



BEA WebLogic Integration™

Tutorial: Building a Worklist Application

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Tutorial: Overview

Java Process Definition (JPD) functionality available with BEA WebLogic Integration™ enables integration of diverse systems, applications, and human participants. WebLogic Integration Worklist enables people to collaborate as part of higher level business processes.

The Worklist subsystem enables human interaction with business processes. Worklist provides the capability to assign tasks to human users. Based on the assigned task, human users can perform actions on the tasks, which can trigger new task assignments to other users or system events. This process flow depends on the higher level business processes.

Some of the Worklist subsystem features include:

- Creating and assigning tasks to users
- Generating notifications of task assignments and task due events
- Tracking task history and status

This chapter provides an overview of the tutorial and explains the business scenario on which this tutorial is based. It includes the following sections:

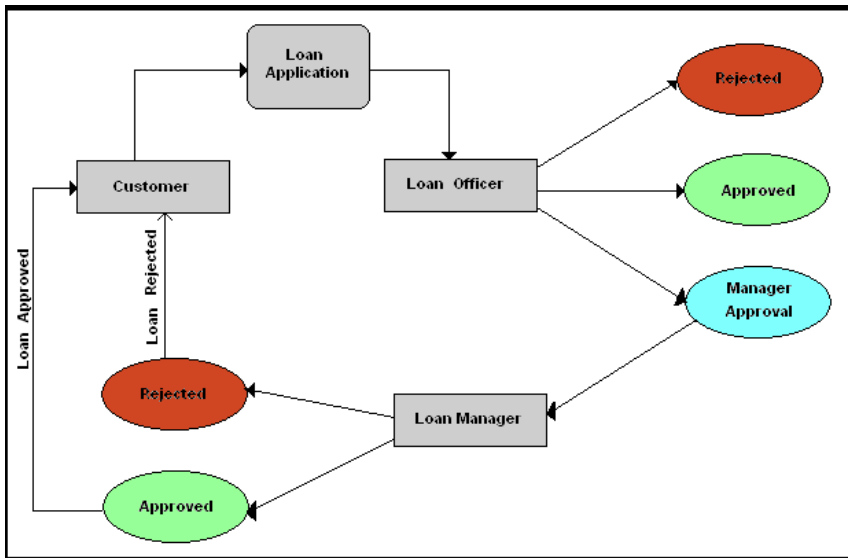
- [Tutorial Overview](#)
- [Steps in This Tutorial](#)
- [Conventions](#)

Tutorial Overview

This tutorial provides you step-by-step instructions to create a *loan approval tracking system* for a fictitious financial institution, Acme Financial System (AFS), using human interaction and system integration functionality available with Worklist.

Figure 1-1 illustrates the loan approval tracking system scenario that you will create during the course of this tutorial.

Figure 1-1 Loan Approval Tracking System Process Flow



Following is the sequence of events illustrated in the preceding figure:

1. A customer submits a loan request for an amount of \$10,000 with AFS. Based on the process flow, the system routes this loan application to be reviewed by Loan Officers.
2. The Worklist creates the loan task for this loan application. This task appears in the Inbox of all users who belong to the Loan Officers group.
3. One of the Loan Officers (John) logs into the system, reviews the loan request, and claims it as his task.
4. John assesses the loan request and decides to route to the group of Loan Managers for approval.

5. Loan Manager Mary logs in and claims the loan task.
6. Mary has the choice to approve or reject the loan. If she approves the loan, Worklist flags the task as complete and triggers an event, which is sent to the loan request system.
7. If Mary rejects the loan, Worklist aborts the task and rejects the loan request.

Steps in This Tutorial

This tutorial provides you with detailed instructions to:

- Set up the environment
- Create a task plan
- Test the loan processing approval system using Worklist User Portal
- Manage loan processing task instances using Worklist Console
- Use JPDs to interact with loan task instance

In the tutorial, these tasks have been structured and categorized into six steps. These are:

Step 1: Setting Up the Environment

The section details the steps required to set up the Worklist Design-Time environment (for modeling the target task plan), and the Worklist run-time environment (for running the application.) In addition, you will need to set up the users, groups, and business calendars.

Step 2: Modeling and Deploying the Loan Processing Task Plan

This section discusses how the loan processing task plan can be modeled to implement the business scenario and then be deployed on the WebLogic Integration server.

Step 3: Testing the Task Plan Using Worklist User Portal

The Worklist User Portal is provided out of the box to allow different human users to work on the task instances. A loan processing task can be created and worked on to completion by many users through the Worklist User Portal.

Step 4: Managing Task Instances Using Worklist Console

In this section, the administrator uses the Worklist Console to look at the overall statistics of the loan processing task instances. In addition, the administrator reassigns some task instances because the assigned employee has left the company.

Step 5: Using JPDs with Worklist

In this section, the loan processing requests come from an online system that triggers a JPD business process, which creates the task instance.

Conventions

This section describes the conventions used in the text and code examples of this tutorial. [Table 1-1](#) lists the meaning and examples for different text and code conventions.

Table 1-1 Worklist Tutorial Conventions

| Convention | Meaning | Example |
|----------------|--|--|
| Bold | Bold typeface indicates terms on which users perform actions. | Click Next to proceed with the Configuration Wizard. |
| <i>Italics</i> | Italic typeface indicates names of processes. | Because the task instance, <i>Car loan for Maggie May</i> , is assigned to the <code>loanOfficers</code> group, it will show up on the Assigned Tasks portlet of John's Inbox. |
| Code | Code typeface indicates names of files, directories, steps, and group names. | Specify the Web project name as <code>Loan_Web</code> in the Web Project Name box. |

Step 1: Setting Up the Environment

In this step, you will set up the Worklist design-time environment for building the loan processing approval task plan and a new Worklist application. To set up the environment, you will create a new domain, users, and groups for the Acme Financial System.

To complete the tasks in this step, go through the following sections:

- [Before You Begin](#)
- [Create a Worklist Domain](#)
- [Set Up the Workshop for WebLogic Platform Design-Time Environment](#)
- [Create a New Worklist Application](#)
- [Configure Users and Groups for Loan Processing](#)

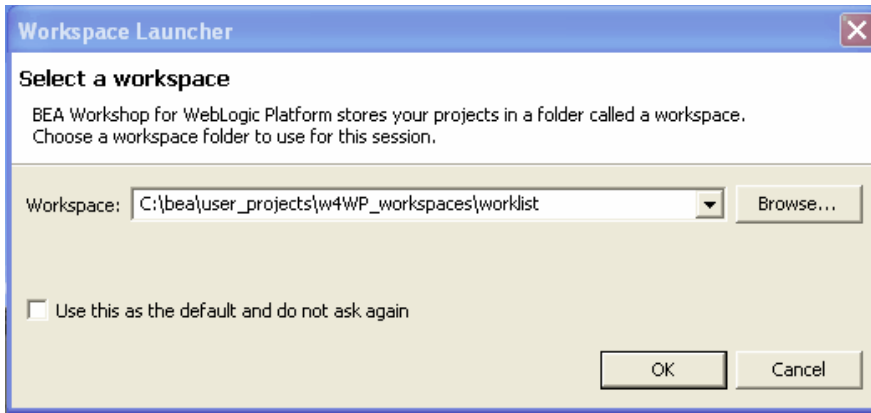
Before You Begin

Before you begin this tutorial, ensure that you have WebLogic Platform version 9.2 with WebLogic Integration 9.2 installed on your system and define a workspace. Perform the following to start the BEA Workshop for WebLogic Platform™ IDE (Integrated Development Environment).

1. From the **Start** menu, click **All Programs**→**BEA Products**→**Workshop for WebLogic Platform** to start the BEA Workshop for WebLogic Platform IDE. This will display the Workspace Launcher dialog box.

2. For the purpose of this tutorial, create a workspace called **worklist** in the `BEA_HOME\user_projects\w4WP_workspaces\` directory. Where `BEA_HOME` is the location where you installed WebLogic Platform 9.2 (see [Figure 2-1](#)).

Figure 2-1 Setting the Workspace

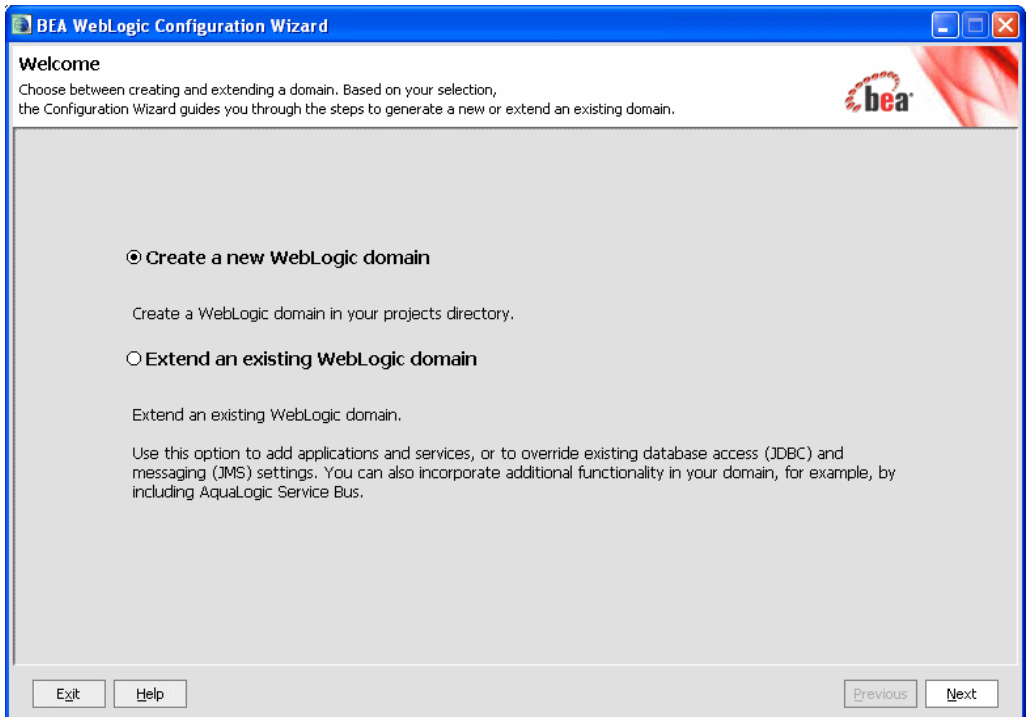


Create a Worklist Domain

The Worklist domain is created using the Configuration Wizard. To create the Worklist domain:

1. From the **Start menu**, click **All Programs**→**BEA Products**→**Tools**→**Configuration Wizard** to start the BEA WebLogic Configuration Wizard. This displays the Welcome page in the BEA WebLogic Configuration Wizard dialog box (see [Figure 2-2](#)).

Figure 2-2 Configuration Wizard Welcome Page



2. Select **Create a new WebLogic domain** and click **Next**. This displays the Select Domain Source page in the Configuration Wizard dialog box.

As you proceed through the Configuration Wizard, several pages will appear in a sequence. You need to specify your settings on each page and click **Next** to proceed to the subsequent page. [Table 2-1](#) lists the pages and the options that you need to select to create the domain successfully.

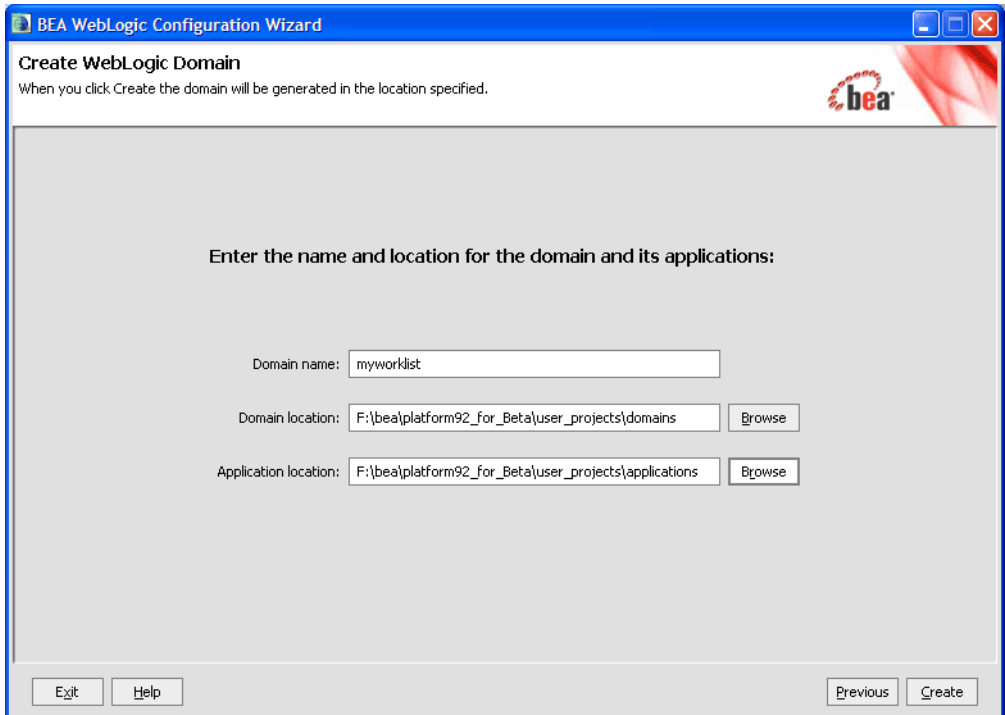
Table 2-1 Configuring the Domain Using the Configuration Wizard

| Page in the Configuration Wizard Dialog Box | Recommendation Action |
|--|--|
| Select a Domain Source | Select Generate a domain configured automatically to support the following BEA Products option for the following BEA Products: <ul style="list-style-type: none">• WebLogic Server (Required)• Workshop for WebLogic Platform• WebLogic Integration Click Next to proceed. |
| Configure Administrator Username and Password | Specify the following mandatory credentials: User name = <code>weblogic</code> User password = <code>weblogic</code> Confirm user password = <code>weblogic</code> Click Next to proceed. |
| Configure Server Start Node and JDK | Select Development Mode in the WebLogic Domain Startup Mode column. Select Sun SDK 1.5.0_04 @ C:\bea\jdk150_04 in the BEA Supplied JDKs column. Click Next to proceed. |
| Customize Environment and Service Settings | Click No , to retain the settings defined in the domain source and proceed directly to creating your domain. Click Next to proceed. |

3. On the Create WebLogic Domain page, specify the following values for each field and click **Create** (see [Figure 2-3](#)):

- **Domain name:** `myworklist`
- **Domain Location:** `C:\bea\user_projects\domains`
- **Application Location:** `C:\bea\user_projects\applications`

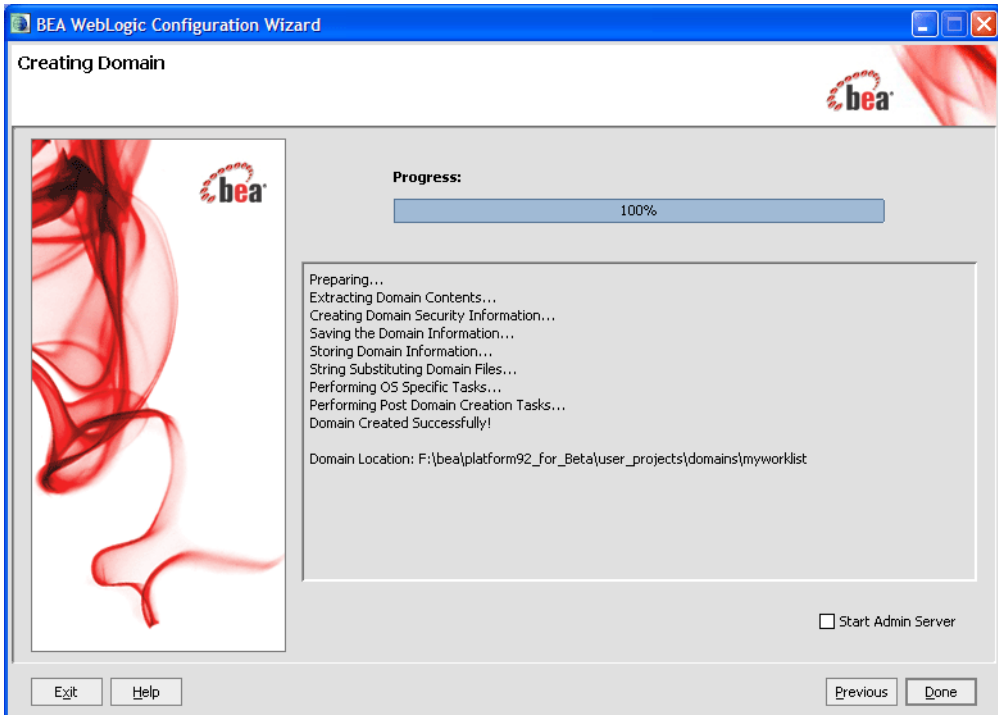
Figure 2-3 Create WebLogic Domain Page



The screenshot shows a window titled "BEA WebLogic Configuration Wizard" with a sub-header "Create WebLogic Domain". Below the sub-header is a note: "When you click Create the domain will be generated in the location specified." The main area contains the instruction "Enter the name and location for the domain and its applications:". There are three input fields: "Domain name:" with the text "myworklist", "Domain location:" with the path "F:\bea\platform92_for_Beta\user_projects\domains" and a "Browse" button, and "Application location:" with the path "F:\bea\platform92_for_Beta\user_projects\applications" and a "Browse" button. At the bottom, there are buttons for "Exit", "Help", "Previous", and "Create". The BEA logo is visible in the top right corner of the window.

After the domain is created successfully, the Creating Domain page is displayed (see [Figure 2-4](#)).

Figure 2-4 Creating Domain Page



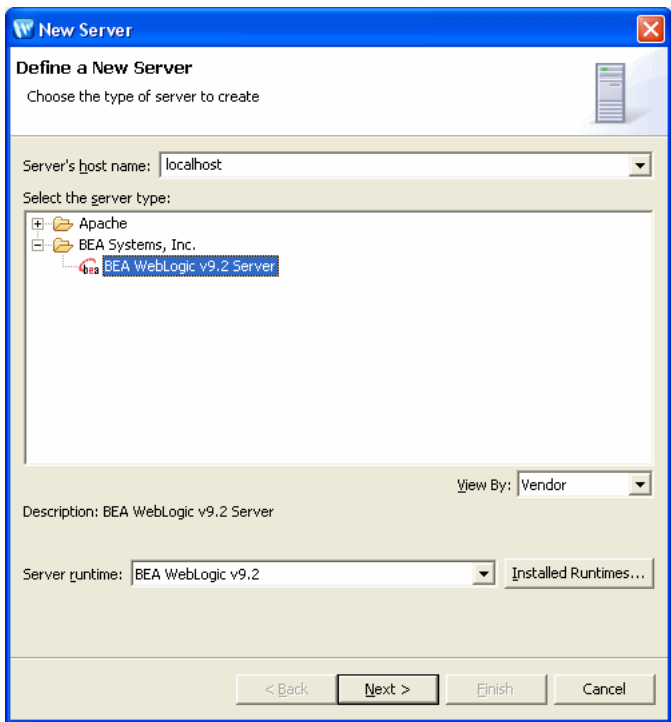
4. Select the **Start Admin Server** check box and click **Done** to proceed.

Set Up the Workshop for WebLogic Platform Design-Time Environment

After you create the `myworklist` domain, you can set up the design-time environment for the loan processing task plan by performing the following steps:

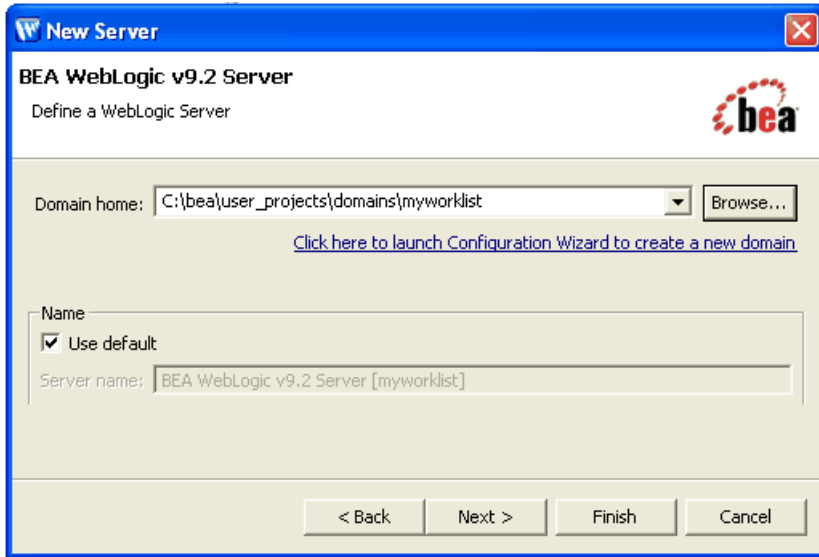
1. Click **File**→**New**→**Server**. The **New Server** dialog box appears (see [Figure 2-5](#)).

Figure 2-5 New Server Dialog Box



2. In the **New Server** dialog box, accept the default settings and click **Next**.
3. Browse and select the `myworklist` domain, which you created using the Configuration Wizard. It is located at `C:\bea\user_projects\domains\myworklist` (see [Figure 2-6](#)).

Figure 2-6 Specify the domain name for the New Server



4. Click **Finish**.

This completes the creation of a new server on which, the Worklist application will be deployed.

Create a New Worklist Application

A Worklist application consists of an EAR and a Web project, which contain all the files and directories that relate to a executable and self-contained Worklist application on the server.

The EAR project corresponds to the Enterprise Application. It hosts the Worklist system instance and the loan processing task plan for Acme Financial System. You will build and deploy this project to create the task scenario described in the overview of this tutorial.

The Web project, an instance of the Worklist user portal that acts as the user interface for the Worklist system (hosted by the EAR project). The Web project is a part of the EAR project.

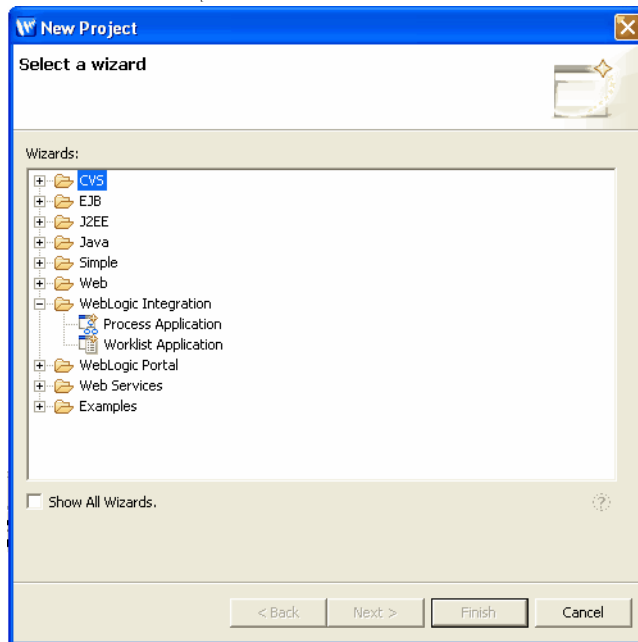
To create a new Worklist application:

1. In BEA Workshop for WebLogic Platform, click **File**→**New**→**Project**.

The New Project dialog box appears.

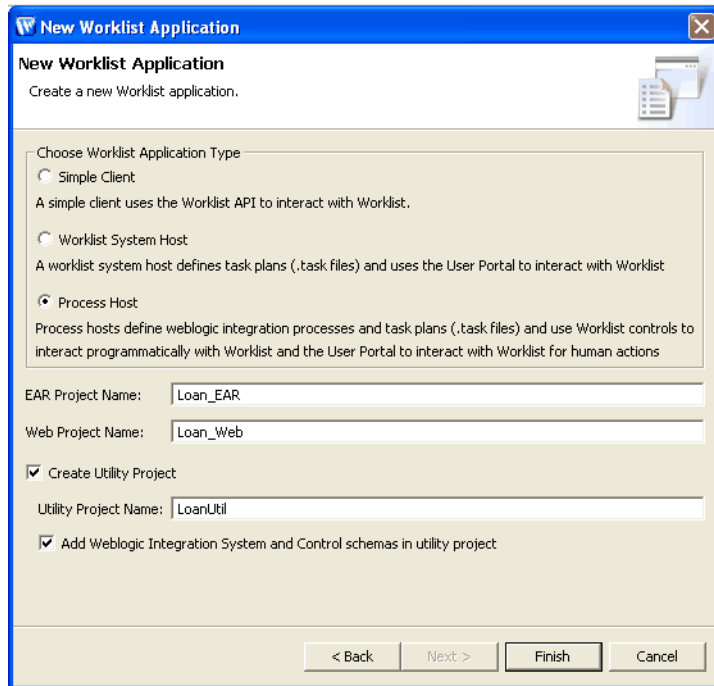
2. Select the **WebLogic Integration**→**Worklist Application** in the New Project dialog box (see [Figure 2-7](#)).

