Developing deployable business processes using WebSphere Business Modeler V6.2

Contents

Chapter 1. Introduction

Learn how to develop models that can be directly deployed to a process testing environment and run without the need for IT support. Using WebSphere® Business Modeler, you will define exactly what you want in a business process application so that you can develop, publish, and test a human-centric process model.

In the following tutorials, you will enact a fictional (but realistic) business scenario. The company has a process, mostly manual, for adding (onboarding) new employees. The process is already partially modeled in WebSphere Business Modeler. Your task, as the business analyst, is to develop an automated Set Up Employee process. Each tutorial is one iteration of development: changes are made to the process, deployed to the server, and then tested. For more detailed information about using the core features of the process-design functionality in these tutorials, read *Developing deployable business processes using WebSphere® Business Modeler*, which is available in the IBM® WebSphere Business Modeler Advanced documentation.

1. Tutorial 1 - Making the Process Deployable

   In this tutorial, you learn how to perform the following tasks:

   * Transform the data from the job application to an employee record.
   * Create a human-centric process model from an existing employee Onboarding process.
   * Use the map modeling construct to perform data transformations in a deployable process.

2. Tutorial 2 - Using Forms in a Deployable Process

   In this tutorial, you learn how to use a designed form to represent the user interface and then see the results in the process testing environment.

Learning objectives

Your objective is to understand the steps involved in developing and testing a business process application using WebSphere Business Modeler and the process testing environment.

Time required

These tutorials should take approximately 60 minutes each to finish. If you explore other concepts related to them, they could take longer to complete.

Skill level

To complete these tutorials, you must possess the following skills:

* You understand the major modeling constructs used in WebSphere Business Modeler.
* You know how to model these constructs without detailed instructions. To review the major modeling constructs used in WebSphere Business Modeler, refer to the Quickstart tutorial, based on the Quickstart Finance project.

Chapter 2. Tool and tutorial prerequisites

To complete these tutorials, you must have access to a managed deployment environment. Work with an IT administrator to prepare, set up, and configure the server environment according to the instructions below.

Note: These tutorials are targeted for the business analyst. This section, however, includes actions to be performed by the IT administrator. **The full detail of the IT administrator actions is out of scope for this tutorial**. If more detailed instructions are necessary, you can find them discussed in Preparing for modeling and testing deployable business processes of the Developing deployable business processes using WebSphere Business Modeler guide.

Overview

Although there are a few environment options, the typical managed deployment environment consists of WebSphere® Business Modeler connecting to a server that is installed with WebSphere Integration Developer and a Business Space powered by WebSphere.

The following people must perform the following steps to set up requirements or options for these tutorials:

1. **Business analyst:** Normally the business analyst would define the roles to be used in this type of process model. For purposes of these tutorials we have defined the necessary roles in the Roles.rmf file. This is a key step in the process of setting up the WebSphere Business Modeler environment.
2. **IT administrator:** Set up a managed deployment environment for testing deployed business processes, and enable the unit test environment in WebSphere Integration Developer.
3. **Business analyst** and **IT administrator:** Normally the business analyst would define the roles to be used in this type of process model. For purposes of these tutorials we have defined the necessary roles in the Roles.rmf file. Give this file to the IT administrator. The IT administrator will need to modify the D2D Tutorial Roles.rmf file based on the configuration determined by the business analyst and provide the modified file to the business analyst for use in this tutorial.

   Note: The roles defined in the D2D Tutorial Roles.rmf file are:
   * Applicant
   * CFO
   * Facilities
   * HR
   * IT
   * Manager
4. **Business analyst** and **IT administrator:** Define the account ID and password that will be used to deploy process models and log on to the process testing environment. (for example, student01/student01).
5. **IT administrator:** Enable security for users and roles:

- Create an account with the ID and password defined in step 4, to use for deploying process models and logging on to the process testing environment. The IT administrator must grant Deployer access rights to this ID.
- Assign the account ID of the business analyst who is completing these tutorials to all roles. For simplicity we are going to assume the business analyst will perform all roles while working with these tutorials. In reality you would have multiple users performing individual tasks so they would need different access rights based on your specific requirements. For purposes of these tutorials assuming that all roles will be performed by one user will prevent the business analyst from having to log out and log in multiple times as multiple users.

6. **IT administrator:** Configure the managed deployment environment.

   Note: The configuration file (config.xml) and the completed role-mapping (D2D Tutorial Roles.rmf) file must be accessible and located in the same file system folder, when the business analyst deploys a process to the process testing environment. Both of these files are provided by the IT administrator.

For instructions for installing and enabling the managed deployment environment and WebSphere Business Modeler environment, refer to *Preparing for modeling and testing deployable business processes of the Developing deployable business processes using WebSphere Business Modeler guide*.

Modeling guidelines

Modeling processes that you plan to deploy is a lot like modeling other business processes using WebSphere Business Modeler. You create model elements like activities, business items, and resources, and associate them in the same way as you do for other modeling projects. However, there are a few guidelines to follow that can make developing a deployable process more manageable:

- Develop your process in stages, starting with the simple, high-level process flow and gradually adding more complex elements like business services, business rules tasks, and business measures.
- Resolve validation errors after each significant update to the process. You can temporarily turn off error validation by working in Basic mode to perform your high-level modeling tasks. However, validate the process frequently in WebSphere Process Server mode to identify errors before you move onto the next stage of development.
- Test your process after each development stage to ensure problems have not been introduced.

Chapter 3. Tutorial scenario

In these tutorials, you play a technical business analyst who is required to modify the Onboarding process for direct deployment.

