so that you do not have to build the monitor model from scratch. This section shows you how to import the monitor model project into IBM Integration Designer. After importing the model then you can proceed to the section to publish the model to the server.

- ___ 1. Import the monitor model project into IBM Integration Designer.
 - ___ a. In the Business Integration view, right click then select **Import...**
 - ___ b. Navigate to **Other > Project Interchange** then click **Next**.
 - ___ c. For the .zip file, browse to the supplied file, for example,
 - ___ d. c:\Labfiles75\ClipsAndTacksBPEL\CATOrderMgmt_MonitorSolution_P1.zip
 - ___ e. You should see one project listed, so select it.
 - ___ f. Click **Finish**.
- ___ 2. Expand the project in the Project Explorer view, then expand the Event Definitions and you will see the events listed. Expand Monitor Models and you will see the model listed.

Now you can proceed to the section to generate and publish the model to the server.