Figure 2-7 New Project Dialog Box



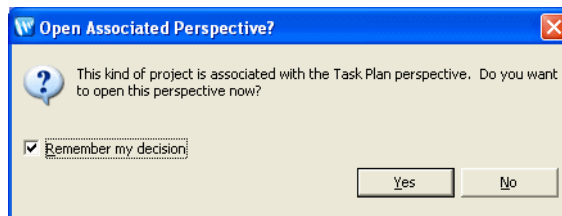
3. Click **Next**. The New Worklist Application dialog box appears.
4. Select the **Process Host** option from the Choose Worklist Application Type section, this will allow to use Worklist and Business Process Management together in the same application.
5. Specify the EAR Project Name as `Loan_EAR` in the EAR Project Name box.
6. Specify the Web Project Name as `Loan_Web` in the Web Project Name box.
7. Select the **Create Utility Project** check box and specify the Utility Project Name as `LoanUtil`. This project will contain all the WebLogic Integration schemas.
8. Select the **Add WebLogic Integration System and Control schemas in utility project** check box (see [Figure 2-8](#)).

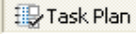
Figure 2-8 New Worklist Application Dialog Box



9. Click **Finish** and the **Open Associated Perspective?** dialog box is displayed.
10. In the displayed **Open Associated Perspective?** dialog box, select the **Remember my decision** check box and click **Yes**. In doing so, you associate the project with the Task Plan perspective (see [Figure 2-9](#)).

Figure 2-9 Open Associated Perspective? Confirmation Box



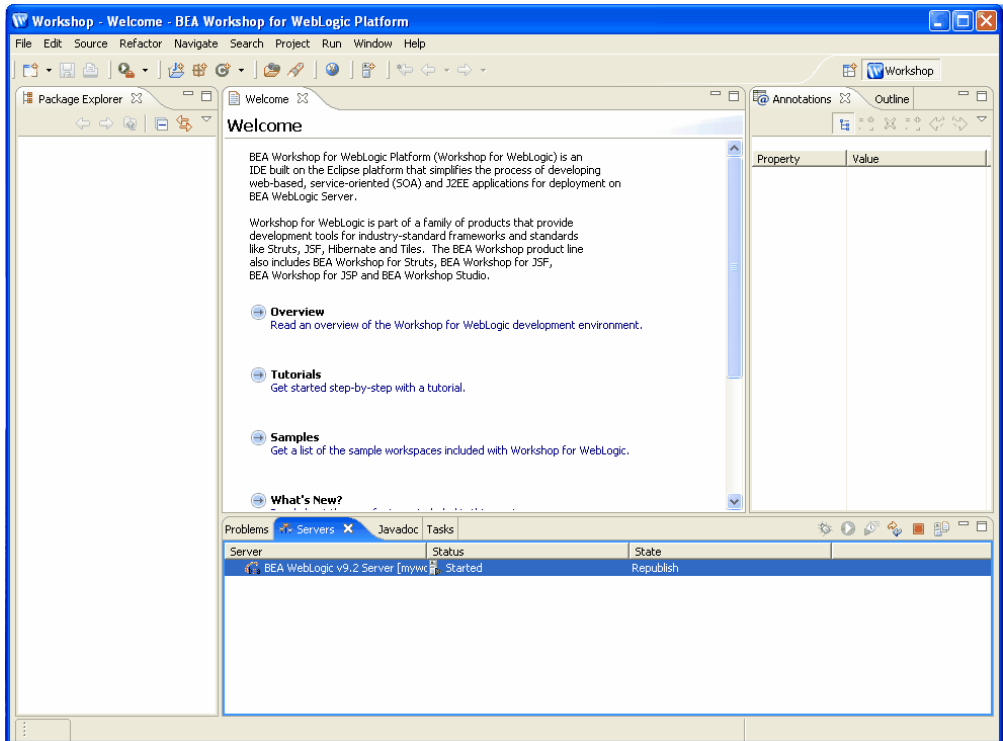
You can see the Task Plan icon  on the top right corner of the BEA Workshop for WebLogic Platform window.

Configure Users and Groups for Loan Processing

For Acme Financial System, the users and groups listed in [Table 2-2](#) need to be created. To do this, you need to start the server created in the previous section if it is not started already. Perform the following to start the server afresh.

1. Select the server in the Servers pane (see [Figure 2-10](#)).

Figure 2-10 Starting the Server



2. Right click and select the **Start** option.

Table 2-2 Users and Groups for Loan Processing

| Users | Groups |
|--------------|---------------|
| John | loanOfficer |
| Joe | loanOfficer |
| Mary | loanManager |
| Mark | loanManager |

Create Groups for the Loan Processing Task

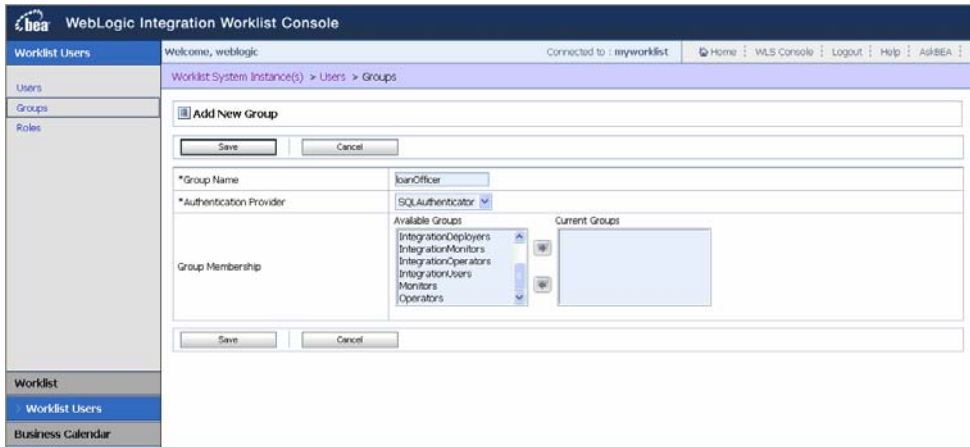
Perform the following steps to create Group.

1. Open the Worklist Console using **Run**→**Weblogic Integration**→**Worklist Console** menu in the BEA Workshop for WebLogic Platform or alternatively open a Web browser, such as Internet Explorer, and enter the Worklist console URL:

```
http://host:port/worklistconsole
```

2. Use the following credentials to log in to the WebLogic Integration Worklist console with administrator rights:
 - User name: `weblogic`
 - Password: `weblogic`
3. Click **Worklist Users** from the left panel.
4. Click **Groups** from the Worklist Users section in the left panel.
5. Click **Add Group** to open the Add New Group page (see [Figure 2-11](#)).
6. Specify the following details for the new group:
 - Group name: `loanOfficer`
 - Authentication Provider: `SQLAuthenticator`

Figure 2-11 Add New Group Page



7. Click **Save**.
8. Click **Add Group** to create another group.
9. Specify the following details for the new group:
 - Group name: loanManager
 - Authentication Provider: SQLAuthenticator
10. Click **Save**.

After you create the groups, you need to create the users and assign the users to these groups.

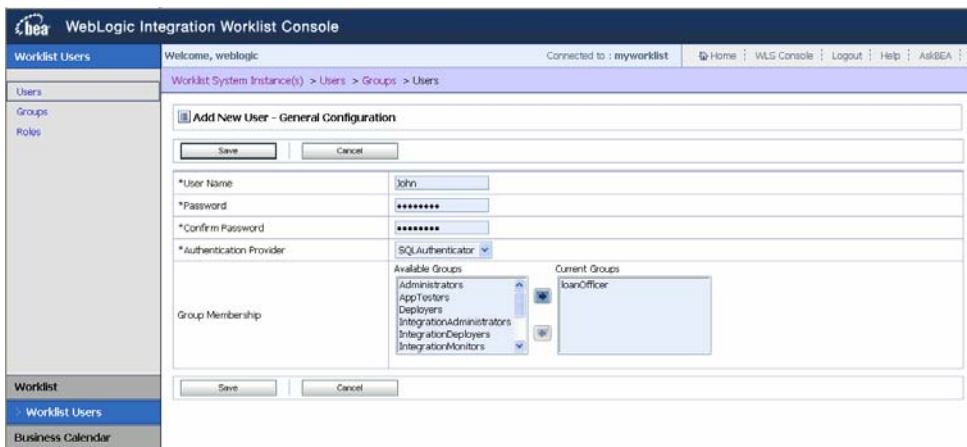
Create Users and Assign to Groups

1. Click **Worklist Users** from the left panel.
2. Click **Add User**. This opens the Add New User - General Configuration page.
3. Specify the following details:
 - Name: John
 - Provider: SQLAuthenticator
 - Password: password

Note: The password must be of at least 8 characters.

4. Move **loanOfficer** from the list of Available Groups to the list of Current Groups (see [Figure 2-12](#)).

Figure 2-12 Add New User- General Configuration



5. Click **Save**.
6. This displays the Summary of Users page, which lists **John** as a user.
7. Repeat [step 2](#) to [step 5](#) for Joe.
8. For users Mary and Mark, select the **loanManager** group after repeating [step 2](#) and [step 3](#).
Note: While you can change the password for these users, retain the same password for this tutorial.
9. Click **Save**.

[Figure 2-13](#) shows the summary of users and groups required for the loan processing task plan.

Figure 2-13 Summary of Users

The screenshot shows the 'WebLogic Integration Worklist Console' interface. The main content area is titled 'Summary of Users' and contains a search bar and a table of users. The table has the following data:

| <input type="checkbox"/> | User Name | Group Membership | Authentication Provider | Options |
|--------------------------|-----------|------------------|-------------------------|---------|
| <input type="checkbox"/> | Joe | loanOfficer | SQLAuthenticator | |
| <input type="checkbox"/> | John | loanOfficer | SQLAuthenticator | |
| <input type="checkbox"/> | Mark | loanManager | SQLAuthenticator | |
| <input type="checkbox"/> | Mary | loanManager | SQLAuthenticator | |
| <input type="checkbox"/> | weblogic | Administrators | SQLAuthenticator | |

Below the table are 'Add User' and 'Delete User' buttons. The interface also includes a sidebar with navigation options like 'Users', 'Groups', and 'Roles', and a top navigation bar with 'Home', 'WLS Console', 'Logout', 'Help', and 'AskBEA'.

Step 2: Modeling and Deploying the Loan Processing Task Plan

A *task plan* defines the business-specific life cycle to complete a task. A loan processing task plan depicts the multiple human interaction steps involved in processing a loan. For example, when a prospective customer submits a loan application, a loan officer needs to be assigned the task of checking the customer details and then approve the loan or forward it to the loan manager for further scrutiny. This step is a part of the task plan, which ensures that whenever a new loan application is submitted, a loan officer claims the task and processes the loan application.

In WebLogic Integration Worklist 9.2, a task plan can be modeled using the Workshop for WebLogic design-time environment and then be deployed to run on the server. Once the task plan is deployed, the task instances can be created by authorized systems or human entities. *Task Instances* or tasks are based on the task plan.

In this step, you will model and deploy the loan processing task plan using Workshop for WebLogic Platform design-time environment.

Model and Deploy the Loan Processing Task Plan

The loan processing task plan will be modeled using Workshop for WebLogic. To model the task plan, you need to perform the following tasks:

- [Create a New Task Plan](#)
- [Define the Steps for the Loan Processing Task Plan](#)
- [Define Actions in the Task Plan](#)
- [Define Constructors for the Task Plan](#)

- [Validate the Task Plan](#)
- [Deploy the Loan Processing Task Plan](#)

Create a New Task Plan

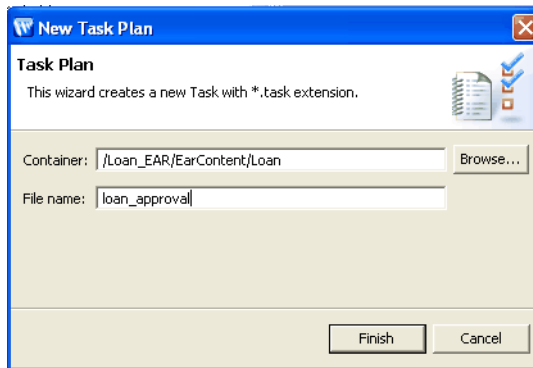
To create the loan processing task plan:

1. In the **Package Explorer** pane, right-click the `Loan_EAR\EarContent` folder, and select **New→Folder**.
2. In the New Folder dialog box, specify the folder name as `Loan` and click **Finish** to continue.
3. Select the `Loan` folder, right-click and select **New→Task Plan**.

The New Task Plan dialog box appears.

4. In the New Task Plan dialog box enter `loan_approval` in the **File name** (see [Figure 3-1](#)).

Figure 3-1 New Task Plan



5. Click **Finish** to proceed.

Define the Steps for the Loan Processing Task Plan

A task plan is a collection of steps that define the action a human needs to perform when working through a task. For Acme Financial loan processing system, the steps involved are listed in [Table 3-1](#).

Table 3-1 Steps in the Loan Processing Task Plan

| Step Name | Default Assignee | Note |
|------------------------|-------------------------|----------------|
| Officer Review Pending | Loan Officer | |
| Manager Review Pending | Loan Manager | |
| Loan Approved | | Step Completed |
| Loan Rejected | | Step Aborted |

To add these steps to the `loan_approval` task plan:


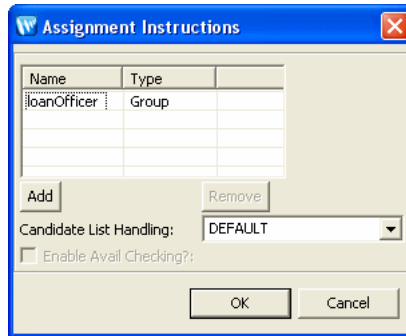
1. From the Palette box, click **Step** and then click anywhere in the ***loan_approval.task** tab to add a step. The default name for a new step is `step#`, where `#` is an incremental numeric value that changes depending on the number of existing steps in the task plan.
2. Click the step again and change the name to `OfficerReviewPending`.
3. With the `OfficerReviewPending` step selected, click **Assignment Instructions** in the Properties tab.
4. In the Value column, click . This displays the Assignment Instructions dialog box, as shown in [Figure 3-2](#).
5. Click **Add** and click the **Name** column to enter `loanOfficer`.
6. In the Type column, click the list box and select **Group**.
7. Select **DEFAULT** from the Candidate List Handling list box.
8. Click **OK**. The `OfficerReviewPending` step is now assigned to the `loanOfficer` group (see [Figure 3-2](#)).

Figure 3-2 Assignment Instructions




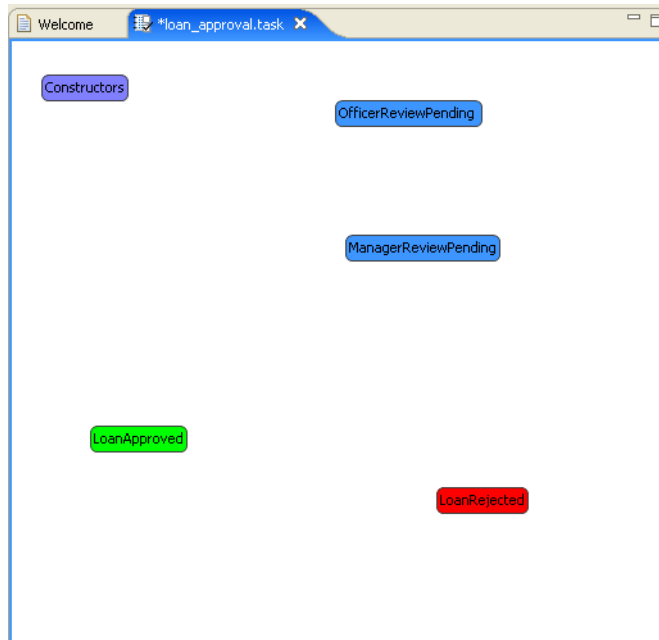
9. Add another step to the `loan_approval.task` file and call it `ManagerReviewPending`.
 10. With the `ManagerReviewPending` step selected, click **Assignment Instructions** in the Properties tab.
 11. In the Value column, click . This displays the Assignment Instructions dialog box.
 12. Click **Add** and click the Name column to enter `loanManager`.
 13. In the Type column, click the list box and select **Group**.
 14. Select **DEFAULT** from the Candidate List Handling list box.
 15. Click **OK**. The `OfficerReviewPending` step is now assigned to the `loanManager` group.
 16. From the Palette tab, click **Complete Step** and drop it in the `loan_approval.task` tab.
 17. Change the name of the step to `LoanApproved`.
 18. From the Palette tab, click **Abort Step** and drop it in the `loan_approval.task` tab.
 19. Change the name of the step to `LoanRejected`.
- After you add all the steps, the `loan_approval.task` tab will be displayed (Figure 3-3).

Figure 3-3 Steps in loan_approve.task



Define the User Properties of the Task Plan

User properties are business-specific data elements of a task plan. For the loan processing scenario, you need to define the user properties mentioned in [Table 3-2](#).

Table 3-2 User Properties for Loan Processing Task Plan

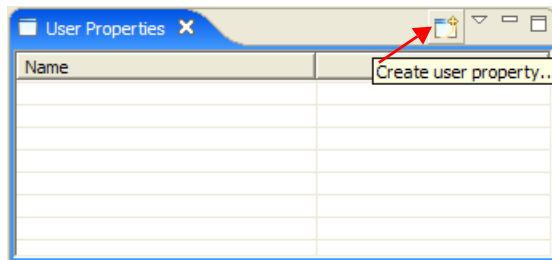
| User Property Name | Data Type |
|--------------------|-----------|
| LoanAmt | Integer |
| Name | String |
| SSN | String |
| Collateral Assets | String |
| Notes | String |

Note: User properties are global and apply to all the steps throughout the life cycle of the task plan.

To create user properties:

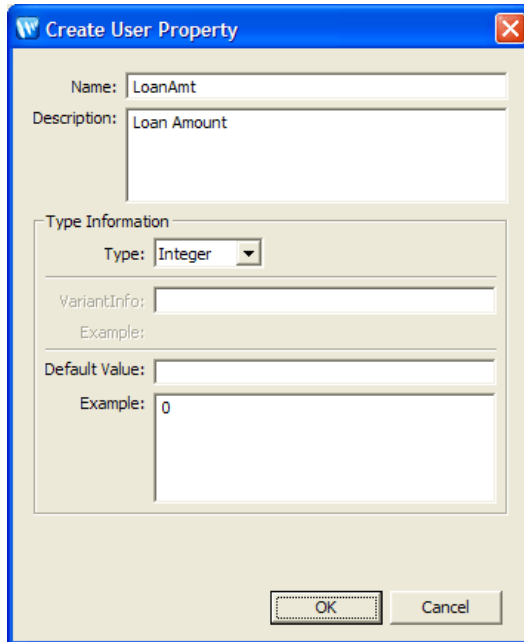
1. From the User Properties tab, click the **Create user property** icon (see [Figure 3-4](#)).

Figure 3-4 User Properties Tab



2. In the Create User Property dialog box, enter the name of the user property as `LoanAmt`, and provide a brief description in the Description field.
3. Click the **Type** drop-down list and select **Integer** (see [Figure 3-5](#)).

Figure 3-5 Create User Property Dialog Box



4. Click **OK** to implement the new property.
5. Repeat [step 1](#) to [step 4](#) for the other properties listed in [Table 3-2](#).

Define Actions in the Task Plan

Every step (other than terminal steps including Completed Step and Aborted Step) of the loan processing task plan can include actions, which allow the transition of the task instance from one step to another. The actions can be taken by authorized employees or system actors.

For the loan processing task plan, create the actions listed in [Table 3-3](#).


Table 3-3 Actions for the Loan Processing Task Plan

| Step/Constructor | Action | User Properties Required | Resulting Step |
|------------------------|---------|--------------------------|----------------|
| Officer Review Pending | Approve | Notes | Approved |
| Officer Review Pending | Reject | Notes | Rejected |

Table 3-3 Actions for the Loan Processing Task Plan

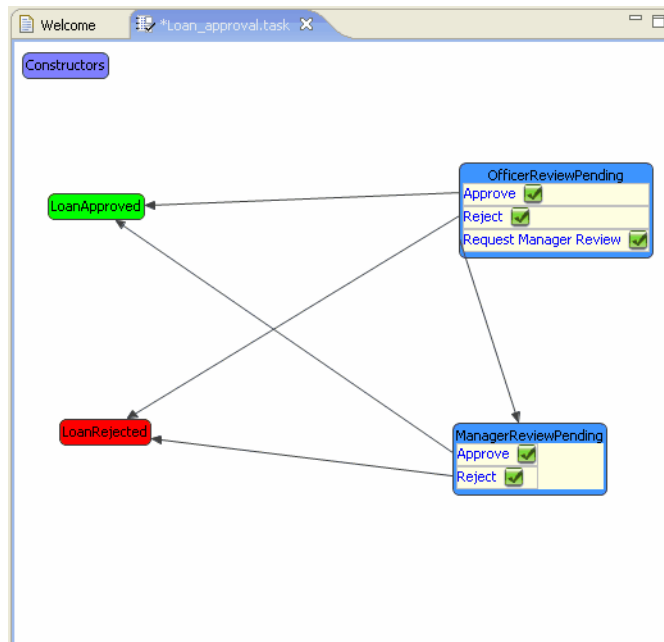
| Step/Constructor | Action | User Properties Required | Resulting Step |
|-------------------------|------------------------------|---------------------------------|---------------------------|
| Officer Review Pending | Request Manager Review | Notes | Manager Review Pending |
| Manager Review Pending | Approve | Notes, Collateral Assets | Approved |
| Manager Review Pending | Reject | Notes | Rejected |

To create the actions listed in [Table 3-3](#):

1. Click **Action** in the Palette tab and drop it on the `OfficerReviewPending` step.
2. Change the action name to `Approve`.
3. In the Properties tab, click the **Required User Properties**→**Notes** property.
4. In the Value column, click  to open the Property Notes dialog box.
5. Select the **Required** check box and click **OK**.
6. Click **Connections** in the Palette tab.
7. To create a connection between the `Approve` action, and the `LoanApproved` step, which appears in green color, click the `Approve` action box.
8. Move the mouse over the `LoanApproved` step and click again. This creates the connection between the `Approve` action and the `LoanApproved` step.
9. Repeat [step 1](#) to [step 8](#) for the other steps listed in [Table 3-3](#).

After you create the connections for each action, the Outline tab will look similar to [Figure 3-6](#).

Figure 3-6 Outline Tab with Action, Steps and Connections



Define Constructors for the Task Plan

In a task plan, there is at least one constructor that defines how a task instance comes into existence. A constructor for a task plan lists the initial data to be provided for the creation of a task instance as well as the resulting step of the task instance. Each constructor needs to have a step associated with it. There may be more than one constructor for a task plan.

For the loan processing task plan, define the `NewLoan` constructor. This constructor will be used to create a loan task when a loan request comes in without a credit score and pre-approval.

Note: Constructors can be invoked by authorized employees or system actors, so that the loan task instances can be created either by human data entry or system execution.

To configure the constructor:

1. Click **Constructor** on the Palette tab and drop it in the Constructor container of the `*loan_approval.task` tab.
2. Name the constructor `NewLoan`.


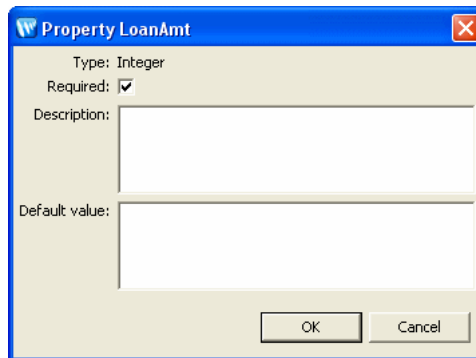
3. In the Properties tab, set the value for the **LoanAmt**, **Name**, and **SSN** properties to **Required**, by performing the following steps:
 - a. In the Properties tab, click the **LoanAmt** property (see [Figure 3-7](#)).
 - b. Click  in the Value column to open the Property LoanAmt dialog box.
 - c. Select the **Required** check box and click **OK**.

