WebSphere®

IBM

Clips and Tacks: Getting started with the IBM BPM suite of products

Contents

Introduction

This end-to-end business dashboard tutorial introduces you to IBM® Business Process Management (BPM) products by showing you how to build and deploy a business process and configure a business dashboard to monitor that process. No prior usage knowledge of the BPM products is required to complete the steps in this sample.

Printable version of this tutorial

This tutorial focuses on the technical details that are related to building, running, and monitoring the scenario provided. A single Lotus® form is used throughout the process to convey information from one user to the next. You will use IBM WebSphere® Business Modeler to model the sample and WebSphere Integration Developer to complete the development, generate an end-user interface (or business client) using Lotus Forms, and add monitoring to the sample business process. You will use WebSphere Process Server to deploy the completed sample and WebSphere Business Monitor to configure a dashboard to monitor the sample business process. The sample culminates in a business dashboard and a business process using IBM Lotus Forms.

In addition to this introduction, the tutorial has four major sections:

- Overview – Explains the scenario used in this sample, the data model, and the Human tasks that are involved.
- Build It Yourself – Contains step by step instructions to build the sample from scratch.
- Run the Sample – Explains how to run the sample using either the artifacts that you download or the artifacts that you created in the Build It Yourself section.
- Download the Sample – Explains how to install the downloaded pre-built solutions for this sample.

Time required

This tutorial could take approximately two days to complete, depending on your familiarity with the products.

Skill level

This is a tutorial-style sample that has been designed for new users. Step-by-step procedures are provided to guide you through the process development lifecycle, from the beginning to setting up a test run time server and monitoring the data.

System requirements

This sample runs on Windows® operating systems.

Prerequisite software

Before you build the sample, you must install the following products. All of these products can be installed on a single computer:

- WebSphere Business Modeler Advanced version 6.1

- WebSphere Integration Developer version 6.1:
  - You must apply iFix 001 for WebSphere Integration Developer.
  - You must select WebSphere Process Server test server during the installation process.
- WebSphere Business Monitor development toolkit version 6.1
- Lotus Forms Designer (shipped with WebSphere Business Modeler and WebSphere Integration Developer)
- Lotus Forms Viewer (shipped with WebSphere Business Modeler and WebSphere Integration Developer)
- Lotus Forms Server (shipped with WebSphere Integration Developer)

For more information about the products that are involved in this sample, refer to the product documentation at the following link:

http://publib.boulder.ibm.com/infocenter/dmndhelp/v6r1mx/index.jsp

Consider the following information when preparing to install your software:

- Install Lotus Forms Designer into WebSphere Business Modeler Advanced (Refer to "Installing optional software" in WebSphere Business Modeler version 6.1 documentation:

  http://publib.boulder.ibm.com/infocenter/dmndhelp/v6r1mx/index.jsp?topic=/com.ibm.btools.help.modeler.doc/doc/install/installtopics/t_install_additional_software.html
- Install WebSphere Business Monitor development toolkit version 6.1 before Lotus Forms Server.
- Install Lotus Forms Sever and Lotus Forms Viewer into WebSphere Integration Developer (refer to "Installing optional software and documentation in WebSphere Integration Developer version 6.1 documentation:

  http://publib.boulder.ibm.com/infocenter/dmndhelp/v6r1mx/index.jsp?topic=/com.ibm.wbit.610.help.install.doc/topics/t_install_additional_software.html

  When you install Lotus Forms Server, choose the WBMonSrv_wps profile.

Note: This tutorial uses **admin** as the user ID and **admin** as the password for the dashboards.

Overview

Clips and Tacks is a fictional office supply company. In this business scenario, Clips and Tacks is processing orders for office supplies and shipping them to customers.

The following sequence of events describes the Clips and Tacks business process for handling incoming orders.

1. The business process is initiated when a customer submits an order.
2. A business rule evaluates the data from the order form and determines whether the order can be automatically approved or if it needs human approval. When the total purchase price of the order is $750.00 or less, the order is automatically approved. When the total purchase price of the order is more than $750.00, it is sent to a person for review.
3. For orders that are automatically approved, the customer account is checked to determine if it is in good standing. If the customer account is in good standing, then the order is sent for shipment; otherwise, the order is sent to a person for review.
4. If the order is approved by the person, then it is sent for shipment; otherwise, the order is cancelled and a notification is sent to the customer.
5. The orders that are ready for shipment are given a packaging slip number and are sent to the customer.

Data model

The following information for the business process is stored in a business object (also known as a business item) called Order:

- Customer information
- Items ordered
- Automatic approval field, which the business rule uses
- Field to include the status of the order
- The packing slip number, which is used to ship the order.

In the design phase, the Order business object is created automatically when the Lotus Form is imported for use within the business process.

A Notification business object is used to send notification to a customer about a canceled order. It has two fields: a text field and an e-mail field. In the design phase, the Notification business object is created manually.

Human tasks

There are three human activities in this business flow:

- A human activity for entering data into the order entry form . This starts the business process. This human activity is not modeled, it is the process-initiating action.
- A modeled human task that represents the employee activity of reviewing the order when the total purchase amount is more than $750.00 or when the customer account is not in good standing.

- A modeled human task that represents the employee activity of shipping the order to the customer.

Build it yourself

As you complete this sample tutorial, check your entries carefully. You might want to work from a printed copy of the sample documentation so that you can check-off each step as you perform it. (A PDF version of the documentation is included with the artifacts that you download.) An experienced Business Process Management (BPM) developer would be able to find mistakes, such as wrong or skipped entries; however, a new BPM developer might have difficulty identifying errors.

Before you begin, you must have installed all items listed under Prerequisites in the Introduction section.

To download the following artifacts that are used in this section, refer to the Download section:

- Order.xfdl – the Lotus form used in this tutorial
- CreditRating.java – a Java™ file used in this tutorial. It is the implementation for the task to check the customer account status.

Modeling

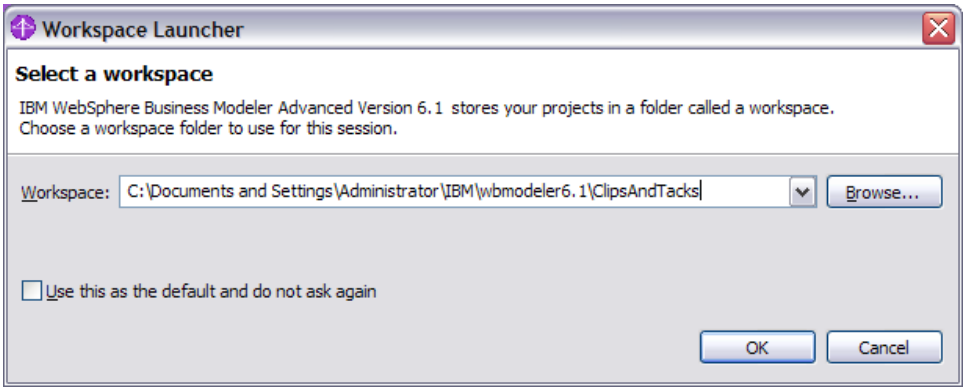
During the modeling phase, you will use WebSphere Business Modeler to build a model that represents the Clips and Tacks business process for handling incoming orders. There are several tasks to complete during this phase:

- Create the business process
- Import the Lotus form
- Build OrderHandling (Future1) process
- Connect the tasks
- Create the Notification Business Item
- Implement the Decision Branch Conditions
- Set the input criterion for the process
- Implement the business rule for automatic approval
- Specify monitoring criteria by creating business measures
- Create the Percentage of Orders Shipped Business Performance Indicator
- Create the Average process Duration Business Performance Indicator
- Create the Order Count Business Performance Indicator
- Create the Shipped Order Count Business Performance Indicator
- Create the Declined Order Count Business Performance Indicator
- Create the Order Price Total Business Performance Indicator
- Create the Order Price Average Business Performance Indicator
- Export the model for WebSphere Integration Developer
- Export the Model for Monitor Development Toolkit

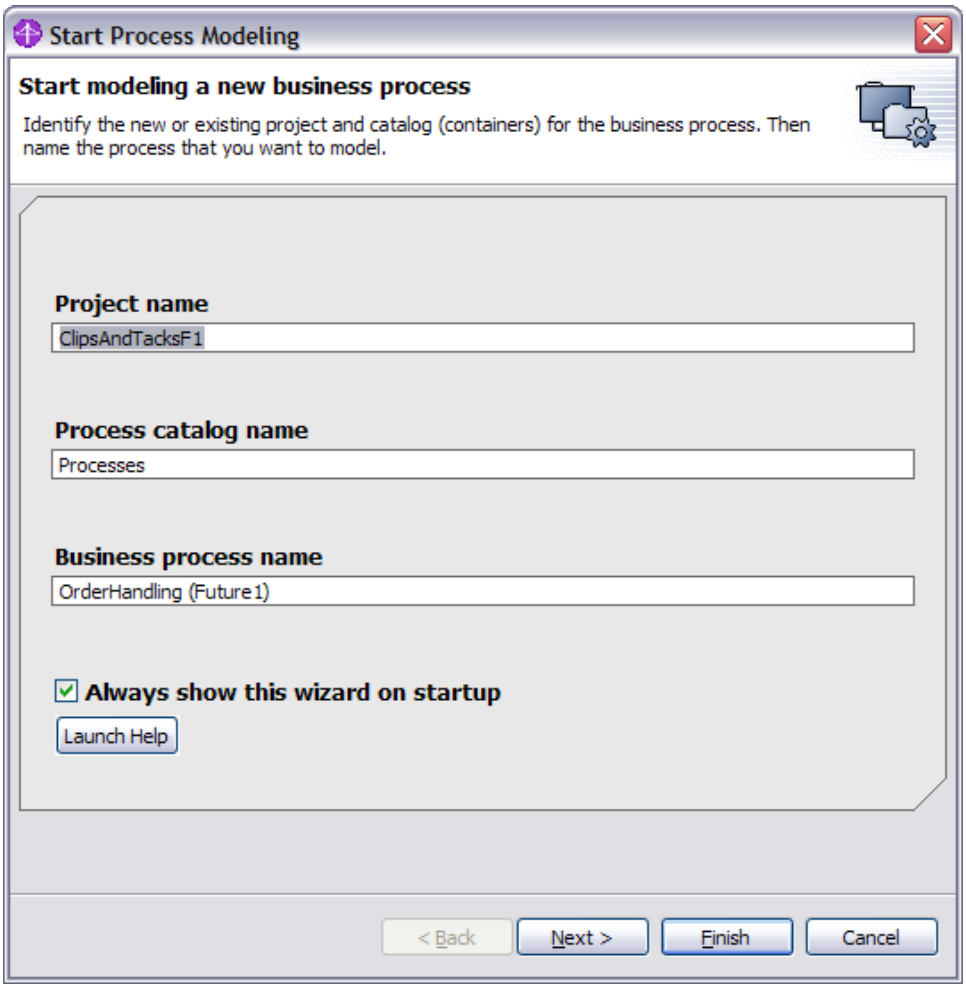
Create the business process

1. Start WebSphere Business Modeler Advanced Version 6.1. The Workspace Launcher wizard opens.

2. Create a new workspace for this tutorial, such as C:\Documents and Settings\Administrator\IBM\wbmodeler6.1\ClipsAndTacks. Do not select **Use this as the default and do not ask again** so that you are prompted with this dialog box each time on each launch. Click **OK**.



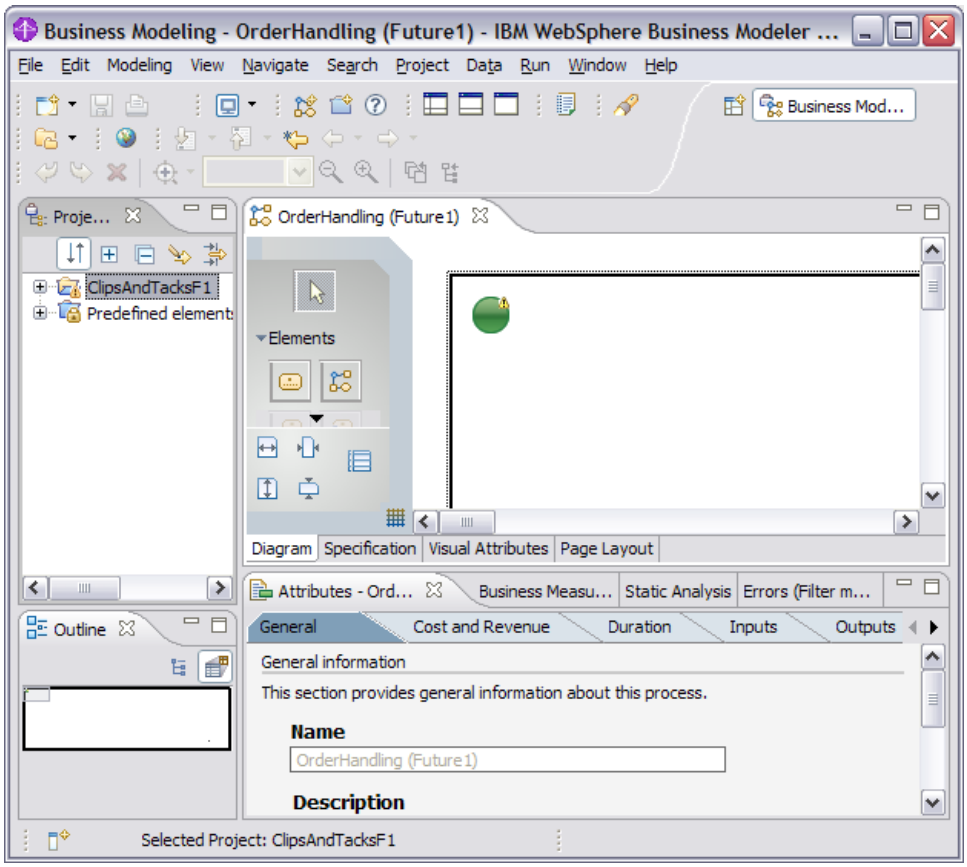
3. On the Welcome window, click on **Close Product Welcome** to close the Welcome window. The Start Process Modeling wizard opens.
4. Enter `ClipsAndTacksF1` as the project name and `OrderHandling (Future1)` as the business process name. Click **Next >**.



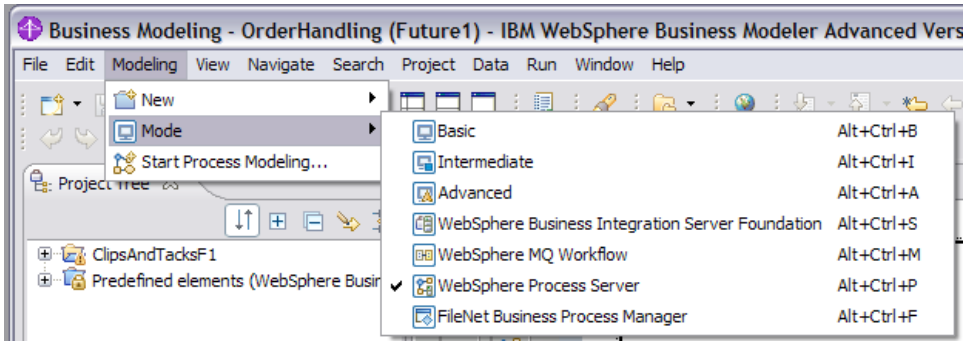
5. Clear **Create business item** and click **Finish**. The project and the business process are created.

The OrderHandling (Future1) process is opened.

6. Click the **Apply 4-Pane Layout** icon .

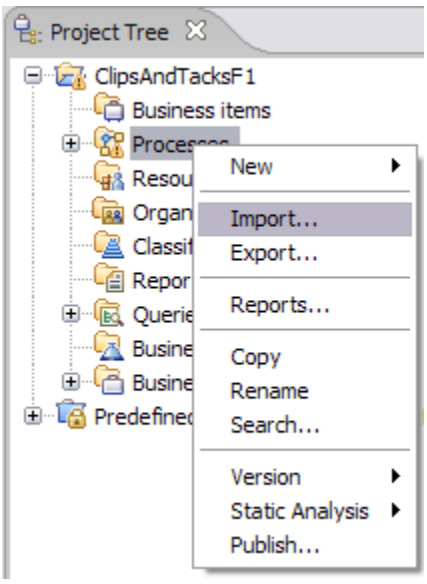


7. Select **Modeling > Mode > WebSphere Process Server** to ensure that the model you are going to build can be imported into WebSphere Integration Developer and later deployed to WebSphere Process Server. WebSphere Business Modeler allows you to model for different run time environments.

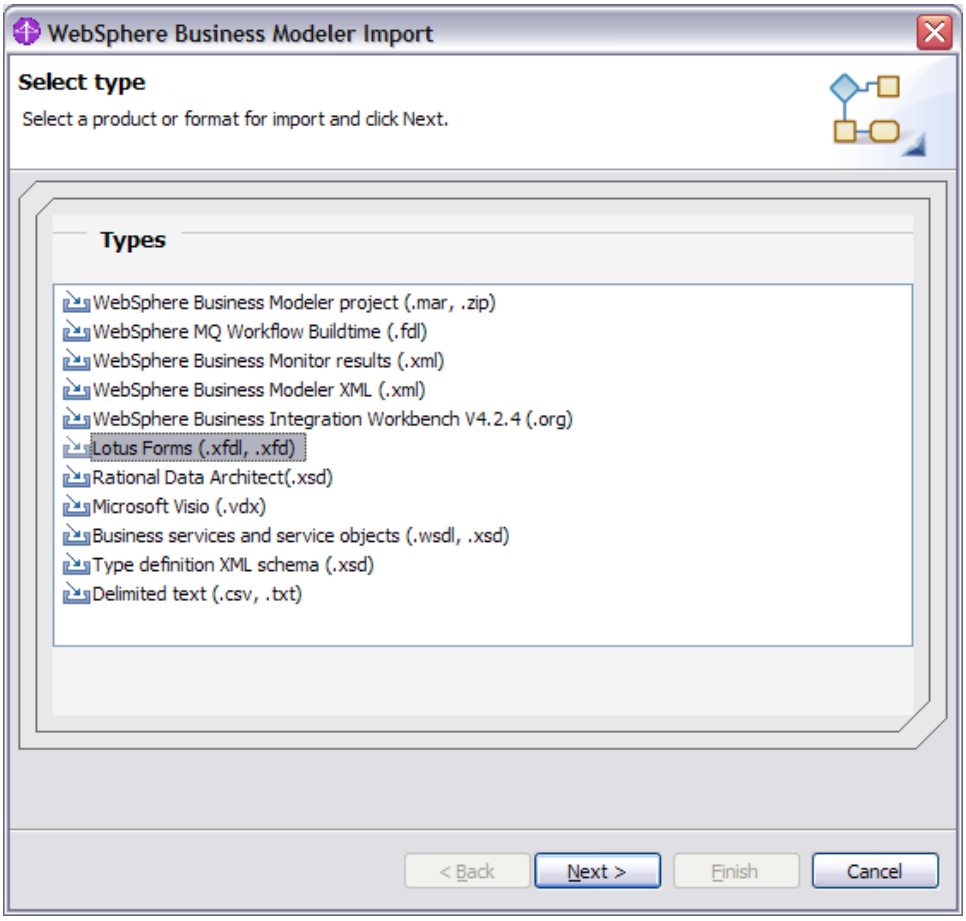


Import the Lotus form

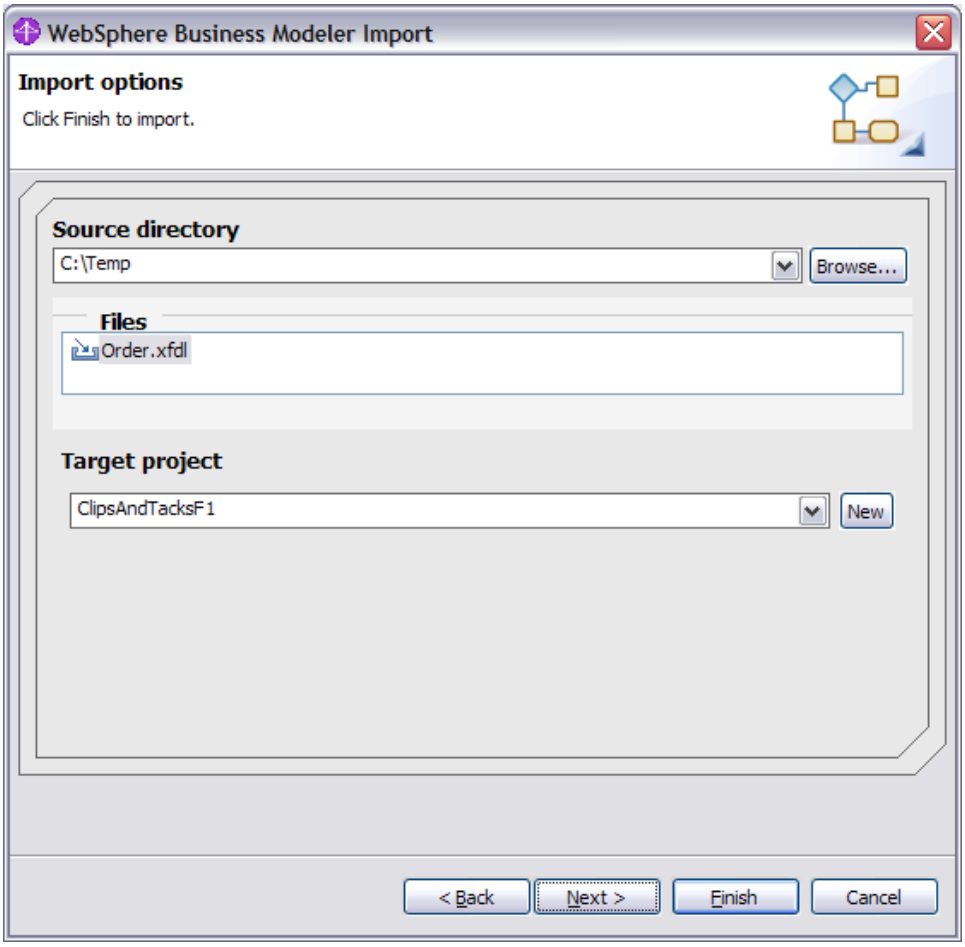
1. Refer to the **Download** section to download the files needed in this tutorial, such as the Lotus form.
2. In the navigation tree, expand **ClipsAndTacksF1**. Right-click **Processes** and select **Import**.



3. Select **Lotus Forms (.xfdl, .xfd)** and click **Next**.

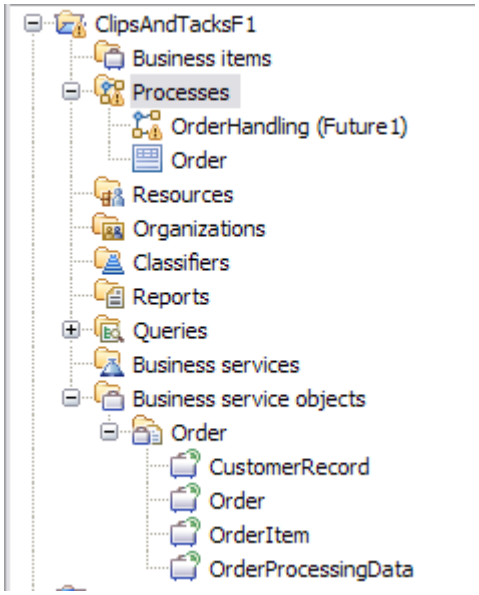


4. Click **Browse** and select **Order.xfdl** from the list of files. Click **Finish**.



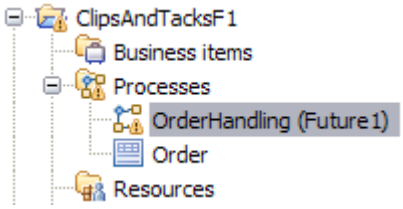
5. On the **Import finished successfully** dialog box, click **OK**.

The Lotus form is imported. The **Order** element under **ClipsAndTacksF1 > Processes** is the imported Lotus form. The **Order** element under **ClipsAndTacksF1 > Business service objects** is the data element that was created automatically during import of the Lotus form.



Build OrderHandling (Future1) process

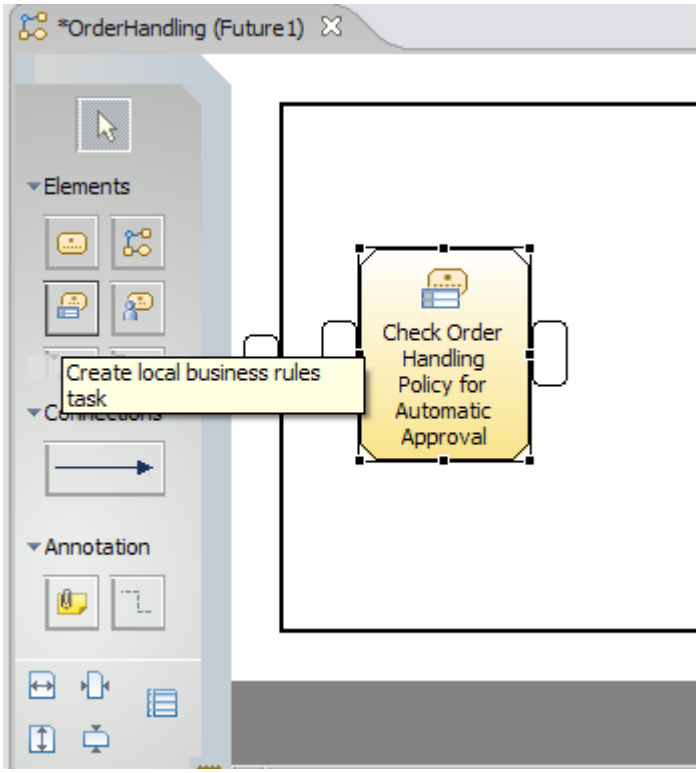
1. If the **OrderHandling (Future1)** process is not open already, expand **ClipsAndTacksF1 > Processes** and double-click **OrderHandling (Future1)** to open it.



2. Right-click the start node  on the canvas and delete it.

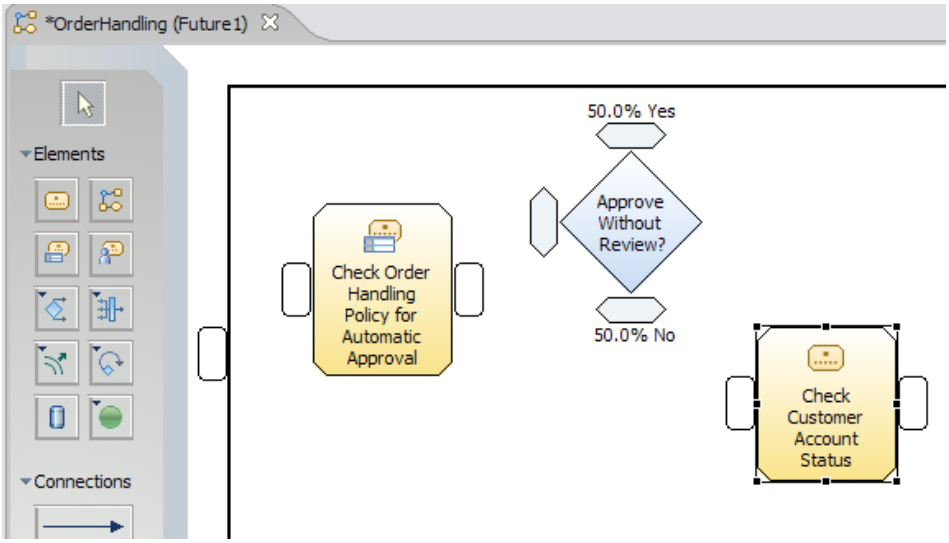
3. Right-click the stop node  on the canvas and delete it. You might have to scroll to the right and down to see the stop node. From the palette, you can reduce the size of the canvas by using the  icon to reduce the width and the  icon to reduce the height.

4. On the palette, click the **Local Business Rules task** icon  and then click the canvas. Rename the local business rules task to `Check Order Handling Policy for Automatic Approval`. You can resize the task to fully display the text if you wish. As you add new elements, make sure that you add them to the right of the previously added item. A figure with all the elements in the process is included in the **Connect (wire) the task** section.



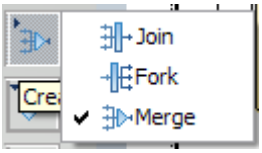
5. Click the **Create simple decision** icon  and then click the canvas. Rename the simple decision to `Approve Without Review?`

6. Click the **Create local task** icon and then click the canvas. Rename the local task to `Check Customer Account Status`.



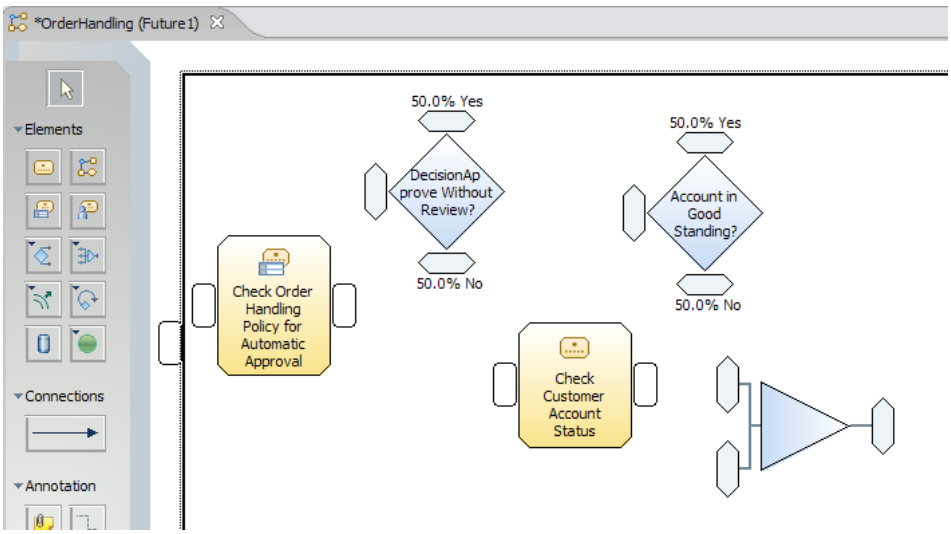
7. Click the **Create simple decision** icon and then click the canvas to the right of the **Check Customer Account Status** task. Rename the simple decision to `Account in Good Standing?`

8. Click the **Create Merge** icon and then click the canvas.

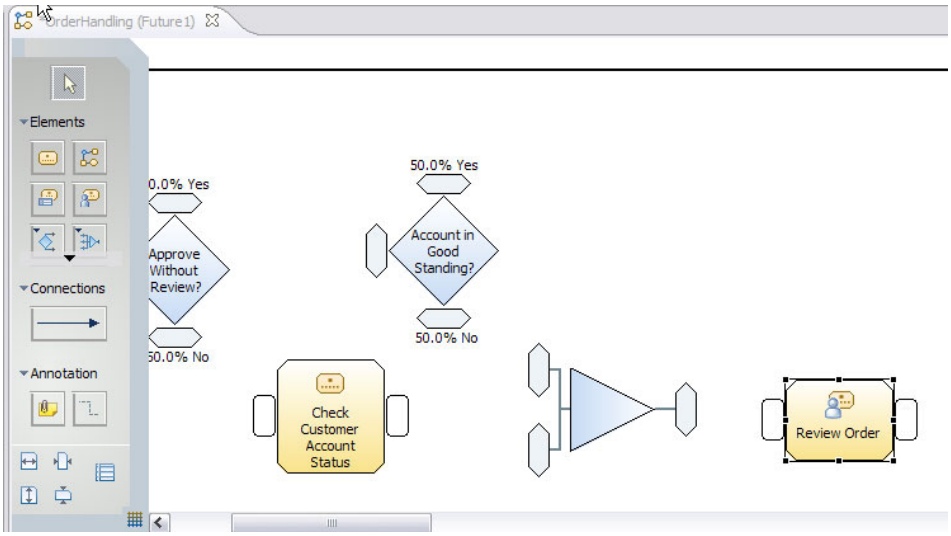


If you do not see the **Create Merge** icon in the palette, click the top left of the **Create Join** icon in the palette to expand its options. Place the merge elements on the canvas from left to right as you define them to align with other steps later in this sample.

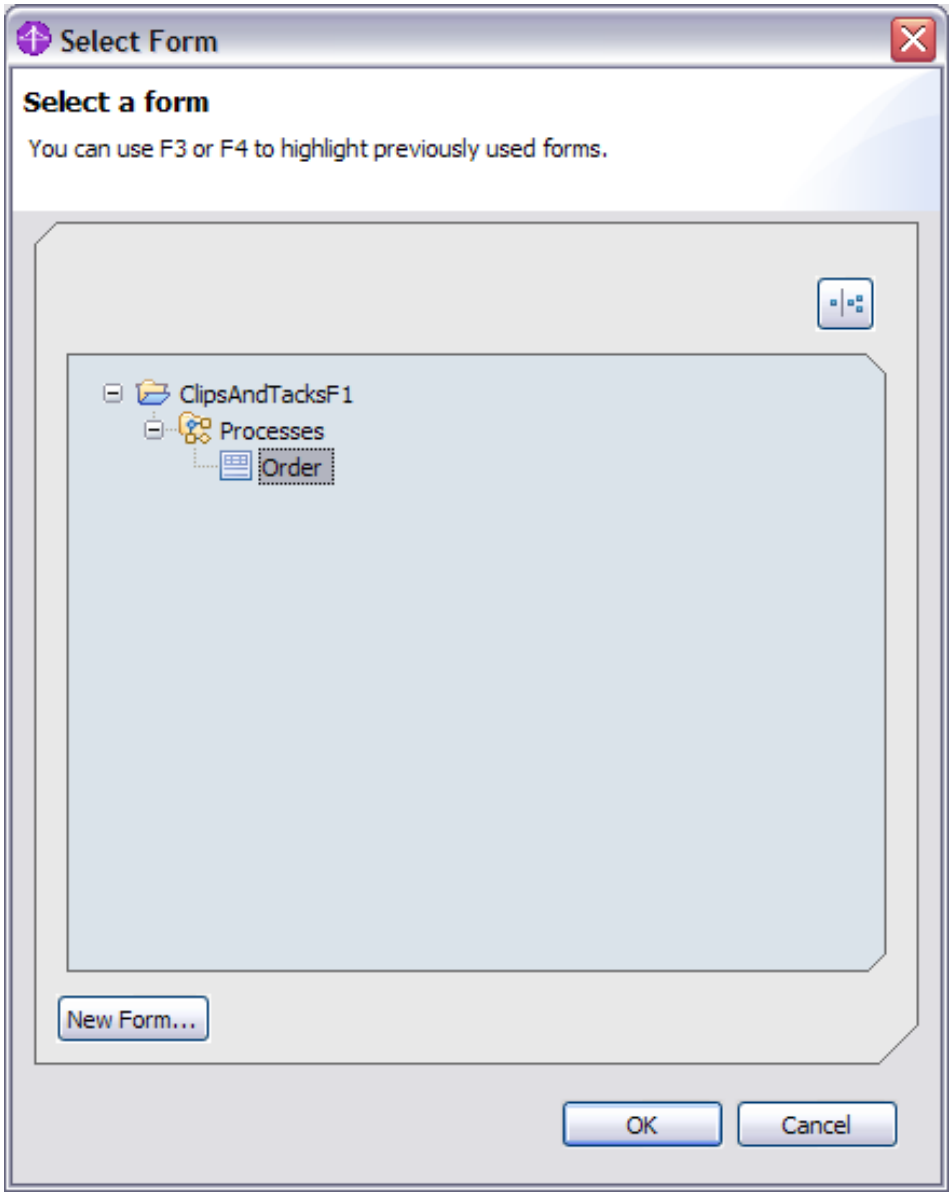
Note: Do not delete a merge element. WebSphere Business Modeler generates names for the merge elements relative to when the merge element is added to the canvas. In the monitoring design phase, these names are used to create the monitoring model. Also, you can move the merge elements but do not change the relative left-to-right position of two merges elements.



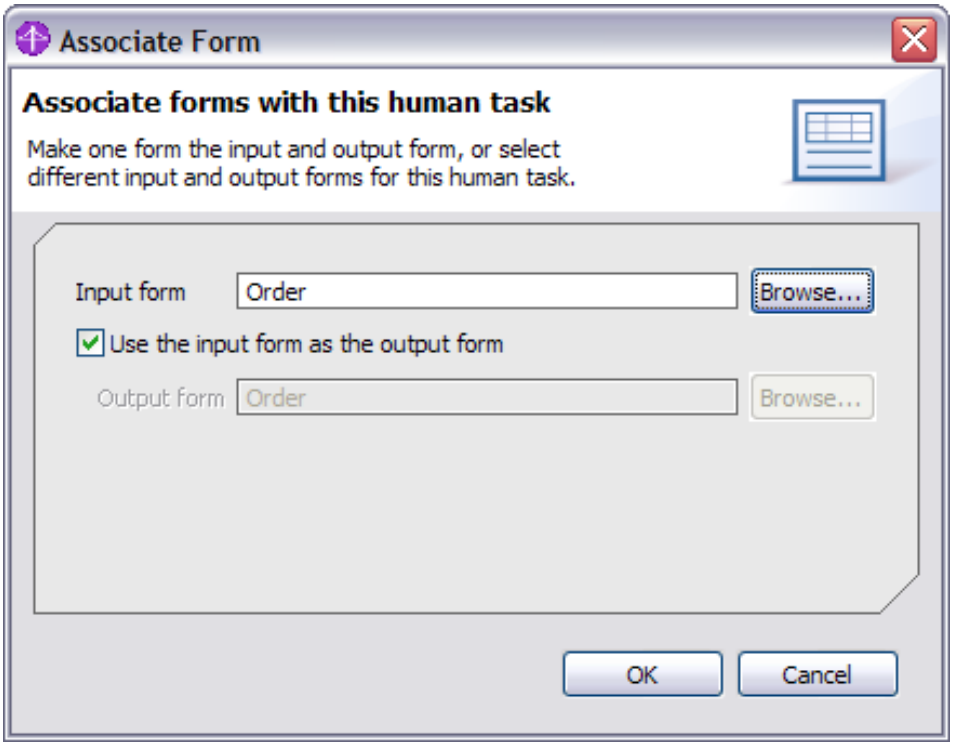
9. Click the **Create local human task** icon  and then click the canvas. Rename the local human task to `Review Order`.



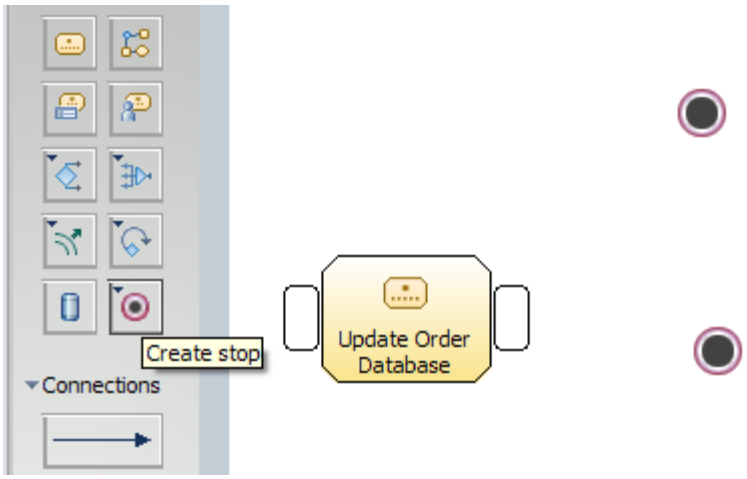
10. Right-click the **Review Order** task, select **Associate Form**. Click **Browse** and select **Order** from the ClipsAndTacksF1 project. Then click **OK**.



11. Leave the default. Use the input form as the output form selected and click **OK**.



12. Add a simple decision called `Acceptable Credit Risk?` to the canvas on the right side of the previous item.
13. Add a **Create Merge** item to the canvas to the right of `Acceptable Credit Risk?`
14. Add a **local human task** called `Ship Order to Customer` to the canvas. Associate the Order form with the `Ship Order to Customer` human task in the same way as you did for the `Review Order` human task.
15. Add a **local task** called `Update Order Database` to the canvas.
16. Ad a **local task** called `Cancel Order and Send Notification` to the canvas.
17. Add a Stop node by clicking the **Create Stop** icon  on the palette and then clicking the canvas. (If you do not see the **Create Stop** icon, then click the top left of **Create Start** to expand the options.)
18. Add a second Stop node.

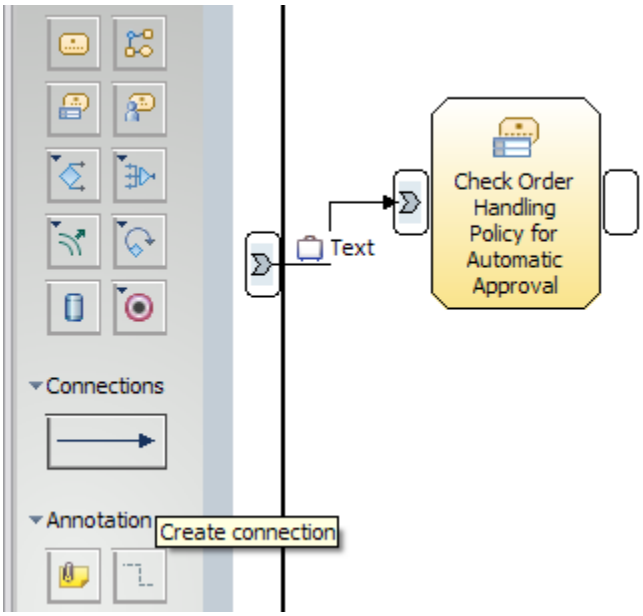


Connect the tasks

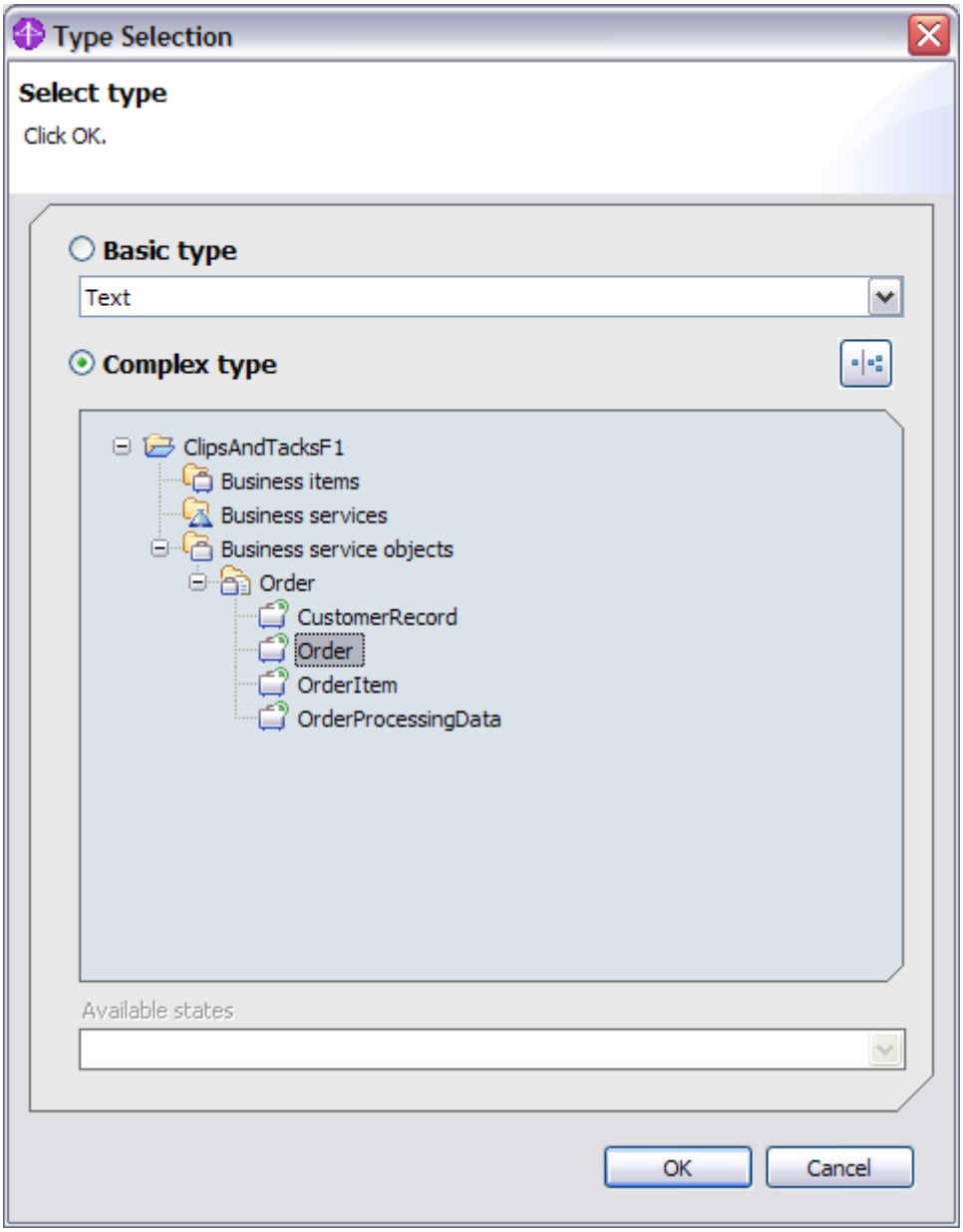
To connect the tasks means to *wire* the tasks.

To wire the tasks, click in the center of the input and output elements you are wiring; otherwise a second input or output port may be created.

1. Click the **Connections** icon  in the palette, and then click the **Input Criterion** item which is a rectangle on the outer left boundary of the canvas. Click the input of the **Check Order Handling for Automatic Approval** task. A wire connection is created.



2. Click on the arrow icon  to move out of the connection mode. Right-click the newly created connection and select **Associate Data**. Navigate to the ClipsAndTacksF1 project, select **Order**, and then click **OK**.