Overview

Your company has a mostly manual process for adding (onboarding) new employees. The Onboarding process is already partially modeled in WebSphere Business Modeler and consists of three subprocesses:

- Obtain Hiring Approval
- Hire Employee
- Set Up Employee

Learning Objectives

In this scenario, you will complete the following objectives:

1. Develop a process model for deployment, which includes the following tasks:
   - Recommending practices regarding the use of map elements
   - Using an electronic form in your process
   - Understanding process validation and validation errors
2. Deploy the process to a process testing environment and identify common problems you might encounter when deploying it.
3. Test the overall flow of your process, which includes the following tasks:
   - Entering sample data and watching the changes as the data flows through the model
   - Ensuring that the human tasks run in the correct order
   - Ensuring that all gateways and connections work as expected

Your task is to develop the automated Set Up Employee process that is part of the Onboarding process and make it deployable:
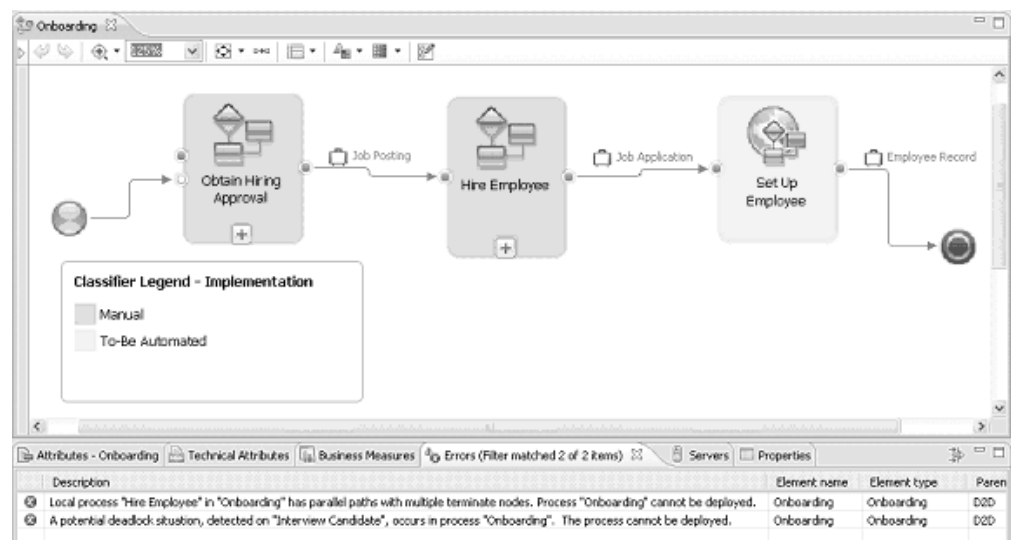
Each tutorial represents an iteration in the development of the process, taking the process from development, testing, and then back to development again. You will develop the Set Up Employee process iteratively, making changes, testing the process on the server, and then revising the process for redeployment and further testing. The Set Up Employee process is created as a global process because it contains the process models and the business items, a form, and role resources.

The Set Up Employee process is created as a global process so that it can be deployed to the process testing environment. The current process contains one human task, which has the Human Resources (HR) role as its primary owner, takes the Job Application business item as its input, and produces the Employee Record business item as its output.
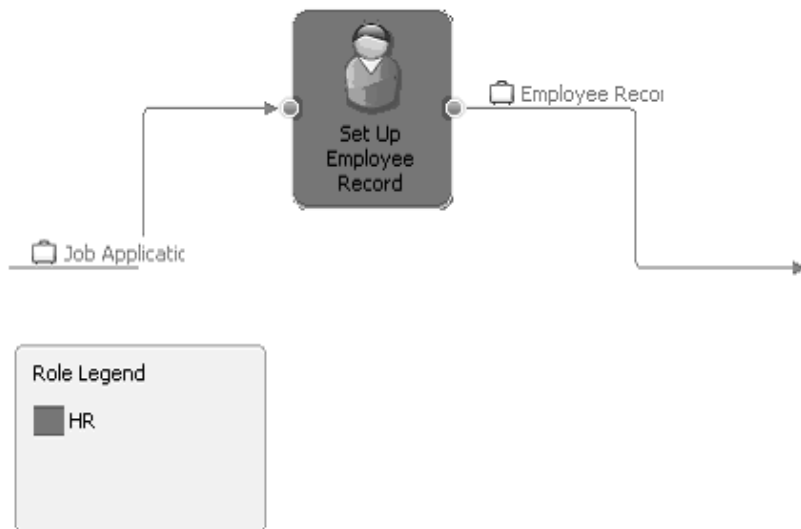
The project that you import contains two errors in the Onboarding process. These errors, which are visible when you are modeling in WebSphere Process Server mode, are in the Hire Employee process (which is not being deployed in this tutorial). They are examples of the types of error you might encounter when creating a process model for deployment. The process validation in WebSphere Process Server mode recognizes deployment errors and provides guidance for how to correct them. You can try to correct these errors, but it is not a requirement for the tutorial.
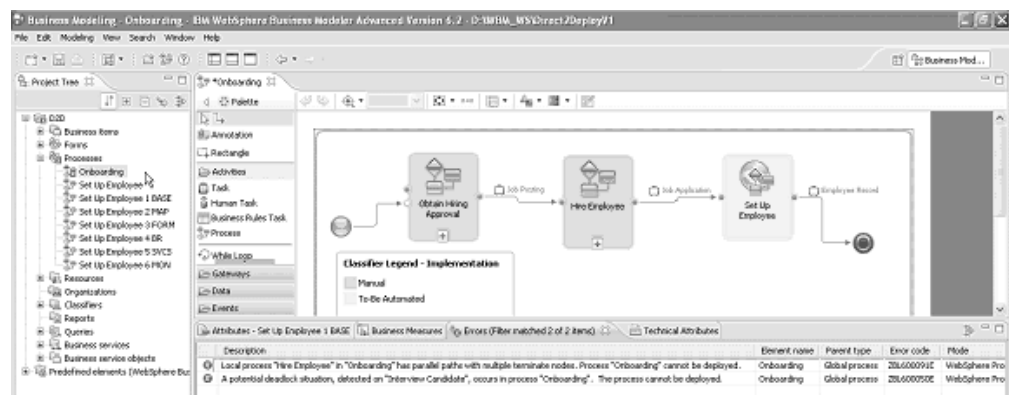
Chapter 4. Tutorial 1: Making the Process Deployable