Figure 3-7 Property LoanAmt Dialog Box



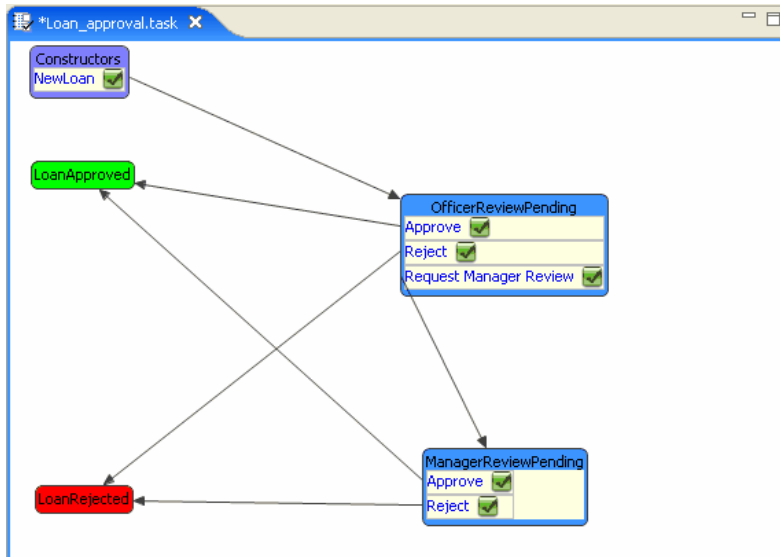
- d. Repeat [step a](#) to [step c](#) for the **Name** and **SSN** properties.

For a new loan application, you need to create a connection between the `NewLoan` constructor and the `OfficerReviewPending` step.

4. Click **Connection** in the Palette tab to connect `NewLoan` to `OfficerReviewPending`.
5. Click the `NewLoan` constructor box and move the mouse over to the `OfficerReviewPending` step and click again.

After you map the `NewLoan` constructor to `OfficerReviewPending` step, the Outline tab will appear similar to [Figure 3-8](#).

Figure 3-8 Outline Tab After Connecting the NewLoan to OfficerReviewPending



6. Select **File**→**Save All** menu option to save the application before you proceed.

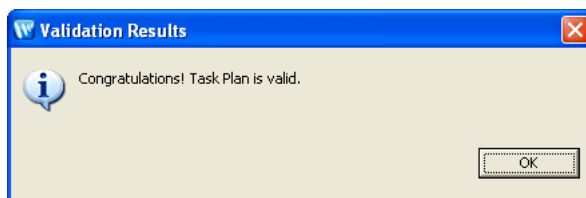
Validate the Task Plan

The final stage in designing and deploying the task plan is to validate if the task plan is working according to the required enterprise model specification.

To validate the loan processing task plan:

1. Click **Worklist**→**Validate Task Plan for Runtime**.
2. If the task plan is valid, then the Validation Results dialog box appears (see [Figure 3-9](#)).

Figure 3-9 Validation Results Dialog Box



3. Click **OK** to confirm.

4. Select **File**→**Save All** menu option to save the application before you proceed.

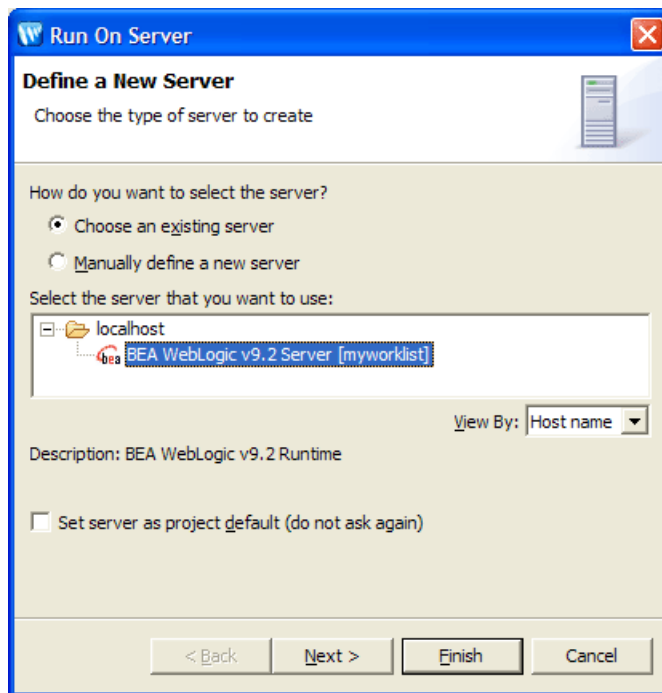
Deploy the Loan Processing Task Plan

Once the loan processing task plan is modeled completely, you can deploy it on WebLogic Integration Server.

To deploy the loan processing task plan:

1. In the Package Explorer pane, right-click the **Loan_Web** project that you created previously and select **Run As**→**Run on Server**. The Run on Server dialog box is displayed (see [Figure 3-10](#)).

Figure 3-10 Run on Server Dialog Box



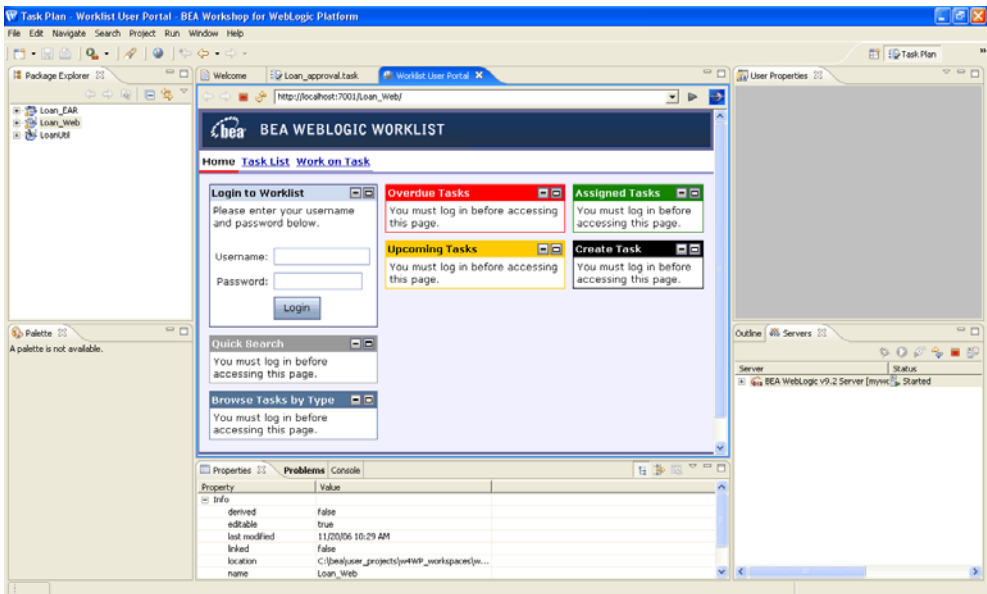
2. Select **Choose an existing server** and from the Select the server that you want to use: list, select the **myworklist** server and click **Next**.

This will display the Add and Remove Projects dialog box.

3. Ensure that `Loan_EAR` is listed in the Configured projects list. If it is not then select `Loan_EAR` from the Available projects list, and click **Add**.
4. Click **Finish** to start deploying the project on the server.

It will take some time to deploy the project on the server. After the task plan is deployed successfully, it opens up on the Worklist User Portal within the BEA Workshop for WebLogic Platform (see [Figure 3-11](#)).

Figure 3-11 Worklist User Portal



Step 3: Testing the Task Plan Using Worklist User Portal

The user portal provides Worklist users an interface for accessing the task instances that they are authorized to deal with. In the user portal, the user will see list of task instances associated with them or the groups they belong to. These lists should be considered to the user's Inbox for Worklist.

There Upcoming Tasks and Overdue Tasks portlets show tasks created by the user or owned by the user. Task claimed by the user are shown with a special icon containing a check mark. This is done to clearly indicate the tasks this user is expected to work on (by taking actions on them and setting their properties). Tasks that are were created by or are owned by the user require the user to keep track of them, but not necessarily to work on them.

The Assigned Tasks portlet shows tasks that are assigned to the user, or the groups to which the user belongs, but are not claimed by anyone. The claimed tasks are claimed by the user and to be worked on by the user only. For example, if loan officer John claims a loan processing task instance, then loan officer Joe will not have access to this task instance, and will not see the task in his view of the user portal.

The Assigned Tasks are tasks assigned directly to the user or groups. the user belongs.

In this step, you will perform the following tasks:

- [Create the Loan Processing Task Instance](#)
- [Claim the Loan Processing Task Instance](#)
- [Reject the Loan Task Instance](#)

Create the Loan Processing Task Instance

To test the newly deployed loan processing task plan, you need to create a new task instance. Before integrating with the system application, the task plan can be tested by creating a loan processing task instance.

The `NewLoan` constructor will be used to create the loan processing task instance. To create the task instance:

1. Open a Web browser and enter the following URL to open the Worklist User Portal test browser:

```
http://localhost:7001/Loan_Web
```

Note: You can use any external browser, for example Internet Explorer, or the default browser that comes with BEA Workshop for WebLogic Platform.

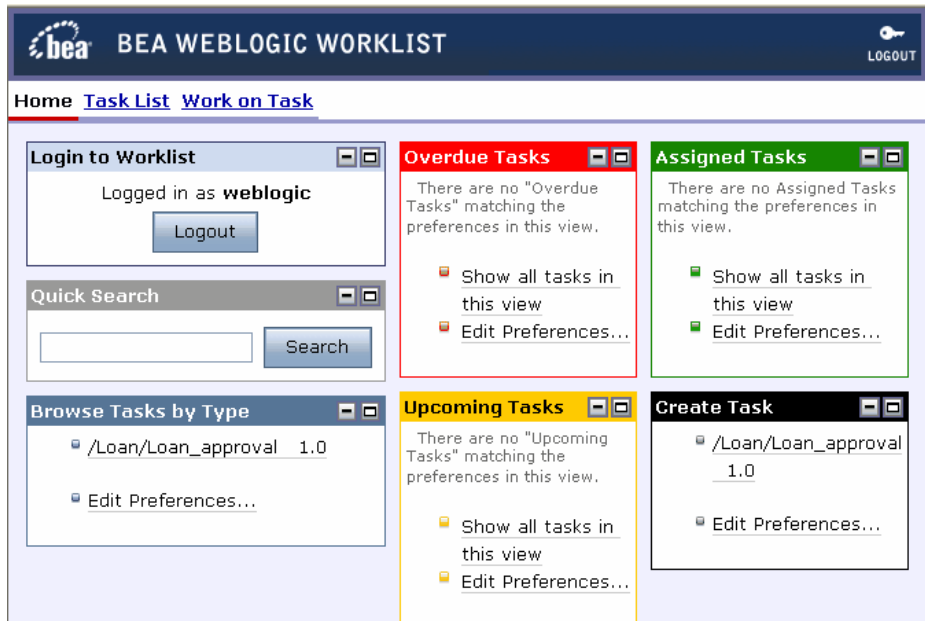
2. Log in to the `Loan_Web` project using the following credentials:

Username: `weblogic`

Password: `weblogic`

The Home page is displayed with the Inbox' for the user. This is a portal page with portlets for the Inbox of overdue, upcoming, and assigned tasks, along with the portlet that allows you to create a new task (see [Figure 4-1](#)).

Figure 4-1 Creating a Task Using the Worklist User Portal Home Page



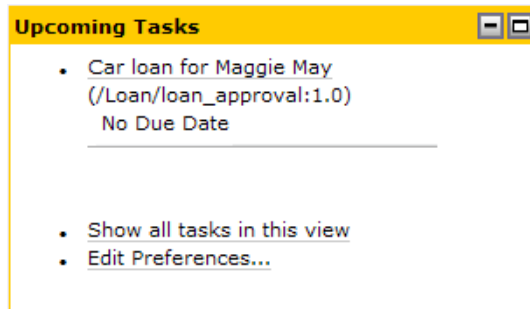
3. Click the **/Loan/loan_approval 1.0** option in the Create Task portlet. The Create New Task page is displayed.
4. Ensure that **NewLoan** is selected as the task plan constructor.
5. Specify the details listed in [Table 4-1](#) for the other fields on the page:

Table 4-1 Specifications for the New Loan Approval Task Instance

| Field Name | Value |
|--------------------------|-------------------------|
| Task Name | Car loan for Maggie May |
| User Properties: SSN | 222-33-4444 |
| User Properties: LoanAmt | 10000 |
| User Properties: Name | Maggie May |

6. Click **Create Task**. The task is created and shows up in the Upcoming Tasks portlet on the home page, as shown in [Figure 4-2](#).

Figure 4-2 Upcoming Tasks Portlet After Creating a Task



Note: The task shows up on the Inbox of the user *weblogic* because *weblogic* is the owner of the task instance. By default, the user who creates the task instance becomes the owner of the task instance. This enables the owner to track the status of the task instance although the owner is not assigned to work on the task instance.

7. Click **Logout** to close and log out as *weblogic* from the Worklist User Portal.

Claim the Loan Processing Task Instance

The new task instance shows up in the list of upcoming tasks, which implies that a loan officer needs to claim the task and process it. Loan officer John will claim this task and work on it.

To claim the task instance, *Car loan for Maggie May*:

1. Start a new session of the loan web project using the URL:

`http://localhost:7001/Loan_Web`

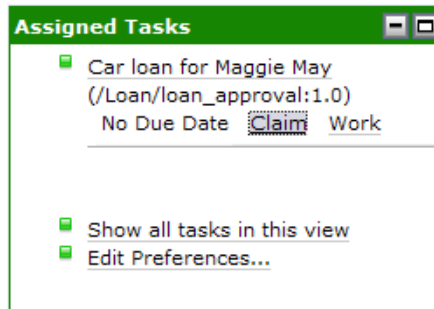
2. Log in to the portal using the following credentials:

Username: John

Password: password

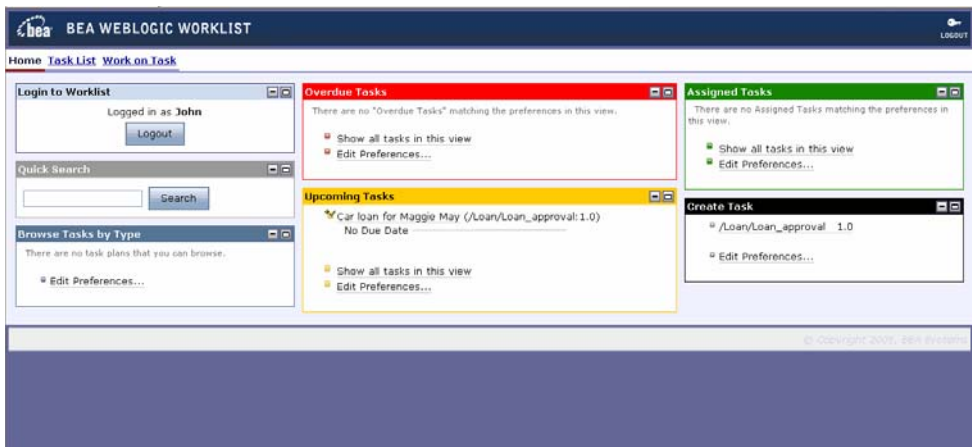
Because the task instance, *Car loan for Maggie May*, is assigned to the `loanOfficers` group, it will show up on the Assigned Tasks portlet of John's Inbox (see [Figure 4-3](#)).

Figure 4-3 Task Assigned to User



3. Click **Claim** to claim the particular task. This will move the task from the Assigned Tasks portlet to the Upcoming Tasks portlet for user John, as shown in Figure 4-4.

Figure 4-4 Upcoming Tasks for Loan Officer John



As the task instance has been claimed by John, it will no longer show up in Joe's Assigned Tasks portlet. Joe is the other loan officer who could have claimed the task.

4. Click **Car Loan for Maggie May** in the Upcoming Tasks portlet. This will display the Task Work page with the task details, and the Action options available for user John. As show in Figure 4-5.

Figure 4-5 Task Detail Information on the Task Work Web Page

The screenshot shows a web application window titled "Task Work". The main heading is "Work on 'Car loan for Maggie May' in 'OfficerReviewPending' Step". Below this is a table with the following data:

| TASK GENERAL INFORMATION | | View |
|--------------------------|-------------------------|----------------------|
| Task Name: | Car loan for Maggie May | |
| Current Step: | OfficerReviewPending | |
| Comment: | | |
| Priority: | 1 | |
| Owner: | weblogic | |
| Claimant: | John | |
| Current Assignee(s): | Groups [loanOfficer] | |

Below the table is a section titled "PROPERTIES" with the following data:

| | | |
|-------------------|--|--|
| Collateral Assets | (null) | Applicant's collateral details |
| LoanAmt | 20000 | |
| Name | Maggie May View Text... | |
| Notes | (null) | Any other information |
| SSN | 222-33-4444 View Text... | |

Below the properties is an "ACTIONS" section with three radio buttons:

- Approve
- Reject
- Request Manager Review

At the bottom of the page are four buttons: "Next >", "Edit / View Details", "History", and "Cancel".

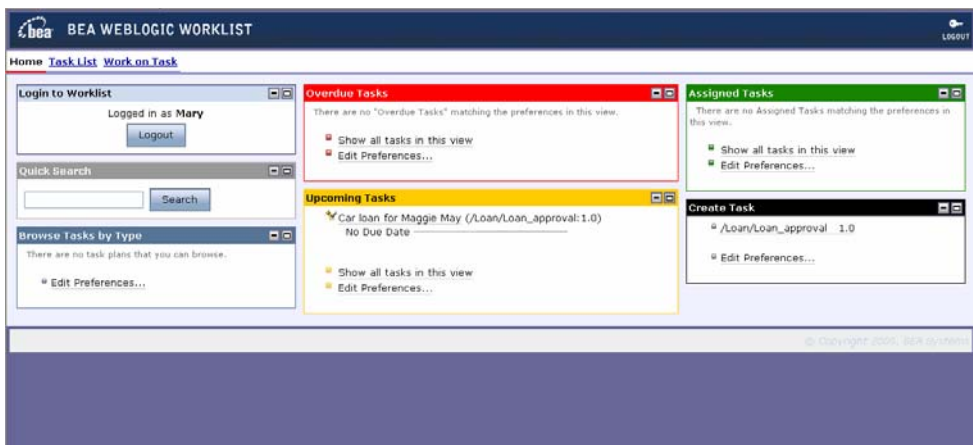
5. Select **Request Manager Review** in the Actions section to forward the request to the loan managers group for approval, and click **Next**.
6. In the Key Action Properties of the refreshed Web page that appears, enter the string **Loan amount of 10,000 sent for sanction by loan managers**.
7. Click **Submit**. The task is now assigned to the loan managers group and will not show up in John's Inbox.
8. Logout as user John from the Worklist User Portal.

Reject the Loan Task Instance

After John forwards the new loan application for approval to the managers, one of the managers needs to claim the task, decide to approve or reject the loan, and the system will process the request accordingly. Perform the following steps to claim the task instance and subsequently to reject the loan request.

1. Start a new session of the `Loan_web` project at the following URL:
http://localhost:7001/Loan_Web
2. Log in to the portal using the following credentials:
Username: Mary
Password: password
3. As the task instance, *Car loan for Maggie May*, has been passed on to the `loanManagers` group, it will show up on the Assigned Tasks portlet of Mary's Inbox. The Assigned Tasks portlet will look similar to [Figure 4-3](#).
4. Click **Claim** to claim the particular task. This will move the task from the Assigned Tasks portlet to the Upcoming Tasks portlet for user Mary ([Figure 4-6](#)).

Figure 4-6 Task Instance in Upcoming Tasks Portlet of Mary's Inbox



As the task instance has been claimed by Mary, it will no longer show up in Mark's Inbox. Mark is the other loan manager who could have claimed the task.

5. Click **Car Loan for Maggie May** in the Upcoming Tasks portlet. This will display the Task Work page with the task details, and the Action options available for user Mary. (see [Figure 4-7](#)).

Figure 4-7 Rejecting the Loan from the Task Work Web Page

The screenshot shows a web application window titled "Task Work". The main heading is "Work on 'Car loan for Maggie May' in 'ManagerReviewPending' Step". Below this is a "TASK GENERAL INFORMATION" section with a "View" link. The fields are: Task Name: Car loan for Maggie May; Current Step: ManagerReviewPending; Comment: (empty); Priority: 1; Owner: weblogic; Claimant: Mary; Current Assignee (s): Groups [loanManager].

The "PROPERTIES" section includes: Collateral Assets: (null) with a link to "Applicant's collateral details"; LoanAmt: 20000; Name: Maggie May View Text...; Notes: Loan amount of 20,000 sent for sanction by loan managers View Text... with a link to "Any other information"; SSN: 222-33-4444 View Text...

The "ACTIONS" section has two radio buttons: "Approve" (unselected) and "Reject" (selected).

At the bottom are four buttons: "Next >", "Edit / View Details", "History", and "Cancel".

6. In the Actions section, select **Reject** to reject the loan as shown in [Figure 4-7](#) and click **Next**.
7. In the Key Action Properties of the refreshed Web page that appears, enter the string **Loan rejected on bad credit**.
8. Click **Submit** to complete the task. As the loan has been rejected, the task instance will no longer appear in Mary's Inbox.
9. Logout as user Mary from the Worklist User Portal.

Step 4: Managing Task Instances Using Worklist Console

This section describes how to use the Worklist Console to modify a task in the `Loan_web` project. The key objectives for this section are:

- Log in with administrator rights
- Re-assign a pending task
- Validate the update using the Worklist User Portal

This section is an extension of the previous section, and relies on its environment. So, it is assumed that you have the Loan Application open in Workshop for WebLogic Platform, and the `myworklist` server is up and running.

Update the Application Using Worklist Console

Perform the following steps to log in and re-assign a task:

1. Open a Web browser and enter the following URL to open the WebLogic Integration Management Console:

```
http://localhost:7001/worklistconsole
```

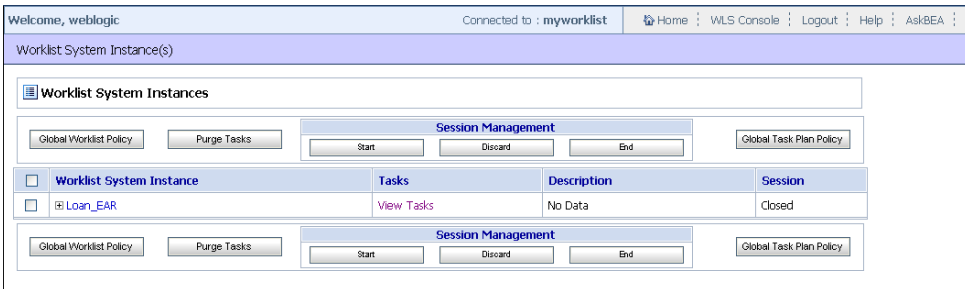
Alternatively, select **Run**→**WebLogic Integration**→**Worklist Console** to open the WebLogic Integration Management Console in the Workshop for WebLogic Platform IDE.

2. Use the following credentials to log in to the Worklist Console, with administrator rights:

Username: weblogic

Password: weblogic

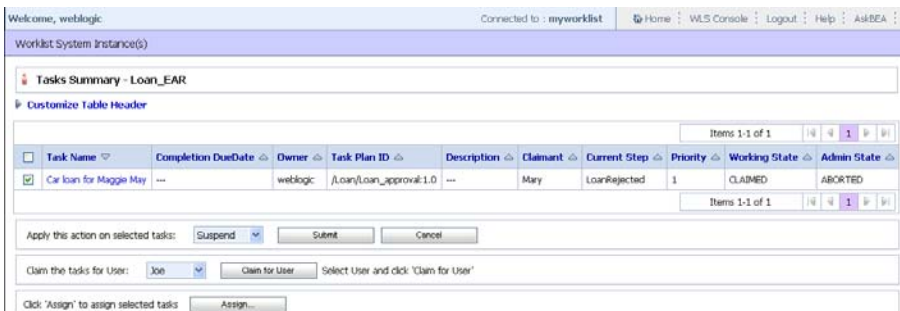
3. Click **View Tasks** for the `Loan_EAR` Worklist System Instance as shown in [Figure 5-1](#).
Worklist Application Management: Worklist System Instance Page



As a user with administrator rights, you can view all the Worklist Instance details at any given point. After clicking **View Tasks**, the page is refreshed and all the tasks in the `Loan_EAR` project are listed in the Task Summary page.

4. In the Task Summary page, select the task from the list by clicking the check box adjacent to the task name. This task has been claimed by **Mary**, as shown in [Figure 5-2](#).

Figure 5-1 Worklist Application Management: Task Summary Page for the Loan_EAR Project



5. Select **Reactivate** from the dropdown menu in **Apply this action on selected tasks** and click **Submit**.

6. Click **OK** to proceed.

Selected action REACTIVATE executed successfully dialog appears in the Tasks Summary - Loan_EAR page.

Note: Since Mary, rejected the loan in the previous chapter, you have to activate the task.