3. Wire the remainder of the process diagram by repeating steps 1 and 2 for all of the elements. Review the Tips below before proceeding with wiring. All of the links must have the Order business item, with the exception of the link from **Cancel Order and Send Notification** to the **Stop** node.

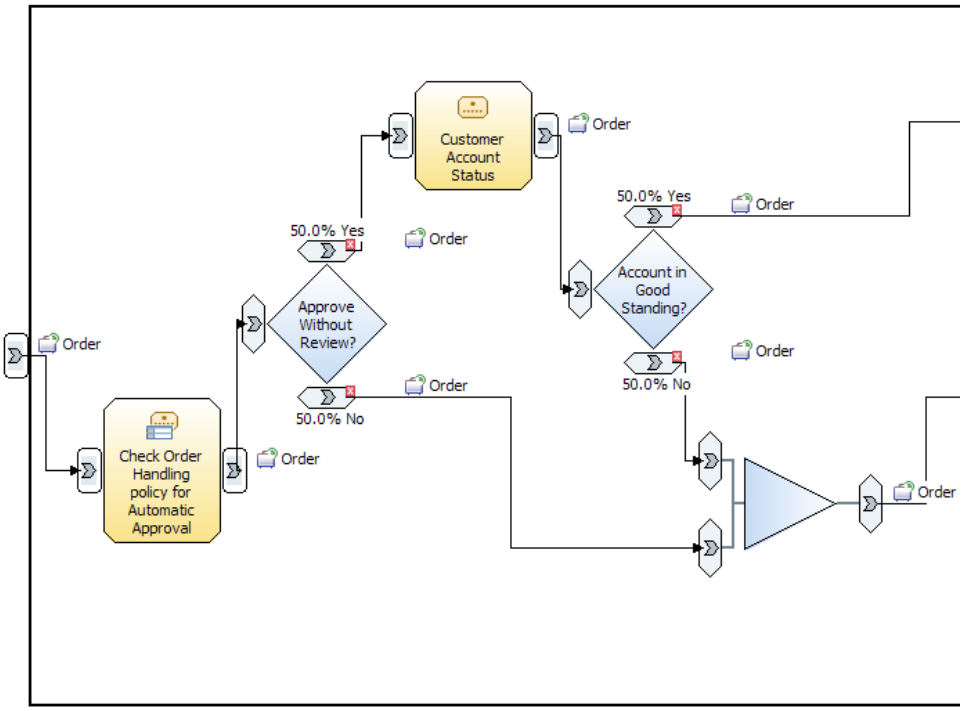
   Important: If Order Order is not automatically added to the link, add it using the **Associate Data** context menu option before continuing with the wiring.

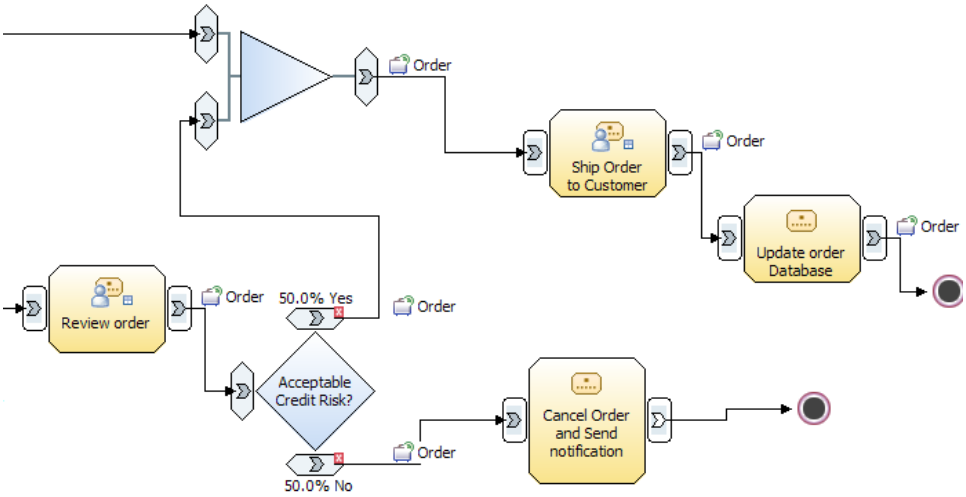
   Tips

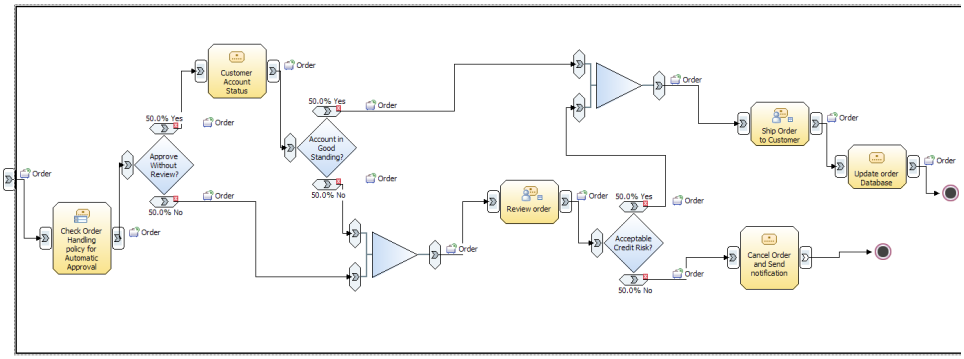
   - To rearrange the elements, you can drag the elements on the canvas, however do not change the relative left to right orientation of the merge elements.
   - `Ctrl+Z` or**Edit** → **Undo** will reverse your last change. This is preferable to deleting for this tutorial.

- The order of the wire creation from the simple decisions and merges is important in order for the naming to work correctly in the monitor model. Wire Yes's before No's for the simple decisions and tops before bottoms for the merges.
- If the **Connections** wiring tool is still enabled, select the white arrow icon at the top of the palette to enable the regular mouse pointer. (Before you try to right-click an item, enable the regular mouse pointer.)
- To prevent yourself from inadvertently creating extra input or output ports on the elements, click the center of each element that you are connecting.

The following three images show the completed wired diagram. The first image shows the left half and the second image shows the right half. The third image is the completed wired diagram.





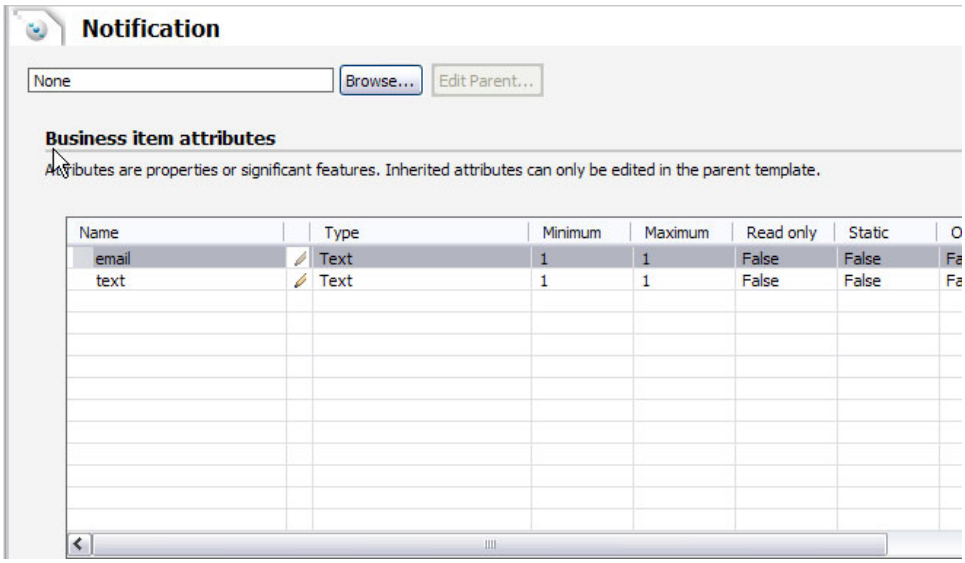


4. Right-click the canvas and select **Auto-Layout left to right**. Save your work with any of these choices:
   - **File > Save**
   - **File > Save All**
   - **Ctrl+S**

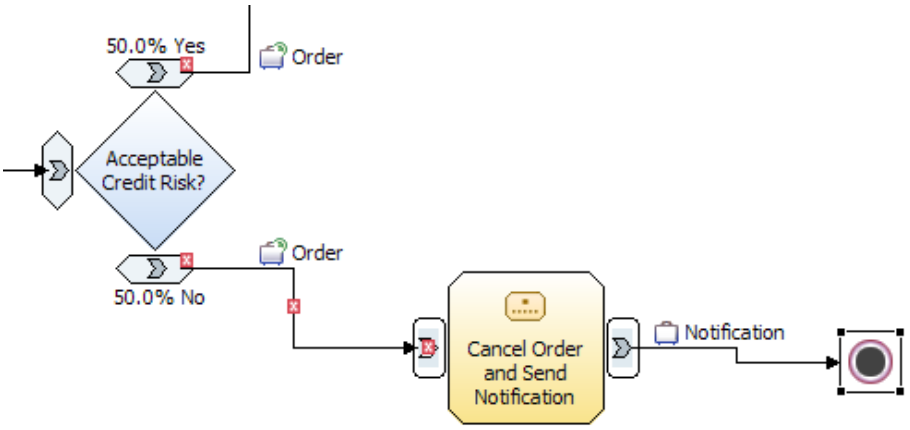
Create the Notification Business Item

The Cancel Order and Send Notification task does not use Order as an output business item. To send notification to customers that their orders have been canceled, Clips and Tacks creates a new business item called Notification.

1. From the Project Tree, right-click **Business items** and select **New → Business Item**.
2. Name the new business item `Notification` and click **Finish**.
3. Add two attributes, **email** and **text**, of type Text. Click **Add** and then click the new attribute name and replace it with **email**. Repeat this step to add the second attribute named **text**. Save your changes and then close the Notification business item panel by clicking the **X** on its tab.

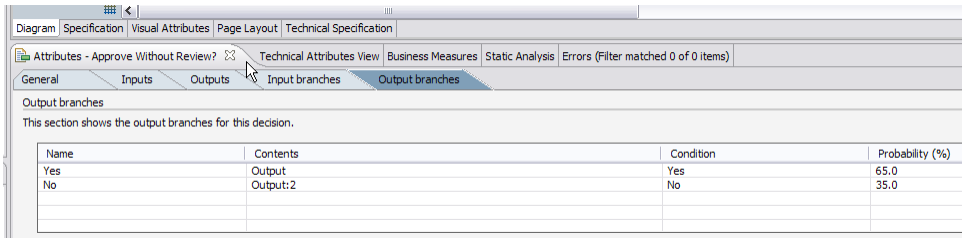


4. Right-click the wire between **Cancel Order and Send Notification** and the **Stop** node and select **Associate Data**. Select **Notification** from Business Items and click **OK**.



Implement the Decision Branch Conditions

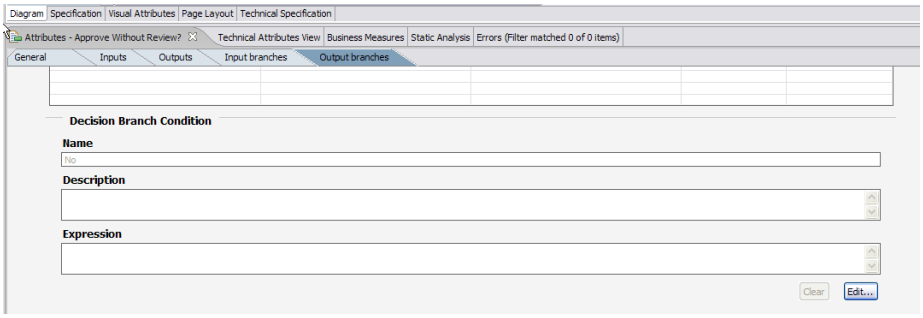
1. In the process diagram, click the `Approve Without Review?` simple decision. In the Attributes view, select the **Attributes – Approve without Review?** tab and then click the **Output branches** tab.



a. Click the **Yes** line and change the probability (%) to 65. Similarly, change the **No** probability to 35. These probabilities are used during simulation.

Because this tutorial is not using simulation, you can leave the other probabilities at 50. This step was simply to demonstrate how to change the decision branch probabilities.

b. Click the **Yes** line again. Scroll down to the **Expression** field and click **Edit** (the panes in the 4-pane layout can be sized by selecting and dragging borders). The Expression Builder wizard opens.



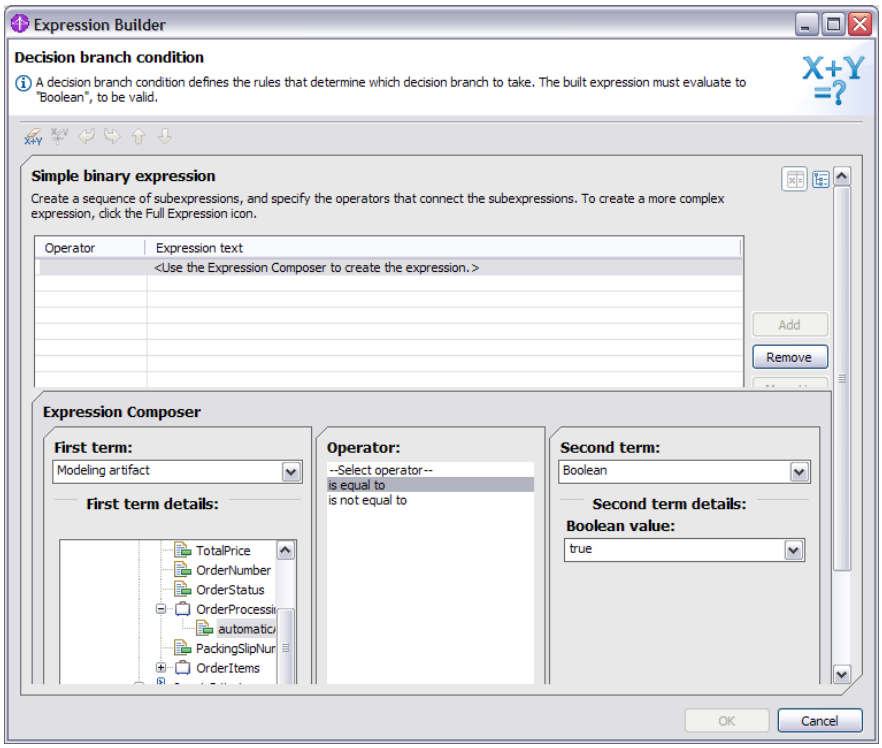
c. In Expression Builder wizard, complete the following steps:

1) Click **Add**.

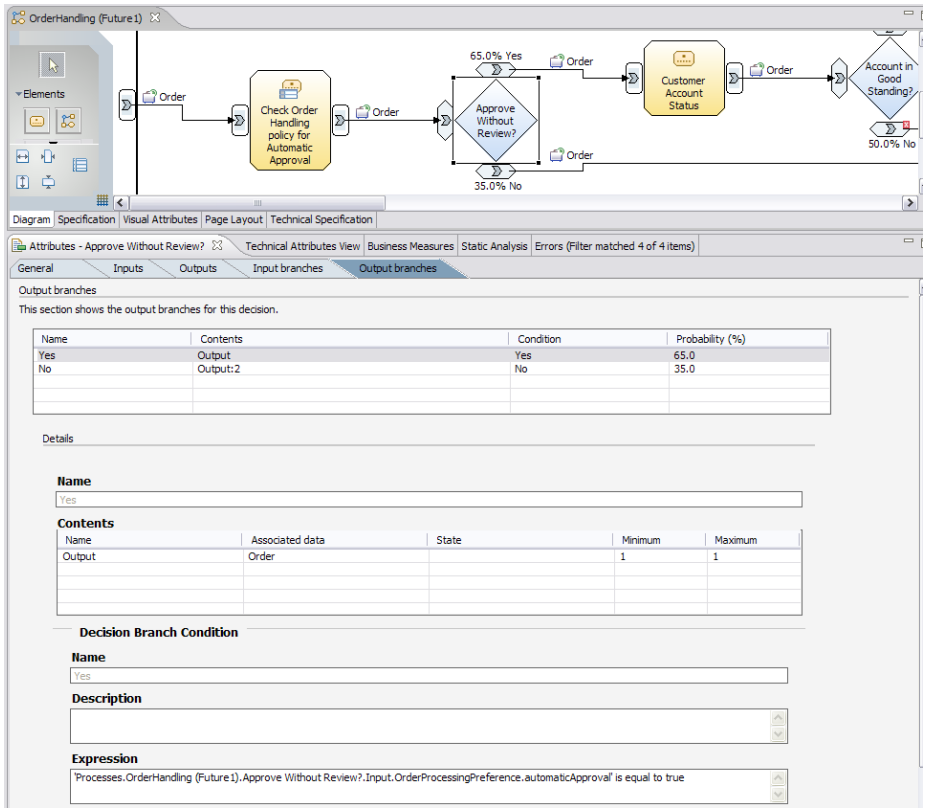
2) Under the **Expression Composer** section, ensure that Modeling artifact is selected as the first term. Expand **Process** → **OrderHandling (Future1)** → **Approve Without Review?** → **Input** → **OrderProcessingPreference** and select **automaticApproval**.

3) For **Operator**, select **is equal to**.

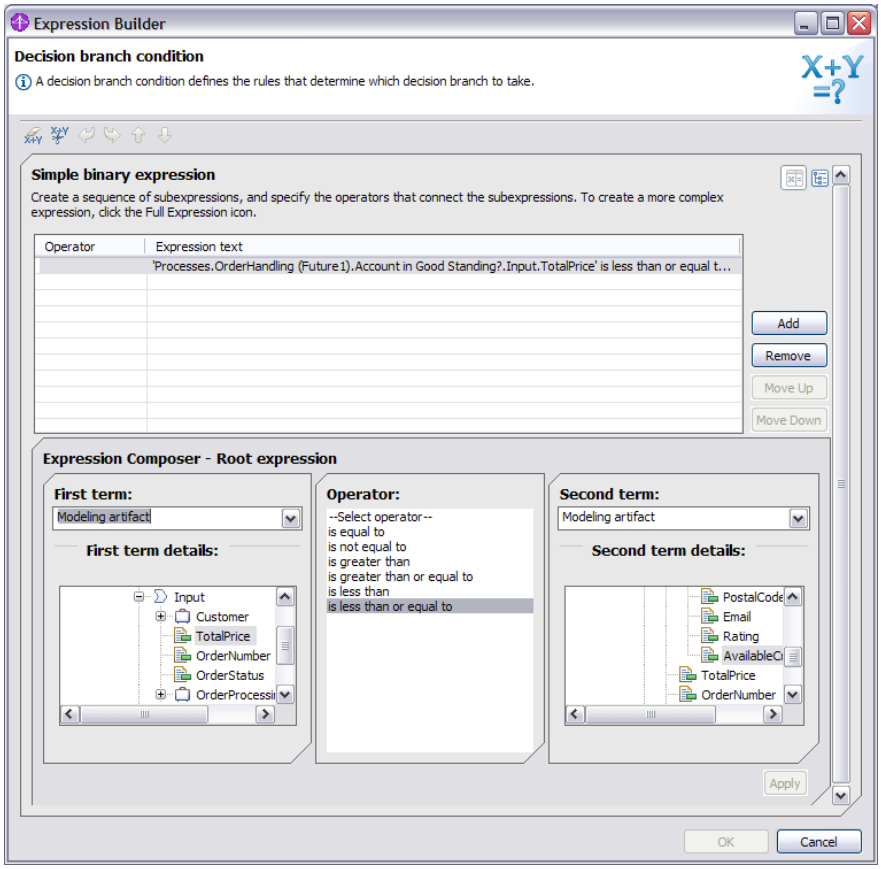
4) For the second term, select **Boolean** and set the Boolean value to **true**.



5) Click **Apply** and then **OK**.

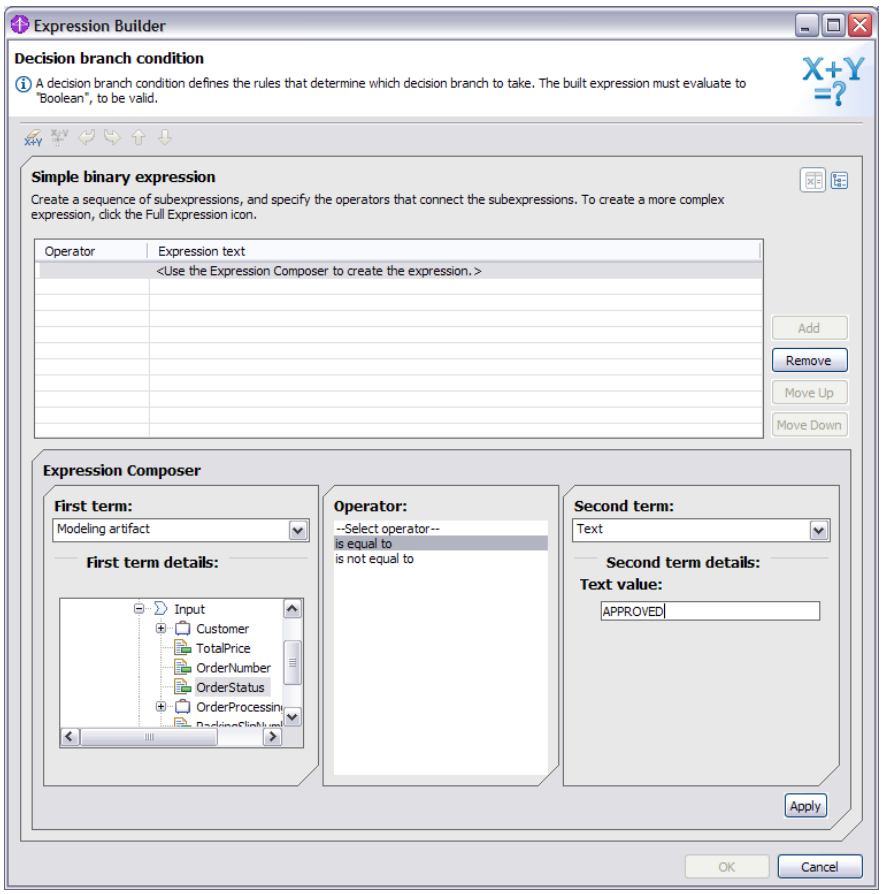


2. In the process diagram, click the **Account in Good Standing?** simple decision. In the Attributes view, click the **Output branches** tab and change the **Yes** probability to 85 and the **No** probability to 15
   a. Select the **Yes** line, scroll all the way down, and click **Edit** under the **Expression** field:
   b. In the **Expression Builder** dialog box, complete the following steps:
      1) Click **Add**.
      2) Ensure **Modeling artifact** is selected as the first term. Under **First term details** expand **Processes** → **OrderHandling (Future1)** → **Account in Good Standing?** → **Input and select TotalPrice**.
      3) For **Operator** select, **is less than or equal to**.
      4) For the second term, select **Modeling artifact** and then expand **Processes** → **OrderHandling (Future1)** → **Account in Good Standing?** → **Input** → **Customer** and select **AvailableCredit**.



5) Click **Apply** and **OK** and then save your work.

3. Click the **Acceptable Credit Risk?** task. In the Attributes view, select the **Output branches** tab.
   a. Change the **Yes** probability to 70 and the **No** probability to 30.
   b. Select the **Yes** line, scroll all the way down, and click **Edit** under the **Expression** field.
   c. In Expression Builder wizard, complete the following steps:
      1) Click **Add**.
      2) Ensure **Modeling artifact** is selected as the first term. Under **First term details** expand **Processes** → **OrderHandling (Future1)** → **Acceptable Credit Risk** → **Input** and select **OrderStatus**.
      3) For **Operator**, select **is equal to**.
      4) For the second term, select **Text** and enter the value as `APPROVED`.

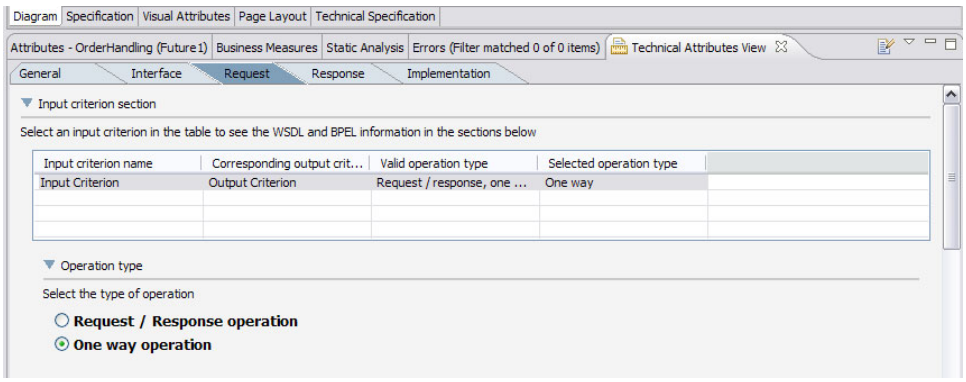


5) Click **Apply** and then **OK** and then save your work.

Set the input criterion for the process

To ensure that the process initiator doesn't wait for a response, set the operation type of the Input Criterion to One way by completing the following steps:

1. Click the canvas and then click the Technical Attributes View tab and then the Request tab.
2. Select the Input Criterion row.
3. For Operation type, select One way operation and save your work.

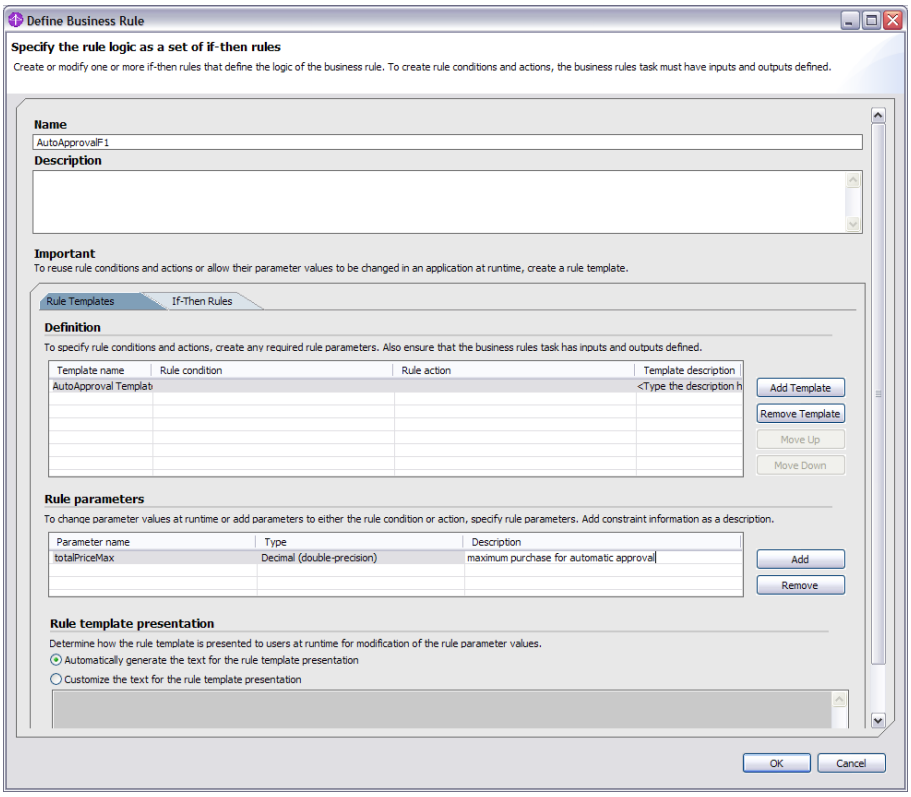


Implement the business rule for automatic approval

The business rules task uses the Order business object as the input and checks the TotalPrice variable. If the total price is not greater than a specified fixed amount (in this case, $750.00), then the rules task sets the automaticApproval variable in the business rules component to true; otherwise, the variable is set to false. The business rules component returns the modified Order business object as the output.

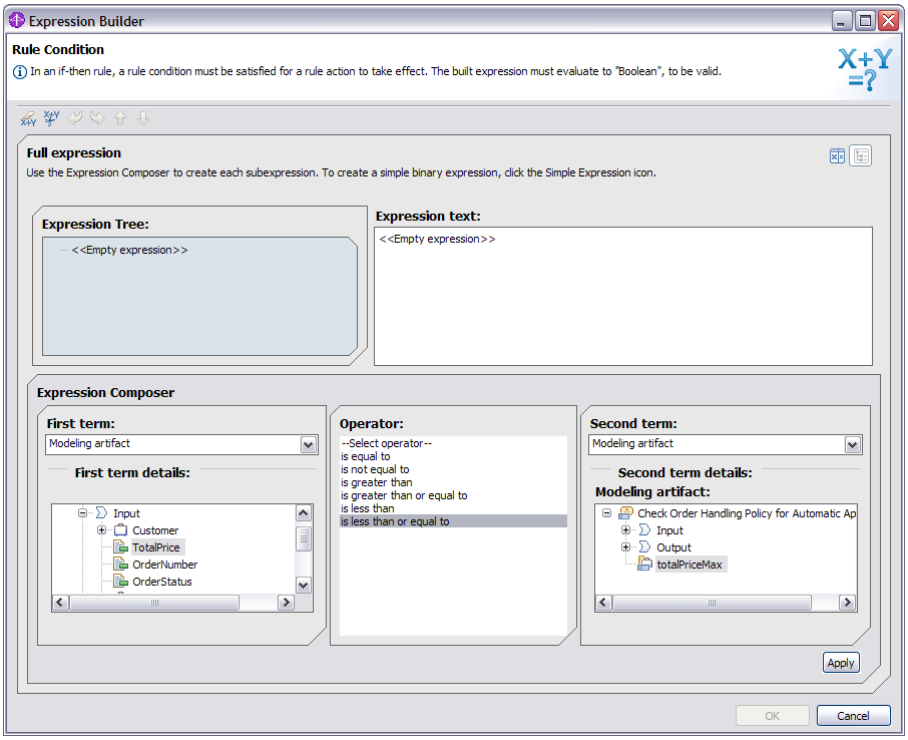
Implement the business rules task by completing the following steps:

1. In the process diagram, click the **Check Order Handling for Automatic Approval** task and then, in the Attributes view, click the **Business Rules** tab.
2. Click **Add**. The Define Business Rule wizard opens.
3. Enter `AutomaticApprovalF1` as the name of the business rule.
4. Click the **Rule Templates** tab and then click **Add Template**.
5. Change the template name from `Rule template:1 to AutoApproval Template` by selecting the name and typing over it.
6. Under **Rule parameters**, click **Add**.
7. Define the rule parameter by completing the following steps:
   a. Change the parameter name to `totalPriceMax` by selecting it and typing over the generated name.
   b. Select **Decimal (double-precision)** as the type.
   c. For the description, enter maximum purchase for automatic approval.



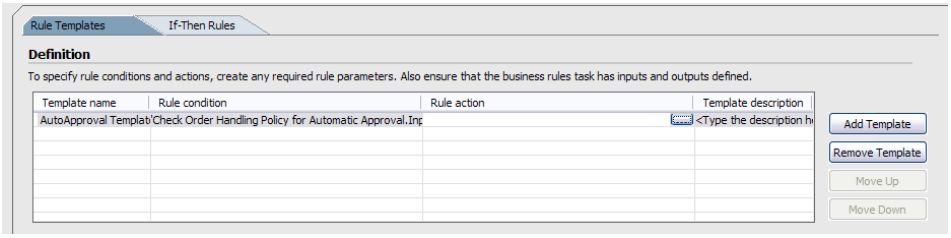
8. Returning back toward the top of the wizard, under **Important** → **Rule** → **Templates** → **Definition** in the table, click the rule condition cell for **AutoApproval Template** and then click  to open a Rule Condition wizard. This is a common way to launch a wizard.

9. In the Expression Builder (for the rule condition), complete the following steps:
   a. Add a simple binary expression by clicking **Add**.
   b. For the first term, select **Modeling Artifact**. Expand **Check Order Handling Policy for Automatic Approval** → **Input and select TotalPrice**.
   c. For the **Operator**, select **is less than or equal to**.
   d. For the second term, select **Modeling Artifact**. Expand **Check Order Handling Policy for Automatic Approval** and select **totalPriceMax**.



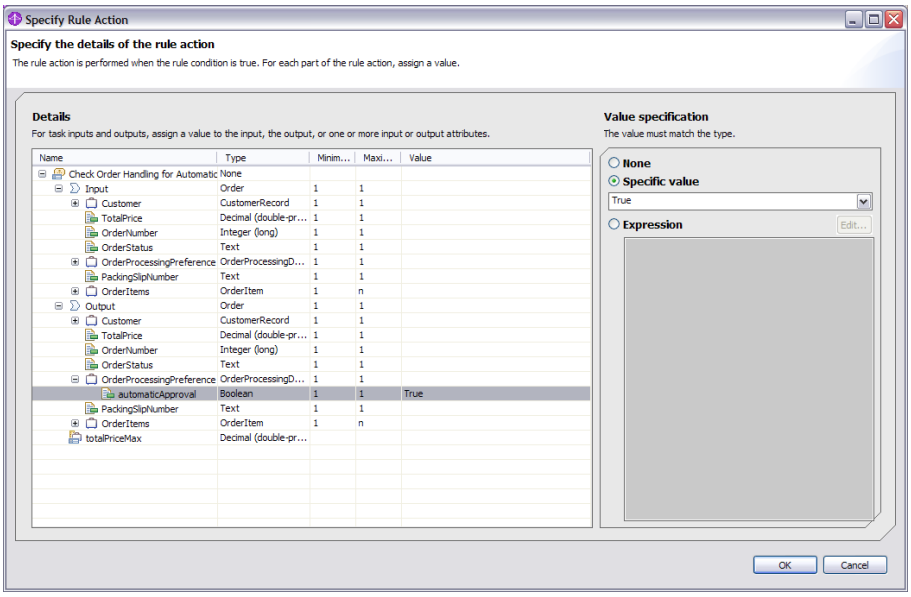
   e. Click **Apply** and **OK**.

10. Click in the **Rule action** cell for AutoApproval Template and then click the edit icon  .

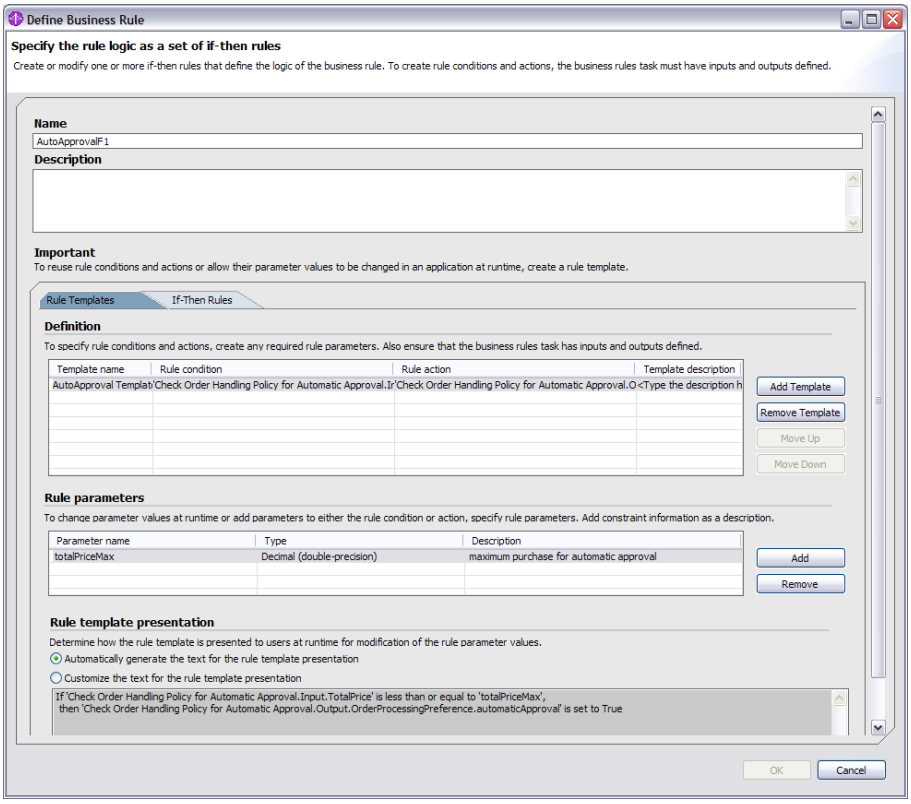


The Specify Rule Action wizard opens.

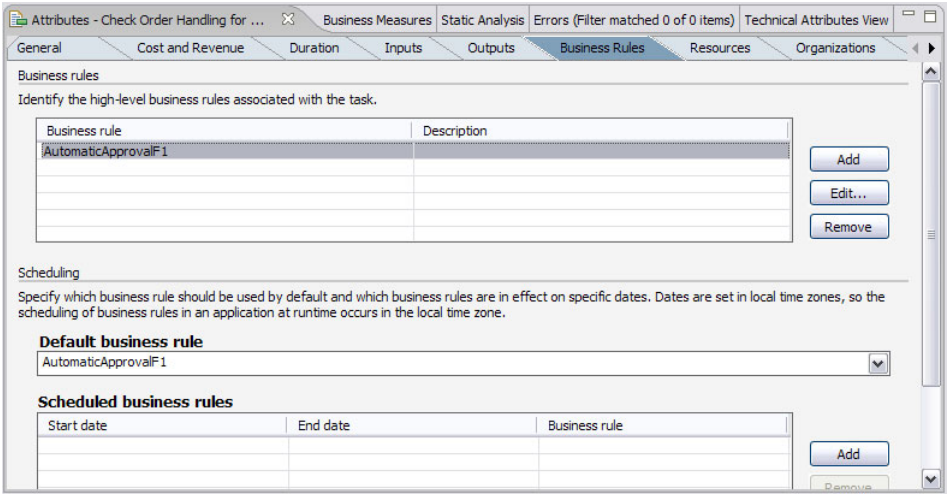
11. Specify the rule action by completing the following steps::
   a. Expand and select **Check Order Handling Policy for Automatic Approval** → **Output** → **OrderProcessingPreference** → **automaticApproval**. Then select **Value specification** → **Specific value** and **True**. Click **OK**.



The following figure shows the completed business rule.



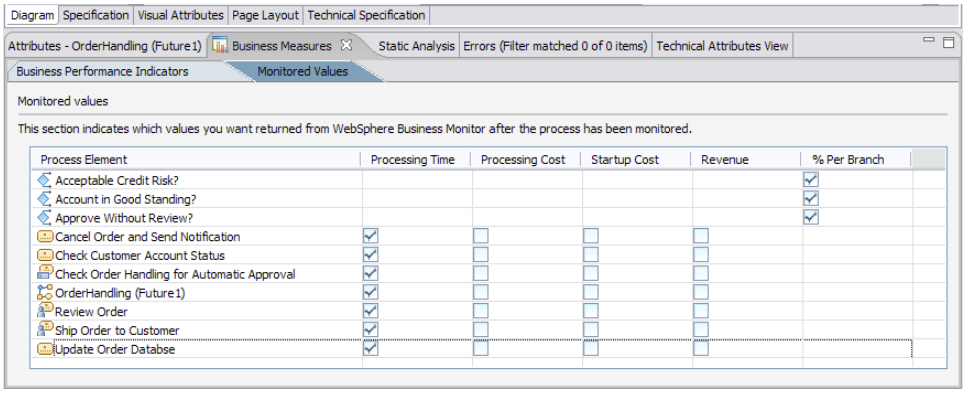
12. Close the Define Business Rule wizard by clicking **OK** again.
13. In the Attributes view, select the **Business Rules** tab and scroll down to the **Default business rule** section. In the selection list, select **AutomaticApprovalF1**. Save your work.



Specify monitoring criteria by creating business measures

Business measures are used to specify what should be monitored in the business process. Complete the following steps to specify what should be monitored:

1. Select **Window** → **Show View** → **Business Measures**.
2. Within the Business Measures view, select the **Monitored Values** tab.
3. In the **% Per Branch** column in the table, select the three check boxes (See the image in the next step.)
4. In the **Processing Time** column, select the seven check boxes and then save your work. The other columns usually require additional resource properties to be specified for each task, but these other properties are not part of this sample.

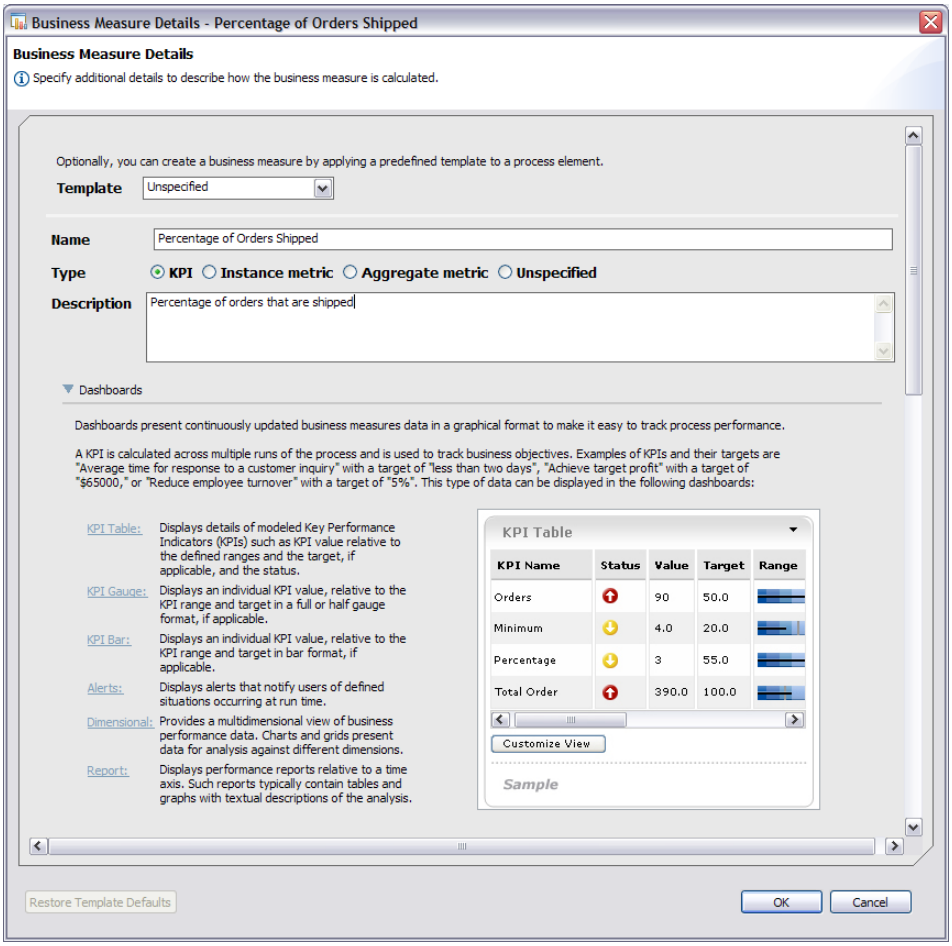


Create the Percentage of Orders Shipped Business Performance Indicator

Create the Percentage of Orders Shipped KPI by completing the following steps:

1. Click the **Business Performance Indicators** tab and then click **Add**.
2. In Business Measure Details – Measure1 wizard, enter the name `Percentage of Orders Shipped`.
3. Select **Type** as **KPI**.
4. For the **Description**, enter `Percentage of orders that are shipped`.

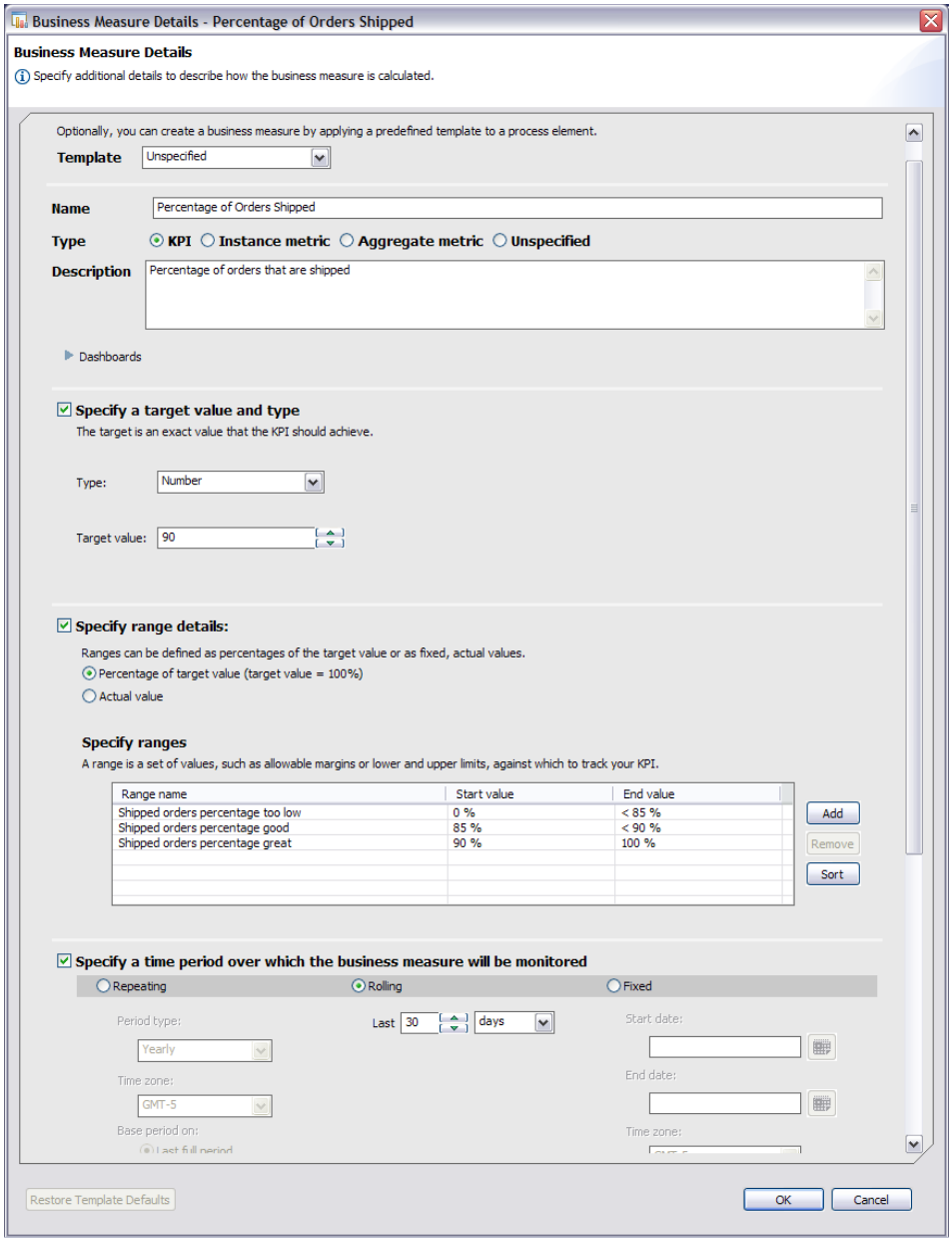
5. Expand **Dashboards** and preview the different KPI representations. You can select each of the highlighted values (for example, KPI Gauge or KPI Bar, to see how the KPI is represented as a gauge or bar graph. The Type field above the Dashboard section also lists other monitoring types, such as KPI, Instance Metric, Aggregate metric, and Unspecified. You can change the selection from KPI to one of the other values to see the various ways that they are displayed on a dashboard. When you are finished exploring the Dashboards section, ensure that the **Type** field under the **Name** field is selected as **KPI** before proceeding.