To make the Set Up Employee process deployable, you must extend it by first creating the base model. Then you can deploy your model to the process testing environment.

In the Set Up Employee process, the Human Resources (HR) role receives the job application information about a newly hired employee and creates an employee record.

- If the employee is local, the employee record is passed on to the Facilities role so that the new employee's office and computer can be set up at the local office location and then passed to the Information Technology (IT) role to set up the new employee's system IDs and passwords.
- If the employee in not local, then facility setup is not required and the employee record is sent to the IT role to set up the new employee's system IDs and passwords.
- When IT setup is complete, the employee record is returned to the HR role so that a welcome package for the new employee can be created.

Extending the Set Up Employee process

To extend the Set Up Employee process model, complete the following steps:

1. Open WebSphere Business Modeler and switch to the WebSphere Process Server mode.
2. Import the core project model file `D2D Core project.mar` to your project tree.
3. Copy the Set Up Employee process, paste it to the Processes catalog (right-click processes, select paste), and then rename the copy to `Set Up Employee 1 BASE`. Making a copy of the process lets you to maintain your latest model in case you need to revert to its original state.
4. Create the new Set Up Employee 1 BASE process by completing the following tasks:
   a. Add human tasks.
   b. Add a simple decision.
   c. Add a merge.
   d. Associate a Primary Owner role to each of the human tasks.

   Note: You perform step d in the Attributes view.
   e. Define the input and output specifications for each node.
   f. Create the connections between the nodes following the example in the Set Up Employee 1 Base diagram.
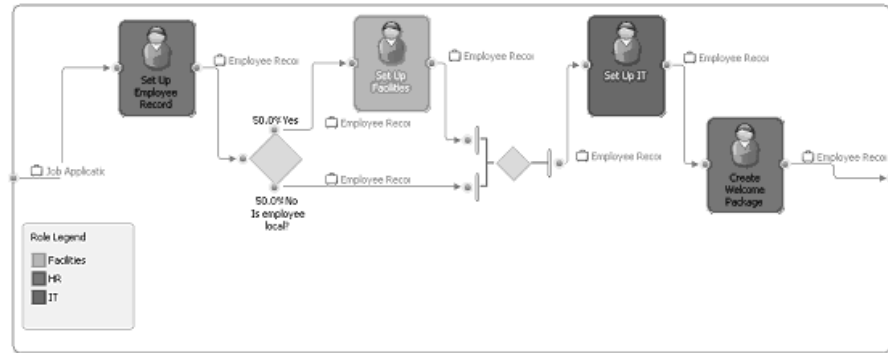
Tip: While you create the process model. You might encounter errors, warnings, or both. You need to correct these problems prior to deployment. Some errors might be because you have not assigned a Primary Owner role to a human task or defined an expression for the decision output branches.

Table 1. Element name and specification

Model Element	Element Name	Specification
Local Human Task	Set Up Facilities	Primary owner role: Facilities Input: Employee Record Output: Employee Record
Local Human Task	Set Up IT	Primary owner role: IT
Local Human Task	Create Welcome Package	Primary owner role: HR Input: Employee Record Output: Employee Record
Binary Decision	Is employee local	Input: Employee Record Output: Employee Record
Merge		

5. For the decision to run in the process testing environment, you must create an expression that determines which output branch to take. Currently, Toronto is the only location with offices for its employees. Specify the expression in the **Is employee local?** decision:

   a. Select the **Is employee local?** decision in the process diagram. From the Attributes view, click the Output branches tab.

   b. Select the row that contains the **Yes** branch of the decision and edit the branch expression from the expression builder.

   c. From the expression builder, add an expression and, in the First term section, select **Modeling artifact** from the drop-down list.

   d. In the First term section, expand the tree to view the attributes of the business item input. Select the **City** attribute.

   e. In the Operator section, select **is equal to** as the operator.

   f. In the Second term section, select **Text** from the drop-down list and enter `Toronto` as the second term.