7. Click **Assign** to update the task with the intent to re-assign it to user `weblogic`.

Note: At this point, if you log in to the Worklist User Portal as `weblogic`, you will notice that there are no tasks assigned to you. After completion of this section, the list of tasks assigned should be updated to reflect re-assignment of the task selected in [Figure 5-2](#).

- In the refreshed page, move `weblogic` from the **Users** list to the **Selected Users** list, and **Administrators** from the **Group** list to the **Selected Groups** list (see [Figure 5-3](#)).

Figure 5-2 Assign Task to User weblogic

Welcome, weblogic Connected to : myworklist Home WLS Console Logout Help AskBEA

Worklist System Instance(s)

Worklist Applications Management

Tasks Summary - Loan_EAR

Note: Please enter Assignment Instructions for selected Tasks Types

Users: Joe John Mark Mary

Selected Users: weblogic

Groups: AppTesters Deployers IntegrationAdministrators IntegrationDeployers IntegrationMonitors IntegrationOperators

Selected Groups: Administrators

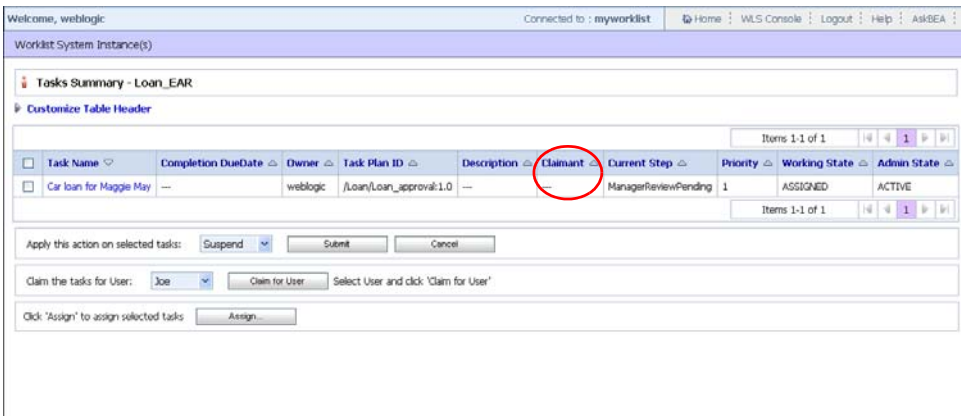
Candidate List Handling: NONE

Load Balancing Check: Yes

Assign-> Cancel

- Click **Assign** to complete this task and the refreshed page displays the Task Summary page. As highlighted in [Figure 5-4](#), the task has been updated as the **Claimant** field is empty. This task was claimed by Mary prior to this re-assignment exercise.

Figure 5-3 Updated Task Summary Page



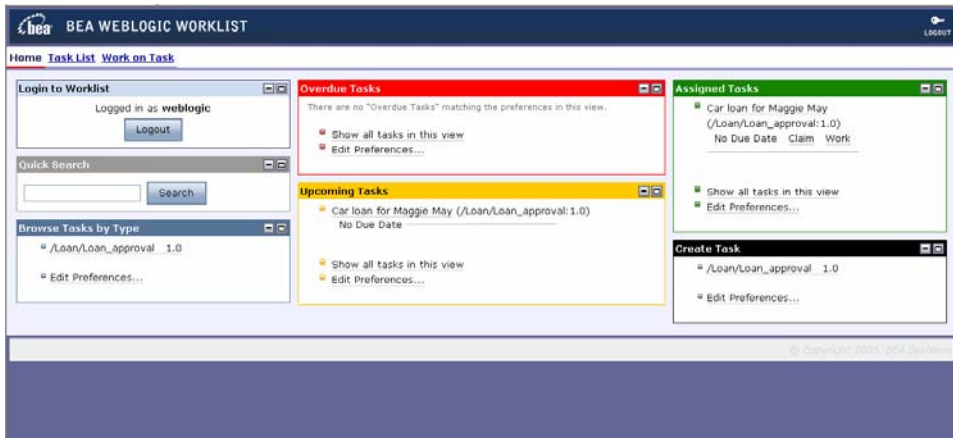
10. Click **Logout** to close the Worklist Console and proceed to the next section, validating the re-assignment.

Verify Updated Application in Worklist Portal

After completing the re-assignment task, verify if the task has been assigned to the user `weblogic` using Worklist Portal.

1. Start a new session of the loan web project in a Web browser using the URL:
`http://localhost:7001/Loan_Web.`
2. Log in to the portal using the following credentials:
Username: `weblogic`
Password: `weblogic`
3. Click **Login** to display the Task home page for user `weblogic`, as shown in [Figure 5-6](#).

Figure 5-4 View Task Home Page for User weblogic



The task instance *Car loan for Maggie May* is now displayed in your Assigned Tasks portlet.

Step 5: Using JPDs with Worklist

This section describes details on how to use JPDs and Worklist controls to support the integration of business processes with human actors via the Worklist system.

As with other built-in controls in Workshop for WebLogic Platform, you use the controls by adding instances of the controls to your business process. Subsequently, you invoke operations on the controls at the point in the business process at which you want to reach out to one or more human actors.

In this step, you will perform the following tasks:

- [Subscribe to Worklist Events](#)
- [Configure a Perform Node](#)
- [Verify the Worklist Event is Published](#)
- [Use the Worklist Control](#)

Information in this section is an extension of the previous section. So, it is assumed that the Loan Application is open, and the `myworklist` server is up and running.

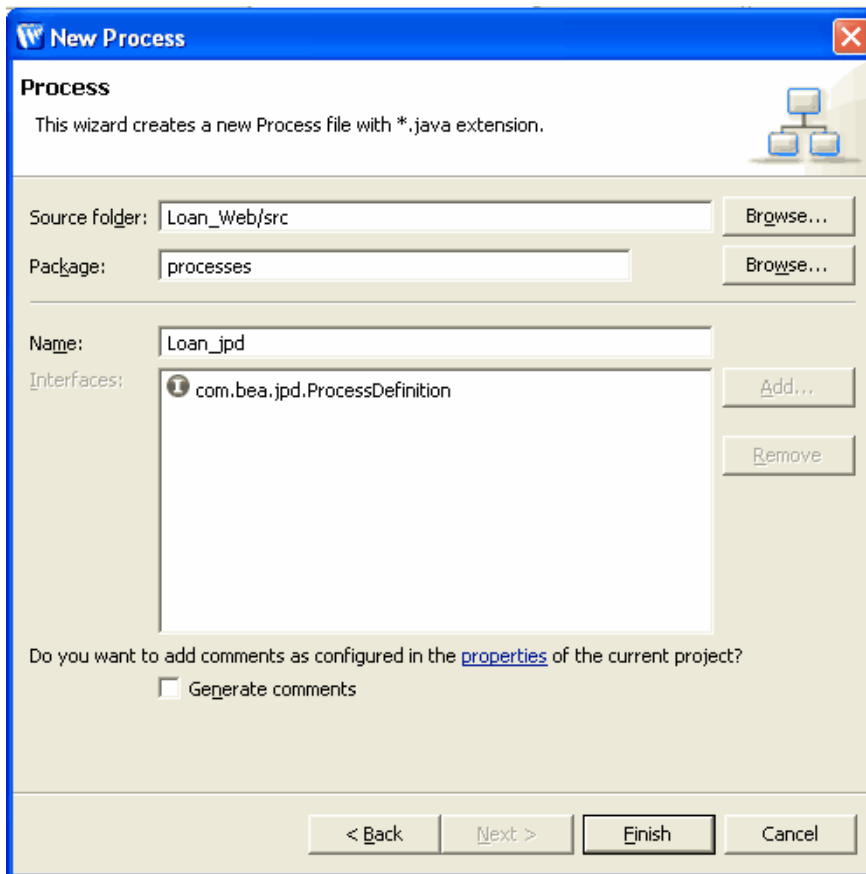
Subscribe to Worklist Events

Perform the following steps to configure access to the Message Broker Channel, and initiate the access using a start event.

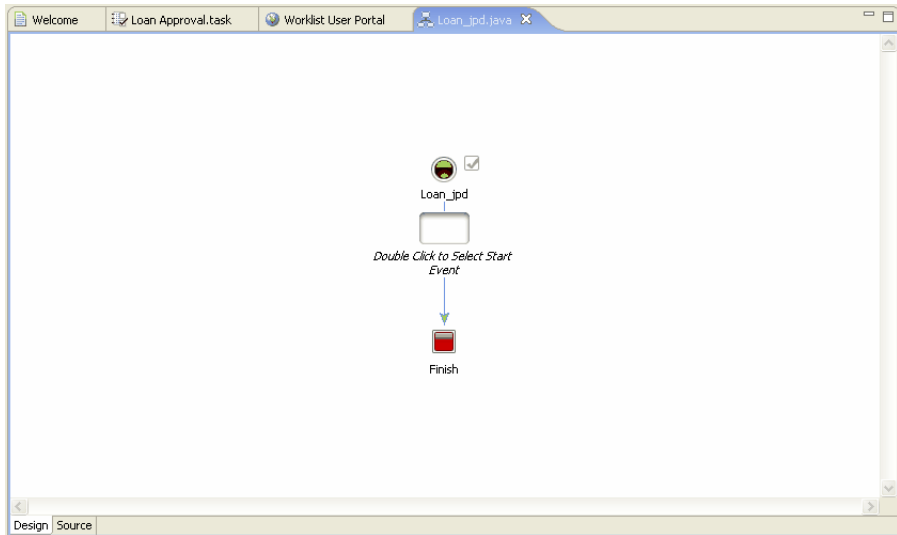
1. In the Package Explorer pane, right-click the `Loan_Web\src` folder, and select **New**→**Folder**. This will display the New Folder dialog box.

2. Enter **processes** in the **Folder name** field and click **Finish**.
3. Select the **processes** folder and use **Ctrl+N** to display the Select a Wizard dialog box.
4. Select **WebLogic Integration**→**Process** and click **Next** to display the New Process File dialog box.
5. In the **Name** field, enter **Loan_jpd**. This will create a JPD process file `Loan_jpd.java` under the newly created `processes` folder (see [Figure 6-1](#)).

Figure 6-1 Defining a New JPD File

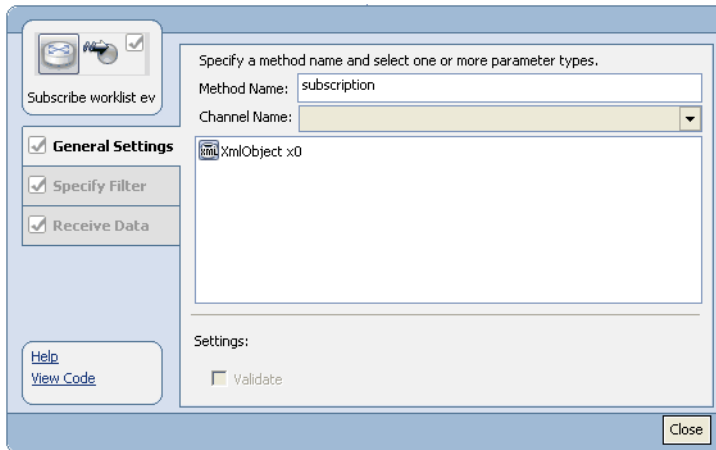


6. Click **Finish** to complete the process.
The new JPD appears in the Design view (see [Figure 6-2](#)).

Figure 6-2 Creating a New JPD

7. Double-click the Select Start Event (see [Figure 6-2](#)).
The node builder displays.
8. In the node builder, select **Subscribe to a Message Broker channel and start via an event...** and click **Close**. The JPD design view is refreshed and the Start node is named **Subscription**.
9. Click on **subscription** and replace it with `Subscribe worklist event`.
10. Double-click the Start node to configure it (see [Figure 6-3](#)).

Figure 6-3 Configuring the Start Node



11. In the **General Settings** tab, select `/worklistEvent` as the **Channel Name**.
12. In the **Specify Filter** tab, select `eventType` from the **TaskEventMetadata** xml tree, and type `CREATE` as the filter value.
13. In the **Receive Data** tab, do the following:
 - select **Create new variable** next to `RawData x0` and in the Create Variable dialog box that appears, enter `worklistEventData` in the **Variable Name** field, and select `com.bea.data.RawData` as its type.
 - select **Create new variable** next to `TaskEventMetadataDocumentx1` and in the Create Variable dialog box that appears, enter `worklistEventMetaData` in the **Variable Name** field, and enter `com.bea.wli.worklist.xml.TaskEventMetadataDocument` as its type.
14. Click **OK** to set the variable name, and click **Close** on the Start Node configuration to complete this step.

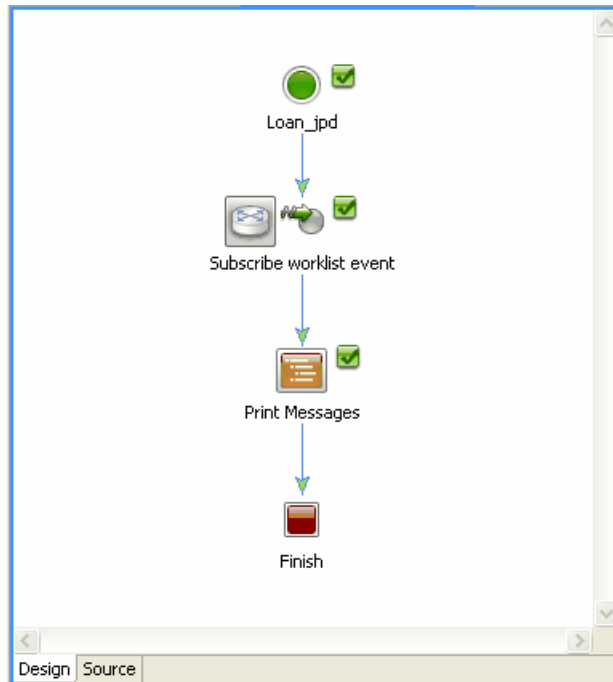
Configure a Perform Node

After creating a JPD to subscribe to a Worklist event to start, create and configure a Perform node to echo the event. Perform the following steps:

1. In the Design view, select **Insert**→**Perform** to insert an action node between Subscription and the Finish nodes.

2. Name the node as **Print Messages**, as shown in [Figure 6-4](#).

Figure 6-4 Adding the Perform Node



3. Click the **Source** tab of the JPD and it should highlight the perform method definition.
4. Enter the following code into the perform method:

```
System.out.println("####Got worklist event for loan task type");
ByteArrayInputStream bais = new
ByteArrayInputStream(worklistEventData.byteValue());
ObjectInputStream ois = new ObjectInputStream(bais);
TaskEvent event = (TaskEvent)ois.readObject();
System.out.println("####Got TaskEvent data in JPD: " +
event.getSummary());
```

5. Enter the following import statements to the beginning of the JPD.

```
import java.io.ByteArrayInputStream;
import java.io.ObjectInputStream;
```

```
import com.bea.wli.worklist.api.events.data.*;
```

6. Select **File**→**Save** or use **Ctrl+S** to save the file.

Deploy the Loan_JPD

1. In the Package Explorer pane, right-click the `Loan_jpd.java` project that you created previously and select **Run As**→**Run on Server**.

The Run on Server dialog box is displayed.

2. Select **Choose an existing server** and from the Select the server that you want to use: list, select the **myworklist** server and click **Next**.

This will display the Add and Remove Projects dialog box.

3. click **Next**.
4. Ensure that **Loan_EAR** is listed in the Configured projects list. If it is not then select **Loan_EAR** from the Available projects list, and click **Add**.
5. Click **Finish** to start deploying the project on the server.

Verify the Worklist Event is Published

Test the Application by creating a new task instance using the Worklist User Portal. After the task instance has been created, the Worklist event is published to the Message Broker, and a JPD instance is started by the event. Perform the following steps:

1. Start a new session of the loan web project in a Web browser using the URL:

```
http://localhost:7001/Loan_Web
```

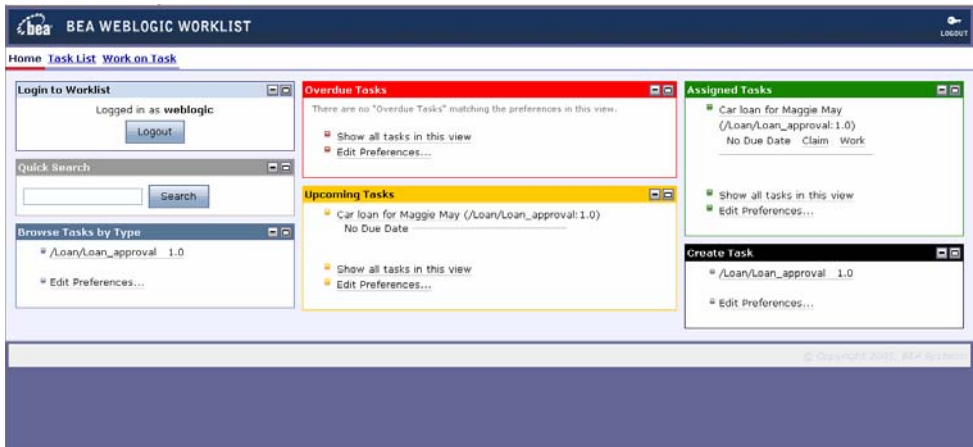
2. Log in to the portal using the following credentials:

Username: weblogic

Password: weblogic

3. Click **Login** to display the Task home page for user `weblogic` (see [Figure 6-5](#)).

Figure 6-5 View Task Home Page for User weblogic



4. Click the `/Loan/loan_approval 1.0` option in the Create Task portlet. The Create New Task page is displayed.
5. Ensure that **NewLoan** is selected as the task plan constructor.
6. Specify the details listed in [Table 6-1](#) for the other fields on the page:

Table 6-1 Specifications for the New Loan Approval Task Instance

| Field Name | Value |
|--------------------------|-------------------------|
| Task Name | Car loan for Maggie JPD |
| User Properties: SSN | 222-33-4444 |
| User Properties: LoanAmt | 40000 |
| User Properties: Name | Maggie JPD |

7. Click **Create Task**. The task is created and shows up in the Upcoming Tasks portlet on the home page.

You can also verify creation of the JPD instance by logging into the WebLogic Worklist Console.

1. Open a Web browser and enter the following URL to open the WebLogic Worklist Console:
`http://localhost:7001/worklistconsole`

2. Use the following credentials to log in to the Worklist Console, with administrator rights:

Username: weblogic

Password: weblogic

3. Click **View Tasks** for the Loan_EAR Worklist System Instance.
4. In the Task Summary page, select the task from the list by clicking the check box adjacent to the task name, Car Loan for Maggie JPD.

The Worklist Task Details is displayed (see [Figure 6-6](#)).

Figure 6-6 Worklist Task Details - Maggie JPD

The screenshot displays the 'WebLogic Integration Worklist Console' interface. The main content area is titled 'Worklist Task Details - Loan_EAR'. It contains several sections: 'Task Owners, Claimants, and Assignees', 'STATUS', 'DUE DATES', and 'CUSTOM TASK PROPERTIES'.

Task Owners, Claimants, and Assignees:

- Created date and Create by: Mon Nov 20 20:15:05 IST 2006 weblogic
- Last updated Date and User: Mon Nov 20 20:15:05 IST 2006 weblogic
- Owner: weblogic
- Claimant:
- Assignees: Users() and Groups(loanOfficer)

STATUS:

- Assignees: Users() and Groups(loanOfficer)
- Step: OfficerReviewPending
- Admin State: ACTIVE
- Working State: ASSIGNED

DUE DATES:

- Step Completion Due Date:
- Task Completion Due Date:

CUSTOM TASK PROPERTIES:

| Name | Description | Data Type | Value |
|-------------------|-------------------|-----------|-------------|
| LoanAmt | LoanAmt | Integer | 40000 |
| Collateral Assets | Collateral Assets | String | --- |
| SSN | SSN | String | 222-33-4444 |
| Name | Name | String | Maggie JPD |
| Notes | Notes | String | --- |

At the bottom of the console, there are several action buttons and dropdown menus: 'Edit Task', 'Apply this action on selected tasks' (with a 'Suspend' dropdown), 'Claim the tasks for User' (with a 'Job' dropdown), and 'Click "Assign" to assign selected tasks'.

Use the Worklist Control

In this section, you will create a loan processing task instance using a Task Control in a JPD. During this process, you will create a Worklist JPD (`worklistControl`), a Task Control (`MyControl`), deploy the process, and subsequently create a sample task to validate the task instance creation.

Create a Worklist JPD

This section details steps on how to create a Worklist JPD.

1. In the Package Explorer pane, select the `Loan_Web\src\processes` folder, and use **Ctrl+N** to display the Select a Wizard dialog box.
2. Select **WebLogic Integration**→**Process** and click **Next** to display the New Process File dialog box, similar to [Figure 6-1](#).
3. In the **Name** field, enter `WorklistControl`. This will create a JPD process file `WorklistControl.java` under the processes folder.

Click **Finish** to complete the process.

The new JPD appears in the design view (see [Figure 6-7](#)).

Figure 6-7 New JPD Using Worklist Control



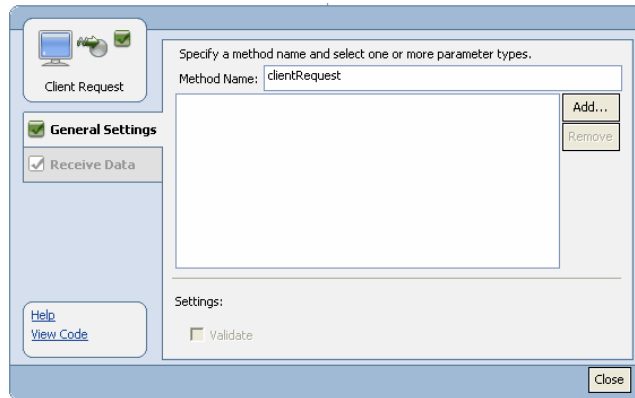
4. Double-click **Select Start Event** (see [Figure 6-7](#)).

The node builder displays.

5. In the node builder, select **Invoked via a Client Request** and click **Close**. The JPD design view is refreshed and the Start node is named **Client Request**.

- Double-click **Client Request** node to invoke the node builder for the Client Request node as shown in [Figure 6-8](#).

Figure 6-8 Configuring Client Request



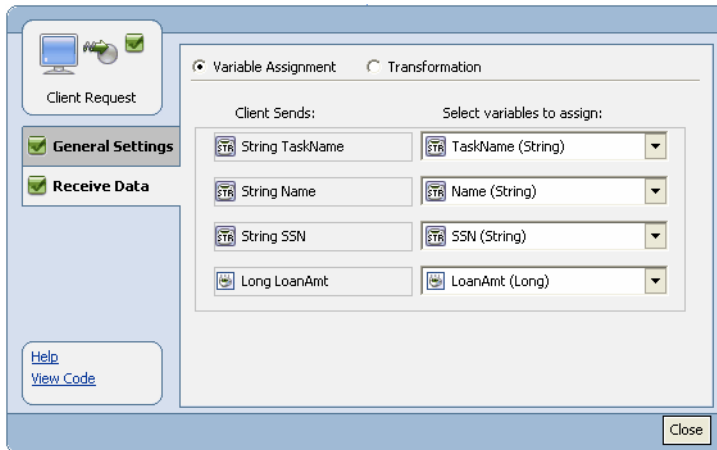
- In the **General Settings** tab, click **Add** to display a dialog box for defining parameters. Create three parameters and configure their types as shown in [Table 6-2](#).

Table 6-2 Setting Parameters for the Client Request

| Parameter Name | Type |
|----------------|----------------|
| TaskName | String |
| Name | String |
| SSN | String |
| LoanAmt | java.lang.Long |

- Click the **Receive Data** tab to create new variables and assign them the respective parameters created in the previous step. The variable assignment details are shown in [Figure 6-9](#).

Figure 6-9 Assigning Variables to Parameters



The four new variables of default type are: **TaskName (String)**, **Name (String)**, **SSN (String)**, and **LoanAmt (Long)**.