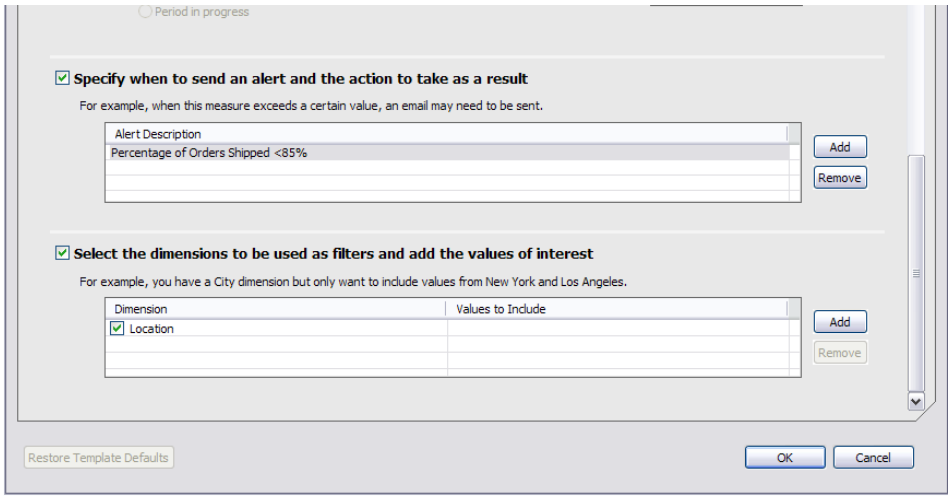


6. Select **Specify a target value and type**. Select the type as **Number** and change **Target value** to `90`.
7. Check **Specify range details**. Select **Percentage of target value (target value = 100%)**.
8. Under **Specify ranges**, click **Add**. In many tables like this one that have an **Add** button, you can click **Add** or double-click in a row in the table to add a row. Change the **Range name** to `Shipped orders percentage too low`. Set the start value to `0` and the end value to `85`. Perform the same actions for the following ranges:

Range name	Start value	End value
Shipped orders percentage good	85	90
Shipped orders percentage great	90	100

9. Check **Specify a time period over which the business measure will be monitored**. Select **Rolling** and **Last 30 days**.
10. Check **Specify when to send an alert and the action to take as a result**. Click **Add**. The Percentage of Orders Shipped Alert is added. Change it to `Percentage of Orders Shipped < 85%`.
11. Check **Select the dimension to be used as filters and add the values of interest**. Change the **Dimension** name to `Location`. Select **Location**.
12. Click **OK** and save your work.



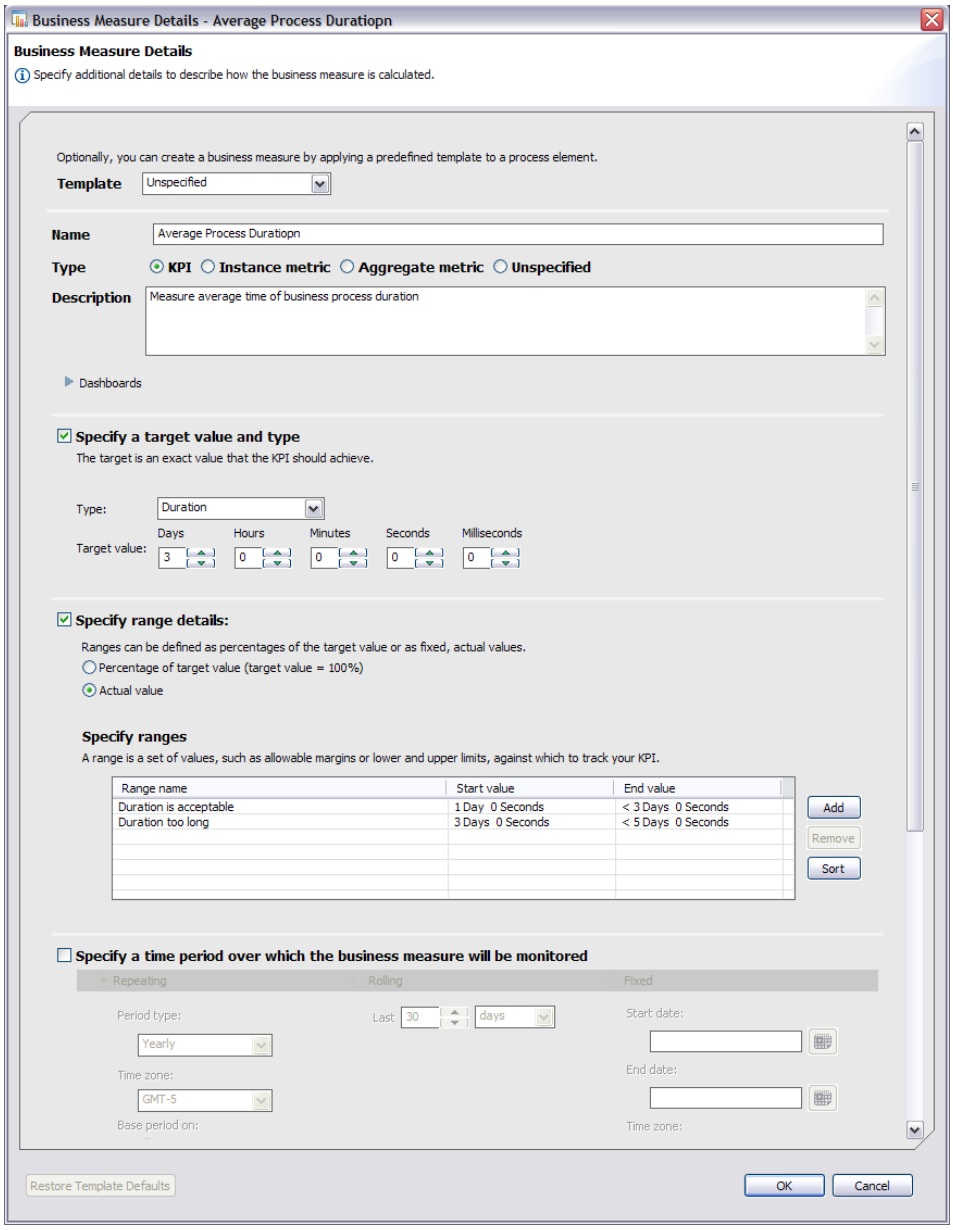


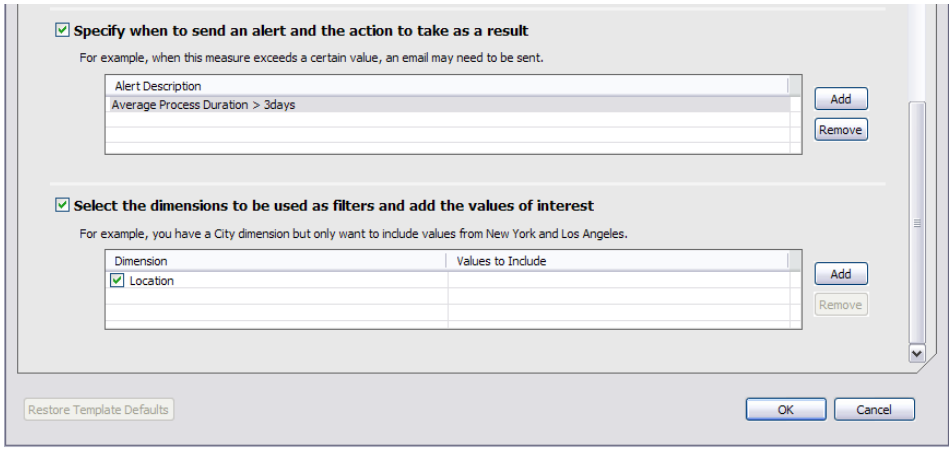
Create the Average process Duration Business Performance Indicator

Create the Average Process Duration KPI by completing the following steps:

1. Add a new Business Performance Indicator by clicking **Add**.
2. In the Business Measure Details – Measure1 wizard, enter the name `Average Process Duration`.
3. Select **Type** as **KPI**.
4. Enter **Description** as *Measure average time of business process duration*.
5. Check **Specify a target value and type**.
6. Select **type** as **Duration**.
7. Select **Target value** as `3 days`.
8. Check **Specify range details**.
9. Select **Actual value**.
10. Under **Specify ranges**, click **Add**. Change the range name to `Duration is acceptable`. Start value: `1 Day`. End value: `3 days`.
11. Click **Add** again. Change the range name to `Duration too long`. Start value: `3 Days`. End value: `5 days`.

    Tip: Besides clicking **Add** to add a row to a table, you can also double-click a row to add a row.
12. Check **Specify when to send an alert and the action to take as a result**.
13. Click **Add**. It adds an Average Process Duration Alert. Change it to **Average Process Duration >3 days**.
14. Check **Select the dimension to be used as filters and add the values of interest**.
15. Click **Add**. Change the Dimension name to `Location`. Check the **Location**. (The completed view is shown in the following 2 images.)



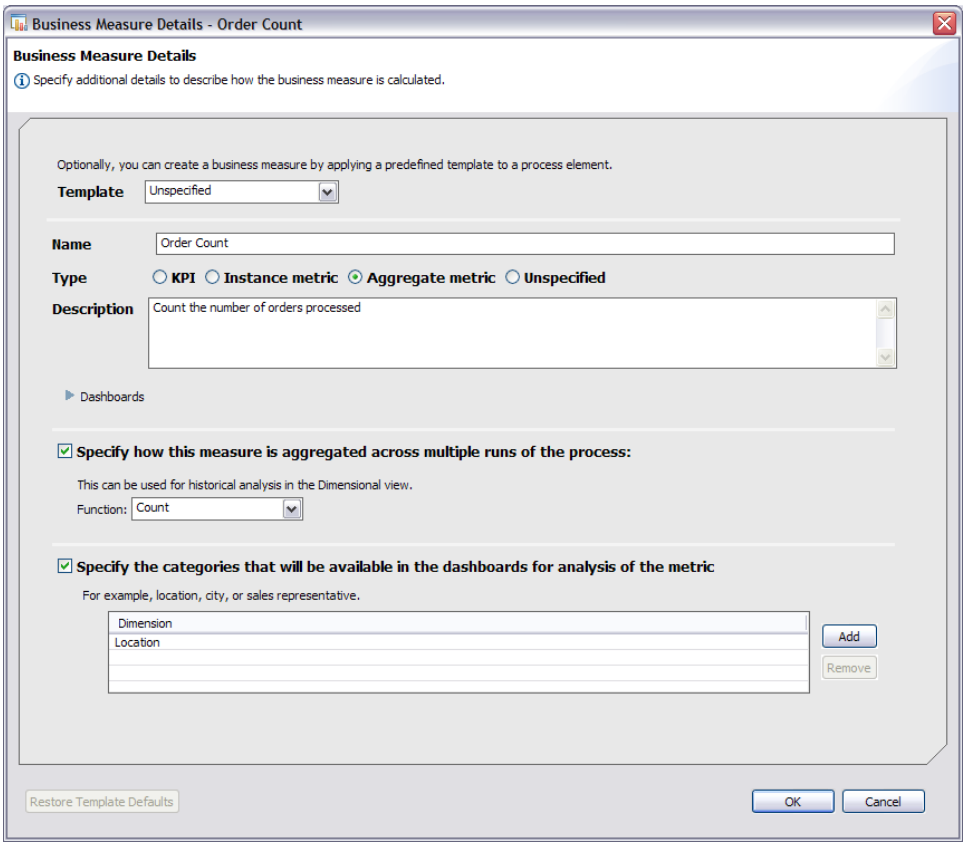


16. Click **OK** and save your work.

Create the Order Count Business Performance Indicator

Create the Order Count Business Performance Indicator by completing the following steps:

1. Click **Add** to add a new Business Performance Indicator.
2. Enter the name as `Order Count`.
3. Select **Type** as Aggregate metric.
4. Enter **Description** as `Count the number of orders processed`.
5. Expand the **Dashboards** tab to get a preview of how an Aggregate metric can be visualized on a Dashboard as a Dimensional or Report view.
6. Check **Specify how this measure is aggregated across multiple runs of the process**.
7. Select **Function** as Count.
8. Check **Specify the categories that will be available in the dashboards for analysis of the metric**. Keep the Dimension as `Location`. The completed item is shown below.



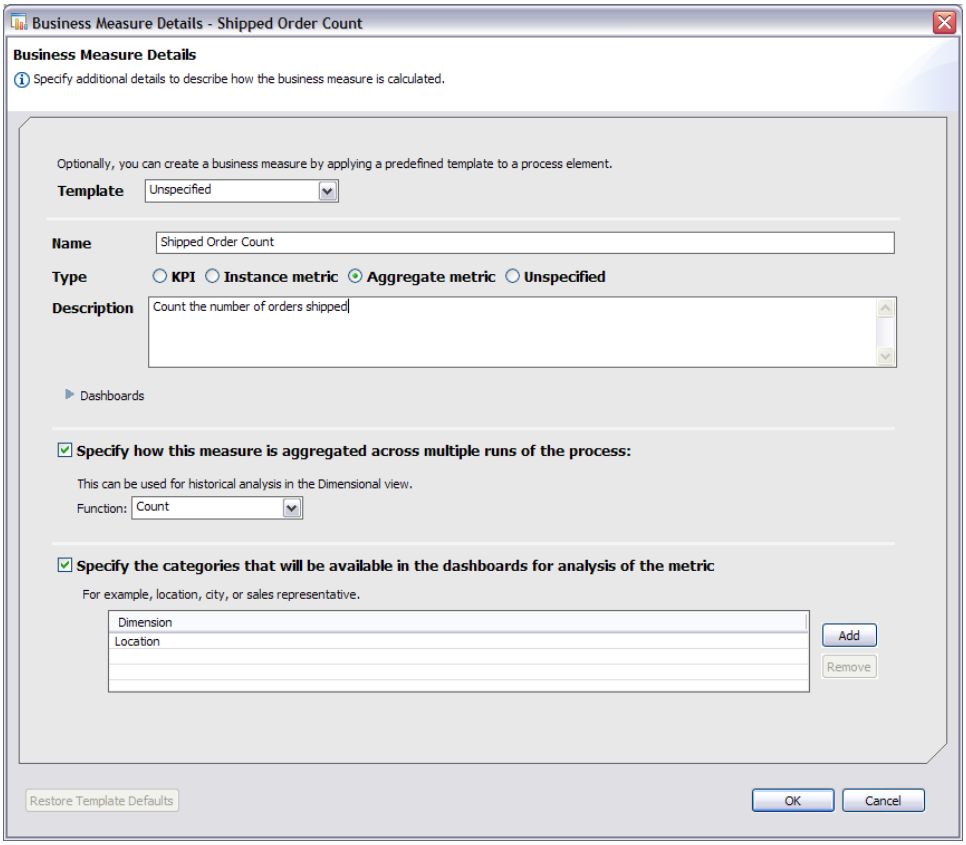
9. Click **OK** and save your work.

Create the Shipped Order Count Business Performance Indicator

Create the Shipped Order Count Business Performance Indicator by completing the following steps:

1. Click **Add** to add a new Business Performance Indicator.
2. Enter the name as `Shipped Order Count`.

3. Select **Type** as Aggregate metric.
4. Enter **Description** as `Count the number of orders shipped`.
5. Check **Specify how this measure is aggregated across multiple runs of the process**. Select **Function** as `Count`.
6. Check **Specify the categories that will be available in the dashboards for analysis of the metric**. Keep the Dimension as `Location`. The completed item is shown below.

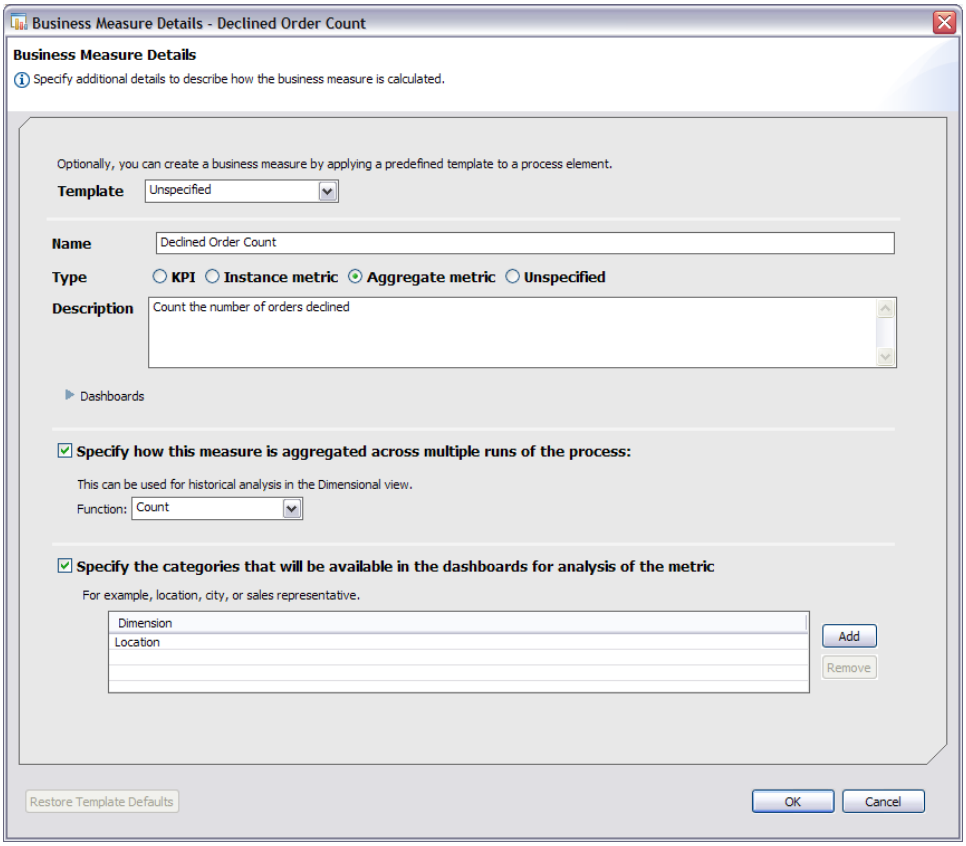


7. Click **OK** and save your work.

Create the Declined Order Count Business Performance Indicator

Create the Declined Order Count Business Performance Indicator by completing the following steps:

1. Click **Add** to add a new Business Performance Indicator.
2. Enter the name as `Declined Order Count`.
3. Select **Type** as Aggregate metric.
4. Enter **Description** as `Count the number of orders declined`.
5. Check **Specify how this measure is aggregated across multiple runs of the process**. Select **Function** as `Count`.
6. Check **Specify the categories that will be available in the dashboards for analysis of the metric**. Keep the Dimension as `Location`. The completed item is shown below.

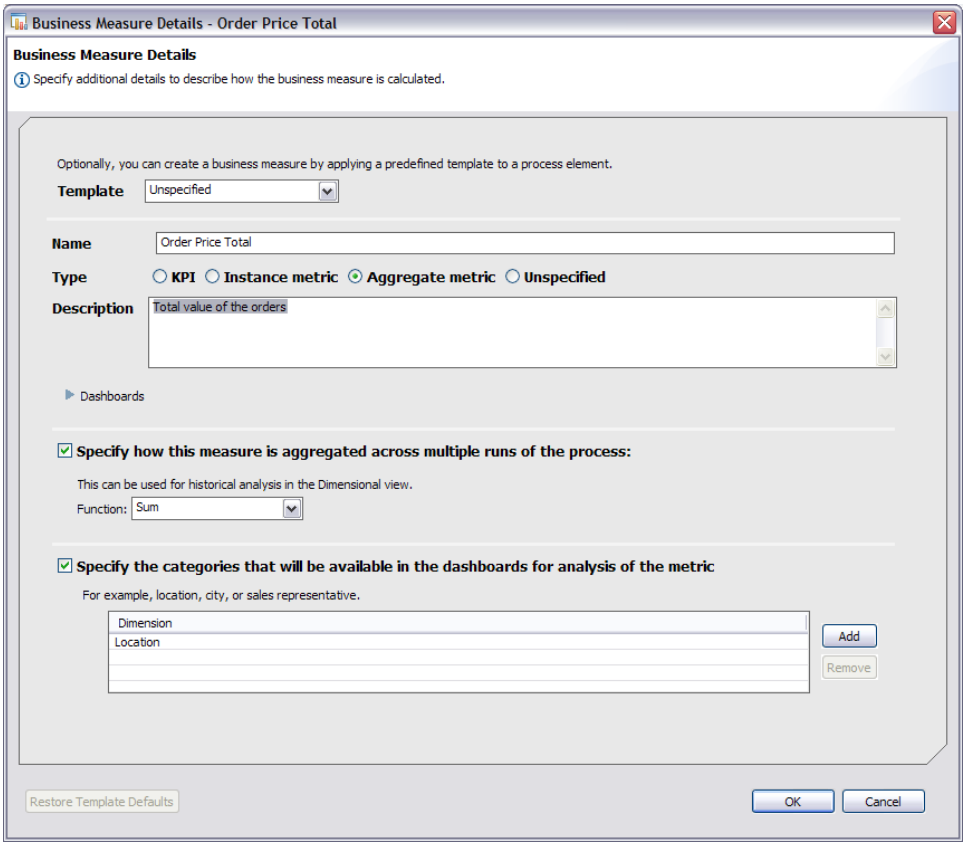


7. Click **OK** and save your work.

Create the Order Price Total Business Performance Indicator

Create the Order Price Total Business Performance Indicator by completing the following steps:

1. Click **Add** to add a new Business Performance Indicator.
2. Enter the name as `Order Price Total`.
3. Select **Type** as Aggregate metric.
4. Enter **Description** as `Total value of the orders`.
5. Check **Specify how this measure is aggregated across multiple runs of the process**. Select **Function** as `Sum`.
6. Check **Specify the categories that will be available in the dashboards for analysis of the metric**. Keep the Dimension as `Location`. The completed item is shown below.

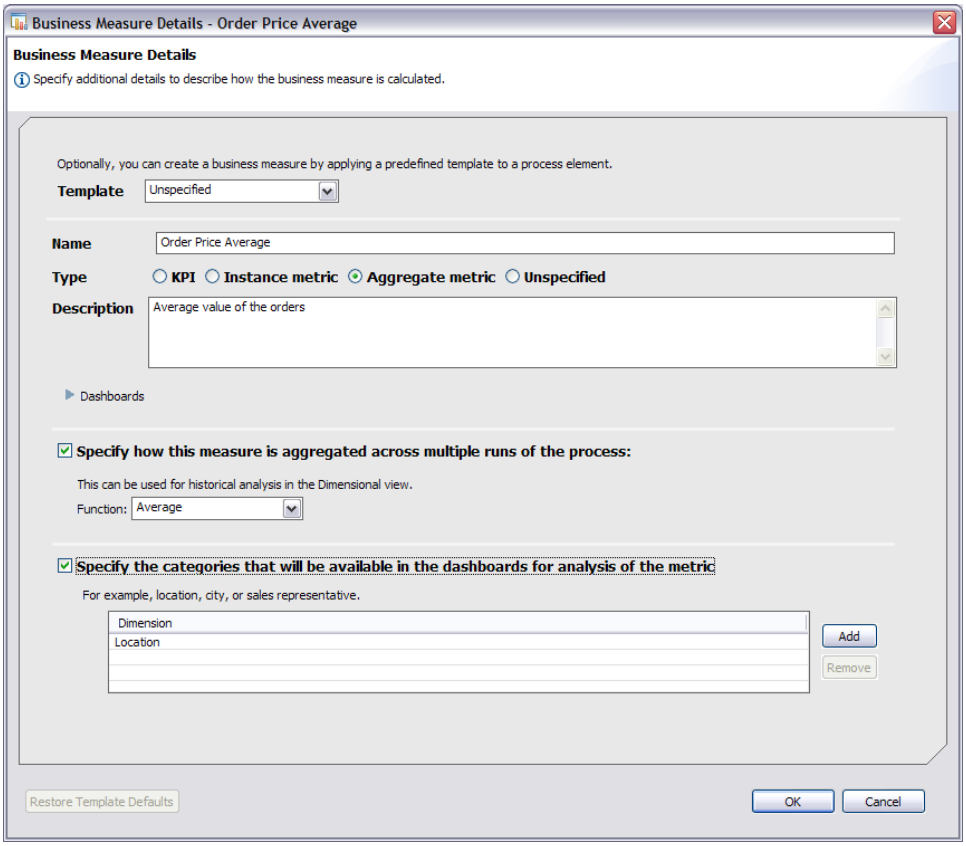


7. Click **OK** and save your work.

Create the Order Price Average Business Performance Indicator

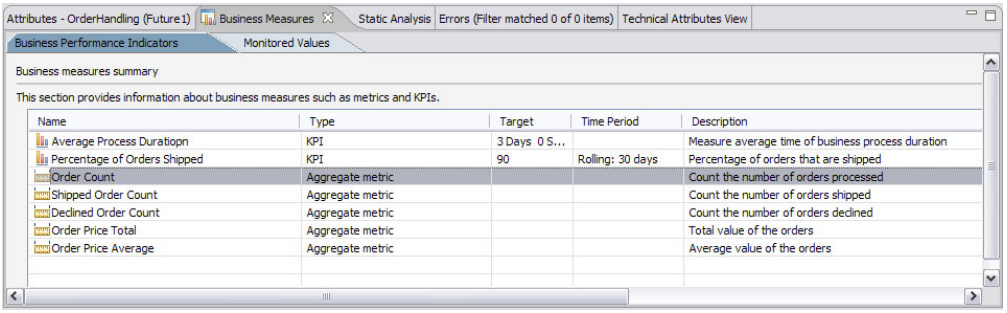
Create the Order Price Average Business Performance Indicator by completing the following steps:

1. Click **Add** to add a new Business Performance Indicator.
2. Enter the name as `Order Price Average`.
3. Select **Type** as Aggregate metric.
4. Enter **Description** as `Average value of orders`.
5. Check **Specify how this measure is aggregated across multiple runs of the process.**. Select **Function** as `Average`.
6. Check **Specify the categories** that will be available in the dashboards for analysis of the metric. Keep the Dimension as `Location`. The completed item is shown below.



7. Click **OK** and save your work.

The business performance indicators that you added should look like the indicators in the following image.

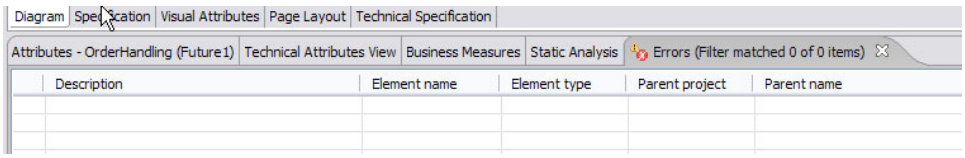


Export the model for use with WebSphere Integration Developer

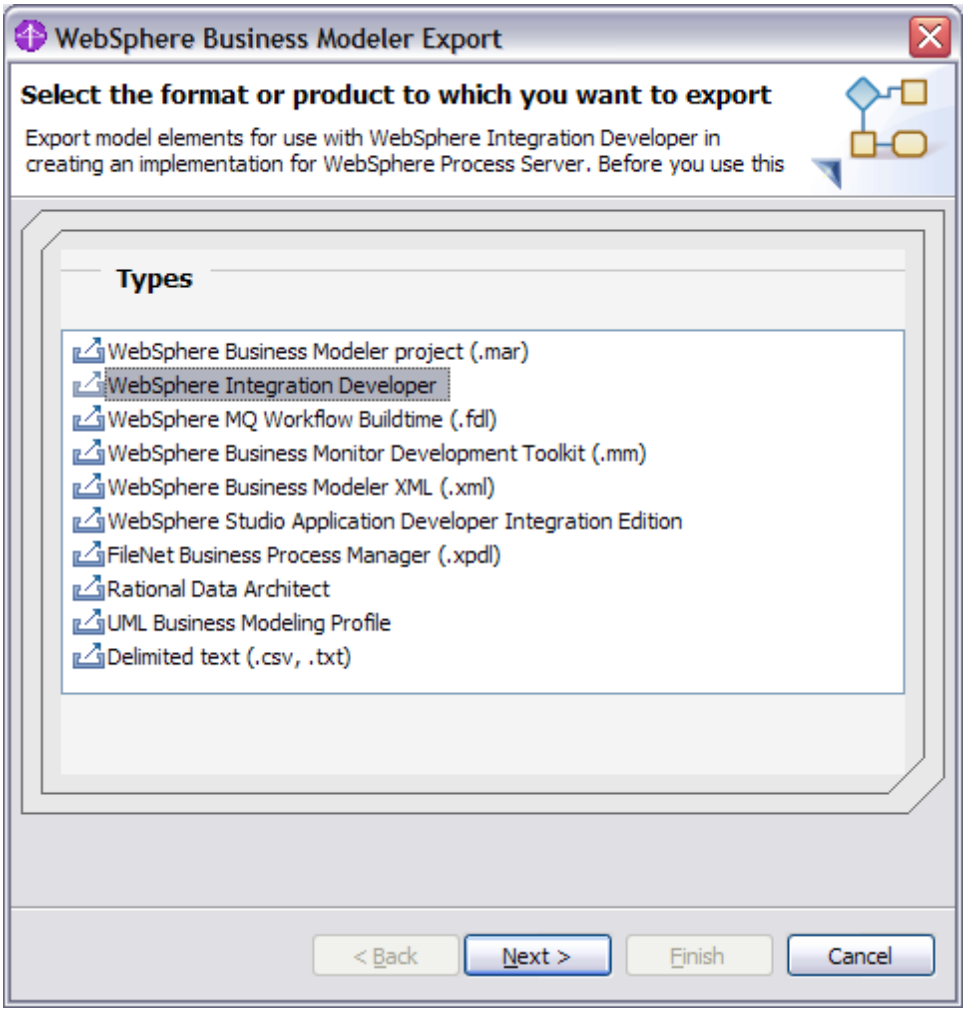
You have completed modeling the Clips and Tacks business process. Next you will export this model from WebSphere Business Modeler and import it into WebSphere Integration Developer for further development.

Export the model by completing the following steps:

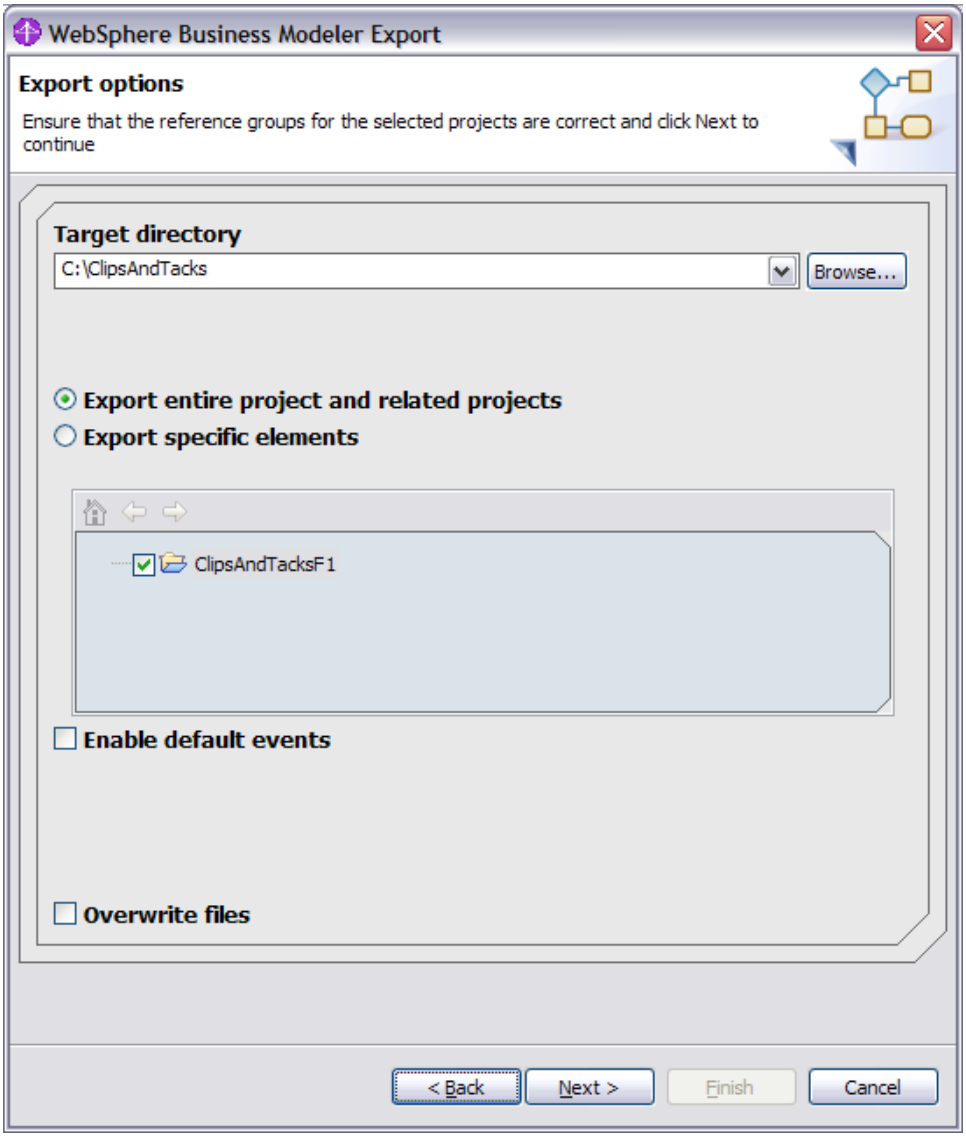
1. Ensure that there are no errors in the model, as listed the **Errors** tab. If there are errors, then correct them before proceeding to the next step.



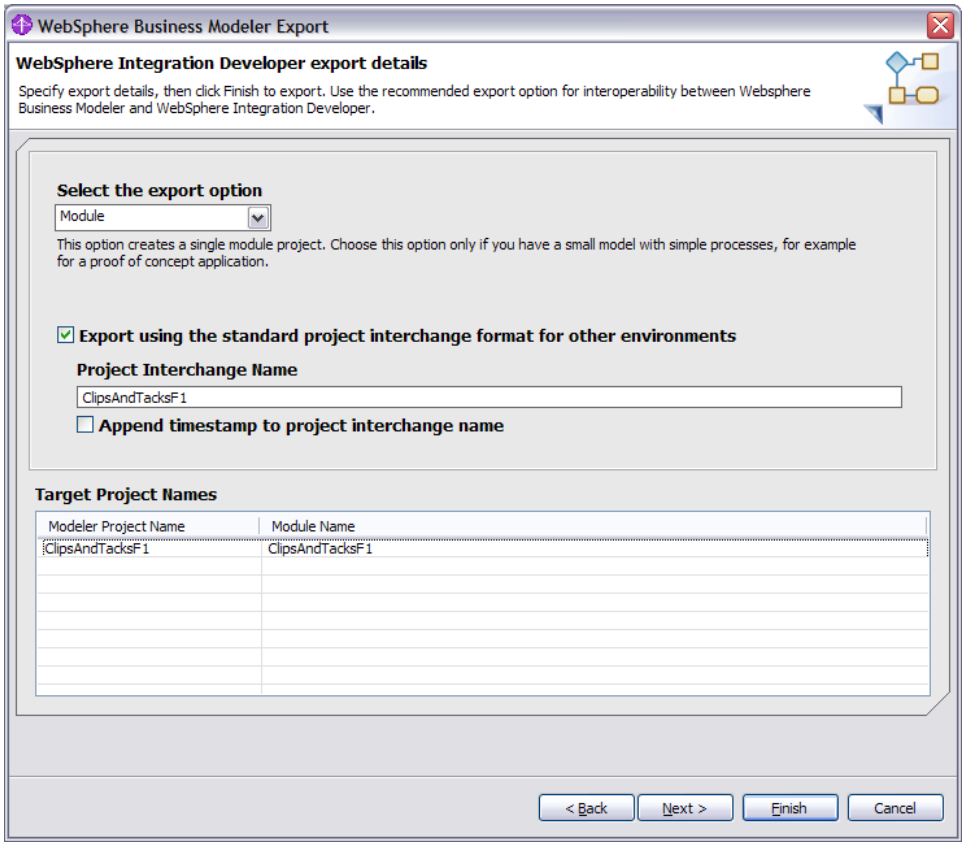
2. Right-click **ClipsAndTacksF1** on the Project Tree and select **Export**.



3. Select **WebSphere Integration Developer** and then click **Next**.
4. Select a target directory (for example, C:\ClipsAndTacks).



5. Select **Export entire project and related projects** and click **Next**.
6. Select the **Module** export option.
7. Clear **Append timestamp to project interchange name** (so that it is easier to define the name in this sample).



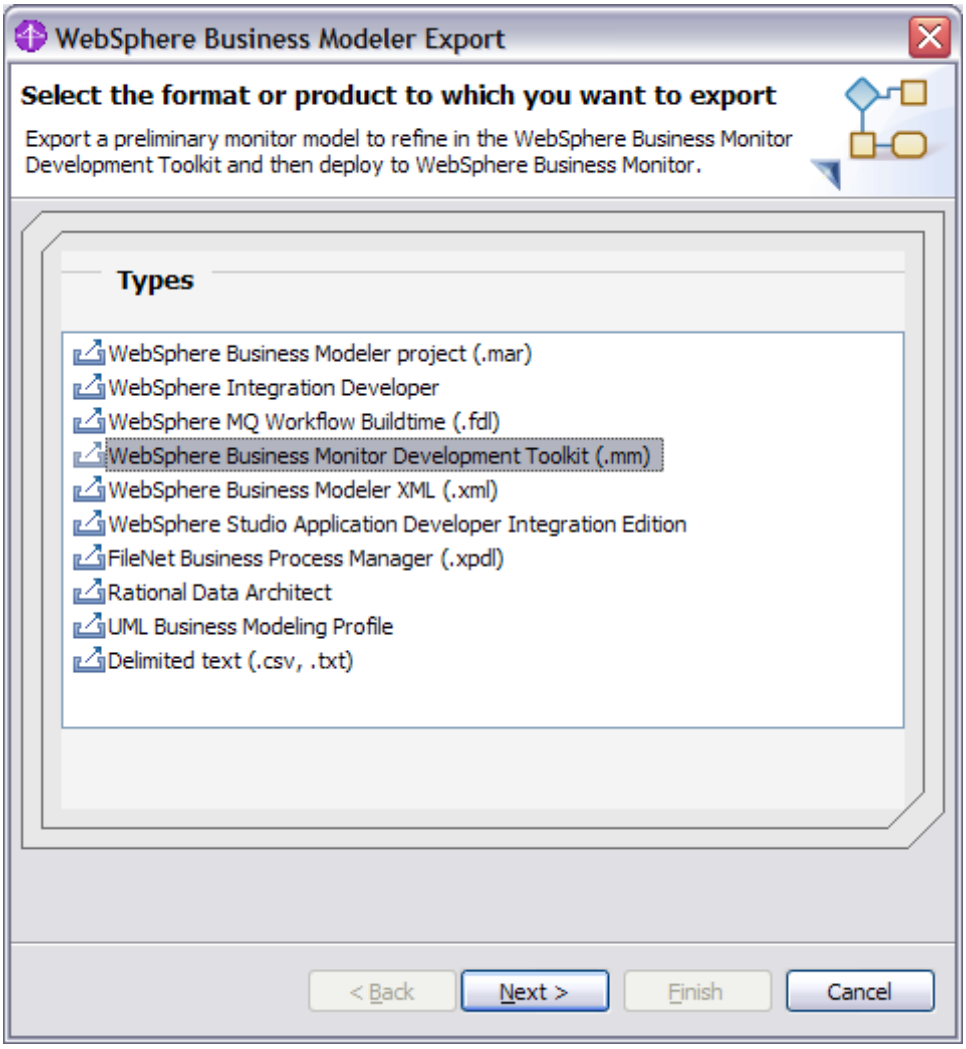
8. Click **Finish**.

Verify that ClipsAndTacksF1.zip was exported to the directory you selected.

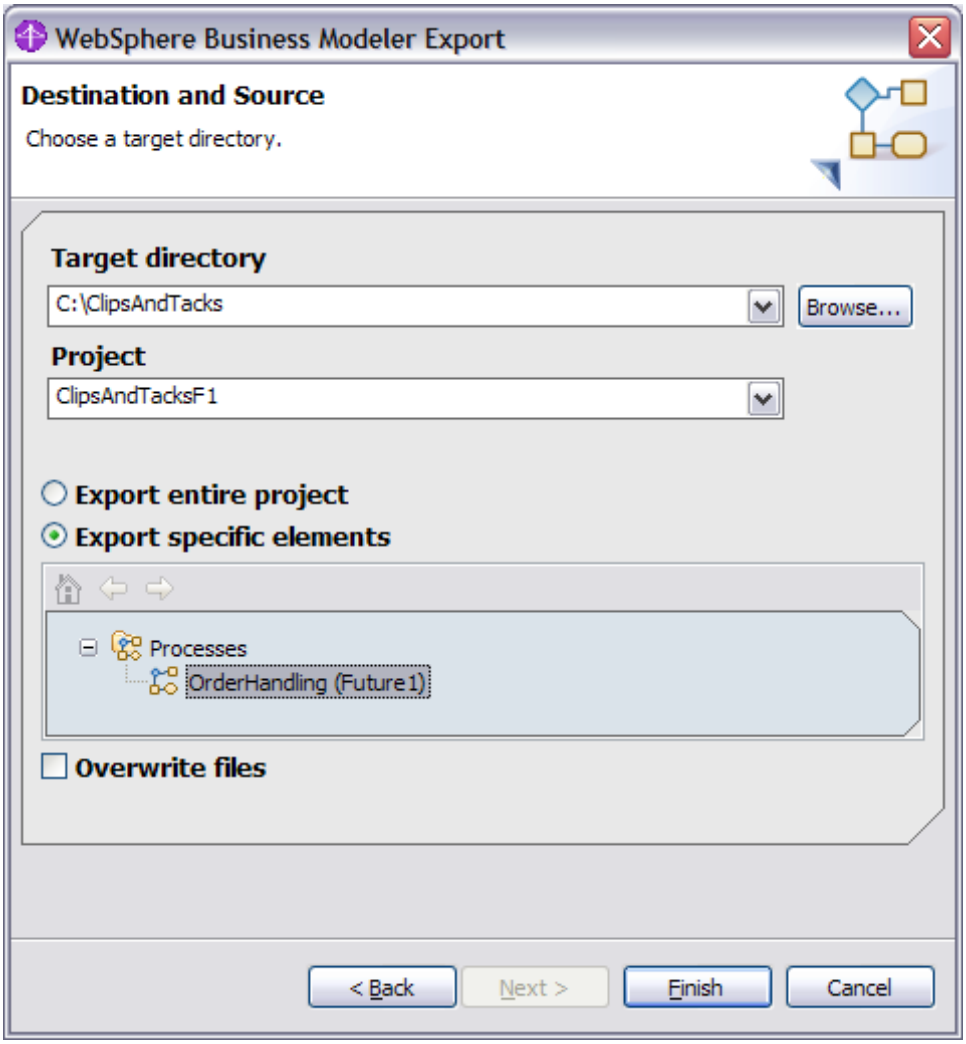
Export the model for use with WebSphere Business Monitor development toolkit

Next you will export the ClipsAndTacks files to develop a monitor model that will monitor the business process that you created a model for:

1. In the project tree, right-click **ClipsAndTacksF1** and select **Export**.



2. Select **WebSphere Business Monitor Development Toolkit (.mm)** and click **Next**.



3. Select a target directory, for example c:\ClipsAndTacks.
4. Select **Export specific elements**.
5. Expand **Processes** and select **OrderHandling (Future1)**.
6. Click **Finish**.