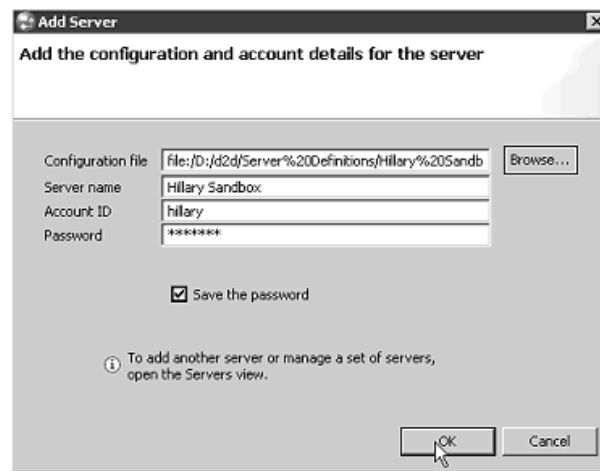   g. Click **Apply**, and then click **OK**.
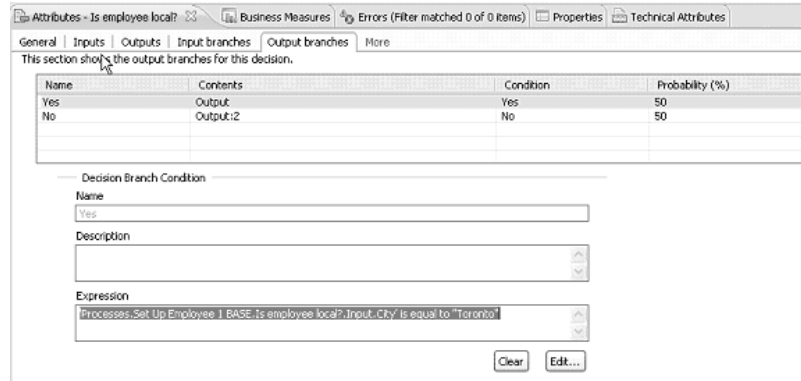
Note: When the simple decision node is used for the decision, the No branch expression is generated automatically with the alternate operator.

You have created an error-free Set Up Employee 1 BASE process and are ready to perform a deployment test.

Deploy your model to the process testing environment

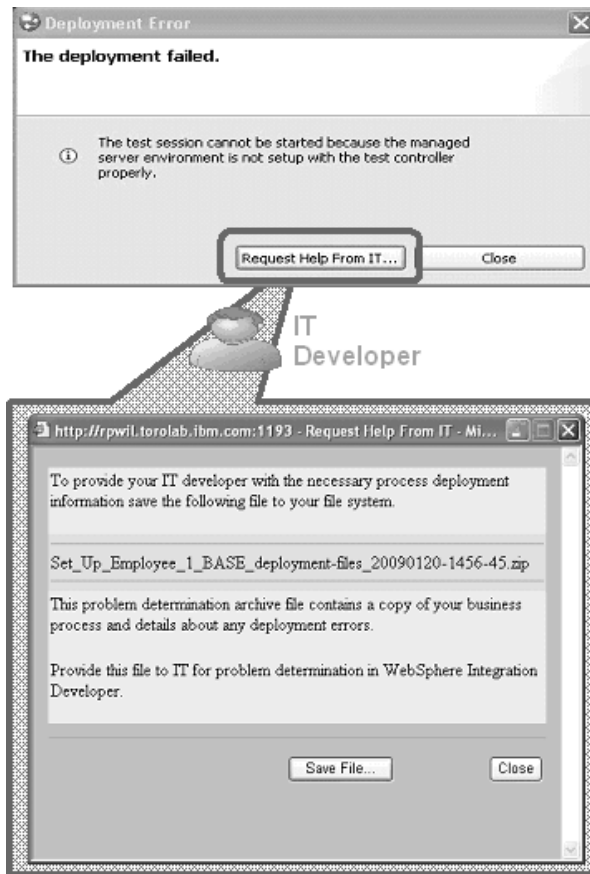To deploy the process model to the process testing environment, complete the following steps:

1. Right-click the **Set Up Employee 1 BASE** process in the project tree, and select **Test on Server**. If it is the first time that you are deploying a process, point to the server configuration file (config.xml) in the **Add Server** window. This file must be provided to you by your IT administrator. You might have to provide an account ID and password for the server. Select the option to save the password.

Tip: Make sure you are in the WebSphere Business Modeler servers view not the WebSphere Integration Developer server view.

- If you have problems connecting to a process test server, make sure that your account ID and password are correct. You can also try to update the authentication information for a server that you already added; in the **Servers** view, right-click the server name and select **Properties**. If you continue to have connection problems, contact the IT administrator for the process test server.

- If you have problems with the deployment of a business process to a server, you can click **Request Help from IT** in the error message.


Send the problem determination archive file to the IT administrator who can open the file in WebSphere Integration Developer V6.2 to identify the cause of the problem.

2. After your process deploys successfully, the **Business Space Logon** page is displayed. Log on to the process testing environment to access the process testing environment using the same account ID and password that you used to log on to the process testing server in step 1. You can test your process in the preconfigured business space that opens after you log on.

Note: To view the tutorial information correctly, make sure that your default external browser allows mixed content. To adjust the security settings so that mixed content is allowed, refer to the documentation that was provided with your external browser.