9. Click **Close** to continue, and the JPD appears as shown in [Figure 6-10](#).

Figure 6-10 WorklistControl JPD with Client Request Start Node



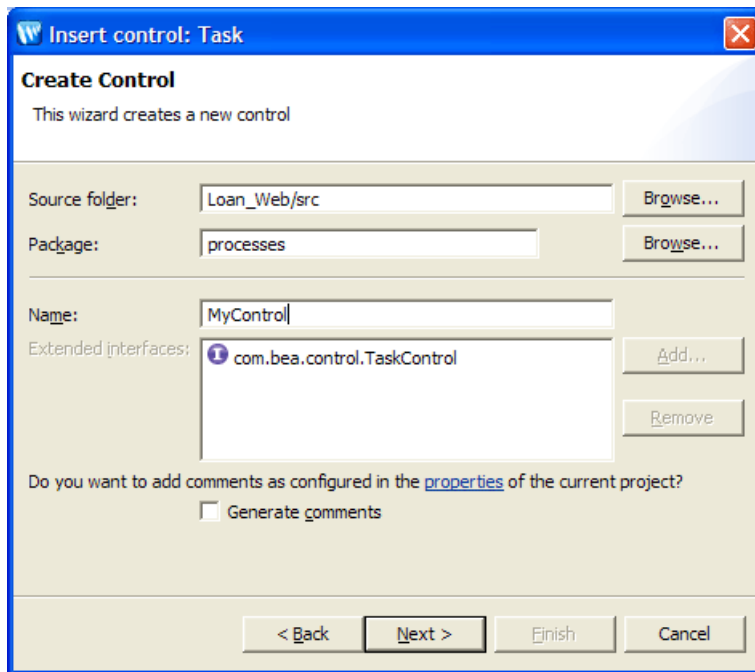
Create a Task Control

In this section, you will create a Task Control that will trigger the creation of a task instance.

1. In the Package Explorer pane, select the **Loan_Web\src\processes** folder, and use **Ctrl+N** to display the Select a Wizard dialog box.

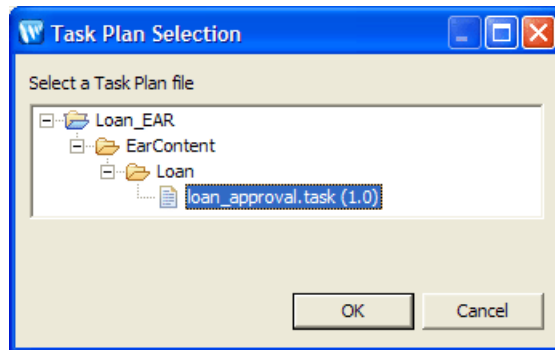
2. Select **WebLogic Integration Controls** → **Task** and click **Next** to display the Create Control page of the Insert Control: Task dialog box.
3. Enter **MyControl** in the Name field and ensure the other fields have same value as shown in [Figure 6-11](#).

Figure 6-11 Creating a Task Control



4. Click **Next** to proceed to the Task Plan page of the Insert Control: Task dialog box.
5. For the Task Plan field, click **Browse** and select **Loan_EAR\EarContent\Loan\loan_approval.task.as** shown in [Figure 6-12](#).

Figure 6-12 Selecting the Loan Approval Task Plan



6. Click **OK** to continue.
7. Click **Finish** to add the new Task Control to the JPD.
8. Select **MyControl.java** from the Package Explorer, drag and drop it to Controls folder in the Data Palette.

Note: If the Data Palette pane is not visible, go to **Window**→**Show ViewOther**→**WebLogic Integration**→**Data Palette**

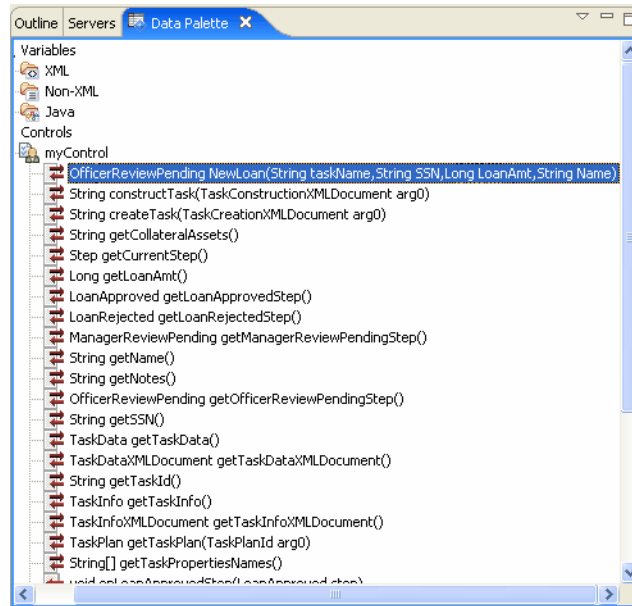
9. Select **File**→**Save** or use **Ctrl+S** to save the JPD.

Add Task Plan Constructor to JPD

In this section, you will add the task instance creation constructor to the Worklist JPD.

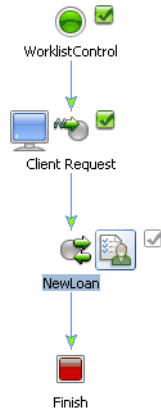
1. Right click the `WorklistControl.java` file in the Package Explorer pane and select **Open With**→**Process Editor** option. Ensure the JPD is displayed in the Design tab and that you are using the **Process Perspective**.
2. From the **Data Palette** pane on the bottom right corner of the IDE, navigate to **Controls**→**myControl** and select the `OfficerReviewPending NewLoan(String taskName, String SSN, Long LoanAmt, String Name)` method. As shown in [Figure 6-13](#).

Figure 6-13 Selecting the NewLoan Method



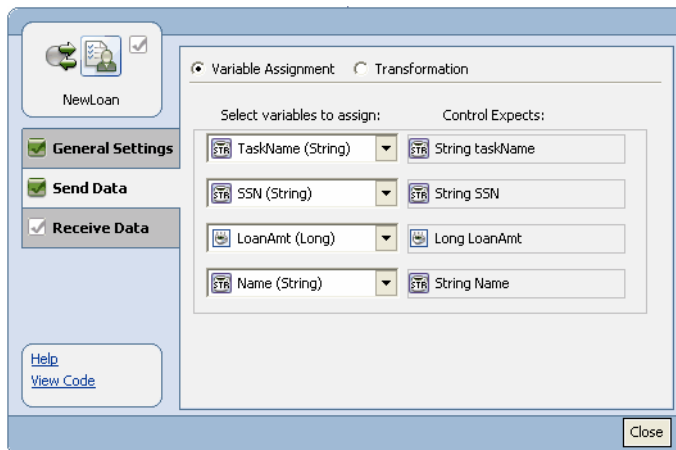
3. Drag and drop the selected method into the **WorklistControl** JPD, between the **Client Request** and the **Finish** nodes. The method will be added as **NewLoan** (see [Figure 6-14](#)).

Figure 6-14 WorklistControl JPD with NewLoan Node



4. Double click **NewLoan** and configure the **Send Data** properties, as shown in [Figure 6-15](#) . You can leave the General Settings and Receive Data properties as they are.

Figure 6-15 Mapping the Send Data Variables with the Control Parameters



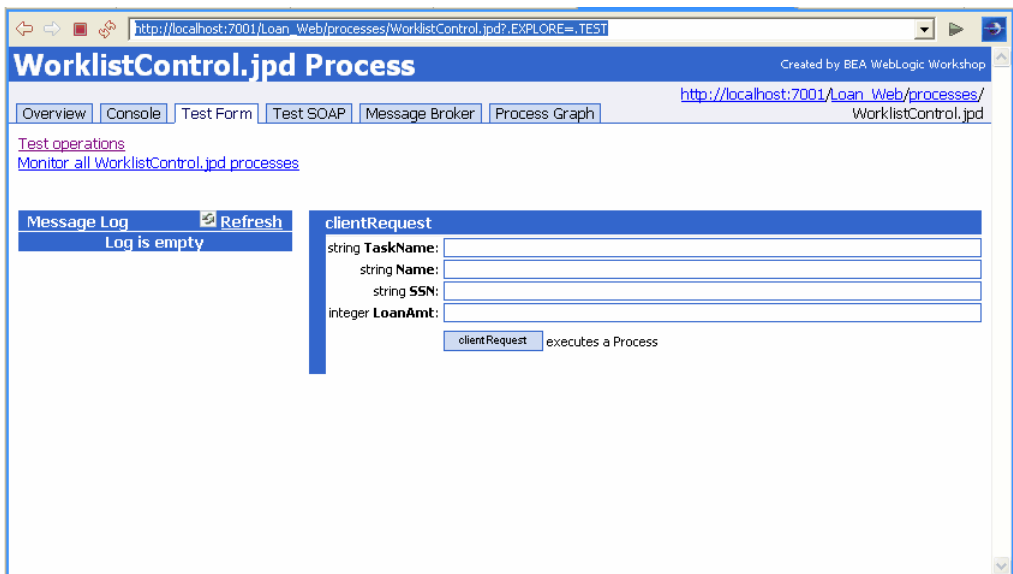
5. Click **Close** to implement the settings.
6. Select **File**→**Save** or use **Ctrl+S** to save the JPD.

Validate the WorklistControl JPD

In this section, you will deploy the JPD and after successfully deploying the JPD, you will validate it using test values.

1. Ensure the `WorklistControl.java` is selected in the Package Explorer, and click the **Run**→**Run As** option. After successful deployment the JPD process page will be launched in the IDE browser.
2. Click the Test Form tab of the WorklistControl process browser, as shown in [Figure 6-16](#).

Figure 6-16 WorklistControl Process Test Form Page



3. Enter the test values in their respective fields, as shown in [Table 6-3](#).

Table 6-3 Test Values for the WorklistControl Process

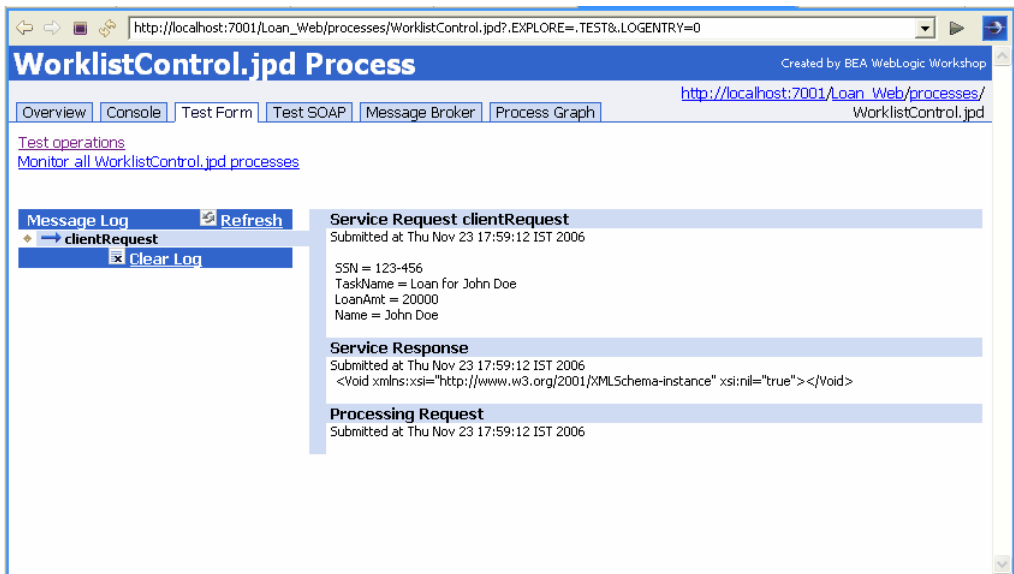
| Parameter | Value |
|-----------|-------------------|
| TaskName | Loan for John Doe |
| Name | John Doe |

Table 6-3 Test Values for the WorklistControl Process

| Parameter | Value |
|-----------|---------|
| SSN | 123-456 |
| LoanAmt | 20000 |

- Click **ClientRequest** to execute the process with the test values. After a successful execution, the TestForm tab is refreshed (see Figure 6-17).

Figure 6-17 Successful Execution of the WorklistControl JPD



- Start a new session of the Loan_Web project in a Web browser using the URL:

http://localhost:7001/Loan_Web

- Log in to the portal using the following credentials:

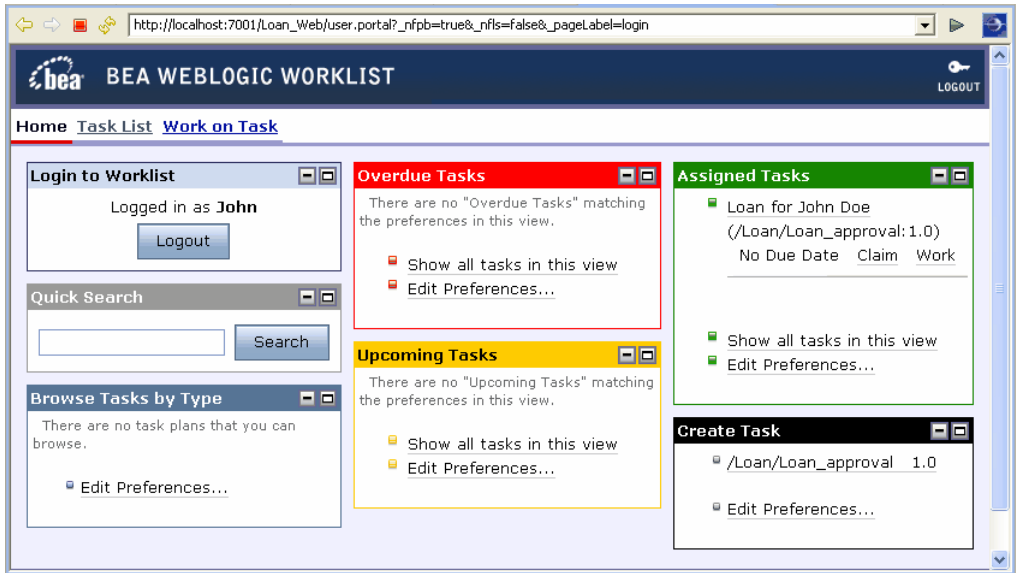
Username: John

Password: password

The user **John** is part of the **loanOfficer** group and the task instance created should be visible in his **Assigned Tasks** portlet box.

7. Click **Login** to display the Task home page for user John, as shown in [Figure 6-18](#).

Figure 6-18 Task Home Page for User John



The **Assigned Tasks** portlet box displays the **Loan for John Doe** task. This confirms that a task instance was created by a JPD using a Control.

Advanced Topic: Adding a Customized User Interface

This chapter describes how to create a customized task user interface (for use in the Worklist user portal). Worklist provides a default task user interface (shown in the Work on Task page of the user portal). This user interface dynamically creates forms based on the task plan metadata. For example, the default task user interface consults the current step for a task before deciding what actions to make available on the ‘take action’ page, and consults the properties defined for an action before deciding what properties to show on the ‘complete task action’ page. This allows you to perform most human interaction in Worklist without any custom user interface development.

However, there may be instances where you need to customize the interface and control what is displayed for a given step, or for the entire task plan. Worklist enables you to provide a customized user interface for tasks based on a given task plan (and optionally a specific step within a task plan). This allows you to integrate custom business logic, external systems, etc. into the processing of task actions and property settings.

Your custom task user interface is used in place of the default Worklist-supplied task user interface when viewing tasks based on task plans (or steps of those plans) you designate. It will appear in place of the default task user interface on the ‘Work on Task’ page of the Worklist user portal. This granular replacement of the default task user interface allows you to specify a custom task user interface only where it is needed, and use the default task user interface everywhere else.

For example, a Loan Manager may need to check the credit rating of the customer before approving or rejecting the loan. Using the custom task UI, you can customize the user portal to display information that will empower the Loan Manager to make a well informed decision.

The following topics are covered in this chapter:

- Define Web Page Mock-Up and Flow
- Create the Page Flow
- Register the Custom UI
- Deploy the Custom Task UI
- Validate the Custom UI

Define Web Page Mock-Up and Flow

Before you start creating a customized user interface, define the appearance of the page by creating a mock-up. For this tutorial, create mock-up pages for the “Manager Review Page” and the “Asset Summary Page” (See [Figure 7-1](#) and [Figure 7-2](#)).

Figure 7-1 Manager Review Mock-Up Page

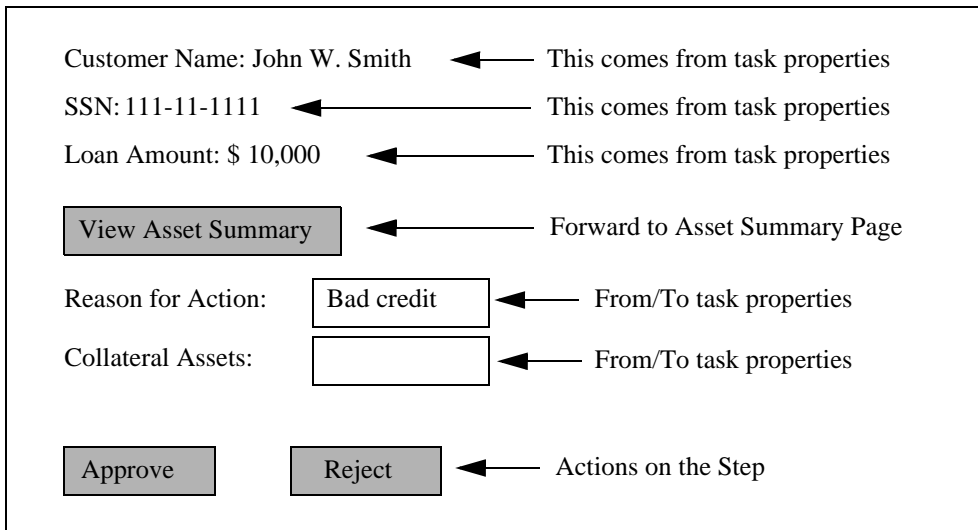


Figure 7-2 Asset Summary Mock-Up Page

Name: John W. Smith ← This comes from task properties

SSN: 111-11-1111 ← This comes from task properties

Assets: ← This comes from an external system

| Asset Name | Value | Amount Owed | Total Value |
|------------|---------|-------------|-------------|
| Home | 100,000 | 90,000 | 10,000 |
| Car | 10,000 | 12,000 | 0 |

Return

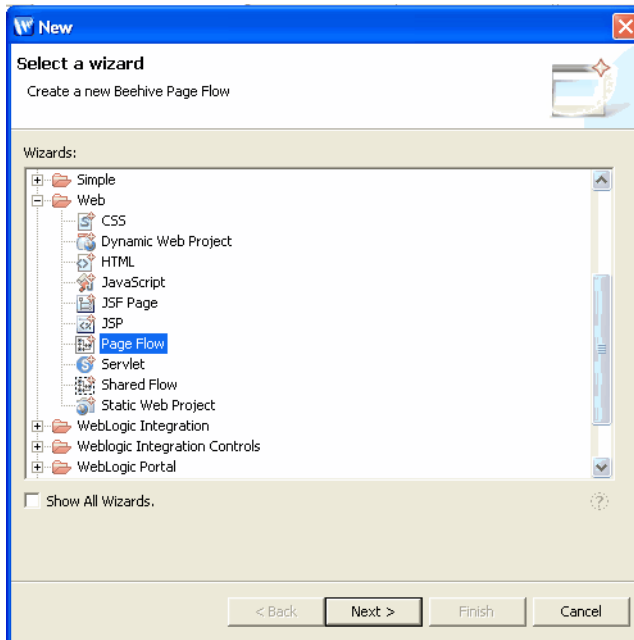
Now that the mock-up is complete, proceed with defining the page flow as described in the following section.

Create the Page Flow

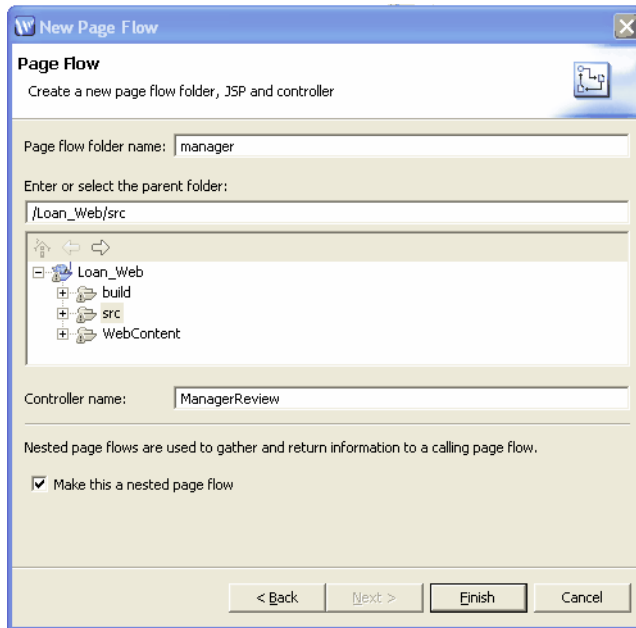
After determining the appearance of the customized user interface pages, define the logic and use of these pages as follows::

1. In the Package Explorer pane, right-click the **Loan_Web\src** folder, and select **New**→**Other**. This will display the Select a Wizard dialog box.
2. Select **Web**→**Page Flow** and click **Next** (see [Figure 7-3](#)).

Figure 7-3 Define Page Flow



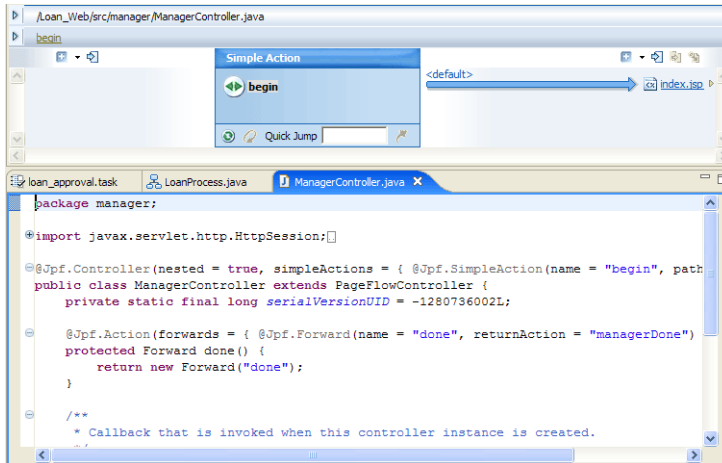
3. The **New Page Flow** dialog box appears, enter **manager** in the Page Flow Folder name field and **ManagerReview** as the Controller name.
4. Select the **Make this a nested page flow** check box and click **Finish** (see [Figure 7-4](#)).

Figure 7-4 New Page Flow Dialog Box

The **Open Associated Perspective?** dialog box is displayed.

5. In the displayed **Open Associated Perspective?** dialog box, select the Remember my decision check box and click **Yes**. In doing so, you associate the project with the Page Flow perspective.
6. The Page Flow Editor view appears (see [Figure 7-5](#)).

Figure 7-5 Page Flow Editor



Edit the page flow as follows:

1. Replace PageFlowController with `com.bea.wli.worklist.TaskUIPageFlowController`.
2. Delete `simpleActions = { @Jpf.SimpleAction(name = "begin", path = "index.jsp") }`

The initial view in the page flow was as follows:

```
@Jpf.Controller(nested = true, simpleActions = { @Jpf.SimpleAction(name = "begin", path = "index.jsp") })
```

After editing it, it should be:

```
@Jpf.Controller(nested = true)

public class ManagerReview extends
com.bea.wli.worklist.TaskUIPageFlowController {
```

Note: This change will result in some compilation errors saying 'Action "begin" was not found.' This error will be resolved in subsequent steps. You can view the compilation error in the 'Problems' view in the bottom part of the IDE. Make sure 'Problems' view is opened. To open the Problems view from the menu, go to **Window→Show View→Problems**.

Define Form Beans

You must define form beans to support the two web pages mocked up (see [“Define Web Page Mock-Up and Flow”](#) on page 7-2).

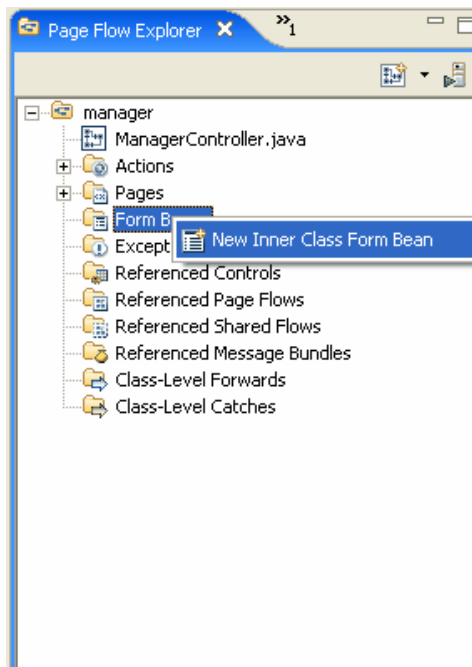
We create three form beans as inner classes of the Manager Review Pane, they are as follows:

- ManagerReviewForm- This will support the Manager Review web page.
- AssetSummaryForm- This will define the individual assets.
- AssetForm- This states the assets from the AssetSummaryForm.