Close WebSphere Business Modeler after you verify that the following files were created in the target directory:

OrderHandling (Future1).mm

OrderHandling__x0028_ Future1_x0029__KM_OrderHandling__x0028_ Future1_x0029__KC.svg

OrderHandling__x0028_ Future1_x0029__MDM_OrderHandling__x0028_ Future1_x0029__MC.svg

Integration development

During the integration development phase, you will use WebSphere Integration Developer to develop a business process and business rules, generate Java components, and create the user interface. Tasks to complete during this phase:

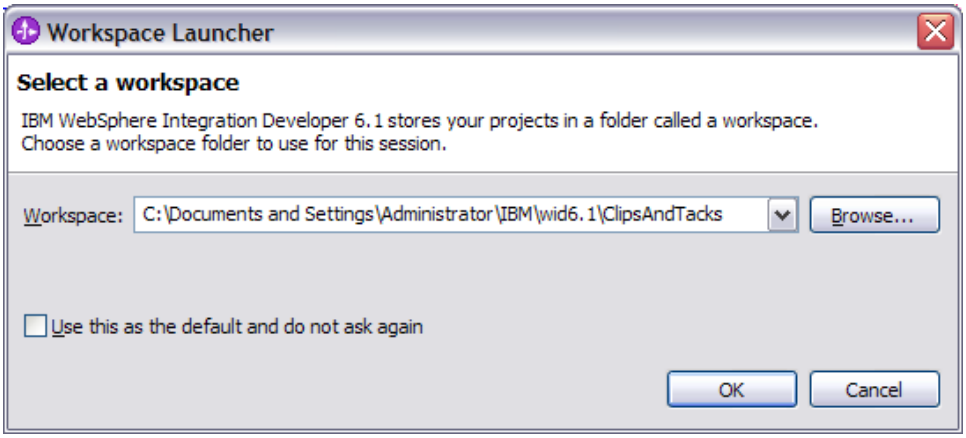
- Import model files into WebSphere Integration Developer
- Business process and business rules development

- Generate Java components
- Generate the user interface for the business process

Import model files into WebSphere Integration Developer

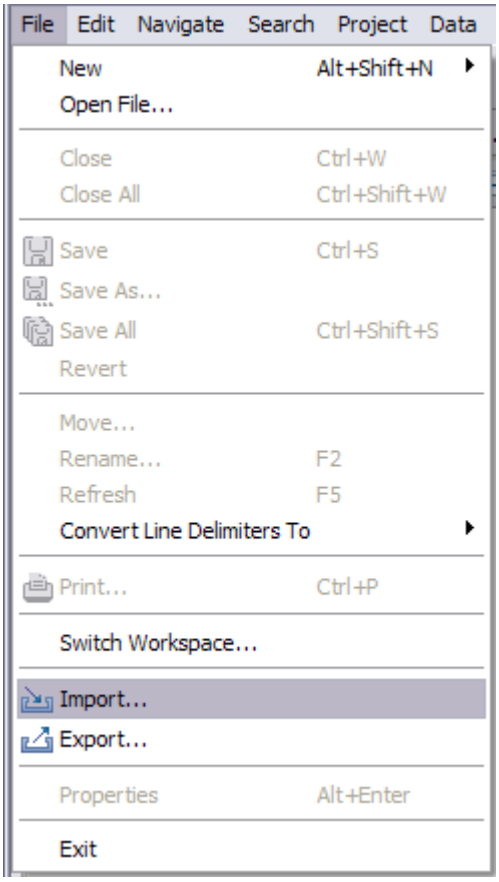
Now you will import the exported file (from WebSphere Business Modeler) into WebSphere Integration Developer.

1. Start WebSphere Integration Developer Version 6.1. The Workspace Launcher opens.



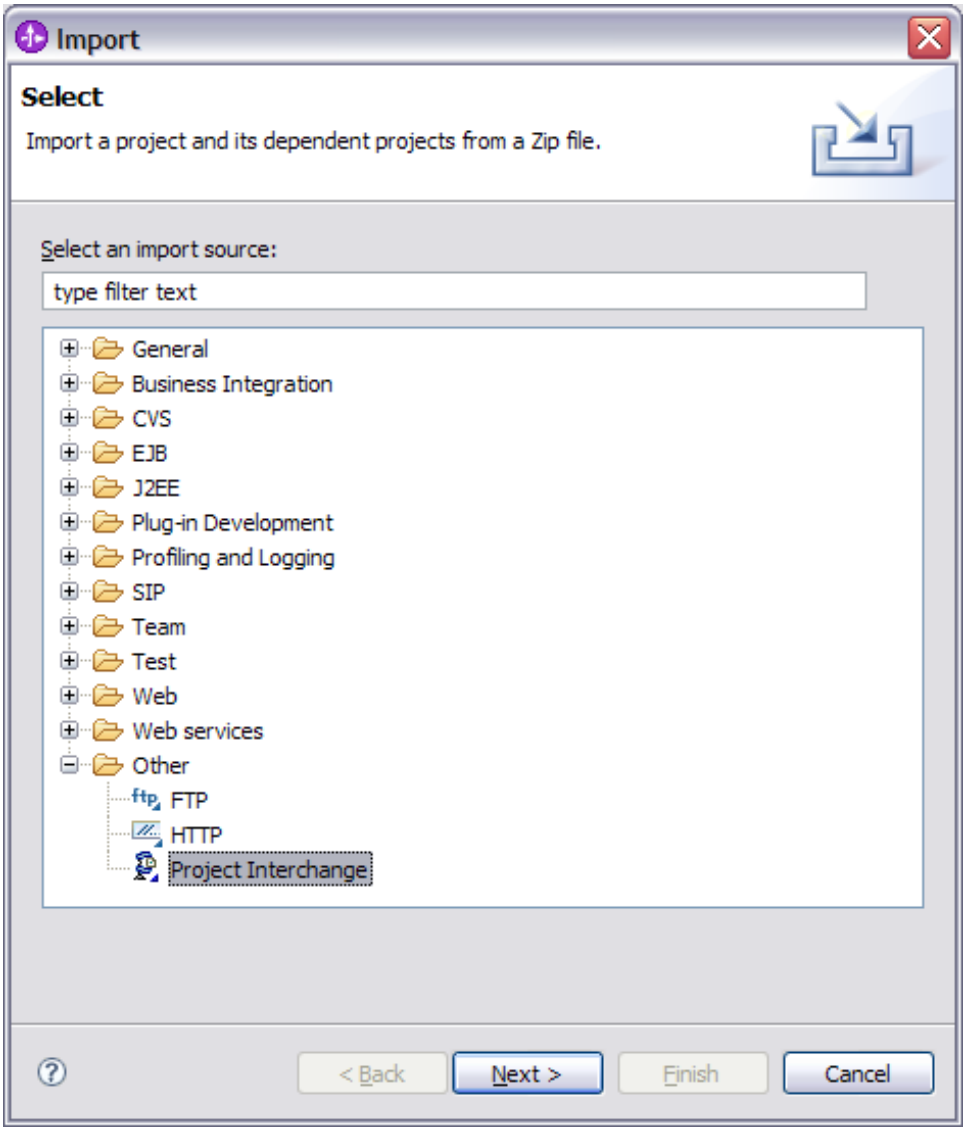
2. Create a new workspace for this sample. For example, C:\Documents and Settings\Administrator\IBM\wid6.1\ClipsAndTacks.

   Note: Do not select **Use this as the default and do not ask again** so that you will be prompted for a workspace location each time you open the application.
3. Click **OK**. WebSphere Integration Developer opens. If the Welcome page is displayed, close it before proceeding.
4. Import ClipsAndTacksF1.zip by selecting **File** → **Import**. You can use the ClipsAndTacksF1.zip file you have created with the previous tasks, or you can use the ClipsAndTacksF1.zip that is provided with this sample.

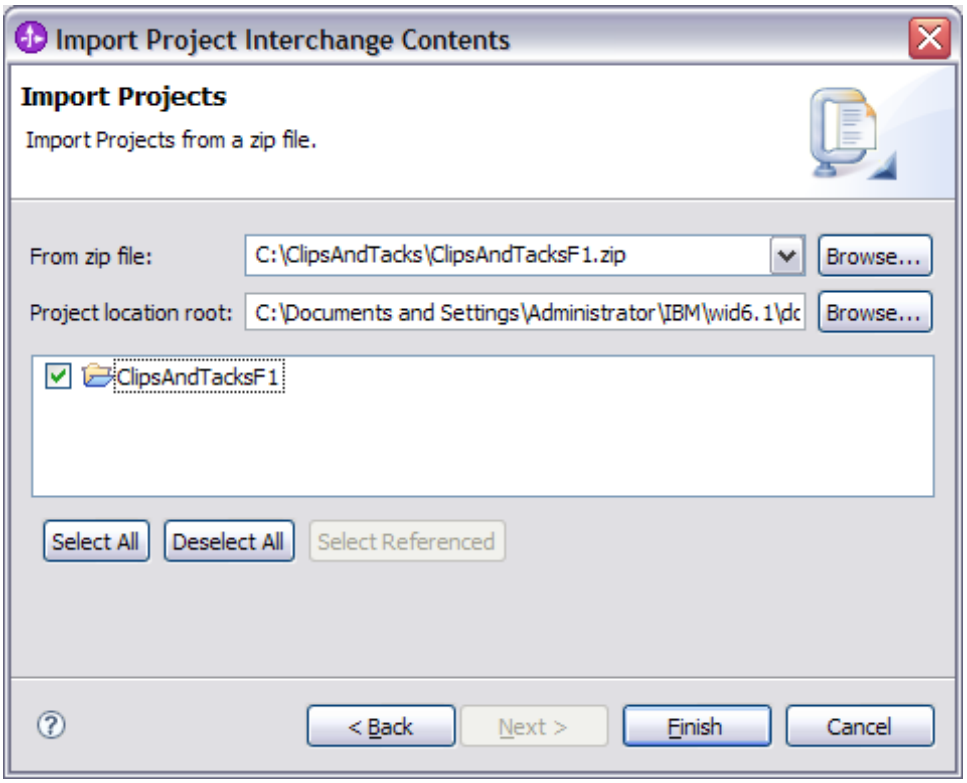


The Import wizard opens.

5. Select **Other** → **Project Interchange** and click **Next**.

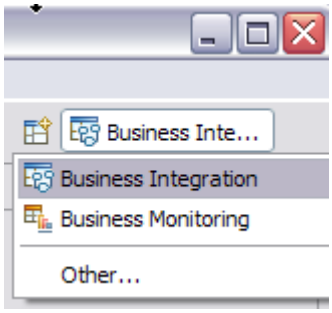


6. From the Import Project Interchange Contents page, click **Browse** and select the ClipsAndTacksF1.zip exported from WebSphere Business Modeler.



7. Select **ClipsAndTacksF1** and click **Finish**.

WebSphere Integration Developer should be displaying the Business Integration perspective:



To change to the Business Integration perspective, click the Open Perspective icon  and choose **Business Integration**.

Before continuing, wait for Building Workspace to complete. (The status is located in the bottom right-hand corner of the workspace.)

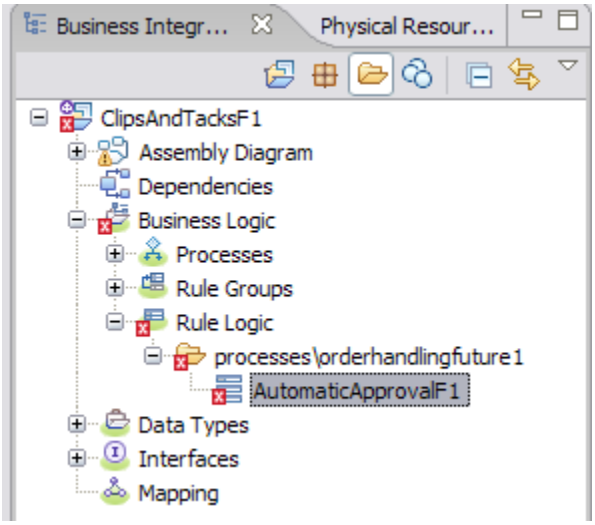
Note: The ClipsAndTacksF1 project will have some errors at this stage of the sample.

Business process and business rules development

The artifacts from WebSphere Business Modeler must be converted into an artifact that you can deploy to the server by using WebSphere Integration Developer.

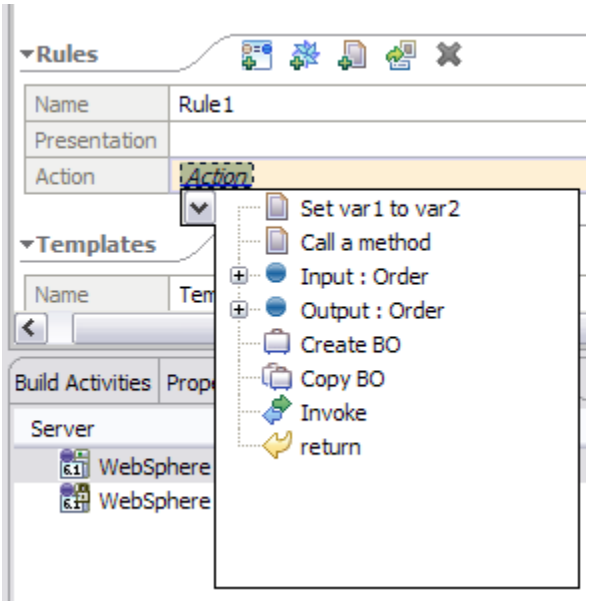
To define business rules, complete the following steps:

1. In the project tree, expand ClipsAndTacksF1 and select **Business Logic → Rule Logic → processes\orderhandlingfuture1**.

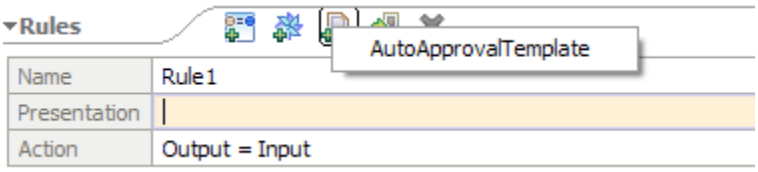


2. Double-click **AutomaticApprovalF1.** The business rule set editor opens.
3. Click the **Add Action Rule** icon  under **Rules**.

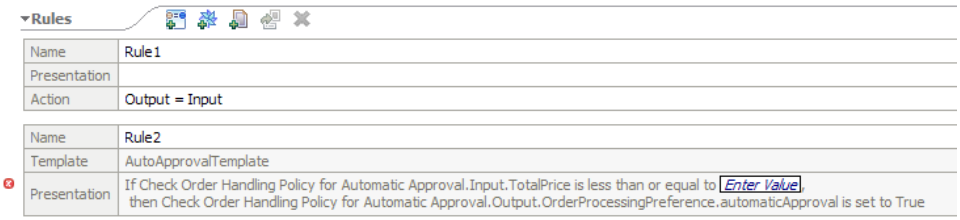
4. To copy the input variable to the output variable, click **Action** and select **Output:Order**. Then select = and then **Input:Order**.



5. Add a second rule by clicking the **Add Template rule** icon and select **AutoApprovalTemplate**.

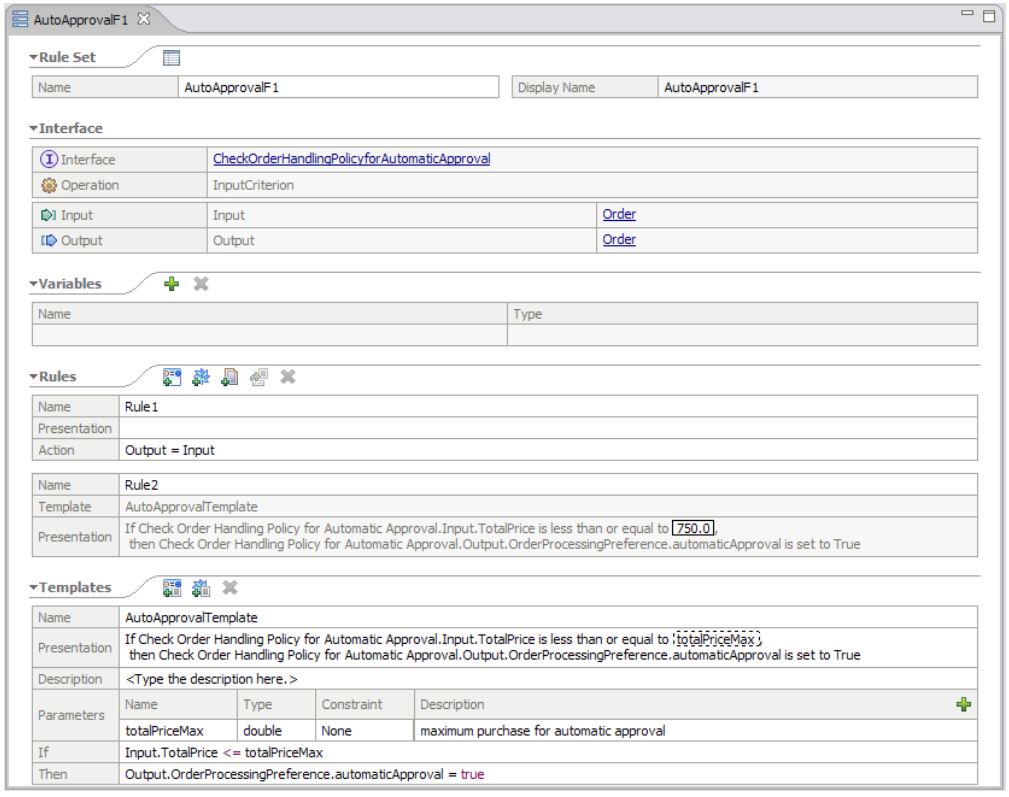


6. Click **Enter value** and type `750.00`.



7. Save your work.

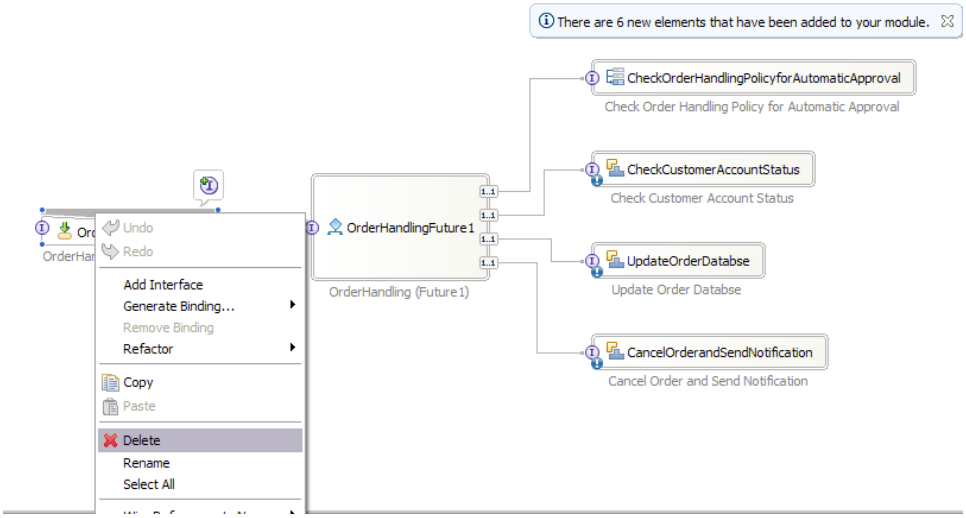
All errors have been resolved. The following image shows the completed rule logic.



Remove export from the assembly diagram

Because this process is intended to be launched through the Order form, not through a Web service call, remove the export element from the assembly diagram by completing the following steps:

1. In the Business Integration view, expand the assembly diagram from the project tree and double-click **processes/orderhandlingfuture1/OrderHandlingFuture1**. The assembly diagram editor opens.
2. Every element in the assembly diagram is selected when the assembly diagram is launched. Click on the white space to deselect the elements. Export is the leftmost element in the diagram. Right-click the export element named **OrderHandling (Future1)**, and, ensuring that you have selected only the export and not all of the elements in the diagram, select **Delete**. You do not need the export because you will add a human task to invoke the business process later.

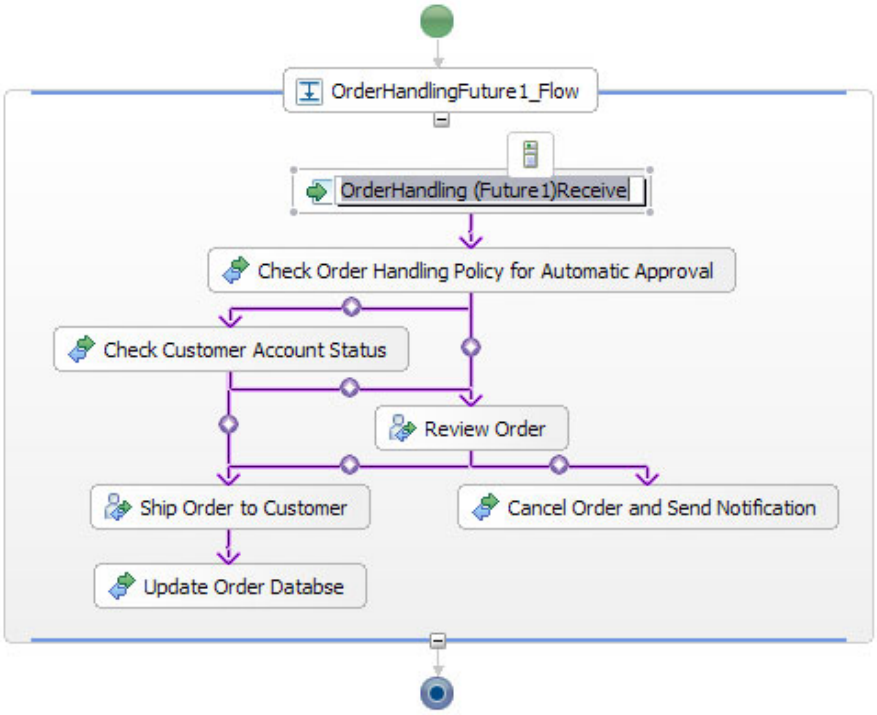


3. Save your work.

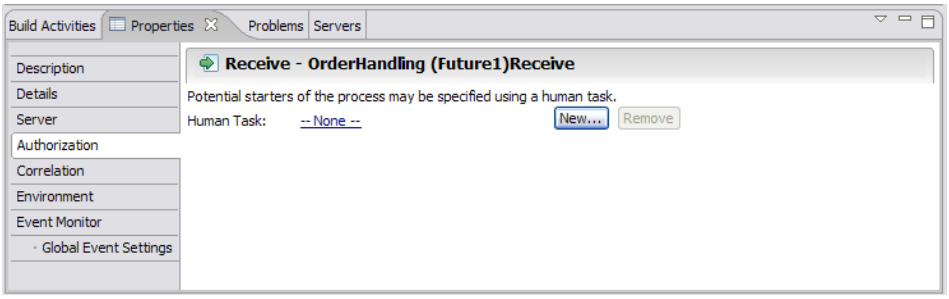
Create the process invocation method

Create the process invocation method by completing the following steps:

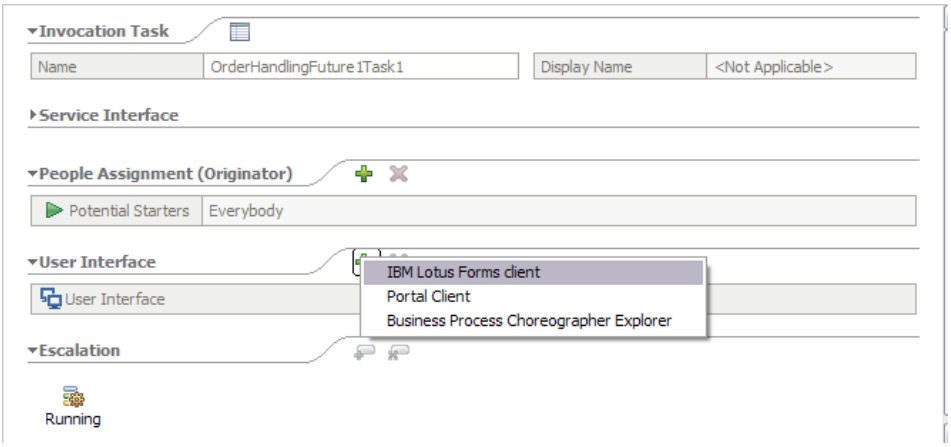
1. In Business Integration view, expand **ClipsAndTacksF1** → **Business Logic** → **Processes** → **processes\orderhandlingfuture1** and double-click **OrderHandlingFuture1**. The process OrderHandling (Future1) opens.



2. Click **OrderHandling (Future1)Receive**. Select the **Properties** tab and then select **Authorization**.

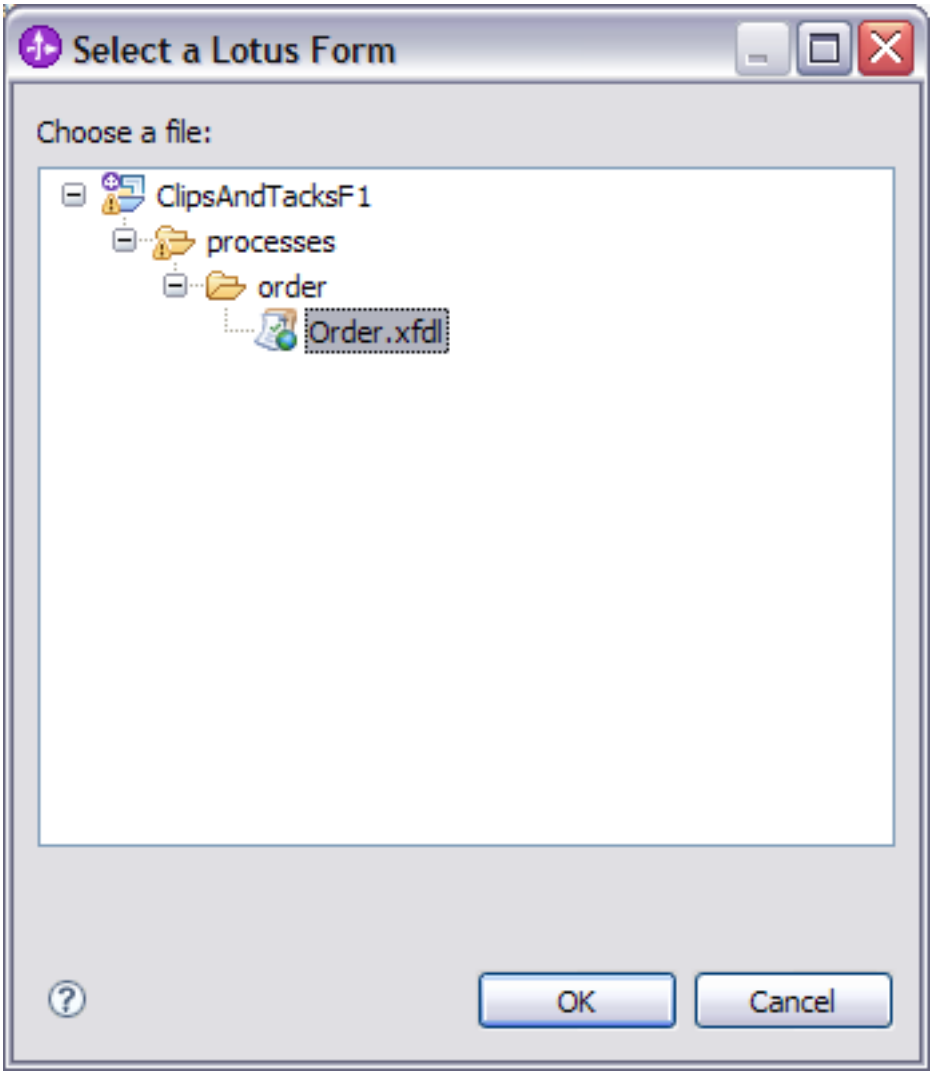


3. Click **New**. The human task wizard opens. Click the **+** sign under **User Interface** and select **IBM Lotus Forms** client.

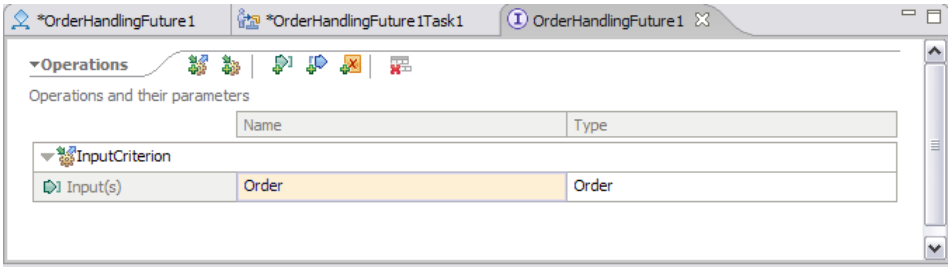


4. In the **Properties** view, select the **Client Settings** tab and click **Browse**. The Select a Lotus Form wizard opens.

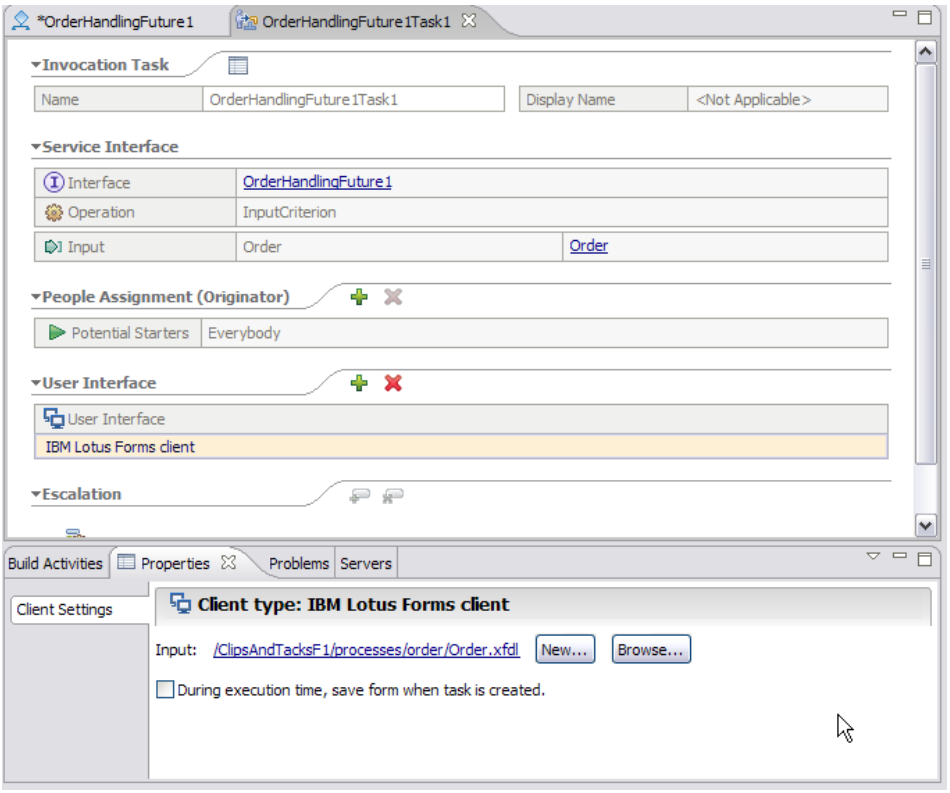
5. Expand **ClipsAndTacksF1** → **processes** → **order** and select **Order.xfdl**. Click **OK**.



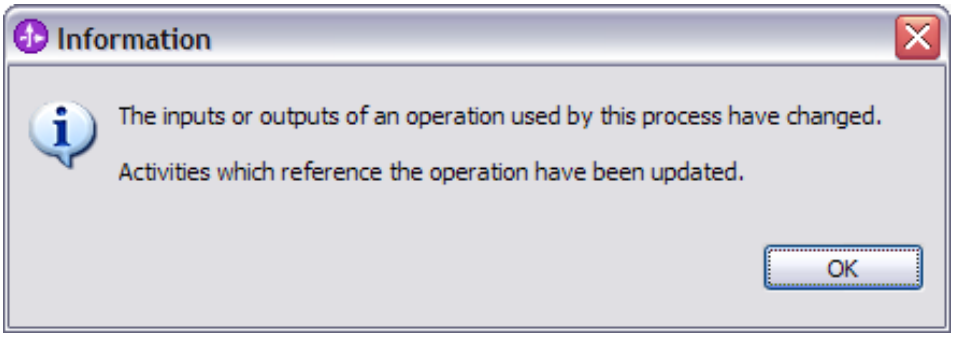
6. In the human task, click **Service Interface**, then the **OrderHandlingFuture1** interface. The OrderHandlingFuture1 interface opens in the interface editor.
7. Change the name of the input from Input to `Order`, which is required for the Lotus Forms client, and press `Enter`. It is important that you press `Enter` while in this field.



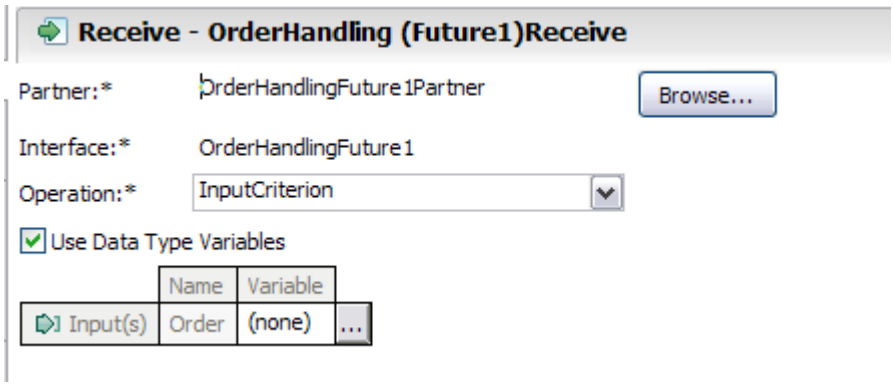
8. Save your work and close the Operations view.
9. In the human task view, save your work. The following image shows the completed task.



10. Close the human task editor.
11. Switch to the OrderHandlingFuture1 business process diagram by clicking the **OrderHandlingFuture1** tab and then clicking **OK** on the following message:



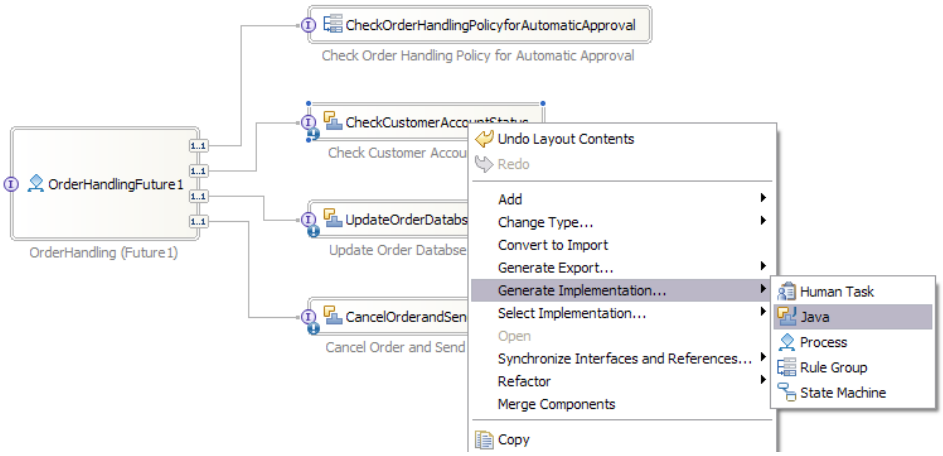
12. In the process diagram, click **OrderHandling (Future1)Receive**.
13. In the Properties view, click the **Details** tab and then click  near the input variable.



14. Select **OrderVariable** and then click **OK**. *(none)* will be replaced with *OrderVariable*.
15. Save your work. You should no longer have errors.

Generate Java components

1. Click the **ClicksAndTacksF1 – Assembly diagram** tab. Then right-click **CheckCustomerAccountStatus** and select **Generate Implementation → Java**.



2. Keep the defaults and click **OK**. CheckCustomerAccountStatusImpl.java opens.
3. Replace the contents of the following method:

```
public DataObject InputCriterion(DataObject input) {
  //TODO Needs to be implemented.
  return null;
 }
```

with the following content:

```
public DataObject InputCriterion(DataObject input) {
  System.out.println(
"Check Customer Account Status Invoked");
    // create CreditRating bean
  com.clipstacks.credit.CreditRating creditRating =
  new com.clipstacks.credit.CreditRating();
    // call CreditRating bean to update the BO
  DataObject orderOut = creditRating.calculateCreditRating(input);
  return orderOut;
 }
```

4. Save your work. Ignore the errors at this time because they will be fixed after you create the Java components in the steps to follow.

5. To create the other two Java components, complete the previous steps to generate Java implementations for the following components and then replace the following methods.
   a. For **UpdateOrderDatabase**, replace the contents of the following method:

```
public DataObject InputCriterion(DataObject input) {
  //TODO Needs to be implemented.
  return null;
}
```

   with the following content:

```
public DataObject InputCriterion(DataObject input) {
    System.out.println("Update Order Database invoked");
    return input;
}
```

   b. For **CancelOrderandSendNotification**, generating the Java component builds the text part of the Notification business object. Replace the contents of the Java file with this content and then save the changes:

```
package sca.component.java.impl;

import commonj.sdo.DataObject;
import com.ibm.websphere.sca.ServiceManager;
import java.math.BigDecimal;
import java.util.List;

public class CancelOrderandSendNotificationImpl {
 /**
  * Default constructor.
  */
 private com.ibm.websphere.sca.ServiceManager serviceManager = null;
 private com.ibm.websphere.bo.BOFactory boFactory = null;
 String namespace = "http://ClipsAndTacksF1/Businessitems";
 public CancelOrderandSendNotificationImpl() {
  super();
  serviceManager = new com.ibm.websphere.sca.ServiceManager();
  boFactory = (com.ibm.websphere.bo.BOFactory)serviceManager
  .locateService("com/ibm/websphere/bo/BOFactory");
 }

 /**
  * Return a reference to the component service instance for this implementation
  * class. This method should be used when passing this service to a partner
   reference
  * or if you want to invoke this component service asynchronously.
  *
  * @generated (com.ibm.wbit.java)
  */
 private Object getMyService() {
  return (Object) ServiceManager.INSTANCE.locateService("self");
 }

 /**
  * Method generated to support implemention of operation "InputCriterion" defined
   for WSDL port type
  * named "CancelOrderandSendNotification".
  *
  * The presence of commonj.sdo.DataObject as the return type and/or as a parameter
  * type conveys that its a complex type.
  Please refer to the WSDL Definition for more information
  * on the type of input, output and fault(s).
  */
 public DataObject InputCriterion(DataObject Input) {
  System.out.println("Cancel order invoked");
  // retrieve customer e-mail address
  DataObject customer = Input.getDataObject("Customer");
  String emailAddress = customer.getString("Email");
```

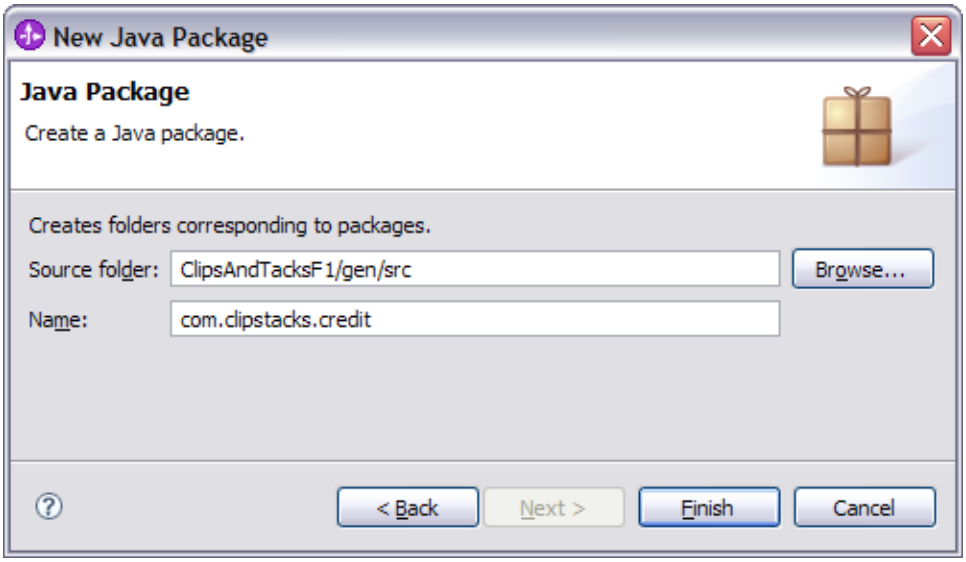
```
// create e-mail text
String text1 = "Shipment for order: " + Input.getInt("OrderNumber") + "\n";
String text2 = "Dear " + customer.getString("ContactFirstName") + " " + customer
.getString("ContactLastName") + "\n";
String text3 = "We are sorry that your order was cancelled.\n";
String text4 = "The amount of $" + Input.getDouble("TotalPrice") + " was too
 much at this time\n";
String text5 = "We hope to serve you again in the future.\n";
List orderitems = Input.getList("OrderItems");
int nrofitems = orderitems.size();
System.out.println("orderitems.size = " + nrofitems);
String itemtext[] = new String[nrofitems];
String text6 = "";
String fortyBlanks = "                    "; //need this to ensure the product
 name has at least 40 chars
for (int i=0; i<nrofitems; i++) {
 DataObject item = (DataObject)orderitems.get(i);
 String productName = (item.getString("ProductName") + fortyBlanks)
 .substring(0, 40);
 itemtext[i] = item.getInt("Quantity") + " " + item.
 getString("ProductNumber") + " " + productName + " $" + new
 BigDecimal(item.getDouble("Price"));
 text6 = text6 + itemtext[i] + "\n";
}
String emailText = "\n" + text1 + text2 + text3 + text4 + text5 + text6;

// build notification data object
DataObject notification = boFactory.create(namespace, "Notification");
notification.setString("email", emailAddress);
notification.setString("text", emailText);
System.out.println("Cancel order email address: " + emailAddress);
System.out.println("Cancel order email text: " + emailText);

 return notification;
}

}
```

Important: If you cut and paste this content into the Java editor, ensure that the variable fortyBlanks does not get compressed down to a single blank. It must be 40 blanks (spaces) for the code to work correctly.

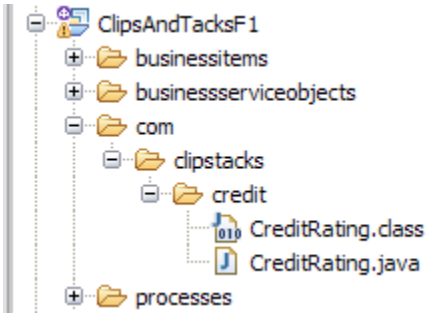
6. Save your work and close the window.

Provide the implementation for calculating customer credit ratings

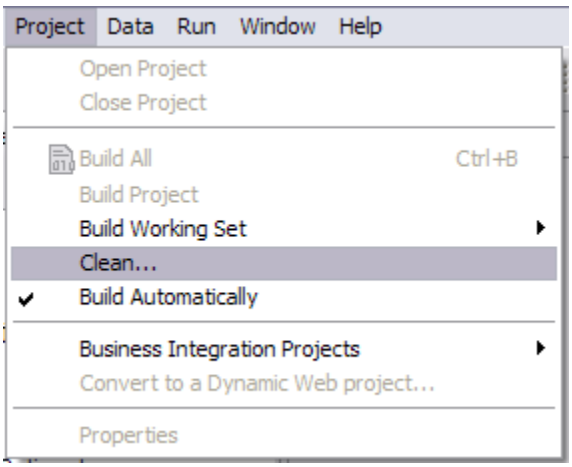
1. Create a Java package by selecting **File** → **New** → **Other** and then **Java** → **Package**. Then click **Next >**.
2. For the source folder, click **Browse** and select **ClipsAndTacksF1** → **gen/src**. Click **OK**.
3. For the Java package name, enter `com.clipstacks.credit` and then click **Finish**.



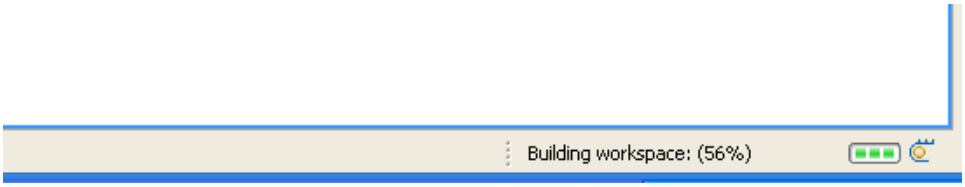
4. Switch to the Physical Resources view by clicking the **Physical Resources** tab (where the Business Integration tab is).
5. Expand **ClipsAndTacksF1** → **com** → **clipstacks** → **credit** and copy the CreditRating.java file that you downloaded following the directions in the Download section. Then paste the file into the credit folder.



6. Switch back to the assembly diagram editor and save it.
7. Save any unsaved items. An open window with an asterisk (*) on the tab indicates that it is not saved. You should not have errors now. If there are errors, fix them before generating the user interface.
8. Rebuild all projects by selecting **Project** → **Clean** and then **OK**.



Important: Ensure that the Building workspace action is completed before you generate the user interface. When building is complete, you will not see the following sign percent and status bar indicators. If the icon clears quickly, it is best to wait approximately one minute to be sure all build activity has completed.