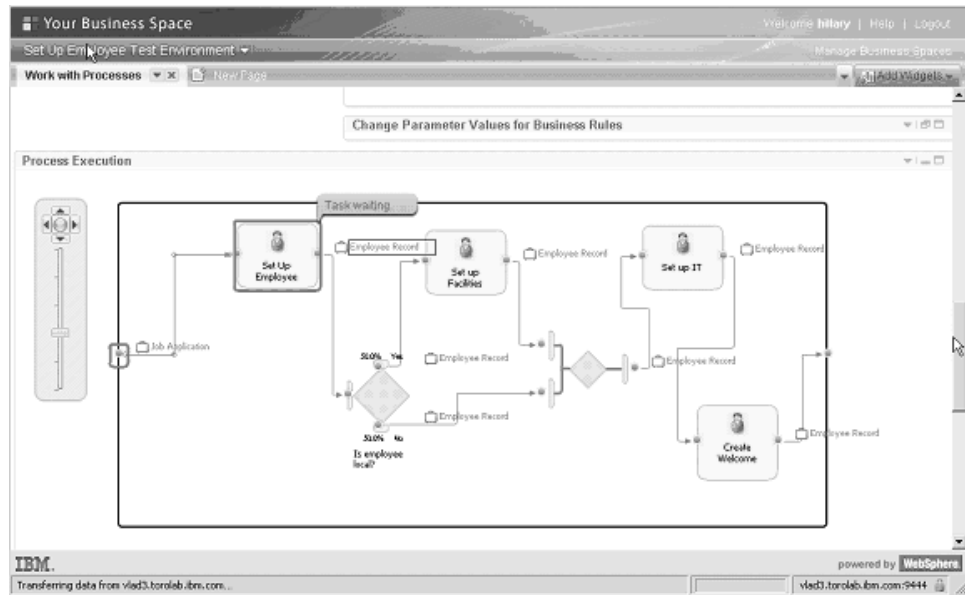**Tip:** To check which processes are deployed on the process test servers:

a. Make sure you are in the Servers view.

b. Expand the test servers and server nodes in the Servers view.

c. Click the **Show My Processes** and **Show All Processes** icons to view either the processes that you deployed on the process test servers or all the processes deployed on process test servers.

3. From the Work with Processes page in the Start Process Instance view, create an instance of the Set Up Employee 1 BASE process. Creating an instance of the process generates a default form based on the Job Application business item.
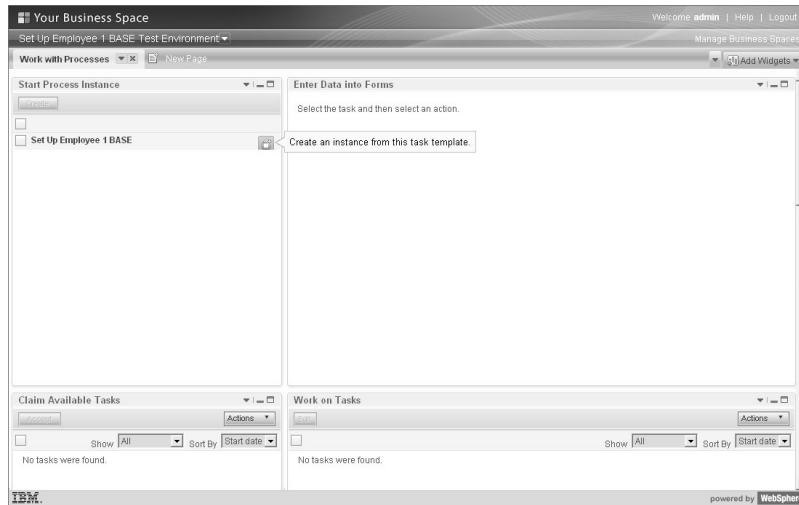
4. Complete and submit the default Job Application form. The process flow diagram shows the current state of the process in the Process Execution widget.

5. Refresh the Claim Available Tasks widget using the setting option. A Setup Employee Record task, which is the first human task in the process, is displayed in the Claim Available Tasks widget. Select **Accept and Edit the Task**.

   In the Enter Data into Forms widget, you see two forms. The first form, Job Application, is the input to the Set Up Employee task. The second form, Employee Record, is the output produced by the task. Because the input and output are different and that information is not being passed between business items, you need to introduce a mechanism to map information from one business item to another. For example, the input to the New Employee Setup process is a Job Application business item. This business item contains information about the new employee, such as his or her name and contact information. The first task in the process is to create a new employee record, which contains much of the same information that is provided in the Job Application business item. Rather than have the human resources person re-enter the information from the job application, you can map the data fields from the Job Application business item to the Employee Record application, these mapped values automatically appear in the employee record form that is presented to the human resources person who is completing the Set Up Employee task.

6. Log out of the process testing environment and return to WebSphere Business Modeler.

Add a map to the Set Up Employee process

A map is a task that transforms data from one structure to data in another structure. You can use a map to specify how to change input data into output data.

To add a map to the Set Up Employee process, complete the following steps:

1. Copy the **Set Up Employee 1 BASE** process and rename the copy to Set Up Employee 2 MAP.
2. In Set Up Employee 2 MAP, add an Initialize Employee Record map element at the start of the process with the Job Application and Employee Record business items as its respective input and output.

Note: Access the map element using the New option on the context menu or from the Data section in the palette.

3. Change the input of the **Set Up Employee Record** human task to the Employee Record business item and connect it with the map element.
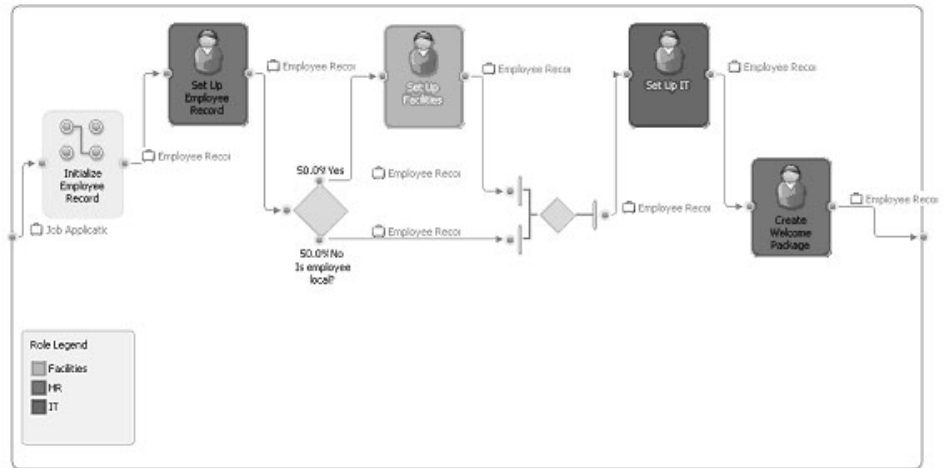
4. Select the **Initialize Employee Record** map element and open the map editor. Create the mappings as shown in this table.