Create Form Beans

1. In the Page Flow Explorer, right-click **Form Beans** and select **New Inner Class Form Bean** (see [Figure 7-6](#)).

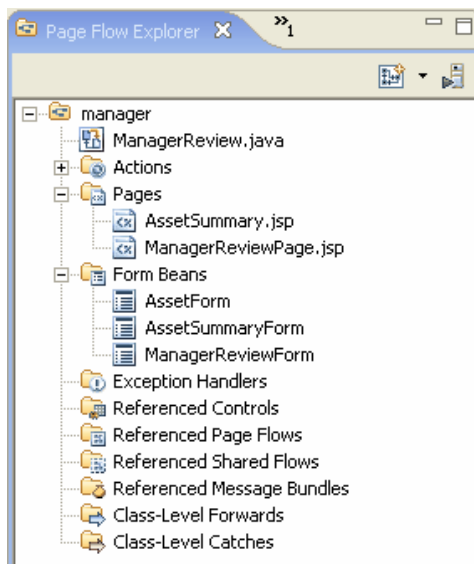
Figure 7-6 New Inner Class Form Bean



2. A new form bean with the default name **NewFormBean** is created.

3. Right-click **NewFormBean**→**Rename**, and name it as **ManagerReviewForm**.
4. Repeat [step 1](#) and [step 3](#) and name it as **AssetSummaryForm** and **AssetForm** (see [Figure 7-7](#)).

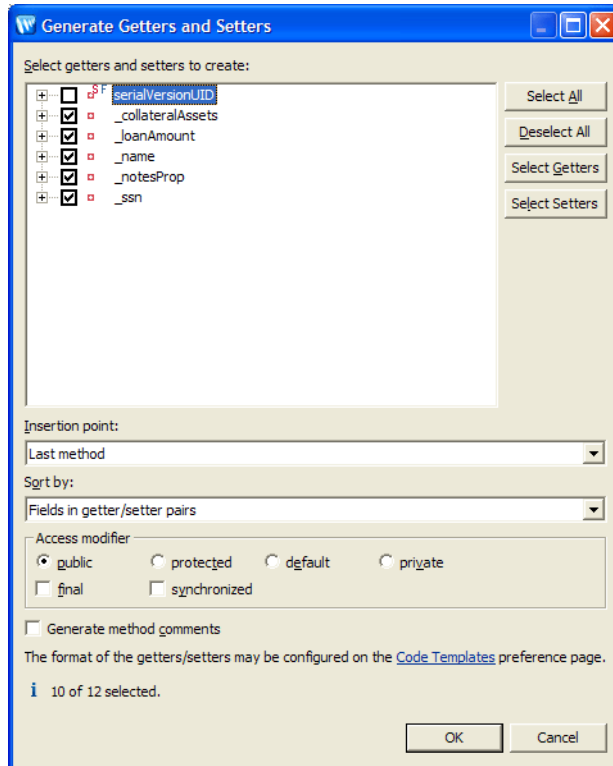
Figure 7-7 Form Beans



Define ManagerReviewForm

1. The **ManagerReviewForm** includes the following variables and data type:
 - Name (String)
 - SSN (String)
 - LoanAmount (Int)
 - NotesProp (PropertyInstanceHolder)
 - CollateralAssets (String)
2. Select the above variables and place them in the **ManagerReview.java** source view.
3. Select the variables and select **Source**→**Generate Getters and Setters**.
The **Generate Getters and Setters** dialog box appears.
4. Select the properties variable variables ([Figure 7-8](#)).

Figure 7-8 Generate Getters and Setters Dialog Box



5. Click **OK**.

After you defined the variables, the class should look as the follows:

```
@Jpf.FormBean
public static class ManagerReviewForm implements java.io.Serializable {
    private static final long serialVersionUID = 746621147L;

    private String _name;
    private String _ssn;
    private int _loanAmount;
    private PropertyInstanceHolder _notesProp;
    private String _collateralAssets;
```

```

        public int getLoanAmount() { return _loanAmount; }
        public void setLoanAmount(int loanAmount) { _loanAmount =
loanAmount; }
        public String getName() { return _name; }
        public void setName(String name) { _name = name; }
        public String getSsn() { return _ssn; }
        public void setSsn(String ssn) { _ssn = ssn; }
        public PropertyInstanceHolder getNotesProp() { return _notesProp;
}

        public void setNotesProp(PropertyInstanceHolder notesProp) {
_notesProp = notesProp; }
        public String getCollateralAssets() { return _collateralAssets; }
        public void setCollateralAssets(String collateralAssets) {
            _collateralAssets = collateralAssets; }
    }

```

Note: The serialVersionUID value will differ. It is auto-generated and can be different from the one shown here.

Define AssetSummaryForm

1. The **AssetSummaryForm** includes the following properties and data type:
 - Name (String)
 - Ssn (String)
 - Assets (SortedSet<AssetForm>)
 - CreditScore (int)
2. Repeat [step 2](#) and [step 3](#) of ManagerReviewForm.
3. Select the property variables listed above.
4. Click **Ok**.
5. Enter the following code into the AssetSummaryForm:

```

public java.util.SortedSet<AssetForm> getAssets() { return _assets; }
public int getCreditScore() { return _creditScore; }

```

After you defined the variables, the class should look as the following:

```
@Jpf.FormBean
public static class AssetSummaryForm
implements java.io.Serializable {
    private static final long serialVersionUID = 1517513921L;
    private java.util.SortedSet<AssetForm> _assets;
    private int _creditScore;
    private String _name;
    private String _ssn;
    public AssetSummaryForm() {
        _assets = new java.util.TreeSet<AssetForm>();
    }
    public String getName() { return _name; }
    public void setName(String name) { _name = name; }
    public String getSsn() { return _ssn; }
    public void setSsn(String ssn) { _ssn = ssn; }
    public java.util.SortedSet<AssetForm> getAssets() { return
_assets; }
    public int getCreditScore() { return _creditScore; }
}
```

Note: The serialVersionUID value will differ. It is auto-generated and can be different from the one shown here.

In the AssetSummaryForm, add the following code to allow the form bean to load asset and credit score information.

This information is loaded in a very simplistic way (properties files) that is sufficient for the purposes of this tutorial. In a real application, this information would likely come by way of a Java API or web service to an external system.

The page flow action implementations use the loadSummaryInfo method included in the following code to initialize the AssetSummaryForm object with asset and credit score information for the user given by the name variable.

```
public void loadSummaryInfo(HttpSession session) {
```

```

        loadCreditScore(session);
        loadAssets(session);
    }
    public int getTotalActualAssetValue() {
        int total = 0;
        for (AssetForm asset: _assets) {
            total = asset.getActualValue();
        }
        return total;
    }
    protected void loadCreditScore(HttpSession session) {
        // Load the credit scores as properties
        String resourceName =
"/creditRatings/creditRatings.properties";
        java.util.Properties props =
            loadProperties(resourceName, session);
        _creditScore = getIntProperty(props, "_name");
    }
    protected void loadAssets(HttpSession session) {
        // Load the assets as properties
        String resourceName = "/assets/" + _name + ".properties";
        java.util.Properties props =
            loadProperties(resourceName, session);
        String assetList = props.getProperty("assetList");
        if (assetList != null) {
            java.util.StringTokenizer st = new
java.util.StringTokenizer(assetList, ",");
            while (st.hasMoreTokens()) {
                String assetName = st.nextToken().trim();
                AssetForm asset = new AssetForm();
                asset.setName(assetName);
            }
        }
    }
}

```

```

        int value =
            getIntProperty(props, assetName + "." + "value");
        asset.setValue(value);
        int amountOwed =
            getIntProperty(props, assetName + "." + "amountOwed");
        asset.setAmountOwed(amountOwed);
        _assets.add(asset);
    }
}
}
protected java.util.Properties
loadProperties(String resourceName, HttpSession session) {
    // Load the resources as properties
    java.io.InputStream is = null;
    try {
        is = session.getServletContext().
            getResourceAsStream(resourceName);
        java.util.Properties props = new java.util.Properties();
        if (is != null) {
            props.load(is);
        }
        return props;
    } catch (Exception e) {
        // TODO: Better handling
        e.printStackTrace();
    } finally {
        if (is != null) {
            try { is.close(); } catch (Exception e) {
                e.printStackTrace(); }
        }
    }
}

```

```

        return new java.util.Properties();
    }

    private int getIntProperty(java.util.Properties props, String
key) {
        String value = props.getProperty(key);
        if (value == null) {
            return 0;
        }
        return Integer.valueOf(value);
    }
}

```

After completing the above steps, there will be a compilation error regarding the missing `begin()` method in the page flow.

Define AssetForm

1. The **AssetForm** will include the following properties and data type:
 - Name (String)
 - Value (int)
 - AmountOwed (int)
 - TotalValue (int)
2. Repeat [step 2](#) and [step 3](#) of `ManagerReviewForm`..
3. Select the property variables listed above.
4. Click **Ok**.

After you defined the variables, the class should look as the following:

```

@Jpf.FormBean
public static class AssetForm
implements java.io.Serializable, Comparable {
    private static final long serialVersionUID = 1491696939L;
    private String _name;
    private int _value;
}

```

```

private int _amountOwed;

public int getAmountOwed() {
    return _amountOwed;
}

public void setAmountOwed(int lienValue) {
    _amountOwed = lienValue;
}

public String getName() {
    return _name;
}

public void setName(String name) {
    _name = name;
}

public int getValue() {
    return _value;
}

public void setValue(int value) {
    _value = value;
}

public int getActualValue() {
    return _value - _amountOwed;
}
}

```

Note: The serialVersionUID value will differ. It is auto-generated and can be different from the one shown here.

After completing the above steps, there will be a compilation error stating that AssetForm class must implement the inherited abstract method `Comparable.compareTo(Object)`. To resolve this error, copy the following method and paste it inside the AssetForm class. The code allows the asset summary web page to collate the individual asset items in descending total asset value.

```
public int compareTo(Object o) {
```

```

        if (!(o instanceof AssetForm)) {
            return 0;
        }
        AssetForm other = (AssetForm)o;
        int otherActualValue = other._value - other._amountOwed;
        return otherActualValue - getActualValue();
    }

```

Add the following method to the end of the AssetForm class. This method will be used to retrieve an ‘actual’ asset value from the JSP pages we define later.

```

    public int getActualValue() {
        return _value - _amountOwed;
    }

```

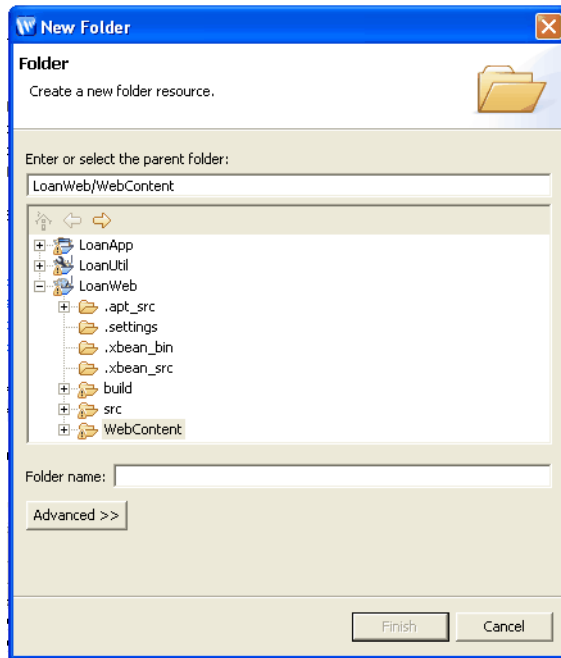
Define Support Asset Information Files

Define information to support a loan request for a person named John Smith (use spelling and case as given here) as follows:

1. In the Package Explorer pane, expand **Loan_Web**.
2. Right-click **WebContent**→**New**→**Folder**.

The **New Folder** dialog box appears (see [Figure 7-9](#)).

Figure 7-9 New Folder



3. Enter **assets** in the Folder Name and click **Finish**.
4. Create another new folder, enter **creditRatings** in the Folder Name and click **Finish**.
5. Right-click **asset** and select a new file.

The **New File** dialog box appears.

6. In the File Name enter **John Smith.properties** and click **Finish**.

It appears in the editor.

7. Enter the following details in the editor:

```
assetList=Home, Car
Home.value=300000
Home.amountOwed=290000
Car.value=20000.
Car.amountOwed=19000
```

8. Right-click **creditRatings** and select a new file.
9. In the File Name enter **CreditRating.properties** and click **Finish**.
10. Enter the following details (exactly as shown) on a single line in the properties file:

John\ Smith=100.

Define Actions on the Page Flow

Define actions on the page flow to move between the Manager Review and Asset Summary pages, and to take the Approve and Reject actions on the task. Page flow actions are methods on the page flow controller that allow the UI to forward to new pages, optionally calculating results and passing form beans to the pages to which you forward.

Form beans are passed from an action to a web page in order to populate display fields on the page. Then, values from fields on the web page are collected and placed into properties on the form bean when the web page is submitted back to the server for processing.

Action methods can accept a form bean populated as the result of clicking a submit button on a web page, by defining the form bean as a parameter to the action method. For an example of this, see the ‘approve’ action below. Action methods can also pass a form bean on to a target web page to which the action is forwarding. This is done by passing a Forward object that has a form bean object set on it. For an example of this, see the ‘show asset summary’ action below.

Define the following actions for initialization:

- begin: Initialize this controller, and call the super class helper to initialize stuff we get for free. This includes task context, standard form beans for a task and action, and property editing support.

Define the following actions for page navigation:

- viewAssetSummaryAction: Navigates from the manager review page to the asset summary page. This action will take a ManagerReviewForm form bean, and will pass an AssetSummaryForm form bean on to the asset summary page (via a Forward object returned from the action method)
- returnToManagerReviewAction: Navigates from the asset summary form back to the manager review form. This action will take an AssetSummaryForm form bean, and will pass a ManagerReviewForm form bean on to the manager review page (via a Forward object)

Note: The above two actions are natural reciprocals of each other. This reflects their purpose to navigate between two pages in a cyclic fashion.

Define the following actions to handle user actions on the task:

- `approveLoanAction`: Calls the helper functions on the `TaskUIPageFlowController` controller class to take the ‘Approve’ action on the task. This action then exits the custom task UI and returns to the Worklist user portal by returning a forward marked as a ‘return’ forward, and specifying the `stepDoneAction` on that forward. More on this below.
- `rejectLoanAction`: Calls the helper functions to take the ‘Reject’ action on the task. This action also exits the custom task UI and returns to the user portal by returning a ‘return’ forward object specifying the `stepDoneAction`.

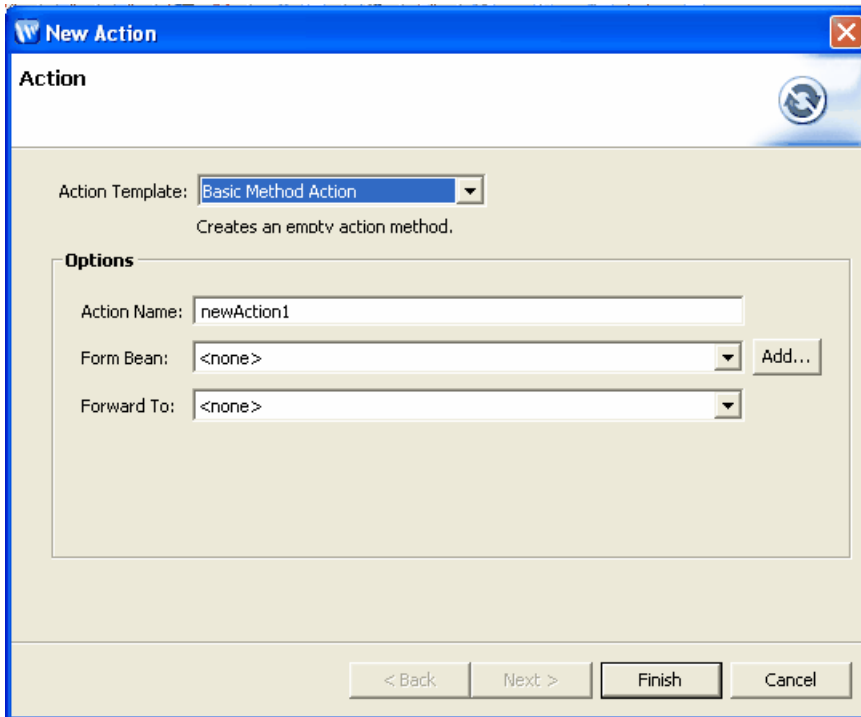
The following describes how to add new actions. You can follow the steps below and use the page flow action wizard to add all of the above actions (and then copy/paste the action method body code as given in the section ‘Implement Action Methods’). Or you can just copy and paste the complete code for the action declarations and methods as given in ‘Implement Action Methods’ below and skip the next step completely.

Create an Action

1. In the Page Flow Explorer, right-click Actions, new actions.

The **New Action** dialog box appears (see [Figure 7-10](#)).

Figure 7-10 New Action



2. Create five new action and enter the details as shown in [Table 7-1](#).

Table 7-1 New Action Settings

| Action Name | Action Template | Form Beans | Forward To |
|-----------------------------|-----------------|-------------------|------------|
| begin | Basic... | <none> | <none> |
| viewAssetSummaryAction | Basic... | ManagerReviewForm | <none> |
| returnToManagerReviewAction | Basic... | AssetSummaryForm | <none> |
| approveLoanAction | Basic... | ManagerReviewForm | <none> |
| rejectLoanAction | Basic... | ManagerReviewForm | <none> |

Next we need to implement a method body for the action methods we just defined.

The code for the all action methods is given below. Make sure you copy the action signature along with the `@Jpf.Action` annotation for each action method.

Implement the Action Methods

For each action method described in the above section:

If you didn't create the action methods using the action wizard, you should:

- copy and paste the entire action method declaration and body.

If you did create the action methods using the action wizard you should:

- copy the method body code below (for a specific action method) and paste it inside the action method declaration you created for that action method (in the above section).
- make sure the annotations in your action method declaration match the annotations given in the code below for the named action method.

```
/**
 * Initialize this controller, and call the super class
 * helper to initialize stuff we get for free. This includes
 * task context, standard form beans for a task and action,
 * and property editing support.
 */
@Jpf.Action(forwards = {
    @Jpf.Forward(name="success", path="GetManagerReview.jsp")
})
public Forward begin() throws Exception {
    // Initialize our base class helpers so we can use them
    // throughout this controller
beginActionHelper();

    // Create our ManagerReviewForm, and load it with property
    // values given by our base class helpers
    _managerReviewForm = new ManagerReviewForm();
    _managerReviewForm.setName(
        (String)getTaskPropertiesMap().
            get("Name").getValue());
}
```

```

        _managerReviewForm.setSsn(
            (String)getTaskPropertiesMap().
                get("SSN").getValue());
        _managerReviewForm.setLoanAmount(
            ((Long)getTaskPropertiesMap().
                get("LoanAmt").getValue()).intValue());
        // Get the editable notes property, because we'll
        // use this PropertyInstanceHolder to edit the notes
        // property via Worklist-provided helpers
        com.bea.wli.worklist.portal.PropertyInstanceHolder notesProp =
            getTaskEditablePropertiesMap().
                get("Notes");
        _managerReviewForm.setNotesProp(notesProp);
return new Forward("success", _managerReviewForm);
    }
    /**
     * Forward to the assets sub form and display the assets
     * we find for the loan applicant.
     */
    @Jpf.Action(forwards = {
        @Jpf.Forward(name = "success",
            path = "AssetSummary.jsp")
    }, useFormBean = "_managerReviewForm"
    )
    public Forward viewAssetSummaryAction(ManagerReviewForm form) {
        AssetSummaryForm assetSummaryForm = new AssetSummaryForm();
        assetSummaryForm.setName(form.getName());
        assetSummaryForm.setSsn(form.getSsn());
        assetSummaryForm.loadSummaryInfo(getSession());
        return new Forward("success", assetSummaryForm);
    }
}

```

```

/**
 * Return to the main form after looking at assets.
 */
@Jpf.Action(forwards = {
    @Jpf.Forward(name = "success",
        path = "GetManagerReview.jsp")
})
public Forward returnToManagerReviewAction(AssetSummaryForm form) {
    Forward forward = new Forward("success", _managerReviewForm);
    return forward;
}
/**
 * Approve the loan, using the super class helpers. and the properties
we
 * stored in ManagerReviewForm. We
 * specify the useFormBean attr to keep a single copy
 * of ManagerReviewForm.
 * NOTE: We could have designed this action to forward to an 'action
props'
 *      page to collect the properties for the action (instead of
putting
 *      fields directly on the main form. If we did want a separate
page,
 *      we could call showStepActionActionHelper to prepare a
 *      TakeStepActionActionForm for us to obtain these properties
from.
 *      This form is well suited to use with propertyEditor tags in the
 *      action props form.
 * @see
TaskUIPageFlowController#showStepActionActionHelper(com.bea.wli.worklis
t.api.taskplan.StepAction)
 * @see
TaskUIPageFlowController#takeStepActionActionHelper(com.bea.wli.worklis
t.portal.TakeStepActionActionForm)

```

```

    * @see
TaskUIPageFlowController#isPostActionInteractiveAssignment(java.lang.St
ring)

    * @see
TaskUIPageFlowController#takeStepActionAndClaimActionHelper(com.bea.wli
.worklist.portal.TakeStepActionActionForm, java.lang.String)

    */

    @Jpf.Action(forwards = {
        @Jpf.Forward(name = "success",
            action = "stepDoneAction")
    }, useFormBean="_managerReviewForm")
    public Forward approveLoanAction(ManagerReviewForm form)
        throws Exception {
        // Build a map of the property values we'll pass for the action
        java.util.Map<String, String> propMap
        = new java.util.HashMap<String, String>();
        propMap.put("Notes",
form.getNotesProp().getEditorValueAsString());
        propMap.put("CollateralAssets", form.getCollateralAssets());
        // Now take the action
        this.takeStepAction(getCurrentStep().getName(),
            "Approve",
propMap);

        Forward forward = new Forward("success");
        return forward;
    }
/**
    * Reject the loan, using the super class helpers. We
    * specify the useFormBean attr to keep a single copy
    * of ManagerReviewForm.
    * NOTE: We could have designed this action to forward to an 'action
props'

```

```

        *           page to collect the properties for the action (instead of
putting
        *           fields directly on the main form. If we did want a separate
page,
        *           we could call showStepActionActionHelper to prepare a
        *           TakeStepActionActionForm for us to obtain these properties
from.
        *           This form is well suited to use with propertyEditor tags in the
        *           action props form.
        * @see
TaskUIPageFlowController#showStepActionActionHelper(com.bea.wli.worklis
t.api.taskplan.StepAction)
        * @see
TaskUIPageFlowController#takeStepActionActionHelper(com.bea.wli.worklis
t.portal.TakeStepActionActionForm)
        * @see
TaskUIPageFlowController#isPostActionInteractiveAssignment(java.lang.St
ring)
        * @see
TaskUIPageFlowController#takeStepActionAndClaimActionHelper(com.bea.wli
.worklist.portal.TakeStepActionActionForm, java.lang.String)
    */
    @Jpf.Action(forwards = {
        @Jpf.Forward(name = "success",
            action = "stepDoneAction")
    }, useFormBean="_managerReviewForm")
    public Forward rejectLoanAction(ManagerReviewForm form)
        throws Exception {
        // Build a map of the property values we'll pass for the action
        java.util.Map<String, String> propMap
        = new java.util.HashMap<String, String>();
        propMap.put("Notes",
form.getNotesProp().getEditorValueAsString());
        // Now take the action
        this.takeStepAction(getCurrentStep().getName()),

```

```

        "Reject",
        propMap);
    Forward forward = new Forward("success");
    return forward;
}

```

Action Methods, Form Beans and the UseFormBean Field

Action methods can accept form beans, and forward to pages using form beans. When submitting a web form, and in the process of calling the action associated with the submit, the NetUI framework, by default, will create a new form bean instance (using the no-arg public constructor for the form bean class). This new bean instance is then populated via Java reflection with data from data binding tags in the submitted web page form.

This process has some limitations. For example, if your form bean contains transient, hidden information that is not represented in the web pages JSP tags, the form bean that actually gets passed to the action method (the bean that is created by the NetUI framework) will be missing this information.

To avoid the overhead and possible behavioral problems of creating new beans each time an action method is called, you can specify a `useFormBean` field on the `@Jpf.Action` annotation for an action method. This allows the controller to hold a single copy of the form bean in the page flow controller's state, and the action method then just fetches the object from that state instead of creating a new form bean object.

We make use of the `useFormBean` facility in the action method code given in the previous section. To make this code work, you need to define a member variable on the page flow controller to hold the form bean we'll be passing around.