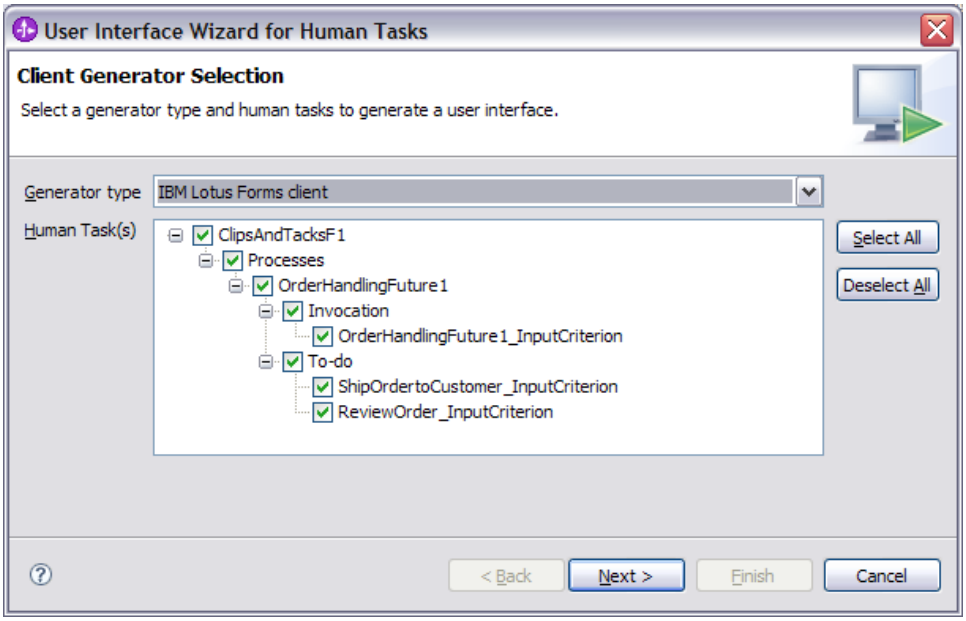


Generate the user interface for the business process

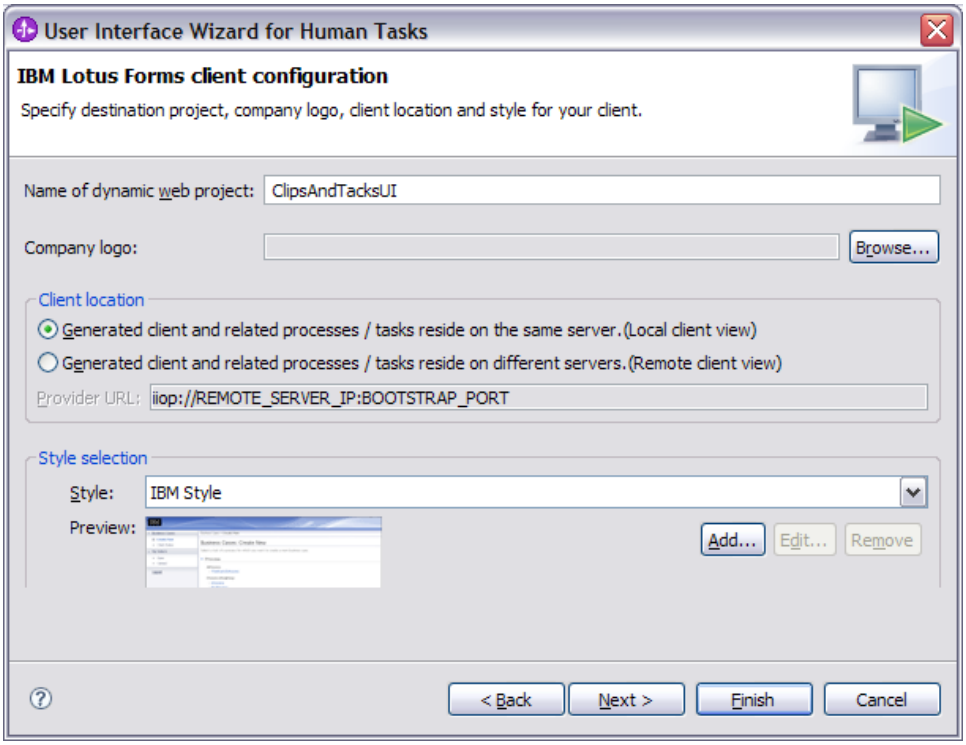
Because Lotus Forms is used in the business process, you will generate a Lotus Forms UI client for the process. It is possible to generate separate clients with different URLs for each human task in the process, however in this tutorial you will generate one client for all human tasks. In a production environment, access is typically based on roles and only authorized users can access specific tasks. For simplicity, all roles can access the human tasks in this tutorial.

Generate the Lotus Forms client for the process by completing the following steps:

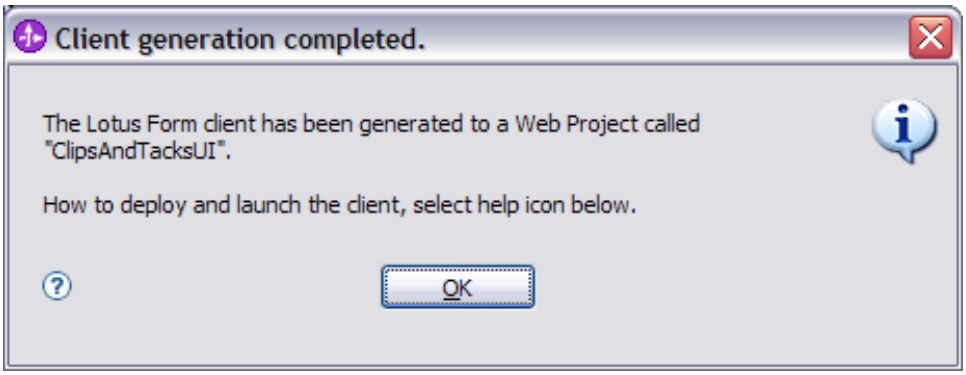
1. Switch to the Business Integration view.
2. Right-click on **ClipsAndTacksF1** and select **Generate User Interfaces**.
3. Select **IBM Lotus Forms client** as the **Generator type** and click **Next**.



4. Name the dynamic Web project `ClipsAndTacksUI`. For Style, select **IBM Style** and click **Finish**.



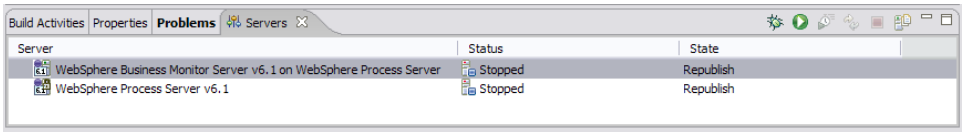
5. On the **Client generation completed** message, click **OK**.



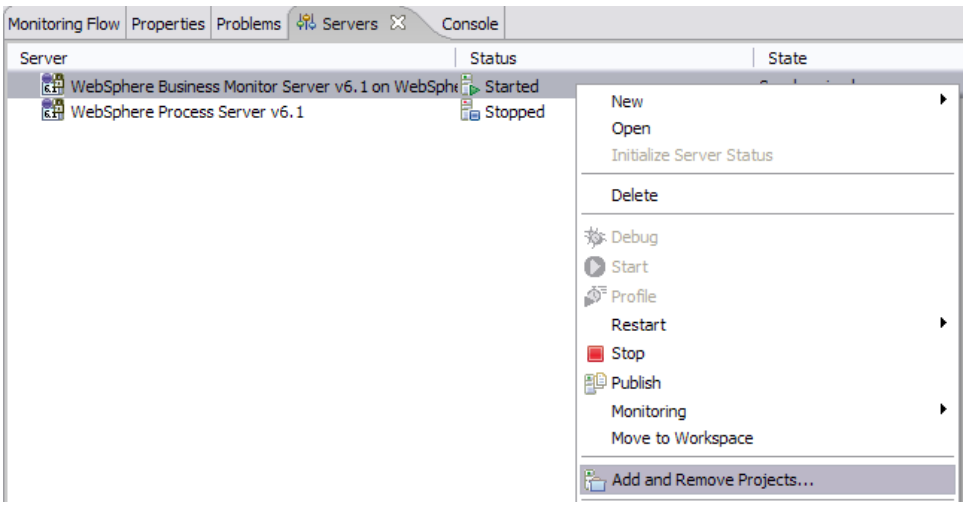
Deploy the Clips and Tacks Order Handling business process

Export the sample to the WebSphere Business Monitor for deploying to the runtime.

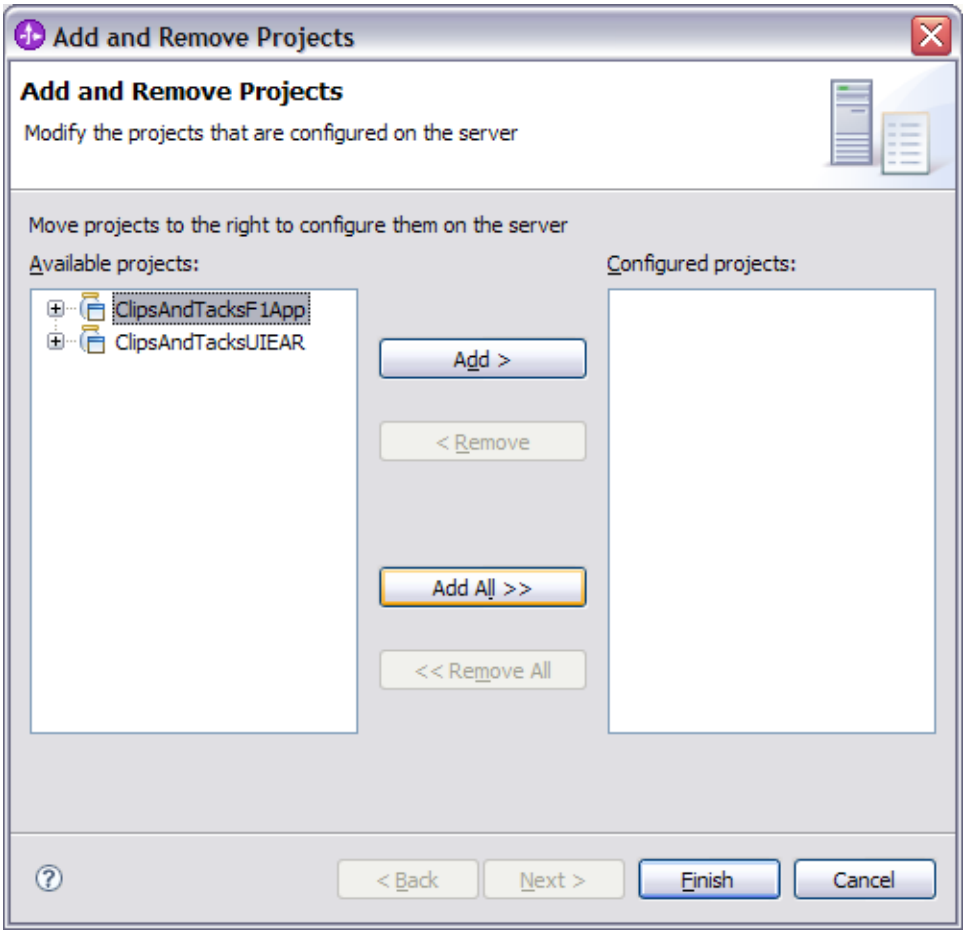
1. Click the **Servers** tab and then right click **WebSphere Business Monitor Server v6.1 on WebSphere Process Server** and click **Start**.



2. It will take few minutes for the server to start. When the server is started (the server status will change from **Stopped** to **Started**), right-click the started server and select **Add and Remove Projects**.



3. Add both projects by selecting **Add All** and click **Finish** (if you have other projects in the workspace, you can add ClipsAndTacksF1App and ClipsAndTacksUIEAR individually using **Add**).

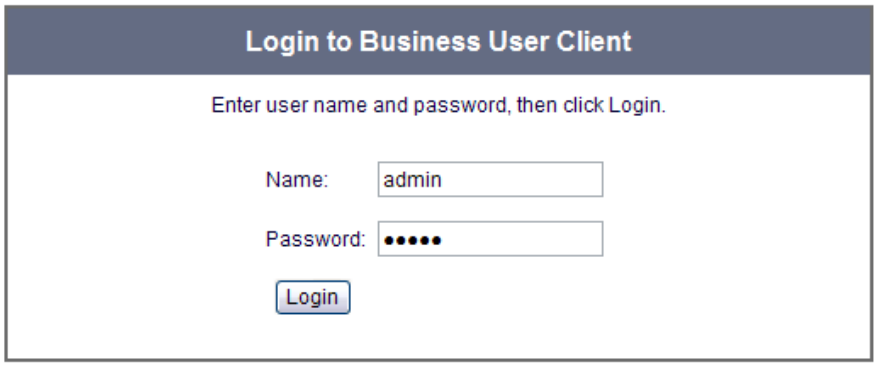


4. Wait for publication of the applications to the server to finish.

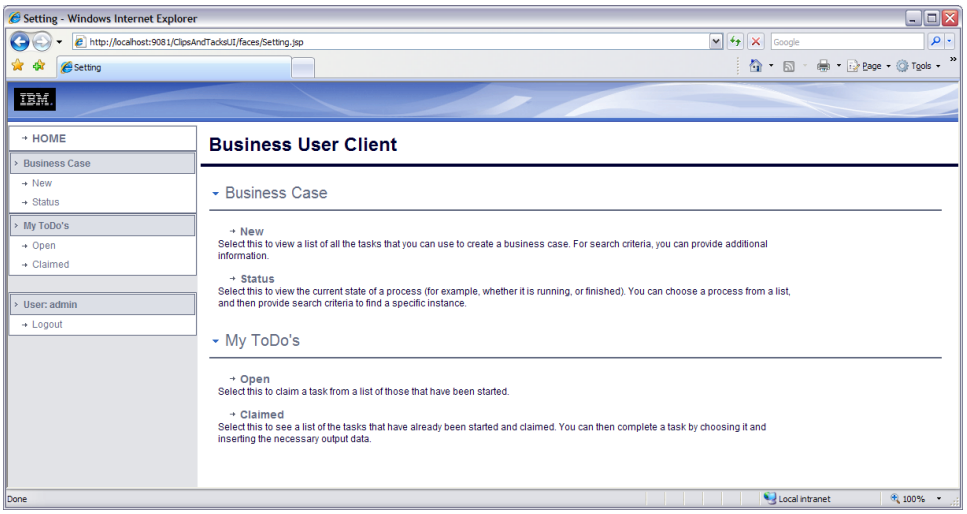
Test the Clips and Tacks Order Handling business process

After deploying the application, test the process.

1. In an internet browser, enter the URL http://localhost:9080/ClipsAndTacksUI. The port number, 9080 in this tutorial, depends on the number of server profiles that are created on your system. Your port number might be different. If 9080 doesn't work, open the SystemOut.log from C:\Program Files\IBM\WID61\pf\WBMonSrv_wps\logs\server1 and search for **default_host**. The port number next to **default_host** is the port number you need to use. It is typical for 9080 to the be the first port number used; then the port numbers increment by 1 for each additional server profile.
2. Enter `admin` as user ID and `admin` as the password; then click **Login**. (If you used a different user ID and password combination during the installation, then you need to use that user ID and password here and throughout this tutorial wherever the user ID `admin` is used.)

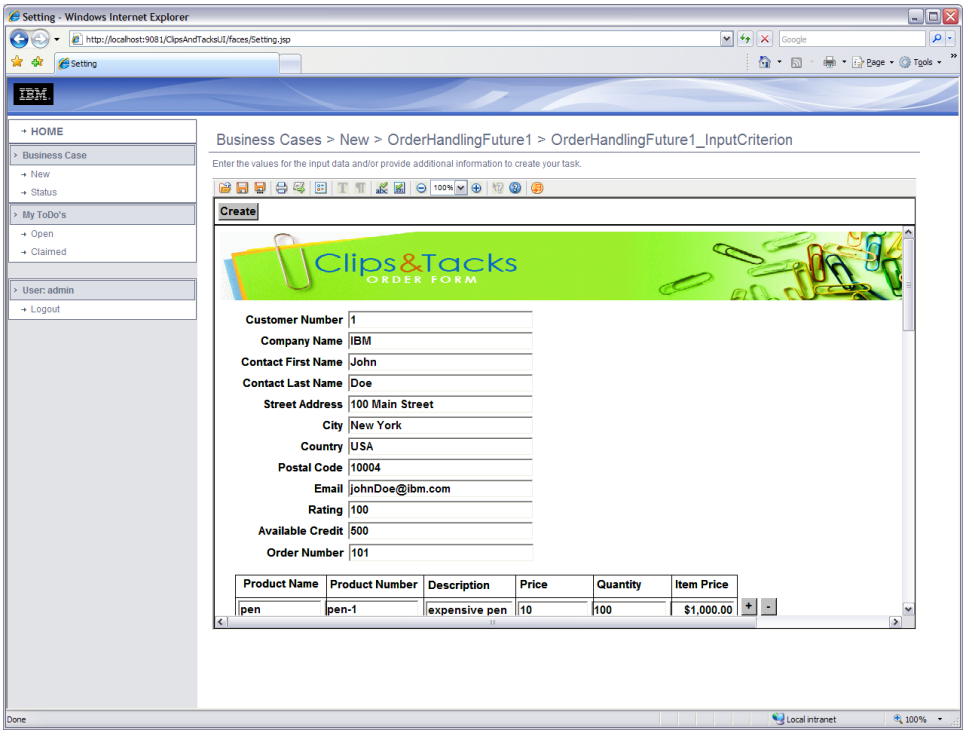


The following image shows the generated client interface.

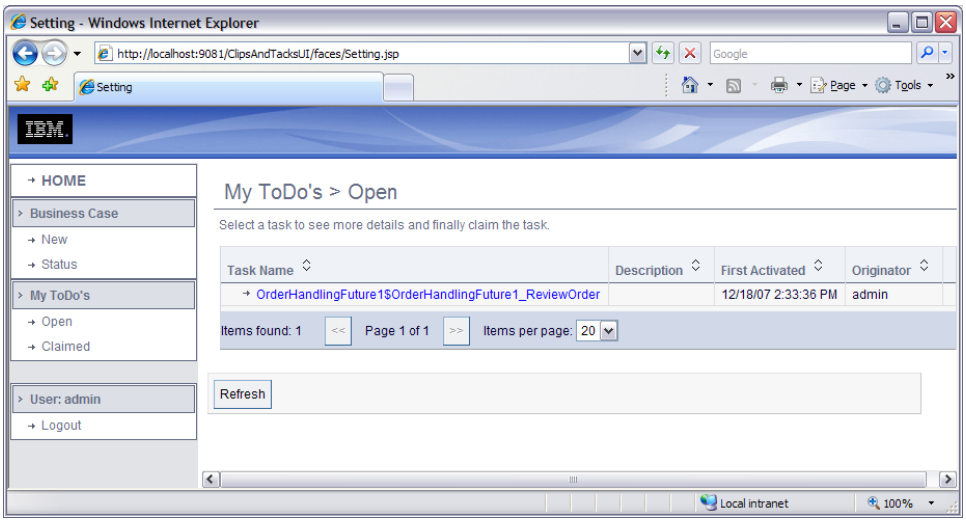


3. Under **Business Case**, click **New** and then select **OrderHandlingFuture1_InputCriterion**. The Order Lotus form is displayed.
   - For this scenario, when you enter the data, the TotalPrice should be greater than $750.00 to force the process to flow to the Review task. You may copy the data elements as they are in the image below.
   - Do not enter text below the red text that reads **Below this line is for Clips and Tacks office use only**.

- You can add a new row to the ordered products table by clicking the + sign; similarly, you can delete a row by clicking the – sign. You can order multiple items, but ensure there is only one item per row.
- When you have completed the form, click **Create** at the top of the form to create a running instance of the process.



4. Under **My ToDo's**, click **Open**. The process instance is waiting for the ReviewOrder task to approve the order as shown in the following figure (see the note following the figure if you do not see the task)



Note: If you do not see the task in the ToDo list, check the Console tab in WebSphere Integration Developer to see if there is a NullPointerException in the execution of the CreditRating.java file. If so, this is due to an infrequently

occurring bug in WebSphere Integration Developer. The easiest way to recover is to start over with a new WebSphere Integration Developer workspace. Below is the recovery procedure:

a. Close the browser window showing the ToDo list.

b. In WebSphere Integration Developer, select the **Servers** tab.

c. Right mouse on **WebSphere Business Monitor Server v6.1 on WebSphere Process Server** and click **Add and Remove Projects**.

d. Remove ClipsAndTacksF1App and ClipsAndTacksUIEAR from the server.

e. Right mouse on **WebSphere Business Monitor Server v6.1 on WebSphere process Server** and click **Stop**

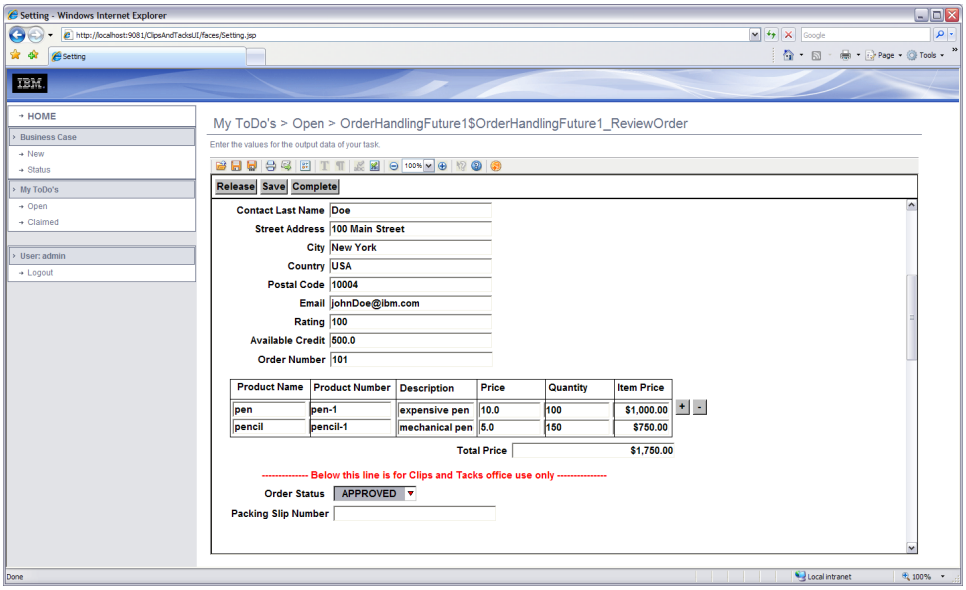
f. Exit WebSphere Integration Developer, but before exiting, write down the workspace path displayed in the WebSphere Integration Developer title bar.

g. Using Windows File Explorer, delete the workspace you noted above.

h. Restart WebSphere Integration Developer with a new workspace. You may reuse the directory name used previously, but you must first have deleted it from the file systems so that WebSphere Integration Developer creates the workspace anew.

i. Repeat the Build It Yourself steps above starting with the import into WebSphere Integration Developer.

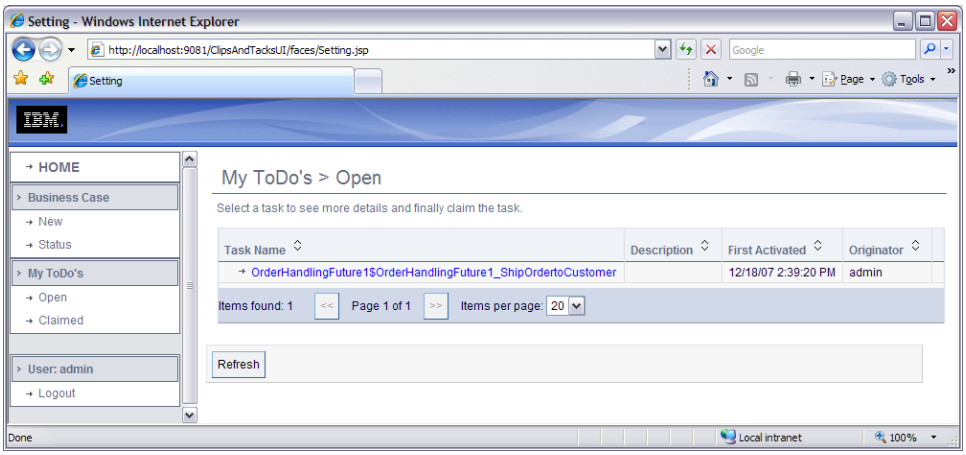
5. Click the waiting task and then under the form click **Claim** to work on the task.



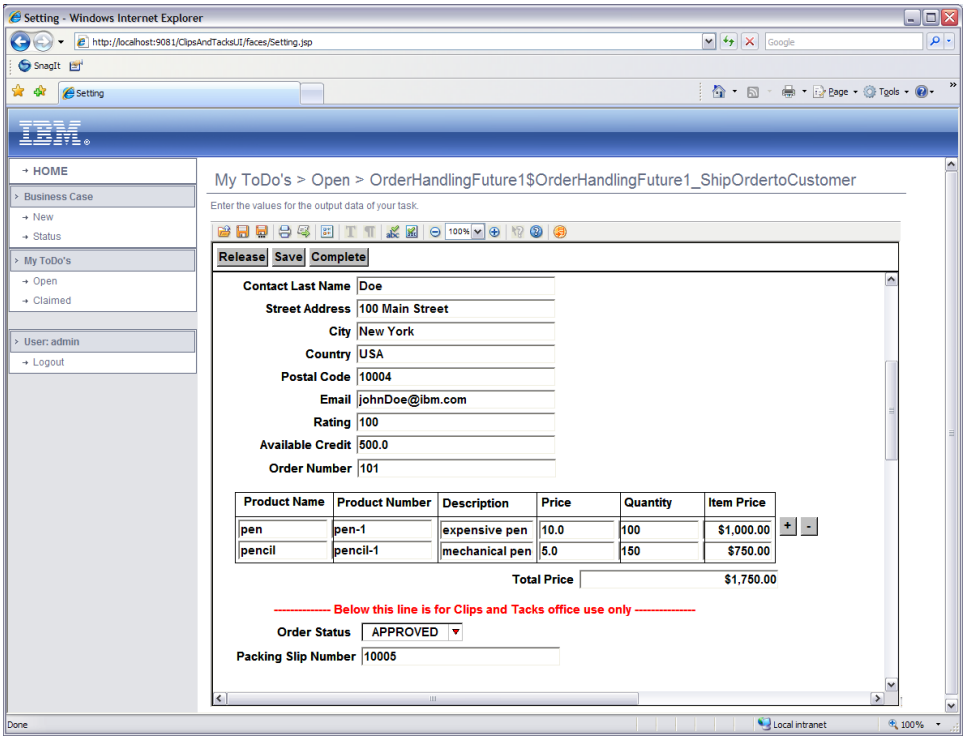
6. At the bottom of the form, select the **Order Status** drop-down list and select **APPROVED**. Complete this human task by clicking **Complete** (located at the top left corner of the form).

   Note: Save does not complete the human task, but saves the task so that you can return to it. Click **Complete** so that the process will continue to the next task.

7. Click **Refresh** in the client (not the browser Refresh). Now the process is waiting for someone to claim and work on the ShipOrdertoCustomer human task.



8. Click the waiting task and then click on **Claim** to work on it.
9. Enter a **Packaging Slip number** and click **Complete** to complete the business process.

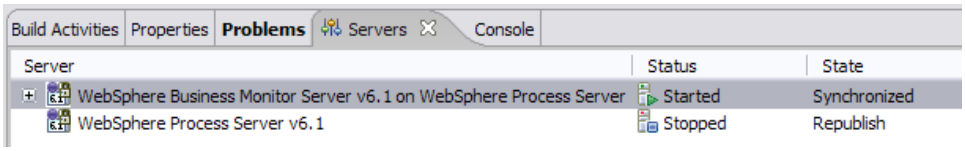


You have just executed one process instance of the Clips and Tacks OrderHandling (Future1) business process. Because the total price of the order was more than $750.00 and the available credit was less than the total price, the order went to the ReviewOrder human task (either of the conditions would have sent it to review). The ReviewOrder human task approved the order and it went to the ShipOrdertoCustomer human task. The ShipOrdertoCustomer human task gave a packaging slip number and sent the order to the customer.

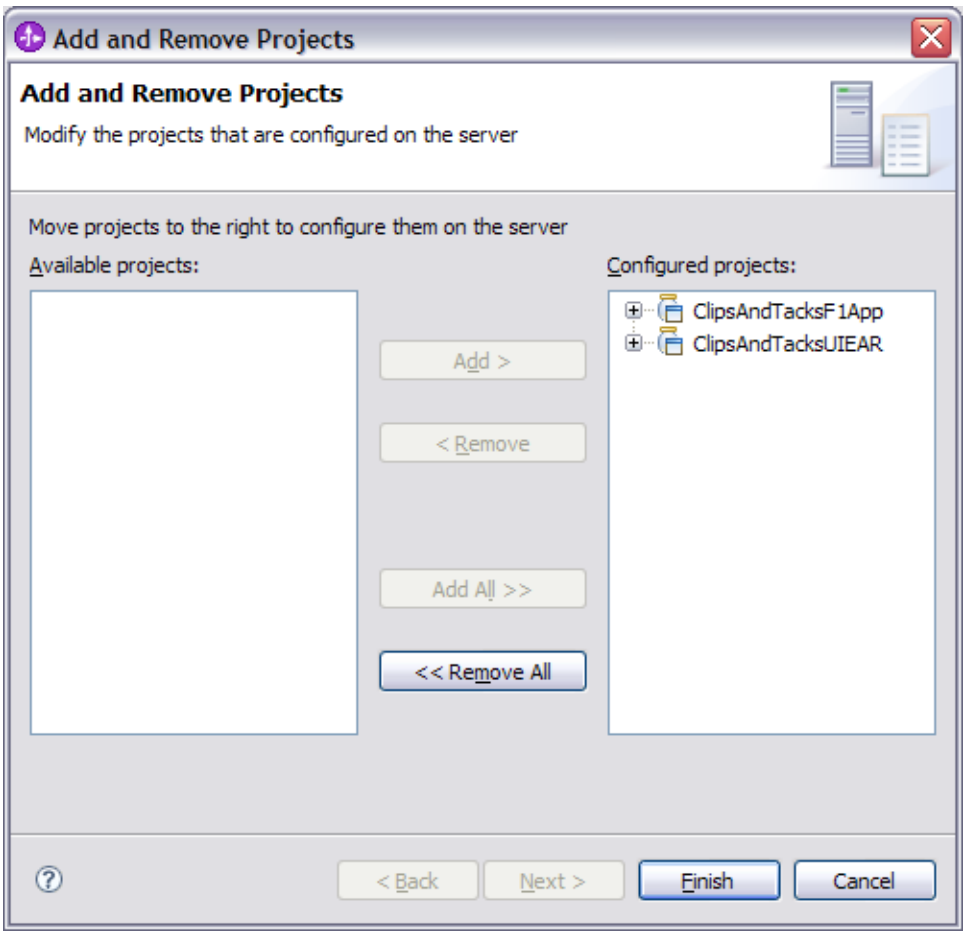
Monitor the business process

Because the project is rebuilt and redeployed to the server every time that you save a change, which will slow down your monitor model creation, use **Add or Remove Projects** to remove both of the projects from the server.

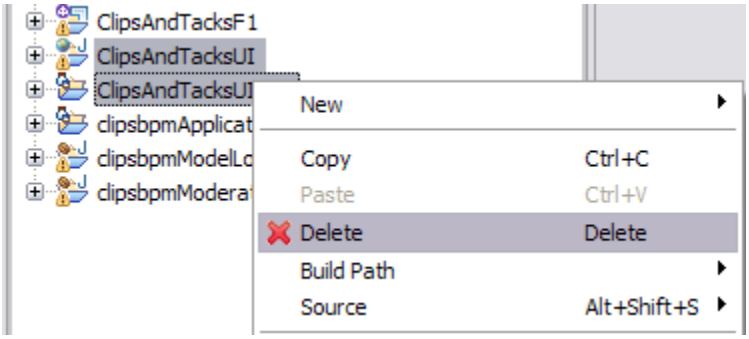
1. In the Business Integration view, click the **Servers** tab.
2. Right click **WebSphere Business Monitor v6.1 on WebSphere Process Server** and select **Add or Remove Projects**.



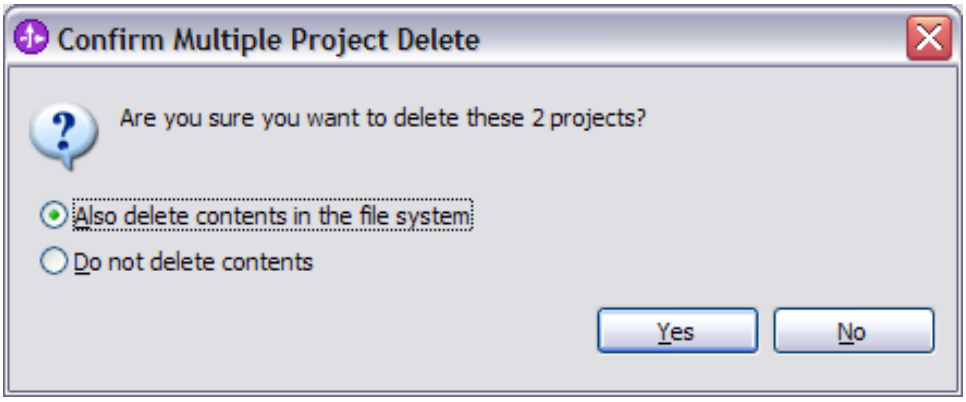
3. Click **Remove All** (if you have other projects, use **Remove**) and click **Finish**. Wait for WebSphere Integration Developer to remove the projects.



4. From the Business Integration pane, select **ClipsAndTacksUI and ClipsAndTacksUIEAR**. Right-click and select **Delete**. this to work around a problem; when the base project changes, ClipsAndTacksF1 in this case, you have to regenerate the user interface and redeploy.



5. Select **Also delete contents in the file system**. You will regenerate the user interface later.



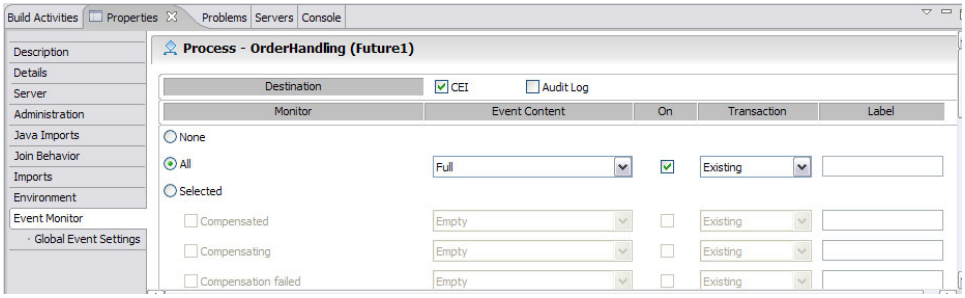
Update the business process to emit monitor events

Before you create the monitor model, you must select the events that WebSphere Process Server will generate. WebSphere Business Monitor will use the generated events to monitor the process. Events need to emitted for decisions and invocation actions in the process. The process representation in WebSphere Integration Developer is BPEL. WebSphere Business Modeler decisions become BPEL links in WebSphere Integration Developer. You need to configure to emit events for the parallel activity BPEL element (OrderHandlingFuture1_Flow) to emit events for the links.

The business object date (order form data) can be accessed from several events including SCA ENTRY events, receive activity (EXIT) events, or invoke activity (ENTRY) events. You could use the SCA events, but then the auto-generated monitor model would not have a trigger to terminate monitoring that process instance; thus, this option requires you to add the termination trigger. You could also use the receive activity EXIT event. In this tutorial you will use the first invoke activity (ENTRY) in the process to access the order form data.

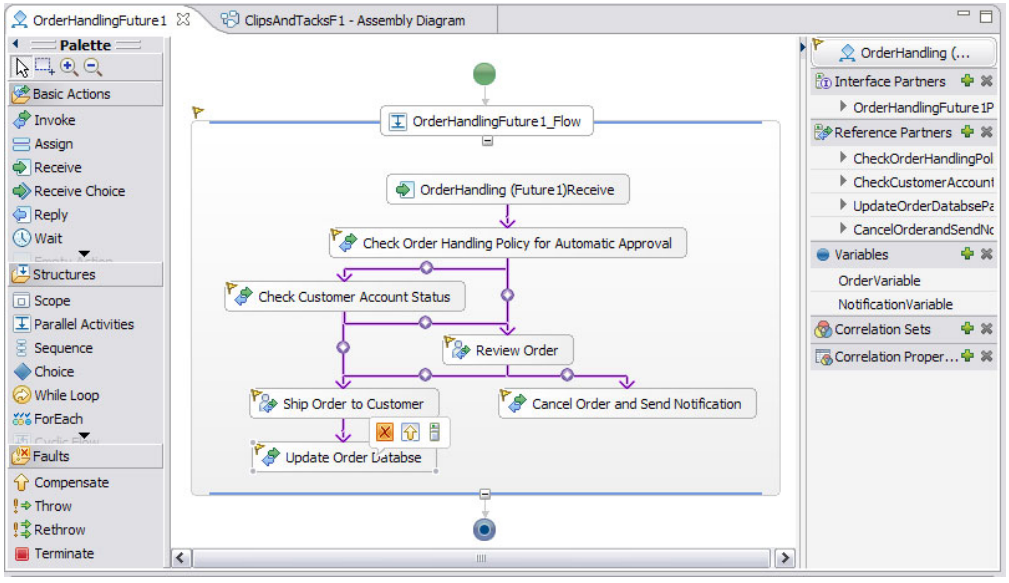
1. In the Business Integration view, select **ClipsAndTacksF1** → **Business Logic** → **Processes** → **processes\orderhandlingfuture1** and then double-click **OrderHandlingFuture1** to open the BPEL editor.
2. Click the white background of the process. Ensure that you click outside of the parallel activity (OrderHandlingFuture1_Flow) element, which is the large rectangle that contains elements such as receive, human tasks, and invoke elements.
3. Click the **Properties** tab under the BPEL diagram, and then click the **Event Monitor** tab (if you have to scroll down, you must scroll from the left side, not

the right side). For a production application, you would want to select the individual events to emit, but for simplicity in this tutorial, select **All**.



4. Click inside the **OrderHandlingFuture1_Flow** parallel activity element, and then click **All** on the **Event Monitor** tab.
5. Similarly, select **All** events for each of the four invoke activities and the two human tasks. You will select each of these activities in the BPEL diagram and then update the **Event Monitor** tab. Update the following activities to emit **All** events:
   - Check Order Handling Policy for Automatic Approval
   - Check Customer Account Status
   - Review Order
   - Ship Order to Customer
   - Cancel Order and Send Notification
   - Update Order Database
6. Save your work. Review each of the four invoke activities, the two human tasks, the flow, and the process to ensure the Event Monitor is set to **All**. Events that are not being emitted can be difficult to detect and debug.

The following screen capture shows the yellow flag icons that indicate the events that are selected to be emitted for the components. There are flags on each of the six activities. The flag in the upper left is for the flow. The flag in the upper right is for the process. There are eight flags in total.



Create the monitor model to monitor the business process

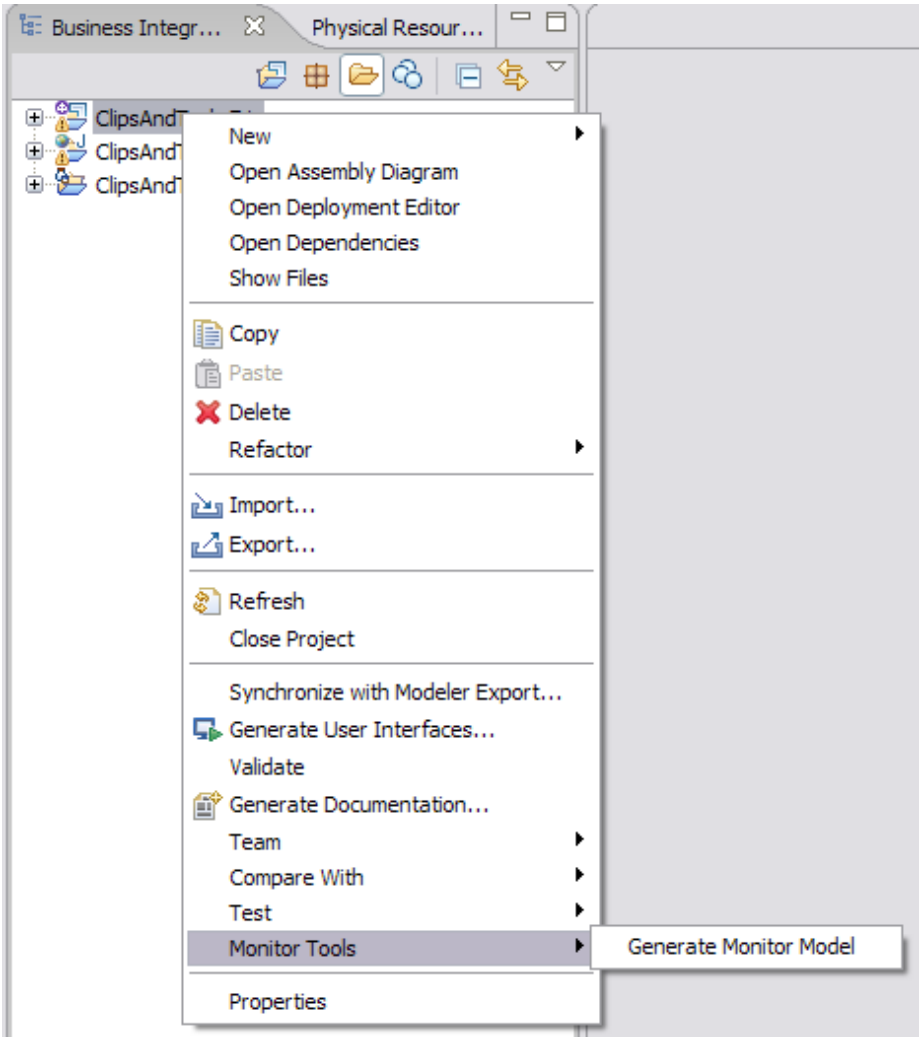
You use a wizard to auto-generate the monitor model from the process. You will then have two monitor models, the business measures model from the process in WebSphere Business Modeler (the high-level model) and the monitor model generated from the process in WebSphere Integration Developer (the low-level model). The high-level model contains the monitor elements that need to be implemented in the final monitor model. The low-level model contains the monitoring context instance creation, termination, and correlation information based on the events generated from WebSphere Process Server.

You have three options when using these two monitor models:

- Keep both models intact and create outbound events from the low-level model to feed metric information to the high-level model. This options supports product synchronization for both models to easily handle changes that are made to the process or changes that are made to the business measures model. However, this option also requires extra work to build the event definitions and the monitor elements that support it.
- Keep the high-level model intact and add inbound events to the high-level model using **New → Create from Application** in WebSphere Integration Developer, and then copying the generated artifacts into the monitoring context for the high-level model. This option is easy and can be useful when the low-level application is stable, but the business measure requirements are churning. However, this option does not support synchronization with the process application.
- Keep the low-level model intact and then copying business measures information into the low-level model from the high-level model. This option is the easiest and can be useful when the low-level application is churning, but the business measure requirements are stable. However, this option does not support synchronization with business measures from WebSphere Business Modeler.

For this tutorial, you will use option three. Therefore, you need to merge the two models into one monitor model. Then you will add the implementation details for the KPIs and other monitor elements.

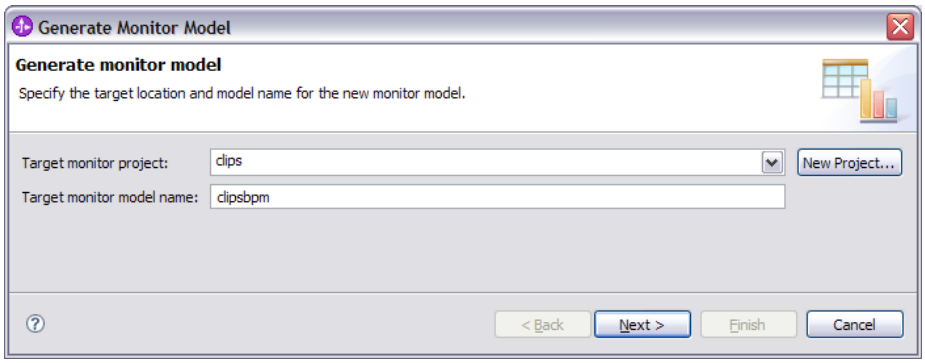
1. Generate the monitor model in WebSphere Integration Developer from the BPEL process by completing the following steps:
   a. In the Business Integration view, right-click **ClipsAndTacksF1** and select **Monitor Tools → Generate Monitor Model**.



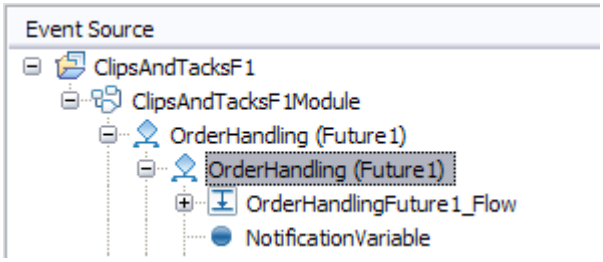
b. For the **Target monitor project**, enter `clips`.

c. Click **New Project**, then click **Finish**.

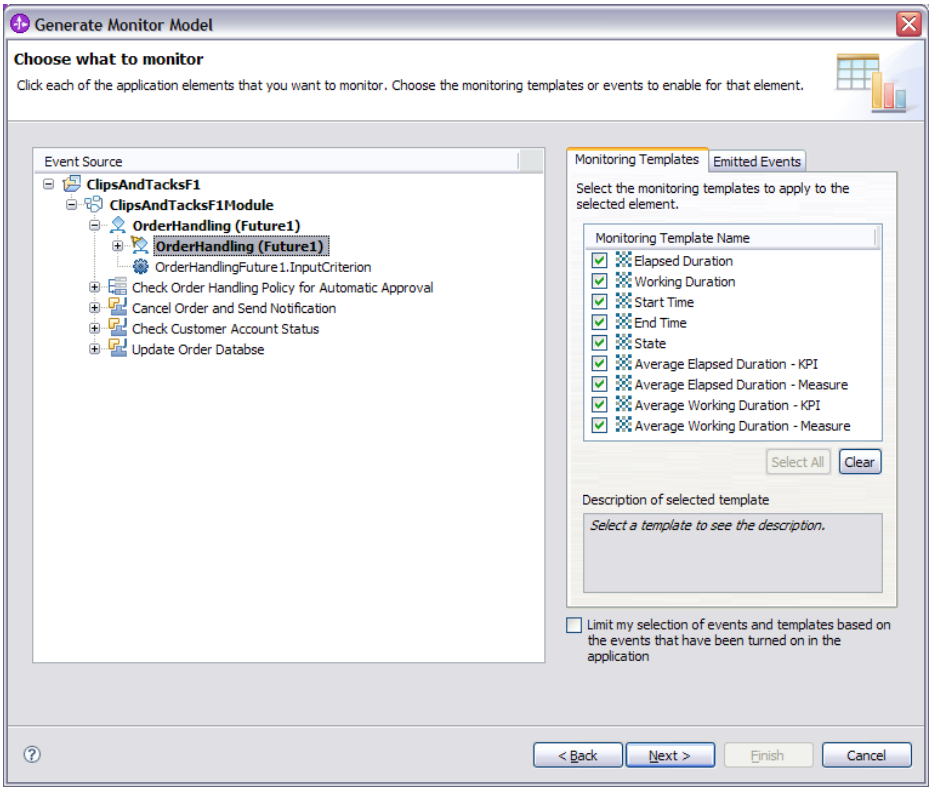
d. For the **Target monitor model name**, enter `clipsbpm` and click **Next**.