Table 2.

Job Application (input)	Employee Record (output)
	EmployeeID
Job Reference	
Title	
First Name	First Name
Initial	Initial
Last Name	Last Name
Street	Street
City	City
State	State or Province
Country	Country
Zip	Zip or Postal Code
Phone	Home Phone
Email	
Resume	
	Start Date
	Department
	PWA
	Office Phone
	Office IP
	Email (corporate)
	Computer DNS Name

Deploy your model to the process testing environment

1. Right-click the **Set Up Employee 2 MAP** process in the project tree, and select **Test on Server**.

2. After your process deploys successfully, the **Business Space Logon** page is displayed. Log on to the process testing environment to access the process testing environment using the same account ID and password that you used to log on to the process testing server in step 1. You can test your process in the preconfigured business space that opens after you log on.

3. From the Work with Processes page in the Start Process Instance view, create an instance of the Set Up Employee 2 MAP process.

4. Complete and submit the default Job Application form. The process flow diagram shows the current state of the process. You can provide whatever input you like in the fields with the exception of the **City** field. In the **City** field enter `Toronto`.

5. Refresh Claim Available Tasks widget. A **Setup Employee Record** task, which is the first human task in the process, is displayed in the Claim Available Tasks widget. Click **Accept**, and then click **Edit the Task**.

6. The Enter Data into Forms widget now displays the default Employee Record form, which is transformed to include the data mapped from the Job Application form you provided as input.

   a. Add input to the **EmployeeID input** field (for example Emp2345).

   b. Submit the form to complete the Setup Employee Record task.

7. Refresh Claim Available Tasks widget. Because you used Toronto as the city and the Is employee local? decision tests for the Toronto locale, you must complete the Set Up Facilities task.

   a. Click **Accept and Edit the Task**.

   b. Submit the form to complete the Set Up Facilities task.

8. The next task in the process should be the Set Up IT task. Refresh the Set Up IT Task widget and perform the following steps:

   a. Click **Accept and Edit the Task**.

   b. In the form, add an e-mail address (for example, jdoe@company.com) and data source name (DSN) (for example, jdoe).

   c. Submit the form to complete the Set Up IT task.

9. The final task in the process is the Create Welcome Package task. Refresh the Create Welcome Package Task widget and perform the following steps:

   a. Click **Accept and Edit the Task**.

   b. Submit the form to complete the Create Welcome Package task.

   Tip: Each of the Enter Data into Forms views displays only the default Employee Record form, which is transformed to include the data mapped from the Job Application form you provided as input.

   WebSphere Business Modeler generates default forms for a human task that does not already have forms associated with it, as well as a human form for any process input or output, these generated forms are a series of editable fields laid out in a top-to-bottom fashion according to the order of elements in the associated business item or data element. However, you can design a custom form in Lotus® Forms Designer that is more user-friendly for reviewing and entering the data that is associated with a task. With a custom form, you can group related fields and provide section headings, field-label formatting, and so on. For example, if we customize a form based on the

Employee Record business item, we can improve the form layout and format, enabling users to more easily find the fields in the form that are relevant to the current task. Creating an appropriate form is also covered in the next tutorial. For more information about how to create custom forms, see the documentation for Lotus Forms Designer.

10. Log out of process testing environment and return to WebSphere Business Modeler.

Chapter 5. Tutorial 2: Using Forms in a Deployable Process

You can either create a form and specify the data elements or base the form elements on the inputs and outputs of a local or global human task.

If the human task has no inputs or outputs specified, the form contains no data elements. To keep the data elements in your human tasks synchronized with your forms, do not add or remove form elements when you lay them out. If you need to add, remove, or change the data type of data elements, recreate the form using the updated business item. You can create forms that you do not associate with a human task but still export to WebSphere Integration Developer using the WebSphere Process Server modeling mode for inclusion in an application.

Forms that you import or create are displayed in the Processes catalog of project tree with the form icon ▤ to be reused with any human task. When you create or import a new form, two types of elements are added in the project tree: a form element in the Processes catalog and one or more business service objects (XSD files) in the Business service objects catalog. Because the business service objects contain the underlying data structure of imported forms, you must keep the business services objects that were generated from the import to use the forms.

Although you can specify the data elements for a form using WebSphere Business Modeler, you must use a form editor if you want to design the layout of the form. This means that you need to install Lotus® Forms Designer to lay out your forms and Lotus® Forms Viewer to preview and print them. You can then use these tools in WebSphere Business Modeler as if they were WebSphere Business Modeler editors.

When you open a form using the Lotus Forms Designer editor, each group of form elements is displayed in a pane (surrounded by a dotted frame). For example, if you included a business item as a form element, you could see each business item attribute as a separate form element inside a pane named after the business item. When you lay out your form, you can move form elements around inside the pane to which they belong, but you must keep them inside that pane.

Tip: These panes are automatically generated; however, you can remove the panes if you decide that you do not want to use them. You can also change the labels for form fields.