Add the following member variable to the top of your `ManagerReview` class:

```
private ManagerReviewForm _managerReviewForm; // To preserve the form
between requests.
```

If you haven't already done so, make sure your action methods that take a `ManagerReviewForm` parameter include a `useFormBean` attribute in the `@Jpf.Action` annotation. For example, the `@Jpf.Action` annotation for the `rejectLoanAction` is:

```

@Jpf.Action(forwards = {
    @Jpf.Forward(name = "success",
        action = "stepDoneAction")
}

```

```
    }, useFormBean="_managerReviewForm")
```

The text you need to add is highlighted in the above code.

Worklist Property Editors and Actions

Worklist provides some built-in support for editing properties in your custom task UI. It includes a JSP tag, default editors, and some helper methods in the base `TaskUIPageFlowController`.

These facilities allow you to easily edit the following types of properties using out-of-box UI:

- Multi-line/multi-page text
- JavaBean/XMLBean objects

In addition, the property editor facility allows you to easily support editing properties using an inline editor (simple form field) as well as a stand-alone editor for the complex types mentioned above. This facility makes robust editing of properties a fairly simple matter. The manager review web page defined in this tutorial edits two properties; `Notes` and `CollateralAssets`. We edit the `Notes` property using the property editor facilities of Worklist, and the `CollateralAssets` property using simple NetUI data binding tags.

The property editor facility usage in this tutorial spans several constructs:

- a `<worklist:propertyEditor>` tag in the `GetManagerReview.jsp` page
- three actions in the `ManagerReview` page flow to handle forwarding out to the stand-alone text editor, and returning from that editor (for both the ‘Ok’ and ‘Cancel’ cases in that editor). These are, respectively, `editNotesPropAction`, `okPropAction`, `cancelPropAction`.

We define the following actions to handle task’s user property editor:

- `okPropAction` – The stand-alone editor (forwarded to in `editNotesPropAction`) returns to this action when you click ‘Ok’ to apply the edit. It returns on this action passing an `EditorValueHolder` holding the value that was created/edited in the editor. We pass this `_editorValue` in `useFormBean` to avoid creating a copy of this potentially large form bean.
- `cancelPropAction` – This is the action the stand-alone editor (launched from `editNotesPropAction`) calls when the user clicks Cancel in the editor.
- `editNotesPropAction` – This action handles an ‘initiate stand-alone editor’ call that comes from the `GetManagerReview.jsp` and the `worklist:propertyEditor` tag. It (via `editPropActionHelper`) calculates the stand-alone editor’s URI, and then forwards to that URI. This editor is a nested page flow, and returns to this controller (the caller) via

well-known return actions `okPropAction`, and `cancelPropAction`. We pass the `ManagerReviewForm` form bean to avoid it getting recreated in this call.

Using the steps described for adding the actions in [Define Actions on the Page Flow](#) section, add the following actions as shown in [Table 7-2](#).

Table 7-2 Define Action on the Page Flow

| Action Name | Action Template | Form Bean | Forward To |
|----------------------------------|-----------------|---|------------|
| <code>editNotesPropAction</code> | Basic... | <code>ManagerReviewForm</code> | <none> |
| <code>okPropAction</code> | Basic... | <code>com.bea.wli.datatype.EditorValueHolder</code> | <none> |
| <code>cancelPropAction</code> | Basic... | <none> | <none> |

Notes: For adding `com.bea.wli.datatype.EditorValueHolder` you will have to click **Add** button next to the form bean input field. It will open up a search window. Type `EditorValueHolder` and it should find this class. Click on the entry and press **Ok**.

Insert the following code for the three actions mentioned above into your `ManagerReview` page flow controller.

```
private transient com.bea.wli.datatype.EditorValueHolder _editorValue;
// For efficiency

/**
 * This action handles an 'initiate stand-alone editor' call
 * that comes from the GetManagerReview.jsp and the worklist
 * propertyEditor tag. It (via editPropActionHelper) calculates
 * the stand-alone editor's URI, and then forwards to that URI.
 * This editor is a nested page flow, and returns to this
 * controller (the caller) via well-known return actions
 * okPropAction, and cancelPropAction. We pass the managerReviewForm
 * form bean to avoid it getting recreated in this call.
 */
@Jpf.Action(useFormBean="_managerReviewForm")
```

```

public Forward editNotesPropAction(ManagerReviewForm form)
    throws com.bea.wli.worklist.api.ManagementException,
    com.bea.wli.datatype.DataTypeException {
    // Get editable properties from the super class. Note
    // that we could also get these from the UpdateActionForm
    // contained in the super class. The UpdateActionForm is
    // maintained for us by our super
    // class, and contains the editable properties for the
    // task (these are represented as PropertyInstanceHolder)
    // General-purpose task UI can simply use the UpdateActionForm
    // as the form bean for their main page.
    com.bea.wli.worklist.portal.PropertyInstanceHolder[] properties =
        getTaskEditablePropertiesMap().
            values().toArray(new
com.bea.wli.worklist.portal.PropertyInstanceHolder[0]);
    // NOTE: We might store attrs off the propertyEditor tag
    //       here (e.g. hostPage) that would help us to
    //       navigate back to an appropriate page when the edit
    //       is completed (via okPropAction) or aborted (via
    //       cancelPropAction

    // This begins the edit on the property we selected
    // in the JSP page (and the name is set into the HTTP
    // request coming in on this method.
    Forward forward = editPropActionHelper(properties);
    return forward;
}
/**
 * The stand-alone editor (forwarded to in editNotesPropAction)
 * returns to this action when you click 'Ok' to apply the edit.
 * It returns on this action passing an EditorValueHolder holding

```

```

    * the value that was created/edited in the editor. We pass
    * this _editorValue in useFormBean to avoid creating a copy
    * of this potentially large form bean.
    */
@Jpf.Action(loginRequired = true,
            forwards = {
                @Jpf.Forward(name = "backToManagerReview",
                            path = "GetManagerReview.jsp")
            },
            useFormBean = "_editorValue")
protected Forward
okPropAction(com.bea.wli.datatype.EditorValueHolder value)
    throws Exception {
    okPropActionHelper(value);
    return new Forward("backToManagerReview", _managerReviewForm);
}
/**
 * This is the action the stand-alone editor (launched from
 * editNotesPropAction) calls when the user clicks Cancel in
 * the editor.
 * @return
 * @throws Exception
 */
@Jpf.Action(loginRequired = true,
            forwards = {
                @Jpf.Forward(name = "backToManagerReview",
                            path = "GetManagerReview.jsp")
            })
protected Forward cancelPropAction()
    throws Exception {
    cancelPropActionHelper();
}

```

```

        return new Forward("backToManagerReview", _managerReviewForm);
    }

```

Final Code for Page Flow

After completing the above mentioned steps the code for the Page Flow will be as follows:

```

package manager;

import javax.servlet.http.HttpSession;
import org.apache.beehive.netui.pageflow.Forward;
import org.apache.beehive.netui.pageflow.annotations.Jpf;

import com.bea.wli.worklist.portal.PropertyInstanceHolder;
import com.bea.wli.worklist.portal.TaskUIPageFlowController;
@Jpf.Controller(nested = true)
public class ManagerReview extends TaskUIPageFlowController {
    private static final long serialVersionUID = -1579985639L;
    private ManagerReviewForm _managerReviewForm; // To preserve the form
    between requests.

    @Jpf.Action(forwards = { @Jpf.Forward(name = "done", returnAction =
"managerDone") })
    protected Forward done() {
        return new Forward("done");
    }

    /**
     * Initialize this controller, and call the super class
     * helper to initialize stuff we get for free. This includes
     * task context, standard form beans for a task and action,
     * and property editing support.
     */
    @Jpf.Action(forwards = {
        @Jpf.Forward(name="success", path="GetManagerReview.jsp")
    })
    public Forward begin() throws Exception {

```

```

        // Initialize our base class helpers so we can use them
        // throughout this controller
beginActionHelper();
        // Create our ManagerReviewForm, and load it with property
        // values given by our base class helpers
        _managerReviewForm = new ManagerReviewForm();
        _managerReviewForm.setName(
            (String)getTaskPropertiesMap().
                get("Name").getValue());
        _managerReviewForm.setSsn(
            (String)getTaskPropertiesMap().
                get("SSN").getValue());
        _managerReviewForm.setLoanAmount(
            ((Long)getTaskPropertiesMap().
                get("LoanAmt").getValue()).intValue());
        // Get the editable notes property, because we'll
        // use this PropertyInstanceHolder to edit the notes
        // property via Worklist-provided helpers
        PropertyInstanceHolder notesProp =
            getTaskEditablePropertiesMap().
                get("Notes");
        _managerReviewForm.setNotesProp(notesProp);
        return new Forward("success", _managerReviewForm);
    }

    /**
     * Forward to the assets sub form and display the assets
     * we find for the loan applicant.
     */
    @Jpf.Action(forwards = {

```

```

        @Jpf.Forward(name = "success",
                    path = "AssetSummary.jsp")
    }, useFormBean = "_managerReviewForm"
)
public Forward viewAssetSummaryAction(ManagerReviewForm form) {

    AssetSummaryForm assetSummaryForm = new AssetSummaryForm();
    assetSummaryForm.setName(form.getName());
    assetSummaryForm.setSsn(form.getSsn());
    assetSummaryForm.loadSummaryInfo(getSession());

    return new Forward("success", assetSummaryForm);
}
/**
 * Return to the main form after looking at assets.
 */
@Jpf.Action(forwards = {
    @Jpf.Forward(name = "success",
                path = "GetManagerReview.jsp")
})
public Forward returnToManagerReviewAction(AssetSummaryForm form) {
    Forward forward = new Forward("success", _managerReviewForm);
    return forward;
}

/**
we
 * Approve the loan, using the super class helpers. and the properties
 * stored in ManagerReviewForm. We
 * specify the useFormBean attr to keep a single copy
 * of ManagerReviewForm.

```

```

    * NOTE: We could have designed this action to forward to an 'action
    props'
    *       page to collect the properties for the action (instead of
    putting
    *       fields directly on the main form. If we did want a separate
    page,
    *       we could call showStepActionActionHelper to prepare a
    *       TakeStepActionActionForm for us to obtain these properties
    from.
    *       This form is well suited to use with propertyEditor tags in the
    *       action props form.
    * @see
    TaskUIPageFlowController#showStepActionActionHelper(com.bea.wli.worklis
    t.api.tasktype.StepAction)
    * @see
    TaskUIPageFlowController#takeStepActionActionHelper(com.bea.wli.worklis
    t.portal.TakeStepActionActionForm)
    * @see
    TaskUIPageFlowController#isPostActionInteractiveAssignment(java.lang.St
    ring)
    * @see
    TaskUIPageFlowController#takeStepActionAndClaimActionHelper(com.bea.wli
    .worklist.portal.TakeStepActionActionForm, java.lang.String)
    */
    @Jpf.Action(forwards = {
        @Jpf.Forward(name = "success",
            action = "stepDoneAction")
    }, useFormBean="_managerReviewForm")
    public Forward approveLoanAction(ManagerReviewForm form)
        throws Exception {
        // Build a map of the property values we'll pass for the action
        java.util.Map<String, String> propMap
        = new java.util.HashMap<String, String>();
        propMap.put("Notes",
            form.getNotesProp().getEditorValueAsString());
        propMap.put("CollateralAssets", form.getCollateralAssets());

```

```

// Now take the action
this.takeStepAction(getCurrentStep().getName(),
                    "Approve",
                    propMap);

Forward forward = new Forward("success");
return forward;
}

/**
 * Reject the loan, using the super class helpers. We
 * specify the useFormBean attr to keep a single copy
 * of ManagerReviewForm.
 * NOTE: We could have designed this action to forward to an 'action
 props'
 * page to collect the properties for the action (instead of
 putting
 * fields directly on the main form. If we did want a separate
 page,
 * we could call showStepActionActionHelper to prepare a
 * TakeStepActionActionForm for us to obtain these properties
 from.
 * This form is well suited to use with propertyEditor tags in the
 * action props form.
 * @see
TaskUIPageFlowController#showStepActionActionHelper(com.bea.wli.worklis
t.api.tasktype.StepAction)
 * @see
TaskUIPageFlowController#takeStepActionActionHelper(com.bea.wli.worklis
t.portal.TakeStepActionActionForm)
 * @see
TaskUIPageFlowController#isPostActionInteractiveAssignment(java.lang.St
ring)
 * @see
TaskUIPageFlowController#takeStepActionAndClaimActionHelper(com.bea.wli
.worklist.portal.TakeStepActionActionForm, java.lang.String)

```

```

    */
    @Jpf.Action(forwards = {
        @Jpf.Forward(name = "success",
            action = "stepDoneAction")
    }, useFormBean="_managerReviewForm")
    public Forward rejectLoanAction(ManagerReviewForm form)
        throws Exception {
        // Build a map of the property values we'll pass for the action
        java.util.Map<String, String> propMap
            = new java.util.HashMap<String, String>();
        propMap.put("Notes",
            form.getNotesProp().getEditorValueAsString());
        // Now take the action
        this.takeStepAction(getCurrentStep().getName(),
            "Reject",
            propMap);
        Forward forward = new Forward("success");
        return forward;
    }

/**
 * Callback that is invoked when this controller instance is created.
 */
@Override
protected void onCreate() {
}

/**
 * Callback that is invoked when this controller instance is destroyed.
 */
@Override

```

```

protected void onDestroy(HttpSession session) {
}

    private transient com.bea.wli.datatype.EditorValueHolder
_editorValue; // For efficiency

/**
 * This action handles an 'initiate stand-alone editor' call
 * that comes from the GetManagerReview.jsp and the worklist
 * propertyEditor tag. It (via editPropActionHelper) calculates
 * the stand-alone editor's URI, and then forwards to that URI.
 * This editor is a nested page flow, and returns to this
 * controller (the caller) via well-known return actions
 * okPropAction, and cancelPropAction. We pass the managerReviewForm
 * form bean to avoid it getting recreated in this call.
 */
@Jpf.Action(useFormBean="_managerReviewForm")
public Forward editNotesPropAction(ManagerReviewForm form)
    throws com.bea.wli.worklist.api.ManagementException,
    com.bea.wli.datatype.DataTypeException {
    // Get editable properties from the super class. Note
    // that we could also get these from the UpdateActionForm
    // contained in the super class. The UpdateActionForm is
    // maintained for us by our super
    // class, and contains the editable properties for the
    // task (these are represented as PropertyInstanceHolder)
    // General-purpose task UI can simply use the UpdateActionForm
    * we could call showStepActionActionHelper to prepare a
    *       TakeStepActionActionForm for us to obtain these properties
from.
    *       This form is well suited to use with propertyEditor tags in the

```

```

        *          action props form.

        * @see
TaskUIPageFlowController#showStepActionActionHelper(com.bea.wli.worklist
.api.tasktype.StepAction)

        * @see
TaskUIPageFlowController#takeStepActionActionHelper(com.bea.wli.worklist
.portal.TakeStepActionActionForm)

        * @see
TaskUIPageFlowController#isPostActionInteractiveAssignment(java.lang.St
ring)

        * @see
TaskUIPageFlowController#takeStepActionAndClaimActionHelper(com.bea.wli
.worklist.portal.TakeStepActionActionForm, java.lang.String)

    */
    @Jpf.Action(forwards = {
        @Jpf.Forward(name = "success",
            action = "stepDoneAction")
    }, useFormBean="_managerReviewForm")
    public Forward rejectLoanAction(ManagerReviewForm form)
        throws Exception {
        // Build a map of the property values we'll pass for the action
        java.util.Map<String, String> propMap
        = new java.util.HashMap<String, String>();
        propMap.put("Notes",
form.getNotesProp().getEditorValueAsString());
        // Now take the action
        this.takeStepAction(getCurrentStep().getName(),
            "Reject",
            propMap);
        Forward forward = new Forward("success");
        return forward;
    }

/**

```

```

    * Callback that is invoked when this controller instance is created.
    */
@Override
protected void onCreate() {
}

/**
 * Callback that is invoked when this controller instance is destroyed.
 */
@Override
protected void onDestroy(HttpSession session) {
}

    private transient com.bea.wli.datatype.EditorValueHolder
    _editorValue; // For efficiency

/**
 * This action handles an 'initiate stand-alone editor' call
 * that comes from the GetManagerReview.jsp and the worklist
 * propertyEditor tag. It (via editPropActionHelper) calculates
 * the stand-alone editor's URI, and then forwards to that URI.
 * This editor is a nested page flow, and returns to this
 * controller (the caller) via well-known return actions
 * okPropAction, and cancelPropAction. We pass the managerReviewForm
 * form bean to avoid it getting recreated in this call.
 */
@Jpf.Action(useFormBean="_managerReviewForm")
public Forward editNotesPropAction(ManagerReviewForm form)
    throws com.bea.wli.worklist.api.ManagementException,
    com.bea.wli.datatype.DataTypeException {
    // Get editable properties from the super class. Note

```

```

        // that we could also get these from the UpdateActionForm
        // contained in the super class. The UpdateActionForm is
        // maintained for us by our super
        // class, and contains the editable properties for the
        // task (these are represented as PropertyInstanceHolder)
        // General-purpose task UI can simply use the UpdateActionForm
public String getSsn() { return _ssn; }
        public void setSsn(String ssn) { _ssn = ssn; }
        public PropertyInstanceHolder getNotesProp()
{ return _notesProp; }
        public void setNotesProp(PropertyInstanceHolder notesProp)
{ _notesProp = notesProp; }
        public String getCollateralAssets() { return _collateralAssets; }
        public void setCollateralAssets(String collateralAssets) {
            _collateralAssets = collateralAssets; }
    }
    @Jpf.FormBean
    public static class AssetSummaryForm implements java.io.Serializable
    {
private static final long serialVersionUID = 1517513921L;

        private java.util.SortedSet<AssetForm> _assets;
        private int _creditScore;
        private String _name;
        private String _ssn;

        public AssetSummaryForm() {
            _assets = new java.util.TreeSet<AssetForm>();
        }
        public String getName() { return _name; }
        public void setName(String name) { _name = name; }
    }

```

```

    public String getSsn() { return _ssn; }
    public void setSsn(String ssn) { _ssn = ssn; }
    public java.util.SortedSet<AssetForm> getAssets() { return
_assets; }
// NOTE: No setter for assets property. We'll load this internally.
    public int getCreditScore() { return _creditScore; }
// NOTE: No setter for creditScore, we'll load this internally.
    public void loadSummaryInfo(HttpSession session) {
        loadCreditScore(session);
        loadAssets(session);
    }
    public int getTotalActualAssetValue() {
        int total = 0;
        for (AssetForm asset: _assets) {
            total = asset.getActualValue();
        }
        return total;
    }

    protected void loadCreditScore(HttpSession session) {
        // Load the credit scores as properties
        String resourceName =
"/creditRatings/creditRatings.properties";
        java.util.Properties props =
            loadProperties(resourceName, session);
        _creditScore = getIntProperty(props, "_name");
    }
    protected void loadAssets(HttpSession session) {
        // Load the assets as properties
        String resourceName = "/assets/" + _name + ".properties";
        java.util.Properties props =

```

```

        loadProperties(resourceName, session);
        String assetList = props.getProperty("assetList");
        if (assetList != null) {
            java.util.StringTokenizer st = new
java.util.StringTokenizer(assetList, ",");
            while (st.hasMoreTokens()) {
                String assetName = st.nextToken().trim();
                AssetForm asset = new AssetForm();
                asset.setName(assetName);
                int value =
                    getIntProperty(props, assetName + "." + "value");
                asset.setValue(value);
                int amountOwed =
getIntProperty(props, assetName + "." + "amountOwed");
                asset.setAmountOwed(amountOwed);
                _assets.add(asset);
            }
        }
    }
}

```

```

protected java.util.Properties
loadProperties(String resourceName, HttpSession session) {
    // Load the resources as properties
    java.io.InputStream is = null;
    try {
        is = session.getServletContext().
            getResourceAsStream(resourceName);
        java.util.Properties props = new java.util.Properties();
        if (is != null) {
            props.load(is);
        }
    }
}

```

```

        return props;
    } catch (Exception e) {
        // TODO: Better handling
        e.printStackTrace();
    } finally {
        if (is != null) {
            try { is.close(); } catch (Exception e) {
                e.printStackTrace(); }
            }
        }
        return new java.util.Properties();
    }

    private int getIntProperty(java.util.Properties props, String
key) {
        String value = props.getProperty(key);
        if (value == null) {
            return 0;
        }
        return Integer.valueOf(value);
    }

}

@Jpf.FormBean
public static class AssetForm implements java.io.Serializable,
Comparable {
private static final long serialVersionUID = 1491696939L;

private String _name;
private int _value;
private int _amountOwed;

```

```

public int getAmountOwed() {
    return _amountOwed;
}

public void setAmountOwed(int lienValue) {
    _amountOwed = lienValue;
}

public String getName() {
    return _name;
}

public void setName(String name) {
    _name = name;
}

public int getValue() {
    return _value;
}

public void setValue(int value) {
    _value = value;
}

public int getActualValue() {
    return _value - _amountOwed;
}

public int compareTo(Object o) {
    if (!(o instanceof AssetForm)) {
        return 0;
    }
    AssetForm other = (AssetForm)o;
    int otherActualValue = other._value - other._amountOwed;
    return otherActualValue - getActualValue();
}

```

```

    }
}
}

```

Define JSP Pages

According to the screen mockups in [Define Web Page Mock-Up and Flow](#), define two JSP pages for the custom task UI using Beehive NetUI data binding JSP tags to render web forms that can read data from and write data into form beans. The use of these tags greatly simplifies the process of writing a data-driven JSP page.

Create JSP Files

The page flow perspective in Workshop give us a starting point for defining the correct pages. With the actions we defined in previous sections, your `ManagerReview` page flow controller should show two grayed out JSP pages under the 'Pages' node in the page flow explorer:

- `GetManagerReview.jsp`
- `AssetSummary.jsp`

To create the JSP Files

1. In the **Page Flow Explorer**, right-click **Pages**.
2. Select **GetManagerReview.jsp**→**Create** to create the new JSP file
3. Repeat the above steps for **AssetSummary.jsp**.

The default JSP code is as follows:

```

<%@ page language="java" contentType="text/html; charset=UTF-8"%>
<%@taglib uri="http://beehive.apache.org/netui/tags-html-1.0"
prefix="netui"%>
<%@taglib uri="http://beehive.apache.org/netui/tags-databinding-1.0"
prefix="netui-data"%>
<%@taglib uri="http://beehive.apache.org/netui/tags-template-1.0"
prefix="netui-template"%>
<netui:html>
    <head>
        <netui:base/>

```

```
</head>
<netui:body>
    <p>Beehive NetUI JavaServer Page -
    ${pageContext.request.requestURI}</p>
</netui:body>
</netui:html>
```

Fill out these pages by inserting the correct text for our forms in between the `<netui:body/>` tag. It is recommended that you use HTML `<table>` tags to help organize and align these form fields.

Delete the following code from the JSP:

```
<p>Beehive NetUI JavaServer Page - ${pageContext.request.requestURI}</p>
```

Create the Form and Associate it with an Action

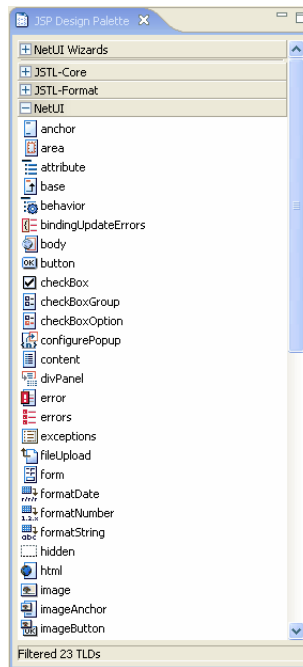
In this step, create a `<netui:form>` element to hold all our JSP data items, then associate that form with an action from our `ManagerReview` page flow controller. This will associate the form with the form bean referenced in the action method. This association will bind the data from our form bean to the data items we'll add to the JSP form.

The general process for adding a NetUI form to a JSP is as follows:

1. If the JSP Design Palette is not visible, go to **Window**→**Show View**→**JSP Design Palette**.

The JSP Design Palette appears (see [Figure 7-11](#)).

Figure 7-11 JSP Design Palette



2. In the **JSP Design Palette**, expand **NetUI** and select **form**.
3. Drag the **form** into your JSP source editor and drop it inside the `<netui:body/>` tag.

When you drop it, the form element is added, something like this: `<netui:form action=" "></netui:form>`

Associate the form with an action on your page flow controller. For this tutorial, you'll associate the form element with an action on our `ManagerReview` page flow controller that takes a form bean as a parameter. This association is very important, as it establishes the action method that will be called when the form is submitted and the Java type of the form bean to associate with the form. The associated form bean then becomes accessible to the NetUI tags in the JSP code by using the `value` and `dataSource` attributes of those tags. These attributes refer to properties on the form bean via JSP expressions like this:

```
actionForm.<property on form bean>
```

and the form bean defines a pair of methods of the form:

```
<Java type for property> get<Property name>()
```

```
void set<Property name>(<Java type for property> value)
```

We'll show examples of this for the individual web pages we define.