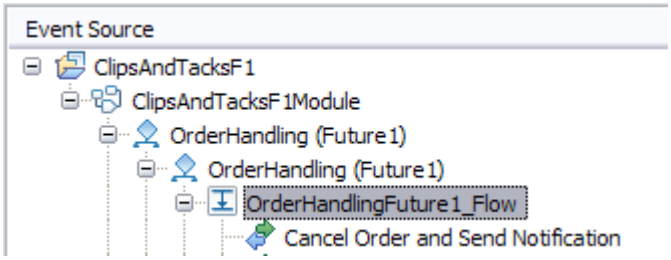
e. In the **Generate Monitor Model** dialog box, in the **Choose what to monitor** section, navigate the **Event Source** field to **ClipsAndTacksF1** → **ClipsAndTacksF1Module** → **Order Handling (Future 1)** and select **Order Handling (Future 1)** as follows:



f. On the **Monitoring Templates** tab, click **Select All**. The generated monitor model will contain monitoring elements that track all of the listed process characteristics. One of these characteristics is the Average Elapsed Duration, which will satisfy the requirement in the business measures model to track the average processing time.

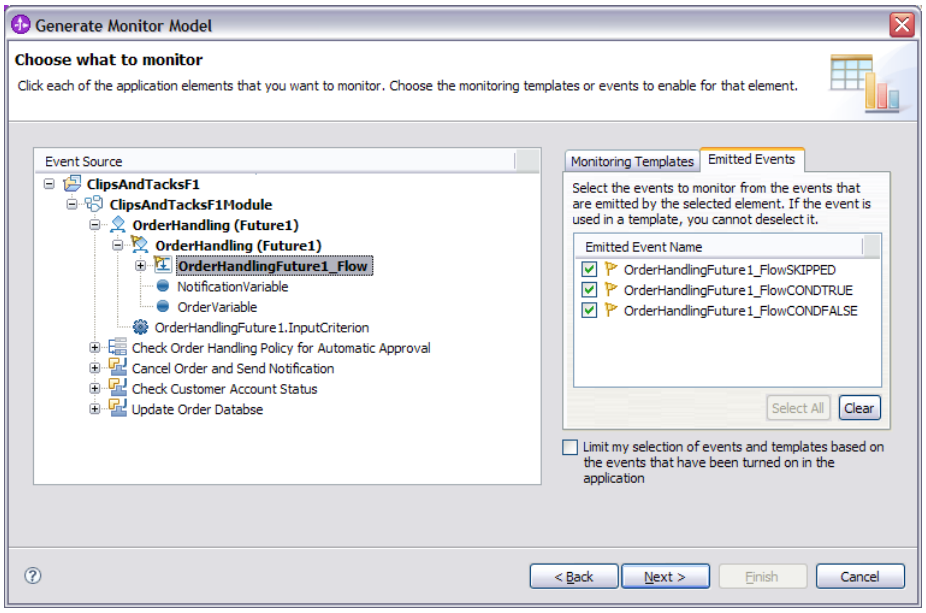


g. In Event Source, select **ClipsAndTacksF1** → **ClipsAndTacksF1Module** → **Order Handling (Future 1)** → **Order Handling (Future 1)** → **OrderHandlingFuture1_Flow**:

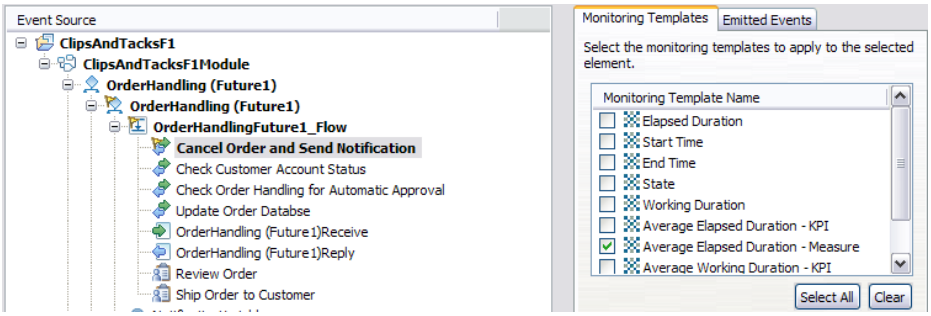


h. On the **Emitted Events** tab, click **Select All**. The generated monitor model will subscribe to these events. The events are for link traversals. These BPEL links represent the decision elements from WebSphere Business Modeler.

The events indicate whether a link was skipped or if it was traversed because the condition was true or false. Note the event name OrderHandlingFuture1_FlowCONDTRUE. This will be used heavily in the monitor model.



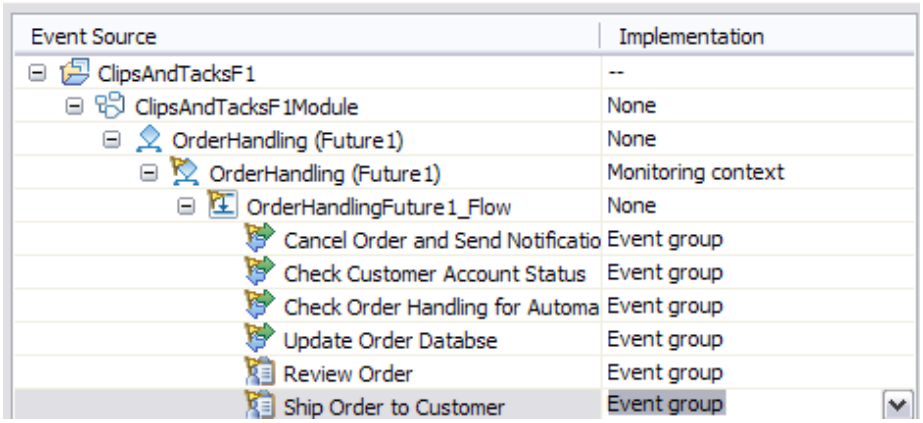
i. In the business measures model, it was specified to track the processing time for each task. To implement that, click the **Monitoring template for elapsed duration** for each activity. To do this, select **Cancel Order and Send Notification**. Then on the **Monitoring Templates** tab, select **Average Elapsed Duration – Measure**.



j. Repeat step 1h on page 3-64 for the remaining three invoke activities and the two human tasks. Do not repeat step 1h on page 3-64 for the receive element, **Order Handling (Future 1)Receive**. Click **Next**.

2. Simplify the monitor model so that there is only one monitoring context. A monitoring context represents the entity or thing that is to be monitored. Additionally, simplify the monitor model by creating event groups to organize the events and provide structure in the monitor model:

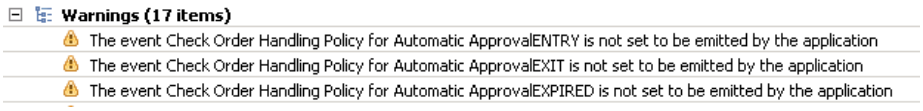
   a. For each of the invoke activities and the human tasks, change the implementation to **Event group** by clicking in the Implementation column and selecting **Event Group** from the drop-down list.



b. Click **Next**. You can preview the model here.

c. Click **Finish**. When prompted, click yes to switch to the Business Monitoring perspective. When prompted, do not launch **Getting Started**. The monitor model opens in the monitor model editor.

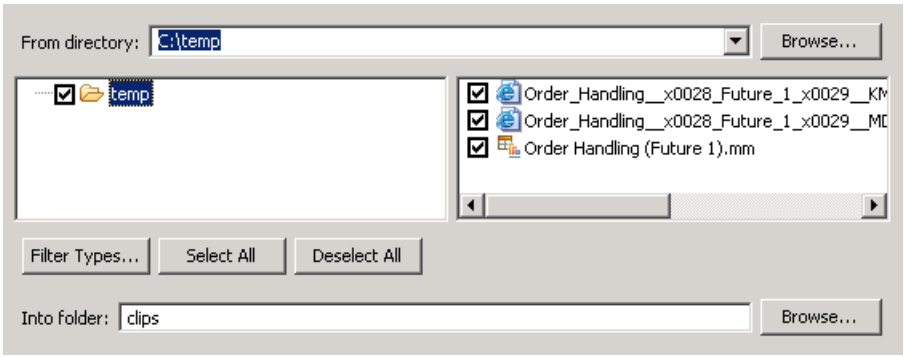
d. Check the **Problems** view. If you didn't emit events that the monitor model requires, then the **Problems** view will show warnings to indicate that the events are missing. If you see these messages, update the monitor event settings in the module and then synchronize the model with the application (in the project tree, right-click the model and select **Synchronize with Application**).



3. Import the business measures model from WebSphere Business Modeler. Many errors will result from the following actions, but these will be fixed as you progress through the steps. To import the business measures model, complete the following steps:

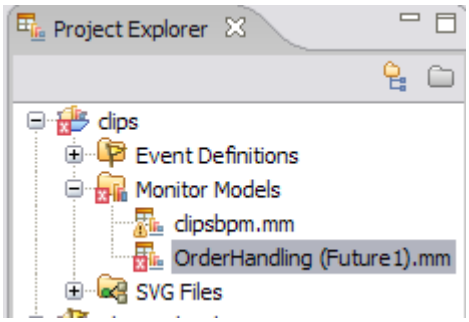
a. In the project tree, right-click the clips project and select **Import** → **General** → **File System**. Then click **Next**.

b. Browse to the location that contains the business measures model (OrderHandling (Future1).mm) from WebSphere Business Modeler. Then select the two .svg files and the monitor model:



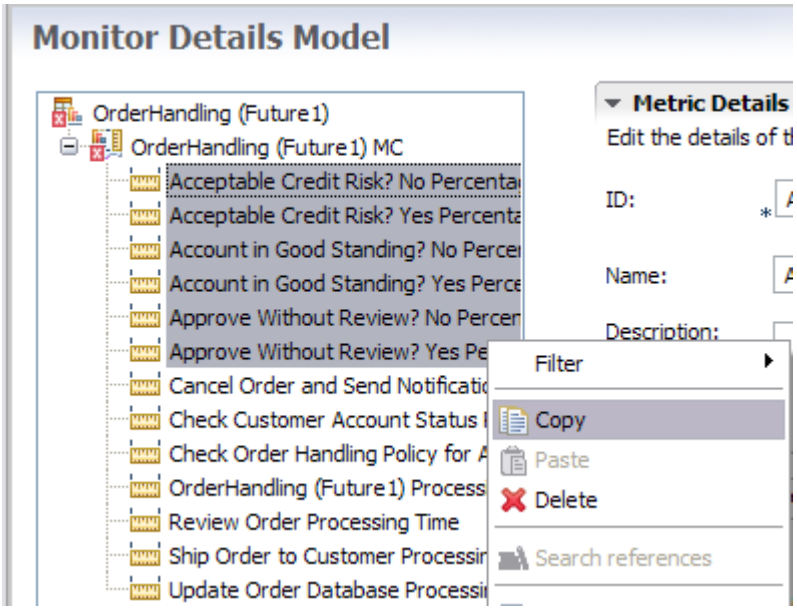
c. Ensure that the **Into folder** is **clips** and then click **Finish**. There will be many errors in the Problems view because the metrics for the business measures model have not been implemented yet.

You now have the auto-generated model (clipsbpm.mm) and the business measures model (Order Handling (Future 1).mm) in your clips project:



4. Merge these two monitor models together. There are several options. You could use the menu options **Combine Monitor Models** or **Compare With → Each Other**. Because the names of the monitoring contexts, KPI contexts, and cubes are different in the two models, using the merge tools will result in a monitor model that is a union of the two monitoring contexts, two KPI contexts, and two cubes. The merge options work better if both models start from a common base so that these containers have the same name. In our example, it is easier to copy the monitor elements functions from one model to the other.
   a. Open the editor for both monitor models, clipsbpm.mm and Order Handling (Future 1).mm, by double-clicking each of them in the project tree.
   b. Start Copying elements from the Order Handling (Future1) to clipsbpm. Click the **Monitor Details Model** tab for Order Handling (Future1). Select the six percentage metrics (Acceptable Credit Risk? No Percentage, Acceptable Credit Risk? Yes Percentage, Account in Good Standing? No Percentage, Account in Good Standing? Yes Percentage, Approve Without Review? No Percentage, and Approve Without Review? Yes Percentage), right-click, and select **Copy**.

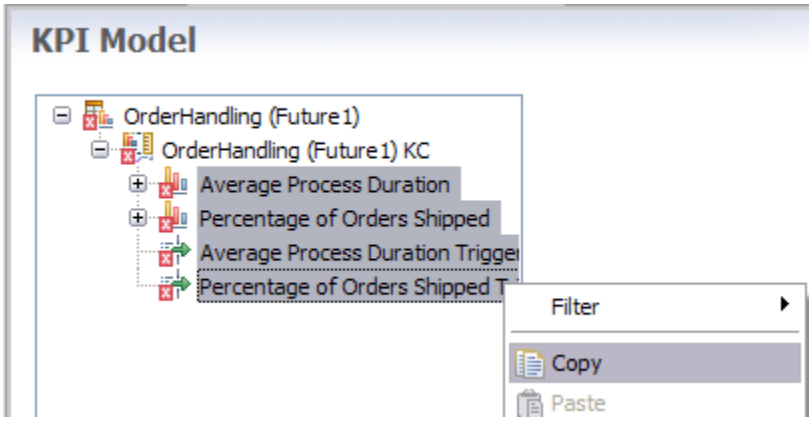
      Note: There are several additional metrics in the details model for Order Handling. These are for processing time, but you will not need them because they were created automatically in clipsbpm when you selected the duration monitoring templates in the generation wizard.



c. Click the **Monitor Details Model** tab in clipsbpm, and then right-click **Order Handling (Future 1)** and paste the metrics that you copied.

d. Save your work. You will have errors for the pasted metrics.

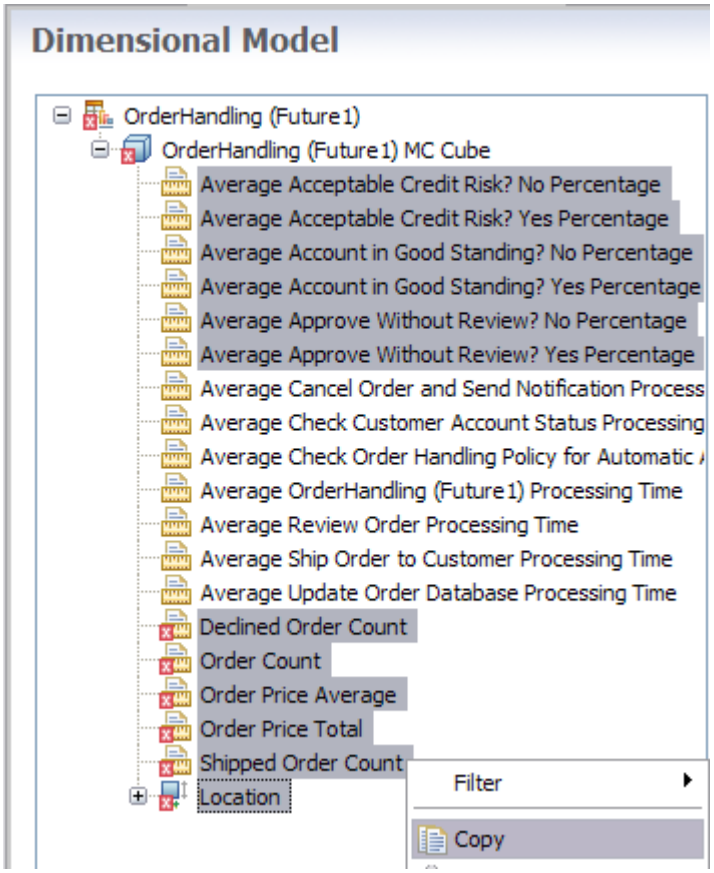
e. Click the **KPI Model** tab for Order Handling (Future1). Select all of the elements: the two KPIs and the two triggers. Right-click and select **Copy**.



f. Click the **KPI Model** tab in clipsbpm, and then right-click **Template KPI Context** and paste the elements that you copied.

g. Save your work.

h. Click the **Dimensional Model** tab for Order Handling (Future1). Select all of the elements, except for the seven measures with names that end with _Processing_Time (these measures are already in the clipsbpm model). Right-click and select **Copy**.

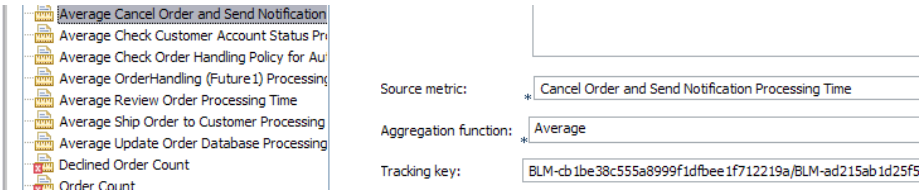


i. Click the **Dimensional Model** tab in clipsbpm and then right-click **Order Handling (Future 1) Cube** and paste the copied elements.

j. Save your work.

5. For the seven processing time measures that you did not copy, you will need to copy the tracking keys from Order Handling (Future1) to clipsbpm. WebSphere Business Modeler needs the tracking keys when you export WebSphere Business Monitor data back to WebSphere Business Modeler.

   a. In the dimensional model of Order Handling (Future1), click the measure **Average Cancel Order and Send Notification Processing Time**. You will see the tracking key in the editor as in the following screen capture.



   b. Select the text for the tracking key and then copy it to the corresponding measure of the dimensional model in clipsbpm: **Cancel Order and Send Notification Average Elapsed Duration**.

   c. Repeat step 5b for the following six processing time measures.

      - From **Average Check Customer Account Status Processing Time** to **Check Customer Account Status Average Elapsed Duration**
      - From **Average Check Order Handling for Automatic Approval Processing Time** to **Check Order Handling for Automatic Approval Average Elapsed Duration**
      - From **Average Order Handling (Future 1) Processing Time** to **Order Handling (Future 1) Average Elapsed Duration**
      - From **Average Review Order Processing Time** to **Review Order Average Elapsed Duration**
      - From **Average Ship Order to Customer Processing Time** to **Ship Order to Customer Average Elapsed Duration**
      - From **Average Update Order Database Processing Time** to **Update Order Database Average Elapsed Duration**

      Note: For Order Handling in clipsbpm there is a working duration measure and an elapsed duration measure, so update the tracking key for the elapsed duration only.

6. The diagram view is based on SVG images and shape sets. To create shape sets in the SVG diagrams, complete the following steps:

   a. Click the **Visual Model** tab in clipsbpm. For **Selected Context equal Order Handling (Future 1)**, click **Browse for SVG File**. Navigate to **clips** and select **Order_Handling__x0028_ Future_1_x0029__MDM_Order_Handling__x0028_ Future_1_x0029__MC.svg** and click **OK**. When prompted, choose to create shape sets.

   b. Change the **Selected Context** to **Template KPI Context** and then click **Browse** to select an SVG file for this context. Navigate to **clips** and select **Order_Handling__x0028_ Future_1_x0029__KM_Order_Handling__x0028_ Future_1_x0029__KC.svg**; click **OK**. When prompted, choose to create shape sets.

   c. Save your work.

d. Close the Order Handling monitor model because you have copied everything you needed from this model to clipsbpm.
e. To remove the numerous errors that are associated with this model in the Problems view, right-click **OrderHandling (Future1)** in the project tree and select **Delete**.

The rest of the work will be done in the clipsbpm model. There are still many errors. These will be corrected as you specify more implementation details.

Complete the clipsbpm monitor model

Now you will complete the expressions for the six decision percentage metrics in the monitor details model. There are three decisions in the process model, so there is a yes metric and a no metric in the monitor model for the result of each decision. There will be a measure in the dimensional model that averages each metric, so the measure will show the percentage of the time that the branch was taken.

If a decision has not been traversed, then you do not want to include it in the averaging calculation. For example, the **Approve Without Review?** task in the process model is the only decision point that is always traversed. **Account in Good Standing?** and the **Acceptable Credit Risk?** tasks are only traversed under specific conditions while the order is being handled.

If the value of a metric is null, then the averaging functions will not include that metric's value in the calculation. Therefore, you will set the default value to null for each metric as the starting condition. Its value will only be set if the decision point is reached. If it isn't reached, it will remain null and therefore be excluded from the averaging calculation.

You will also create a trigger for each decision that determines when the yes branch is taken, sets the value of the yes metric to 100, and also sets the value of the no metric to 0. Then you will create a trigger for each decision that determines when the no branch is taken, sets the value of the no metric to 100, and also sets the value of the yes metric to 0. Therefore, when the measure averages each metric for the instances, the values will be null, 0 or 100, and the average will represent the percentage of the time that the branch was taken.

From the process model, only the **Approve Without Review?** task is guaranteed to always be set to a non-null value at the completion of the process. Of the other two, at least one task will be set to non-null and possibly both, depending on the path the customer order takes through the process.

In the following expressions, the WebSphere Integration Developer BPEL editor contains the names of the links (for example, "AcceptableCreditRiskOutput_to_Merge2Input2") for the process.

1. Create triggers to indicate flow on each of the decision links:
   a. In the Monitor Details Model tab, expand **clipsbpm** and select **OrderHandling (Future1)**. Right-click in the Monitor Details Model navigator, and select **New → Trigger**. (You can right-click **OrderHandling (Future1)** or anywhere in the Monitor Details Model as long as OrderHandling (Future1) or one of its components is selected.)
   b. For the name, enter `Acceptable Credit Risk Yes Trigger`. Click **OK**. The **Monitor Details Model** tab view now displays the details for this trigger.

Note that selecting an element in the Monitor Details Model navigator updates the view with the details for the selected element.

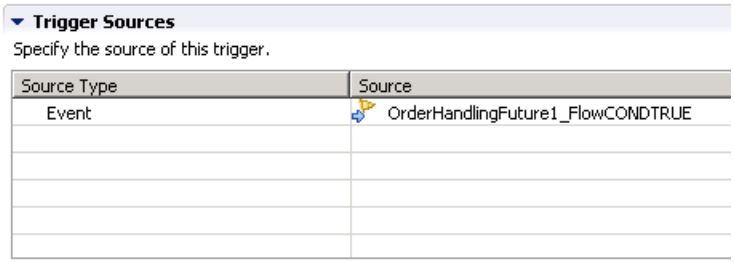
c. In **Trigger Sources**, click **Add** (or double-click in the first row). From the **Select Trigger Source** menu, select **Other source type** and navigate to **Order Handling (Future 1)** → **OrderHandlingFuture1_FlowCONDTRUE**. Click **OK**. OrderHandlingFuture1_FlowCONDTRUE is an event that is sent when a branch from the flow is taken in the process.

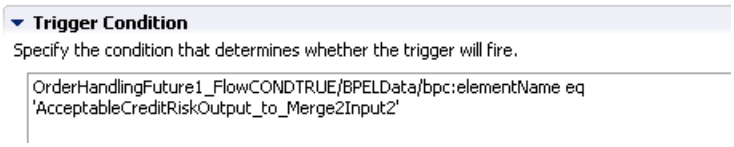
d. To fire this trigger when the link from Acceptable Credit Risk to the Merge is traversed, in the **Trigger Condition** field, enter the following text:

```
OrderHandlingFuture1_FlowCONDTRUE/BPELData/bpc:elementName eq
'AcceptableCreditRiskOutput_to_Merge2Input2'
```

Note: Pay close attention to the text in the trigger condition. It must match exactly. To ensure that the text matches exactly, copy it from this document.

Save your work.





e. Repeat the previous steps for the following triggers, adding the corresponding trigger conditions. The Trigger Source is **Order Handling (Future 1)** → **OrderHandlingFuture1_FlowCONDTRUE** for all the triggers.

Acceptable Credit Risk No Trigger

Condition: `OrderHandlingFuture1_FlowCONDTRUE/BPELData/ bpc:elementName eq 'AcceptableCreditRiskOutput2_to_CancelOrderandSendNotificationInput'`

Account in Good Standing Yes Trigger

Condition: `OrderHandlingFuture1_FlowCONDTRUE/BPELData/ bpc:elementName eq 'AccountinGoodStandingOutput_to_Merge2Input'`

Account in Good Standing No Trigger

Condition: `OrderHandlingFuture1_FlowCONDTRUE/BPELData/ bpc:elementName eq 'AccountinGoodStandingOutput2_to_MergeInput'`

Approve Without Review Yes Trigger

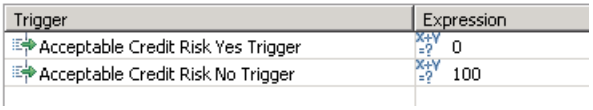
Condition: `OrderHandlingFuture1_FlowCONDTRUE/BPELData/ bpc:elementName eq 'ApproveWithoutReviewOutput_to_CheckCustomerAccountStatusInput'`

Approve Without Review No Trigger

Condition: `OrderHandlingFuture1_FlowCONDTRUE/BPELData/bpc:elementName eq 'ApproveWithoutReviewOutput2_to_MergeInput2'`

f. Save your work.

2. Set flow metric values to denote that the decision was skipped (value of null) or that the flow path was taken (value of 100) or not taken (value of 0).
   a. In the **Monitor Details Model** tab, select the **Acceptable Credit Risk? No Percentage** metric.
   b. Remove the default value of 0 by backspacing over it. Deleting this value will give the default a value of null.
   c. In the **Metric Value Expressions** table click **Add**.
   d. In the **Trigger** column, select the first row, click **...** in the field, and select Acceptable Credit Risk Yes Trigger from the dialog box. Click OK.
   e. In the **Expression** column, select the first row and click **...** in the field, and enter `0`.
   f. In the **Metric Value Expressions** table click **Add**. For the trigger, select **Acceptable Credit Risk No Trigger**. For the expression, specify `100`.



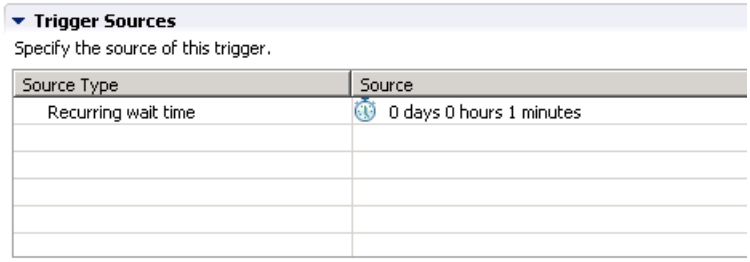
   g. Repeat the previous steps for the following metrics. Remember to remove the default value for each metric so it is treated as null.

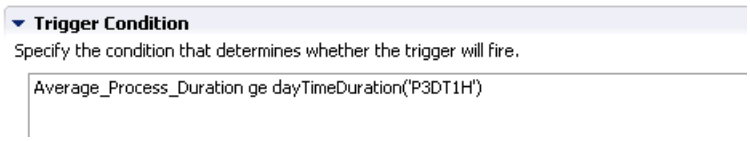
Monitor Details Model Metric	Default Value	Trigger	Metric Value Expression
Acceptable Credit Risk? Yes Percentage	<empty>	Acceptable Credit Risk Yes Trigger	100
		Acceptable Credit Risk No Trigger	0
Account in Good Standing? No Percentage	<empty>	Account in Good Standing Yes Trigger	0
		Account in Good Standing No Trigger	100
Account in Good Standing? Yes Percentage	<empty>	Account in Good Standing Yes Trigger	100
		Account in Good Standing No Trigger	0
Approve Without Review? No Percentage	<empty>	Approve Without Review Yes Trigger	0
		Approve Without Review No Trigger	100
Approve Without Review? Yes Percentage	<empty>	Approve Without Review Yes Trigger	100
		Approve Without Review No Trigger	0

   h. Save your work.

3. Alerts are initiated by situation events. Specify the trigger conditions that will generate situation events for the Alerts.
   a. Select the **KPI Model** tab and expand **clipsbpm** → **Template KPI Context**. Select **Average Process Duration Trigger 1** so that you can update it. The Average Process Duration Trigger 1 trigger will be used to emit the situation event indicating that the process duration is too long. A situation event is used to initiate an alert.
   b. In the **Trigger Source** table, click **Add** and select **Recurring wait time**. Click **OK**. The recurring wait time default is 1 minute. Adding the recurring wait time sets a timer that will check the trigger condition every minute.
   c. For **Trigger condition**, enter the following expression:

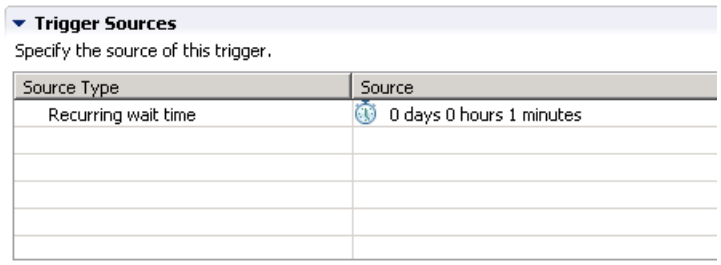
```
Average_Process_Duration ge dayTimeDuration('P3DT1H')
```

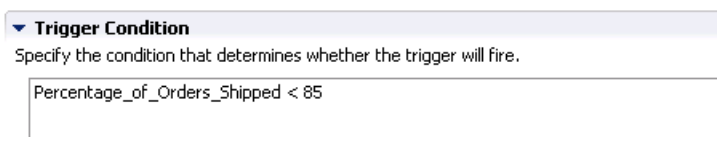




   The trigger condition checks whether the Average Process Duration is greater than 3 days and 1 hour.
   d. Repeat the previous steps to update **Percentage of Orders Shipped Trigger 1**. The Percentage of Orders Shipped Trigger 1 trigger will be used to emit the situation event indicating that the percentage of shipped orders is too low. For the trigger condition, enter the following expression:

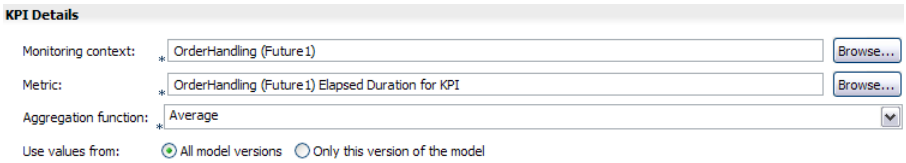
```
Percentage_of_Orders_Shipped < 85
```



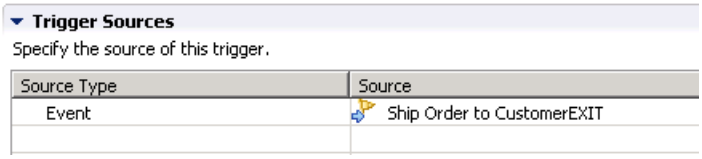


4. The Average Process Duration KPI will now be implemented.
   a. From the **KPI Model** tab, select **Average Process Duration**.
   b. Because this was copied from another model, you need to update the Monitoring context. Scroll down to the **KPI Details** section. Click **Browse** for Monitoring context, and navigate to **clipsbpm** → **Order Handling (Future 1)**. Then click **OK**. The metric value is blank.

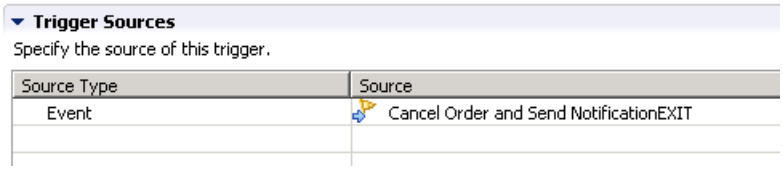
      Note: There is another KPI, Order Handling (Future 1) Average Elapsed Duration, which has the same function as Average Process Duration. Order Handling (Future 1) Average Elapsed Duration was auto-generated. You can review it to see which metric should be used. It will be filled in during the next step.
   c. While you are still in the KPI Details section, click **Browse** for Metric and then navigate to **Order Handling (Future 1)** → **Order Handling (Future 1) Elapsed Duration for KPI**. Click **OK**.
   d. Set the **Aggregation function** to **Average** from the drop-down list.



   e. In the **KPI Model** tab, select **Order Handling (Future 1) Average Elapsed Duration**, right-click and select **Delete**. It is a duplicate of the Average Process Duration KPI.
   f. Save your work.
5. In the KPI model, implement the KPI **Percentage of Orders Shipped**. To calculate the percentage of orders that are 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. Click the **Monitor Details Model** tab, right-click in the Monitor Details Model navigator, and select **New > Trigger**.
   b. For the name, enter `Shipped Order Trigger` and click **OK**.
   c. In Trigger Sources, click **Add** and then select **Other source type**. Navigate to **Order Handling (Future 1)** → **Ship Order to CustomerEXIT** and click **OK**.

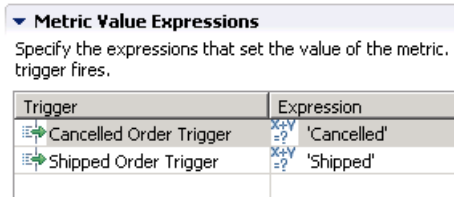


   d. In the **Monitor Details Model** tab, right-click in the **Monitor Details Model** navigator and select **New** → **Trigger**.
   e. For the name, enter `Cancelled Order Trigger`, click **OK**.
   f. In Trigger Sources, click **Add** and then select **Other source type**. Navigate to **Order Handling (Future 1)** → **Cancel Order and Send NotificationEXIT** and click **OK**.

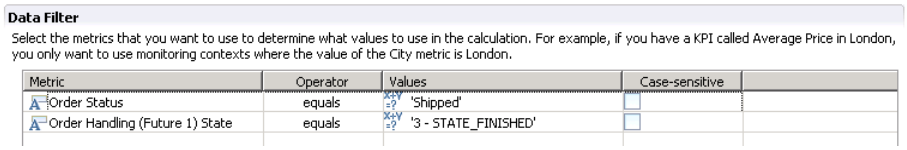


6. Create a new metric to contain the status of the Order.
   a. Right-click in the Monitor Details Model navigator and select**New** → **Metric**.
   b. For the name, enter `Order Status`. For the type, select **String** and click **OK**.
   c. Because a dimension will use this metric, and dimensions require a value for dimensional analysis, select **'A value is required for this metric'**.
   d. For the **Default value**, enter `'New'` with the quotation marks.
   e. In **Metric value expressions**, click **Add**. In the **Trigger cell**, select **Cancelled Order Trigger** for the trigger. In the **Expression** cell, enter `'Cancelled'` with the quotation marks.

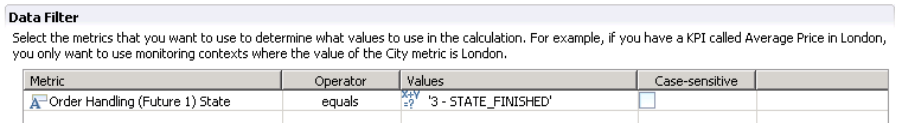
      Note: You have to click the **...** icon in the cell to enter the text.
   f. Again, in **Metric Value Expressions**, click **Add**. In the **Trigger** cell, select **Shipped Order Trigger** for the trigger. In the **Expression** cell, enter `'Shipped'` with the quotation marks.



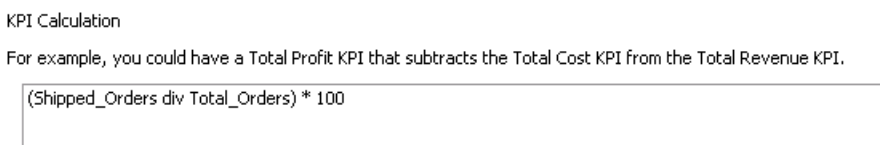
7. Create a new KPI to count the number of shipped orders. You will use the Instance ID metric to count all incoming instances and then filtering the incoming instances by order status so only shipped orders are counted. You will also filter the instances by the process state so that only completed process instances are counted. In the KPI model, create a new KPI called Shipped Orders:
   a. Select the **KPI Model** tab.
   b. In the KPI model navigator, right-click and select **New** → **KPI**. For the name, enter `Shipped Orders` and click **OK**.
   c. Set the **Type** to **Decimal**.
   d. Scroll down to the KPI Definition section if it is not visible. For **KPI value**, select **'Base this KPI on a metric and an aggregation function'**.
   e. For the Monitoring context, browse to **Order Handling (Future 1)**.
   f. For the Metric, browse to **Order Handling (Future 1) Instance ID**.
   g. For the Aggregation function, select **Count**.
   h. For the Data Filter, click **Add** and then browse to **Order Handling (Future 1)** → **Order Status**. Then click **OK**. In the Values cell, enter `'Shipped'` with the quotation marks.
   i. Again in the Data Filter, click **Add** and then browse to **Order Handling (Future 1)** → **Order Handling (Future 1) State**. Then click **OK**. In the values cell, enter `'3 - STATE_FINISHED'` with the quotation marks.



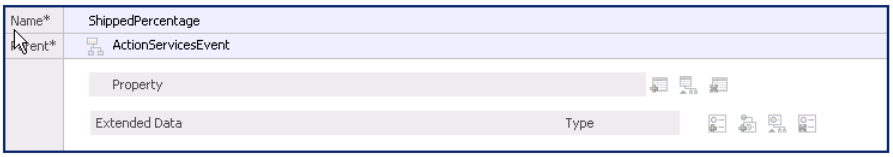
8. Create a KPI to count the total number of orders. You will use the Instance ID metric to count all incoming instances. You will also filter the instances by the process state so that only completed process instances are counted. In the KPI model, create a new KPI called Total Orders:
   a. In the KPI model navigator, right-click and select **New → KPI**. For the name, enter `Total Orders` click **OK**.
   b. Set the Type to **Decimal**.
   c. For the KPI value, select **'Base this KPI on a metric and an aggregation function'**.
   d. For the Monitoring context, browse to **Order Handling (Future 1)**.
   e. For the Metric, browse to **Order Handling (Future 1) Instance ID**.
   f. For the Aggregation function, select **Count**.
   g. For the Data Filter, click **Add** and then browse to **Order Handling (Future 1) → Order Handling (Future 1) State**. Then click **OK**. In the values cell, enter `'3 - STATE_FINISHED'` with the quotation marks.



9. Now you will complete the Percentage of Orders Shipped KPI:
   a. In the KPI model navigator, select **KPI Percentage of Orders Shipped**.
   b. Set the Type to **Decimal**.
   c. For the KPI Value, select **'Write an expression to calculate this KPI based on existing KPIs'**.
   d. For the KPI Calculation, enter `(Shipped_Orders div Total_Orders) * 100`.
   e. Save your work.

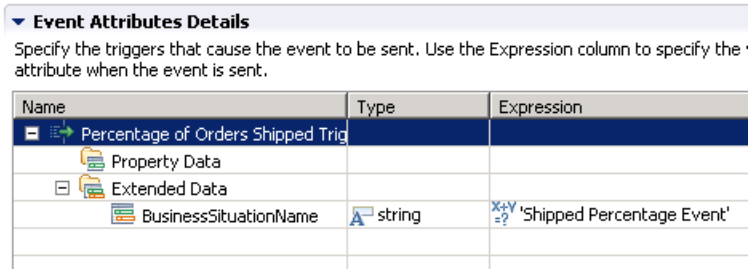


10. In the next procedure, you will create the ShippedPercentage.cbe event definition. This event is used to initiate an alert when there is a problem with the shipped orders percentage.
    a. In the project tree, right-click **Event Definitions** and then select **New → Event Definition ... (cbe)**. For file name, enter `ShippedPercentage.cbe`, and then click **Finish**. The event definition editor opens.
    b. Double-click the hierarchical icon next to the label **Parent**
    c. On the Select Event Definition dialog box, double-click **ActionServicesEvent**. ActionServicesEvent is now shown as the parent of ShippedPercentage.



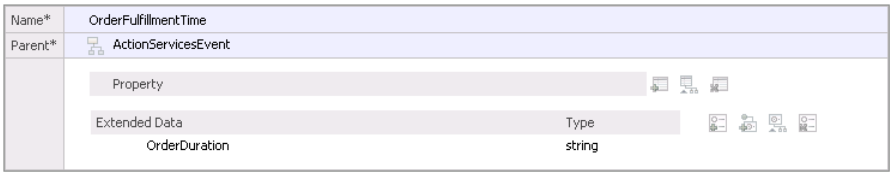
d. Save your work.

11. Use this event definition to create the Shipped Percentage Event outbound event definition in the monitor model:
    a. In the clipsbpm model, click the **KPI Model** tab.
    b. In the KPI Model navigator, right-click and select **New** → **Outbound Event**.
    c. For the Name, enter `Shipped Percentage Event`.
    d. Select the check box for **'Configure this event to generate an alert in the dashboards'**.
    e. For the Trigger, browse to **Template KPI Context** → **Percentage of Orders Shipped Trigger 1** and click **OK**.
    f. Click **OK**.
    g. In Event Type Details, for the extension name, browse to **clips** → **ShippedPercentage.cbe** → **Shipped Percentage** and then click **OK**.
    h. In Event Attributes Details, navigate to **BusinessSituationName**. The value of the situation name is set to **'Shipped Percentage Event'**.



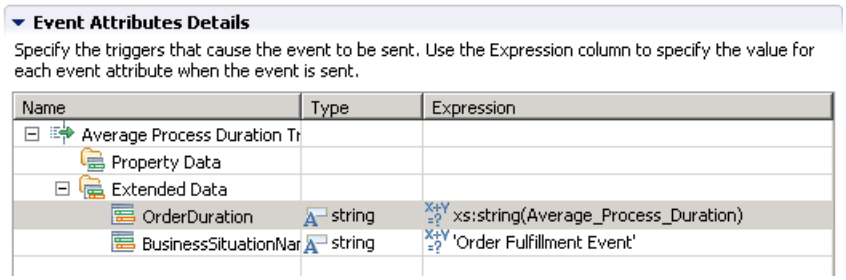
    i. Save your work.

12. Create the OrderFulfillmentTime.cbe outbound event for the order processing time situation:
    a. In the project tree, right-click **Event Definitions** and select **New** → **Event Definition... (cbe)**.
    b. For the file name, enter `OrderFulfillmentTime.cbe` and then click **Finish**. The event definition editor opens.
    c. Double-click the hierarchical icon  next to the label **Parent**. On the Select Event Definition dialog box, double-click **ActionServicesEvent**. ActionServicesEvent is now the parent of OrderFulfillmentTime.
    d. In the Extended Data section, click the **Add Extended Data** icon .
    e. Change the name of the extended data element to `OrderDuration` and change the type to **string**.



f. Save your work.

13. Create the Order Fulfillment Event outbound event:
    a. In the clipsbpm model, click the **KPI Model** tab.
    b. Right-click in the navigator, select **New** → **Outbound Event**.
    c. For the **Name**, enter `Order Fulfillment Event`.
    d. Select the check box for **'Configure this event to generate an alert in the dashboards'**.
    e. For the **Trigger**, browse to **Template KPI Context** → **Average Process Duration Trigger 1** and click **OK**.
    f. Click **OK**.
    g. In **Event Type Details**, for the extension name, browse to **clips** → **OrderFulfillmentTime.cbe** → **OrderFulfillmentTime** and then click **OK**.
    h. Again in Event Attributes Details, navigate to **BusinessSituationName**. The value of the situation name is set to `'Order Fulfillment Event'`.
    i. Set the expression for **OrderDuration** to **xs:string(Average_Process_Duration)**.



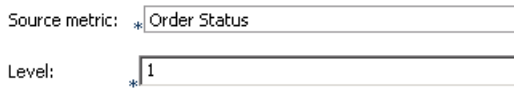
    j. Save your work.

Note: Notice that in both of the events (CBEs) created above that the **Extended Data** element **BusinessSituationName** was not created. This is because it is inherited from the parent event ActionServicesEvent. Actually, the **ShippedPercentage.cbe** did not even need to be created. The outbound event **Shipped Percentage Event** in the monitor model could have been created with the default Extension name of **ActionServicesEvent.cbe** → **ActionServicesEvent**. Event definitions (CBEs) for situation events only need to be created if **Extended Data** other than **BusinessSituationName** is needed. This is frequently the case however as additional process or business data is typically needed in the Alert and thus must be carried in the event.

14. There are count measures in the monitor model that will now be removed, these counts can be derived from a provided measure named **Instances Count**.
    a. Click the **Dimension Model** tab.
    b. Delete **Declined Order Count**, **Order Count**, and **Shipped Order Count**. Instead, you can get this information using the provided measure **InstancesCount** and then creating a dimension on **Order Status** which will

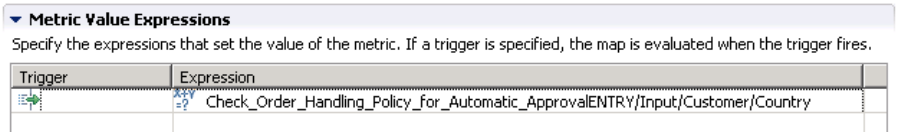
be used to aggregate order instances by the order status, e.g. new orders, shipped orders, and cancelled orders. In effect, this counts the order instances by their status.