Although this tutorial teaches you how to design a form, it is not a core aspect of the deployment test. You can use the Employee Record Form or, if you want to design the form yourself, you can elect to complete the following optional steps.

Prerequisite

The Forms Viewer and Designer must be installed with WebSphere Business Modeler.

(Optional) Using a form sample to design the layout of a form

1. Create a new form using the Employee Record business item to define its fields.
   a. In the project tree, right-click the Forms catalog and select **New > Form**.

b. Because there is already an Employee Record Form created in this project you should name the re-created form `Employee Record Form V2` and click **Next**.

c. Click **Add**, and browse to select the Employee Record business item.

d. Click **OK** and then click **Finish**.

2. If the Employee Record Form V2 does not open automatically, open it by double-clicking the form on the project tree.

3. On the Design tab of the Form editor, modify the layout of your form elements:

a. Select each **Field** label and modify the text to make it appropriate for display. For example, change the label name **FirstName** to `First Name`.

b. Add an additional vertical space to the form by dragging the lower section of the outside pane.

c. Reposition the fields to accommodate labels by selecting the appropriate elements and dragging them to a new location within the pane.

   Important: Select the label and field of a form element together before dragging them. To keep the data elements for the form and the human tasks that are associated with the form synchronized, keep form elements inside their original panes and do not add or remove form elements.

d. At the top of the form, add a text label called `Employee Record`. Modify the font, font color, and background color to improve readability.

e. Add a line underneath the Employee Records label. Modify the line thickness to improve readability.

f. Make a space for each section and add the following text labels:

   1) Section 1: Employee Information
   2) Section 2: HR
   3) Section 3: Facilities
   4) Section 4: IT

g. Modify the font and font color of the new text labels as appropriate.

4. To preview or print your form, click the Viewer tab at the bottom of the WebSphere Business Modeler Form editor.

5. Save your layout and design changes to the form.
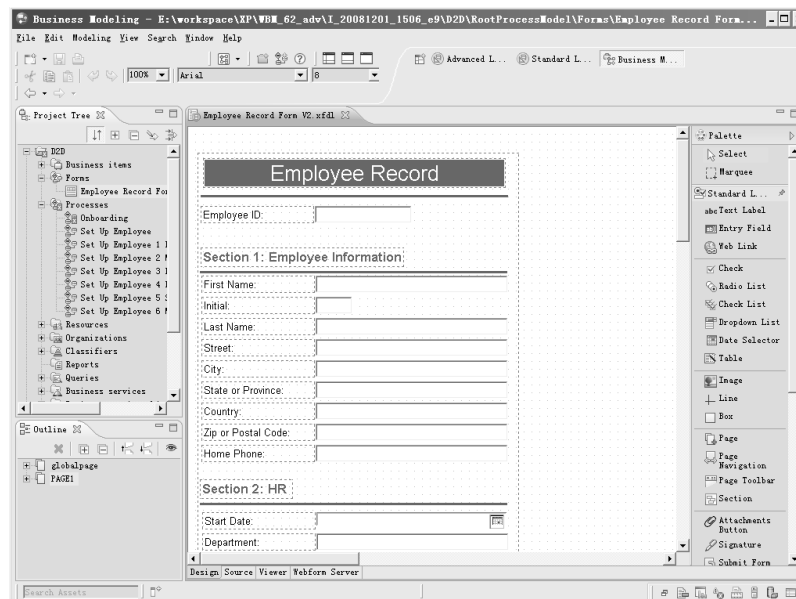
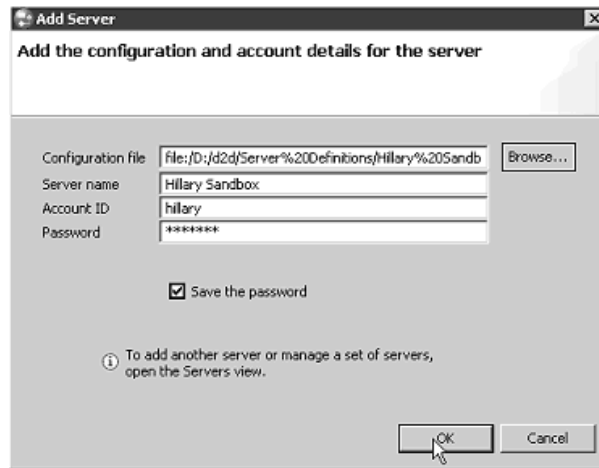## Associate the form to each human task in the process

In previous tests, a default form was used for each of the human tasks in the process. Associating a form to each human tasks displays the associated form in the process testing environment.