GetManagerReview.jsp

4. Double-click **GetManagerReview.jsp** and open it in the source editor.
5. Drag the **form** from **NetUI** to the **GetManagerReview.jsp** and set the action for that form to **approveLoanAction**. The fact that `approveLoanAction` takes a form bean parameter of `ManagerReviewForm` type generates the association, within the form tag in `GetManagerReview.jsp` only, that:

```
actionForm.<property> -> Call method ManagerReviewForm.get<property>
```

6. The instance of `ManagerReviewForm` that is used to make this call is the instance passed in the `Forward` object that forwarded to this page. In the `ManagerReview.java` page flow code, the following happens from these actions:
 - `begin()Add Data Binding Fields`
 - `returnToManagerReviewAction()`
 - `okPropAction()`
 - `cancelPropAction()`

All of these actions should return a `Forward` containing a `ManagerReviewForm` instance.

The JSP Code should be as shown below:

```
<%@ page language="java" contentType="text/html; charset=UTF-8"%>
<%@taglib uri="http://beehive.apache.org/netui/tags-html-1.0"
prefix="netui"%>
<%@taglib uri="http://beehive.apache.org/netui/tags-databinding-1.0"
prefix="netui-data"%>
<%@taglib uri="http://beehive.apache.org/netui/tags-template-1.0"
prefix="netui-template"%>
<netui:html>
    <head>
        <netui:base/>
    </head>
    <netui:body>
<netui:form action="approveLoanAction"></netui:form>
    </netui:body>
```

```
</netui:html>
```

AssetSummary.JSP

We'll create a `<netui:form>` and set the action for that form to be `returnToManagerReviewAction`. Remember that `returnToManagerReviewAction` looks like this:

```
@Jpf.Action(forwards = {
    @Jpf.Forward(name = "success",
        path = "GetManagerReview.jsp"),
    @Jpf.Forward(name = "success2",
        path = "GetManagerReview2.jsp")
})
public Forward returnToManagerReviewAction(AssetSummaryForm form) {
    Forward forward = new Forward("success", _managerReviewForm);
    return forward;
}
```

The fact that `returnToManagerReviewAction` takes a form bean parameter of `AssetSummaryForm` type generates the association, within the form tag in `AssetSummary.jsp` only, that::

```
actionForm.<property> -> Call method AssetSummaryForm.get<property>
```

The instance of `AssetSummaryForm` that is used to make this call is the instance passed in the `Forward` object that forwarded to this page. In our `ManagerReview.java` page flow code, the `AssetSummary.jsp` is reached from these actions:

The JSP Code should be as shown below:

```
<%@ page language="java" contentType="text/html; charset=UTF-8"%>
<%@taglib uri="http://beehive.apache.org/netui/tags-html-1.0"
prefix="netui"%>
<%@taglib uri="http://beehive.apache.org/netui/tags-databinding-1.0"
prefix="netui-data"%>
<%@taglib uri="http://beehive.apache.org/netui/tags-template-1.0"
prefix="netui-template"%>
<netui:html>
    <head>
```

```

        <netui:base/>
    </head>
    <netui:body>
        <netui:form action="returnToManagerReviewAction"></netui:form>
    </netui:body>
</netui:html>

```

Add Data-binding Fields

NetUI data binding JSP tags automate the work needed to fetch data out of a form bean for display in a JSP page, and to set data into a form bean as a result of submitting a `<netui:form>`. All NetUI data binding tags have an attribute that associates them with a property on a form bean. In some tags (e.g. `<netui:label>`) the attribute is named 'value'. On others (e.g. `<netui-data:repeater>`) the attribute is named 'dataSource'. These attributes use a different syntax for defining the property expression. If the attribute is `dataSource`, the syntax is:

```
actionForm.<property>
```

If the attribute is anything else (e.g. `value` on `<netui:label>`) the syntax is:

```
${actionForm.<property>}
```

We use `actionForm` references in the following JSP code to bind properties from our `ManagerReviewForm` to the JSP page. You can drag and drop the appropriate tags from the JSP Designer palette to the JSP code to arrive at these results. Note that some of the tags come from the NetUI menu, and others from the NetUI-Data menu (e.g. `repeater`). The final code for our JSP files are given in the sections below:

Final Code GetManagerReview.jsp

```

<%@ page language="java" contentType="text/html; charset=UTF-8" %>
<%@taglib uri="http://beehive.apache.org/netui/tags-html-1.0"
prefix="netui" %>
<%@taglib uri="http://beehive.apache.org/netui/tags-databinding-1.0"
prefix="netui-data" %>
<%@taglib uri="http://beehive.apache.org/netui/tags-template-1.0"
prefix="netui-template" %>

```

```

<netui:html>
  <head>
    <netui:base/>
  </head>
  <netui:body>
    <netui:form action="approveLoanAction">
      <table>
        <tr>
          <td><netui:label value="Customer Name:"/></td>
          <td><netui:label value="{actionForm.name}"/></td>
        </tr>
        <tr>
          <td><netui:label value="SSN:"/></td>
          <td><netui:label value="{actionForm.ssn}"/></td>
        </tr>
        <tr>
          <td><netui:label value="Loan Amount:"/></td>
          <td><netui:label value="{actionForm.loanAmount}"/></td>
        </tr>
        <tr>
          <td colspan="2">
            <!-- We'll edit this property using a plain-old
              NetUI actionForm binding (Note the netui:textBox
              tag) -->
            <netui:label value="Collateral Assets:"/>
            <netui:textBox
              dataSource="actionForm.collateralAssets"/>

```

```

        </td>
    </tr>
</table>
</netui:form>
</netui:body>
</netui:html>

```

Notice that we don't have any tags to handle the Notes property. We cover this separately here because we'll use a custom Worklist tag called `propertyEditor` to allow us to use the property editing framework offered by Worklist. Insert the following code before the last `<tr>` element in the table above (the one that holds the `CollateralAssets` property elements)

```

<tr>
    <td colspan="2">
        <!-- This shows how to use the propertyEditor tag.
            It will show a label, a summary value, and a
            link to a stand-alone editor if available. This
            tag also allows editing the property value
            in-place.
            NOTE: We set the hostPage attr to facilitate
                navigating back to this page after editing
                a property
            NOTE: We need an action defined on the controller
                that has the name given in the actionName attr
        -->
        <netui:label value="Reason for Action:"/>
        <worklist:propertyEditor
dataSource="actionForm.notesProp"
                                propName="Notes"
                                readOnly="false"

```

```

        hostPage="GetManagerReview.jsp"
        actionName="editNotesPropAction" />
    </td>
</tr>

```

To make the `<worklist:propertyEditor>` tag reference legal, we must define the `worklist` prefix to map to the correct URI for the `Worklist` tags. Add this to the end of the `taglib` statements at the top of the JSP file:

```

<%@taglib uri="http://bea.com/wli/worklist/tags-worklist-1.0"
prefix="worklist"%>

```

The `propertyEditor` tag is bound to `actionForm.notesProp` which is of type `PropertyInstanceHolder`. This binding allows the `propertyEditor` tag to retrieve an editable property value for the property, determine its property type (one of the `Worklist`-defined types), find the registered stand-alone editor for that type, and pass the editable value to the stand-alone editor.

Note: The `propertyEditor` tag refers to our `editNotesPropAction`. This action will be called when launching the stand-alone editor for the property. It is not apparent here, but our code in the `ManagerReview` page flow controller also includes two ‘return’ action methods that allow the stand-alone editor to return to the calling page flow when its `Ok` and `Cancel` buttons are clicked. These actions are `okPropAction`, and `cancelPropAction`, respectively.

Final Code Asset Summary.jsp

The final code for `Asset Summary.jsp` is as follows:

```

<%@ page language="java" contentType="text/html; charset=UTF-8" %>
<%@taglib uri="http://beehive.apache.org/netui/tags-html-1.0"
prefix="netui"%>
<%@taglib uri="http://beehive.apache.org/netui/tags-databinding-1.0"
prefix="netui-data"%>
<%@taglib uri="http://beehive.apache.org/netui/tags-template-1.0"
prefix="netui-template"%>

```

```

<netui:html>
  <head>
    <netui:base/>
  </head>
  <netui:body>
    <netui:form action="returnToManagerReviewAction">
      <table>
        <tr>
          <td colspan="2"><netui:label value="Assets for
${actionForm.name}"/></td>
        </tr>
        <tr>
          <netui-data:repeater dataSource="actionForm.assets">
            <netui-data:repeaterHeader>
              <table border="1">
                <tr>
                  <td>Name</td>
                  <td>Value</td>
                  <td>Amount Owed</td>
                <td>Actual Value</td>
              </tr>
            </netui-data:repeaterHeader>
            <netui-data:repeaterItem>
              <tr>
                <td><netui:label
value="${container.item.name}"/></td>
                <td><netui:label
value="${container.item.value}"/></td>

```

```

                <td><netui:label
value="\${container.item.amountOwed}"/></td>
                <td><netui:label
value="\${container.item.actualValue}"/></td>
            </tr>
        </netui-data:repeaterItem>
        <netui-data:repeaterFooter>
            </table>
        </netui-data:repeaterFooter>
    </netui-data:repeater>
</tr>
<tr>
    <td><netui:label value="Credit Score:"/></td>
    <td><netui:label value="\${actionForm.creditScore}"/></td>
</tr>
</table>
</netui:form>
</netui:body>
</netui:html>

```

Add Command Links and Buttons

Add `<netui:button>` elements to navigate between forms and to take actions on the task they represent.

GetManagerReview.jsp

Insert the following code before/above the `<tr>` element containing the `<worklist:propertyEditor>` tag. This code renders an action button in our GetManagerReview page that when clicked, will call the viewAssetSummary action, and forward the user to the AssetSummary page.

```

<tr>
    <td colspan="2">

```

```

        <netui:button value="View Asset Summary"
                    action="viewAssetSummaryAction" />
    </td>
</tr>

```

and then insert this code before the ending </table> tag

```

<tr>
    <td colspan="2">
        <netui:button value="Approve"
                    action="approveLoanAction" />
        <p />
        <netui:button value="Reject" action="rejectLoanAction" />
    </td>
</tr>

```

This renders buttons that allow the Loan Manager to take the Approve and Reject actions on the task (via the approveLoanAction and rejectLoanAction action methods on the page flow).

Asset Summary.jsp

Insert the following code before the end table tag (</table>):

```

<tr>
    <td colspan="2"><netui:button value="Back" />
</tr>

```

This renders a 'Back' button to take the Loan Manager back to the Manager Review page. Note that there is no action attribute here. In this case, the action from the form (returnToManagerReviewAction) is taken.

Final JSP Code

The final jsp code for GetManagerReview.jsp is shown below:

```

<%@ page language="java" contentType="text/html; charset=UTF-8" %>

```

```

<%@taglib uri="http://beehive.apache.org/netui/tags-html-1.0"
prefix="netui"%>

<%@taglib uri="http://beehive.apache.org/netui/tags-databinding-1.0"
prefix="netui-data"%>

<%@taglib uri="http://beehive.apache.org/netui/tags-template-1.0"
prefix="netui-template"%>

<%@taglib uri="http://bea.com/wli/worklist/tags-worklist-1.0"
prefix="worklist"%>

<netui:html>

    <head>

        <netui:base/>

    </head>

    <netui:body>

        <netui:form action="approveLoanAction">

            <table>

                <tr>

                    <td><netui:label value="Customer Name:" /></td>

                    <td><netui:label value="{actionForm.name}" /></td>

                </tr>

                <tr>

                    <td><netui:label value="SSN:" /></td>

                    <td><netui:label value="{actionForm.ssn}" /></td>

                </tr>

                <tr>

                    <td><netui:label value="Loan Amount:" /></td>

                    <td><netui:label value="{actionForm.loanAmount}" /></td>

                </tr>

                <tr>


```

```

        <td colspan="2">
            <netui:button value="View Asset Summary"
action="viewAssetSummaryAction"/>
        </td>
    </tr>
    <tr>
        <td colspan="2">
            <!-- This shows how to use the propertyEditor tag.
                It will show a label, a summary value, and a
                link to a stand-alone editor if available. This
                tag also allows editing the property value

```

in-place.

NOTE: We set the `hostPage` attr to facilitate navigating back to this page after editing a property

NOTE: We need an action defined on the controller that has the name given in the `actionName` attr

```

-->
<netui:label value="Reason for Action:"/>
<worklist:propertyEditor hostPage="GetManagerReview.jsp"
    dataSource="actionForm.notesProp"
    propName="Notes"
    readOnly="false"
    actionName="editNotesPropAction"/>
</td>
</tr>
<tr>
    <td colspan="2">

```

```

        <!-- We'll edit this property using a plain-old
            NetUI actionForm binding (Note the netui:textBox
            tag) -->
        <netui:label value="Collateral Assets:"/>
        <netui:textBox dataSource="actionForm.collateralAssets"/>
    </td>
</tr>
<tr>
    <td colspan="2">
        <netui:button value="Approve" action="approveLoanAction"/><p/>
        <netui:button value="Reject" action="rejectLoanAction"/>
    </td>
</tr>
</table>
</netui:form>
</netui:body>
</netui:html

```

The final jsp code for AssetSummary.jsp is shown below:

```

<%@ page language=" java" contentType="text/html; charset=UTF-8" %>
<%@taglib uri="http://beehive.apache.org/netui/tags-html-1.0"
prefix="netui" %>
<%@taglib uri="http://beehive.apache.org/netui/tags-databinding-1.0"
prefix="netui-data" %>
<%@taglib uri="http://beehive.apache.org/netui/tags-template-1.0"
prefix="netui-template" %>

<netui:html>
    <head>

```

```

        <netui:base/>
    </head>
    <netui:body>
        <netui:form action="returnToManagerReviewAction">
            <table>
                <tr>
                    <td colspan="2"><netui:label value="Assets for
    ${actionForm.name}"/></td>
                </tr>
                <tr>
                    <netui-data:repeater dataSource="actionForm.assets">
                        <netui-data:repeaterHeader>
                            <table border="1">
                                <tr>
                                    <td>Name</td>
                                    <td>Value</td>
                                    <td>Amount Owed</td>
                                <td>Actual Value</td>
                                </tr>
                            </netui-data:repeaterHeader>
                            <netui-data:repeaterItem>
                                <tr>
                                    <td><netui:label
    value="\${container.item.name}"/></td>
                                    <td><netui:label
    value="\${container.item.value}"/></td>
                                    <td><netui:label
    value="\${container.item.amountOwed}"/></td>
                                </tr>
                            </netui-data:repeaterItem>
                        </netui-data:repeater>
                    </td>
                </tr>
            </table>
        </netui:form>
    </netui:body>
</html>

```

```

                <td><netui:label
value="{container.item.actualValue}"/></td>
            </tr>
        </netui-data:repeaterItem>
    <netui-data:repeaterFooter>
        </table>
    </netui-data:repeaterFooter>
</netui-data:repeater>
</tr>
<tr>
    <td><netui:label value="Credit Score:"/></td>
    <td><netui:label value="{actionForm.creditScore}"/></td>
</tr>
<tr>
    <td colspan="2"><netui:button value="Back" />
</tr>
</table>
</netui:form>
</netui:body>
</netui:html>

```

Register the Custom UI

After designing the custom task UI for the Manager Review Pending step of the Loan Approval task plan. You need to register the custom task UI to be applied under those circumstances, by adding mapping entries to a registry file located in our LoanWeb web project, at the following location:

```
LoanWeb/WebContent/WEB-INF/task-ui-registry.xml
```

This XML file is associated with the schema for the Worklist Task UI Registry, and this schema is registered with Workshop. You will have to edit this file in Workshop. Open the file, and you'll

see an editor with Design and Source tabs. In the source tab, the initial contents should look something like this:

```
<task-ui-registry xmlns="http://www.bea.com/wli/worklist/taskuiregistry">
</task-ui-registry>
```

In the design tab, you can right-click any node in the tree view to act on it. You can delete nodes, and add children to nodes.

To register our custom task UI, we need the following information:

- Task Plan ID – The ID of the task plan for which the custom task UI applies, in external format (e.g. /<path>/<task plan name>:<version>)
- Step Name – Required only when registering the custom task UI for a specific step. In this case, give the name of the step as it is defined in the task plan with the ID given above.
- Custom Task UI URI – The web URI of the page flow controller that will control the UI to be applied to this task plan (and possibly step if Step Name is given)

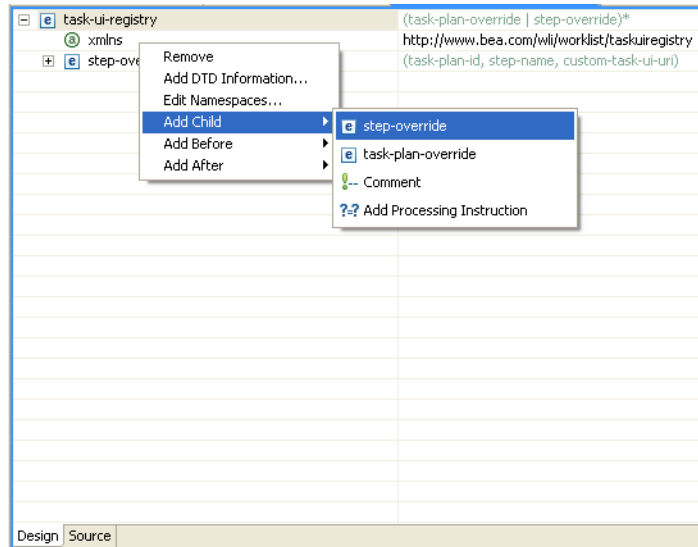
For this tutorial , the required information is:

- Task Plan ID - /Loans/Loan Approval:1.0
- Step Name – Manager Review Pending
- Custom Task UI URI - /manager/ManagerReview.jpf

The URI ends with .jpf, even though our page flow controller file is really ManagerReview.java. This is needed to allow servlet filters in the LoanApp web application to fire correctly. To finish editing task-ui-registry.xml first switch to the Package Explorer view and then do the following in the design tab of the editor:

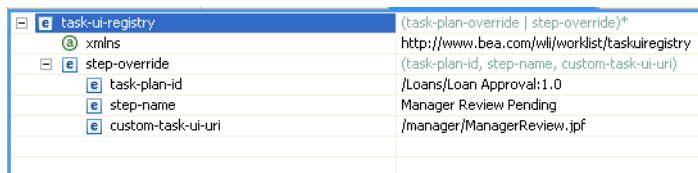
- 1.
1. In the Package Explorer, expand **LoanWeb** and go to **/WebContent/WEB-INF/**, and select **task-ui-registry.xml**.
2. Right-click **task-ui-registry.xml**, and select **Add Child** → **step-override**. This adds a new step-override element under the root element (see [Figure 7-12](#)).

Figure 7-12 Adding Child



3. Expand the newly added step-override element. You'll see three elements under it called, respectively, task-type-id, step-name, and custom-task-ui-uri. These all are set to default values.
4. For each of these three elements, click on the right-hand value column, and replace the default values with the l value discussed above (see [Figure 7-13](#)).

Figure 7-13 Edited XML



Deploy the Custom Task UI

1. On the Package Explorer pane, select and right-click on **Loan_Web**.
2. Click **Run As**→**Run On Server**.
3. In the **Define a New Server** dialog box, accept the default settings and click **Next**.

4. Browse and select the myworklist domain, which you created using the Configuration Wizard. It is located at `\user_projects\domains\myworklist`.
5. Click **Finish**.

Validate the Custom UI

To validate the Custom Task UI we use the following scenario:

- “Assigned loanOfficer Forwards Loan to his Manager”
- “Assigned loanManager Rejects the Loan.”

Configure users and groups

See [Configure Users and Groups for Loan Processing](#).

Create a Loan Approval Task

1. Log in to the **Loan_Web** project using the following credentials:
Username: weblogic
Password: weblogic
2. The Home page is displayed with the portlets for the Inbox of overdue, upcoming, and assigned tasks, along with the portlet that allows you to create a new task.
3. Click the **/Loan/loan_approval 1.0** option in the Create Task portlet. The **Create New Task** page is displayed.
4. Enter the name **Loan for John Smith** as the **Task Name**.
5. Enter the following information:
 - Name- John Smith
 - LoanAmt - 20000
 - SSN- 111-11-1111
6. Click **Create Task**. The task is created and shows up in the Upcoming Tasks portlet on the home page.
7. Click **Logout** to close and log out as weblogic from the Worklist User Portal.

Assigned loanOfficer Forwards Loan to his Manager

1. Log in to the **Loan_Web** project using the following credentials:

Username: John

Password: password

2. Click **Loan for John Smith** in the Upcoming Tasks portlet. This will display the Task Work page with the task details, and the Action options available for user John (Figure 7-14).

Figure 7-14 Task Detail Information

The screenshot shows the 'Task Work' page for a loan task. The page title is 'Work on 'Loan for John Smith' in 'OfficerReviewPending' Step'. The page is divided into several sections:

- TASK GENERAL INFORMATION:**
 - Task Name: Loan for John Smith
 - Current Step: OfficerReviewPending
 - Comment:
 - Priority: 1
 - Owner: weblogic
 - Claimant: John
 - Current Assignee(s): Groups [loanOfficer]
- PROPERTIES:**

| | | |
|-------------------|-------------|-------------------|
| Collateral Assets | (null) | Collateral Assets |
| LoanAmt | 20000 | LoanAmt |
| Name | 111-11-1111 | Name |
| Notes | (null) | Notes |
| SSN | John Smith | SSN |
- ACTIONS:**
 - Approve
 - Reject
 - Request Manager Review

At the bottom of the page, there are four buttons: 'Next >', 'Edit / View Details', 'History', and 'Cancel'. The footer of the page reads '© Copyright 2007, BEA Systems'.

3. Select **Request Manager Review** in the Actions section to forward the request to the loan managers group for approval, and click **Next**.
4. In the Key Action Properties of the refreshed web page that appears, enter the String **Good Guy**.
5. Click **Submit** to complete the task.
6. As the loan has been send to the manager for approval, the task instance will no longer appear in John's Inbox.

7. Logout as user John from the Worklist User Portal.

Assigned loanManager Rejects the Loan.

Before creating a task instance for the new task plan, log into the Loan_web project using the following credentials:

Username: Mary

Password: password

Mary will see the 'Loan for John Smith' task in her Inbox. Click this task, the resulting page is the custom task UI page flow we defined above (see [Figure 7-15](#)).

Figure 7-15 View Asset Summary



The screenshot shows a web browser window with the title 'BEA WEBLOGIC WORKLIST'. The page has a navigation bar with 'Home', 'Task List', and 'Work on Task'. The main content area is titled 'Task Work' and displays the following information:

- Customer Name: John Smith
- SSN: 111-11-1111
- Loan Amount: 20000

Below this information is a 'View Asset Summary' button. Underneath, there is a 'Reason for Action' field containing 'Good guy' and an 'Edit Text...' link. There is also a 'Collateral Assets' field. At the bottom of the form are 'Approve' and 'Reject' buttons.

1. From the Manager Review Page, click **View Asset Summary**.

This displays John Smith's asset as shown in [Figure 7-16](#).

Figure 7-16 Asset Summary



The screenshot shows a web browser window with the title 'BEA WEBLOGIC WORKLIST'. The page has a navigation bar with 'Home', 'Task List', and 'Work on Task'. The main content area is titled 'Task Work' and displays the following information:

Assets for John Smith

| Name | Value | Amount Owed | Actual Value |
|------|--------|-------------|--------------|
| Home | 300000 | 290000 | 10000 |
| Car | 20000 | 19000 | 1000 |

Credit Score:
Back

This table lists John Smith's assets, and their actual value (in descending order). Mary looks at this information, and realizes John Smith has only \$10,000 in assets, and low credit score (100). Mary decides to reject this loan by performing the following steps:

2. Click **Back** in the Asset Summary Page, to return to the Manager Review form.
3. Enter Insufficient assets and low credit score in Reason for Action.
4. Click **Reject** as shown in [Figure 7-17](#), and the loan application is rejected by the manager. This puts the task in an aborted state and removes it from Mary's Upcoming task portlets.

Figure 7-17 Loan Reject

The screenshot shows the 'Task Work' form in the BEA WebLogic Worklist. The form displays the following information:

- Customer Name: John Smith
- SSN: 111-11-1111
- Loan Amount: 150000

Below the information, there is a 'View Asset Summary' button. The 'Reason for Action' field contains the text 'Insufficient assets and low' and has an 'Edit Text...' link. The 'Collateral Assets' field is empty. At the bottom of the form, there are 'Approve' and 'Reject' buttons.