15. Create the dimension **Order Status** so that orders can be aggregated by their status.
    a. In the Dimensional Model navigator, right-click **Order Handling (Future 1) Cube**, then select **New → Dimension**.
    b. For the **Name**, enter `Order Status` and then click **OK**.
    c. In the Dimensional Model navigator, right-click **Order Status** and select **New → Dimension Level**.
    d. Name the dimensional level `Order Status`. Then click **Browse** next to Source Metric and navigate to **Order Handling (Future 1) → Order Status**. Then click **OK**.



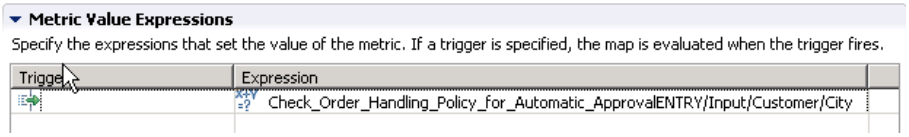
    e. To see the dimension level, click **Order Status** under Order Status.
16. Create the **State** dimension so that orders can be aggregated by the process completion state.
    a. In the Dimensional Model navigator, right-click **Order Handling (Future 1) Cube** and then select **New → Dimension**.
    b. For the **Name**, enter `State`.
    c. In the Dimensional Model navigator, right-click **State** and select **New → Dimension Level**.
    d. Name the dimension level `State`. Then click **Browse** next to Source Metric, and navigate to **Order Handling (Future 1) → Order Handling (Future 1) State**. Then click **OK**.
    e. Click **OK**. There is an error on this dimension because the Order Handling (Future 1) State metric is not initialized when the monitoring context is created. To solve this problem, in the **Monitor Details Model** tab, update the Order Handling (Future 1) State metric by selecting **'A value is required for this metric'** and changing the default value to **'New'**, including the quotation marks.
17. There is a dimension called Location in the dimensional model, but there are errors associated with it. This dimension came from the business measures model, and it should contain two levels: the country and the city. Create metrics for country and city and then update the Location dimension to refer to the metrics.
    a. Right-click in the Monitor Details Model navigator and select **New → Metric**.
    b. For the name, enter `Country`. For the **type**, select **String**. Then click **OK**.
    c. Because a dimension will use this metric and the metric requires a value for dimensional analysis, select **'A value is required for this metric'**.
    d. For the default value, enter an empty string, which is two single quotation marks.
    e. In Metric value expressions, click **Add**. In the **Expression** cell, use content assist (Ctrl + Space bar) to navigate to the following inbound event field for country:

```
Check_Order_Handling_Policy_for_Automatic_ApprovalENTRY/Input/Customer/Country
```



f. Create a City metric, following the previous steps but selecting the following inbound event field for city:

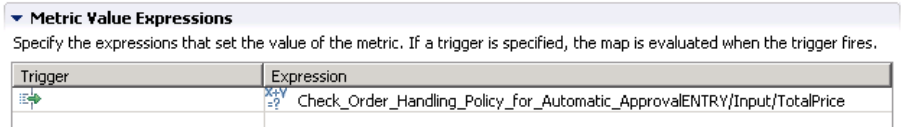
```
Check_Order_Handling_Policy_for_Automatic_ApprovalENTRY/Input/Customer/City
```



18. In the Dimensional model, update the Location dimension with the two metrics:
    a. In the Dimensional model, delete the **Location level** under the Location dimension.
    b. In the Dimensional Model navigator, right-click **Location** and select **New** → **Dimension Level**.
    c. Name it `Country` and then click **Browse** next to Source Metric and navigate to **Order Handling (Future 1)** → **Country**. Then click **OK**.
    d. Click **OK**.
    e. In the Dimensional Model navigator, right-click Location and select **New** → **Dimension Level**.
    f. Name it `City` and then click **Browse** next to Source Metric and navigate to **Order Handling (Future 1)** → **City**. Then click **OK**.
    g. Click **OK**. In the Dimensional Model navigator, Location is listed with two sublevels:

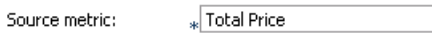
19. In the Dimensional model, update the **Order Price Average** measure. You will create a price metric to use as a source for this measure.
    a. Right-click in the Monitor Details Model navigator and select **New** → **Metric**.
    b. For the name, enter `Total Price`. For the **type**, select **Decimal**. Click **OK**.
    c. In Metric value expressions, click **Add**. In the Expression cell, navigate to the following inbound event field for total price:

```
Check_Order_Handling_Policy_for_Automatic_ApprovalENTRY/Input/TotalPrice
```

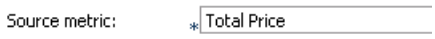


20. In the dimensional model, update the Order Price Average measure with the new metric:
    a. Select the **Dimensional Model** tab and then select the **Order Price Average** measure.

b. For the source metric, browse to**Order Handling (Future 1)** → **Total Price** and click **OK**.



21. In the dimensional model, update the Order Price Total measure with the new metric:
    a. Select the **Dimensional Model** tab and then select the **Order Price Total** measure.
    b. For source metric, browse to **Order Handling (Future 1)** → **Total Price** and click **OK**.

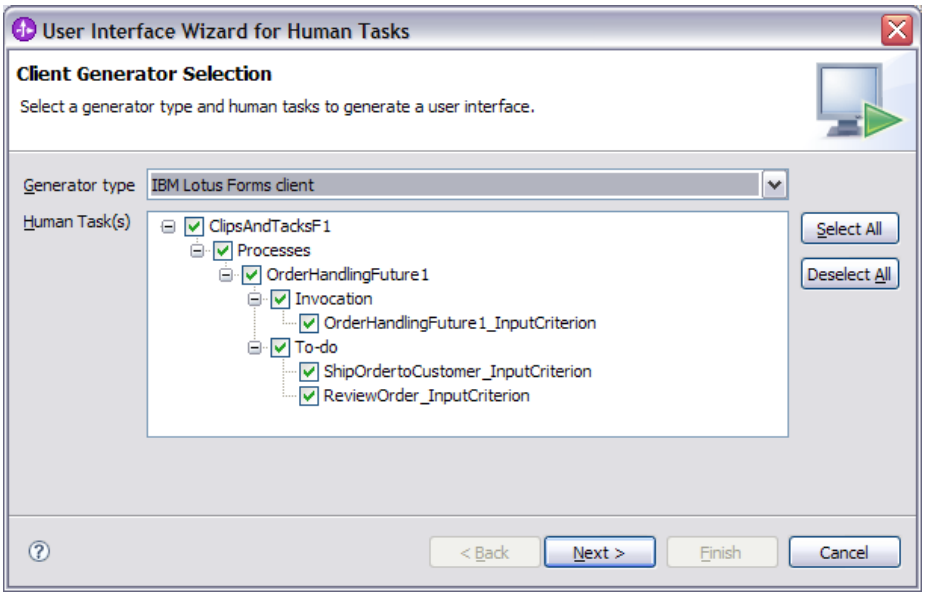


    c. Save your work.
    d. Select **Project** → **Clean**, and then select **'Clean all projects'**. Click **OK**.
    e. Check for errors in the Problems view and resolve the errors before continuing. Warnings and informational messages might be present, but they will not be a problem. If the errors do not disappear, close WebSphere Integration Developer, reopen WebSphere Integration Developer, and then rebuild all the projects by clicking **Project** → **Clean**.

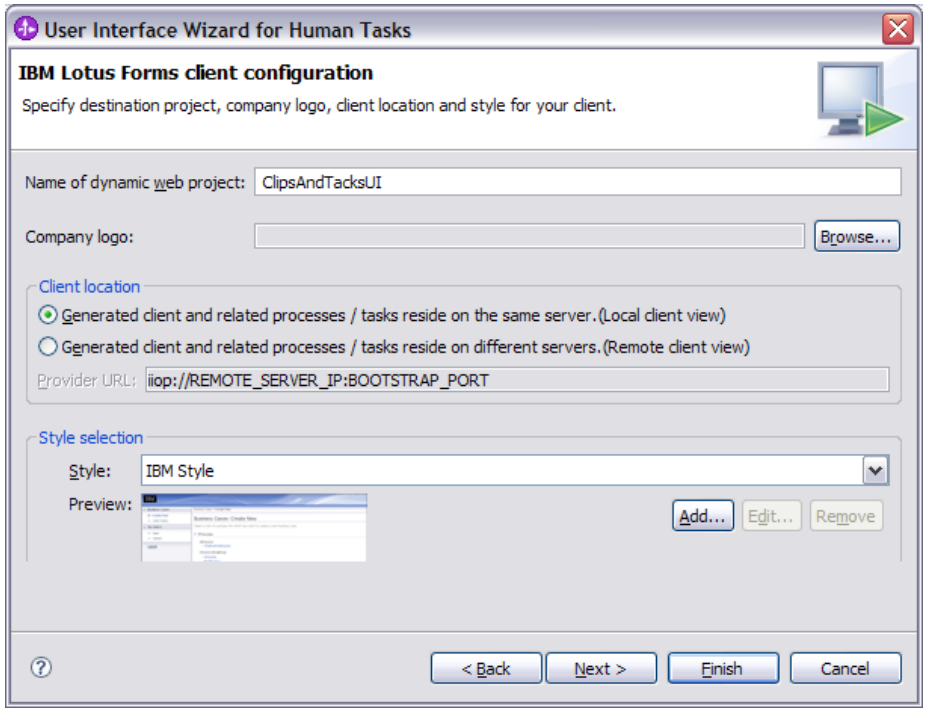
Generate executable artifacts for the monitor model and deploy to the server

Now you will use WebSphere Integration Developer to deploy the monitor model to the WebSphere Business Monitor server.

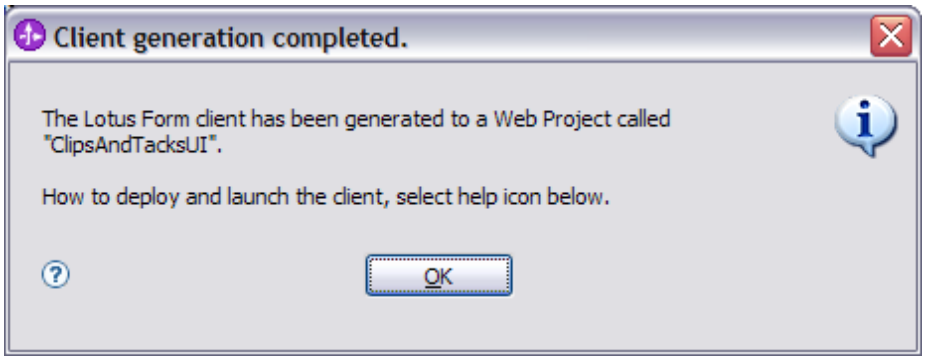
1. Generate the model.
    a. In the project tree, expand **clips** → **Monitor models** → **clipsbpm.mm**. Right-click clipsbpm.mm and select **Generate Monitor J2EE Projects**. When generation is complete, select **Finish**. A progress dialog box shows the status of the operation and it closes when the operation is complete. This will take a few minutes.
    b. Check for errors in the Problems view. There might be warnings, but there should not be any errors. If you see errors, rebuild by selecting **Project** → **Clean**. Select **Clean all projects**, and then click **OK**.
2. Next regenerate the forms user interface for the Order Handling process.
    a. Click the **Business Integration** tab in the left pane.
    b. Right click on ClipsAndTacksF1 from the left pane and select **Generate User Interfaces**.
    c. Select **IBM Lotus Forms client** as the **Generator type**, and click **Next**.



d. Name the dynamic Web project `ClipsAndTacksUI`. For the style, select **IBM Style** and click **Finish**.

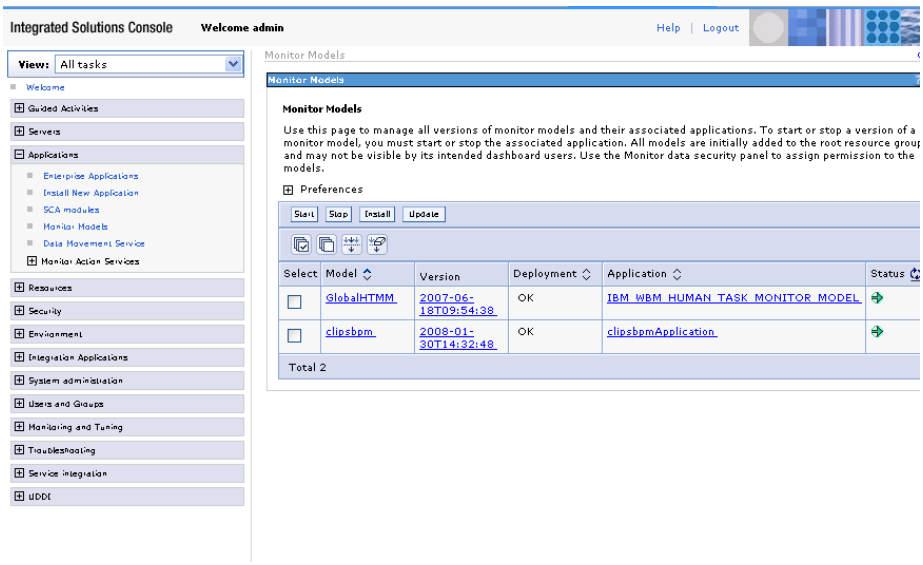


e. When you see the Client generation completed message, click **OK**.



3. Deploy the generated projects.
   a. Click the **Servers** tab and then right-click **WebSphere Business Monitor v6.1 on WebSphere Process Server** and select the **Start** option to start the server. Starting the server might take a few minutes.

   b. After the server has started, right-click **WebSphere Business Monitor v6.1 on WebSphere Process Server** again and select **Add and Remove Projects**.
   c. Move **ClipsAndTacksF1App, ClipsAndTacksUIEAR**, and **clipsbpmApplication** from the list of available projects to the list of configured projects (you can use **Add All** if there are no other projects in your workspace) and then click **Finish**. A progress message displays in the lower right-hand corner of the window. Deploying and starting the applications might take a few minutes.
   d. Check the messages in the Console view for errors. Note that because the application was just installed, there are no values for the KPIs and other metrics yet. The Console view will show warning and error messages to this effect. The messages will be from the kpi package and indicate a divide by zero exception. This is expected until Orders are processed. The messages will repeat every minute until an Order is processed. This is because earlier in the model it was specified to check the KPI based on a "recurring wait timer" set at 1 minute.
   e. In the Servers view, right-click and select **Run administrative console**. The administrative console will open in a new tab.
   f. The administrative console will prompt you for a user ID and password. For the user ID, enter `admin`. For the password, enter `admin` Click **Log in**.
   g. Select **Applications → Monitor Models**.



If the application starts, it will show a green status. If the status of clipsbpm is red, then it is stopped. Wait a moment and then refresh the process by clicking the icon to the right of Status in the last column of the table. You should see green to indicate that the model has started. If the model does not reflect green, wait a few more minutes and refresh the display again.

h. In the Console view, check the server log to ensure that there are no problems other than the KPI divide by zero exception mentioned earlier that is due to no orders having been processed yet.

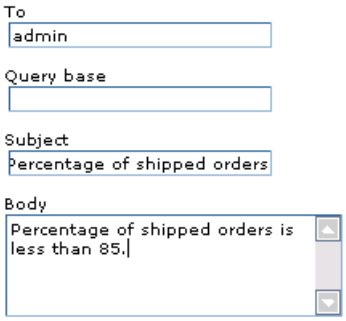
i. By using the integrated WebSphere Business Monitor server in WebSphere Integration Developer, you do not need to set up WebSphere Business Monitor data security because the administrator is automatically authorized to access all models. When using an external server in future projects, open the administrative console, navigate to **Security** → **Monitor Data Security**, and then add the model, role, and user information to a resource group.

Configure Action Services for business situation events

Next configure WebSphere Business Monitor's Action Services to create alerts when business situation events are received. The situation events are sent from the monitor model as outbound events. The alerts will be visible in the Alert view on your dashboard. You do not need an LDAP server to test the situation events as was necessary in previous releases.

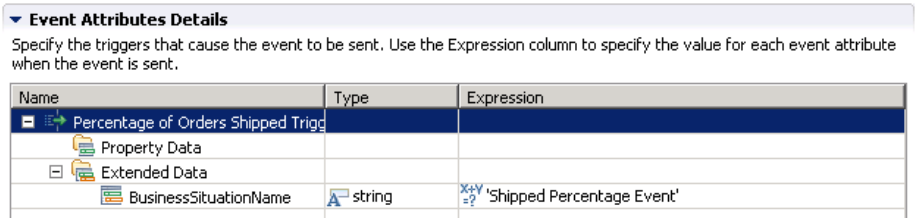
1. Add an alert template for when the percentage of shipped orders needs attention.
   a. In the administrative console, select **Applications** → **Monitor Action Services** → **Template Definitions** → **Notifications** and click **New**.
   b. For the template name, enter `AlertShip`, and then enter any description.
   c. Select **Dashboard Alert**. This indicates that the an alert (defined below) will be sent to the business dashboard's alert view.
   d. Select **User id**.
   e. For the **To** field, enter `admin`. This user ID is the user logged into the business dashboard that will receive the alert. You must log into the business dashboard with this user ID.

f. For **Subject**, enter `Percentage of shipped orders`. This will be the title of the alert in the dashboard. Enter the Body as Percentage of shipped orders is less than 85. Click **OK**.



2. Add an alert template for when order processing time needs attention.
   a. In the administrative console, select **Applications** → **Monitor Action Services** → **Template Definitions** → **Notifications** and click **New**.
   b. For the template name, enter `AlertTime`, and then enter any description.
   c. Select **Dashboard Alert**. This indicates that the an alert (defined below) will be sent to the business dashboard's alert view.
   d. Select **User id**.
   e. For the **To** field, enter `admin`. This user ID is the user logged into the business dashboard that will receive the alert. You must log into the business dashboard with this user ID.
   f. For **Subject**, enter `Order processing time`.
   g. For the **Body** enter `The average order processing time is %OrderDuration% days`.

      %OrderDuration% is a substitution variable in the alert. In the alert that will be sent, the situation event's Extended Data Element, OrderDuration, will be substituted for %OrderDuration% in the body of the alert.
   h. Click **OK**.
3. Now add the binding from the situation event to the action type of the alert template for shipped percentage situations.
   a. In the administrative console, select **Applications** → **Monitor Action Services** → **Installed Situation Event Bindings** and click **New**.
   b. Enter the situation event name that you defined in the model. You named the business situation event Shipped Percentage Event. The name must match the value in the BusinessSituationName field in the outbound event. You might want to copy the name from the monitor model to ensure an exact match (do not include the quotation marks). The following screen capture from the monitor model shows the Shipped Percentage Event attributes:

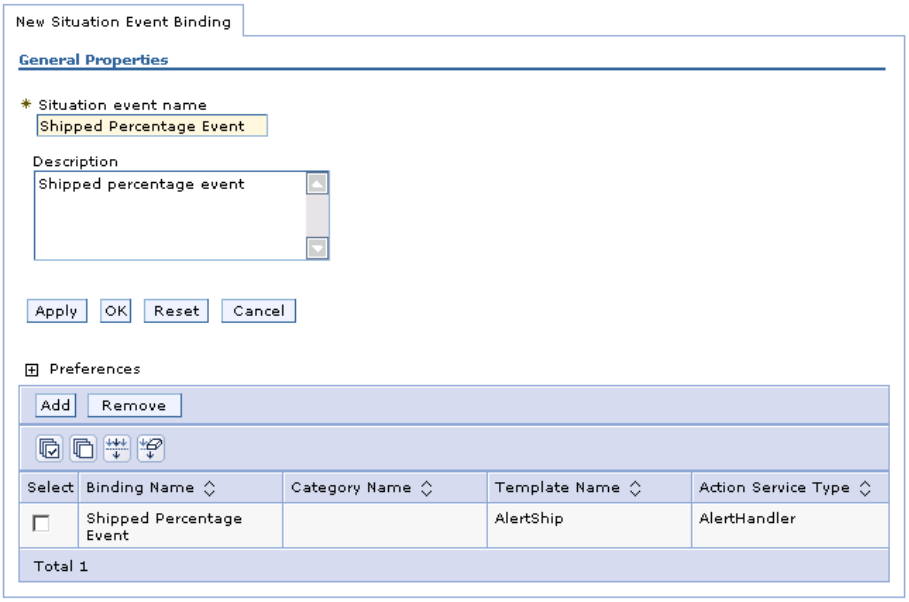


   c. Enter any description and then click **Apply**.

d. In the table under Preferences, click **Add**.

e. Enter a binding name, for example Shipped Percentage Event, and then select the template **AlertShip**.

f. Click **OK**. 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 and you could send a notification for this situation event to multiple destinations using e-mail, alerts, and Web services.



g. Click **OK**.

4. Add the binding from the situation event to the alert template for the action type for order processing time situations:

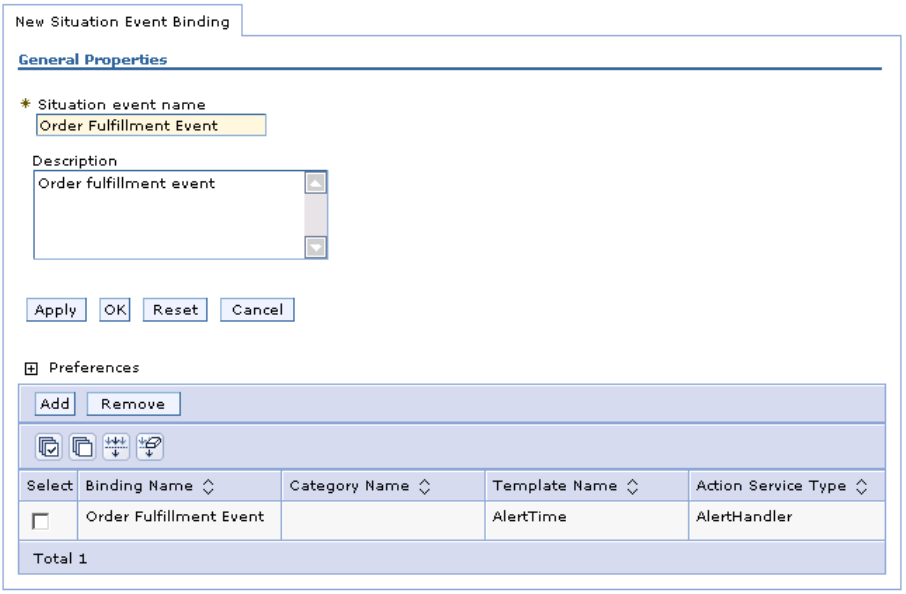
a. In the administrative console, select **Applications** → **Monitor Action Services** → **Installed Situation Event Bindings** and click **New**.

b. Enter the situation event name that you defined in the model. You named the business situation Order Fulfillment Event. The name must match the value in the BusinessSituationName field in the outbound event. You might want to copy the name from the monitor model (without the quotation marks).

c. Enter any description and then click **Apply**.

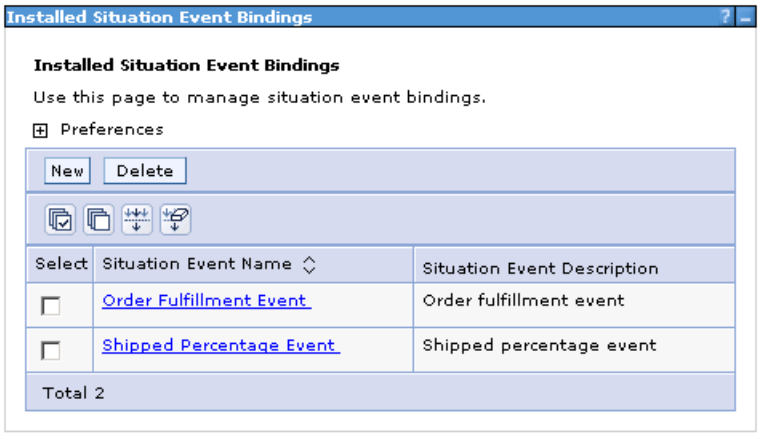
d. In the table under Preferences, click **Add**.

e. Enter a binding name such as `Order Fulfilment Event`, select the template **AlertTime**, and then click **OK**.



f. Click **OK** again.

g. In the administrative console, select **Applications** → **Monitor Action Services** → **Installed Situation Event Bindings**. You will see the two bindings that you created.



Exercise the model by running events

Now you will use the Lotus Forms client to run process instances. You access it by entering the URL http://localhost:9080/ClipsAndTacksUI in an internet browser. For more information, refer to the Running and testing the application section.

There are five paths through the process model. The following form data invokes each path. The form values not specified can be any value:

- Path taken: Approve without review, Account in good standing, Ship
  1. Form data to start an instance of the process.
     a. Rating: 800
     b. Available Credit: 800
     c. Total Price: 20
  2. Ship task

a. Packing Slip Number: Any value

- Path taken: Approve without review, Account not in good standing, Approve the order, Ship
  1. Form data to start an instance of the process.
     a. Rating: 800
     b. Available Credit: 100
     c. Total Price: 200
  2. Review task:
     a. Order Status: APPROVED
  3. Ship task:
     a. Packing Slip Number: Any value
- Path taken: Approve without review, Account not in good standing, Decline the order
  1. Form data to start an instance of the process.
     a. Rating: 800
     b. Available Credit: 100
     c. Total Price: 200
  2. Review task:
     a. Order Status: REJECTED
- Path taken: Do not approve without review, Approve the order, Ship
  1. Form data to start an instance of the process.
     a. Rating: 10
     b. Available Credit: 10
     c. Total Price: 900
  2. Review task:
     a. Order Status: APPROVED
  3. Ship task:
     a. Packing Slip Number: Any value
- Path taken: Do not approve without review, Decline the order
  1. Form data to start an instance of the process.
     a. Rating: 10
     b. Available Credit: 10
     c. Total Price: 900
  2. Review task:
     a. Order Status: REJECTED

One way to see an alert in the Alerts view of the business dashboard is to have the number of shipped orders less than 85 percent of the total number of orders. To achieve this, process one rejected order before you add another process instance. Then go to the Create a dashboard section of this tutorial and create a dashboard to view the alerts.

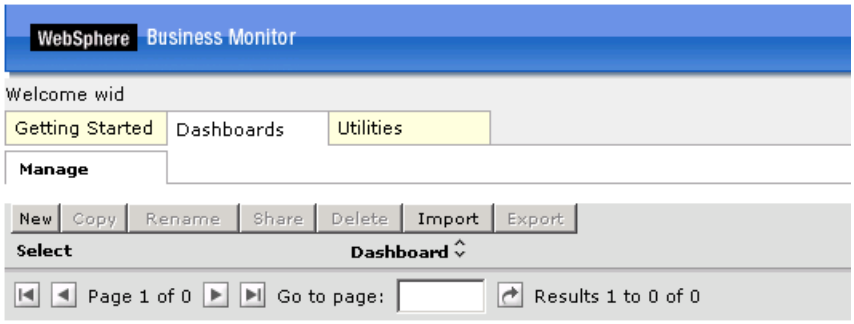
Create the business dashboard

Now you will create a business dashboard. You will add views to the dashboard and configure them.

1. Open the WebSphere Integration Developer dashboard manager.
   a. In WebSphere Integration Developer, select **Window → Web Browser**. Select **Default system Web browser** or another listed browser other than the internal browser.
   b. In the Servers view, right-click **WebSphere Business Monitor Server v6.1 on WebSphere Process Server** and select **WebSphere Business Monitor Dashboard**.
   c. When prompted, enter `admin` for the user ID and `admin` for the password. You must log in with admin so that you can view the alerts that were set

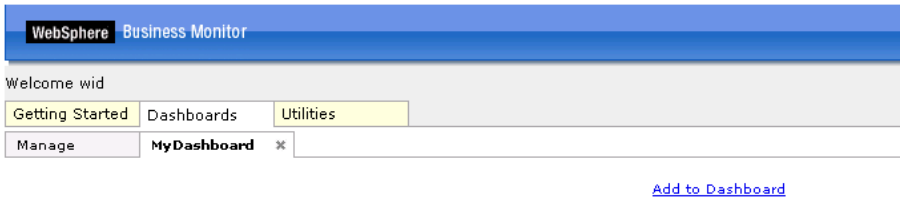
up in Action Services to be viewed by this particular user ID. Also, in the WebSphere Business Monitor toolkit, this is the user that is automatically defined on the secured server.

d. Select the **Dashboards** tab and then the **Manage** tab.

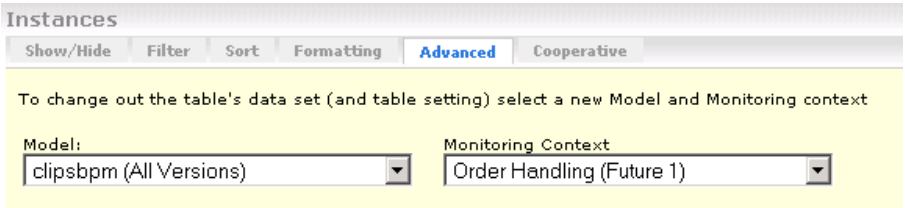


e. Click **New** and then enter a name for the new dashboard, for example `MyDashboard`. Click **OK**.

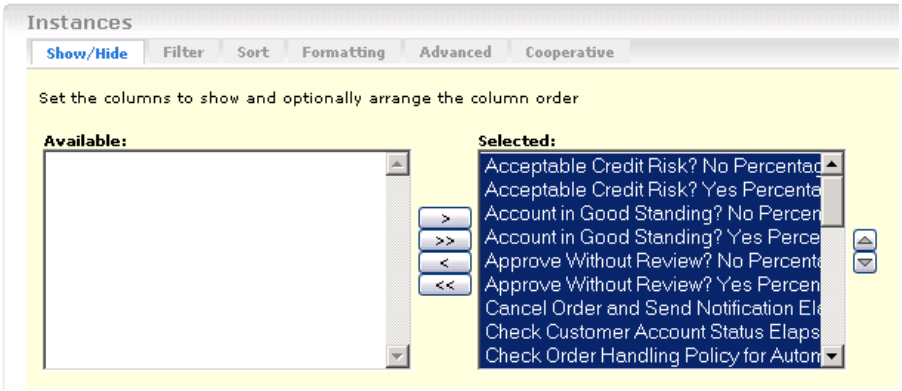
Note: The contents in the views in the dashboards will depend on the actual data that was entered into the forms for the orders.



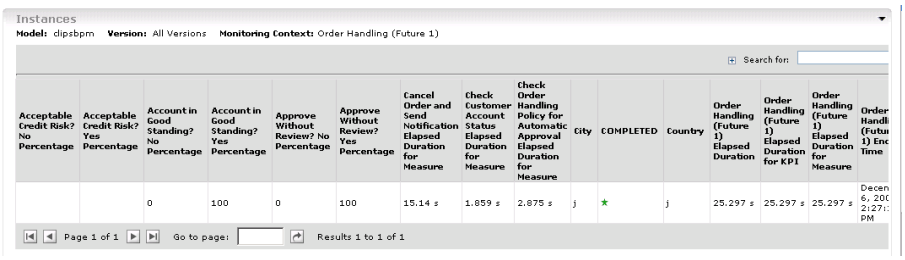
2. Add the instances view to the business dashboard so that you can view the process instances:
   a. Click **Add to Dashboard**, select **Instances**, and then click **OK**. You can also add a view by dragging the view from the palette onto the dashboard.
   b. In the Instances view, click **Personalize**.
   c. Click the **Advanced** tab and select model **clipsbpm (All Versions)**.



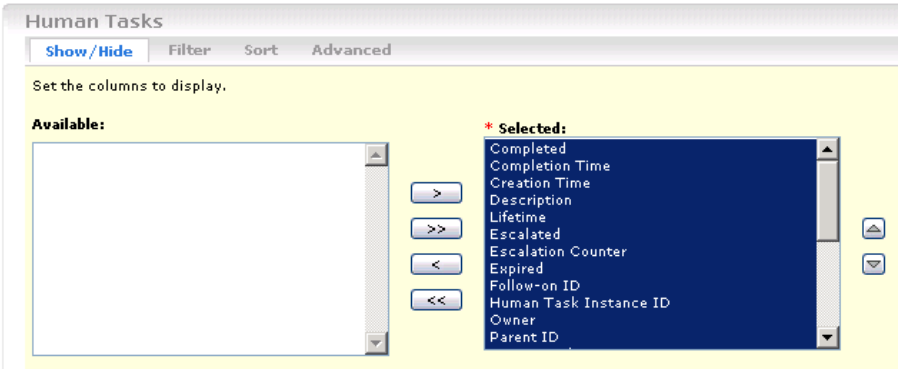
   d. Click the **Show/Hide** tab and then click >> to copy all of the metrics from the available list to the selected list.



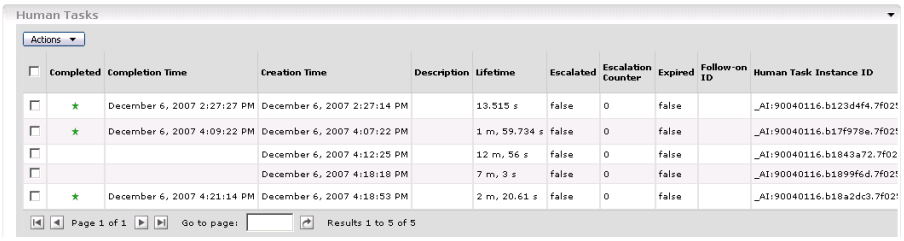
e. Click **OK**. You will see a list of monitoring context instances for the orders entered.



3. Add the Human Tasks view so that you can monitor human activity in the process instances.
   a. Click **Add to Dashboard** and then select **Human Tasks**. Click **OK**. Note that you can also add a view by dragging the view from the palette onto the dashboard.
   b. In the newly added Human Tasks view, click **Personalize**.
   c. Select the **Show/Hide** tab and then click **>>** to copy all of the metrics from the available list to the selected list.

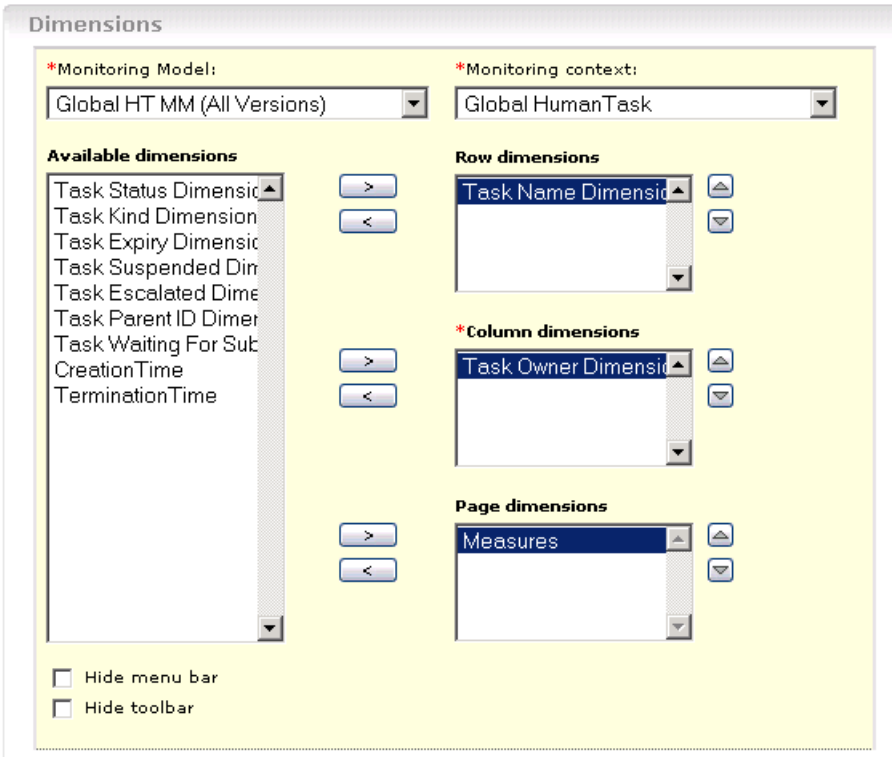


   d. Click **OK**. The Human Tasks view is shown in the following figure.

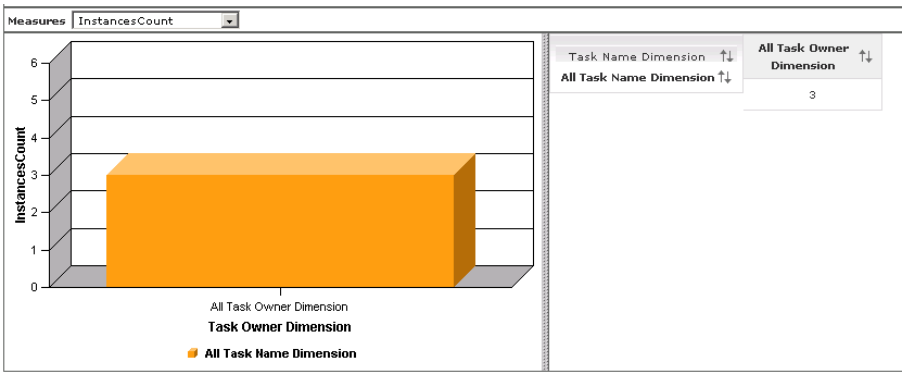


4. Add the dimensions view and configure it to show human task information in aggregate form:
   a. Click **Add to Dashboard**, select **Dimensions**, and then click **OK**.
   b. Click **Personalize**.
   c. In the personalization screen, select the following values:
      - Monitoring Model: **Global HT MM (All Versions)** .

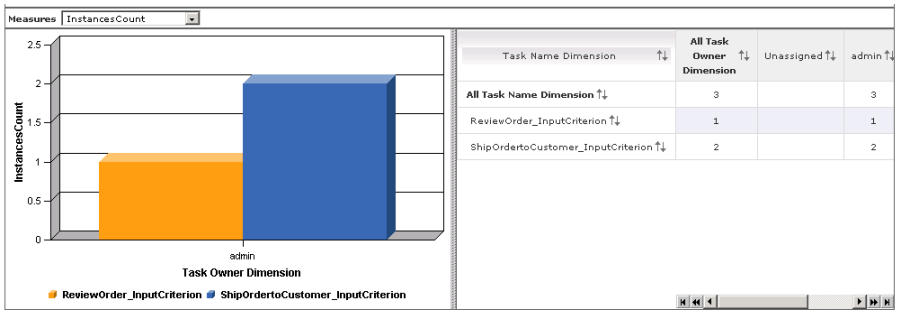
        Note: This is the global human task monitor model that is automatically installed when you install the toolkit.
      - Monitoring Context: **Global Human Task**.
   d. From the **Available Dimensions** list, select **Task Name Dimension** and click the right direction arrow (>) next to the Row Dimensions selected list.
   e. Select **Task Owner Dimension** and click the right directional arrow (>) next to the Column Dimensions selected list.
   f. Select **Measures** and click the right direction arrow (>) next to the Page Dimensions text box.



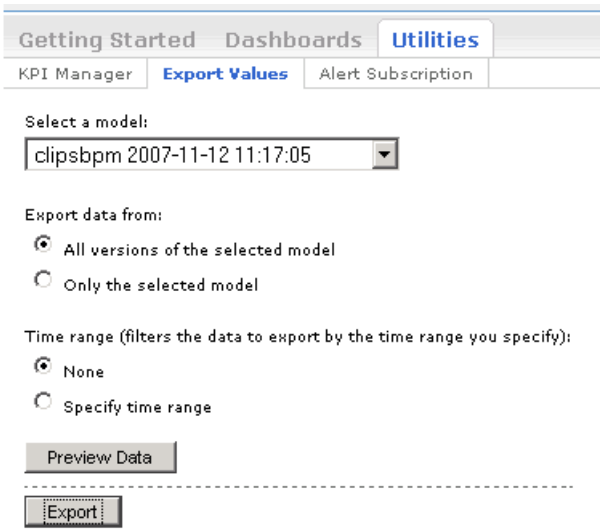
g. Click **OK**. The Dimensions view displays the instances count by task name and task owner.



h. Optional. You can double-click **All Task Name Dimension** and **All Task Owner Dimension** and drill down to more detailed data. This is performed in the vast majority of cases.



5. Add the Alerts view. There are two situation events (outbound events) defined in the model that will generate alerts based on the configuration set in Action Services: one situation event for shipped percentage and one for order processing time. The latter is based on a processing time being greater than 3 days, so it will be difficult to test now. However, you can test the former alert by ensuring that the percentage of shipped orders is less than 85 percent of the total orders. To test the Shipped Orders < 85% alert, click **Add to Dashboard**, select **Alerts**, and then click **OK**.
6. Add the KPI view to the business dashboard to monitor the KPIs defined in the monitor model.
   a. Click **Add to Dashboard**, select **KPIs**, and then click **OK**. You can also add a view by dragging the view from the palette to the dashboard.
   b. Click **Personalize**.
   c. Expand clipsbpm, and select the KPIs you want to view. You can select all of them if you wish. Click **OK**.
7. Next you will export the monitored values to WebSphere Business Modeler to improve simulation results and assumptions made in the process model such as path percentages. Only completed process instances are exported, therefore, ensure that you have completed some process instances before you export the values.
   a. Select the **Utilities** tab.
   b. Select the **Export Values** tab.
   c. Select the **clipsbpm** model and then click **Export**.



The data exported as XML opens in a browser window.

d. Click **File** → **Save** page as or **File** → **Save as** (depending on your browser) and then select your destination folder and click **Save**. By default, the file is stored as exportvalues.xml. If your browser window does not have a File menu, then copy and paste the content into a file.

e. Open **WebSphere Business Modeler** with the workspace that contains your process model.

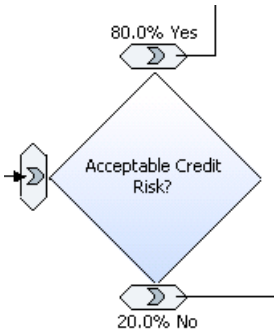
f. In the project tree, navigate to **ClipsAndTacksF1** → **Processes** → **Order Handling (Future 1)**.

g. Right-click **Order Handling (Future 1)** and select **Import**.

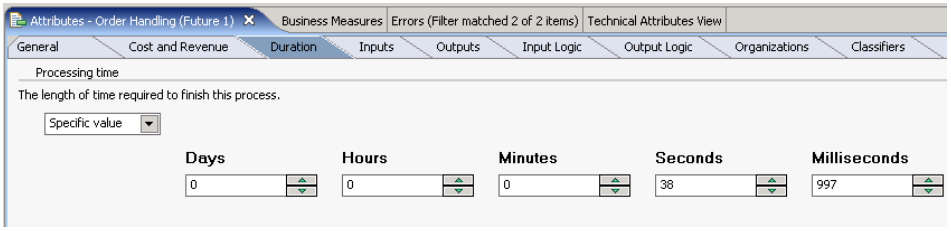
h. Select Monitoring result (.xml) and then click **Next**.

i. Browse to the folder that contains the exportvalues.xml file and select the file. Click **Next** and then click **Finish**.

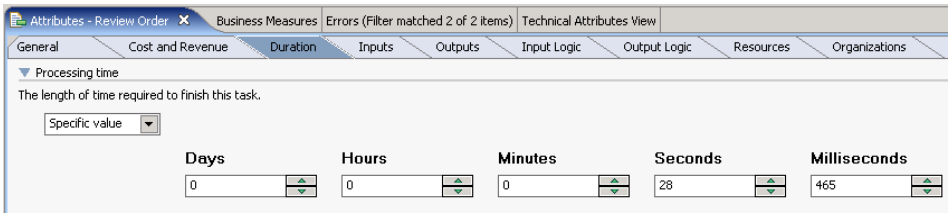
8. In the project tree, double-click the process to open the process diagram. Examine the process diagram to see the updated decision percentages for the six simple decisions.



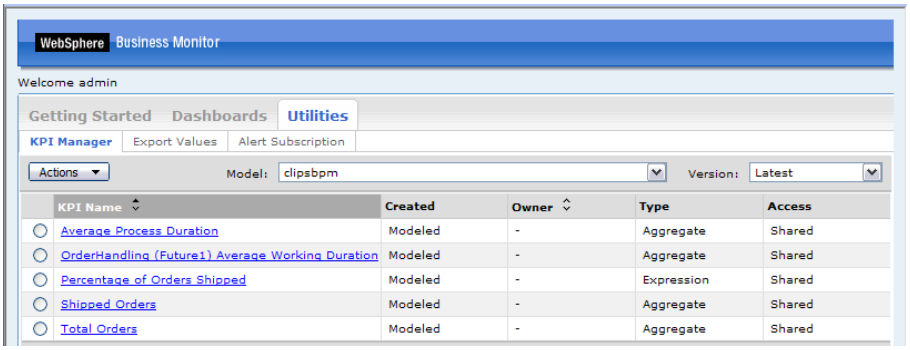
9. Examine the updated process duration time by clicking the background of the process diagram. Click the **Attributes** tab and then the **Duration** tab.



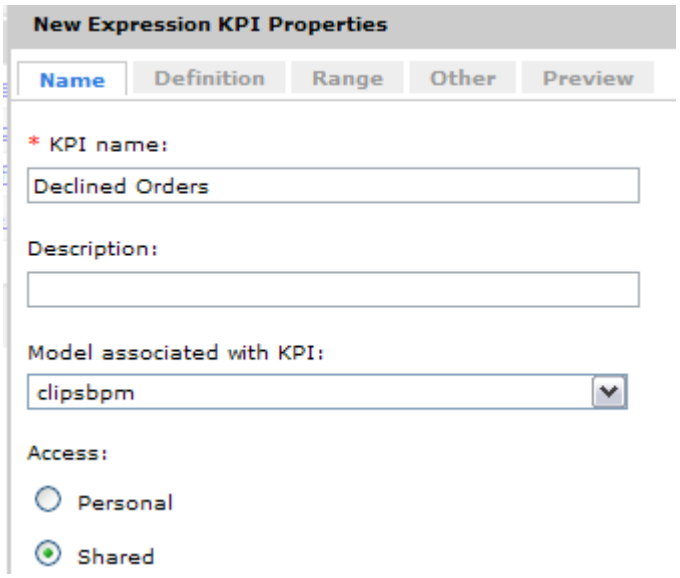
10. Examine the updated task duration times by clicking one of the tasks in the process diagram. Click the **Attributes** tab and then the **Duration** tab. Next click the icon for **'Processing time'**.