1. Copy the Set Up Employee 2 MAP process and rename the copy to `Set Up Employee 3 FORM`. Open the Set Up Employee 3 FORM model in the Process editor for editing.
2. Associate the Employee Record Form to each human task in the Set Up Employee 3 FORM process
   a. Select a human task in the process diagram. From the Attributes view, select the Forms tab.
   b. Click **Browse**. The Select Form window opens.
   c. From the Select Form window, expand the tree and select the appropriate Employee Record Form.
   d. Click **OK**.
   e. From the Forms tab, select **Use the input form as the output form**.
   f. Repeat steps a through c for each human task in the process.
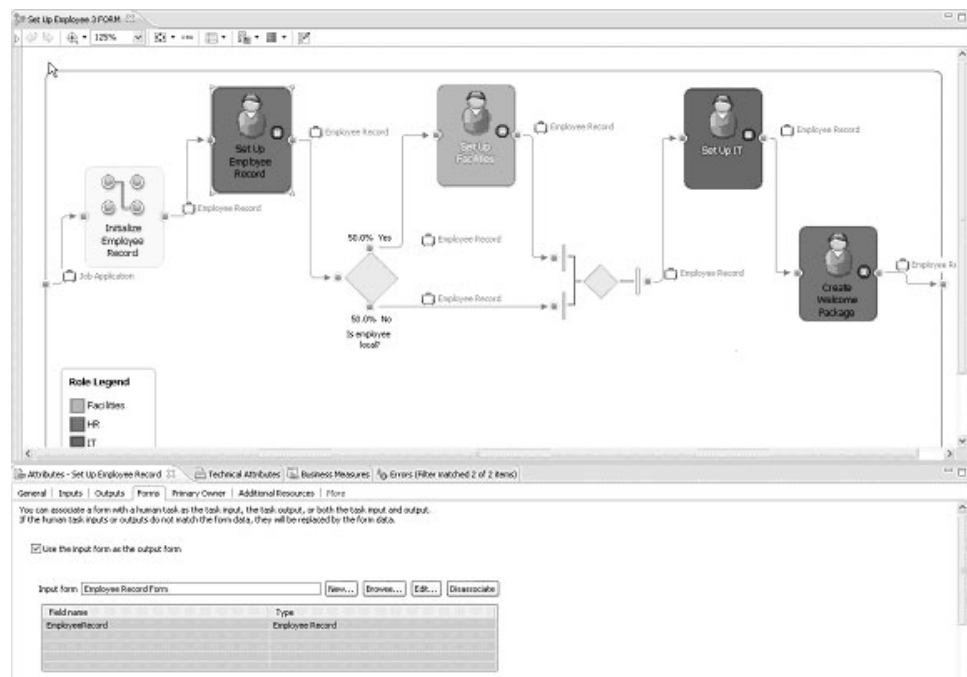
Deploy your model to process testing environment

1. Right-click the **Set Up Employee 3 FORM** process in the project tree, and select **Test on Server**. If it is the first time that you are deploying a process, point to the server configuration file (config.xml) in the **Add Server** window. This file must be provided to you by your IT administrator. You might have to provide an account ID and password for the server. Select the option to save the password.

Tip: Make sure you are in the WebSphere Business Modeler servers view not the WebSphere Integration Developer server view.

- If you have problems connecting to a process test server, make sure that your account ID and password are correct. You can also try to update the authentication information for a server that you already added; in the **Servers** view, right-click the server name and select **Properties**. If you continue to have connection problems, contact the IT administrator for the process test server.
- If you have problems with the deployment of a business process to a server, you can click **Request Help from IT** in the error message. Send the problem determination archive file to the IT administrator who can open the file in WebSphere Integration Developer V6.2 to identify the cause of the problem.

2. After your process deploys successfully, the **Business Space Logon** page is displayed. Log on to the process testing environment to access the process testing environment using the same account ID and password. You can test your process in the preconfigured business space that opens after you log on.

   Note: To view the tutorial information correctly, make sure that your default external browser allows mixed content. To adjust the security settings so that mixed content is allowed, refer to the documentation that was provided with your external browser.

   Tip: To check which processes are deployed on the process test servers:
   a. Make sure you are in the Servers view.
   b. Expand the test servers and server nodes in the Servers view.
   c. Click the **Show My Processes** and **Show All Processes** icons to view either the processes that you deployed on the process test servers or all the processes deployed on process test servers.

3. From the Work with Processes page in the Start Process Instance view, you can create an instance of the Set Up Employee 3 FORM process. Creating this instance will generate a default form based on the Job Application business item.

4. Complete and submit the default Job Application form. The process flow diagram will show the current state of the process.

   Note: Provide input for all fields. In the **City** field, enter Toronto.

5. Refresh the Claim Available Tasks widget. A Set Up Employee Record task, which is the first human task in the process, is displayed in the Claim Available Tasks widget.

   a. Click **Accept and Edit the Task**.

   b. Add input to the **Employee ID** field (for example: Emp2345).

   c. In the form, add a start date and department (for example, Sales).

   d. Submit the form to complete the Set Up Employee Record task.

6. Refresh the Claim Available Tasks widget. Because you used Toronto as the city and the Is employee local? decision tests for the Toronto locale, the next task in the process is the Set Up Facilities task.

   a. Click **Accept and Edit the Task**.

   b. Submit the form to complete the Set Up Facilities task

7. Refresh the Claim Available Tasks widget and complete the following steps:

   a. Click **Accept and Edit the Task**.

   b. In the form, add an office number (for example, ON543), IP Phone Number (for example, 999-345-7890), IP address (for example, 9.24.345.000), e-mail address (for example, jdoe@company.com), and a data source name (DNS) (for example: jdoe).

   c. Submit the form to complete the Set Up IT task.

8. Refresh the Claim Available Tasks widget and complete the following steps:

   a. Click **Accept and Edit the Task**.

   b. Submit the form to complete the Create Welcome Package task

9. To validate the alternate case of the process, create another instance of the Set Up Employee 3 FORM process from the Work with Processes page in the Start Process Instance widget, but in the **City** field, enter Ottawa. The process flow will trigger the Set Up Employee Record task, but bypass the Set Up Facilities task. The process instance will then flow through the Set Up IT and Create Welcome Package tasks.

You have tested the overall flow of your process, made sure that your human tasks run in the correct order and that your gateways and connections work as expected. You have also confirmed that the correct data is passed from node to node as your process runs. Log out of the process testing environment and return to WebSphere Business Modeler.