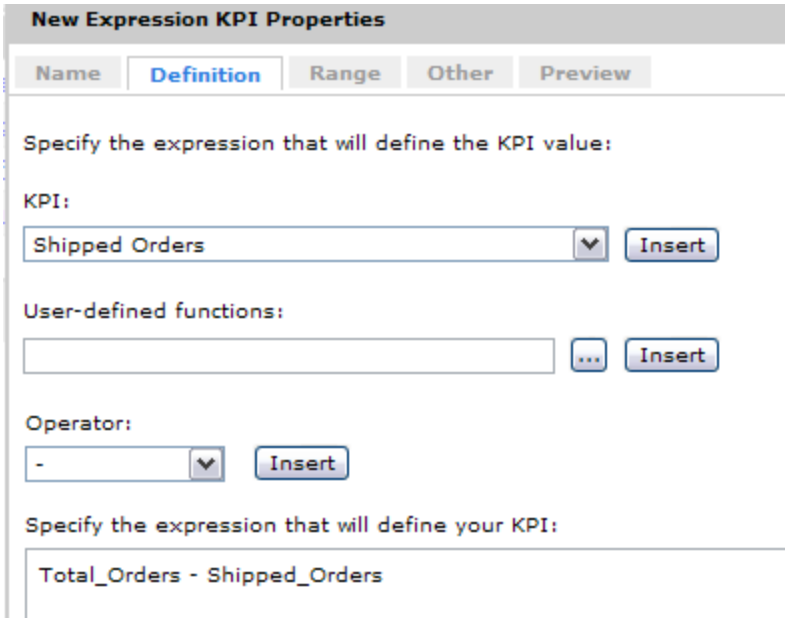
11. Add a dynamic KPI to the dashboard.
    a. In the business dashboard, click **Utilities** and then **KPI Manager** tab.
    b. In the **Model** field, select **clipsbpm**. In the Version field, select **Latest**.



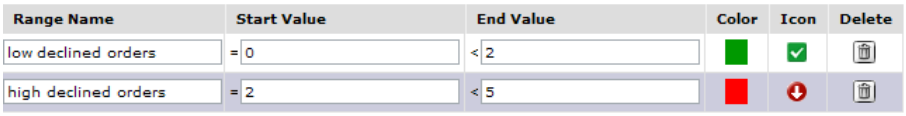
    c. Click **Actions** and select **New Expression KPI**.
    d. For the name of the KPI, enter `Declined Orders`.
    e. For the model associated with the KPI, select **clipsbpm**.
    f. For Access, select **Shared** so that other users can see the new KPI.



12. Create the expression for the new Declined Orders KPI.
    a. Select the **Definition** tab.
    b. Use the KPI drop down list to select **Total Orders** and click **Insert**.
    c. Use the Operator drop down list to select **–** (minus) and click **Insert**.
    d. Use the KPI drop down list again to select **Shipped Orders** and click **Insert**.

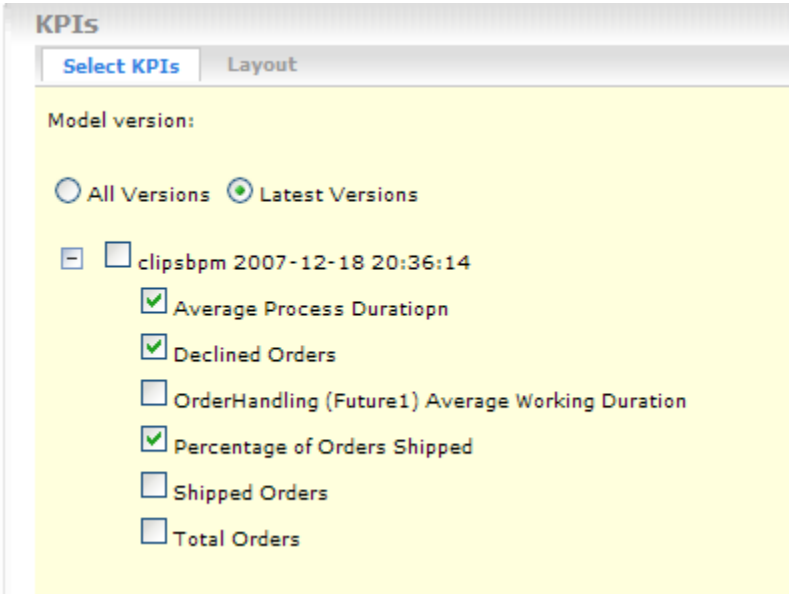


    e. Click **Apply**.
    f. Select the **Range** tab.
    g. For Range definition, select **Numerical**.
    h. Add two rows as shown below by clicking **Add row** and entering the following values and selecting the following colors. Click **OK**.

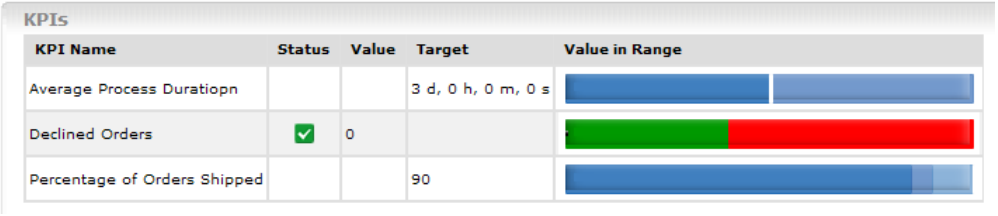


i. Select the **Dashboards** tab.

j. On the KPI View, click **Personalize**, expand clipsbpm and select **Declined Orders** (the newly created KPI). Click **OK**. The new KPI view includes the dynamic KPI that just built.



The new KPI view includes the dynamic KPI that just built.



Debug information

This section contains the debug information you can use for this sample.

Symptom:

ExceptionUtil E CNTR0020E: EClassifier "http://ClipsAndTacksF1/Businessitems#Notification" not found in ClassLoaderScope: com.ibm.ws.classloader.CompoundClassLoader@20b220b2

Explanation:

This runtime error might occur after you set the status as REJECTED. If so, it is likely that the project name you created in WebSphere Business Modeler is not ClipsAndTacksF1, causing a namespace mismatch in CancelOrderandSendNotificationImpl.java.

User response:

Change the namespace definition in CancelOrderandSendNotificationImpl.java to ClipsAndTacksF1.

Symptom:

ExceptionUtil E CNTR0020E: EJB threw an unexpected (non-declared) exception during invocation of method ″transactionNotSupportedActivitySessionSupports″ on bean ″BeanId(ClipsAndTracksF1App#ClipsAndTracksF1EJB.jar#Module, null)″. Exception data: java.lang.NullPointerException at com.clipstacks.credit.CreditRating.calculateCreditRating(CreditRating.java:47) at sca.component.java.impl.CheckCustomerAccountStatusImpl. InputCriterion(CheckCustomerAccountStatusImpl.java:38)

Explanation:

This runtime error might occur after you add input data into OrderHandlingFuture1.

User response:

Regenerate the user interfaces for the forms, ensuring that the building workspace is completed and the server is starting before you regenerate the user interfaces.

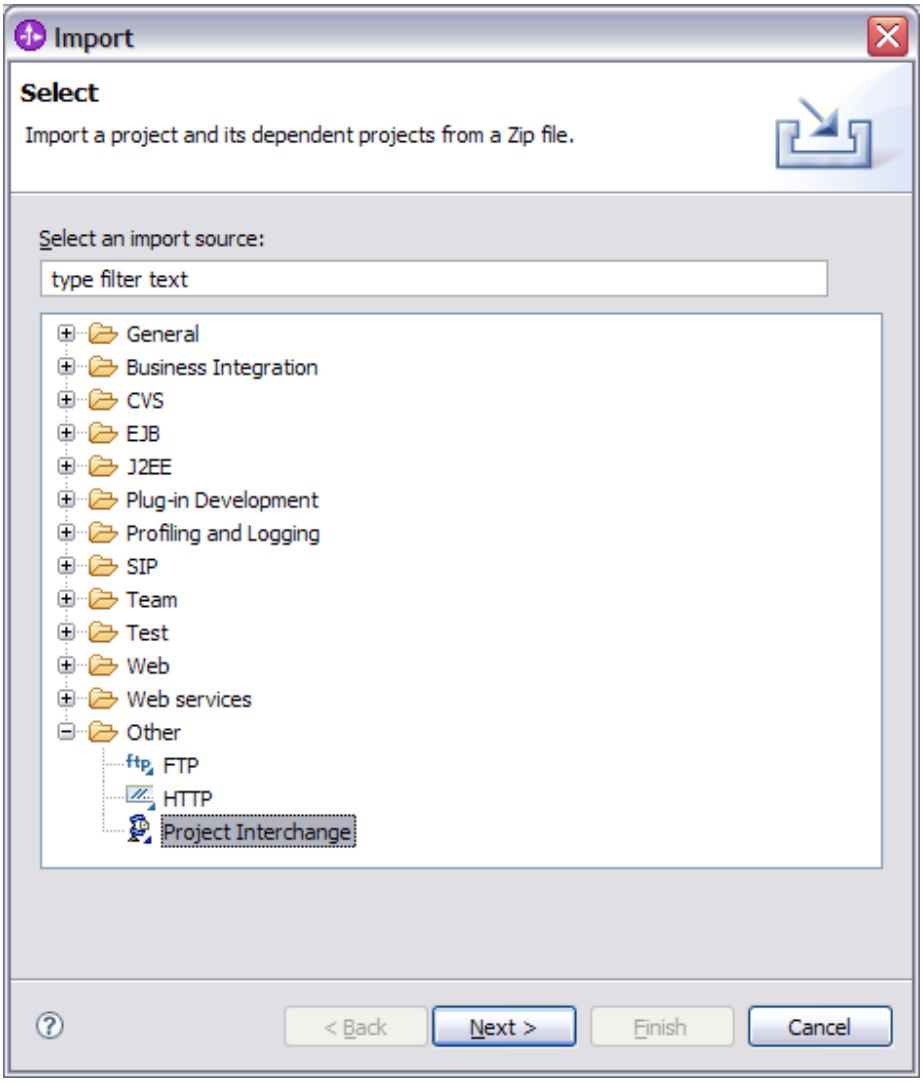
To import the completed projects, complete the following steps:

1. Start WebSphere Integration Developer with a clean workspace.
2. Click **File** → **Import** → **Other** → **Project Interchange** and click **Next**.
3. For **From zip file**, click **Browse** and to select the directory where the ClipsAndTacksF1All.zip is saved.
4. Click **Select All** and then **Finish** to import everything.
   a. ClipsAndTacksF1 is the completed business process .
   b. clips is the monitoring model.

Run the sample

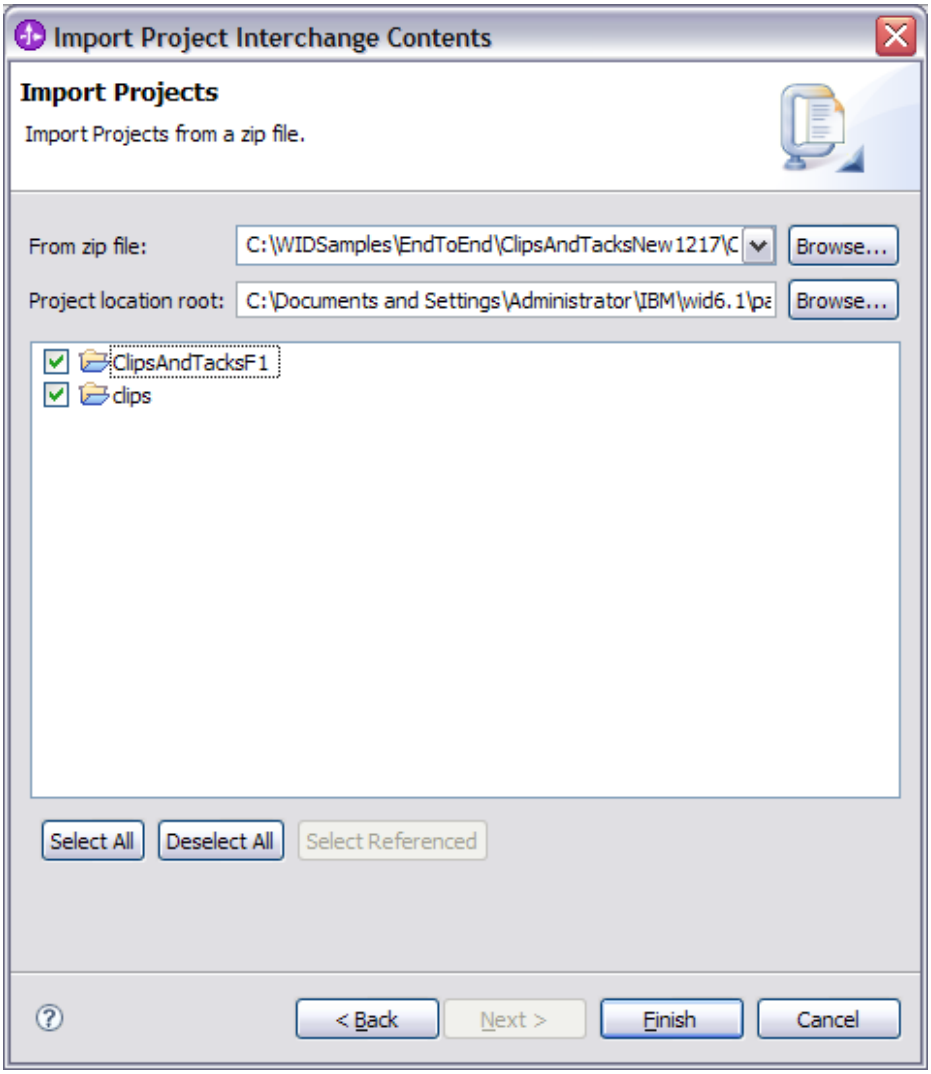
You can run the sample from the provided artifacts if you did not build the sample from the tutorial. This section will guide you through the steps to use the provided solutions and then to run the sample.

1. If you are using the sample from this Web site, you must import the Clips and Tacks project interchange file. If you are accessing the sample from within WebSphere Integration Developer, you can skip this step. To import the Clips and Tacks project interchange file, complete the following steps:
   a. Start WebSphere Integration Developer Version 6.1 and create a new workspace name for this sample, for example C:\Documents and Settings\Administrator\IBM\wid6.1\ClipsAndTacks. Do not select **Use this as the default and do not ask again** check box because it is easier to come back to this dialog box if it is not selected. Click **OK**.
   b. Close the **Welcome** page.
   c. Import **ClipsAndTacksF1Completed.zip** (see "Download the sample" on page 5-1) into WebSphere Integration Developer by selecting **File → Import**.
   d. Select **Other → Project Interchange** and then click **Next**.

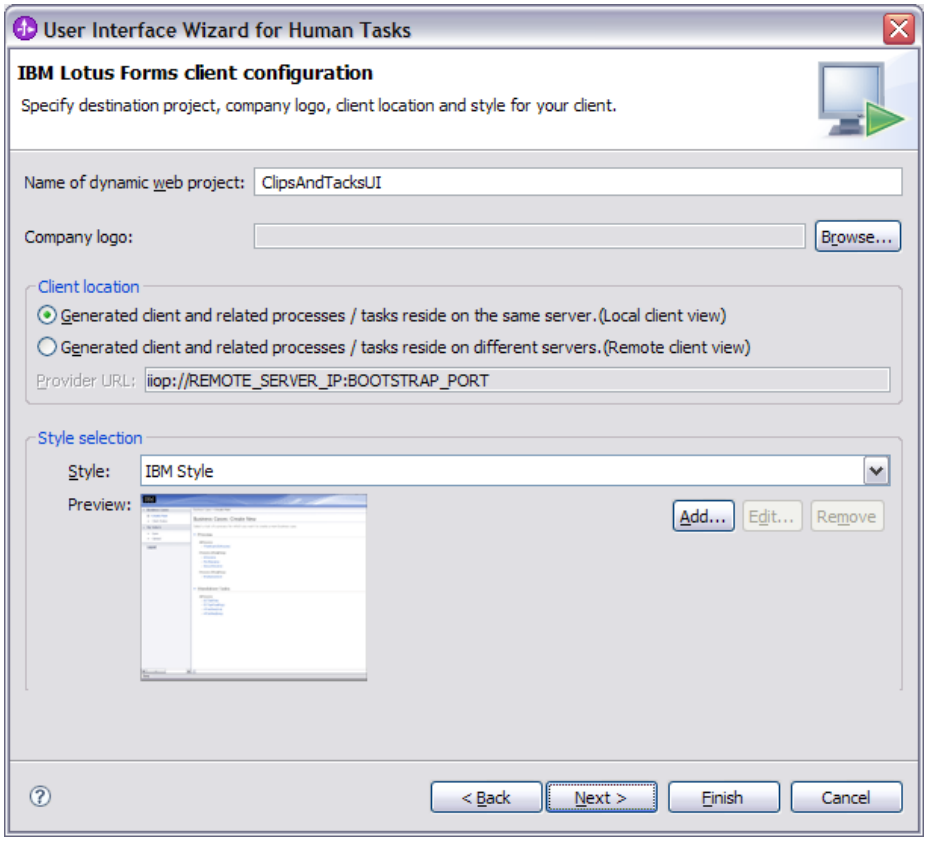


e. Click **Browse** and select **ClipsAndTacksF1Completed.zip**.

f. Click **Select All**. The generated files are not included in the downloaded ClipsAndTacksF1Completed.zip file to save downloading time. Instructions on how to generate them are also in this section. Click **Finish**

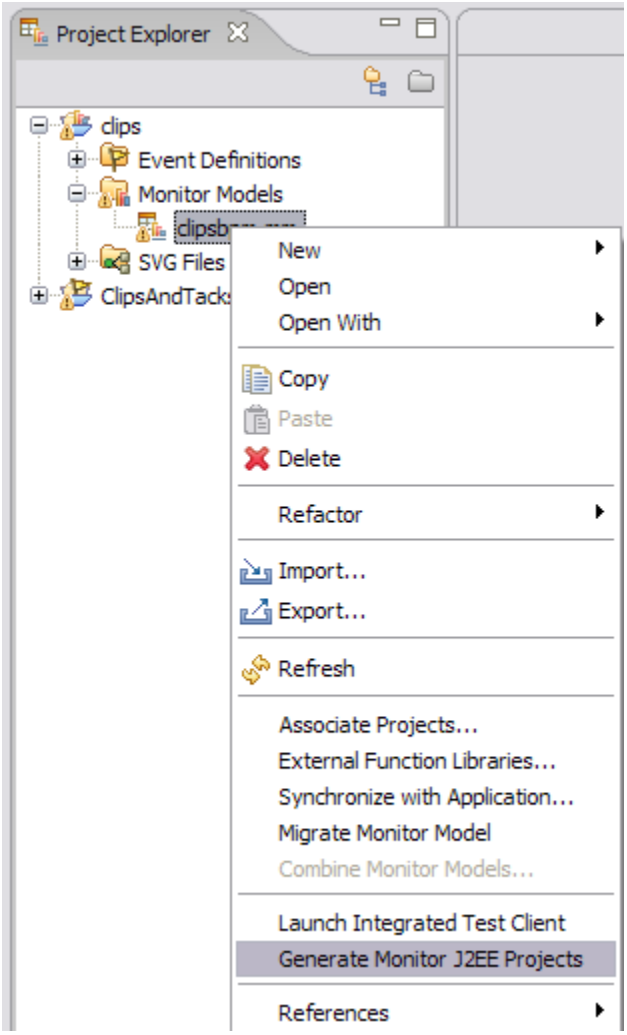


2. Generate the process's User Interface.
   a. When Building Workspace is completed from the import, right-click on **ClipsAndTacksF1** and select **Generate User Interfaces**.
   b. In the **Client Generator Selection** window, change **Generator type to IBM Lotus Forms client** and click **Next**.
   c. For the name of the dynamic Web project, enter `ClipsAndTacksUI`. For the style, select **IBM Style**. Click **Finish**.

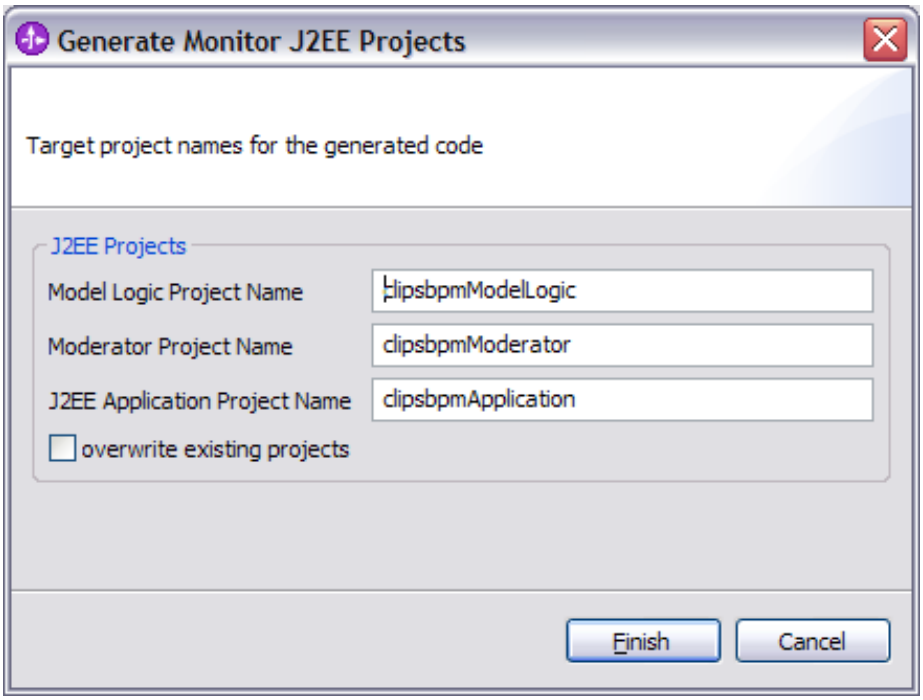


d. A **client Generation Completed message** appears. Click **OK**.

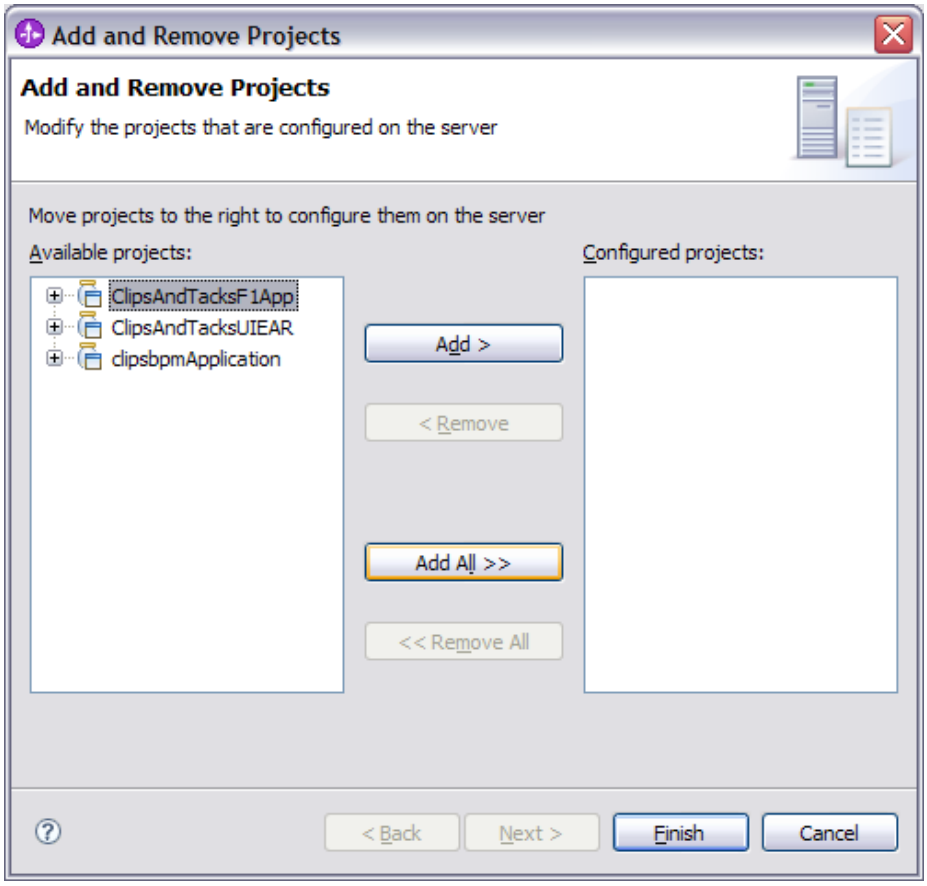
3. Generate the monitor model J2EE projects.
   a. Switch to the **Business Monitoring** perspective.
   b. Expand **clips** → **Monitor Models**.
   c. Right-click **clipsbpm.mm** and select **Generate Monitor J2EE Projects**.
   d. Click **Finish**.



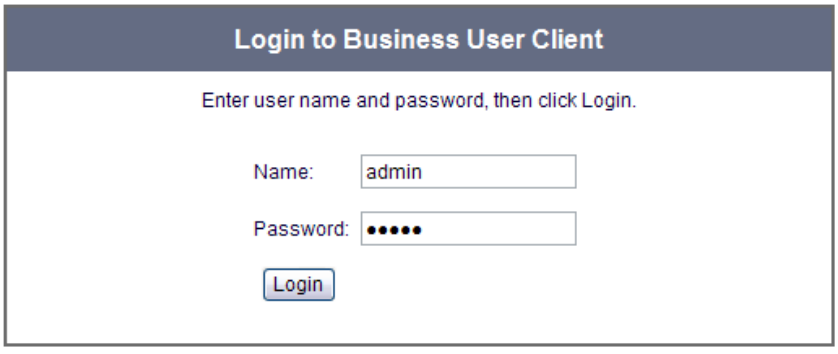
e. Click **Finish** again.



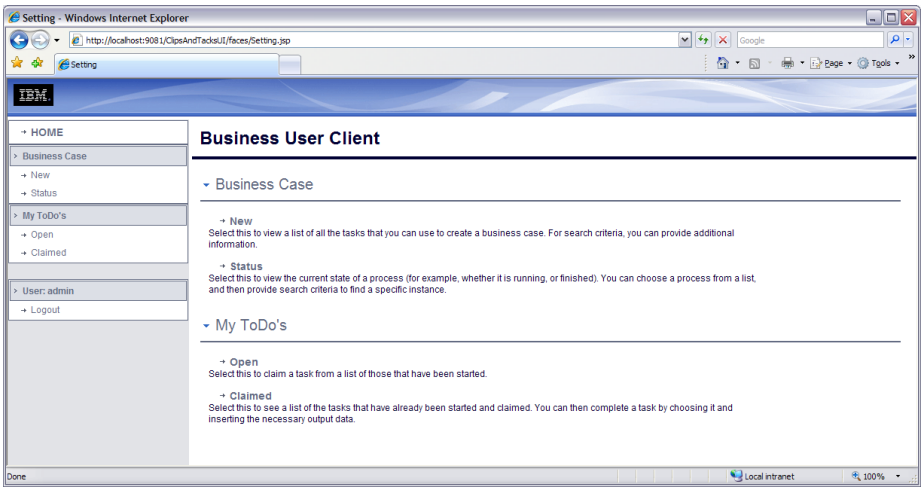
4. Deploy the executable projects to the server.
   a. Select the **Servers** tab.
   b. If the **WebSphere Business Monitor Server v6.1 on WebSphere Process Server** is not started, then start it by right-clicking on it and selecting **Start**. Then right-click and select **Add and Remove Projects**.
   c. Click **Add All**.



5. To exercise the model, complete the following steps:
   a. Open a browser page and type http://localhost:9080/ClipsAndTacksUI. Depending on the number of server profiles on your system, your port number might be different. To determine your port number, open the SystemOut.log from C:\Program Files\IBM\WID61\pf\WBMonSrv_wps\logs\server1 and search for default host. The port number next to the default host is the port number that you need to use.
   b. Enter `admin` as user ID and `admin` as the password and click **Login**. If you used a different user ID and password during the installation, then you need to use that user ID and password.

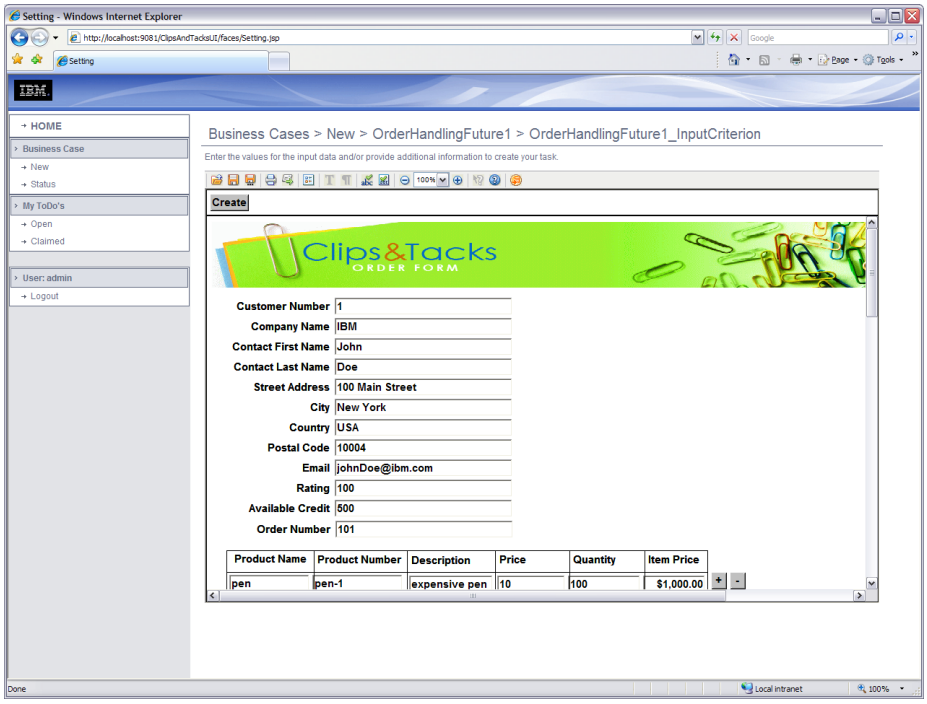


The client interface appears as shown below.

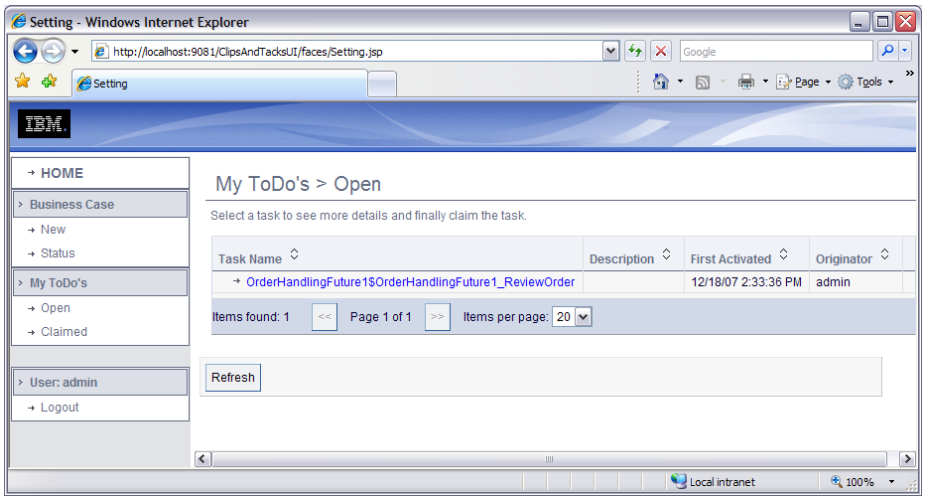


c. Under **Business Case**, click **New** and then select **OrderHandlingFuture1_InputCriterion**. The Lotus Form is displayed.

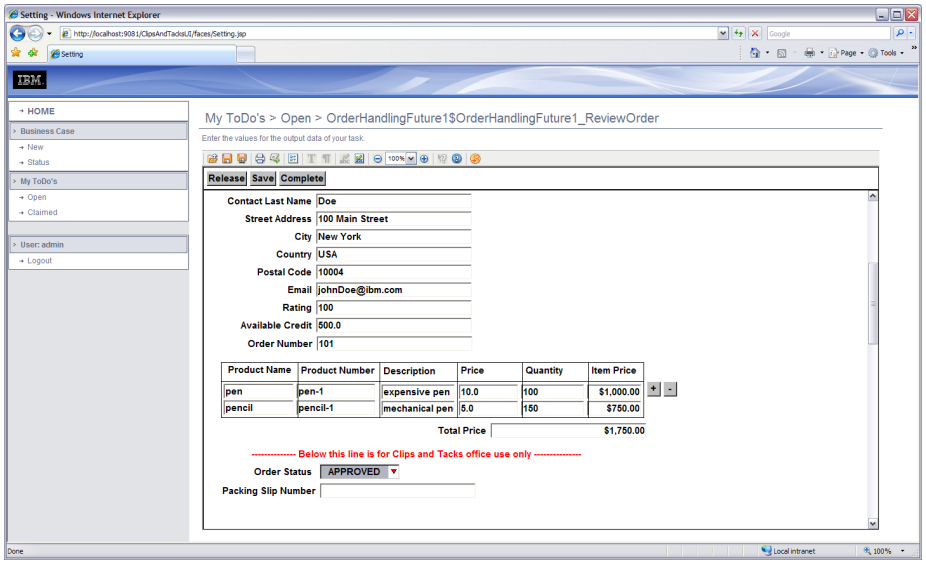
- For this scenario, when you enter the data, the TotalPrice should be greater than $750.00 to force the process to flow to the Review task.
- Do not enter text below the red text that reads **Below this line is for Clips and Tacks office use only**.
- You can add a new row by clicking the **+** sign; similarly, you can delete a row by clicking the **–** sign. You can order multiple items, but ensure there is only one item per row.
- When you have completed the form, click **Create** to create a new instance of the process.



d. Under **My ToDo's**, click **Open**. The order is waiting for the ReviewOrder task to be approved as shown in the following image.



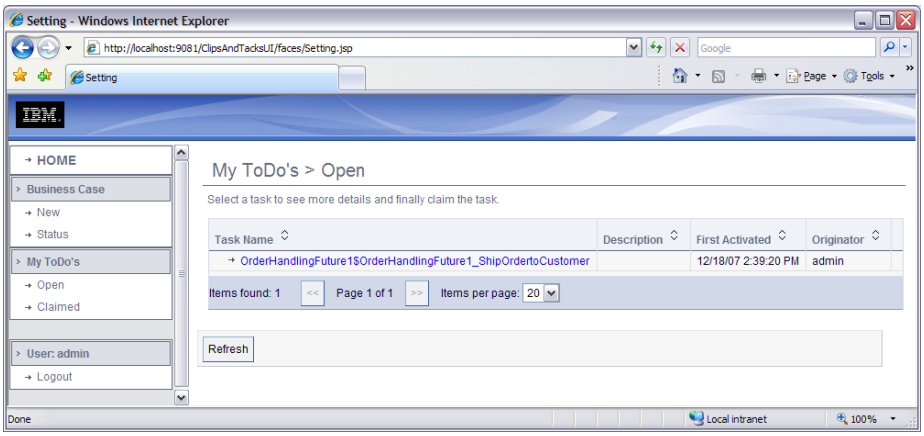
e. Click the waiting task and then under the form click **Claim** to work on the task.



f. At the bottom of the form, select the **Order Status** drop-down list and select **APPROVED**. To complete this human task, click **Complete** (located at the top left corner of the form).

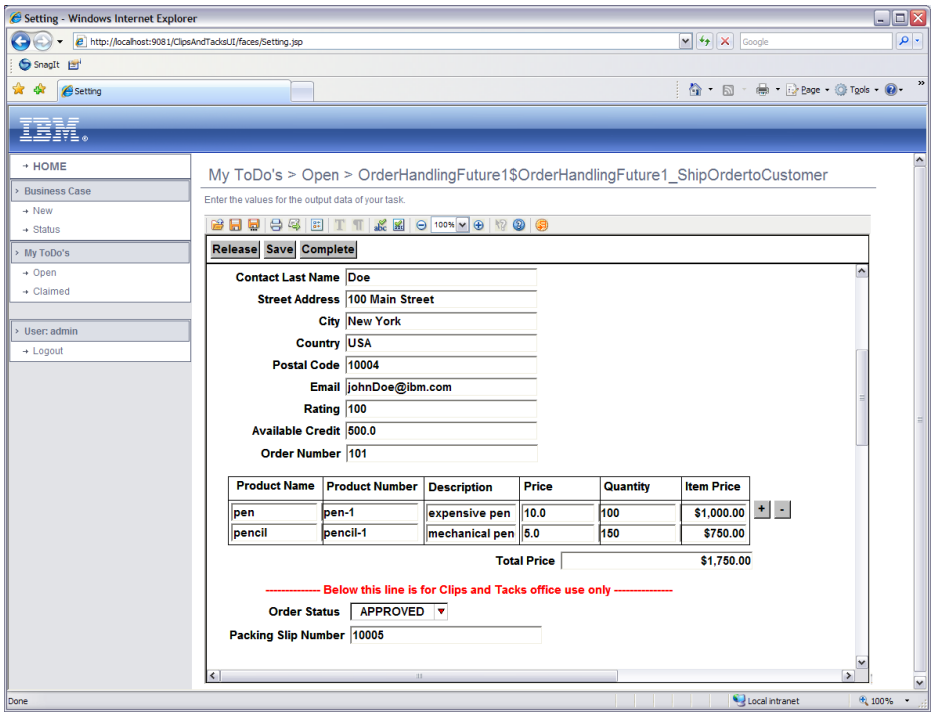
   Note: Save does not complete the human task, but saves the task so that you can return to it. Click **Complete** so that the process will continue to the next task.

g. Click **Refresh** in the client (not the browser Refresh). Now the task is waiting for someone to claim and work on the ShipOrdertoCustomer human task.



h. Click the waiting task and then click on **Claim** to work on it.

i. Enter a **Packaging Slip** number and click **Complete** to complete the business process.



You have just processed one instance of the **Clips and Tacks OrderHandling (Future1)** business process. Because the total price of the order was more than $750.00 and the available credit was less than the total price, the order went to the ReviewOrder human task (either of the conditions would have sent it to review). The ReviewOrder human task approved the order and it went to the ShipOrdertoCustomer human task. The ShipOrdertoCustomer human task gave it a packaging slip number and sent the order to the customer.

6. To create the dashboard, complete the following steps:

   a. In **WebSphere Integration Developer**, click **Window → Web Browser**. The default browser is 'Internal Web Browser', but you should not use this one since some standard functions that you may need are not provided. Select 'Default system Web browser' or any other listed browser other than the internal browser.

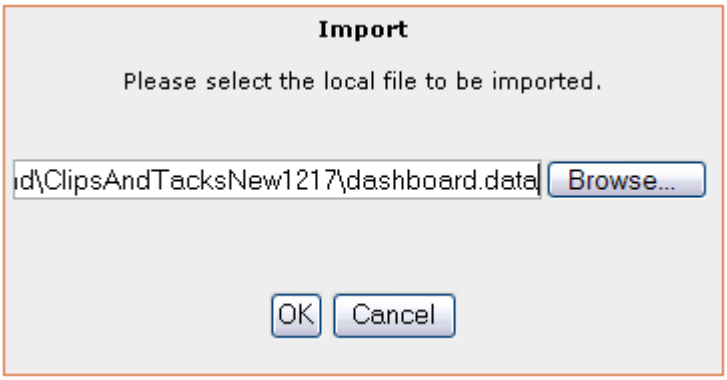
b. In **WebSphere Integration Developer**, in the **Servers** view, right click on the server **WebSphere Business Monitor Server v6.1 on WebSphere Process Server** and select **WebSphere Business Monitor Dashboard** from the context menu.

c. When prompted, enter `admin` for the user ID and enter `admin` for the password. You must log in with 'admin' so that you can view the alerts which were setup in Action Services to be viewed by this particular user ID. Also, in the toolkit environment, this is the user that is automatically defined on the secured server.

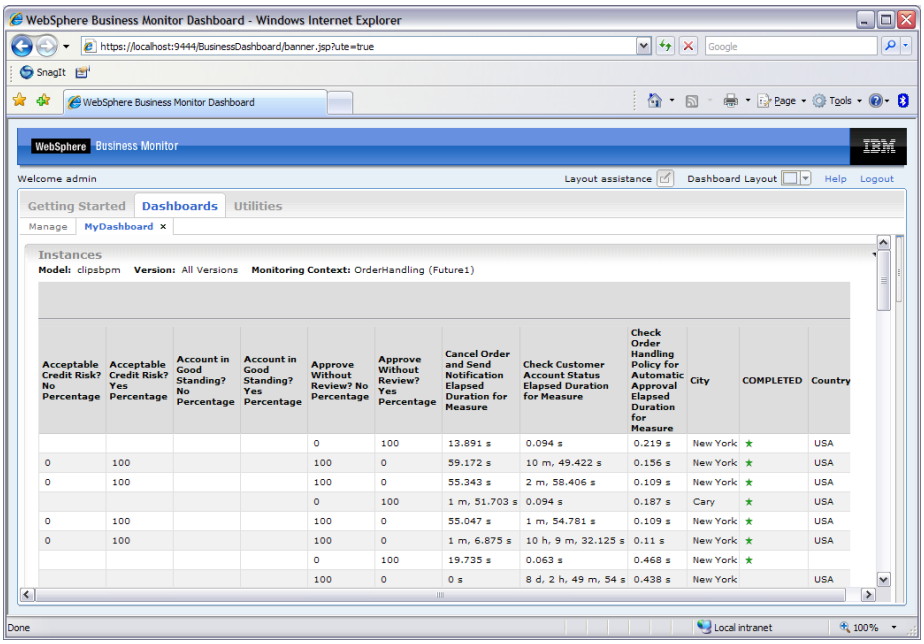
d. Click on the **Dashboards** tab and then the **Manage** tab.

e. Click **Import**.

f. Click **Browse** and select **dashboard.data** from the unzipped downloaded file and click **OK**.



g. Click **MyDashboard**. The dashboard opens.



h. Optional: To see more data on the dashboard, run more events as described in Run events to exercise the model from the Build It Yourself section.

Download the sample

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

- ClipsAndTacks.pdf – the documentation for running the sample in a book format that you can print.
- ClipsAndTacksForModeler.zip – the completed process model to be imported into WebSphere Business Modeler
- ClipsAndTacksF1.zip - the completed process model to be imported into WebSphere Integration Developer for further development.
- ClipsAndTacksF1Completed.zip – the completed process model and monitor projects, without generated files, to be imported into WebSphere Integration Developer, ready to deploy.
- Order.xfdl – the Lotus form used in this tutorial
- CreditRating.java – the Java file used in this tutorial to check the customer account status.
- Dashboard.data – a pre-built dashboard for ClipsAndTacks
- OrderHandling (Future1).mm – the monitor model exported from WebSphere Business Modeler
- OrderHandling__x0028_Future1_x0029__KM_OrderHandling__x0028_Future1 _x0029__KC.svg – an SVG image of the business process to be used with the KPIs in the monitor model. This file is exported from WebSphere Business Modeler
- OrderHandling__x0028_Future1_x0029__MDM_OrderHandling__x0028_Future1 _x0029__MC.svg – an SVG image of the business process to be used with the metrics (monitoring context) in the monitor model. This file is exported from WebSphere Business Modeler

Use the following sections to import the model using either WebSphere Business Modeler or WebSphere Integration Developer.

- "Importing the completed model into WebSphere Business Modeler"
- "Importing the completed model into WebSphere Integration Developer" on page 5-2
- "Importing the completed WebSphere Integration Developer project into WebSphere Integration Developer" on page 5-2

Importing the completed model into WebSphere Business Modeler

The completed process model is ClipsAndTacksForModeler.zip.

To import ClipsAndTacksForModeler.zip, complete the following steps:

1. Start **WebSphere Business Modeler** with a new workspace.
2. Click **File** → **Import** → **WebSphere Business Modeler** → **WebSphere Business Modeler Import** and click **Next**.
3. Select **WebSphere Business Modeler project (.mar, .zip)** and click **Next**.

4. Click **Browse** and select the directory where the ClipsAndTacksForModeler.zip is saved.
5. Select **ClipsAndTacksForModeler.zip** and click **Finish**.

Importing the completed model into WebSphere Integration Developer

The completed process model for importing into WebSphere Integration Developer is ClipsAndTacksF1.zip.

To import ClipsAndTacksF1.zip, complete the following steps:

1. Start WebSphere Integration Developer with a new workspace.
2. Click **File** → **Other** → **Project Interchange** and click **Next**.
3. For **From zip file**, click **Browse** and select the directory where the ClipsAndTacksF1.zip is saved.
4. Select **ClipsAndTacksF1** and click **Finish**.

Importing the completed WebSphere Integration Developer project into WebSphere Integration Developer

The completed process model and monitor model for importing into WebSphere Integration Developer is ClipsAndTacksF1Completed.zip.

To import the completed projects, complete the following steps:

1. Start WebSphere Integration Developer with a clean workspace.
2. Click **File > Import > Other > Project Interchange** and click **Next**.
3. For From zip file, click Browse and to select the directory where the ClipsAndTacksF1All.zip is saved.
4. Click **Select All** and then **Finish** to import everything.
   - ClipsAndTacksF1 is the completed business process .
   - clips is the monitoring model.